

ifm electronic



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<i>ifm – the company</i>	6 - 7	
<i>General information</i>	8 - 9	
<i>Standards and approvals / list of articles</i>	10 - 54	
<i>Sensors for special applications</i>	55 - 59	
<i>Position sensors</i>	60 - 320	
<i>Sensors for motion control</i>	322 - 358	
<i>Industrial imaging</i>	360 - 378	
<i>Safety technology</i>	380 - 425	
<i>Process sensors</i>	426 - 561	
<i>Industrial communication</i>	562 - 610	
<i>Identification systems</i>	612 - 633	
<i>Condition monitoring systems</i>	634 - 654	
<i>Systems for mobile machines</i>	656 - 700	
<i>Connection technology</i>	702 - 790	
<i>Power supplies</i>	792 - 802	
<i>ifm – worldwide addresses</i>	804 - 807	

The company in your vicinity.



State-of-the-art communication.

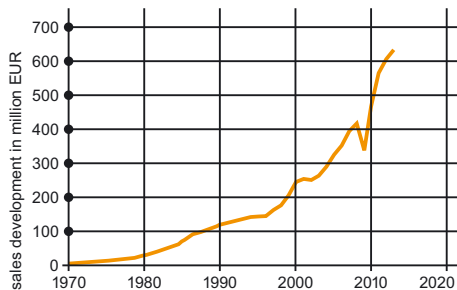
With the right address – www.ifm.com – only a mouse click separates you from the world of automation technology. See the power of our products in interactive representations. Gain an impression with 3-dimensional views of our units. Download CAD drawings for direct integration in your applications. Or order online in ifm's e-shop – fast, convenient and reliable.

We are there for you.

Close contact with our customers is part of our success. Therefore we have consistently developed our sales network right from the start. Today the ifm group of companies is represented in more than 70 countries – close to you! With application advice and service at the heart of our operation. For the introduction of new products and technologies we support you with workshops and seminars in our training centres or in your plant.

Security by success.

Since its foundation in 1969 ifm has constantly grown, now having more than 5200 employees worldwide, and achieved a turnover of more than EUR 663 million in 2014. This success gives you the security of having a reliable partner for the implementation of your automation projects. Comprehensive service and a warranty of 5 years on standard units are just two examples of this reliability.



Turnover development since 1970.



Not only components.

ifm stands for a large range of different sensors and systems for automation. Our range of more than 7,800 articles guarantees flexibility and compatibility. So there is always a reliable solution for your automation projects – from the individual sensor with practical accessories to the complete system.

Availability guaranteed.

Your deadlines matter to us. That is why we are constantly optimising our production processes in order to be able to quickly and flexibly produce large quantities at a constantly high quality – and to continue to shorten delivery times. Your order is dispatched via our centralised logistics centre reliably and on time.

Quality as part of our philosophy.

The quality standard of our products is an integral part of our company philosophy. And we guarantee it! So we provide you, the users, with a maximum degree of security: By means of our own production technology, ifm film technology, as well as by means of extensive quality assurance measures such as 100 % final testing. By quality we understand, for example, ecologically conscious production – Made in Germany!

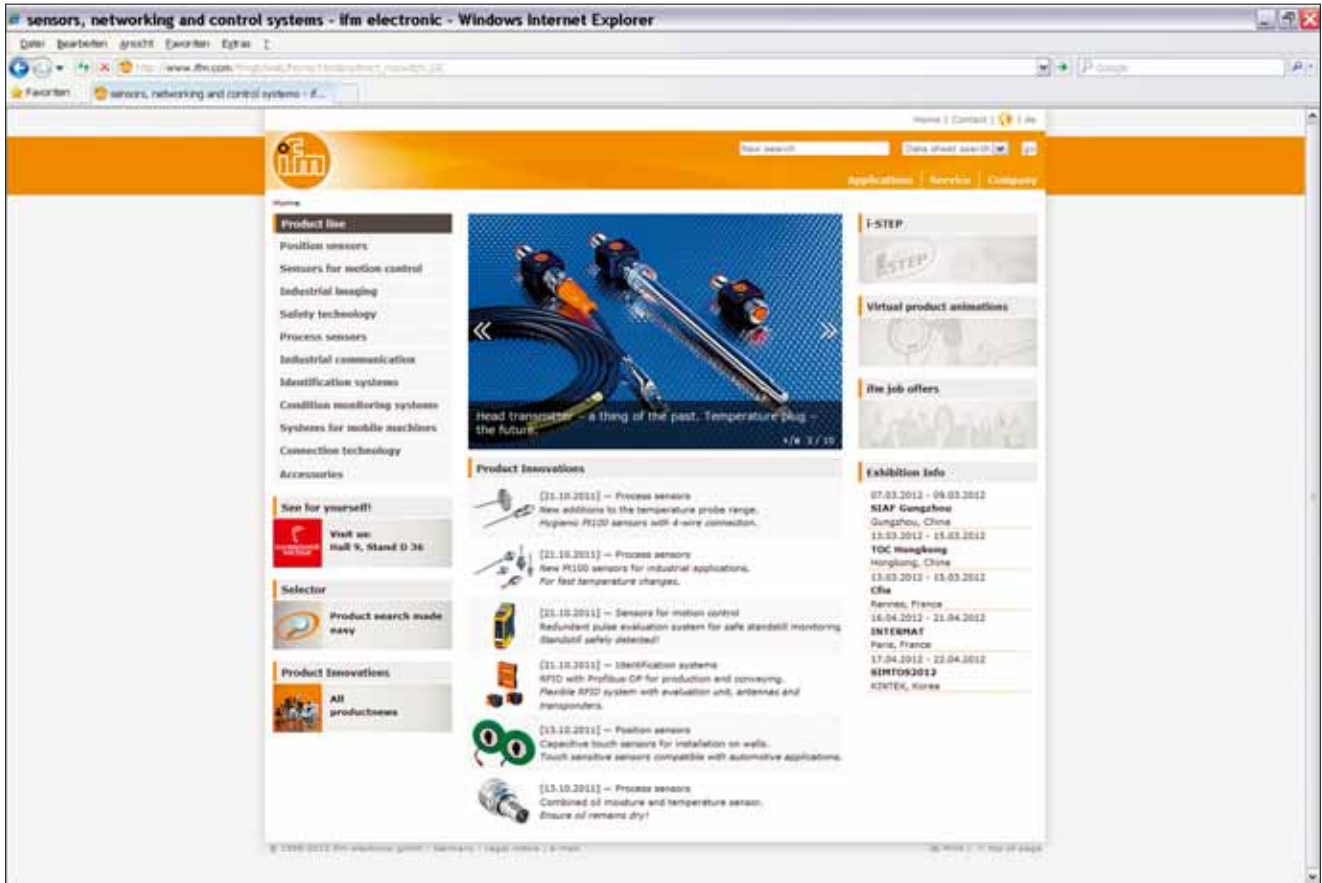


The development of innovative products is one of our core competences. From high-quality standard solutions to products specially tailored to the requirements of the individual industries – from mobile machines to the food industry.



www.ifm.com

Information around the clock and around the globe in 23 languages on the internet.



• **Information**

- product innovations
- company news
- exhibition info
- locations
- jobs

• **Documentation**

- data sheets
- operating instructions
- manuals
- approvals
- CAD data

• **Communication***

- request for documents
- recall service
- live advice
- newsletter

• **Selection**

- interactive product selection aids
- configuration tools
- data sheet direct

• **Animation**

- virtual product animations
- flash movies (video sequences)

• **Application**

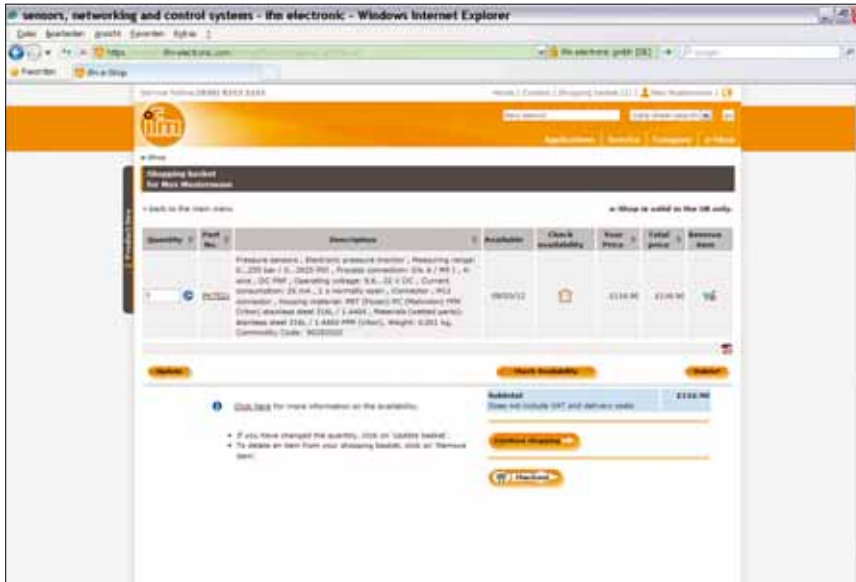
- applications
- product recommendations
- calculation aids

• **Transaction***

- e-shop processing
- e-procurement catalogues

*Some offered information is available country-specific

Convenient order processing via the e-shop** on the internet.



Secured authentication

Customer-related price indication

Real time availability check

Personal product favourites

Online parcel tracking

Individual order history

Convenient quick input form

Simple order processing

Management of shipping addresses

Confirmations by e-mail



ifm application database

ifm's automation technology is used to for applications in many different types of plant in almost all industries. Learn how ifm can improve your production. Application examples can be found on our website at: www.ifm.com/gb/applications

** Already available in many countries.

3A



3A Sanitary Standards, Inc. (3-A SSI) is an independent, not-for-profit corporation dedicated to advancing hygienic equipment design for the food, beverage, and pharmaceutical industries.

AS-i



Actuator-Sensor Interface. Bus system for the first binary field level.

ATEX



Atmosphère Explosible. ATEX comprises the directives of the European Union in the field of explosion protection. On the one hand there is the 94/9/EC ATEX product directive and on the other hand the 1999/92/EC ATEX operation directive.

CCC



CCC (China Compulsory Certification) is a compulsory Chinese certification for certain products put on the market in China. Which products are concerned is specified in a catalogue created by the Chinese authorities.

cCSAus



Testing of a product by CSA according to the safety standards applicable in Canada and the USA.

CE



Conformité Européenne. By affixing the CE marking to a product, the manufacturer declares that it meets EU safety, health and environmental requirements.

cRUus



Testing of components by UL according to the safety standards applicable in Canada and the USA. Components can be used when the "condition of acceptability" is complied with for the final product.

CSA



Canadian Standards Association. A non-governmental Canadian organisation that sets standards and tests and certifies products for their reliability. By now it is active worldwide.

cULus



Testing of components by UL according to the safety standards applicable in Canada and the USA.

DIBt (WHG)



Deutsches Institut für Bautechnik (Federal Water Act). The Federal Water Act (WHG) is the essential part of the German law relating to water. It contains provisions for the protection and use of surface water and ground water and also regulations about the expansion of waters, water planning and flood protection.

DKD



The Deutscher Kalibrierdienst (DKD) is an association of calibration laboratories of industrial firms, research institutes, technical authorities, inspection and testing institutes. The DKD calibration certificates prove traceability to national standards as required in ISO 9000 and ISO / IEC 17025. They also serve as a metrological basis for the control of measurement and test equipment within the framework of quality management.

e1



Approval by the Kraftfahrt-Bundesamt (German Federal Motor Transport Authority). The e1 type approval by the German Federal Motor Transport Authority certifies that the units comply with the automotive standards. Units with this marking are allowed to be mounted on vehicles without expiry of their operating permit.

EG 1935/2004

The Regulation EC 1935/2004 has been taken into account for process sensors from ifm which are intended for use in contact with food. You can obtain a list of the corresponding products and detailed information on request.

EHEDG



European Hygienic Engineering & Design Group. European supervisory authority for food and drugs. This authority grants approvals for products and materials used in the food and pharmaceutical industries.

FDA



Food and Drug Administration. US-American supervisory authority for food and drugs. This authority grants approvals for products and materials used in the food and pharmaceutical industries.

FM



Factory Mutual Research. A US-based insurance company that specializes in loss prevention services in the property insurance market sector. They provide material research, material testing and certifications in the field of fire and explosion protection.

PROFIBUS



Process Field Bus. Fieldbus system for important data quantities. It is available in several versions such as Profibus FMS, DP or PA. Profibus DP can be used over longer distances, e.g. as fieldbus for AS-i.

TÜV



Technischer Überwachungs Verein (technical inspection association). The German TÜV is a private-sector body carrying out technical safety tests that are stipulated by government laws or instructions.

UL



Underwriters Laboratories. An organisation founded in the USA for testing and certifying products and their safety.

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
AC0017	CE	310, 554	AC1366	CE, CUL	564
AC0019	CE	310, 554	AC1375	CE, CUL	565
AC0015	CE, CUL	420, 604	AC1376	CE, CUL	565
AC0020	CE	310, 554	AC1401	CE, CUL, PI	565
AC0021	CE	310, 554	AC1402	CE, CUL, PI	565
AC0022	CE	310, 554	AC1411	CE, CUL, PI	565
AC0023	CE	310, 554	AC1412	CE, CUL, PI	565
AC0025	CE, CUL	420, 604	AC1421	CE, CUL	565
AC0035	CE, CUL	420, 604	AC1422	CE, CUL	566
AC0045	CE, CUL	420, 604	AC2032	CE	579
AC0065	CE	421, 605	AC2035	CE	579
AC0075	CE, CUL	420, 604	AC2055	CE, CUL	592
AC0095	CE, CRUUS	420, 604	AC2057	CE	592
AC0105	CE, CUL	421, 605	AC2086	CE	575
AC0115	CE	423, 566	AC2087	CE	575
AC0116	CE	423, 566	AC2088	CE	575
AC0115	CE, CUL	421, 605	AC2211	CE	570
AC0125	CE, CUL	421, 605	AC2212	CE	570
AC0155	CE, CRUUS	421, 605	AC2216	CE, CUL	573
AC0165	CE, CUL	421, 605	AC2217	CE, CUL	573
AC0305	CE, CUL	420, 604	AC2218	CE, CUL	573
AC0325	CE, CUL	420, 604	AC2219	CE, CUL	573
AC0340		565	AC2220	CE, CUL	573
AC0350		607	AC2225	CE	602
AC0351		607	AC2250	CE, CRUUS	572
AC0352		607	AC2251	CE, CRUUS	573
AC0415	CE, CUL	420, 604	AC2252	CE, CRUUS	572
AC1145	CE	602	AC2254	CE, CRUUS	572
AC1146	CE	602	AC2255	CE, CRUUS	572
AC1147	CE, CUL	602	AC2256	CE, CRUUS	572
AC1154	CE	583	AC2257	CE, CRUUS	573
AC1220	CE, CRUUS, CUL	800	AC2258	CE, CRUUS	573
AC1221	CE, CRUUS, CUL	800	AC2259	CE, CRUUS	573
AC1250	CE, CRUUS	566	AC2264	CE, CRUUS	573
AC1253	CE, CRUUS, CUL	570, 801	AC2267	CE, CRUUS	573
AC1254	CE, CRUUS, CUL	570, 800	AC2310	CE, CUL	598
AC1256	CE, CRUUS, CUL	570, 800	AC2315	CE, CUL	307, 551
AC1257	CE, CUL	570, 801	AC2316	CE, CUL	307, 551
AC1258	CE, CRUUS, CUL	570, 800	AC2317	CE, CUL	307, 551
AC1318	CE, CUL	564	AC2402	CE, CUL	577
AC1324	CE, CUL	564	AC2403	CE, CUL	577
AC1327	CE, CUL	564	AC2410	CE, CUL	577
AC1331	CE, CUL	564	AC2411	CE, CUL	577
AC1332	CE, CUL	565	AC2412	CE, CUL	577
AC1337	CE, CUL	564	AC2413	CE, CUL	577
AC1355	CE, CUL	564	AC2417	CE, CUL	577
AC1356	CE, CUL	564	AC2451	CE, CUL	577
AC1357	CE, CUL	565	AC2452	CE, CUL	578
AC1358	CE, CUL	565	AC2457	CE, CUL	577
AC1365	CE, CUL	564	AC2458	CE, CUL	577

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
AC2459	CE, CUL	577	AC5015		580
AC2464	CE, CUL	578	AC505A	CE	576
AC2465	CE, CUL	578	AC505S	CE, CUL	421, 605
AC2466	CE, CUL	578	AC506S	CE, CUL	421, 605
AC246A	CE	591	AC507A	CE	576
AC2471	CE, CUL	578	AC508A	CE	576
AC2482	CE	578	AC514A	CE	576
AC2484	CE	578	AC515A	CE	576
AC2488	CE	578	AC5200	CE, CUL	574
AC2516	CE, CUL	575	AC5203	CE, CUL	574
AC2517	CE, CUL	575	AC5204	CE, CUL	575
AC2616	CE	579	AC5205	CE, CUL	574
AC2617	CE	579	AC5208	CE, CUL	574
AC2618	CE	579	AC5209	CE, CUL	575
AC2619	CE	579	AC5210	CE, CUL	575
AC2620	CE	579	AC5211	CE, CUL	574
AC2625	CE	578	AC5212	CE, CUL	575
AC2630	CE	578	AC5213	CE, CUL	574
AC2631	CE	579	AC5214	CE, CUL	574
AC2634	CE	579	AC5215	CE, CUL	574
AC2636	CE	579	AC5222	CE, CUL	576
AC2637	CE	579	AC5223	CE, CUL	576
AC2638	CE	579	AC5224	CE, CUL	574
AC2709	CE, CRUUS	573	AC5225	CE, CUL	576
AC2729	CE, CRUUS	573	AC5227	CE, CUL	590
AC2731	CE	573	AC5228	CE, CUL	590
AC2739	CE, CRUUS	573	AC522A	CE	576
AC2750	CE, CRUUS	573	AC5230	CE, CUL	576
AC2751	CE, CRUUS	573	AC5235	CE, CUL	575
AC2752	CE, CRUUS	574	AC5236	CE, CUL	575
AC2753	CE, CRUUS	574	AC5243	CE, CUL	590
AC2900	CE, CUL	580	AC5246	CE, CUL	590
AC2904	CE, CUL	580	AC5249	CE, CUL	590
AC2910	CE, CUL	580	AC5251	CE, CUL	590
AC2916	CE, CUL	580	AC5253	CE, CUL	591
AC2923	CE, CUL	580	AC5270	CE, CUL	591
AC3000		583	AC5271	CE, CUL	591
AC315A	CE	553	AC528A	CE	591
AC316A	CE	553	AC5292	CE, CUL	575
AC317A	CE	553	AC535A		576
AC326A	CE, (CCC)	309, 553	AC542A	CE	591
AC327A	CE	309, 598	AC546A	CE	591
AC336A	CE	309, 598	AC551A	CE	591
AC5000	CUL	580	AC570A	CE	591
AC5003	CUL	580	AC901S	CE, CUL	421, 605
AC5005		581	AC902S	CE, CUL	421, 605
AC5007		583	AC903S	CE, CUL	421, 605
AC5010	CUL	580	AC904S	CE, CUL	422, 606
AC5011	CUL	580	ANT410	CE, CUL	621
AC5014	CUL	580	ANT411	CE, CUL	621

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
ANT430	CE	621	CR2513	CE	671
ANT431	CE	621	CR2520	CE, E1R	671
ANT512	CE, CUL	617	CR2530	CE, E1R	663
ANT513	CE, CUL	621	CR2532	CE, E1R	663
ANT805		624	CR3001	CE	688
ANT810		625	CR3002	CE	688
ANT820		625	CR3003	CE	688
ANT830		625	CR3004	CE	688
ANT910		625	CR3101	CE	684
ANT930		625	CR3108	CE	684
CP9006		418, 660	CR3110	CE	684
CP9008		418, 660	CR3112	CE	684
CR0020	CE, E1R	662	CR7021	CE, E1R	418, 663
CR0032	CE, E1R	664	CR7032	CE, E1R	664
CR0033	CE, E1R	664	CR7132	CE, E1R	664
CR0133	CE, E1R	664	CR7201	CE, E1R	418, 663
CR0200	CE, E1R	663	CR7506	CE, E1R	418, 663
CR0232	CE, E1R	664	DA101S	CE, CUL	354, 415
CR0233	CE, E1R	664	DA102S	CE, CUL	354
CR0301	CE, E1R	665	DD0203	CE, CUL	353
CR0302	CE, E1R	665	DD0296	CE, CUL	353
CR0303	CE, E1	665	DD110S	CE	355
CR0401	CE, E1R	658	DD111S	CE	355
CR0403	CE, E1R	658	DD2503	CE, CUL	352
CR0411	CE, E1R	658	DD2505	CE, CUL	352
CR0421	CE, E1	659	DD2603	CE, CUL	352
CR0451	CE, E1R	653, 659	DD2605	CE, CUL	352
CR0452	CE, E1R	659	DI0001	CE	340
CR0505	CE, E1R	662	DI0002	CE	340
CR1070	CE, E1R	676	DI0004	CE	340
CR1071	CE, E1R	676	DI003A	CE	341
CR1080	CE, E1	677	DI004A	CE	341
CR1081	CE, E1	677	DI5001	CE	340
CR1082	CE, E1	677	DI5003	CE	340
CR1083	CE, E1R	676	DI5004	CE	340
CR1084	CE, E1R	677	DI5005	CE	340
CR1085	CE, E1R	677	DI5007	CE	340
CR1087	CE, E1R	676	DI5009	CE	340
CR1500	CE	672	DI5011	CE	340
CR2011	CE	670	DI504A	CE	341
CR2012	CE, E1R	671	DI505A	CE	341
CR2013	CE	671	DI506A	CE	341
CR2014	CE, E1R	671	DI6001	CE, CUL	340
CR2016	CE, E1R	671	DI602A	CE	341
CR2031	CE, E1R	670	DL2503	CE, CUL	355
CR2032	CE, E1R	670	DN0210	CE	794
CR2033	CE, E1R	670	DN0220	CE	794
CR2500	CE, E1R	663	DN1022	CE, CUL	795
CR2511	CE, E1	671	DN1030	CE, CRUUS, CUL	795
CR2512	CE, E1	671	DN1031	CE, CRUUS, CUL	795

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
DN2035	CE, CUL	796	E10077		120, 159
DN2036	CE, CUL	796	E10136		707
DN4011	CE, CRUUS, CUL	795	E10137		712
DN4012	CE, CRUUS, CUL	795	E10154		118
DN4013	CE, CRUUS, CUL	795	E10155		117
DN4014	CE, CRUUS, CUL	795	E10189		713
DN4032	CE, CRUUS, CUL	795	E10190		713
DN4033	CE, CRUUS, CUL	796	E10191		713
DN4034	CE, CRUUS, CUL	796	E10192		117
DR2503	CE, CUL	354	E10193		117, 450
DR2505	CE, CUL	354	E10200		713
DS2503	CE, CUL	353	E10204		117
DS2505	CE, CUL	353	E10221		118, 171
DS2506	CE, CUL	353	E10261		713
DS2603	CE, CUL	353	E10437		770
DS2605	CE, CUL	354	E10447		335, 712
DT0001	CE	356, 795	E10448		335, 712
DTA100	CE, CUL	595, 614	E10579		312, 556
DTA101	CE, CUL	595, 614	E10584		312, 556
DTA200	CE, CUL	595, 614	E10585		312, 556
DTA201	CE, CUL	595, 615	E10597		312, 557
DTA300	CE, CUL	595, 615	E10661		310, 555
DTA301	CE, CUL	595, 615	E10730		120, 616
DTE100	CE, CUL, PI	617, 621	E10734		118, 171
DTE101	CE, CUL	616, 621	E10735		118, 159
DTE102	CE, CUL	617, 620	E10736		119, 159
DTE104	CE, CUL	617, 620	E10737		120, 160
DTE800	CE	624	E10741		118
DTE810	CE	624	E10742		119
DTE900	CUL	624	E10743		120
DTE910	CUL	624	E10749		170
DW2503	CE, CUL	354	E10750		170
DX2001	CE	355	E10751		170
DX2002	CE	355	E10752		171
DX2003	CE	355	E10753		171
DX2011	CE	356	E10754		171
DX2012	CE	356	E10802		582
E10013		712	E10803		582
E10014		117	E10806		118
E10015		118	E10807		119
E10016		117	E10808		120
E10017		117, 450	E10848		118
E10024		119	E10849		118
E10025		119	E10865		706
E10027		119	E10866		706
E10028		120	E10867		706
E10030		120	E10868		706
E10031		120	E10880		160
E10058		714	E10886		713
E10076		119, 159	E10887		713

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
E10976		708	E11439		750
E10977		708	E11440		750
E11027		159	E11504	CRUUS	674, 731
E11030		159	E11505	CRUUS	674, 731
E11032		159	E11506	CRUUS	674, 731
E11034		159	E11507	CRUUS	731
E11036		159	E11508	CRUUS	707
E11037		160	E11509	CRUUS	707
E11043		715	E11510		707
E11047		118, 171	E11511	CRUUS	674, 686
E11048		119, 171	E11512	CRUUS	708
E11049		120, 230	E11521		118
E11078		159	E11530		117
E11114		119	E11531		117
E11115		119	E11533		118
E11226		711	E11534		119
E11227		711	E11550		730
E11231		371, 708	E11551		730
E11232		371, 709	E11552		705
E11243		313, 557	E11553		706
E11248		714	E11569		384
E11249	CRUUS	714	E11589		673
E11250		714	E11590		673
E11251		714	E11591		673
E11278		311, 555	E11592		673
E11310		312, 557	E11593		673
E11311		372, 709	E11594		674
E11416		749	E11596		673
E11417		749	E11597		673
E11418		749	E11598		673
E11419		749	E11599		673
E11420		749	E11645		711
E11421		749	E11697		711
E11422		749	E11736		712
E11423		749	E11737		712
E11424		749	E11738		712
E11425		749	E11739		712
E11426		750	E11740		712
E11427		750	E11741		712
E11428		750	E11742		713
E11429		750	E11743		713
E11430		750	E11744		713
E11431		749	E11745		712
E11432		749	E11746		713
E11433		749	E11747		713
E11434		750	E11775		775
E11435		750	E11796		188
E11436		750	E11797		187
E11437		750	E11798		189
E11438		750	E11799		187

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
E11801		187	E11984		312, 557
E11803		171	E11986		335
E11807		372, 709	E11987		335
E11816		185	E11988		188
E11817		185	E11989		313, 557
E11818		185	E11994	CE	118
E11819		185	E11995	CE	119
E11820		185	E11996	CE	120
E11821		185	E12004		189
E11822		186	E12009		313, 557
E11823		186	E12010		313, 557
E11846		186	E12015		187
E11847		582	E12017		187
E11857		732	E12042		313, 557
E11858		732	E12043		313, 557
E11859		732	E12074		335
E11860		732	E12090		371, 618
E11861		718	E12123		313, 557
E11862		718	E12153		160
E11863		718	E12163		160
E11864		719	E12164		188
E11865		719	E12166		709
E11872		188	E12167		709
E11877		186	E12168		709
E11890		188	E12169		709
E11891		188	E12170		313, 557
E11892		188	E12204		371, 618
E11894		188	E12205		371, 618
E11895		188	E12208		312, 556
E11898		371, 618	E12209		312, 556
E11900		313, 557	E12212		312, 556
E11912		187	E12218		188
E11913		187	E12231		187
E11914		189	E12232		187
E11928		189	E12233		187
E11930		415	E12234		187
E11950		372, 709	E12259		188
E11957		188	E12274		271
E11958		186	E12291		171
E11959		187	E12315		618, 622
E11960		187	E12317		618, 622
E11961		186	E12319		618, 622
E11975		186	E12321		618, 622
E11976		186	E12375		188
E11977		186	E12377		158
E11978		186	E12378		158
E11979		186	E12379		158
E11980		186	E12380		158
E11981		186	E12386		158
E11982		186	E17105		310, 555

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
E17118		311, 555	E20249		284
E17148		311, 555	E20353		286
E17205		311, 555	E20428		714
E17294		311, 555	E20430		714
E17295		312, 556	E20452		228
E17296		312, 556	E20453		228
E17320		311, 555	E20454		228
E17321		311, 555	E20489		285
E17322		311, 555	E20492		284
E17323		311, 555	E20493		284
E17324		311, 555	E20494		285
E17325		311, 555	E20495		285
E17326		311, 555	E20505		284
E17327		311, 556	E20506		284
E17328		311, 556	E20507		285
E17329		311, 556	E20590		229
E17330		312, 556	E20593		285
E17331		312, 556	E20600		286
E19503		119	E20603		279
E1D100		266, 270	E20606		279
E20003		227	E20609		279
E20004		228	E20612		279
E20005		228	E20615		279
E20051		284	E20633		280
E20052		284	E20639		280
E20053		284	E20645		280
E20054		284	E20648		280
E20055		284	E20651		280
E20056		284	E20654		280
E20057		285	E20679		285
E20058		284	E20680		285
E20059		283	E20689		279
E20060		283	E20711		280
E20061		283	E20712		280
E20062		283	E20714		279
E20078		285	E20715		281
E20102		286	E20716		236
E20103		286	E20717		236
E20104		286	E20718		121, 171
E20105		286	E20719		121, 172
E20106		286	E20720		230, 264
E20107		286	E20721		230, 264
E20127		284	E20722		264, 299
E20128		283	E20724		229
E20129		283	E20737		264
E20130		283	E20738		708
E20211		285	E20744		228
E20215		285	E20748		280
E20228		283	E20749		281
E20230		284	E20750		279

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
E20751		279	E20946		365, 630
E20752		279	E20948		365, 630
E20753		279	E20950		237
E20754		285	E20951		231, 237
E20755		285	E20952		365
E20756		280	E20953		228
E20757		279	E20954		228
E20758		280	E20956		228
E20762		285	E20964		232, 299
E20765		281	E20965		232, 299
E20767		281	E20966		232, 300
E20772		281	E20968		232, 299
E20773		282	E20969		232, 300
E20774		282	E20970		232, 300
E20788		234	E20973		232, 300
E20789		234	E20974		232, 299
E20792		234	E20984		232, 299
E20793		234	E20988		264
E20794		265	E20989		263
E20796		236	E20990		263
E20811		121	E20991		263
E20813		120, 121	E20992		263
E20814		121	E20993		263
E20838		708	E20994		264
E20843		235	E21007		228
E20844		236	E21012		234
E20856		121	E21015		229
E20857		121	E21056		231
E20860		121	E21057		231
E20861		121	E21076		365, 631
E20864		121	E21079		266, 271
E20865		121	E21081		236, 266
E20866		121, 172	E21083		234, 265
E20867		121, 172	E21084		234, 265
E20869		121, 172	E21085		233, 264
E20870		122, 172	E21086		233, 265
E20873		122, 230	E21087		233, 264
E20874		122, 230	E21088		233, 235
E20875		122, 230	E21095		232, 300
E20877		234	E21101		280
E20901		616	E21102		280
E20903		229	E21103		279
E20907		229	E21104		280
E20911		229	E21105		281
E20914		229	E21106		281
E20915		229	E21107		281
E20938		230, 236	E21109		365, 630
E20939		365, 369	E21110		236, 364
E20940		236, 266	E21111		365
E20941		365, 631	E21112		365, 630

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
E21113		365, 631	E21223		233, 265
E21114		233, 265	E21224		266
E21115		228	E21228		369, 371
E21116		235	E21229		369, 371
E21117		235	E21232		369, 371
E21118		235	E21236		266
E21119		235	E21237	CE	231
E21120		235, 266	E21238	CE	231
E21122		233, 235	E21239	CE	231
E21125		237	E21240	CE	231
E21126		237	E21248		271
E21133		266, 271	E21267		228
E21136		371	E21268		228
E21137		371, 682	E21269		228
E21138		371, 682	E21270		228
E21139		371, 682	E21271		232
E21140		372	E21272		233
E21142		234, 265	E21273		233
E21144		229	E21277		233
E21145		230	E21280		233
E21159		266, 270	E2D106		366
E21165		366, 631	E2D107		364
E21166		366, 631	E2D108		364
E21168		366, 631	E2D109		364
E21169		631	E2D110		364, 630
E21171		266, 271	E2D112		364, 630
E21172		366	E2D114		376, 630
E21200		229	E2D115		376
E21201		229	E2D116		376, 630
E21202		229	E2D200		364
E21203		229	E2D201		376, 630
E21204		236, 266	E2D202		376
E21205		236	E2D400		364, 368
E21206		230, 264	E2D401		364, 369
E21207		230, 264	E2D402		364, 369
E21208		236, 267	E2I200		629
E21209		236, 267	E2I210		629
E21210		233, 265	E2I211		629
E21211		233, 265	E2I212		629
E21212		234, 265	E2I213		630
E21213		236, 301	E2M200		681
E21214		236, 301	E2M201		681
E21215	CUL	235	E2M203		681
E21216		235	E2M205		681
E21217		235	E2M210		682
E21218		235	E2M211		682
E21219		264	E2M212		682
E21220		264	E2M213		682
E21221		232, 300	E2V100		364
E21222		232, 300	E30000		452, 506

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
E30003		452	E30393	EHEDG, FDA	527
E30006		450, 526	E30396	CE	158, 231
E30007		506	E30398	CE, CUL	158, 231
E30009		455	E30399		451, 506
E30010		452	E30400		451, 506
E30013	EHEDG, FDA	455	E30401		451, 506
E30016		530	E30402		451, 506
E30017		529	E30403	EHEDG, FDA	527
E30018		529	E30405	CE	450, 527
E30024	CRN	530	E30407	EHEDG, FDA	530
E30025		530	E30420		450
E30047		530	E30421		450, 525
E30049		530	E33201	EHEDG, FDA, CRN	453, 480
E30050		452	E33202	EHEDG, FDA, CRN	453, 480
E30055	EHEDG, FDA	502, 534	E33208	EHEDG, FDA, CRN	453
E30056	EHEDG, FDA	502, 534	E33209	EHEDG, FDA, CRN	453
E30057		452	E33211	EHEDG, FDA	454, 480
E30058	CRN	452	E33212	EHEDG, FDA	454, 480
E30059		452	E33213	EHEDG, FDA	454, 480
E30063		452	E33221	EHEDG, FDA	453, 480
E30065		452	E33222	EHEDG, FDA	453, 480
E30070		455	E33228	EHEDG, FDA	453
E30071		456	E33229	EHEDG, FDA	454
E30072	FDA	455	E33242	FDA	454, 481
E30073		530	E33340	FDA	455
E30076		451	E33401	EHEDG, FDA	502, 533
E30077		451	E33402	EHEDG, FDA	502, 533
E30078		450, 525	E33430	EHEDG, FDA	503, 533
E30079		450, 525	E33431		530
E30080	CE	637	E33601	EHEDG, FDA	455
E30091		529	E33612	EHEDG, FDA	455
E30094		450, 531	E33701	EHEDG, FDA	453, 480
E30101		450	E33702	EHEDG, FDA	453, 480
E30104		450	E33711	EHEDG, FDA	454, 480
E30108		530	E33712	EHEDG, FDA	454, 480
E30110		502	E33713	EHEDG, FDA	454, 480
E30112		372, 638	E33721	EHEDG, FDA	453, 480
E30115		639	E33722	EHEDG, FDA	454, 480
E30116		452	E33731	EHEDG, FDA	454, 481
E30122	EHEDG, FDA	455, 481	E33732	EHEDG, FDA	454, 481
E30123	FDA	453	E35010		527
E30124	FDA	453	E35020		528
E30128	EHEDG, FDA	455, 533	E35030		528
E30130	EHEDG, FDA, CRN	455	E35050		528
E30132		639	E35060		526
E30135		452	E35061		526
E30136		637	E35062		526
E30137		637	E35063		526
E30143		452	E35064		526
E30390	CE	451, 502	E35065		526

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
E35066		526	E40124		479, 530
E35067		526	E40128		530
E37340		451	E40129		479
E37350		452	E40136		478
E37360		452	E40138		479
E37411		529	E40148		530
E37421		529	E40151		481, 648
E37430		529	E40153		481, 648
E37431		529	E40161		478
E37450		529	E40162		478
E37511		529	E40171		479, 545
E37521		529	E40178		481, 647
E37600		529	E40179		481, 647
E37603		528	E40180		481, 647
E37610		529	E40189		481, 647
E37613		528	E40195		479
E37620		529	E40199		481, 647
E37623		528	E40203		479
E37640		529	E40205		482, 648
E37643		528	E40213		482, 648
E37663		528	E40214		482, 648
E37810		528	E40215		482, 648
E37820		528	E40216		482, 648
E37830		528	E40217		482, 648
E37850		528	E40227		482, 648
E37910		528	E40228		482, 648
E37920		528	E40229		482, 648
E37930		528	E40230		482, 648
E37950		528	E40231		482, 648
E3D103		369, 370	E40234		482, 649
E3D200		368	E40240		482, 649
E3D201		370	E43000		501
E3D300		681	E43001		500
E3M100		681	E43002		501
E3M103		681	E43003		500
E40048		481	E43004		501
E40078		478	E43006		500
E40079		478	E43007		500
E40083		478	E43008		500
E40096		479, 531	E43009		501
E40097		479, 531	E43012		500
E40098		479, 531	E43013		501
E40099	CRN	479, 531	E43014		501
E40100		479, 531	E43016		501
E40101		479, 530	E43019		500
E40104		478, 530	E43100		501
E40106		479	E43101		501
E40107	CRN	531	E43102		501
E40114		478, 530	E43103		501
E40115		478	E43201		504

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
E43202		504	E43902		159
E43203		504	E43904		159
E43204		504	E43910		501
E43205		504	E60006		334
E43206		504	E60022		333
E43207		505	E60027		333
E43208		505	E60028		333
E43209		505	E60033		332
E43210		505	E60034		332
E43211		505	E60035		332
E43212		505	E60036		332
E43213		505	E60041		333
E43214		505	E60062		333
E43215		505	E60063		333
E43216		505	E60064		333
E43217		505	E60065		333
E43218		505	E60066		333
E43219		505	E60067		333
E43220		506	E60076		334
E43221		506	E60095		334
E43223		506	E60098		334
E43224		506	E60110		334
E43225		504	E60111		334
E43226		504	E60112		334
E43227		504	E60117		334
E43228		505	E60118		334
E43229		505	E60119		333
E43230		505	E60120		333
E43300	EHEDG, FDA	502, 533	E60121		333
E43301	EHEDG, FDA	502, 533	E60122		335
E43302	EHEDG, FDA	503	E60123		336
E43303	EHEDG, FDA	503	E60124		335
E43304	EHEDG, FDA	503, 533	E60128		336
E43305	EHEDG, FDA	503, 533	E60136		335
E43306	EHEDG, FDA	503, 533	E60137		334
E43307	EHEDG, FDA	503, 533	E60138		334
E43308	EHEDG	503, 534	E60141		335
E43309	EHEDG, FDA	503, 534	E60144		335
E43310	EHEDG, FDA	503, 534	E60146		336
E43311	EHEDG, FDA	504, 534	E60147		335
E43312	EHEDG, FDA	504, 534	E60157		335
E43313		503	E60174		335
E43314		503, 534	E60175		335
E43315	EHEDG, FDA	503, 534	E60193		334
E43319	FDA	534	E60302		333
E43330		653	E60303		342
E43331		653	E7000A		583
E43332		653	E70015		422, 606
E43400		504, 653	E70025		422, 606
E43900		159	E70035		422, 606

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
E7004S		422, 606	E74300	CSA, CRUUS	584
E7005S		422, 606	E74310	CSA, CRUUS	584
E70062		584	E75222		582
E70067		584	E75227		592
E7006S	CE	422, 606	E75228		592
E7007S	CE	421, 605	E75229		592
E70096		581	E75231		592
E70113		584	E75232		592
E70142		714	E7901S		606
E70188		581	E7902S		607
E70200		581	E7903S		607
E70211		583	E7904S		607
E70213		583	E7905S		607
E70230		581	E7906S		607
E70231		581	E79995		582
E70232		581	E79998		582
E70233		581	E80100	CE	356
E70236		581	E80102	CE	356
E70271		581	E80110	CE	356
E70297		582	E80301		615
E70299		584	E80302		615
E70320		583	E80304		616
E70354	CUL	580	E80310		236, 266
E70377	CUL	580	E80311		615
E70381		581	E80312		615
E70390		584	E80317		615
E70399		584	E80318		615
E7040S		422, 606	E80319		615
E70413		584	E80320		615
E70423		583	E80321	CE	616
E70424		672	E80322		615
E70454	CUL	580	E80323	CE	616
E70481		582	E80324	CE	616
E70483		582	E80330		625
E70498		582	E80331		625
E70499		582	E80332		626
E7050S		422, 606	E80333		626
E7051S		422, 606	E80340		626
E7052S		422, 606	E80350		625
E7053S	CE, CUL	422, 606	E80351		625
E73004		582, 672	E80353		625
E73005		582	E80354		625
E7354A	CE	581	E80360		617
E7377A	CE	581	E80361		617
E74000		583	E80370		622
E74010		583	E80371		622
E74100		583	E80372		158
E74110		583	E80373		158
E74200	CRUUS, CSA	583	E80374		158
E74210	CRUUS, CSA	583	E80375		158

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
E80376		158	EBC052		770
E80377		622	EBC053		771
E80379		622	EBC054		771
E80380		621	EBC055		771
E80381		622	EBC056		771
E80382		622	EBC057		771
E89005	CE	355	EBC058		771
E89010		342, 357	EBC059		771
E89013		342, 357	EBC060		771
E89150	CE	356	EBC061		771
EBC001	CUL	773	EBC062		771
EBC002	CUL	773	EBC063		771
EBC003	CUL	775	EBC064		772
EBC004	CUL	775	EBC065		772
EBC005	CUL	773	EBC066		772
EBC006	CUL	773	EBC067		772
EBC007	CUL	775	EC0400	CE, E1	658
EBC008	CUL	775	EC0401		659
EBC009	CUL	773	EC0402		659
EBC010	CUL	773	EC0403		659
EBC011	CUL	775	EC0404		659
EBC012	CUL	775	EC0405		659
EBC013	CUL	772	EC0406		660
EBC014	CUL	774	EC0451		660
EBC015	CUL	772	EC0452		660
EBC016	CUL	774	EC0453		660
EBC017	CUL	772	EC0454		660
EBC018	CUL	774	EC0455		660
EBC019	CUL	772	EC0456		660
EBC020	CUL	774	EC0457		660
EBC021	CUL	773	EC0458		660
EBC022	CUL	774	EC1021		685
EBC023	CUL	773	EC1410		677
EBC024	CUL	774	EC1411		677
EBC025	CUL	772	EC1412		677
EBC026	CUL	774	EC1413		677
EBC027	CUL	772	EC1450		677
EBC028	CUL	774	EC1520		666, 673
EBC029	CUL	772	EC1521		666, 673
EBC030	CUL	774	EC1522		666, 673
EBC031	CUL	772	EC1523		666, 673
EBC032	CUL	774	EC1524		666, 673
EBC033	CUL	773	EC1533		666, 673
EBC034	CUL	774	EC2013		418, 665
EBC035	CUL	773	EC2015	CE	666, 674
EBC036	CUL	774	EC2016	CE	666, 674
EBC048		770	EC2019	CE	348, 691
EBC049		770	EC2025		688
EBC050		770	EC2032		667
EBC051		770	EC2034		686

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
EC2045	CE	348, 691	EVC002	CUL	697, 707
EC2046		419, 665	EVC003	CUL	697, 707
EC2049		688	EVC004	CUL	696, 707
EC2050		685	EVC005	CUL	696, 707
EC2053		666, 672	EVC006	CUL	696, 707
EC2056		674	EVC007	CUL	707
EC2058		686	EVC008	CUL	707
EC2059		678	EVC009	CUL	707
EC2060	CE	348, 691	EVC010	CUL	696, 746
EC2061	CE	348, 691	EVC011	CUL	746
EC2062		674, 685	EVC012	CUL	696, 746
EC2063		667, 686	EVC013	CUL	746
EC2074		665	EVC014	CUL	746
EC2075		666	EVC015	CUL	746
EC2076		666	EVC016	CUL	746
EC2080		372, 638	EVC017	CUL	746
EC2082	CE	348, 691	EVC018	CUL	746
EC2084		419, 665	EVC019	CUL	746
EC2086		419, 665	EVC020	CUL	746
EC2088		674	EVC021	CUL	746
EC2089		666, 672	EVC022	CUL	746
EC2090		666, 672	EVC023	CUL	746
EC2091		666	EVC024	CUL	746
EC2092		685	EVC025	CUL	747
EC2093		685	EVC026	CUL	747
EC2095	CE, E1	682	EVC027	CUL	747
EC2096		666	EVC028	CUL	747
EC2097		419, 665	EVC029	CUL	747
EC2098		672	EVC030	CUL	747
EC2099		678	EVC031	CUL	747
EC2100	CE	685	EVC032	CUL	747
EC2112	CE	660, 680	EVC033	CUL	747
EC2113		660, 685	EVC034	CUL	747
EC2114		660, 681	EVC035	CUL	747
EC2116		685	EVC036	CUL	747
ENC01A	IEC	719	EVC037	CUL	747
ENC02A	IEC	720	EVC038	CUL	747
ENC03A	IEC	720	EVC039	CUL	747
ENC04A	IEC	719	EVC040	CUL	745
ENC05A	IEC	719	EVC041	CUL	745
ENC06A	IEC	719	EVC042	CUL	745
ENC07A	IEC	720	EVC043	CUL	745
ENC08A	IEC	720	EVC044	CUL	745
ENC09A	IEC	720	EVC045	CUL	744
ENC10A	IEC	720	EVC046	CUL	745
ENC11A	IEC	720	EVC047	CUL	745
ENC12A	IEC	720	EVC048	CUL	745
ENC13A	IEC	720	EVC049	CUL	745
ENC14A	IEC	720	EVC04A	IEC	720
EVC001	CUL	696, 707	EVC050	CUL	745

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
EVC051	CUL	745	EVC14A	CUL	720
EVC052	CUL	745	EVC150	CUL	705
EVC053	CUL	745	EVC151	CUL	705
EVC054	CUL	745	EVC152	CUL	705
EVC055	CUL	748	EVC153	CUL	705
EVC056	CUL	748	EVC154	CUL	705
EVC057	CUL	748	EVC155	CUL	706
EVC058	CUL	748	EVC161	CUL	706
EVC059	CUL	748	EVC162	CUL	706
EVC05A	IEC	720	EVC163	CUL	706
EVC060	CUL	748	EVC164	CUL	706
EVC061	CUL	748	EVC165	CUL	706
EVC062	CUL	748	EVC166	CUL	706
EVC063	CUL	748	EVC210	CUL	741
EVC064	CUL	748	EVC211	CUL	741
EVC065	CUL	748	EVC212	CUL	741
EVC066	CUL	748	EVC213	CUL	741
EVC067	CUL	748	EVC214	CUL	741
EVC068	CUL	748	EVC215	CUL	740
EVC069	CUL	748	EVC216	CUL	740
EVC06A	IEC	720	EVC217	CUL	740
EVC070	CUL	708	EVC218	CUL	740
EVC071	CUL	708	EVC219	CUL	740
EVC072	CUL	708	EVC220	CUL	741
EVC073	CUL	708	EVC221	CUL	741
EVC074	CUL	708	EVC222	CUL	741
EVC075	CUL	708	EVC223	CUL	741
EVC076	CUL	731	EVC224	CUL	741
EVC077	CUL	731	EVC225	CUL	740
EVC078	CUL	731	EVC226	CUL	740
EVC079	CUL	730	EVC227	CUL	740
EVC07A	IEC	762	EVC228	CUL	740
EVC080	CUL	730	EVC229	CUL	741
EVC081	CUL	731	EVC230	CUL	740
EVC094	CUL	731	EVC231	CUL	740
EVC095	CUL	731	EVC232	CUL	740
EVC09A	IEC	762	EVC233	CUL	740
EVC10A	IEC	762	EVC234	CUL	740
EVC11A	IEC	762	EVC235	CUL	741
EVC12A	IEC	762	EVC236	CUL	741
EVC13A	IEC	762	EVC237	CUL	741
EVC141	CUL	704	EVC238	CUL	742
EVC142	CUL	704	EVC239	CUL	742
EVC143	CUL	705	EVC240	CUL	742
EVC144	CUL	705	EVC241	CUL	742
EVC145	CUL	705	EVC242	CUL	742
EVC146	CUL	705	EVC243	CUL	742
EVC147	CUL	705	EVC244	CUL	742
EVC148	CUL	705	EVC245	CUL	742
EVC149	CUL	705	EVC246	CUL	742

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
EVC247	CUL	742	EVC297	CUL	744
EVC248	CUL	742	EVC298	CUL	744
EVC249	CUL	742	EVC299	CUL	744
EVC250	CUL	743	EVC300	CUL	739
EVC251	CUL	743	EVC301	CUL	739
EVC252	CUL	743	EVC302	CUL	739
EVC253	CUL	743	EVC303	CUL	739
EVC254	CUL	743	EVC304	CUL	739
EVC255	CUL	743	EVC305	CUL	737
EVC256	CUL	743	EVC306	CUL	737
EVC257	CUL	743	EVC307	CUL	737
EVC258	CUL	743	EVC308	CUL	738
EVC259	CUL	743	EVC309	CUL	738
EVC260	CUL	738	EVC310	CUL	739
EVC261	CUL	738	EVC311	CUL	739
EVC262	CUL	738	EVC312	CUL	739
EVC263	CUL	738	EVC313	CUL	739
EVC264	CUL	738	EVC314	CUL	739
EVC265	CUL	737	EVC315	CUL	738
EVC266	CUL	737	EVC316	CUL	738
EVC267	CUL	737	EVC317	CUL	738
EVC268	CUL	737	EVC318	CUL	738
EVC269	CUL	737	EVC319	CUL	738
EVC270	CUL	738	EVC431		788
EVC271	CUL	738	EVC432		788
EVC272	CUL	738	EVC433		788
EVC273	CUL	739	EVC434		788
EVC274	CUL	739	EVC435		788
EVC275	CUL	736	EVC436		788
EVC276	CUL	736	EVC437		788
EVC277	CUL	736	EVC438		789
EVC278	CUL	736	EVC439		789
EVC279	CUL	737	EVC492		660
EVC280	CUL	737	EVC526	CUL	709
EVC281	CUL	737	EVC527	CUL	709
EVC282	CUL	737	EVC528	CUL	709
EVC283	CUL	737	EVC529	CUL	709
EVC284	CUL	737	EVC530	CUL	710
EVC285	CUL	743	EVC531	CUL	710
EVC286	CUL	743	EVC532	CUL	710
EVC287	CUL	743	EVC533	CUL	710
EVC288	CUL	743	EVC534	CUL	710
EVC289	CUL	744	EVC535	CUL	710
EVC290	CUL	744	EVC536	CUL	710
EVC291	CUL	744	EVC537	CUL	710
EVC292	CUL	744	EVC538	CUL	710
EVC293	CUL	744	EVC539	CUL	710
EVC294	CUL	744	EVC540	CUL	710
EVC295	CUL	744	EVC541	CUL	710
EVC296	CUL	744	EVC542	CUL	710

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
EVC543	CUL	710	EVT032	CUL	759
EVC544	CUL	711	EVT033	CUL	759
EVC545	CUL	711	EVT034	CUL	759
EVC546	CUL	711	EVT035	CUL	759
EVC547	CUL	711	EVT036	CUL	759
EVC548	CUL	711	EVT037	CUL	759
EVC549	CUL	711	EVT038	CUL	760
EVM001	CUL	721	EVT039	CUL	760
EVM002	CUL	721	EVT040	CUL	761
EVM003	CUL	721	EVT041	CUL	761
EVM004	CUL	721	EVT042	CUL	761
EVM005	CUL	721	EVT043	CUL	761
EVM006	CUL	721	EVT044	CUL	761
EVM007	CUL	721	EVT045	CUL	761
EVM008	CUL	721	EVT046	CUL	760
EVM009	CUL	721	EVT047	CUL	760
EVM010	CUL	721	EVT048	CUL	760
EVM012	CUL	721	EVT049	CUL	761
EVM014	CUL	721	EVT050	CUL	761
EVM036	CUL	722	EVT051	CUL	761
EVM037	CUL	722	EVT052	CUL	761
EVM038	CUL	722	EVT053	CUL	761
EVM039	CUL	721	EVT054	CUL	761
EVM040	CUL	722	EVT055	CUL	761
EVM041	CUL	722	EVT056	CUL	761
EVT001	CUL	718	EVT057	CUL	761
EVT002	CUL	718	EVT058	CUL	762
EVT003	CUL	718	EVT059	CUL	762
EVT004	CUL	717	EVT060	CUL	762
EVT005	CUL	718	EVT061	CUL	762
EVT006	CUL	718	EVT062	CUL	762
EVT007	CUL	718	EVT063	CUL	762
EVT008	CUL	718	EVT064	CUL	718
EVT009	CUL	718	EVT067	CUL	717
EVT010	CUL	719	EVT069	CUL	718
EVT011	CUL	719	EVT071	CUL	731
EVT012	CUL	719	EVT072	CUL	732
EVT013	CUL	719	EVT073	CUL	732
EVT014	CUL	719	EVT074	CUL	732
EVT015	CUL	719	EVT122	CUL	716
EVT022	CUL	759	EVT123	CUL	716
EVT023	CUL	759	EVT124	CUL	716
EVT024	CUL	759	EVT125	CUL	716
EVT025	CUL	759	EVT126	CUL	716
EVT026	CUL	759	EVT127	CUL	716
EVT027	CUL	759	EVT128	CUL	716
EVT028	CUL	758	EVT129	CUL	716
EVT029	CUL	759	EVT130	CUL	717
EVT030	CUL	759	EVT131	CUL	717
EVT031	CUL	759	EVT132	CUL	717

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
EVT133	CUL	717	EVT183	CUL	756
EVT134	CUL	717	EVT184	CUL	756
EVT135	CUL	717	EVT185	CUL	756
EVT136	CUL	717	EVT186	CUL	757
EVT137	CUL	717	EVT187	CUL	757
EVT138	CUL	717	EVT188	CUL	757
EVT139	CUL	717	EVT189	CUL	757
EVT140	CUL	717	EVT190	CUL	757
EVT141	CUL	717	EVT191	CUL	757
EVT142	CUL	752	EVT192	CUL	757
EVT143	CUL	752	EVT193	CUL	757
EVT144	CUL	752	EVT194	CUL	757
EVT145	CUL	752	EVT195	CUL	757
EVT146	CUL	752	EVT196	CUL	757
EVT147	CUL	753	EVT197	CUL	757
EVT148	CUL	753	EVT198	CUL	757
EVT149	CUL	753	EVT199	CUL	757
EVT150	CUL	753	EVT200	CUL	757
EVT151	CUL	753	EVT201	CUL	758
EVT152	CUL	753	EVT203	CUL	755
EVT153	CUL	753	EVT204	CUL	755
EVT154	CUL	753	EVT211	CUL	755
EVT155	CUL	753	EVT236	CUL	758
EVT156	CUL	753	EVT237	CUL	758
EVT157	CUL	753	EVT238	CUL	758
EVT158	CUL	753	EVT239	CUL	758
EVT159	CUL	753	EVT240	CUL	758
EVT160	CUL	753	EVT242	CUL	758
EVT161	CUL	754	EVT243	CUL	758
EVT162	CUL	754	EVT244	CUL	758
EVT163	CUL	754	EVT245	CUL	758
EVT164	CUL	754	EVT246	CUL	758
EVT165	CUL	754	EVT248	CUL	760
EVT166	CUL	754	EVT249	CUL	760
EVT167	CUL	754	EVT250	CUL	760
EVT168	CUL	754	EVT251	CUL	760
EVT169	CUL	754	EVT253	CUL	760
EVT170	CUL	754	EVT254	CUL	760
EVT171	CUL	754	EVT255	CUL	760
EVT172	CUL	754	EVT256	CUL	760
EVT173	CUL	754	EVT257	CUL	760
EVT174	CUL	754	EVT260	CUL	755
EVT175	CUL	754	EVT261	CUL	755
EVT176	CUL	755	EVT262	CUL	756
EVT177	CUL	755	EVT263	CUL	756
EVT178	CUL	756	EVT265	CUL	756
EVT179	CUL	756	EVT266	CUL	756
EVT180	CUL	756	EVT267	CUL	756
EVT181	CUL	756	EVT268	CUL	756
EVT182	CUL	756	EVT269	CUL	756

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
EVT279	CUL	755	EVW057	CUL	751
EVT280	CUL	755	EVW058	CUL	752
EVT281	CUL	755	EVW059	CUL	752
EVT283	CUL	755	EY1001	CE	400
EVT284	CUL	755	EY1002	CE	400
EVT285	CUL	755	EY1003	CE	400
EVT286	CUL	755	EY1004	CE	400, 409
EVT329		789	EY1005	CE	400
EVT330		789	EY1006	CE	400, 409
EVT331		789	EY1007	CE	400, 409
EVT332		789	EY1008	CE	400
EVT333		789	EY1009	CE	400
EVT334		789	EY1010	CE	400
EVT335		789	EY1011	CE	402, 410
EVT336		789	EY1013	CE	402, 410
EVT337		789	EY1014	CE	402
EVW001	CUL	715	EY1015	CE	402
EVW002	CUL	715	EY2001	CE	401, 410
EVW003	CUL	715	EY2002	CE	402, 410
EVW004	CUL	715	EY2003	CE	402
EVW005	CUL	715	EY2004	CE	402
EVW006	CUL	715	EY2005	CE	402, 410
EVW007	CUL	715	EY3001	CE	400, 409
EVW008	CUL	715	EY3002	CE	400, 409
EVW009	CUL	715	EY3004	CE	401, 409
EVW010	CUL	716	EY3005	CE	401, 409
EVW011	CUL	716	EY3006		401
EVW012	CUL	716	EY3007		401
EVW013	CUL	715	EY3008		401
EVW014	CUL	715	EY3009		401
EVW015	CUL	716	EY3010		401
EVW022	CUL	751	EY3011		401, 409
EVW023	CUL	751	EY3090		401, 409
EVW024	CUL	751	EY3091		401, 409
EVW025	CUL	751	EY3092		401, 409
EVW028	CUL	751	EY3098	CE	401, 409
EVW030	CUL	751	EY3099	CE	401, 409
EVW031	CUL	751	G1501S	CE, CUL, TÜVNord	414
EVW034	CUL	751	G1502S	CE, CUL, TÜVNord	414
EVW036	CUL	751	G1503S	CE, CUL, TÜVNord	414
EVW037	CUL	751	G2001S	CE	415
EVW048	CUL	752	GF711S	CE, CUL, TÜVNord	383
EVW049	CUL	752	GG505S	CE, CUL, TÜVNord	382, 421
EVW050	CUL	752	GG507S	CE, CUL, TÜVNord	382
EVW051	CUL	752	GG711S	CE, CUL, TÜVNord	383
EVW052	CUL	752	GG712S	CE, CUL, TÜVNord	383
EVW053	CUL	752	GG851S	CE, CUL	383
EVW054	CUL	751	GI505S	CE, CUL, TÜVNord	382, 421
EVW055	CUL	751	GI506S	CE, CUL, TÜVNord	382
EVW056	CUL	751	GI701S	CE, CUL, TÜVNord	383

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
GI711S	CE, CUL, TÜVNord	383	IB0016	CCC, CE, CUL	83
GI712S	CE, CUL, TÜVNord	383	IB0017	CE, CCC	82
GM504S	CE, CUL, TÜVNord	382, 421	IB0026	CCC, CE	81
GM505S	CE, CUL, TÜVNord	382, 421	IB0027	CE, CCC	82
GM701S	CE, CUL, TÜVNord	383	IB5063	CE, CUL, (CCC)	76
GM705S	CE, CUL, TÜVNord	383	IB5096	CE, (CCC)	74
I12001	CE	67	IB5124	CCC, CE, CUL	76
I12003	CE	67	IB5133	CE, (CCC)	76
I17001	CE, (CCC)	67	IC0003	CCC, CE, CUL	82
I17003	CE, (CCC)	67	IC5005	CE, CUL, (CCC)	80
I22001	CE	67	ID0013	CCC, CE, CUL	83
I22003	CE	67	ID0014	CE, CCC	81
I22006	CE	68	ID002A	CE	115
I27001	CE, (CCC)	68	ID0049	CCC, CE	82
I7R201	CE, CUL, (CCC)	86	ID5005	CE, CUL, (CCC)	80
I7R202	CE, CUL, (CCC)	85	ID5026	CE, (CCC)	76
I7R203	CE, CUL, (CCC)	86	ID502A	CE	115
I7R204	CE, CUL, (CCC)	85	ID503A	CE, IEC	116
I7R205	CE, CUL, (CCC)	86	ID5046	CE, CUL, (CCC)	78
I7R206	CE, CUL, (CCC)	85	ID5055	CE, CUL, (CCC)	77
I7R207	CE, CUL, (CCC)	86	ID5058	CE, (CCC)	78
I7R208	CE, CUL, (CCC)	85	ID5059	CE, CUL, (CCC)	102
I7R209	CE, CUL, (CCC)	86	IE5072	CE, (CCC)	68
I7R210	CE, CUL, (CCC)	85	IE5090	CE, CUL, (CCC)	72
I7R211	CE, CUL, (CCC)	86	IE5099	CE, (CCC)	69
I7R212	CE, CUL, (CCC)	86	IE5121	CE, (CCC)	69
I7R213	CE, CUL, (CCC)	86	IE5129	CE, (CCC)	69
I7R214	CE, CUL, (CCC)	86	IE5202	CE, (CCC)	70
I7R215	CE, CUL, (CCC)	86	IE5203	CE, CUL, (CCC)	72
I7R216	CE, CUL, (CCC)	86	IE5215	CE, (CCC)	109
I7R217	CE, CUL, (CCC)	86	IE5222	CE, (CCC)	70
I85000	CE, CUL, (CCC)	87	IE5238	CE, (CCC)	70
I85001	CE, CUL, (CCC)	87	IE5258	CE, CUL, (CCC)	74
I85002	CE, CUL, (CCC)	87	IE5287	CE, CUL, (CCC)	73
I85003	CE, CUL, (CCC)	86	IE5288	CE, CUL, (CCC)	72
I85004	CE, CUL, (CCC)	87	IE5295	CE, (CCC)	109
I85005	CE, CUL, (CCC)	87	IE5312	CE, (CCC)	72
I85006	CE, CUL, (CCC)	87	IE5327	CE, CUL, (CCC)	72
I85007	CE, CUL, (CCC)	87	IE5338	CE, CUL, (CCC)	73
I95045	CE	85	IE5340	CE, CUL, (CCC)	73
IA0004	CCC, CE	81	IE5343	CE, CUL, (CCC)	68
IA0027	CCC, CE	82	IE5344	CE, CUL, (CCC)	68
IA0032	CCC, CE, CUL	83	IE5345	CE, CUL, (CCC)	68
IA5062	CE, CUL, (CCC)	75	IE5346	CE, CUL, (CCC)	68
IA5063	CE, CUL, (CCC)	75	IE5348	CE, CUL, (CCC)	69
IA5082	CE, (CCC)	74	IE5349	CE, CUL, (CCC)	73
IA5108	CCC, CE	75	IE5350	CE, CUL, (CCC)	73
IA5122	CCC, CE, CUL	76	IE5351	CE, CUL, (CCC)	68
IA5127	CE, CUL, (CCC)	75	IE5352	CE, CUL, (CCC)	68
IB0004	CCC, CE	81	IE5366	CE, CUL, (CCC)	73

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
IE5367	CE, CUL, (CCC)	73	IF5815	CE, (CCC)	110
IE5368	CE, CUL, (CCC)	69	IF5851	CE, CUL, (CCC)	110
IE5369	CE, CUL, (CCC)	69	IF6028	CE, (CCC)	83
IE5379	CE, (CCC)	72	IF6029	CE, (CCC)	84
IE5381	CE, (CCC)	94	IF6030	CE, (CCC)	83
IE5382	CE, (CCC)	94	IF6031	CE, (CCC)	84
IE5390	CE, (CCC)	98	IF6074	CE	85
IE5391	CE, (CCC)	98	IF9222	CCC, CE	96
IE9203	CCC, CE	96	IF9920	CCC, CE	96
IE9902	CCC, CE	96	IF9924	CCC, CE	96
IE9940	CE, (CCC)	96	IFC200	CE, CUL, (CCC)	93
IEC200	CE, CUL, (CCC)	102	IFC201	CE, CUL, (CCC)	93
IEC201	CE, CUL, (CCC)	103	IFC202	CE, CUL, (CCC)	92
IEC202	CE, CUL, (CCC)	102	IFC204	CE, CUL, (CCC)	93
IEC203	CE, CUL, (CCC)	102	IFC205	CE, CUL, (CCC)	93
IER200	CE, CUL, (CCC)	105	IFC206	CE, CUL, (CCC)	93, 99
IER201	CE, CUL, (CCC)	104	IFC207	CE, CUL, (CCC)	95
IER203	CE, CUL, (CCC)	103	IFC208	CE, CUL, (CCC)	95
IER204	CE, CUL, (CCC)	104	IFC209	CE, CUL, (CCC)	95, 99
IER205	CE, CUL, (CCC)	104	IFC210	CE, CUL, (CCC)	93, 98
IER206	CE, CUL, (CCC)	104	IFC229	CE, CUL, (CCC)	93
IF0001	CCC, CE	81	IFC230	CE, CUL, (CCC)	93
IF0003	CCC, CE	81	IFC234	CE, (CCC)	95
IF0005	CCC, CE	81	IFC235	CE, (CCC)	95
IF0007	CCC, CE	81	IFC237	CE, CUL, (CCC)	93
IF503A	CE	113	IFC238	CE, CUL, (CCC)	93
IF504A	CE	114	IFC239	CE, CUL, (CCC)	96
IF505A	CE	113	IFC241	CE, CUL, (CCC)	96
IF5188	CE, (CCC)	69	IFC243	CE, CUL, (CCC)	97
IF5249	CE, (CCC)	69	IFC246	CE, CUL, (CCC)	98
IF5297	CE, (CCC)	69	IFC247	CE, CUL, (CCC)	594, 99
IF5313	CE, CCC	69	IFC248	CE, CUL, (CCC)	594
IF5329	CE, (CCC)	69	IFC258	CE, CUL, (CCC)	102
IF5345	CE, (CCC)	69	IFC259	CE, CUL, (CCC)	98
IF5514	CE, (CCC)	109	IFC263	CE, CUL, (CCC)	103
IF5594	CE, (CCC)	109	IFC264	CE, CUL, (CCC)	103
IF5597	CE, CCC	71	IFC266	CE, CUL, (CCC)	102
IF5598	CCC, CE, CUL	72	IFM203	CE, CUL, E1, (CCC)	693
IF5644	CE, CCC	71	IFM204	CE, E1, (CCC)	693
IF5645	CCC, CE	71	IFM205	CCC, CE, CUL, E1	692
IF5646	CCC, CE	71	IFM206	CCC, CE, CUL, E1	693
IF5647	CCC, CE, CUL	72	IFM207	CE, CUL, E1, (CCC)	692
IF5670	CE, CUL, (CCC)	101	IFM208	CE, CUL, E1, (CCC)	692
IF5675	CE, CUL, (CCC)	101	IFM209	CCC, CE, CUL, E1	692
IF5750	CE, CUL, (CCC)	101	IFM210	CCC, CE, CUL, E1	692
IF5751	CE, CUL, (CCC)	101	IFR200	CE, CUL, (CCC)	105
IF5759	CCC, CE	110	IFR202	CE, CUL, (CCC)	104
IF5760	CCC, CE, CUL	110	IFR203	CE, CUL, (CCC)	103
IF5796	CE, (CCC)	109	IFR204	CE, CUL, (CCC)	104
IF5813	CE, (CCC)	110	IFR205	CE, CUL, (CCC)	104

(CCC) = CCC approval is not required

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
IFR206	CE, (CCC)	104	IFT209	CE, CUL, (CCC)	106
IFS200	CE, CUL, (CCC)	65	IFT210	CE, CUL, (CCC)	107
IFS201	CE, CUL, (CCC)	65	IFT216	CE, CUL, (CCC)	108
IFS204	CE, CUL, (CCC)	65	IFT217	CE, CUL, (CCC)	108
IFS205	CE, CUL, (CCC)	65	IFT240	CE, CUL, (CCC)	106
IFS206	CE, CUL, (CCC)	66	IFT243	CE, (CCC)	106
IFS207	CE, CUL, (CCC)	66	IFT244	CE, CUL, (CCC)	105
IFS208	CE, CUL, (CCC)	65	IFT245	CE, CUL, (CCC)	106
IFS209	CE, CUL, (CCC)	65	IFT246	CE, CUL, (CCC)	105
IFS210	CE, CUL, (CCC)	67	IFW200	CE, CUL, (CCC)	100
IFS211	CE, CUL, (CCC)	67	IFW201	CE, CUL, (CCC)	100
IFS212	CE, CUL, (CCC)	65	IG0005	CE, CUL, CCC	81
IFS213	CE, CUL, (CCC)	66	IG0006	CE, CUL, CCC	81
IFS214	CE, CUL, (CCC)	71	IG0011	CCC, CE, CUL	81
IFS215	CE, CUL, (CCC)	71	IG0012	CCC, CE	81
IFS216	CE, CUL, (CCC)	72	IG001A	CCC, CE	114
IFS217	CE, CUL, (CCC)	72	IG510A	CE	113
IFS240	CE, CUL, (CCC)	90	IG511A	CE	113
IFS241	CE, CUL, (CCC)	90	IG512A	CE	114
IFS242	CE, CUL, (CCC)	89	IG513A	CE	114
IFS243	CE, CUL, (CCC)	89	IG514A	CE	114
IFS244	CE, CUL	90	IG515A	CE	114
IFS245	CE, CUL	90	IG5202	CE, (CCC)	109
IFS246	CE, CUL	89	IG5221	CE, (CCC)	69
IFS247	CE, CUL	89	IG5285	CE, (CCC)	69
IFS248	CE, CUL	91	IG5397	CE, (CCC)	69
IFS249	CE, CUL	91	IG5398	CE, (CCC)	69
IFS250	CE, CUL	91	IG5399	CE, (CCC)	70
IFS251	CE, CUL	91	IG5401	CE, (CCC)	70
IFS252	CE, UL	88	IG5533	CCC, CE	71
IFS253	CE, UL	88	IG5593	CE, CCC	71
IFS254	CE, UL	87	IG5594	CCC, CE	71
IFS255	CE, UL	87	IG5595	CCC, CE, CUL	72
IFS256	CE, UL	88	IG5596	CCC, CE	71
IFS257	CE, UL	88	IG5597	CCC, CE	73
IFS258	CE, UL	87	IG5602	CE, (CCC)	110
IFS259	CE, UL	87	IG5647	CE, CUL, (CCC)	101
IFS260	CE, CUL	91	IG5667	CE, CUL, (CCC)	101
IFS261	CE, CUL	92	IG5682	CCC, CE	96
IFS262	CE, CUL	91	IG5718	CCC, CE	74
IFS263	CE, CUL	91	IG5719	CCC, CE	74
IFT200	CE, CUL, (CCC)	108	IG5772	CCC, CE, CUL	110
IFT201	CE, CUL, (CCC)	109	IG5806	CCC, CE	110
IFT202	CE, CUL, (CCC)	107	IG5813	CE, (CCC)	110
IFT203	CE, CUL, (CCC)	108	IG5846	CE, (CCC)	111
IFT204	CE, CUL, (CCC)	109	IG5953	CE, (CCC)	67
IFT205	CE, CUL, (CCC)	107	IG5954	CE, (CCC)	67
IFT206	CE, CUL, (CCC)	107	IG6083	CE, (CCC)	83
IFT207	CE, CUL, (CCC)	106	IG6084	CE, (CCC)	84
IFT208	CE, CUL, (CCC)	107	IG6086	CE, (CCC)	83

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
IG6087	CE, (CCC)	84	IGS208	CE, CUL, (CCC)	65
IG6119	CE	85	IGS209	CE, CUL, (CCC)	65
IG6614	CE	85	IGS210	CE, CUL, (CCC)	67
IG9983	CCC, CE	96	IGS212	CE, CUL, (CCC)	66
IG9984	CCC, CE	96	IGS213	CE, CUL, (CCC)	66
IGC200	CE, CUL, (CCC)	93	IGS214	CE, CUL, (CCC)	72
IGC201	CE, CUL, (CCC)	93	IGS216	CE, CUL, (CCC)	72
IGC202	CE, CUL, (CCC)	92	IGS217	CE, CUL, (CCC)	72
IGC203	CE, CUL, (CCC)	92	IGS232	CE, CUL, (CCC)	90
IGC204	CE, CUL, (CCC)	94	IGS233	CE, CUL, (CCC)	90
IGC205	CE, CUL, (CCC)	94	IGS234	CE, CUL, (CCC)	89
IGC206	CE, CUL, (CCC)	94	IGS235	CE, CUL, (CCC)	89
IGC207	CE, CUL, (CCC)	95	IGS236	CE, CUL	90
IGC208	CE, CUL, (CCC)	95	IGS237	CE, CUL	90
IGC209	CE, CUL, (CCC)	95, 99	IGS238	CE, CUL	89
IGC210	CE, CUL, (CCC)	93, 98	IGS239	CE, CUL	89
IGC220	CE, CUL, (CCC)	94	IGS240	CE, CUL	92
IGC221	CE, CUL, (CCC)	94	IGS241	CE, CUL	91
IGC222	CE, (CCC)	95	IGS242	CE, CUL	92
IGC223	CE, (CCC)	95	IGS243	CE, CUL	91
IGC224	CE, CUL, (CCC)	94	IGS244	CE, UL	88
IGC225	CE, CUL, (CCC)	94	IGS245	CE, UL	88
IGC232	CE, CUL, (CCC)	98	IGS246	CE, UL	88
IGC233	CE, CUL, (CCC)	98	IGS247	CE, UL	88
IGC234	CE, CUL, (CCC)	594, 99	IGS248	CE, UL	88
IGC235	CE, CUL, (CCC)	594, 99	IGS249	CE, UL	89
IGC248	CE, CUL, (CCC)	102	IGS250	CE, UL	88
IGC249	CE, CUL, (CCC)	103	IGS251	CE, UL	88
IGC250	CE, CUL, (CCC)	103	IGS252	CE, CUL	92
IGC252	CE, CUL, (CCC)	102	IGS253	CE, CUL	92
IGM200	CE, CUL, E1, (CCC)	693	IGS254	CE, CUL	91
IGM201	CE, CUL, E1, (CCC)	693	IGS255	CE, CUL	91
IGM202	CE, CUL, E1, (CCC)	692	IGT200	CE, CUL, (CCC)	108
IGM203	CE, CUL, E1, (CCC)	692	IGT201	CE, CUL, (CCC)	109
IGM204	CCC, CE, CUL, E1	693	IGT202	CE, CUL, (CCC)	107
IGM205	CCC, CE, CUL, E1	693	IGT203	CE, CUL, (CCC)	108
IGM206	CCC, CE, CUL, E1	692	IGT204	CE, CUL, (CCC)	109
IGM207	CCC, CE, CUL, E1	692	IGT205	CE, CUL, (CCC)	108
IGR200	CE, CUL, (CCC)	105	IGT206	CE, CUL, (CCC)	107
IGR202	CE, CUL, (CCC)	105	IGT207	CE, CUL, (CCC)	107
IGR203	CE, CUL, (CCC)	103	IGT208	CE, CUL, (CCC)	107
IGR204	CE, CUL, (CCC)	104	IGT209	CE, CUL, (CCC)	107
IGR205	CE, CUL, (CCC)	104	IGT219	CE, CUL, (CCC)	108
IGR206	CE, (CCC)	104	IGT220	CE, CUL, (CCC)	108
IGS200	CE, CUL, (CCC)	65	IGT240	CE, CUL, (CCC)	109
IGS201	CE, CUL, (CCC)	65	IGT247	CE, CUL, (CCC)	106
IGS204	CE, CUL, (CCC)	66	IGT248	CE, CUL, (CCC)	105
IGS205	CE, CUL, (CCC)	66	IGT249	CE, CUL, (CCC)	106
IGS206	CE, CUL, (CCC)	66	IGT250	CE, CUL, (CCC)	105
IGS207	CE, CUL, (CCC)	66	IGW200	CE, CUL, (CCC)	100

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
IGW201	CE, CUL, (CCC)	100	IIM202	CE, CUL, E1, (CCC)	692
II0005	CE, CCC	81	IIM203	CE, CUL, E1, (CCC)	692
II0006	CE, CCC	82	IIM208	CCC, CE, CUL, E1	693
II0011	CE, CUL, CCC	82	IIM209	CCC, CE, CUL, E1	693
II0012	CE, CUL, CCC	82	IIM210	CCC, CE, CUL, E1	692
II001A	CCC, CE	114	IIM211	CCC, CE, CUL, E1	692
II502A	CE	113	IIR200	CE, CUL, (CCC)	105
II503A	CE	113	IIR202	CE, CUL, (CCC)	105
II504A	CE, IEC	116	IIR203	CE, CUL, (CCC)	103
II5166	CE, (CCC)	70	IIR204	CE, CUL, (CCC)	104
II5256	CE, (CCC)	70	IIR205	CE, CUL, (CCC)	104
II5284	CE, (CCC)	70	IIR206	CE, (CCC)	104
II5300	CE, (CCC)	70	IIS204	CE, CUL, (CCC)	66
II5346	CE, (CCC)	70	IIS205	CE, CUL, (CCC)	66
II5369	CE, (CCC)	70	IIS206	CE, CUL, (CCC)	65
II5436	CCC, CE	71	IIS207	CE, CUL, (CCC)	65
II5488	CE, CCC	71	IIS208	CE, CUL, (CCC)	66
II5489	CE, CCC	71	IIS209	CE, CUL, (CCC)	67
II5490	CE, CCC	73	IIS210	CE, CUL, (CCC)	66
II5491	CCC, CE	71	IIS211	CE, CUL, (CCC)	66
II5492	CE, CCC	73	IIS226	CE, CUL, (CCC)	90
II5493	CE, CCC	71	IIS227	CE, CUL, (CCC)	90
II5503	CE, CUL, (CCC)	101	IIS228	CE, CUL, (CCC)	89
II5689	CE, CUL, (CCC)	110	IIS229	CE, CUL, (CCC)	89
II5733	CCC, CE	110	IIS230	CE, CUL	90
II5751	CCC, CE	110	IIS231	CE, CUL	90
II5776	CE, (CCC)	110	IIS232	CE, CUL	90
II5913	CE, (CCC)	83	IIS233	CE, CUL	90
II5914	CE, (CCC)	84	IIS234	CE, CUL	92
II5916	CE, (CCC)	84	IIS235	CE, CUL	91
II5917	CE, (CCC)	84	IIS236	CE, CUL	92
II5930	CE, (CCC)	85	IIS237	CE, CUL	91
II5961	CE	85	IIS238	CE, UL	89
IIC200	CE, CUL, (CCC)	94	IIS239	CE, UL	89
IIC201	CE, CUL, (CCC)	94	IIS240	CE, UL	88
IIC206	CE, CUL, (CCC)	94, 99	IIS241	CE, UL	88
IIC207	CE, CUL, (CCC)	94	IIS242	CE, UL	89
IIC208	CE, (CCC)	95	IIS243	CE, UL	89
IIC209	CE, (CCC)	95	IIS244	CE, UL	88
IIC210	CE, CUL, (CCC)	94	IIS245	CE, UL	88
IIC211	CE, CUL, (CCC)	94	IIS246	CE, CUL	92
IIC213	CE, CUL, (CCC)	97	IIS247	CE, CUL	92
IIC218	CE, CUL, (CCC)	98	IIS248	CE, CUL	91
IIC219	CE, CUL, (CCC)	98	IIS249	CE, CUL	91
IIC220	CE, CUL, (CCC)	594, 99	IIT002	CCC, CE, CUL	106
IIC221	CE, CUL, (CCC)	594, 99	IIT200	CE, CUL, (CCC)	108
IIC224	CE, CUL, (CCC)	102	IIT202	CE, CUL, (CCC)	108
IIC226	CE, CUL, (CCC)	102	IIT204	CE, CUL, (CCC)	108
IIM200	CE, CUL, E1, (CCC)	693	IIT205	CE, CUL, (CCC)	108
IIM201	CE, CUL, E1, (CCC)	693	IIT206	CE, CUL, (CCC)	107

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
IIT207	CE, CUL, (CCC)	107	IM5131	CE, CUL, (CCC)	78
IIT208	CE, CUL, (CCC)	107	IM5132	CE, CUL, (CCC)	100, 79
IIT209	CE, CUL, (CCC)	107	IM5133	CE, CUL, (CCC)	101, 79
IIT212	CE, CUL, (CCC)	108	IM5134	CE, CUL, (CCC)	79
IIT213	CE, CUL, (CCC)	108	IM5135	CE, CUL, (CCC)	101, 79
IIT228	CE, CUL, (CCC)	106	IM5136	CE, CUL, (CCC)	79
IIT230	CE, CUL, (CCC)	106	IM5137	CE, (CCC)	97
IIT231	CE, CUL, (CCC)	106	IM5138	CE, (CCC)	97
IIT232	CE, CUL, (CCC)	105	IM5139	CE, (CCC)	84
IIW200	CE, CUL, (CCC)	100	IM513A	CE	113
IIW201	CE, CUL, (CCC)	100	IM5140	CE, (CCC)	84
IL5002	CE, CUL, (CCC)	76	IM5141	CE, (CCC)	84
IL5003	CE, CUL, (CCC)	76	IM5142	CE, (CCC)	84
IL5004	CE, CUL, (CCC)	79	IN0073	CCC, CE	82
IL5005	CE, CUL, (CCC)	79	IN0077	CCC, CE	82
IL5020	CE, CUL, (CCC)	76	IN0081	CCC, CE	82
IL5022	CE, CUL, (CCC)	76	IN0085	CCC, CE	82
IM0010	CCC, CE, CUL	83	IN0108	CCC, CE, CUL	307, 551
IM0011	CCC, CE, CUL	83	IN0110	CCC, CE	306, 550
IM001A	CE	115	IN507A	CE	309, 553
IM002A	CE	115	IN508A	CE	553
IM0049	CCC, CE	81	IN509A	CE	553
IM0053	CCC, CE	82	IN5121	CE, (CCC)	76
IM0054	CCC, CE	82	IN5129	CE, (CCC)	76
IM5019	CE, CUL, (CCC)	80	IN512A	CE	309
IM5020	CE, CUL, (CCC)	80	IN5186	CE, (CCC)	77
IM5037	CCC, CE	80	IN5188	CE, (CCC)	77
IM5038	CCC, CE	80	IN5207	CE, CCC	77
IM5046	CE, (CCC)	80	IN5208	CCC, CE, CUL	77
IM506A	CE	115	IN5212	CE, CUL, (CCC)	79
IM507A	CE	115	IN5224	CE, (CCC)	306, 550
IM508A	CE	115	IN5225	CE, CUL, (CCC)	306, 550
IM509A	CE	114	IN5230	CE, CUL, (CCC)	79
IM510A	CE	114	IN5251	CE, (CCC)	306, 550
IM5115	CE, CUL, (CCC)	77	IN5281	CE, E1, (CCC)	691
IM5116	CE, CUL, (CCC)	77	IN5282	CE, E1, (CCC)	692
IM5117	CE, CUL, (CCC)	78	IN5285	CE, CUL, (CCC)	306, 550
IM5118	CE	594, 77	IN5304	CE, (CCC)	306, 550
IM5119	CE, CUL, (CCC)	100, 78	IN5323	CE, (CCC)	306, 550
IM511A	CE	113	IN5327	CE, CUL, (CCC)	306, 550
IM5120	CE, CUL, (CCC)	100, 78	IN5331	CE, (CCC)	306, 550
IM5123	CE, CUL, (CCC)	79	IN5334	CE, CUL, (CCC)	307, 551
IM5124	CE, CUL, (CCC)	100, 78	IN5409	CE, (CCC)	307, 551
IM5125	CE, CUL, (CCC)	100, 78	IO5016	CE, (CCC)	97
IM5126	CE, CUL, (CCC)	100, 78	IO5017	CE, (CCC)	97
IM5127	CE, (CCC)	97	IO5018	CE, (CCC)	97
IM5128	CE, CUL, (CCC)	78	IS5001	CE, CUL, (CCC)	76
IM5129	CE, CUL, (CCC)	100, 78	IS5026	CE, CUL, (CCC)	77
IM512A	CE	113	IS5031	CE, CUL, (CCC)	77
IM5130	CE, CUL, (CCC)	78	IS5035	CE, CUL, (CCC)	79

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
IS5070	CE, (CCC)	77	KG0008	CCC, CE	153
IS5071	CE, CUL, (CCC)	79	KG0009	CCC, CE	152
IT5001	CE, (CCC)	74	KG0010	CCC, CE	152
IT5021	CE, CUL, (CCC)	75	KG0016	CCC, CE	152
IT5034	CE, CUL, (CCC)	75	KG5040	CCC, CE	152
IT5039	CE, CUL, (CCC)	74	KG5041	CE	151
IT5040	CE, CUL, (CCC)	75	KG5043	CE, (CCC)	150
IT5042	CE, CUL, (CCC)	74	KG5047	CCC, CE	150
IT5044	CE, CUL, (CCC)	75	KG5057	CE, (CCC)	151
IV5003	CE	80	KG5066	CE, CUL	151
IV5004	CE	80	KG5069	CE, CUL	150
IV5025	CE	101	KG5071	CE, CUL	151
IW5051	CE, (CCC)	77	KI000A	CE	155
IW5053	CE, (CCC)	77	KI0016	CCC, CE, CUL	152
IW5058	CE, (CCC)	77	KI001A	CE	155
IW5062	CE, (CCC)	80	KI0020	CCC, CE, CUL	152
IW5064	CE, CUL, (CCC)	80	KI0024	CCC, CE, CUL	153
IX5002	CE, (CCC)	309, 553	KI0054	CCC, CE, CUL	153
IX5006	CE, (CCC)	309, 553	KI5002	CE, CUL, (CCC)	150
IX5010	CE, (CCC)	309, 554	KI5015	CE, CUL, (CCC)	150
IX5030	CE, (CCC)	310, 554	KI5019	CE, CUL, (CCC)	150
IY5029	CE, (CCC)	70	KI5023	CCC, CE, CUL	152
IY5036	CE, CUL, (CCC)	73	KI5024	CE, CUL, (CCC)	152
IY5048	CE, CUL, (CCC)	73	KI5030	CCSAUS, CE, FM, IEC	154
IY5049	CE, CUL, (CCC)	70	KI5031	CCSAUS, CE, FM	155
IY5051	CE, (CCC)	70	KI503A	CE	155
IY5052	CE, (CCC)	70	KI505A	CE	155
IZ5026	CE, CUL, (CCC)	74	KI5082	CE, CUL	151
IZ5035	CE, CUL, (CCC)	75	KI5083	CE, CUL	151
IZ5046	CE, CUL, (CCC)	75	KI5085	CE, CUL	151
IZ5047	CE, CUL, (CCC)	74	KI5087	CE, CUL	151
IZ5048	CE, CUL, (CCC)	74	KI5207	CE, CSA, CUL, (CCC)	150
IZ5051	CE, (CCC)	74	KN5121	CE, (CCC)	150
IZ5052	CE, (CCC)	75	KQ5100	CE	153
JAC201	CE, (CCC)	198	KQ5101	CE	154
JAT201	CE, (CCC)	198	KQ5102	CE	154
JN2100	CE	348, 690	KQ6001	CE, CUL	153
JN2101	CE	348, 691	KQ6002	CE, CUL	153
KD0009	CCC, CE	153	KQ6003	CE, CUL	154
KD0012	CCC, CE	152	KQ6004	CE, CUL	154
KD001A	CE	155	KQ6005	CE, CUL	154
KD5018	CE, (CCC)	152	KQ6006	CE, UL	153
KD501A	CE	155	KQ6007	CE, CUL	154
KD5022	CE, (CCC)	150	KQ6008	CE	154
KD5039	CE, (CCC)	151	KQ6010	CE	154
KF5001	CE, CUL	151	KT5009	CE	156
KF5002	CE, CUL	151	KT5010	CE	156
KF5013	CE, CUL	151	KT5011	CE	156
KF5014	CE, UL	150	KT5012	CE	157
KF5015	CE, UL	150	KT5013	CE	157

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
KT5101	CE	157	LT8024	CE, CUL	497
KT5102	CE	157	ME5010	CE, CUL, (CCC)	169
KT5105	CE	157	ME5011	CE, CUL, (CCC)	168
KT5106	CE	157	ME5015	CE, (CCC)	168
KT5109	CE	157	MF5004	CE, (CCC)	169
KT5301	CE	157	MFS200	CE, CUL, (CCC)	169
KT5305	CE	157	MFS201	CE, CUL, (CCC)	168
KX5001	CCSAUS, CE, FM	155	MFS202	CE, CUL, (CCC)	169
KX5002	CCSAUS, CE, FM	155	MFS203	CE, CUL, (CCC)	169
KX5004	CCSAUS, CE, FM	155	MFS209	CE, CUL, (CCC)	168
LDH100	CE	652	MFS210	CE, CUL, (CCC)	168
LDP100	CE	652	MFS211	CE, CUL, (CCC)	168
LI2141	CE, CUL	495	MFT200	CE, CUL, (CCC)	170
LI2142	CE, CUL	495	MFT202	CE, CUL, (CCC)	170
LI2143	CE, CUL	495	MFT204	CE, CUL, (CCC)	170
LI5141	CE, CUL	495	MGS200	CE, CUL, (CCC)	169
LI5142	CE, CUL	495	MGS201	CE, CUL, (CCC)	168
LI5143	CE, CUL	495	MGS202	CE, (CCC)	169
LI5144	CE, CUL	495	MGS204	CE, CUL, (CCC)	168
LK1022	CE, CUL	494	MGS205	CE, CUL, (CCC)	168
LK1023	CE, CUL	494	MGS206	CE, CUL, (CCC)	168
LK1024	CE, CUL	494	MGT200	CE, CUL, (CCC)	170
LK1222	CE	494	MGT201	CE, (CCC)	170
LK1223	CE	494	MGT203	CE, CUL, (CCC)	170
LK1224	CE	494	MK500A	CE	181
LK3122	CE, CUL	494	MK501A	CE	181
LK3123	CE, CUL	494	MK502A	CE, IEC	181
LK3124	CE, CUL	494	MK503A	CE, (CCC)	181
LK8122	CE, CUL	494	MK5100	CE, CUL, (CCC)	176
LK8123	CE, CUL	494	MK5101	CE, CUL, (CCC)	176
LK8124	CE, CUL	494	MK5102	CE, CUL, (CCC)	177
LL8022	CE, CUL	497	MK5103	CE, CUL, (CCC)	176
LL8023	CE, CUL	497	MK5104	CE, CUL, (CCC)	176
LL8024	CE, CUL	497	MK5105	CE, CUL, (CCC)	177
LMT100	CE, CUL, EHEDG, FDA	495	MK5106	CE, CUL, (CCC)	176
LMT102	CE, CUL, FDA	495	MK5107	CE, CUL, (CCC)	177
LMT104	CE, CUL, FDA	496	MK5108	CE, CUL, (CCC)	177
LMT105	CE, CUL, FDA	496	MK5109	CE, CUL, (CCC)	177
LMT110	CE, CUL, EHEDG, FDA	496	MK5110	CE, CUL, (CCC)	179
LMT121	CE, CUL, EHEDG, FDA	496	MK5111	CE, CUL, (CCC)	179
LMT202	CE, CUL	496	MK5112	CE, CUL, (CCC)	176
LMT302	CE, CUL	496	MK5114	CE, CUL, (CCC)	176
LR3000	CE, CUL	496	MK5115	CE, CUL, (CCC)	176
LR3300	CE, CUL	496	MK5117	CE, CUL, (CCC)	176
LR7000	CE, CUL	496	MK5122	CE, CUL, (CCC)	177
LR7300	CE, CUL	496	MK5124	CE, CUL, (CCC)	176
LR8000	CE, CUL	496	MK5128	CE, CUL, (CCC)	179
LR8300	CE, CUL	497	MK5137	CE, CUL, (CCC)	180
LT8022	CE, CUL	497	MK5138	CE, CUL, (CCC)	180
LT8023	CE, CUL	497	MK5139	CE, CUL, (CCC)	180

(CCC) = CCC approval is not required

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
MK5140	CE, CUL, (CCC)	180	MS5011	CE, CUL, (CCC)	169
MK5155	CE, CUL, (CCC)	180	MS5013	CE, (CCC)	169
MK5156	CE, CUL, (CCC)	180	MX5000	CE	342
MK5157	CE, CUL, (CCC)	181	MX5004	CE	342
MK5158	CE, CUL, (CCC)	181	MX5015	CE	341
MK5159	CE, CUL, (CCC)	180	MX5017	CE	341
MK5161	CE, CUL, (CCC)	180	N0030A	CE, CSA, FM	156, 320
MK5186	CE, UL, (CCC)	179	N0031A	CE	116, 156
MK5208	CE	182	N0032A	CE, CSA, FM	116, 156
MK5209	CE, (CCC)	183	N0033A	CE	116, 156
MK5214	CE	182	N0530A	CE	117, 156
MK5215	CE	182	N0531A	CE, CSA, FM, IEC	117, 156
MK5300	CE, CUL, (CCC)	183	N0532A	CE, CSA, FM, IEC	117, 156
MK5301	CE, CUL, (CCC)	183	N0533A	CE	117, 156
MK5302	CE, CUL, (CCC)	183	N0534A	CE, CSA, FM, IEC	117, 156
MK5304	CE, CUL, (CCC)	183	N7S20A	CE, FM, IEC	116
MK5305	CE, CUL, (CCC)	183	N7S21A	CE, FM, IEC	116
MK5306	CE, CUL, (CCC)	183	N7S23A	CE, IEC	116
MK5307	CE, CUL, (CCC)	183	N95001	CE, IEC	308, 552
MK5308	CE, CUL, (CCC)	184	N95002	CE	308, 552
MK5309	CE, CUL, (CCC)	184	NE5001	CCSAUS, CE, FM	111
MK5310	CE, CUL, (CCC)	184	NF5001	CCSAUS, CE, FM	111
MK5311	CE, CUL, (CCC)	184	NF5002	CE, CCSAUS, FM, IEC	111
MK5312	CE, CUL, (CCC)	184	NF5003	CCSAUS, CE, FM	111
MK5314	CE, CUL, (CCC)	184	NF5004	CCSAUS, CE, FM	111
MK5315	CE, CUL, (CCC)	184	NF500A	CE, CCSAUS, FM, IEC	112
MK5325	CE, CUL, (CCC)	184	NF501A	CE, CCSAUS, FM, IEC	112
MK5326	CE, CUL, (CCC)	185	NG5001	CCSAUS, CE, FM	111
MK5328	CE, (CCC)	185	NG5002	CE, CCSAUS, FM, IEC	111
MK5329	CE, (CCC)	185	NG5003	CCSAUS, CE, FM	111
MK5330	CE, (CCC)	185	NG5004	CCSAUS, CE, FM	111
MK5331	CE, (CCC)	185	NG500A	CE, CCSAUS, FM, IEC	112
MK5900	CE, CUL, (CCC)	177	NG501A	CE, CCSAUS, FM, IEC	112
MK5902	CE, CUL, (CCC)	177	NI5001	CCSAUS, CE, FM	111
MN5200	CE, (CCC)	169	NI5002	CE, CCSAUS, FM, IEC	111
MR0100	CCC, CE, UL	178	NI5003	CCSAUS, CE, FM	112
MR0101	CCC, CE, UL	178	NI5004	CCSAUS, CE, FM	112
MR0102	CCC, CE, UL	178	NI500A	CE, CCSAUS, FM, IEC	112
MR0107	CCC, CE, UL	178	NI501A	CE, CCSAUS, FM, IEC	112
MR0117	CCC, CE, UL	178	NM500A	CE, CCSAUS, FM, IEC	113
MR0119	CCC, CE, UL	178	NM501A	CE, CCSAUS, FM, IEC	113
MR0120	CCC, CE, UL	178	NN5002	CCSAUS, CE, FM	112
MR0121	CCC, CE, UL	179	NN5008	CCSAUS, CE, FM	308, 552
MR0122	CCC, CE, UL	178	NN5009	CCSAUS, CE, FM	308, 552
MR0123	CCC, CE, UL	179	NN5011	CCSAUS, CE, FM	308, 552
MR0901	CCC, CE, CUL	177	NN5013	CE, IEC	308, 552
MR0902	CCC, CE, CUL	179	NN504A	CE	308, 552
MR500A	CE, IEC	182	NN505A	CE	308, 552
MR501A	CE, (CCC)	182	NS5002	CCSAUS, CE, FM, IEC	112
MS5010	CE, CUL, (CCC)	169	NT5001	CCSAUS, CE, FM	112

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
O1D100	CE, CUL, (CCC)	268	O2V100	CE, CUL, (CCC)	362
O1D101	CE, CUL, (CCC)	263, 268	O2V101	CE, CUL, (CCC)	363
O1D103	CE, CUL, (CCC)	268	O2V102	CE, CUL, (CCC)	362
O1D104	CE, CUL, (CCC)	263, 268	O2V103	CE, CUL, (CCC)	363
O1D105	CE, CUL, (CCC)	268	O2V104	CE, CUL, (CCC)	362
O1D106	CE, CUL, (CCC)	268	O2V105	CE, CUL, (CCC)	363
O1D155	CE, CUL, (CCC)	268	O2V120	CE, CUL, (CCC)	362
O1D300	CE, CUL, (CCC)	269, 299	O2V121	CE, CUL, (CCC)	363
O2D220	CE, CUL, (CCC)	363	O2V122	CE, CUL, (CCC)	362
O2D222	CE, CUL, (CCC)	363	O2V123	CE, CUL, (CCC)	363
O2D224	CE, CUL, (CCC)	363	O2V124	CE, CUL, (CCC)	362
O2D225	CE, CUL, (CCC)	363	O2V125	CE, CUL, (CCC)	363
O2D227	CE, CUL, (CCC)	363	O3D200	CE, CUL, (CCC)	368
O2D229	CE, CUL, (CCC)	363	O3D201	CE, CUL, (CCC)	370
O2D900	CE, CUL, (CCC)	375	O3D222	CE, (CCC)	368
O2D901	CE, CUL, (CCC)	375	O3D223	CE, (CCC)	370
O2D902	CE, CUL, (CCC)	375	O3M150	CE	680
O2D903	CE, CUL, (CCC)	375	O3M151	CE	680
O2D904	CE, CUL, (CCC)	375	O3M950	CE	680
O2D905	CE, CUL, (CCC)	375	O4E200	CE, CUL, (CCC)	226
O2D906	CE, (CCC)	375	O4E201	CE, CUL, (CCC)	226
O2D907	CE, (CCC)	376	O4E500	CE, CUL, (CCC)	227
O2D908	CE, (CCC)	376	O4E501	CE, CUL, (CCC)	227
O2D909	CE, (CCC)	376, 629	O4H200	CE, CUL, (CCC)	226
O2D910	CE, (CCC)	375	O4H201	CE, CUL, (CCC)	226
O2D911	CE, (CCC)	375	O4H500	CE, CUL, (CCC)	227
O2D912	CE, (CCC)	376	O4H501	CE, CUL, (CCC)	227
O2D913	CE, (CCC)	376, 629	O4P200	CE, CUL, (CCC)	226
O2D915	CE, (CCC)	374	O4P201	CE, CUL, (CCC)	226
O2D917	CE, (CCC)	374, 629	O4P500	CE, CUL, (CCC)	227
O2D919	CE, (CCC)	374	O4P501	CE, CUL, (CCC)	227
O2D920	CE, (CCC)	375	O4S200	CE, CUL, (CCC)	226
O2D921	CE, (CCC)	374	O4S500	CE, CUL, (CCC)	227
O2D922	CE, (CCC)	374, 629	O4S501	CE, CUL, (CCC)	227
O2D923	CE, (CCC)	375	O5C500	CE, CUL, (CCC)	299
O2D924	CE, (CCC)	374	O5D100	CE, CUL, (CCC)	267
O2D925	CE, (CCC)	374, 629	O5D101	CE, CUL, (CCC)	267
O2D926	CE, (CCC)	375	O5E200	CE, CUL, (CCC)	223
O2I100	CE, CUL, (CCC)	628	O5E500	CE, CUL, (CCC)	224
O2I101	CE, CUL, (CCC)	628	O5E501	CE, CUL, (CCC)	224
O2I102	CE, CUL, (CCC)	628	O5E502	CE, CUL, (CCC)	224
O2I103	CE, CUL, (CCC)	628	O5E51A	CE, (CCC)	225
O2I104	CE, CUL, (CCC)	628	O5E700	CE, CUL, (CCC)	262
O2I105	CE, CUL, (CCC)	629	O5G500	CE, CUL, (CCC)	298
O2M110	CE, E1R, (CCC)	682	O5H200	CE, CUL, (CCC)	223
O2M113	CE, E1R, (CCC)	682	O5H201	CE, CUL, (CCC)	223
O2M200		681	O5H500	CE, CUL, (CCC)	224
O2M201		681	O5H501	CE, CUL, (CCC)	224
O2M202		681	O5H503	CE, CUL, (CCC)	224
O2M203		681	O5H504	CE, CUL, (CCC)	225

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
O5H51A	CE, (CCC)	225	O6P203	CE, CUL, (CCC)	218
O5H700	CE, CUL, (CCC)	263	O6P204	CE, UL, (CCC)	218
O5K500	CE, CUL, (CCC)	298	O6P205	CE, (CCC)	218
O5P200	CE, CUL, (CCC)	223	O6P206	CE, CUL, (CCC)	218
O5P201	CE, CUL, (CCC)	223	O6P207	CE, CUL, (CCC)	218
O5P500	CE, CUL, (CCC)	224	O6P300	CE, UL, (CCC)	221
O5P501	CE, CUL, (CCC)	224	O6P301	CE, UL, (CCC)	221
O5P502	CE, CUL, (CCC)	224	O6P302	CE, CUL, (CCC)	221
O5P51A	CE, (CCC)	225	O6P303	CE, CUL, (CCC)	222
O5P700	CE, CUL, (CCC)	263	O6P304	CE, UL, (CCC)	222
O5S200	CE, CUL, (CCC)	223	O6P305	CE, UL, (CCC)	222
O5S500	CE, CUL, (CCC)	224	O6P306	CE, CUL, (CCC)	222
O5S501	CE, CUL, (CCC)	224	O6P307	CE, CUL, (CCC)	222
O5S51A	CE, (CCC)	225	O6S200	CE, UL, (CCC)	216
O5S700	CE, CUL, (CCC)	262	O6S201	CE, (CCC)	216
O6E200	CE, UL, (CCC)	216	O6S202	CE, CUL, (CCC)	216
O6E201	CE, (CCC)	216	O6S203	CE, CUL, (CCC)	218
O6E202	CE, CUL, (CCC)	216	O6S300	CE, UL, (CCC)	219
O6E203	CE, CUL, (CCC)	216	O6S301	CE, UL, (CCC)	220
O6E204	CE, UL, (CCC)	216	O6S302	CE, CUL, (CCC)	220
O6E205	CE, (CCC)	216	O6S303	CE, CUL, (CCC)	220
O6E206	CE, CUL, (CCC)	216	O6T200	CE, UL, (CCC)	218
O6E207	CE, CUL, (CCC)	217	O6T201	CE, (CCC)	218
O6E300	CE, UL, (CCC)	219	O6T202	CE, CUL, (CCC)	219
O6E301	CE, UL, (CCC)	219	O6T203	CE, CUL, (CCC)	219
O6E302	CE, CUL, (CCC)	220	O6T204	CE, UL, (CCC)	219
O6E303	CE, CUL, (CCC)	220	O6T205	CE, (CCC)	219
O6E304	CE, UL, (CCC)	220	O6T206	CE, CUL, (CCC)	219
O6E305	CE, UL, (CCC)	220	O6T207	CE, CUL, (CCC)	219
O6E306	CE, CUL, (CCC)	220	O6T300	CE, UL, (CCC)	222
O6E307	CE, CUL, (CCC)	220	O6T301	CE, UL, (CCC)	222
O6H200	CE, UL, (CCC)	217	O6T302	CE, CUL, (CCC)	222
O6H201	CE, (CCC)	217	O6T303	CE, CUL, (CCC)	222
O6H202	CE, CUL, (CCC)	217	O6T304	CE, UL, (CCC)	222
O6H203	CE, CUL, (CCC)	217	O6T305	CE, UL, (CCC)	223
O6H204	CE, UL, (CCC)	217	O6T306	CE, CUL, (CCC)	223
O6H205	CE, (CCC)	217	O6T307	CE, CUL, (CCC)	223
O6H206	CE, CUL, (CCC)	217	O7E200	CE, UL, (CCC)	210
O6H207	CE, CUL, (CCC)	217	O7E201	CE, UL, (CCC)	210
O6H300	CE, UL, (CCC)	220	O7E202	CE, UL, (CCC)	210
O6H301	CE, UL, (CCC)	221	O7E203	CE, UL, (CCC)	210
O6H302	CE, CUL, (CCC)	221	O7H200	CE, UL, (CCC)	211
O6H303	CE, CUL, (CCC)	221	O7H201	CE, UL, (CCC)	211
O6H304	CE, UL, (CCC)	221	O7H202	CE, UL, (CCC)	211
O6H305	CE, UL, (CCC)	221	O7H203	CE, UL, (CCC)	211
O6H306	CE, CUL, (CCC)	221	O7H204	CE, UL, (CCC)	211
O6H307	CE, CUL, (CCC)	221	O7H205	CE, UL, (CCC)	211
O6P200	CE, UL, (CCC)	217	O7H206	CE, UL, (CCC)	211
O6P201	CE, (CCC)	218	O7H207	CE, UL, (CCC)	211
O6P202	CE, CUL, (CCC)	218	O7H208	CE, UL, (CCC)	211

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
O7H209	CE, UL, (CCC)	211	OG5127	CE, CUL, (CCC)	205
O7H210	CE, UL, (CCC)	211	OG5128	CE, CUL, (CCC)	205
O7H211	CE, UL, (CCC)	211	OG5129	CE, CUL, (CCC)	205
O7P200	CE, UL, (CCC)	211	OGE080	CE, CUL	206
O7P201	CE, UL, (CCC)	211	OGE081	CE, CUL	206
O7P202	CE, UL, (CCC)	211	OGE100	CE, CUL, (CCC)	199
O7P203	CE, UL, (CCC)	211	OGE101	CE, CUL, (CCC)	199
O7S200	CE, UL, (CCC)	210	OGE102	CE, CUL, (CCC)	199
OBF500	CE, CUL, (CCC)	278	OGE103	CE, CUL, (CCC)	199
OBF501	CE, CUL, (CCC)	278	OGE200	CE, CUL, (CCC)	199
OBF502	CE, CUL, (CCC)	278	OGE201	CE, CUL, (CCC)	199
OBF503	CE, CUL, (CCC)	278	OGE280	CE, CUL, (CCC)	205
OF5010	CE, CUL, (CCC)	197	OGE281	CE, CUL, (CCC)	206
OF5012	CE, CUL, (CCC)	198	OGE282	CE, CUL, (CCC)	205
OF5014	CE, CUL, (CCC)	197	OGE300	CE, CUL, (CCC)	203
OF5016	CE, CUL, (CCC)	197	OGE301	CE, CUL, (CCC)	203
OF5018	CE, CUL, (CCC)	197	OGE302	CE, CUL, (CCC)	203
OF5019	CE, CUL, (CCC)	197	OGE303	CE, CUL, (CCC)	203
OF5021	CE, CUL, (CCC)	197	OGE380	CE, CUL, (CCC)	207
OF5022	CE, CUL, (CCC)	197	OGE381	CE, CUL, (CCC)	207
OF5024	CE, CUL, (CCC)	197	OGE382	CE, CUL, (CCC)	207
OF5025	CE, CUL, (CCC)	197	OGE500	CE, CUL, (CCC)	202
OF5026	CE, CUL, (CCC)	198	OGE502	CE, CUL, (CCC)	202
OF5027	CE, CUL, (CCC)	198	OGE700	CE, CUL, (CCC)	260
OF5032	CE, CUL, (CCC)	198	OGE701	CE, CUL, (CCC)	260
OF5048	CE, CUL, (CCC)	198	OGH080	CE, CUL	207
OF5049	CE, CUL, (CCC)	198	OGH081	CE, CUL	207
OF5050	CE, CUL, (CCC)	197	OGH200	CE, CUL, (CCC)	201
OF5051	CE, CUL, (CCC)	197	OGH280	CE, CUL, (CCC)	206
OF5060	CE, CUL, (CCC)	198	OGH281	CE, CUL, (CCC)	206
OF5062	CE, CUL, (CCC)	197	OGH282	CE, CUL, (CCC)	207
OG0028	CCC, CE	199	OGH283	CE, CUL, (CCC)	207
OG0029	CCC, CE	199	OGH300	CE, CUL, (CCC)	204
OG0030	CCC, CE, CUL	199	OGH301	CE, CUL, (CCC)	204
OG0031	CCC, CE	200	OGH302	CE, CUL, (CCC)	204
OG0032	CCC, CE	200	OGH303	CE, CUL, (CCC)	204
OG0033	CCC, CE	200	OGH304	CE, CUL, (CCC)	204
OG0034	CCC, CE	201	OGH305	CE, CUL, (CCC)	204
OG0035	CCC, CE	201	OGH306	CE, CUL, (CCC)	204
OG0038	CCC, CE	199	OGH307	CE, CUL, (CCC)	204
OG0039	CCC, CE	200	OGH308	CE, CUL, (CCC)	204
OG0040	CCC, CE	201	OGH309	CE, CUL, (CCC)	204
OG0041	CCC, CE	201	OGH310	CE, CUL, (CCC)	204
OG0043	CCC, CE	200	OGH311	CE, CUL, (CCC)	204
OG0044	CCC, CE	200	OGH380	CE, CUL, (CCC)	207
OG0047	CE, CCC	201	OGH381	CE, CUL, (CCC)	208
OG5123	CE, CUL, (CCC)	205	OGH382	CE, CUL, (CCC)	208
OG5124	CE, CUL, (CCC)	205	OGH383	CE, CUL, (CCC)	208
OG5125	CE, CUL, (CCC)	205	OGH500	CE, CUL, (CCC)	202
OG5126	CE, CUL, (CCC)	205	OGH501	CE, CUL, (CCC)	202

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
OGH502	CE, CUL, (CCC)	203	OH5008	CE, (CCC)	209
OGH504	CE, CUL, (CCC)	203	OH5009	CE, (CCC)	210
OGH580	CE, CUL, (CCC)	206	OH5010	CE, (CCC)	209
OGH581	CE, CUL, (CCC)	207	OH5011	CE, (CCC)	209
OGH700	CE, CUL, (CCC)	260	OH5012	CE, (CCC)	209
OGP080	CE, CUL	206	OH5015	CE, (CCC)	209
OGP081	CE, CUL	206	OH5016	CE, (CCC)	210
OGP100	CE, CUL, (CCC)	200	OH5017	CE, (CCC)	210
OGP101	CE, CUL, (CCC)	200	OH5018	CE, (CCC)	210
OGP102	CE, CUL, (CCC)	200	OH5019	CE, (CCC)	209
OGP103	CE, CUL, (CCC)	200	OH5020	CE, (CCC)	209
OGP200	CE, CUL, (CCC)	200	OID200	CE, CUL, (CCC)	267
OGP201	CE, CUL, (CCC)	200	OID201	CE, CUL, (CCC)	267
OGP280	CE, CUL, (CCC)	206	OIH280	CE, CUL	208
OGP281	CE, CUL, (CCC)	206	OIH282	CE, CUL	208
OGP282	CE, CUL, (CCC)	206	OIH580	CE, CUL	208
OGP283	CE, CUL, (CCC)	206	OIH582	CE, CUL	208
OGP300	CE, CUL, (CCC)	203	OIP280	CE, CUL	208
OGP301	CE, CUL, (CCC)	204	OIP281	CE, CUL	208
OGP302	CE, CUL, (CCC)	203	OIP282	CE, CUL	208
OGP303	CE, CUL, (CCC)	203	OIP283	CE, CUL	208
OGP500	CE, CUL, (CCC)	202	OJ5000	CE, CUL, (CCC)	215
OGP502	CE, CUL, (CCC)	202	OJ5001	CE, CUL, (CCC)	215
OGP503	CE, CUL, (CCC)	202	OJ5004	CE, CUL, (CCC)	215
OGP700	CE, CUL, (CCC)	260	OJ5005	CE, CUL, (CCC)	215
OGP701	CE, CUL, (CCC)	260	OJ5006	CE, CUL, (CCC)	214
OGS080	CE, CUL	206	OJ5008	CE, CUL, (CCC)	214
OGS100	CE, CUL, (CCC)	199	OJ5009	CE, CUL, (CCC)	214
OGS200	CE, CUL, (CCC)	199	OJ5010	CE, CUL, (CCC)	214
OGS280	CE, CUL, (CCC)	205	OJ5011	CE, CUL, (CCC)	214
OGS300	CE, CUL, (CCC)	203	OJ5012	CE, CUL, (CCC)	214
OGS301	CE, CUL, (CCC)	203	OJ5014	CE, CUL, (CCC)	262
OGS380	CE, CUL, (CCC)	207	OJ5016	CE, CUL, (CCC)	262
OGS500	CE, CUL, (CCC)	202	OJ5017	CE, CUL, (CCC)	262
OGS501	CE, CUL, (CCC)	202	OJ5019	CE, CUL, (CCC)	261
OGS700	CE, CUL, (CCC)	260	OJ5020	CE, CUL, (CCC)	261
OGS701	CE, CUL, (CCC)	260	OJ5022	CE, CUL, (CCC)	213
OGT100	CE, CUL, (CCC)	200	OJ5023	CE, CUL, (CCC)	213
OGT101	CE, CUL, (CCC)	201	OJ5024	CE, CUL, (CCC)	213
OGT102	CE, CUL, (CCC)	201	OJ5026	CE, CUL, (CCC)	213
OGT103	CE, CUL, (CCC)	201	OJ5027	CE, CUL, (CCC)	213
OGT200	CE, CUL, (CCC)	201	OJ5028	CE, CUL, (CCC)	213
OGT500	CE, CUL, (CCC)	202	OJ5030	CE, CUL, (CCC)	212
OH5001	CE, (CCC)	209	OJ5031	CE, CUL, (CCC)	212
OH5002	CE, (CCC)	209	OJ5032	CE, CUL, (CCC)	212
OH5003	CE, (CCC)	209	OJ5033	CE, CUL, (CCC)	212
OH5004	CE, (CCC)	210	OJ5034	CE, CUL, (CCC)	212
OH5005	CE, (CCC)	210	OJ5036	CE, CUL, (CCC)	261
OH5006	CE, (CCC)	209	OJ5038	CE, CUL, (CCC)	260
OH5007	CE, (CCC)	210	OJ5039	CE, CUL, (CCC)	260

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
OJ5041	CE, CUL, (CCC)	260	OJS200	CE, CUL, (CCC)	212
OJ5042	CE, CUL, (CCC)	260	OK5001	CE, CUL	282
OJ5044	CE, CUL, (CCC)	215	OK5008	CE, CUL	282
OJ5048	CE, CUL, (CCC)	213	OL0004	CCC, CE	226
OJ5052	CE, CUL, (CCC)	262	OL0005	CCC, CE	226
OJ5054	CE, CUL, (CCC)	261	OL0006	CE	225
OJ5056	CE, CUL, (CCC)	262	OL0007	CCC, CE	225
OJ5058	CE, CUL, (CCC)	261	OL0009	CCC, CE	226
OJ5060	CE, CUL, (CCC)	215	OO5000	CE, CUL, (CCC)	278
OJ5061	CE, CUL, (CCC)	215	OO5001	CE, CUL, (CCC)	278
OJ5062	CE, CUL, (CCC)	215	OO5002	CE, CUL, (CCC)	278
OJ5063	CE, CUL, (CCC)	215	OO5003	CE, CUL, (CCC)	278
OJ5065	CE, CUL, (CCC)	214	OO5004	CE, CUL, (CCC)	282
OJ5067	CE, CUL, (CCC)	214	OO5005	CE, CUL, (CCC)	282
OJ5069	CE, CUL, (CCC)	215	OO5006	CE, CUL, (CCC)	282
OJ5070	CE, CUL, (CCC)	215	OO5007	CE, CUL, (CCC)	282
OJ5071	CE, CUL, (CCC)	213	OPL200	CE, CUL, (CCC)	255
OJ5078	CE, CUL, (CCC)	213	OPL201	CE, CUL, (CCC)	255
OJ5085	CE, CUL, (CCC)	298	OPL202	CE, CUL, (CCC)	255
OJ5086	CE, CUL, (CCC)	298	OPL203	CE, CUL, (CCC)	255
OJ5100	CE, CUL, (CCC)	215	OPU200	CE, (CCC)	254
OJ5104	CE, CUL, (CCC)	215	OPU201	CE, CUL, (CCC)	254
OJ5108	CE, CUL, (CCC)	214	OPU202	CE, CUL, (CCC)	254
OJ5109	CE, CUL, (CCC)	214	OPU203	CE, CUL, (CCC)	254
OJ5114	CE, CUL, (CCC)	262	OPU204	CE, CUL, (CCC)	254
OJ5116	CE, CUL, (CCC)	262	OPU205	CE, CUL, (CCC)	254
OJ5117	CE, (CCC)	262	OPU207	CE, (CCC)	254
OJ5122	CE, CUL, (CCC)	213	OPU208	CE, CUL, (CCC)	254
OJ5126	CE, CUL, (CCC)	213	OPU209	CE, CUL, (CCC)	254
OJ5130	CE, CUL, (CCC)	213	OPU210	CE, CUL, (CCC)	254
OJ5131	CE, CUL, (CCC)	213	OPU211	CE, CUL, (CCC)	254
OJ5136	CE, CUL, (CCC)	261	OPU700	CE, CUL, (CCC)	255
OJ5138	CE, CUL, (CCC)	261	OPU701	CE, CUL, (CCC)	255
OJ5139	CE, CUL, (CCC)	261	OPU702	CE, CUL, (CCC)	255
OJ5141	CE, CUL, (CCC)	261	OU5001	CE, CUL	283
OJ5142	CE, CUL, (CCC)	261	OU5002	CE, CUL	283
OJ5144	CE, CUL, (CCC)	215	OU5043	CE, CUL	283
OJ5148	CE, CUL, (CCC)	214	OU5044	CE, CUL	283
OJ5152	CE, CUL, (CCC)	262	OY0015	CE, CUL, (CCC)	387
OJ5154	CE, CUL, (CCC)	261	OY0025	CE, CUL, (CCC)	387
OJ5158	CE, CUL, (CCC)	261	OY0035	CE, CUL, (CCC)	387
OJ5185	CE, CUL, (CCC)	298	OY0045	CE, CUL, (CCC)	387
OJ5186	CE, CUL, (CCC)	298	OY0055	CE, CUL, (CCC)	387
OJ5189	CE, CUL, (CCC)	298	OY0065	CE, CUL, (CCC)	387
OJ5190	CE, CUL, (CCC)	298	OY0075	CE, CUL, (CCC)	387
OJ5191	CE, CUL, (CCC)	298	OY0085	CE, CUL, (CCC)	387
OJE200	CE, CUL, (CCC)	212	OY0095	CE, CUL, (CCC)	387
OJH200	CE, CUL, (CCC)	212	OY0105	CE, CUL, (CCC)	387
OJP200	CE, CUL, (CCC)	212	OY0115	CE, CUL, (CCC)	387
OJR200	CE, CUL, (CCC)	212	OY0315	CE, CUL, (CCC)	394

(CCC) = CCC approval is not required

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
OY032S	CE, CUL, (CCC)	394	OY084S	CE, CUL, (CCC)	391
OY033S	CE, CUL, (CCC)	394	OY085S	CE, CUL, (CCC)	392
OY034S	CE, CUL, (CCC)	394	OY086S	CE, CUL, (CCC)	392
OY035S	CE, CUL, (CCC)	394	OY087S	CE, CUL, (CCC)	392
OY036S	CE, CUL, (CCC)	394	OY088S	CE, CUL, (CCC)	392
OY037S	CE, CUL, (CCC)	394	OY089S	CE, CUL, (CCC)	392
OY038S	CE, CUL, (CCC)	394	OY090S	CE, CUL, (CCC)	392
OY039S	CE, CUL, (CCC)	394	OY094S	CE, CUL, (CCC)	396
OY040S	CE, CUL, (CCC)	394	OY095S	CE, CUL, (CCC)	396
OY041S	CE, CUL, (CCC)	388	OY096S	CE, CUL, (CCC)	396
OY042S	CE, CUL, (CCC)	388	OY097S	CE, CUL, (CCC)	396
OY043S	CE, CUL, (CCC)	388	OY098S	CE, CUL, (CCC)	396
OY044S	CE, CUL, (CCC)	389	OY099S	CE, CUL, (CCC)	396
OY045S	CE, CUL, (CCC)	389	OY100S	CE, CUL, (CCC)	396
OY046S	CE, CUL, (CCC)	389	OY104S	CE, CUL, (CCC)	393
OY047S	CE, CUL, (CCC)	389	OY105S	CE, CUL, (CCC)	393
OY048S	CE, CUL, (CCC)	389	OY106S	CE, CUL, (CCC)	393
OY049S	CE, CUL, (CCC)	389	OY107S	CE, CUL, (CCC)	393
OY050S	CE, CUL, (CCC)	389	OY108S	CE, CUL, (CCC)	393
OY051S	CE, CUL, (CCC)	395	OY109S	CE, CUL, (CCC)	393
OY052S	CE, CUL, (CCC)	395	OY110S	CE, CUL, (CCC)	393
OY053S	CE, CUL, (CCC)	395	OY111S	CE, CUL, (CCC)	406
OY054S	CE, CUL, (CCC)	395	OY112S	CE, CUL, (CCC)	406
OY055S	CE, CUL, (CCC)	395	OY113S	CE, CUL, (CCC)	406
OY056S	CE, CUL, (CCC)	395	OY114S	CE, CUL, (CCC)	407
OY057S	CE, CUL, (CCC)	395	OY115S	CE, CUL, (CCC)	407
OY058S	CE, CUL, (CCC)	395	OY116S	CE, CUL, (CCC)	407
OY059S	CE, CUL, (CCC)	395	OY120S	CE, CUL, (CCC)	407
OY060S	CE, CUL, (CCC)	395	OY121S	CE, CUL, (CCC)	407
OY061S	CE, CUL, (CCC)	390	OY122S	CE, CUL, (CCC)	407
OY062S	CE, CUL, (CCC)	390	OY204S	CE, CUL, (CCC)	393
OY063S	CE, CUL, (CCC)	390	OY205S	CE, CUL, (CCC)	393
OY064S	CE, CUL, (CCC)	390	OY206S	CE, CUL, (CCC)	393
OY065S	CE, CUL, (CCC)	390	OY207S	CE, CUL, (CCC)	394
OY066S	CE, CUL, (CCC)	390	OY208S	CE, CUL, (CCC)	394
OY067S	CE, CUL, (CCC)	390	OY209S	CE, CUL, (CCC)	394
OY068S	CE, CUL, (CCC)	390	OY210S	CE, CUL, (CCC)	394
OY069S	CE, CUL, (CCC)	390	OY221S	CE, CUL, (CCC)	388
OY070S	CE, CUL, (CCC)	390	OY222S	CE, CUL, (CCC)	388
OY072S	CE, CUL, (CCC)	395	OY223S	CE, CUL, (CCC)	388
OY073S	CE, CUL, (CCC)	395	OY224S	CE, CUL, (CCC)	388
OY074S	CE, CUL, (CCC)	395	OY225S	CE, CUL, (CCC)	388
OY075S	CE, CUL, (CCC)	396	OY226S	CE, CUL, (CCC)	388
OY076S	CE, CUL, (CCC)	396	OY227S	CE, CUL, (CCC)	388
OY077S	CE, CUL, (CCC)	396	OY228S	CE, CUL, (CCC)	388
OY078S	CE, CUL, (CCC)	396	OY229S	CE, CUL, (CCC)	388
OY079S	CE, CUL, (CCC)	396	OY230S	CE, CUL, (CCC)	388
OY080S	CE, CUL, (CCC)	396	OY241S	CE, CUL, (CCC)	389
OY082S	CE, CUL, (CCC)	391	OY242S	CE, CUL, (CCC)	389
OY083S	CE, CUL, (CCC)	391	OY243S	CE, CUL, (CCC)	389

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
OY244S	CE, CUL, (CCC)	389	OY446S	CE, CUL, (CCC)	397
OY245S	CE, CUL, (CCC)	389	OY447S	CE, CUL, (CCC)	397
OY246S	CE, CUL, (CCC)	389	OY448S	CE, CUL, (CCC)	397
OY247S	CE, CUL, (CCC)	389	OY449S	CE, CUL, (CCC)	397
OY248S	CE, CUL, (CCC)	390	OY450S	CE, CUL, (CCC)	397
OY249S	CE, CUL, (CCC)	390	OY804S	CE, CUL, (CCC)	398
OY250S	CE, CUL, (CCC)	390	OY805S	CE, CUL, (CCC)	398
OY261S	CE, CUL, (CCC)	391	OY806S	CE, CUL, (CCC)	398
OY262S	CE, CUL, (CCC)	391	OY807S	CE, CUL, (CCC)	399
OY263S	CE, CUL, (CCC)	391	OY808S	CE, CUL, (CCC)	399
OY264S	CE, CUL, (CCC)	391	OY815S	CE, CUL, (CCC)	399
OY265S	CE, CUL, (CCC)	391	OY816S	CE, CUL, (CCC)	399
OY266S	CE, CUL, (CCC)	391	OY817S	CE, CUL, (CCC)	399
OY267S	CE, CUL, (CCC)	391	OY818S	CE, CUL, (CCC)	399
OY268S	CE, CUL, (CCC)	391	OY819S	CE, CUL, (CCC)	399
OY269S	CE, CUL, (CCC)	391	OY825S	CE, CUL, (CCC)	399
OY270S	CE, CUL, (CCC)	391	OY826S	CE, CUL, (CCC)	399
OY282S	CE, CUL, (CCC)	392	OY827S	CE, CUL, (CCC)	399
OY283S	CE, CUL, (CCC)	392	OY828S	CE, CUL, (CCC)	399
OY284S	CE, CUL, (CCC)	392	OY829S	CE, CUL, (CCC)	400
OY285S	CE, CUL, (CCC)	392	OY901S	CE, CUL, (CCC)	408
OY286S	CE, CUL, (CCC)	392	OY902S	CE, CUL, (CCC)	408
OY287S	CE, CUL, (CCC)	392	OY903S	CE, CUL, (CCC)	408
OY288S	CE, CUL, (CCC)	392	OY951S	CE, CUL, (CCC)	408
OY289S	CE, CUL, (CCC)	392	OY952S	CE, CUL, (CCC)	408
OY290S	CE, CUL, (CCC)	393	OY953S	CE, CUL, (CCC)	408
OY403S	CE, CUL, (CCC)	397	PA3020	CE, CUL	440, 694
OY405S	CE, CUL, (CCC)	397	PA3021	CE, CUL	440, 694
OY407S	CE, CUL, (CCC)	397	PA3022	CE, CUL	440, 694
OY411S	CE, CUL, (CCC)	408	PA3023	CE, CUL	440, 694
OY412S	CE, CUL, (CCC)	408	PA3024	CE, CUL	440, 694
OY413S	CE, CUL, (CCC)	408	PA3026	CE, CUL	440
OY421S	CE, CUL, (CCC)	407	PA3027	CE, CUL	440
OY422S	CE, CUL, (CCC)	407	PA3028	CE, CUL	440, 498
OY423S	CE, CUL, (CCC)	407	PA3029	CE, CUL	440
OY431S	CE, CUL, (CCC)	398	PA3060	CE	440, 694
OY432S	CE, CUL, (CCC)	398	PA3521	CE	440
OY433S	CE, CUL, (CCC)	398	PA3522	CE, CUL	441
OY434S	CE, CUL, (CCC)	398	PA3523	CE, CUL	441
OY435S	CE, CUL, (CCC)	398	PA3524	CE, CUL	441
OY436S	CE, CUL, (CCC)	398	PA3526	CE	441
OY437S	CE, CUL, (CCC)	398	PA3528	CE, CUL	441
OY438S	CE, CUL, (CCC)	398	PA3589	CE	441
OY439S	CE, CUL, (CCC)	398	PA9020	CE, CUL	441, 694
OY440S	CE, CUL, (CCC)	398	PA9021	CE	441, 694
OY441S	CE, CUL, (CCC)	397	PA9022	CE, CUL	441, 694
OY442S	CE, CUL, (CCC)	397	PA9023	CE, CUL	441, 694
OY443S	CE, CUL, (CCC)	397	PA9024	CE, CUL	441, 694
OY444S	CE, CUL, (CCC)	397	PA9026	CE, CUL	441
OY445S	CE, CUL, (CCC)	397	PA9027	CE, CUL	441

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
PA9028	CE, CUL	441	PI2203	CE, CUL, FDA	445
PA9029	CE, CUL	442	PI2204	CE, CUL, FDA	445
PA9060	CE	441	PI2205	CE, CUL, FDA	445
PE3000	CE, CUL	449	PI2206	CE, CUL, FDA	445, 499
PE3001	CE, CUL	449	PI2207	CE, CUL, FDA	446, 499
PE3002	CE, CUL	449	PI2209	CE, CUL, FDA	446, 499
PE3003	CE, CUL	449	PI2303	CE, CUL, FDA	446
PE3004	CE, CUL	449	PI2304	CE, CUL, FDA	446
PE3006	CE, CUL	449	PI2305	CE, CUL, FDA	446
PE3009	CE, CUL	449	PI2306	CE, CUL, FDA	446
PE3029	CE, CUL	449	PI2307	CE, CUL, FDA	446
PE7002	CE, CUL	449	PI2309	CE, CUL, FDA	446
PE7003	CE, CUL	449	PI2789	CE, CUL, EHEDG, FDA	444, 498
PE7004	CE, CUL	449	PI2793	CE, CUL, EHEDG, FDA	444
PE7006	CE, CUL	449	PI2794	CE, CUL, EHEDG, FDA, CRN	444
PE7009	CE, CUL	449	PI2795	CE, CUL, EHEDG, FDA	444
PF2953	CE, CUL, FDA	447	PI2796	CE, CUL, EHEDG, FDA	444, 499
PF2954	CE, CUL, FDA	447	PI2797	CE, CUL, EHEDG, FDA	444, 499
PF2956	CE, CUL, FDA	447	PI2798	CE, CUL, EHEDG, FDA	444, 499
PF2957	CE, CUL, FDA	448	PI2799	CE, CUL, EHEDG, FDA	445, 499
PG2409	CE, CUL	433	PI2889	CE, CUL, EHEDG, FDA	445, 499
PG2450	CE	433	PI2893	CE, CUL, EHEDG, FDA	445
PG2451	CE, CUL	433	PI2894	CE, CUL, EHEDG, FDA	445
PG2452	CE, CUL	433	PI2895	CE, CUL, EHEDG, FDA	445
PG2453	CE, CUL	433	PI2896	CE, CUL, EHEDG, FDA	445, 499
PG2454	CE, CUL, CRN	433	PI2897	CE, CUL, EHEDG, FDA	445, 499
PG2455	CE, CUL	433	PI2898	CE, CUL, EHEDG, FDA	445, 499
PG2456	CE, CUL	433	PI2899	CE, CUL, EHEDG, FDA	445, 499
PG2457	CE, CUL	433	PK5520	CE, CUL	434
PG2458	CE, CUL	433	PK5521	CE, CUL	434
PG2489	CE, CUL	433	PK5522	CE, CUL	434
PG2789	CE, EHEDG, FDA	447, 499	PK5523	CE, CUL	434
PG2793	CE, CUL, EHEDG, FDA	446	PK5524	CE, CUL	434
PG2794	CE, CUL, EHEDG, FDA	446	PK6520	CE, CUL	434
PG2795	CE, CUL, EHEDG, FDA	446	PK6521	CE, CUL	434
PG2796	CE, CUL, EHEDG, FDA	446, 499	PK6522	CE, CUL	434
PG2797	CE, CUL, EHEDG, FDA	446, 499	PK6523	CE, CUL	434
PG2798	CE, CUL, EHEDG, FDA	447, 499	PK6524	CE, CUL, CRN	434
PG2799	CE, CUL, EHEDG, FDA	446, 500	PK6732	CE, CUL	435
PG2889	CE, CUL, EHEDG, FDA	447, 500	PK6734	CE, CUL	435
PG2893	CE, CUL, EHEDG, FDA	447	PK7520	CE, CUL	434
PG2894	CE, CUL, EHEDG, FDA	447	PK7521	CE, CUL	434
PG2895	CE, CUL, EHEDG, FDA	447	PK7522	CE, CUL	434
PG2896	CE, CUL, EHEDG, FDA	447, 500	PK7523	CE	434
PG2897	CE, CUL, EHEDG, FDA	447, 500	PK7524	CE, CUL	434
PG2898	CE, CUL, EHEDG, FDA	447, 500	PK8730	CE, CUL	435
PG2899	CE, CUL, EHEDG, FDA	447, 500	PK8731	CE, CUL	435
PI003A	CE, FDA	444	PK8732	CE, CUL	435
PI008A	CE, FDA	444	PK8734	CE, CUL	435
PI009A	CE, FDA	444	PL2652	CE, CUL, EHEDG, FDA	448

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
PL2653	CE, CUL, EHEDG, FDA	448	PN7099	CE	432
PL2654	CE, CUL, EHEDG, FDA	448	PN7160	CE	432
PL2656	CE, CUL, EHEDG, FDA	448	PN7560	CE	432
PL2657	CE, CUL, EHEDG, FDA	448	PN7570	CE	432
PL2658	CE, CUL, EHEDG, FDA	448	PN7571	CE	432
PM2653	CE, CUL, EHEDG, FDA	448	PN7592	CE	432
PM2654	CE, CUL, EHEDG, FDA	448	PN7593	CE	432
PM2655	CE, CUL, EHEDG, FDA	448	PN7594	CE	432
PM2656	CE, CUL, EHEDG, FDA	448	PN7596	CE	432
PM2657	CE, CUL, EHEDG, FDA	448	PN7597	CE	433
PM2658	CE, CUL, EHEDG, FDA	448	PN7599	CE	433
PN004A	CE	443	PN7809	CE, CUL	436
PN006A	CE	443	PN7834	CE, CUL	436
PN007A	CE	443	PNI021	CE	443
PN014A	CE	443	PNI022	CE	443
PN016A	CE	444	PNI023	CE	443
PN2009	CE, CUL	430	PNI024	CE	443
PN2020	CE, CUL	430	PP000E	CE, E1R	695
PN2021	CE, CUL	430	PP001E	CE, E1R	695
PN2022	CE, CUL	430	PP002E	CE, E1R	695
PN2023	CE, CUL	430	PP003E	CE, E1R	695
PN2024	CE, CUL	430	PP004E	CE, E1R	695
PN2026	CE, CUL	430	PP0520	CE	436
PN2027	CE, CUL	430	PP0521	CE	436
PN2028	CE, CUL	430	PP0522	CE, CUL	436
PN3070	CE	430	PP0523	CE, CUL	436
PN3071	CE	430	PP0524	CE, CUL	436
PN3092	CE	430	PP2001	CE, CUL	450, 696
PN3093	CE	431	PP7550	CE	435, 693
PN3094	CE	431	PP7551	CE	435, 694
PN3096	CE	431	PP7552	CE, CUL	435, 694
PN3097	CE	431	PP7553	CE, CUL	435, 694
PN3129	CE	431	PP7554	CE, CUL	435, 694
PN3160	CE	430	PP7556	CE, CUL	435
PN3529	CE	431	PQ0809	CE, CUL	436
PN3560	CE	431	PQ0834	CE, CUL	436
PN3570	CE	431	PQ3809	CE, CUL	436
PN3571	CE	431	PQ3834	CE, CUL	437
PN3592	CE	431	PQ7809	CE, CUL	436
PN3593	CE	431	PQ7834	CE, CUL	436
PN3594	CE	431	PS307A	CE, GL, IEC	443, 498
PN3596	CE	431	PS308A	CE, GL, IEC	442, 498
PN3597	CE	431	PS317A	CE, GL, IEC	443, 498
PN7070	CE	432	PS3208	CE	442, 497
PN7071	CE	432	PS3407	CE	442, 498
PN7092	CE	432	PS3417	CE	442, 498
PN7093	CE	432	PS3427	CE	442, 498
PN7094	CE	432	PS3607	CE	442, 498
PN7096	CE	432	PS3617	CE	442, 498
PN7097	CE	432	PS7570	CE	442

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
PT3550	CE, CUL	438, 695	RA6029	CE, C_NRTL_US	330
PT3551	CE, CUL	438, 695	RB1015	CE, C_NRTL_US	326
PT3552	CE, CUL	438, 695	RB6001	CE, C_NRTL_US	326
PT3553	CE, CUL	438, 695	RB6002	CE, C_NRTL_US	326
PT3554	CE, CUL	439, 695	RB6003	CE, C_NRTL_US	326
PT5400	CE, CUL	437	RB6004	CE, C_NRTL_US	326
PT5401	CE, CUL	437	RB6005	CE, C_NRTL_US	326
PT5402	CE, CUL	437	RB6006	CE, C_NRTL_US	326
PT5403	CE, CUL	437	RB6007	CE, C_NRTL_US	326
PT5404	CE, CUL	437	RB6009	CE, C_NRTL_US	326
PT5412	CE, CUL	437	RB6010	CE, C_NRTL_US	326
PT5414	CE, CUL	437	RB6011	CE, C_NRTL_US	326
PT5415	CE, CUL	437	RB6012	CE, C_NRTL_US	326
PT5423	CE	437	RB6013	CE, C_NRTL_US	326
PT5443	CE, CUL	437	RB6014	CE, C_NRTL_US	326
PT5460	CE, CUL	437	RB6015	CE, C_NRTL_US	327
PT9550	CE, CUL	439, 695	RB6016	CE, C_NRTL_US	327
PT9551	CE, CUL	439, 695	RB6029	CE, C_NRTL_US	327
PT9552	CE, CUL	439, 695	RB6044	CE, C_NRTL_US	326
PT9553	CE, CUL	439, 695	RM3006	CE	331
PT9554	CE, CUL	439, 695	RM3007	CE	331
PU5400	CE, CUL	438	RM3008	CE	331
PU5401	CE, CUL	438	RM3010	CE	331
PU5402	CE, CUL	438	RM3011	CE	331
PU5403	CE, CUL	438	RM7011	CE	332
PU5404	CE, CUL	438	RM7012	CE	332
PU5412	CE, CUL	438	RM8001	CE	330
PU5414	CE, CUL	438	RM8002	CE	330
PU5415	CE, CUL	438	RM8003	CE	330
PU5423	CE	438	RM9000	CE, E1, (CCC)	332, 690
PU5443	CE, CUL	438	RN3001	CE	331
PU5460	CE, CUL	437	RN7011	CE	331
PU5600	CE	440	RN7012	CE	332
PU5601	CE	440	RO6342	CE, C_NRTL_US	330
PU5602	CE	439	RO6343	CE, C_NRTL_US	330
PU5603	CE	439	RO6344	CE, C_NRTL_US	330
PU5604	CE	439	RO6345	CE, C_NRTL_US	330
PU5660	CE	440	RO6348	CE, C_NRTL_US	330
PU5700	CE	439	RO6349	CE, C_NRTL_US	330
PU5701	CE	439	RO6350	CE, C_NRTL_US	330
PU5702	CE	439	RU1016	CE, C_NRTL_US	327
PU5703	CE	439	RU1024	CE, C_NRTL_US	327
PU5704	CE	439	RU1025	CE, C_NRTL_US	327
PU5760	CE	439	RU1033	CE, C_NRTL_US	327
PY2068	CE, CUL	430	RU1036	CE, C_NRTL_US	327
RA6001	CE, C_NRTL_US	329	RU6003	CE, C_NRTL_US	327
RA6007	CE, C_NRTL_US	329	RU6010	CE, C_NRTL_US	327
RA6011	CE, C_NRTL_US	329	RU6013	CE, C_NRTL_US	327
RA6013	CE, C_NRTL_US	329	RU6016	CE, C_NRTL_US	327
RA6015	CE, C_NRTL_US	330	RU6024	CE, C_NRTL_US	327

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
RU6025	CE, C_NRTL_US	327	SBY446	CE, CUL	472
RU6033	CE, C_NRTL_US	327	SBY457	CE, CUL	472
RU6036	CE, C_NRTL_US	328	SD0523	CE, CUL	477, 642
RU6040	CE, C_NRTL_US	328	SD2000	CE, CUL	476, 642
RU6045	CE, C_NRTL_US	328	SD5000	CE, CUL	476, 642
RU6052	CE, C_NRTL_US	328	SD5100	CE, CUL	477
RV1016	CE, C_NRTL_US	328	SD6000	CE, CUL	476, 642
RV1024	CE, C_NRTL_US	328	SD6050	CE, CUL	476, 642
RV1025	CE, C_NRTL_US	328	SD6100	CE, CUL	477
RV1033	CE, C_NRTL_US	328	SD8000	CE, CUL	476, 642
RV1036	CE, C_NRTL_US	328	SD9000	CE, CUL	476, 642
RV1051	CE, C_NRTL_US	328	SF0516	CUL	473
RV6001	CE, C_NRTL_US	328	SF0540		474
RV6003	CE, C_NRTL_US	328	SF111A	CE, IEC	474
RV6009	CE, C_NRTL_US	328	SF120A	CE, IEC	475
RV6010	CE, C_NRTL_US	328	SF121A	CE, IEC	474
RV6013	CE, C_NRTL_US	328	SF211A	CE, IEC	474
RV6016	CE, C_NRTL_US	329	SF220A	CE, IEC	475
RV6018	CE, C_NRTL_US	329	SF221A	CE, IEC	474
RV6024	CE, C_NRTL_US	329	SF223A	CE, IEC	475
RV6025	CE, C_NRTL_US	329	SF2405	CUL	474
RV6028	CE, C_NRTL_US	329	SF2410	CUL	474
RV6033	CE, C_NRTL_US	329	SF311A	CE, IEC	474
RV6034	CE, C_NRTL_US	329	SF320A	CE, IEC	475
RV6036	CE, C_NRTL_US	329	SF321A	CE, IEC	474
RV6040	CE, C_NRTL_US	329	SF323A	CE, IEC	475
RV6100	CE, C_NRTL_US	329	SF3405		474
SA3010	CE	468	SF3410		474
SBG332	CE	471	SF5200	CUL	472
SBG333	CE	471	SF5201	CUL	472
SBG334	CE	471	SF5300	CUL	473
SBG346	CE	471	SF5350	CUL	472
SBG357	CE	471	SF5700	CUL	473
SBM613	CE	472	SF5701	CUL	473
SBT633	CE	472	SF5702	CUL	473
SBT634	CE	472	SF5703	CUL	473
SBU323	CE, CUL	470	SF5704	CUL	473
SBU324	CE, CUL	470	SF5800	CUL	473
SBU325	CE, CUL	470	SF6200	CUL	472
SBU623	CE, CUL	470	SF6201	CUL	472
SBU624	CE, CUL	470	SF620A	CE, IEC	475
SBU625	CE, CUL	470	SI0521	CE, GL	469
SBY323	CE	471	SI0553	CE	468
SBY332	CE, CUL	471	SI5000	CE, CUL	467
SBY333	CE, CUL	471	SI5002	CE, CUL	467
SBY334	CE, CUL	471	SI5004	CE, CUL, CRN	468
SBY346	CE, CUL	471	SI5006	CE, CUL, CRN	468
SBY357	CE, CUL	471	SI5007	CE, CUL	469
SBY433	CE, CUL	471	SI500A	CE	469
SBY434	CE, CUL	472	SI5010	CE, CUL, CRN	468

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
SI5100	CE	469	TA2445	CE, CUL	520
SI6600	CE, CUL, EHEDG, FDA, CRN	470	TA3130	CE, CUL	519
SI6700	CE, CUL, EHEDG, FDA	470	TA3131	CE, CUL	519
SI6800	CE, CUL, EHEDG, FDA, CRN	470	TA3171	CE, CUL	519
SL0101	CE	476	TA3231	CE, CUL, FDA	522
SL0201	CE	476	TA3237	CE, CUL, FDA	522
SL5101	CE	476	TA3430	CE, CUL, EHEDG, FDA	522
SM2000	CE, CUL	466	TA3431	CE, CUL, EHEDG, FDA	522
SM2004	CE, CUL	466	TA3437	CE, CUL, EHEDG, FDA	522
SM2100	CE, CUL, KTW	466, 646	TAA131	CE, CUL	594
SM6000	CE, CUL	466	TAA431	CE, CUL, EHEDG, FDA	594
SM6004	CE, CUL	466	TAD081	CE, CUL, EHEDG, FDA	522
SM6050	CE, CUL	467	TAD091	CE, CUL, EHEDG, FDA	522
SM6100	CE, CUL, KTW	467, 646	TAD181	CE, CUL, EHEDG, FDA	522
SM7000	CE, CUL	466	TAD191	CE, CUL, EHEDG, FDA	522
SM7004	CE, CUL	466	TAD981	CE, CUL, EHEDG, FDA	522
SM7050	CE, CUL	467	TAD991	CE, CUL, EHEDG, FDA	522
SM7100	CE, CUL, KTW	467, 646	TD2211	CE, CUL	524
SM8000	CE, CUL	466	TD2217	CE, CUL, FDA	524
SM8004	CE, CUL	466	TD2231	CE, CUL	524
SM8050	CE, CUL	467	TD2237	CE, CUL, FDA	524
SM8100	CE, CUL, KTW	467, 646	TD2241	CE, CUL	524
SM9000	CE, CUL	466	TD2247	CE, CUL, FDA	524
SM9004	CE, CUL	466	TD2261	CE, CUL	524
SM9100	CE, CUL, KTW	467, 646	TD2267	CE, CUL, FDA	524
SN0150	CE, CUL	544	TD2501	CE, CUL	523
SN0151	CE, CUL	544	TD2507	CE, CUL, FDA	523
SN2301	CE, IEC	544	TD2511	CE, CUL	523
SN2302	CE, IEC	544	TD2517	CE, CUL, FDA	523
SP321A	CE, IEC	475	TD2531	CE, CUL	523
SQ0500	CE, CUL	477	TD2537	CE, CUL, FDA	523
SR0150	CE, CUL	544	TD2541	CE, CUL	523
SR0153	CE, CUL	544	TD2547	CE, CUL, FDA	523
SR2301	CE, IEC	545	TD2801	CE, CUL	523
SR307A	CE, IEC	545	TD2807	CE, CUL, FDA	523
SR5900	CE, CUL	544	TD2811	CE, CUL	523
SR5906	CE, CUL	544	TD2817	CE, CUL, FDA	523
SU7000	CE, CUL	477, 647	TD2831	CE, CUL	523
SU7200	CE, CUL	477, 647	TD2837	CE, CUL, FDA	523
SU8000	CE, CUL	478, 647	TD2841	CE, CUL	523
SU8200	CE, CUL	477, 647	TD2847	CE, CUL, FDA	523
SU9000	CE, CUL	478, 647	TD2901	CE, CUL	524
SU9004	CE, CUL	478, 647	TD2907	CE, CUL, FDA	524
TA2105	CE, CUL	520	TD2911	CE, CUL	524
TA2115	CE, CUL	520	TD2917	CE, CUL, FDA	524
TA2135	CE, CUL	520	TD2931	CE, CUL	524
TA2145	CE, CUL	520	TD2937	CE, CUL, FDA	524
TA2405	CE, CUL	520	TD2941	CE, CUL	524
TA2415	CE, CUL	520	TD2947	CE, CUL, FDA	524
TA2435	CE, CUL	520	TK6130	CE, CUL	514

Order no.	Approvals	Catalogue page	Order no.	Approvals	Catalogue page
TK7130	CE, CUL	514	TS9256		517
TK7480	CE, CUL	514	TS9289		518
TM4101	CUL	517	TT0281	CUL	516
TM4411	CUL	517	TT0291	CUL, FDA	520
TM4431	CUL	517	TT1050	CUL	515
TM4441	CUL	517	TT1081	CUL	516
TM4461	CUL	517	TT1281	CUL	516
TM4501	CUL, EHEDG, FDA	521	TT1291	CUL, FDA	520
TM4511	CUL, EHEDG, FDA	521	TT2050	CUL	515
TM4531	CUL, EHEDG, FDA	521	TT2081	CUL	516
TM4541	CUL, EHEDG, FDA	521	TT2281	CUL	516
TM4591	CUL, EHEDG, FDA	521	TT2291	CUL, FDA	520
TM4801	CUL, FDA	521	TT3050	CUL	516
TM4811	CUL, FDA	521	TT3081	CUL	516
TM4831	CUL, FDA	521	TT3281	CUL	516
TM4841	CUL, FDA	521	TT3291	CUL, FDA	520
TM4901	CUL, FDA	521	TT5050	CUL	516
TM4911	CUL, FDA	521	TT5081	CUL	516
TM4931	CUL, FDA	521	TT9281	CUL	516
TM4941	CUL, FDA	521	TT9291	CUL, FDA	520
TM9900	CUL	516	TW2000	CE	525
TM9950	CUL	516	TW2001	CE	525
TN2531	CE, CUL	514	TW2002	CE	525
TN7531	CE, CUL	514	TW2011	CE	525
TP3231	CE, CUL	515	TW7000	CE	525
TP3232	CE, CUL	515	TW7001	CE	525
TP3233	CE, CUL	515	TW7011	CE	525
TP3237	CE, CUL	515	VES003		638
TP9237	CE, CUL	515	VKV021	CE, CUL	636
TR2432	CE, CUL	515	VKV022	CE, CUL	636
TR7432	CE, CUL	515	VNB001	CE, CUL	637
TR8430	CE, CUL	514	VOS001		638
TS0759		518	VOS002		638
TS2056		517	VOS003		638
TS2089		517	VOS004		638
TS2229		518	VOS005		638
TS2239		518	VSA001	CE, CUL	639
TS2256		517	VSA002	CE, CUL	639
TS2289		517	VSA004	CE, CUL	639
TS2659		518	VSA005	CE, CUL	639
TS2689	CE	518	VSA006	CE, CUL	639
TS2759		518	VSA101	CE, CUL	639
TS2789		518	VSA201	CE, CUL	639
TS285A	CE	519	VSE002	CE, CUL	638
TS325A	CE	519	VSE100	CE, CUL	638
TS4759		517	VSP001	CE	639
TS502A	CE	519	VSP01A	CE	639
TS5089		518	VSP02A	CE	639
TS522A	CE	519	VTV122	CE, CUL	637
TS5289		518	VTV12A	CE	637

Order no.	Approvals	Catalogue page
ZC0004		451, 502
ZC0005		451, 502
ZC0013		527
ZC0014		527
ZC0015		527
ZC0016		527
ZC0017		527
ZC0018		527
ZC0061		527
ZGS210		158, 231
ZZ0214	CE, (CCC)	309, 554



AS-Interface

AS-Interface (actuator sensor interface) is a worldwide manufacturer-independent standard for the connection of actuators and sensors of the first field level. Data and power supply are jointly transmitted via a two-wire cable. Wiring complexity, documentation and set-up times are reduced.

ATEX

ATEX (Atmosphère explosible) is a brief description of the uniform EU directives 94/9/EC (for manufactures of units for hazardous areas) and 1999/92/EC (for operators of plants for hazardous areas) governing the safety requirements for explosion-hazardous areas. Since 30 June 2003, units for hazardous areas have to be approved to 94/9/EU regulations. For further information about international directives see the "Approvals" chapter.

e1 type approval



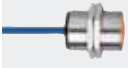





The e1 type approval by the German Federal Motor Transport Authority certifies that the units comply with the automotive standards.



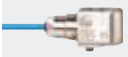




IO-Link

IO-Link is a field-bus independent and open point-to-point communication interface. It is a low-cost possibility to transmit parameter, diagnosis and process data from a sensor or an actuator via an I/O module.

Safety

The EC Machinery Directive stipulates machinery should not present a risk. If safety is dependent on control systems, these must be designed so as to minimise malfunction. The IEC 62061 und ISO 13849-1 standards apply. Classification is made either in the Safety Integrity Level (SIL 1-3 in IEC 62061) or in the Performance Level (PL a-e in ISO 13849-1).

AS-i sensors		Page
	AS-i sensors	594 - 595
	Valve sensors	307 - 307 310 - 310 551 - 551 554 - 554 598 - 599
Sensors for hazardous areas (ATEX)		Page
	Inductive sensors	111 - 116
	Capacitive sensors	154 - 155
	Cylinder sensor	181 - 181
	Valve sensors	308 - 309 552 - 553 598 - 598
	Photoelectric sensors	225 - 225 267 - 267
	Flow sensors	469 - 469 474 - 475

Sensors for hazardous areas (ATEX)		Page
	Pressure sensors	442 - 444 498 - 498
	Temperature sensors	519 - 519
	Diagnostic systems	637
Sensors with e1 approval		Page
	Inductive sensors	691 - 693
	Pressure sensors	693 - 695
Sensors with IO-Link		Page
	Capacitive sensors	153 - 154
	Pressure sensors	435 - 436

<i>Sensors with IO-Link</i>		<i>Page</i>
	Temperature sensors	514 - 515 522 - 523 525 - 525
<i>Sensors for safety technology</i>		<i>Page</i>
	Inductive sensors	382 - 383
	Safety light curtains	387 - 388 390 - 396 398 - 399
	Safety light grid	406 - 408

Well positioned



Position detection in the food industry.



Different measurement techniques

ifm offers a wide range of position sensors. Inductive, capacitive and magnetic sensors detect targets or objects in the range of a few millimetres up to several centimetres. For greater distances there are photoelectric sensors with ranges up to tens of metres. Moreover special types such as optical fork and angle sensors, fibre optics, colour and contrast sensors or cylinder sensors are used for position detection in special applications. ifm also offers suitable solutions for the detection of valve positions. All sensors are fully electronic, i.e. they work without mechanical components. The advantage: they are wear-free and provide high switching frequencies.

Microprocessor technology makes it possible






The applied microprocessor technology allows fast and easy switch point setting via pushbuttons. Clearly visible LEDs indicate the switching status. In addition to the 3-wire output stage, many position sensors can also be supplied in a 2-wire version. ifm also offers sensors with a built-in AS-Interface (AS-i).

Special applications

Sensors are used in many different areas. These include machine and plant construction as well as applications in factory automation and process technology. Special solutions are for example provided for food applications or mobile machines.

Besides constructional measures such as high-quality housing materials and coatings, the sensors also comply with applicable approvals (e.g. ATEX or e1).

Regular and thorough testing in production to the highest standards combined with equally high standards at the development stage ensure a consistently high quality.

	<i>Inductive sensors</i>	62 - 146
	<i>Capacitive sensors</i>	148 - 165
	<i>Magnetic sensors</i>	166 - 173
	<i>Cylinder sensors</i>	174 - 193
	<i>Photoelectric sensors for general applications</i>	194 - 250
	<i>Photoelectric fork sensors / angle sensors</i>	252 - 257
	<i>Laser sensors / distance measurement sensors</i>	258 - 274
	<i>Fibre optic sensors</i>	276 - 294
	<i>Photoelectric sensors for specific applications</i>	296 - 303
	<i>Feedback systems for valves and valve actuators</i>	304 - 317
	<i>Switching amplifiers</i>	318 - 320



- Extensive range of inductive sensors for industrial environments
- High-quality housing materials
- Connector, cabled and wirable versions
- Wide selection of fixing accessories and connectors

Inductive sensors

Inductive proximity sensors are used for input signals detecting machine parts in most automated processes. They supply the necessary signals for positions and limits, or serve as pulse pick-ups for counting tasks or for monitoring rotational speed. Inductive sensors offer ideal characteristics compared to mechanical switches: non-contact operation free from any wear and tear, high switching frequencies and accuracy. In addition, they are insensitive to vibration, dust and moisture. Inductive sensors detect all metals without contact.

Operating principles used in inductive sensors

Inductive sensors operate on more than one physical principle; the standard sensor contains a coil which is used to propagate a very low energy oscillating electromagnetic field. If a conductive material – for practical purposes a metal – enters this field, then eddy currents will be induced in the surface of the material which in turn draw energy from the oscillator. This reduces the oscillation amplitude and the change is converted into a switching signal. This operating principle permits detection of all metals irrespective of whether they are moving or not, but different metals will result in different sensing distances. If the sensor is designed to detect metals without this correction factor, the two oscillating fields are generated and the phase shift caused by a metal presence is evaluated.

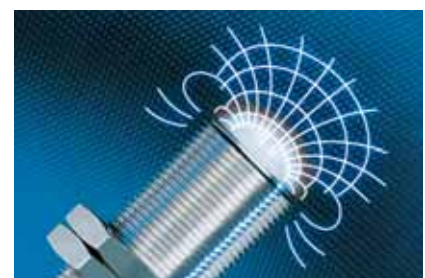
Application sensors

Every application places different and often conflicting demands on the sensors used in different environments. Temperature shocks, mechanical influences or aggressive cleaning agents, oils and coolants are just a few of the possible environmental influences to which sensors are subjected. Ifm therefore offers inductive sensors which have been developed for specific applications. This includes, for example, the use of selected housing materials such as stainless steel, LCP, PEEK, PBT or ceramics. An innovative sealing concept from the sensor to the connector ensures ideal protection against ingress of moisture and aggressive media.



Typical application: Positioning sensing in automation technology; inductive sensors operate reliably and without wear.

High frequency electromagnetic field: The inductive sensor detects all metals.







System overview	Page
Sensors for industrial applications with increased sensing range	65 - 68
Sensors for industrial applications, threaded housings	68 - 74
Sensors for industrial applications with smooth sleeve	74 - 76
Sensors for industrial applications, rectangular housings	76 - 80
Sensors for industrial applications, AC and AC/DC	81 - 83
Sensors for industrial applications with analogue output 4...20 mA	83 - 84
Sensors for industrial applications with analogue output 0...10 V	84
Sensors for industrial high temperature applications	85
Sensors for industrial applications on pipes and tubes	85 - 86
Tube sensors for industrial applications	86 - 87
Sensors for industrial applications, oils and coolants and mobile applications with increased sensing range	87 - 92
Sensors for oils and coolants with increased sensing range	92 - 95
Sensors for oils and coolants, threaded housings	96 - 97
Sensors for oils and coolants, rectangular housings	97
Sensors for oils and coolants with correction factor K = 1	98
Sensors for oils and coolants with ceramic sensing face	98 - 99
Sensors for oils and coolants, AS-i system	99
Electromagnetic field immune sensors with correction factor K = 1	100 - 101
Electromagnetic field immune sensors	101 - 102
Full metal sensors for oils and coolants	102 - 103
Full metal sensors for oils and coolants with correction factor K = 0	103
Full metal sensors with non-stick coating against weld spatter	103 - 105
Full metal sensors for hygienic and wet areas	105 - 106
Sensors for hygienic and wet areas with increased sensing range	106 - 109
Sensors for hygienic and wet areas	109 - 111
Sensors with ATEX approval 1D / 2G	111 - 112
Sensors with ATEX approval 1D / 1G / 2G	112 - 113
Sensors with ATEX approval 3D/3G	113 - 114
Sensors with ATEX approval 3D	114 - 115
Sensors with ATEX approval 2D / 3G	116
Slot sensors with ATEX approval 1D/1G	116
Switching amplifiers with ATEX approval	116 - 117


System overview	Page
Accessories for sensors with smooth sleeve	117
Accessories for threaded M8 housings	118
Accessories for threaded M12 housings	118 - 119
Accessories for threaded M18 housings	119 - 120
Accessories for threaded M30 housings	120
Accessories for rectangular housings	120
System components	121 - 122
Wiring diagrams	122 - 125
Scale drawings / drawing no. – CAD download: www.ifm.com	125 - 146







Sensors for industrial applications with increased sensing range

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Draw- ing no.	Order no.
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M12 connector · Output function  · 2-wire · DC PNP/NPN · Wiring diagram no. 36 · Connector groups 8, 10, 11, 18, 20


	M12 / L = 45	4 f	Brass	10...30	IP 67	700	100	1	IFS200
	M12 / L = 50	7 nf	Brass	10...30	IP 67	700	100	2	IFS201
	M18 / L = 46	8 f	Brass	10...30	IP 67	300	100	3	IGS200
	M18 / L = 51	12 nf	Brass	10...30	IP 67	250	100	4	IGS201


M12 connector · Output function  · 3-wire DC PNP · 2-wire DC PNP/NPN · Wiring diagram no. 37 · Connector groups 8, 10, 11, 18, 20

	M12 / L = 70	4 f	Brass	10...30	IP 67	500	100	5	IFS208
	M12 / L = 70	7 nf	Brass	10...30	IP 67	500	100	6	IFS209
	M18 / L = 70	8 f	Brass	10...30	IP 67	400	100	7	IGS208
	M18 / L = 70	12 nf	Brass	10...30	IP 67	300	100	8	IGS209
	M30 / L = 70	15 f	Brass	10...36	IP 67	100	100	9	IIS206
	M30 / L = 70	22 nf	Brass	10...36	IP 67	100	100	10	IIS207

M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 8, 10, 18, 20

	M12 / L = 45	4 f	Brass	10...30	IP 67	700	100	11	IFS204
	M12 / L = 50	7 nf	Brass	10...30	IP 67	700	100	12	IFS205

M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 8, 10, 11, 18, 20

	M12 / L = 70	4 f	Brass	10...36	IP 67	700	100	5	IFS212
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Position sensors


Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Draw- ing no.	Order no.
M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 8, 10, 11, 18, 20									
	M12 / L = 70	7 nf	Brass	10...36	IP 67	700	100	6	IFS213
	M18 / L = 46	8 f	Brass	10...36	IP 67	400	100	3	IGS204
	M18 / L = 51	12 nf	Brass	10...36	IP 67	300	100	4	IGS205
	M18 / L = 70	8 f	Brass	10...36	IP 67	400	100	7	IGS212
	M18 / L = 70	12 nf	Brass	10...36	IP 67	300	100	8	IGS213
	M30 / L = 50	15 f	Brass	10...36	IP 67	100	100	13	IIS204
	M30 / L = 50	22 nf	Brass	10...36	IP 67	100	100	14	IIS205
	M30 / L = 70	15 f	High-grade st. steel	10...36	IP 67	100	100	9	IIS210
	M30 / L = 70	22 nf	High-grade st. steel	10...36	IP 67	100	100	10	IIS211
M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 2 · Connector groups 8, 10, 18, 20									
	M12 / L = 45	4 f	Brass	10...30	IP 67	700	100	11	IFS206
	M12 / L = 50	7 nf	Brass	10...30	IP 67	700	100	12	IFS207
M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 2 · Connector group --									
	M18 / L = 45	8 f	Brass	10...30	IP 67	400	100	15	IGS206
M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 2 · Connector groups 8, 10, 11, 18, 20									
	M18 / L = 51	12 nf	Brass	10...36	IP 67	300	100	4	IGS207
	M30 / L = 50	15 f	Brass	10...36	IP 67	100	100	13	IIS208


Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 2 · Connector groups 8, 10, 11, 18, 20									
	M30 / L = 50	22 nf	Brass	10...36	IP 67	100	100	14	IIS209
M12 connector · Output function  · 2-wire · DC PNP/NPN · Wiring diagram no. 38 · Connector groups 8, 10, 18, 20									
	M18 / L = 70	8 f	Brass	10...36	IP 68	400	100	16	IG5953
	M18 / L = 72	12 nf	Brass	10...36	IP 68	250	100	17	IG5954
M8 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 1, 2, 3									
	M12 / L = 46	4 f	Brass	10...36	IP 67	700	100	18	IFS210
	M12 / L = 51	7 nf	Brass	10...36	IP 67	700	100	19	IFS211
	M18 / L = 46	8 f	Brass	10...36	IP 67	400	100	20	IGS210
Cable 2 m · Output function  · 2-wire · AC · Wiring diagram no. 3									
	Ø 100	70 nf	PBT	90...250	IP 65	5	250	21	I12001*
	Ø 100	70 nf	PBT	90...250	IP 65	5	250	22	I12003*
	Ø 164	120 nf	PBT	90...250	IP 65	3	250	23	I22001*
	Ø 164	120 nf	PBT	90...250	IP 65	3	250	24	I22003*
Cable 2 m · Output function  · 3-wire · DC PNP · Wiring diagram no. 4									
	Ø 100	70 nf	PBT	10...36	IP 65	5	250	21	I17001
	Ø 100	70 nf	PBT	10...36	IP 65	5	250	22	I17003


Position sensors

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
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Cable 2 m · Output function  · 3-wire · DC PNP · Wiring diagram no. 4

	Ø 164	120 nf	PBT	10...36	IP 65	3	250	23	I27001
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7/8" connector · Output function  · 2-wire · AC · Wiring diagram no. 5 · Connector groups 31, 32

	Ø 164	120 nf	PBT	90...250	IP 65	3	250	25	I22006*
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f = flush / nf = non flush


* Note for AC and AC/DC units


Miniature fuse to IEC60127-2 sheet 1, ≤ 2 A (fast acting) Recommendation: check the unit for reliable function after a short circuit.

Sensors for industrial applications, threaded housings


Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
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Cable 0.3 m · with M12 connector · Output function  · 3-wire DC PNP · 2-wire DC PNP/NPN · Wiring diagram no. 37 · Connector groups 8, 10, 11, 18, 20


	M8 / L = 37	3 f	Brass	10...30	IP 67	1000	100	26	IE5351
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	M8 / L = 37	5 nf	Brass	10...30	IP 67	700	100	27	IE5352
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Cable 0.3 m · with M8 connector (snap-fit) · Output function  · 3-wire DC PNP · 2-wire DC PNP/NPN · Wiring diagram no. 37 · Connector groups 1, 2, 3


	M8 / L = 37	3 f	Brass	10...30	IP 67	1000	100	28	IE5344
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	M8 / L = 37	5 nf	Brass	10...30	IP 67	700	100	27	IE5346
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Cable 2 m · Output function  · 3-wire DC PNP · 2-wire DC PNP/NPN · Wiring diagram no. 39

	M8 / L = 37	3 f	Brass	10...30	IP 67	1000	100	26	IE5343
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	M8 / L = 37	5 nf	Brass	10...30	IP 67	700	100	27	IE5345
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Cable 2 m · Output function  · 3-wire · DC PNP · Wiring diagram no. 4


	M8 / L = 35	1 f	Brass	10...36	IP 67	750	200	29	IE5072
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Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Draw- ing no.	Order no.
Cable 2 m · Output function  · 3-wire · DC PNP · Wiring diagram no. 4									
	M8 / L = 35	2 nf	PBT	10...36	IP 67	800	200	29	IE5099
	M8 / L = 50	1 f	Brass	10...36	IP 67	750	200	30	IE5121
	M8 / L = 50	1 f	PBT	10...36	IP 67	1000	200	30	IE5129
	M8 / L = 20	1.5 f	stainless steel	10...30	IP 67	4000	200	31	IE5348
	M8 / L = 27	2 f	High-grade st. steel	10...30	IP 67	1500	100	32	IE5368
	M8 / L = 27	4 nf	High-grade st. steel	10...30	IP 67	500	100	33	IE5369
	M12 / L = 35	2 f	Brass	10...36	IP 67	1500	150	34	IF5188
	M12 / L = 35	4 nf	Brass	10...36	IP 67	1500	150	35	IF5249
	M12 / L = 71	2 f	Brass	10...55	IP 67	800	250	36	IF5297
	M12 / L = 71	2 f	PBT	10...55	IP 67	800	250	36	IF5313
	M12 / L = 71	4 nf	Brass	10...36	IP 67	1500	250	37	IF5329
	M12 / L = 71	4 nf	PBT	10...36	IP 67	400	250	36	IF5345
	M18 / L = 38	5 f	Brass	18...36	IP 67	500	150	38	IG5221
	M18 / L = 38	8 nf	Brass	18...36	IP 67	200	150	39	IG5285
	M18 / L = 80	5 f	Brass	10...36	IP 67	500	250	40	IG5397
	M18 / L = 80	8 nf	Brass	10...36	IP 67	300	250	41	IG5398


You can find wiring diagrams and scale drawings from page 122




Position sensors

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
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Cable 2 m · Output function  · 3-wire · DC PNP · Wiring diagram no. 4


















	M18 / L = 80	5 f	PBT	10...36	IP 67	500	250	40	IG5399
	M18 / L = 80	8 nf	PBT	10...36	IP 67	300	250	40	IG5401
	M30 / L = 45	10 f	Brass	18...36	IP 67	300	150	42	I15166
	M30 / L = 81	10 f	Brass	10...36	IP 67	250	250	43	I15256
	M30 / L = 81	15 nf	Brass	10...36	IP 67	250	250	44	I15284
	M30 / L = 81	15 nf	PBT	10...36	IP 67	250	250	43	I15300
	M30 / L = 45	15 nf	Brass	18...36	IP 67	250	150	45	I15346
	M30 / L = 81	10 f	PBT	10...36	IP 67	250	250	43	I15369
	M5 / L = 30	0.8 f	stainless steel	10...36	IP 65	2000	100	46	IY5029
	M5 / L = 27	1.5 nf	stainless steel	10...30	IP 67	1800	100	47	IY5049
	M5 / L = 23	0.8 f	stainless steel	10...30	IP 65	2000	100	48	IY5051
	M5 / L = 23	1.2 f	stainless steel	10...30	IP 65	2000	100	48	IY5052


















Cable 2 m · Output function  · 2-wire · DC PNP/NPN · Wiring diagram no. 40

	M8 / L = 50	2 nf	PBT (Pocan)	5...36	IP 67	2000	200	30	IE5202
	M8 / L = 50	1 f	Brass	5...36	IP 67	2000	200	30	IE5222
	M8 / L = 50	2 nf	Brass	5...36	IP 67	2700	200	49	IE5238

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Draw- ing no.	Order no.
Cable 2 m · Output function  · 2-wire · DC PNP/NPN · Wiring diagram no. 40									
	M12 / L = 71	4 nf	PBT	10...55	IP 67	1500	400	36	IF5597
	M12 / L = 71	2 f	PBT	10...55	IP 67	1100	400	36	IF5644
	M12 / L = 71	2 f	Brass	10...55	IP 67	1100	400	36	IF5645
	M12 / L = 71	4 nf	Brass	10...55	IP 67	1500	400	37	IF5646
	M18 / L = 80	8 nf	PBT	10...55	IP 67	300	400	40	IG5533
	M18 / L = 80	5 f	PBT	10...55	IP 67	700	400	40	IG5593
	M18 / L = 80	5 f	Brass	10...55	IP 67	700	400	40	IG5594
	M18 / L = 80	8 nf	Brass	10...55	IP 67	300	400	41	IG5596
	M30 / L = 81	15 nf	PBT	10...55	IP 67	200	400	43	I15436
	M30 / L = 81	10 f	PBT	10...55	IP 67	450	400	43	I15488
	M30 / L = 81	10 f	Brass	10...55	IP 67	450	400	43	I15489
	M30 / L = 81	15 nf	Brass	10...55	IP 67	200	400	44	I15491
	M30 / L = 45	10 f	Brass	10...55	IP 67	450	400	42	I15493
M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 8, 10, 11, 18, 20									
	M12 / L = 45	2 f	Brass	10...36	IP 67	700	100	1	IF5214
	M12 / L = 50	4 nf	Brass	10...36	IP 67	700	100	2	IF5215

Position sensors


Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Draw- ing no.	Order no.
M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 8, 10, 11, 18, 20									
	M12 / L = 70	2 f	Brass	10...36	IP 67	700	100	5	IF5216
	M12 / L = 70	4 nf	Brass	10...36	IP 67	700	100	6	IF5217
	M18 / L = 46	5 f	Brass	10...36	IP 67	400	100	3	IG5214
	M18 / L = 70	5 f	Brass	10...36	IP 67	400	100	7	IG5216
	M18 / L = 70	8 nf	Brass	10...36	IP 67	300	100	8	IG5217
	M8 / L = 53	1 f	Brass	10...36	IP 67	750	200	50	IE5090
	M8 / L = 62	4 nf	Brass	10...36	IP 67	300	200	51	IE5288
	M8 / L = 62	2 f	Brass	10...36	IP 67	1000	250	52	IE5312
	M8 / L = 50	2 f	High-grade st. steel	10...36	IP 68	1000	100	53	IE5379
M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 2 · Connector groups 8, 10, 11, 18, 20									
	M8 / L = 62	2 f	Brass	10...36	IP 67	800	250	54	IE5327
M12 connector · Output function  · 2-wire · DC PNP/NPN · Wiring diagram no. 38 · Connector groups 8, 10, 18, 20									
	M8 / L = 69	1 f	Brass	5...36	IP 67	2700	200	55	IE5203
	M12 / L = 83	2 f	Brass	10...55	IP 67	1100	300	56	IF5598
	M12 / L = 83	4 nf	Brass	10...55	IP 67	1500	300	57	IF5647
	M18 / L = 70	5 f	Brass	10...55	IP 67	700	400	58	IG5595



Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Draw- ing no.	Order no.
M12 connector · Output function  /  · 2-wire · DC PNP/NPN · Wiring diagram no. 38 · Connector groups 8, 10, 18, 20									
	M18 / L = 76	8 nf	Brass	10...55	IP 67	300	400	59	IG5597
	M30 / L = 78	10 f	Brass	10...55	IP 67	450	400	60	II5490
	M30 / L = 78	15 nf	Brass	10...55	IP 67	200	400	61	II5492
M8 connector · Output function  · 3-wire DC PNP · 2-wire DC PNP/NPN · Wiring diagram no. 37 · Connector groups 1, 2, 3									
	M8 / L = 40	3 f	Brass	10...30	IP 65 / IP 67	800	100	62	IE5338
	M8 / L = 40	5 nf	High-grade st. steel	10...30	IP 65 / IP 67	600	100	63	IE5340
M8 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 1, 2, 3									
	M8 / L = 50	2 f	Brass	10...36	IP 65 / IP 67	1300	200	64	IE5287
	M8 / L = 30.5	2 f	High-grade st. steel	10...30	IP 65 / IP 67	800	100	65	IE5366
	M8 / L = 30.5	4 nf	High-grade st. steel	10...30	IP 65 / IP 67	800	100	66	IE5367
	M5 / L = 45	0.8 f	stainless steel	10...36	IP 65	2000	100	67	IY5036
	M5 / L = 41	1.5 nf	stainless steel	10...30	IP 67	1800	100	68	IY5048
M8 connector · Output function  · 3-wire DC PNP · 2-wire DC PNP/NPN · Wiring diagram no. 41 · Connector groups 1, 2, 3									
	M8 / L = 40	3 f	Brass	10...30	IP 65 / IP 67	800	100	62	IE5349
	M8 / L = 40	5 nf	High-grade st. steel	10...30	IP 65 / IP 67	600	100	63	IE5350


Position sensors

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
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M8 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 6 · Connector groups 1, 2, 3

	M8 / L = 50	1 f	Brass	10...36	IP 65 / IP 67	2000	200	64	IE5258
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Terminals · Output function  /  · 2-wire · DC PNP/NPN · Wiring diagram no. 42







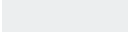
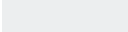

	M18 / L = 110	5 f	PBT	10...55	IP 65	800	400	69	IG5718
	M18 / L = 110	8 nf	PBT	10...55	IP 65	300	400	69	IG5719









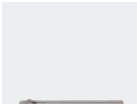
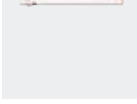







f = flush / nf = non flush

Sensors for industrial applications with smooth sleeve

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
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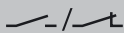
Cable 2 m · Output function  · 3-wire · DC PNP · Wiring diagram no. 4


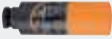
	Ø 20 / L = 77	10 nf	PBT	10...36	IP 67	300	250	70	IA5082
	Ø 34 / L = 82	20 nf	PBT	10...36	IP 67	60	250	71	IB5096
	Ø 6.5 / L = 35	1 f	Brass	10...36	IP 67	900	200	72	IT5001
	Ø 6.5 / L = 19	2 f	stainless steel	10...30	IP 67	1000	200	73	IT5039
	Ø 6.5 / L = 27	2 f	High-grade st. steel	10...30	IP 67	1500	100	74	IT5042
	Ø 4 / L = 30	0.8 f	stainless steel	10...36	IP 65	2000	100	75	IZ5026
	Ø 4 / L = 27	1.5 nf	stainless steel	10...30	IP 67	1800	100	76	IZ5047
	Ø 3 / L = 27	1 nf	stainless steel	10...30	IP 67	5000	100	77	IZ5048
	Ø 4 / L = 23	0.8 f	stainless steel	10...30	IP 65	2000	100	78	IZ5051

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Draw- ing no.	Order no.
Cable 2 m · Output function  · 3-wire · DC PNP · Wiring diagram no. 4									
	∅ 4 / L = 23	1.2 f	stainless steel	10...30	IP 65	2000	100	78	IZ5052
Cable 2 m · Output function  · 2-wire · DC PNP/NPN · Wiring diagram no. 40									
	∅ 20 / L = 77	10 nf	PBT	10...55	IP 67	300	400	70	IA5108
M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 8, 10, 11, 18, 20									
	∅ 20 / L = 93	10 nf	PBT	10...36	IP 67	300	250	79	IA5127
M8 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 1, 2, 3									
	∅ 4 / L = 41	1.5 nf	stainless steel	10...30	IP 67	1800	100	80	IZ5046
	∅ 6.5 / L = 50	1 f	Brass	10...36	IP 65 / IP 67	2000	200	81	IT5021
	∅ 6.5 / L = 50	1.5 f	Brass	10...36	IP 65 / IP 67	1700	200	81	IT5034
	∅ 6.5 / L = 30.5	2 f	High-grade st. steel	10...30	IP 65 / IP 67	800	100	82	IT5040
	∅ 6.5 / L = 50	4 nf	High-grade st. steel	10...30	IP 67	300	100	83	IT5044
	∅ 4 / L = 45	0.8 f	stainless steel	10...36	IP 65	2000	100	84	IZ5035
Terminals · Output function  · 3-wire · DC PNP · Wiring diagram no. 7									
	∅ 20 / L = 92	10 nf	PBT	10...36	IP 65	300	250	85	IA5062
Terminals · Output function  · 3-wire · DC PNP · Wiring diagram no. 7									
	∅ 20 / L = 92	10 nf	PBT	10...36	IP 65	300	250	85	IA5063

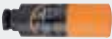
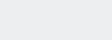
Position sensors

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
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Terminals · Output function  · 2-wire · DC PNP/NPN · Wiring diagram no. 42

	∅ 20 / L = 92	10 nf	PBT	10...55	IP 65	300	300	85	IA5122
	∅ 34 / L = 98	20 nf	PBT	10...55	IP 65	300	300	86	IB5124

Terminals · Output function  · 3-wire · DC PNP · Wiring diagram no. 7



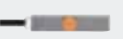




	∅ 34 / L = 98	20 nf	PBT	10...36	IP 65	350	250	86	IB5063
	∅ 34 / L = 98	30 nf	PBT	10...36	IP 65	350	200	86	IB5133

f = flush / nf = non flush

Sensors for industrial applications, rectangular housings

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
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Cable 2 m · Output function  · 3-wire · DC PNP · Wiring diagram no. 4

	120 x 80 x 30	50 nf	PPE	10...36	IP 67	100	250	87	ID5026
	40 x 8 x 8	2 f	Brass	10...36	IP 65	2000	250	88	IL5002
	40 x 8 x 8	2 f	Brass	10...36	IP 65	2000	250	88	IL5003
	40 x 8 x 8	2.5 f	Brass	10...36	IP 65	2000	250	88	IL5020
	25 x 5 x 5	0.8 f	aluminium	10...30	IP 67	1000	100	89	IL5022
	40 x 12 x 26	2 f	PBT	10...36	IP 67	1400	250	90	IN5121
	40 x 12 x 26	4 nf	PBT	10...36	IP 67	1300	250	90	IN5129
	28 x 10 x 16	2 f	PBT	10...36	IP 67	800	200	91	IS5001

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Draw- ing no.	Order no.
Cable 2 m · Output function  · 3-wire · DC PNP · Wiring diagram no. 4									
	28 x 10 x 16	3 nf	PBT	10...36	IP 67	100	200	91	IS5031
	28 x 10 x 16	4 nf	PBT	10...36	IP 67	2000	250	92	IS5070
	60 x 36 x 10	5 f	PBT	10...36	IP 67	400	250	93	IW5051
	60 x 36 x 10	8 nf	PBT	10...36	IP 67	300	250	93	IW5058
Cable 2 m · Output function  · 3-wire · DC PNP · Wiring diagram no. 8									
	40 x 12 x 26	2 f	PBT	10...36	IP 67	1400	250	90	IN5186
	40 x 12 x 26	4 nf	PBT	10...36	IP 67	1300	250	90	IN5188
	60 x 36 x 10	8 nf	PBT	10...36	IP 67	300	250	94	IW5053
Cable 2 m · Output function  · 2-wire · DC PNP/NPN · Wiring diagram no. 40									
	40 x 12 x 26	2 f	PBT	10...55	IP 67	1300	400	90	IN5207
	40 x 12 x 26	4 nf	PBT	10...55	IP 67	1200	300	90	IN5208
	28 x 10 x 16	2 f	PBT	5...36	IP 67	2000	200	91	IS5026
M12 connector · 2-wire · AS-i · Wiring diagram no. 9 · Connector groups 8, 10, 18, 20									
	40 x 40 x 54	15 f	PBT	26.5...31.6	IP 67	100	–	95	IM5118
M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 8, 10, 11, 18, 20									
	92 x 80 x 40	50 f	PPE	10...36	IP 67	70	250	96	ID5055
	40 x 40 x 54	20 f	PA (polyamide)	10...36	IP 67	100	200	95	IM5115
	40 x 40 x 54	35 nf	PA (polyamide)	10...36	IP 67	80	200	95	IM5116

You can find wiring diagrams and scale drawings from page 122

Position sensors

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 8, 10, 11, 18, 20									
	40 x 40 x 54	40 nf	PA (polyamide)	10...36	IP 67	60	200	95	IM5117
M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 108, 109, 110, 111									
	40 x 40 x 54	20 f	PA (polyamide)	10...36	IP 67	200	200	97	IM5119
	40 x 40 x 54	35 nf	PA (polyamide)	10...36	IP 67	200	200	97	IM5120
M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 8, 10, 11, 18, 20									
	40 x 40 x 54	20 f	PA (polyamide)	10...36	IP 67	200	200	95	IM5128
M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 108, 109, 110, 111									
	40 x 40 x 54	40 nf	PA (polyamide)	10...36	IP 67	200	200	97	IM5129
M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 8, 10, 11, 18, 20									
	40 x 40 x 54	35 nf	PA (polyamide)	10...36	IP 67	200	200	95	IM5130
	40 x 40 x 54	40 nf	PA (polyamide)	10...36	IP 67	200	200	95	IM5131
M12 connector · Output function  /  · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 8, 10, 11, 18, 20									
	105 x 80 x 40	60 nf	PPE	10...36	IP 67	100	250	98	ID5046
M12 connector · Output function  +  · 4-wire · DC PNP · Wiring diagram no. 10 · Connector groups 108, 109, 110, 111									
	40 x 40 x 54	20 f	PA (polyamide)	10...36	IP 67	200	200	97	IM5124
	40 x 40 x 54	35 nf	PA (polyamide)	10...36	IP 67	200	200	97	IM5125
	40 x 40 x 54	40 nf	PA (polyamide)	10...36	IP 67	200	200	97	IM5126
M12 connector · Output function  +  · 4-wire · DC PNP · Wiring diagram no. 10 · Connector groups 8, 10, 11, 18, 20									
	92 x 80 x 40	50 f	PPE	10...36	IP 67	70	250	96	ID5058

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
M12 connector · Output function  · 4-wire · DC PNP · Wiring diagram no. 10 · Connector groups 108, 109, 110, 111									
	40 x 40 x 54	20 f	PA (polyamide)	10...36	IP 67	200	200	95	IM5132
M12 connector · Output function  · 4-wire · DC PNP · Wiring diagram no. 10 · Connector groups 117, 118, 119, 147, 148									
	40 x 40 x 54	35 nf	PA (polyamide)	10...36	IP 67	200	200	95	IM5133
M12 connector · Output function  · 4-wire · DC PNP · Wiring diagram no. 10 · Connector groups 8, 10, 11, 18, 20									
	40 x 40 x 54	35 nf	PA (polyamide)	10...36	IP 67	80	200	95	IM5134
M12 connector · Output function  · 4-wire · DC PNP · Wiring diagram no. 10 · Connector groups 108, 109, 110, 111									
	40 x 40 x 54	40 nf	PA (polyamide)	10...36	IP 67 / IP 69K	200	200	95	IM5135
M12 connector · Output function  · 4-wire · DC PNP · Wiring diagram no. 10 · Connector groups 8, 10, 11, 18, 20									
	40 x 40 x 54	40 nf	PA (polyamide)	10...36	IP 67	60	200	95	IM5136
M12 connector · Output function  · 4-wire · DC PNP · Wiring diagram no. 10 · Connector groups 8, 10, 18, 20									
	40 x 40 x 54	20 f	PA (polyamide)	10...36	IP 67	100	200	95	IM5123
M8 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 1, 2, 3									
	40 x 8 x 8	2 f	Brass	10...36	IP 65	2000	250	99	IL5004
	40 x 8 x 8	2 f	Brass	10...36	IP 65	2000	250	99	IL5005
	40 x 12 x 26	4 nf	PBT	10...36	IP 65	1300	250	100	IN5212
	40 x 12 x 26	2 f	PBT	10...36	IP 67	1400	250	100	IN5230
	28 x 10 x 16	2 f	PBT	10...36	IP 67	800	200	101	IS5035
	28 x 10 x 16	4 nf	PBT	10...36	IP 67	2000	250	101	IS5071


Position sensors

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Draw- ing no.	Order no.
M8 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 1, 2, 3									
	60 x 36 x 10	8 nf	PBT	10...36	IP 65	300	250	102	IW5064
M8 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 6 · Connector groups 1, 2, 3									
	60 x 36 x 10	8 nf	PBT	10...36	IP 67	300	250	102	IW5062
Terminals · Output function  · 2-wire · DC PNP/NPN · Wiring diagram no. 42									
	40 x 40 x 120	15 f	PPE	10...55	IP 65	350	400	103	IM5037
	40 x 40 x 120	20 nf	PPE	10...55	IP 65	300	400	103	IM5038
Terminals · Output function  · 3-wire · DC PNP · Wiring diagram no. 7									
	40 x 40 x 120	20 nf	PPE	10...36	IP 65	350	250	103	IM5019
	40 x 40 x 120	15 f	PPE	10...36	IP 65	350	250	103	IM5020
	40 x 40 x 120	30 nf	PPE	10...36	IP 65	100	250	103	IM5046
Terminals · Output function  · 3-wire · DC PNP · Wiring diagram no. 43									
	90 x 60 x 40	40 nf	PPE	10...36	IP 65	15	250	104	IC5005
	105 x 80 x 40	60 nf	PPE	10...36	IP 65	100	250	105	ID5005
Terminals · Output function  · 4-wire · DC PNP · Wiring diagram no. 11									
	40 x 40 x 118	15 f	PBT	10...60	IP 67	150	200	106	IV5003
	40 x 40 x 118	20 f	PBT	10...60	IP 67	150	200	107	IV5004


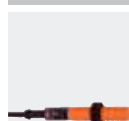
f = flush / nf = non flush

Sensors for industrial applications, AC and AC/DC

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f AC / DC [Hz]	I_{load} AC / DC [mA]	Drawing no.	Order no.
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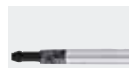
 1/2" connector · Output function  · 2-wire · AC/DC · Wiring diagram no. 12 · Connector group 29


40 x 40 x 66	35 nf	PPE	20...250	IP 67	20 / 50	350 / 100	108	IM0049*
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 Cable 2 m · Output function  · 2-wire · AC · Wiring diagram no. 3


M12 / L = 71.5	2 f	PBT	20...250	IP 67	25	250	109	IF0001*
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M12 / L = 71.5	4 nf	PBT	20...250	IP 67	25	250	109	IF0003*
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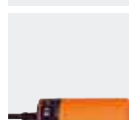
M12 / L = 71.5	2 f	Brass	20...250	IP 67	25	250	109	IF0005*
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M12 / L = 71	4 nf	Brass	20...250	IP 67	25	250	110	IF0007*
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 Cable 2 m · Output function  · 2-wire · AC/DC · Wiring diagram no. 13


∅ 20 / L = 77	10 nf	PBT	20...250	IP 67	25 / 70	350 / 100	70	IA0004*
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∅ 34 / L = 82	20 nf	PBT	20...250	IP 67	25 / 50	350 / 100	71	IB0004*
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∅ 34 / L = 82	30 nf	PBT	20...250	IP 67	25 / 50	350 / 100	71	IB0026*
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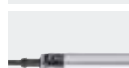


120 x 80 x 30	50 nf	modified PPE	20...250	IP 65	25 / 35	350 / 100	87	ID0014*
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M18 / L = 80	5 f	PBT	20...250	IP 67	25 / 50	350 / 100	40	IG0005*
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M18 / L = 80	8 nf	PBT	20...250	IP 67	25 / 50	350 / 100	40	IG0006*
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M18 / L = 80	5 f	Brass	20...250	IP 67	25 / 50	350 / 100	40	IG0011*
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M18 / L = 80	8 nf	Brass	20...250	IP 67	25 / 50	350 / 100	41	IG0012*
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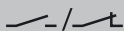



M30 / L = 81	10 f	PBT	20...250	IP 67	25 / 50	350 / 100	43	II0005*
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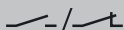
Position sensors

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f AC / DC [Hz]	I _{load} AC / DC [mA]	Draw- ing no.	Order no.
Cable 2 m · Output function  · 2-wire · AC/DC · Wiring diagram no. 13									
	M30 / L = 81	15 nf	PBT	20...250	IP 67	25 / 50	350 / 100	43	II0006*
	M30 / L = 81	10 f	Brass	20...250	IP 67	25 / 50	350 / 100	43	II0011*
	M30 / L = 81	15 nf	Brass	20...250	IP 67	25 / 50	350 / 100	44	II0012*
	40 x 12 x 26	2 f	PBT	20...250	IP 67	25 / 50	350 / 100	90	IN0073*
	40 x 12 x 26	4 nf	PBT	20...250	IP 67	25 / 50	350 / 100	90	IN0081*
Cable 2 m · Output function  · 2-wire · AC/DC · Wiring diagram no. 14									
	∅ 20 / L = 77	10 nf	PBT	20...250	IP 67	25 / 70	350 / 100	70	IA0027*
	∅ 34 / L = 82	20 nf	PBT	20...250	IP 67	25 / 50	350 / 100	71	IB0017*
	∅ 34 / L = 82	30 nf	PBT	20...250	IP 67	25 / 50	350 / 100	71	IB0027*
	40 x 12 x 26	2 f	PBT	20...250	IP 67	25 / 50	350 / 100	90	IN0077*
	40 x 12 x 26	4 nf	PBT	20...250	IP 67	25 / 50	350 / 100	90	IN0085*
M12 connector · Output function  · 2-wire · AC/DC · Wiring diagram no. 12 · Connector group 7									
	40 x 40 x 66	35 nf	PPE	20...250	IP 67	20 / 50	350 / 100	111	IM0053*
	92 x 80 x 40	50 f	modified PPE	20...250	IP 67	25	350 / 100	96	ID0049*
	40 x 40 x 66	20 f	PPE	20...250	IP 67	25 / 140	350 / 100	111	IM0054*
Terminals · Output function  · 2-wire · AC/DC · Wiring diagram no. 44									
	90 x 60 x 40	40 nf	PPE	20...250	IP 65	10	350 / 100	104	IC0003*

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f AC / DC [Hz]	I _{load} AC / DC [mA]	Drawing no.	Order no.
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Terminals · Output function  · 2-wire · AC/DC · Wiring diagram no. 44

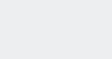
	105 x 80 x 40	60 nf	modified PPE	20...250	IP 65	4	350 / 100	105	ID0013*
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Terminals · Output function  · 2-wire · AC/DC · Wiring diagram no. 15

	∅ 20 / L = 92	10 nf	PBT	20...250	IP 65	25 / 70	350 / 100	85	IA0032*
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	∅ 34 / L = 98	20 nf	PBT	20...250	IP 65	25 / 50	350 / 100	86	IB0016*
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	40 x 40 x 120	20 nf	PPE	20...250	IP 65	20 / 55	350 / 100	103	IM0010*
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	40 x 40 x 120	15 f	PPE	20...250	IP 65	20 / 55	350 / 100	103	IM0011*
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f = flush / nf = non flush


* Note for AC and AC/DC units

Miniature fuse to IEC60127-2 sheet 1, ≤ 2 A (fast acting) Recommendation: check the unit for reliable function after a short circuit.


Sensors for industrial applications with analogue output 4...20 mA

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
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M12 connector · Output function 4...20 mA analogue · 3-wire · DC analogue · Wiring diagram no. 16 · Connector groups 8, 10, 18, 20

	M12 / L = 70	0.2...2 f	Brass	15...30	IP 67	–	–	5	IF6028
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	M12 / L = 70	0.4...4 nf	Brass	15...30	IP 67	–	–	6	IF6030
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	M18 / L = 60	0.8...8 nf	Brass	15...30	IP 67	–	–	112	IG6083
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	M18 / L = 60	0.5...5 f	Brass	15...30	IP 67	–	–	113	IG6086
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	M30 / L = 70	1.0...15 nf	Brass	15...30	IP 67	–	–	10	I15913
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Position sensors

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
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M12 connector · Output function 4...20 mA analogue · 3-wire · DC analogue · Wiring diagram no. 16 · Connector groups 8, 10, 18, 20








	M30 / L = 70	1.0...10 f	Brass	15...30	IP 67	–	–	9	II5916
	40 x 40 x 54	1...15 f	PA (polyamide)	15...30	IP 67	–	–	95	IM5139
	40 x 40 x 54	1...26 nf	PA (polyamide)	15...30	IP 67	–	–	95	IM5141

f = flush / nf = non flush

Sensors for industrial applications with analogue output 0...10 V








Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
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M12 connector · Output function 0...10 V analogue · 3-wire · DC analogue · Wiring diagram no. 16 · Connector groups 8, 10, 18, 20

	M12 / L = 70	0.2...2 f	Brass	15...30	IP 67	–	–	5	IF6029
	M12 / L = 70	0.4...4 nf	Brass	15...30	IP 67	–	–	6	IF6031
	M18 / L = 60	0.8...8 nf	Brass	15...30	IP 67	–	–	112	IG6084
	M18 / L = 60	0.5...5 f	Brass	15...30	IP 67	–	–	113	IG6087
	M30 / L = 70	1.0...15 nf	Brass	15...30	IP 67	–	–	10	II5914
	M30 / L = 70	1.0...10 f	Brass	15...30	IP 67	–	–	9	II5917
	40 x 40 x 54	1...15 f	PA (polyamide)	15...30	IP 67	–	–	95	IM5140
	40 x 40 x 54	1...26 nf	PA (polyamide)	15...30	IP 67	–	–	95	IM5142






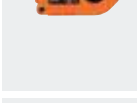

f = flush / nf = non flush

Sensors for industrial high temperature applications

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
Cable 5 m · Output function  · 3-wire · DC PNP · Wiring diagram no. 4									
	M12 / L = 56	3 f	stainless steel	10...35	IP 65	500	120	114	IF6074
	M18 / L = 77	8 nf	stainless steel	10...35	IP 65	400	150	115	IG6119
	M18 / L = 70	5 f	stainless steel	10...35	IP 65	400	150	116	IG6614
	M30 / L = 79	15 nf	stainless steel	10...35	IP 65	200	150	117	II5930
	M30 / L = 70	10 f	High-grade st. steel	10...35	IP 65	200	150	118	II5961
	M50 / L = 70	20 f	stainless steel	10...35	IP 65	100	150	119	I95045

f = flush / nf = non flush

Sensors for industrial applications on pipes and tubes



Type	Inside diameter [mm]	Operating principle	Minimum diameter of the steel ball [Ø mm]	Part speed max. [m/s]	Pulse stretching [ms]	Response time / break time [ms]	Drawing no.	Order no.
M12 connector · Output function  · 3-wire · DC NPN · Wiring diagram no. 17 · Connector groups 8, 10, 11, 18, 20								
	10.1	static	1.5	35	10...150	0.5 / 10	120	I7R202
M12 connector · Output function  · 3-wire · DC NPN · Wiring diagram no. 17 · Connector groups 8, 10, 18, 20								
	10.1	dynamic	0.6	35	0.1...150	0.2 / 0.2	120	I7R204
	15.1	static	2	35	10...150	0.5 / 10	121	I7R206
	15.1	dynamic	0.8	35	0.1...150	0.2 / 0.2	121	I7R208
	20.1	static	2.5	35	10...150	0.5 / 10	122	I7R210

You can find wiring diagrams and scale drawings from page 122






Position sensors

Type	Inside diameter [mm]	Operating principle	Minimum diameter of the steel ball [Ø mm]	Part speed max. [m/s]	Pulse stretching [ms]	Response time / break time [ms]	Drawing no.	Order no.
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M12 connector · Output function  /  · 3-wire · DC NPN · Wiring diagram no. 17 · Connector groups 8, 10, 18, 20


	20.1	dynamic	1.0	35	0.1...150	0.2 / 0.2	122	I7R212
	25.1	static	3.0	35	10...150	0.5 / 10	123	I7R214
	25.1	dynamic	1.2	35	0.1...150	0.2 / 0.2	123	I7R216

M12 connector · Output function  /  · 3-wire · DC PNP · Wiring diagram no. 18 · Connector groups 8, 10, 11, 18, 20

	10.1	static	1.5	35	10...150	0.5 / 10	120	I7R201
	10.1	dynamic	0.6	35	0.1...150	0.2 / 0.2	120	I7R203
	15.1	static	2	35	10...150	0.5 / 10	121	I7R205
	15.1	dynamic	0.8	35	0.1...150	0.2 / 0.2	121	I7R207
	20.1	static	2.5	35	10...150	0.5 / 10	122	I7R209
	20.1	dynamic	1.0	35	0.1...150	0.2 / 0.2	122	I7R211
	25.1	static	3.0	35	10...150	0.5 / 10	123	I7R213
	25.1	dynamic	1.2	35	0.1...150	0.2 / 0.2	123	I7R215
	51	static	6	35	10...150	0.5 / 10	124	I7R217


Tube sensors for industrial applications

Type	Sensing range [mm]	Operating principle	Minimum diameter of the steel ball [Ø mm]	Part speed max. [m/s]	Pulse stretching [ms]	Response time / break time [ms]	Drawing no.	Order no.
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Cable 0.09 m · with M12 connector · Output function  · 3-wire · DC NPN · Wiring diagram no. 17 · Connector groups 8, 10, 18, 20, 117, 118, 147


	≤ 14	static	3.0	35	100	0.5 / 100	125	I85003
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Type	Sensing range [mm]	Operating principle	Minimum diameter of the steel ball [Ø mm]	Part speed max. [m/s]	Pulse stretching [ms]	Response time / break time [ms]	Draw- ing no.	Order no.
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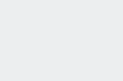
Cable 0.09 m · with M12 connector · Output function  · 3-wire · DC NPN · Wiring diagram no. 17 · Connector groups 8, 10, 18, 20, 117, 118, 147


	≤ 20	dynamic	1.0	35	100	0.2 / 100	125	I85007
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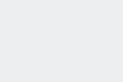
Cable 0.09 m · with M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 18 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148

	≤ 14	static	3.0	35	100	0.5 / 100	125	I85002
	≤ 20	dynamic	1.0	35	100	0.2 / 100	125	I85006

M8 connector · Output function  · 3-wire · DC NPN · Wiring diagram no. 17 · Connector groups 1, 3, 72, 78, 114


	≤ 14	static	3.0	35	100	0.5 / 100	126	I85001
	≤ 20	dynamic	1.0	35	100	0.2 / 100	126	I85005



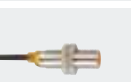
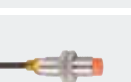
M8 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 18 · Connector groups 1, 2, 3, 72, 78, 114, 115

	≤ 14	static	3.0	35	100	0.5 / 100	126	I85000
	≤ 20	dynamic	1.0	35	100	0.2 / 100	126	I85004


Sensors for industrial applications, oils and coolants and mobile applications with increased sensing range

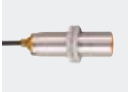

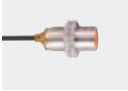
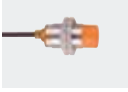
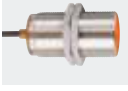
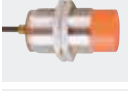
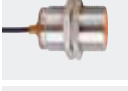

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Draw- ing no.	Order no.
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Cable 2 m · Output function  · 3-wire · DC NPN · Wiring diagram no. 19




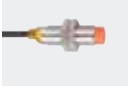
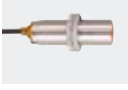

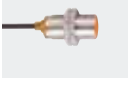
	M12 / L = 60	4 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	700	100	127	IFS254
	M12 / L = 60	7 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	700	100	128	IFS255
	M12 / L = 40	4 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	700	100	129	IFS258
	M12 / L = 40	7 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	700	100	130	IFS259

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
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Cable 2 m · Output function  · 3-wire · DC NPN · Wiring diagram no. 19

	M18 / L = 60	8 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	400	100	131	IGS246
	M18 / L = 60	12 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	300	100	132	IGS247
	M18 / L = 40	8 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	400	100	133	IGS250
	M18 / L = 40	12 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	300	100	134	IGS251
	M30 / L = 60	15 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	100	100	135	IIS240
	M30 / L = 60	22 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	100	100	136	IIS241
	M30 / L = 45	15 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	100	100	137	IIS244
	M30 / L = 45	22 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	100	100	138	IIS245

Cable 2 m · Output function  · 3-wire · DC PNP · Wiring diagram no. 4

	M12 / L = 60	4 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	700	100	127	IFS252
	M12 / L = 60	7 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	700	100	128	IFS253
	M12 / L = 40	4 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	700	100	129	IFS256
	M12 / L = 40	7 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	700	100	130	IFS257
	M18 / L = 60	8 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	400	100	131	IGS244
	M18 / L = 60	12 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	300	100	132	IGS245
	M18 / L = 40	8 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	400	100	133	IGS248



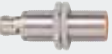







Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
Cable 2 m · Output function  · 3-wire · DC PNP · Wiring diagram no. 4									
	M18 / L = 40	12 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	300	100	134	IGS249
	M30 / L = 60	15 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	100	100	135	IIS238
	M30 / L = 60	22 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	100	100	136	IIS239
	M30 / L = 45	15 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	100	100	137	IIS242
	M30 / L = 45	22 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	100	100	138	IIS243
M12 connector · Output function  · 3-wire · DC NPN · Wiring diagram no. 20 · Connector groups 8, 10, 18, 20, 147									
	M12 / L = 60	4 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	700	100	139	IFS242
	M12 / L = 60	7 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	700	100	140	IFS243
	M12 / L = 45	4 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	700	100	11	IFS246
	M12 / L = 45	7 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	700	100	141	IFS247
	M18 / L = 60	8 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	400	100	142	IGS234
	M18 / L = 60	12 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	300	100	143	IGS235
	M18 / L = 45	8 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	400	100	15	IGS238
	M18 / L = 45	12 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	300	100	144	IGS239
	M30 / L = 60	15 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	100	100	145	IIS228
	M30 / L = 60	22 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	100	100	146	IIS229

Position sensors

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Draw- ing no.	Order no.
M12 connector · Output function  · 3-wire · DC NPN · Wiring diagram no. 20 · Connector groups 8, 10, 18, 20, 147									
	M30 / L = 50	15 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	100	100	147	IIS232
	M30 / L = 50	22 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	100	100	148	IIS233
M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 8, 10, 18, 20, 147									
	M12 / L = 45	7 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	700	100	141	IFS245
	M12 / L = 60	4 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	700	100	139	IFS240
	M12 / L = 60	7 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	700	100	140	IFS241
	M18 / L = 60	8 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	400	100	142	IGS232
	M18 / L = 60	12 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	300	100	143	IGS233
	M18 / L = 45	8 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	400	100	15	IGS236
	M18 / L = 45	12 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	300	100	144	IGS237
	M30 / L = 60	15 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	100	100	145	IIS226
	M30 / L = 60	22 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	100	100	146	IIS227
	M30 / L = 50	15 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	100	100	147	IIS230
	M30 / L = 50	22 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	100	100	148	IIS231
	M12 / L = 45	4 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	700	100	11	IFS244


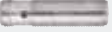


Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Draw- ing no.	Order no.
M12 connector · Output function  · 3-wire · DC NPN · Wiring diagram no. 21 · Connector groups 8, 10, 18, 20, 147									
	M12 / L = 60	4 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	700	100	139	IFS249
	M12 / L = 60	7 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	700	100	140	IFS251
	M12 / L = 45	4 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	700	100	11	IFS262
	M12 / L = 45	7 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	700	100	141	IFS263
	M18 / L = 60	8 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	400	100	142	IGS241
	M18 / L = 60	12 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	300	100	143	IGS243
	M18 / L = 45	8 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	400	100	15	IGS254
	M18 / L = 45	12 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	300	100	144	IGS255
	M30 / L = 60	15 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	100	100	145	IIS235
	M30 / L = 60	22 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	100	100	146	IIS237
	M30 / L = 50	15 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	100	100	147	IIS248
	M30 / L = 50	22 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	100	100	148	IIS249
M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 2 · Connector groups 8, 10, 18, 20, 147									
	M12 / L = 60	4 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	700	100	139	IFS248
	M12 / L = 60	7 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	700	100	140	IFS250
	M12 / L = 45	4 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	700	100	11	IFS260



















Position sensors

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 2 · Connector groups 8, 10, 18, 20, 147									
	M12 / L = 45	7 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	700	100	141	IFS261
	M18 / L = 60	8 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	400	100	142	IGS240
	M18 / L = 60	12 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	300	100	143	IGS242
	M18 / L = 45	8 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	400	100	15	IGS252
	M18 / L = 45	12 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	300	100	144	IGS253
	M30 / L = 60	15 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	100	100	145	IIS234
	M30 / L = 60	22 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	100	100	146	IIS236
	M30 / L = 50	15 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	100	100	147	IIS246
	M30 / L = 50	22 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	100	100	148	IIS247









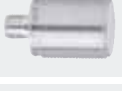







f = flush / nf = non flush

















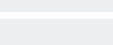
Sensors for oils and coolants with increased sensing range

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
M12 connector · Output function  · 2-wire · DC PNP/NPN · Wiring diagram no. 45 · Connector groups 8, 10, 18, 20									
	M12 / L = 45	4 f	Brass	10...30	IP 68	700	100	1	IFC202
	M18 / L = 46	8 f	Brass	10...30	IP 68	300	100	3	IGC202
	M18 / L = 51	12 nf	Brass	10...30	IP 68	250	100	4	IGC203

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
M12 connector · Output function  · 2-wire · DC PNP/NPN · Wiring diagram no. 36 · Connector groups 8, 10, 11, 18, 20									
	M12 / L = 45	4 f	Brass	10...30	IP 68	700	100	1	IFC200
	M12 / L = 50	7 nf	Brass	10...30	IP 68	700	100	2	IFC201
	M18 / L = 46	8 f	Brass	10...30	IP 68	400	100	3	IGC200
	M18 / L = 51	12 nf	Brass	10...30	IP 68	250	100	4	IGC201
M12 connector · Output function  · 3-wire DC PNP · 2-wire DC PNP/NPN · Wiring diagram no. 37 · Connector groups 8, 10, 11, 18, 20									
	M12 / L = 70	4 f	Brass	10...30	IP 68	500	100	5	IFC210
	M18 / L = 70	8 f	Brass	10...30	IP 68	400	100	7	IGC210
M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 8, 10, 18, 20									
	M12 / L = 45	4 f	Brass	10...30	IP 68	700	100	11	IFC204
	M12 / L = 50	7 nf	Brass	10...30	IP 68	700	100	149	IFC205
M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 8, 10, 11, 18, 20									
	M12 / L = 45	4 f	Brass	10...36	IP 68	700	100	1	IFC206
	M12 / L = 60	4 f	Brass	10...36	IP 68	700	200	150	IFC229
	M12 / L = 60	7 nf	Brass	10...36	IP 68	700	200	151	IFC230
M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147									
	M12 / L = 70	4 f	Brass	10...30	IP 68	700	100	152	IFC237
	M12 / L = 70	7 nf	Brass	10...30	IP 68	700	100	153	IFC238

Position sensors


Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Draw- ing no.	Order no.
M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 8, 10, 11, 18, 20									
	M18 / L = 46	8 f	Brass	10...36	IP 68	400	100	3	IGC204
	M18 / L = 51	12 nf	Brass	10...36	IP 68	300	100	4	IGC205
	M18 / L = 46	8 f	Brass	10...36	IP 68	400	100	3	IGC206
	M18 / L = 60	12 nf	Brass	10...36	IP 68	300	200	112	IGC220
	M18 / L = 60	8 f	Brass	10...36	IP 68	400	200	113	IGC221
	M18 / L = 70	8 f	Brass	10...36	IP 68	400	100	7	IGC224
	M18 / L = 70	12 nf	Brass	10...36	IP 68	300	100	8	IGC225
	M30 / L = 50	15 f	Brass	10...36	IP 68	100	100	13	IIC200
	M30 / L = 50	22 nf	Brass	10...36	IP 68	100	100	14	IIC201
	M30 / L = 60	15 f	Brass	10...36	IP 68	100	200	154	IIC206
	M30 / L = 60	22 nf	Brass	10...36	IP 68	100	200	155	IIC207
	M30 / L = 70	15 f	High-grade st. steel	10...36	IP 68	100	100	9	IIC210
	M30 / L = 70	22 nf	High-grade st. steel	10...36	IP 68	100	100	10	IIC211
	M8 / L = 50	2 f	High-grade st. steel	10...36	IP 67	1000	200	53	IE5381
	M8 / L = 50	4 nf	High-grade st. steel	10...36	IP 67	700	200	156	IE5382



Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Draw- ing no.	Order no.
M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 2 · Connector groups 8, 10, 18, 20									
	M12 / L = 50	7 nf	Brass	10...30	IP 68	700	100	149	IFC208
M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 2 · Connector group --									
	M12 / L = 45	4 f	Brass	10...30	IP 68	700	100	11	IFC207
M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 2 · Connector groups 8, 10, 11, 18, 20									
	M12 / L = 45	4 f	Brass	10...36	IP 68	700	100	1	IFC209
	M18 / L = 46	8 f	Brass	10...36	IP 68	400	100	3	IGC207
	M18 / L = 51	12 nf	Brass	10...36	IP 68	300	100	4	IGC208
	M18 / L = 46	8 f	Brass	10...36	IP 68	400	100	3	IGC209
M12 connector · Output function  /  · 2-wire · DC PNP/NPN · Wiring diagram no. 38 · Connector groups 8, 10, 18, 20									
	M12 / L = 60	4 f	Brass	10...36	IP 68	700	100	150	IFC234
	M12 / L = 60	7 nf	Brass	10...36	IP 68	500	100	151	IFC235
	M18 / L = 70	8 f	Brass	10...30	IP 68	400	100	7	IGC222
	M18 / L = 70	12 nf	Brass	10...36	IP 68	300	100	8	IGC223
	M30 / L = 70	15 f	Brass	10...30	IP 68	100	100	9	IIC208
	M30 / L = 70	22 nf	Brass	10...30	IP 68	100	100	10	IIC209


f = flush / nf = non flush


Sensors for oils and coolants, threaded housings

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
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Cable 0.8 m · with M12 connector · Output function  · 2-wire · DC PNP/NPN · Wiring diagram no. 22 · Connector groups 8, 10, 18, 20

	M8 / L = 42	2 f	Brass	10...55	IP 67	1000	100	157	IE9902
	M18 / L = 58	5 f	Brass	10...55	IP 67	700	400	158	IG9984



Cable 0.8 m · with M12 connector · Output function  · 2-wire · DC PNP/NPN · Wiring diagram no. 46 · Connector groups 8, 10, 18, 20

	M12 / L = 54	2 f	Brass	10...55	IP 67	800	100	159	IF9920
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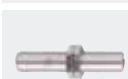

Cable 2 m · Output function  · 2-wire · DC PNP/NPN · Wiring diagram no. 23


	M18 / L = 54	5 f	Brass	10...55	IP 67	700	400	160	IG5682
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Cable 2 m · Output function  · 2-wire · DC PNP/NPN · Wiring diagram no. 47




	M8 / L = 42	2 f	Brass	10...55	IP 67	1000	100	161	IE9203
	M12 / L = 54	2 f	Brass	10...55	IP 67	800	100	162	IF9222

M12 connector · Output function  · 2-wire · DC PNP/NPN · Wiring diagram no. 22 · Connector groups 8, 10, 18, 20

	M8 / L = 69	1 f	Brass	5...36	IP 65	2000	200	55	IE9940
	M12 / L = 60	2 f	Brass	10...55	IP 67	800	100	163	IF9924
	M18 / L = 65	5 f	Brass	10...55	IP 67	700	400	164	IG9983






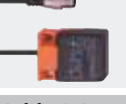





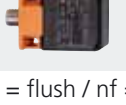
M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 8, 10, 11, 18, 20

	M12 / L = 45	2 f	Brass	10...36	IP 68	700	200	1	IFC239
	M12 / L = 70	2 f	Brass	10...36	IP 68	700	200	5	IFC241

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 8, 10, 11, 18, 20									
	M12 / L = 60	2 f	Brass	10...36	IP 68	700	200	150	IFC243
	M30 / L = 50	15 nf	High-grade st. steel	10...36	IP 68	100	200	14	IIC213

f = flush / nf = non flush


Sensors for oils and coolants, rectangular housings





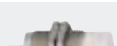
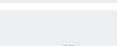
Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
Cable 0.15 m · with M12 connector · Output function  · 2-wire · DC PNP/NPN · Wiring diagram no. 22 · Connector groups 8, 10, 18, 20									
	26 x 26 x 26	10 f	polyamide	10...36	IP 67	250	100	165	IO5018
Cable 0.8 m · with M12 connector · Output function  · 2-wire · DC PNP/NPN · Wiring diagram no. 22 · Connector groups 8, 10, 18, 20									
	26 x 26 x 26	10 f	polyamide	10...36	IP 67	250	100	165	IO5017
Cable 0.8 m · with M12 connector · Output function  · 2-wire · DC PNP/NPN · Wiring diagram no. 46 · Connector groups 8, 10, 18, 20									
	40 x 40 x 54	15 f	PA (polyamide)	10...36	IP 67	200	100	166	IM5138
Cable 0.8 m · with M12 connector · Output function  · 2-wire · DC PNP/NPN · Wiring diagram no. 48 · Connector groups 8, 10, 18, 20									
	40 x 40 x 54	15 f	PA (polyamide)	10...36	IP 67	200	100	166	IM5137
M12 connector · Output function  · 2-wire · DC PNP/NPN · Wiring diagram no. 22 · Connector groups 8, 10, 18, 20									
	26 x 26 x 43	10 f	polyamide	10...36	IP 67	250	100	167	IO5016
M12 connector · Output function  · 2-wire · DC PNP/NPN · Wiring diagram no. 46 · Connector groups 8, 10, 18, 20									
	40 x 40 x 54	15 f	PA (polyamide)	10...36	IP 67	200	100	168	IM5127

f = flush / nf = non flush

Sensors for oils and coolants with correction factor K = 1

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
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M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 8, 10, 11, 18, 20

	M12 / L = 65	8 nf	High-grade st. steel	10...30	IP 68	2000	200	169	IFC246
	M18 / L = 65	5 f	High-grade st. steel	10...30	IP 68	2000	200	170	IGC232
	M18 / L = 65	12 nf	High-grade st. steel	10...30	IP 68	2000	200	171	IGC233
	M30 / L = 65	10 f	High-grade st. steel	10...30	IP 68	1000	200	172	IIC218
	M30 / L = 65	22 nf	High-grade st. steel	10...30	IP 68	1000	200	173	IIC219
	M12 / L = 65	3 f	Brass	10...30	IP 68	2000	200	174	IFC259

M8 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 1, 2, 3



	M8 / L = 65	1.5 f	High-grade st. steel	10...30	IP 67	1000	200	175	IE5390
	M8 / L = 65	4 nf	High-grade st. steel	10...30	IP 67	1000	200	176	IE5391

f = flush / nf = non flush


Sensors for oils and coolants with ceramic sensing face


Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
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M12 connector · Output function  · 3-wire DC PNP · 2-wire DC PNP/NPN · Wiring diagram no. 37 · Connector groups 8, 10, 11, 18, 20



	M12 / L = 70	4 f	Brass	10...30	IP 68	500	100	5	IFC210
	M18 / L = 70	8 f	Brass	10...30	IP 68	400	100	7	IGC210

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Draw- ing no.	Order no.
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M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 8, 10, 11, 18, 20

	M12 / L = 45	4 f	Brass	10...36	IP 68	700	100	1	IFC206
	M30 / L = 60	15 f	Brass	10...36	IP 68	100	200	154	IIC206

M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 2 · Connector groups 8, 10, 11, 18, 20

	M12 / L = 45	4 f	Brass	10...36	IP 68	700	100	1	IFC209
	M18 / L = 46	8 f	Brass	10...36	IP 68	400	100	3	IGC209

f = flush / nf = non flush

Sensors for oils and coolants, AS-i system

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Draw- ing no.	Order no.
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M12 connector · 2-wire · AS-i · Wiring diagram no. 9 · Connector groups 8, 10, 18, 20

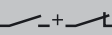
	M12 / L = 60	4 f	High-grade st. steel	26.5...31.6	IP 68	100	–	150	IFC247
	M18 / L = 60	8 f	High-grade st. steel	26.5...31.6	IP 68	100	–	113	IGC234
	M18 / L = 60	12 nf	High-grade st. steel	26.5...31.6	IP 68	100	–	112	IGC235
	M30 / L = 60	14 f	High-grade st. steel	26.5...31.6	IP 68	100	–	154	IIC220
	M30 / L = 60	22 nf	High-grade st. steel	26.5...31.6	IP 68	100	–	155	IIC221


f = flush / nf = non flush

Electromagnetic field immune sensors with correction factor K = 1


Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 108, 109, 110, 111									
	M12 / L = 65	3 f	Brass	10...30	IP 67	4000	200	177	IFW200
	M12 / L = 65	8 nf	Brass	10...30	IP 67	4000	200	178	IFW201
	M18 / L = 65	5 f	Brass	10...30	IP 67	2000	200	170	IGW200
	M18 / L = 65	12 nf	Brass	10...30	IP 67	2000	200	171	IGW201
	M30 / L = 65	10 f	Brass	10...30	IP 67	1000	200	172	IIW200
	M30 / L = 65	22 nf	Brass	10...30	IP 67	1000	200	179	IIW201
	40 x 40 x 54	20 f	PA (polyamide)	10...36	IP 67	200	200	97	IM5119
	40 x 40 x 54	35 nf	PA (polyamide)	10...36	IP 67	200	200	97	IM5120
	40 x 40 x 54	40 nf	PA (polyamide)	10...36	IP 67	200	200	97	IM5129
M12 connector · Output function  · 4-wire · DC PNP · Wiring diagram no. 10 · Connector groups 108, 109, 110, 111									
	40 x 40 x 54	20 f	PA (polyamide)	10...36	IP 67	200	200	97	IM5124
	40 x 40 x 54	35 nf	PA (polyamide)	10...36	IP 67	200	200	97	IM5125
	40 x 40 x 54	40 nf	PA (polyamide)	10...36	IP 67	200	200	97	IM5126
	40 x 40 x 54	20 f	PA (polyamide)	10...36	IP 67	200	200	95	IM5132

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
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M12 connector · Output function  · 4-wire · DC PNP · Wiring diagram no. 10 · Connector groups 117, 118, 119, 147, 148

	40 x 40 x 54	35 nf	PA (polyamide)	10...36	IP 67	200	200	95	IM5133
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M12 connector · Output function  · 4-wire · DC PNP · Wiring diagram no. 10 · Connector groups 108, 109, 110, 111









	40 x 40 x 54	40 nf	PA (polyamide)	10...36	IP 67 / IP 69K	200	200	95	IM5135
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f = flush / nf = non flush

Electromagnetic field immune sensors

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
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M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 108, 109, 110, 111

	M12 / L = 60	4 nf	Brass	10...36	IP 67	1000	250	180	IF5675
	M18 / L = 60	5 f	Brass	10...36	IP 67	700	250	113	IG5647
	M12 / L = 60	2 f	Brass	10...36	IP 67	1000	250	181	IF5670
	M12 / L = 60	2 f	Brass	10...36	IP 67	1000	250	181	IF5750
	M12 / L = 60	4 nf	Brass	10...36	IP 67	1000	250	180	IF5751
	M18 / L = 60	5 f	Brass	10...36	IP 67	700	250	113	IG5667
	M30 / L = 60	10 f	Brass	10...36	IP 67	250	250	182	II5503
	40 x 40 x 118	15 f	modified PPE	10...60	IP 67	50	200	183	IV5025

Position sensors

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Draw- ing no.	Order no.
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M12 connector · Output function  · 4-wire · DC PNP · Wiring diagram no. 10 · Connector groups 108, 109, 110, 111



92 x 80 x 40

50 f

PPE

10...36

IP 67

70

250

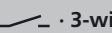
96

ID5059

f = flush / nf = non flush

Full metal sensors for oils and coolants

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Draw- ing no.	Order no.
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M12 connector · Output function  · 3-wire · DC NPN · Wiring diagram no. 20 · Connector groups 8, 10, 18, 20



M8 / L = 60

2 f

High-grade st. steel

10...36

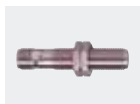
IP 67 / IP 68

100

100

184

IEC203



M12 / L = 60

3 f

High-grade st. steel

10...36

IP 67 / IP 68

100

100

150

IFC266



M18 / L = 70

5 f

High-grade st. steel

10...36

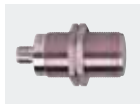
IP 67 / IP 68

100

100

58

IGC252



M30 / L = 70

10 f

High-grade st. steel

10...36

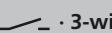
IP 67 / IP 68

50

100

185

IIC226

M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 8, 10, 11, 18, 20



M12 / L = 60

3 f

High-grade st. steel

10...36

IP 67 / IP 68

100

100

150

IFC258



M18 / L = 70

5 f

High-grade st. steel

10...36

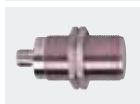
IP 67 / IP 68

100

100

58

IGC248



M30 / L = 70

10 f

High-grade st. steel

10...36

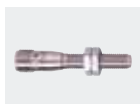
IP 67 / IP 68

50

100

185

IIC224



M8 / L = 60

2 f

High-grade st. steel

10...36

IP 67 / IP 68

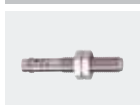
100

100

184

IEC200

M8 connector · Output function  · 3-wire · DC NPN · Wiring diagram no. 20 · Connector groups 1, 3



M8 / L = 50

2 f

High-grade st. steel

10...36

IP 67

100


100

186

IEC202

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Draw- ing no.	Order no.
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
M8 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 1, 2, 3


	M8 / L = 50	2 f	High-grade st. steel	10...36	IP 67	100	100	186	IEC201
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f = flush / nf = non flush


Full metal sensors for oils and coolants with correction factor K = 0


Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Draw- ing no.	Order no.
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M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 8, 10, 11, 18, 20

	M12 / L = 60	2.5 f	High-grade st. steel	10...36	IP 68	100	100	150	IFC263
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	M18 / L = 70	4.5 f	High-grade st. steel	10...36	IP 68	100	100	187	IGC249
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M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 2 · Connector groups 8, 10, 11, 18, 20


	M12 / L = 60	2.5 f	High-grade st. steel	10...36	IP 68	100	100	150	IFC264
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	M18 / L = 70	4.5 f	High-grade st. steel	10...36	IP 68	100	100	187	IGC250
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f = flush / nf = non flush


Full metal sensors with non-stick coating against weld spatter

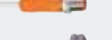
Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Draw- ing no.	Order no.
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Cable 0.3 m · with M12 connector · Output function  · 2-wire · DC PNP/NPN · Wiring diagram no. 22 · Connector groups 108, 110, 111

	M8 / L = 45	2 f	High-grade st. steel	10...36	IP 67	150	100	188	IER203
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	M12 / L = 40	4 f	High-grade st. steel	10...36	IP 67	75	100	189	IFR203
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	M18 / L = 40	6 f	High-grade st. steel	10...36	IP 67	50	100	190	IGR203
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	M30 / L = 40	12 f	High-grade st. steel	10...36	IP 67	25	100	191	IIR203
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You can find wiring diagrams and scale drawings from page 122








Position sensors

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Draw- ing no.	Order no.
Cable 0.3 m · with M12 connector · Output function  · 2-wire · DC PNP/NPN · Wiring diagram no. 24 · Connector groups 108, 110, 111									
	M8 / L = 45	2 f	High-grade st. steel	10...36	IP 67	150	100	188	IER206
	M12 / L = 40	4 f	High-grade st. steel	10...36	IP 67	75	100	189	IFR206
	M18 / L = 40	6 f	High-grade st. steel	10...36	IP 67	50	100	190	IGR206
	M30 / L = 40	12 f	High-grade st. steel	10...36	IP 67	25	100	191	IIR206
Cable 3 m · Output function  · 2-wire · DC PNP/NPN · Wiring diagram no. 25									
	M8 / L = 45	2 f	High-grade st. steel	10...36	IP 67	150	100	192	IER204
	M12 / L = 40	4 f	High-grade st. steel	10...36	IP 67	75	100	193	IFR204
	M18 / L = 40	6 f	High-grade st. steel	10...36	IP 67	50	100	194	IGR204
	M30 / L = 40	12 f	High-grade st. steel	10...36	IP 67	25	100	195	IIR204
Cable 5 m · Output function  · 2-wire · DC PNP/NPN · Wiring diagram no. 25									
	M8 / L = 45	2 f	High-grade st. steel	10...36	IP 67	150	100	192	IER205
	M12 / L = 40	4 f	High-grade st. steel	10...36	IP 67	75	100	193	IFR205
	M18 / L = 40	6 f	High-grade st. steel	10...36	IP 67	50	100	194	IGR205
	M30 / L = 40	12 f	High-grade st. steel	10...36	IP 67	25	100	195	IIR205
M12 connector · Output function  · 3-wire · DC NPN · Wiring diagram no. 20 · Connector groups 108, 110, 111									
	M8 / L = 60	2 f	High-grade st. steel	10...36	IP 67 / IP 68	100	100	184	IER201
	M12 / L = 60	4 f	High-grade st. steel	10...36	IP 67	2	100	150	IFR202











Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
M12 connector · Output function  · 3-wire · DC NPN · Wiring diagram no. 20 · Connector groups 108, 110, 111									
	M18 / L = 70	6 f	High-grade st. steel	10...36	IP 67	2	100	58	IGR202
	M30 / L = 70	12 f	High-grade st. steel	10...36	IP 67	2	100	185	IIR202
M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 108, 109, 110, 111									
	M8 / L = 60	2 f	High-grade st. steel	10...36	IP 67 / IP 68	100	100	184	IER200
	M12 / L = 60	4 f	High-grade st. steel	10...36	IP 67	2	100	150	IFR200
	M18 / L = 70	6 f	High-grade st. steel	10...36	IP 67	2	100	58	IGR200
	M30 / L = 70	12 f	High-grade st. steel	10...36	IP 67	2	100	185	IIR200

f = flush / nf = non flush

Full metal sensors for hygienic and wet areas






Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
M12 connector · Output function  · 3-wire · DC NPN · Wiring diagram no. 20 · Connector groups 117, 121									
	M12 / L = 70	6 nf	High-grade st. steel	10...36	IP 65 / IP 67 / IP 68 / IP 69K	500	100	196	IFT246
	M18 / L = 70	12 nf	High-grade st. steel	10...36	IP 65 / IP 67 / IP 68 / IP 69K	500	100	197	IGT250
	M30 / L = 70	25 nf	High-grade st. steel	10...36	IP 65 / IP 67 / IP 68 / IP 69K	250	100	198	IIT232
M12 connector · Output function  · 3-wire · DC NPN · Wiring diagram no. 20 · Connector group 117									
	M18 / L = 70	5 f	High-grade st. steel	10...36	IP 68 / IP 69K	100	100	58	IGT248
	M12 / L = 60	3 f	High-grade st. steel	10...36	IP 68 / IP 69K	100	100	150	IFT244












Position sensors

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
M12 connector · Output function  · 3-wire · DC NPN · Wiring diagram no. 20 · Connector group 117									
	M30 / L = 70	10 f	High-grade st. steel	10...36	IP 68 / IP 69K	50	100	185	IIT230
M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 117, 119, 121									
	M12 / L = 70	6 nf	High-grade st. steel	10...36	IP 65 / IP 67 / IP 68 / IP 69K	500	100	196	IFT245
	M18 / L = 70	12 nf	High-grade st. steel	10...36	IP 65 / IP 67 / IP 68 / IP 69K	500	100	197	IGT249
	M30 / L = 70	25 nf	High-grade st. steel	10...36	IP 65 / IP 67 / IP 68 / IP 69K	250	100	198	IIT231
M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 117, 119									
	M18 / L = 70	5 f	High-grade st. steel	10...36	IP 68 / IP 69K	100	100	58	IGT247
	M30 / L = 70	10 f	High-grade st. steel	10...36	IP 68 / IP 69K	50	100	185	IIT228
	M12 / L = 60	3 f	High-grade st. steel	10...36	IP 68 / IP 69K	100	100	150	IFT240
	Ø 12 / L = 60	3 f	High-grade st. steel	10...36	IP 68 / IP 69K	100	100	199	IFT243


















f = flush / nf = non flush

Sensors for hygienic and wet areas with increased sensing range


Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
1/2" UNF-Connector · Output function  · 2-wire · AC/DC · Wiring diagram no. 26 · Connector group 29									
	M30 / L = 70	22 nf	High-grade st. steel	20...140	IP 68 / IP 69K	25 / 100	200	200	IIT002
Cable 10 m · Output function  · 3-wire · DC PNP · Wiring diagram no. 4									
	M12 / L = 50	4 f	High-grade st. steel	10...36	IP 68 / IP 69K	800	100	201	IFT207
	M12 / L = 61	7 nf	High-grade st. steel	10...36	IP 68 / IP 69K	800	100	202	IFT209


Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Draw- ing no.	Order no.
Cable 10 m · Output function  · 3-wire · DC PNP · Wiring diagram no. 4									
	M18 / L = 57	8 f	High-grade st. steel	10...36	IP 68 / IP 69K	600	100	203	IGT207
	M18 / L = 62	12 nf	High-grade st. steel	10...36	IP 68 / IP 69K	300	100	204	IGT209
	M30 / L = 59	14 f	High-grade st. steel	10...36	IP 68 / IP 69K	100	100	205	IIT206
	M30 / L = 59	22 nf	High-grade st. steel	10...36	IP 68 / IP 69K	100	100	206	IIT208
Cable 6 m · Output function  · 3-wire · DC PNP · Wiring diagram no. 4									
	M12 / L = 50	4 f	High-grade st. steel	10...36	IP 68 / IP 69K	800	100	201	IFT206
	M12 / L = 61	7 nf	High-grade st. steel	10...36	IP 68 / IP 69K	800	100	202	IFT208
	M18 / L = 57	8 f	High-grade st. steel	10...36	IP 68 / IP 69K	600	100	203	IGT206
	M18 / L = 62	12 nf	High-grade st. steel	10...36	IP 68 / IP 69K	300	100	204	IGT208
	M30 / L = 59	22 nf	High-grade st. steel	10...36	IP 68 / IP 69K	100	100	206	IIT207
	M30 / L = 59	14 f	High-grade st. steel	10...36	IP 68 / IP 69K	100	100	205	IIT209
M12 connector · Output function  · 3-wire DC PNP · 2-wire DC PNP/NPN · Wiring diagram no. 37 · Connector groups 117, 119									
	M12 / L = 70	7 nf	High-grade st. steel	10...30	IP 68 / IP 69K	700	100	207	IFT202
	M12 / L = 70	4 f	High-grade st. steel	10...36	IP 68 / IP 69K	500	100	5	IFT205
	Ø 12 / L = 70	7 nf	High-grade st. steel	10...30	IP 68 / IP 69K	700	100	208	IFT210
	M18 / L = 70	12 nf	High-grade st. steel	10...30	IP 68 / IP 69K	300	100	209	IGT202

Position sensors

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Draw- ing no.	Order no.
M12 connector · Output function  · 3-wire DC PNP · 2-wire DC PNP/NPN · Wiring diagram no. 37 · Connector groups 117, 119									
	M18 / L = 70	8 f	High-grade st. steel	10...36	IP 68 / IP 69K	400	100	7	IGT205
	M30 / L = 70	22 nf	High-grade st. steel	10...36	IP 68 / IP 69K	100	100	10	IIT202
	M30 / L = 70	14 f	High-grade st. steel	10...36	IP 68 / IP 69K	100	100	9	IIT204
M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 117, 119									
	M12 / L = 50	7 nf	High-grade st. steel	10...36	IP 68 / IP 69K	800	100	210	IFT200
	M12 / L = 45	4 f	High-grade st. steel	10...36	IP 68 / IP 69K	800	100	1	IFT203
	M12 / L = 70	4 f	High-grade st. steel	10...36	IP 68 / IP 69K	700	100	5	IFT216
	M12 / L = 70	7 nf	High-grade st. steel	10...36	IP 68 / IP 69K	800	100	6	IFT217
	M18 / L = 51	12 nf	High-grade st. steel	10...36	IP 68 / IP 69K	300	100	211	IGT200
	M18 / L = 46	8 f	High-grade st. steel	10...36	IP 68 / IP 69K	600	100	3	IGT203
	M18 / L = 70	8 f	High-grade st. steel	10...36	IP 68 / IP 69K	400	100	7	IGT219
	M18 / L = 70	12 nf	High-grade st. steel	10...36	IP 68 / IP 69K	300	100	8	IGT220
	M30 / L = 50	22 nf	High-grade st. steel	10...36	IP 68 / IP 69K	100	100	212	IIT200
	M30 / L = 50	14 f	High-grade st. steel	10...36	IP 68 / IP 69K	100	100	13	IIT205
	M30 / L = 70	15 f	High-grade st. steel	10...36	IP 68 / IP 69K	100	100	9	IIT212
	M30 / L = 70	22 nf	High-grade st. steel	10...36	IP 68 / IP 69K	100	100	10	IIT213

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Draw- ing no.	Order no.
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M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 2 · Connector group 117

	M18 / L = 46	8 f	High-grade st. steel	10...36	IP 68 / IP 69K	600	100	3	IGT204
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M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 2 · Connector groups 117, 119


	M12 / L = 50	7 nf	High-grade st. steel	10...36	IP 68 / IP 69K	800	100	210	IFT201
	M12 / L = 45	4 f	High-grade st. steel	10...36	IP 68 / IP 69K	800	100	1	IFT204
	M18 / L = 51	12 nf	High-grade st. steel	10...36	IP 68 / IP 69K	300	100	211	IGT201

f = flush / nf = non flush


Sensors for hygienic and wet areas

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Draw- ing no.	Order no.
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Cable 2 m · Output function  · 4-wire · DC PNP · Wiring diagram no. 27

	M18 / L = 80	8 nf	High-grade st. steel	10...36	IP 67	320	250	41	IG5202
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M12 connector · Output function  · 3-wire DC PNP · 2-wire DC PNP/NPN · Wiring diagram no. 37 · Connector groups 117, 119









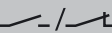






	M18 / L = 70	8 nf	High-grade st. steel	10...36	IP 68 / IP 69K	300	100	209	IGT240
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M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 117, 119

	M8 / L = 70	1 f	High-grade st. steel	10...36	IP 67	2000	200	213	IE5215
	M8 / L = 55	2 nf	High-grade st. steel	10...36	IP 67	2000	200	214	IE5295
	M12 / L = 59	2 f	High-grade st. steel	10...36	IP 67	1100	200	215	IF5514
	M12 / L = 83	4 nf	High-grade st. steel	10...36	IP 67	400	250	57	IF5594
	M12 / L = 44	4 nf	High-grade st. steel	10...36	IP 67	1400	150	216	IF5796

You can find wiring diagrams and scale drawings from page 122

Position sensors

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Draw- ing no.	Order no.
M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 117, 119									
	M12 / L = 59	4 nf	High-grade st. steel	10...36	IP 67	1400	250	217	IF5813
	M12 / L = 44	2 f	High-grade st. steel	10...36	IP 67	1200	250	218	IF5815
	M12 / L = 83	2 f	High-grade st. steel	10...36	IP 67	800	250	56	IF5851
	M18 / L = 90	8 nf	High-grade st. steel	10...36	IP 67	300	250	219	IG5602
	M18 / L = 76	5 f	High-grade st. steel	10...36	IP 67	500	250	220	IG5813
	M30 / L = 92	10 f	High-grade st. steel	10...36	IP 67	250	250	221	I15689
	M30 / L = 92	15 nf	High-grade st. steel	10...36	IP 67	200	250	222	I15776
M12 connector · Output function  · 2-wire · DC PNP/NPN · Wiring diagram no. 38 · Connector group 117									
	M12 / L = 83	2 f	High-grade st. steel	10...55	IP 67	1100	400	56	IF5759
	M12 / L = 83	4 nf	High-grade st. steel	10...55	IP 67	1500	300	57	IF5760
	M18 / L = 77	8 nf	High-grade st. steel	10...55	IP 67	300	300	223	IG5772
	M18 / L = 90	5 f	High-grade st. steel	10...55	IP 67	700	400	224	IG5806
	M30 / L = 78	15 nf	High-grade st. steel	10...55	IP 67	200	400	61	I15733
	M30 / L = 92	10 f	High-grade st. steel	10...55	IP 67	450	400	221	I15751

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Draw- ing no.	Order no.
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M12 connector · Output function  · 4-wire · DC PNP · Wiring diagram no. 10 · Connector groups 117, 119




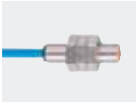

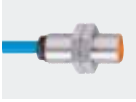
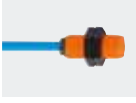
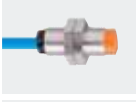
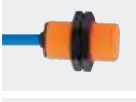
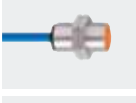

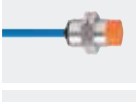

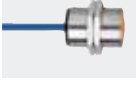
M18 / L = 45	10 nf	High-grade st. steel	10...36	IP 67	300	250	225	IG5846
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f = flush / nf = non flush

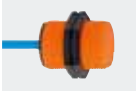




Sensors with ATEX approval 1D / 2G

Type	Dimensions [mm]	Sensing range [mm]	Material	$U_{nom.}$ at 1 K Ω [V]	U_b [V]	Internal capacit. [nF]	Internal inductance [μ H]	f [Hz]	Draw- ing no.	Order no.
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Cable 2 m · Output function  · 2-wire · Connection to certified intrinsically safe circuits with the max. values $U = 15$ V / $I = 50$ mA / $P = 120$ mW · Wiring diagram no. 28







	M8 / L = 30	1 f	Brass	8.2 DC	7.5...30	80	70	2000	226	NE5001
	M12 / L = 30	2 f	PBT	8.2 DC	7.5...30	140	340	1200	227	NF5001
	M12 / L = 30	2 f	Brass	8.2 DC	7.5...30	140	340	1200	227	NF5002
	M12 / L = 30	4 nf	PBT	8.2 DC	7.5...30	140	130	1500	227	NF5003
	M12 / L = 30	4 nf	Brass	8.2 DC	7.5...30	140	130	1500	228	NF5004
	M18 / L = 33	5 f	PBT	8.2 DC	7.5...30	145	45	720	229	NG5001
	M18 / L = 33	5 f	Brass	8.2 DC	7.5...30	145	45	720	229	NG5002
	M18 / L = 33	8 nf	PBT	8.2 DC	7.5...30	155	50	300	229	NG5003
	M18 / L = 33	8 nf	Brass	8.2 DC	7.5...30	155	50	300	230	NG5004
	M30 / L = 41	10 f	PBT	8.2 DC	7.5...30	145	140	450	231	NI5001
	M30 / L = 41	10 f	Brass	8.2 DC	7.5...30	145	140	450	231	NI5002



Position sensors

Type	Dimensions [mm]	Sensing range [mm]	Material	U _{nom.} at 1 KΩ [V]	U _b [V]	Internal capacit. [nF]	Internal inductance [μH]	f [Hz]	Draw- ing no.	Order no.
	M30 / L = 41	15 nf	PBT	8.2 DC	7.5...30	145	110	200	231	NI5003
	M30 / L = 41	15 nf	Brass	8.2 DC	7.5...30	145	110	200	232	NI5004
	40 x 12 x 26	4 nf	PBT	8.2 DC	7.5...30	110	135	400	233	NN5002
	28 x 10 x 16	2 f	PBT	8.2 DC	7.5...30	80	110	800	234	NS5002
	Ø 6.5 / L = 30	1 f	Brass	8.2 DC	7.5...30	80	70	2000	235	NT5001

f = flush / nf = non flush


Sensors with ATEX approval 1D / 1G / 2G

Type	Dimensions [mm]	Sensing range [mm]	Material	U _{nom.} at 1 KΩ [V]	U _b [V]	Internal capacit. [nF]	Internal inductance [μH]	f [Hz]	Draw- ing no.	Order no.
	M12 / L = 50	7 nf	Brass	8.2 DC	7.5...30	210	145	700	2	NF500A
	M12 / L = 45	4 f	Brass	8.2 DC	7.5...30	210	115	700	1	NF501A
	M18 / L = 51	12 nf	Brass	8.2 DC	7.5...30	200	85	300	4	NG500A
	M18 / L = 46	8 f	Brass	8.2 DC	7.5...30	200	190	400	3	NG501A
	M30 / L = 50	22 nf	Brass	8.2 DC	7.5...30	250	120	100	14	NI500A
	M30 / L = 50	15 f	Brass	8.2 DC	7.5...30	230	210	100	13	NI501A







Type	Dimensions [mm]	Sensing range [mm]	Material	U _{nom.} at 1 KΩ [V]	U _b [V]	Internal capacit. [nF]	Internal inductance [μH]	f [Hz]	Draw- ing no.	Order no.
M12 connector · Output function  · 2-wire · Connection to certified intrinsically safe circuits with the max. values U = 15 V / I = 50 mA / P = 120 mW · Wiring diagram no. 30 · Connector group 145										
	40 x 40 x 66	20 f	PPE	8.2 DC	7.5...30	250	450	200	111	NM500A
	40 x 40 x 66	35 nf	PPE	8.2 DC	7.5...30	220	710	100	111	NM501A

f = flush / nf = non flush




Sensors with ATEX approval 3D/3G

Type	Dimensions [mm]	Sensing range [mm]	Material	U _{nom.} at 1 KΩ [V]	U _b [V]	Internal capacit. [nF]	Internal inductance [μH]	f [Hz]	Draw- ing no.	Order no.
M12 connector · Output function normally open / closed · 4-wire · DC PNP · Wiring diagram no. 10 · Connector groups 144, 146										
	40 x 40 x 54	40 nf	PC	10...30 DC	–	–	–	60	236	IM511A
	40 x 40 x 54	20 f	PC	10...30 DC	–	–	–	100	236	IM512A
	40 x 40 x 54	30 nf	PC	10...30 DC	–	–	–	100	236	IM513A

M12 connector · Output function · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 144, 146


	M12 / L = 70.2	6 nf	High-grade st. steel	10...36 DC	–	–	–	500	237	IF505A
	M18 / L = 70	12 nf	High-grade st. steel	10...36 DC	–	–	–	500	197	IG511A
	M30 / L = 70	25 nf	High-grade st. steel	10...36 DC	–	–	–	250	198	II503A
	M18 / L = 70	5 f	High-grade st. steel	10...36 DC	–	–	–	100	58	IG510A
	M30 / L = 70	10 f	High-grade st. steel	10...36 DC	–	–	–	50	238	II502A
	M12 / L = 60	3 f	High-grade st. steel	10...36 DC	–	–	–	100	239	IF503A

Position sensors

Type	Dimensions [mm]	Sensing range [mm]	Material	U _{nom.} at 1 KΩ [V]	U _b [V]	Internal capacit. [nF]	Internal inductance [μH]	f [Hz]	Draw- ing no.	Order no.
M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 2 · Connector groups 144, 146										
	M18 / L = 70	5 f	High-grade st. steel	10...36 DC	–	–	–	100	58	IG512A
	M12 / L = 60	3 f	High-grade st. steel	10...36 DC	–	–	–	100	239	IF504A

f = flush / nf = non flush

Sensors with ATEX approval 3D

Type	Dimensions [mm]	Sensing range [mm]	Material	U _{nom.} at 1 KΩ [V]	U _b [V]	Internal capacit. [nF]	Internal inductance [μH]	f [Hz]	Draw- ing no.	Order no.
Cable 2 m · Output function  · 2-wire · AC/DC · Wiring diagram no. 13										
	M18 / L = 80	8 nf	Brass	20...250 AC/DC	–	–	–	25 / 50	240	IG001A*
Cable 2 m · Output function  · 3-wire · DC PNP · Wiring diagram no. 4										
	M18 / L = 80	8 nf	Brass	10...30 DC	–	–	–	300	240	IG513A
Cable 2 m · Output function  · 2-wire · DC PNP/NPN · Wiring diagram no. 40										
	M18 / L = 80	8 nf	Brass	10...30 DC	–	–	–	300	240	IG515A
Cable 6 m · Output function  · 2-wire · AC/DC · Wiring diagram no. 13										
	M30 / L = 81	15 nf	Brass	20...250 AC/DC	–	–	–	25 / 50	241	II001A*
M12 connector · Output function  · 4-wire · DC PNP · Wiring diagram no. 10 · Connector groups 144, 146										
	M18 / L = 80	10 nf	High-grade st. steel	10...30 DC	–	–	–	300	242	IG514A
Terminals · Output function normally open / closed · 4-wire · DC · Wiring diagram no. 31										
	40 x 40 x 105	20 f	PC	10...30 DC	–	–	–	100	243	IM510A
Terminals · Output function  · 4-wire · DC · Wiring diagram no. 32										
	40 x 40 x 105	20 f	PC	10...30 DC	–	–	–	100	243	IM509A

Type	Dimensions [mm]	Sensing range [mm]	Material	U _{nom.} at 1 KΩ [V]	U _b [V]	Internal capacit. [nF]	Internal inductance [μH]	f [Hz]	Draw- ing no.	Order no.
Terminals · Output function  · 2-wire · AC/DC · Wiring diagram no. 44										
	105 x 80 x 42	60 nf	PPE	20...250 AC/DC	–	–	–	4	244	ID002A*
Terminals · Output function  · 2-wire · AC/DC · Wiring diagram no. 49										
	40 x 40 x 105	40 nf	PC	20...250 AC/DC	–	–	–	10	243	IM002A*
Terminals · Output function  · 2-wire · DC · Wiring diagram no. 50										
	40 x 40 x 105	20 f	PC	10...55 DC	–	–	–	100	243	IM508A
Terminals · Output function  · 3-wire · AC/DC · Wiring diagram no. 49										
	40 x 40 x 105	20 f	PC	20...250 AC/DC	–	–	–	10	243	IM001A*
Terminals · Output function  · 3-wire · DC PNP · Wiring diagram no. 43										
	105 x 80 x 42	60 nf	PPE	10...30 DC	–	–	–	100	244	ID502A
Terminals · Output function  · 4-wire · DC · Wiring diagram no. 51										
	40 x 40 x 105	20 f	PC	10...30 DC	–	–	–	100	243	IM506A
	40 x 40 x 105	40 nf	PC	10...30 DC	–	–	–	100	243	IM507A

f = flush / nf = non flush


*** Note for AC and AC/DC units**

Miniature fuse to IEC60127-2 sheet 1, ≤ 2 A (fast acting) Recommendation: check the unit for reliable function after a short circuit.


Sensors with ATEX approval 2D / 3G

Type	Dimensions [mm]	Sensing range [mm]	Material	U _{nom.} at 1 KΩ [V]	U _b [V]	Internal capacit. [nF]	Internal inductance [μH]	f [Hz]	Drawing no.	Order no.
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M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 33 · Connector groups 144, 146

	M30 / L = 70	10 f	High-grade st. steel	10...36 DC	-	-	-	50	238	II504A
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Terminals · Output function  /  · 3-wire · DC PNP · Wiring diagram no. 52

	105 x 80 x 42	60 nf	modified PPE	10...30 DC	-	-	-	100	244	ID503A
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f = flush / nf = non flush

Slot sensors with ATEX approval 1D/1G


Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
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Cable 0.065 m · Output function  · Connection to certified intrinsically safe circuits with the max. values U = 15 V / I = 50 mA / P = 120 mW · Wiring diagram no. 34

	special design	-	PBT	-	IP 67	3000	-	245	N7523A
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Cable 0.5 m · Output function  · Connection to certified intrinsically safe circuits with the max. values U = 15 V / I = 50 mA / P = 120 mW · Wiring diagram no. 28


	Special design	-	PBT	-	IP 67	5000	-	246	N7520A
---	----------------	---	-----	---	-------	------	---	-----	--------


Cable with connector 0.065 m · Output function  · Connection to certified intrinsically safe circuits with the max. values U = 15 V / I = 50 mA / P = 120 mW · Wiring diagram no. 35

	Special design	-	PBT	-	IP 67	3000	-	247	N7521A
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Switching amplifiers with ATEX approval

Type	Description	Order no.
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	Switching amplifier for Namur sensors according to 94/9/EG (ATEX) · ATEX approval · Group II, category (1) G D · 1-channel · Relay output · Programmable output function · Short-circuit and wire monitoring	N0031A
	Switching amplifier for Namur sensors according to 94/9/EG (ATEX) · ATEX approval · Group II, category (1) G D · 2-channel · Relay outputs · Programmable output function · Short-circuit and wire monitoring	N0032A
	Switching amplifier for Namur sensors according to 94/9/EG (ATEX) · ATEX approval · Group II, category (1) G D · 2-channel · Relay outputs · Programmable output function · Short-circuit and wire monitoring	N0033A

Type	Description	Order no.
	Switching amplifier for Namur sensors according to 94/9/EG (ATEX) · ATEX approval · Group II, category (1) G D · 1-channel · Relay output · Programmable output function · Short-circuit and wire monitoring	N0530A
	Switching amplifier for Namur sensors according to 94/9/EG (ATEX) · ATEX approval · Group II, category (1) G D · 1-channel · Transistor outputs · Programmable output function · Short-circuit and wire monitoring	N0531A
	Switching amplifier for Namur sensors according to 94/9/EG (ATEX) · ATEX approval · Group II, category (1) G D · 2-channel · Optocoupler output · Programmable output function · Short-circuit and wire monitoring	N0532A
	Switching amplifier for Namur sensors according to 94/9/EG (ATEX) · ATEX approval · Group II, category (1) G D · 2-channel · Relay outputs · Programmable output function · Short-circuit and wire monitoring	N0533A
	Switching amplifier for Namur sensors according to 94/9/EG (ATEX) · ATEX approval · Group II, category (1) G D · 2-channel · Transistor outputs · Programmable output function · Short-circuit and wire monitoring	N0534A








Accessories for sensors with smooth sleeve

Type	Description	Order no.
	Mounting clip · Ø 12 mm · for smooth body switches - Ø 12 mm · Form V · Housing materials: stainless steel	E11530
	Mounting clip · Ø 18 mm · for smooth body switches - Ø 18 mm · Form V · Housing materials: stainless steel	E11531
	Mounting clamp · Ø 4 mm · Housing materials: TPE	E10204
	Mounting clamp · Ø 6.5 mm · Housing materials: PPE	E10014
	Mounting clamp · Ø 20 mm · Housing materials: PA	E10192
	Mounting clamp · Ø 34 mm · Housing materials: PA	E10193
	Mounting clamp · Ø 20 mm · Housing materials: Mounting clamp: PBT / socket screw: steel galvanised	E10016
	Mounting clamp · Ø 34 mm · Housing materials: PBT	E10017
	Limit plungers · for type Ø 6.5 mm · with Sn = 1 mm f · Housing materials: Limit plungers: free cutting steel / plunger: C45K hardened on front / nut: Brass nickel-plated	E10155

Accessories for threaded M8 housings










Type	Description	Order no.
	Angle bracket · for type M8 · Housing materials: stainless steel	E10734
	Mounting clamp · Ø 8 mm · Housing materials: aluminium black anodised	E10221
	Mounting clamp · Ø 8 mm · with end stop · for type M8 · Housing materials: PC	E11521
	Mounting sleeve · M12 x 1 - Ø 8 mm · 32 mm · with end stop · for type M8 · Housing materials: Brass special coating	E10848
	Mounting sleeve · M12 x 1 - Ø 8 mm · 42 mm · with end stop · for type M8 · Housing materials: Brass special coating	E10849
	Limit plungers · for types M8 x 1 · with Sn = 1 mm f, 2 mm f and 3 mm f · Housing materials: Limit plungers: free cutting steel / plunger: C45K hardened on front / nut: Brass nickel-plated	E10154

Accessories for threaded M12 housings


Type	Description	Order no.
	Angle bracket · for type M12 · Housing materials: stainless steel	E10735
	Mounting clip · O-shaped · for type M12 · Housing materials: stainless steel	E11533
	Mounting clamp · Ø 12 mm · Housing materials: PBT	E10015
	Mounting clamp · Ø 12 mm · with end stop · for type M12 · Housing materials: PC	E11047
	Mounting clamp · Ø 12 mm · with end stop · For sensors with 45° chamfer · for type M12 · Housing materials: PC	E11994
	Mounting sleeve · M16 x 1 - Ø 12 mm · 45 mm · with end stop · for type M12 · Housing materials: Brass nickel-plated	E10741
	Mounting sleeve · M16 x 1 - Ø 12 mm · 34 mm · with end stop · for type M12 · Housing materials: Brass nickel-plated	E10806

Type	Description	Order no.
	Mounting sleeve · M16 x 1 - Ø 12 mm · with end stop · for type M12 · Housing materials: Brass nickel-plated	E11114
	Lock nuts metal · M12 x 1 · Housing materials: Brass nickel-plated	E10024
	Lock nuts metal · M12 x 1 · Housing materials: stainless steel 316Ti / 1.4571	E10025

Accessories for threaded M18 housings

Type	Description	Order no.
	Angle bracket · for type M18 · Housing materials: stainless steel	E10736
	Mounting clip · O-shaped · for type M18 · Housing materials: stainless steel	E11534
	Mounting clamp · Ø 20 mm - Ø 18 mm · with reducing bush · for type M18 · Housing materials: PBT	E10076
	Mounting clamp · Ø 18 mm · with end stop · for type M18 · Housing materials: PC	E11048
	Mounting clamp · Ø 18 mm · with end stop · For sensors with 45° chamfer · for type M18 · Housing materials: PC	E11995
	Mounting sleeve · M24 x 1.5 - Ø 18 mm · 58 mm · with end stop · for type M18 · Housing materials: Brass nickel-plated	E10742
	Mounting sleeve · M24 x 1.5 - Ø 18 mm · 36 mm · with end stop · for type M18 · Housing materials: Brass nickel-plated	E10807
	Mounting sleeve · M22 x 1 - Ø 18 mm · with end stop · for type M18 · Housing materials: Brass white bronze coated	E11115
	Plastic nut for flow plate · M18 x 1 · Housing materials: POM	E19503
	Lock nuts metal · M18 x 1 · Housing materials: Brass nickel-plated	E10027



Position sensors

Type	Description	Order no.
	Lock nuts metal · M18 x 1 · Housing materials: stainless steel 316Ti / 1.4571	E10028

Accessories for threaded M30 housings





Type	Description	Order no.
	Angle bracket · for type M30 · Housing materials: stainless steel	E10737
	Mounting clamp · Ø 34 mm - Ø 30 mm · with reducing bush · for type M30 · Housing materials: PBT	E10077
	Mounting clamp · Ø 30 mm · with end stop · for type M30 · Housing materials: PC	E11049
	Mounting clamp · Ø 30 mm · with end stop · For sensors with 45° chamfer · for type M30 · Housing materials: PC	E11996
	Mounting sleeve · M36 x 1.5 - Ø 30 mm · 58 mm · with end stop · for type M30 · Housing materials: Brass nickel-plated	E10743
	Mounting sleeve · M36 x 1.5 - Ø 30 mm · 36 mm · with end stop · for type M30 · Housing materials: Brass nickel-plated	E10808
	Lock nuts metal · M30 x 1.5 · Housing materials: Brass nickel-plated	E10030
	Lock nuts metal · M30 x 1.5 · Housing materials: stainless steel 316Ti / 1.4571	E10031

Accessories for rectangular housings

Type	Description	Order no.
	Mounting bracket · with integrated snap-on rail · for type IDC · Housing materials: stainless steel	E10730
	Protective bracket · for cable units · for type IW, KW · Housing materials: stainless steel 316Ti / 1.4571	E20813

System components

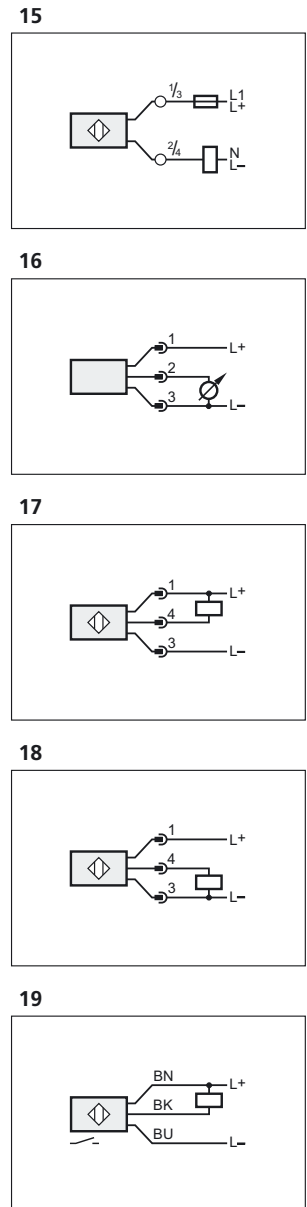
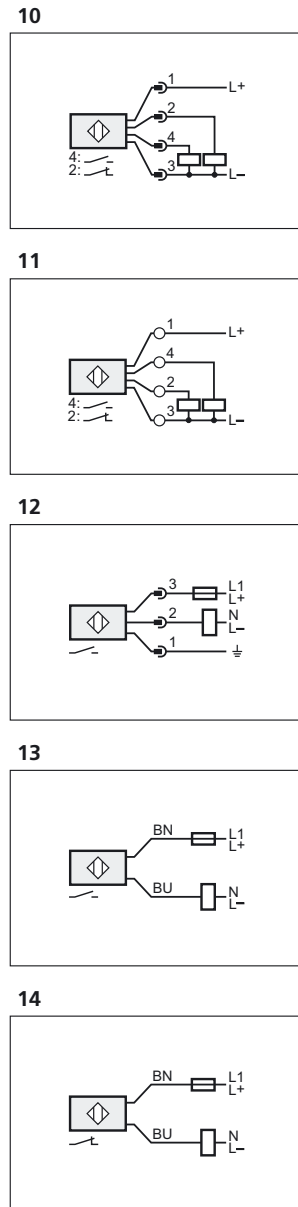
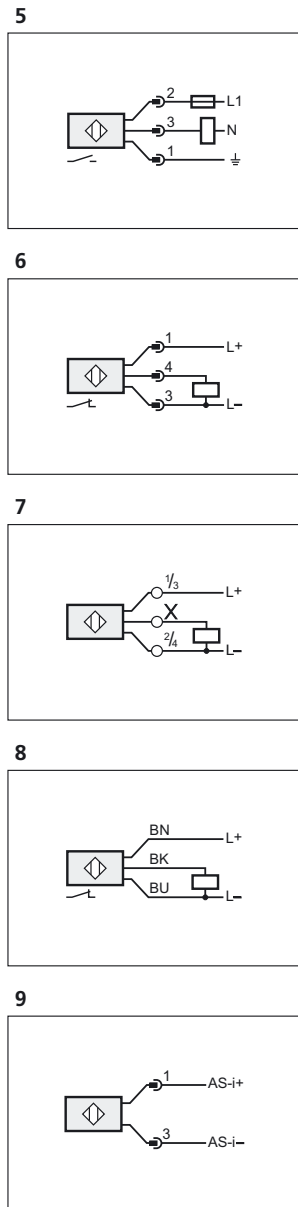
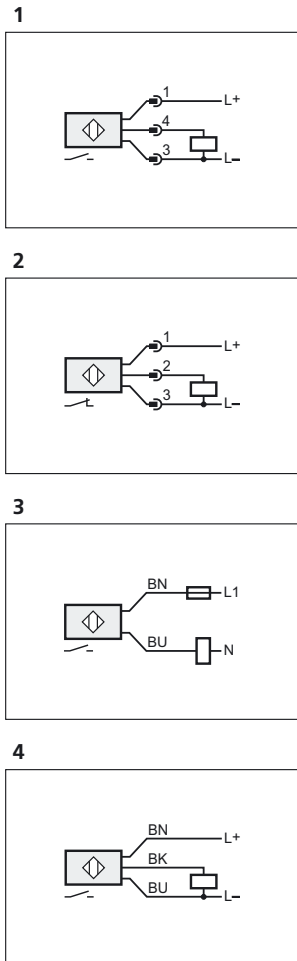
Type	Description	Order no.
	Mounting set · Ø 18.5 mm · Clamp mounting · Free-standing M10 · for type OG, IG, KG · Housing materials: clamp: diecast zinc / fixture: steel	E20718
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	Angle bracket · Clamp mounting · for type IW, KQ5 · Housing materials: stainless steel 316Ti / 1.4571	E20811
	Protective bracket · for cable units · for type IW, KW · Housing materials: stainless steel 316Ti / 1.4571	E20813
	Protective bracket · for devices with M8 connection · for type IW · Housing materials: stainless steel 316Ti / 1.4571	E20814
	Mounting set · Ø 12.2 mm · Clamp mounting · free-standing M8 · for type OF, IF · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: diecast zinc	E20856
	Mounting set · Ø 12.2 mm · Clamp mounting · free-standing M8 · for type OF, IF · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: stainless steel	E20857
	Mounting set · Ø 12.2 mm · Clamp mounting · free-standing M8 · for type OF, IF · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: diecast zinc	E20860
	Mounting set · Ø 12.2 mm · Clamp mounting · free-standing M8 · for type OF, IF · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: stainless steel	E20861
	Mounting set · Ø 12.2 mm · Clamp mounting · aluminium profile · for type OF, IF · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: diecast zinc / Cube: diecast zinc	E20864
	Mounting set · Ø 12.2 mm · Clamp mounting · aluminium profile · for type OF, IF · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: diecast zinc / Cube: diecast zinc	E20865
	Mounting set · Ø 18.5 mm · Clamp mounting · aluminium profile · for type OG, IG, KG · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: diecast zinc / Cube: diecast zinc	E20866
	Mounting set · Ø 18.5 mm · Clamp mounting · aluminium profile · for type OG, IG, KG · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: diecast zinc / Cube: diecast zinc	E20867
	Mounting set · Ø 18.5 mm · Clamp mounting · Free-standing M10 · for type OG, IG, KG · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: stainless steel	E20869

Type	Description	Order no.
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	Mounting set · Ø 30.2 mm · Clamp mounting · free-standing M12 · for type OI, II, KI · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: diecast zinc	E20873
	Mounting set · Ø 30.2 mm · Clamp mounting · free-standing M12 · for type OI, II, KI · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: stainless steel	E20874
	Mounting set · Ø 30.2 mm · Clamp mounting · aluminium profile · for type II, KI, OID, OI · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: diecast zinc / Cube: diecast zinc	E20875

Wiring diagrams

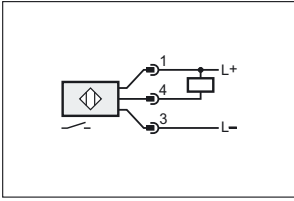
Core colours

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- BU blue
- BK black
- WH white

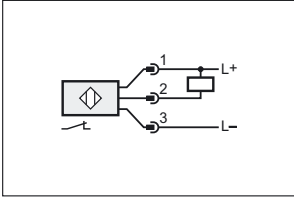


Wiring diagrams

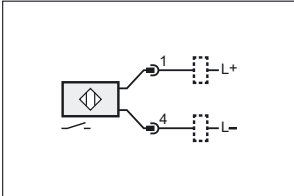
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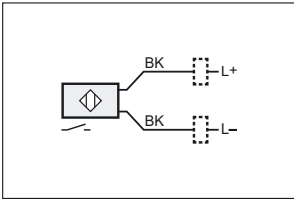
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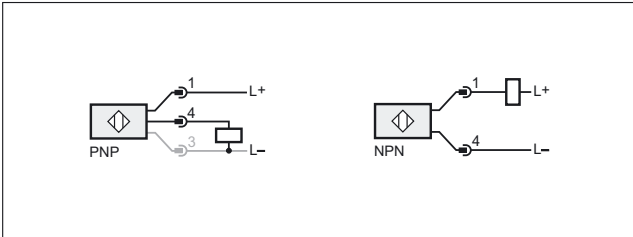
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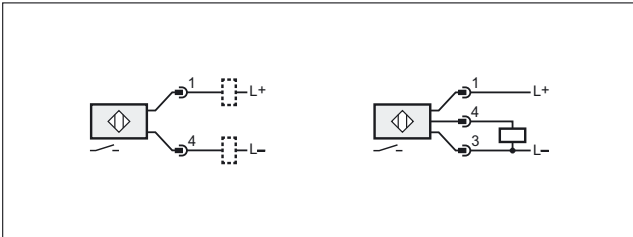
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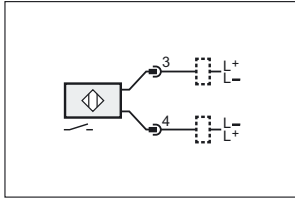
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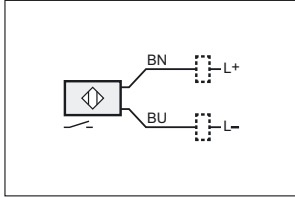
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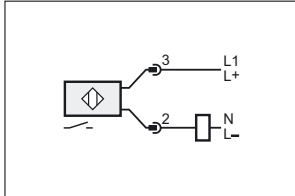
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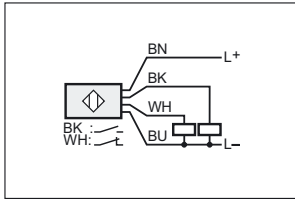
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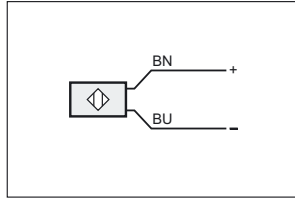
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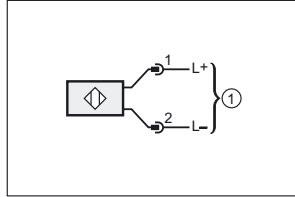
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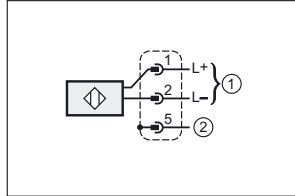


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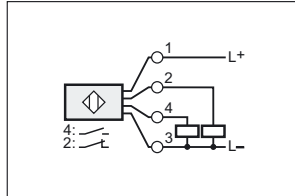
1: connection to NAMUR-amplifier

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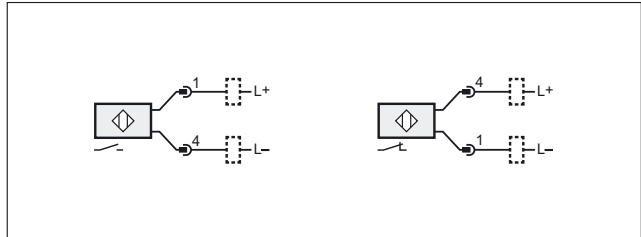


1: connection to NAMUR-amplifier, 2: Potential equalisation plug housing

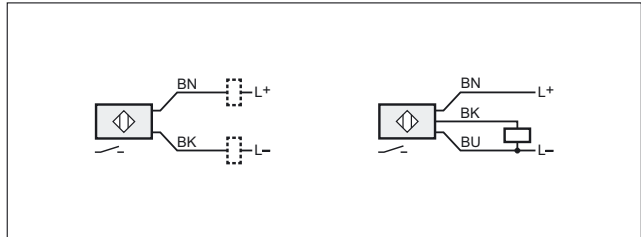
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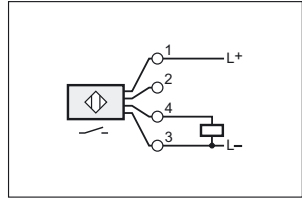
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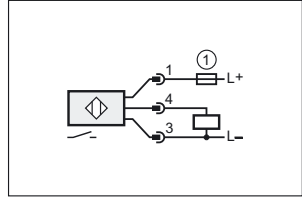
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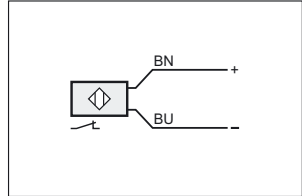


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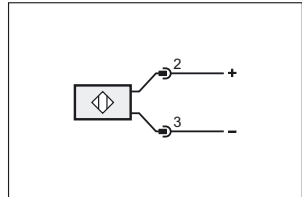


1: fuse

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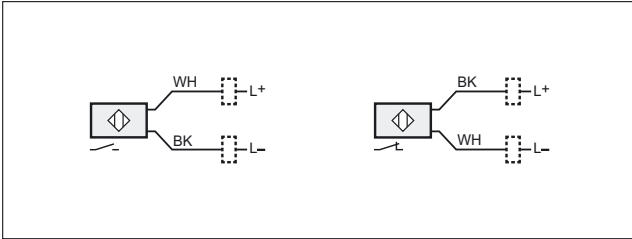


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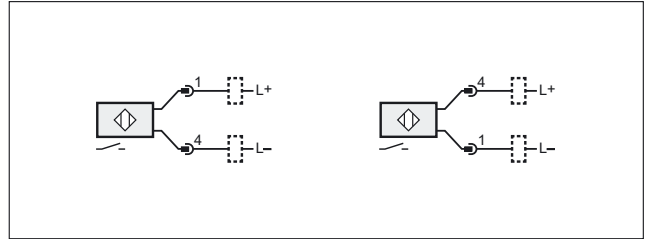


Wiring diagrams

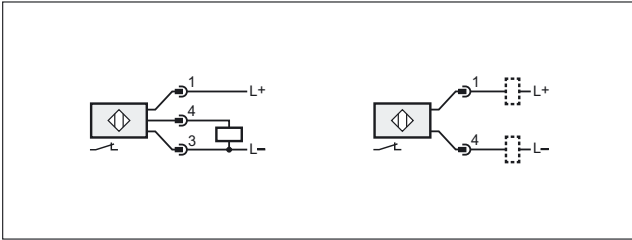
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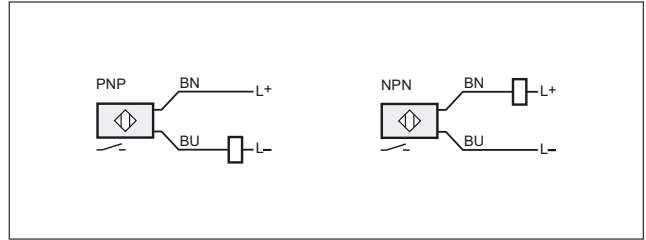
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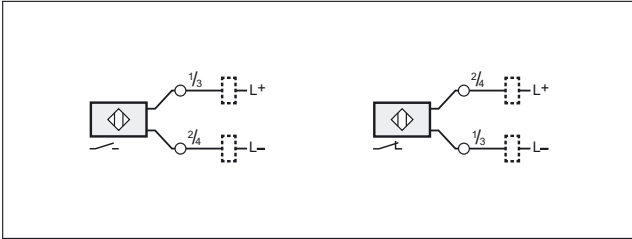
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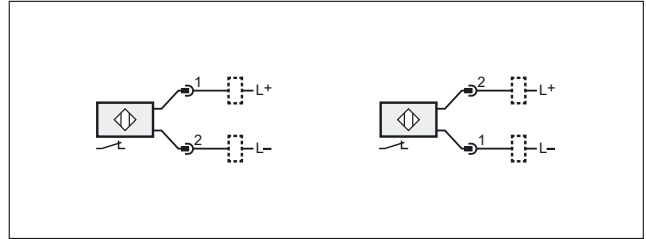
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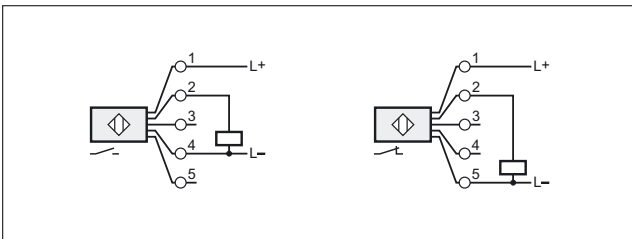
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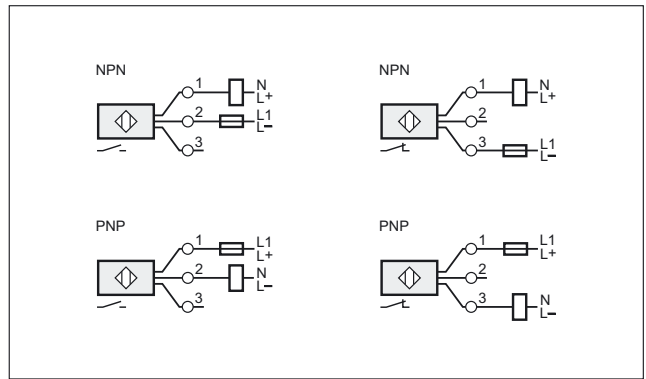
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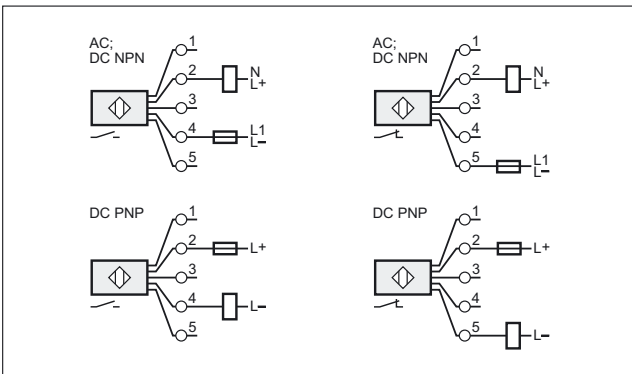
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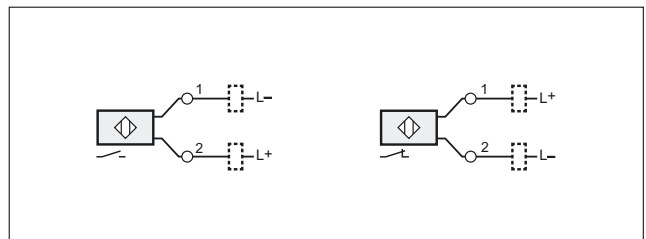
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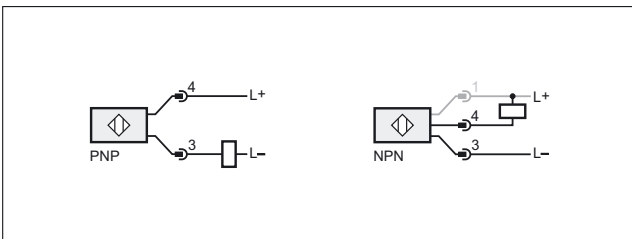
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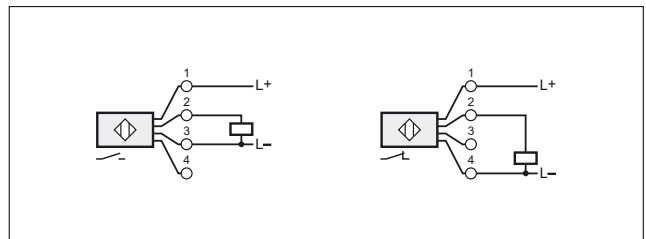
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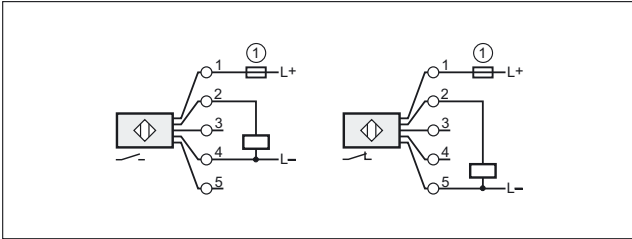


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Wiring diagrams

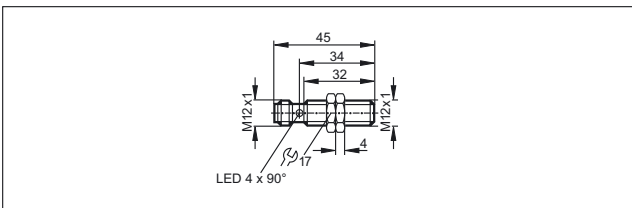
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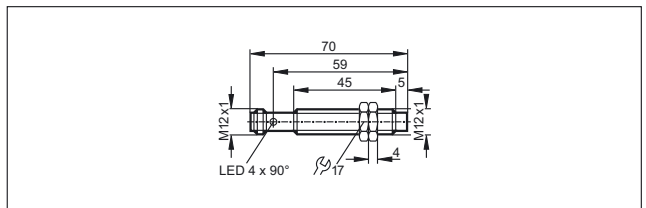
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Scale drawings / drawing no. – CAD download: www.ifm.com

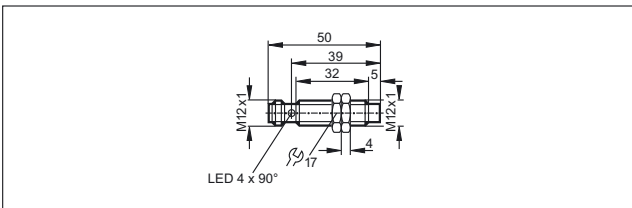
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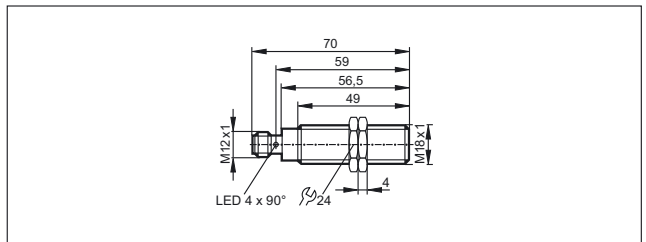
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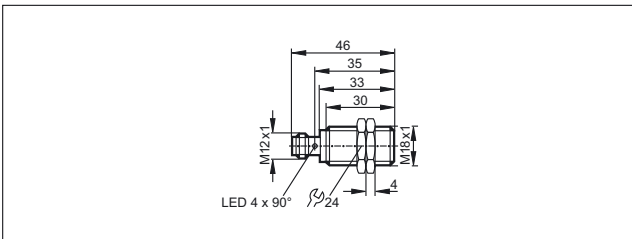
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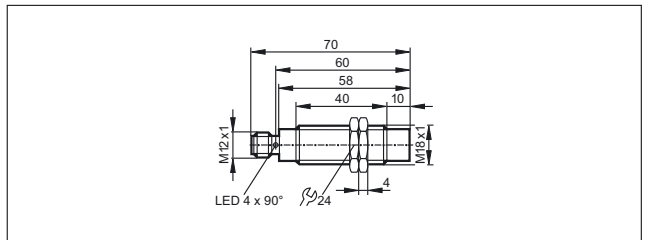
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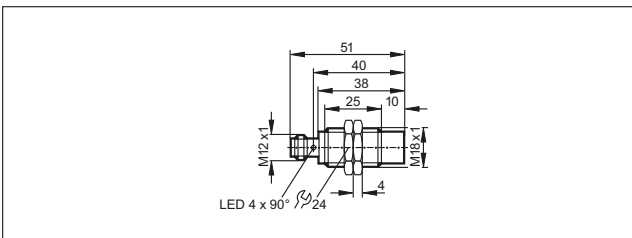
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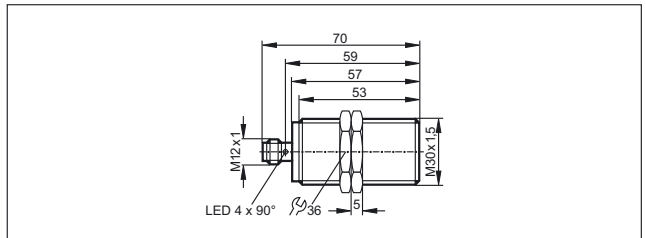
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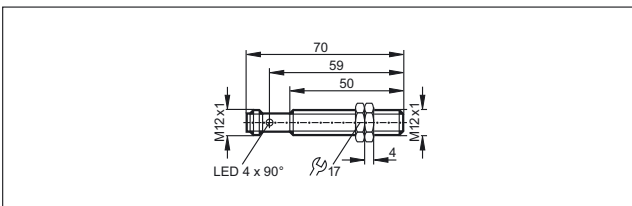
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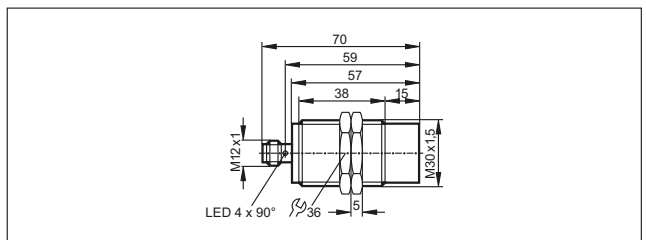
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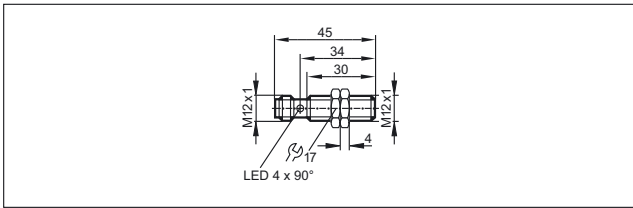


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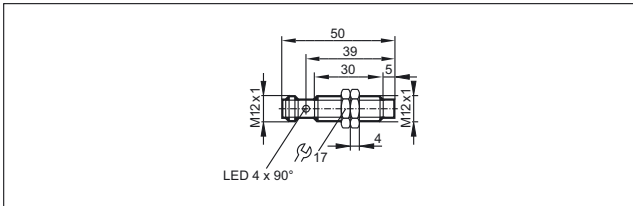


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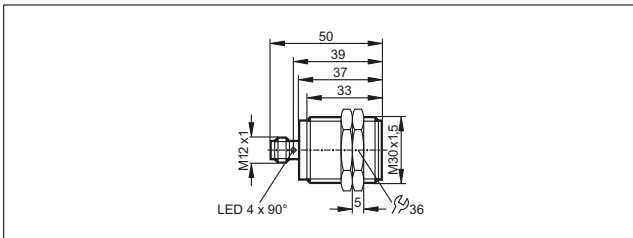
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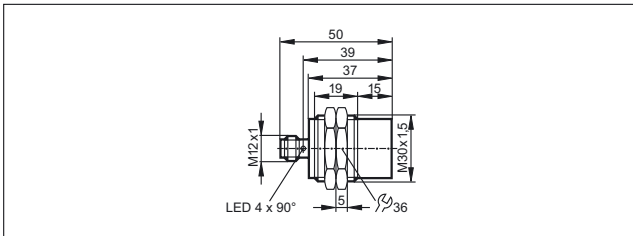
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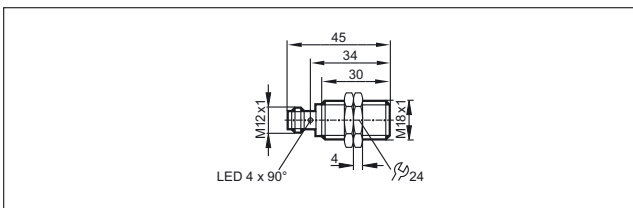
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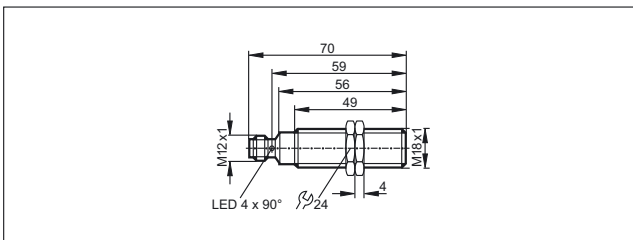
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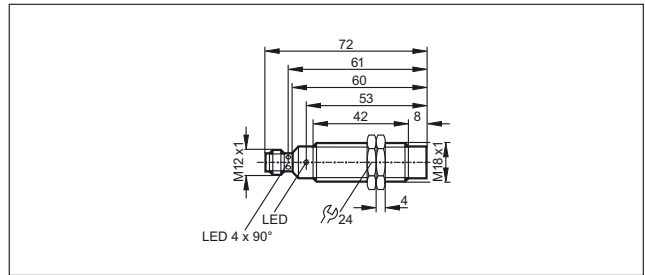
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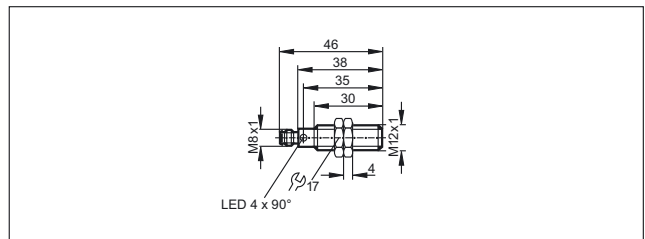
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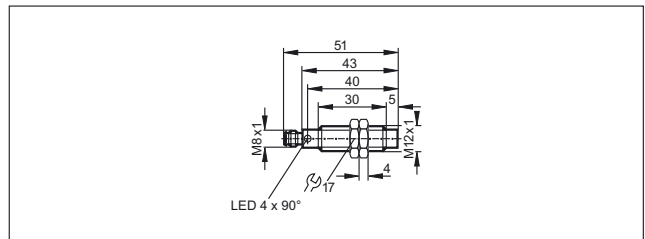
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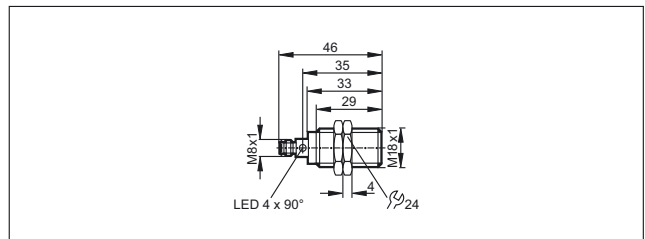
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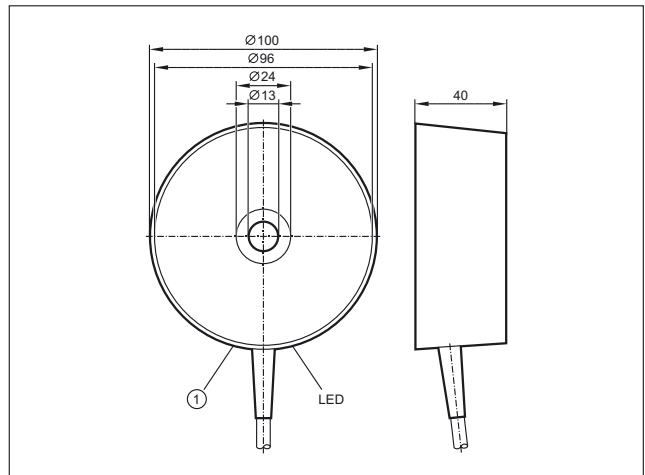
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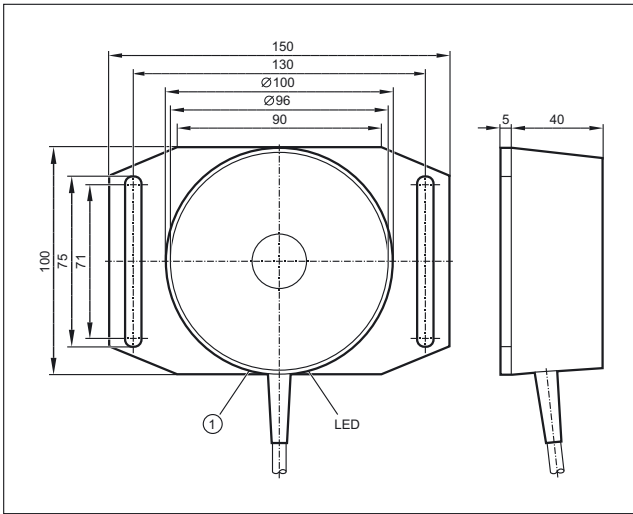
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1: potentiometer

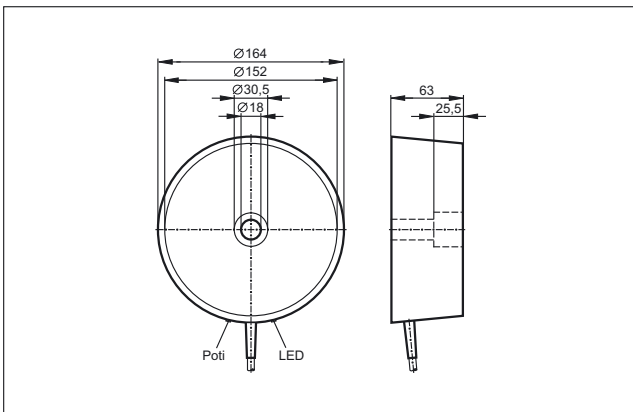
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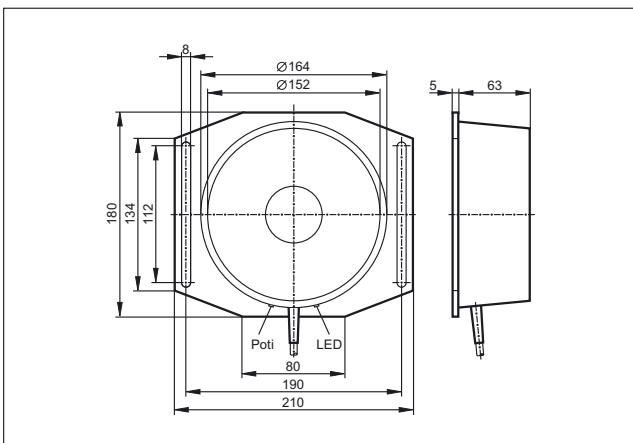


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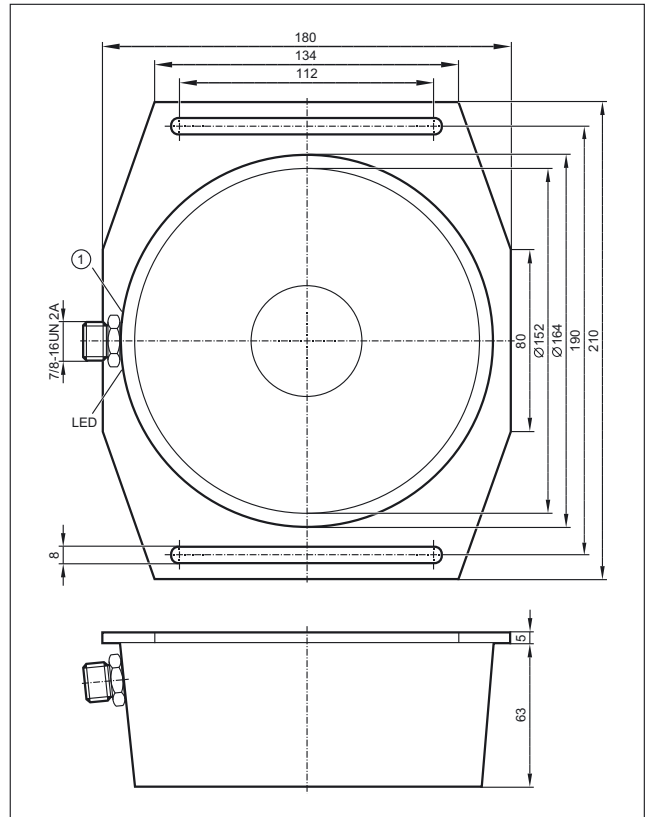
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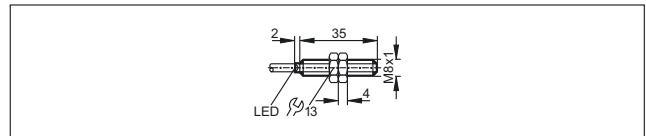


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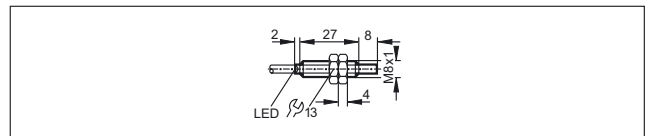


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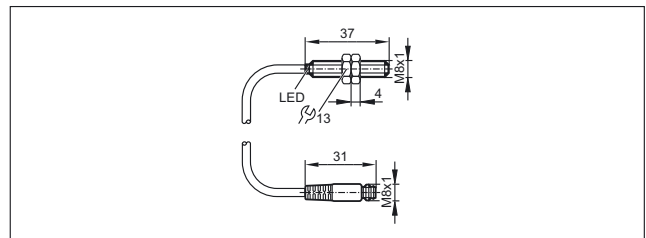
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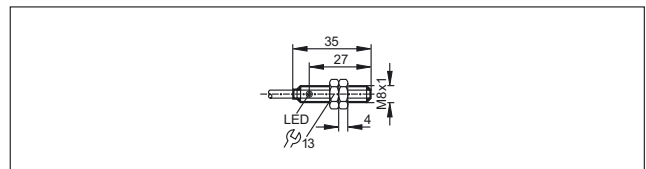
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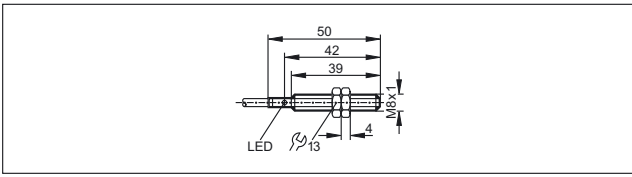


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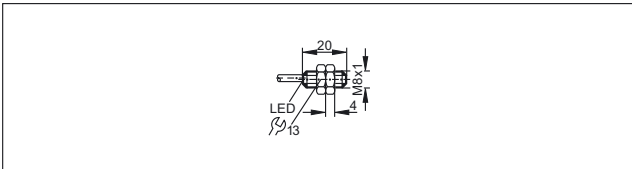


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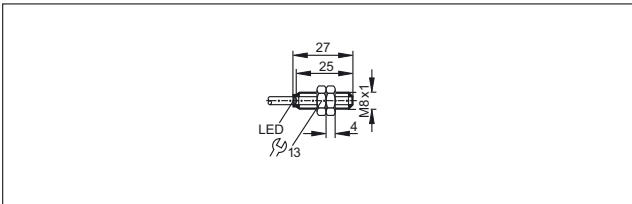
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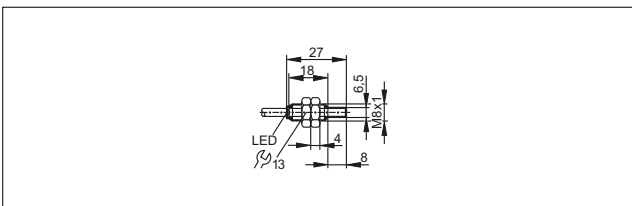
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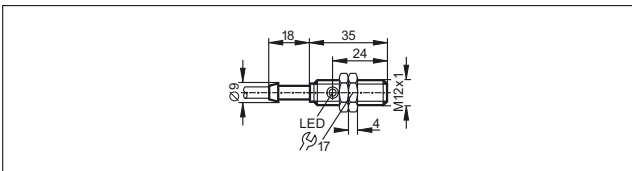
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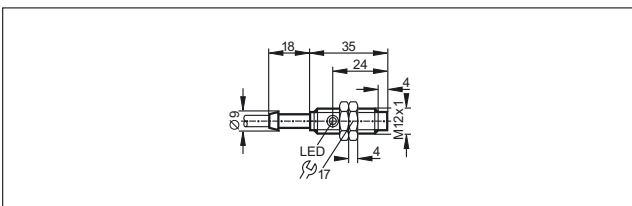
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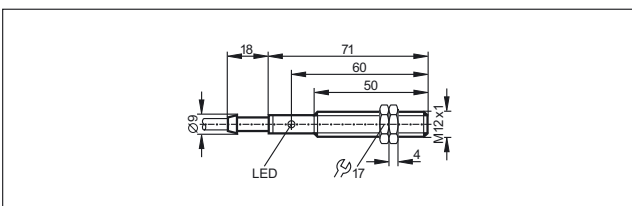
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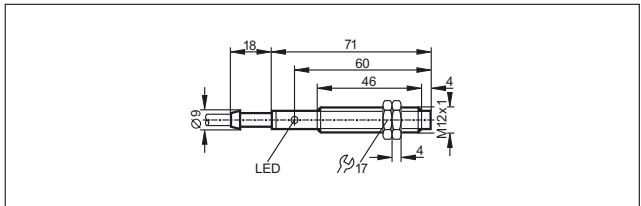
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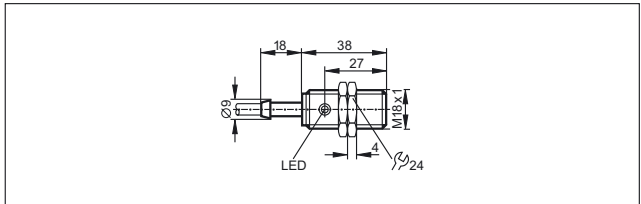
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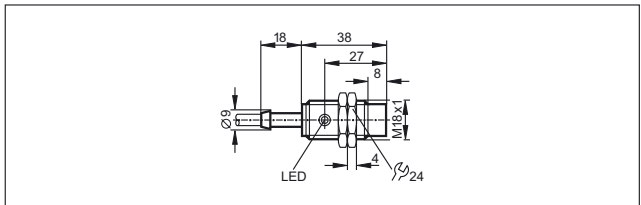
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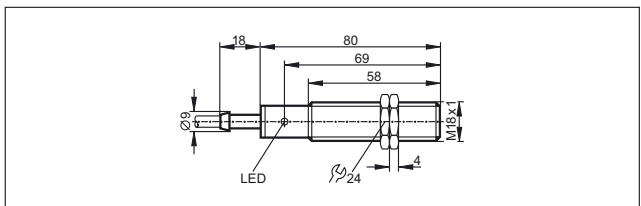
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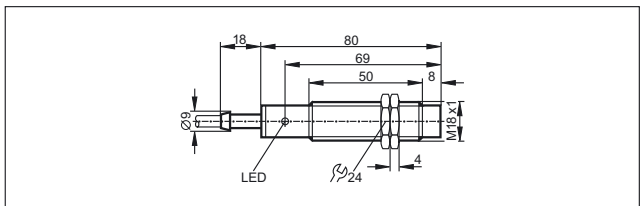
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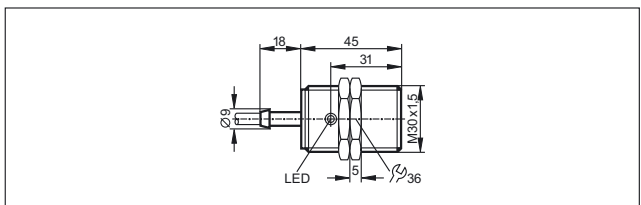
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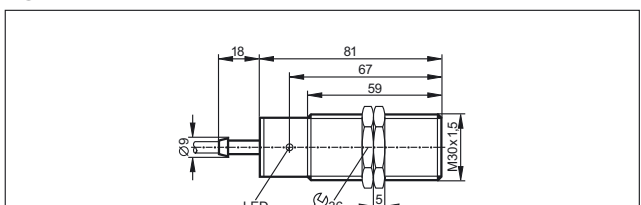
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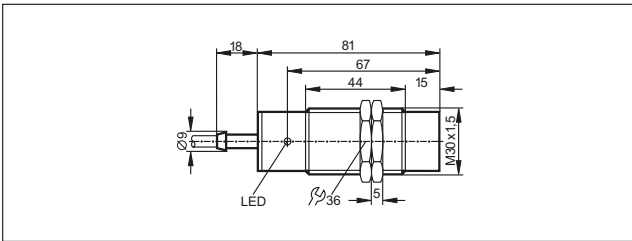


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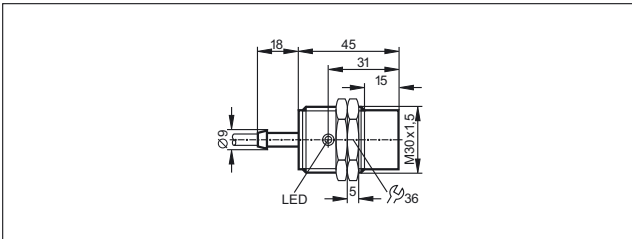


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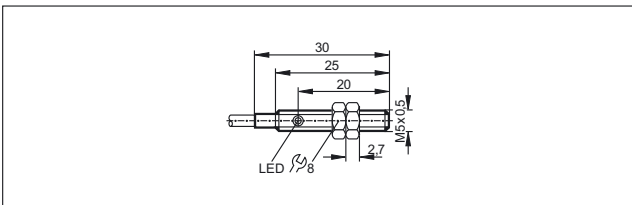
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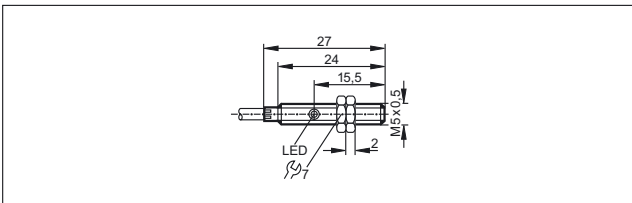
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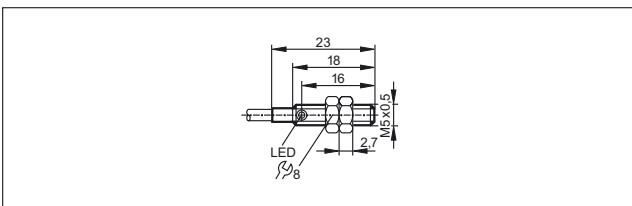
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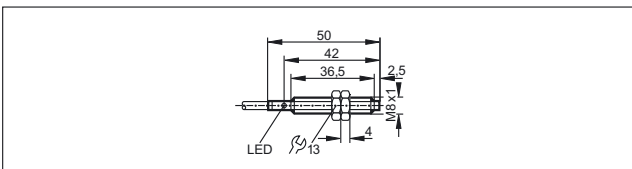
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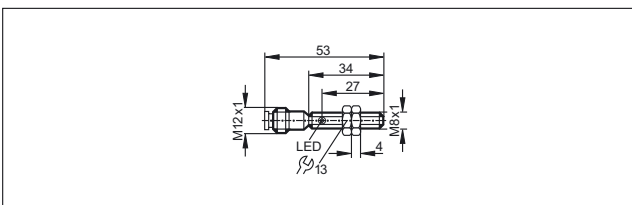
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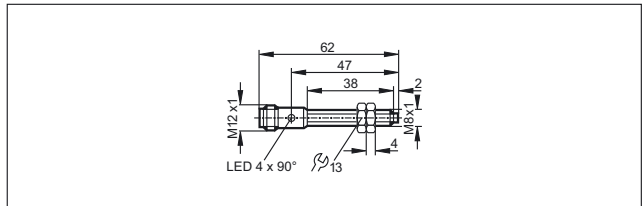
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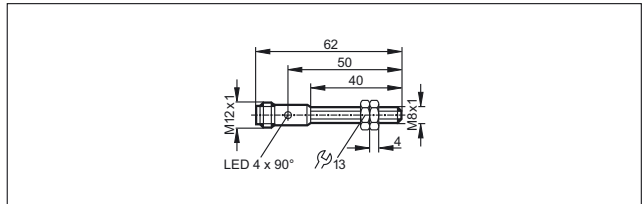
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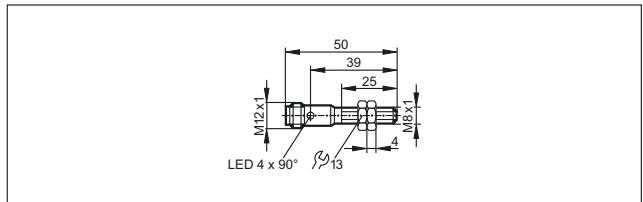
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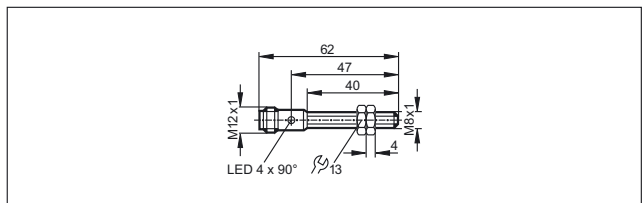
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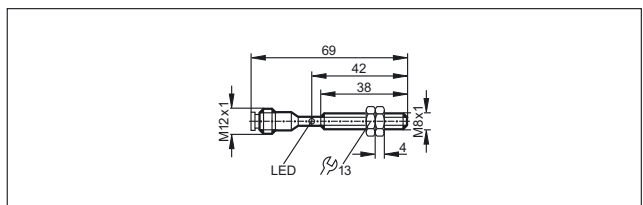
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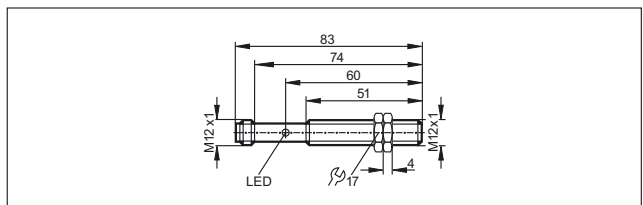
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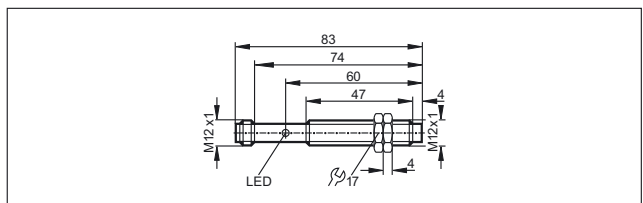
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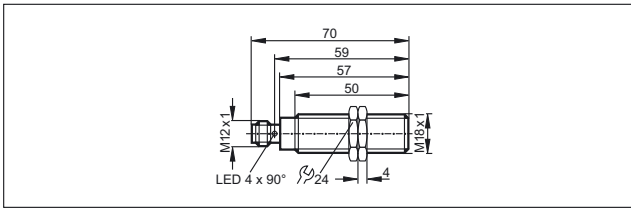


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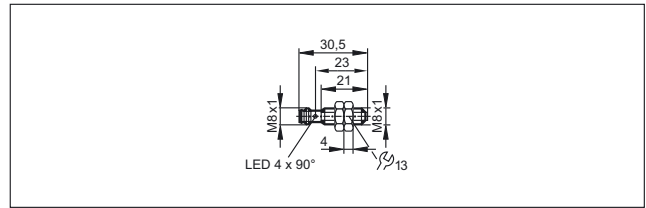


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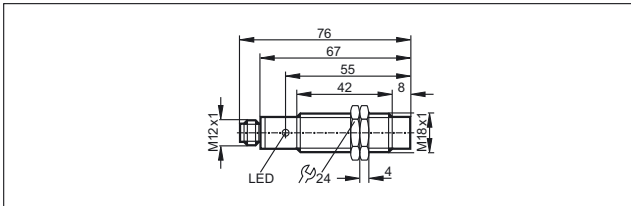
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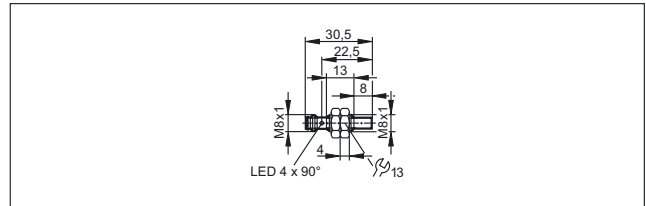
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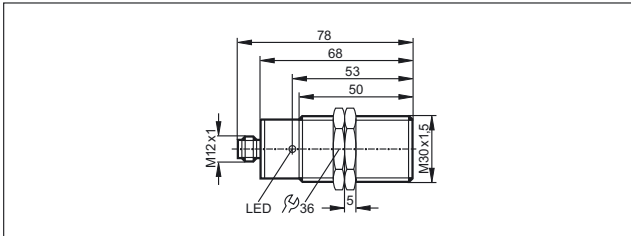
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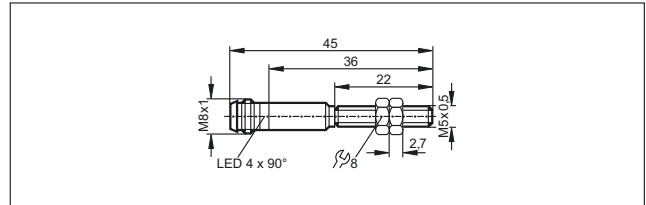
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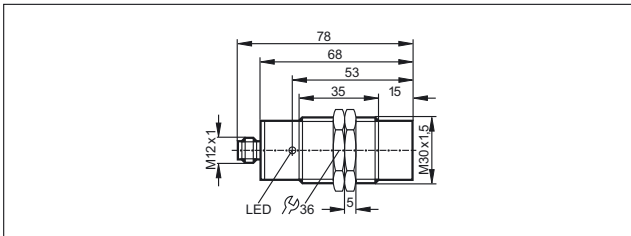
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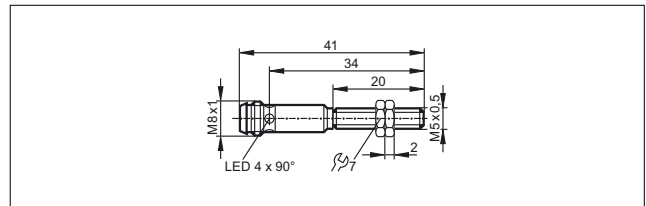
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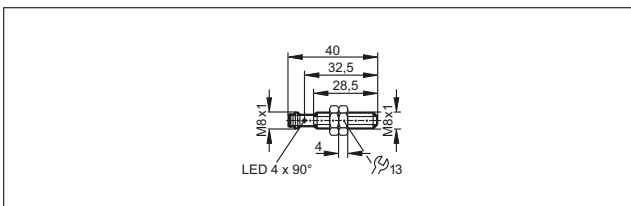
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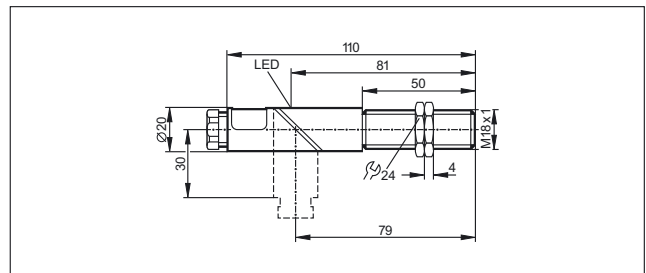
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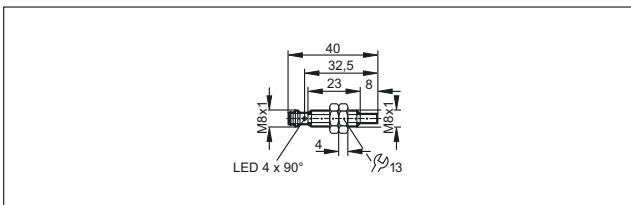
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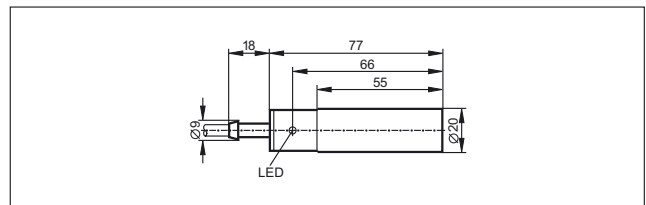
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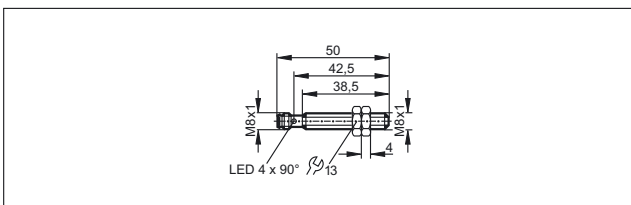
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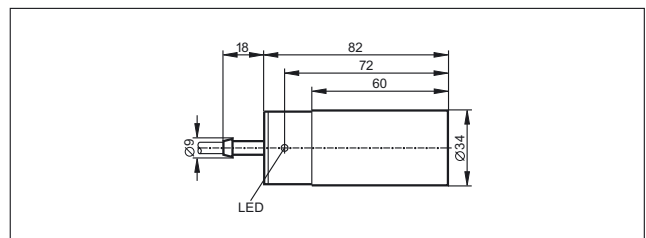
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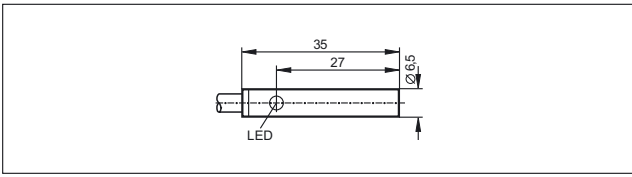


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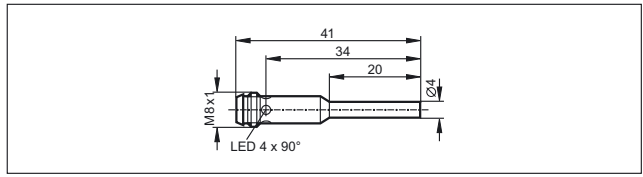


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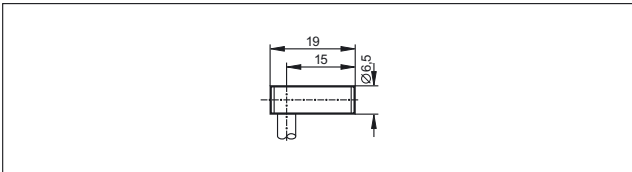
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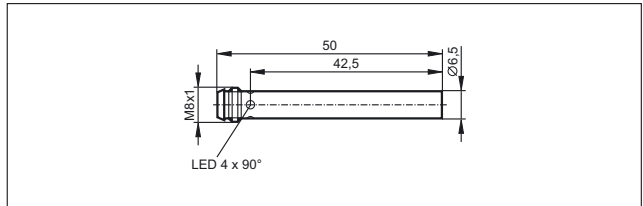
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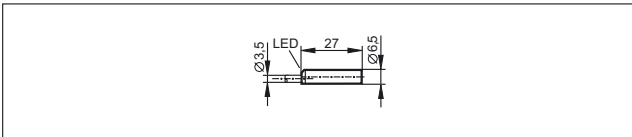
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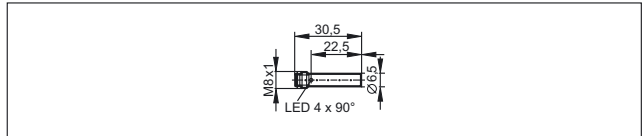
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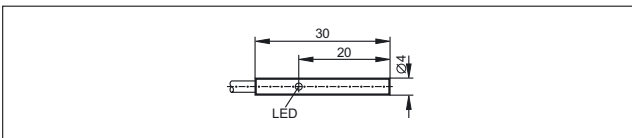
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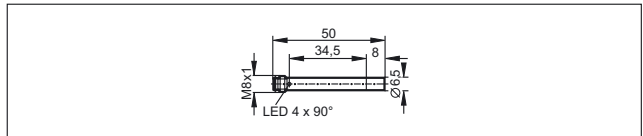
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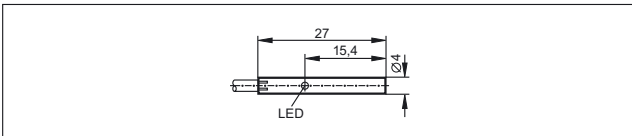
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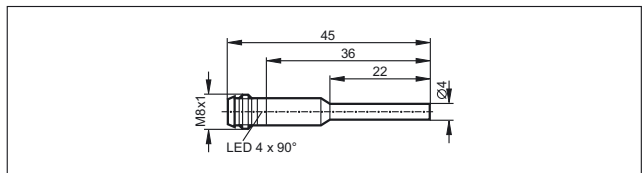
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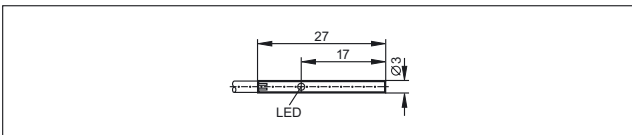
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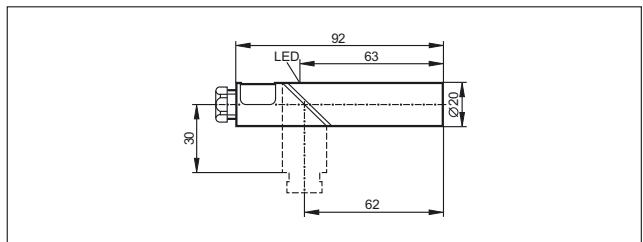
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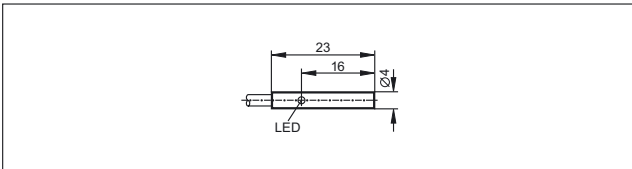
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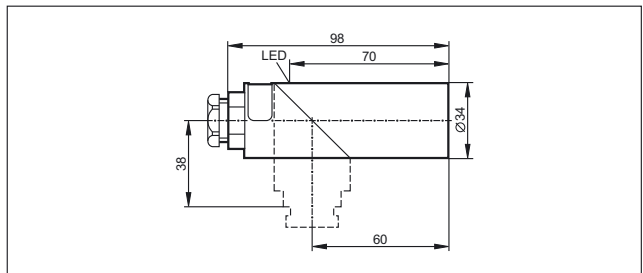
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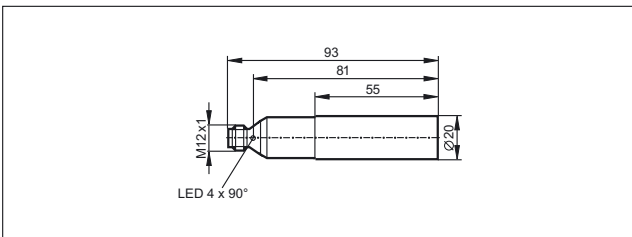
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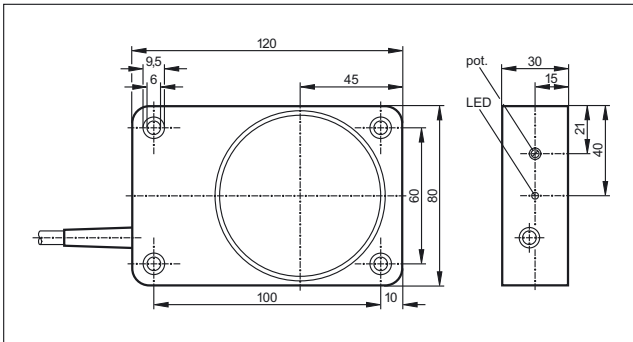
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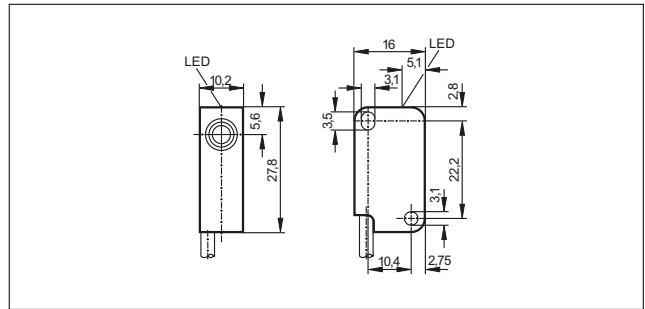
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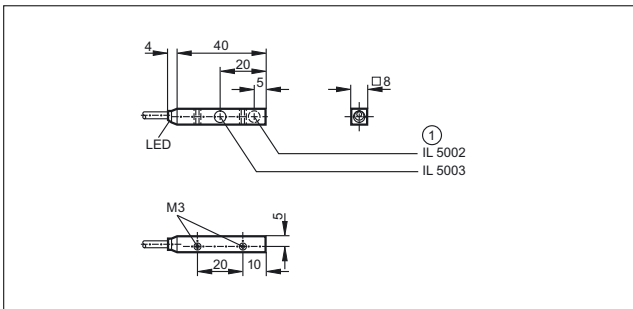
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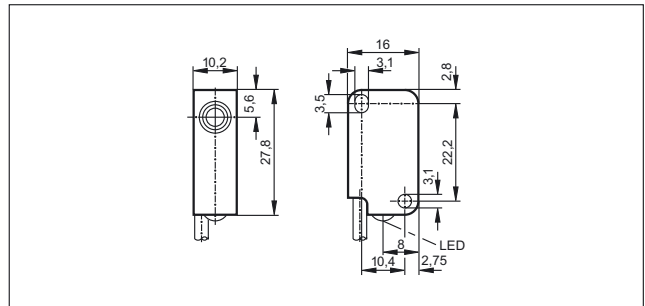


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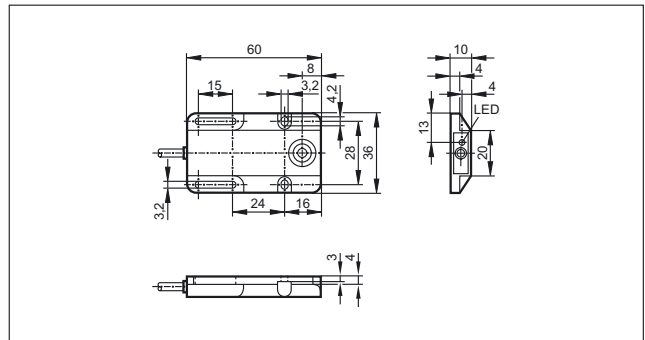


1: sensing face

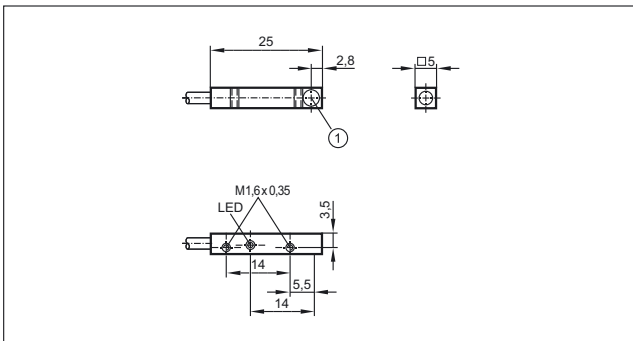
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93

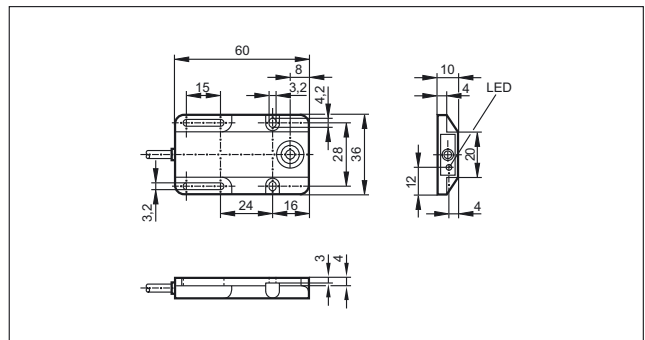


89



1: sensing face

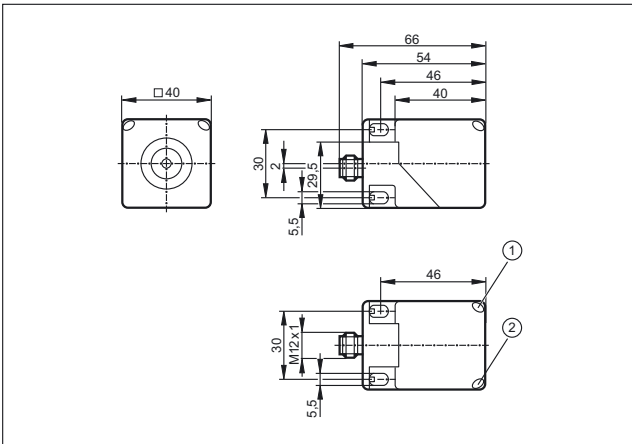
94



1: threaded insert M3, depth 5.8 mm, max. tightening torque 1.2 Nm (screw fixing class 8.8) when brass insert in contact with counterpart.

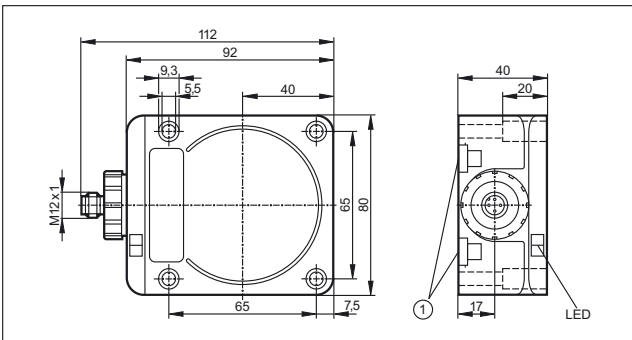
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95



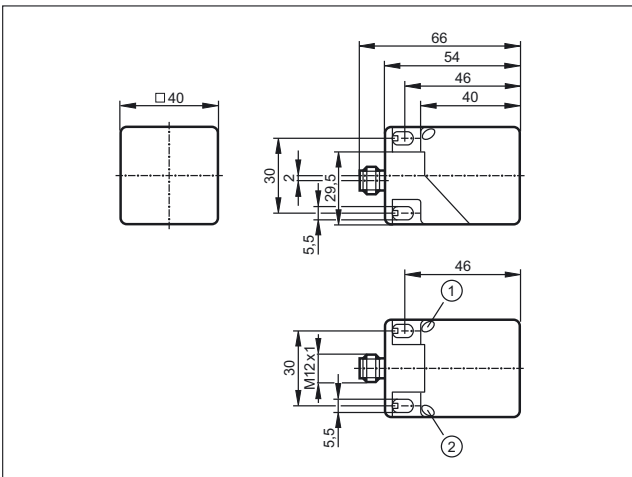
1: LED yellow, 2: LED green

96



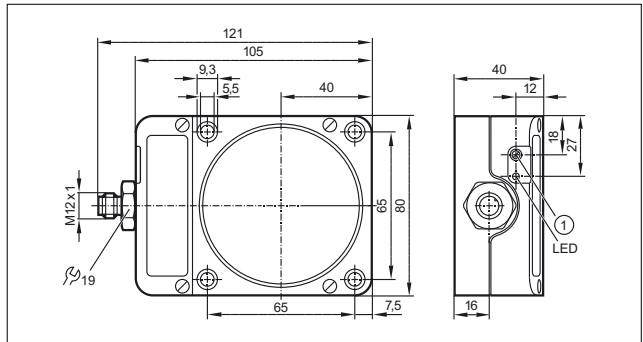
1: Mounting on DIN rail

97

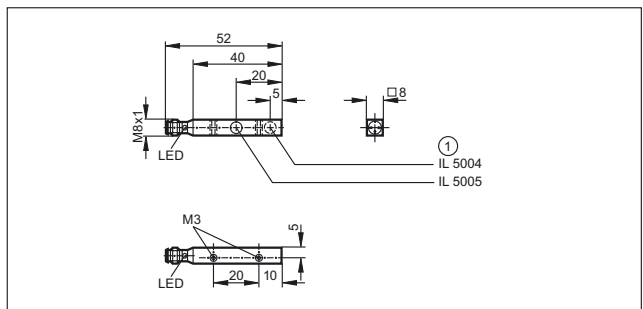


1: LED yellow, 2: LED green

98

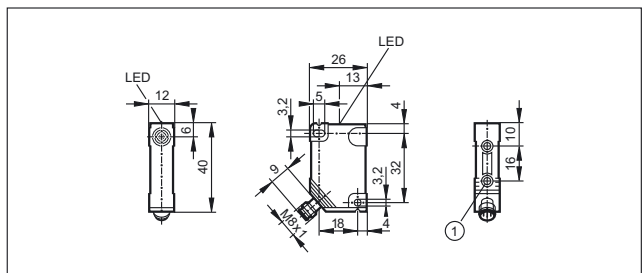


99



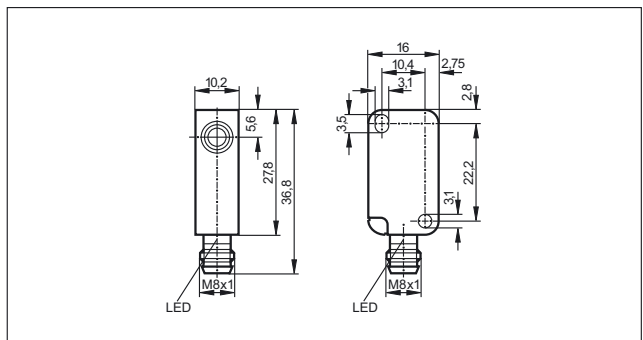
1: sensing face

100



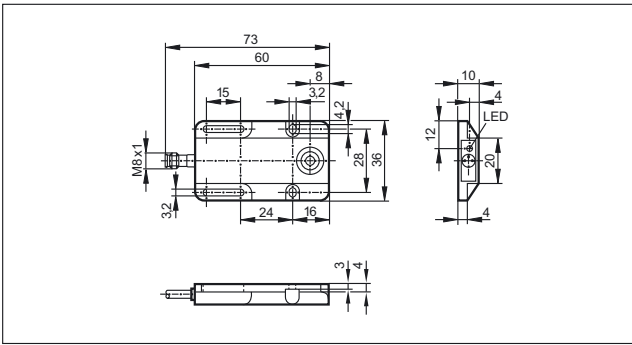
1: threaded insert M3, depth 5.8 mm, max. tightening torque 1.2 Nm (screw fixing class 8.8) when brass insert in contact with counterpart.

101

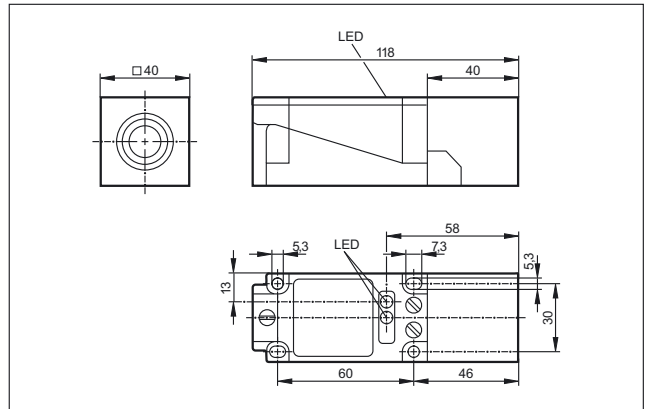


Scale drawings / drawing no. – CAD download: www.ifm.com

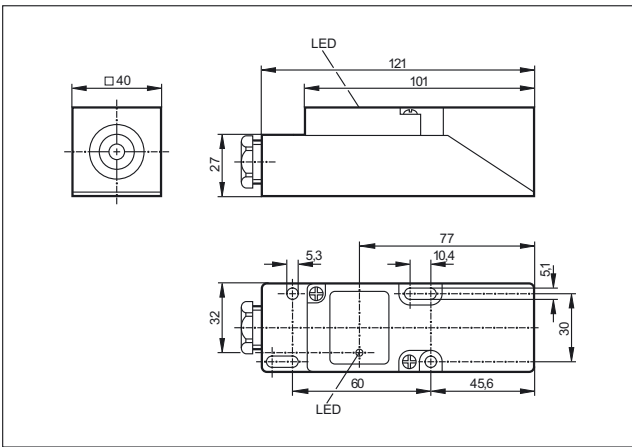
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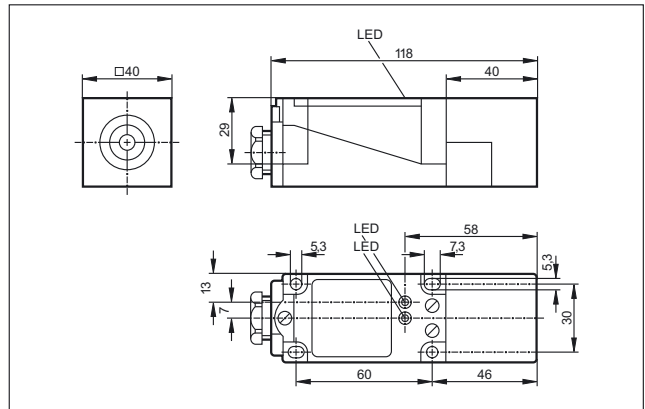
106



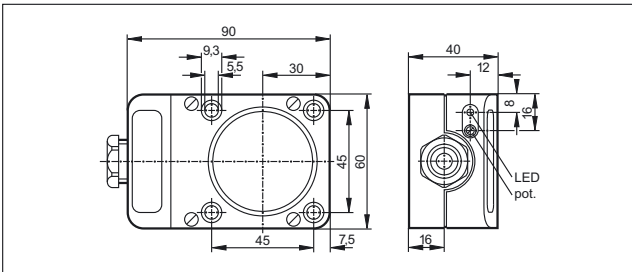
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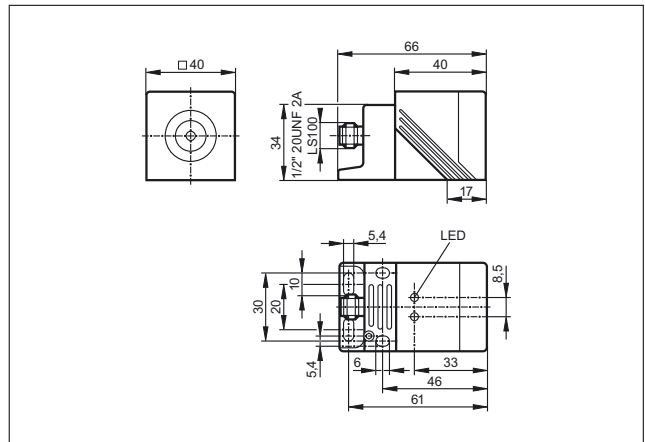
107



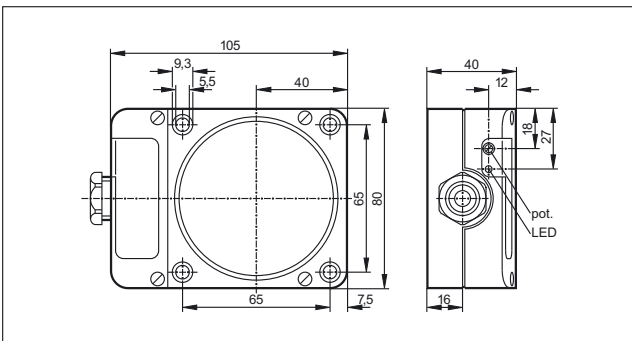
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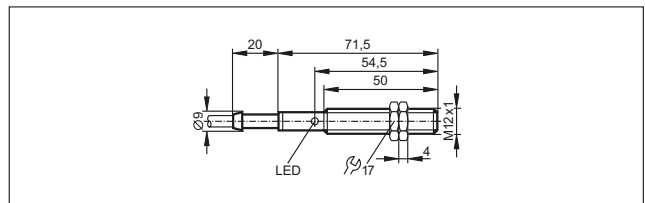
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105

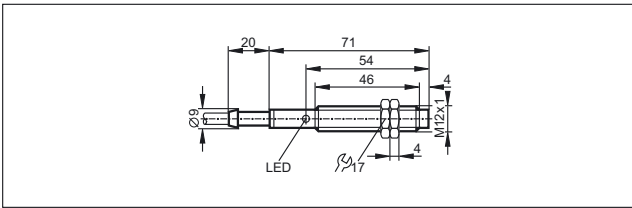


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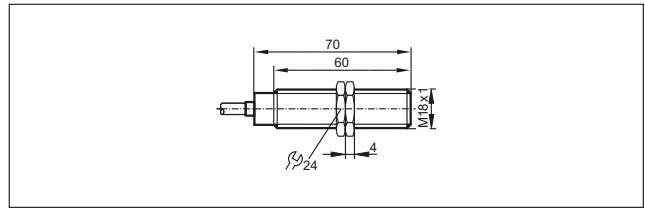


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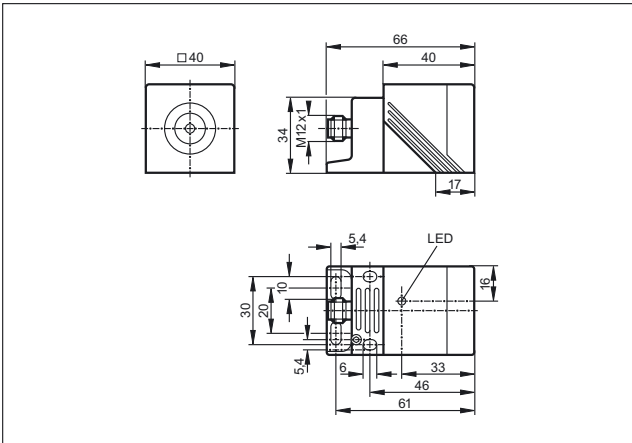
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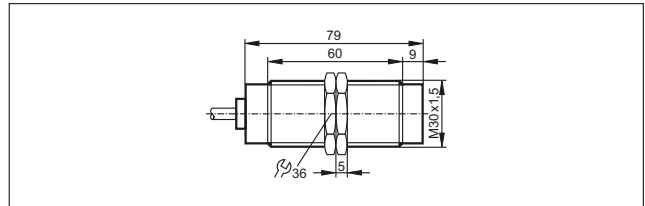
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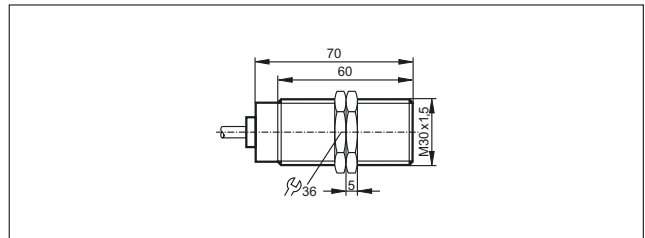
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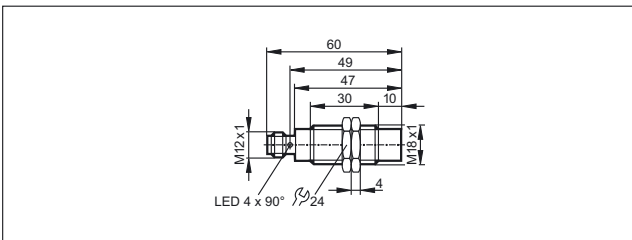
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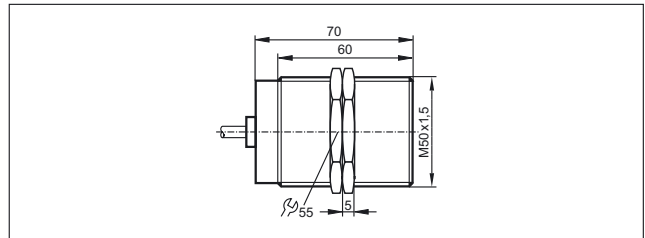
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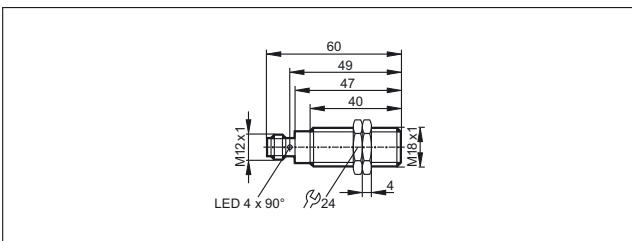
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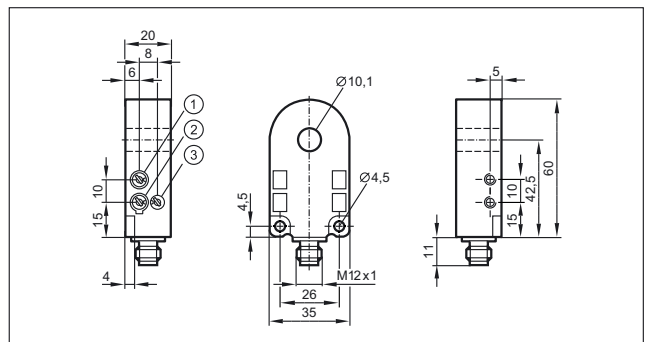
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113

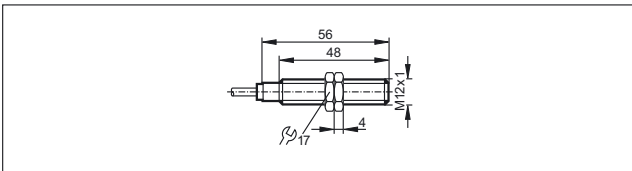


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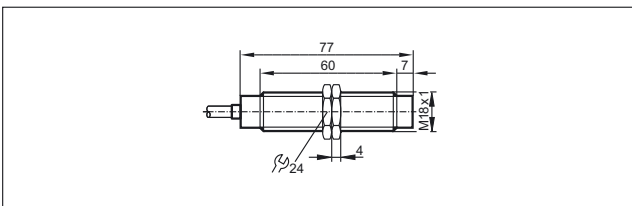


1: Sensitivity, 2: Output function, 3: Pulse stretching time

114

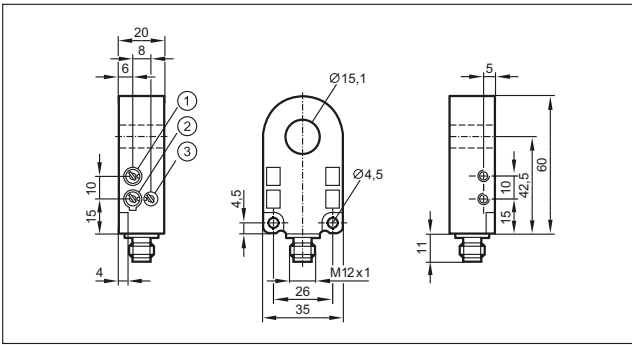


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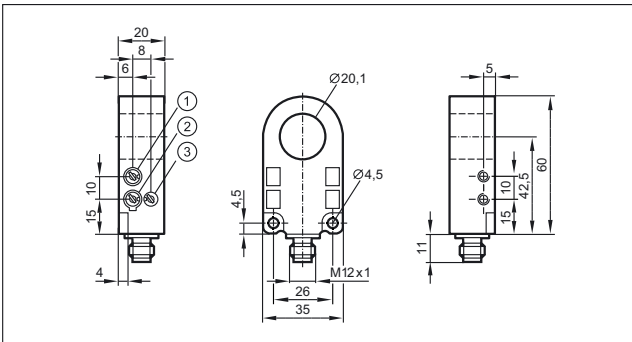
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121



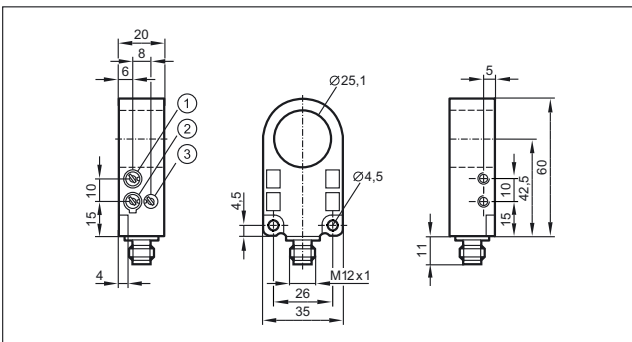
1: Sensitivity, 2: Output function, 3: Pulse stretching time

122



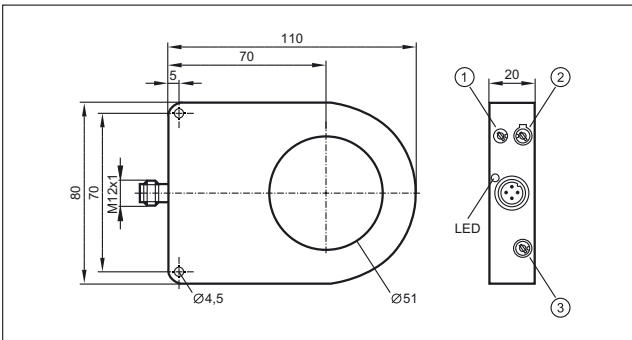
1: Sensitivity, 2: Output function, 3: Pulse stretching time

123

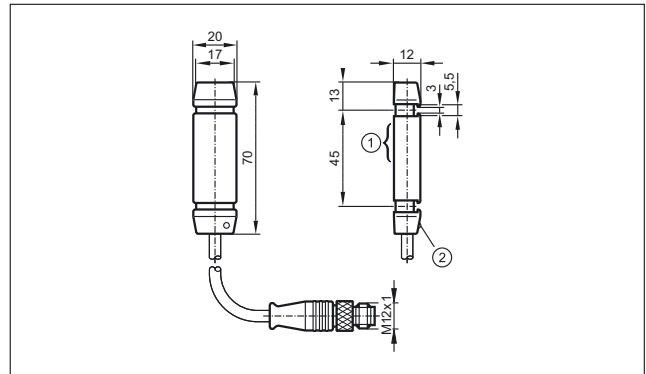


1: Sensitivity, 2: Output function, 3: Pulse stretching time

124

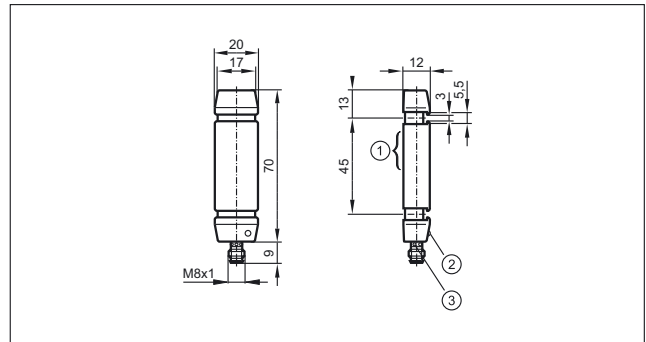


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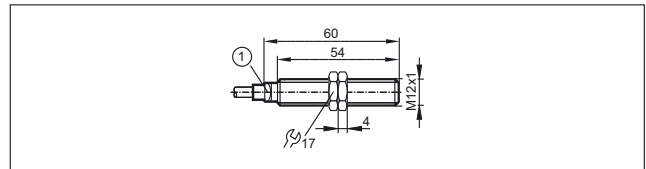
1: sensing face, 2: LED operating status

126



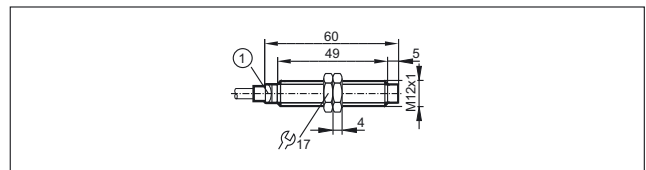
1: sensing face, 2: LED operating status, 3: LED switching status

127



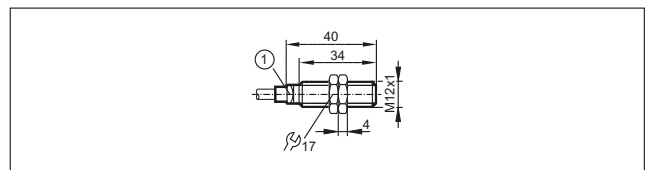
1: LED (yellow)

128



1: LED (yellow)

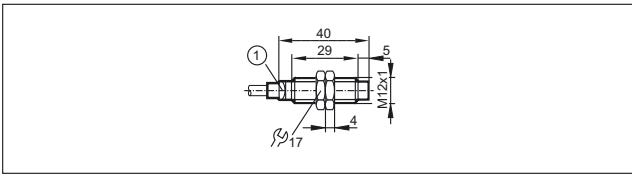
129



1: LED (yellow)

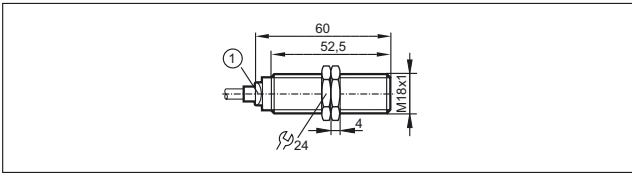
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130



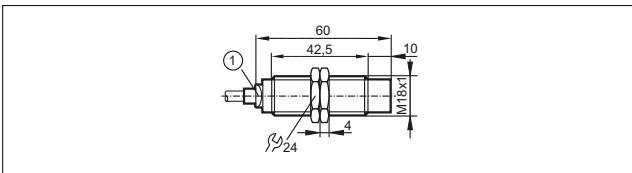
1: LED (yellow)

131



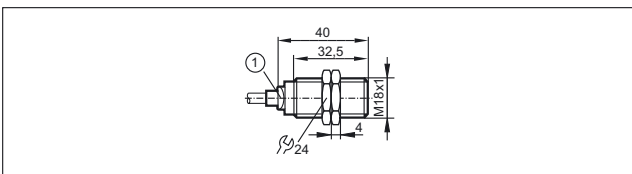
1: LED (yellow)

132



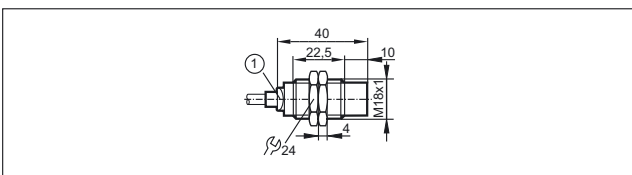
1: LED (yellow)

133



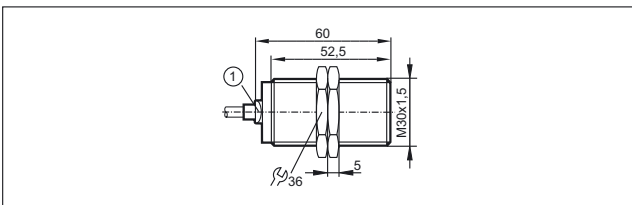
1: LED (yellow)

134



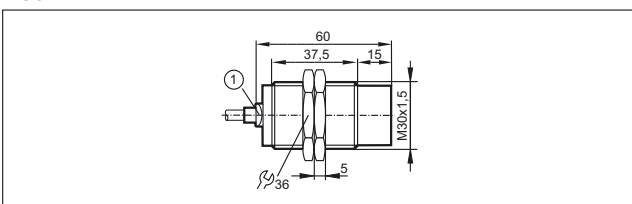
1: LED (yellow)

135



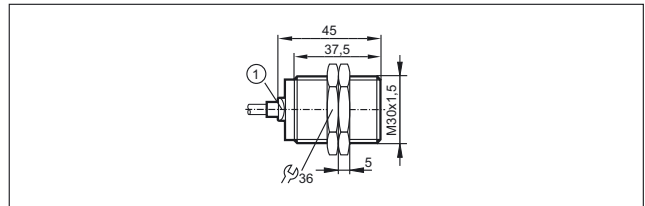
1: LED (yellow)

136



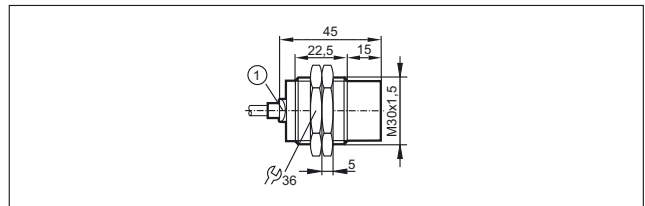
1: LED (yellow)

137



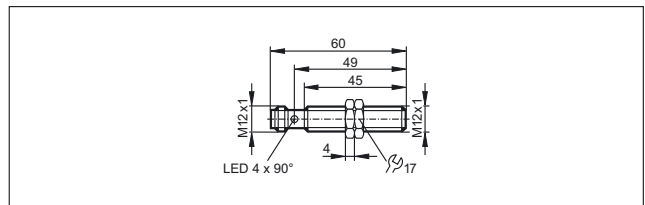
1: LED (yellow)

138

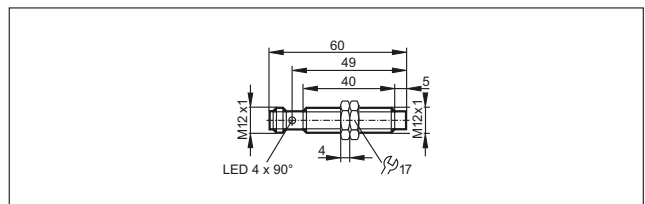


1: LED (yellow)

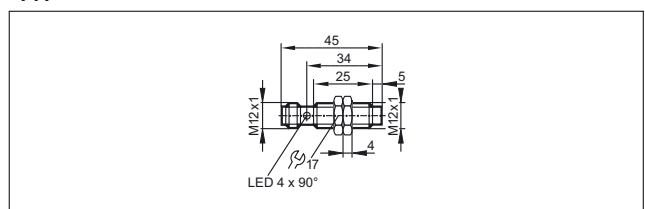
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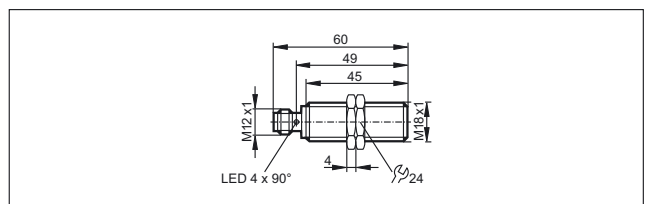
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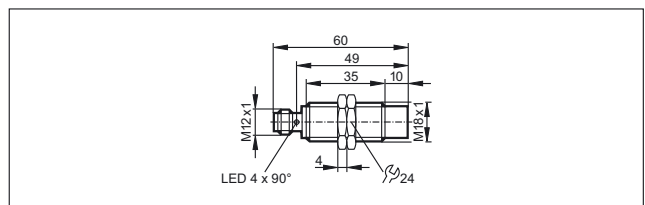
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142

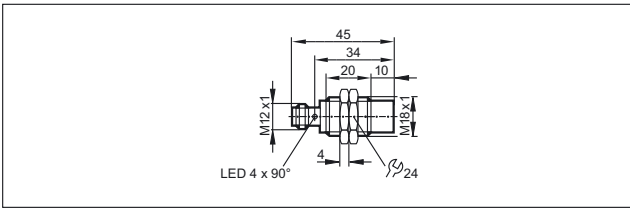


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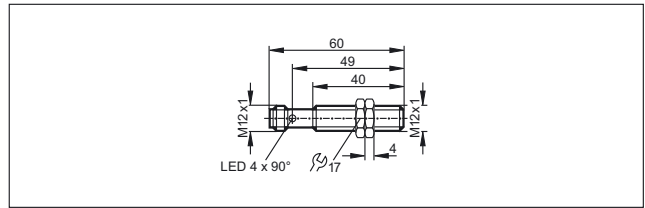


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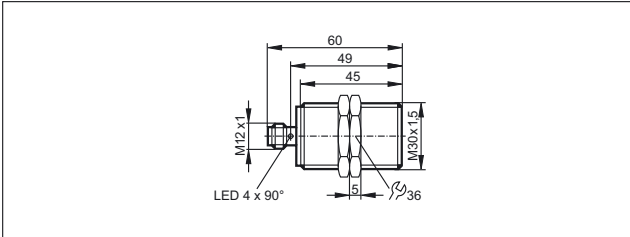
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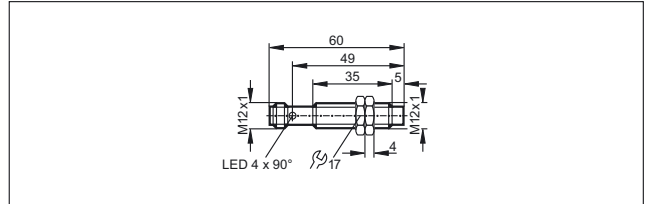
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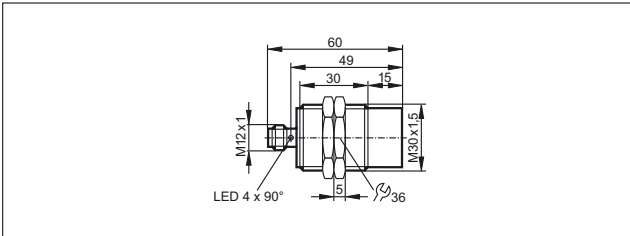
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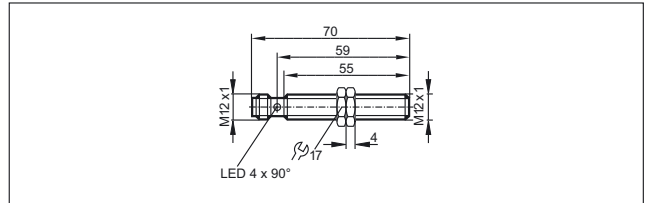
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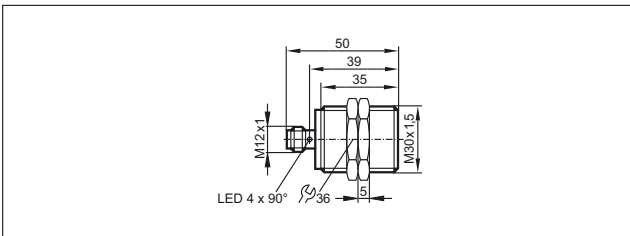
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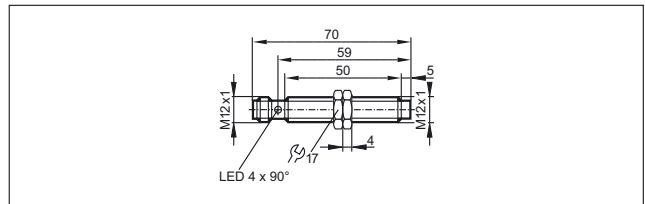
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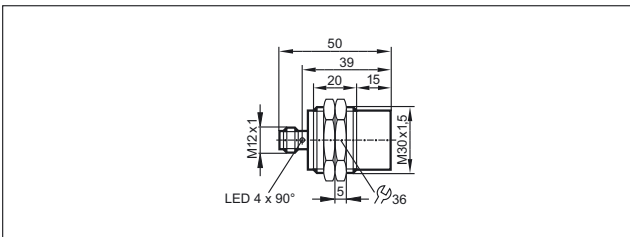
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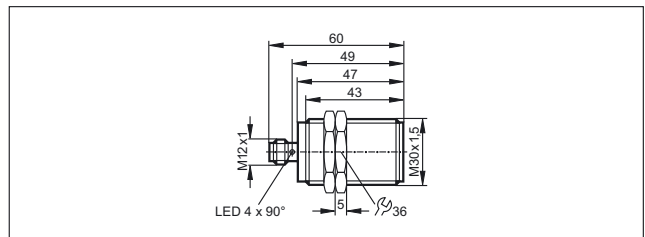
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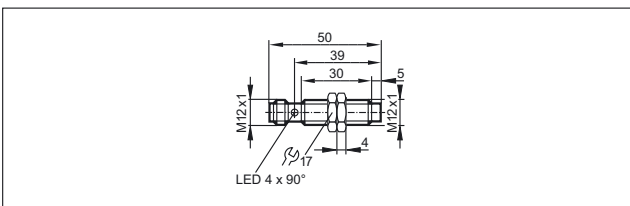
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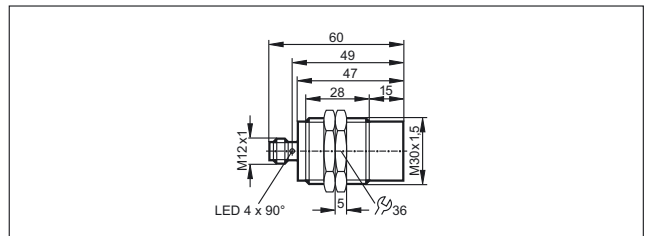
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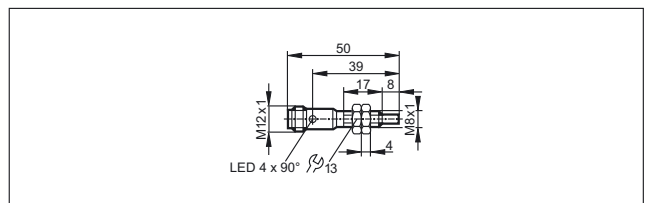
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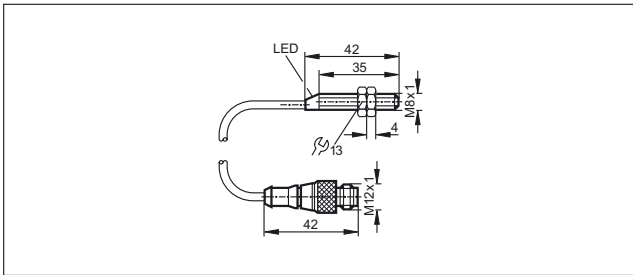


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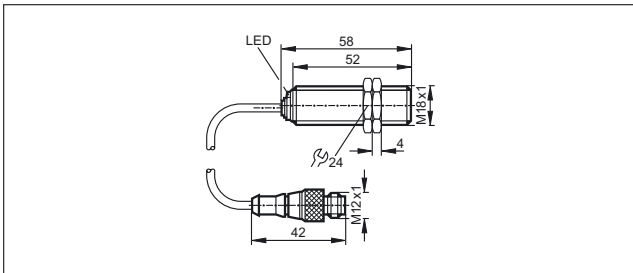


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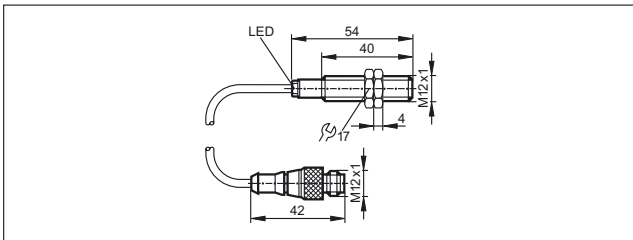
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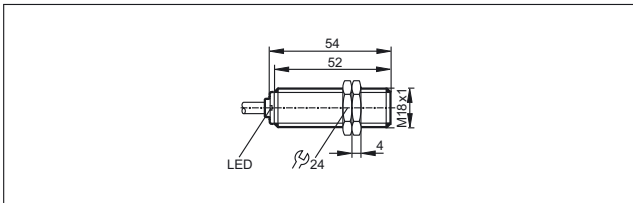
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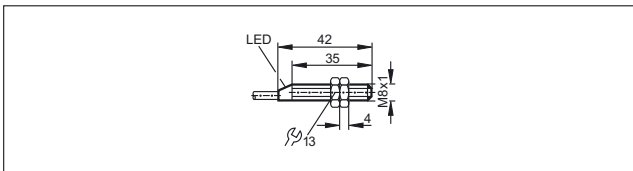
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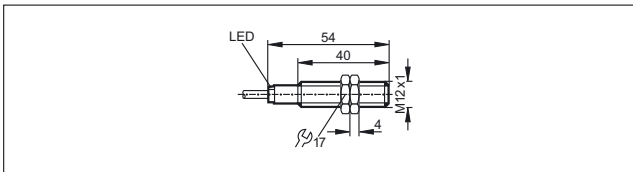
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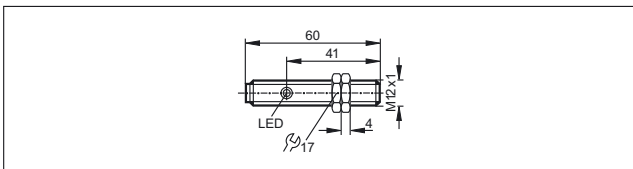
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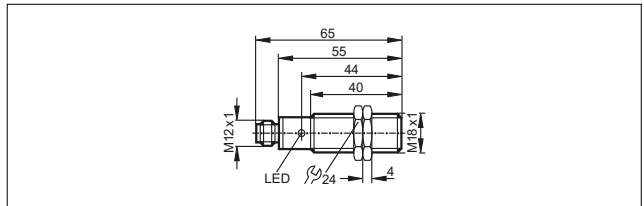
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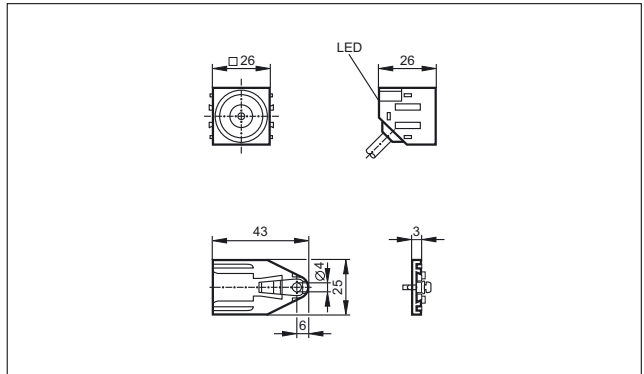
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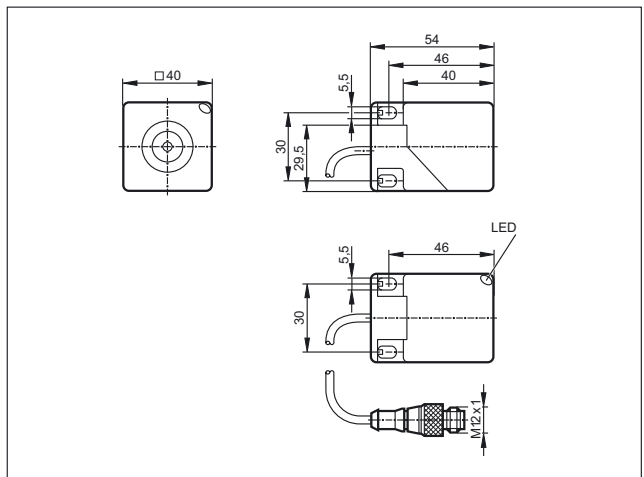
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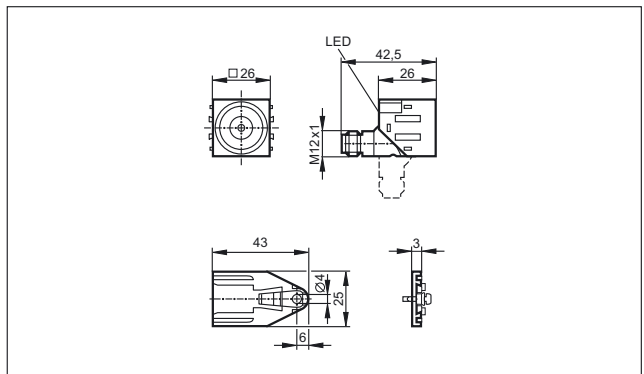
165



166

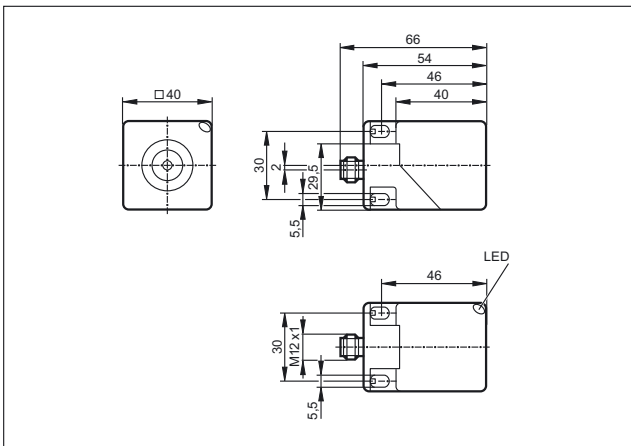


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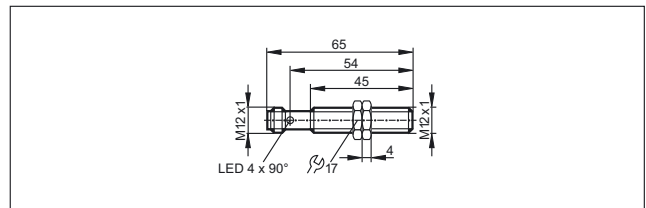


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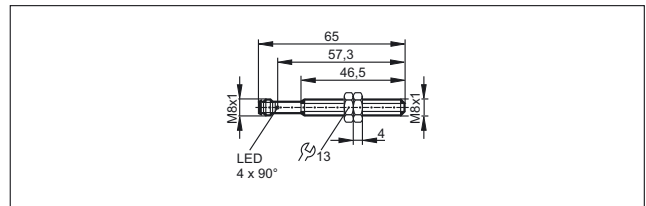
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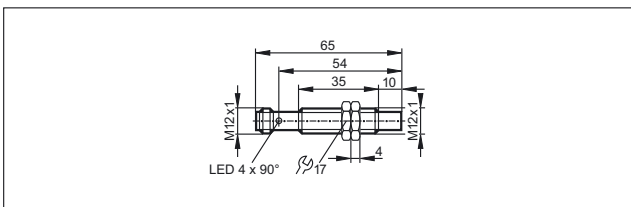
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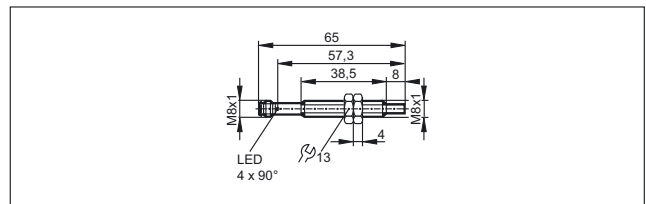
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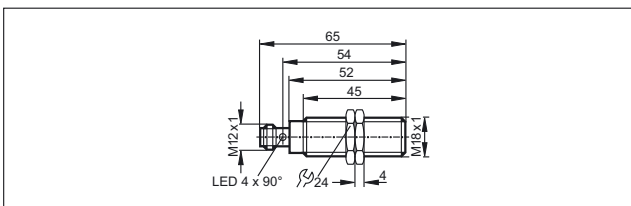
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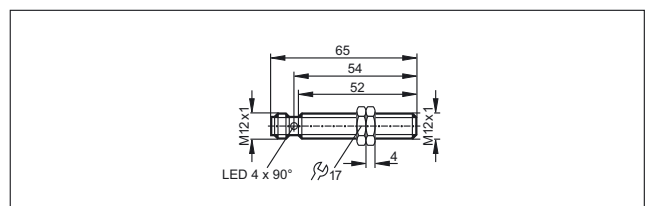
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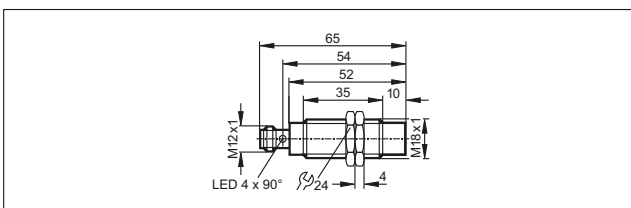
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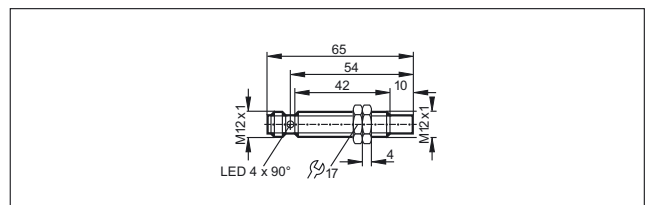
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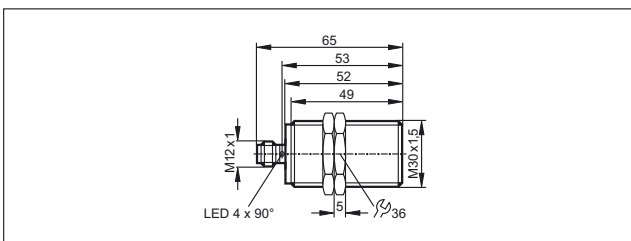
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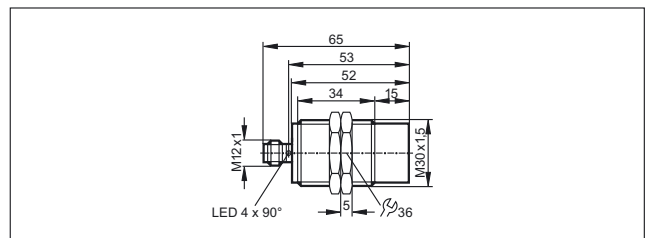
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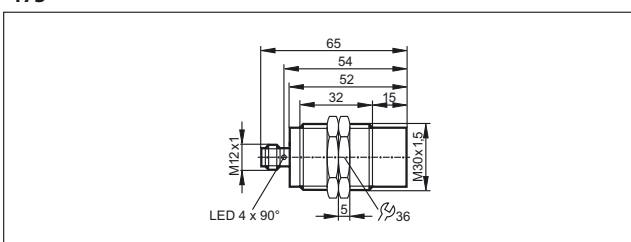
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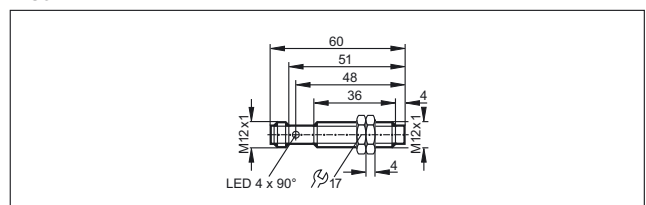
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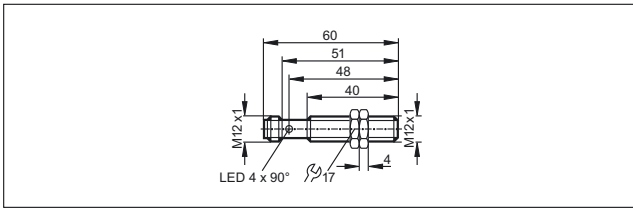


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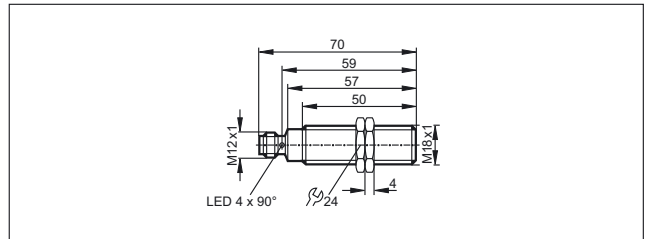


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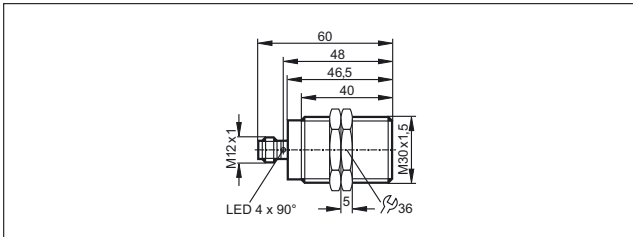
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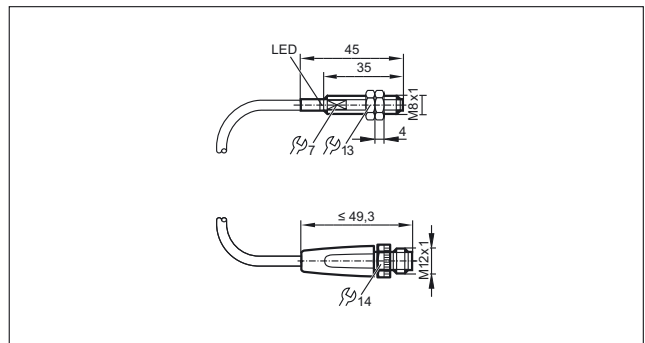
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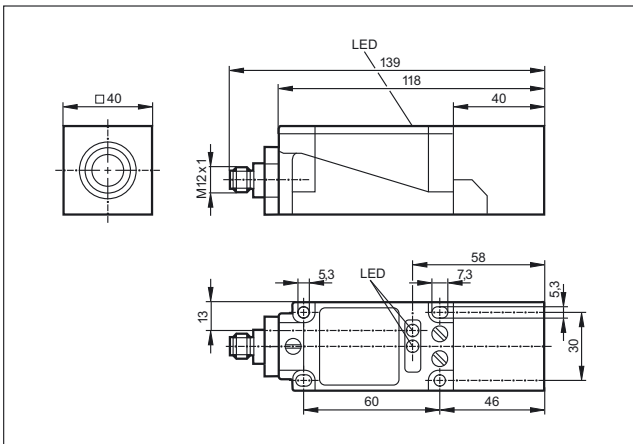
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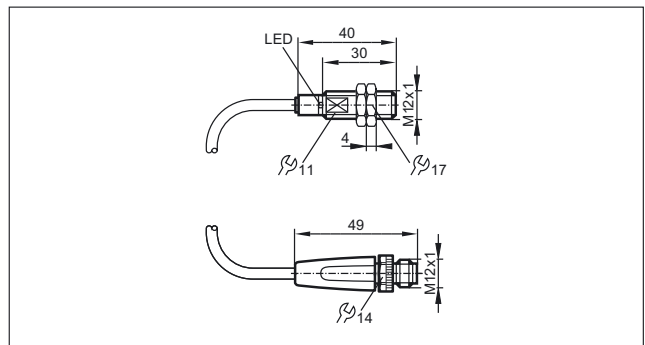
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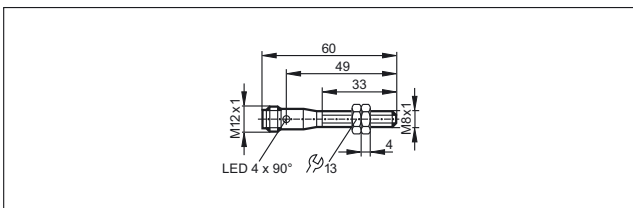
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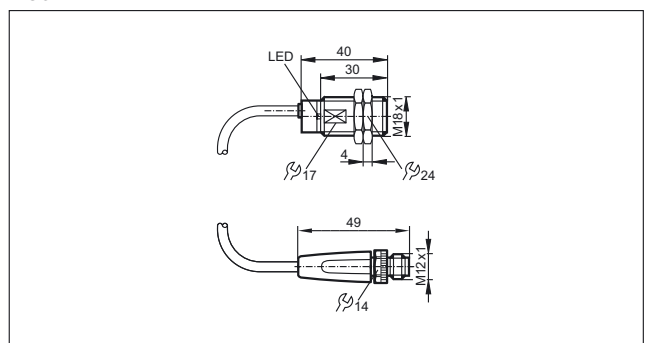
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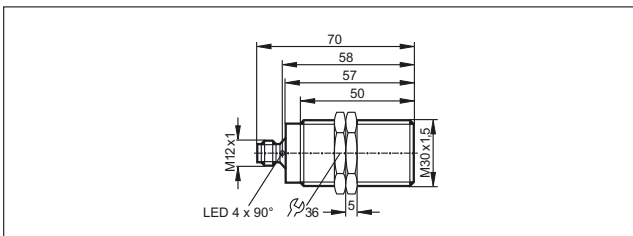
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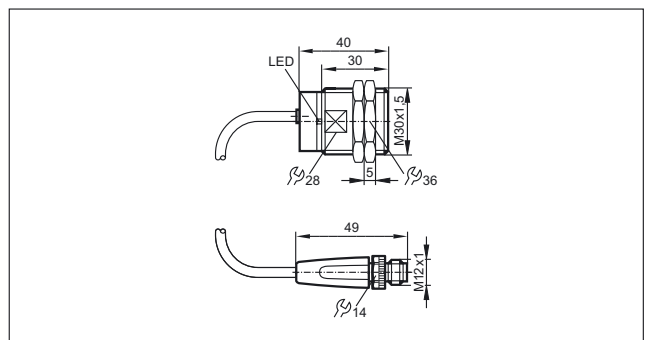
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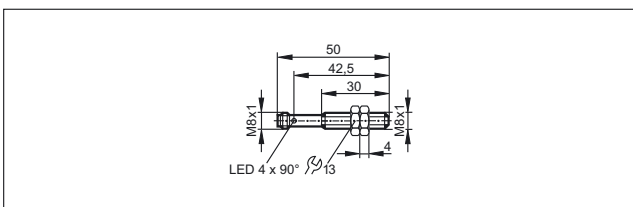
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191

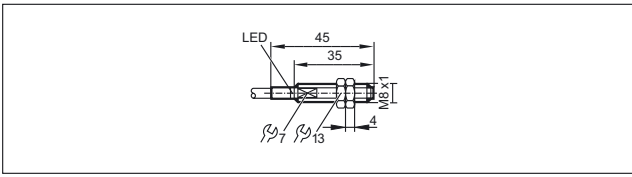


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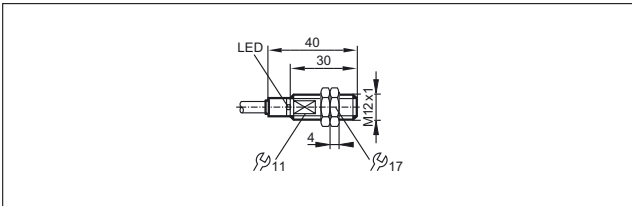


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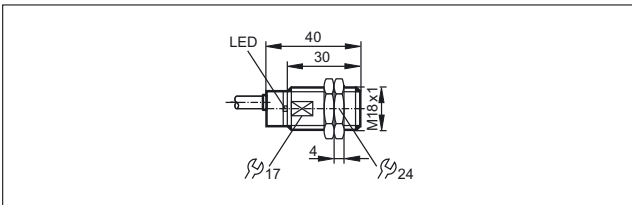
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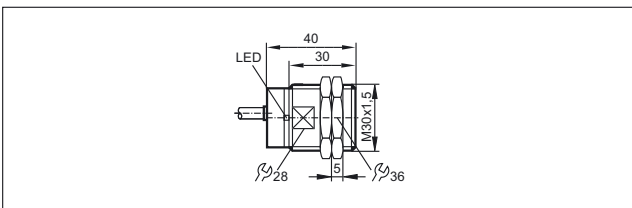
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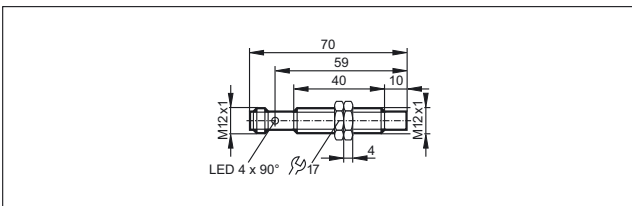
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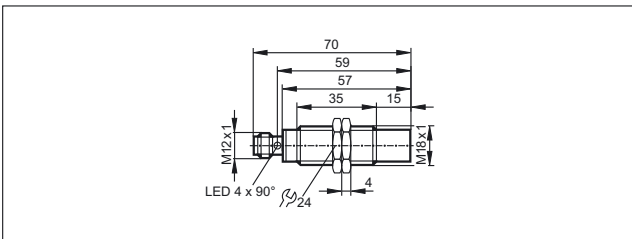
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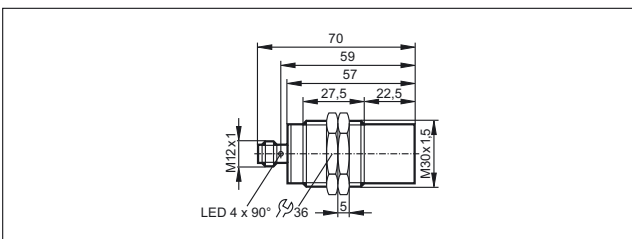
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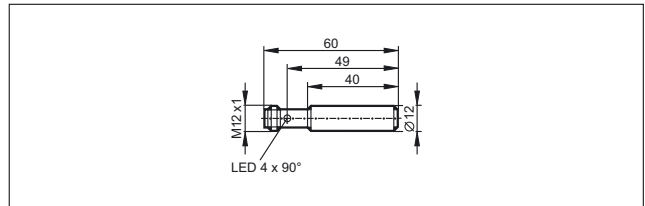
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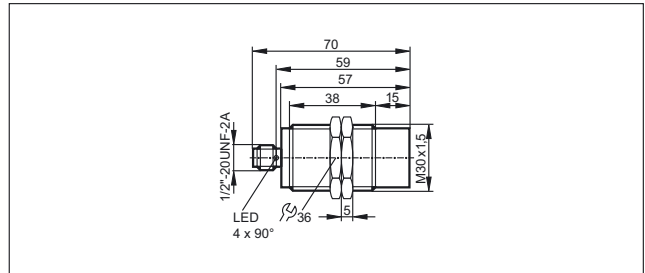
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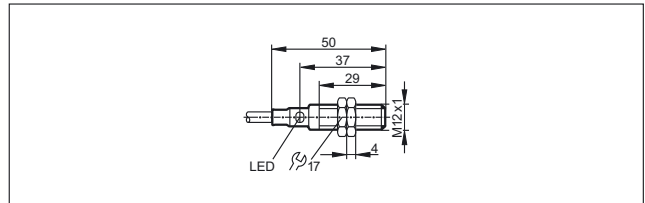
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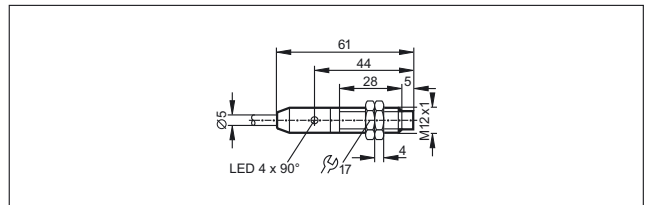
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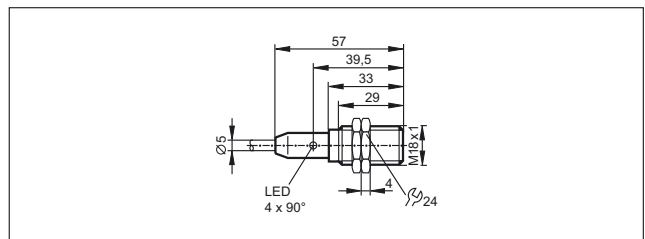
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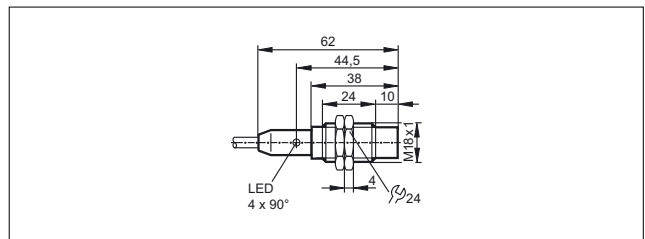
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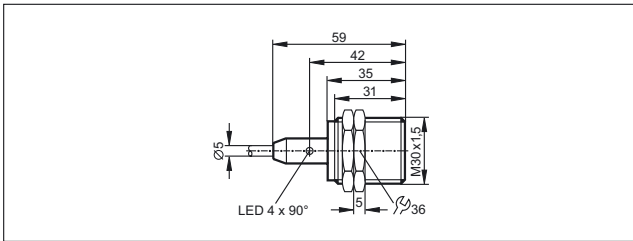


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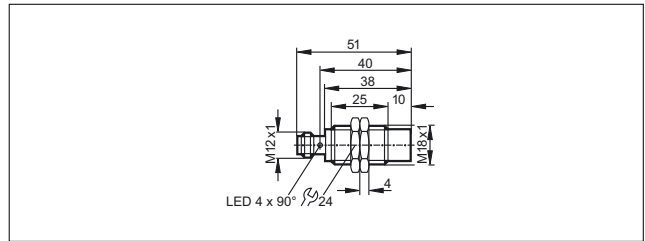


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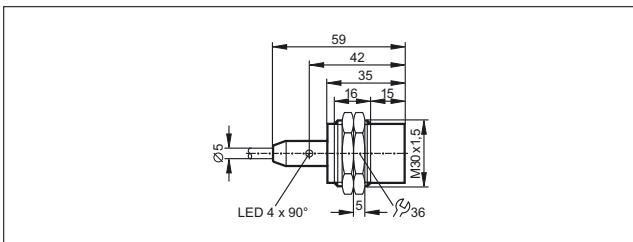
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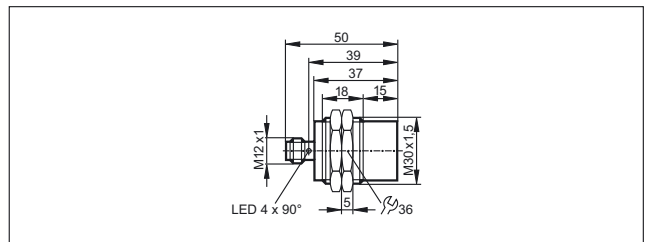
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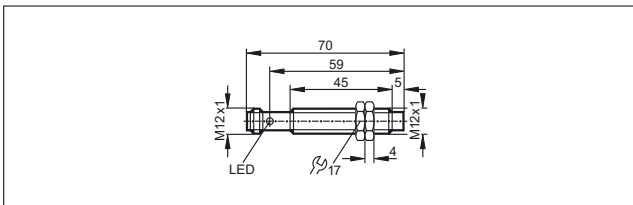
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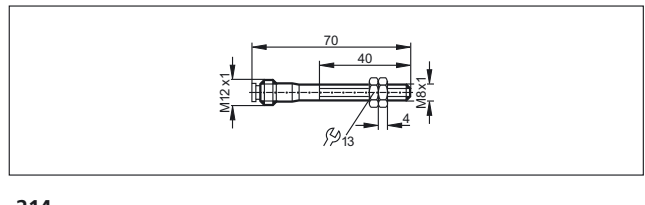
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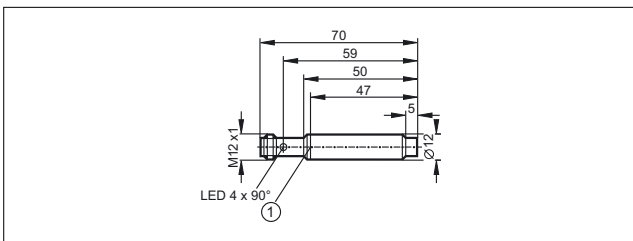
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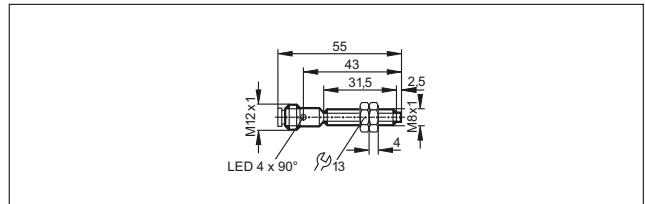
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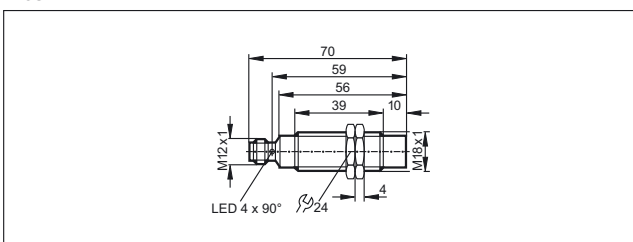


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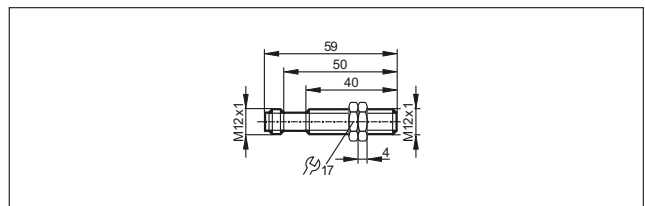


1: locating groove

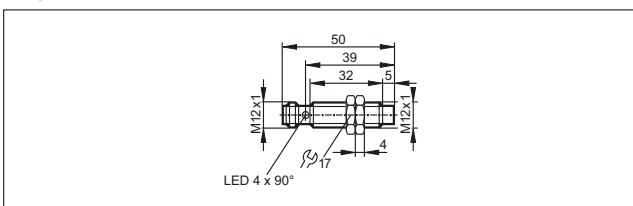
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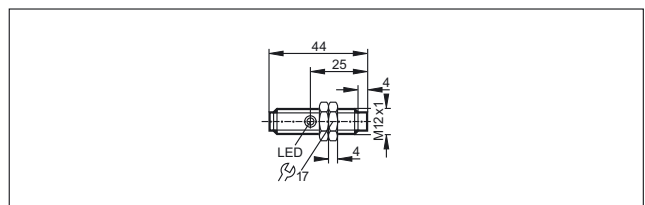
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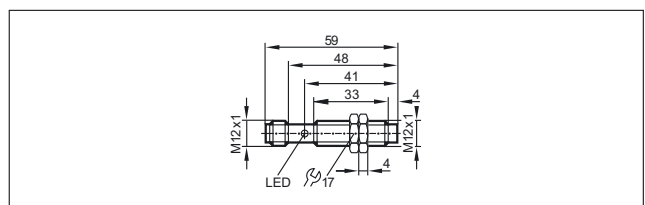
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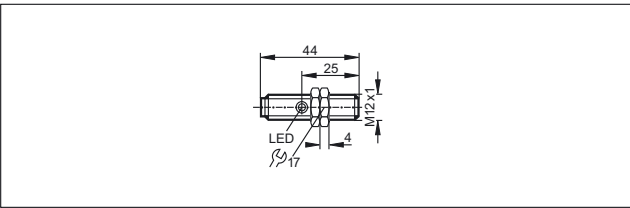


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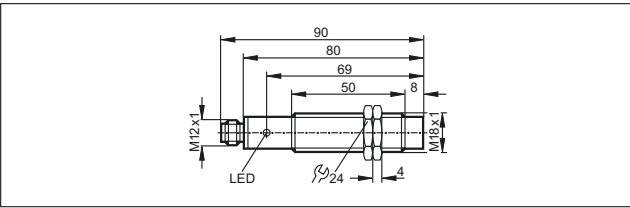


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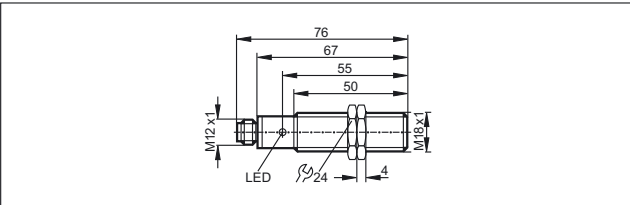
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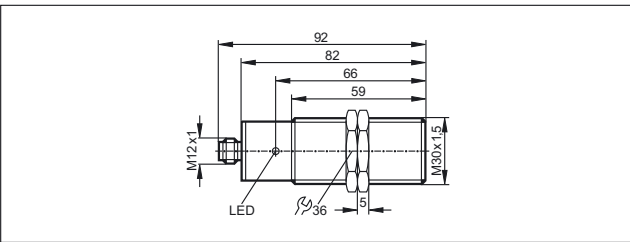
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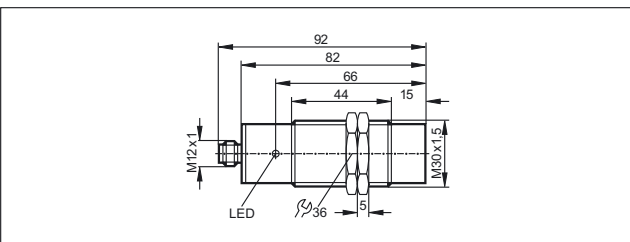
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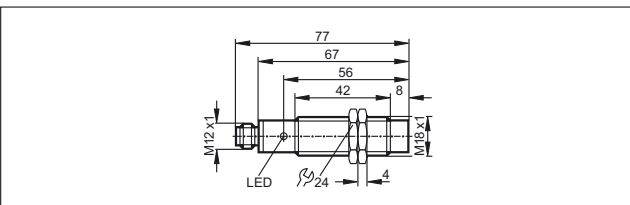
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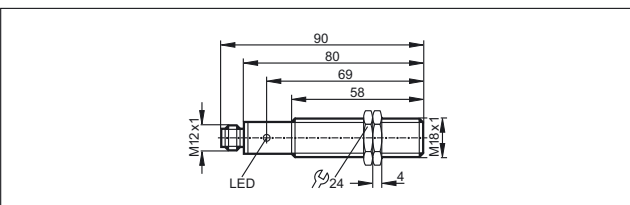
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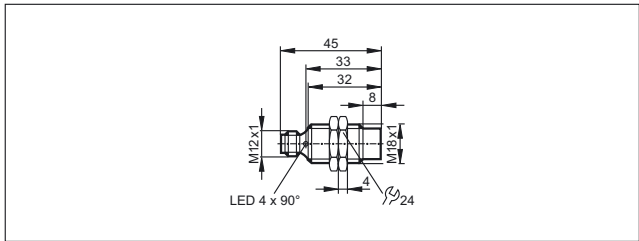
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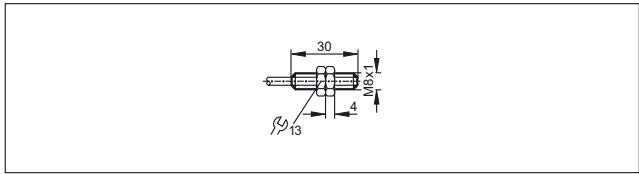
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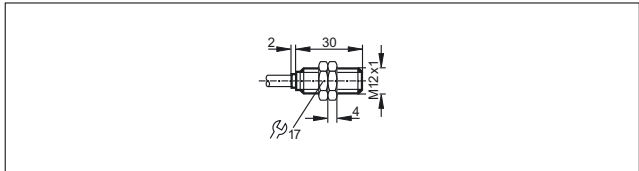
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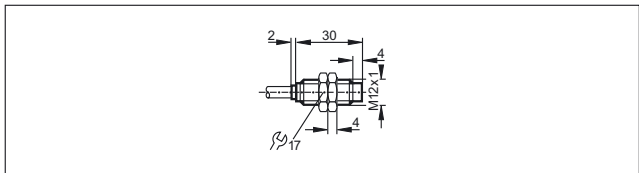
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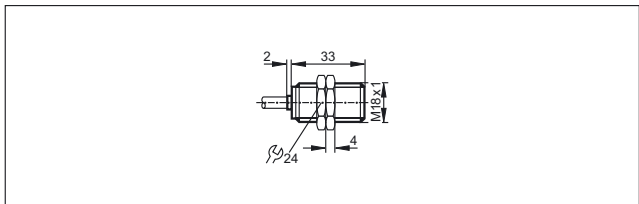
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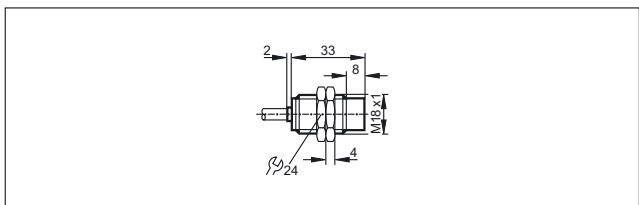
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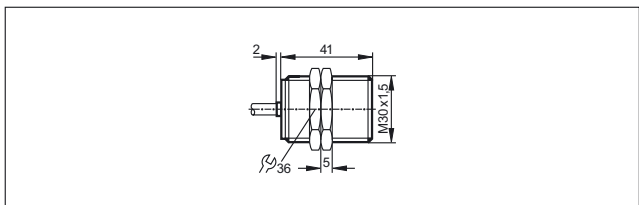
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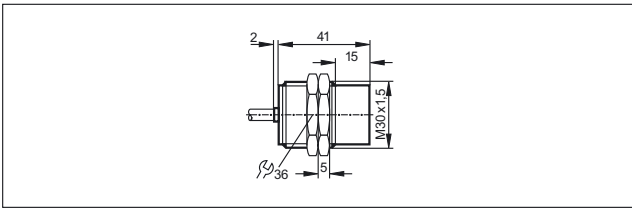


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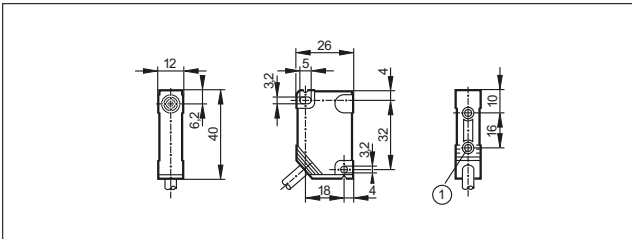


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232

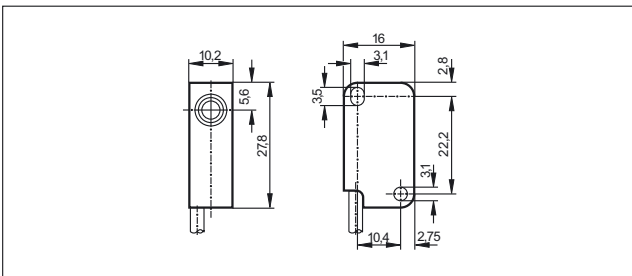


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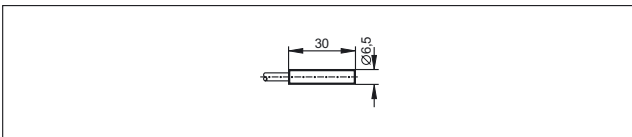


1: threaded insert M3, depth 5.8 mm, max. tightening torque 1.2 Nm (screw fixing class 8.8) when brass insert in contact with counterpart.

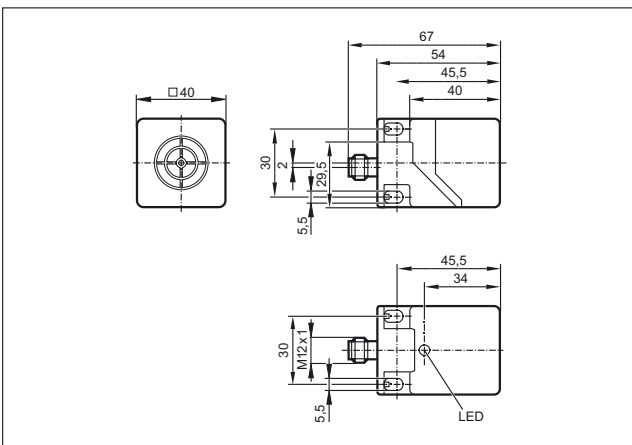
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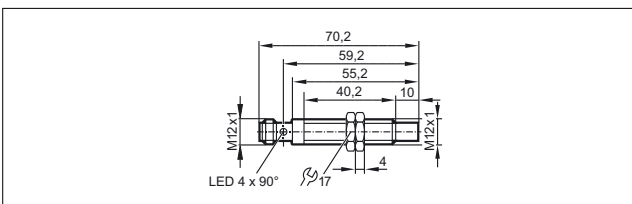
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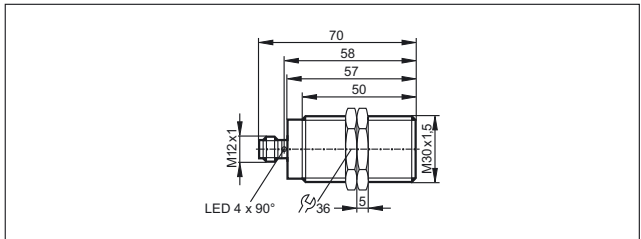
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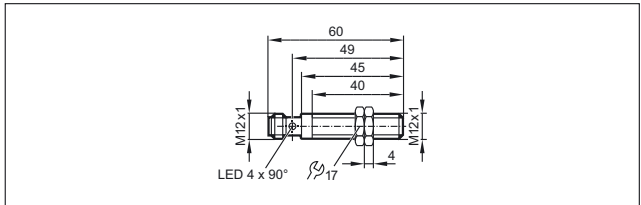
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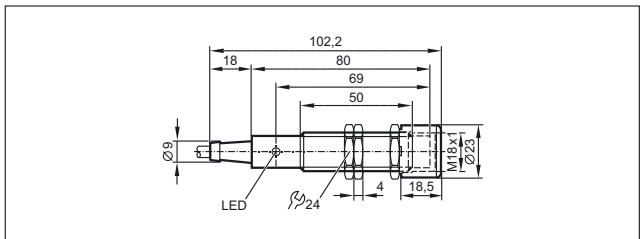
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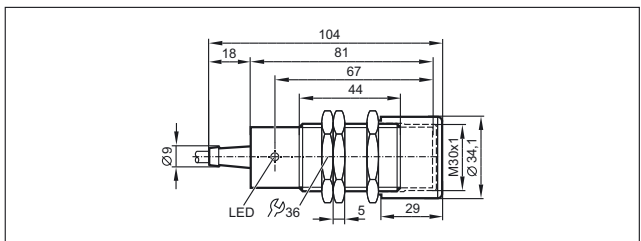
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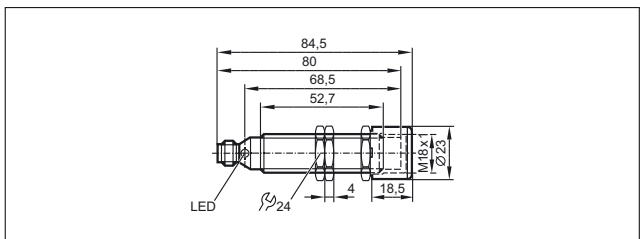


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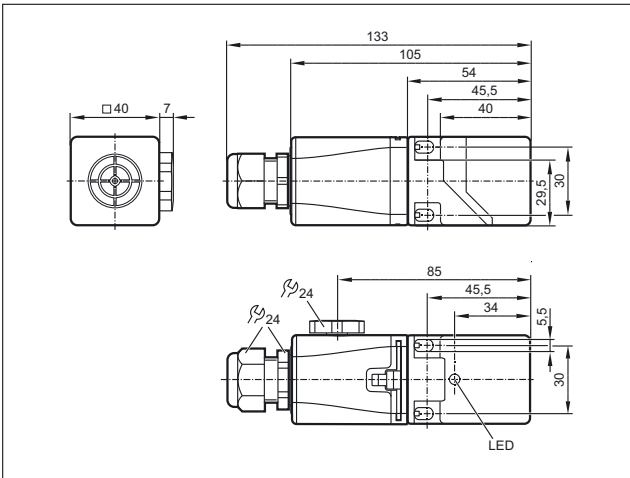
1: Sensor, 2: Sensor with protective cover

242

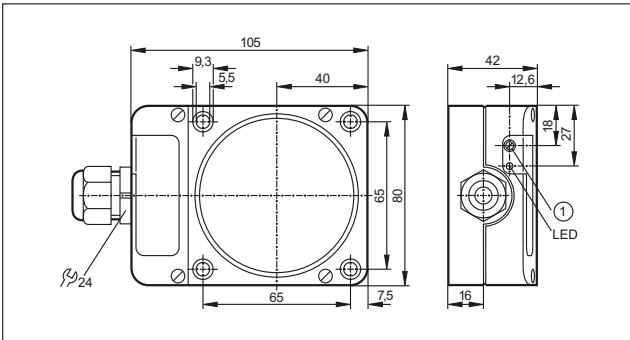


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243

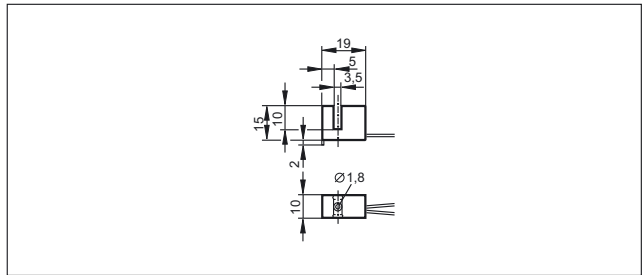


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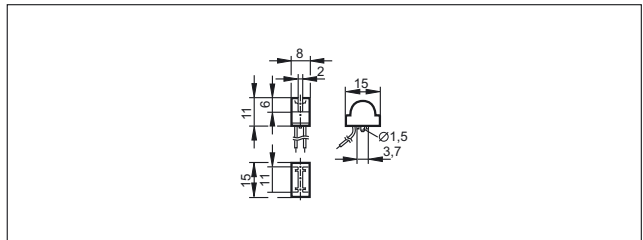


1: potentiometer

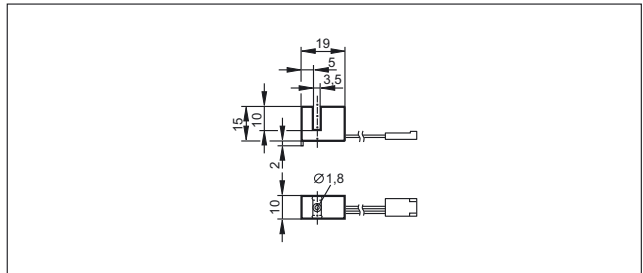
245



246



247







- Easy parameter setting via IO-Link before installation of the sensor
- Versatile data processing via IO-Link
- High noise immunity guarantees high operational reliability
- Plastic or metal housings
- Assortment of mounting accessories

Capacitive sensors

Capacitive sensors are used for the non-contact detection of any objects, commonly product rather than parts of the machine. In contrast to inductive sensors, capacitive sensors can detect non-metallic materials. They can also detect very small metal components at longer range than inductive sensors. Typical applications are in the wood, paper, glass, plastic, food and chemical industries. In a packaging system, capacitive sensors might monitor that the contents of a cardboard box is full, or check the presence of caps on bottles. Another example is the detection of sheets of glass on a roller conveyor.

Operating principle

The capacitance between the active electrode of the sensor and the electrical earth potential is evaluated. An approaching object influences the oscillating field between these two capacitor plates and, consequently, the capacitance. This applies to metallic and non-metallic objects. The potentiometer or pushbutton allows the user to set the sensitivity. The ability of a capacitive sensor to ignore certain materials makes them especially useful for detecting levels through sightglasses or other low density materials.

Increased noise immunity

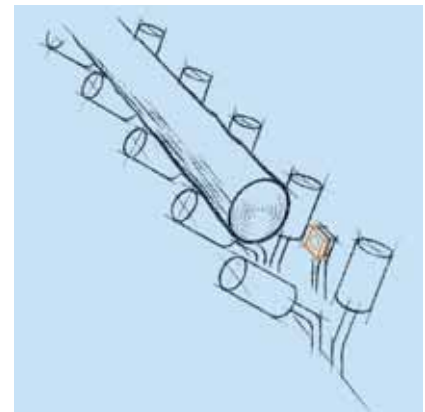
ifm electronic has developed innovative modifications to the basic sensing principle. The patented circuit concept efficiently meets the requirements of CE marking, for example making them insensitive to electromagnetic interference which can typically occur in industry.

New characteristics via IO-Link

IO-Link allows direct detection of the process value or switch-on/switch-off delays of the output. Parameters are set via IO-Link interface.

Capacitive touch sensors

Touch sensitive switching: The capacitive touch sensors are wear-free and maintenance-free thanks to switching without pressure. They are oil-resistant, impact and scratch resistant and ingress resistant up to IP 69K. Their operating principle is dynamic, static or latching. They are typically used in industrial applications or on mobile machines as start / stop buttons or enable switches.









Not only metal:
Capacitive sensors
detect almost all
materials, here
for example a log
in a saw mill.

System overview	Page
Sensors for level and position detection DC	150 - 152
Sensors for level and position detection AC/DC	152 - 153
Sensors with IO-Link	153 - 154
Sensors with ATEX approval	154 - 155
Switching amplifiers with ATEX approval	156
Dynamic capacitive touch sensors	156 - 157
Static capacitive touch sensors	157
Accessories	158
Accessories mounting adapters	159
Accessories mounting components	159 - 160
Wiring diagrams	160 - 161
Scale drawings / drawing no. – CAD download: www.ifm.com	162 - 165


Sensors for level and position detection DC

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
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Cable 2 m · Output function  · DC PNP · Wiring diagram no. 1

	M12 / L = 69	4 f	high-grade stainless steel	10...36	IP 65	50	100	1	KF5014
	M12	8 nf	high-grade stainless steel	10...36	IP 65	50	100	2	KF5015
	M18 / L = 84	8 nf	PBT	10...36	IP 67	50	250	3	KG5043
	M30 / L = 81	15 nf	PBT	10...36	IP 65	40	250	4	KI5002
	120 x 80 x 30	60 nf	modified PPO	10...36	IP 65	10	250	5	KD5022


Cable 2 m · Output function  · DC PNP/NPN · Wiring diagram no. 19

	M18 / L = 84	8 nf	PBT	10...55	IP 67	50	400	3	KG5047
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Cable 2 m · Output function  · DC NPN · Wiring diagram no. 2

	M30 / L = 81	15 nf	PBT	10...36	IP 65	40	250	4	KI5015
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Cable 2 m · Output function  · DC NPN · Wiring diagram no. 3


	M30 / L = 81	15 nf	PBT	10...36	IP 65	40	250	4	KI5019
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Cable 2 m · Output function  · DC PNP · Wiring diagram no. 20






















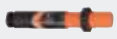
	M30 / L = 81	15 nf	PBT	10...36	IP 65	40	250	4	KI5207
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Cable 2 m · Output function  · DC PNP · Wiring diagram no. 4

	M18 / L = 77	8	PP	10...36	IP 65 / IP 67	10	200	6	KG5069
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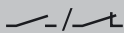

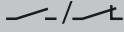

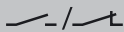

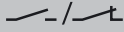
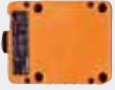
M12 connector · Output function  · DC PNP · Wiring diagram no. 21 · Connector groups 8, 10, 18, 20, 117, 118, 147

	M30 / L = 116	nf	PPS	10...30	IP 67	10	200	7	KN5121
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Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
M12 connector · Output function  · DC PNP · Wiring diagram no. 5 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148									
	M18 / L = 93.8	8 nf	PBT	10...36	IP 67	50	250	8	KG5057
M12 connector · Output function  /  · DC PNP · Wiring diagram no. 6 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148									
	M18 / L = 87	12 nf	PBT	10...36	IP 65 / IP 67	10	200	9	KG5066
	M18 / L = 87	8 nf	PBT	10...36	IP 65 / IP 67	10	200	9	KG5071
	M30 / L = 90	20 nf	PBT	10...36	IP 65 / IP 67	10	200	10	KI5083
M12 connector · Output function  /  · DC PNP/NPN · Wiring diagram no. 22 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148									
	M30 / L = 90	20 nf	PBT	10...36	IP 65 / IP 67	10	200	10	KI5082
M12 connector · Output function  /  · DC PNP · Wiring diagram no. 23 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148									
	105 x 80 x 40	60 nf	modified PPO	10...36	IP 65	10	250	11	KD5039
M12 connector · Output function  · DC PNP · Wiring diagram no. 6 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147									
	M12 / L = 60	4 f	High-grade st. steel	10...36	IP 65	50	100	12	KF5001
	M12 / L = 61	8 nf	High-grade st. steel	10...36	IP 65	50	100	13	KF5002
M12 connector · Output function  · DC NPN · Wiring diagram no. 7 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147									
	M12 / L = 60	4 f	High-grade st. steel	10...36	IP 65	50	100	12	KF5013
M12 connector · Output function  /  · DC PNP · Wiring diagram no. 6 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148									
	M30 / L = 90	8 f	High-grade st. steel	10...36	IP 65 / IP 67	10	100	14	KI5085
	M30 / L = 90	15 nf	High-grade st. steel	10...36	IP 65 / IP 67	10	100	15	KI5087
Terminals · Output function  · DC PNP · Wiring diagram no. 8									
	M18 / L = 110	8 nf	PBT	10...36	IP 65	50	250	16	KG5041

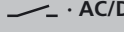






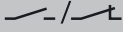

You can find wiring diagrams and scale drawings from page 160

Position sensors

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Draw- ing no.	Order no.
Terminals · Output function  · DC PNP/NPN · Wiring diagram no. 24									
	M18 / L = 110	8 nf	PBT	10...55	IP 65	50	400	16	KG5040
Terminals · Output function  · DC PNP · Wiring diagram no. 9									
	M30 / L = 125	15 nf	PBT	10...55	IP 65	40	250	17	KI5023
Terminals · Output function  · DC NPN · Wiring diagram no. 10									
	M30 / L = 125	15 nf	PBT	10...36	IP 65	40	250	17	KI5024
Terminals · Output function  · DC PNP · Wiring diagram no. 25									
	105 x 80 x 40	60 nf	modified PPO	10...36	IP 65	10	250	18	KD5018


f = flush / nf = non flush


Sensors for level and position detection AC/DC

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f AC / DC [Hz]	I _{load} AC / DC [mA]	Draw- ing no.	Order no.
Cable 2 m · Output function  · AC/DC · Wiring diagram no. 11									
	M18 / L = 84	8 nf	PBT	20...250	IP 67	25 / 50	350 / 100	3	KG0009*
	M30 / L = 81	15 nf	PBT	20...250	IP 65	25 / 40	250	4	KI0016*
	120 x 80 x 30	60 nf	modified PPO	20...250	IP 65	10	250	5	KD0012*
Cable 2 m · Output function  · AC/DC · Wiring diagram no. 12									
	M18 / L = 84	8 nf	PBT	20...250	IP 67	25 / 50	350 / 100	3	KG0010*
	M30 / L = 81	15 nf	PBT	20...250	IP 65	25 / 40	250	4	KI0020*
1/2" UNF-Connector · Output function  · AC/DC · Wiring diagram no. 13 · Connector group 29									
	M18 / L = 87	12 nf	PBT	20...250	IP 65 / IP 67	10	150	19	KG0016*


Product selectors and further information can be found at: www.ifm.com

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f AC / DC [Hz]	I _{load} AC / DC [mA]	Draw- ing no.	Order no.
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 1/2" UNF-Connector · Output function  · AC/DC · Wiring diagram no. 13 · Connector group 29


	M30 / L = 90	20 nf	PBT	20...250	IP 65 / IP 67	10	150	20	KI0054*
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 Terminals · Output function  · AC/DC · Wiring diagram no. 14

	M18 / L = 110	8 nf	PBT	20...250	IP 65	25 / 50	350 / 100	16	KG0008*
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	M30 / L = 125	15 nf	PBT	20...250	IP 65	25 / 40	250	17	KI0024*
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 Terminals · Output function  · AC/DC · Wiring diagram no. 26

	105 x 80 x 40	60 nf	modified PPO	20...250	IP 65	10	250	18	KD0009*
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f = flush / nf = non flush

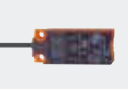
*** Note for AC and AC/DC units**

Miniature fuse to IEC60127-2 sheet 1, ≤ 2 A (fast acting) Recommendation: check the unit for reliable function after a short circuit.

Sensors with IO-Link


Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Draw- ing no.	Order no.
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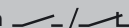
 Cable 2 m · Output function  · Automatic load detection PNP/NPN · Wiring diagram no. 27

	20 x 14 x 48	12 nf	PBT	10...30	IP 65 / IP 67	10	100	21	KQ6001
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 Cable 2 m · Output function  · DC PNP · Wiring diagram no. 4

	20 x 7 x 48	12 nf	PBT	10...30	IP 65 / IP 67	10	100	22	KQ5100
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	20 x 14 x 48	12 nf	PBT	10...30	IP 65 / IP 67	10	100	21	KQ6002
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 Cable 2 m · Output function  · 1x open collector DC NPN · Wiring diagram no. 15

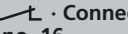

	20 x 14 x 48	12 nf	PBT	10...36	IP 65 / IP 67	10	100	23	KQ6006
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Position sensors

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
Cable 10 m · Output function  · 1x open collector DC PNP · Wiring diagram no. 4									
	20 x 14 x 48	12 nf	PBT	10...36	IP 65 / IP 67	10	100	23	KQ6007
Cable with connector 0.04 m · Output function  · Automatic load detection PNP/NPN · Wiring diagram no. 22 · Connector groups 4, 5, 116									
	20 x 14 x 48	12 nf	PBT	10...30	IP 65 / IP 67	10	100	24	KQ6003
Cable with connector 0.04 m · Output function  · DC PNP · Wiring diagram no. 6 · Connector groups 1, 2, 3, 72, 78, 114, 115									
	20 x 7 x 48	12 nf	PBT	10...30	IP 65 / IP 67	10	100	25	KQ5102
Cable with connector 0.04 m · Output function  · DC PNP · Wiring diagram no. 6 · Connector groups 4, 5, 116									
	20 x 14 x 48	12 nf	PBT	10...30	IP 65 / IP 67	10	100	24	KQ6004
Cable with connector 0.04 m · Output function  · DC PNP · Wiring diagram no. 6 · Connector groups 1, 2, 3, 72, 78, 114, 115									
	20 x 14 x 48	12 nf	PBT	10...30	IP 65 / IP 67	10	100	26	KQ6008
Cable with connector 0.04 m · Output function  · DC PNP · Wiring diagram no. 6 · Connector groups 4, 5, 116									
	20 x 14 x 48	12 nf	PBT	10...30	IP 65 / IP 67	10	100	26	KQ6010
Cable with connector 0.1 m · Output function  · DC PNP · Wiring diagram no. 6 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147									
	20 x 7 x 48	12 nf	PBT	10...30	IP 65 / IP 67	10	100	27	KQ5101
	20 x 14 x 48	12 nf	PBT	10...30	IP 65 / IP 67	10	100	28	KQ6005

f = flush / nf = non flush

Sensors with ATEX approval

Type	Dimensions [mm]	Sensing range [mm]	Material	U _{nom.} at 1 K Ω [V]	U _b [V]	Internal capacit. [nF]	Internal inductance [μ H]	f [Hz]	Drawing no.	Order no.
Cable 2 m · Output function  · Connection to certified intrinsically safe circuits with the max. values U = 15 V / I = 50 mA / P = 120 mW · Wiring diagram no. 16										
	M30 / L = 81	15 nf	PBT	8.2 DC	7.5...15	375	1	40	4	KI5030


Type	Dimensions [mm]	Sensing range [mm]	Material	U _{nom.} at 1 kΩ [V]	U _b [V]	Internal capacit. [nF]	Internal inductance [μH]	f [Hz]	Drawing no.	Order no.
Cable 6 m · Output function  · Connection to certified intrinsically safe circuits with the max. values U = 15 V / I = 50 mA / P = 120 mW · Wiring diagram no. 16										
	M30 / L = 81	15 nf	PBT	8.2 DC	7.5...15	375.64	3	40	4	KI5031
Cable 2 m · Output function  · Connection to certified intrinsically safe circuits with the max. values U = 15 V / I = 50 mA / P = 120 mW · Wiring diagram no. 17										
	M34 / L = 92	15 nf	Brass	8.2 DC	7.5...15	375	1	40	29	KX5001
Cable 6 m · Output function  · Connection to certified intrinsically safe circuits with the max. values U = 15 V / I = 50 mA / P = 120 mW · Wiring diagram no. 17										
	M34 / L = 92	15 nf	Brass	8.2 DC	7.5...15	375.64	3	40	29	KX5002
Cable 20 m · Output function  · Connection to certified intrinsically safe circuits with the max. values U = 15 V / I = 50 mA / P = 120 mW · Wiring diagram no. 17										
	M34 / L = 92	15 nf	Brass	8.2 DC	7.5...15	377.88	10	40	29	KX5004
Terminals · Output function normally open / closed complementary · DC PNP · Wiring diagram no. 18										
	M30 / L = 150	15 nf	PBT	10...30 DC	–	–	–	10	30	KI503A
	M30 / L = 125	15 nf	PBT	10...30 DC	–	–	–	10	31	KI505A
Terminals · Output function  /  · AC/DC · Wiring diagram no. 28										
	M30 / L = 150	15 nf	PBT	20...250 DC / 30...250 AC	–	–	–	10	30	KI000A*
	M30 / L = 125	15 nf	PBT	20...250 DC / 30...250 AC	–	–	–	10	31	KI001A*
Terminals · Output function  /  · AC/DC · Wiring diagram no. 26										
	105 x 80 x 42	60 nf	modified PPE	20...250 AC/DC	–	–	–	4	32	KD001A*
Terminals · Output function  /  · DC PNP · Wiring diagram no. 25										
	105 x 80 x 42	60 nf	modified PPO	10...36 DC	–	–	–	10	32	KD501A

f = flush / nf = non flush






*** Note for AC and AC/DC units**







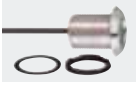
Miniature fuse to IEC60127-2 sheet 1, ≤ 2 A (fast acting) Recommendation: check the unit for reliable function after a short circuit.

Switching amplifiers with ATEX approval










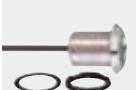
Type	U _b [V]	Power / current consumption [VA] / [mA]	f [Hz]	T _a [°C]	Output	Protection	Draw- ing no.	Order no.
	115	1.0 /	10	-20...60	relay (1 changeover contact)	IP 20	33	N0030A
	230	1.0 /	10	-20...60	relay (1 changeover contact)	IP 20	33	N0031A
	115	1.3 /	10	-20...60	relay (1 changeover contact per channel)	IP 20	33	N0032A
	230	1.3 /	10	-20...60	relay (1 changeover contact per channel)	IP 20	33	N0033A
	24	/ < 23	10	-20...60	relay (1 changeover contact)	IP 20	33	N0530A
	24	/ < 50	5000	-20...60	2 transistor outputs PNP (100 mA, short-circuit protection)	IP 20	33	N0531A
	24	/ < 50	5000	-20...60	2 outputs (optocoupler, bipolar, 100 mA, short-circuit protection)	IP 20	33	N0532A
	24	/ < 50	10	-20...60	relay (1 changeover contact per channel)	IP 20	33	N0533A
24	/ < 50	5000	-20...60	2 transistor outputs PNP (100 mA, short-circuit protection)	IP 20	33	N0534A	

Dynamic capacitive touch sensors














Type	U _b [V]	I _{load} [mA]	Current consumption [mA]	Ambient temperature [°C]	Protection	Draw- ing no.	Order no.
Cable 2 m · Output function  · DC PNP							
	24	500	30	-40...85	IP 67 / IP 69K	34	KT5009
	24	500	30	-40...85	IP 67 / IP 69K	35	KT5010
Cable with connector 0.3 m · Output function  · DC PNP · Connector groups 4, 5, 74, 80, 116							
	24	500	30	-40...85	IP 67 / IP 69K	35	KT5011

Type	U _b [V]	I _{load} [mA]	Current consumption [mA]	Ambient temperature [°C]	Protection	Drawing no.	Order no.
Cable 0.3 m · Output function  · DC PNP							
	24	500	30	-40...85	IP 65 / IP 67 / IP 69K	36	KT5101
Cable with connector 0.3 m · Output function  · DC PNP · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148							
	24	500	30	-40...85	IP 65 / IP 67 / IP 69K	36	KT5102
Cable 0.3 m · Output function  · DC PNP							
	24	500	30	-40...85	IP 65 / IP 67 / IP 69K	36	KT5109
	24	500	30	-40...85	IP 65 / IP 67 / IP 69K	–	KT5301






Static capacitive touch sensors

Type	U _b [V]	I _{load} [mA]	Current consumption [mA]	Ambient temperature [°C]	Protection	Drawing no.	Order no.
Cable 2 m · Output function  · DC PNP							
	24	500	30	-40...85	IP 67 / IP 69K	35	KT5012
Cable with connector 0.3 m · Output function  · DC PNP · Connector groups 4, 5, 74, 80, 116							
	24	500	30	-40...85	IP 67 / IP 69K	35	KT5013
Cable 0.3 m · Output function  · DC PNP							
	24	500	30	-40...85	IP 65 / IP 67 / IP 69K	36	KT5105
Cable with connector 0.3 m · Output function  · DC PNP · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148							
	24	500	30	-40...85	IP 65 / IP 67 / IP 69K	36	KT5106
Cable 0.3 m · Output function  · DC PNP							
	24	500	30	-40...85	IP 65 / IP 67 / IP 69K	–	KT5305





Accessories






Type	Description	Order no.
	LINERECORDER SENSOR · Software for parameter setting and set-up of IO-Link sensors · Recording and distribution of parameter sets (duplication) · Capture and evaluation of sensor values over a longer period of time · Resetting of sensor parameters to factory setting · Use via USB connection cable E30396 or E30390 (drivers are contained in the corresponding software package)	ZGS210
	IO-Link interface · for parameter setting and analysis of units · Supported communication protocols: IO-Link (4800 and 38400 bits/s) EPS protocol (19200 bits/s) · for operation with FDT framework software "ifm Container" or software "LINERECORDER SENSOR"	E30396
	Memory plug · Parameter memory for IO-Link sensors · Storage capacity: 2 Kbytes · Housing materials: PA PACM 12 / PET / sealing: FPM / nut: stainless steel 316L / 1.4404 / connector: TPU	E30398
	Cover ring 100 mm · for type KT50 · Housing materials: polycarbonate-ABS yellow	E80372
	Cover ring 100 mm · for type KT50 · Housing materials: polycarbonate-ABS green	E80373
	Cover ring 100 mm · for type KT50 · Housing materials: polycarbonate-ABS Red	E80374
	Cover ring 100 mm · for type KT50 · Housing materials: polycarbonate-ABS blue	E80375
	Cover ring 100 mm · for type KT50 · Housing materials: polycarbonate-ABS orange	E80376
	Symbol disc (plastic) · Ø 20.4 mm · for type KT51 / KT53 · Start symbol · Housing materials: Polyamide	E12377
	Symbol disc (plastic) · Ø 20.4 mm · for type KT51 / KT53 · Symbol Stop · Housing materials: Polyamide	E12378
	Symbol disc (plastic) · Ø 20.4 mm · for type KT51 / KT53 · Symbol ON · Housing materials: Polyamide	E12379
	Symbol disc (plastic) · Ø 20.4 mm · for type KT51 / KT53 · Symbol OFF · Housing materials: Polyamide	E12380
	Symbol disc (plastic) · Ø 20.4 mm · for type KT51 / KT53 · Without symbol, transparent · Housing materials: Polyamide	E12386

Accessories mounting adapters

Type	Description	Order no.
	Mounting adapter · M18 x 1 - G 3/4 · Housing materials: POM	E43900
	Mounting adapter · M18 x 1 - G 1 · Housing materials: POM	E43904
	Mounting adapter · M30 x 1.5 - G 1 1/4 · Housing materials: PVDF / EPDM	E11036
	Mounting adapter · M30 x 1.5 - G 1 1/2 · Housing materials: PVDF / EPDM	E11034
	Mounting adapter · Ø 34 mm - G 1 1/2 · Housing materials: POM	E11027
	Locknut · G 3/4 · for mounting adapter · Housing materials: POM	E43902
	Locknut · G 1 1/4 · for mounting adapter · Housing materials: PVDF	E11030
	Locknut · G 1 1/2 · for mounting adapter · Housing materials: PVDF	E11032
	Protective cover · G 1 1/4 · for mounting adapter · Housing materials: PES black transparent	E11078

Accessories mounting components

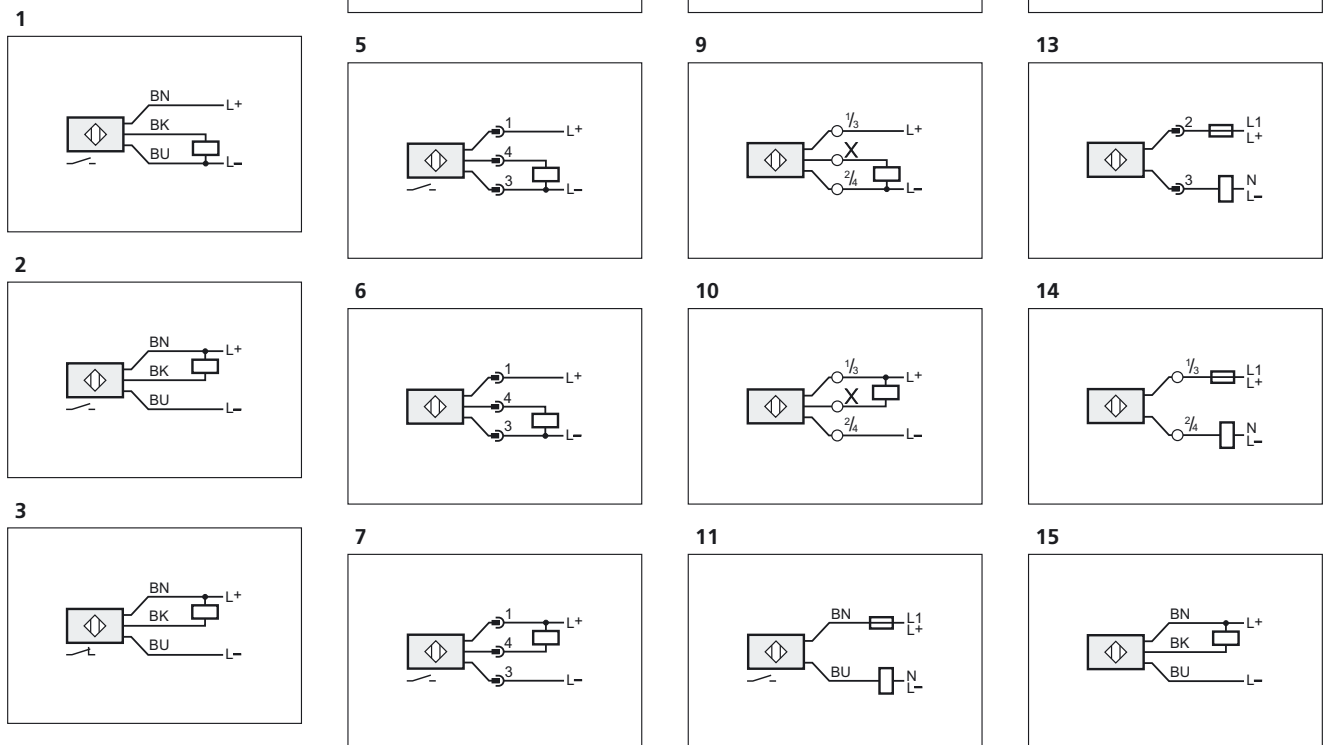
Type	Description	Order no.
	Mounting clamp · Ø 20 mm - Ø 18 mm · with reducing bush · for type M18 · Housing materials: PBT	E10076
	Mounting clamp · Ø 34 mm - Ø 30 mm · with reducing bush · for type M30 · Housing materials: PBT	E10077
	Angle bracket · for type M12 · Housing materials: stainless steel	E10735
	Angle bracket · for type M18 · Housing materials: stainless steel	E10736

Type	Description	Order no.
	Angle bracket · for type M30 · Housing materials: stainless steel	E10737
	Mounting adapter for free-standing mounting · for type KQ5, KQ6 · Housing materials: adapter: PBT / inserts: Brass / screw: steel galvanised	E12153
	Mounting adapter · Pipe and tube installation KQ5 / KQ6 with cable ties · Fixing of the types KQ5 and KQ6 to pipes and tubes · Housing materials: Mounting adapter: PA 12 black	E12163
	Fixing strap · Length: 760 mm · for capacitive level sensors · for type KNQ, KQ5, KQ6 · Housing materials: PA	E10880
	Mounting set · M30 x 1.5 / G 1/4...G 1 · for capacitive sensors on rising pipes G 1/4" - 1" · Housing materials: POM	E11037

Wiring diagrams

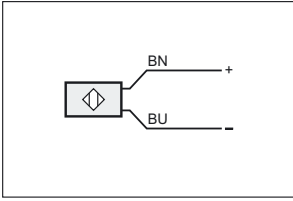
Core colours

- BN brown
- BU blue
- BK black
- WH white
- GN/YE green/yellow

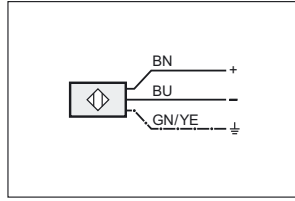


Wiring diagrams

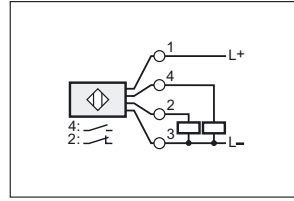
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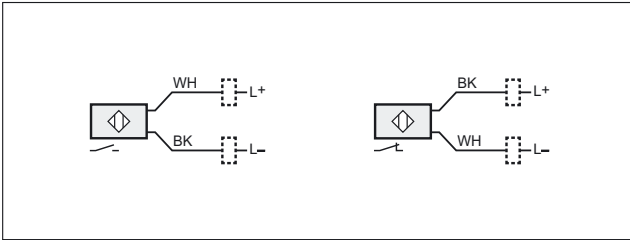
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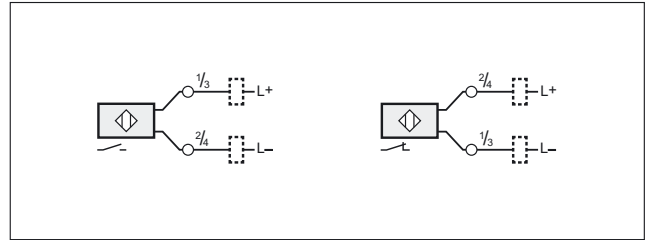
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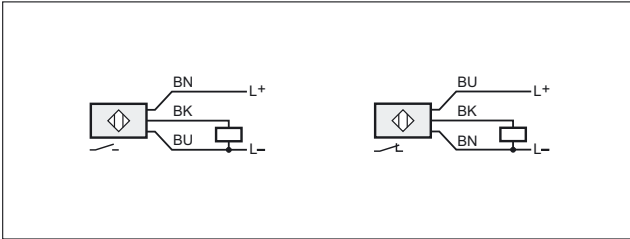
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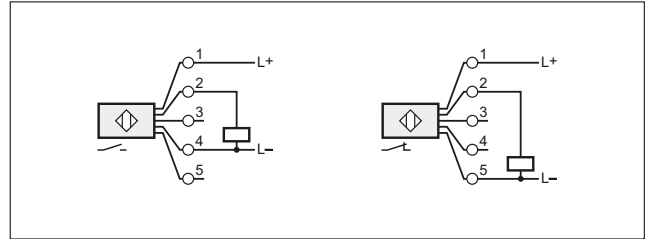
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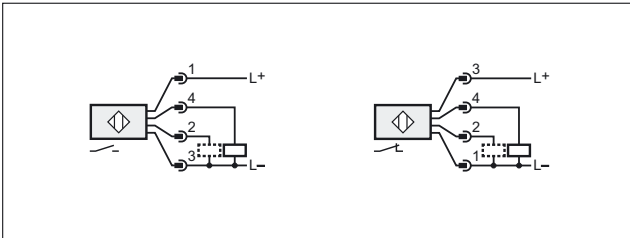
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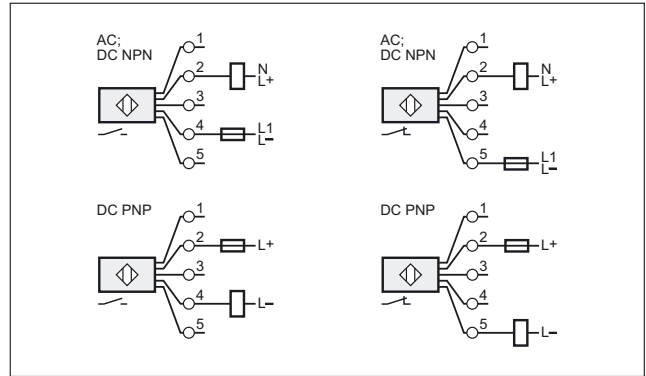


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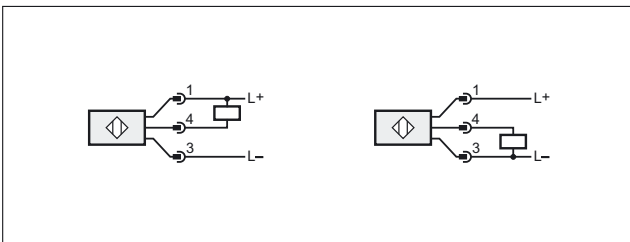


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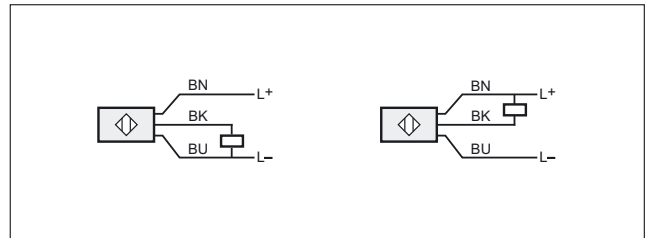
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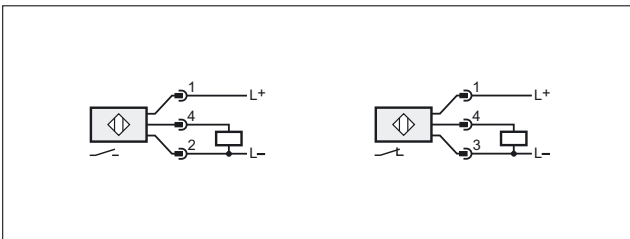
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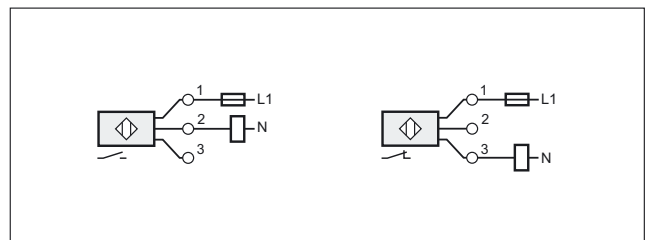
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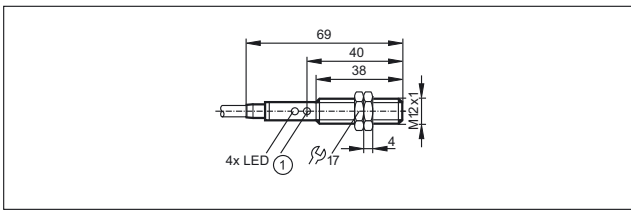


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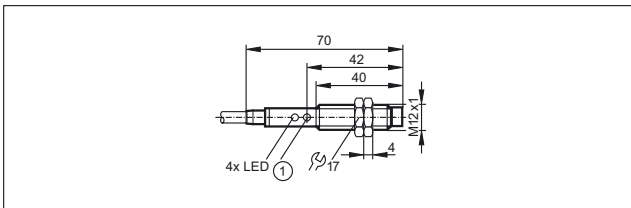


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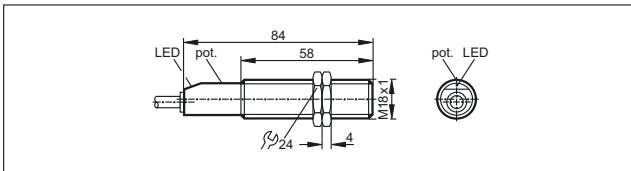
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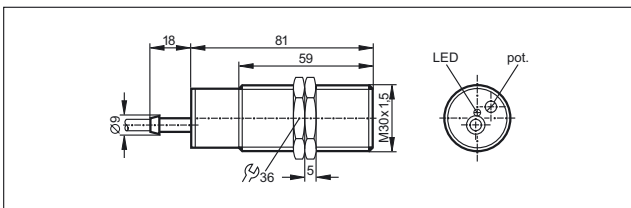
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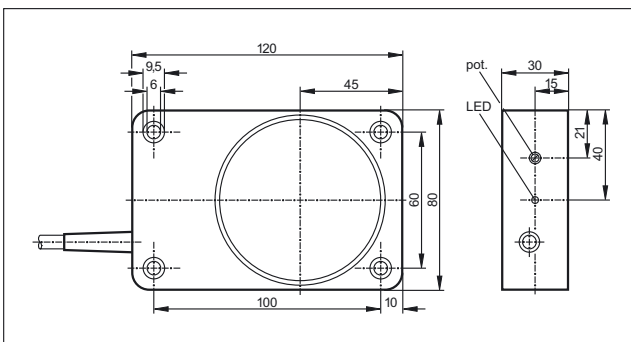
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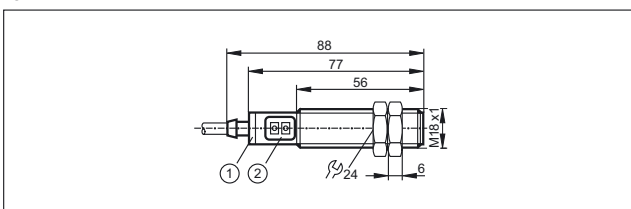
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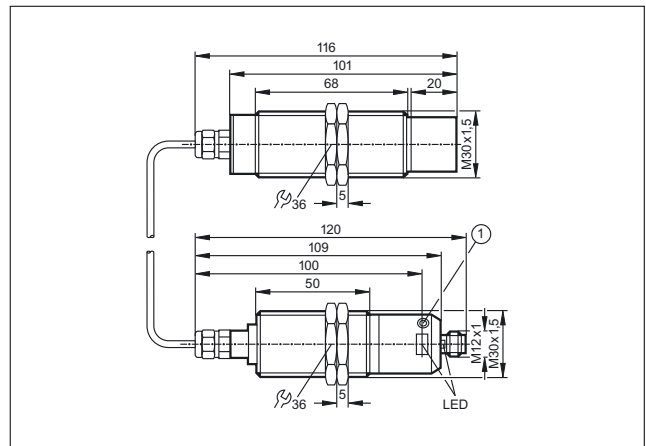


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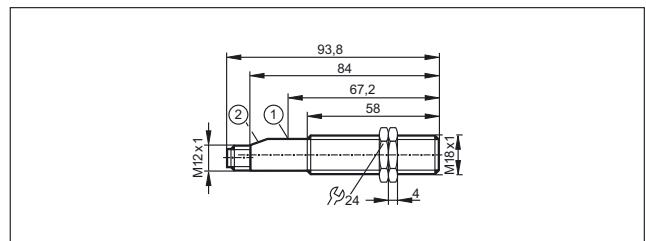
1: LED ring, 2: Programming buttons

7



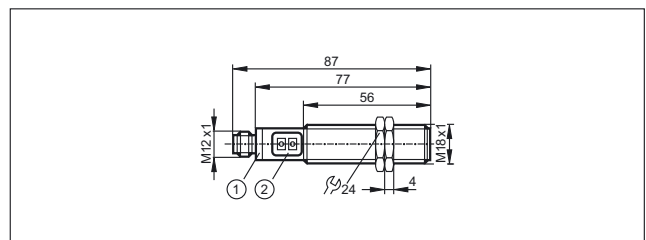
1: Programming button

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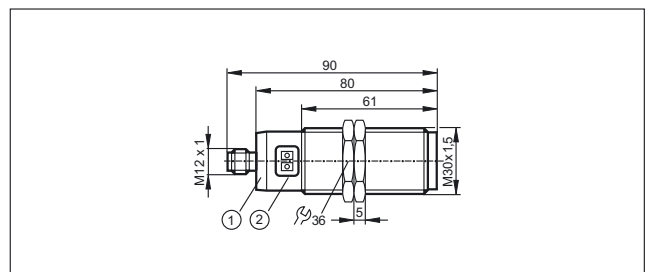
1: potentiometer, 2: LED

9



1: LED ring, 2: Programming buttons

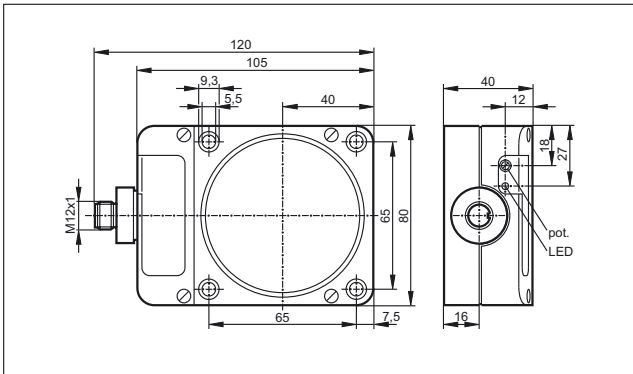
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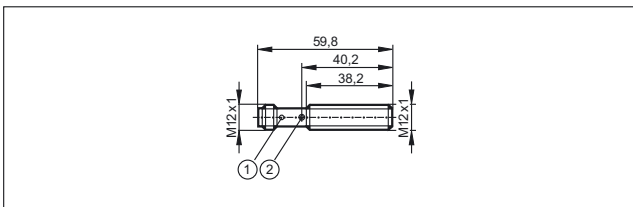
1: LED ring, 2: Programming buttons

Scale drawings / drawing no. – CAD download: www.ifm.com

11

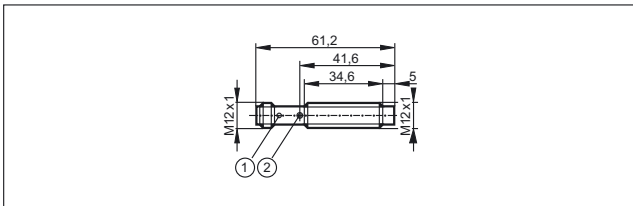


12



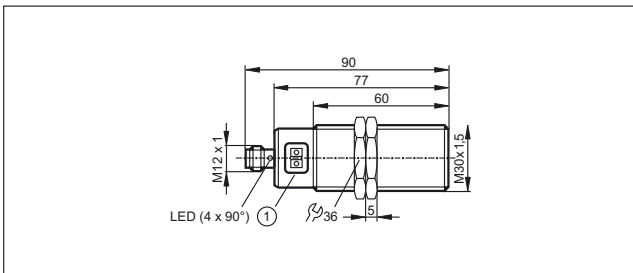
1: LED 4 x 90°, 2: potentiometer

13



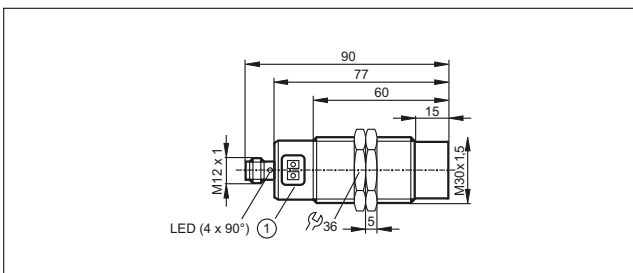
1: LED 4 x 90°, 2: potentiometer

14



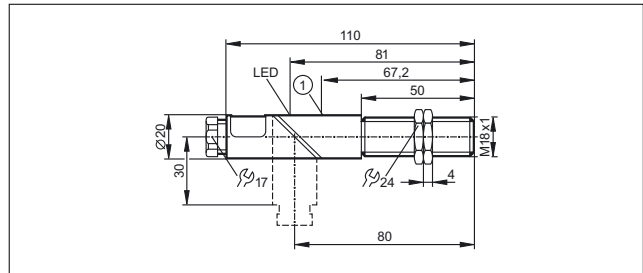
1: Programming buttons

15



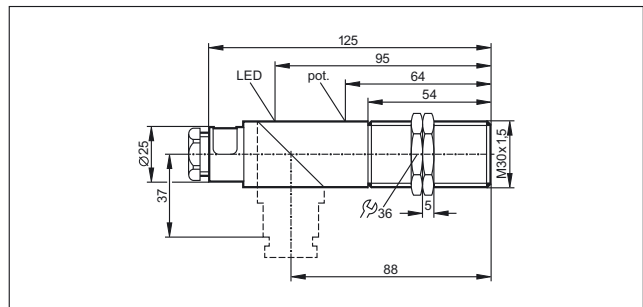
1: Programming buttons

16

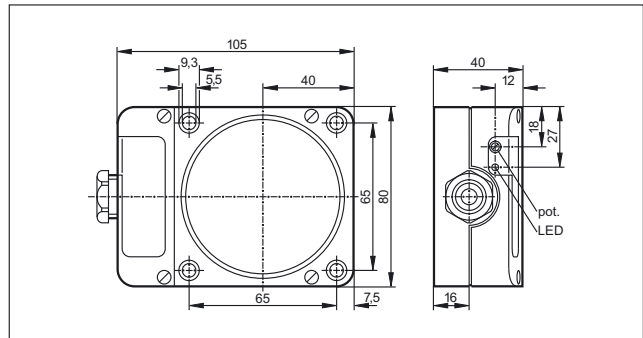


1: potentiometer

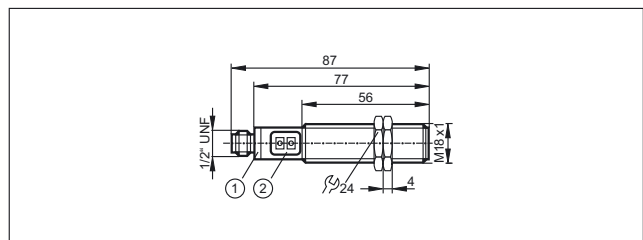
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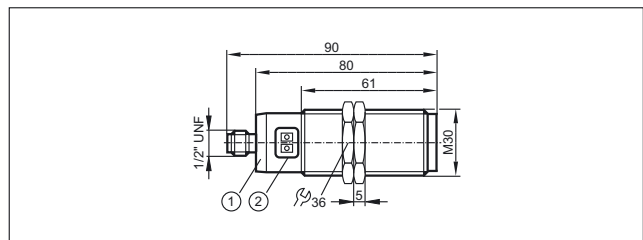
18



19



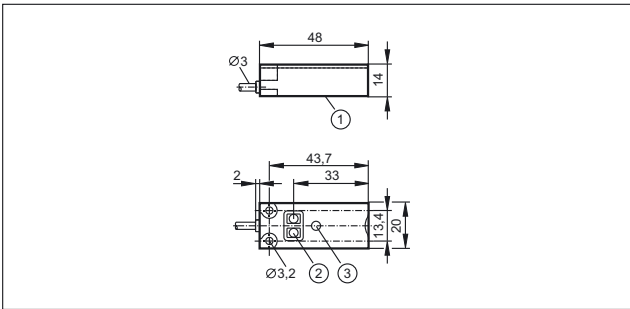
20



1: LED ring, 2: Programming buttons

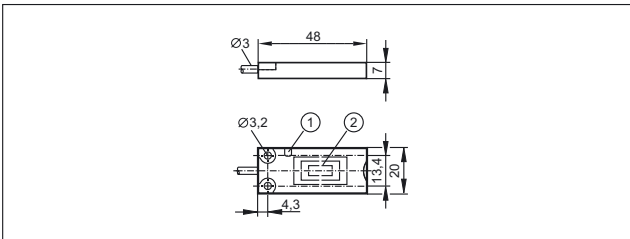
Scale drawings / drawing no. – CAD download: www.ifm.com

21



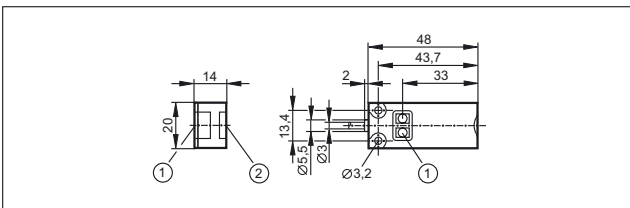
1: sensing face, 2: Programming buttons, 3: LED

22



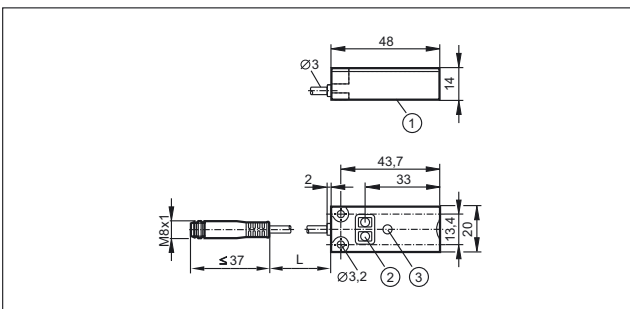
1: LED, 2: sensing face

23



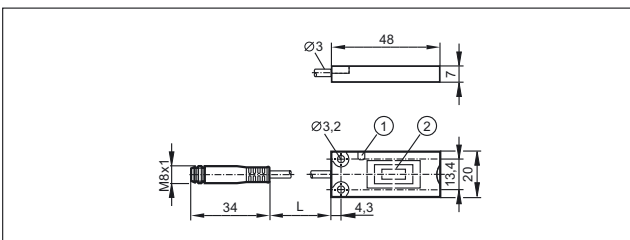
1: Programming buttons, 2: sensing face

24



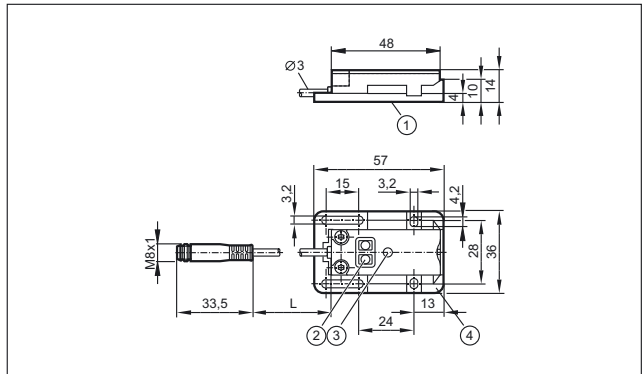
1: sensing face, 2: Programming buttons, 3: LED

25



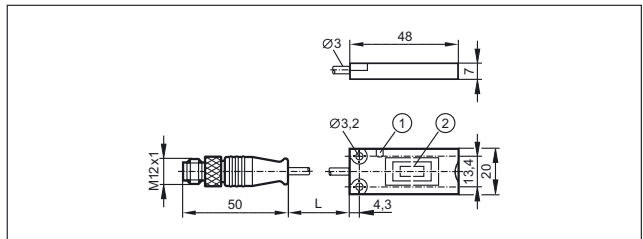
1: LED, 2: sensing face

26



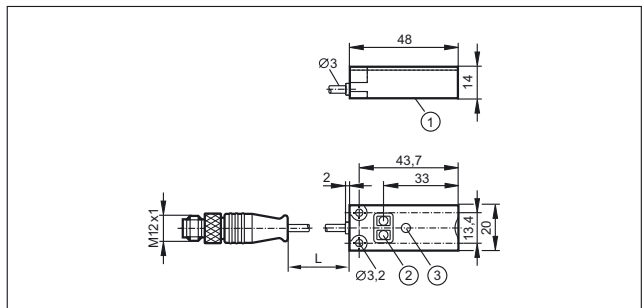
1: sensing face, 2: Programming buttons, 3: LED, 4: Mounting adapter E12153

27



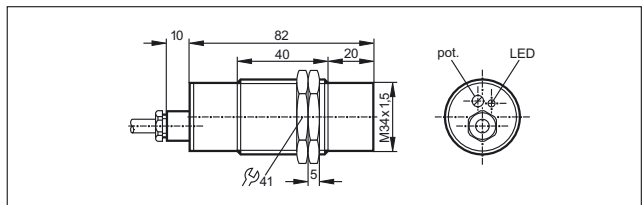
1: LED, 2: sensing face

28

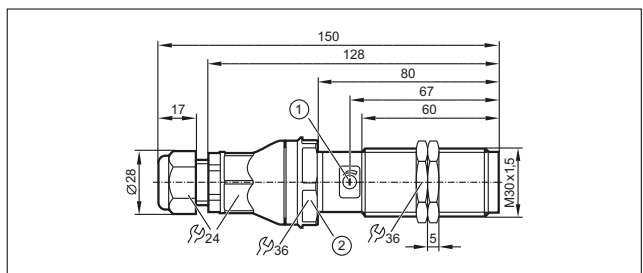


1: sensing face, 2: Programming buttons, 3: LED

29



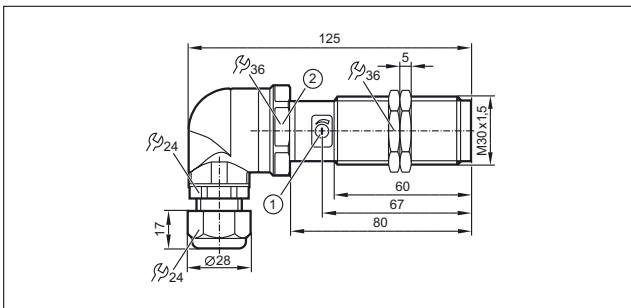
30



1: potentiometer, 2: tightening torque 10 Nm

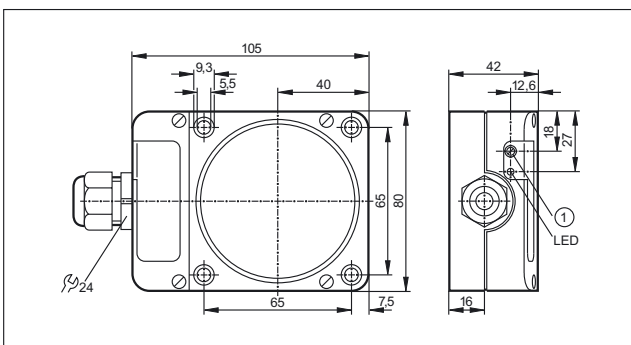
Scale drawings / drawing no. – CAD download: www.ifm.com

31



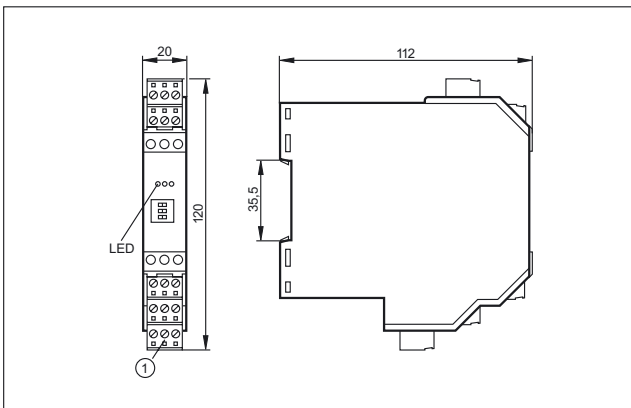
1: potentiometer, 2: tightening torque 10 Nm

32



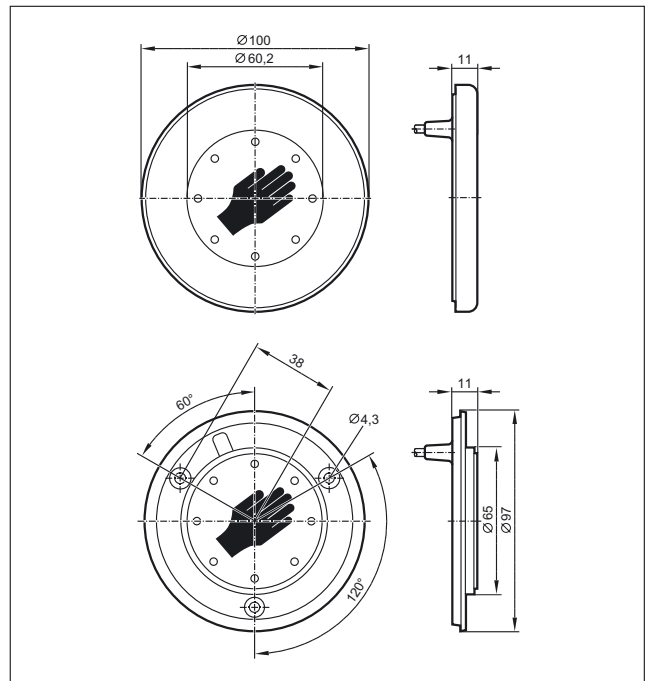
1: potentiometer

33

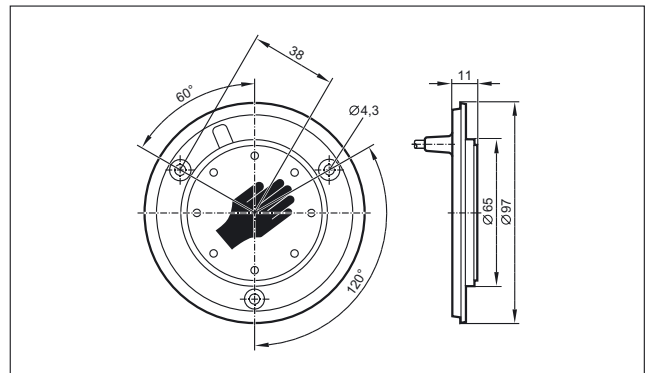


1: Combicon plug with screw terminals (optional)

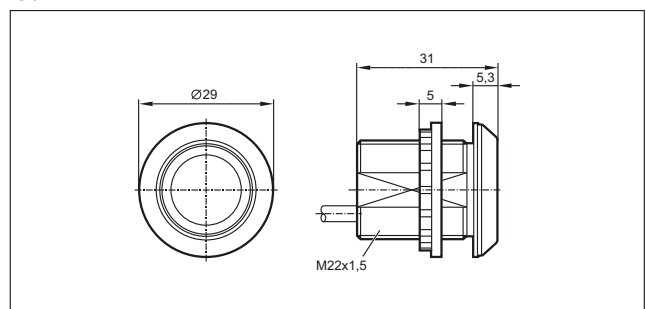
34



35



36





- Magnetic sensors for long sensing ranges
- Small designs with sensing ranges up to 100 mm
- Detection through non-ferrous metals
- Cylindrical and rectangular designs for demanding applications
- Tough all-steel housings and temperature range for universal use

Magnetic sensors

Magnetic sensors come into their own where inductive sensors reach their limits. Compared to inductive sensors magnetic sensors have a considerably higher sensing range for the comparable housing sizes, yet can be used in environments where other long range detection techniques are simply not suitable.

Magnetic sensors are used for reliable and highly repeatable position detection in similar applications to inductive sensors, but are also very effective in more complex applications since magnetic fields penetrate all non-magnetisable materials. So the sensors can detect magnets through walls made of non-ferrous metal (stainless steel, aluminium), plastic or wood. This allows a sensor to be fitted outside, for example, a sensitive hygienic area.

In the food industry the magnetic sensor is often used in pigging systems. By means of magnetic sensors the exact position of the pig can be detected from the outside through the wall of the stainless steel pipe.

Operating principle

Magnetic sensors from ifm use state-of-the-art GMR (Giant Magneto Resistive Effect) technology as used in computer hard drives. The measuring cell consists of resistors with several extremely fine, ferromagnetic and non-magnetic layers. Whereas in a conventional Wheatstone bridge circuit two screened and two unscreened GMR resistors are combined, a large signal proportional to the magnetic field is produced if a magnetic field is present. As from a defined threshold value an output signal is switched via a comparator. The strength of the magnet determines the sensing range.

Installation

Magnetic sensors can be mounted flush with all materials (even metals) without reduction in the sensing range. Depending on the orientation of the magnetic field the sensor can be damped from the front or from the side.



The sensor switches as soon as the magnet has reached the switch-on point. The direction of movement of the magnet is not important.

System overview	Page
Full metal sensors for industrial applications	168
Sensors for industrial applications	168 - 169
Full metal sensors for hygienic and wet areas	170
Sensors for hygienic and wet areas	170
Accessories damping magnets	170 - 171
Accessories mounting components	171
Accessories mounting sets	171 - 172
Wiring diagrams	172
Scale drawings / drawing no. – CAD download: www.ifm.com	172 - 173


Full metal sensors for industrial applications


Type	Dimensions [mm]	Sensing range [mm]	Material	U _B [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
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M12 connector · Output function  · DC PNP · Wiring diagram no. 1 · Connector groups 117, 118, 119, 120, 147, 148


	M12 / L = 60	60	High-grade st. steel	10...30	IP 65 / IP 67	5000	200	1	MFS211
	M18 / L = 60	70	High-grade st. steel	10...30	IP 65 / IP 67	5000	200	2	MGS204

M12 connector · Output function  · DC NPN · Wiring diagram no. 2 · Connector groups 117, 118, 119, 120, 147, 148

	M12 / L = 60	60	High-grade st. steel	10...30	IP 65 / IP 67	5000	200	1	MFS209
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M12 connector · Output function  · DC PNP · Wiring diagram no. 3 · Connector groups 117, 118, 147


	M12 / L = 60	60	High-grade st. steel	10...30	IP 65 / IP 67	5000	200	1	MFS210
	M18 / L = 60	70	High-grade st. steel	10...30	IP 65 / IP 67	5000	200	2	MGS206




M12 connector · Output function  · DC NPN · Wiring diagram no. 2 · Connector groups 117, 118, 147


	M18 / L = 60	70	High-grade st. steel	10...30	IP 65 / IP 67	5000	200	2	MGS205
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Sensors for industrial applications










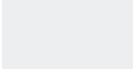










Type	Dimensions [mm]	Sensing range [mm]	Material	U _B [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
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Cable 2 m · Output function  · DC PNP · Wiring diagram no. 4

	M8 / L = 50	60	stainless steel (316L)	10...30	IP 67	5000	200	3	ME5011
	M12 / L = 50	60	High-grade st. steel	10...30	IP 67	5000	200	4	MFS201
	M18 / L = 50	70	stainless steel	10...30	IP 67	5000	200	5	MGS201


Cable 2 m · Output function  · DC NPN · Wiring diagram no. 5




	M8 / L = 40	60	stainless steel (316L)	10...30	IP 67	5000	200	6	ME5015
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Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
Cable 2 m · Output function  · DC NPN · Wiring diagram no. 5									
	M12 / L = 50	60	High-grade st. steel	10...30	IP 67	5000	200	4	MFS202
Cable 2 m · Output function  · DC PNP · Wiring diagram no. 6									
	M18 / L = 50	70	stainless steel	10...30	IP 67	5000	200	5	MGS202
M8 connector · Output function  · DC PNP · Wiring diagram no. 1 · Connector groups 1, 2, 3, 72, 78, 114, 115									
	M8 / L = 60	60	stainless steel (316L)	10...30	IP 67	5000	200	7	ME5010
M12 connector · Output function  · DC NPN · Wiring diagram no. 2 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148									
	M12 / L = 60	60	High-grade st. steel	10...30	IP 67	5000	200	1	MFS203
M12 connector · Output function  · DC PNP · Wiring diagram no. 1 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148									
	M12 / L = 60	60	stainless steel	10...30	IP 67	5000	200	1	MF5004
	M12 / L = 60	60	High-grade st. steel	10...30	IP 67	5000	200	1	MFS200
	M18 / L = 60	70	stainless steel	10...30	IP 67	5000	200	2	MGS200
Cable 2 m · Output function  · DC PNP · Wiring diagram no. 4									
	28 x 10 x 16	60	PBT	10...30	IP 67	5000	200	8	MS5011
Cable with connector 0.15 m · Output function  · DC PNP · Wiring diagram no. 1 · Connector groups 1, 2, 3, 72, 78, 114, 115									
	40 x 12 x 26	60	PBT	10...30	IP 67	–	200	9	MN5200
M8 connector · Output function  · DC PNP · Wiring diagram no. 7 · Connector groups 1, 2, 3, 72, 78, 114, 115									
	28 x 10 x 16	60	PBT	10...30	IP 67	5000	200	10	MS5013
M8 connector · Output function  · DC PNP · Wiring diagram no. 1 · Connector groups 1, 2, 3, 72, 78, 114, 115									
	28 x 10 x 16	60	PBT	10...30	IP 67	5000	200	10	MS5010

Full metal sensors for hygienic and wet areas

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
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M12 connector · Output function  · DC PNP · Wiring diagram no. 1 · Connector groups 117, 118, 119, 120, 147, 148


	M12 / L = 60	60	High-grade st. steel	10...30	IP 65 / IP 68 / IP 69K	5000	100	1	MFT202
	Ø 12 / L = 60	60	High-grade st. steel	10...30	IP 65 / IP 68 / IP 69K	5000	100	11	MFT204
	M18 / L = 60	70	High-grade st. steel	10...30	IP 65 / IP 68 / IP 69K	5000	100	2	MGT203


Sensors for hygienic and wet areas


Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
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M12 connector · Output function  · DC PNP · Wiring diagram no. 1 · Connector groups 117, 118, 119, 120, 147, 148

	M12 / L = 60	60	High-grade st. steel	10...30	IP 68 / IP 69K	5000	200	1	MFT200
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M12 connector · Output function  · DC PNP · Wiring diagram no. 1 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148






	M18 / L = 60	70	High-grade st. steel	10...30	IP 68 / IP 69K	5000	200	2	MGT200
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M12 connector · Output function  · DC PNP · Wiring diagram no. 1 · Connector groups 117, 119




	M18 / L = 60	100	High-grade st. steel	10...30	IP 68 / IP 69K	–	200	2	MGT201
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Accessories damping magnets


Type	Description	Order no.
	Damping magnet · M 1.0 · Housing materials: Samarium cobalt	E10749
	Damping magnet · M 2.0 · Housing materials: AlNiCo	E10750
	Damping magnet · M 3.0 · Housing materials: Barium ferrite	E10751





Type	Description	Order no.
	Damping magnet · M 3.1 · Housing materials: Barium ferrite / stainless steel	E12291
	Damping magnet · M 4.0 · Housing materials: Barium ferrite	E10752
	Damping magnet · M 4.1 · Housing materials: Barium ferrite / stainless steel	E11803
	Damping magnet · M 5.0 · Housing materials: Barium ferrite	E10753
	Damping magnet · M 5.1 · Housing materials: Barium ferrite with plastic coating / steel	E10754

Accessories mounting components

Type	Description	Order no.
	Angle bracket · for type M8 · Housing materials: stainless steel	E10734
	Angle bracket · for type M12 · Housing materials: stainless steel	E10735
	Angle bracket · for type M18 · Housing materials: stainless steel	E10736
	Mounting clamp · Ø 8 mm · Housing materials: aluminium black anodised	E10221
	Mounting clamp · Ø 12 mm · with end stop · for type M12 · Housing materials: PC	E11047
	Mounting clamp · Ø 18 mm · with end stop · for type M18 · Housing materials: PC	E11048

Accessories mounting sets

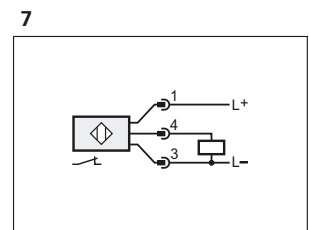
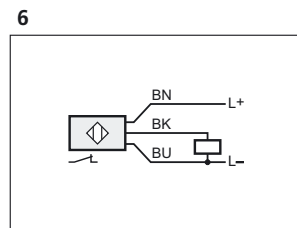
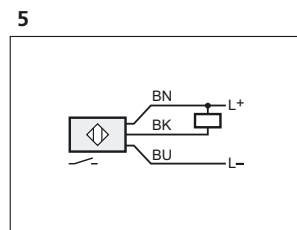
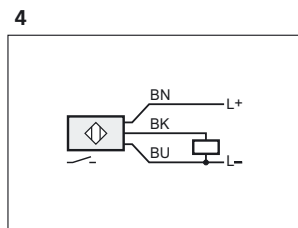
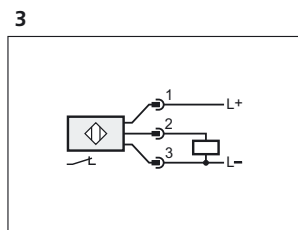
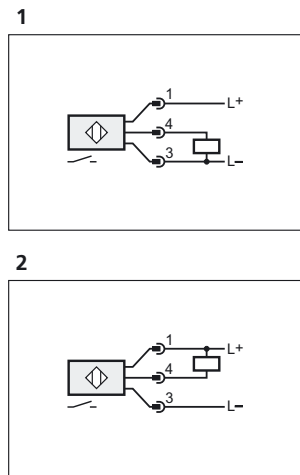
Type	Description	Order no.
	Mounting set · Ø 18.5 mm · Clamp mounting · Free-standing M10 · for type OG, IG, KG · Housing materials: clamp: diecast zinc / fixture: steel	E20718

Type	Description	Order no.
	Mounting set · Ø 18.5 mm · Clamp mounting · Free-standing M10 · for type OG, IG, KG · Housing materials: clamp: diecast zinc / fixture: steel	E20719
	Mounting set · Ø 18.5 mm · Clamp mounting · Free-standing M10 · for type OG, IG, KG · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: stainless steel	E20869
	Mounting set · Ø 18.5 mm · Clamp mounting · Free-standing M10 · for type OG, IG, KG · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: stainless steel	E20870
	Mounting set · Ø 18.5 mm · Clamp mounting · aluminium profile · for type OG, IG, KG · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: diecast zinc / Cube: diecast zinc	E20866
	Mounting set · Ø 18.5 mm · Clamp mounting · aluminium profile · for type OG, IG, KG · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: diecast zinc / Cube: diecast zinc	E20867

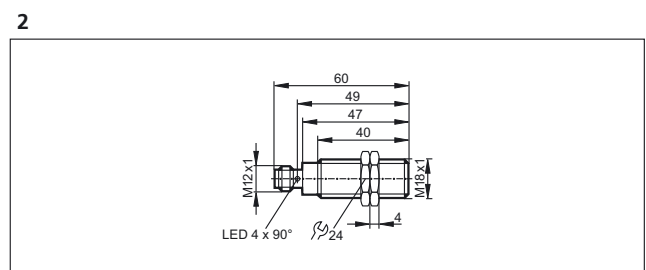
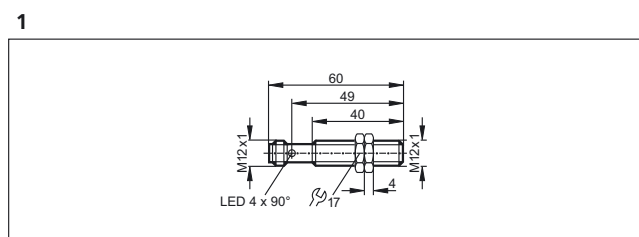
Wiring diagrams

Core colours

- BK black
- BN brown
- BU blue

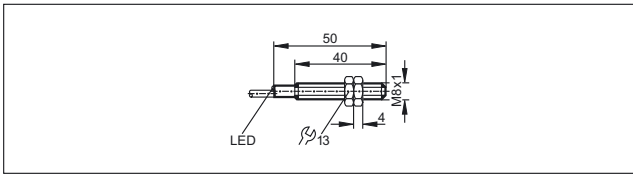


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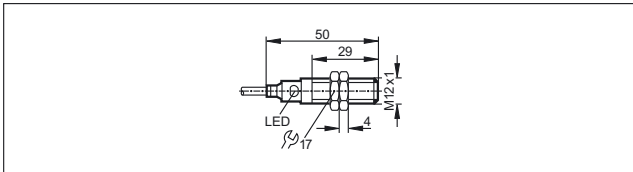


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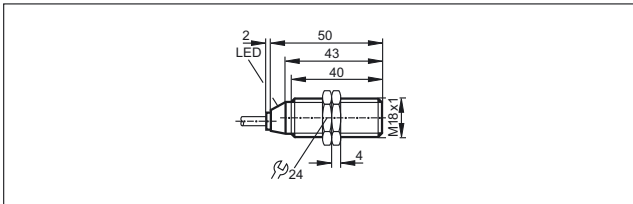
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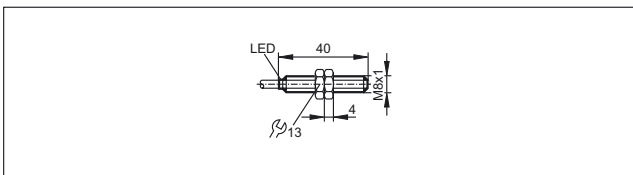
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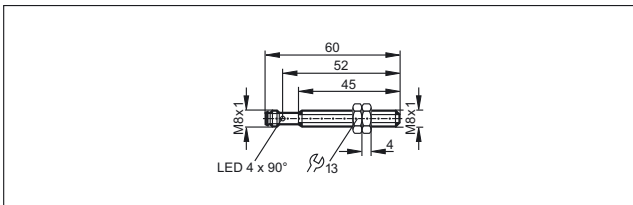
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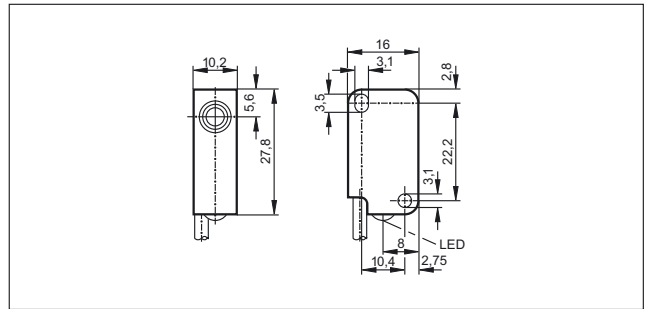
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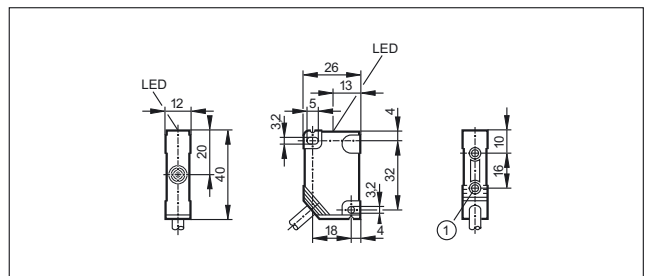
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8

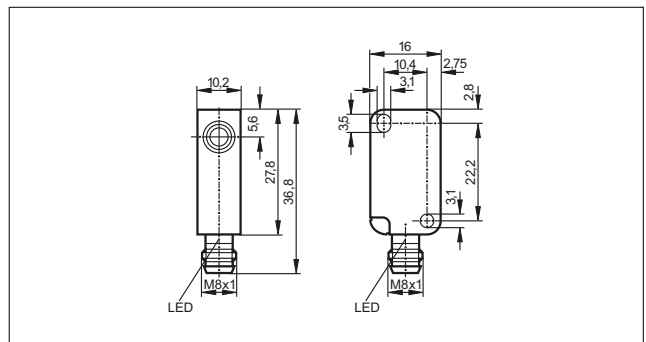


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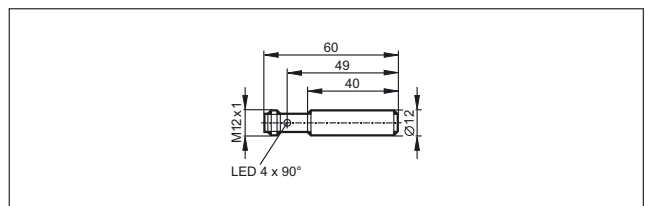


1: threaded insert M3, depth 5.8 mm, max. tightening torque 1.2 Nm (screw fixing class 8.8) when brass insert in contact with counterpart.

10



11





- Solid-state sensors for pneumatic cylinder position
- Self-clamping fixture for easy adjustment and quick mounting
- Easily inserted into the slot from the top
- Versions for standard and wet areas
- Adapters for other common cylinder types and makes

Cylinder sensors

Cylinder sensors are used for position detection of pistons in pneumatic cylinders. They are directly and robustly mounted into the cylinder T or C-slot. The ring magnet attached to the piston is sensed through the housing wall of non-magnetisable material (usually aluminium or stainless steel). ifm offers standard T-slot and C-slot solutions using adapters for the most common cylinder types and manufacturers.

Operating principle

ifm's cylinder sensors use state-of-the-art GMR or AMR technology as used in computer hard drives. A GMR element is made up of extremely thin magnetic layers, each separated by a nonmagnetic layer. Without external field they align in an anti-parallel manner which results in a defined electrical resistance. If these layers are exposed to a magnetic field, the magnetic layers align in a parallel manner. This results in a large change in resistance that is converted into a switching signal by the internal electronics. An AMR element consists of thin ferromagnetic stripes. Electrical resistance is highest without external magnetic fields. The effect of a magnetic field reduces resistance. This change is converted into a switching signal by the internal electronics. This method enables exact measurement of even very small changes of the magnetic field where space is extremely limited. This results in a smaller hysteresis and a short travel distance. So, the sensors can be used wherever exact positioning is required (e.g. short-stroke cylinder).

Response sensitivity

The response sensitivity applies equally to either magnetic polarity and without external field influence. The magnetic flux density in most pneumatic cylinders is between 5 and 25 millitesla (mT). ifm electronic's cylinder sensors are factory set so that they reliably detect these magnetic fields.

Travel distance













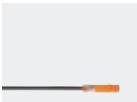





The travel distance describes the section which is covered by the magnet in the sensing zone. It depends on the strength of the magnet. The short response times of the sensors allow very high travel speeds.




Position sensing: Cylinder sensors monitor the position of the piston in a pneumatic cylinder.

System overview	Page
T-slot sensors for industrial applications	176 - 177
T-slot reed sensors for industrial applications, 2-wire	177 - 178
T-slot reed sensors for industrial applications, 3-wire	178 - 179
T-slot sensors for hygienic and wet areas	179
T-slot sensors for short-stroke cylinders	180
T-slot sensors for short-stroke cylinders for hygienic and wet areas	181
T-slot sensors with ATEX approval 1G/1D	181
T-slot sensors with ATEX approval 3D/3G	181
T-slot sensors with ATEX approval 3D	181
T-slot reed sensors with ATEX approval 1G/1D	182
T-slot reed sensors with ATEX approval 3D/3G	182
T-slot sensors for welding applications, weld-field immune	182
Two T-slot sensors on one connector	182 - 183
Non flush C-slot sensors for industrial applications	183
Flush C-slot sensors for industrial applications	184
C-slot sensors for short-stroke cylinders	184 - 185
Fixing straps for clean line cylinders	185 - 186
Clips	186 - 187
Adapters for tie rod and integrated profile	187
Adapters for trapezoidal slot cylinders	188
Various adapters and memorisation blocks	188 - 189
Wiring diagrams	189 - 190
Scale drawings / drawing no. – CAD download: www.ifm.com	190 - 193

T-slot sensors for industrial applications


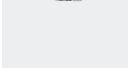
Type	Dimensions [mm]	Material	U _b [V]	f [Hz]	Protection	I _{load} [mA]	T _a [°C]	Drawing no.	Order no.
Cable 2 m · Output function  · 3-wire · DC PNP · Wiring diagram no. 1									
	25 x 5 x 6.5	PA (polyamide)	10...30	10000	IP 65 / IP 67	100	-25...85	1	MK5100
	25 x 5 x 6.5	PA (polyamide)	10...30	10000	IP 65 / IP 67	200	-25...85	1	MK5115
Cable 2 m · Output function  · 3-wire · DC NPN · Wiring diagram no. 2									
	25 x 5 x 6.5	PA (polyamide)	10...30	10000	IP 65 / IP 67	100	-25...85	1	MK5114
Cable 2 m · Output function  · 2-wire · DC PNP/NPN · Wiring diagram no. 3									
	25 x 5 x 6.5	PA (polyamide)	10...30	4000	IP 65 / IP 67	100	-25...85	1	MK5103
Cable 6 m · Output function  · 3-wire · DC PNP · Wiring diagram no. 1									
	25 x 5 x 6.5	PA (polyamide)	10...30	10000	IP 65 / IP 67	200	-25...85	1	MK5117
Cable 10 m · Output function  · 3-wire · DC PNP · Wiring diagram no. 1									
	25 x 5 x 6.5	PA (polyamide)	10...30	10000	IP 65 / IP 67	100	-25...85	1	MK5124
Cable 0.3 m · with M8 connector (snap-fit) · Output function  · 3-wire · DC PNP · Wiring diagram no. 4 · Connector groups 1, 2, 3, 72, 78, 114, 115									
	25 x 5 x 6.5	PA (polyamide)	10...30	10000	IP 65 / IP 67	100	-25...85	2	MK5101
	25 x 5 x 6.5	PA (polyamide)	10...30	10000	IP 65 / IP 67	200	-25...85	2	MK5106
Cable 0.3 m · with M8 connector (snap-fit) · Output function  · 3-wire · DC NPN · Wiring diagram no. 5 · Connector groups 1, 3, 72, 78, 114									
	25 x 5 x 6.5	PA (polyamide)	10...30	10000	IP 65 / IP 67	100	-25...85	2	MK5112
Cable 0.3 m · with M8 connector (snap-fit) · Output function  · 2-wire · DC PNP/NPN · Wiring diagram no. 6 · Connector groups 1, 3, 114									
	25 x 5 x 6.5	PA (polyamide)	10...30	4000	IP 65 / IP 67	100	-25...85	2	MK5104


Type	Dimensions [mm]	Material	U _b [V]	f [Hz]	Protection	I _{load} [mA]	T _a [°C]	Drawing no.	Order no.
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Cable 0.3 m · with M8 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 4 · Connector groups 1, 2, 3, 72, 78, 114, 115


	25 x 5 x 6.5	PA (polyamide)	10...30	10000	IP 65 / IP 67	100	-25...85	3	MK5102
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Cable 0.3 m · with M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 4 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148


	25 x 5 x 6.5	PA (polyamide)	10...30	10000	IP 65 / IP 67	100	-25...85	4	MK5107
	25 x 5 x 6.5	PA (polyamide)	10...30	10000	IP 65 / IP 67	200	-25...85	4	MK5108

Cable 0.3 m · with M8 connector · Output function  · 2-wire · DC PNP/NPN · Wiring diagram no. 6 · Connector groups 1, 3, 114


	25 x 5 x 6.5	PA (polyamide)	10...30	4000	IP 65 / IP 67	100	-25...85	3	MK5105
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
Cable 0.3 m · with M12 connector · Output function  · 2-wire · DC PNP/NPN · Wiring diagram no. 6 · Connector groups 8, 10, 18, 20, 117, 118, 147


	25 x 5 x 6.5	PA (polyamide)	10...30	4000	IP 65 / IP 67	100	-25...85	4	MK5109
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Cable 1 m · with M8 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 4 · Connector groups 1, 2, 3, 72, 78, 114, 115

	25 x 5 x 6.5	PA (polyamide)	10...30	10000	IP 65 / IP 67	100	-25...85	3	MK5122
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M8 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 4 · Connector groups 1, 2, 3, 72, 78, 114, 115


	27.5 x 18 x 15.5	PA (polyamide)	10...30	6000	IP 65 / IP 67	100	-25...85	5	MK5900
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
M8 connector · Output function  · 3-wire · DC NPN · Wiring diagram no. 5 · Connector groups 1, 2, 3, 72, 78, 114, 115

	27.5 x 18 x 15.5	PA (polyamide)	10...30	6000	IP 65 / IP 67	100	-25...85	5	MK5902
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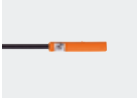






T-slot reed sensors for industrial applications, 2-wire

Type	Dimensions [mm]	Material	U _b [V]	f [Hz]	Protection	I _{load} [mA]	T _a [°C]	Drawing no.	Order no.
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M8 connector · Output function  · 2-wire · AC/DC PNP/NPN · Wiring diagram no. 7

	27.5 x 18 x 15.5	PA (polyamide)	5...50	1000	IP 65 / IP 67	100	-25...70	5	MR0901*
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





Position sensors






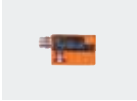
Type	Dimensions [mm]	Material	U _b [V]	f [Hz]	Protection	I _{load} [mA]	T _a [°C]	Drawing no.	Order no.
Cable 2 m · Output function  · 2-wire · AC/DC PNP/NPN · Wiring diagram no. 8									
	30.5 x 5 x 6.5	PA (polyamide)	5...120	1000	IP 65 / IP 67	100	-25...70	6	MR0100*
Cable 6 m · Output function  · 2-wire · AC/DC PNP/NPN · Wiring diagram no. 8									
	30.5 x 5 x 6.5	PA (polyamide)	5...120	1000	IP 65 / IP 67	100	-25...70	6	MR0117*
Cable 0.3 m · with M8 connector (snap-fit) · Output function  · 2-wire · AC/DC PNP/NPN · Wiring diagram no. 7 · Connector groups 1, 3, 114									
	30.5 x 5 x 6.5	PA (polyamide)	5...60	1000	IP 65 / IP 67	100	-25...70	7	MR0101*
Cable 0.3 m · with M8 connector · Output function  · 2-wire · AC/DC PNP/NPN · Wiring diagram no. 7 · Connector groups 1, 3, 114									
	30.5 x 5 x 6.5	PA (polyamide)	5...60	1000	IP 65 / IP 67	100	-25...70	8	MR0102*
Cable 0.3 m · with M12 connector · Output function  · 2-wire · AC/DC PNP/NPN · Wiring diagram no. 7 · Connector groups 8, 10, 18, 20, 117, 118, 147									
	30.5 x 5 x 6.5	PA (polyamide)	5...60	1000	IP 65 / IP 67	100	-25...70	9	MR0107*

* Note for AC and AC/DC units

Miniature fuse to IEC60127-2 sheet 1, $\leq 0,175$ A (fast acting) Recommendation: check the unit for reliable function after a short circuit.

T-slot reed sensors for industrial applications, 3-wire


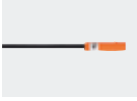

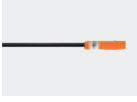



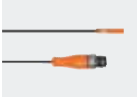
Type	Dimensions [mm]	Material	U _b [V]	f [Hz]	Protection	I _{load} [mA]	T _a [°C]	Drawing no.	Order no.
Cable 0.3 m · with M8 connector (snap-fit) · Output function  · 3-wire · AC/DC PNP · Wiring diagram no. 9 · Connector groups 1, 2, 3, 72, 78, 114, 115									
	30.5 x 5 x 6.5	PA (polyamide)	5...50	1000	IP 65 / IP 67	350 / 500	-25...70	7	MR0119*
Cable 0.3 m · with M8 connector · Output function  · 3-wire · AC/DC PNP · Wiring diagram no. 9 · Connector groups 1, 2, 3, 72, 78, 114, 115									
	30.5 x 5 x 6.5	PA (polyamide)	5...50	1000	IP 65 / IP 67	350 / 500	-25...70	8	MR0120*
Cable 2 m · Output function  · 3-wire · AC/DC PNP · Wiring diagram no. 10									
	30.5 x 5 x 6.5	PA (polyamide)	5...50	1000	IP 65 / IP 67	350 / 500	-25...70	6	MR0122*

Type	Dimensions [mm]	Material	U _b [V]	f [Hz]	Protection	I _{load} [mA]	T _a [°C]	Drawing no.	Order no.
Cable 6 m · Output function  · 3-wire · AC/DC PNP · Wiring diagram no. 10									
	30.5 x 5 x 6.5	PA (polyamide)	5...50	1000	IP 65 / IP 67	350 / 500	-25...70	6	MR0123*
Cable 0.3 m · with M12 connector · Output function  · 3-wire · AC/DC PNP · Wiring diagram no. 9 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148									
	30.5 x 5 x 6.5	PA (polyamide)	5...50	1000	IP 65 / IP 67	350 / 500	-25...70	9	MR0121*
M8 connector · Output function  · 3-wire · AC/DC PNP · Wiring diagram no. 9									
	27.5 x 18 x 15.5	PA (polyamide)	5...50	1000	IP 65 / IP 67	350 / 500	-25...70	5	MR0902*

*** Note for AC and AC/DC units**

Miniature fuse to IEC60127-2 sheet 1, $\leq 0,175$ A (fast acting) Recommendation: check the unit for reliable function after a short circuit.

T-slot sensors for hygienic and wet areas


Type	Dimensions [mm]	Material	U _b [V]	f [Hz]	Protection	I _{load} [mA]	T _a [°C]	Drawing no.	Order no.
Cable 2 m · Output function  · 3-wire · DC PNP · Wiring diagram no. 1									
	25 x 5 x 6.5	PA (polyamide)	10...30	10000	IP 65 / IP 67 / IP 69K	100	-25...85	1	MK5110
Cable 6 m · Output function  · 3-wire · DC PNP · Wiring diagram no. 1									
	25 x 5 x 6.5	PA (polyamide)	10...30	10000	IP 65 / IP 67 / IP 69K	100	-25...85	1	MK5128
Cable 0.3 m · with M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 4 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148									
	25 x 5 x 6.5	PA (polyamide)	10...30	10000	IP 65 / IP 67 / IP 69K	100	-25...85	10	MK5111
Cable 0.3 m · with M12 connector · Output function  · 3-wire · DC NPN · Wiring diagram no. 5 · Connector groups 8, 10, 18, 20, 117, 118, 147									
	25 x 5 x 6.5	PA (polyamide)	10...30	6000	IP 65 / IP 67 / IP 69K	100	-25...85	11	MK5186


T-slot sensors for short-stroke cylinders


Type	Dimensions [mm]	Material	U _b [V]	f [Hz]	Protection	I _{load} [mA]	T _a [°C]	Drawing no.	Order no.
Cable 2 m · Output function  · 3-wire · DC PNP · Wiring diagram no. 1									
	25 x 5 x 6.5	PA (polyamide)	10...30	6000	IP 65 / IP 67	100	-25...85	12	MK5140
Cable 2 m · Output function  · 3-wire · DC PNP · Wiring diagram no. 11									
	25 x 5 x 6.5	PA (polyamide)	10...30	6000	IP 65 / IP 67	100	-25...85	12	MK5156
Cable 10 m · Output function  · 3-wire · DC PNP · Wiring diagram no. 1									
	25 x 5 x 6.5	PA (polyamide)	10...30	6000	IP 65 / IP 67	100	-25...85	12	MK5161
Cable 0.3 m · with M8 connector (snap-fit) · Output function  · 3-wire · DC NPN · Wiring diagram no. 5 · Connector groups 1, 3, 72, 78, 114									
	25 x 5 x 6.5	PA (polyamide)	10...30	6000	IP 65 / IP 67	100	-25...85	13	MK5137
Cable 0.3 m · with M8 connector (snap-fit) · Output function  · 3-wire · DC PNP · Wiring diagram no. 4 · Connector groups 1, 2, 3, 72, 78, 114, 115									
	25 x 5 x 6.5	PA (polyamide)	10...30	6000	IP 65 / IP 67	100	-25...85	13	MK5138
Cable 0.3 m · with M8 connector (snap-fit) · Output function  · 3-wire · DC PNP · Wiring diagram no. 12 · Connector groups 1, 2, 3, 72, 78, 114, 115									
	25 x 5 x 6.5	PA (polyamide)	10...30	6000	IP 65 / IP 67	100	-25...85	13	MK5155
Cable 0.3 m · with M8 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 4 · Connector groups 1, 2, 3, 72, 78, 114, 115									
	25 x 5 x 6.5	PA (polyamide)	10...30	6000	IP 65 / IP 67	100	-25...85	14	MK5159
Cable 0.3 m · with M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 4 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148									
	25 x 5 x 6.5	PA (polyamide)	10...30	6000	IP 65 / IP 67	100	-25...85	15	MK5139


T-slot sensors for short-stroke cylinders for hygienic and wet areas

Type	Dimensions [mm]	Material	U _b [V]	f [Hz]	Protection	I _{load} [mA]	T _a [°C]	Drawing no.	Order no.
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Cable 2 m · Output function  · 3-wire · DC PNP · Wiring diagram no. 1

	25 x 5 x 6.5	PA (polyamide)	10...30	6000	IP 65 / IP 67 / IP 69K	100	-25...85	12	MK5158
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Cable 0.3 m · with M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 4 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148

	25 x 5 x 6.5	PA (polyamide)	10...30	6000	IP 65 / IP 67 / IP 69K	100	-25...85	11	MK5157
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T-slot sensors with ATEX approval 1G/1D


Type	Dimensions [mm]	Material	U _b [V]	f [Hz]	Protection	I _{load} [mA]	T _a [°C]	Drawing no.	Order no.
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Cable 6 m · Output function  · 2-wire · Connection to certified intrinsically safe circuits with the max. values U = 15 V / I = 50 mA / P = 120 mW · Wiring diagram no. 3

	25 x 5 x 6.5	PA (polyamide)	–	2000	IP 65 / IP 67	–	-25...70	12	MK502A
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T-slot sensors with ATEX approval 3D/3G


Type	Dimensions [mm]	Material	U _b [V]	f [Hz]	Protection	I _{load} [mA]	T _a [°C]	Drawing no.	Order no.
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Cable 6 m · Output function  · 3-wire · DC PNP · Wiring diagram no. 1


	25 x 5 x 6.5	PA (polyamide)	10...30	6000	IP 65 / IP 67	100	-20...60	12	MK503A
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T-slot sensors with ATEX approval 3D

Type	Dimensions [mm]	Material	U _b [V]	f [Hz]	Protection	I _{load} [mA]	T _a [°C]	Drawing no.	Order no.
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Cable 2 m · Output function  · 3-wire · DC PNP · Wiring diagram no. 1


	25 x 5 x 6.5	PA (polyamide)	10...30	10000	IP 65 / IP 67	100	-25...60	1	MK500A
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Cable 0.3 m · with M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 4 · Connector groups 144, 146

	25 x 5 x 6.5	PA (polyamide)	10...30	10000	IP 65 / IP 67	100	-25...60	10	MK501A
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T-slot reed sensors with ATEX approval 1G/1D

Type	Dimensions [mm]	Material	U _b [V]	f [Hz]	Protection	I _{load} [mA]	T _a [°C]	Drawing no.	Order no.
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Cable 6 m · Output function  · 2-wire · Connection to certified intrinsically safe circuits with the max. values U = 15 V / I = 50 mA / P = 120 mW · Wiring diagram no. 3

	30.5 x 5 x 6.5	PA (polyamide)	-	-	IP 65 / IP 67	-	-25...70	6	MR500A
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T-slot reed sensors with ATEX approval 3D/3G

Type	Dimensions [mm]	Material	U _b [V]	f [Hz]	Protection	I _{load} [mA]	T _a [°C]	Drawing no.	Order no.
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Cable 6 m · Output function  · 2-wire · DC PNP/NPN · Wiring diagram no. 13


	30.5 x 5 x 6.5	PA (polyamide)	5...30	-	IP 65 / IP 67	100	-20...60	6	MR501A*
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*** Note for AC and AC/DC units**


Miniature fuse to IEC60127-2 sheet 1, ≤ 0,175 A (fast acting) Recommendation: check the unit for reliable function after a short circuit.

T-slot sensors for welding applications, weld-field immune

Type	Dimensions [mm]	Material	U _b [V]	f [Hz]	Protection	I _{load} [mA]	T _a [°C]	Drawing no.	Order no.
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Cable 0.3 m · with M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 4 · Connector groups 108, 109, 110, 111


	25 x 5 x 6.5	PA (polyamide)	10...30	9	IP 65 / IP 67	100	-25...85	4	MK5214
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Cable 0.3 m · with M8 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 4

	25 x 5 x 6.5	PA (polyamide)	10...30	9	IP 65 / IP 67	100	-25...85	3	MK5215
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Two T-slot sensors on one connector

Type	Dimensions [mm]	Material	U _b [V]	f [Hz]	Protection	I _{load} [mA]	T _a [°C]	Drawing no.	Order no.
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Cable 0.3 m · with M8 connector · Output function  · 4-wire · DC PNP · Wiring diagram no. 14 · Connector groups 4, 5, 74, 80, 116

	25 x 5 x 6.5	PA (polyamide)	10...30	6000	IP 65 / IP 67	100	-25...85	16	MK5208
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Type	Dimensions [mm]	Material	U _b [V]	f [Hz]	Protection	I _{load} [mA]	T _a [°C]	Drawing no.	Order no.
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Cable 0.3 m · with M12 connector · Output function  · 4-wire · DC PNP · Wiring diagram no. 14 · Connector groups 8, 10, 11, 18, 20, 117, 118, 119, 147, 148



25 x 5 x 6.5 PA (polyamide) 10...30 6000 IP 65 / IP 67 100 -25...85 17 MK5209


Non flush C-slot sensors for industrial applications

Type	Dimensions [mm]	Material	U _b [V]	f [Hz]	Protection	I _{load} [mA]	T _a [°C]	Drawing no.	Order no.
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Cable 2 m · Output function  · 3-wire · DC PNP · Wiring diagram no. 1



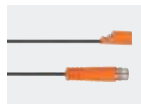
17.5 x 2.8 x 7.7 PA (polyamide) 10...30 10000 IP 65 / IP 67 100 -25...85 18 MK5300

Cable 2 m · Output function  · 3-wire · DC NPN · Wiring diagram no. 2




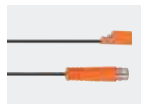
17.5 x 2.8 x 7.7 PA (polyamide) 10...30 10000 IP 65 / IP 67 100 -25...85 18 MK5306

Cable 0.3 m · with M8 connector (snap-fit) · Output function  · 3-wire · DC PNP · Wiring diagram no. 4 · Connector groups 1, 2, 3, 72, 78, 114, 115



17.5 x 2.8 x 7.7 PA (polyamide) 10...30 10000 IP 65 / IP 67 100 -25...85 19 MK5301

Cable 0.3 m · with M8 connector (snap-fit) · Output function  · 3-wire · DC NPN · Wiring diagram no. 5 · Connector groups 1, 3, 72, 78, 114




17.5 x 2.8 x 7.7 PA (polyamide) 10...30 10000 IP 65 / IP 67 100 -25...85 19 MK5307

Cable 0.3 m · with M8 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 4 · Connector groups 1, 2, 3, 72, 78, 114, 115



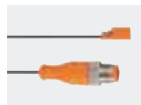
17.5 x 2.8 x 7.7 PA (polyamide) 10...30 10000 IP 65 / IP 67 100 -25...85 20 MK5302

Cable 0.5 m · with M8 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 4 · Connector groups 1, 2, 3, 72, 78, 114, 115











17.5 x 2.8 x 7.7 PA (polyamide) 10...30 10000 IP 65 / IP 67 100 -25...85 20 MK5305

Cable 0.3 m · with M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 4 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148















17.5 x 2.8 x 7.7 PA (polyamide) 10...30 10000 IP 65 / IP 67 100 -25...85 21 MK5304

Flush C-slot sensors for industrial applications


Type	Dimensions [mm]	Material	U _b [V]	f [Hz]	Protection	I _{load} [mA]	T _a [°C]	Drawing no.	Order no.
Cable 2 m · Output function  · 3-wire · DC PNP · Wiring diagram no. 1									
	25.8 x 2.8 x 5	PA (polyamide)	10...30	10000	IP 65 / IP 67	100	-25...85	22	MK5312
Cable 2 m · Output function  · 3-wire · DC NPN · Wiring diagram no. 2									
	25.8 x 2.8 x 5	PA (polyamide)	10...30	10000	IP 65 / IP 67	100	-25...85	22	MK5309
Cable 0.3 m · with M8 connector (snap-fit) · Output function  · 3-wire · DC PNP · Wiring diagram no. 4 · Connector groups 1, 2, 3, 72, 78, 114, 115									
	25.8 x 2.8 x 5	PA (polyamide)	10...30	10000	IP 65 / IP 67	100	-25...85	23	MK5310
Cable 0.3 m · with M8 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 4 · Connector groups 1, 2, 3, 72, 78, 114, 115									
	25.8 x 2.8 x 5	PA (polyamide)	10...30	10000	IP 65 / IP 67	100	-25...85	24	MK5311
Cable 0.3 m · with M12 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 4 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147									
	25.8 x 2.8 x 5	PA (polyamide)	10...30	10000	IP 65 / IP 67	100	-25...85	25	MK5314
Cable 0.3 m · with M8 connector (snap-fit) · Output function  · 3-wire · DC NPN · Wiring diagram no. 5 · Connector groups 1, 3, 72, 78, 114									
	25.8 x 2.8 x 5	PA (polyamide)	10...30	10000	IP 65 / IP 67	100	-25...85	23	MK5308
Cable 0.5 m · with M8 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 4 · Connector groups 1, 2, 3, 72, 78, 114, 115									
	25.8 x 2.8 x 5	PA (polyamide)	10...30	10000	IP 65 / IP 67	100	-25...85	24	MK5315

C-slot sensors for short-stroke cylinders

Type	Dimensions [mm]	Material	U _b [V]	f [Hz]	Protection	I _{load} [mA]	T _a [°C]	Drawing no.	Order no.
Cable 2 m · Output function  · 3-wire · DC PNP · Wiring diagram no. 1									
	25.8 x 2.8 x 5	PA (polyamide)	10...30	5000	IP 65 / IP 67	100	-25...85	22	MK5325

Type	Dimensions [mm]	Material	U _b [V]	f [Hz]	Protection	I _{load} [mA]	T _a [°C]	Drawing no.	Order no.
Cable 0.3 m · with M8 connector (snap-fit) · Output function  · 3-wire · DC PNP · Wiring diagram no. 4 · Connector groups 1, 2, 3, 72, 78, 114, 115									
	25.8 x 2.8 x 5	PA (polyamide)	10...30	5000	IP 65 / IP 67	100	-25...85	23	MK5326
Cable 0.3 m · with M8 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 4 · Connector groups 1, 2, 3, 72, 78, 114, 115									
	25.8 x 2.8 x 5	PA (polyamide)	10...30	5000	IP 65 / IP 67	100	-25...85	24	MK5328
Cable 2 m · Output function  · 3-wire · DC PNP · Wiring diagram no. 1									
	17.5 x 2.8 x 7.7	PA (polyamide)	10...30	5000	IP 65 / IP 67	100	-25...85	26	MK5329
Cable 0.3 m · with M8 connector (snap-fit) · Output function  · 3-wire · DC PNP · Wiring diagram no. 4 · Connector groups 1, 2, 3, 72, 78, 114, 115									
	17.5 x 2.8 x 7.7	PA (polyamide)	10...30	5000	IP 65 / IP 67	100	-25...85	27	MK5330
Cable 0.3 m · with M8 connector · Output function  · 3-wire · DC PNP · Wiring diagram no. 4 · Connector groups 1, 2, 3, 72, 78, 114, 115									
	17.5 x 2.8 x 7.7	PA (polyamide)	10...30	5000	IP 65 / IP 67	100	-25...85	28	MK5331


Fixing straps for clean line cylinders


Type	Description	Order no.
	Fixing strap for clean-line cylinders · Piston diameter 8...12 mm · for type MKT · Housing materials: adapter: PA / Fixing strap: stainless steel	E11816
	Fixing strap for clean-line cylinders · Piston diameter 16...20 mm · for type MKT · Housing materials: adapter: PA / Fixing strap: stainless steel	E11817
	Fixing strap for clean-line cylinders · Piston diameter 25...32 mm · for type MKT · Housing materials: adapter: PA / Fixing strap: stainless steel	E11818
	Fixing strap for clean-line cylinders · Piston diameter 40 mm · for type MKT · Housing materials: adapter: PA / Fixing strap: stainless steel	E11819
	Fixing strap for clean-line cylinders · Piston diameter 50 mm · for type MKT · Housing materials: adapter: PA / Fixing strap: stainless steel	E11820
	Fixing strap for clean-line cylinders · Piston diameter 63 mm · for type MKT · Housing materials: adapter: PA / Fixing strap: stainless steel	E11821

Position sensors









Type	Description	Order no.
	Fixing strap for clean-line cylinders · Piston diameter 80 mm · for type MKT · Housing materials: adapter: PA / Fixing strap: stainless steel	E11822
	Fixing strap for clean-line cylinders · Piston diameter 100 mm · for type MKT · Housing materials: adapter: PA / Fixing strap: stainless steel	E11823
	Fixing strap for clean-line cylinders · Piston diameter 10...16 mm · for type MKT · Housing materials: adapter: stainless steel / Fixing strap: stainless steel	E11975
	Fixing strap for clean-line cylinders · Piston diameter 20...25 mm · for type MKT · Housing materials: adapter: stainless steel / Fixing strap: stainless steel	E11976
	Fixing strap for clean-line cylinders · Piston diameter 32 mm · for type MKT · Housing materials: adapter: stainless steel / Fixing strap: stainless steel	E11977
	Fixing strap for clean-line cylinders · Piston diameter 40 mm · for type MKT · Housing materials: adapter: stainless steel / Fixing strap: stainless steel	E11978
	Fixing strap for clean-line cylinders · Piston diameter 50 mm · for type MKT · Housing materials: adapter: stainless steel / Fixing strap: stainless steel	E11979
	Fixing strap for clean-line cylinders · Piston diameter 63 mm · for type MKT · Housing materials: adapter: stainless steel / Fixing strap: stainless steel	E11980
	Fixing strap for clean-line cylinders · Piston diameter 80 mm · for type MKT · Housing materials: adapter: stainless steel / Fixing strap: stainless steel	E11981
	Adapter for clean-line cylinders · for types MKT (T-slot cylinder sensors) · Housing materials: PA	E11846
	Adapter for clean-line cylinders · for types MKT (T-slot cylinder sensors) · Housing materials: stainless steel	E11877

Clips





Type	Description	Order no.
	Clip · for types MKT (T-slot cylinder sensors) · Piston diameter 12 mm · Housing materials: POM / fixture: aluminium / screw: stainless steel	E11961
	Clip · for types MKT (T-slot cylinder sensors) · Piston diameter 16 mm · Housing materials: POM / fixture: aluminium / screw: stainless steel	E11958

Type	Description	Order no.
	Clip · for types MKT (T-slot cylinder sensors) · Piston diameter 20 mm · Housing materials: POM / fixture: aluminium / screw: stainless steel	E11959
	Clip · for types MKT and MKI (T-slot cylinder sensors) · Piston diameter 25 mm · Housing materials: POM / fixture: aluminium / screw: stainless steel	E11960
	Clip · for types MKT (T-slot cylinder sensors) · Clamping range 40-45 mm · Piston diameter 40 mm · Housing materials: POM / fixture: aluminium / screw: stainless steel	E12015
	Clip · for types MKT (T-slot cylinder sensors) · Clamping range 35-36 mm · Piston diameter 32 mm · Housing materials: POM / fixture: aluminium / screw: stainless steel	E12017

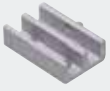








Adapters for tie rod and integrated profile





Type	Description	Order no.
	Adapter for tie rod / integrated profile cylinders · for types MKT (T-slot cylinder sensors) · Clamping range 5...11 mm · Housing materials: aluminium / screw: stainless steel	E11797
	Adapter for tie rod / integrated profile cylinders · for types MKT (T-slot cylinder sensors) · Clamping range 9...15 mm · Housing materials: aluminium / screw: stainless steel	E11799
	Adapter for tie rod / integrated profile cylinders · for types MKT (T-slot cylinder sensors) · Clamping range 14...20 mm · Housing materials: aluminium / screw: stainless steel	E11801
	Adapter for tie rod cylinders (or cylinders of the same dimensions) · for types MKT (T-slot cylinder sensors) · Clamping range 3...7 mm · Housing materials: aluminium / screw: stainless steel	E11913
	Adapter for tie rod cylinders (or cylinders of the same dimensions) · for types MKT (T-slot cylinder sensors) · Clamping range 5...7 mm · Housing materials: aluminium / screw: stainless steel	E11912
	Adapter for tie rod / integrated profile cylinders · for types MKT (T-slot cylinder sensors) · Clamping range 5...11 mm · Housing materials: aluminium / screw: stainless steel	E12231
	Adapter for tie rod / integrated profile cylinders · for types MKT (T-slot cylinder sensors) · Clamping range 9...13.5 mm · Housing materials: aluminium / screw: stainless steel	E12232
	Adapter for tie rod / integrated profile cylinders · for types MKT (T-slot cylinder sensors) · Clamping range 9...17 mm · Housing materials: aluminium / screw: stainless steel	E12233
	Adapter for tie rod / integrated profile cylinders · for types MKT (T-slot cylinder sensors) · Clamping range 13...15 mm · Housing materials: aluminium / screw: stainless steel	E12234

Adapters for trapezoidal slot cylinders

Type	Description	Order no.
	Adapter for trapezoidal slot cylinders · for types MKT (T-slot cylinder sensors) · Housing materials: aluminium alloy / set screw: stainless steel	E11796
	Adapter for trapezoidal slot cylinders · for types MKT (T-slot cylinder sensors) · Housing materials: aluminium alloy / set screw: stainless steel	E11957
	Adapter for trapezoidal slot cylinders · for types MKT (T-slot cylinder sensors) · Housing materials: aluminium alloy / set screw: stainless steel	E11988
	Adapter for Pneumax cylinders 1500 series (or cylinders of the same dimensions) · for types MKT / MRT (T-slot cylinder sensors) · Housing materials: aluminium	E12375

Various adapters and memorisation blocks

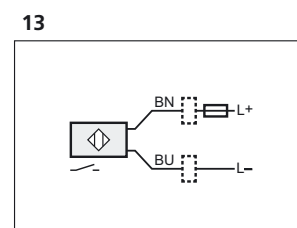
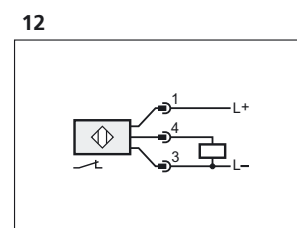
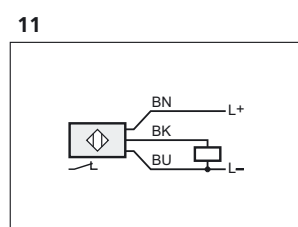
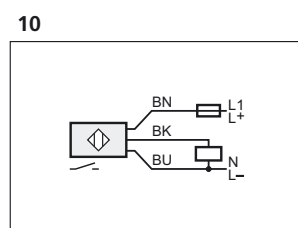
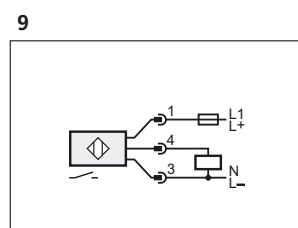
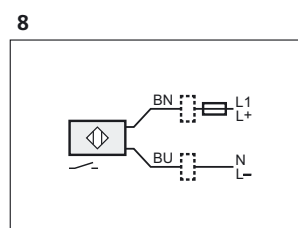
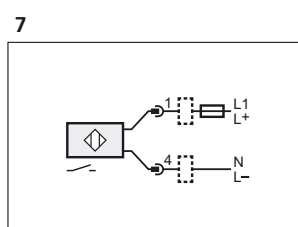
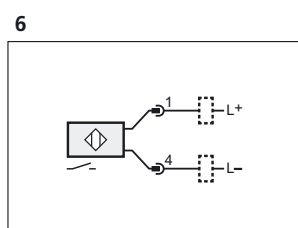
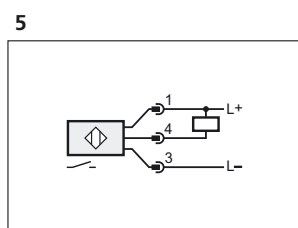
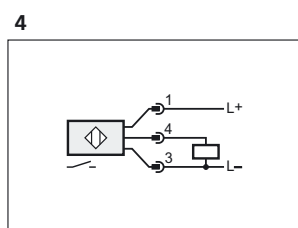
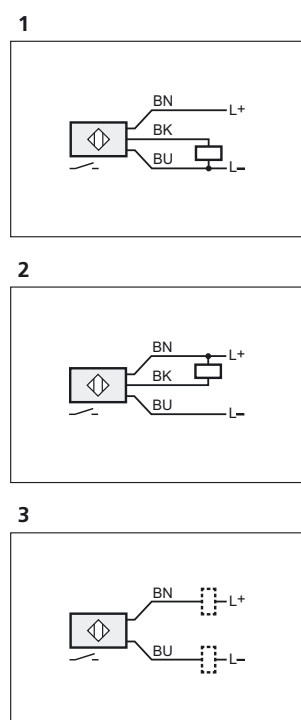
Type	Description	Order no.
	Adapter for Bosch Rexroth cylinders ICL series and Festo cylinders type CDN · for types MKT (T-slot cylinder sensors) · Housing materials: adapter: aluminium anodised / screw: stainless steel	E12164
	Adapter for Bosch-Rexroth cylinders PRA / PRB series (or cylinders of the same dimensions) · for types MKT (T-slot cylinder sensors) · Housing materials: aluminium / screw: stainless steel	E11892
	Adapter for Bosch-Rexroth cylinders 523 series (or cylinders of the same dimensions) · for types MKT (T-slot cylinder sensors) · L-slot · Housing materials: aluminium / screw: stainless steel	E11894
	Adapter for SMC cylinders ECDQ2 series (or cylinders of the same dimensions) · for types MKT (T-slot cylinder sensors) · T-slot rail, flat · Housing materials: aluminium / screw: stainless steel	E11890
	Adapter for SMC cylinders CDQ2 series (or cylinders of the same dimensions) · for types MKT (T-slot cylinder sensors) · T-slot rail, high · Housing materials: aluminium / screw: stainless steel	E11891
	Adapter for SMC cylinder CP95 · for types MKT (T-slot cylinder sensors) · Housing materials: stainless steel	E11872
	Adapter for Festo cylinders type DZH (or cylinders of the same dimensions) · for types MKT (T-slot cylinder sensors) · Housing materials: aluminium / screw: stainless steel	E11895
	Adapter for Norgren cylinders of the M series · for types MKT (T-slot cylinder sensors) · Housing materials: stainless steel	E12218
	Protective adapter for T-slot cylinder sensors · for types MKT (T-slot cylinder sensors) · Housing materials: diecast zinc coated / screws: stainless steel	E12259

Type	Description	Order no.
	T-slot adapter for C-slot sensor · for types MKC (C-slot cylinder sensor) for installation in T-slot cylinders · (height 5 mm) · Housing materials: diecast zinc / fixing element: stainless steel	E11928
	T-slot adapter for C-slot sensor · for types MKC (C-slot cylinder sensor) for installation in T-slot cylinders · (height 7.7 mm) · Housing materials: diecast zinc / fixing element: stainless steel	E11914
	T-slot cylinder memorisation block · for types MKT (T-slot cylinder sensors) · Housing materials: PA / stainless steel	E11798
	C-slot cylinder memorisation block · for types MKC (C-slot cylinder sensors) · Housing materials: PA / stainless steel	E12004

Wiring diagrams

Core colours

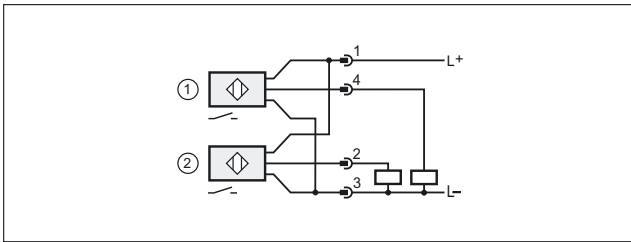
BK black
 BN brown
 BU blue



Note: miniature fuse to IEC60127-2 sheet 1,, ≤ 0,175 A (fast acting)

Wiring diagrams

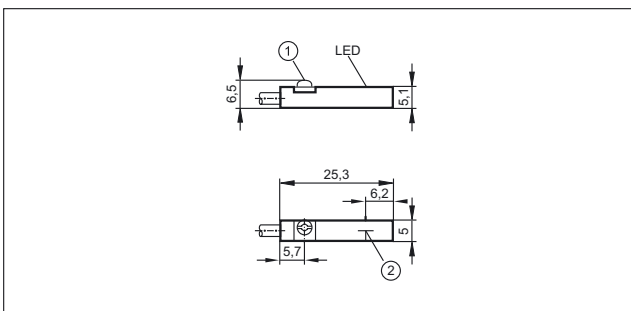
14



1: sensor 1, 2: sensor 2

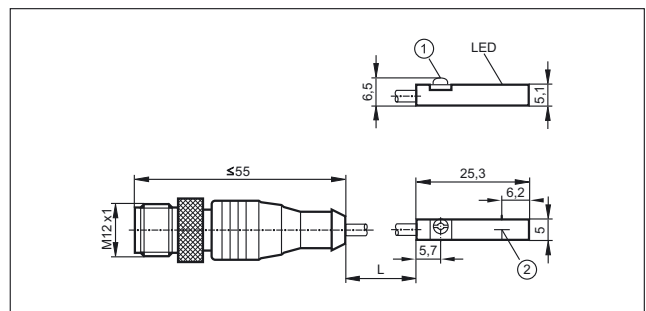
Scale drawings / drawing no. – CAD download: www.ifm.com

1



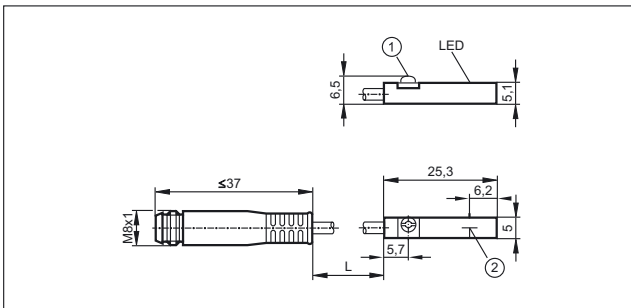
1: Fastening clamp, 2: sensing face

4



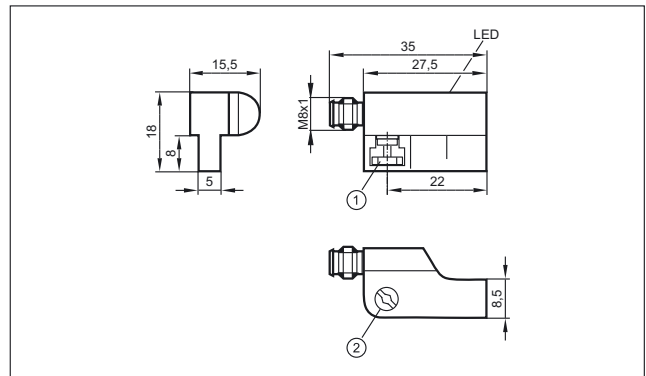
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2



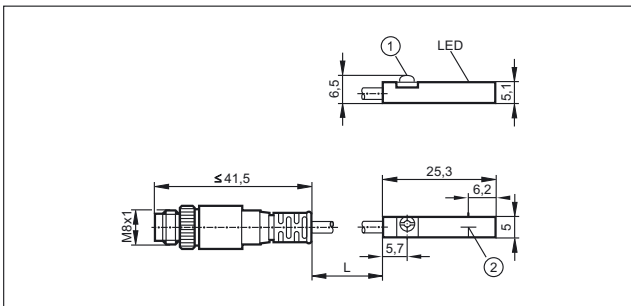
1: Fastening clamp, 2: sensing face

5



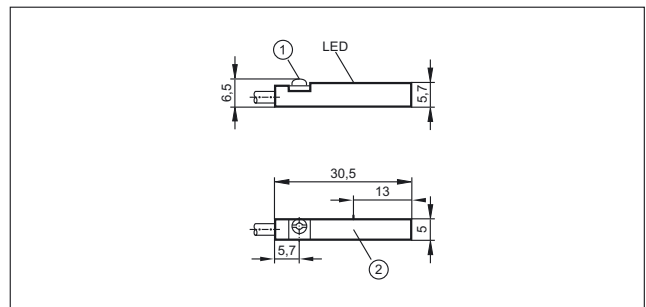
1: fixing element, 2: combined head screw for fixing element

3



1: Fastening clamp, 2: sensing face

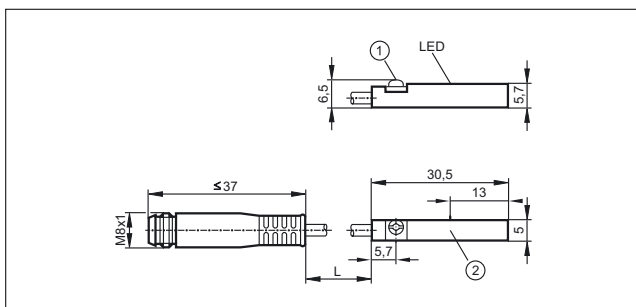
6



1: Fastening clamp, 2: sensing face

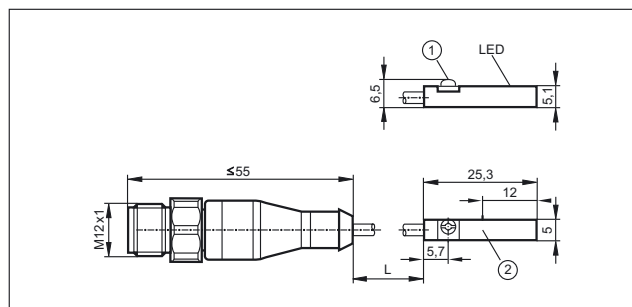
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7



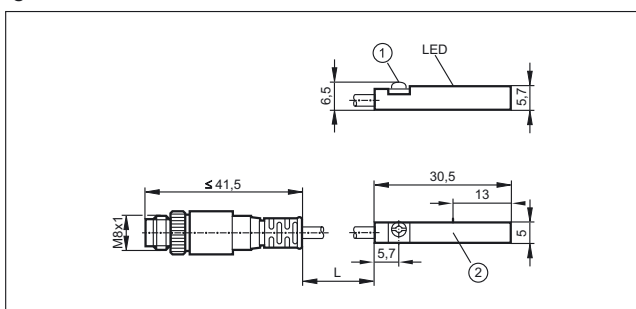
1: Fastening clamp, 2: sensing face

11



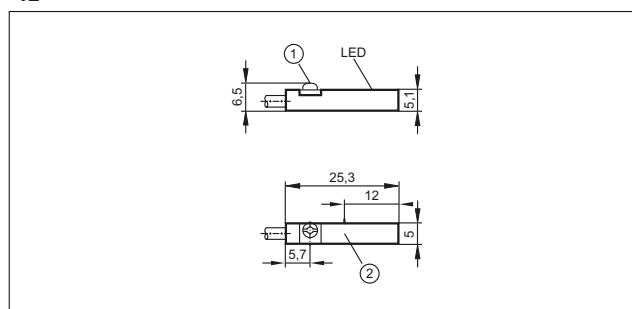
1: Fastening clamp, 2: sensing face

8



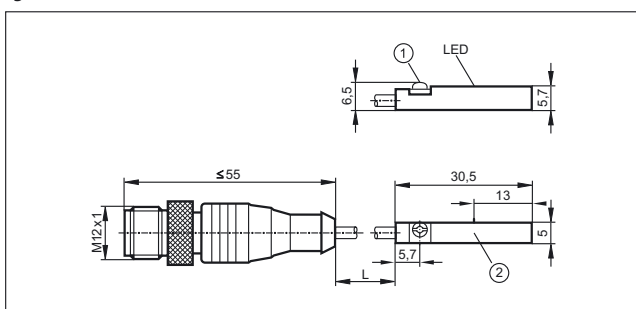
1: Fastening clamp, 2: sensing face

12



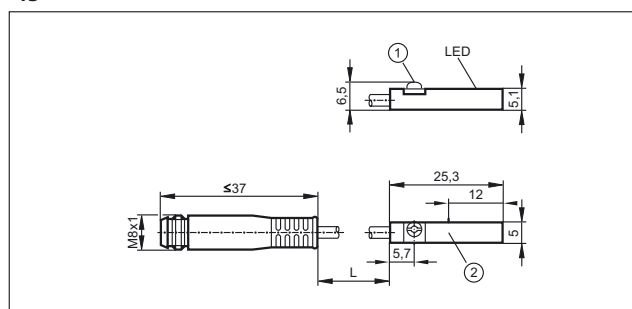
1: Fastening clamp, 2: sensing face

9



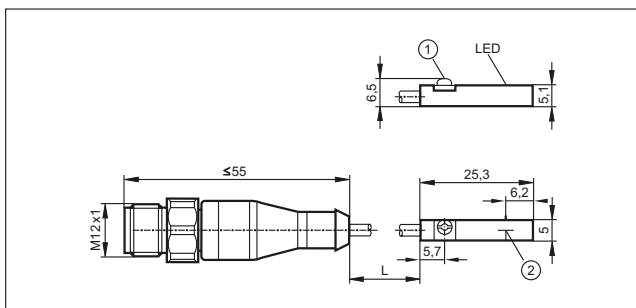
1: Fastening clamp, 2: sensing face

13



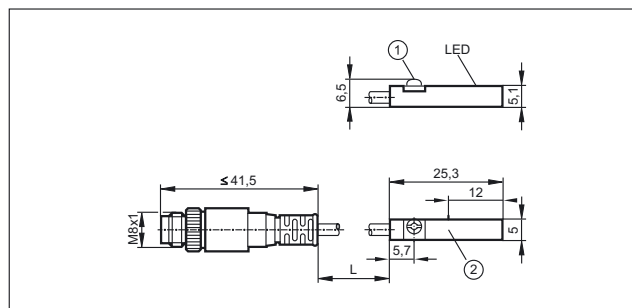
1: Fastening clamp, 2: sensing face

10



1: Fastening clamp, 2: sensing face

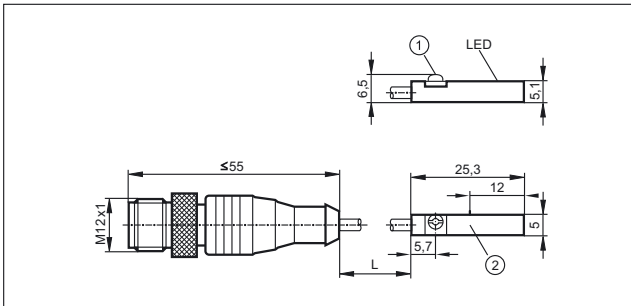
14



1: Fastening clamp, 2: sensing face

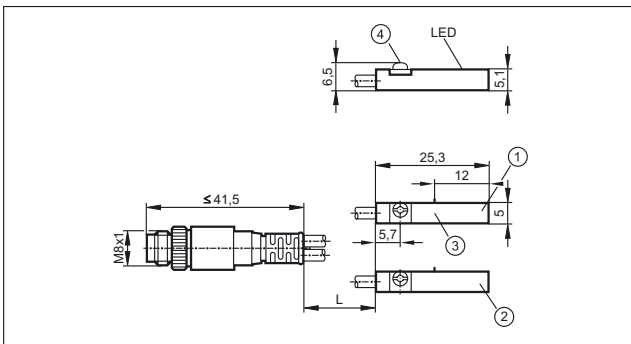
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15



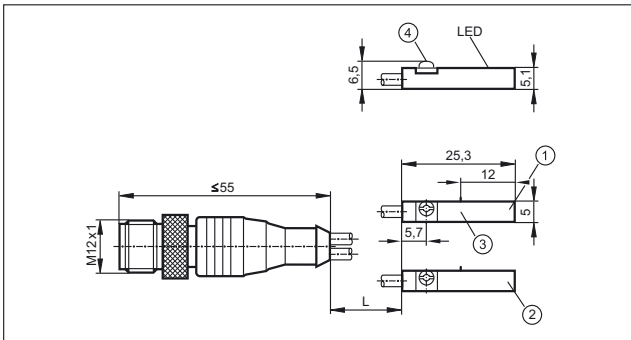
1: Fastening clamp, 2: sensing face

16



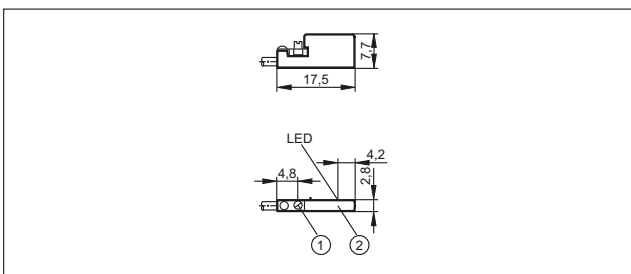
1: sensor 1, 2: sensor 2, 3: sensing face, 4: Fastening clamp

17



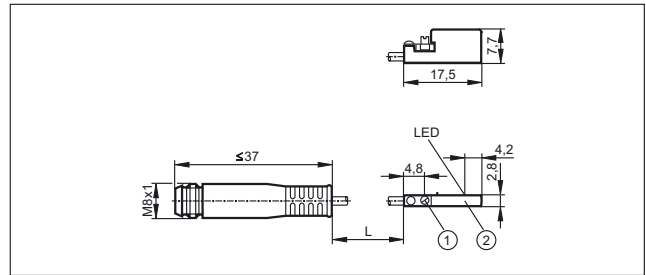
1: sensor 1, 2: sensor 2, 3: sensing face, 4: Fastening clamp

18



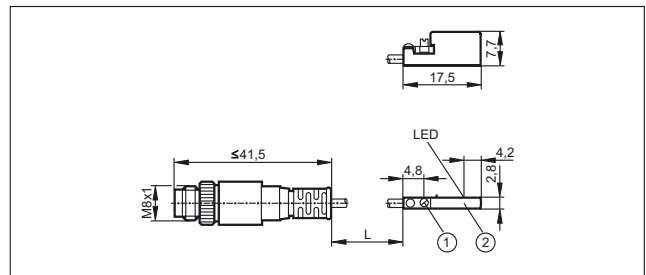
1: Fastening clamp, 2: sensing face

19



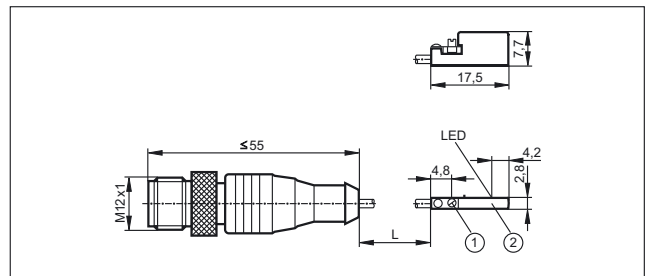
1: Fastening clamp, 2: sensing face

20



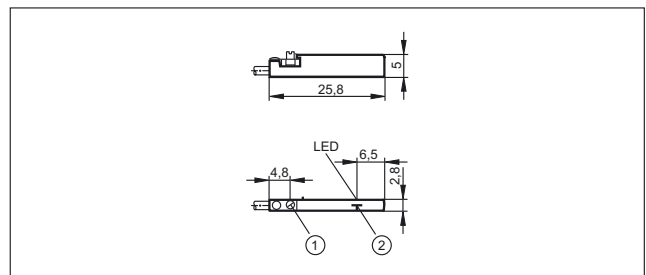
1: Fastening clamp, 2: sensing face

21



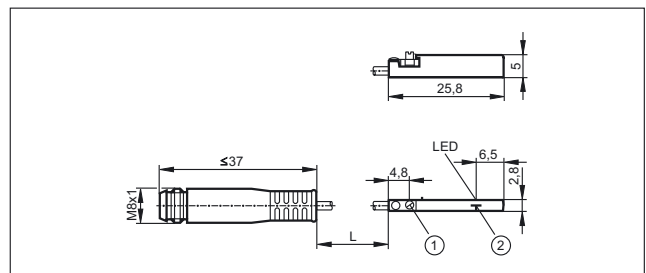
1: Fastening clamp, 2: sensing face

22



1: Fastening clamp, 2: sensing face

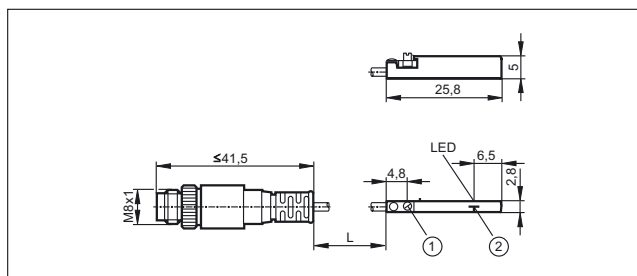
23



1: Fastening clamp, 2: sensing face

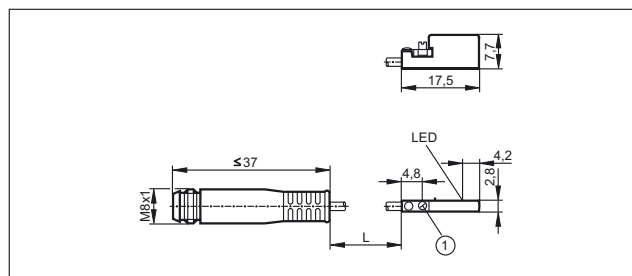
Scale drawings / drawing no. – CAD download: www.ifm.com

24



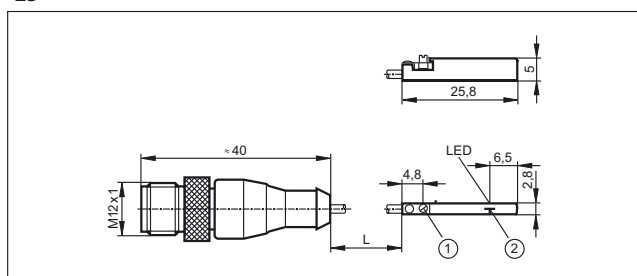
1: Fastening clamp, 2: sensing face

27



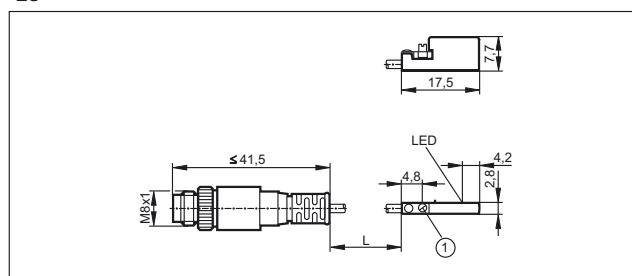
1: Fastening clamp

25



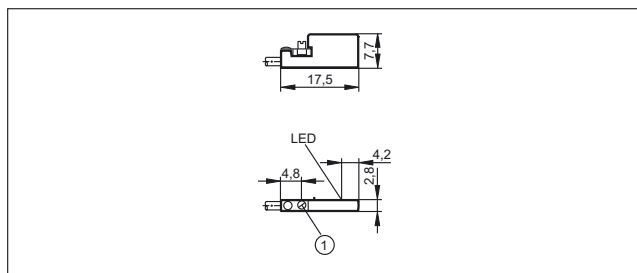
1: Fastening clamp, 2: sensing face

28



1: Fastening clamp

26



1: Fastening clamp



- Photoelectric sensors for general industrial applications
- Versions for use in hygienic and wet areas
- High-power for long ranges and accurate background suppression
- Easy alignment with visible red light
- Extensive range of mounting accessories

Photoelectric sensors

Compared to inductive, magnetic or capacitive sensors photoelectric sensors have a much higher sensing range and are used for the detection of products over longer distances, but will be more susceptible to the environment. The most important consideration when selecting all photoelectric sensors is contrast.

Through-beam sensors

A through-beam sensor has the longest range of all. The system consists of two separate components: a transmitter and a receiver. The beam is broken by the object resulting in the highest contrast and the highest power (low light loss, high excess gain). Adverse effects in the applications, such as dust in the air, dirt on the lenses, steam or mist do not immediately interfere with the system, so through-beam sensors will always be the most reliable.

Retro-reflective sensors

For a retro-reflective sensor the transmitter and receiver are incorporated into one housing and a prismatic reflector returns the transmitted light to the receiver. The resulting contrast level is high, but light losses mean distances less than for through-beam, but can still be quite considerable. The size and quality of the reflector greatly influences the performance of the sensor.

Diffuse reflection sensors

A diffuse reflection sensor is used for the direct detection of objects. Transmitter and receiver are incorporated into one housing. The transmitter emits light which is reflected by the object to be detected and seen by the receiver. This system evaluates the reflected light by an object, so the contrast between object present and no object present is greatly dependant on the installation. This results in much lower sensing ranges and greatly increased influence of the object surface, colour, shape, etc.

Diffuse reflection sensors with background suppression

These sensors are specifically designed to check the angle of light reflection to determine if it is from the object in the foreground, or from the background behind it. Modern electronic receiver chips can give excellent results.

Application sensors

Photoelectric sensors are normally fitted far from contamination. But if this is unavoidable in, say, a food environment, where all equipment must be cleaned, ifm has developed special versions able to withstand the harshest washdown and most aggressive cleaning agents.



The reflector reflects the light beam: For a retro-reflective sensor transmitter and receiver are integrated into one housing.

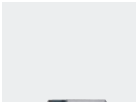



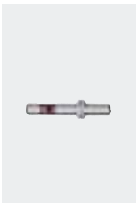
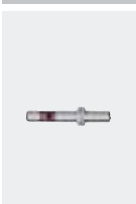

Artificial eyes: Photoelectric sensors are used to detect positions in automation technology.



System overview	Page
Cylindrical OF housing (M12) BasicLine	197 - 198
Cylindrical housing JA (M12)	198
Cylindrical housing OG (M18) BasicLine	199 - 201
Cylindrical housing OG (M18) PerformanceLine	202 - 203
Cylindrical housing OG (M18) WetLine for hygienic and wet areas	203 - 204
Cylindrical housing OG (M18) BasicLine with lateral sensing face	205
Rectangular housing OG (M18)	205 - 207
OG series (M18) WetLine with rectangular housing for hygienic and wet areas	207 - 208
Cylindrical housing OI (M30)	208
Rectangular housing OH BasicLine	209 - 210
Rectangular housing O7 BasicLine	210 - 211
Rectangular housing OJ BasicLine, lateral sensing face	212
Rectangular housing OJ PerformanceLine, lateral sensing face	212 - 214
Rectangular housing OJ PerformanceLine, front sensing face	214 - 215
Rectangular plastic housing in O6 design	216 - 219
Rectangular housing O6 PerformanceLine, WetLine for hygienic and wet areas	219 - 223
Rectangular housing O5 BasicLine	223
Rectangular housing O5 PerformanceLine	224 - 225
Rectangular housing O5 PerformanceLine with ATEX approval 3D	225
Rectangular housing OL BasicLine	225 - 226
Rectangular housing O4 BasicLine	226
Rectangular housing O4 PerformanceLine	227
Prismatic reflectors, reflective tape and fixing components	227 - 229
Accessories OF design (M12)	229
Accessories OG design (M18)	230
Accessories OI design (M30)	230 - 231
Accessories OH housing	231
Accessories O7 housing	231
Accessories OJ housing	232
Accessories for O6 design	232 - 233
Accessories O5 housing	233 - 234
Accessories OL housing	234

System overview	Page
Accessories O4 housing	235
Accessories for system components	235 - 237
Wiring diagrams	237 - 238
Scale drawings / drawing no. – CAD download: www.ifm.com	238 - 250

Cylindrical OF housing (M12) BasicLine


Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
Through-beam sensor · Cable 2 m · 10...36 DC · metal · IP67								
	Transmitter	4 m	Infrared	700	–	1	1	OF5018
	Receiver	4 m	Infrared	–	H/D PNP	28	1	OF5019
Through-beam sensor · M12 connector · 10...36 DC · metal · IP65 · Connector groups 8, 10, 18, 20, 117, 118, 147								
	Transmitter	4 m	Infrared	700	–	2	2	OF5021
Through-beam sensor · M12 connector · 10...36 DC · metal · IP65 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147								
	Receiver	4 m	Infrared	–	H/D PNP	29	3	OF5022
Retro-reflective sensor · Cable 2 m · 10...36 DC · metal · IP67								
	Retro-reflective sensor	0.05...2 m	Infrared	140	H/D PNP	28	1	OF5014
	Polarisation filter	0.2...0.8 m	Red	70	H/D PNP	28	1	OF5024
	Retro-reflective sensor	0.05...2 m	Infrared	140	H/D NPN	30	1	OF5050
Retro-reflective sensor · M12 connector · 10...36 DC · metal · IP65 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147								
	Retro-reflective sensor	0.05...2 m	Infrared	140	H/D PNP	29	3	OF5016
	Polarisation filter	0.2...0.8 m	Red	70	H/D PNP	29	3	OF5025
Retro-reflective sensor · M12 connector · 10...36 DC · metal · IP65 · Connector groups 8, 10, 18, 20, 117, 118, 147								
	Retro-reflective sensor	0.05...2 m	Infrared	140	H/D NPN	31	3	OF5051
	Polarisation filter	0.2...0.8 m	Red	70	H/D NPN	31	3	OF5062
Diffuse reflection sensor · Cable 2 m · 10...36 DC · metal · IP67								
	Diffuse reflection sensor	1...200 mm	Infrared	92	H/D PNP	28	1	OF5010

You can find wiring diagrams and scale drawings from page 237


Position sensors

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
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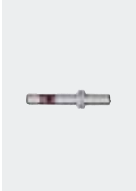
Diffuse reflection sensor · Cable 2 m · 10...36 DC · metal · IP67

	Diffuse reflection sensor	1...200 mm	Infrared	92	H/D NPN	32	1	OF5048
	Diffuse reflection sensor	1...400 mm	Infrared	185	H/D PNP	28	1	OF5026

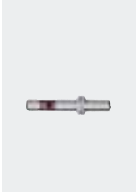
Diffuse reflection sensor · Cable 6 m · 10...36 DC · high-grade stainless steel · IP67

	Diffuse reflection sensor	1...200 mm	Infrared	92	H/D PNP	28	1	OF5032
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Diffuse reflection sensor · M12 connector · 10...36 DC · metal · IP65 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147

	Diffuse reflection sensor	1...200 mm	Infrared	92	H/D PNP	29	3	OF5012
	Diffuse reflection sensor	1...400 mm	Infrared	185	H/D PNP	29	3	OF5027

Diffuse reflection sensor · M12 connector · 10...36 DC · metal · IP65 · Connector groups 8, 10, 18, 20, 117, 118, 147

	Diffuse reflection sensor	1...200 mm	Infrared	92	H/D NPN	33	3	OF5049
	Diffuse reflection sensor	1...400 mm	Infrared	185	H/D NPN	33	3	OF5060

Cylindrical housing JA (M12)







Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Draw- ing no.	Order no.
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M12 connector · Output function · DC PNP · Wiring diagram no. 3 · Connector groups 117, 118, 120, 147







	M12 / L = 63	50 f	High-grade st. steel	10...30	IP 68	1600	100	4	JAC201
	M12 / L = 63	50 f	High-grade st. steel	10...30	IP 68 / IP 69K	1600	100	4	JAT201






f = flush / nf = non flush

Cylindrical housing OG (M18) BasicLine

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
Through-beam sensor · M12 connector · 10...30 DC · plastics · IP67 · Connector groups 8, 10, 18, 20, 117, 118, 147								
	Transmitter	8 m	Red	600	–	2	5	OGS100
Through-beam sensor · M12 connector · 10...30 DC · plastics · IP67 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148								
	Receiver	8 m	Red	–	D PNP	4	5	OGE100
	Receiver	8 m	Red	–	H PNP	5	5	OGE101
	Receiver	8 m	Red	–	D NPN	6	5	OGE102
	Receiver	8 m	Red	–	H NPN	6	5	OGE103
Through-beam sensor · M12 connector · 10...36 DC · high-grade stainless steel · IP67 · Connector groups 8, 10, 18, 20, 117, 118, 147								
	Transmitter	20 m	Red	800	–	2	6	OGS200
Through-beam sensor · M12 connector · 10...36 DC · high-grade stainless steel · IP67 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148								
	Receiver	20 m	Red	–	D PNP	4	6	OGE200
	Receiver	20 m	Red	–	H PNP	5	6	OGE201
Through-beam sensor · Cable 2 m · 20...250 AC/DC (47...63 Hz AC) · plastics · IP67								
	Transmitter	15 m	Infrared	2000	–	7	7	OG0028
	Receiver	15 m	Infrared	–	H AC/DC	8	7	OG0029*
	Receiver	15 m	Infrared	–	D AC/DC	8	7	OG0038*
Through-beam sensor · 1/2" connector · 20...250 AC/DC (47...63 Hz AC) · plastics · IP67 · Connector group 29								
	Transmitter	15 m	Infrared	2000	–	9	8	OG0030

Position sensors











Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
Through-beam sensor · 1/2" connector · 20...250 AC/DC (47...63 Hz AC) · plastics · IP67 · Connector group 29								
	Receiver	15 m	Infrared	–	H AC/DC	10	8	OG0031*
	Receiver	15 m	Infrared	–	D AC/DC	10	8	OG0039*
Retro-reflective sensor · M12 connector · 10...30 DC · plastics · IP67 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148								
	Polarisation filter	0.05...2.5 m	Red	200	D PNP	4	5	OGP100
	Polarisation filter	0.05...2.5 m	Red	200	H PNP	5	5	OGP101
	Polarisation filter	0.05...2.5 m	Red	200	D NPN	6	5	OGP102
	Polarisation filter	0.05...2.5 m	Red	200	H NPN	6	5	OGP103
Retro-reflective sensor · M12 connector · 10...36 DC · high-grade stainless steel · IP67 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148								
	Polarisation filter	0.03...4 m	Red	160	D PNP	4	6	OGP200
	Polarisation filter	0.03...4 m	Red	160	H PNP	5	6	OGP201
Retro-reflective sensor · Cable 2 m · 20...250 AC/DC (47...63 Hz AC) · plastics · IP67								
	Polarisation filter	3 m	Red	262	H AC/DC	8	7	OG0043*
	Polarisation filter	3 m	Red	262	D AC/DC	8	7	OG0032*
Retro-reflective sensor · 1/2" connector · 20...250 AC/DC (47...63 Hz AC) · plastics · IP67 · Connector group 29								
	Polarisation filter	3 m	Red	262	H AC/DC	10	8	OG0044*
	Polarisation filter	3 m	Red	262	D AC/DC	10	8	OG0033*
Diffuse reflection sensor · M12 connector · 10...30 DC · plastics · IP65 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148								
	Diffuse reflection sensor	10...400 mm	Red	25	H PNP	4	9	OGT100

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
Diffuse reflection sensor · M12 connector · 10...30 DC · plastics · IP65 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148								
	Diffuse reflection sensor	10...400 mm	Red	25	D PNP	4	9	OGT101
	Diffuse reflection sensor	10...400 mm	Red	25	H NPN	6	9	OGT102
	Diffuse reflection sensor	10...400 mm	Red	25	D NPN	6	9	OGT103
Diffuse reflection sensor · M12 connector · 10...36 DC · high-grade stainless steel · IP65 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148								
	Diffuse reflection sensor	2...600 mm	Red	50	H PNP	4	10	OGT200
	Background suppression	15...250 mm	Red	21	H PNP	4	10	OGH200
Diffuse reflection sensor · Cable 2 m · 20...250 AC/DC (47...63 Hz AC) · plastics · IP67								
	Diffuse reflection sensor	1...600 mm	Infrared	< 169	H AC/DC	8	7	OG0034*
	Diffuse reflection sensor	1...600 mm	Infrared	< 169	D AC/DC	8	7	OG0040*
Diffuse reflection sensor · Cable 0.377 m · 20...250 AC/DC (47...63 Hz AC) · plastics · IP67								
	Diffuse reflection sensor	1...600 mm	Infrared	< 169	H AC/DC	8	7	OG0047*
Diffuse reflection sensor · 1/2" connector · 20...250 AC/DC (47...63 Hz AC) · plastics · IP67 · Connector group 29								
	Diffuse reflection sensor	1...600 mm	Infrared	< 169	H AC/DC	10	8	OG0035*
	Diffuse reflection sensor	1...600 mm	Infrared	< 169	D AC/DC	10	8	OG0041*

*** Note for AC and AC/DC units**


Miniature fuse to IEC60127-2 sheet 1, ≤ 2 A (fast acting) Recommendation: check the unit for reliable function after a short circuit.

Cylindrical housing OG (M18) PerformanceLine

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
Through-beam sensor · Cable 2 m · 10...36 DC · high-grade stainless steel · IP67								
	Transmitter	25 m	Red	1000	–	1	11	OGS501
	Receiver	25 m	Red	–	H/D PNP	11	12	OGE502
Through-beam sensor · M12 connector · 10...36 DC · high-grade stainless steel · IP67 · Connector groups 8, 10, 18, 20, 117, 118, 147								
	Transmitter	25 m	Red	1000	–	2	13	OGS500
Through-beam sensor · M12 connector · 10...36 DC · high-grade stainless steel · IP67 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148								
	Receiver	25 m	Red	–	H/D PNP	4	14	OGE500
Retro-reflective sensor · Cable 2 m · 10...36 DC · high-grade stainless steel · IP67								
	Polarisation filter	0.03...5 m	Red	200	H/D PNP	11	12	OGP502
Retro-reflective sensor · M12 connector · 10...36 DC · high-grade stainless steel · IP67 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148								
	Polarisation filter	0.03...5 m	Red	200	H/D PNP	4	14	OGP500
Retro-reflective sensor · M12 connector · 10...36 DC · high-grade stainless steel · IP67 · Connector groups 8, 10, 18, 20, 117, 118, 147								
	Polarisation filter	0.03...5 m	Red	200	H/D NPN	6	14	OGP503
Diffuse reflection sensor · Cable 2 m · 10...36 DC · high-grade stainless steel · IP67								
	Background suppression	15...300 mm	Red	25	H/D PNP	11	12	OGH501
Diffuse reflection sensor · M12 connector · 10...36 DC · high-grade stainless steel · IP67 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148								
	Diffuse reflection sensor	2...800 mm	Red	66	H/D PNP	4	14	OGT500
	Background suppression	15...300 mm	Red	25	H/D PNP	4	14	OGH500

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
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Diffuse reflection sensor · M12 connector · 10...36 DC · high-grade stainless steel · IP67 · Connector groups 8, 10, 18, 20, 117, 118, 147

	Background suppression	15...300 mm	Red	25	H/D NPN	6	14	OGH504
	Background suppression	15...300 mm	Red	25	H/D NPN	6	14	OGH502


Cylindrical housing OG (M18) WetLine for hygienic and wet areas

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
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Through-beam sensor · Cable 6 m · 10...36 DC · high-grade stainless steel · IP67 / IP68 / IP69K

	Transmitter	20 m	Red	800	–	1	15	OGS301
	Receiver	20 m	Red	–	D PNP	11	15	OGE302
	Receiver	20 m	Red	–	H PNP	11	15	OGE303


Through-beam sensor · M12 connector · 10...36 DC · high-grade stainless steel · IP67 / IP68 / IP69K · Connector group 117

	Transmitter	20 m	Red	800	–	2	6	OGS300
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Through-beam sensor · M12 connector · 10...36 DC · high-grade stainless steel · IP67 / IP68 / IP69K · Connector groups 117, 119

	Receiver	20 m	Red	–	D PNP	4	6	OGE300
	Receiver	20 m	Red	–	H PNP	5	6	OGE301

Retro-reflective sensor · Cable 6 m · 10...36 DC · high-grade stainless steel · IP67 / IP68 / IP69K


	Polarisation filter	0.03...4 m	Red	160	D PNP	11	15	OGP302
	Polarisation filter	0.03...4 m	Red	160	H PNP	11	15	OGP303

Retro-reflective sensor · M12 connector · 10...36 DC · high-grade stainless steel · IP67 / IP68 / IP69K · Connector groups 117, 119


	Polarisation filter	0.03...4 m	Red	160	D PNP	4	6	OGP300
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Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
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Retro-reflective sensor · M12 connector · 10...36 DC · high-grade stainless steel · IP67 / IP68 / IP69K · Connector groups 117, 119

	Polarisation filter	0.03...4 m	Red	160	H PNP	5	6	OGP301
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Diffuse reflection sensor · Cable 6 m · 10...36 DC · high-grade stainless steel · IP67 / IP68 / IP69K

	Background suppression	100 mm	Red	9	H PNP	11	16	OGH306
	Background suppression	100 mm	Red	9	D PNP	11	16	OGH307
	Background suppression	200 mm	Red	17	H PNP	11	16	OGH308
	Background suppression	200 mm	Red	17	D PNP	11	16	OGH309
	Background suppression	300 mm	Red	25	H PNP	11	16	OGH310
	Background suppression	300 mm	Red	25	D PNP	11	16	OGH311

Diffuse reflection sensor · M12 connector · 10...36 DC · high-grade stainless steel · IP67 / IP68 / IP69K · Connector groups 117, 119

	Background suppression	100 mm	Red	9	H PNP	4	17	OGH300
	Background suppression	100 mm	Red	9	D PNP	4	17	OGH301
	Background suppression	200 mm	Red	17	H PNP	4	17	OGH302
	Background suppression	200 mm	Red	17	D PNP	4	17	OGH303
	Background suppression	300 mm	Red	25	H PNP	4	17	OGH304
	Background suppression	300 mm	Red	25	D PNP	4	17	OGH305


Cylindrical housing OG (M18) BasicLine with lateral sensing face

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
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Through-beam sensor · M12 connector · 10...30 DC · high-grade stainless steel · IP68 · Connector groups 8, 10, 18, 20, 117, 118, 147

	Transmitter	9 m	Red	< 3000	–	2	18	OG5129
	Receiver	9 m	Red	–	H PNP	12	18	OG5127
	Receiver	9 m	Red	–	D PNP	13	18	OG5128


Retro-reflective sensor · M12 connector · 10...30 DC · high-grade stainless steel · IP68 · Connector groups 8, 10, 18, 20, 117, 118, 147

	Polarisation filter	3 m	Red	< 96	H PNP	12	18	OG5125
	Polarisation filter	3 m	Red	< 96	D PNP	13	18	OG5126

Diffuse reflection sensor · M12 connector · 10...30 DC · high-grade stainless steel · IP68 · Connector groups 8, 10, 18, 20, 117, 118, 147

	Background suppression	100 mm	Red	< 16	H PNP	12	19	OG5123
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Diffuse reflection sensor · M12 connector · 10...30 DC · high-grade stainless steel · IP68 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148

	Background suppression	200 mm	Red	< 28	H PNP	12	19	OG5124
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
Rectangular housing OG (M18)

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
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





Through-beam sensor · M12 connector · 10...30 DC · metal · IP67 · Connector groups 8, 10, 18, 20, 117, 118, 147

	Transmitter	20 m	Red	800	–	2	20	OGS280
	Receiver	20 m	Red	–	D NPN	14	20	OGE282

Through-beam sensor · M12 connector · 10...30 DC · metal · IP67 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148

	Receiver	20 m	Red	–	D PNP	15	20	OGE280
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Position sensors

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
Through-beam sensor · M12 connector · 10...30 DC · metal · IP67 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148								
	Receiver	20 m	Red	–	H PNP	5	20	OGE281
Through-beam sensor · 1/2" connector · 20...250 AC (47...60 Hz) · metal · IP67 · Connector group 29								
	Transmitter	20 m	Red	800	–	16	21	OGS080*
Through-beam sensor · 1/2" connector · 20...250 AC (47...63 Hz) · metal · IP67 · Connector group 29								
	Receiver	20 m	Red	–	D AC	17	21	OGE080*
	Receiver	20 m	Red	–	H AC	17	21	OGE081*
Retro-reflective sensor · M12 connector · 10...30 DC · metal · IP67 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148								
	Polarisation filter	0.1...4 m	Red	160	D PNP	15	20	OGP280
	Polarisation filter	0.1...4 m	Red	160	H PNP	5	20	OGP281
Retro-reflective sensor · M12 connector · 10...30 DC · metal · IP67 · Connector groups 8, 10, 18, 20, 117, 118, 147								
	Polarisation filter	0.1...4 m	Red	160	D NPN	14	20	OGP282
	Polarisation filter	0.1...4 m	Red	160	H NPN	18	20	OGP283
Retro-reflective sensor · 1/2" connector · 20...250 AC (47...63 Hz) · metal · IP67 · Connector group 29								
	Polarisation filter	4 m	Red	160	D AC	17	21	OGP080*
	Polarisation filter	4 m	Red	160	H AC	17	21	OGP081*
Diffuse reflection sensor · M12 connector · 10...30 DC · metal · IP67 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148								
	Background suppression	100 mm	Red	7	H PNP	5	20	OGH280
	Background suppression	200 mm	Red	13	H PNP	5	20	OGH281
	Background suppression	15...200 mm	Red	13	H/D PNP	4	22	OGH580


Product selectors and further information can be found at: www.ifm.com

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
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Diffuse reflection sensor · M12 connector · 10...30 DC · metal · IP67 · Connector groups 8, 10, 18, 20, 117, 118, 147

	Background suppression	100 mm	Red	7	H NPN	18	20	OGH282
	Background suppression	200 mm	Red	13	H NPN	18	20	OGH283
	Background suppression	15...200 mm	Red	13	H/D NPN	6	22	OGH581

Diffuse reflection sensor · 1/2" connector · 20...250 AC (47...63 Hz) · metal · IP67 · Connector group 29

	Background suppression	100 mm	Red	11	H AC	17	21	OGH080*
	Background suppression	100 mm	Red	11	D AC	17	21	OGH081*


* Note for AC and AC/DC units

Miniature fuse to IEC60127-2 sheet 1, ≤ 2 A (fast acting) Recommendation: check the unit for reliable function after a short circuit.

OG series (M18) WetLine with rectangular housing for hygienic and wet areas

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
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Through-beam sensor · M12 connector · 10...30 DC · high-grade stainless steel · IP67 / IP68 / IP69K · Connector groups 8, 10, 18, 20, 117, 118, 147

	Transmitter	15 m	Red	800	–	2	23	OGS380
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Through-beam sensor · M12 connector · 10...30 DC · high-grade stainless steel · IP67 / IP68 / IP69K · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148

	Receiver	15 m	Red	–	D PNP	15	23	OGE380
	Receiver	15 m	Red	–	H PNP	5	23	OGE381
	Receiver	15 m	Red	–	D NPN	14	23	OGE382


Diffuse reflection sensor · M12 connector · 10...30 DC · high-grade stainless steel · IP67 / IP68 / IP69K · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148

	Background suppression	100 mm	Red	7	H PNP	5	23	OGH380
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Position sensors

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
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Diffuse reflection sensor · M12 connector · 10...30 DC · high-grade stainless steel · IP67 / IP68 / IP69K · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148

	Background suppression	200 mm	Red	13	H PNP	5	23	OGH381
	Background suppression	100 mm	Red	7	H NPN	18	23	OGH382
	Background suppression	200 mm	Red	13	H NPN	18	23	OGH383


Cylindrical housing OI (M30)

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
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Diffuse reflection sensor · M12 connector · 10...30 DC · metal · IP67 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148

	Background suppression	600 mm	Red	30	H PNP	5	24	OIH280
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Diffuse reflection sensor · M12 connector · 10...30 DC · metal · IP67 · Connector groups 8, 10, 18, 20, 117, 118, 147

	Background suppression	600 mm	Red	30	H NPN	18	24	OIH282
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Diffuse reflection sensor · M12 connector · 10...30 DC · metal · IP67 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148

	Background suppression	50...800 mm	Red	55	H PNP	5	25	OIH580
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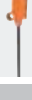

Diffuse reflection sensor · M12 connector · 10...30 DC · metal · IP67 · Connector groups 8, 10, 18, 20, 117, 118, 147

	Background suppression	50...800 mm	Red	55	H NPN	18	25	OIH582
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Retro-reflective sensor · M12 connector · 10...30 DC · metal · IP67 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148

	Polarisation filter	0.1...15 m	Red	100 x 130	D PNP	15	26	OIP280
	Polarisation filter	0.1...15 m	Red	100 x 130	H PNP	5	26	OIP281
	Polarisation filter	0.1...15 m	Red	100 x 130	D NPN	14	26	OIP282
	Polarisation filter	0.1...15 m	Red	100 x 130	H NPN	18	26	OIP283


Rectangular housing OH BasicLine

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
Through-beam sensor · Cable 2 m · 10...30 DC · plastics · IP67								
	Transmitter	1.2 m	Red	10	–	1	27	OH5001
	Receiver	1.2 m	Red	–	D PNP	19	27	OH5002
Through-beam sensor · Cable 0.2 m · with M8 connector · 10...30 DC · plastics · IP67 · Connector groups 1, 3, 72, 78, 114								
	Transmitter	1.2 m	Red	10	–	2	27	OH5020
Through-beam sensor · Cable 0.2 m · with M8 connector · 10...30 DC · plastics · IP67 · Connector groups 1, 2, 3, 72, 78, 114, 115								
	Receiver	1.2 m	Red	–	D PNP	15	27	OH5015
Through-beam sensor · Cable 0.2 m · with M8 connector · 10...30 DC · plastics · IP67 · Connector groups 4, 5, 74, 80, 116								
	Transmitter	1.2 m	Red	10	–	2	27	OH5012
	Receiver	1.2 m	Red	–	D PNP	15	27	OH5003
Retro-reflective sensor · Cable 2 m · 10...30 DC · plastics · IP67								
	Polarisation filter	0.8 m	Red	10	D PNP	19	28	OH5010
Retro-reflective sensor · Cable 0.2 m · with M8 connector · 10...30 DC · plastics · IP67 · Connector groups 1, 2, 3, 72, 78, 114, 115								
	Polarisation filter	0.8 m	Red	10	D PNP	15	28	OH5019
Retro-reflective sensor · Cable 0.2 m · with M8 connector · 10...30 DC · plastics · IP67 · Connector groups 4, 5, 74, 80, 116								
	Polarisation filter	0.8 m	Red	10	D PNP	15	28	OH5011
Diffuse reflection sensor · Cable 2 m · 10...30 DC · plastics · IP67								
	Background suppression	1...15 mm	Red	2.5	H PNP	20	29	OH5008
	Background suppression	1...30 mm	Red	4.5	H PNP	20	29	OH5006


Position sensors

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
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Diffuse reflection sensor · Cable 2 m · 10...30 DC · plastics · IP67

	Diffuse reflection sensor	2...50 mm	Red	3.5	H PNP	20	29	OH5004
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Diffuse reflection sensor · Cable 0.2 m · with M8 connector · 10...30 DC · plastics · IP67 · Connector groups 1, 2, 3, 72, 78, 114, 115

	Diffuse reflection sensor	2...50 mm	Red	3.5	H PNP	5	29	OH5016
	Background suppression	1...15 mm	Red	2.5	H PNP	5	29	OH5018
	Background suppression	1...30 mm	Red	4.5	H PNP	5	29	OH5017


Diffuse reflection sensor · Cable 0.2 m · with M8 connector · 10...30 DC · plastics · IP67 · Connector groups 4, 5, 74, 80, 116

	Diffuse reflection sensor	2...50 mm	Red	3.5	H PNP	5	29	OH5005
	Background suppression	1...15 mm	Red	2.5	H PNP	5	29	OH5009
	Background suppression	1...30 mm	Red	4.5	H PNP	5	29	OH5007


Rectangular housing O7 BasicLine

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
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Through-beam sensor · Cable 0.2 m · with M8 connector · 10...30 DC · plastics · IP65 · Connector groups 1, 3, 72, 78, 114


	Transmitter	0...1.5 m	Red	90	–	2	30	O7S200
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Through-beam sensor · Cable 0.2 m · with M8 connector · 10...30 DC · plastics · IP65 · Connector groups 1, 2, 3, 72, 78, 114, 115


	Receiver	0...1.5 m	Red	–	D PNP	15	31	O7E200
	Receiver	0...1.5 m	Red	–	H PNP	5	31	O7E201
	Receiver	0...1.5 m	Red	–	D NPN	14	31	O7E202
	Receiver	0...1.5 m	Red	–	H NPN	18	31	O7E203

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diag. no.	Draw- ing no.	Order no.
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Retro-reflective sensor · Cable 0.2 m · with M8 connector · 10...30 DC · plastics · IP65 · Connector groups 1, 2, 3, 72, 78, 114, 115

	Polarisation filter	0.03...1 m	Red	55	D PNP	15	32	O7P200
	Polarisation filter	0.03...1 m	Red	55	H PNP	5	32	O7P201
	Polarisation filter	0.03...1 m	Red	55	D NPN	14	32	O7P202
	Polarisation filter	0.03...1 m	Red	55	H NPN	18	32	O7P203



Diffuse reflection sensor · Cable 0.2 m · with M8 connector · 10...30 DC · plastics · IP65 · Connector groups 1, 2, 3, 72, 78, 114, 115









	Background suppression	1...30 mm	Red	2.5	H PNP	5	33	O7H200
	Background suppression	1...30 mm	Red	2.5	D PNP	15	33	O7H201
	Background suppression	1...30 mm	Red	2.5	H NPN	18	33	O7H206
	Background suppression	1...30 mm	Red	2.5	D NPN	14	33	O7H207
	Background suppression	0...50 mm	Red	2.5	H PNP	5	33	O7H202
	Background suppression	0...50 mm	Red	2.5	H NPN	18	33	O7H208
	Background suppression	0...50 mm	Red	2.5	D NPN	14	33	O7H209
	Background suppression	0...50 mm	Red	2.5	D PNP	15	33	O7H203
	Background suppression	0...100 mm	Red	7	H PNP	5	33	O7H204
	Background suppression	0...100 mm	Red	7	D PNP	15	33	O7H205
	Background suppression	0...100 mm	Red	7	H NPN	18	33	O7H210
	Background suppression	0...100 mm	Red	7	D NPN	14	33	O7H211

Rectangular housing OJ BasicLine, lateral sensing face

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
Through-beam sensor · M8 connector · 10...30 DC · plastics · IP67 · Connector groups 1, 3, 72, 78, 114								
	Transmitter	0...10 m	Red	< 1000	–	2	34	OJ5200
Through-beam sensor · M8 connector · 10...30 DC · plastics · IP67 · Connector groups 1, 2, 3, 72, 78, 114, 115								
	Receiver	10 m	–	–	D PNP	4	34	OJE200
Retro-reflective sensor · M8 connector · 10...30 DC · plastics · IP67 · Connector groups 1, 2, 3, 72, 78, 114, 115								
	Retro-reflective sensor	1.8 m	Red	64	D PNP	4	34	OJR200
	Polarisation filter	1.8 m	Red	64	D PNP	4	34	OJP200
Diffuse reflection sensor · M8 connector · 10...30 DC · plastics · IP67 · Connector groups 1, 2, 3, 72, 78, 114, 115								
	Background suppression	100 mm	Red	< 13	H PNP	4	35	OJH200

Rectangular housing OJ PerformanceLine, lateral sensing face

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
Through-beam sensor · Cable 2 m · 10...30 DC · plastics · IP67								
	Transmitter	10 m	Red	1000	–	1	36	OJ5033
	Receiver	10 m	Red	–	H/D PNP	21	36	OJ5034
Through-beam sensor · M8 connector · 10...30 DC · plastics · IP67 · Connector groups 4, 5, 74, 80, 116								
	Transmitter	10 m	Red	1000	–	2	37	OJ5030
	Receiver	10 m	Red	–	H/D PNP	22	37	OJ5031
	Receiver	10 m	Red	–	H/D NPN	23	37	OJ5032

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
Through-beam sensor · M8 connector · 10...30 DC · plastics · IP67 · Connector groups 4, 5, 74, 80, 116								
	Transmitter	10 m	Red	1000	–	2	38	OJ5130
	Receiver	10 m	Red	–	H/D PNP	22	38	OJ5131
Retro-reflective sensor · Cable 2 m · 10...30 DC · plastics · IP67								
	Polarisation filter	0...2 m	Red	64	H/D PNP	21	36	OJ5028
Retro-reflective sensor · M8 connector · 10...30 DC · plastics · IP67 · Connector groups 4, 5, 74, 80, 116								
	Polarisation filter	0...2 m	Red	64	H/D PNP	22	37	OJ5026
	Polarisation filter	0...2 m	Red	64	H/D NPN	23	37	OJ5027
	Polarisation filter	0...2 m	Red	64	H/D PNP	22	38	OJ5126
Diffuse reflection sensor · Cable 2 m · 10...30 DC · plastics · IP67								
	Diffuse reflection sensor	1...600 mm	Red	60	H/D PNP	21	39	OJ5024
Diffuse reflection sensor · Cable 0.15 m · with M12 connector · 10...30 DC · plastics · IP67 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147								
	Background suppression	15...400 mm	Red	< 18	H/D PNP	22	40	OJ5078
Diffuse reflection sensor · M8 connector · 10...30 DC · plastics · IP67 · Connector groups 4, 5, 74, 80, 116								
	Diffuse reflection sensor	1...600 mm	Red	60	H/D PNP	22	41	OJ5022
	Diffuse reflection sensor	1...600 mm	Red	60	H/D NPN	23	41	OJ5023
	Diffuse reflection sensor	1...1000 mm	Infrared	150	H/D PNP	22	41	OJ5071
	Background suppression	15...400 mm	Red	< 18	H/D PNP	22	42	OJ5048
	Diffuse reflection sensor	1...600 mm	Red	60	H/D PNP	22	43	OJ5122

Position sensors

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
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Diffuse reflection sensor · M8 connector · 10...30 DC · plastics · IP67 · Connector groups 4, 5, 74, 80, 116



Background suppression	15...400 mm	Red	< 18	H/D PNP	22	44	OJ5148
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Rectangular housing OJ PerformanceLine, front sensing face

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
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Through-beam sensor · Cable 2 m · 10...30 DC · plastics · IP67



Transmitter	10 m	Red	1000	–	1	45	OJ5011
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Receiver	10 m	Red	–	H/D PNP	21	45	OJ5012
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Through-beam sensor · Cable 0.15 m · with M12 connector · 10...30 DC · plastics · IP67 · Connector groups 8, 10, 18, 20, 117, 118, 147



Transmitter	10 m	Red	1000	–	2	45	OJ5065
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Through-beam sensor · Cable 0.15 m · with M12 connector · 10...30 DC · plastics · IP67 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147



Receiver	10 m	Red	–	H/D PNP	22	45	OJ5067
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Through-beam sensor · M8 connector · 10...30 DC · plastics · IP67 · Connector groups 4, 5, 74, 80, 116



Transmitter	10 m	Red	1000	–	2	46	OJ5008
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Receiver	10 m	Red	–	H/D PNP	22	46	OJ5009
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Receiver	10 m	Red	–	H/D NPN	23	46	OJ5010
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Transmitter	10 m	Red	1000	–	2	47	OJ5108
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Receiver	10 m	Red	–	H/D PNP	22	47	OJ5109
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Retro-reflective sensor · Cable 2 m · 10...30 DC · plastics · IP67













Polarisation filter	0...2 m	Red	64	H/D PNP	21	45	OJ5006
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Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
Retro-reflective sensor · Cable 0.15 m · with M12 connector · 10...30 DC · plastics · IP67 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147								
	Polarisation filter	0...2 m	Red	64	H/D PNP	22	45	OJ5063
	Polarisation filter	0...2 m	Red	64	H/D PNP	22	45	OJ5062
Retro-reflective sensor · M8 connector · 10...30 DC · plastics · IP67 · Connector groups 4, 5, 74, 80, 116								
	Polarisation filter	0...2 m	Red	64	H/D PNP	22	46	OJ5004
	Polarisation filter	0...2 m	Red	64	H/D NPN	23	46	OJ5005
	Polarisation filter	0...2 m	Red	64	H/D PNP	22	47	OJ5104
Diffuse reflection sensor · Cable 0.15 m · with M12 connector · 10...30 DC · plastics · IP67 · Connector groups 8, 10, 18, 20, 117, 118, 147								
	Diffuse reflection sensor	1...600 mm	Red	60	H/D PNP	22	48	OJ5061
	Diffuse reflection sensor	1...600 mm	Red	60	H/D PNP	22	48	OJ5060
	Background suppression	15...400 mm	Red	< 18	H/D PNP	22	49	OJ5069
Diffuse reflection sensor · M8 connector · 10...30 DC · plastics · IP67 · Connector groups 4, 5, 74, 80, 116								
	Diffuse reflection sensor	1...600 mm	Red	60	H/D PNP	22	50	OJ5000
	Diffuse reflection sensor	1...600 mm	Red	60	H/D NPN	23	50	OJ5001
	Diffuse reflection sensor	1...1000 mm	Infrared	150	H/D PNP	22	50	OJ5070
	Background suppression	15...400 mm	Red	< 18	H/D PNP	22	51	OJ5044
	Diffuse reflection sensor	1...600 mm	Red	60	H/D PNP	22	52	OJ5100
	Background suppression	15...400 mm	Red	< 18	H/D PNP	22	53	OJ5144

Rectangular plastic housing in O6 design

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
Through-beam sensor · Cable 2 m · 10...30 DC · plastics · IP65 / IP67								
	Transmitter	10 m	Red	300	–	1	54	O6S200
	Receiver	10 m	Red	–	H/D PNP	11	55	O6E200
	Receiver	10 m	Red	–	H/D NPN	24	55	O6E204
Through-beam sensor · Cable 0.3 m · with M12 connector, 4 poles · 10...30 DC · plastics · IP65 / IP67 · Connector groups 8, 10, 18, 20, 117, 118, 147								
	Transmitter	10 m	Red	300	–	2	54	O6S201
Through-beam sensor · Cable 0.3 m · with M12 connector, 4 poles · 10...30 DC · plastics · IP65 / IP67 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148								
	Receiver	10 m	Red	–	H/D PNP	4	55	O6E201
Through-beam sensor · Cable 0.3 m · with M12 connector, 4 poles · 10...30 DC · plastics · IP65 / IP67 · Connector groups 8, 10, 18, 20, 117, 118, 147								
	Receiver	10 m	Red	–	H/D NPN	6	55	O6E205
Through-beam sensor · M8 connector, 3 poles · 10...30 DC · plastics · IP65 / IP67 · Connector groups 1, 3, 72, 78, 114								
	Transmitter	10 m	Red	300	–	2	56	O6S202
Through-beam sensor · M8 connector, 3 poles · 10...30 DC · plastics · IP65 / IP67 · Connector groups 1, 2, 3, 72, 78, 114, 115								
	Receiver	10 m	Red	–	H/D PNP	4	57	O6E202
Through-beam sensor · M8 connector, 4 poles · 10...30 DC · plastics · IP65 / IP67 · Connector groups 4, 5, 74, 80, 116								
	Receiver	10 m	Red	–	H/D PNP	4	57	O6E203
Through-beam sensor · M8 connector, 3 poles · 10...30 DC · plastics · IP65 / IP67 · Connector groups 1, 3, 72, 78, 114								
	Receiver	10 m	Red	–	H/D NPN	6	57	O6E206


Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
Through-beam sensor · M8 connector, 4 poles · 10...30 DC · plastics · IP65 / IP67 · Connector groups 4, 5, 74, 80, 116								
	Receiver	10 m	Red	–	H/D NPN	6	57	O6E207
Diffuse reflection sensor · Cable 2 m · 10...30 DC · plastics · IP65 / IP67								
	Background suppression	2...200 mm	Red	8	H/D PNP	11	58	O6H200
Diffuse reflection sensor · Cable 0.3 m · with M12 connector, 4 poles · 10...30 DC · plastics · IP65 / IP67 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148								
	Background suppression	2...200 mm	Red	8	H/D PNP	4	58	O6H201
Diffuse reflection sensor · M8 connector, 3 poles · 10...30 DC · plastics · IP65 / IP67 · Connector groups 1, 2, 3, 72, 78, 114, 115								
	Background suppression	2...200 mm	Red	8	H/D PNP	4	59	O6H202
Diffuse reflection sensor · M8 connector, 4 poles · 10...30 DC · plastics · IP65 / IP67 · Connector groups 4, 5, 74, 80, 116								
	Background suppression	2...200 mm	Red	8	H/D PNP	4	59	O6H203
Diffuse reflection sensor · Cable 2 m · 10...30 DC · plastics · IP65 / IP67								
	Background suppression	2...200 mm	Red	8	H/D NPN	24	58	O6H204
Diffuse reflection sensor · Cable 0.3 m · with M12 connector, 4 poles · 10...30 DC · plastics · IP65 / IP67 · Connector groups 8, 10, 18, 20, 117, 118, 147								
	Background suppression	2...200 mm	Red	8	H/D NPN	6	58	O6H205
Diffuse reflection sensor · M8 connector, 3 poles · 10...30 DC · plastics · IP65 / IP67 · Connector groups 1, 3, 72, 78, 114								
	Background suppression	2...200 mm	Red	8	H/D NPN	6	59	O6H206
Diffuse reflection sensor · M8 connector, 4 poles · 10...30 DC · plastics · IP65 / IP67 · Connector groups 4, 5, 74, 80, 116								
	Background suppression	2...200 mm	Red	8	H/D NPN	6	59	O6H207
Retro-reflective sensor · Cable 2 m · 10...30 DC · plastics · IP65 / IP67								
	Polarisation filter	0.05...5 m	Red	150	H/D PNP	11	58	O6P200

Position sensors


Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
Retro-reflective sensor · Cable 0.3 m · with M12 connector, 4 poles · 10...30 DC · plastics · IP65 / IP67 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148								
	Polarisation filter	0.05...5 m	Red	150	H/D PNP	4	58	O6P201
Retro-reflective sensor · M8 connector, 3 poles · 10...30 DC · plastics · IP65 / IP67 · Connector groups 1, 2, 3, 72, 78, 114, 115								
	Polarisation filter	0.05...5 m	Red	150	H/D PNP	4	59	O6P202
Retro-reflective sensor · M8 connector, 4 poles · 10...30 DC · plastics · IP65 / IP67 · Connector groups 4, 5, 74, 80, 116								
	Polarisation filter	0.05...5 m	Red	150	H/D PNP	4	59	O6P203
Retro-reflective sensor · Cable 2 m · 10...30 DC · plastics · IP65 / IP67								
	Polarisation filter	0.05...5 m	Red	150	H/D NPN	24	58	O6P204
Retro-reflective sensor · Cable 0.3 m · with M12 connector, 4 poles · 10...30 DC · plastics · IP65 / IP67 · Connector groups 8, 10, 18, 20, 117, 118, 147								
	Polarisation filter	0.05...5 m	Red	150	H/D NPN	6	58	O6P205
Retro-reflective sensor · M8 connector, 3 poles · 10...30 DC · plastics · IP65 / IP67 · Connector groups 1, 3, 72, 78, 114								
	Polarisation filter	0.05...5 m	Red	150	H/D NPN	6	59	O6P206
Retro-reflective sensor · M8 connector, 4 poles · 10...30 DC · plastics · IP65 / IP67 · Connector groups 4, 5, 74, 80, 116								
	Polarisation filter	0.05...5 m	Red	150	H/D NPN	6	59	O6P207
Through-beam sensor · M8 connector, 4 poles · 10...30 DC · plastics · IP65 / IP67 · Connector groups 4, 5, 74, 80, 116								
	Transmitter	10 m	Red	300	–	2	56	O6S203
Diffuse reflection sensor · Cable 2 m · 10...30 DC · plastics · IP65 / IP67								
	Diffuse reflection sensor	5...500 mm	Red	15	H/D PNP	11	58	O6T200
Diffuse reflection sensor · Cable 0.3 m · with M12 connector, 4 poles · 10...30 DC · plastics · IP65 / IP67 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148								
	Diffuse reflection sensor	5...500 mm	Red	15	H/D PNP	4	58	O6T201

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diag. no.	Draw- ing no.	Order no.
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Diffuse reflection sensor · M8 connector, 3 poles · 10...30 DC · plastics · IP65 / IP67 · Connector groups 1, 2, 3, 72, 78, 114, 115

	Diffuse reflection sensor	5...500 mm	Red	15	H/D PNP	4	59	O6T202
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Diffuse reflection sensor · M8 connector, 4 poles · 10...30 DC · plastics · IP65 / IP67 · Connector groups 4, 5, 74, 80, 116

	Diffuse reflection sensor	5...500 mm	Red	15	H/D PNP	4	59	O6T203
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Diffuse reflection sensor · Cable 2 m · 10...30 DC · plastics · IP65 / IP67

	Diffuse reflection sensor	5...500 mm	Red	15	H/D NPN	24	58	O6T204
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Diffuse reflection sensor · Cable 0.3 m · with M12 connector, 4 poles · 10...30 DC · plastics · IP65 / IP67 · Connector groups 8, 10, 18, 20, 117, 118, 147

	Diffuse reflection sensor	5...500 mm	Red	15	H/D NPN	6	58	O6T205
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Diffuse reflection sensor · M8 connector, 3 poles · 10...30 DC · plastics · IP65 / IP67 · Connector groups 1, 3, 72, 78, 114

	Diffuse reflection sensor	5...500 mm	Red	15	H/D NPN	6	59	O6T206
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Diffuse reflection sensor · M8 connector, 4 poles · 10...30 DC · plastics · IP65 / IP67 · Connector groups 4, 5, 74, 80, 116

	Diffuse reflection sensor	5...500 mm	Red	15	H/D NPN	6	59	O6T207
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Rectangular housing O6 PerformanceLine, WetLine for hygienic and wet areas


Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diag. no.	Draw- ing no.	Order no.
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Through-beam sensor · Cable 2 m · 10...30 DC · high-grade stainless steel · IP65 / IP67 ; IP68 / IP69K











	Transmitter	10 m	Red	300	–	1	60	O6S300
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	Receiver	10 m	Red	–	H/D PNP	11	61	O6E300
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Through-beam sensor · Cable 0.3 m · with M12 connector · 10...30 DC · high-grade stainless steel · IP65 / IP67 ; IP68 / IP69K · Connector groups 117, 119

	Receiver	10 m	Red	–	H/D PNP	4	61	O6E301
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Position sensors

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
Through-beam sensor · M8 connector · 10...30 DC · high-grade stainless steel · IP65 / IP67 ; IP68 / IP69K · Connector group 114								
	Transmitter	10 m	Red	300	–	2	62	O6S302
Through-beam sensor · M8 connector · 10...30 DC · high-grade stainless steel · IP65 / IP67 ; IP68 / IP69K · Connector groups 114, 115								
	Receiver	10 m	Red	–	H/D PNP	4	63	O6E302
Through-beam sensor · M8 connector · 10...30 DC · high-grade stainless steel · IP65 / IP67 ; IP68 / IP69K · Connector group 116								
	Receiver	10 m	Red	–	H/D PNP	4	63	O6E303
Through-beam sensor · Cable 0.3 m · with M12 connector · 10...30 DC · high-grade stainless steel · IP65 / IP67 ; IP68 / IP69K · Connector group 117								
	Transmitter	10 m	Red	300	–	2	60	O6S301
Through-beam sensor · Cable 2 m · 10...30 DC · high-grade stainless steel · IP65 / IP67 ; IP68 / IP69K								
	Receiver	10 m	Red	–	H/D NPN	24	61	O6E304
Through-beam sensor · Cable 0.3 m · with M12 connector · 10...30 DC · high-grade stainless steel · IP65 / IP67 ; IP68 / IP69K · Connector group 117								
	Receiver	10 m	Red	–	H/D NPN	6	61	O6E305
Through-beam sensor · M8 connector · 10...30 DC · high-grade stainless steel · IP65 / IP67 ; IP68 / IP69K · Connector group 116								
	Transmitter	10 m	Red	300	–	2	62	O6S303
Through-beam sensor · M8 connector · 10...30 DC · high-grade stainless steel · IP65 / IP67 ; IP68 / IP69K · Connector group 114								
	Receiver	10 m	Red	–	H/D NPN	6	63	O6E306
Through-beam sensor · M8 connector · 10...30 DC · high-grade stainless steel · IP65 / IP67 ; IP68 / IP69K · Connector group 116								
	Receiver	10 m	Red	–	H/D NPN	6	63	O6E307
Diffuse reflection sensor · Cable 2 m · 10...30 DC · high-grade stainless steel · IP65 / IP67 ; IP68 / IP69K								
	Background suppression	2...200 mm	Red	8	H/D PNP	11	64	O6H300


Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
Diffuse reflection sensor · Cable 0.3 m · with M12 connector · 10...30 DC · high-grade stainless steel · IP65 / IP67 ; IP68 / IP69K · Connector groups 117, 119								
	Background suppression	2...200 mm	Red	8	H/D PNP	4	64	O6H301
Diffuse reflection sensor · M8 connector · 10...30 DC · high-grade stainless steel · IP65 / IP67 ; IP68 / IP69K · Connector groups 114, 115								
	Background suppression	2...200 mm	Red	8	H/D PNP	4	65	O6H302
Diffuse reflection sensor · M8 connector · 10...30 DC · high-grade stainless steel · IP65 / IP67 ; IP68 / IP69K · Connector group 116								
	Background suppression	2...200 mm	Red	8	H/D PNP	4	65	O6H303
Diffuse reflection sensor · Cable 2 m · 10...30 DC · high-grade stainless steel · IP65 / IP67 ; IP68 / IP69K								
	Background suppression	2...200 mm	Red	8	H/D NPN	24	64	O6H304
Diffuse reflection sensor · Cable 0.3 m · with M12 connector · 10...30 DC · high-grade stainless steel · IP65 / IP67 ; IP68 / IP69K · Connector group 117								
	Background suppression	2...200 mm	Red	8	H/D NPN	6	64	O6H305
Diffuse reflection sensor · M8 connector · 10...30 DC · high-grade stainless steel · IP65 / IP67 ; IP68 / IP69K · Connector group 114								
	Background suppression	2...200 mm	Red	8	H/D NPN	6	65	O6H306
Diffuse reflection sensor · M8 connector · 10...30 DC · high-grade stainless steel · IP65 / IP67 ; IP68 / IP69K · Connector group 116								
	Background suppression	2...200 mm	Red	8	H/D NPN	6	65	O6H307
Retro-reflective sensor · Cable 2 m · 10...30 DC · high-grade stainless steel · IP65 / IP67 ; IP68 / IP69K								
	Polarisation filter	0.05...5 m	Red	150	H/D PNP	11	64	O6P300
Retro-reflective sensor · Cable 0.3 m · with M12 connector · 10...30 DC · high-grade stainless steel · IP65 / IP67 ; IP68 / IP69K · Connector groups 117, 119								
	Polarisation filter	0.05...5 m	Red	150	H/D PNP	4	64	O6P301
Retro-reflective sensor · M8 connector · 10...30 DC · high-grade stainless steel · IP65 / IP67 ; IP68 / IP69K · Connector groups 114, 115								
	Polarisation filter	0.05...5 m	Red	150	H/D PNP	4	65	O6P302

Position sensors


Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
Retro-reflective sensor · M8 connector · 10...30 DC · high-grade stainless steel · IP65 / IP67 ; IP68 / IP69K · Connector group 116								
	Polarisation filter	0.05...5 m	Red	150	H/D PNP	4	65	O6P303
Retro-reflective sensor · Cable 2 m · 10...30 DC · high-grade stainless steel · IP65 / IP67 ; IP68 / IP69K								
	Polarisation filter	0.05...5 m	Red	150	H/D NPN	24	64	O6P304
Retro-reflective sensor · Cable 0.3 m · with M12 connector · 10...30 DC · high-grade stainless steel · IP65 / IP67 ; IP68 / IP69K · Connector group 117								
	Polarisation filter	0.05...5 m	Red	150	H/D NPN	6	64	O6P305
Retro-reflective sensor · M8 connector · 10...30 DC · high-grade stainless steel · IP65 / IP67 ; IP68 / IP69K · Connector group 114								
	Polarisation filter	0.05...5 m	Red	150	H/D NPN	6	65	O6P306
Retro-reflective sensor · M8 connector · 10...30 DC · high-grade stainless steel · IP65 / IP67 ; IP68 / IP69K · Connector group 116								
	Polarisation filter	0.05...5 m	Red	150	H/D NPN	6	65	O6P307
Diffuse reflection sensor · Cable 2 m · 10...30 DC · high-grade stainless steel · IP65 / IP67 ; IP68 / IP69K								
	Diffuse reflection sensor	5...500 mm	Red	15	H/D PNP	11	64	O6T300
Diffuse reflection sensor · Cable 0.3 m · with M12 connector · 10...30 DC · high-grade stainless steel · IP65 / IP67 ; IP68 / IP69K · Connector groups 117, 119								
	Diffuse reflection sensor	5...500 mm	Red	15	H/D PNP	4	64	O6T301
Diffuse reflection sensor · M8 connector · 10...30 DC · high-grade stainless steel · IP65 / IP67 ; IP68 / IP69K · Connector groups 114, 115								
	Diffuse reflection sensor	5...500 mm	Red	15	H/D PNP	4	65	O6T302
Diffuse reflection sensor · M8 connector · 10...30 DC · high-grade stainless steel · IP65 / IP67 ; IP68 / IP69K · Connector group 116								
	Diffuse reflection sensor	5...500 mm	Red	15	H/D PNP	4	65	O6T303
Diffuse reflection sensor · Cable 2 m · 10...30 DC · high-grade stainless steel · IP65 / IP67 ; IP68 / IP69K								
	Diffuse reflection sensor	5...500 mm	Red	15	H/D NPN	24	64	O6T304

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
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Diffuse reflection sensor · Cable 0.3 m · with M12 connector · 10...30 DC · high-grade stainless steel · IP65 / IP67 ; IP68 / IP69K · Connector group 117

	Diffuse reflection sensor	5...500 mm	Red	15	H/D NPN	6	64	O6T305
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Diffuse reflection sensor · M8 connector · 10...30 DC · high-grade stainless steel · IP65 / IP67 ; IP68 / IP69K · Connector group 114

	Diffuse reflection sensor	5...500 mm	Red	15	H/D NPN	6	65	O6T306
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Diffuse reflection sensor · M8 connector · 10...30 DC · high-grade stainless steel · IP65 / IP67 ; IP68 / IP69K · Connector group 116

	Diffuse reflection sensor	5...500 mm	Red	15	H/D NPN	6	65	O6T307
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Rectangular housing O5 BasicLine

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
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Through-beam sensor · M12 connector · 10...36 DC · plastics · IP67 · Connector groups 8, 10, 18, 20, 117, 118, 147

	Transmitter	20 m	Red	500	–	2	66	O5S200
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Through-beam sensor · M12 connector · 10...36 DC · plastics · IP67 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148

	Receiver	20 m	Red	–	D PNP	15	66	O5E200
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Retro-reflective sensor · M12 connector · 10...36 DC · plastics · IP67 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148

	Polarisation filter	0.1...7 m	Red	175	D PNP	15	67	O5P200
	Polarisation filter	0.1...7 m	Red	175	H PNP	25	67	O5P201








Diffuse reflection sensor · M12 connector · 10...36 DC · plastics · IP65 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148

	Background suppression	50...1400 mm	Red	50	H PNP	5	68	O5H200
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Diffuse reflection sensor · M12 connector · 10...36 DC · plastics · IP67 · Connector groups 8, 10, 18, 20, 117, 118, 147


	Background suppression	50...1400 mm	Red	50	H NPN	18	68	O5H201
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Rectangular housing O5 PerformanceLine

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Drawing no.	Order no.
Through-beam sensor · Cable 2 m · 10...36 DC · plastics · IP67								
	Transmitter	25 m	Red	625	–	1	69	O5S501
	Receiver	25 m	Red	–	H/D PNP	11	70	O5E501
Through-beam sensor · M12 connector · 10...36 DC · plastics · IP67 · Connector groups 8, 10, 18, 20, 117, 118, 147								
	Transmitter	25 m	Red	625	–	2	66	O5S500
	Receiver	25 m	Red	–	H/D PNP	4	71	O5E500
Through-beam sensor · M12 connector · 10...36 DC · plastics · IP67 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148								
	Receiver	25 m	Red	–	H/D PNP	4	71	O5E500
	Receiver	25 m	Red	–	H/D NPN	6	71	O5E502
Retro-reflective sensor · Cable 2 m · 10...36 DC · plastics · IP67								
	Polarisation filter	0.075...10 m	Red	250	H/D PNP	11	72	O5P501
	Polarisation filter	0.075...10 m	Red	250	H/D PNP	4	73	O5P500
Retro-reflective sensor · M12 connector · 10...36 DC · plastics · IP67 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148								
	Polarisation filter	0.075...10 m	Red	250	H/D PNP	4	73	O5P500
	Polarisation filter	0.075...10 m	Red	250	H/D NPN	6	73	O5P502
Diffuse reflection sensor · Cable 2 m · 10...36 DC · plastics · IP67								
	Background suppression	50...1800 mm	Red	50	H/D PNP	11	72	O5H503
	Background suppression	50...1800 mm	Red	50	H/D PNP	4	73	O5H500
Diffuse reflection sensor · M12 connector · 10...36 DC · plastics · IP67 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148								
	Background suppression	50...1800 mm	Red	50	H/D PNP	4	73	O5H500
	Background suppression	60...700 mm	Red	35	H/D PNP	4	73	O5H501

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
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Diffuse reflection sensor · M12 connector · 10...36 DC · plastics · IP67 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148

	Background suppression	50...1800 mm	Red	50	H/D NPN	6	73	O5H504
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Rectangular housing O5 PerformanceLine with ATEX approval 3D

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
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Through-beam sensor · M12 connector · 10...30 DC · plastics · IP65 · Connector groups 144, 146

	Transmitter	25 m	Red	625	–	2	74	O5S51A
	Receiver	25 m	Red	–	H/D PNP	4	74	O5E51A

Retro-reflective sensor · M12 connector · 10...30 DC · plastics · IP65 · Connector groups 144, 146

	Polarisation filter	0.075...10 m	Red	250	H/D PNP	4	74	O5P51A
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Diffuse reflection sensor · M12 connector · 10...30 DC · plastics · IP65 · Connector groups 144, 146

	Background suppression	50...1800 mm	Red	50	H/D PNP	4	74	O5H51A
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Rectangular housing OL BasicLine

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
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Through-beam sensor · Terminals · 20...250 AC/DC (47...63 Hz AC) · plastics · IP67

	Transmitter	25 m	Infrared	< 2500	–	26	75	OL0006
	Receiver	25 m	Infrared	–	H/D Relay	27	75	OL0007





Position sensors

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
Retro-reflective sensor · Terminals · 20...250 AC/DC (47...63 Hz AC) · plastics · IP67								
	Polarisation filter	0.3...5 m	Red	250	H/D Relay	27	76	OL0004*
Diffuse reflection sensor · Terminals · 20...250 AC/DC (47...63 Hz AC) · plastics · IP67								
	Diffuse reflection sensor	1...1000 mm	Infrared	< 300	H/D Relay	27	75	OL0005*
	Diffuse reflection sensor	1...800 mm	Infrared	< 80	H/D Relay	27	75	OL0009*

* Note for AC and AC/DC units

Miniature fuse to IEC60127-2 sheet 1, ≤ 5 A (fast acting) Recommendation: check the unit for reliable function after a short circuit.


Rectangular housing O4 BasicLine

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
Through-beam sensor · M12 connector · 10...36 DC · plastics · IP67 · Connector groups 8, 10, 18, 20, 117, 118, 147								
	Transmitter	0...50 m	Red	1000	–	2	77	O4S200
Through-beam sensor · M12 connector · 10...36 DC · plastics · IP67 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148								
	Receiver	0...50 m	Red	–	D PNP	15	78	O4E200
	Receiver	0...50 m	Red	–	H PNP	5	78	O4E201
Retro-reflective sensor · M12 connector · 10...36 DC · plastics · IP67 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148								
	Polarisation filter	0.3...18 m	Red	500	D PNP	15	79	O4P200
	Polarisation filter	0.3...18 m	Red	500	H PNP	5	79	O4P201
Diffuse reflection sensor · M12 connector · 10...36 DC · plastics · IP65 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148								
	Background suppression	100...2000 mm	Red	100	H PNP	5	80	O4H200
	Background suppression	100...2000 mm	Red	100	D PNP	15	80	O4H201


Rectangular housing O4 PerformanceLine

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Drawing no.	Order no.
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Through-beam sensor · Cable 2 m · 10...36 DC · plastics · IP67

	Transmitter	80 m	Red	2400	–	1	81	O4S501
	Receiver	80 m	Red	–	H/D PNP	11	82	O4E501


Through-beam sensor · M12 connector · 10...36 DC · plastics · IP67 · Connector groups 8, 10, 18, 20, 117, 118, 147

	Transmitter	80 m	Red	2400	–	2	77	O4S500
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Through-beam sensor · M12 connector · 10...36 DC · plastics · IP67 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148

	Receiver	80 m	Red	–	H/D PNP	4	83	O4E500
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Retro-reflective sensor · Cable 2 m · 10...36 DC · plastics · IP67

	Polarisation filter	0.3...22 m	Red	660	H/D PNP	11	84	O4P501
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Retro-reflective sensor · M12 connector · 10...36 DC · plastics · IP67 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148

	Polarisation filter	0.3...22 m	Red	660	H/D PNP	4	85	O4P500
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Diffuse reflection sensor · Cable 2 m · 10...36 DC · plastics · IP67


	Background suppression	100...2600 mm	Red	50	H/D PNP	11	86	O4H501
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Diffuse reflection sensor · M12 connector · 10...36 DC · plastics · IP67 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148



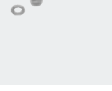


	Background suppression	100...2600 mm	Red	50	H/D PNP	4	87	O4H500
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Prismatic reflectors, reflective tape and fixing components

Type	Description	Order no.
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	Prismatic reflector · Ø 20 mm · round · For red light and infrared light retro-reflective sensors · Housing materials: plastics	E20003
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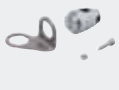


Type	Description	Order no.
	Prismatic reflector · Ø 25 mm · round · fixing by screw · For red light and infrared light retro-reflective sensors · Housing materials: plastics	E20953
	Prismatic reflector · Ø 35 mm · round · fixing by screw · For red light and infrared light retro-reflective sensors · Housing materials: plastics	E20954
	Prismatic reflector · Ø 42 mm · round · For red light and infrared light retro-reflective sensors · Housing materials: plastics	E20004
	Prismatic reflector · Ø 50 mm · round · fixing by screw · For red light and infrared light retro-reflective sensors · Housing materials: plastics	E20956
	Prismatic reflector · Ø 80 mm · round · For red light and infrared light retro-reflective sensors · Housing materials: plastics	E20005
	Prismatic reflector · 18 x 40 mm · rectangular · For red light and infrared light retro-reflective sensors · Housing materials: plastics	E21115
	Prismatic reflector · 45 x 28 mm · rectangular · For red light and infrared light retro-reflective sensors · Housing materials: plastics	E20452
	Prismatic reflector · 48 x 48 mm · rectangular · For red light and infrared light retro-reflective sensors · Housing materials: front plate: PMMA / base: ABS	E20744
	Prismatic reflector · 93 x 45 mm · rectangular · For red light and infrared light retro-reflective sensors · Housing materials: plastics	E20453
	Prismatic reflector · 96 x 96 mm · rectangular · For red light and infrared light retro-reflective sensors · Housing materials: plastics	E20454
	Prismatic reflector · 18 x 18 mm · rectangular · For red light and infrared light retro-reflective sensors · Housing materials: Solidchem	E21267
	Prismatic reflector · 56 x 38 mm · rectangular · For red light and infrared light retro-reflective sensors · Housing materials: Solidchem	E21268
	Prismatic reflector · 48 x 48 mm · rectangular · For red light and infrared light retro-reflective sensors · Housing materials: Solidchem	E21269
	Prismatic reflector · 96 x 96 mm · rectangular · For red light and infrared light retro-reflective sensors · Housing materials: Solidchem	E21270
	Mounting set · for reflector · Clamp mounting · Rod mounting Ø 30 mm · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: aluminium transparent anodised	E21007

Type	Description	Order no.
	Mounting set · for reflector · Ø 25 mm · Clamp mounting · free-standing M8 · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: stainless steel	E20903
	Mounting set · for reflector · Ø 35 mm · Clamp mounting · free-standing M8 · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: stainless steel	E20907
	Mounting set · for reflector · Ø 50 mm · Clamp mounting · Free-standing M10 · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: stainless steel	E20911
	Mounting set · for reflector · Ø 80 mm · Clamp mounting · free-standing M12 · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: diecast zinc	E20914
	Mounting set · for reflector · Ø 80 mm · Clamp mounting · free-standing M12 · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: stainless steel	E20915
	Angle bracket · for reflector · 50 x 50 mm · Housing materials: fixture: stainless steel 316Ti / 1.4571	E20724
	Reflective tape · TS-02 · 50 x 1000 mm · For red light and infrared light retro-reflective sensors · Housing materials: plastics / acrylic	E21015








Accessories OF design (M12)





Type	Description	Order no.
	angle support · 90° · for type OF · Housing materials: housing: ABS / lens: PC	E20590
	Angle bracket · Ø 12 mm · with end stop · Mounting clamp · Clamp mounting · for type IF, KF, OF · Housing materials: fixture: stainless steel / Mounting clamp: PC black	E21144
	Mounting set · Ø 12.2 mm · Clamp mounting · rod mounting Ø 10 mm · for type OF, IF · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: diecast zinc	E21200
	Mounting set · Ø 12.2 mm · Clamp mounting · rod mounting Ø 10 mm · for type OF, IF · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: stainless steel	E21201
	Mounting set · Ø 12.2 mm · Clamp mounting · rod mounting Ø 10 mm · for type OF, IF · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: diecast zinc	E21202
	Mounting set · Ø 12.2 mm · Clamp mounting · rod mounting Ø 10 mm · for type OF, IF · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: stainless steel	E21203

Accessories OG design (M18)



Type	Description	Order no.
	Angle bracket · for type M18 · Housing materials: stainless steel	E10736
	Angle bracket · Ø 18 mm · with end stop · Mounting clamp · Clamp mounting · for type OG, IG, KG · Housing materials: fixture: stainless steel / Mounting clamp: PC black	E21145
	Mounting set · Ø 18.5 mm · Clamp mounting · rod mounting Ø 12 mm · for type OG, IG, KG · Housing materials: clamp: diecast zinc / fixture: steel	E20720
	Mounting set · Ø 18.5 mm · Clamp mounting · rod mounting Ø 12 mm · for type OG, IG, KG · Housing materials: clamp: diecast zinc / fixture: steel	E20721
	Mounting set · Ø 18.5 mm · Clamp mounting · rod mounting Ø 12 mm · for type OG, IG, KG · Housing materials: clamp: high-grade stainless steel / fixture: high-grade stainless steel	E21206
	Mounting set · Ø 18.5 mm · Clamp mounting · rod mounting Ø 12 mm · for type OG, IG, KG · Housing materials: clamp: high-grade stainless steel / fixture: high-grade stainless steel	E21207

Accessories OI design (M30)

Type	Description	Order no.
	Angle bracket · for type M30 · Housing materials: stainless steel	E10737
	Mounting clamp · Ø 30 mm · with end stop · for type M30 · Housing materials: PC	E11049
	Mounting clamp · Ø 34 mm - Ø 30 mm · with reducing bush · for type M30 · Housing materials: PBT	E10077
	Mounting set · Ø 30.2 mm · Clamp mounting · aluminium profile · for type OI, II, KI, OI · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: diecast zinc / Cube: diecast zinc	E20875
	Mounting set · Ø 30.2 mm · Clamp mounting · free-standing M12 · for type OI, II, KI · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: diecast zinc	E20873
	Mounting set · Ø 30.2 mm · Clamp mounting · free-standing M12 · for type OI, II, KI · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: stainless steel	E20874
	mounting rod · Ø 12 / M10 · Length: 130 mm · straight · Housing materials: stainless steel 316Ti / 1.4571	E20938

Type	Description	Order no.
	Cube · M10 · aluminium profile · Housing materials: diecast zinc	E20951
	Memory plug · Parameter memory for IO-Link sensors · Storage capacity: 2 Kbytes · Housing materials: PA PACM 12 / PET / sealing: FPM / nut: stainless steel 316L / 1.4404 / connector: TPU	E30398
	IO-Link interface · for parameter setting and analysis of units · Supported communication protocols: IO-Link (4800 and 38400 bits/s) EPS protocol (19200 bits/s) · for operation with FDT framework software "ifm Container" or software "LINERECORDER SENSOR"	E30396
	LINERECORDER SENSOR · Software for parameter setting and set-up of IO-Link sensors · Recording and distribution of parameter sets (duplication) · Capture and evaluation of sensor values over a longer period of time · Resetting of sensor parameters to factory setting · Use via USB connection cable E30396 or E30390 (drivers are contained in the corresponding software package)	ZGS210

Accessories OH housing

Type	Description	Order no.
	Angle bracket · for free-standing mounting · for type OH · Housing materials: Angle bracket: stainless steel 316Ti / 1.4571	E21057
	Mounting set · for type OH · Housing materials: ABS	E21056


Accessories O7 housing





Type	Description	Order no.
	Mounting set · O7 · Clamp mounting · rod mounting Ø 10 mm · Housing materials: fixture: stainless steel / clamp: stainless steel / screw: stainless steel / nut: stainless steel	E21237
	Mounting set · O7 · Free-standing mounting · free-standing · Housing materials: fixture: stainless steel / screws: stainless steel	E21238
	Mounting set · O7 · Free-standing mounting · with fine adjustment · free-standing · Housing materials: fixture: stainless steel / Spring: spring steel / screws: stainless steel	E21239
	Mounting set · O7 · ball joint · free-standing · Housing materials: fixture: diecast zinc / mounting base: diecast zinc / screws: stainless steel	E21240

Accessories OJ housing




Type	Description	Order no.
	Angle bracket · for type OJ · Housing materials: high-grade stainless steel	E20984
	Basic clip · OJ · Housing materials: high-grade stainless steel	E20965
	Basic clip · OJ · Housing materials: diecast zinc	E20964
	Swivel-mount clip · for type OJ · Housing materials: diecast zinc	E20974
	Mounting set · OJ · for side lens · Clamp mounting · free-standing M8 · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: diecast zinc	E20968
	Mounting set · OJ · for side lens · Clamp mounting · free-standing M8 · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: stainless steel	E20969
	Mounting set · OJ · for side lens · rod mounting Ø 10 mm · Housing materials: clamp: diecast zinc / fixture: stainless steel 316Ti / 1.4571	E21095
	Mounting set · OJ · for side lens · Clamp mounting · rod mounting Ø 10 mm · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: diecast zinc	E21222
	Mounting set · OJ · for side lens · Clamp mounting · rod mounting Ø 10 mm · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: stainless steel	E20973
	Mounting set · OJ · for front lens · Clamp mounting · free-standing M8 · Housing materials: clamp: diecast zinc / fixture: stainless steel 316Ti / 1.4571	E20966
	Mounting set · OJ · for front lens · Clamp mounting · rod mounting Ø 10 mm · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: diecast zinc	E20970
	Mounting set · OJ · for front lens · Clamp mounting · rod mounting · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: stainless steel	E21221

Accessories for O6 design





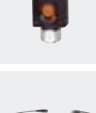


Type	Description	Order no.
	Angle bracket · O6 · for type O6 · Housing materials: stainless steel 316Ti / 1.4571	E21271

Type	Description	Order no.
	Mounting set · O6 · Clamp mounting · rod mounting Ø 10 mm · for type O6 · Housing materials: stainless steel 316Ti / 1.4571	E21272
	Protective cover · O6 · for type O6 · Housing materials: stainless steel 316Ti / 1.4571	E21273
	Pin hole · 0.5 mm · for type O6E / O6S plastic · Housing materials: stainless steel	E21277
	Slit diaphragm · 0.5 x 8 mm · for type O6E / O6S plastic · Housing materials: stainless steel	E21280




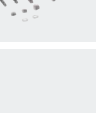


Accessories O5 housing

Type	Description	Order no.
	Angle bracket · for type O5 · Housing materials: stainless steel 316Ti / 1.4571	E21087
	Angle bracket · for type O5 · Housing materials: stainless steel 316Ti / 1.4571	E21085
	Angle bracket · O5, O4 · for mounting O5, O4 sensors instead of OL sensors · Dovetail clamp · Housing materials: Dovetail clamp: AlMgSi0.5 / fixture: AlMg3	E21122
	Dovetail clamp · for type DTS, O4, O5 · Housing materials: AlMgSi0.5	E21088
	Mounting brackets Mounting on the back of the unit · for type O5 · Housing materials: stainless steel 316Ti / 1.4571	E21086
	Mounting sleeve · O5 · for mounting O5 sensors instead of OC sensors · Housing materials: AlZnMgCu1.5 F51/52	E21114
	Mounting set · Clamp mounting · With protective cover · rod mounting Ø 12 mm · for type O5 · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: high-grade stainless steel	E21223
	Mounting set · Clamp mounting · With protective cover · rod mounting Ø 12 mm · for type O5 · Housing materials: stainless steel 316Ti / 1.4571 / clamp: diecast zinc	E21210
	Mounting set · Clamp mounting · rod mounting Ø 12 mm · for type O5, O5D · Housing materials: stainless steel 316Ti / 1.4571 / clamp: diecast zinc	E21211

Position sensors

Type	Description	Order no.
	Mounting set · Clamp mounting · rod mounting Ø 12 mm · for type O5, O5D · Housing materials: stainless steel 316Ti / 1.4571 / clamp: high-grade stainless steel	E21212
	Mounting set · Clamp mounting · With protective cover · rod mounting Ø 14 mm · for type O5 · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: stainless steel	E21142
	Mounting set · Clamp mounting · With protective cover · Free-standing M10 · for type O5 · Housing materials: stainless steel 316Ti / 1.4571 / clamp: diecast zinc	E21084
	Mounting set · Clamp mounting · Free-standing M10 · for type O5 · Housing materials: stainless steel 316Ti / 1.4571 / clamp: diecast zinc	E21083
	Memory plug · Parameter memory for IO-Link sensors · Storage capacity: 2 Kbytes · Housing materials: PA PACM 12 / PET / sealing: FPM / nut: stainless steel 316L / 1.4404 / connector: TPU	E30398
	IO-Link interface · for parameter setting and analysis of units · Supported communication protocols: IO-Link (4800 and 38400 bits/s) EPS protocol (19200 bits/s) · for operation with FDT framework software "ifm Container" or software "LINERECORDER SENSOR"	E30396
	LINERECORDER SENSOR · Software for parameter setting and set-up of IO-Link sensors · Recording and distribution of parameter sets (duplication) · Capture and evaluation of sensor values over a longer period of time · Resetting of sensor parameters to factory setting · Use via USB connection cable E30396 or E30390 (drivers are contained in the corresponding software package)	ZGS210


Accessories OL housing

Type	Description	Order no.
	Angle bracket · for type OL · Housing materials: stainless steel	E20788
	Angle bracket · With protective cover · for type OL · Housing materials: stainless steel	E20789
	Mounting set · Clamp mounting · free-standing M12 · for type OL · Housing materials: fixture: stainless steel / clamp: diecast zinc	E20792
	Mounting set · OL · Clamp mounting · rod mounting Ø 40 mm · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: aluminium transparent anodised	E21012
	Mounting set · Clamp mounting · With protective cover · free-standing M12 · for type OL · Housing materials: fixture: stainless steel / clamp: diecast zinc	E20793
	Mounting set · Clamp mounting · With protective cover · free-standing M12 · for type OL · Housing materials: clamp: stainless steel / fixture: stainless steel 316Ti / 1.4571	E20877












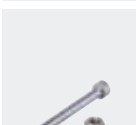
Accessories O4 housing


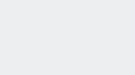


Type	Description	Order no.
	Angle bracket · O1D, O4 · for type O1D, O4 · Housing materials: stainless steel 316L / 1.4404	E21120
	Angle bracket · O4 · for type O4 · Housing materials: stainless steel 316L / 1.4404	E21117
	Angle bracket · O5, O4 · for mounting O5, O4 sensors instead of OL sensors · Dovetail clamp · Housing materials: Dovetail clamp: AlMgSi0.5 / fixture: AlMg3	E21122
	Dovetail clamp · for type DTS, O4, O5 · Housing materials: AlMgSi0.5	E21088
	Mounting brackets Mounting on the back of the unit · O4 · for type O4 · Housing materials: stainless steel 316Ti / 1.4571	E21116
	Mounting set · Clamp mounting · With protective cover · rod mounting Ø 12 mm · for type O4 · Housing materials: stainless steel 316L / 1.4404 / clamp: diecast zinc	E21215
	Mounting set · Clamp mounting · With protective cover · rod mounting Ø 12 mm · for type O4 · Housing materials: stainless steel 316L / 1.4404 / clamp: high-grade stainless steel	E21216
	Mounting set · Clamp mounting · rod mounting Ø 12 mm · for type O4 · Housing materials: stainless steel 316L / 1.4404 / clamp: diecast zinc	E21217
	Mounting set · Clamp mounting · rod mounting Ø 12 mm · for type O4 · Housing materials: stainless steel 316L / 1.4404 / clamp: high-grade stainless steel	E21218
	Mounting set · O4 · Clamp mounting · for type O4 · Housing materials: stainless steel 316L / 1.4404 / clamp: diecast zinc	E21118
	Mounting set · O4 · Clamp mounting · With protective cover · for type O4 · Housing materials: stainless steel 316L / 1.4404 / clamp: diecast zinc	E21119
	Mounting set · O4 · Clamp mounting · for type O4 · Housing materials: stainless steel 316L / 1.4404 / clamp: diecast zinc	E21118

Accessories for system components

Type	Description	Order no.
	clamp · Ø 10 mm; M8 · free-standing M8 · Housing materials: clamp: diecast zinc	E20843

You can find wiring diagrams and scale drawings from page 237

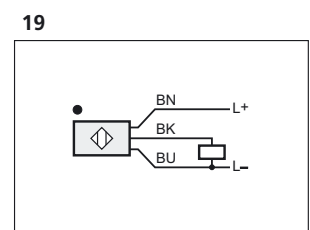
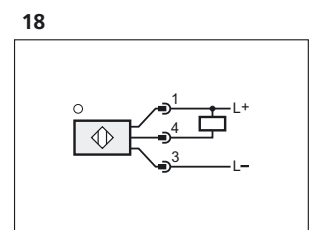
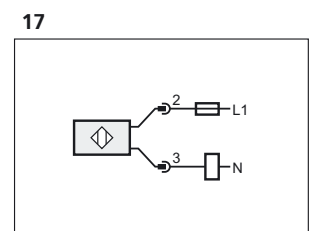
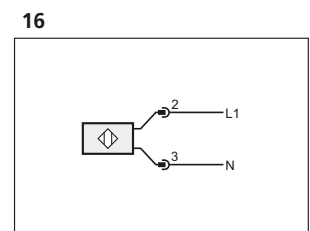
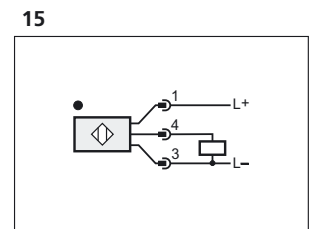
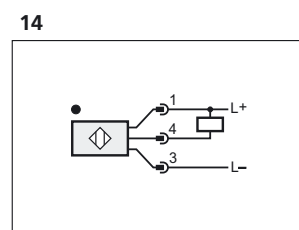
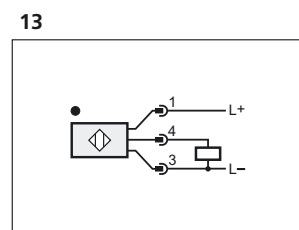
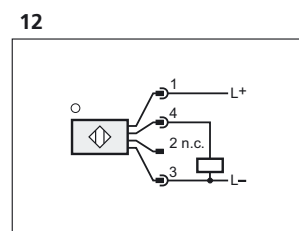
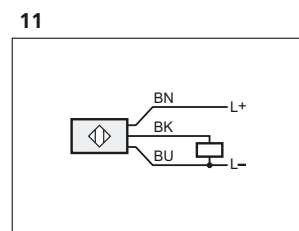
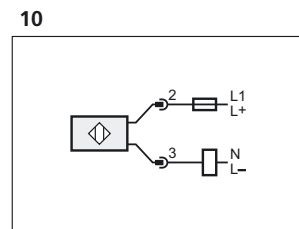
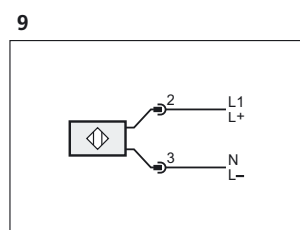
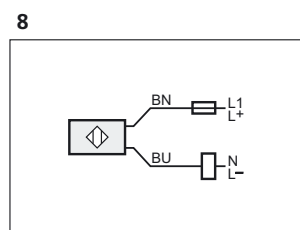
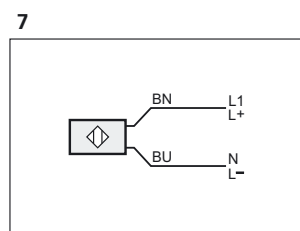
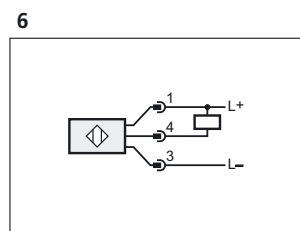
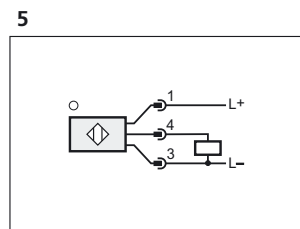
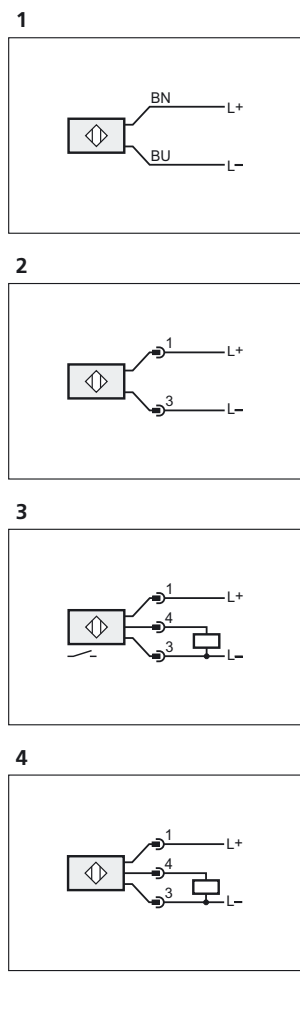
Type	Description	Order no.
	clamp · Ø 10 mm; M8 · free-standing M8 · Housing materials: clamp: stainless steel 316Ti / 1.4571	E20844
	clamp · Ø 12 mm; M10 · Free-standing M10 · Housing materials: clamp: diecast zinc	E20716
	clamp · Ø 12 mm · rod mounting Ø 12 mm · Housing materials: clamp: diecast zinc	E20717
	clamp · Ø 12 mm · rod mounting Ø 12 mm · Housing materials: clamp: stainless steel	E21110
	clamp · Ø 14 mm; M12 · free-standing M12 · Housing materials: clamp: diecast zinc	E20796
	mounting rod · Ø 10 / M8 · Length: 150 mm · straight · Housing materials: stainless steel 316Ti / 1.4571	E21081
	mounting rod · Ø 10 / M8 · Length: 200 mm · angled · Housing materials: stainless steel 316Ti / 1.4571	E80310
	mounting rod · Ø 12 / M10 · Length: 130 mm · straight · Housing materials: stainless steel 316Ti / 1.4571	E20938
	mounting rod · Ø 12 / M10 · Length: 200 mm · angled · Housing materials: stainless steel 316Ti / 1.4571	E20940
	Head cap screw · M8 x 40 mm · ISO 4762 (DIN 912) · free-standing M8 · Housing materials: screw: steel galvanised	E21204
	Head cap screw · M8 x 40 mm · ISO 4762 (DIN 912) · free-standing M8 · Housing materials: screw: high-grade stainless steel	E21205
	Head cap screw · M10 x 45 mm · ISO 4762 (DIN 912) · Free-standing M10 · Housing materials: screw: steel galvanised	E21208
	Head cap screw · M10 x 45 mm · ISO 4762 (DIN 912) · Free-standing M10 · Housing materials: screw: high-grade stainless steel	E21209
	Head cap screw · M10 x 120 mm · ISO 4762 (DIN 912) · Free-standing M10 · Housing materials: screw: steel galvanised	E21213
	Head cap screw · M10 x 120 mm · ISO 4762 (DIN 912) · Free-standing M10 · Housing materials: screw: high-grade stainless steel	E21214

Type	Description	Order no.
	Cube · M8 · aluminium profile · Housing materials: diecast zinc	E20950
	Cube · M10 · aluminium profile · Housing materials: diecast zinc	E20951
	Protective bracket for free-standing and rod mounting · Ø 18 mm · Clamp mounting · Housing materials: stainless steel 316L / 1.4404	E21125
	Protective bracket for free-standing and rod mounting · Ø 18 mm · with end stop · Mounting clamp · Clamp mounting · Housing materials: Mounting clamp: PC black / Angle bracket: stainless steel 316L / 1.4404	E21126

Wiring diagrams

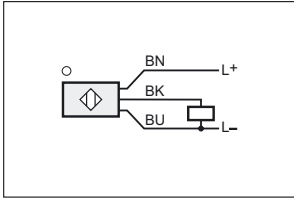
Core colours

BN brown
BU blue
BK black
WH white

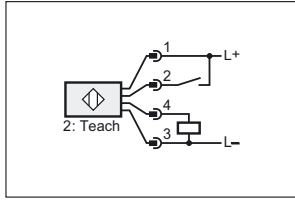


Wiring diagrams

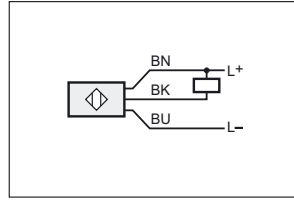
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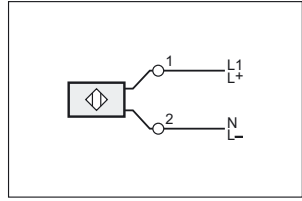
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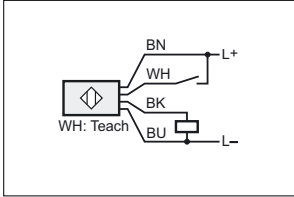
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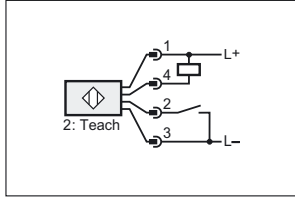
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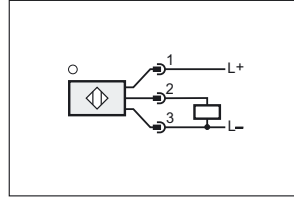
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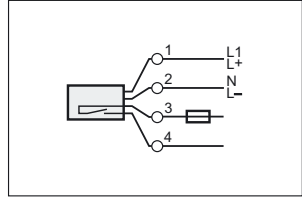
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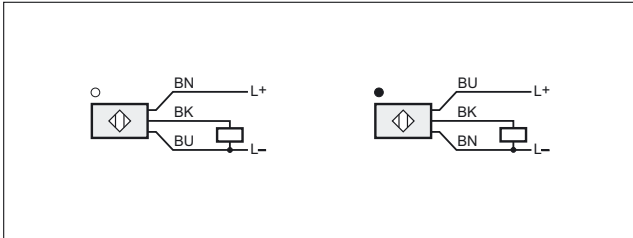
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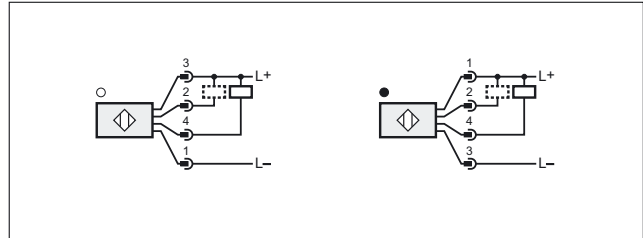
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28

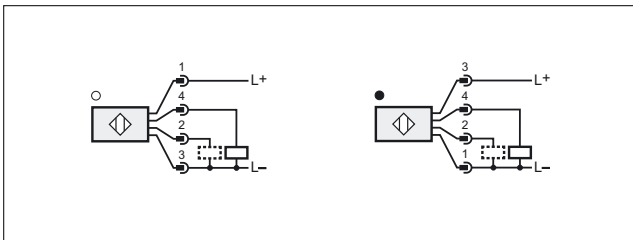


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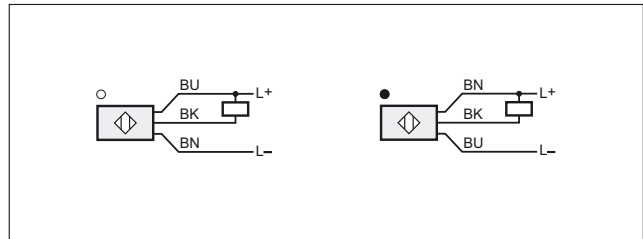
2: function check

29

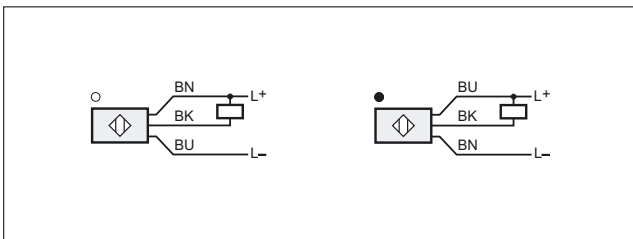


2: function check

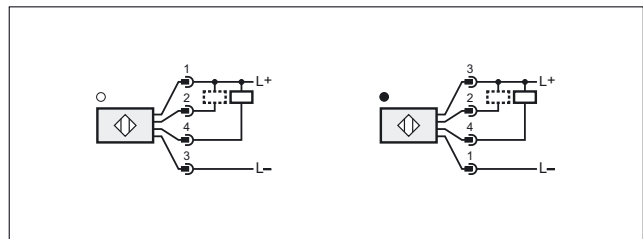
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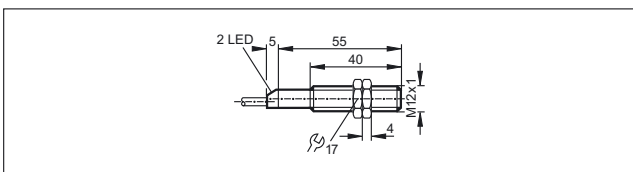
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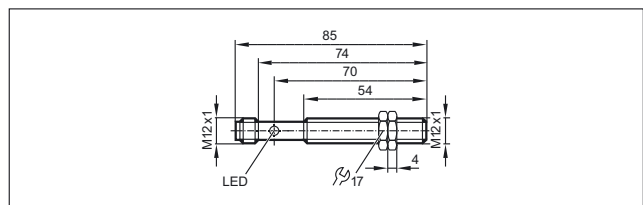
2: function check

Scale drawings / drawing no. – CAD download: www.ifm.com

1

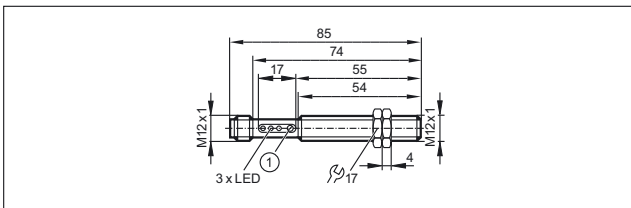


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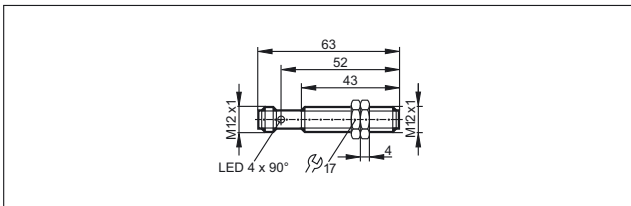
Scale drawings / drawing no. – CAD download: www.ifm.com

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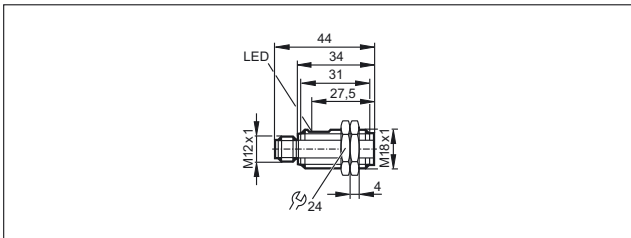


1: potentiometer

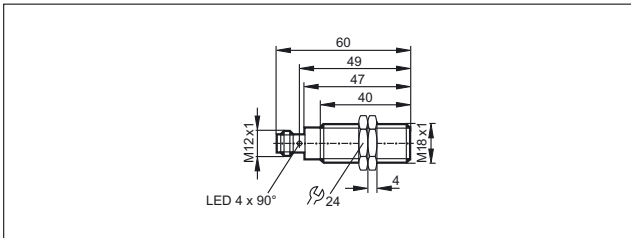
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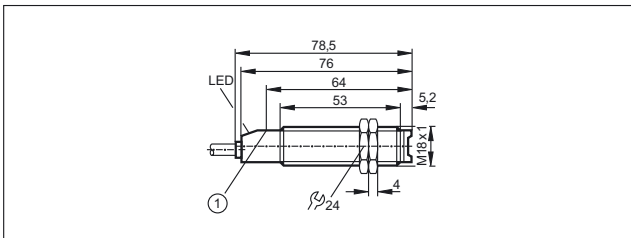
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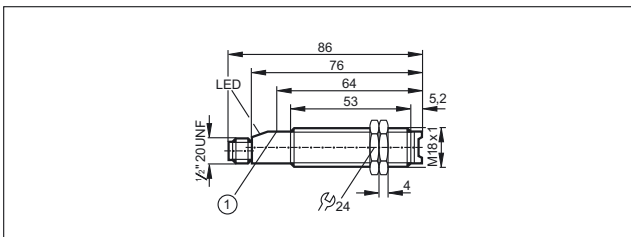


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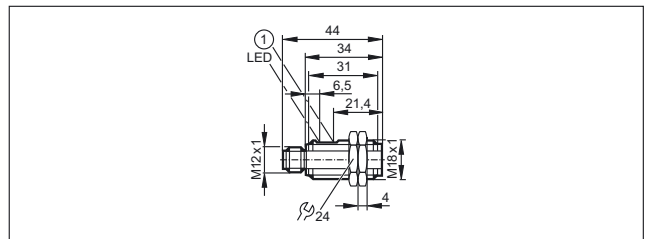
1: pushbutton

8



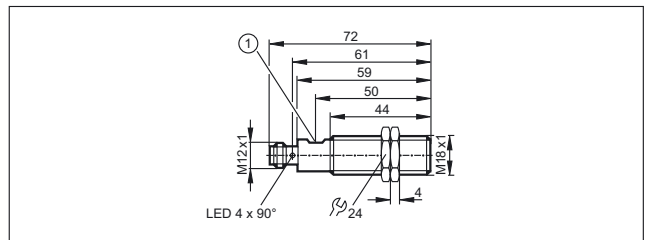
1: pushbutton

9



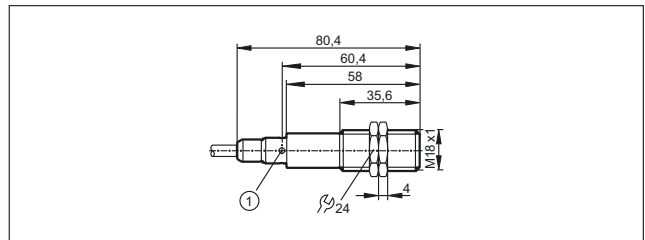
1: potentiometer

10



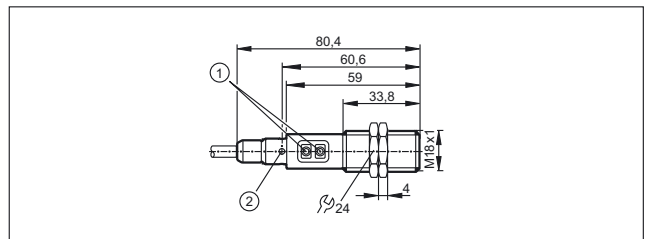
1: potentiometer

11



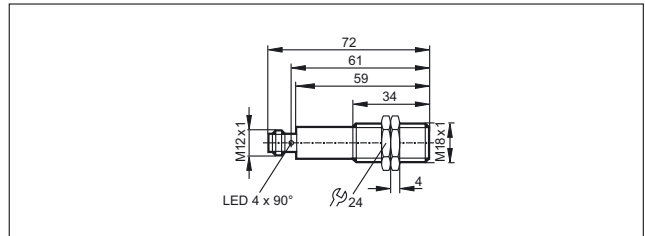
1: LED 4 x 90°

12



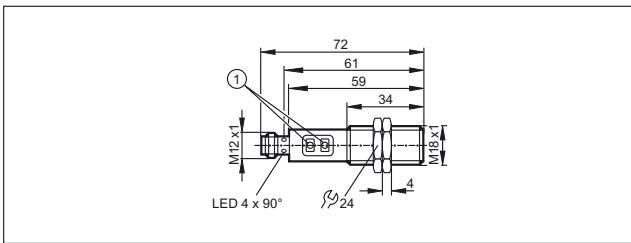
1: Programming buttons, 2: LED 4 x 90°

13



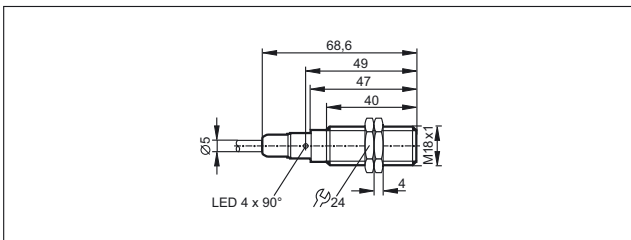
Scale drawings / drawing no. – CAD download: www.ifm.com

14

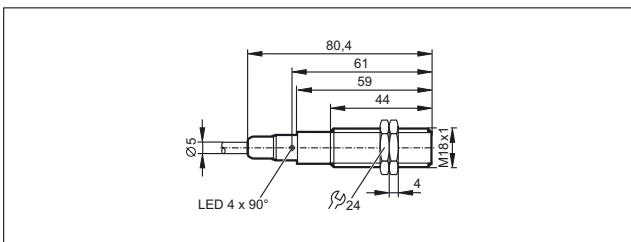


1: Programming buttons

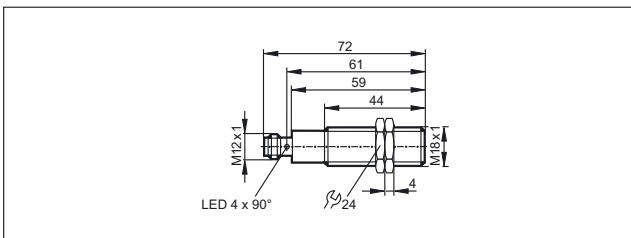
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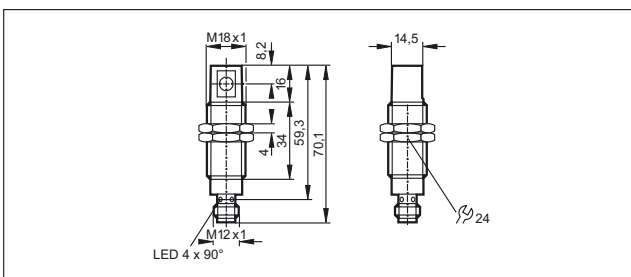
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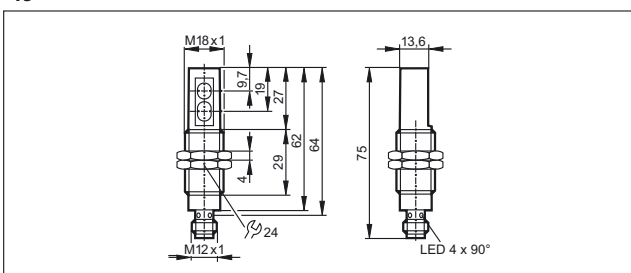
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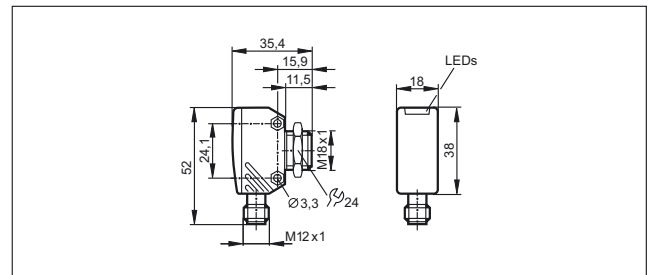
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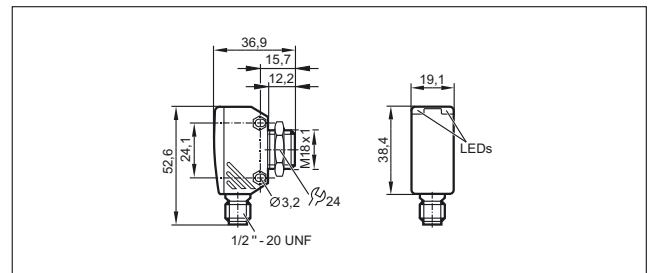
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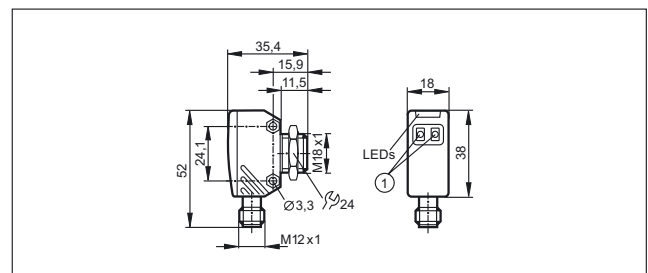
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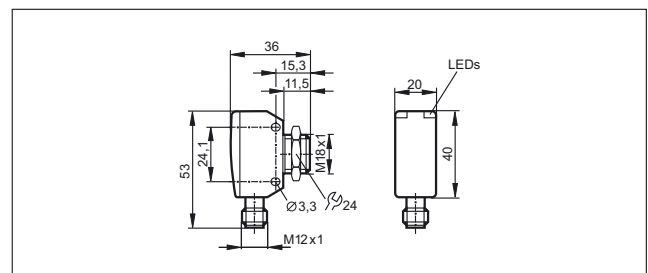


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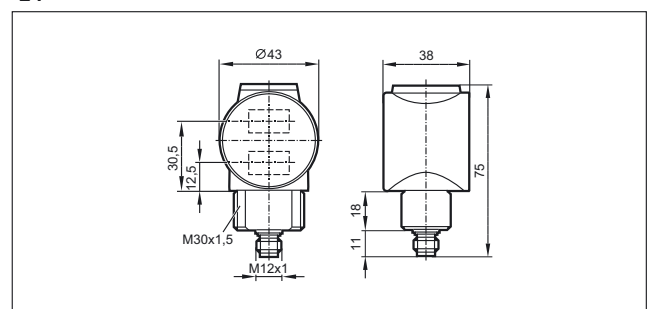


1: setting pushbuttons

23



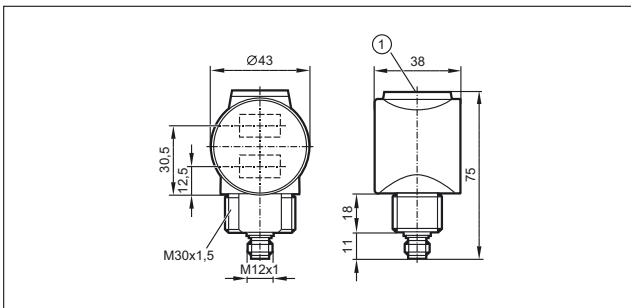
24



1: potentiometer

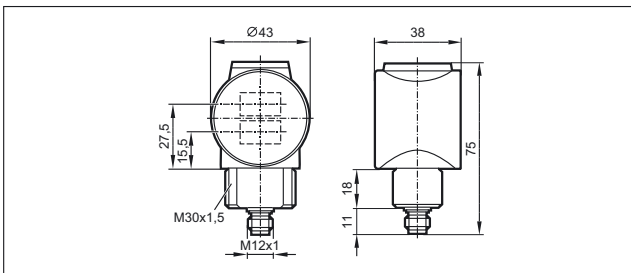
Scale drawings / drawing no. – CAD download: www.ifm.com

25

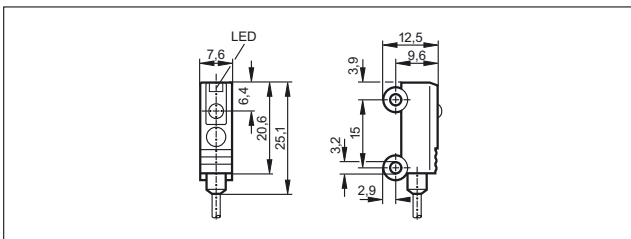


1:: potentiometer

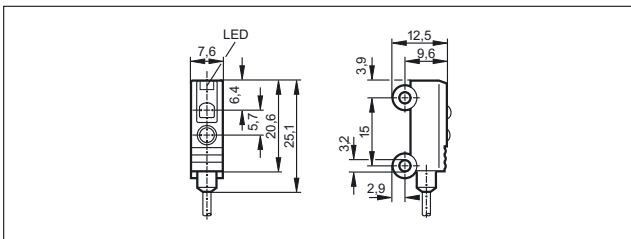
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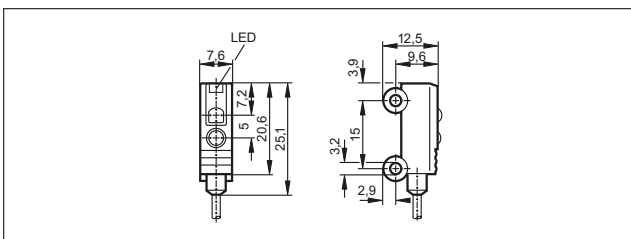
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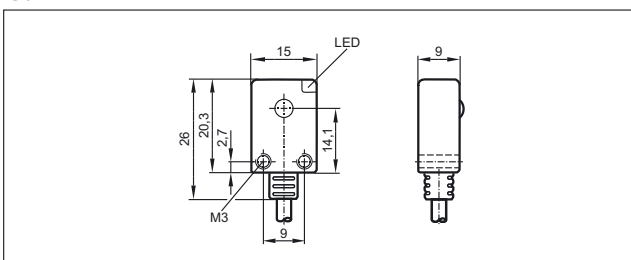
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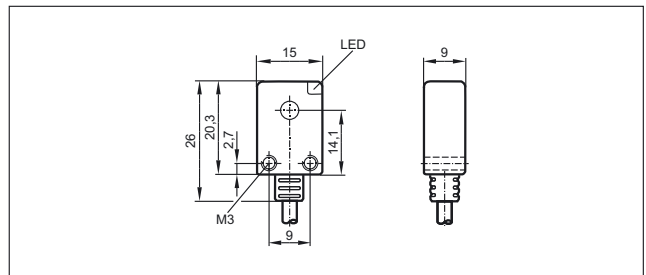
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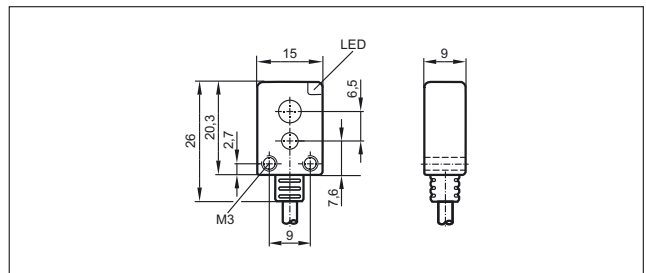
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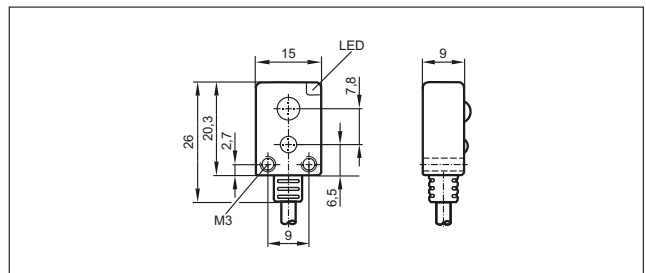
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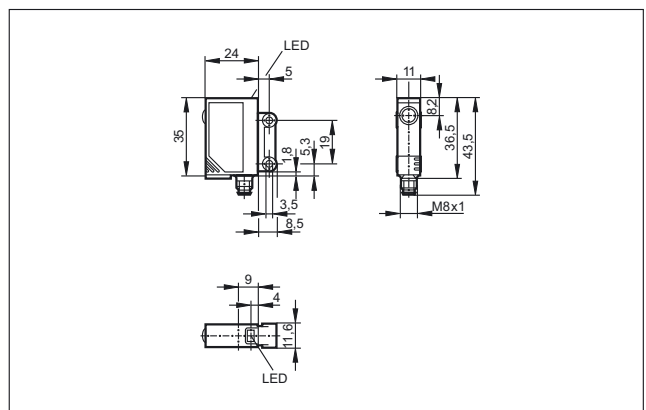
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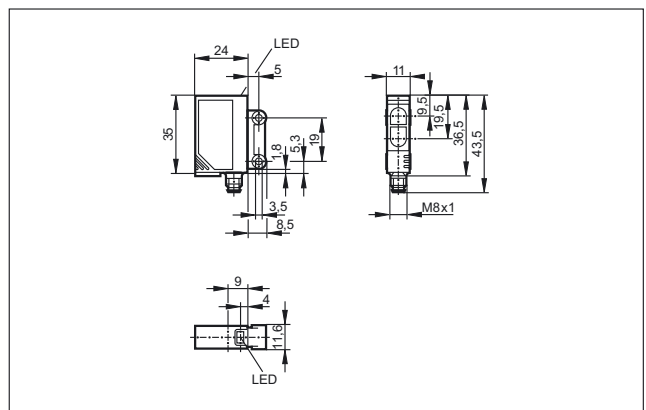
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34

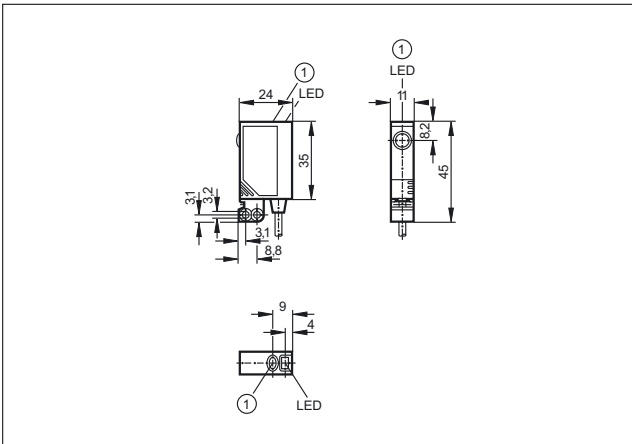


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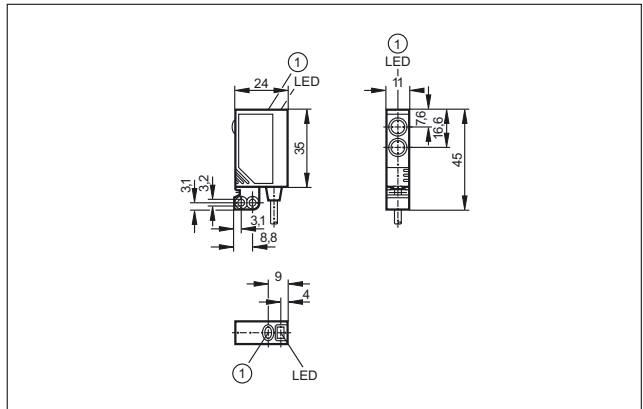
Scale drawings / drawing no. – CAD download: www.ifm.com

36



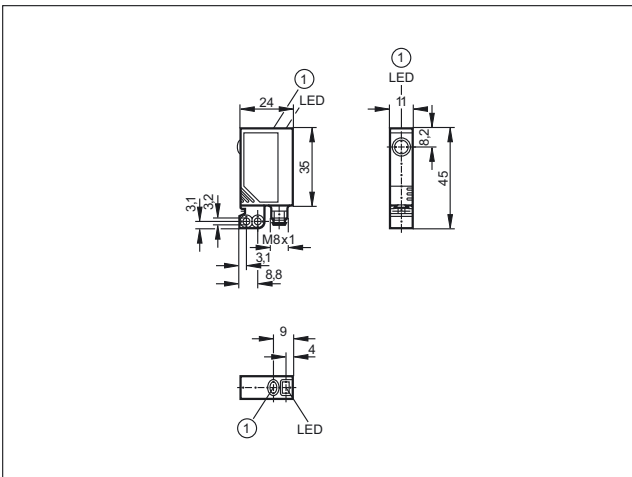
1: pushbutton

39



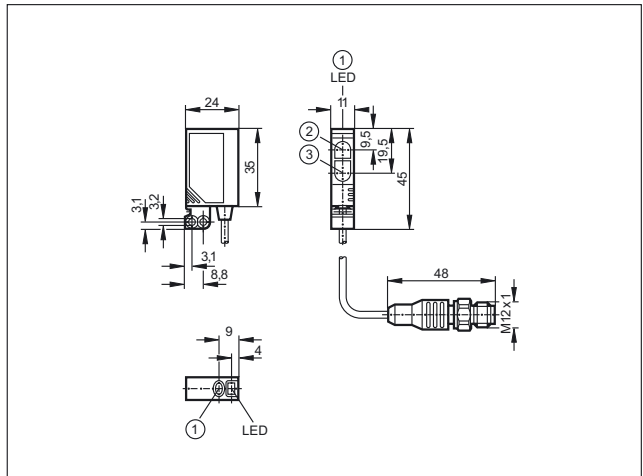
1: pushbutton

37



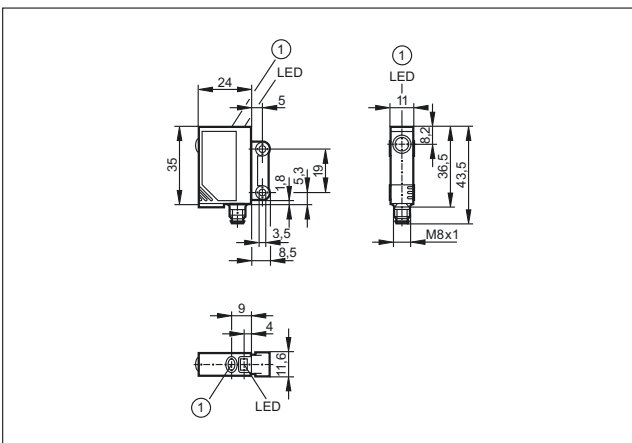
1: pushbutton

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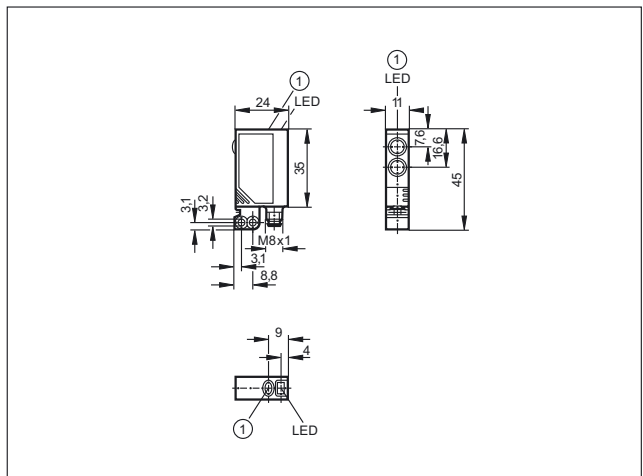
1: pushbutton, 2: Receiver, 3: Transmitter

38



1: pushbutton

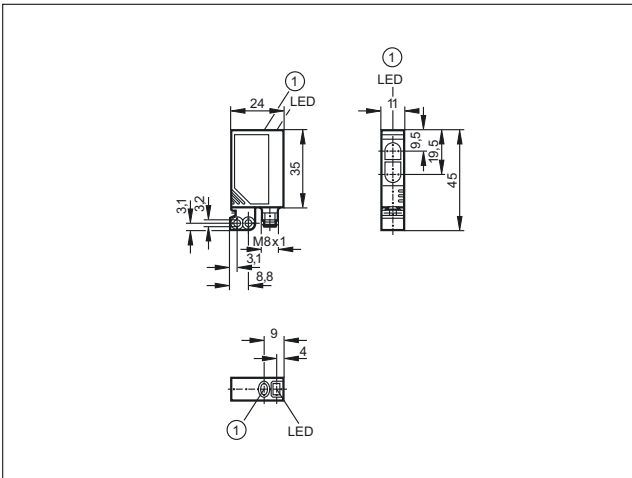
41



1: pushbutton

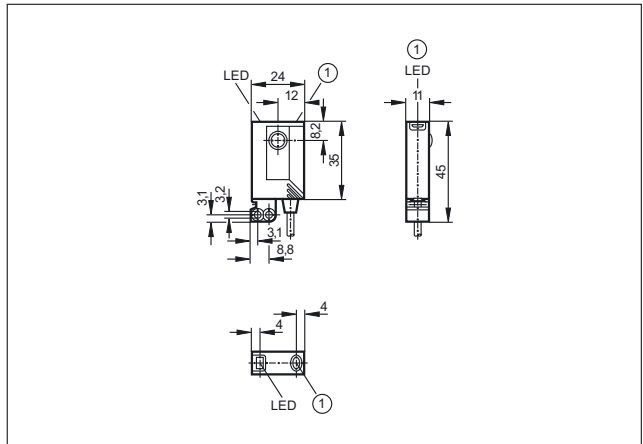
Scale drawings / drawing no. – CAD download: www.ifm.com

42



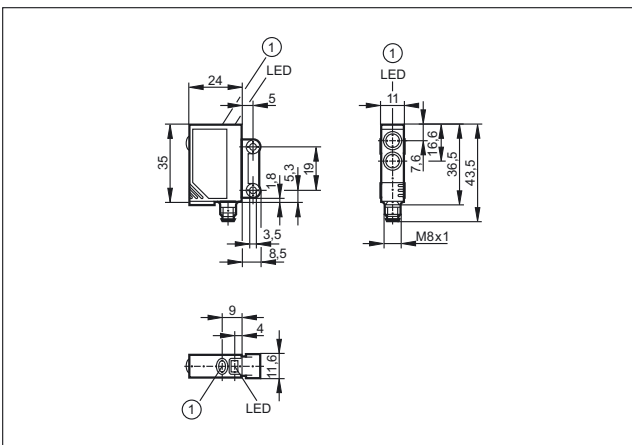
1: pushbutton

45



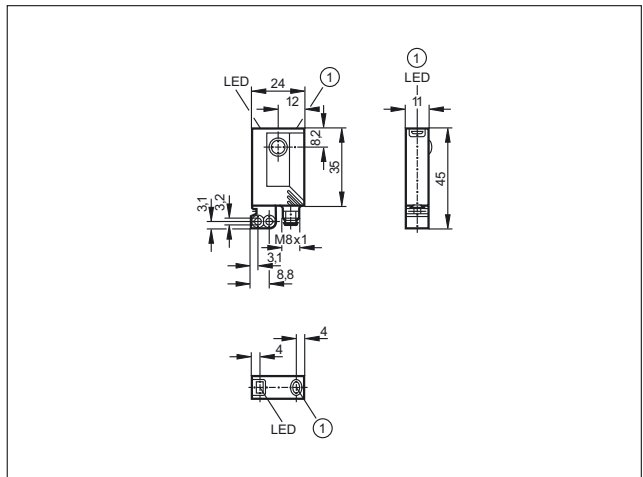
1: pushbutton

43



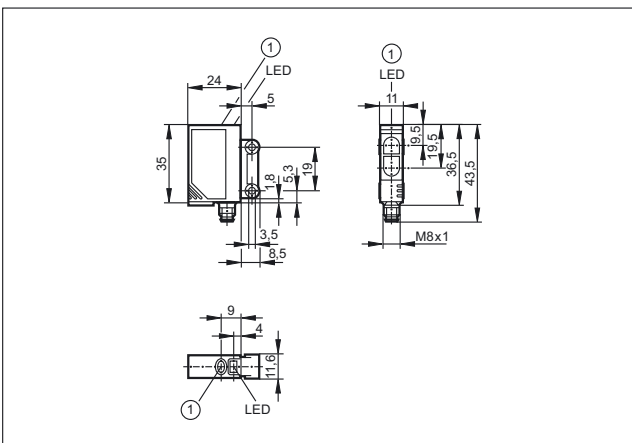
1: pushbutton

46



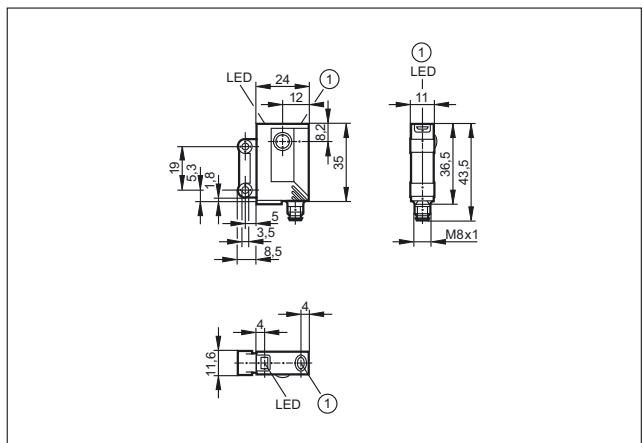
1: pushbutton

44



1: pushbutton

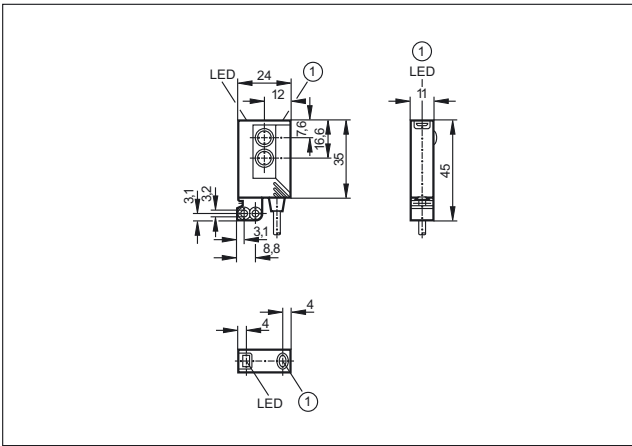
47



1: pushbutton

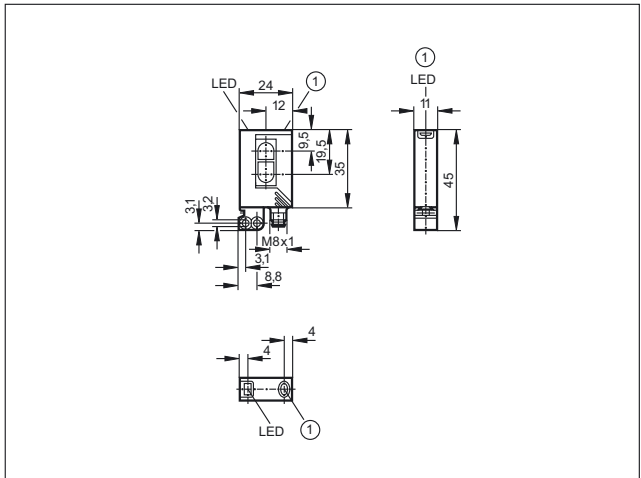
Scale drawings / drawing no. – CAD download: www.ifm.com

48



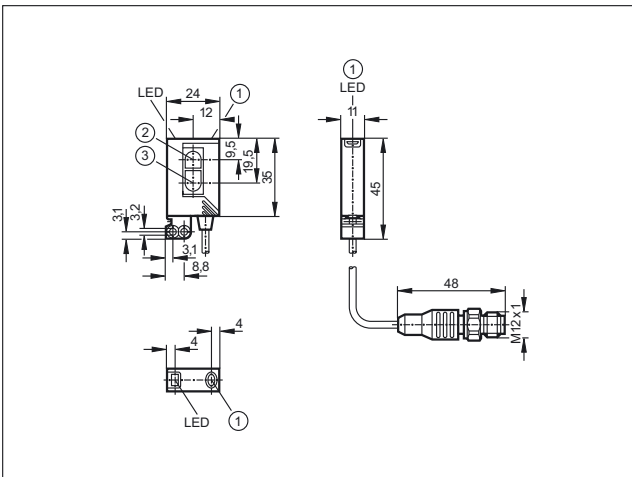
1: pushbutton

51



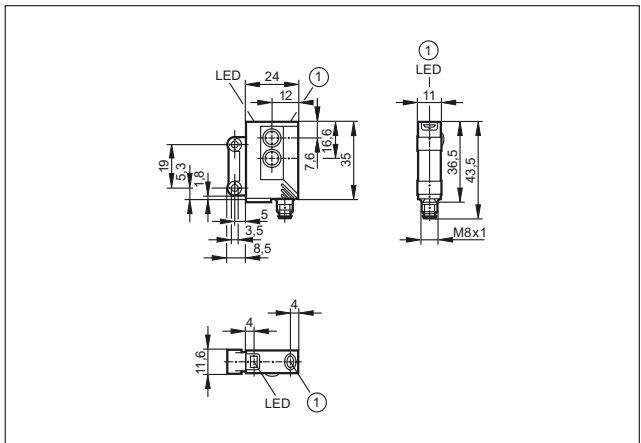
1: pushbutton

49



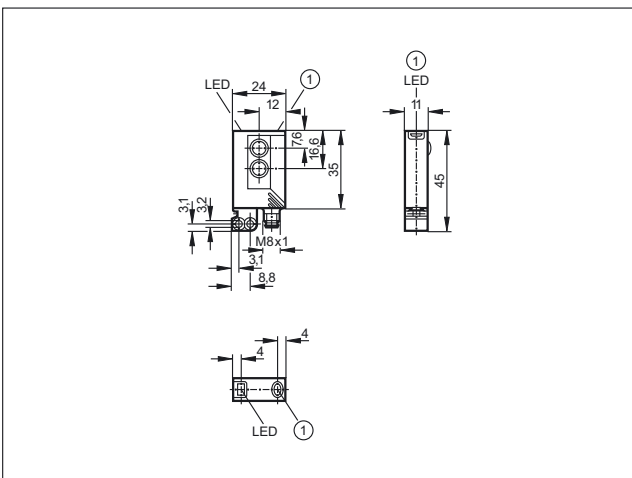
1: pushbutton, 2: Receiver, 3: Transmitter

52



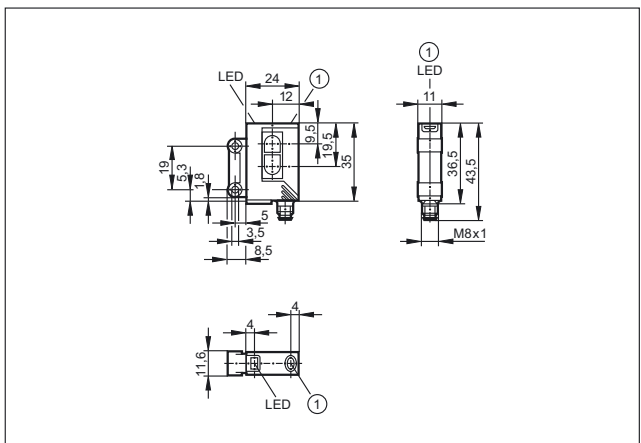
1: pushbutton

50



1: pushbutton

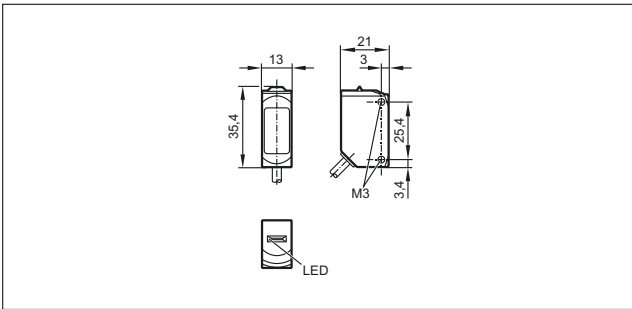
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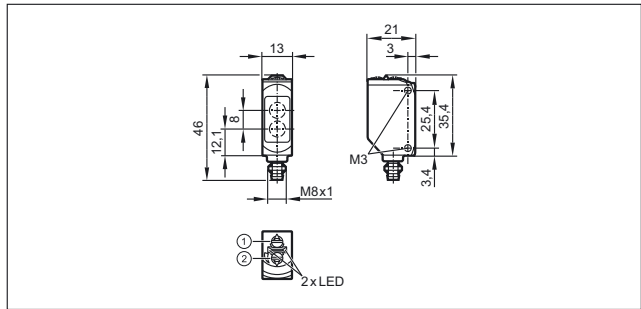
1: pushbutton

Scale drawings / drawing no. – CAD download: www.ifm.com

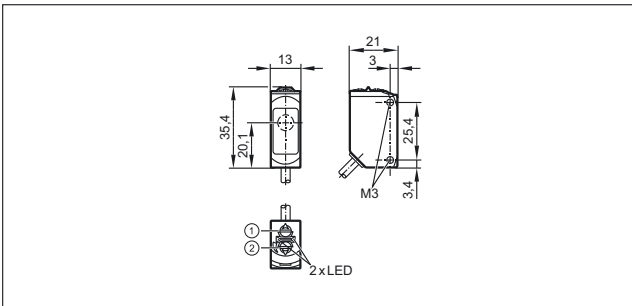
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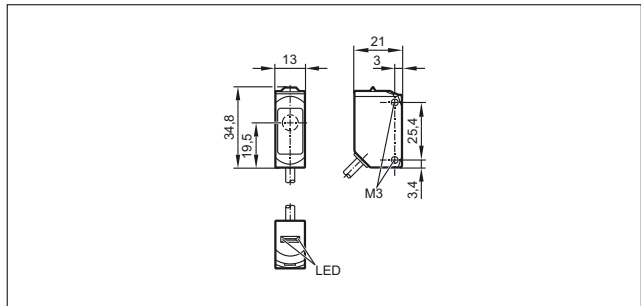
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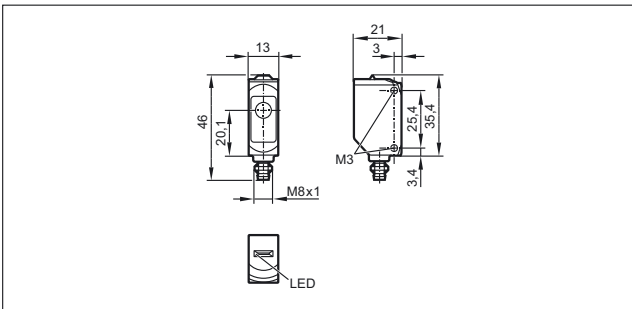
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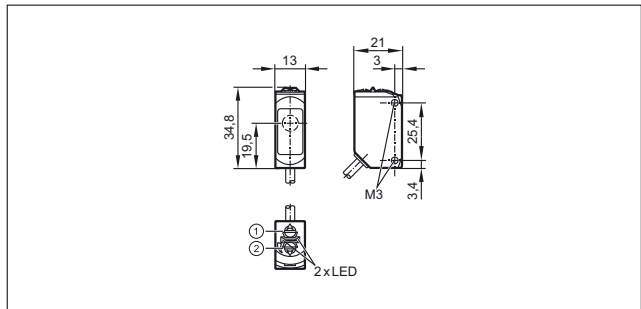
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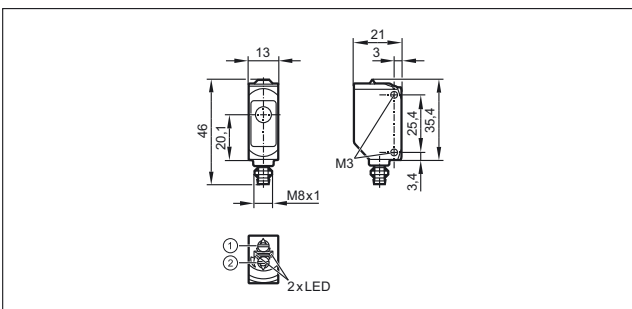
56



61

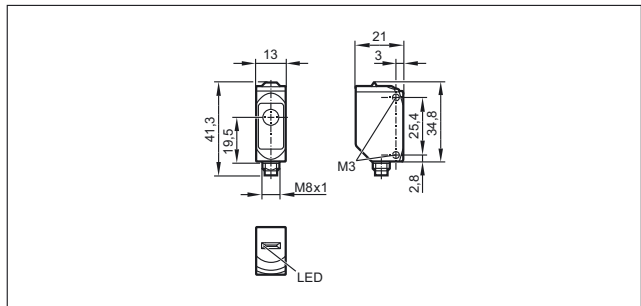


57

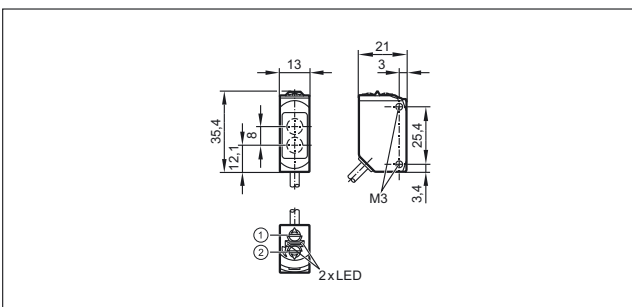


1:: output function switch, 2:: potentiometer sensitivity

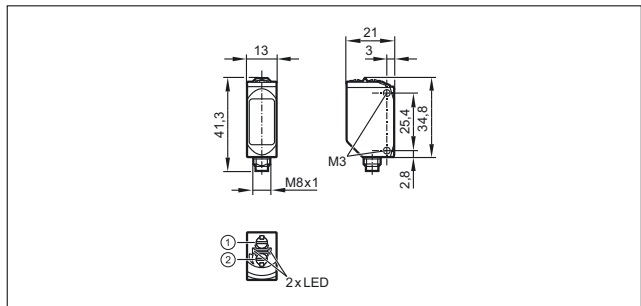
62



58



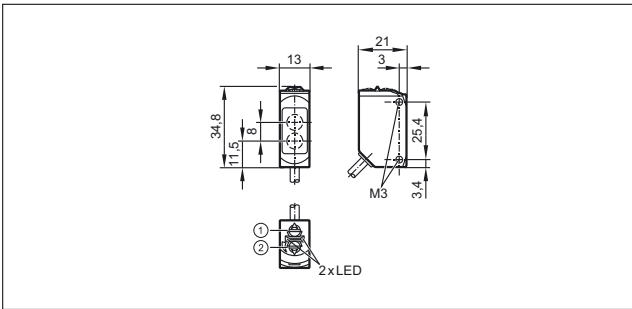
63



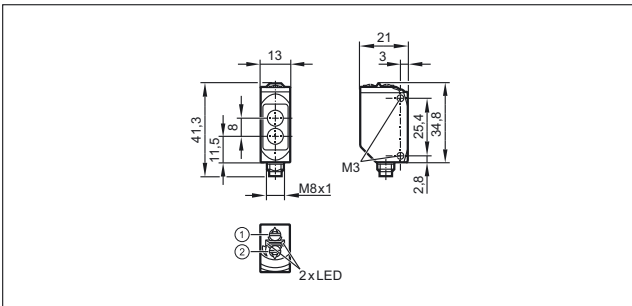
1:: output function switch, 2:: potentiometer sensitivity

Scale drawings / drawing no. – CAD download: www.ifm.com

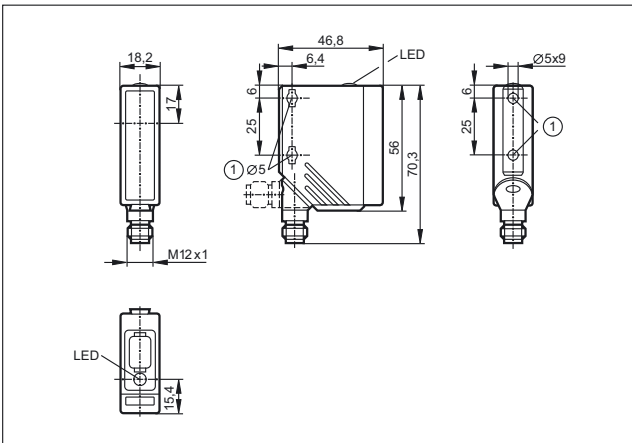
64



65

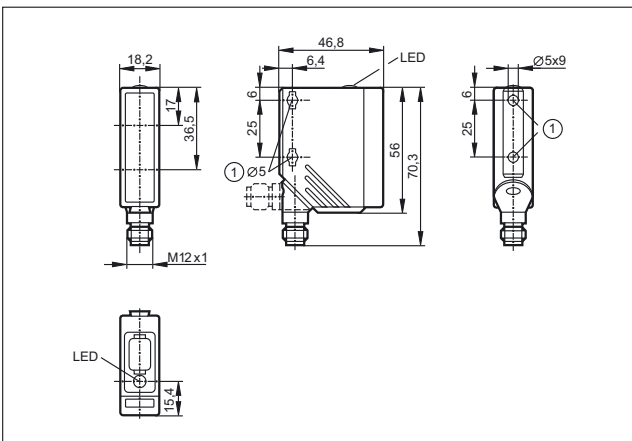


66



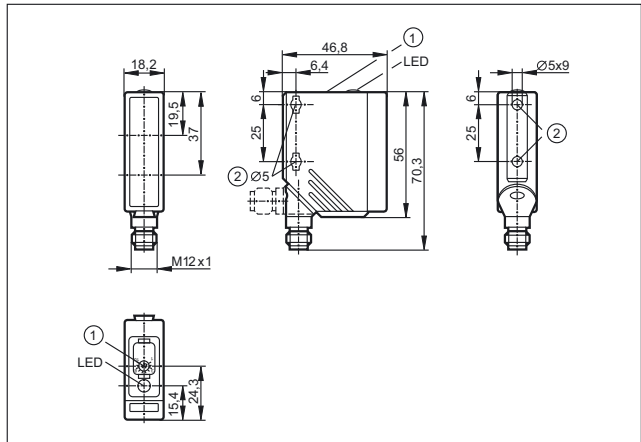
1: When a M5 mounting screw is used, the max. tightening torque is 2 Nm.

67



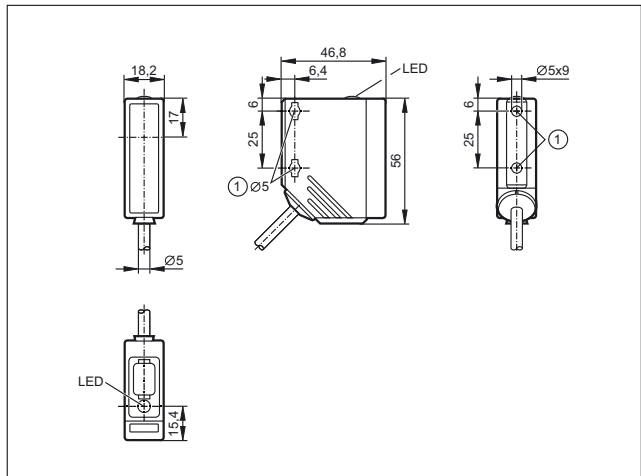
1: When a M5 mounting screw is used, the max. tightening torque is 2 Nm.

68



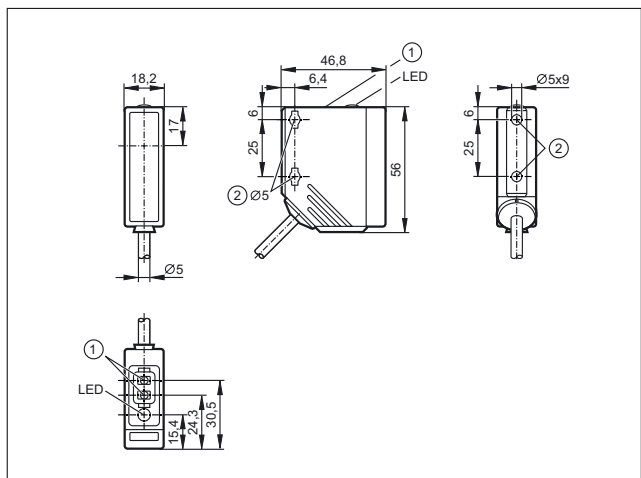
1: potentiometer, 2: When a M5 mounting screw is used, the max. tightening torque is 2 Nm.

69



1: When a M5 mounting screw is used, the max. tightening torque is 2 Nm.

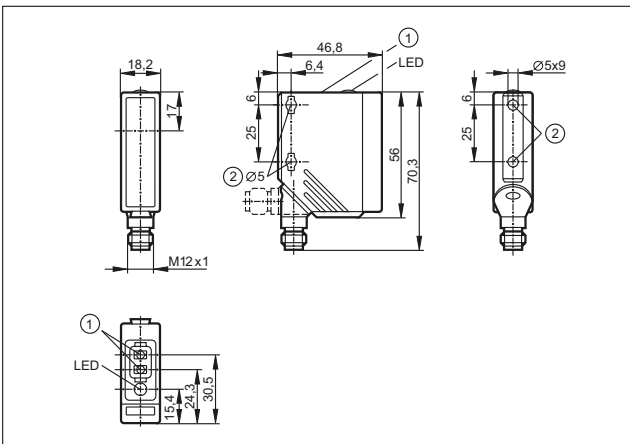
70



1: Programming buttons, 2: When a M5 mounting screw is used, the max. tightening torque is 2 Nm.

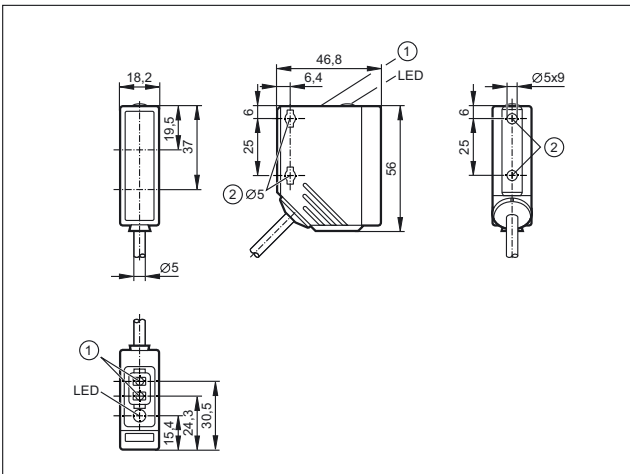
Scale drawings / drawing no. – CAD download: www.ifm.com

71



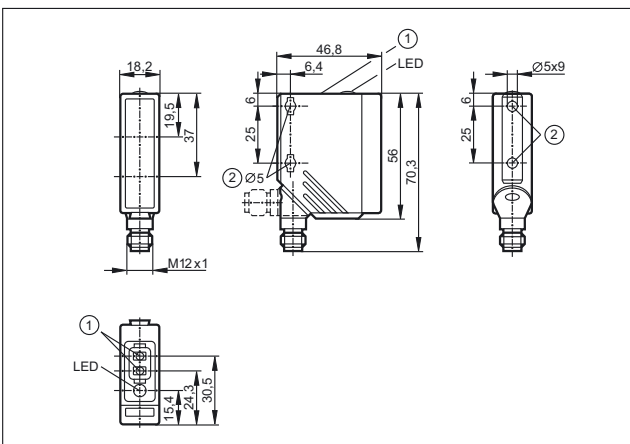
1: Programming buttons, 2: When a M5 mounting screw is used, the max. tightening torque is 2 Nm.

72



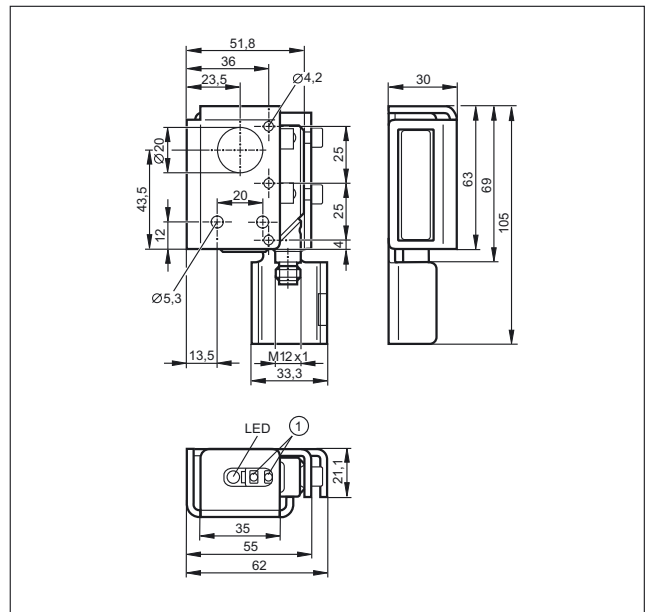
1: Programming buttons, 2: When a M5 mounting screw is used, the max. tightening torque is 2 Nm.

73



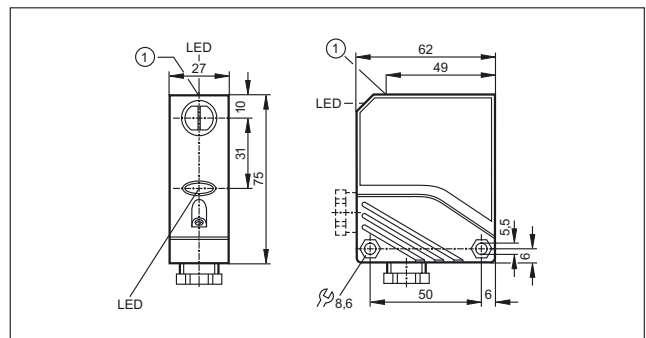
1: Programming buttons, 2: When a M5 mounting screw is used, the max. tightening torque is 2 Nm.

74



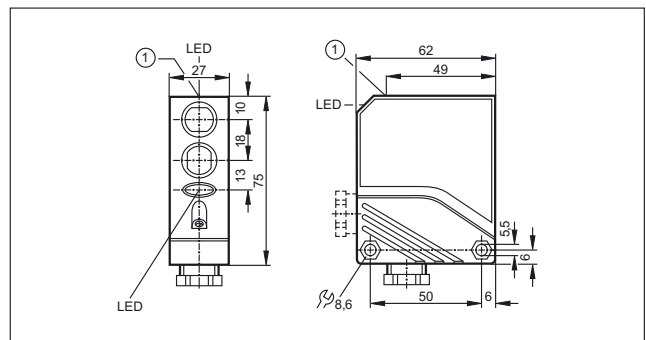
1: Programming buttons

75



1: pushbutton

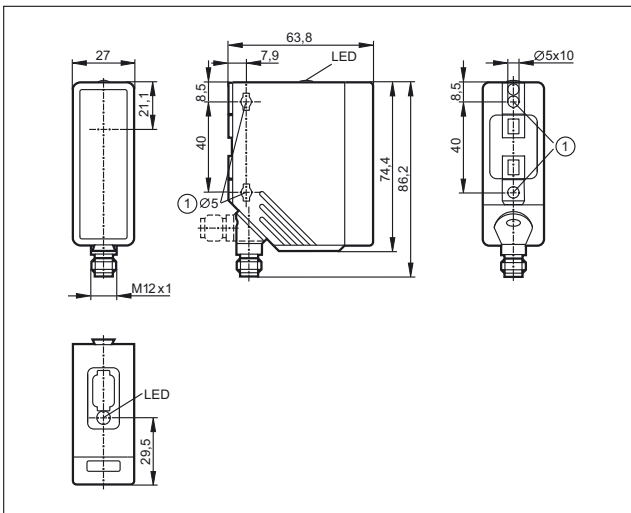
76



1: pushbutton

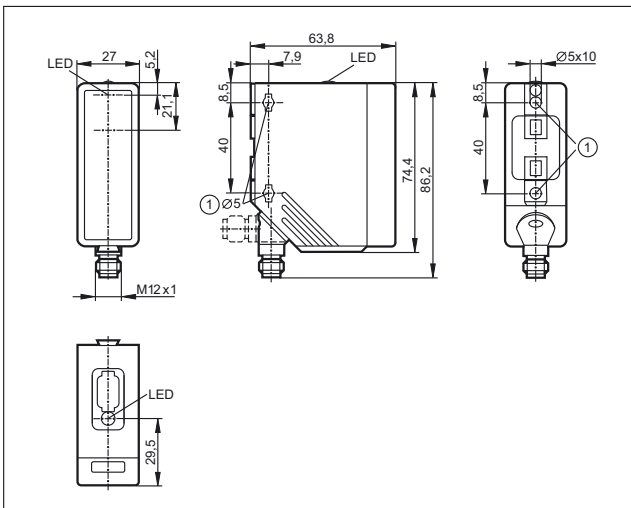
Scale drawings / drawing no. – CAD download: www.ifm.com

77



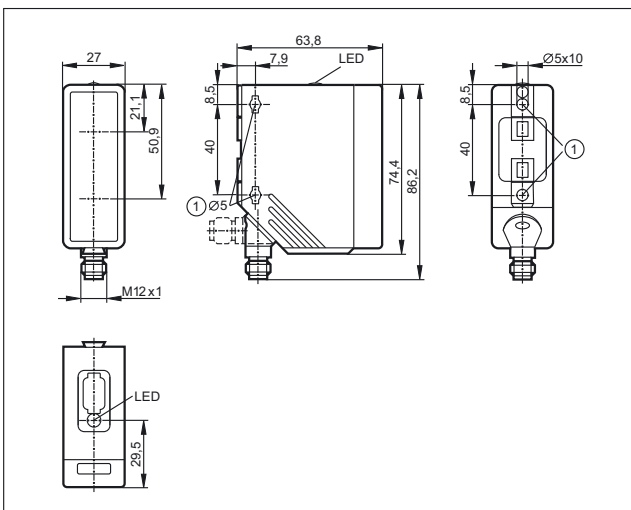
1: When a M5 mounting screw is used, the max. tightening torque is 2 Nm.

78



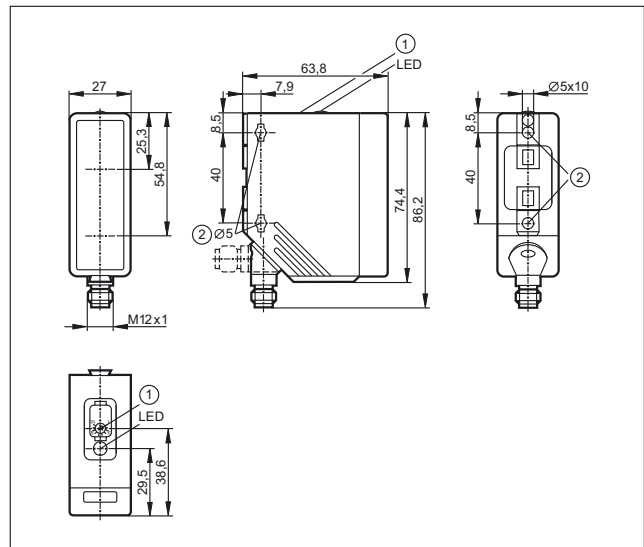
1: When a M5 mounting screw is used, the max. tightening torque is 2 Nm.

79



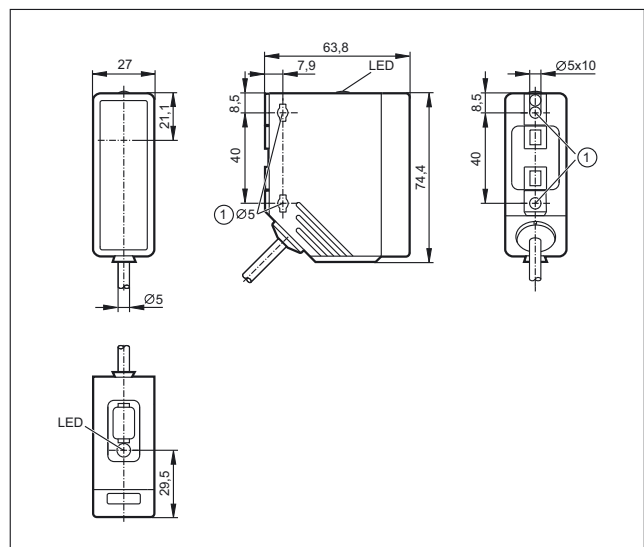
1: When a M5 mounting screw is used, the max. tightening torque is 2 Nm.

80



1: potentiometer, 2: When a M5 mounting screw is used, the max. tightening torque is 2 Nm.

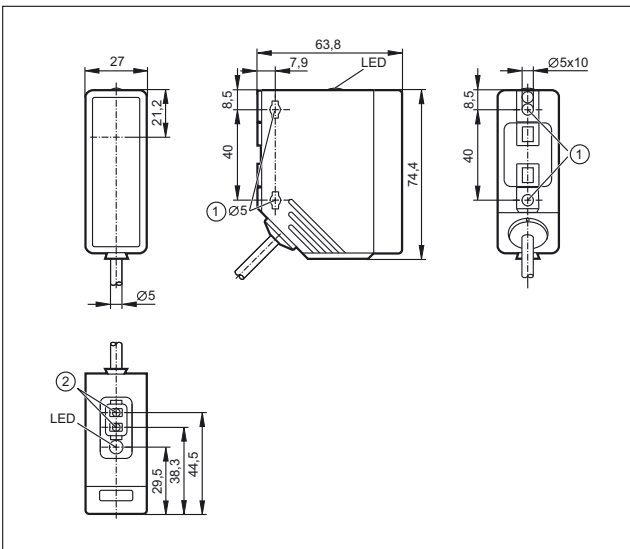
81



1: When a M5 mounting screw is used, the max. tightening torque is 2 Nm.

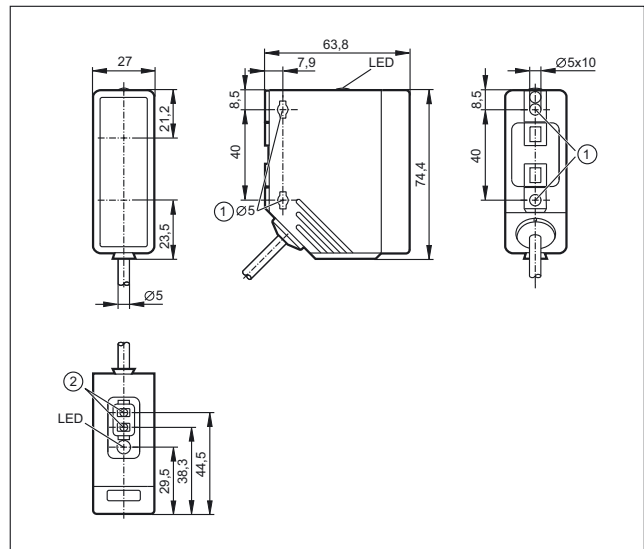
Scale drawings / drawing no. – CAD download: www.ifm.com

82



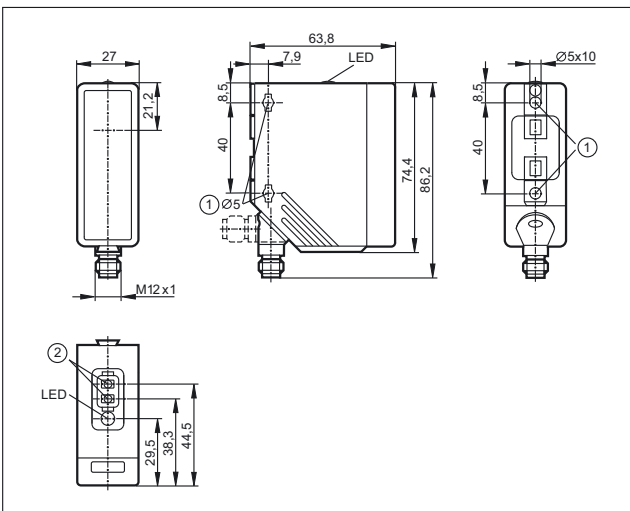
1: When a M5 mounting screw is used, the max. tightening torque is 2 Nm., 2: Programming buttons

84



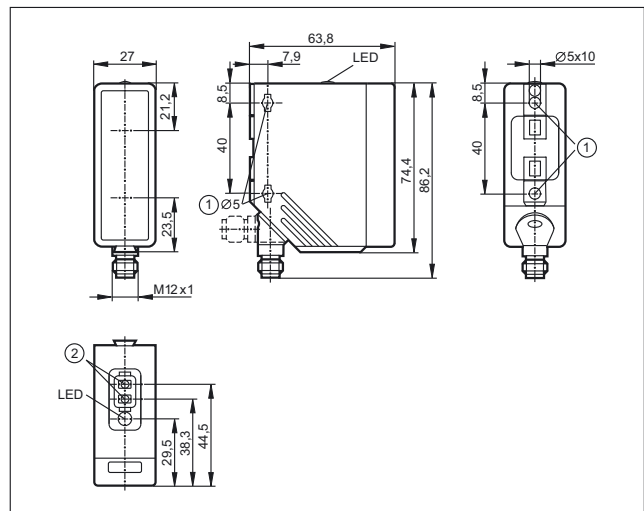
1: When a M5 mounting screw is used, the max. tightening torque is 2 Nm., 2: Programming buttons

83



1: When a M5 mounting screw is used, the max. tightening torque is 2 Nm., 2: Programming buttons

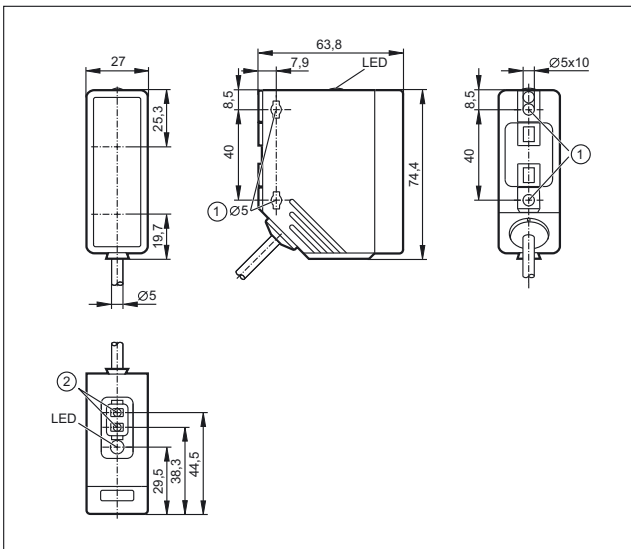
85



1: When a M5 mounting screw is used, the max. tightening torque is 2 Nm., 2: Programming buttons

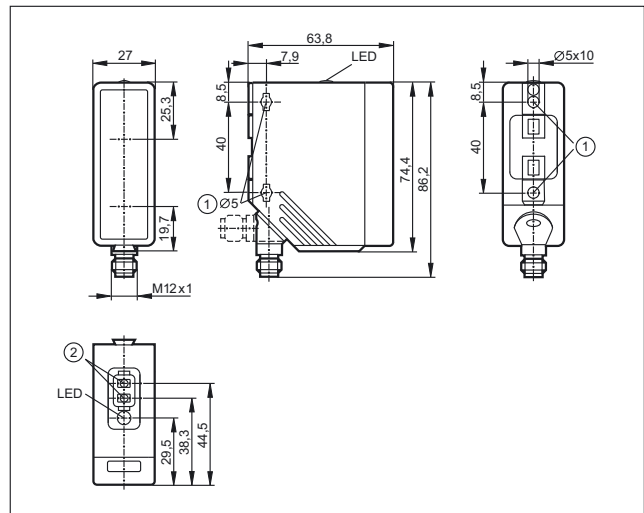
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86



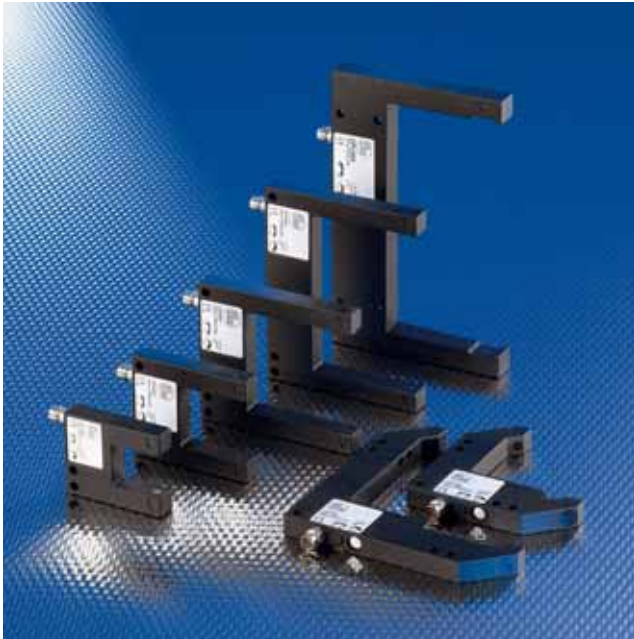
1: When a M5 mounting screw is used, the max. tightening torque is 2 Nm., 2: Programming buttons

87



1: When a M5 mounting screw is used, the max. tightening torque is 2 Nm., 2: Programming buttons





- Quick set-up: no need to align transmitter and receiver
- Fine and precise light beam across the whole fork width
- Metal housing reduces distortion
- Light-on / dark-on mode selectable via rotary switch
- Easy sensitivity setting via potentiometer

Optical fork and angle sensors

The optical fork and angle sensors are made from distortion-resistant diecast zinc and feature a high switching frequency. Applications are in particular part monitoring in feeding technology and handling systems. Further application examples are belt edge and double feed monitoring.

Easy to use

Sensitivity setting using the potentiometer and setting of light-on / dark-on mode using the rotary switch are simple and time-saving. No complex adjustment is required because transmitter and receiver are already aligned towards each other. Due to the fine and precise red light beam which is constant across the entire fork width, out-of-balance monitoring of shafts can also be carried out.




The optical fork and angle sensors are especially used for part monitoring in feeding technology and handling systems.

System overview	Page
Optical fork sensors	254
Laser fork sensors, laser class 2	255
Optical angle sensors	255
Wiring diagrams	255 - 256
Scale drawings / drawing no. – CAD download: www.ifm.com	256 - 257

Optical fork sensors

Type	Fork width (w) [mm]	Fork depth (d) [mm]	Smallest detectable object Ø [mm]	Switching frequency [Hz]	Output H = light-on D = dark-on	U _b [V]	Drawing no.	Order no.
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Optical fork sensor · Type OPU · M8 connector · metal · DC · Wiring diagram no. 3 · Connector groups 1, 2, 3, 72, 78, 114, 115

	10	17	0.3	10000	H/D PNP/NPN	10...35	1	OPU200
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Optical fork sensor · Type OPU · M8 connector · metal · DC · Wiring diagram no. 1 · Connector groups 1, 2, 3, 72, 78, 114, 115

	20	25	0.4	4000	H/D PNP	10...35	2	OPU201
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	30	35	0.5	4000	H/D PNP	10...35	3	OPU202
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	50	55	0.5	4000	H/D PNP	10...35	4	OPU203
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	80	55	0.5	4000	H/D PNP	10...35	5	OPU204
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	120	60	0.8	2000	H/D PNP	10...35	6	OPU205
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Optical fork sensor · Type OPU · M8 connector · metal · DC · Wiring diagram no. 2 · Connector groups 1, 3, 72, 78, 114

	20	25	0.4	4000	H/D NPN	10...35	2	OPU207
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	30	35	0.5	4000	H/D NPN	10...35	3	OPU208
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	50	55	0.5	4000	H/D NPN	10...35	4	OPU209
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	80	55	0.5	4000	H/D NPN	10...35	5	OPU210
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	120	60	0.8	2000	H/D NPN	10...35	6	OPU211
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Laser fork sensors, laser class 2

Type	Fork width (w) [mm]	Fork depth (d) [mm]	Smallest detectable object Ø [mm]	Switching frequency [Hz]	Output H = light-on D = dark-on	U _b [V]	Drawing no.	Order no.
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Optical fork sensor · Type OPU · M8 connector · metal · DC · Wiring diagram no. 1 · Connector groups 1, 2, 3, 72, 78, 114, 115

	30	35	0.05	3000	H/D PNP	10...30	7	OPU700
	50	55	0.05	3000	H/D PNP	10...30	8	OPU701
	80	55	0.05	3000	H/D PNP	10...30	9	OPU702



Optical angle sensors

Type	Side length (x, y) [mm]	Sensor width (z) [mm]	Smallest detectable object Ø [mm]	Switching frequency [Hz]	Output H = light-on D = dark-on	U _b [V]	Drawing no.	Order no.
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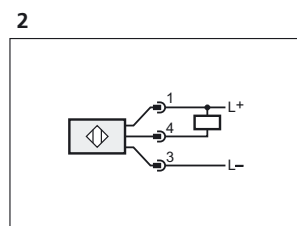
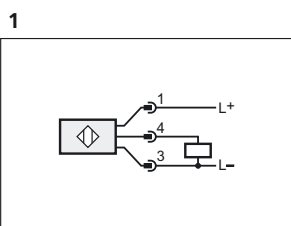
Optical angle sensor · Type OPL · M8 connector · metal · DC · Wiring diagram no. 1 · Connector groups 1, 2, 3, 72, 78, 114, 115

	50	60	0.5	4000	H/D PNP	10...35	10	OPL200
	80	100	0.7	4000	H/D PNP	10...35	11	OPL201

Optical angle sensor · Type OPL · M8 connector · metal · DC · Wiring diagram no. 2 · Connector groups 1, 3, 72, 78, 114

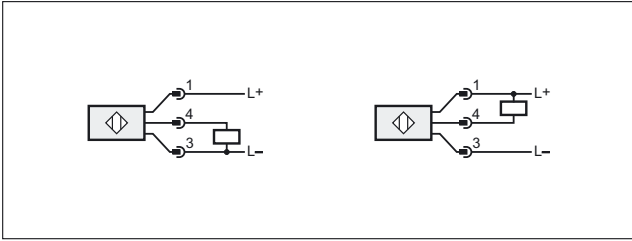
	50	60	0.5	4000	H/D NPN	10...35	10	OPL202
	80	100	0.7	4000	H/D NPN	10...35	11	OPL203

Wiring diagrams



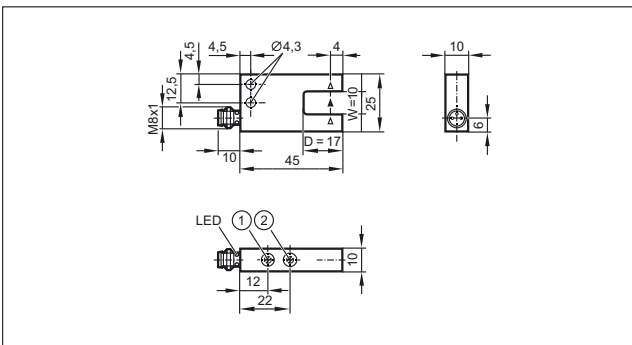
Wiring diagrams

3



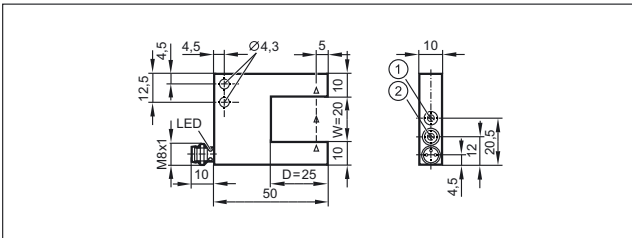
Scale drawings / drawing no. – CAD download: www.ifm.com

1



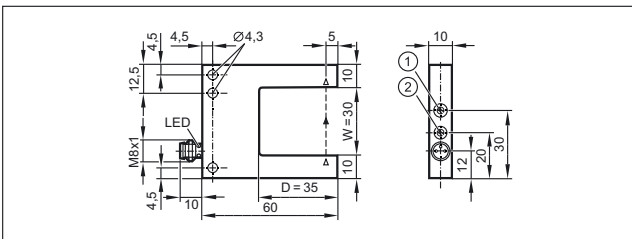
1: output function switch, 2: potentiometer sensitivity

2



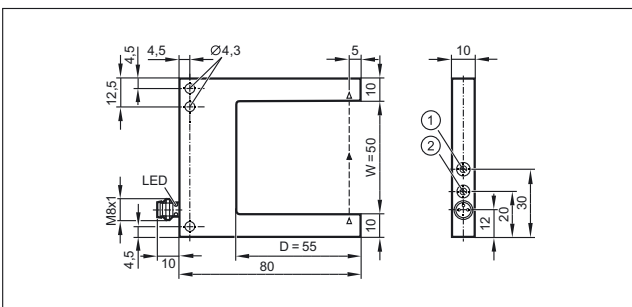
1: potentiometer sensitivity, 2: output function switch

3



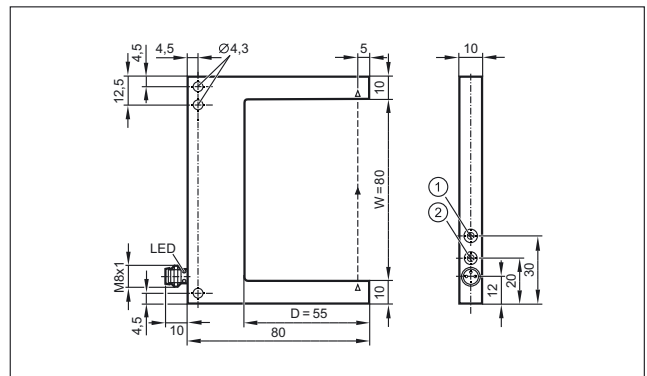
1: potentiometer sensitivity, 2: output function switch

4



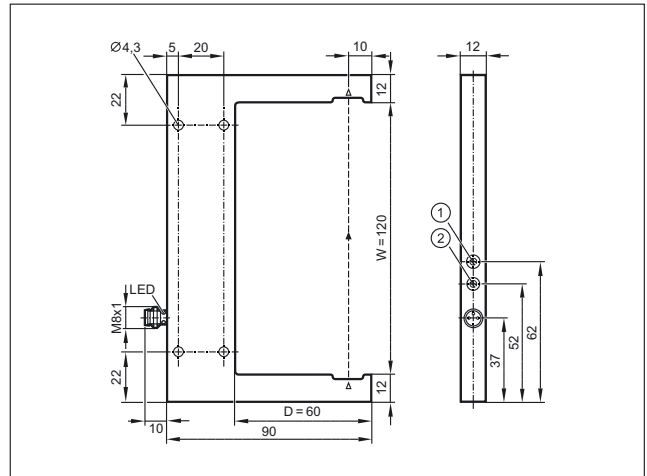
1: potentiometer sensitivity, 2: output function switch

5



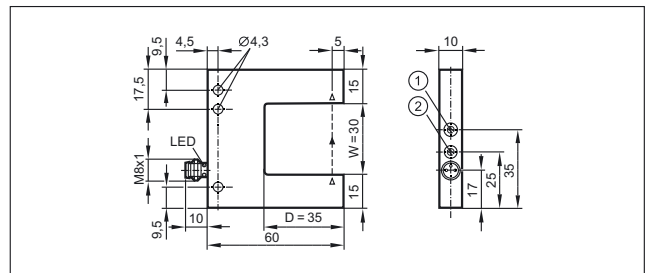
1: potentiometer sensitivity, 2: output function switch

6



1: potentiometer sensitivity, 2: output function switch

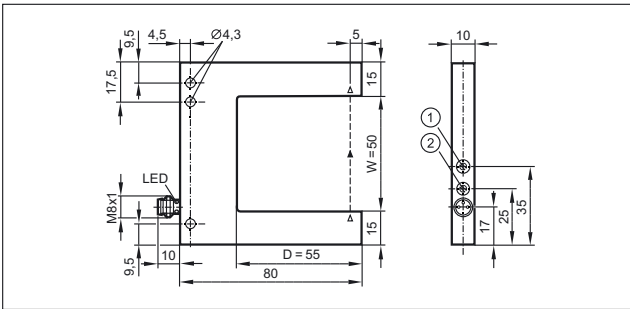
7



1: potentiometer sensitivity, 2: output function switch

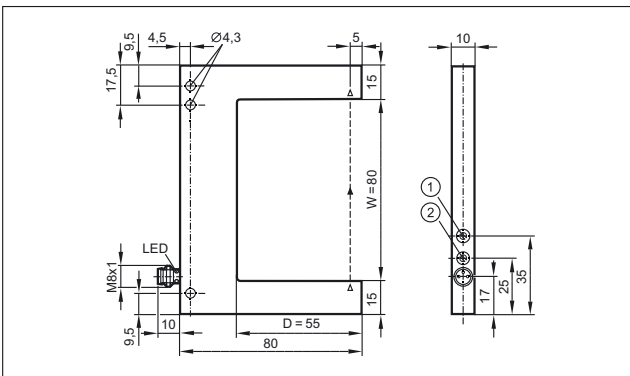
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8



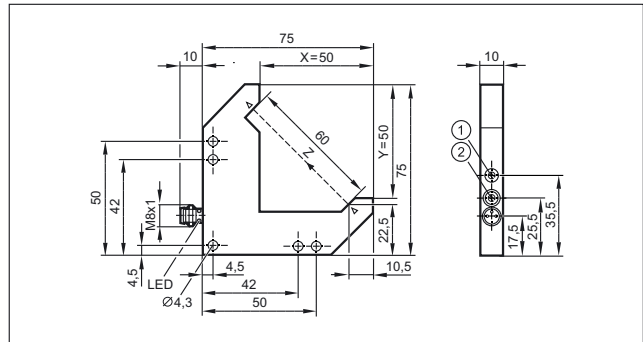
1: potentiometer sensitivity, 2: output function switch

9



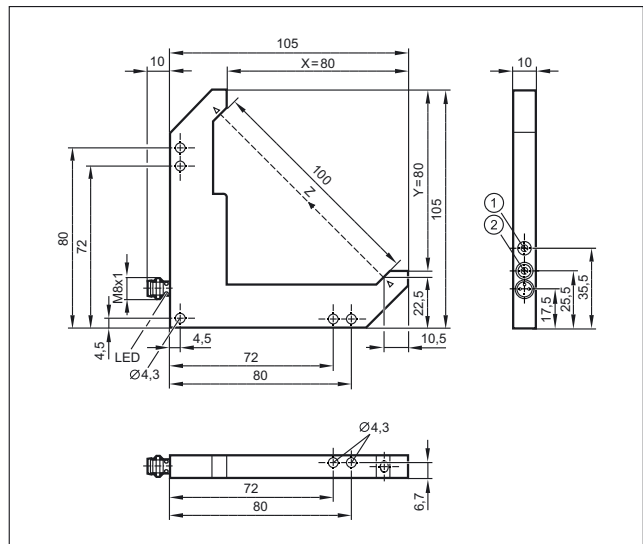
1: potentiometer sensitivity, 2: output function switch

10



1: potentiometer sensitivity, 2: output function switch

11



1: potentiometer sensitivity, 2: output function switch



- Laser sensors for detection of tiny objects
- Laser sensors for high power over long ranges
- Clearly visible red light for easy setting
- Easy pushbutton adjustment
- Accessories for robust mounting and fine adjustment

Laser sensors





Laser sensors are used where detection of small objects or precise positioning is required. Alternatively, where very high power is needed lasers are also of great benefit to cover longer distances or see through. Laser sensors are available as through-beam sensors, retro-reflective sensors or diffuse reflection sensors. Laser light consists of light waves of identical length which have a defined phase relation (coherence). This results in an important feature of laser systems, that is the almost parallel light beam. The small angle of divergence means long ranges can be achieved. The laser spot which is also clearly visible in daylight simplifies the alignment of the system.




Coherent: Laser sensors emit light of a defined wave length and the same phase position.

System overview	Page
Cylindrical OG housing (M18) Laser PerformanceLine, laser class 1	260
Rectangular housing OJ Laser PerformanceLine, lateral sensing face, laser class 1	260 - 261
Rectangular housing OJ Laser PerformanceLine, front sensing face, laser class 1	261 - 262
Rectangular housing O5 laser class 1	262 - 263
Rectangular housing O1 Laser PerformanceLine with background suppression, laser class 2	263
Prismatic reflector	263 - 264
Accessories OG housing	264
Accessories O5 housing	264 - 265
Accessories O1 housing	266
Accessories for system components	266 - 267
Cylindrical OI housing (M30) for optical distance measurement, laser class 2	267
Rectangular housing O5 for optical distance measurement, laser class 2	267
Rectangular housing O1 for optical distance measurement, laser class 1	268
Rectangular housing O1 for optical distance measurement, laser class 2	268
Rectangular housing O1 Laser PerformanceLine with background suppression, laser class 2	268
Rectangular housing O1 for optical level measurement, laser class 2	269
Accessories OI design (M30)	269
Accessories O5 housing	270
Accessories O1 housing	270 - 271
Wiring diagrams	271
Scale drawings / drawing no. – CAD download: www.ifm.com	271 - 274

Cylindrical OG housing (M18) Laser PerformanceLine, laser class 1


Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
Through-beam sensor · M12 connector · 10...36 DC · high-grade stainless steel · IP65 / IP67 · Connector groups 8, 10, 18, 20, 117, 118, 147								
	Transmitter	2 m	Red	5	–	1	1	OGS701
	Transmitter	60 m	Red	312	–	1	1	OGS700
Through-beam sensor · M12 connector · 10...36 DC · high-grade stainless steel · IP65 / IP67 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148								
	Receiver	2 m	Red	–	H/D PNP	2	2	OGE701
	Receiver	60 m	Red	–	H/D PNP	2	2	OGE700
Retro-reflective sensor · M12 connector · 10...36 DC · high-grade stainless steel · IP65 / IP67 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148								
	Polarisation filter	0.2...2 m	Red	5	H/D PNP	2	2	OGP701
	Polarisation filter	0.2...15 m	Red	78	H/D PNP	2	2	OGP700
Diffuse reflection sensor · M12 connector · 10...36 DC · high-grade stainless steel · IP65 / IP67 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148								
	Background suppression	20...200 mm	Red	1.2	H/D PNP	2	2	OGH700

Rectangular housing OJ Laser PerformanceLine, lateral sensing face, laser class 1



Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
Through-beam sensor · M8 connector · 10...30 DC · plastics · IP67 · Connector groups 4, 5, 74, 80, 116								
	Transmitter	1 m	Red	< 4	–	1	3	OJ5041
	Receiver	1 m	Red	–	H/D PNP	3	3	OJ5042
	Transmitter	15 m	Red	< 24	–	1	3	OJ5038
	Receiver	15 m	Red	–	H/D PNP	3	3	OJ5039

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
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Through-beam sensor · M8 connector · 10...30 DC · plastics · IP67 · Connector groups 4, 5, 74, 80, 116

	Transmitter	1 m	Red	< 4	–	1	4	OJ5141
	Receiver	1 m	Red	–	H/D PNP	3	4	OJ5142
	Transmitter	15 m	Red	< 24	–	1	4	OJ5138
	Receiver	15 m	Red	–	H/D PNP	3	4	OJ5139

Retro-reflective sensor · M8 connector · 10...30 DC · plastics · IP67 · Connector groups 4, 5, 74, 80, 116

	Polarisation filter	8 m	Red	< 12	H/D PNP	3	3	OJ5036
	Polarisation filter	8 m	Red	< 12	H/D PNP	3	4	OJ5136


Diffuse reflection sensor · M8 connector · 10...30 DC · plastics · IP67 · Connector groups 4, 5, 74, 80, 116

	Background suppression	7...150 mm	Red	0.8	H/D PNP	3	5	OJ5058
	Background suppression	15...200 mm	Red	2x1	H/D PNP	3	6	OJ5054
	Background suppression	7...150 mm	Red	0.8	H/D PNP	3	7	OJ5158
	Background suppression	15...200 mm	Red	2x1	H/D PNP	3	8	OJ5154

Rectangular housing OJ Laser PerformanceLine, front sensing face, laser class 1

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
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Through-beam sensor · M8 connector · 10...30 DC · plastics · IP67 · Connector groups 4, 5, 74, 80, 116

	Transmitter	1 m	Red	< 4	–	1	9	OJ5019
	Receiver	1 m	Red	–	H/D PNP	3	9	OJ5020



Position sensors

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diag. no.	Draw- ing no.	Order no.
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Through-beam sensor · M8 connector · 10...30 DC · plastics · IP67 · Connector groups 4, 5, 74, 80, 116

	Transmitter	15 m	Red	< 24	–	1	9	OJ5016
	Receiver	15 m	Red	–	H/D PNP	3	9	OJ5017
	Transmitter	15 m	Red	< 24	–	1	10	OJ5116
	Receiver	15 m	Red	–	H/D PNP	3	10	OJ5117

Retro-reflective sensor · M8 connector · 10...30 DC · plastics · IP67 · Connector groups 4, 5, 74, 80, 116

	Polarisation filter	8 m	Red	< 12	H/D PNP	3	9	OJ5014
	Polarisation filter	8 m	Red	< 12	H/D PNP	3	10	OJ5114



Diffuse reflection sensor · M8 connector · 10...30 DC · plastics · IP67 · Connector groups 4, 5, 74, 80, 116

	Background suppression	7...150 mm	Red	0.8	H/D PNP	3	11	OJ5056
	Background suppression	15...200 mm	Red	2x1	H/D PNP	3	12	OJ5052
	Background suppression	15...200 mm	Red	2x1	H/D PNP	3	13	OJ5152

Rectangular housing O5 laser class 1


Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diag. no.	Draw- ing no.	Order no.
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Through-beam sensor · M12 connector · 10...36 DC · plastics · IP67 · Connector groups 8, 10, 18, 20, 117, 118, 147


	Transmitter	60 m	Red	150	–	1	14	O5S700
	Receiver	60 m	Red	–	H/D PNP	2	15	O5E700

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
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Retro-reflective sensor · M12 connector · 10...36 DC · plastics · IP67 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148

	Polarisation filter	15 m	Red	40	H/D PNP	2	16	O5P700
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Diffuse reflection sensor · M12 connector · 10...36 DC · plastics · IP67 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148

	Background suppression	20...200 mm	Red	1.2	H/D PNP	2	17	O5H700
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Rectangular housing O1 Laser PerformanceLine with background suppression, laser class 2

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
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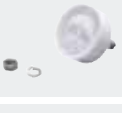
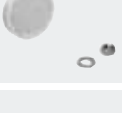


Photoelectric distance sensor · M12 connector · 10...30 DC · metal · IP67 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148

	Background suppression	0.2...10 m	–	< 15 x 15	normally open / closed programmablePNP	2	18	O1D101
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Photoelectric distance sensor · M12 connector · 10...30 DC · metal · IP67 · Connector groups 8, 10, 18, 20, 117, 118, 147

	Background suppression	0.2...10 m	–	< 15 x 15	normally open / closed programmableNPN	4	18	O1D104
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



Prismatic reflector

Type	Description	Order no.
	Prismatic reflector · Ø 10 mm · round · fixing by screw · M3 · for retro-reflective laser sensors · Housing materials: screw: stainless steel 316 / 1.4401 / spring washer: stainless steel 316 / 1.4401 / nut: stainless steel 316 / 1.4401 / front plate: PMMA / base: ABS	E20990
	Prismatic reflector · Ø 15 mm · round · fixing by screw · M3 · for retro-reflective laser sensors · Housing materials: screw: stainless steel 316 / 1.4401 / spring washer: stainless steel 316 / 1.4401 / nut: stainless steel 316 / 1.4401 / front plate: PMMA / base: ABS	E20992
	Prismatic reflector · Ø 19 mm · round · fixing by screw · M3 · for retro-reflective laser sensors · Housing materials: screw: stainless steel 316 / 1.4401 / spring washer: stainless steel 316 / 1.4401 / nut: stainless steel 316 / 1.4401 / front plate: PMMA / base: ABS	E20993
	Prismatic reflector · 11 x 11 mm · rectangular · fixing by screw · M3 · for retro-reflective laser sensors · Housing materials: screw: stainless steel 316 / 1.4401 / spring washer: stainless steel 316 / 1.4401 / nut: stainless steel 316 / 1.4401 / front plate: PMMA / base: ABS	E20991
	Prismatic reflector · 14 x 23 mm · rectangular · for retro-reflective laser sensors · Housing materials: front plate: PMMA / base: ABS	E20989



Position sensors

Type	Description	Order no.
	Prismatic reflector · 30 x 20 mm · rectangular · for retro-reflective laser sensors · Housing materials: front plate: PMMA / base: ABS	E20994
	Prismatic reflector · 50 x 10 mm · rectangular · for retro-reflective laser sensors · Housing materials: front plate: PMMA / base: ABS	E20988
	Prismatic reflector · 48 x 48 mm · rectangular · for retro-reflective laser sensors and glass and film detection · Housing materials: plastics	E20722

Accessories OG housing



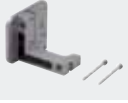


Type	Description	Order no.
	Fixture for mounting and fine adjustment of laser units · Ø 18.5 mm · Clamp mounting · rod or free-standing depending on the clamp · for type OG · Housing materials: stainless steel 316Ti / 1.4571	E20737
	Fixture for mounting and fine adjustment of laser units · Ø 18.5 mm · Clamp mounting · rod mounting Ø 12 mm · for type OG · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: high-grade stainless steel	E21220
	Fixture for mounting and fine adjustment of laser units · Ø 18.5 mm · Clamp mounting · rod mounting Ø 12 mm · for type OG · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: diecast zinc	E21219
	Mounting set · Ø 18.5 mm · Clamp mounting · rod mounting Ø 12 mm · for type OG, IG, KG · Housing materials: clamp: diecast zinc / fixture: steel	E20720
	Mounting set · Ø 18.5 mm · Clamp mounting · rod mounting Ø 12 mm · for type OG, IG, KG · Housing materials: clamp: diecast zinc / fixture: steel	E20721
	Mounting set · Ø 18.5 mm · Clamp mounting · rod mounting Ø 12 mm · for type OG, IG, KG · Housing materials: clamp: high-grade stainless steel / fixture: high-grade stainless steel	E21206
	Mounting set · Ø 18.5 mm · Clamp mounting · rod mounting Ø 12 mm · for type OG, IG, KG · Housing materials: clamp: high-grade stainless steel / fixture: high-grade stainless steel	E21207

Accessories O5 housing

Type	Description	Order no.
	Angle bracket · for type O5 · Housing materials: stainless steel 316Ti / 1.4571	E21087
	Angle bracket · for type O5 · Housing materials: stainless steel 316Ti / 1.4571	E21085



Type	Description	Order no.
	Angle bracket · O5, O4 · for mounting O5, O4 sensors instead of OL sensors · Dovetail clamp · Housing materials: Dovetail clamp: AlMgSi0.5 / fixture: AlMg3	E21122
	Dovetail clamp · for type DTS, O4, O5 · Housing materials: AlMgSi0.5	E21088
	Mounting brackets Mounting on the back of the unit · for type O5 · Housing materials: stainless steel 316Ti / 1.4571	E21086
	Mounting sleeve · O5 · for mounting O5 sensors instead of OC sensors · Housing materials: AlZnMgCu1.5 F51/52	E21114
	Fixture for mounting and fine adjustment of laser units · Clamp mounting · rod or free-standing depending on the clamp · for type O5 · Housing materials: stainless steel 316Ti / 1.4571	E20794
	Mounting set · Clamp mounting · With protective cover · rod mounting Ø 12 mm · for type O5 · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: high-grade stainless steel	E21223
	Mounting set · Clamp mounting · With protective cover · rod mounting Ø 12 mm · for type O5 · Housing materials: stainless steel 316Ti / 1.4571 / clamp: diecast zinc	E21210
	Mounting set · Clamp mounting · rod mounting Ø 12 mm · for type O5, O5D · Housing materials: stainless steel 316Ti / 1.4571 / clamp: diecast zinc	E21211
	Mounting set · Clamp mounting · rod mounting Ø 12 mm · for type O5, O5D · Housing materials: stainless steel 316Ti / 1.4571 / clamp: high-grade stainless steel	E21212
	Mounting set · Clamp mounting · With protective cover · rod mounting Ø 14 mm · for type O5 · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: stainless steel	E21142
	Mounting set · Clamp mounting · With protective cover · Free-standing M10 · for type O5 · Housing materials: stainless steel 316Ti / 1.4571 / clamp: diecast zinc	E21084
	Mounting set · Clamp mounting · Free-standing M10 · for type O5 · Housing materials: stainless steel 316Ti / 1.4571 / clamp: diecast zinc	E21083
	Memory plug · Parameter memory for IO-Link sensors · Storage capacity: 2 Kbytes · Housing materials: PA PACM 12 / PET / sealing: FPM / nut: stainless steel 316L / 1.4404 / connector: TPU	E30398
	IO-Link interface · for parameter setting and analysis of units · Supported communication protocols: IO-Link (4800 and 38400 bits/s) EPS protocol (19200 bits/s) · for operation with FDT framework software "ifm Container" or software "LINERECORDER SENSOR"	E30396
	LINERECORDER SENSOR · Software for parameter setting and set-up of IO-Link sensors · Recording and distribution of parameter sets (duplication) · Capture and evaluation of sensor values over a longer period of time · Resetting of sensor parameters to factory setting · Use via USB connection cable E30396 or E30390 (drivers are contained in the corresponding software package)	ZGS210

Accessories O1 housing



Type	Description	Order no.
	Prismatic reflector · 226 x 262 mm · rectangular · Housing materials: plastics	E21159
	Mounting adapter · O1D · for optical distance sensors · Process connection · G1male · for type O1D · Housing materials: flange: stainless steel 316L / 1.4404 / sealing: FKM / Protective cover: PMMA transparent / screws: high-grade stainless steel	E21224
	Fixture for mounting and fine adjustment of laser units · O1D · Clamp mounting · rod or free-standing depending on the clamp · Housing materials: fixture: aluminium transparent anodised / plastics: POM / screws: stainless steel	E1D100
	Mounting set · E2D101 + E20938 + E20951	E21079
	Angle bracket · O1D, O4 · for type O1D, O4 · Housing materials: stainless steel 316L / 1.4404	E21120
	Protective bracket · O1D · for type O1D · Housing materials: Angle bracket: stainless steel 316 / 1.4401 / screws: stainless steel / housing: polyamide	E21236
	Protective cover · O1D · Housing materials: bezel: ZnAl4Cu1 finish black / window: PMMA transparent and colourless / sealing: FPM 75+/-5 Shore A black / screws: stainless steel	E21133
	Protective cover · O1D · Housing materials: bezel: ZnAl4Cu1 finish black / window: glass transparent and colourless / sealing: FPM 75+/-5 Shore A black / screws: stainless steel	E21171

Accessories for system components



Type	Description	Order no.
	mounting rod · Ø 10 / M8 · Length: 150 mm · straight · Housing materials: stainless steel 316Ti / 1.4571	E21081
	mounting rod · Ø 10 / M8 · Length: 200 mm · angled · Housing materials: stainless steel 316Ti / 1.4571	E80310
	mounting rod · Ø 12 / M10 · Length: 130 mm · straight · Housing materials: stainless steel 316Ti / 1.4571	E20938
	mounting rod · Ø 12 / M10 · Length: 200 mm · angled · Housing materials: stainless steel 316Ti / 1.4571	E20940
	Head cap screw · M8 x 40 mm · ISO 4762 (DIN 912) · free-standing M8 · Housing materials: screw: steel galvanised	E21204

Type	Description	Order no.
	Head cap screw · M10 x 45 mm · ISO 4762 (DIN 912) · Free-standing M10 · Housing materials: screw: steel galvanised	E21208
	Head cap screw · M10 x 45 mm · ISO 4762 (DIN 912) · Free-standing M10 · Housing materials: screw: high-grade stainless steel	E21209
	Cube · M10 · aluminium profile · Housing materials: diecast zinc	E20951

Cylindrical OI housing (M30) for optical distance measurement, laser class 2

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diag. no.	Drawing no.	Order no.
Photoelectric distance sensor · M12 connector · 10...30 DC · metal · IP65 / IP67 · Display unit: cm, inch · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147								
	Background suppression	0.03...2 m	Red	< 5	2 switching outputs normally open / closed complementary PNP	5	19	OID200
Photoelectric distance sensor · M12 connector · 10...30 DC · metal · IP65 / IP67 · Display unit: cm · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147								
	Background suppression	0.03...2 m	Red	< 5	2 switching outputs normally open / closed complementary PNP	5	19	OID201

Rectangular housing O5 for optical distance measurement, laser class 2

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diag. no.	Drawing no.	Order no.
Photoelectric distance sensor · M12 connector · 10...30 DC · metal · IP65 / IP67 · Display unit: cm · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147								
	Background suppression	0.03...2 m	Red	< 5	2 switching outputs normally open / closed complementary PNP	5	20	O5D100
Photoelectric distance sensor · M12 connector · 10...30 DC · metal · IP65 / IP67 · Display unit: inch · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147								
	Background suppression	0.03...2 m	Red	< 5	2 switching outputs normally open / closed complementary PNP	5	20	O5D101

Rectangular housing O1 for optical distance measurement, laser class 1

Type	Operating principle	Range	Sampling rate [Hz]	Spot Ø at max. range [mm]	U _b [V]	Wiring diagr. no.	Drawing no.	Order no.
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Output function OUT1: normally open / closed programmable OUT2: normally open / closed programmable or analogue (4...20 mA / 0...10 V, scalable) · Wiring diagram no. 6 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147

	Photoelectric distance sensor	0.3...6 m	1...33	< 8 x 8	18...30	6	18	O1D155
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Rectangular housing O1 for optical distance measurement, laser class 2

Type	Operating principle	Range	Sampling rate [Hz]	Spot Ø at max. range [mm]	U _b [V]	Wiring diagr. no.	Drawing no.	Order no.
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Output function OUT1: normally open / closed programmable OUT2: normally open / closed programmable or analogue (4...20 mA / 0...10 V, scalable) · Wiring diagram no. 6 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147

	Photoelectric distance sensor	1...75 m on reflector E21159	1...33	< 150 x 150	18...30	6	18	O1D106
	Photoelectric distance sensor	0.2...10 m	1...33	< 15 x 15	18...30	6	18	O1D105
	Photoelectric distance sensor	0.2...10 m	1...50	< 15 x 15	18...30	6	18	O1D100

Output function OUT1: normally open / closed programmable OUT2: normally open / closed programmable or analogue (4...20 mA / 0...10 V, scalable) · Wiring diagram no. 7 · Connector groups 8, 10, 18, 20, 117, 118, 147

	Photoelectric distance sensor	0.2...10 m	1...50	< 15 x 15	18...30	7	18	O1D103
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Rectangular housing O1 Laser PerformanceLine with background suppression, laser class 2

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Drawing no.	Order no.
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Photoelectric distance sensor · M12 connector · 10...30 DC · metal · IP67 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148

	Background suppression	0.2...10 m	–	< 15 x 15	normally open / closed programmable PNP	2	18	O1D101
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Photoelectric distance sensor · M12 connector · 10...30 DC · metal · IP67 · Connector groups 8, 10, 18, 20, 117, 118, 147

	Background suppression	0.2...10 m	–	< 15 x 15	normally open / closed programmable NPN	4	18	O1D104
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Rectangular housing O1 for optical level measurement, laser class 2

Type	Operating principle	Range	Sampling rate [Hz]	Spot Ø at max. range [mm]	U _b [V]	Wiring diag. no.	Drawing no.	Order no.
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Output function OUT1: normally open / closed programmable OUT2: normally open / closed programmable or analogue (4...20 mA / 0...10 V, scalable) · Wiring diagram no. 6 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147

	Optical level sensor	0.2...10 m	1...33	< 15 x 15	18...30	6	18	O1D300
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Accessories OI design (M30)


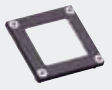
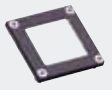


Type	Description	Order no.
	Mounting set · Clamp mounting · Free-standing M10 · for type O5 · Housing materials: stainless steel 316Ti / 1.4571 / clamp: diecast zinc	E21083
	Mounting set · Clamp mounting · With protective cover · Free-standing M10 · for type O5 · Housing materials: stainless steel 316Ti / 1.4571 / clamp: diecast zinc	E21084
	mounting rod · Ø 12 / M10 · Length: 130 mm · straight · Housing materials: stainless steel 316Ti / 1.4571	E20938
	Cube · M10 · aluminium profile · Housing materials: diecast zinc	E20951
	Angle bracket · for type O5 · Housing materials: stainless steel 316Ti / 1.4571	E21085
	Angle bracket · for type O5 · Housing materials: stainless steel 316Ti / 1.4571	E21087
	Dovetail clamp · for type DTS, O4, O5 · Housing materials: AlMgSi0.5	E21088
	Memory plug · Parameter memory for IO-Link sensors · Storage capacity: 2 Kbytes · Housing materials: PA PACM 12 / PET / sealing: FPM / nut: stainless steel 316L / 1.4404 / connector: TPU	E30398
	IO-Link interface · for parameter setting and analysis of units · Supported communication protocols: IO-Link (4800 and 38400 bits/s) EPS protocol (19200 bits/s) · for operation with FDT framework software "ifm Container" or software "LINERECORDER SENSOR"	E30396
	LINERECORDER SENSOR · Software for parameter setting and set-up of IO-Link sensors · Recording and distribution of parameter sets (duplication) · Capture and evaluation of sensor values over a longer period of time · Resetting of sensor parameters to factory setting · Use via USB connection cable E30396 or E30390 (drivers are contained in the corresponding software package)	ZGS210

Accessories O5 housing

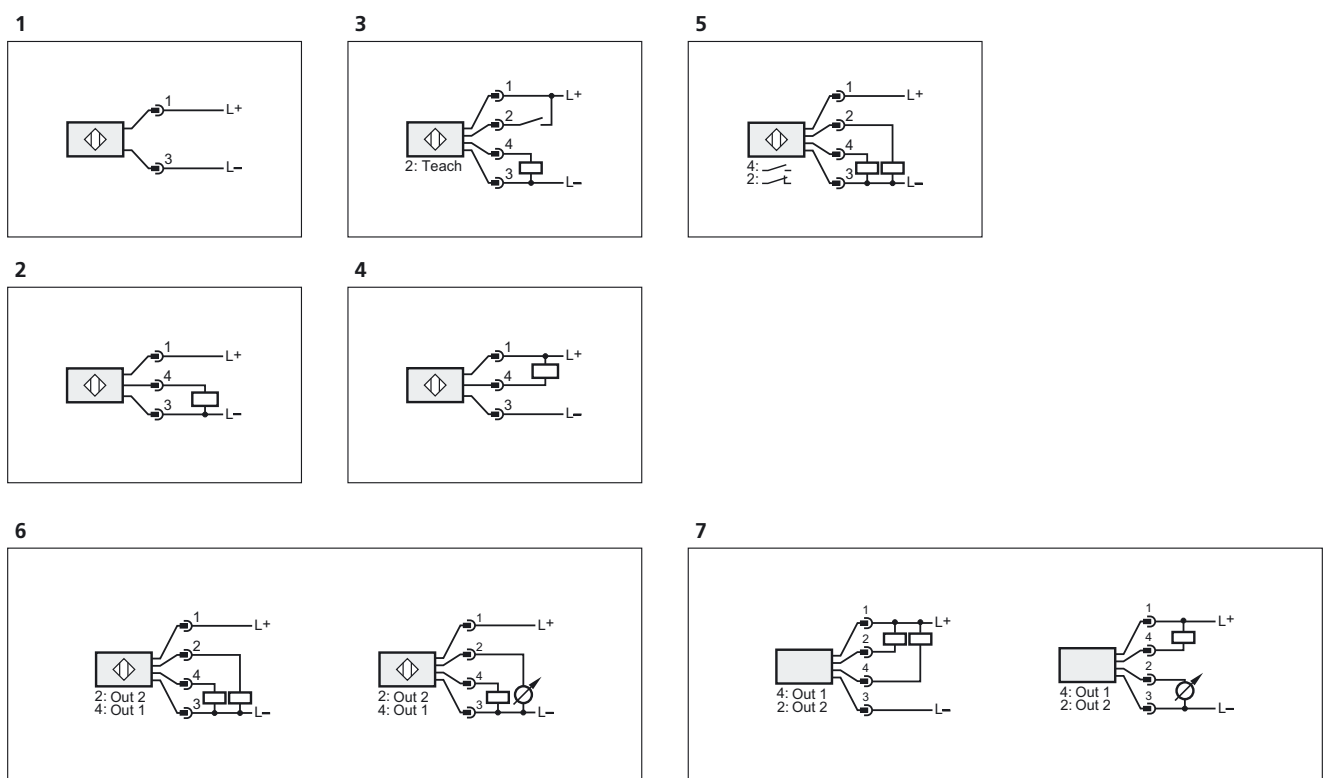
Type	Description	Order no.
	Angle bracket · for type M30 · Housing materials: stainless steel	E10737
	Mounting clamp · Ø 30 mm · with end stop · for type M30 · Housing materials: PC	E11049
	Mounting clamp · Ø 34 mm - Ø 30 mm · with reducing bush · for type M30 · Housing materials: PBT	E10077
	Mounting set · Ø 30.2 mm · Clamp mounting · aluminium profile · for type II, KI, OI, OI · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: diecast zinc / Cube: diecast zinc	E20875
	Mounting set · Ø 30.2 mm · Clamp mounting · free-standing M12 · for type OI, II, KI · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: diecast zinc	E20873
	Mounting set · Ø 30.2 mm · Clamp mounting · free-standing M12 · for type OI, II, KI · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: stainless steel	E20874
	mounting rod · Ø 12 / M10 · Length: 130 mm · straight · Housing materials: stainless steel 316Ti / 1.4571	E20938
	Cube · M10 · aluminium profile · Housing materials: diecast zinc	E20951
	Memory plug · Parameter memory for IO-Link sensors · Storage capacity: 2 Kbytes · Housing materials: PA PACM 12 / PET / sealing: FPM / nut: stainless steel 316L / 1.4404 / connector: TPU	E30398
	IO-Link interface · for parameter setting and analysis of units · Supported communication protocols: IO-Link (4800 and 38400 bits/s) EPS protocol (19200 bits/s) · for operation with FDT framework software "ifm Container" or software "LINERECORDER SENSOR"	E30396
	LINERECORDER SENSOR · Software for parameter setting and set-up of IO-Link sensors · Recording and distribution of parameter sets (duplication) · Capture and evaluation of sensor values over a longer period of time · Resetting of sensor parameters to factory setting · Use via USB connection cable E30396 or E30390 (drivers are contained in the corresponding software package)	ZGS210

Accessories O1 housing

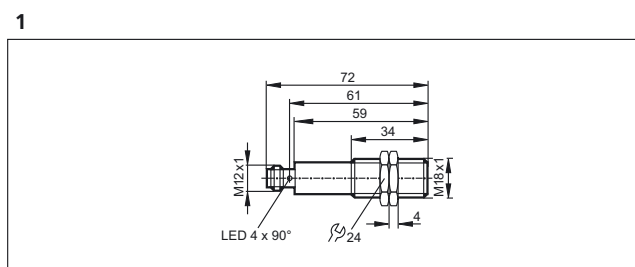
Type	Description	Order no.
	Prismatic reflector · 226 x 262 mm · rectangular · Housing materials: plastics	E21159
	Fixture for mounting and fine adjustment of laser units · O1D · Clamp mounting · rod or free-standing depending on the clamp · Housing materials: fixture: aluminium transparent anodised / plastics: POM / screws: stainless steel	E1D100

Type	Description	Order no.
	Mounting set · E2D101 + E20938 + E20951	E21079
	Protective cover · O1D · Housing materials: bezel: ZnAl4Cu1 finish black / window: PMMA transparent and colourless / sealing: FPM 75+/-5 Shore A black / screws: stainless steel	E21133
	Protective cover · O1D · Housing materials: bezel: ZnAl4Cu1 finish black / window: glass transparent and colourless / sealing: FPM 75+/-5 Shore A black / screws: stainless steel	E21171
	Cooling box · Protective housing with an active cooling system for the O1D design · for type O1D · Housing materials: housing: aluminium transparent anodised / cover: aluminium black anodised / bezel: aluminium black anodised / window: float glass / cable gland: Brass nickel-plated / nozzle: Brass nickel-plated / sealing: FPM	E21248
	Cable · 10 m	E12274

Wiring diagrams

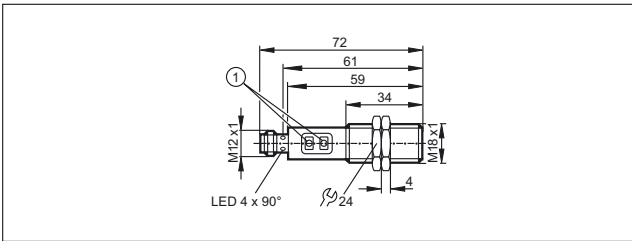


Scale drawings / drawing no. – CAD download: www.ifm.com



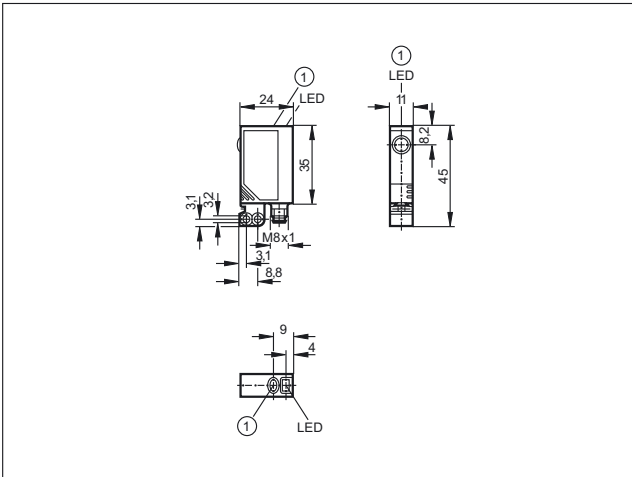
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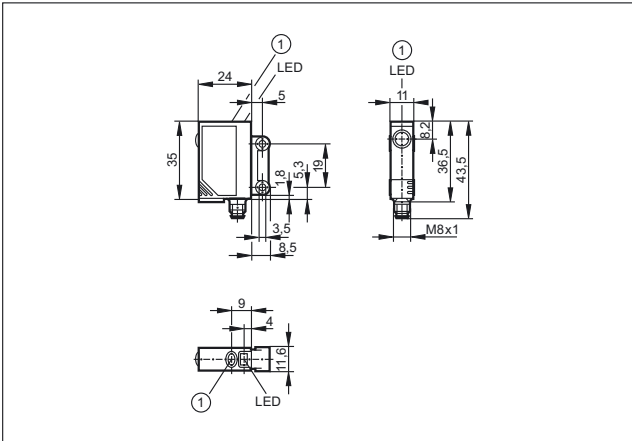
1: Programming buttons

3



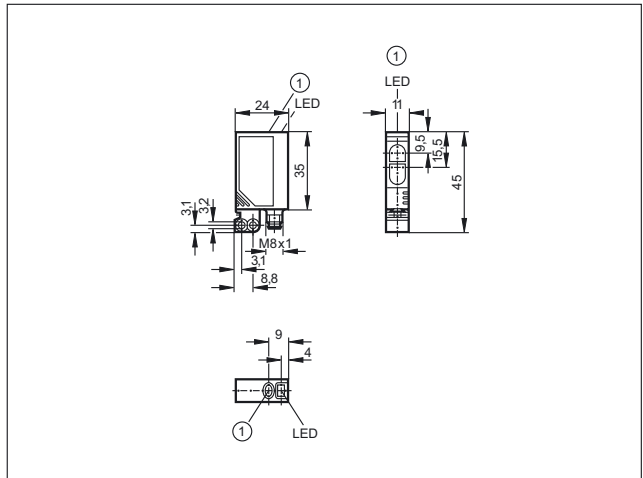
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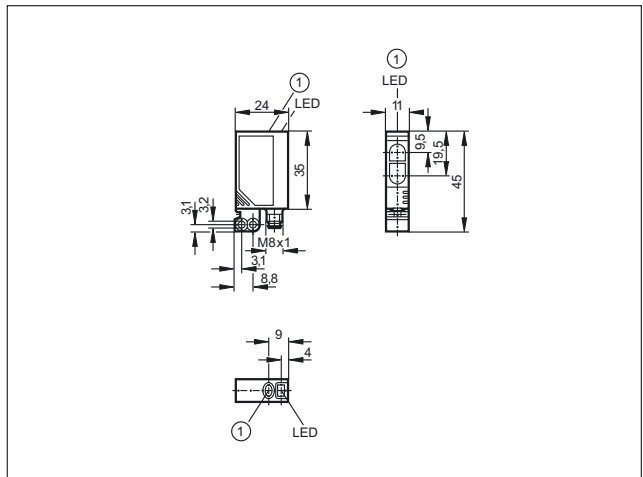
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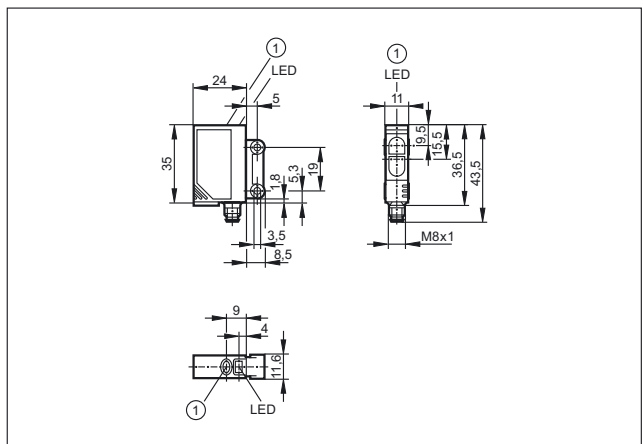
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1: pushbutton

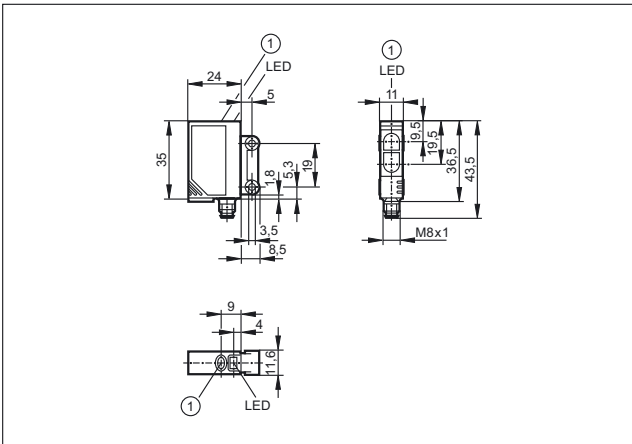
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1: pushbutton

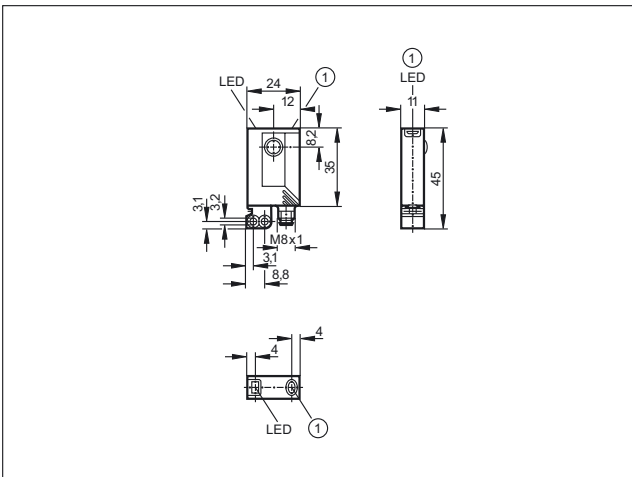
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8



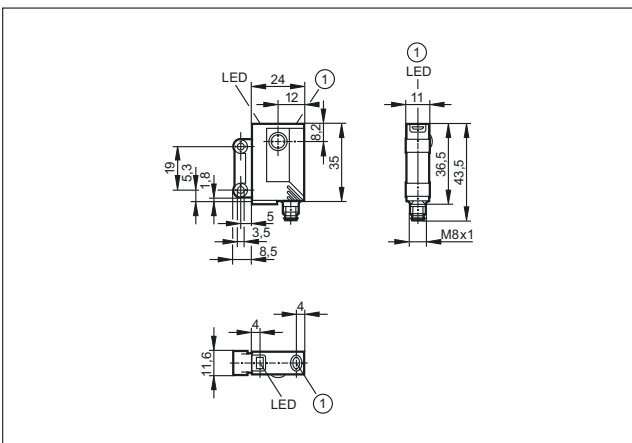
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9



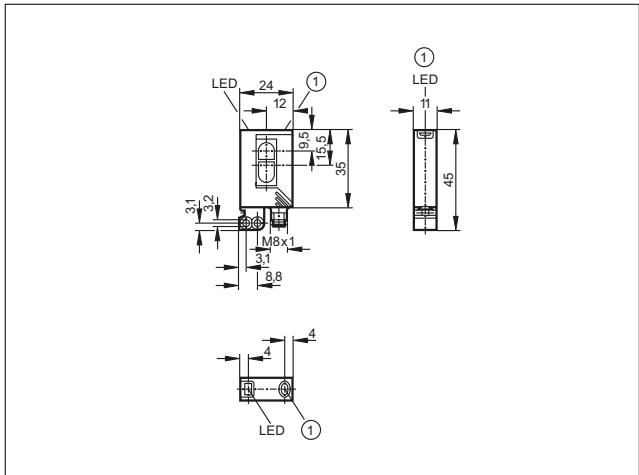
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10



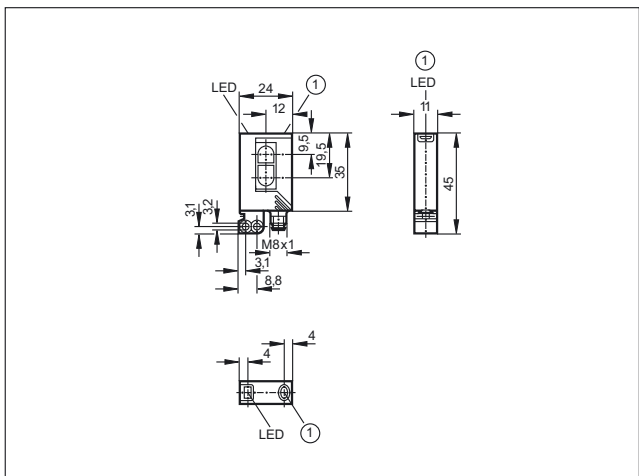
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11



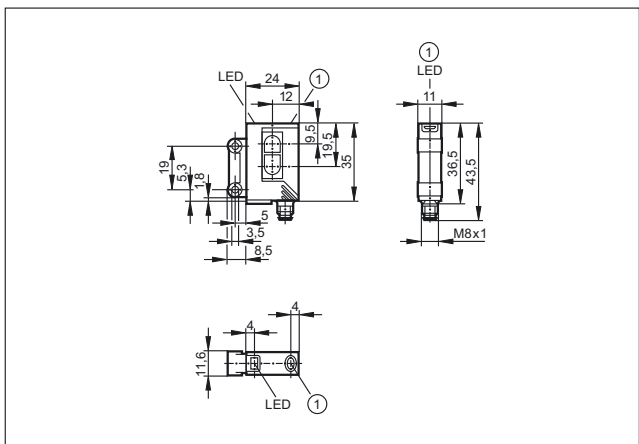
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12



1: pushbutton

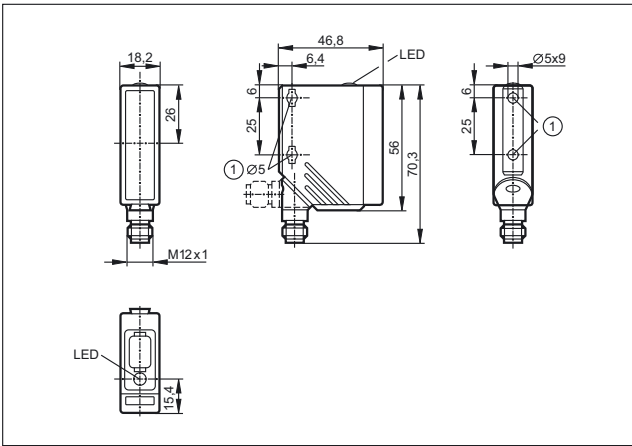
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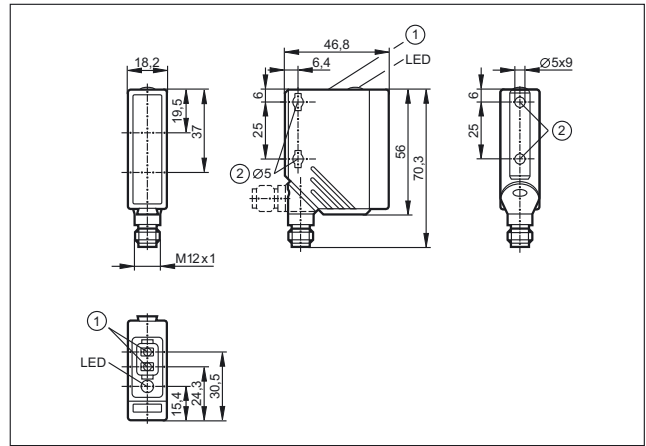
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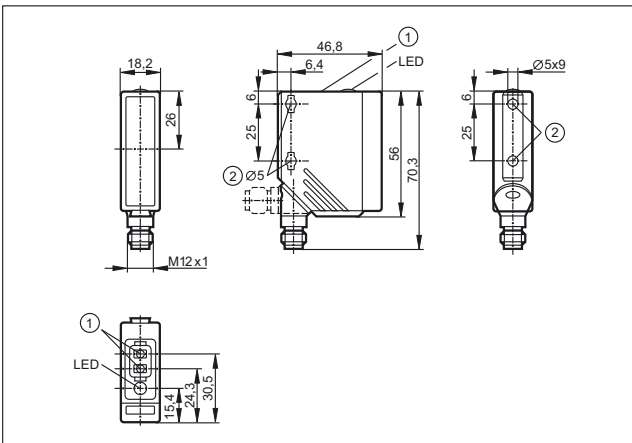


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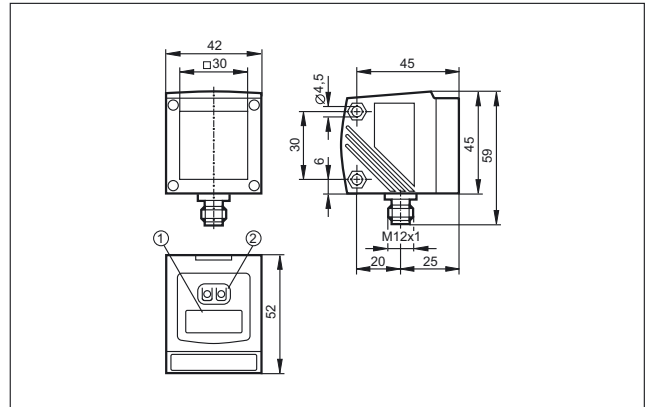


1: Programming buttons, 2: When a M5 mounting screw is used, the max. tightening torque is 2 Nm.

15

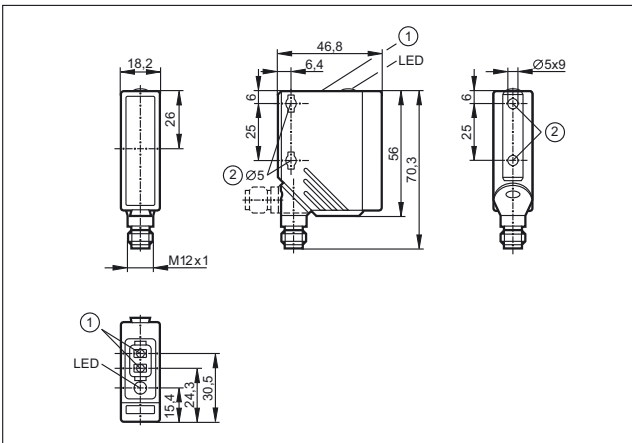


18



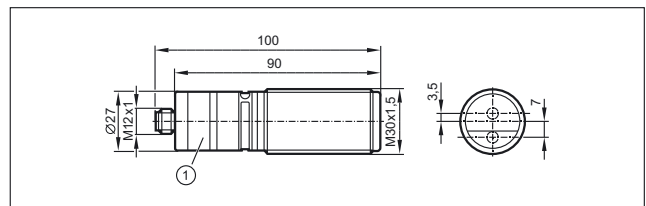
1: 4-digit alphanumeric display, 2: Programming buttons

16

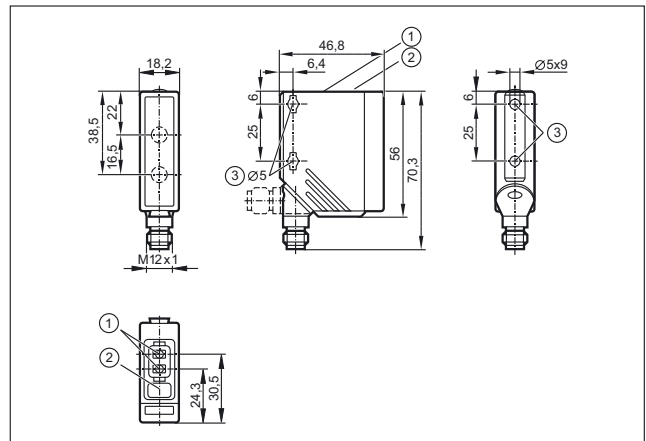


1: Programming buttons, 2: When a M5 mounting screw is used, the max. tightening torque is 2 Nm.

19



20







- Powerful single and multichannel fibre optic amplifiers
- Manual or automatic setting by means of "teach in"
- Helpful display to check operation, switching status and function
- Wide choice of fibre optics
- Easy mounting

Fibre optics systems

Fibre optics come into their own where mounting space is at a premium. They are connected to fibre optic amplifiers which contain the photoelectric components and output circuitry. Two photoelectric operating principles can be used:

Through-beam

Transmitting and receiving fibre optics are laid separately. The two ends (fibre optic heads) are mounted opposite each other. The light beam break is evaluated. As with standard photoelectrics this results in longer ranges and higher contrast for reliable sensing.

Diffuse reflection

Transmitting and receiving fibre optics are in one sheath and one sensing head. Evaluation is based on the diffuse reflection from the object, thus relies on the object surface characteristics.

Classification of fibre optics

Acrylic fibre optics

Acrylic fibre optics are suited for most standard applications. Acrylic fibres can be cut to length to fit the application.

High-flex fibre optics

More robust versions of the acrylic fibres are useful when the application places mechanic stresses on the fibre, such as repeated bending or a tight bend radius.

Glass fibre optics

Where particular demands such as heat or chemical resistance are placed on the fibre, glass fibre solutions are offered with sheathing materials which will also withstand harsh environments.

Versatile fibre optic amplifiers

The OOF amplifiers include some useful features. Logical combinations can be applied too, and two outputs can be assigned to one fibre, resulting in two switch-points from one sensing head. The pulse stretching function (delay time) allows the user to set a minimum pulse duration on the switching output. Where multiple fibres are used there is no danger of cross-talk, as the amplifier polls each one sequentially. The microprocessor-based setting is automated, while manual setting is also possible for critical situations.



Minute objects up to 0.5 mm are detected safely.

Fibre optic systems can also be mounted in places where access is difficult.




System overview	Page
OOF amplifiers for acrylic fibre optics	278
OBF amplifiers for acrylic fibre optics	278
Acrylic fibre optics for OBF / OOF housings, through-beam system	279
Acrylic fibre optics for OBF / OOF housings, through-beam system, highly flexible	279 - 280
Acrylic fibre optics for OBF / OOF housings, diffuse reflection system	280 - 281
Acrylic fibre optics for OBF / OOF housings, diffuse reflection system, highly flexible	281
Acrylic fibre optics for OBF / OOF housings, through-beam system, can be cut to length	281
Acrylic fibre optics for OBF / OOF housings, diffuse reflection system, can be cut to length	281
Acrylic fibres on a reel for OBF housing	282
OOF amplifiers for glass fibre optics	282
OKF amplifiers for glass fibre optics	282
OUF amplifiers for glass fibre optics	283
Glass fibre optics for OOF / OKF and OUF housings, through-beam system	283 - 284
Glass fibre optics for OOF / OKF and OUF housings, diffuse reflection system	284 - 285
Accessories	285 - 286
Wiring diagrams	286 - 287
Scale drawings / drawing no. – CAD download: www.ifm.com	288 - 294


OOF amplifiers for acrylic fibre optics

Type	Number of input channels	For fibre optics	Type of light	Sensing range through beam	Sensing range diffuse	Output H = light-on D = dark-on	U _b [V]	Drawing no.	Order no.
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Type OOF · M12 connector · plastics · DC · Wiring diagram no. 1 · Connector groups 14, 16, 17

	2	FE/FT-11	Red	3.8 m	0...300 mm	H/D PNP	12...36	1	OO5000
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Type OOF · M12 connector · plastics · DC · Wiring diagram no. 5 · Connector groups 16, 17

	4	FE/FT-11	Red	3.8 m	0...300 mm	H/D PNP	12...36	2	OO5001
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Type OOF · M16 connector · plastics · DC · Wiring diagram no. 6 · Connector group 23

	6	FE/FT-11	Red	3.8 m	0...300 mm	H/D PNP	12...36	3	OO5002
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Type OOF · M16 connector · plastics · DC · Wiring diagram no. 7 · Connector group 23

	8	FE/FT-11	Red	3.8 m	0...300 mm	H/D PNP	12...36	4	OO5003
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OBF amplifiers for acrylic fibre optics

Type	Number of input channels	For fibre optics	Type of light	Sensing range through beam	Sensing range diffuse	Output H = light-on D = dark-on	U _b [V]	Drawing no.	Order no.
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Type OBF · M12 connector · plastics · DC · Wiring diagram no. 8 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147

	1	FE/FT-11	Red	0...2 m	0...100 mm	H/D PNP/NPN	10...30	5	OBF500
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Type OBF · M8 connector · plastics · DC · Wiring diagram no. 8 · Connector groups 4, 5, 74, 80, 116

	1	FE/FT-11	Red	0...2 m	0...100 mm	H/D PNP/NPN	10...30	6	OBF501
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Type OBF · Cable 2 m · plastics · DC · Wiring diagram no. 9

	1	FE/FT-11	Red	0...2 m	0...100 mm	H/D PNP/NPN	10...30	7	OBF502
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Type OBF · M8 connector · plastics · DC · Wiring diagram no. 10 · Connector groups 1, 3, 114

	1	FE/FT-11	Red	0...2 m	0...100 mm	H/D PNP/NPN	10...30	6	OBF503
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Acrylic fibre optics for OBF / OOF housings, through-beam system

Type	System	Fibre optic material	Range OB50.. / OBF5.. / OO50.. [mm]	Sensing head material	Ambient temperature [°C]	Sheathing material	Drawing no.	Order no.
	FE-11	PMMA	60 / 130 / 160	aluminium	-40...70	PE (polyethylene)	8	E20609
	FE-11	PMMA	60 / 130 / 160	aluminium	-40...70	PE (polyethylene)	9	E20612
	FE-11	PMMA	150 / 210 / 800	aluminium	-40...70	PE (polyethylene)	9	E20615
	FE-11	PMMA	150 / 300 / 700	aluminium	-40...70	PE (polyethylene)	10	E20757
	FE-11	PMMA	200 / 350 / 800	aluminium	-40...70	PE (polyethylene)	11	E20603
	FE-11	PMMA	200 / 450 / 800	aluminium	-40...70	PE (polyethylene)	9	E20606
	FE-11	PMMA	400 / 900 / 1600	aluminium	-40...70	PE (polyethylene)	12	E20753
	FE-11	PMMA	1200 / 2000 / 3800	aluminium	-40...70	PE (polyethylene)	13	E20752
	FE-11	PMMA	60 / 130 / 160	stainless steel	-40...70	PE (polyethylene)	14	E20751
	FE-11	PMMA	140 / 230 / 400	stainless steel	-40...70	PE (polyethylene)	15	E20714
	FE-11	PMMA	200 / 450 / 800	stainless steel	-40...70	PE (polyethylene)	16	E20750
	FE-11	PMMA	20 / 20 / 20	PA	-25...60	PE (polyethylene)	17	E20689

Acrylic fibre optics for OBF / OOF housings, through-beam system, highly flexible




Type	System	Fibre optic material	Range OB50.. / OBF5.. / OO50.. [mm]	Sensing head material	Ambient temperature [°C]	Sheathing material	Drawing no.	Order no.
	FE-11	PMMA	50 / 56 / 120	aluminium	-40...60	PE (polyethylene)	8	E21103

Position sensors




Type	System	Fibre optic material	Range OB50.. / OBF5.. / OO50.. [mm]	Sensing head material	Ambient temperature [°C]	Sheathing material	Draw- ing no.	Order no.
	FE-11	PMMA	50 / 56 / 120	aluminium	-40...60	PE (polyethylene)	9	E21104
	FE-11	PMMA	250 / 350 / 750	aluminium	-40...60	PE (polyethylene)	18	E21101
	FE-11	PMMA	250 / 350 / 750	aluminium	-40...60	PE (polyethylene)	9	E21102

Acrylic fibre optics for OBF / OOF housings, diffuse reflection system

Type	System	Fibre optic material	Range OB50.. / OBF5.. / OO50.. [mm]	Sensing head material	Ambient temperature [°C]	Sheathing material	Draw- ing no.	Order no.
	FT-11	PMMA	6 / 10 /	aluminium	-40...70	PE (polyethylene)	19	E20756
	FT-11	PMMA	20 / 25 / 60	aluminium	-40...70	PE (polyethylene)	20	E20639
	FT-11	PMMA	20 / 25 / 60	aluminium	-40...70	PE (polyethylene)	11	E20712
	FT-11	PMMA	60 / 70 / 300	aluminium	-40...70	PE (polyethylene)	21	E20645
	FT-11	PMMA	60 / 90 / 300	aluminium	-40...70	PE (polyethylene)	21	E20651
	FT-11	PMMA	60 / 70 / 300	aluminium	-40...70	PE (polyethylene)	22	E20648
	FT-11	PMMA	60 / 90 / 300	aluminium	-40...70	PE (polyethylene)	22	E20654
	FT-11	PMMA	60 / 75 / 200	aluminium	-40...70	PE (polyethylene)	23	E20758
	FT-11	PMMA	70 / 100 / 300	aluminium	-40...70	PE (polyethylene)	22	E20633
	FT-11	PMMA	15 / 25 / 60	stainless steel	-40...70	PE (polyethylene)	24	E20748
	FT-11	PMMA	20 / 25 / 60	stainless steel	-40...70	PE (polyethylene)	25	E20711

Type	System	Fibre optic material	Range OB50.. / OBF5.. / OO50.. [mm]	Sensing head material	Ambient temperature [°C]	Sheathing material	Draw- ing no.	Order no.
	FT-11	PMMA	40 / 60 / 150	stainless steel	-40...70	PE (polyethylene)	26	E20715
	FT-11	PMMA	70 / 100 / 300	stainless steel	-40...70	PE (polyethylene)	27	E20749
	FE-11	PMMA	–	–	-30...70	PE (polyethylene)	28	E20772


Acrylic fibre optics for OBF / OOF housings, diffuse reflection system, highly flexible

Type	System	Fibre optic material	Range OB50.. / OBF5.. / OO50.. [mm]	Sensing head material	Ambient temperature [°C]	Sheathing material	Draw- ing no.	Order no.
	FT-11	PMMA	10 / 10 / 30	aluminium	-40...60	PE (polyethylene)	29	E21106
	FT-11	PMMA	10 / 10 / 30	aluminium	-40...60	PE (polyethylene)	18	E21107
	FT-11	PMMA	70 / 104 / 180	aluminium	-40...60	PE (polyethylene)	30	E21105



Acrylic fibre optics for OBF / OOF housings, through-beam system, can be cut to length

Type	System	Fibre optic material	Range OB50.. / OBF5.. / OO50.. [mm]	Sensing head material	Ambient temperature [°C]	Sheathing material	Draw- ing no.	Order no.
	FE-11	PMMA	175 / 370 / 700	aluminium	-40...70	–	31	E20767





Acrylic fibre optics for OBF / OOF housings, diffuse reflection system, can be cut to length

Type	System	Fibre optic material	Range OB50.. / OBF5.. / OO50.. [mm]	Sensing head material	Ambient temperature [°C]	Sheathing material	Draw- ing no.	Order no.
	FT-11	PMMA	55 / 110 / 235	aluminium	-40...70	–	32	E20765



Acrylic fibres on a reel for OBF housing

Type	Description	Order no.
	acrylic fibres on a reel · 20 m · for type OBF, OOF · Housing materials: PE (polyethylene), Fibre optic: PMMA, can be cut to length	E20773
	acrylic fibres on a reel · 50 m · for type OBF, OOF · Housing materials: PE (polyethylene), Fibre optic: PMMA, can be cut to length	E20774

OOF amplifiers for glass fibre optics

Type	Number of input channels	For fibre optics	Type of light	Sensing range through beam	Sensing range diffuse	Output H = light-on D = dark-on	U _b [V]	Drawing no.	Order no.
Type OOF · M12 connector · plastics · DC · Wiring diagram no. 1 · Connector groups 14, 16, 17									
	2	FE/FT-00	Red	0.4 m	0...200 mm	H/D PNP	12...36	33	OO5004
Type OOF · M12 connector · plastics · DC · Wiring diagram no. 5 · Connector groups 16, 17									
	4	FE/FT-00	Red	0.4 m	0...200 mm	H/D PNP	12...36	34	OO5005
Type OOF · M16 connector · plastics · DC · Wiring diagram no. 6 · Connector group 23									
	6	FE/FT-00	Red	0.4 m	0...200 mm	H/D PNP	12...36	35	OO5006
Type OOF · M16 connector · plastics · DC · Wiring diagram no. 7 · Connector group 23									
	8	FE/FT-00	Red	0.4 m	0...200 mm	H/D PNP	12...36	36	OO5007


OKF amplifiers for glass fibre optics

Type	Number of input channels	For fibre optics	Type of light	Sensing range through beam	Sensing range diffuse	Output H = light-on D = dark-on	U _b [V]	Drawing no.	Order no.
Type OKF · Cable 2 m · plastics · DC · Wiring diagram no. 11									
	1	FE/FT-00	Red	0...0.12 m	0...40 mm	H/D PNP	10...36	37	OK5001
Type OKF · M12 connector · plastics · DC · Wiring diagram no. 12 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147									
	1	FE/FT-00	Red	0...0.12 m	0...40 mm	H/D PNP	10...36	38	OK5008


OUF amplifiers for glass fibre optics

Type	Number of input channels	For fibre optics	Type of light	Sensing range through beam	Sensing range diffuse	Output H = light-on D = dark-on	U _b [V]	Drawing no.	Order no.
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Type OUF · Cable 2 m · plastics · DC · Wiring diagram no. 2

	1	FE/FT-00	Infrared	0.12 m	40 mm	H PNP	10...36	39	OU5001
	1	FE/FT-00	Infrared	0.12 m	40 mm	D PNP	10...36	39	OU5002









Type OUF · M12 connector · plastics · DC · Wiring diagram no. 3 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148

	1	FE/FT-00	Infrared	0...0.12 m	0...40 mm	H PNP	10...36	40	OU5043
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Type OUF · M12 connector · plastics · DC · Wiring diagram no. 4 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148

	1	FE/FT-00	Infrared	0...0.12 m	0...40 mm	D PNP	10...36	40	OU5044
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Glass fibre optics for OOF / OKF and OUF housings, through-beam system






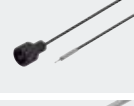



Type	System	Fibre optic material	Range OOF / OKF / OUF [mm]	Sensing head material	Ambient temperature [°C]	Sheathing material	Drawing no.	Order no.
	FE-00	glass	400 / 120 / 120	aluminium	-20...80	PVC	41	E20059
	FE-00	glass	400 / 120 / 120	aluminium	-20...80	PVC	42	E20060
	FE-00	glass	400 / 120 / 120	aluminium	-20...80	PVC	43	E20062
	FE-00	glass	400 / 120 / 120	aluminium	-20...80	PVC	44	E20228
	FE-00	glass	160 / 50 / 50	stainless steel	-20...80	PVC	45	E20061
	FE-00	glass	400 / 120 / 120	aluminium	-40...290	aluminium	46	E20128
	FE-00	glass	400 / 120 / 120	aluminium	-40...290	aluminium	47	E20130
	FE-00	glass	400 / 120 / 120	aluminium	-40...290	aluminium	48	E20129








You can find wiring diagrams and scale drawings from page 286

Position sensors








Type	System	Fibre optic material	Range OOF / OKF / OUF [mm]	Sensing head material	Ambient temperature [°C]	Sheathing material	Drawing no.	Order no.
	FE-00	glass	160 / 50 / 50	stainless steel	-40...290	aluminium	49	E20127
	FE-00	glass	160 / 50 / 50	stainless steel	-20...150	metal silicone	50	E20506
	FE-00	glass	400 / 120 / 120	stainless steel	-20...150	metal silicone	51	E20505
	FE-00	glass	400 / 120 / 120	stainless steel	-20...150	metal silicone	52	E20492
	FE-00	glass	400 / 120 / 120	stainless steel	-20...150	metal silicone	53	E20493





Glass fibre optics for OOF / OKF and OUF housings, diffuse reflection system

Type	System	Fibre optic material	Range OOF / OKF / OUF [mm]	Sensing head material	Ambient temperature [°C]	Sheathing material	Drawing no.	Order no.
	FT-00	glass	200 / 40 / 40	aluminium	-20...80	PVC	54	E20051
	FT-00	glass	200 / 40 / 40	aluminium	-20...80	PVC	55	E20052
	FT-00	glass	200 / 40 / 40	aluminium	-20...80	PVC	56	E20054
	FT-00	glass	200 / 40 / 40	Brass	-20...80	PVC	57	E20249
	FT-00	glass	24 / 6 / 6	stainless steel	-20...80	PVC	58	E20230
	FT-00	glass	24 / 8 / 8	stainless steel	-20...80	PVC	45	E20053
	FT-00	glass	200 / 40 / 40	aluminium	-40...290	aluminium	59	E20055
	FT-00	glass	200 / 40 / 40	aluminium	-40...290	aluminium	60	E20056
	FT-00	glass	200 / 40 / 40	aluminium	-40...290	aluminium	61	E20058

Type	System	Fibre optic material	Range OOF / OKF / OUF [mm]	Sensing head material	Ambient temperature [°C]	Sheathing material	Drawing no.	Order no.
	FT-00	glass	24 / 8 / 8	stainless steel	-40...290	aluminium	49	E20057
	FT-00	glass	24 / 8 / 8	stainless steel	-20...150	metal silicone	50	E20507
	FT-00	glass	200 / 40 / 40	stainless steel	-20...150	metal silicone	62	E20489
	FT-00	glass	200 / 40 / 40	stainless steel	-20...150	metal silicone	63	E20494
	FT-00	glass	200 / 40 / 40	stainless steel	-20...150	metal silicone	56	E20495
	FT-00	glass	- / 40 / 40	Brass	-20...80	–	64	E20078
	FT-00	glass	200 / 40 / 40	stainless steel	-25...80	–	65	E20215

Accessories

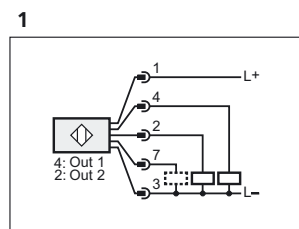
Type	Description	Order no.
	Lens attachment · Ø 5 mm / M3 · for through-beam fibre optics · Housing materials: aluminium black anodised / glass	E20679
	Lens attachment · Ø 6 mm / M4 · for through-beam fibre optics · Housing materials: aluminium black anodised / glass	E20680
	Lens attachment · D5x10-M3-ALU · for through-beam fibre optics · M3 · Housing materials: aluminium black anodised	E20754
	Lens attachment · D5x10-M4-ALU · for through-beam fibre optics · M4 · Housing materials: aluminium black anodised	E20755
	Diaphragm attachment · D5x10-M3-ALU/D0.4 · for through-beam fibre optics · M3 · Housing materials: aluminium black anodised	E20762
	Angle bracket · for type OBF · Housing materials: steel galvanised	E20593
	Angle bracket · OU · with mounting material · Housing materials: galvanised steel	E20211

Type	Description	Order no.
	Mounting clamp · Ø 3 mm · for fibre optics · Housing materials: aluminium black anodised	E20107
	Mounting clamp · Ø 3.5 mm · for fibre optics · Housing materials: aluminium black anodised	E20106
	Mounting clamp · Ø 4.5 mm · for fibre optics · Housing materials: aluminium black anodised	E20105
	Mounting clamp · Ø 5 mm · for fibre optics · Housing materials: aluminium black anodised	E20104
	Mounting clamp · Ø 6 mm · for fibre optics · Housing materials: aluminium black anodised	E20103
	Mounting clamp · Ø 7 mm · for fibre optics · Housing materials: aluminium black anodised	E20102
	Mounting clamp · Ø 8 mm · Housing materials: aluminium black anodised	E10221
	Mounting clamp · Ø 10 mm · for fibre optics · Housing materials: PBT	E20353
	cutter for fibre optics · for type FE/FT-11 · Housing materials: plastics	E20600

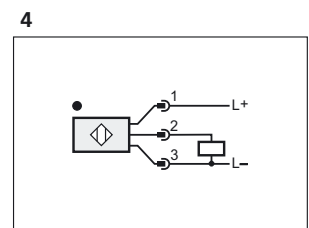
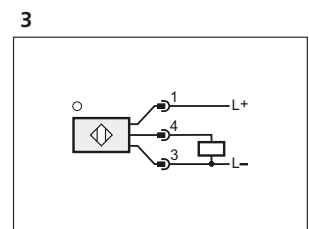
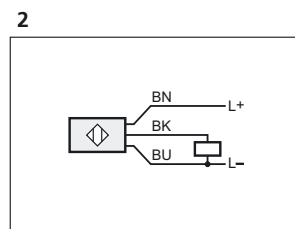
Wiring diagrams

Core colours

- BK black
- BN brown
- BU blue
- VT lilac
- WH white

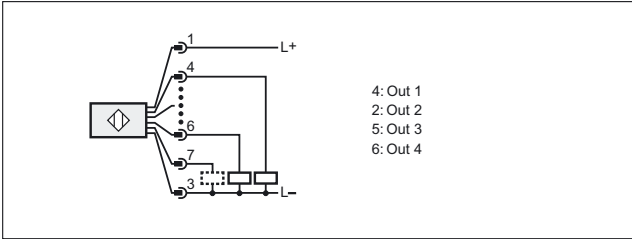


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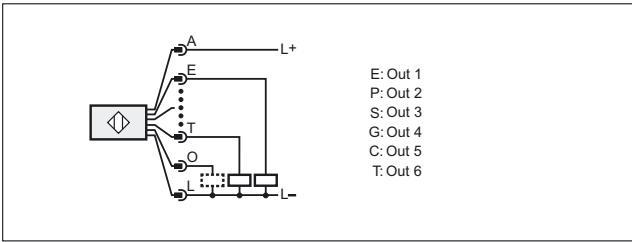
Wiring diagrams

5



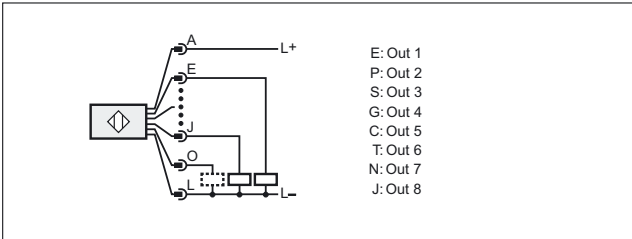
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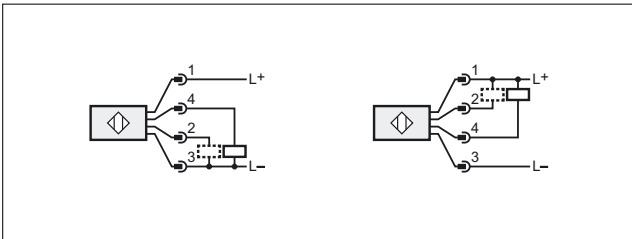
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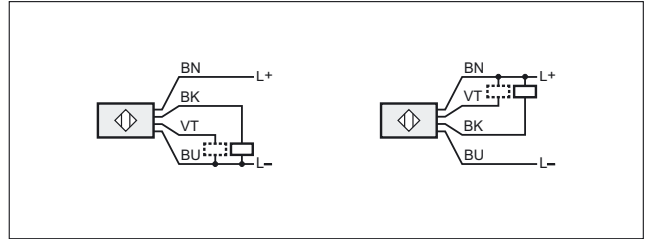


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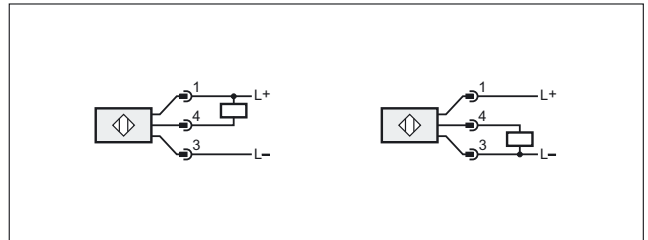
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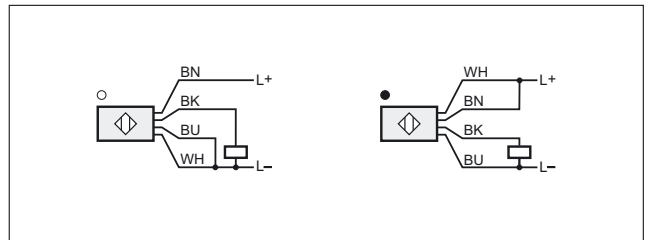
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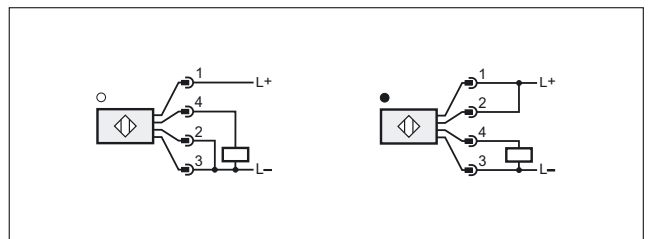
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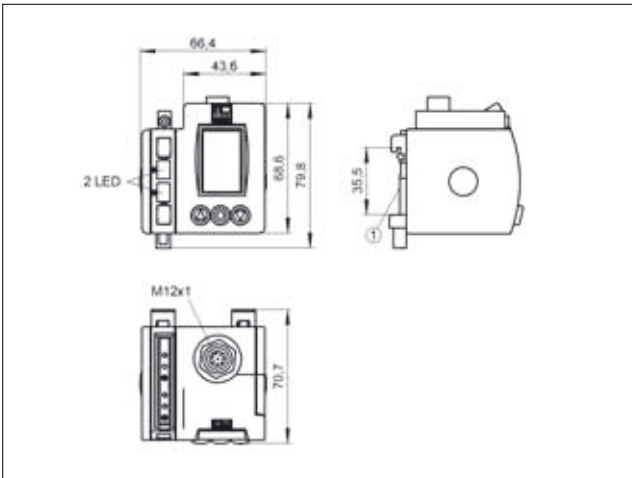


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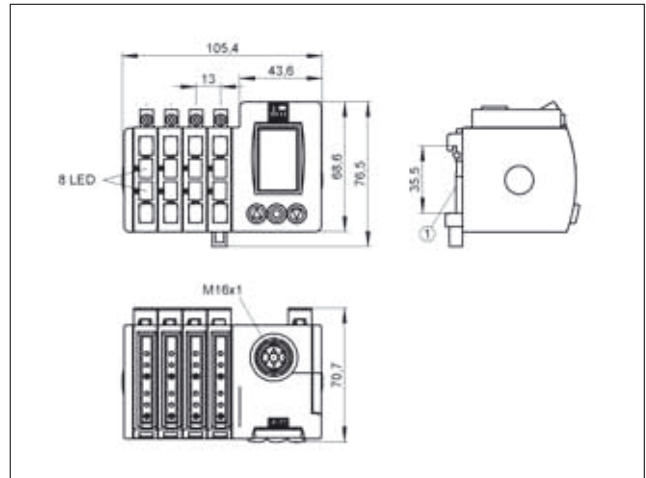
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1



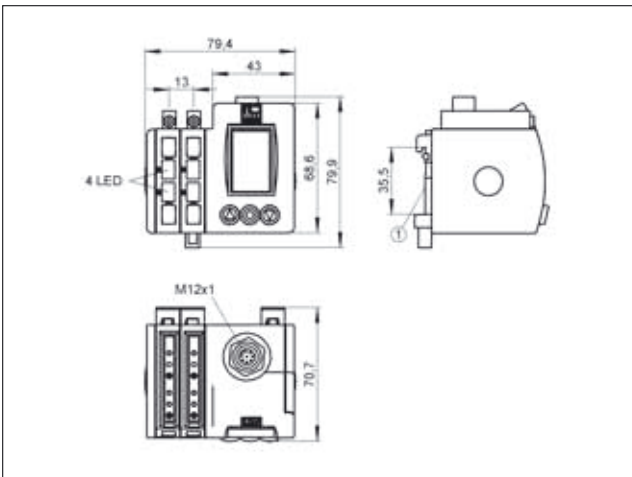
1: Mounting on DIN rail

4



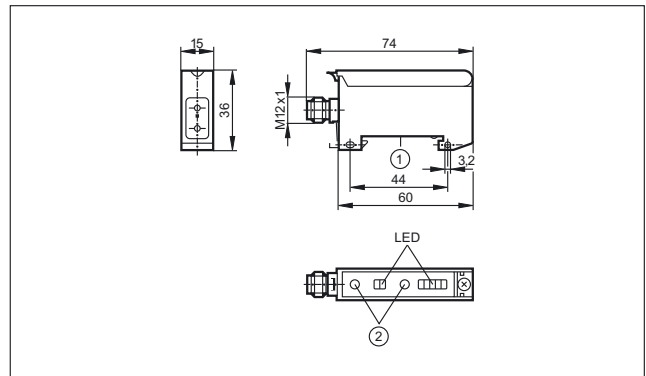
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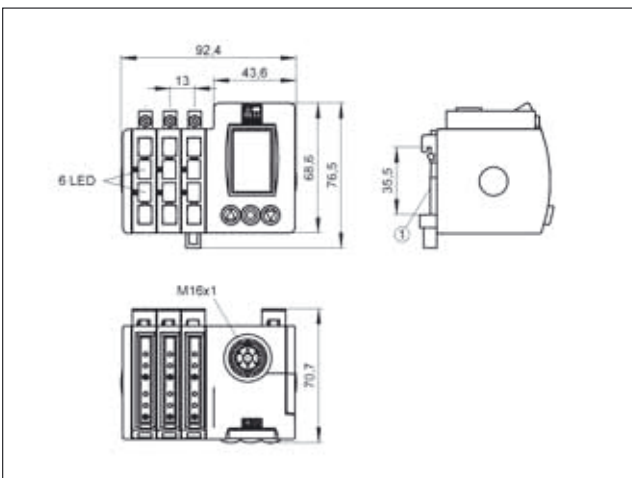
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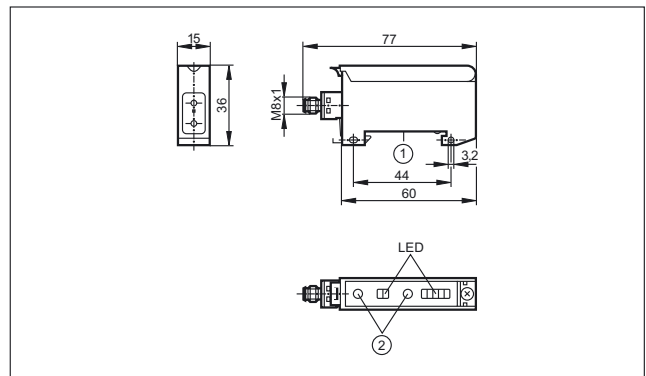
1: Mounting on DIN rail, 2: setting pushbuttons

3



1: Mounting on DIN rail

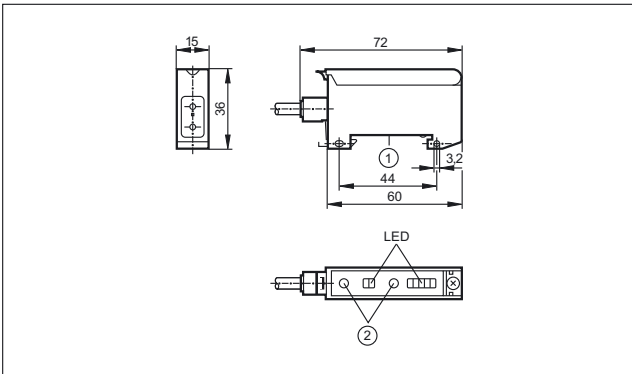
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1: Mounting on DIN rail, 2: setting pushbuttons

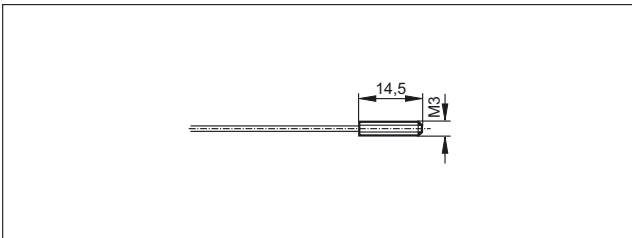
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7

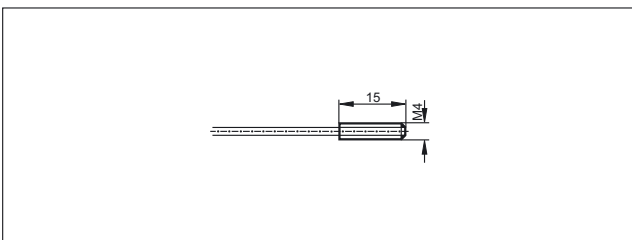


1: Mounting on DIN rail, 2: setting pushbuttons

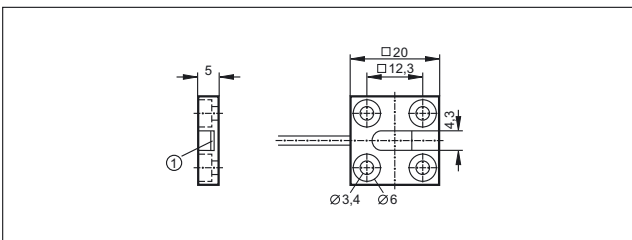
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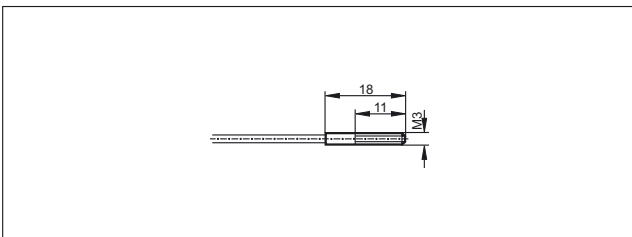


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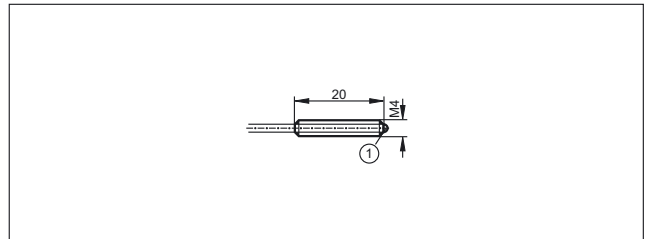


1: Sensing surface

11

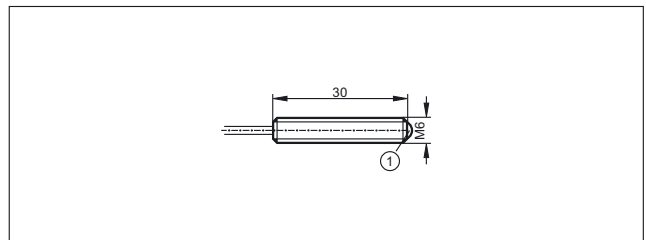


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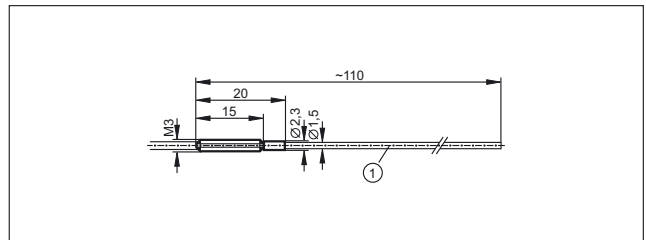
1: glass lens

13



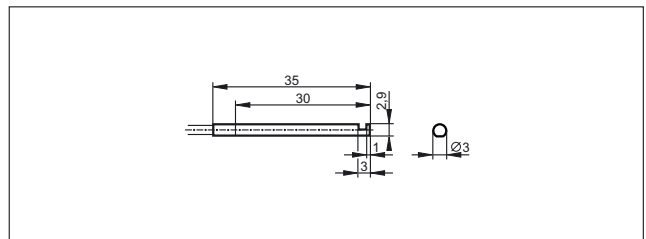
1: glass lens

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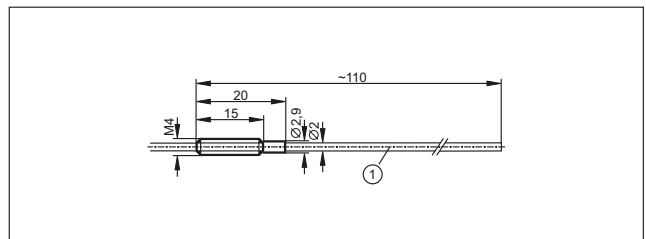


1: bendable

15



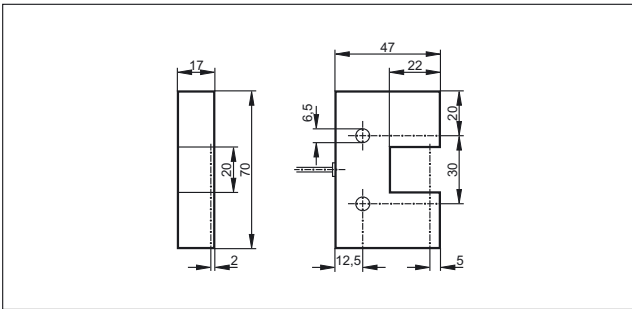
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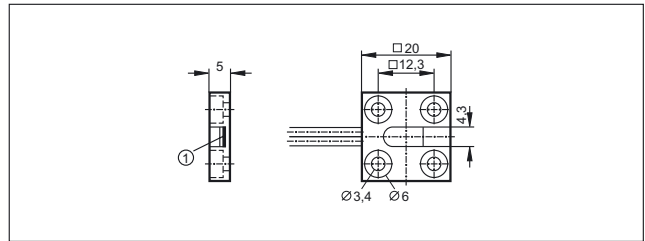
1: bendable

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17

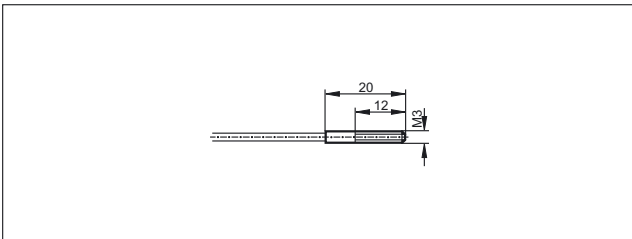


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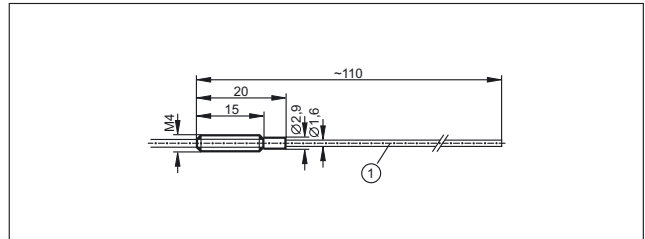


1: Sensing surface

18

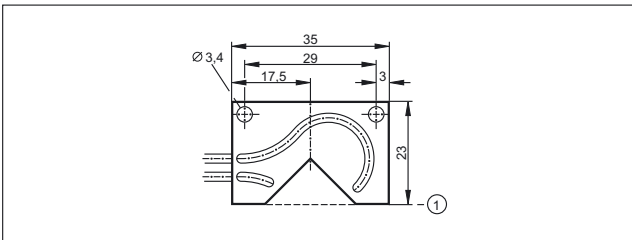


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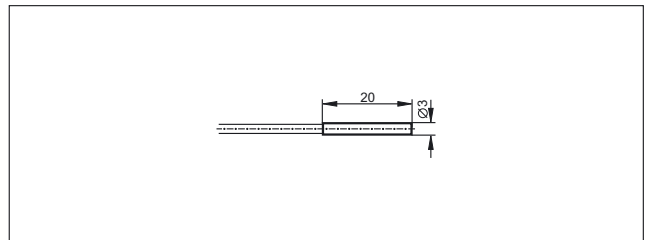
1: bendable

19

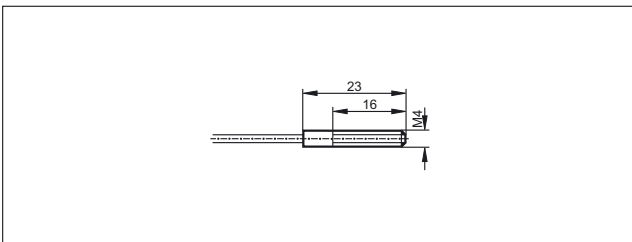


1: Reference edge

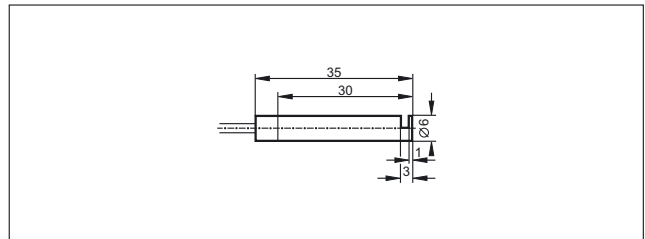
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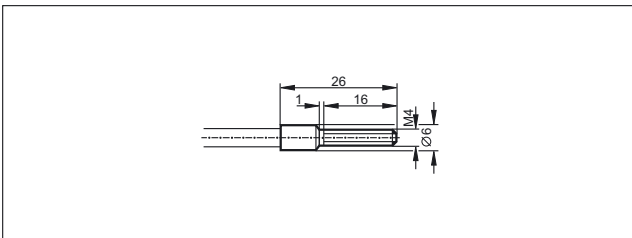
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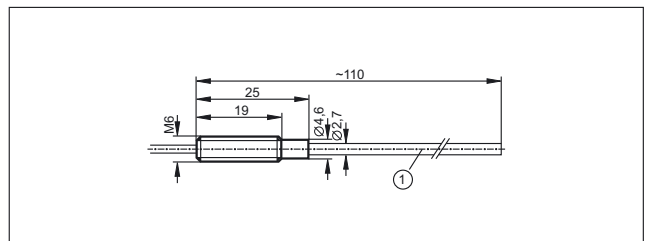
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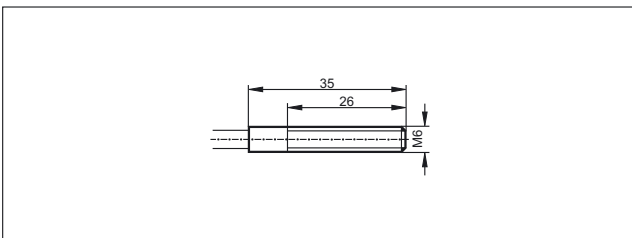


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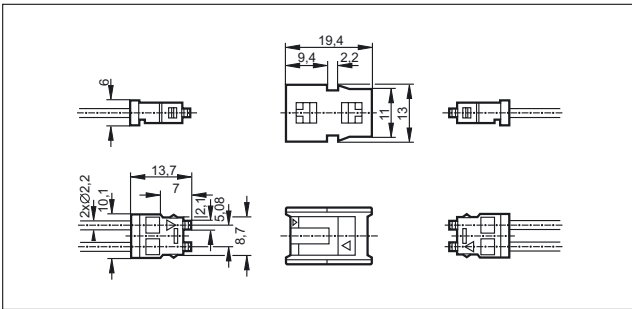
1: bendable

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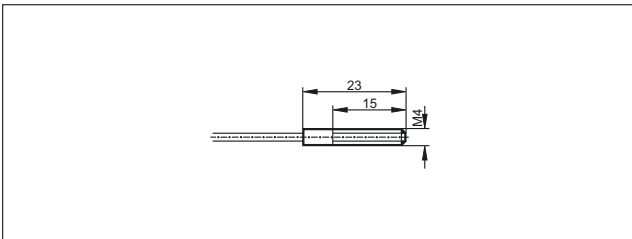


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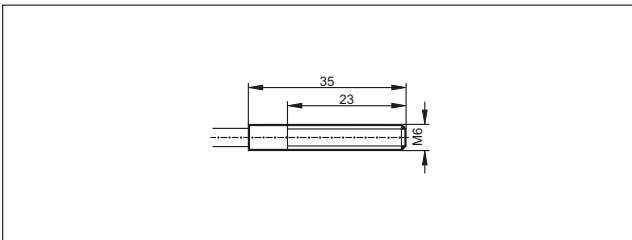
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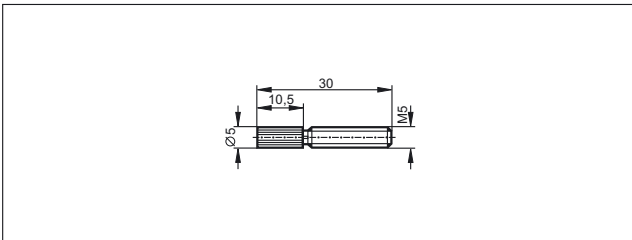
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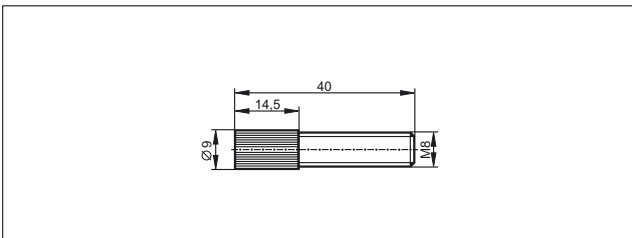
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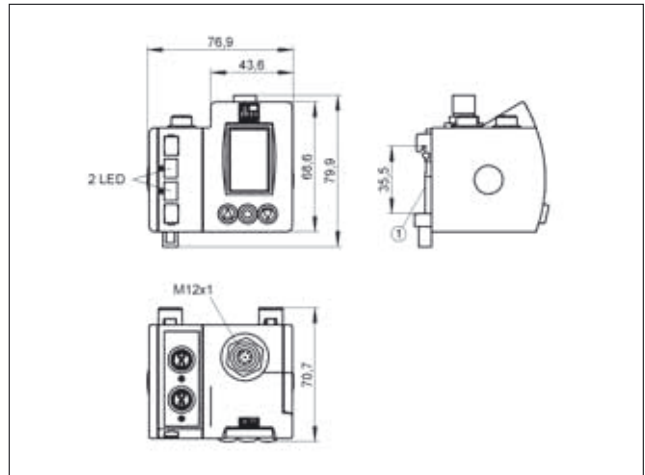
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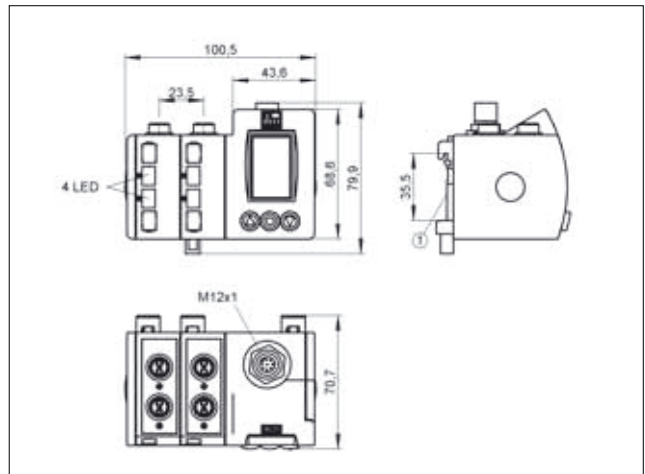


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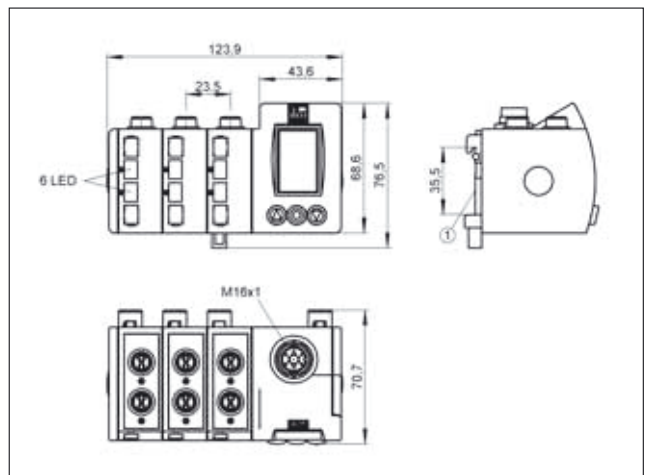
1: Mounting on DIN rail

34



1: Mounting on DIN rail

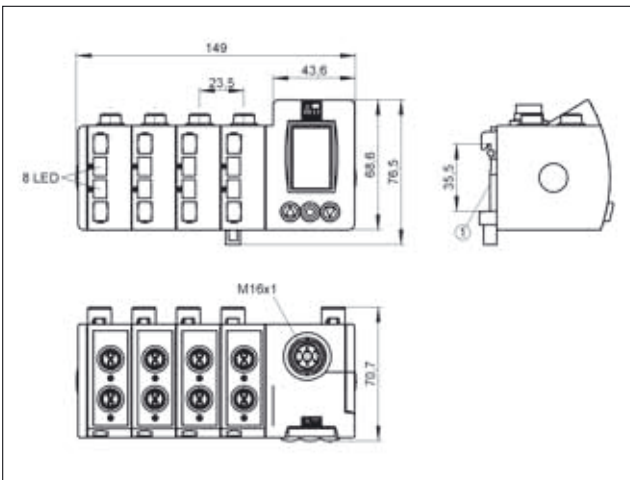
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1: Mounting on DIN rail

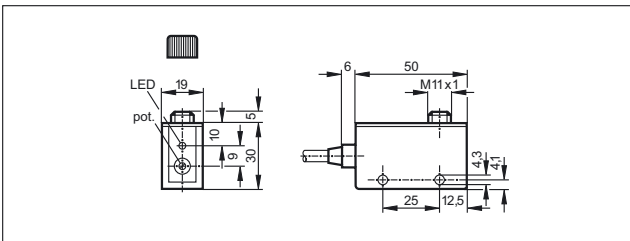
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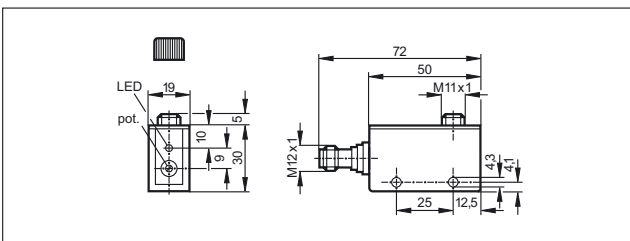


1: Mounting on DIN rail

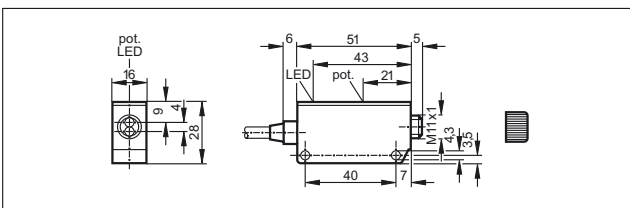
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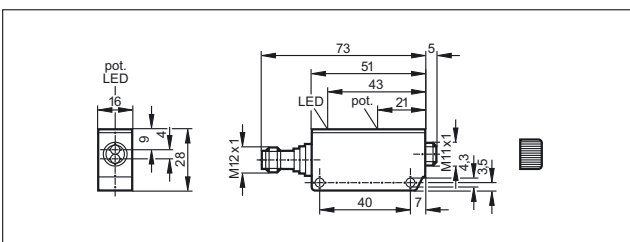
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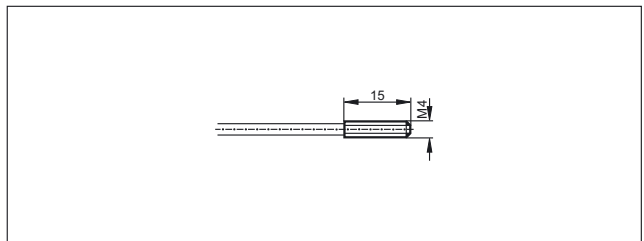
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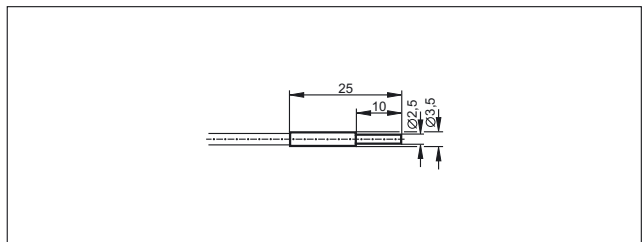
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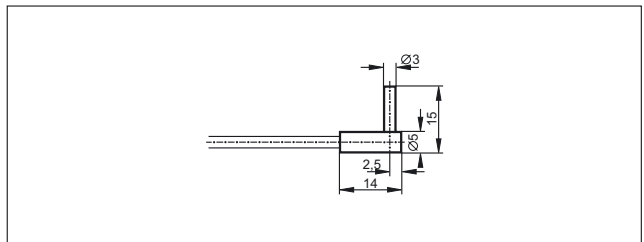
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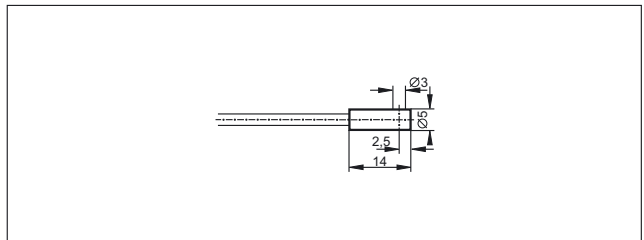
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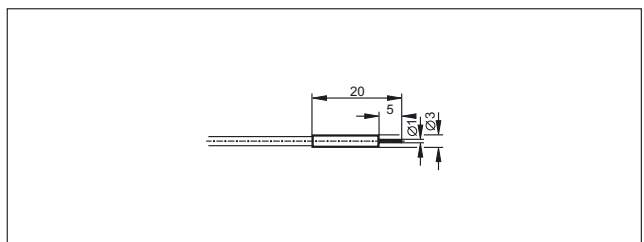
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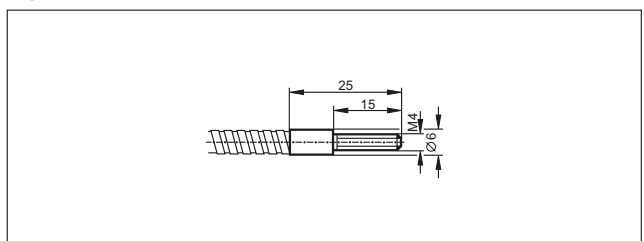
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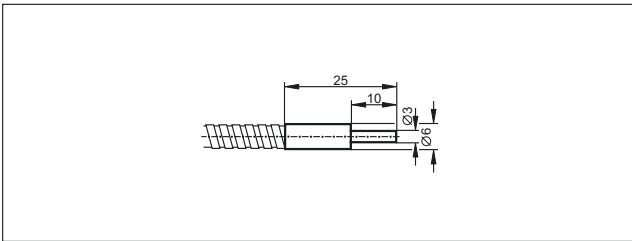


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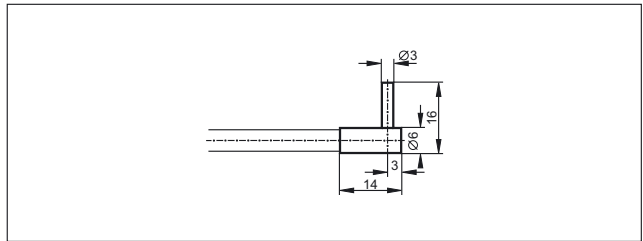


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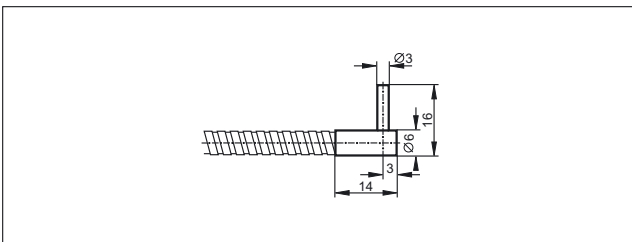
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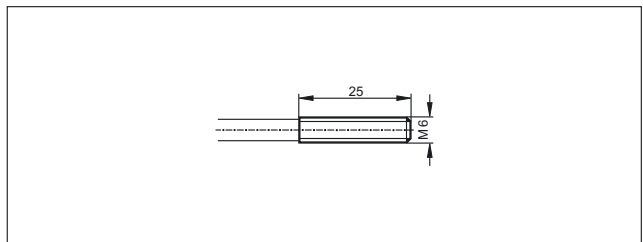
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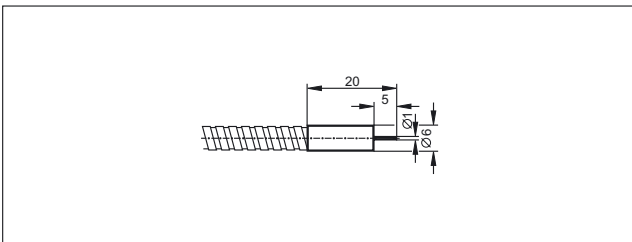
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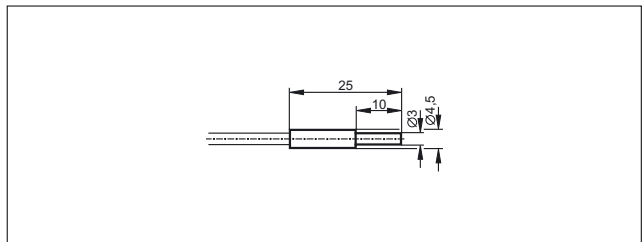
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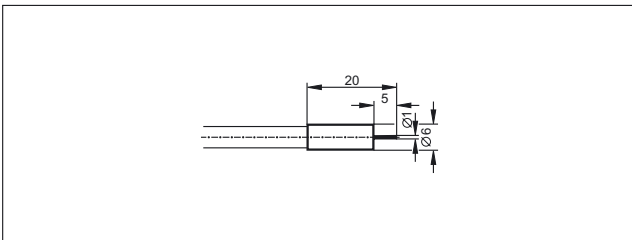
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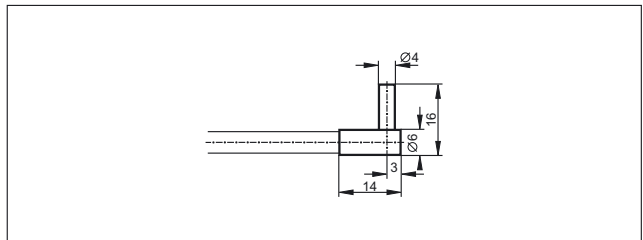
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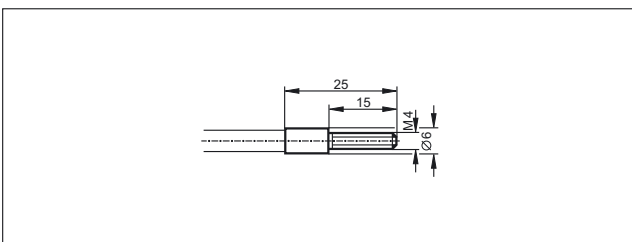
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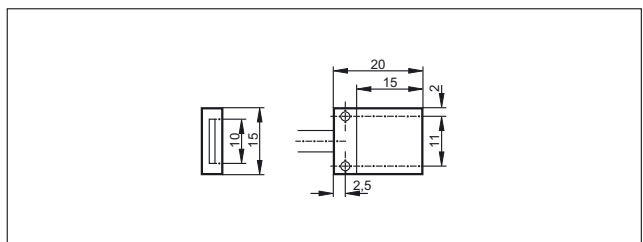
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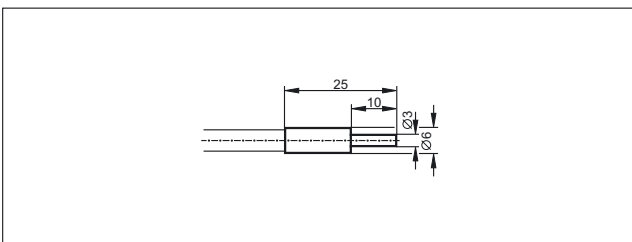
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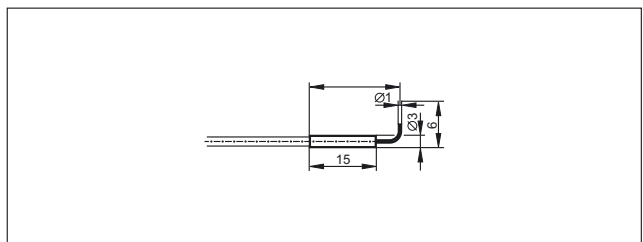
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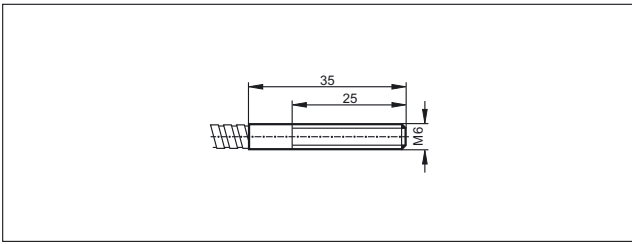


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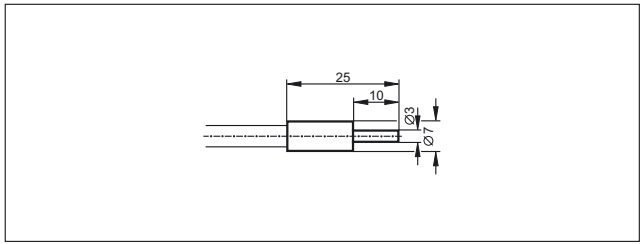


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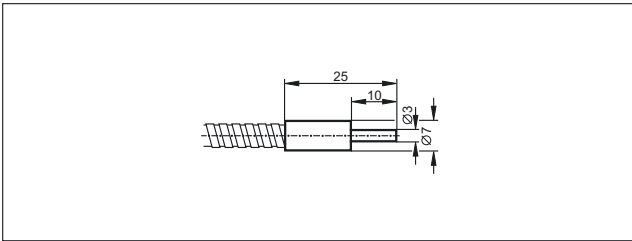
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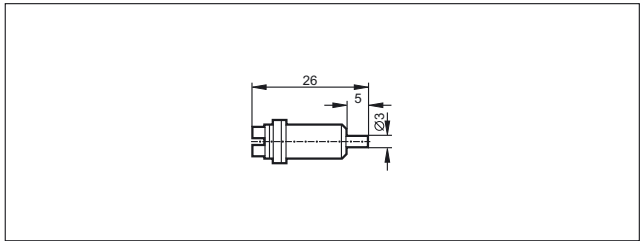
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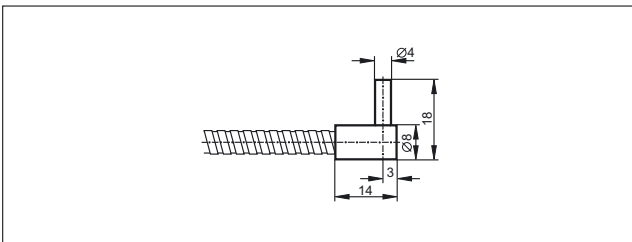
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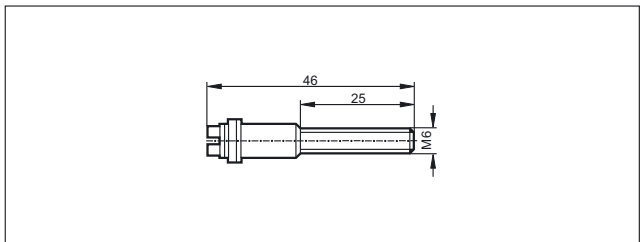
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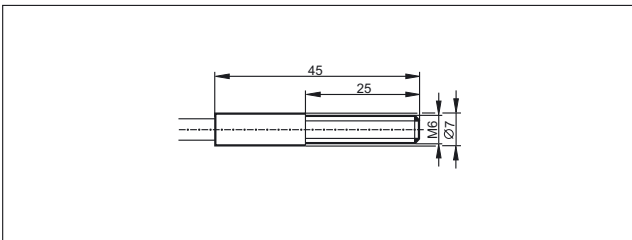
61



65



62







- Photoelectric sensors for specific applications such as transparent objects, low contrast, colour
- Easy pushbutton setting
- Wide range of mounting accessories
- Excellent price / performance ratio

Detection of transparent objects

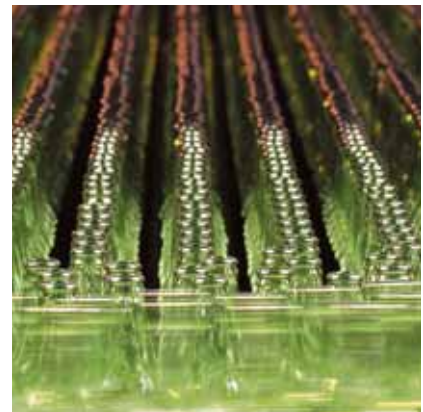
Counting bottles and glasses or the reliable monitoring of film for tear or web-break is straightforward using specially designed retro-reflective sensors. ifm offers two styles of retro-reflective sensor with a small switching hysteresis especially designed for the detection of transparent objects. With this operating principle, retro-reflective sensors have the advantage that the light beam must pass the object to be detected twice, weakening the light sufficiently to detect a transparent object reliably. Precise adjustment is made by means of the pushbutton setting.

Low contrast sensor

The O5K low contrast sensor is designed to detect print marks and particularly flat objects. Even pale colours on a light background can be detected. With its RGB transmitter LED the sensor detects even very small differences in contrast. During set-up it automatically selects the optimum transmitter colour from the red green blue (RGB) transmitter to ensure maximum energy difference of the reflected light. In addition, the setting method saves time and money. Pressing the pushbuttons twice is enough for the sensor to be ready for operation.

High-resolution colour sensor

The O5C electronic colour sensor from ifm detects the colour, packaging, label or imprint of objects at a high resolution. With the five selectable tolerance steps, the colour sensor perfectly differentiates even the finest shades of colour from the background or other objects. The unit is set to the colour to be detected by one push of the button.





Detection of glass and PET bottles in the beverage industry.

System overview	Page
Sensors for the detection of transparent objects	298
Contrast sensors	298
Sensors for colour detection	299
Rectangular housing O1 for optical level measurement, laser class 2	299
Prismatic reflector	299
Accessories OJ housing	299 - 300
Accessories O5 housing	300 - 301
Accessories for system components	301
Wiring diagrams	301 - 302
Scale drawings / drawing no. – CAD download: www.ifm.com	302 - 303





Sensors for the detection of transparent objects

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
------	---------------------	-------	---------------	---------------------------	---------------------------------------	-------------------------	---------------------	--------------


Retro-reflective sensor · PVC cable 0.15 m · with M12 connector · 10...30 DC · plastics · IP67 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148

	Polarisation filter	0.2...1.5 m	Red	64	H/D PNP	1	1	OJ5191
	Polarisation filter	0.2...1.5 m	Red	64	H/D PNP	1	2	OJ5190

Retro-reflective sensor · M8 connector · 10...30 DC · plastics · IP67 · Connector groups 4, 5, 74, 80, 116

	Polarisation filter	0.2...1.5 m	Red	64	H/D PNP	2	3	OJ5085
	Polarisation filter	0.2...1.5 m	Red	64	H/D PNP	2	4	OJ5086
	Polarisation filter	0.2...1.5 m	Red	64	H/D PNP	2	5	OJ5186
	Polarisation filter	0.2...1.5 m	Red	64	H/D NPN	3	5	OJ5189
	Polarisation filter	0.2...1.5 m	Red	64	H/D PNP	2	6	OJ5185

Retro-reflective sensor · M12 connector · 10...36 DC · plastics · IP67 · Connector groups 10, 12, 13, 18, 19, 20, 21, 117, 119, 120, 121, 122, 147, 149

	Polarisation filter	0...1.5 m	Red	40 / 80	H/D PNP/NPN	5	7	O5G500
---	---------------------	-----------	-----	---------	-------------	---	---	--------

Contrast sensors

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw- ing no.	Order no.
------	---------------------	-------	---------------	---------------------------	---------------------------------------	-------------------------	---------------------	--------------


M12 connector · 10...36 DC · plastics · IP67 · Connector groups 10, 12, 13, 18, 19, 20, 21, 117, 119, 120, 121, 122, 147, 148, 149

	Diffuse contrast sensor	18...22 mm	RGB	1.5 x 5	H/D PNP/NPN	6	8	O5K500
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Sensors for colour detection

Type	Operating principle	Measuring range	Light spot diameter [mm]	U _b [V]	Current consumption [mA]	Sampling rate / switching frequency [Hz]	Drawing no.	Order no.
------	---------------------	-----------------	-----------------------------	-----------------------	-----------------------------	---	-------------	-----------


M12 connector · Output function light-on / dark-on programmable · DC PNP/NPN · Wiring diagram no. 4 · Connector groups 10, 12, 13, 18, 19, 20, 21, 117, 119, 120, 121, 122, 147, 149

	Colour sensor	15...19 mm	2.5 x 6	10...36	50	2000	8	O5C500
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Rectangular housing O1 for optical level measurement, laser class 2


Type	Operating principle	Range	Sampling rate [Hz]	Spot Ø at max. range [mm]	U _b [V]	Wiring diagr. no.	Drawing no.	Order no.
------	---------------------	-------	-----------------------	------------------------------	-----------------------	-------------------	-------------	-----------

Output function OUT1: normally open / closed programmable OUT2: normally open / closed programmable or analogue (4...20 mA / 0...10 V, scalable) · Wiring diagram no. 7 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147

	Optical level sensor	0.2...10 m	1...33	< 15 x 15	18...30	7	9	O1D300
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Prismatic reflector


Type	Description	Order no.
------	-------------	-----------

	Prismatic reflector · 48 x 48 mm · rectangular · for retro-reflective laser sensors and glass and film detection · Housing materials: plastics	E20722
---	--	--------


Accessories OJ housing


Type	Description	Order no.
------	-------------	-----------

	Angle bracket · for type OJ · Housing materials: high-grade stainless steel	E20984
---	---	--------








	Basic clip · OJ · Housing materials: high-grade stainless steel	E20965
---	---	--------

	Basic clip · OJ · Housing materials: diecast zinc	E20964
---	---	--------







	Swivel-mount clip · for type OJ · Housing materials: diecast zinc	E20974
---	---	--------



	Mounting set · OJ · for side lens · Clamp mounting · free-standing M8 · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: diecast zinc	E20968
---	--	--------

Position sensors

Type	Description	Order no.
	Mounting set · OJ · for side lens · Clamp mounting · free-standing M8 · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: stainless steel	E20969
	Mounting set · OJ · for side lens · rod mounting Ø 10 mm · Housing materials: clamp: diecast zinc / fixture: stainless steel 316Ti / 1.4571	E21095
	Mounting set · OJ · for side lens · Clamp mounting · rod mounting Ø 10 mm · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: diecast zinc	E21222
	Mounting set · OJ · for side lens · Clamp mounting · rod mounting Ø 10 mm · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: stainless steel	E20973
	Mounting set · OJ · for front lens · Clamp mounting · free-standing M8 · Housing materials: clamp: diecast zinc / fixture: stainless steel 316Ti / 1.4571	E20966
	Mounting set · OJ · for front lens · Clamp mounting · rod mounting Ø 10 mm · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: diecast zinc	E20970
	Mounting set · OJ · for front lens · Clamp mounting · rod mounting · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: stainless steel	E21221

Accessories O5 housing

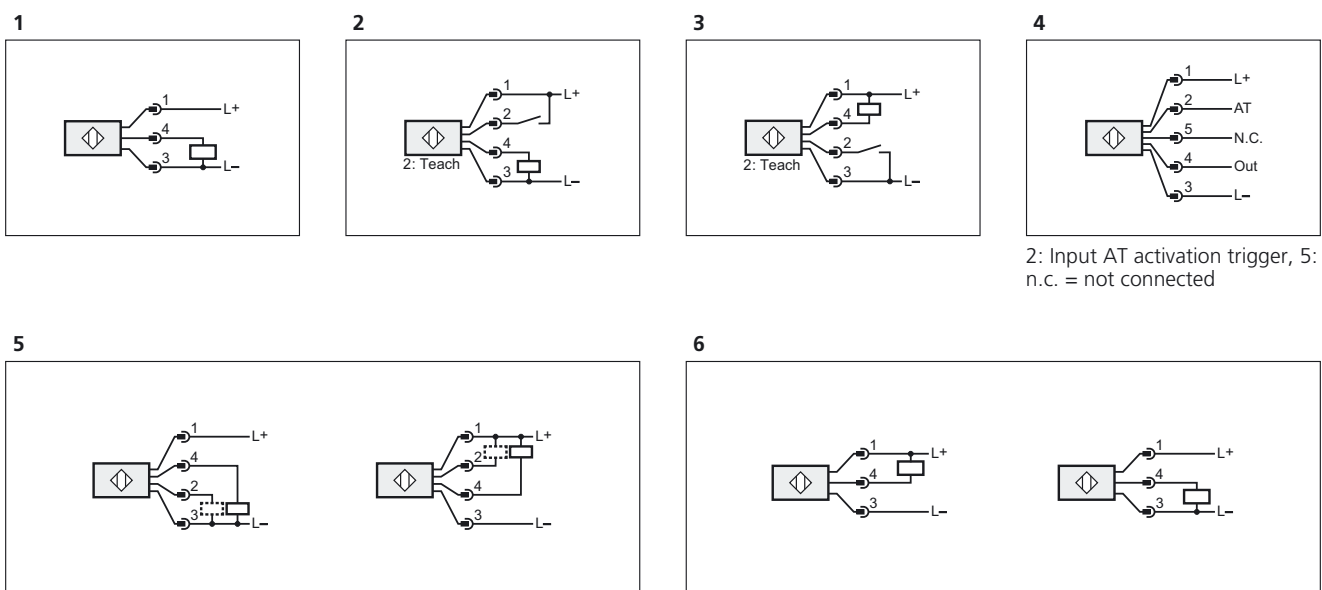
Type	Description	Order no.
	Angle bracket · for type O5 · Housing materials: stainless steel 316Ti / 1.4571	E21085
	Angle bracket · for type O5 · Housing materials: stainless steel 316Ti / 1.4571	E21087
	Mounting set · Clamp mounting · With protective cover · rod mounting Ø 12 mm · for type O5 · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: high-grade stainless steel	E21223
	Mounting set · Clamp mounting · With protective cover · rod mounting Ø 12 mm · for type O5 · Housing materials: stainless steel 316Ti / 1.4571 / clamp: diecast zinc	E21210
	Mounting set · Clamp mounting · rod mounting Ø 12 mm · for type O5, O5D · Housing materials: stainless steel 316Ti / 1.4571 / clamp: diecast zinc	E21211
	Mounting set · Clamp mounting · rod mounting Ø 12 mm · for type O5, O5D · Housing materials: stainless steel 316Ti / 1.4571 / clamp: high-grade stainless steel	E21212

Type	Description	Order no.
	Mounting brackets Mounting on the back of the unit · for type O5 · Housing materials: stainless steel 316Ti / 1.4571	E21086
	Dovetail clamp · for type DTS, O4, O5 · Housing materials: AlMgSi0.5	E21088

Accessories for system components

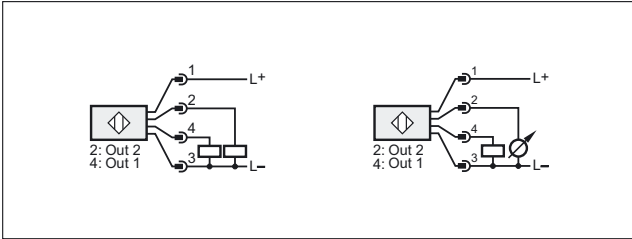
Type	Description	Order no.
	mounting rod · Ø 12 / M10 · Length: 130 mm · straight · Housing materials: stainless steel 316Ti / 1.4571	E20938
	mounting rod · Ø 12 / M10 · Length: 200 mm · angled · Housing materials: stainless steel 316Ti / 1.4571	E20940
	Head cap screw · M10 x 120 mm · ISO 4762 (DIN 912) · Free-standing M10 · Housing materials: screw: steel galvanised	E21213
	Head cap screw · M10 x 120 mm · ISO 4762 (DIN 912) · Free-standing M10 · Housing materials: screw: high-grade stainless steel	E21214
	Cube · M10 · aluminium profile · Housing materials: diecast zinc	E20951

Wiring diagrams



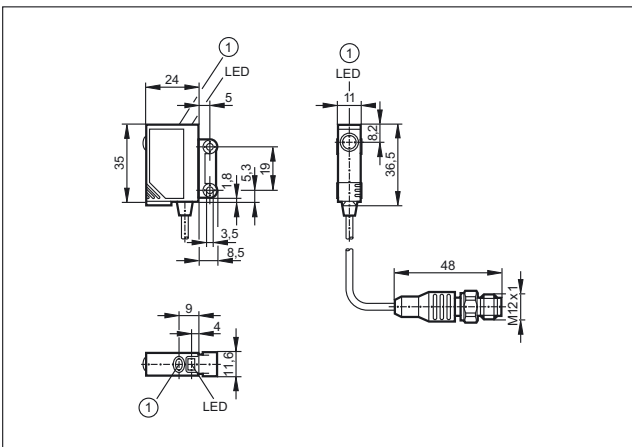
Wiring diagrams

7



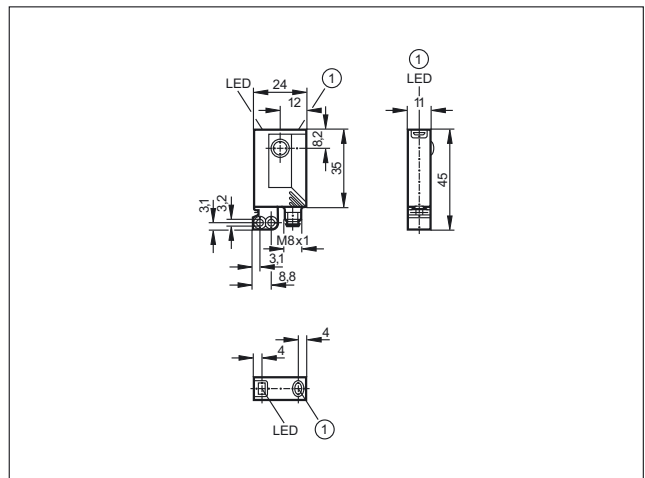
Scale drawings / drawing no. – CAD download: www.ifm.com

1



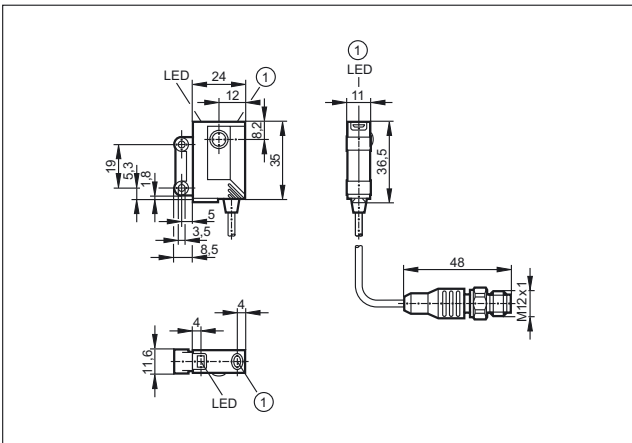
1: pushbutton

3



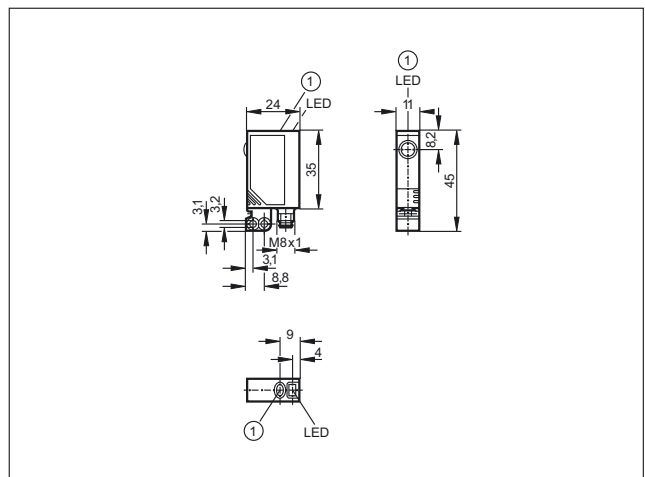
1: pushbutton

2



1: pushbutton

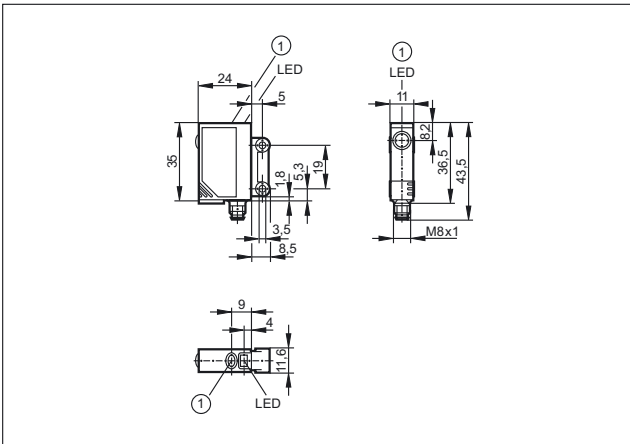
4



1: pushbutton

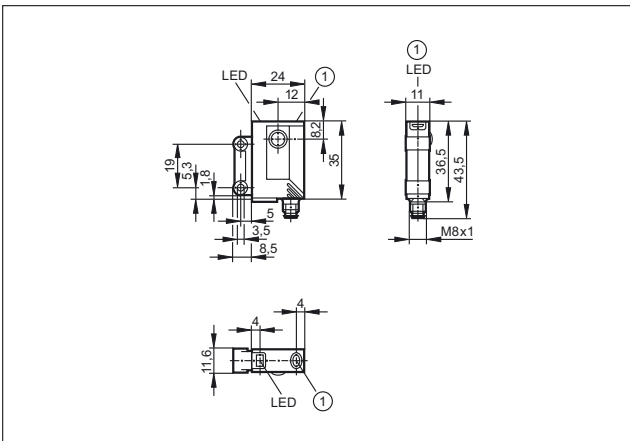
Scale drawings / drawing no. – CAD download: www.ifm.com

5



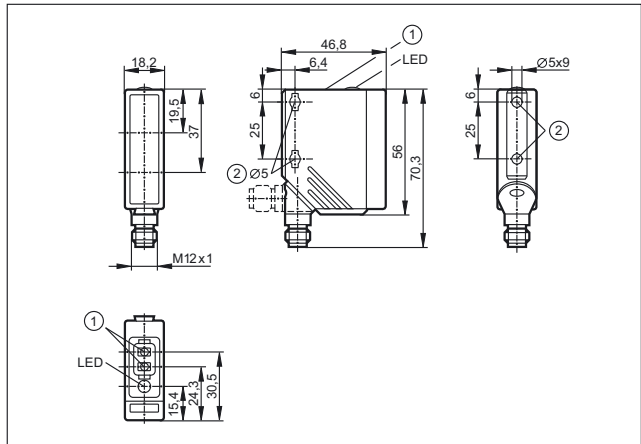
1: pushbutton

6



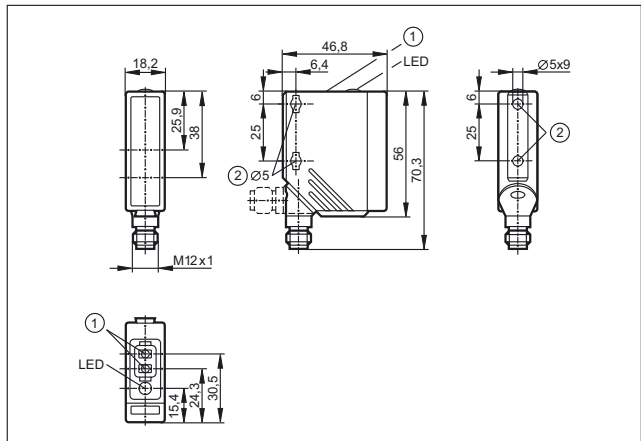
1: pushbutton

7



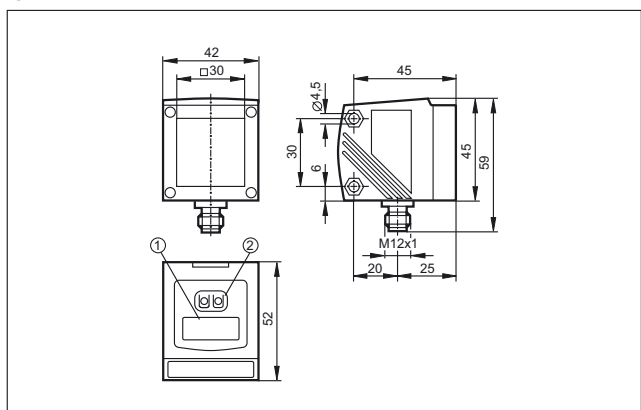
1: Programming buttons, 2: When a M5 mounting screw is used, the max. tightening torque is 2 Nm.

8



1: Programming buttons, 2: When a M5 mounting screw is used, the max. tightening torque is 2 Nm.

9



1: 4-digit alphanumeric display, 2: Programming buttons



- Dual inductive feedback sensors for pneumatic actuators and valves
- Designed for simple fit to common actuators based on VDI / VDE 3845
- AS-i versions for even simpler and neater wiring
- Compact, weatherproof and low maintenance
- Mounting sets available for manual valves and non-standard actuators

Valve sensors

Butterfly and ball valves in a variety of specifications are common across a broad spectrum of industrial processes. A large proportion of these have been automated with the addition of a pneumatic actuator to drive the valve between its open and closed positions. Feedback can then be added to confirm that the valve has achieved its desired position. This often takes the form of a rotating cam arrangement with a couple of microswitches or small inductive sensors mounted inside a plastic switch box. Such switch boxes can be difficult to set up, suffer from ingress and the cams can sometimes slip under normal plant vibration.

Operating principle

In 1992 ifm electronic released our first alternative to this old and failure prone design. The IND dual sensor is essentially a pair of inductive sensors, operating at different frequencies so as not to interfere with each other, combined into a custom design housing which mechanically matches the top works on standard pneumatic actuators. The dual sensor fits neatly onto the actuator's existing M5 holes. A plastic target "puck" is then fitted onto the slotted actuator shaft, again using the existing threaded hole. The puck has two metal targets spaced 90 degrees apart which are picked up by either the OPEN sensor or the CLOSED sensor.

Advantages

This simple construction addresses all the shortcomings of the switchbox solution. It is weatherproof surviving heavy rain, ice and strong sunshine. It is low profile allowing valve / actuator packages to fit where a switchbox would not. This also means that feedback can be fitted to even small manually operated valves. It is low weight so will not fail even if pumps are causing pipe vibration. It allows for back wiring a local solenoid through the common multi-pin connector, saving on wiring and cable tray costs.

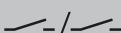


Feedback: Position monitoring of both pneumatically actuated and manual valves is needed for plant control.





System overview	Page
Sensors for industrial applications	306 - 307
Sensors for industrial applications, AS-i system	307
Sensors with ATEX approval 1G / 2G and 1D	308
Sensors with ATEX approval 3D and / or 3G	309
Sensors for rising stem valves	309
Sensors for rising stem valves, AS-i system	310
Added value packages with Bürkert solenoid valve	310
Added value packages with Norgren Herion solenoid valve	310
Switching cams for sensors with quarter-turn actuators	310 - 312
Accessories for quarter-turn actuator sensors	312 - 313
Accessories for rising stem valve sensors	313
Wiring diagrams	313 - 314
Scale drawings / drawing no. – CAD download: www.ifm.com	314 - 317



Sensors for industrial applications


Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f AC / DC [Hz]	I _{load} AC / DC [mA]	Drawing no.	Order no.
Cable 2 m · Output function  · DC PNP · Wiring diagram no. 1									
	40 x 26 x 26	4 nf	PBT	10...36	IP 67	1300	250	1	IN5251
Cable 6 m · Output function  · DC PNP · Wiring diagram no. 1									
	40 x 26 x 26	4 nf	PC (polycarbonate)	10...36	IP 67	1300	250	1	IN5304
Cable 10 m · Output function  · DC PNP · Wiring diagram no. 1									
	40 x 26 x 26	4 nf	PBT	10...36	IP 67	1300	250	1	IN5323
Cable 2 m · Output function  · AC/DC · Wiring diagram no. 2									
	40 x 26 x 40	4 nf	PBT	20...250	IP 67	25 / 50	350 / 100	2	IN0110*
M12 connector · Output function  · DC PNP/NPN · Wiring diagram no. 13 · Connector groups 8, 10, 18, 20, 117, 118, 147									
	40 x 26 x 26	4 nf	PBT	10...36	IP 67	1300	250	3	IN5224
M12 connector · Output function  · DC PNP/NPN · Wiring diagram no. 3 · Connector groups 8, 10, 18, 20, 117, 118, 147									
	40 x 26 x 47	4 nf	PBT	10...36	IP 67	250	250	4	IN5331
M12 connector · Output function  · DC PNP · Wiring diagram no. 4 · Connector groups 8, 10, 11, 18, 20, 117, 118, 119, 147, 148									
	40 x 26 x 26	4 nf	PBT	10...36	IP 67	1300	250	3	IN5225
	40 x 26 x 47	4 nf	PBT	10...36	IP 67	1300	250	4	IN5327
M18 connector · Output function  · DC PNP · Wiring diagram no. 4 · Connector group 24									
	40 x 26 x 26	4 nf	PBT	10...36	IP 67	1300	250	5	IN5285


Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f AC / DC [Hz]	I _{load} AC / DC [mA]	Draw- ing no.	Order no.
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M18 connector · Output function  /  · AC/DC · Wiring diagram no. 5 · Connector group 24

	40 x 26 x 40	4 nf	PBT	20...250	IP 67	25 / 50	350 / 100	6	IN0108*
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Rd 24 x 1/8 connector 6 pins · Output function  /  · DC PNP · Connector groups 34, 40, 125, 126

	40 x 26 x 60	4 nf	PBT	10...36	IP 67	1300	250	7	IN5334
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Terminals · Output function  /  · DC PNP · Wiring diagram no. 14

	33 x 60 x 92	4 nf	PA (polyamide)	10...30	IP 67	500	100	8	IN5409
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f = flush / nf = non flush


*** Note for AC and AC/DC units**

Miniature fuse to IEC60127-2 sheet 1, ≤ 2 A (fast acting) Recommendation: check the unit for reliable function after a short circuit.

Sensors for industrial applications, AS-i system

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f AC / DC [Hz]	I _{load} AC / DC [mA]	Draw- ing no.	Order no.
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M12 connector · 1 x 2 inputs · Wiring diagram no. 6 · Connector groups 10, 12, 13, 18, 19, 20, 21, 117, 121, 122, 147, 149

	55 x 60 x 35	4 nf	PBT (Pocan)	26.5...31.6	IP 67	–	–	9	AC2315
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M12 connector · Output function transistor PNP · 2 inputs / 1 output · Connector groups 8, 10, 18, 20, 40, 117, 118, 125, 126, 147


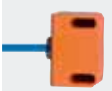
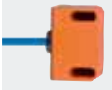




	55 x 60 x 35	4 nf	PBT (Pocan)	26.5...31.6	IP 67	–	–	10	AC2316
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M12 connector · Output function transistor PNP · 2 inputs / 2 outputs · Connector groups 8, 10, 18, 20, 40, 117, 118, 125, 126, 147

	55 x 60 x 35	4 nf	PBT (Pocan)	26.5...31.6	IP 67	–	–	10	AC2317
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f = flush / nf = non flush

Sensors with ATEX approval 1G / 2G and 1D

Type	Dimensions [mm]	Sensing range [mm]	Material	U _{nom.} at 1 KΩ [V]	U _b [V]	Internal capacit. [nF]	Internal inductance [μH]	f [Hz]	Draw- ing no.	Order no.
M12 connector · Output function 2 x normally closed · Connection to certified intrinsically safe circuits with the max. values U = 15 V / I = 50 mA / P = 120 mW · Wiring diagram no. 7 · Connector group 143										
	40 x 26 x 26	4 nf	PBT	8.2 DC	7.5...15 DC	140	130	1800	11	NN5008
Table 2 m · Output function 2 x normally closed · Connection to certified intrinsically safe circuits with the max. values U = 15 V / I = 50 mA / P = 120 mW · Wiring diagram no. 8										
	40 x 26 x 26	4 nf	PBT	8.2 DC	7.5...15 DC	140	130	1800	1	NN5009
Table 10 m · Output function 2 x normally closed · Connection to certified intrinsically safe circuits with the max. values U = 15 V / I = 50 mA / P = 120 mW · Wiring diagram no. 8										
	40 x 26 x 26	4 nf	PBT	8.2 DC	7.5...15 DC	140	140	1800	1	NN5011
M18 connector · Output function 2 x normally closed · Connection to certified intrinsically safe circuits with the max. values U = 15 V / I = 50 mA / P = 120 mW · Wiring diagram no. 9 · Connector group 24										
	40 x 26 x 26	4 nf	PBT	8.2 DC	7.5...15 DC	140	130	1800	5	NN5013
Rd 24 x 1/8 connector 6 pins · Output function 2 x normally closed · Connection to certified intrinsically safe circuits with the max. values U = 15 V / I = 50 mA / P = 120 mW · Connector groups 34, 56, 64, 127, 142										
	40 x 26 x 60	4 nf	PBT	8.2 DC	–	150	150	250	7	N95001
	40 x 26 x 60	4 nf	PBT	8.2 DC	–	100	150	1300	7	N95002
Terminals · Output function 2 x normally closed · Connection to certified intrinsically safe circuits with the max. values U = 15 V / I = 50 mA / P = 120 mW · Wiring diagram no. 15										
	33 x 60 x 92	4 nf	PA (polyamide)	8.2 DC	7.5...15 DC	–	–	500	8	NN504A
Terminals · Output function 2 x normally closed · Connection to certified intrinsically safe circuits with the max. values U = 15 V / I = 50 mA / P = 120 mW · Wiring diagram no. 16										
	33 x 60 x 92	4 nf	PA (polyamide)	8.2 DC	7.5...15 DC	–	–	500	12	NN505A

f = flush / nf = non flush


Sensors with ATEX approval 3D and / or 3G

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f AC / DC [Hz]	I _{load} AC / DC [mA]	Draw- ing no.	Order no.
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M12 connector · Output function transistor PNP · 2 inputs / 2 outputs · Connector groups 144, 146

	55 x 60 x 35	4	PBT	26.5...31.6	IP 5x	–	–	13	AC327A
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M12 connector · Output function transistor PNP · 2 inputs / 1 output · Connector groups 144, 146

	55 x 60 x 35	4	PBT	26.5...31.6	IP 5x	–	–	13	AC336A
	55 x 60 x 35	4	PBT (Pocan)	26.5...31.6	IP 67	–	–	13	AC326A

M12 connector · Output function  · DC PNP · Wiring diagram no. 4 · Connector groups 144, 146

	40 x 26 x 47	4	PBT	10...30	IP 67	1300	100	14	IN507A
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Cable 2 m · Output function  · DC PNP · Wiring diagram no. 1

	40 x 26 x 26	4	PBT	10...30	IP 67	1300	100	15	IN512A
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Sensors for rising stem valves

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f AC / DC [Hz]	I _{load} AC / DC [mA]	Draw- ing no.	Order no.
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Cable 2 m · Output function 1...5 V analogue · DC · Wiring diagram no. 10


	67.5 x 43 x 110	–	PA	18...36	IP 65 / IP 67	–	–	16	IX5002
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Cable 2 m · Output function 3 x normally open · DC PNP · Wiring diagram no. 11

	67.5 x 43 x 110	–	PA	18...36	IP 65 / IP 67	–	100	17	IX5006
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Cable with connector 0.3 m · Output function 3 x normally open · DC PNP · Wiring diagram no. 12 · Connector groups 121, 122, 149

	65 x 52 x 110	–	PA	18...36	IP 65 / IP 67	–	100	18	IX5010
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	65 x 43 x 110	0.2	PA	18...36	IP 65 / IP 67	–	100	19	ZZ0214
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Sensors for rising stem valves, AS-i system

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f AC / DC [Hz]	I _{load} AC / DC [mA]	Drawing no.	Order no.
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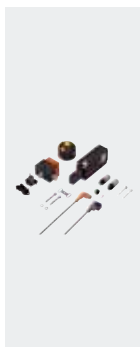
Cable with connector 0.3 m · AS-i · Wiring diagram no. 6 · Connector groups 10, 12, 13, 18, 19, 20, 21, 117, 121, 122, 147, 149



65 x 52 x 110 – PA 26.5...31.6 IP 65 / IP 67 – – 18 IX5030

Added value packages with Bürkert solenoid valve

Type	Description	Order no.
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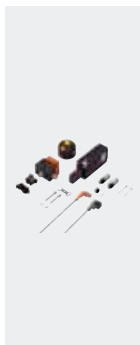
Added value package AS-i for pneumatic quarter-turn actuators · A/B slave · Shaft height 20 mm · Hole spacing 80 mm · Connector **AC0017**

Added value package AS-i for pneumatic quarter-turn actuators · A/B slave · Shaft height 30 mm · Hole spacing 80 mm · Connector **AC0019**

Added value package AS-i for pneumatic quarter-turn actuators · A/B slave · Shaft height 30 mm · Hole spacing 130 mm · Connector **AC0020**

Added value packages with Norgren Herion solenoid valve

Type	Description	Order no.
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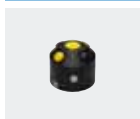
Added value package AS-i for pneumatic quarter-turn actuators · A/B slave · Shaft height 20 mm · Hole spacing 80 mm · Connector **AC0021**

Added value package AS-i for pneumatic quarter-turn actuators · A/B slave · Shaft height 30 mm · Hole spacing 80 mm · Connector **AC0022**

Added value package AS-i for pneumatic quarter-turn actuators · A/B slave · Shaft height 30 mm · Hole spacing 130 mm · Connector **AC0023**

Switching cams for sensors with quarter-turn actuators
















Type	Description	Order no.
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Target puck · Ø 53 mm · Adjustable between 0° and 360° · Housing materials: Target puck: PVC / screws: high-grade stainless steel **E10661**



Target puck · Ø 53 mm · 6 possible switching flag positions · with drain holes · Housing materials: Target puck: PA 6 / screws: high-grade stainless steel **E17105**


Type	Description	Order no.
	Target puck · Ø 53 mm · Housing materials: Target puck: PBT / screws: high-grade stainless steel	E17118
	Target puck · Ø 53 mm · 8 possible switching flag positions · with drain holes · Housing materials: Target puck: PA 6 / screws: high-grade stainless steel	E17294
	Target puck · Ø 53 mm · 3 possible switching flag positions · Housing materials: Target puck: PA 6 black / screws: V2A	E17320
	Target puck · Ø 53 mm · 8 possible switching flag positions · Housing materials: Target puck: PA 6 black / screws: V2A	E17321
	Target puck · Ø 53 mm · Housing colour: blue · 8 possible switching flag positions · Housing materials: Target puck: PA 6 blue / screws: V2A	E17322
	Target puck · Ø 53 mm · Housing colour: red · 8 possible switching flag positions · Housing materials: Target puck: PA 6 / screws: V2A	E17323
	Target puck · Ø 55 mm · Inverted function · Housing materials: Target puck: PVC / screws: high-grade stainless steel / Metal ring: stainless steel	E17205
	Target puck · Ø 59 mm · for Neles actuator type B1CU 6/20E · Housing materials: Target puck: POM	E11278
	Target puck · Ø 65 mm · Housing materials: Target puck: PVC / screws: high-grade stainless steel	E17148
	Target puck · Ø 65 mm · Housing colour: black · 8 possible switching flag positions · Housing materials: Target puck: PA 6 / screws: V2A	E17324
	Target puck · Ø 65 mm · Housing colour: blue · 8 possible switching flag positions · Housing materials: Target puck: PA 6 / screws: V2A	E17325
	Target puck · Ø 65 mm · Housing colour: red · 8 possible switching flag positions · Housing materials: Target puck: PA 6 / screws: V2A	E17326
	Target puck · Ø 65 mm · Housing materials: Target puck: PA 6 / screws: V2A	E17327
	Target puck · Ø 102 mm · Housing materials: Target puck: PA 6 / screws: V2A	E17328
	Target puck · Ø 102 mm · Housing colour: black · 8 possible switching flag positions · Housing materials: Target puck: PA 6 / screws: V2A	E17329

Position sensors









Type	Description	Order no.
	Target puck · Ø 102 mm · Housing colour: blue · 8 possible switching flag positions · Housing materials: Target puck: PA 6 / screws: V2A	E17330
	Target puck · Ø 102 mm · Housing colour: red · 8 possible switching flag positions · Housing materials: Target puck: PA 6 / screws: V2A	E17331
	direction indicator black · 12 x 4.8 · For target puck · Housing materials: POM	E17295
	direction indicator yellow · 12 x 4.8 · For target puck · Housing materials: POM	E17296

Accessories for quarter-turn actuator sensors

Type	Description	Order no.
	Spacer · 10 mm · for compensation between target pucks and dual sensor IND · Housing materials: PBT	E10579
	Spacer · 3 mm · for compensation between target pucks and dual sensor IND · Housing materials: PBT	E10584
	Spacer · 5 mm · for compensation between target pucks and dual sensor IND · Housing materials: PBT	E10585
	Cable gland · M20 x 1.5 · Housing materials: PA 6.6	E12208
	Protective cap · M20 x 1.5 · Housing materials: PA 6.6	E12209
	Plug for covering the oblong holes · Housing materials: EPDM	E12212
	reinforcement bracket · for type IND · Housing materials: stainless steel 316Ti / 1.4571	E11310
	protective housing · Accessory for valve sensors · for type IND · Housing materials: stainless steel	E11984
	Mounting kit · MS-MEC-KU-RA--F04A · for ball valve Mecafrance ISO5211/F04 DN25 PN40 · Detection of the "ON/OFF" position by means of the IND dual sensor	E10597

Type	Description	Order no.
	Mounting kit for limit position feedback · tyco 792E-100 · for Keystone actuators	E11243

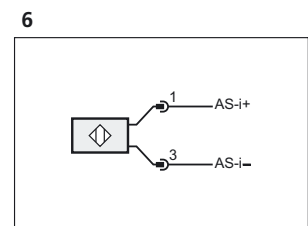
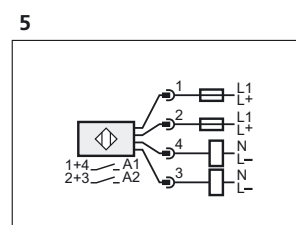
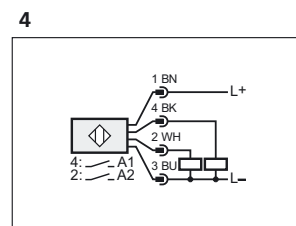
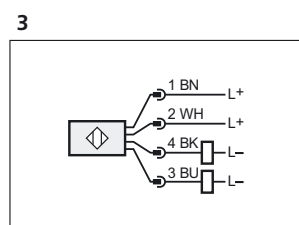
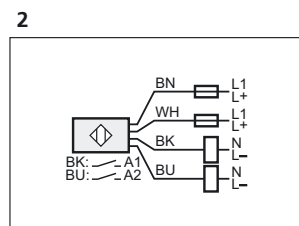
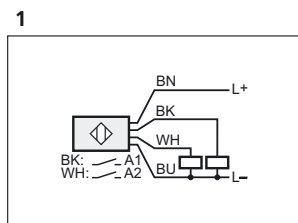
Accessories for rising stem valve sensors

Type	Description	Order no.
	Mounting adapter · for Kieselmann seat valves · accessory for IX5010, IX5030 · Housing materials: adapter: PA / Target: stainless steel 316L / 1.4404	E12123
	Mounting adapter · for Alfa Laval valves · accessory for IX5010, IX5030 · Housing materials: adapter: PA / Target: stainless steel 316L / 1.4404	E11900
	Mounting adapter · for Südmo valves · accessory for IX5010, IX5030 · Housing materials: adapter: PA / Target: stainless steel 316L / 1.4404	E11989
	Mounting adapter · for Georg Fischer diaphragm valve Diastar with mounting kit M12 · accessory for IX5010, IX5030 · Housing materials: adapter: POM / Target: stainless steel	E12009
	Mounting adapter · for Georg Fischer diaphragm valve Diastar with mounting kit M16 · accessory for IX5010, IX5030 · Housing materials: adapter: POM / Target: stainless steel	E12010
	Mounting adapter · for Bardiani valves · accessory for IX5010, IX5030 · Housing materials: adapter: PA / Target: stainless steel 316L / 1.4404	E12170
	Mounting adapter · IX / Ø 30 mm · for Gemü actuators with mounting kit · accessory for IX5010, IX5030 · Housing materials: adapter: POM / Target: stainless steel	E12042
	Mounting adapter · IX / Ø 45 mm · for Gemü actuators with mounting kit · accessory for IX5010, IX5030 · Housing materials: adapter: POM / Target: stainless steel	E12043

Wiring diagrams

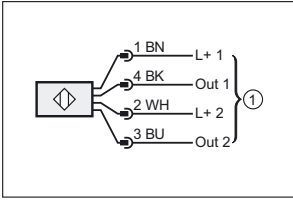
Core colours

BN	brown
BU	blue
BK	black
WH	white
GY	grey



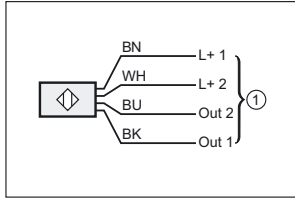
Wiring diagrams

7



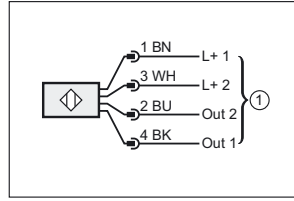
1: connection to NAMUR-amplifier

8



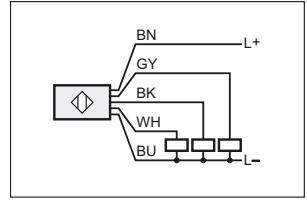
1: connection to NAMUR-amplifier

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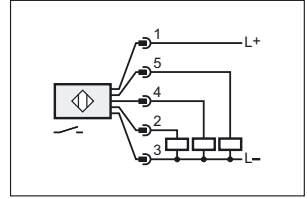


1: connection to NAMUR-amplifier

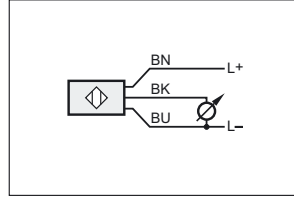
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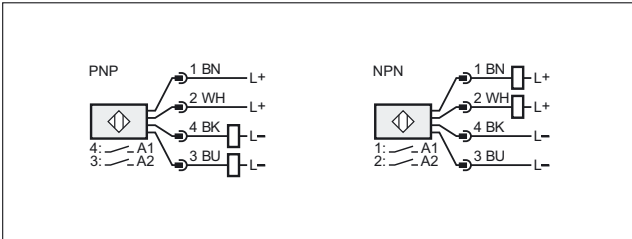
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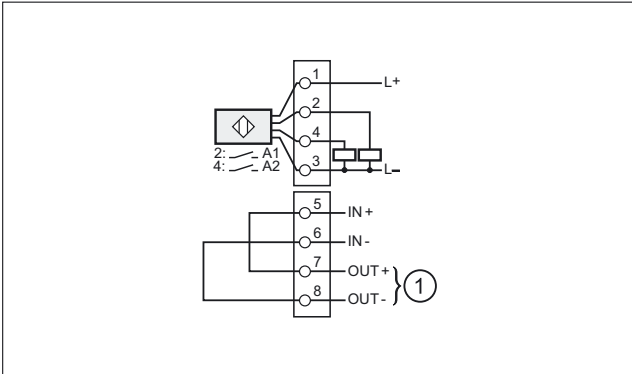
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13

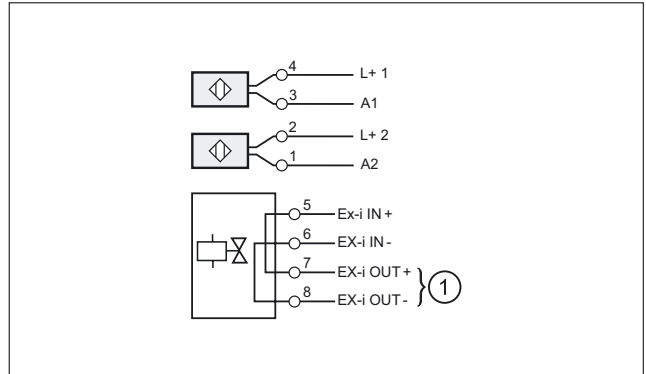


14



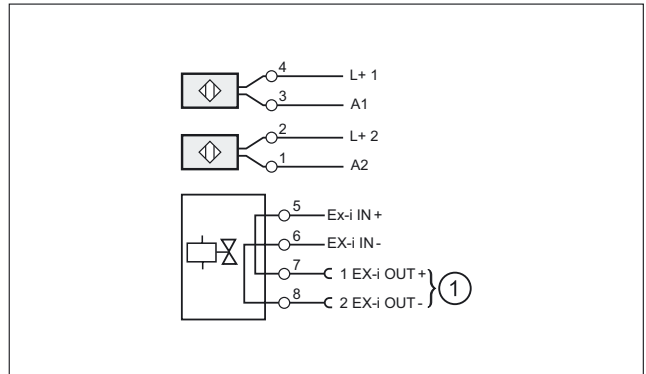
1: solenoid valve

15



solenoid valve output

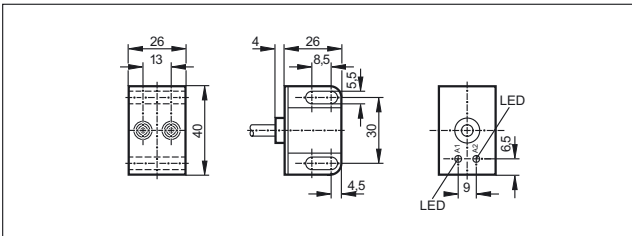
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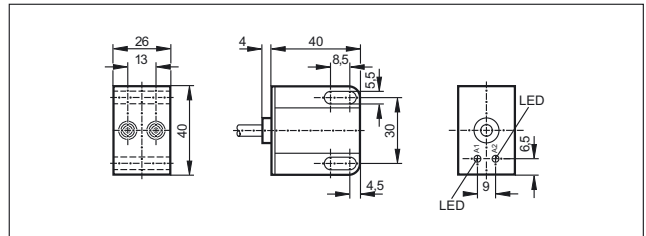
solenoid valve output

Scale drawings / drawing no. – CAD download: www.ifm.com

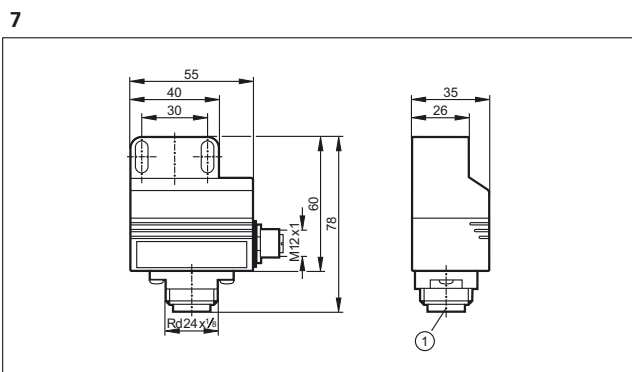
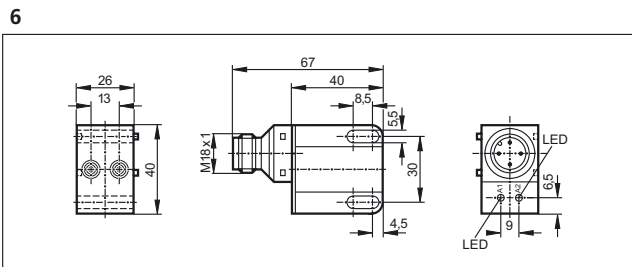
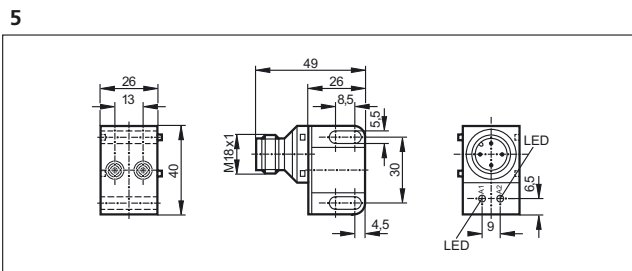
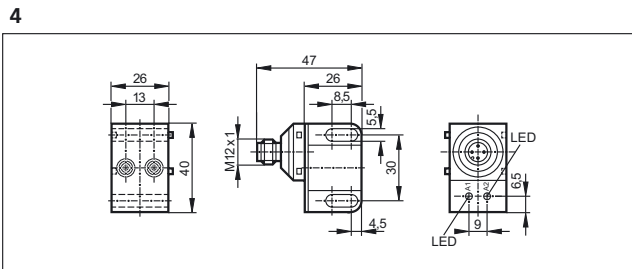
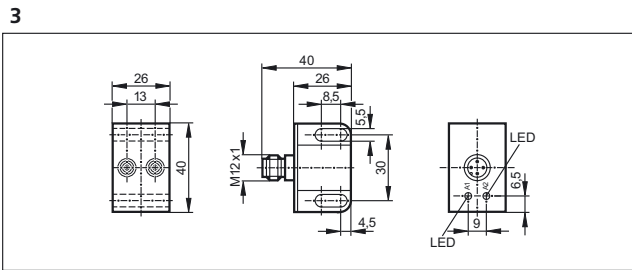
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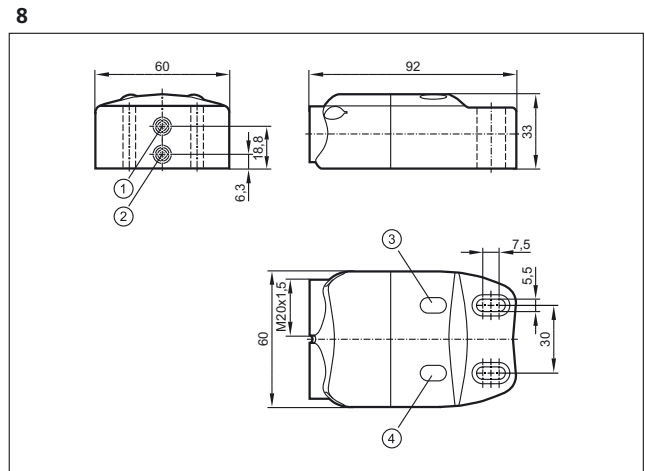
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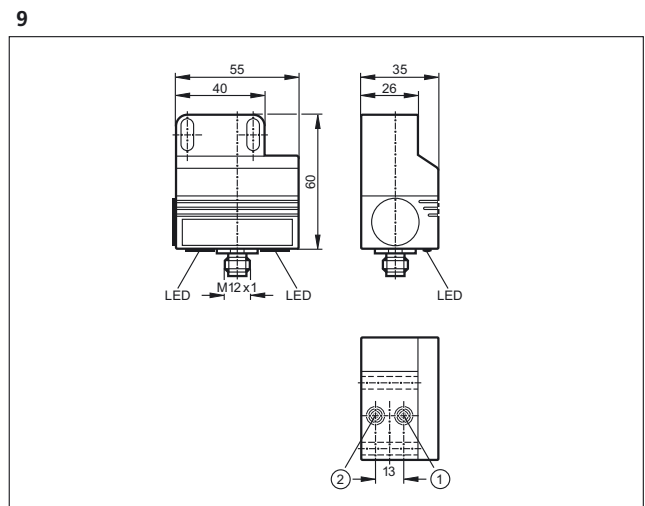
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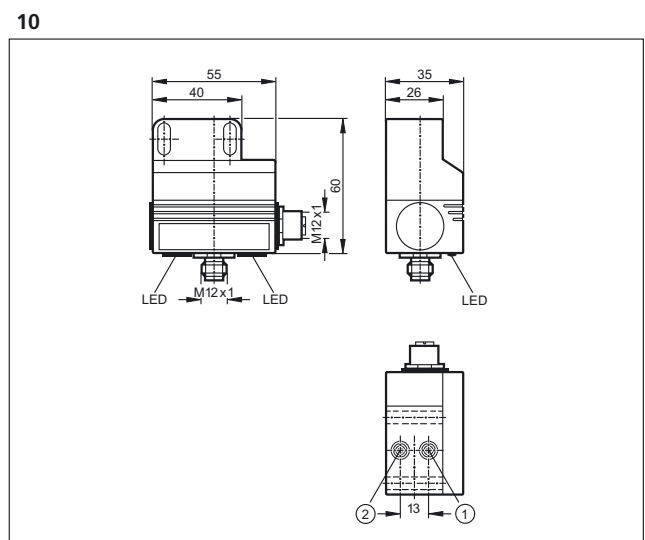
1: field connection



1: sensor 1, 2: sensor 2, 3: LED OUT 2, 4: LED OUT 1



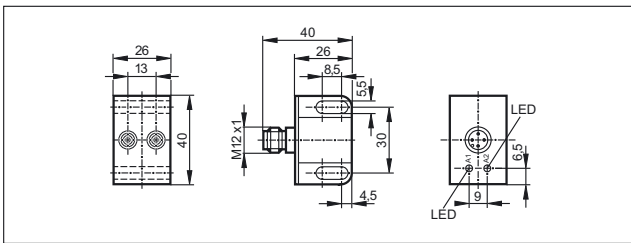
1: sensor 1, 2: sensor 2



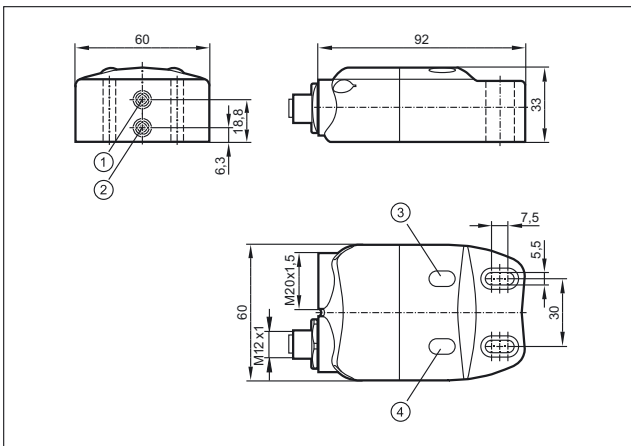
1: sensor 1, 2: sensor 2

Scale drawings / drawing no. – CAD download: www.ifm.com

11

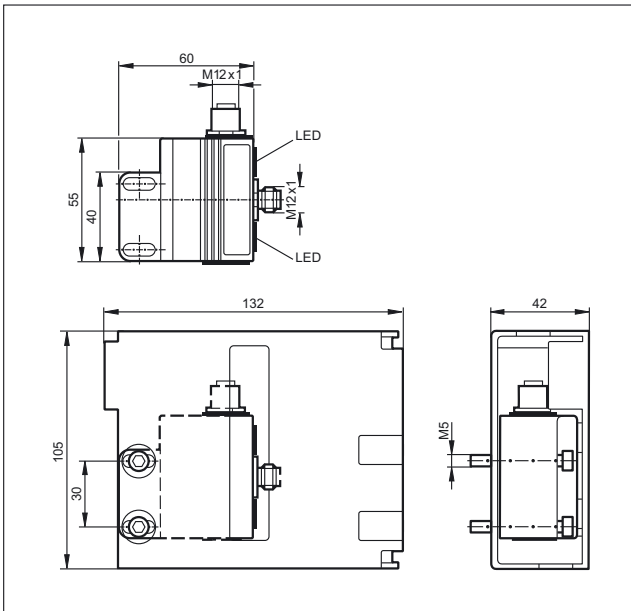


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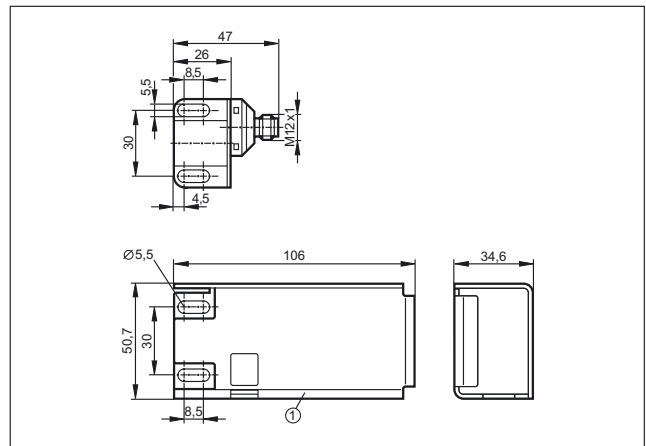


1: sensor 1, 2: sensor 2, 3: LED OUT 2, 4: LED OUT 1

13

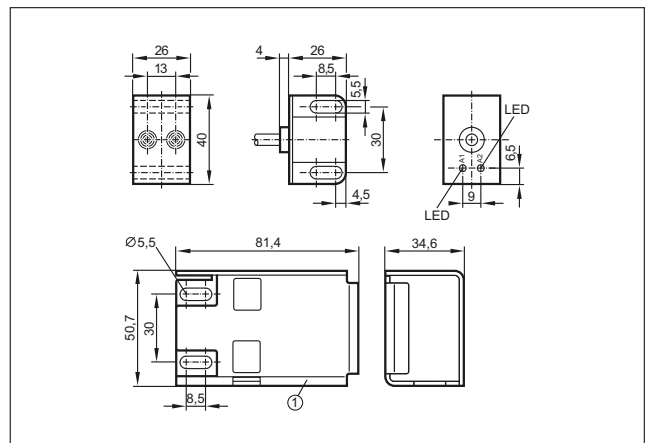


14

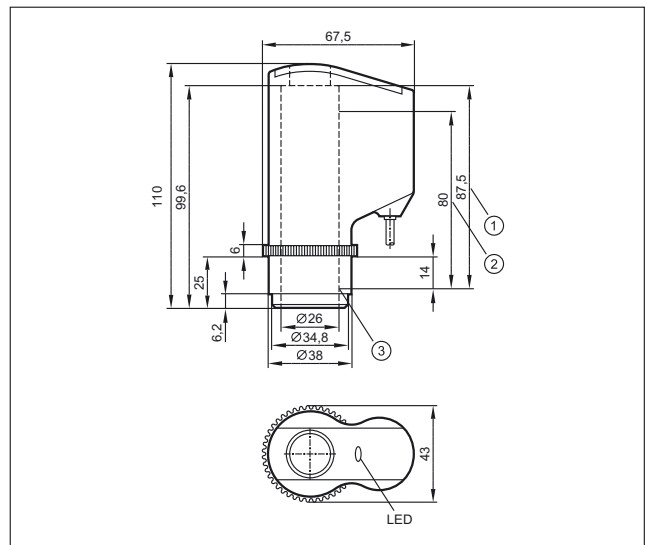


1: protective housing

15



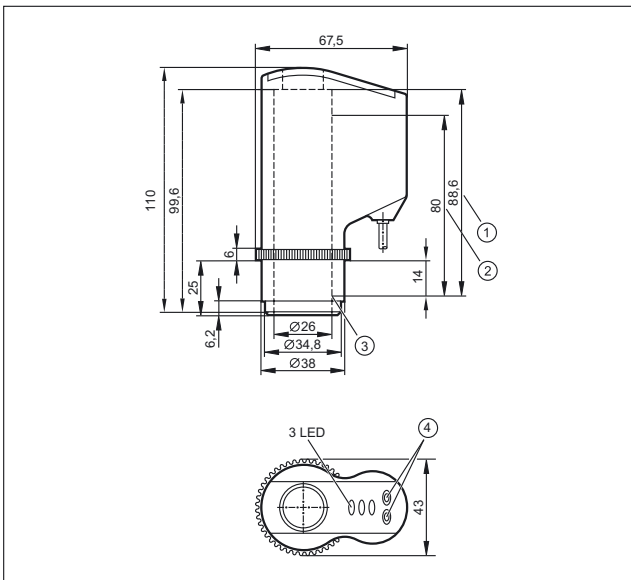
16



1: Max. spindle stroke, 2: Measuring range, 3: Initial value of the measuring range (zero point)

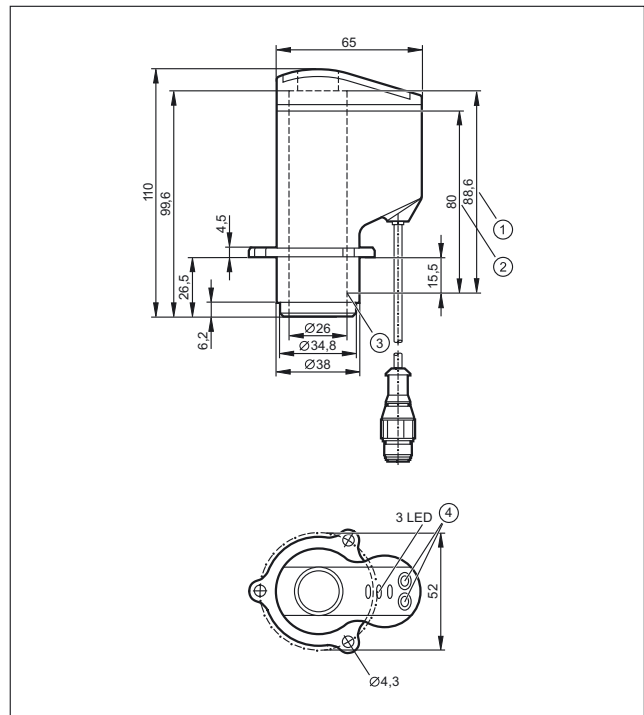
Scale drawings / drawing no. – CAD download: www.ifm.com

17



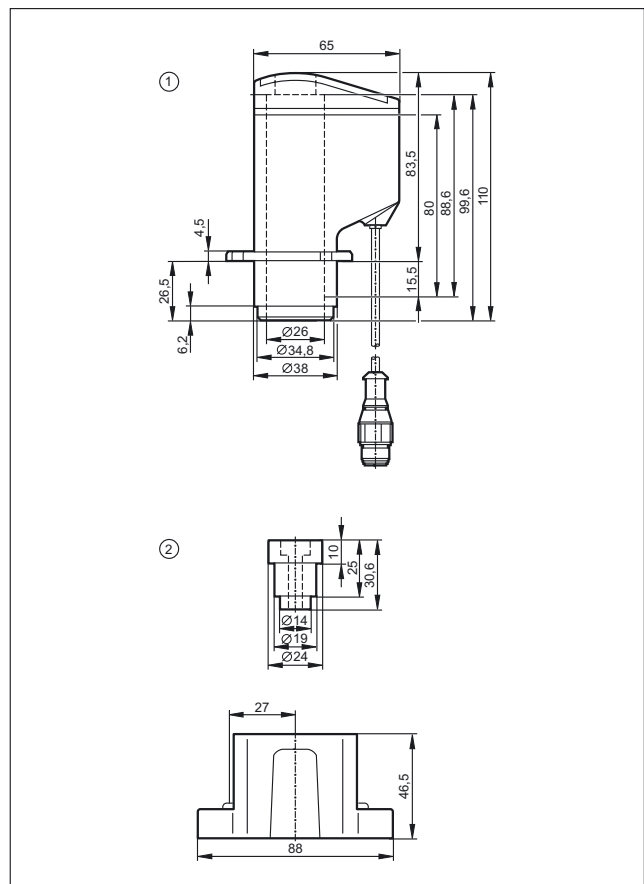
1: Max. spindle stroke, 2: Measuring distance, 3: Initial value of the measuring range (zero point), 4: Programming buttons

18



1: Max. spindle stroke, 2: Measuring distance, 3: Initial value of the measuring range (zero point), 4: Programming buttons

19



1: Valve sensor IX5010, 2: Mounting adapter E11900



- One or two-channel NAMUR switching amplifiers to IEC 60947-5-6
- Short-circuit and wire-break monitoring
- Programmable output function
- Relay or transistor outputs
- Easy mounting on DIN rail

Hazardous gas and dust areas

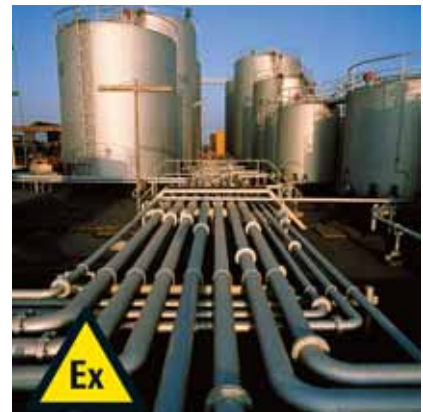
ATEX stands for "atmosphère explosible". The 94/9/EC and 1999/92/EC directives are also commonly called "ATEX directives". Potentially explosive atmospheres arise in most industries. ifm electronic can supply sensing equipment for all three unit categories each for gas and dust (1 - 3) that are analogous to the gas zones 0 / 1 / 2 or dust zones 20 / 21 / 22.

NAMUR switching amplifiers for hazardous areas

The NAMUR switching amplifiers evaluate the sensor signal and control the output. They meet all requirements of the ATEX directives. Switching amplifiers with relay and transistor output are available. The switching amplifiers are designed for the connection of NAMUR sensors to IEC 60947-5-6 and mechanical switches. They provide the voltage supply via an electrical separation for the intrinsically safe circuit.

Further features of the switching amplifiers are:

- Programmable effective direction of the output
- Relay output designed as changeover contact
- Short-circuit proof transistor outputs
- The sensor cables are monitored for wire break and short circuit. In case of a fault, the output is blocked or the relay is de-energised.




Typical hazardous gas areas are found in the chemical industry, for example in gas and petroleum processing.

Examples for the hazardous dust areas are the food and feedstuffs industries, but also disposal and recycling operations.



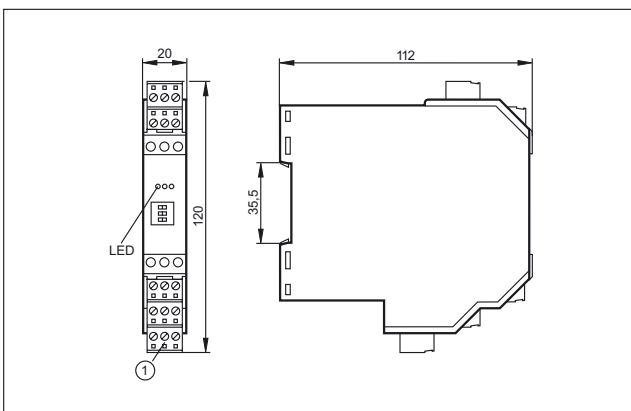
<i>System overview</i>	<i>Page</i>
Switching amplifiers with ATEX approval	320
Scale drawings / drawing no. – CAD download: www.ifm.com	320

Switching amplifiers with ATEX approval

Type	U _b [V]	Power / current consumption [VA] / [mA]	f [Hz]	T _a [°C]	Output	Protection	Drawing no.	Order no.
	115	1.0 /	10	-20...60	relay (1 changeover contact)	IP 20	1	N0030A
	230	1.0 /	10	-20...60	relay (1 changeover contact)	IP 20	1	N0031A
	115	1.3 /	10	-20...60	relay (1 changeover contact per channel)	IP 20	1	N0032A
	230	1.3 /	10	-20...60	relay (1 changeover contact per channel)	IP 20	1	N0033A
	24	/ < 23	10	-20...60	relay (1 changeover contact)	IP 20	1	N0530A
	24	/ < 50	5000	-20...60	2 transistor outputs PNP (100 mA, short-circuit protection)	IP 20	1	N0531A
	24	/ < 50	5000	-20...60	2 outputs (optocoupler, bipolar, 100 mA, short-circuit protection)	IP 20	1	N0532A
	24	/ < 50	10	-20...60	relay (1 changeover contact per channel)	IP 20	1	N0533A
	24	/ < 50	5000	-20...60	2 transistor outputs PNP (100 mA, short-circuit protection)	IP 20	1	N0534A

Scale drawings / drawing no. – CAD download: www.ifm.com

1



1: Combicon plug with screw terminals (optional)



Keeping things moving



Encoder for linear measurement on a tunnel boring machine.



Sensors for motion control

Sensors for motion control are used for measurements of angles and linear and rotational speed.

Encoders

Encoders convert rotary motion into digital signals. This rotary motion is the result of linear measurements, for example on conveyor belts, or of angle measurements such as those taken by solar tracking systems to optimally align the solar panels towards the sun.

Inclination sensors





Inclination sensors are also used for angle measurement. They are smaller than encoders and easier to install. The core element is a measuring cell for example based on MEMS technology (Micro Electro Mechanical Systems). This measuring method allows evaluation of two axes in one unit. Inclination sensors are therefore a valuable supplement to encoders. They are frequently used in mobile machines (levelling of cranes or fire engines) or in the field of renewable energies.

Speed sensors

Inductive speed sensors with integrated evaluation electronics do not only measure revolutions, but also monitor overspeed and underspeed. Once the sensor has been taught the desired speed, it works completely independently. It relieves the user from the additional burden of programming his PLC: he only needs to connect the sensor, teach the rotational speed and start the system. If the speed drops below the set value or exceeds it, the sensor sets a binary switching output as a warning.

Systems for pulse evaluation

By using the matching evaluation systems, sensor pulses can be detected, evaluated, compared and converted into different output signals. The user can choose between binary, analogue (4...20 mA and 0...10 V) and PWM output signals.

	Encoders	324 - 337
	Speed sensors	338 - 344
	Inclination sensors	346 - 348
	Pulse evaluation systems	350 - 358



- Robust industrial absolute and incremental shaft encoders
- Industrial standard housings
- Solid or hollow-shaft variants
- Cable entry for axial and radial use
- Designs with integrated bus interface

Encoders

As a reliable aid to precise positioning an optical encoder cannot be beaten. Encoders convert rotary or oscillating motion into digital signals. A graduated hardened glass disc firmly attached to the shaft, which may be a solid, protruding shaft, or a hollow shaft supplies a very accurate pulse or position.

Incremental encoders

Incremental encoders generate a precisely defined number of pulses per revolution. They are a measure of the angular or linear distance moved. The coded disc is divided into separate segments which are alternately transparent or opaque. An LED emits a parallel light beam which illuminates all segments of the coded disc. Photo elements receive the modulated light and convert it into two sinusoidal signals. Digitalisation electronics amplify the signals and shape them into square-wave pulse trains which are generated via the line driver in the output. The phase difference between signals A and B, which are phase-shifted by 90 degrees, allows evaluation of the direction of rotation.

Absolute encoders

Absolute encoders provide an absolute numerical value for each angular position. This code value is available immediately after power is applied. This "absolute" value makes a reference procedure like the one required for the incremental encoder unnecessary. Absolute encoders are used wherever angular positions have to be allocated to a certain value and where the detection of the present position is necessary in the event of a power failure.

Multiturn

Absolute encoders divide a mechanical revolution (0 to 360 degrees) into a certain number of measuring steps. The measuring values are repeated after one revolution. The maximum resolution is 8192. Multiturn encoders, however, do not only detect angular positions but also distinguish between multiple revolutions. The amount of information available means the connection of modern absolute encoders is done via a serial bus.

Rugged construction

Shaft encoders are designed to be physically attached to the moving component, so are constructed with robustness in mind. Permissible shaft loads are very high, and internally the electronics are designed to withstand even the inevitable moisture ingress at the shaft.



Linear measurement by means of a counter: Rotary movement is converted into digital signals.

Hollow shaft encoder for direct mounting on the axis.




System overview	Page
Incremental encoders with solid shaft	326 - 329
Incremental encoders with hollow shaft	329 - 330
Absolute multiturn encoders (SSI)	330
Absolute Singleturn-Drehgeber (Profibus)	331
Absolute multiturn encoders (Profibus)	331
Absolute multiturn encoders (ProfiNet)	331
Absolute singleturn-encoders (CANopen)	331 - 332
Absolute multiturn-encoders (CANopen)	332
Absolute multiturn-encoders (CANopen) for mobile applications	332
Fixing accessories for encoders	332 - 333
Couplings for encoders	333 - 334
Measuring wheels for encoders	334
Connectors for encoders	335 - 336
Scale drawings / drawing no. – CAD download: www.ifm.com	336 - 337


Incremental encoders with solid shaft

Type	Resolution	U _b [V]	f [kHz]	I _{load} [mA]	Shaft [mm]	Ambient temperature [°C]	Cable entry	Drawing no.	Order no.
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Cable 2 m · Output function TTL output 20 mA


	500	5	300	20	6	-40...100	radial / axially	1	RB1015
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Cable 2 m · Output function HTL-output 50 mA, short-circuit protected < 1 min


	5	10...30	160	50	6	-40...70	radial / axially	1	RB6044
	10	10...30	160	50	6	-40...70	radial / axially	1	RB6001
	20	10...30	160	50	6	-40...70	radial / axially	1	RB6002
	25	10...30	160	50	6	-40...70	radial / axially	1	RB6003
	30	10...30	160	50	6	-40...70	radial / axially	1	RB6004
	50	10...30	160	50	6	-40...70	radial / axially	1	RB6005
	60	10...30	160	50	6	-40...70	radial / axially	1	RB6006
	100	10...30	160	50	6	-30...70	radial / axially	1	RB6007
	125	10...30	160	50	6	-40...70	radial / axially	1	RB6009
	150	10...30	160	50	6	-40...70	radial / axially	1	RB6010
	200	10...30	160	50	6	-40...70	radial / axially	1	RB6011
	250	10...30	160	50	6	-40...70	radial / axially	1	RB6012
	360	10...30	160	50	6	-40...70	radial / axially	1	RB6013
	400	10...30	160	50	6	-40...70	radial / axially	1	RB6014

Type	Resolution	U _b [V]	f [kHz]	I _{load} [mA]	Shaft [mm]	Ambient temperature [°C]	Cable entry	Drawing no.	Order no.
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Cable 2 m · Output function HTL-output 50 mA, short-circuit protected < 1 min

	500	10...30	160	50	6	-40...70	radial / axially	1	RB6015
	600	10...30	160	50	6	-40...70	radial / axially	1	RB6016
	1000	10...30	160	50	6	-40...70	radial / axially	1	RB6029

Cable 2 m · Output function TTL output 20 mA

	500	5	300	20	6	-40...100	radial / axially	2	RU1016
	1000	5	300	20	6	-40...100	radial / axially	2	RU1024
	1024	5	300	20	6	-40...100	radial / axially	2	RU1025
	2000	5	300	20	6	-40...100	radial / axially	2	RU1033
	2500	5	300	20	6	-40...100	radial / axially	2	RU1036

Cable 2 m · Output function HTL-output 50 mA, short-circuit protected < 1 min

	100	10...30	300	50	6	-40...100	radial / axially	2	RU6003
	250	10...30	300	50	6	-40...100	radial / axially	2	RU6010
	360	10...30	300	50	6	-40...100	radial / axially	2	RU6013
	500	10...30	300	50	6	-40...100	radial / axially	2	RU6016
	1000	10...30	300	50	6	-40...100	radial / axially	2	RU6024
	1024	10...30	300	50	6	-40...100	radial / axially	2	RU6025
	2000	10...30	300	50	6	-40...100	radial / axially	2	RU6033

Type	Resolution	U _b [V]	f [kHz]	I _{load} [mA]	Shaft [mm]	Ambient temperature [°C]	Cable entry	Drawing no.	Order no.
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Table 2 m · Output function HTL-output 50 mA, short-circuit protected < 1 min


	2500	10...30	300	50	6	-40...100	radial / axially	2	RU6036
	3600	10...30	300	50	6	-40...100	radial / axially	2	RU6040
	5000	10...30	300	50	6	-40...100	radial / axially	2	RU6045
	10000	10...30	300	50	6	-40...100	radial / axially	2	RU6052

Table 2 m · Output function TTL output 20 mA




	500	5	300	20	10	-40...100	radial / axially	3	RV1016
	1000	5	300	20	10	-40...100	radial / axially	3	RV1024
	1024	5	300	20	10	-40...100	radial / axially	3	RV1025
	2000	5	300	20	10	-40...100	radial / axially	3	RV1033
	2500	5	300	20	10	-40...100	radial / axially	3	RV1036
	5000	5	300	20	10	-40...100	radial / axially	3	RV1051

Table 2 m · Output function HTL-output 50 mA, short-circuit protected < 1 min

	50	10...30	300	50	10	-40...100	radial / axially	3	RV6001
	100	10...30	300	50	10	-40...100	radial / axially	3	RV6003
	200	10...30	300	50	10	-40...100	radial / axially	3	RV6009
	250	10...30	300	50	10	-40...100	radial / axially	3	RV6010
	360	10...30	300	50	10	-40...100	radial / axially	3	RV6013

Type	Resolution	U _b [V]	f [kHz]	I _{load} [mA]	Shaft [mm]	Ambient temperature [°C]	Cable entry	Drawing no.	Order no.
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Table 2 m · Output function HTL-output 50 mA, short-circuit protected < 1 min

	500	10...30	300	50	10	-40...100	radial / axially	3	RV6016
	600	10...30	300	50	10	-40...100	radial / axially	3	RV6018
	1000	10...30	300	50	10	-40...100	radial / axially	3	RV6024
	1024	10...30	300	50	10	-40...100	radial / axially	3	RV6025
	1250	10...30	300	50	10	-40...100	radial / axially	3	RV6028
	2000	10...30	300	50	10	-40...100	radial / axially	3	RV6033
	2048	10...30	300	50	10	-40...100	radial / axially	3	RV6034
	2500	10...30	300	50	10	-40...100	radial / axially	3	RV6036
	3600	10...30	300	50	10	-40...100	radial / axially	3	RV6040
	5000	10...30	300	50	10	-40...100	radial / axially	3	RV6100

Incremental encoders with hollow shaft

Type	Resolution	U _b [V]	f [kHz]	I _{load} [mA]	Shaft [mm]	Ambient temperature [°C]	Cable entry	Drawing no.	Order no.
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Table 2 m · Output function HTL-output 50 mA, short-circuit protected < 1 min

	10	10...30	160	50	6 H7	-40...70	radial / axially	4	RA6001
	100	10...30	160	50	6 H7	-40...70	radial / axially	4	RA6007
	200	10...30	160	50	6 H7	-30...70	radial / axially	4	RA6011
	360	10...30	160	50	6 H7	-40...70	radial / axially	4	RA6013

Type	Resolution	U _b [V]	f [kHz]	I _{load} [mA]	Shaft [mm]	Ambient temperature [°C]	Cable entry	Drawing no.	Order no.
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Table 2 m · Output function HTL-output 50 mA, short-circuit protected < 1 min



	500	10...30	160	50	6 H7	-40...70	radial / axially	4	RA6015
	1000	10...30	160	50	6 H7	-40...70	radial / axially	4	RA6029




Table 1 m · Output function HTL-output 50 mA, short-circuit protected < 1 min

	100	10...30	300	50	12 H7	-40...100	radial / axially	5	RO6342
	360	10...30	300	50	12 H7	-40...100	radial / axially	5	RO6343
	500	10...30	300	50	12 H7	-40...100	radial / axially	5	RO6344
	1024	10...30	300	50	12 H7	-40...100	radial / axially	5	RO6345
	3600	10...30	300	50	12 H7	-40...100	radial / axially	5	RO6348
	4096	10...30	300	50	12 H7	-40...100	radial / axially	5	RO6349
	5000	10...30	300	50	12 H7	-40...100	radial / axially	5	RO6350

Absolute multiturn encoders (SSI)

Type	Resolution	U _b [V]	f [kHz]	I _{load} [mA]	Shaft [mm]	Ambient temperature [°C]	Cable entry	Drawing no.	Order no.
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Table 2 m · Output function SSI data interface

	4096	4.5...30	–	–	6	-40...85	axial	6	RM8001
	4096	4.5...30	–	–	10	-40...85	axial	7	RM8002
	4096	4.5...30	–	–	12	-40...85	axial	8	RM8003

Absolute singleturn-encoders (Profibus)

Type	Resolution	U _b [V]	f [kHz]	I _{load} [mA]	Shaft [mm]	Ambient temperature [°C]	Cable entry	Drawing no.	Order no.
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Terminals · Output function Profibus data interface

	13 bits	10...30	–	–	10	-40...85	–	9	RN3001
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Absolute multiturn encoders (Profibus)

Type	Resolution	U _b [V]	f [kHz]	I _{load} [mA]	Shaft [mm]	Ambient temperature [°C]	Cable entry	Drawing no.	Order no.
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Terminals · Output function Profibus data interface

	25 bits	10...30	–	–	6	-40...85	–	10	RM3006
	25 bits	10...30	–	–	10	-40...85	–	11	RM3007
	25 bits	10...30	–	–	12	-40...85	–	12	RM3008

Absolute multiturn encoders (ProfiNet)

Type	Resolution	U _b [V]	f [kHz]	I _{load} [mA]	Shaft [mm]	Ambient temperature [°C]	Cable entry	Drawing no.	Order no.
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M12 connector · Output function ProfiNet IO data interface · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148

	25 bits	10...30	–	–	10	-40...85	–	13	RM3011
	25 bits	10...30	–	–	12	-40...85	–	14	RM3010

Absolute singleturn-encoders (CANopen)

Type	Resolution	U _b [V]	f [kHz]	I _{load} [mA]	Shaft [mm]	Ambient temperature [°C]	Cable entry	Drawing no.	Order no.
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Terminals · Output function CANopen interface

	13 bits	10...30	–	–	6	-40...85	–	15	RN7011
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Type	Resolution	U _b [V]	f [kHz]	I _{load} [mA]	Shaft [mm]	Ambient temperature [°C]	Cable entry	Drawing no.	Order no.
------	------------	-----------------------	------------	---------------------------	---------------	-----------------------------	-------------	-------------	-----------



Terminals · Output function CANopen interface

	13 bits	10...30	–	–	10	-40...85	–	9	RN7012
---	---------	---------	---	---	----	----------	---	---	--------

Absolute multiturn-encoders (CANopen)

Type	Resolution	U _b [V]	f [kHz]	I _{load} [mA]	Shaft [mm]	Ambient temperature [°C]	Cable entry	Drawing no.	Order no.
------	------------	-----------------------	------------	---------------------------	---------------	-----------------------------	-------------	-------------	-----------

Terminals · Output function CANopen interface

	25 bits	10...30	–	–	6	-40...85	–	10	RM7011
	25 bits	10...30	–	–	10	-40...85	–	11	RM7012




Absolute multiturn-encoders (CANopen) for mobile applications



Type	Resolution	U _b [V]	f [kHz]	I _{load} [mA]	Shaft [mm]	Ambient temperature [°C]	Cable entry	Drawing no.	Order no.
------	------------	-----------------------	------------	---------------------------	---------------	-----------------------------	-------------	-------------	-----------

M12 connector · Output function CANopen interface · Connector group 149


	24 bits	10...30	–	–	10	-40...85	axial	16	RM9000
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Fixing accessories for encoders

Type	Description	Order no.
	Resilient base for angle flanges · Housing materials: aluminium black anodised	E60036
	Angle bracket · for encoders · for type RB, RC, RU, RN, RM · Housing materials: aluminium black anodised	E60033
	Angle bracket · for encoders · for type RM, RMU, RN, RU · Housing materials: aluminium black anodised	E60034
	Angle bracket · for encoders · for type RMV, RV · Housing materials: aluminium black anodised	E60035






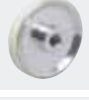

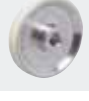
Type	Description	Order no.
	Angle bracket · for encoders · for type RM · Housing materials: aluminium black anodised	E60302
	Fastening clamp · for synchro flange · Housing materials: steel	E60041

Couplings for encoders










Type	Description	Order no.	
	Flexible coupling with clamp connection [KV] · Ø 4 mm / Ø 6 mm · Housing materials: aluminium	E60119	
	Flexible coupling with clamp connection [KV] · Ø 6 mm / Ø 6 mm · Housing materials: aluminium	E60064	
	Flexible coupling with clamp connection [KV] · Ø 6 mm / Ø 6 mm · Housing materials: aluminium	E60065	
	Flexible coupling with clamp connection [KV] · Ø 6 mm / Ø 8 mm · Housing materials: aluminium	E60120	
	Flexible coupling with clamp connection [KV] · Ø 6 mm / Ø 10 mm · Housing materials: aluminium	E60066	
	Flexible coupling with clamp connection [KV] · Ø 10 mm / Ø 10 mm · Housing materials: aluminium	E60067	
	Flexible coupling with adjusting screw connection [SV] · Ø 4 mm / Ø 6 mm · Housing materials: aluminium	E60062	
	Flexible coupling with adjusting screw connection [SV] · Ø 6 mm / Ø 6 mm · Housing materials: aluminium	E60063	
	Flexible coupling with adjusting screw connection [SV] · Ø 6 mm / Ø 8 mm · Housing materials: aluminium	E60027	
	Flexible coupling with adjusting screw connection [SV] · Ø 6 mm / Ø 10 mm · Housing materials: aluminium	E60028	
	Flexible coupling with adjusting screw connection [SV] · Ø 10 mm / Ø 10 mm · Housing materials: aluminium	E60022	
		Spring disc coupling electrically isolating · Ø 6 mm / Ø 6 mm · Housing materials: diecast zinc / PA	E60121




Type	Description	Order no.
	Spring disc coupling electrically isolating · Ø 6 mm / Ø 10 mm · Housing materials: diecast zinc / PA	E60117
	Spring disc coupling electrically isolating · Ø 10 mm / Ø 10 mm · Housing materials: diecast zinc / PA	E60118
	Plastic beam coupling with stainless steel hub · Ø 10 mm / Ø 10 mm · Housing materials: PA 6.6 / stainless steel 316L / 1.4404	E60193

Measuring wheels for encoders

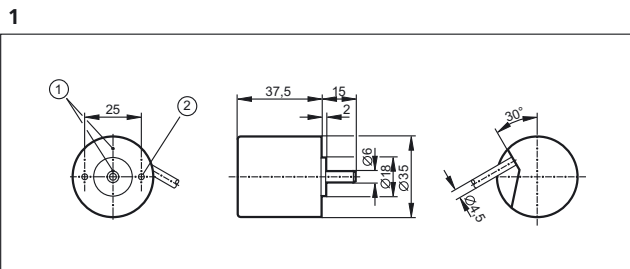
Type	Description	Order no.
	Measuring wheel · Ø 159.15 mm / Ø 10 mm · cross-knurl · Housing materials: wheel: aluminium	E60098
	Measuring wheel · Ø 63.6 mm / Ø 6 mm · aluminium · Housing materials: wheel: aluminium	E60006
	Measuring wheel · Ø 63.6 mm / Ø 10 mm · aluminium · Housing materials: wheel: aluminium	E60095
	Measuring wheel · Ø 159.16 mm / Ø 10 mm · rubber · Housing materials: wheel: aluminium / tread: PU	E60076
	Measuring wheel · Ø 159.15 mm / Ø 10 mm · smooth plastic · Housing materials: wheel: Hytrel TPE-E	E60110
	Measuring wheel · Ø 63.66 ±0.1 mm / Ø 6 mm · smooth plastic · Housing materials: wheel: Hytrel TPE-E	E60111
	Measuring wheel · Ø 63.66 ±0.1 mm / Ø 10 mm · smooth plastic · Housing materials: wheel: Hytrel TPE-E	E60112
	Measuring wheel · Ø 63.66 ±0.1 mm / Ø 6 mm · grooved plastic · Housing materials: wheel: aluminium	E60137
	Measuring wheel · Ø 63.66 ±0.1 mm / Ø 10 mm · grooved plastic · Housing materials: wheel: Hytrel TPE-E	E60138

Connectors for encoders

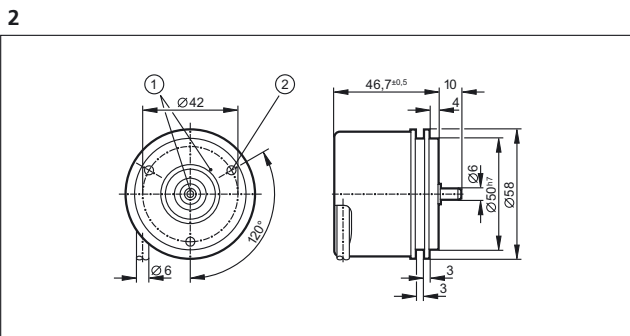
Type	Description	Order no.
	Wirable socket · straight · wirable · M18 connector · Housing materials: Brass nickel-plated	E60174
	Wirable socket · angled · wirable · M18 connector · Housing materials: Brass nickel-plated	E60175
	Wirable socket · angled · wirable · M23 connector · Housing materials: Brass nickel-plated	E10447
	Wirable socket · straight · wirable · M23 connector · Housing materials: Brass nickel-plated	E10448
	Wirable socket · straight · wirable · M23 connector · Housing materials: Brass plastic coated / PA 6.6 black	E60124
	Wirable socket · straight · wirable · M23 connector · Housing materials: Brass plastic coated / PA 6.6 black	E60122
	Wirable socket · straight · wirable · M23 connector · Housing materials: Brass nickel-plated	E60136
	Socket · straight · M23 connector · 5 m · Housing materials: Brass plastic coated / PA 6.6 black	E60144
	Socket · straight · M23 connector · 10 m · Housing materials: Brass plastic coated / PA 6.6 black	E60147
	Socket · angled · Free from silicone · Gold-plated contacts · M12 connector · 2 m · Housing materials: PUR	E11986
	Socket · angled · Free from silicone · Gold-plated contacts · M12 connector · 10 m · Housing materials: PUR	E11987
	Socket · straight · Free from silicone · Free from halogen · Gold-plated contacts · M12 connector · 10 m · Housing materials: PUR	E12074
	Wirable plug · straight · wirable · M23 connector · Housing materials: Brass plastic coated / PA 6.6 black	E60141
	Wirable socket · straight · wirable · M23 connector · Housing materials: Brass plastic coated / PA 6.6 black	E60157

Type	Description	Order no.
	Wireable socket · straight · wireable · M23 connector · Housing materials: Brass plastic coated / PA 6.6 black	E60146
	Wireable plug · straight · wireable · M23 connector · Housing materials: Brass plastic coated / PA 6.6 black	E60123
	Wireable plug · straight · wireable · M23 connector · Housing materials: Brass plastic coated / PA 6.6 black	E60128

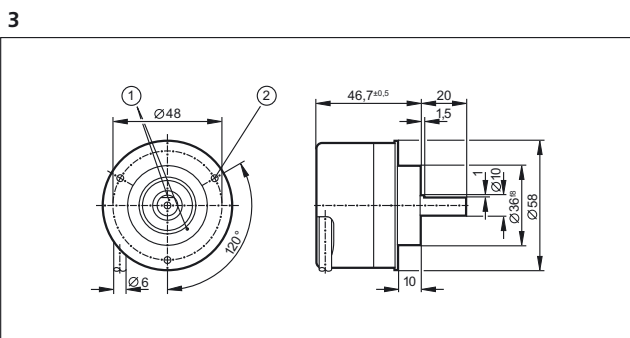
Scale drawings / drawing no. – CAD download: www.ifm.com



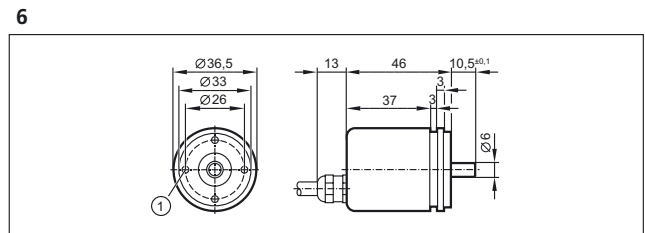
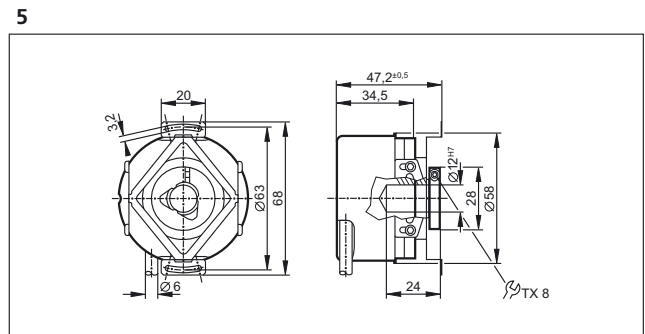
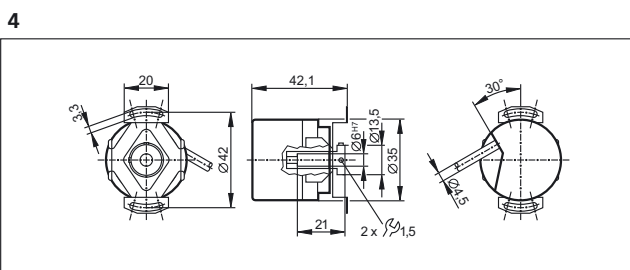
1: reference mark, 2: M3 5 mm deep



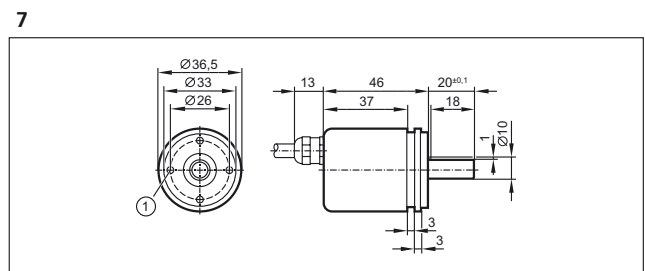
1: reference mark, 2: M4 5 mm deep



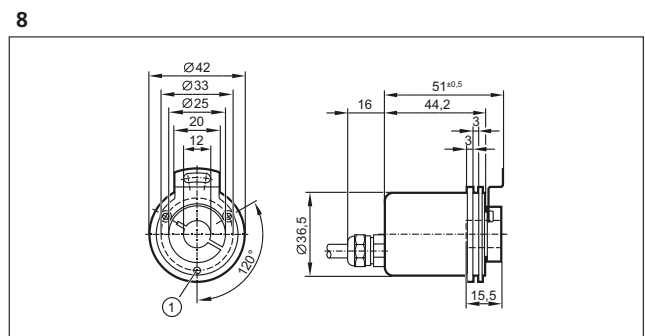
1: reference mark, 2: M3 5 mm deep



M3 6 mm deep

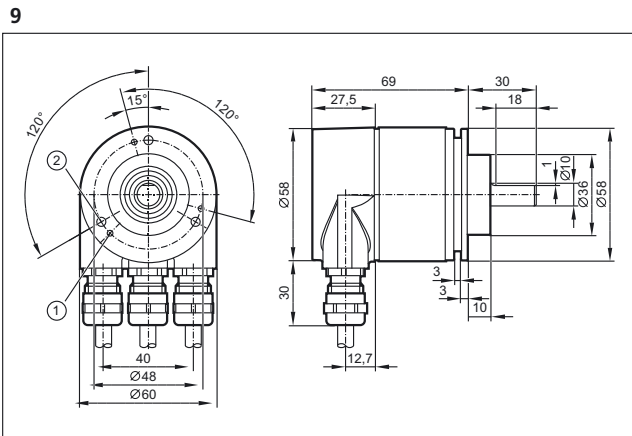


M3 6 mm deep

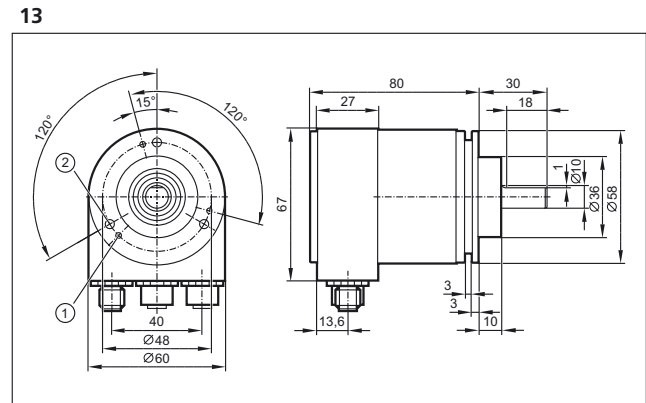


1: M3 x 6

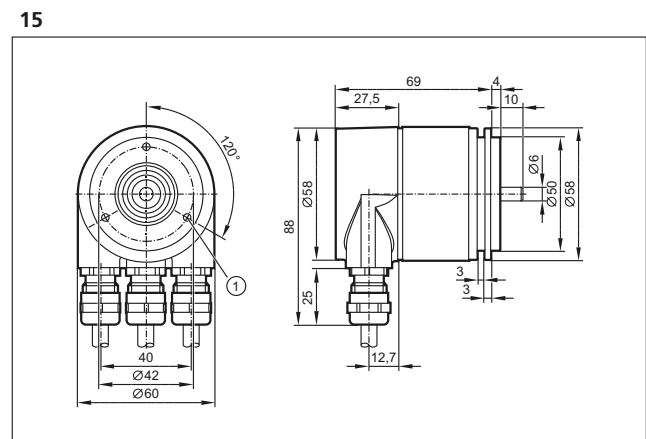
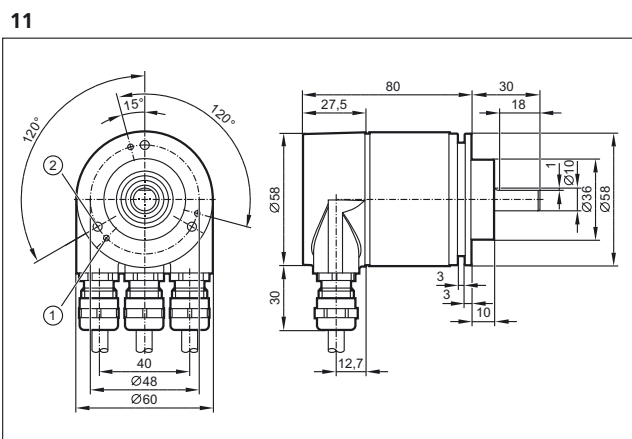
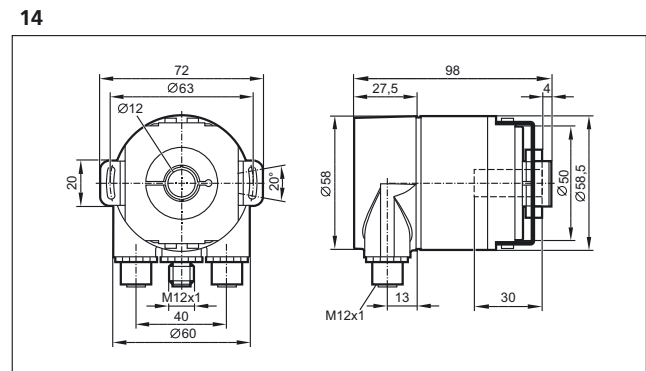
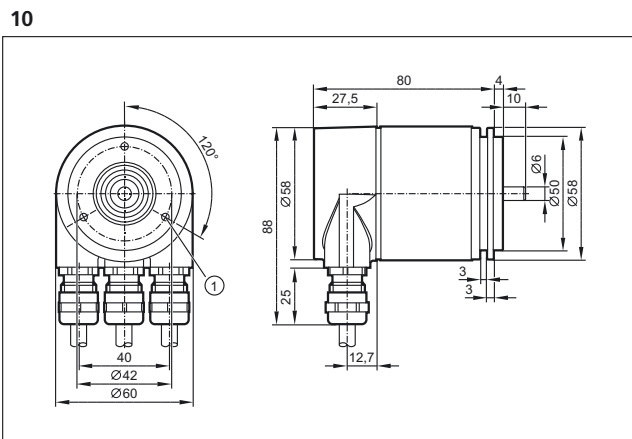
Scale drawings / drawing no. – CAD download: www.ifm.com



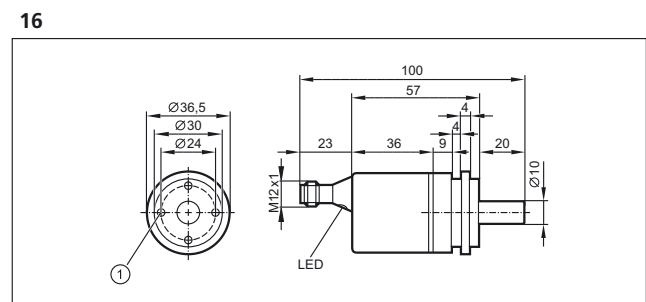
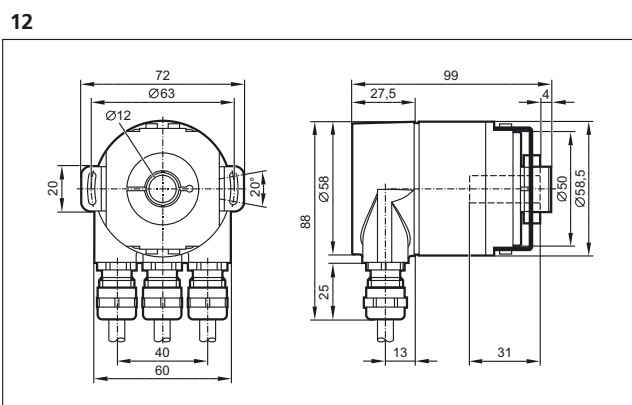
1: M3 6 mm deep, 2: M4 6 mm deep



1: M3 6 mm deep, 2: M4 6 mm deep



1: M3 6 mm deep, 2: M4 6 mm deep





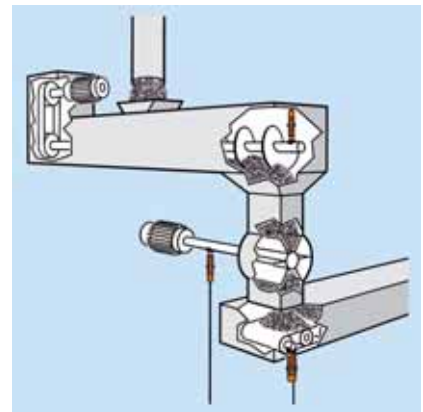
- 2 in 1: speed sensor and evaluation in one compact housing
- Space-saving design
- Easy to fit
- Easy parameter setting by potentiometer or pushbutton

Inductive sensor with integrated speed evaluation

In many industrial applications drives need to be monitored for rotational speed or standstill. A typical application in building automation is V-belt monitoring on fans. In conveying, standstill monitoring is used to detect belt break on conveyors. A similar principle is applied in agricultural engineering to monitor elevator drives or detect blockage of screw conveyors. Application examples can also be found in the textile industry. Here the compact speed monitor signals thread break on sewing machines. The compact DI series speed monitor offers a specially low-cost and reliable solution. In principle it is an inductive sensor with integrated speed evaluation. The advantage: the condition information of the drive is directly transferred to the control system. The nominal speed is easily set by potentiometer or pushbutton.

Versions

ifm offers the right unit for each application. The user can choose between M18 and M30 types with either M12 connector or cable. There are 2-wire and 3-wire units with either NC or NO function. For use in hazardous areas ifm offers speed monitors with ATEX 3D approval.

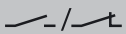



In conveying, compact speed monitors monitor drive shafts and conveyor belts.

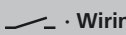
System overview	Page
Speed monitor with integrated sensor	340
Speed monitors with integrated sensor, ATEX category 3D	341
Speed sensors with magnetic measuring principle	341 - 342
Accessories	342
Wiring diagrams	342 - 343
Scale drawings / drawing no. – CAD download: www.ifm.com	343 - 344


Speed monitor with integrated sensor

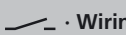
Type	Dimensions [mm]	Sensing range [mm]	Electrical design	U _b [V]	Setting range [puls. / min.]	Start-up delay [s]	Drawing no.	Order no.
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Output function  · Wiring diagram no. 1 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148

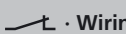
	M18 / L = 68	12 nf	DC PNP	10...36 DC	3...6000	0...15	1	DI6001
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Output function  · Wiring diagram no. 2

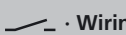
	M30 / L = 81	10 f	AC/DC	20...250 AC/DC	5...300	12	2	DI0001*
	M30 / L = 81	10 f	AC/DC	20...250 AC/DC	50...3000	12	2	DI0002*
	M30 / L = 81	10 f	AC/DC	20...250 AC/DC	5...300	< 0.5	2	DI0004*


Output function  · Wiring diagram no. 3

	M30 / L = 81	10 f	DC PNP	10...36 DC	5...300	15	2	DI5001
	M30 / L = 81	10 f	DC PNP	10...36 DC	30...3000	15	2	DI5003
	M30 / L = 81	10 f	DC PNP	10...36 DC	30...3000	0	2	DI5011


Output function  · Wiring diagram no. 4

	M30 / L = 81	10 f	DC PNP	10...36 DC	5...300	15	2	DI5005
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Output function  · Wiring diagram no. 5

	M30 / L = 81	10 f	DC PNP	10...36 DC	5...300	15	3	DI5004
	M30 / L = 81	10 f	DC PNP	10...36 DC	5...300	5	3	DI5007

Output function  · Wiring diagram no. 6 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148

	M30 / L = 82	10 f	DC PNP	10...36 DC	5...300	15	4	DI5009
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f = flush / nf = non flush


* Note for AC and AC/DC units

Miniature fuse to IEC60127-2 sheet 1, ≤ 2 A (fast acting) Recommendation: check the unit for reliable function after a short circuit.


Speed monitors with integrated sensor, ATEX category 3D

Type	Dimensions [mm]	Sensing range [mm]	Electrical design	U _b [V]	Setting range [puls. / min.]	Start-up delay [s]	Drawing no.	Order no.
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Output function  · Wiring diagram no. 2



	M30 / L = 81	10 f	AC/DC	20...250 AC/DC	5...300	12	5	DI003A*
	M30 / L = 81	10 f	AC/DC	20...250 AC/DC	50...3000	12	5	DI004A*

Output function  · Wiring diagram no. 3

	M30 / L = 81	10 f	DC PNP	10...36 DC	5...300	15	5	DI504A
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Output function  · Wiring diagram no. 6 · Connector group --

	M30 / L = 82	10 f	DC PNP	10...36 DC	5...300	15	6	DI505A
	M30 / L = 82	10 f	DC PNP	10...36 DC	5...300	5	6	DI506A

Output function  /  · Wiring diagram no. 1 · Connector group --

	M18 / L = 68	8 nf	DC PNP	10...36 DC	3...6000	0...15	7	DI602A
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f = flush / nf = non flush



* Note for AC and AC/DC units



Miniature fuse to IEC60127-2 sheet 1, ≤ 2 A (fast acting) Recommendation: check the unit for reliable function after a short circuit.

Speed sensors with magnetic measuring principle


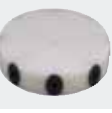


Type	Dimensions [mm]	Sensing range [mm]	Electrical design	U _b [V]	Connection	Ambient temperature sensor [°C]	Drawing no.	Order no.
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· Wiring diagram no. 7

	Special design / L = 49.5	1.7	2x open collector NPN	15	PUR cable	-32...140	8	MX5015
	special design / L = 50	1.7	2x open collector NPN	15	PUR cable	-32...140	9	MX5017

Type	Dimensions [mm]	Sensing range [mm]	Electrical design	U _b [V]	Connection	Ambient temperature sensor [°C]	Drawing no.	Order no.
· Wiring diagram no. 8								
	Special design / L = 61	1.7	2x open collector NPN	7...30	AMP Junior Timer connector (282 1921)	-32...140	10	MX5004
	Special design / L = 70	1.7	2x open collector NPN	7...30	AMP Junior Timer connector (282 1921)	-32...140	11	MX5000

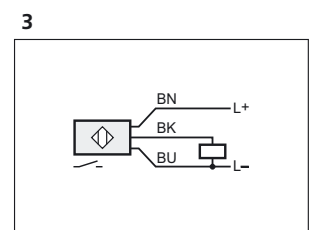
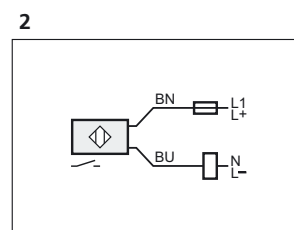
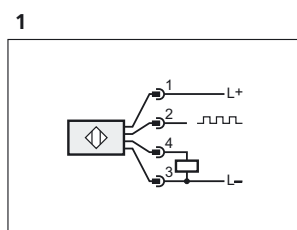
Accessories

Type	Description	Order no.
	Angle bracket · for type M18 · Housing materials: stainless steel	E10736
	Angle bracket · for type M30 · Housing materials: stainless steel	E10737
	Mounting clamp · Ø 20 mm - Ø 18 mm · with reducing bush · for type M18 · Housing materials: PBT	E10076
	Mounting clamp · Ø 34 mm - Ø 30 mm · with reducing bush · for type M30 · Housing materials: PBT	E10077
	Target wheel · Plastic disk with 8 screws as "target" · Centered drill holes	E89010
	Target for pulse pickups · Strap dimensions 7 x 145 mm	E89013
	Cable plug · straight · 10 m	E60303

Wiring diagrams

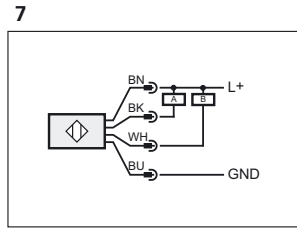
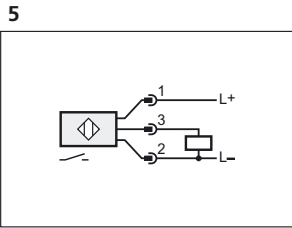
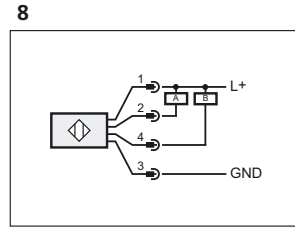
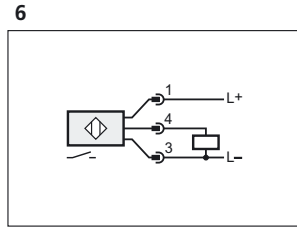
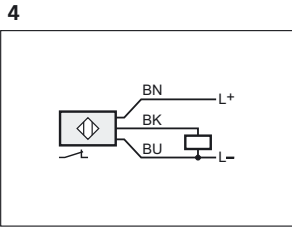
Core colours

BN	brown
BU	blue
BK	black

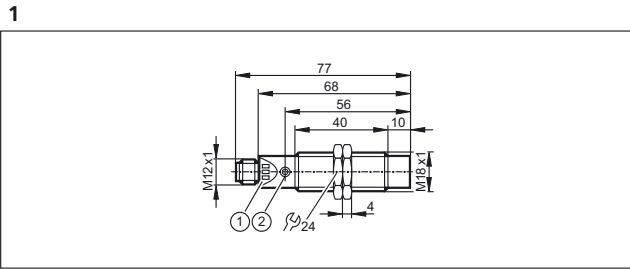


2: pulse output (the pulse sequence corresponds to the damping frequency),
4: switching output (adjustable)

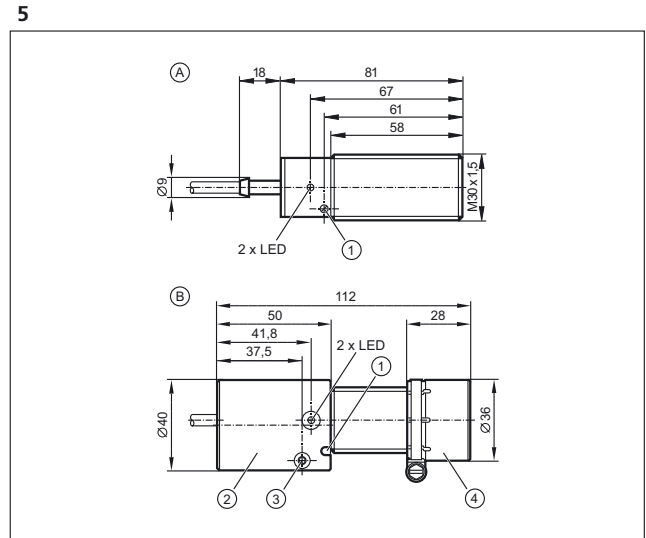
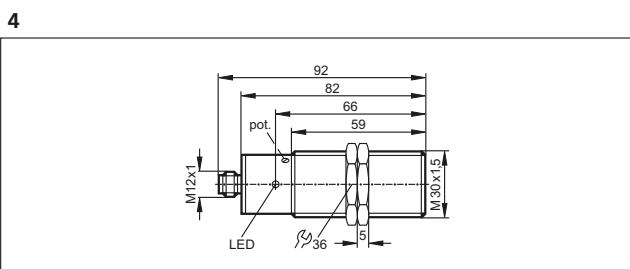
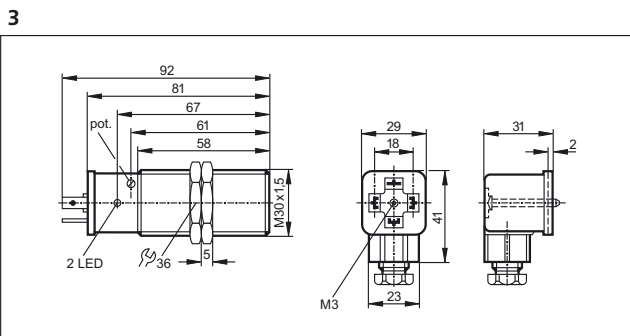
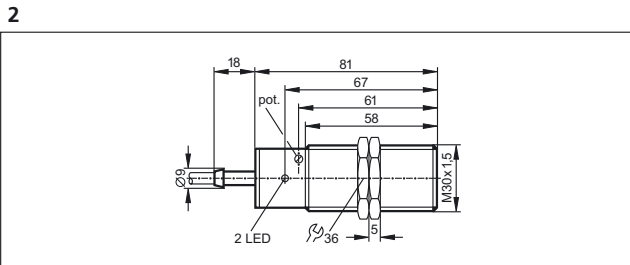
Wiring diagrams



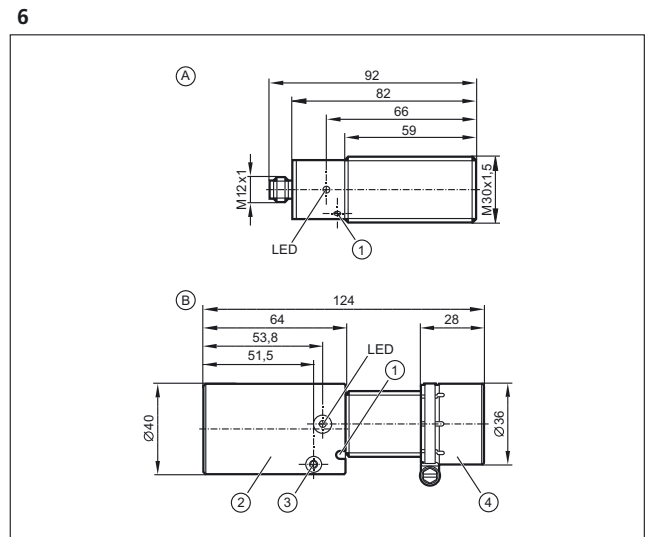
Scale drawings / drawing no. – CAD download: www.ifm.com



1: 3 LED, 2: setting pushbutton



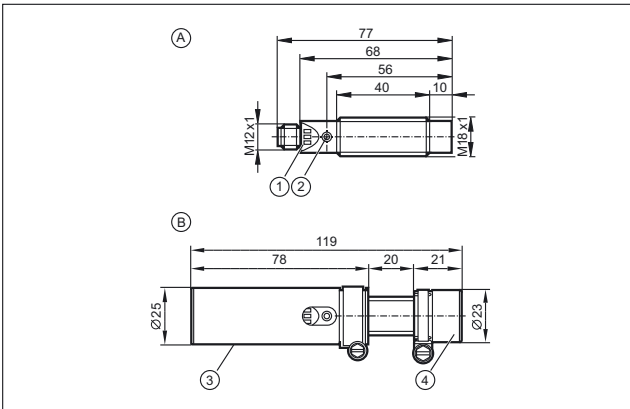
A: Sensor, B: sensor with impact protection housing, 1: potentiometer, 2: impact protection housing for the cable, 3: clamping screw, 4: impact protection housing for the sensor



A: Sensor, B: sensor with impact protection housing, 1: potentiometer, 2: impact protection housing for the connector, 3: clamping screw, 4: impact protection housing for the sensor

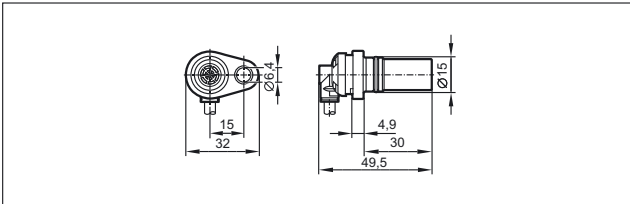
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7

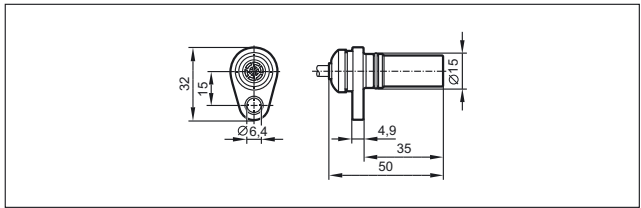


A: Sensor, B: sensor with impact protection housing, 1: 3 LED, 2: setting pushbutton, 3: impact protection housing for the connector, 4: impact protection housing for the sensor

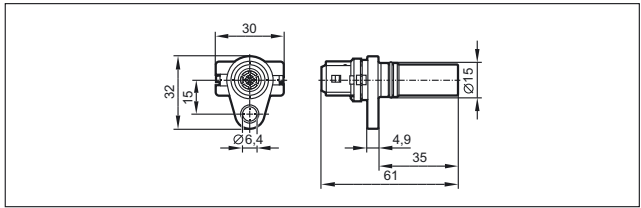
8



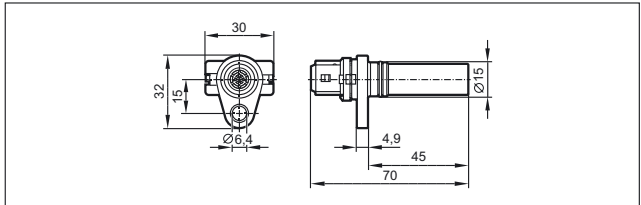
9



10



11







- Compact and robust design
- Wide angle range and high accuracy
- Sensor types for signal output via CANbus, as digital or analogue signal
- High protection rating IP 67 to IP 69K
- CAN sensors are configurable

Inclination detection in general

Electronic controllers and sensors are fundamental to the automation of vehicles and mobile machines. Often the horizontal alignment of machines or machine parts is an important requirement for reliable operation. Typical applications are cranes, access platforms or outriggers.

ifm offers a variety of different inclination sensor and tilt switch models.

They basically differ with regard to the signal output, the number of measurement axes, the measuring range and the connection type. The micromechanics of the integrated capacitive measuring cell in the sensors responds to gravitational acceleration. That means that the inclination moves the test mass and changes its position.

This test mass is situated between two capacitor plates for capacitive detection.





This is a proven method that is especially applied in case of high demands on accuracy and if the sensors are exposed to external interference such as temperature, vibration and shocks. Depending on the sensor type, signal output is analogue, digital or takes place via CANbus.

If only a switch point is to be detected, the mercury-free tilt sensor EC 2061 is used. Due to its design it has the same good switching characteristics as a conventional mercury switch. Due to the harmless alcohol filling of the switching element, it has considerable ecological advantages in case of damage or disposal.

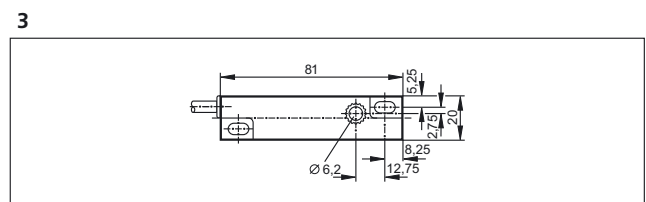
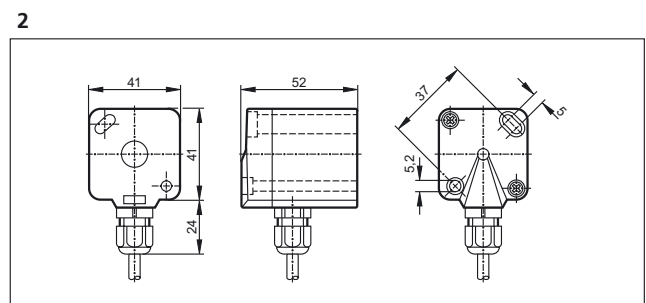
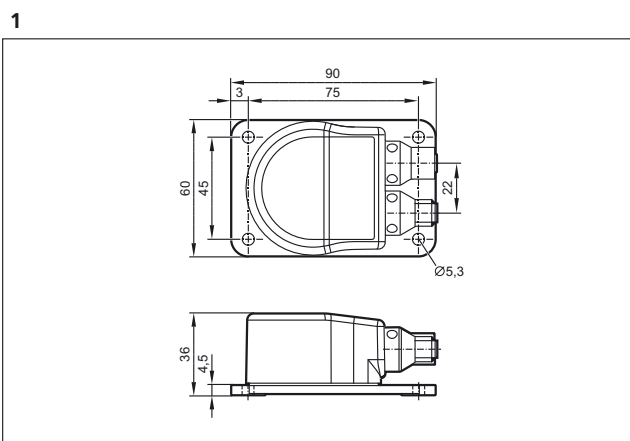


<i>System overview</i>	<i>Page</i>
Inclination sensors	348
Scale drawings / drawing no. – CAD download: www.ifm.com	348

Inclination sensors

Type	Description	Draw- ing no.	Order no.
	Inclination sensor · 0...360° / ± 180° · CANopen interface · Self-test function · Heartbeat · Emergency messages available · housing: diecast zinc nickel-plated	1	JN2100
	Inclination sensor · ± 45° · CANopen interface · Self-test function · Heartbeat · Emergency messages available · housing: diecast zinc nickel-plated	1	JN2101
	Inclination sensor · ± 90° · 15...30 V DC · Output 0...10 V · Cable	2	EC2019
	Inclination sensor · ± 90° · Input 8...30 V DC · Output 0.5...4.5 V · Cable	2	EC2045
	Inclination sensor · ± 20° · Analogue output · 4...20 mA	2	EC2060
	Inclination sensor · ± 90° · Analogue output · 4...20 mA	2	EC2082
	Tilt sensor · free from mercury · semi-conductor output · 10...30 V DC · Cable	3	EC2061

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- Easy adjustment and parameter setting
- Primary voltage 24V DC or 110 / 230V AC, wide-range input
- Programmable switching characteristics
- Standstill, overspeed, direction, slip and frequency conversion, counter
- Switching relays and transistor outputs, scalable analogue output

Evaluation systems

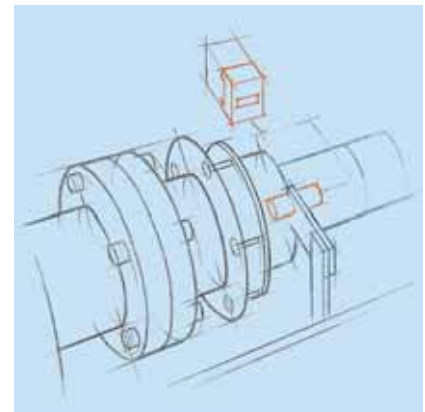
Although PLC applications in industrial automation are becoming more and more versatile there are still numerous processes in practice which require decentralised monitoring.

For this ifm offers a number of pulse evaluation systems. Shown here is the versatile system for monitoring overspeed or underspeed using sophisticated microprocessor systems which are nonetheless easy to use. Also included is the monitor designed for very safe indication that moving parts have stopped.

In addition to the units for rail mounting there are also self-contained compact designs in metal M18 and M30 housings, where the pick-up sensor and evaluation are all in one device.

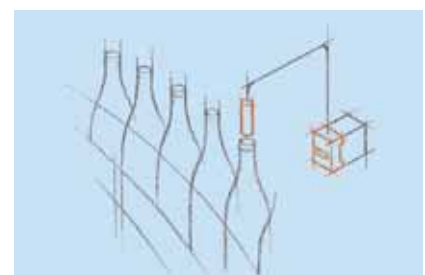
Overall ifm offers the following evaluation systems:

- Speed monitors
- Standstill monitors
- Slip / synchronisation monitors
- Direction monitors
- Frequency-to-current converters
- Threshold relays
- Displays with frequency and analogue input
- Counters



Pulse evaluation systems are used for decentralised monitoring of drives.

Machine cycles must also be monitored in conveying.



System overview	Page
Universal speed monitors	352
Universal speed monitors with sensor wire monitoring	352
Dual speed monitors	352
Dual speed monitors with sensor wire monitoring	352
Standard speed monitors / standstill monitor	353
Slip monitors	353
Slip monitors with sensor wire monitoring	353
Slip / synchronous monitors	353
Slip / synchronous monitors with sensor wire monitoring	354
Combined direction and speed monitors	354
Frequency-to-current converters	354
Safety standstill monitors, SIL 3, PL e	354
Safety speed monitor, SIL 3, PL e	355
Multifunctional displays for digital signals / frequency input	355
Universal counters	355
2-channel threshold relay for analogue standard signals	355
Multifunctional displays for analogue standard signals	356
Timer relays with switch-on / switch-off delay	356
Accessories pulse divider / pulse stretcher	356
Accessories	356 - 357
Scale drawings / drawing no. – CAD download: www.ifm.com	357 - 358

Universal speed monitors

Type	U _b [V]	In-puts	Input function	Setting range [puls. / min.]	Setting range [Hz]	Out-puts analogue	Out-puts relays	Out-puts transist.	Draw-ing no.	Order no.
------	-----------------------	---------	----------------	---------------------------------	-----------------------	-------------------	-----------------	--------------------	--------------	-----------

FR-1 · 2 switch points for monitoring overspeed/underspeed and acceptable range



110...240 AC (50...60 Hz) / 27 DC (typ. 24 DC)	1	PNP / NPN / Namur	1...60000	0.1...1000	1	2	2	1	DD2503
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Universal speed monitors with sensor wire monitoring

Type	U _b [V]	In-puts	Input function	Setting range [puls. / min.]	Setting range [Hz]	Out-puts analogue	Out-puts relays	Out-puts transist.	Draw-ing no.	Order no.
------	-----------------------	---------	----------------	---------------------------------	-----------------------	-------------------	-----------------	--------------------	--------------	-----------

FR-1N · 2 switch points for monitoring overspeed/underspeed and acceptable range



110...240 AC (50...60 Hz) / 27 DC (typ. 24 DC)	1	Namur 8.2 V	1...60000	0.1...1000	1	2	4	1	DD2603
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Dual speed monitors

Type	U _b [V]	In-puts	Input function	Setting range [puls. / min.]	Setting range [Hz]	Out-puts analogue	Out-puts relays	Out-puts transist.	Draw-ing no.	Order no.
------	-----------------------	---------	----------------	---------------------------------	-----------------------	-------------------	-----------------	--------------------	--------------	-----------

FR-2 · 1 switch point each for monitoring overspeed/underspeed and acceptable range



110...240 AC (50...60 Hz) / 27 DC (typ. 24 DC)	2	PNP / NPN / Namur	1...60000	0.1...1000	–	2	2	1	DD2505
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Dual speed monitors with sensor wire monitoring

Type	U _b [V]	In-puts	Input function	Setting range [puls. / min.]	Setting range [Hz]	Out-puts analogue	Out-puts relays	Out-puts transist.	Draw-ing no.	Order no.
------	-----------------------	---------	----------------	---------------------------------	-----------------------	-------------------	-----------------	--------------------	--------------	-----------

FR-2N · 1 switch point each for monitoring overspeed/underspeed and acceptable range




110...240 AC (50...60 Hz) / 27 DC (typ. 24 DC)	2	Namur 8.2 V	1...60000	0.1...1000	–	2	4	1	DD2605
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Standard speed monitors / standstill monitor

Type	U _b [V]	In-puts	Input function	Setting range [puls. / min.]	Setting range [Hz]	Out-puts analogue	Out-puts relays	Out-puts transist.	Drawing no.	Order no.
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D200 · evaluation of pulse sequences with regard to overspeed and underspeed; rotational speed monitoring

	110...240 AC / 27 (24) DC	1	PNP	0.1...10 / 10...1000	–	–	1	–	2	DD0203
	110...240 AC / 27 (24) DC	1	PNP	0.2...20 / 20...2000	–	–	1	–	2	DD0296

Slip monitors

Type	U _b [V]	In-puts	Input function	Setting range	Out-puts relays	Out-puts transist.	Drawing no.	Order no.
------	-----------------------	---------	----------------	---------------	-----------------	--------------------	-------------	-----------


FS-1 · 1 switching output for slip monitoring; 1 switching output for overspeed/underspeed and acceptable range

	110...240 AC (50...60 Hz) / 27 DC (typ. 24 DC)	1	PNP / NPN / Namur	slip: 0.1...99.9 % rotational speed (frequency): 1...60000 pulses/min (0.1...1000)	2	2	1	DS2503
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Slip monitors with sensor wire monitoring

Type	U _b [V]	In-puts	Input function	Setting range	Out-puts relays	Out-puts transist.	Drawing no.	Order no.
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FS-1N · 1 switching output for slip monitoring; 1 switching output for overspeed/underspeed and acceptable range

	110...240 AC (50...60 Hz) / 27 DC (typ. 24 DC)	1	Namur 8.2 V	slip: 0.1...99.9 % rotational speed (frequency): 1...60000 pulses/min (0.1...1000)	2	2	1	DS2603
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Slip / synchronous monitors

Type	U _b [V]	In-puts	Input function	Setting range	Out-puts relays	Out-puts transist.	Drawing no.	Order no.
------	-----------------------	---------	----------------	---------------	-----------------	--------------------	-------------	-----------

FS-2 · 2 switch points for slip/synchronous monitoring

	110...240 AC (50...60 Hz) / 27 DC (typ. 24 DC)	1	PNP / NPN / Namur	pulse differences: 1...999 reset time: 0.0...1000.0 s	2	2	1	DS2505
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FS-3 · 2 switch points for synchronous monitoring

	110...240 AC (50...60 Hz) / 27 DC (typ. 24 DC)	1	PNP / NPN / Namur	pulse differences: 1...999 hysteresis: 1...999	2	2	1	DS2506
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Slip / synchronous monitors with sensor wire monitoring

Type	U _b [V]	In-puts	Input function	Setting range	Out-puts relays	Out-puts transist.	Draw-ing no.	Order no.
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FS-2N · 2 switch points for slip/synchronous monitoring

	110...240 AC (50...60 Hz) / 27 DC (typ. 24 DC)	1	Namur 8.2 V	pulse differences: 1...999 reset time: 0.0...1000.0 s	2	2	1	DS2605
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Combined direction and speed monitors

Type	U _b [V]	In-puts	Input function	Setting range	Out-puts relays	Out-puts transist.	Draw-ing no.	Order no.
------	-----------------------	---------	----------------	---------------	-----------------	--------------------	--------------	-----------

FD-1 · 1 switching output for indication of direction; 1 switching output for overspeed/underspeed and acceptable range

	110...240 AC (50...60 Hz) / 27 DC (typ. 24 DC)	1	PNP / NPN / Namur	cycle time: 0.0...1000 s rotational speed (frequency): 1...60000 pulses/min (1...1000)	2	2	1	DR2503
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FD-2 · 2 switching outputs for separate indication of direction; adjustable reset times for standstill monitoring

	110...240 AC (50...60 Hz) / 27 DC (typ. 24 DC)	1	PNP / NPN / Namur	reset time: 0.0...1000 s	2	2	1	DR2505
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Frequency-to-current converters

Type	U _b [V]	In-puts	Input function	Setting range [puls. / min.]	Setting range [Hz]	Out-puts analogue	Out-puts relays	Out-puts transist.	Draw-ing no.	Order no.
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FA-1 · Conversion of pulse sequences into analogue standard signals

	110...240 AC (50...60 Hz) / 27 DC (typ. 24 DC)	1	PNP / NPN / Namur	0...600000	0...10000	2	1	1	1	DW2503
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Safety standstill monitors, SIL 3, PL e

Type	U _b [V]	In-puts	Input function	Setting range [puls. / min.]	Setting range [Hz]	Out-puts analogue	Out-puts relays	Out-puts transist.	Draw-ing no.	Order no.
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Monitoring rotational or linear movements for minimum switch point not reached (standstill)

	24 DC	1	PNP	–	0.2 / 0.5 / 1.0 / 2.0	–	2	1	3	DA101S
	24 DC	1	PNP	–	0.2 / 0.5 / 1.0 / 2.0	–	2	1	3	DA102S

Safety speed monitor, SIL 3, PL e

Type	U _b [V]	In-puts	Input function	Setting range [puls. / min.]	Setting range [Hz]	Out-puts analogue	Out-puts relays	Out-puts transist.	Drawing no.	Order no.
------	-----------------------	---------	----------------	---------------------------------	-----------------------	-------------------	-----------------	--------------------	-------------	-----------


Monitoring of rotational or linear movements for adherence to a maximum setpoint (overspeed)

	24 DC	1	PNP	–	0,5...990	–	2	1	4	DD110S
	24 DC	1	PNP	–	0,1...99,9	–	2	1	4	DD111S

Multifunctional displays for digital signals / frequency input

Type	U _b [V]	In-puts	Input function	Setting range [puls. / min.]	Setting range [Hz]	Out-puts analogue	Out-puts relays	Out-puts transist.	Drawing no.	Order no.
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FX 360 · universal evaluation and display for all physical units which can be derived from pulse sequences

	115/230	2	PNP / NPN	–	–	–	–	–	5	DX2001
	115/230	2	PNP / NPN	–	–	2	–	–	5	DX2002
	115/230	2	PNP / NPN	–	–	–	–	2	5	DX2003

Universal counters

Type	U _b [V]	In-puts	Input function	Setting range	Out-puts relays	Out-puts transist.	Drawing no.	Order no.
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preset counter with 2 presets

	90...260 AC	1	PNP / NPN	–	2	–	6	E8900S
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2-channel threshold relay for analogue standard signals

Type	U _b [V]	In-puts	Input function	Setting range [puls. / min.]	Setting range [Hz]	Out-puts analogue	Out-puts relays	Out-puts transist.	Drawing no.	Order no.
------	-----------------------	---------	----------------	---------------------------------	-----------------------	-------------------	-----------------	--------------------	-------------	-----------

AL-3 · 2-channel analogue threshold relay for analogue standard signals

	110...240 AC (50...60 Hz) / 27 DC (typ. 24 DC)	2	2 x 0/4...20 mA	–	–	1	1	1	1	DL2503
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Multifunctional displays for analogue standard signals

Type	U _b [V]	In-puts	Input function	Setting range [puls. / min.]	Setting range [Hz]	Out-puts analogue	Out-puts relays	Out-puts transist.	Drawing no.	Order no.
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AX 360 · universal unit for the display of analogue standard signals (e.g. of pressure, temperature, or flow sensors)

	115/230	2	0/4...20 mA / 0...10 V	–	–	–	–	–	5	DX2011
	115/230	2	0/4...20 mA / 0...10 V	–	–	–	–	2	5	DX2012

scaleable display for sensors with analogue output (e.g. pressure sensors, flow sensors)

	–	1	4...20 mA	–	–	–	–	–	7	E89150
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Timer relays with switch-on / switch-off delay

Type	U _b [V]	In-puts	Input function	Setting range [puls. / min.]	Setting range [Hz]	Out-puts analogue	Out-puts relays	Out-puts transist.	Drawing no.	Order no.
------	-----------------------	---------	----------------	---------------------------------	-----------------------	-------------------	-----------------	--------------------	-------------	-----------


T700 · power supply and switching amplifier with timer function (e.g. for sensors)

	–	2	0/4...20 mA / 0...10 V	–	–	–	–	–	8	DT0001
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Accessories pulse divider / pulse stretcher

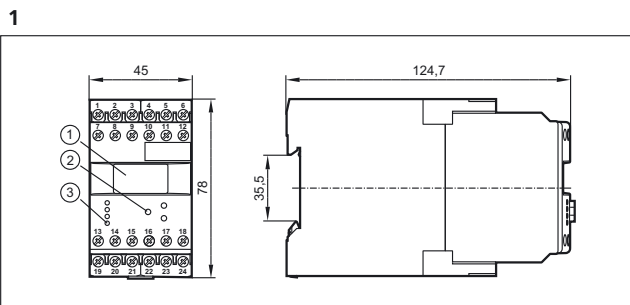
Type	Description	Drawing no.	Order no.
	Pulse divider · Ratio input/output pulse 10:1 · Housing for DIN rail mounting · plastics	9	E80100
	Pulse divider · Division 1...255	10	E80102
	Pulse stretcher · Pulse length · IN (min): > 0.2 ms / OUT: 25 ms · Housing for DIN rail mounting · plastics	9	E80110

Accessories

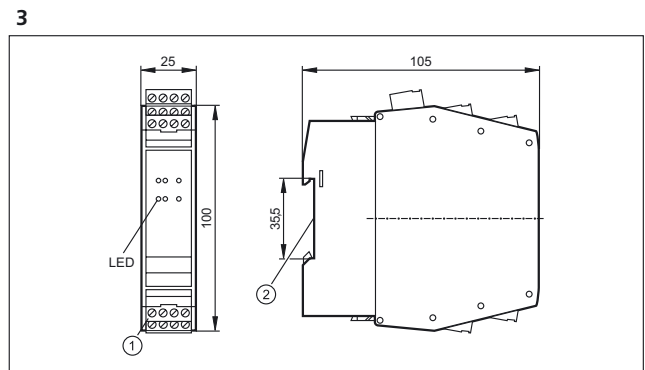
Type	Description	Order no.
	Angle bracket · for type M18 · Housing materials: stainless steel	E10736

Type	Description	Order no.
	Angle bracket · for type M30 · Housing materials: stainless steel	E10737
	Mounting clamp · Ø 20 mm - Ø 18 mm · with reducing bush · for type M18 · Housing materials: PBT	E10076
	Mounting clamp · Ø 34 mm - Ø 30 mm · with reducing bush · for type M30 · Housing materials: PBT	E10077
	Target wheel · Plastic disk with 8 screws as "target" · Centered drill holes	E89010
	Target for pulse pickups · Strap dimensions 7 x 145 mm	E89013

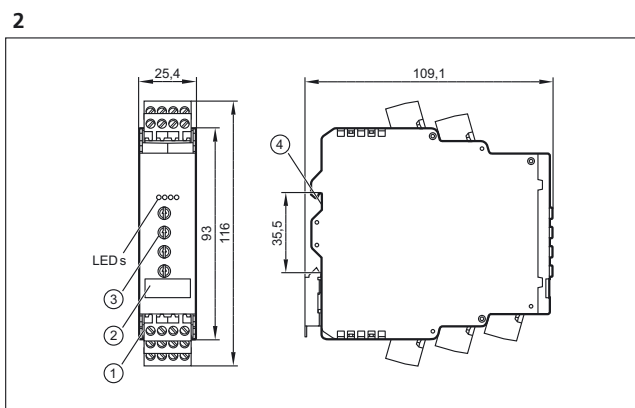
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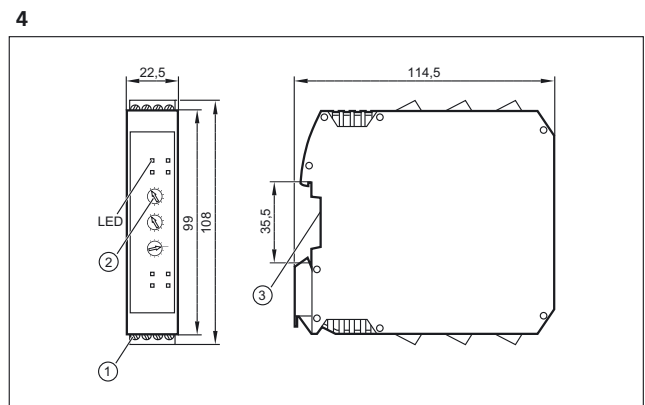
1: OLED display, 2: Programming buttons, 3: LEDs



1: Combicon connector with screw terminals, 2: Mounting on DIN rail

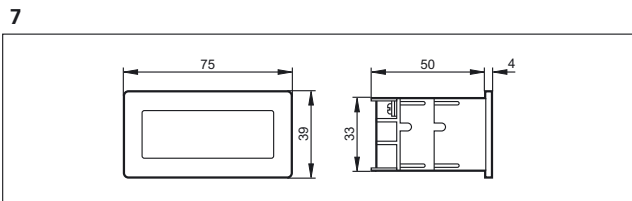
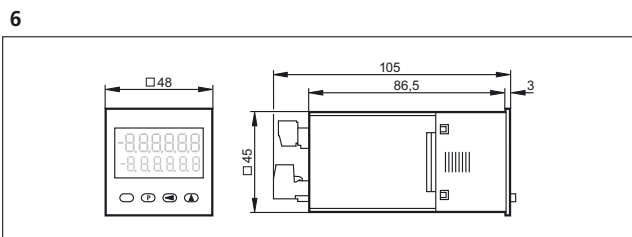
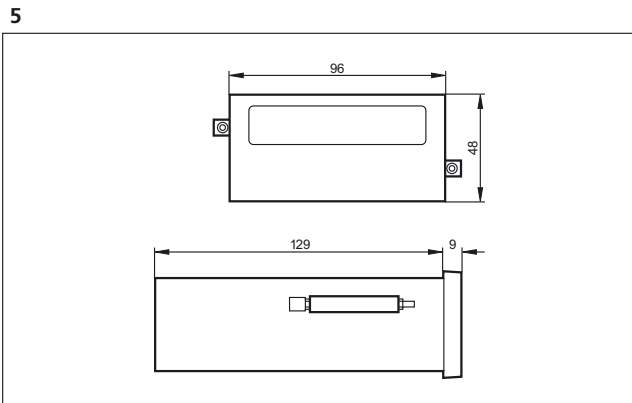


1: plug-in screw terminals, 2: label, 3: potentiometer, 4: Mounting on DIN rail

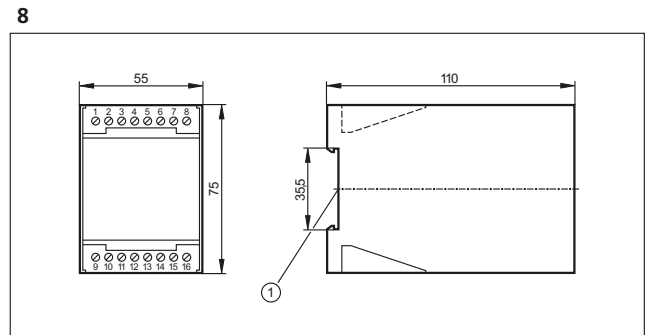


1: screw terminals, 2: Rotary switch, 3: Mounting on DIN rail

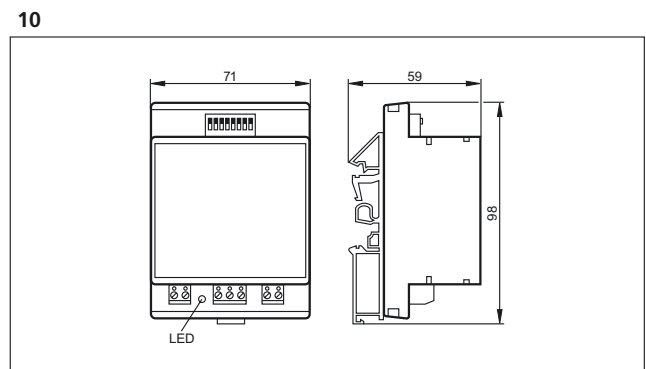
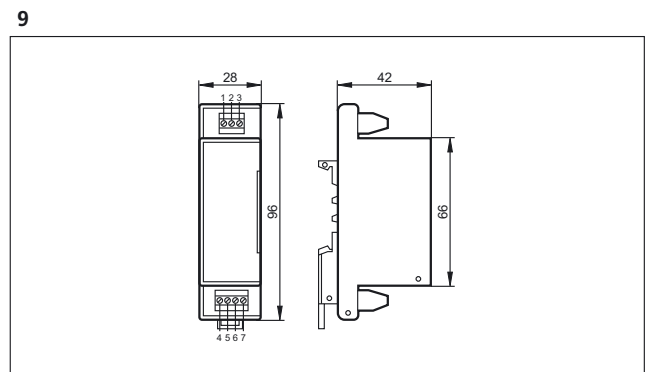
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control panel cutout: 68 x 33 mm (according to DIN)



1: Mounting on DIN rail





Detected at a glance



Completeness check in the bottling process with efector pmd3d.



The power of a camera system with the simplicity of a sensor

In automation technology vision sensors are nowadays an integral part of assembly and manufacturing tasks as well as quality control and also a means of increasing efficiency. Vision sensors are cameras with application-specific evaluation, i.e. reliable electronic eyes at a low cost and a high degree of integration.





While a few years ago expensive camera systems were necessary, technical advancements and a continued decline in component prices have made it possible to integrate more and more intelligent functions into even smaller devices at a low cost. Not only do compact vision sensors replace camera systems, but they also offer additional application options. They are for example used to detect objects that have variable positions or shapes, replacing complex proximity switches or multiple sensor solutions such as sensor bridges used for completeness checks of pallets or crates.

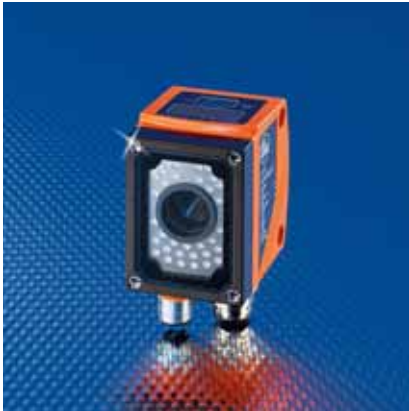
Easy to integrate

One of the distinguishing features of vision sensors is their simplicity. This means that they can be used without any specific prior knowledge. All units have switching outputs to confirm pass / fail conditions. So vision sensors offer the same ease of use as binary sensors. An Ethernet process interface is used for data transmission, parameter setting and remote monitoring.

Robust and compact

Another advantage: the high protection ratings and wide temperature ranges of ifm vision sensors make it possible to install them close to the objects to be monitored. In contrast to complex camera solutions, all necessary components such as lighting, optics, evaluation electronics and output logic are integrated in the industrial housing. With ifm vision sensors tasks such as quality and completeness checks can now be solved easily and at a low cost.

	<i>Vision sensors</i>	362 - 366
	<i>3D sensors</i>	368 - 369
	<i>3D cameras</i>	370 - 372
	<i>Illumination</i>	374 - 378



Vision sensors



Stand-alone unit with integrated lighting and evaluation in a robust, industrially compatible housing.

The electronic eye for monitoring presence, completeness, position, quality control as well as sorting tasks.





System overview	Page
Object inspection sensors	362 - 363
Sensors for object recognition	363
Software for vision sensors	364
Panel PC for vision sensors	364
Fixing components for vision sensors	364 - 365
Reflective tapes, diffusers and protective panes for vision sensors	366
Scale drawings / drawing no. – CAD download: www.ifm.com	366

Object inspection sensors

Type	Operating principle	Max. field of view size [mm]	Resolution [mm]	Detection rate [Hz]	Type of light	Ambient temperature [°C]	Drawing no.	Order no.
Type O2V · M12 plug, 8 poles M12 socket, 4 poles · metal · DC · PNP · Connector groups 16, 17								
	CMOS image sensor B/W, VGA resolution 640 x 480	640 x 480	0.1	10	White light	-10...60	1	O2V100
	CMOS image sensor B/W, VGA resolution 640 x 480	640 x 480	0.1	10	Infrared	-10...60	1	O2V120
	CMOS image sensor B/W, VGA resolution 640 x 480	1320 x 945	0.3	10	White light	-10...60	1	O2V102
	CMOS image sensor B/W, VGA resolution 640 x 480	1320 x 945	0.3	10	Infrared	-10...60	1	O2V122
	CMOS image sensor B/W, VGA resolution 640 x 480	400 x 300	0.08	10	White light	-10...60	2	O2V104
	CMOS image sensor B/W, VGA resolution 640 x 480	400 x 300	0.08	10	Infrared	-10...60	2	O2V124

Type	Operating principle	Max. field of view size [mm]	Resolution [mm]	Detection rate [Hz]	Type of light	Ambient temperature [°C]	Draw- ing no.	Order no.
Type O2V · M12 plug, 8 poles M12 socket, 4 poles · metal · DC · NPN · Connector groups 16, 17								
	CMOS image sensor B/W, VGA resolution 640 x 480	640 x 480	0.1	10	White light	-10...60	1	O2V101
	CMOS image sensor B/W, VGA resolution 640 x 480	640 x 480	0.1	10	Infrared	-10...60	1	O2V121
	CMOS image sensor B/W, VGA resolution 640 x 480	1320 x 945	0.3	10	White light	-10...60	1	O2V103
	CMOS image sensor B/W, VGA resolution 640 x 480	1320 x 945	0.3	10	Infrared	-10...60	1	O2V123
	CMOS image sensor B/W, VGA resolution 640 x 480	400 x 300	0.08	10	White light	-10...60	2	O2V105
	CMOS image sensor B/W, VGA resolution 640 x 480	400 x 300	0.08	10	Infrared	-10...60	2	O2V125




Sensors for object recognition

Type	Operating principle	Max. field of view size [mm]	Resolution [mm]	Detection rate [Hz]	Type of light	Ambient temperature [°C]	Draw- ing no.	Order no.
Type O2D2 · M12 plug, 8 poles · M12 socket, 4 poles · metal · DC · PNP · Connector groups 16, 17								
	CMOS image sensor B/W, VGA resolution 640 x 480	400 x 300	0.08	10	Infrared	-10...60	2	O2D224
	CMOS image sensor B/W, VGA resolution 640 x 480	640 x 480	0.1	10	Infrared	-10...60	1	O2D220
	CMOS image sensor B/W, VGA resolution 640 x 480	1320 x 945	0.3	10	Infrared	-10...60	1	O2D222
Type O2D2 · M12 plug, 8 poles · M12 socket, 4 poles · metal · DC · NPN · Connector groups 16, 17								
	CMOS image sensor B/W, VGA resolution 640 x 480	400 x 300	0.08	10	Infrared	-10...60	2	O2D225
	CMOS image sensor B/W, VGA resolution 640 x 480	640 x 480	0.1	10	Infrared	-10...60	1	O2D227
	CMOS image sensor B/W, VGA resolution 640 x 480	1320 x 945	0.3	10	Infrared	-10...60	1	O2D229

Software for vision sensors






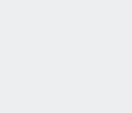


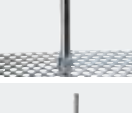




Type	Description	Order no.
	Operating software · O2D	E2D200
	Operating software · O2V	E2V100

Panel PC for vision sensors





Type	Description	Order no.
	Touch Panel PC · 12.1" colour display · Intel Atom CPU 1.6 GHz · 2 GByte RAM · Windows 7 Embedded	E2D400
	Mounting bracket · for Touch Panel PC · for wall mounting · VESA standard 100 x 100 mm · Housing materials: fixture: metal	E2D401
	Mounting set · for Touch Panel PC · for control cabinet mounting · Housing materials: fixture: metal / End cap: plastics	E2D402

Fixing components for vision sensors

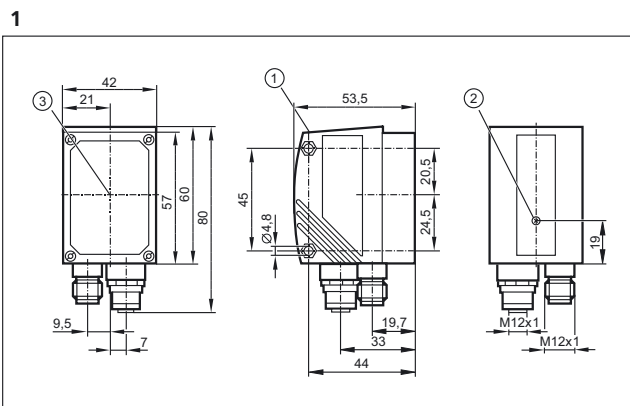
Type	Description	Order no.
	Mounting set · O2D, O2M, O2I, O2V · Clamp mounting · rod mounting Ø 12 mm · Housing materials: fixture: stainless steel / clamp: stainless steel	E2D110
	Mounting set · O2D, O2M, O2I, O2V · Clamp mounting · rod mounting Ø 14 mm · Housing materials: fixture: stainless steel / clamp: stainless steel	E2D112
	Mounting set · Backlight 25 x 25 mm · Clamp mounting · Housing materials: Mounting plate: stainless steel / clamp: high-grade stainless steel	E2D107
	Mounting set · Backlight 50 x 50 mm · Clamp mounting · Housing materials: Mounting plate: stainless steel / clamp: high-grade stainless steel	E2D108
	Mounting set · Backlight 100 x 100 mm · Clamp mounting · Housing materials: Mounting plate: stainless steel / clamp: high-grade stainless steel	E2D109
	clamp · Ø 12 mm · rod mounting Ø 12 mm · Housing materials: clamp: stainless steel	E21110

Type	Description	Order no.
	clamp · Ø 14 mm · rod mounting Ø 14 mm · Housing materials: clamp: stainless steel	E21109
	clamp · Ø 12 mm; M10 · Free-standing M10 · Housing materials: clamp: stainless steel	E20946
	clamp · Ø 14 mm; M12 · free-standing M12 · Housing materials: clamp: stainless steel	E20948
	mounting rod · Ø 12 / M10 · Length: 130 mm · straight · Housing materials: stainless steel 316Ti / 1.4571	E20938
	mounting rod · Ø 12 / M10 · Length: 200 mm · angled · Housing materials: stainless steel 316Ti / 1.4571	E20940
	mounting rod · Ø 12 · Length: 150 mm · straight · Housing materials: stainless steel 316Ti / 1.4571	E21111
	mounting rod · Ø 12 · Length: 200 mm · straight · Housing materials: stainless steel 316Ti / 1.4571	E21112
	mounting rod · Ø 12 · Length: 300 mm · straight · Housing materials: stainless steel 316Ti / 1.4571	E21113
	mounting rod · Ø 14 / M12 · Length: 130 mm · straight · Housing materials: stainless steel 316Ti / 1.4571	E20939
	mounting rod · Ø 14 / M12 · Length: 200 mm · angled · Housing materials: stainless steel 316Ti / 1.4571	E20941
	Connection piece · Ø 20 mm · for the connection of two clamps with Ø 20 mm · Housing materials: stainless steel 316L / 1.4404	E21076
	Cube · M10 · aluminium profile · Housing materials: diecast zinc	E20951
	Cube · M12 · aluminium profile · Housing materials: diecast zinc	E20952

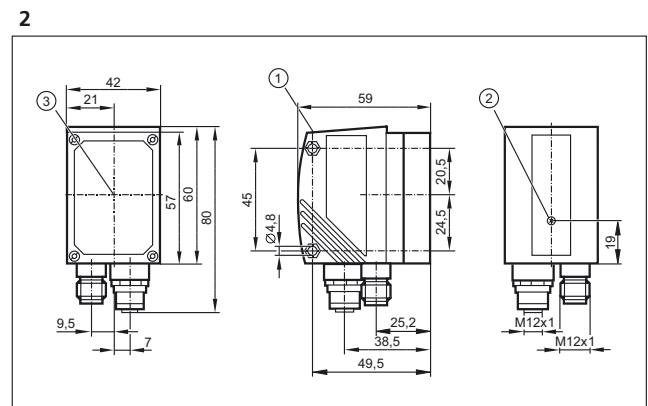
Reflective tapes, diffusers and protective panes for vision sensors

Type	Description	Order no.
	Reflective tape · TS-03 · 100 x 100 mm · Housing materials: plastics	E2D106
	Plastic diffuser · O2D / O2I · Housing materials: housing: diecast zinc black / lens: PMMA	E21165
	Plastic protective pane for the food industry · O2D / O2I · Housing materials: housing: diecast zinc black / lens: PMMA	E21166
	Glass protective pane · O2D / O2I · Housing materials: housing: diecast zinc black / lens: float glass	E21168
	Daylight filter · O2D · Housing materials: housing: diecast zinc black / lens: PMMA / Metal ring: aluminium black anodised / sealing: FPM 75+/-5 Shore A black	E21172

Scale drawings / drawing no. – CAD download: www.ifm.com

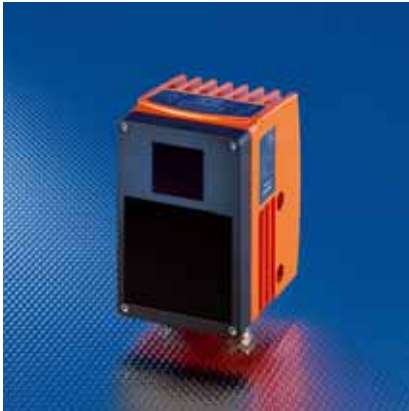


1: display, 2: Focus setting, 3: Centre of the lens axes



1: display, 2: Focus setting, 3: Centre of the lens axes






3D sensors

efector pmd 3d is the first industrial 3D sensor that can assess objects in three dimensions at a glance. Each pixel of this chip matrix evaluates its distance to the object. The image of the object on the chip matrix and the respective distance values correspond to a 3D image. The integrated evaluation enables the detailed assessment of the object's or scene's conditions by means of volume, distance or level detection in three dimensions.

System overview	Page
Sensors for 3D object recognition	368
Software for 3D sensors	368
Panel PC for vision sensors	368 - 369
Fixing components for 3D sensors	369
Scale drawings / drawing no. – CAD download: www.ifm.com	369


Sensors for 3D object recognition

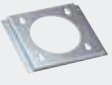

Type	Operating principle	Resolution (pixels)	Angle of aperture (horizontal x vertical) [°]	Lighting	Max. sampling rate [Hz]	Ambient temperature [°C]	Drawing no.	Order no.
PMD 3D sensor · Type O3D · M12 connector · metal · DC · Connector groups 16, 17								
	PMD 3D sensor	64 x 48	30 x 40	Infrared LED	20	-10...50	1	O3D200
	PMD 3D sensor	64 x 48	64 x 48	Infrared LED	20	-10...50	2	O3D222

Software for 3D sensors

Type	Description	Order no.
	Operating software for PMD 3D sensor · O3D	E3D200

Panel PC for vision sensors

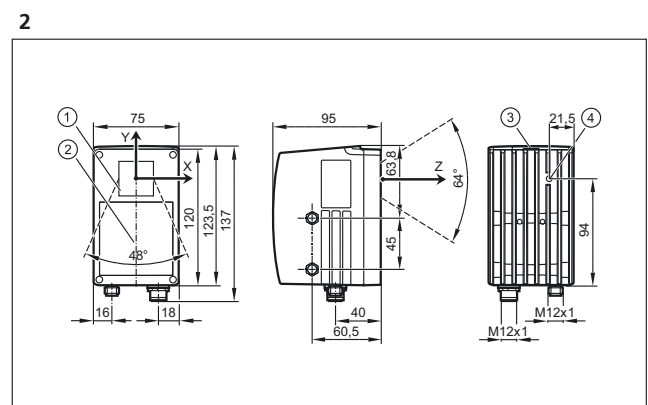
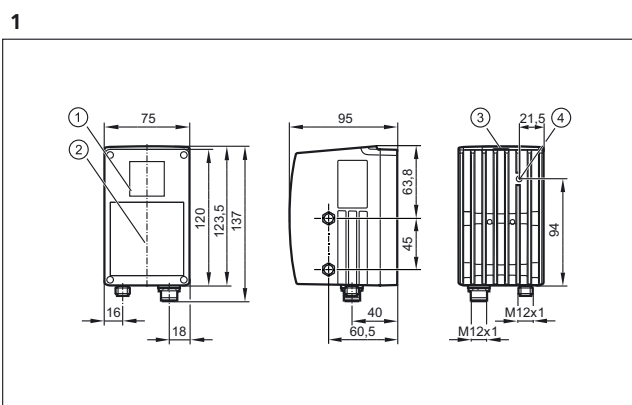
Type	Description	Order no.
	Touch Panel PC · 12.1" colour display · Intel Atom CPU 1.6 GHz · 2 GByte RAM · Windows 7 Embedded	E2D400

Type	Description	Order no.
	Mounting bracket · for Touch Panel PC · for wall mounting · VESA standard 100 x 100 mm · Housing materials: fixture: metal	E2D401
	Mounting set · for Touch Panel PC · for control cabinet mounting · Housing materials: fixture: metal / End cap: plastics	E2D402

Fixing components for 3D sensors

Type	Description	Order no.
	Mounting set · O3D · Clamp mounting · rod mounting Ø 14 mm · Housing materials: fixture: stainless steel / clamp: stainless steel	E3D103
	mounting rod · Ø 14 / M12 · Length: 130 mm · straight · Housing materials: stainless steel 316Ti / 1.4571	E20939
	mounting rod · Ø 14 · Length: 200 mm · straight · Housing materials: stainless steel 316Ti / 1.4571	E21228
	mounting rod · Ø 14 · Length: 300 mm · straight · Housing materials: stainless steel 316Ti / 1.4571	E21229
	mounting rod · Ø 14 · Length: 500 mm · straight · Housing materials: stainless steel 316Ti / 1.4571	E21232

Scale drawings / drawing no. – CAD download: www.ifm.com



1: lens, 2: Illumination unit, 3: Display / buttons / LEDs,
4: Focus setting




3D cameras

The pmd 3d camera detects scenes and objects in their spatial dimensions at a glance. In contrast to laser scanners it does not require moving components and is thus robust and wear-free. The operating principle is the same as for the 3D sensor. Besides the 3D distance image the camera provides a grey image of the scene. The combination of these images offers the possibility to freely program application-specific tasks by means of a software development kit.

System overview	Page
Cameras for 3D object recognition	370
Software for 3D cameras	370
Fixing components for 3D cameras	370 - 371
Connection cables for industrial imaging	371 - 372
Scale drawings / drawing no. – CAD download: www.ifm.com	372


Cameras for 3D object recognition

Type	Operating principle	Resolution (pixels)	Angle of aperture (horizontal x vertical) [°]	Lighting	Max. sampling rate [Hz]	Ambient temperature [°C]	Drawing no.	Order no.
PMD 3D camera · Type O3D · M12 connector · metal · DC · Connector groups 16, 17								
	PMD 3D camera	64 x 48	30 x 40	Infrared LED	20	-10...50	1	O3D201
	PMD 3D camera	64 x 48	64 x 48	Infrared LED	20	-10...50	2	O3D223

Software for 3D cameras

Type	Description	Order no.
	Operating software for PMD 3D camera · O3D	E3D201




Fixing components for 3D cameras

Type	Description	Order no.
	Mounting set · O3D · Clamp mounting · rod mounting Ø 14 mm · Housing materials: fixture: stainless steel / clamp: stainless steel	E3D103

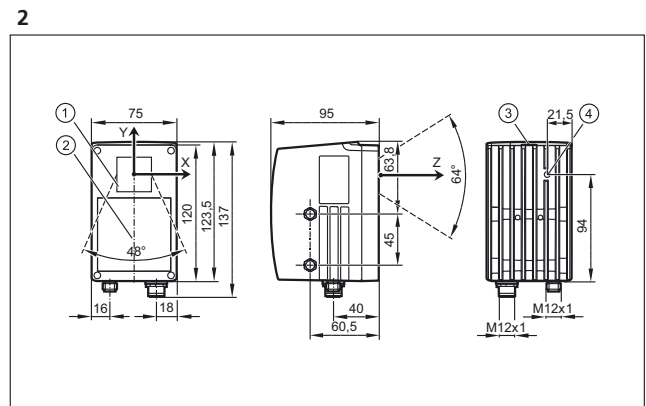
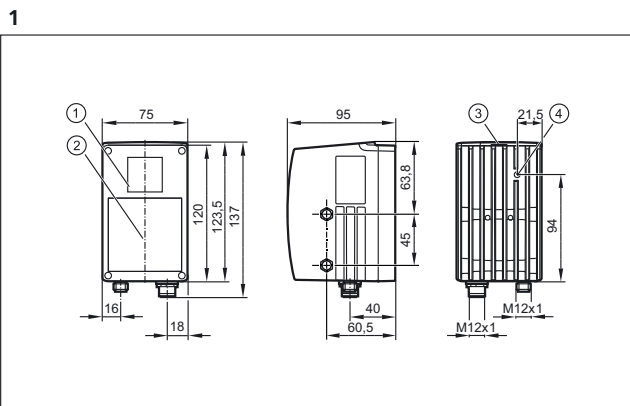
Type	Description	Order no.
	mounting rod · Ø 14 / M12 · Length: 130 mm · straight · Housing materials: stainless steel 316Ti / 1.4571	E20939
	mounting rod · Ø 14 · Length: 200 mm · straight · Housing materials: stainless steel 316Ti / 1.4571	E21228
	mounting rod · Ø 14 · Length: 300 mm · straight · Housing materials: stainless steel 316Ti / 1.4571	E21229
	mounting rod · Ø 14 · Length: 500 mm · straight · Housing materials: stainless steel 316Ti / 1.4571	E21232

Connection cables for industrial imaging

Type	Description	Order no.
	Jumper · straight / straight · Ethernet · Cross-over patch cable · 2 m · Housing materials: PUR / PC	E11898
	Jumper · straight / straight · Ethernet · Patch cable · 2 m · Housing materials: PUR / PC	E12090
	Jumper · straight / straight · Ethernet · Gold-plated contacts · 2 m · Housing materials: TPU	E21138
	Jumper · straight / straight · Ethernet · Gold-plated contacts · 5 m · Housing materials: TPU	E21139
	Jumper · straight / straight · Ethernet · Gold-plated contacts · 10 m · Housing materials: TPU	E21137
	Jumper · straight / straight · Ethernet · 5 m · Housing materials: PUR	E21136
	Jumper · straight / straight · Ethernet · Cross-over patch cable · 10 m · Housing materials: PUR / PC	E12204
	Jumper · straight / straight · Ethernet · Cross-over patch cable · 20 m · Housing materials: PUR / PC	E12205
	Socket · angled · Free from silicone · Free from halogen · Gold-plated contacts · M12 connector · 2 m · Housing materials: PUR	E11231
	Socket · angled · Free from silicone · Free from halogen · Gold-plated contacts · M12 connector · 5 m · Housing materials: PUR	E11232

Type	Description	Order no.
	Socket · straight · Free from halogen · M12 connector · 5 m · Housing materials: PUR	E11807
	Socket · straight · Free from halogen · M12 connector · 10 m · Housing materials: PUR	E11311
	Socket · straight · Free from halogen · M12 connector · 2 m · Housing materials: PUR	E11950
	Adapter · angled · Connector	E21140
	Jumper · straight / straight · Ethernet · Cross-over patch cable · 2 m · Housing materials: PUR	EC2080
	Jumper · straight / straight · Ethernet · Cross-over patch cable · 5 m · Housing materials: PUR	E30112

Scale drawings / drawing no. – CAD download: www.ifm.com



1: lens, 2: Illumination unit, 3: Display / buttons / LEDs,
4: Focus setting





Illumination






Very slim backlights for generating a precise silhouette. Versions with red light or infrared light available. Continuous operation or pulse mode with 4-fold light intensity.

System overview	Page
Illumination units, spotlight	374 - 375
Illumination units, backlight	375 - 376
Illumination units, spotlight	376
Accessories for illumination units	376
Wiring diagrams	377
Scale drawings / drawing no. – CAD download: www.ifm.com	377 - 378

Illumination units, spotlight



Type	Dimensions [mm]	Type of light	Active illuminated area [mm]	I ₀ normal light intensity [mA]	I ₀ high light intensity [mA]	Trigger	Drawing no.	Order no.
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PUR cable with M12 connector 0.3 m · metal · DC · Wiring diagram no. 1 · Connector groups 8, 10, 18, 20, 117, 118, 147

	Ø 122 / L = 20.5	Red	Ø 66 / 106	800	1300	external; 24 V PNP	1	O2D915
	Ø 122 / L = 20.5	Infrared	Ø 66 / 106	800	1400	external; 24 V PNP	1	O2D917
	Ø 122 / L = 20.5	White light	Ø 66 / 106	800	1200	external; 24 V PNP	1	O2D919
	116 x 13 x 18	Red	Ø 66 / 106	225	375	external; 24 V PNP	2	O2D921
	200 x 13 x 18	Red	Ø 66 / 106	460	700	external; 24 V PNP	3	O2D924
	116 x 13 x 18	Infrared	Ø 66 / 106	185	325	external; 24 V PNP	2	O2D922
	200 x 13 x 18	Infrared	Ø 66 / 106	415	640	external; 24 V PNP	3	O2D925

Type	Dimensions [mm]	Type of light	Active illuminated area [mm]	I ₀ normal light intensity [mA]	I ₀ high light intensity [mA]	Trigger	Drawing no.	Order no.
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PUR cable with M12 connector 0.3 m · metal · DC · Wiring diagram no. 1 · Connector groups 8, 10, 18, 20, 117, 118, 147

	116 x 13 x 18	White light	Ø 66 / 106	165	275	External; 24 V PNP to IEC61131-1	2	O2D923
	200 x 13 x 18	White light	Ø 66 / 106	265	475	external; 24 V PNP	3	O2D926




PUR cable with M12 connector 0.3 m · metal · DC · Wiring diagram no. 2 · Connector groups 8, 10, 18, 20, 117, 118, 147

	155 x 130 x 9.8	Red	Ø 66 / 106	–	–	external; 24 V PNP	4	O2D920
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illumination units, backlight



Type	Dimensions [mm]	Type of light	Active illuminated area [mm]	I ₀ normal light intensity [mA]	I ₀ high light intensity [mA]	Trigger	Drawing no.	Order no.
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PUR cable 2 m · metal · DC · Wiring diagram no. 3



	70.5 x 9.2 x 33.4	Red	25 x 25	50	25	External; 24 V PNP to IEC61131-1	5	O2D900
	70.5 x 9.2 x 33.4	Infrared	25 x 25	50	25	External; 24 V PNP to IEC61131-1	5	O2D901
	108 x 9.8 x 81	Red	50 x 50	200	100	External; 24 V PNP to IEC61131-1	6	O2D902
	108 x 9.8 x 81	Infrared	50 x 50	200	100	External; 24 V PNP to IEC61131-1	6	O2D903
	161.2 x 9.8 x 133	Red	100 x 100	450	250	External; 24 V PNP to IEC61131-1	7	O2D904
	161.2 x 9.8 x 133	Infrared	100 x 100	450	250	External; 24 V PNP to IEC61131-1	7	O2D905

PUR cable 0.15 m · metal · DC · Wiring diagram no. 1 · Connector groups 8, 10, 18, 20, 117, 118, 147



	70.5 x 9.2 x 33.4	Red	25 x 25	50	25	External; 24 V PNP to IEC61131-1	5	O2D910
	70.5 x 9.2 x 33.4	Infrared	25 x 25	50	25	External; 24 V PNP to IEC61131-1	5	O2D906
	108 x 9.8 x 81	Red	50 x 50	200	100	External; 24 V PNP to IEC61131-1	6	O2D911

Type	Dimensions [mm]	Type of light	Active illuminated area [mm]	I ₀ normal light intensity [mA]	I ₀ high light intensity [mA]	Trigger	Draw- ing no.	Order no.
PUR cable 0.15 m · metal · DC · Wiring diagram no. 1 · Connector groups 8, 10, 18, 20, 117, 118, 147								
	108 x 9.8 x 81	Infrared	50 x 50	200	100	External; 24 V PNP to IEC61131-1	6	O2D907
	161.2 x 9.8 x 133	Red	100 x 100	450	250	External; 24 V PNP to IEC61131-1	7	O2D912
	161.2 x 9.8 x 133	Infrared	100 x 100	450	250	External; 24 V PNP to IEC61131-1	7	O2D908

Illumination units, spotlight

Type	Dimensions [mm]	Type of light	Active illuminated area [mm]	I ₀ normal light intensity [mA]	I ₀ high light intensity [mA]	Trigger	Draw- ing no.	Order no.
M12 connector · metal · DC · Wiring diagram no. 1 · Connector groups 8, 10, 18, 20, 117, 118, 147								
	42 x 42 x 31	Red	–	180	90	External; 24 V PNP to IEC61131-1	8	O2D909
	42 x 42 x 32.2	Red	–	180	90	External; 24 V PNP to IEC61131-1	9	O2D913

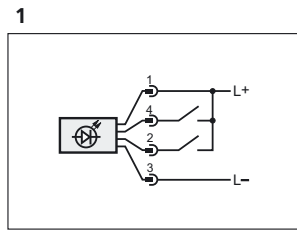
Accessories for illumination units

Type	Description	Order no.
	Glass diffuser · Ring light · Housing materials: housing: aluminium black anodised / lens: glass	E2D202
	Mounting set · Ring light · Clamp mounting · Housing materials: Mounting bracket: stainless steel / clamp: high-grade stainless steel	E2D201
	Mounting set · Bar light · Clamp mounting · Housing materials: Mounting bracket: stainless steel / clamp: high-grade stainless steel	E2D114
	Mounting set · Bar light · Clamp mounting · for 4 bar lights 10x75 mm · Housing materials: Mounting bracket: stainless steel / clamp: high-grade stainless steel	E2D116
	Mounting set · Dark field light · Clamp mounting · Housing materials: Mounting bracket: stainless steel / clamp: high-grade stainless steel	E2D115

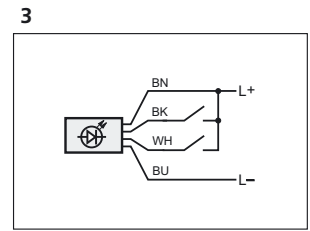
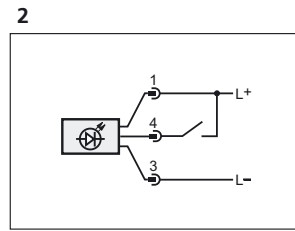
Wiring diagrams

Core colours

BK	black
BN	brown
BU	blue
WH	white

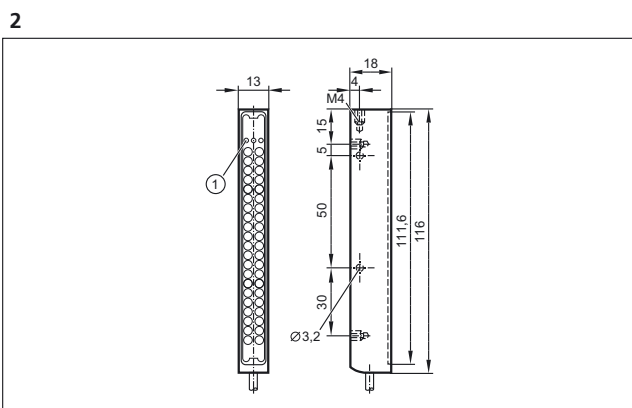
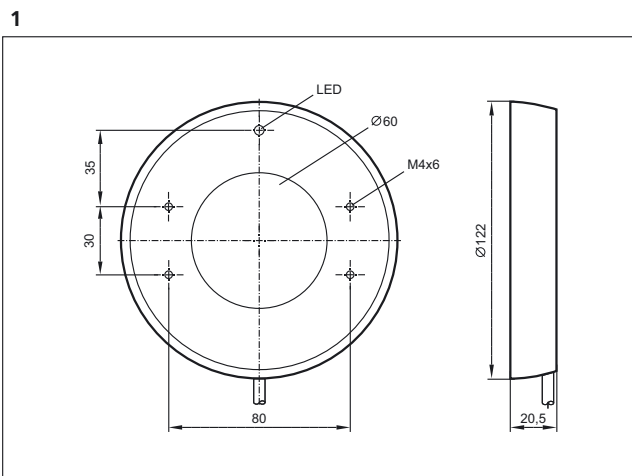


1: Trigger, 2: Operating mode "high light intensity"

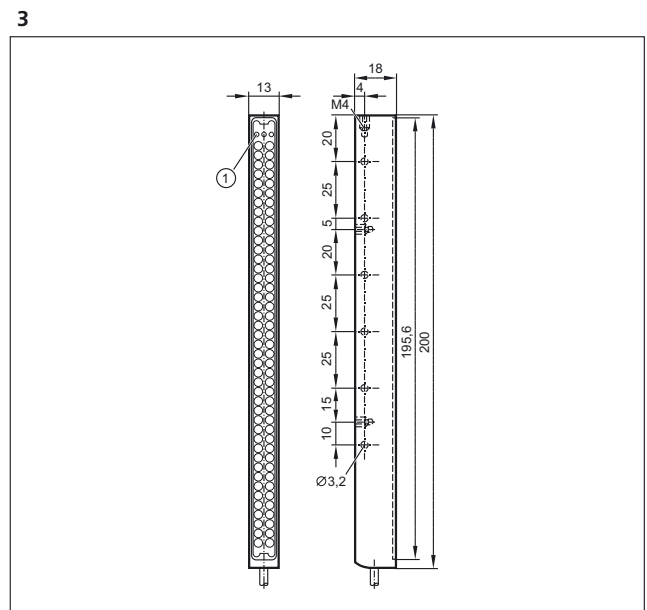


black: Trigger, white: Operating mode "high light intensity"

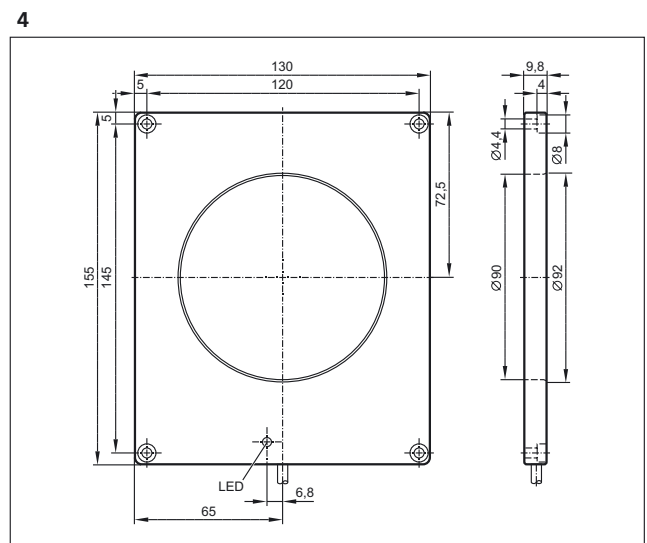
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3 LED

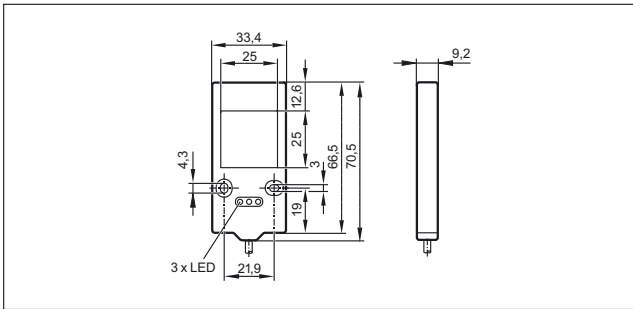


3 LED

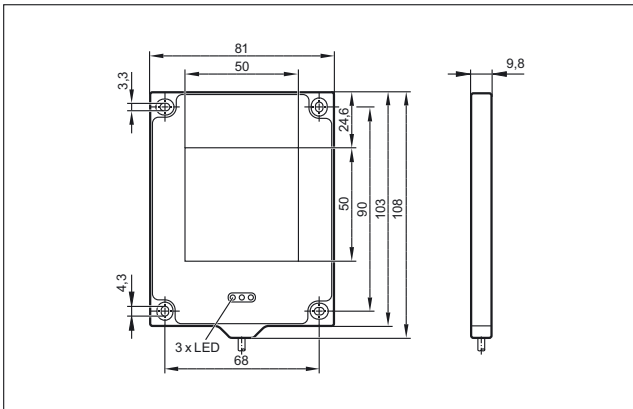


Scale drawings / drawing no. – CAD download: www.ifm.com

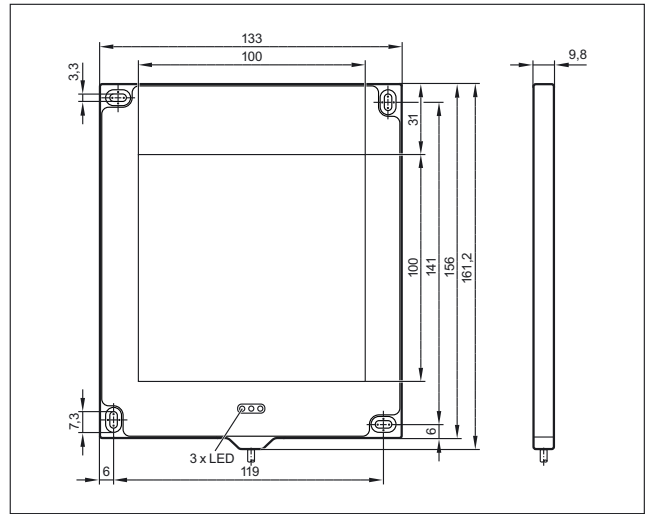
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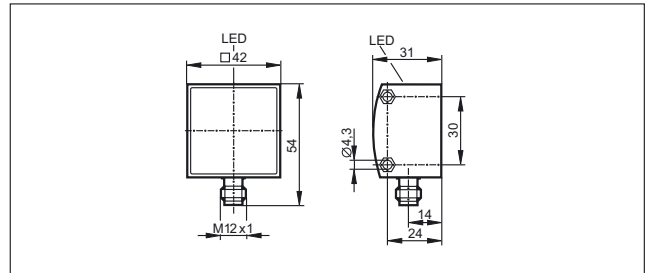
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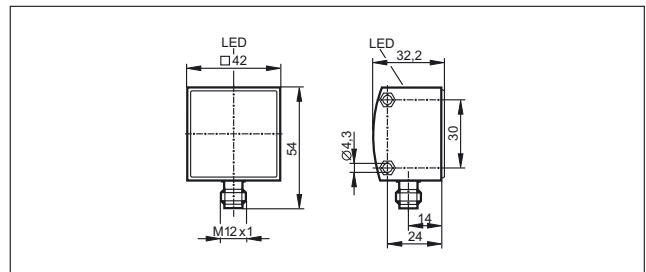
7



8



9





Functional safety



Area monitoring by means of safety light grids.



Applications

Today, automation technology can no longer be imagined without Functional Safety – not least because of the new EC Machinery Directive (2006/42/EC).

Its primary objective is to protect operators as stipulated by the Machinery Directive, whereby machinery should not present a risk. Moreover safety technology is an important guarantor of process protection and, in particular, of machine protection.

Approvals

A series of standards relates to the subject of Functional Safety. They specify different Safety Integrity Levels.







- IEC 61508: This standard is regarded as the basic safety standard and classifies safety products for automation by "Safety Integrity Levels" (SIL 1 – SIL 3).
- IEC 62061: This standard is based on IEC 61508 and determines "Safety Integrity Level Claim Limits" (SIL CL1 – SIL CL 3). These are comparable to the Safety Integrity Levels of IEC 61508. This standard specifies the design of control systems.
- ISO 13849-1: This standard is the successor to the previously applicable standard EN 954-1. In this standard "Performance Levels" (PL a to PL e) can be achieved. PL b-c correspond to SIL 1, PL d corresponds to SIL 2 and PL e corresponds to SIL 3. This standard covers the machinery sector.

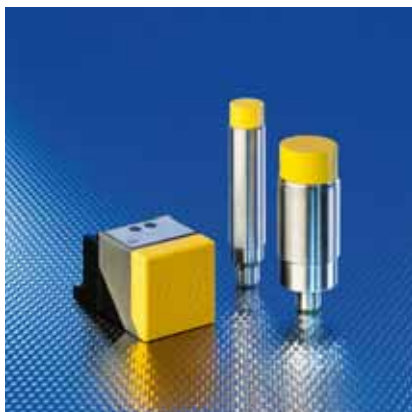
- IEC 61496: This standard specifies general requirements for Electro-Sensitive Protective Equipment (ESPE) such as safety light grids. Variants are types 2 to 4.

Output versions

Output options include safe output stages such as OSSD outputs (Output Signal Switching Devices), outputs with a safe clock cycle that can be connected in series as well as relay outputs.

OSSD and pulsed outputs are the ideal choice for local safety-related tasks associated with controllers. Relay outputs are used to switch contactors. Moreover safe bus systems such as AS-i Safety at Work or CANopen Safety are available. Here the safe output stages can be directly connected to a safe bus. The safety-relevant information either remains in the local bus or can be transmitted up to the highest control level via bus couplers.

	<i>Fail-safe inductive sensors</i>	382 - 385
	<i>Safety light curtains</i>	386 - 405
	<i>Safety light grids</i>	406 - 413
	<i>Safety relays</i>	414 - 416
	<i>Safety controllers</i>	418 - 419
	<i>AS-Interface Safety at Work</i>	420 - 425



Fail-safe inductive sensors

Here you will find the first electronic fail-safe sensors which do not require a special counterpart but switch directly on the door or a stainless steel or mild steel target. They are wear-free and largely independent from mounting tolerances after a longer use of the doors.

System overview	Page
Fail-safe inductive sensors to IEC 61508 SIL 3, IEC 62061 SILcl 3 and ISO 13849-1 PL e with the possibility of connection in series	382
Inductive sensors for safety-related applications, 2 x OSSD, SIL 2, PL d	383
Inductive sensors for safety-related applications, 2 x OSSD, SIL 3, PL e	383
Accessories	384
Wiring diagrams	384
Scale drawings / drawing no. – CAD download: www.ifm.com	384 - 385

Fail-safe inductive sensors to IEC 61508 SIL 3, IEC 62061 SILcl 3 and ISO 13849-1 PL e with the possibility of connection in series




Type	Length [mm]	Enable zone [mm]	Housing material	U _b DC [V]	Protection	Response time in case of a safety request / enable time [ms]	Drawing no.	Order no.
M12 connector · Wiring diagram no. 3 · Connector groups 117, 118, 147								
	M18 / L = 90	3...6 nf	High-grade st. steel	24	IP 68 / IP 69K	≤ 20 / ≤ 200	1	GG505S
	M18 / L = 90.5	1...4 f	Brass	24	IP 68 / IP 69K	≤ 20 / ≤ 200	2	GG507S
	M30 / L = 80	6...12 nf	High-grade st. steel	24	IP 68 / IP 69K	≤ 20 / ≤ 200	3	GI505S
	M30 / L = 80	6...12 nf	High-grade st. steel	24	IP 68 / IP 69K	≤ 20 / ≤ 200	3	GI506S
	40 x 40 x 66	10...15 nf	PPE	24	IP 65 / IP 67	≤ 20 / ≤ 200	4	GM504S
	40 x 40 x 66	10...20 nf	PPE	24	IP 65 / IP 67	≤ 20 / ≤ 200	4	GM505S

f = flush / nf = non flush

Inductive sensors for safety-related applications, 2 x OSSD, SIL 2, PL d

Type	Length [mm]	Enable zone [mm]	Housing material	U _b DC [V]	Protection	Response time in case of a safety request / enable time [ms]	Drawing no.	Order no.
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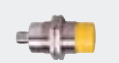

M12 connector · Wiring diagram no. 1 · Connector groups 117, 118, 147

	M12 / L = 70	0.5...4 nf	High-grade st. steel	24	IP 65 / IP 67	≤ 1 / ≤ 1	5	GF711S
	M18 / L = 70.5	1...8 nf	High-grade st. steel	24	IP 65 / IP 67	≤ 1 / ≤ 1	6	GG711S
	M18 / L = 70	1...5 f	Brass	24	IP 65 / IP 67	≤ 1 / ≤ 1	7	GG712S

M12 connector · Wiring diagram no. 2 · Connector groups 117, 118, 147

	M18 / L = 86.5	> 10 f	Brass	24	IP 65 / IP 67	≤ 5 / ≤ 5	8	GG851S
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M12 connector · Wiring diagram no. 1 · Connector groups 117, 118, 147




	M30 / L = 70	1...15 nf	High-grade st. steel	24	IP 65 / IP 67	≤ 10 / ≤ 1	9	GI711S
	M30 / L = 70	1...10 f	High-grade st. steel	24	IP 65 / IP 67	≤ 10 / ≤ 1	10	GI712S

f = flush / nf = non flush

Inductive sensors for safety-related applications, 2 x OSSD, SIL 3, PL e


Type	Length [mm]	Enable zone [mm]	Housing material	U _b DC [V]	Protection	Response time in case of a safety request / enable time [ms]	Drawing no.	Order no.
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M12 connector · Wiring diagram no. 1 · Connector groups 117, 118, 147

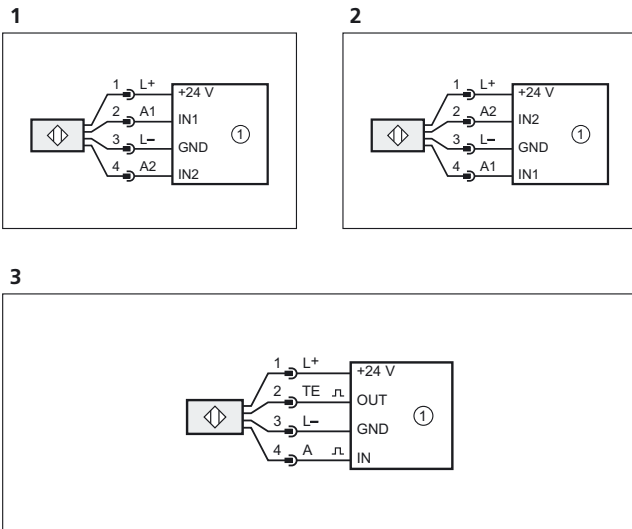
	M30 / L = 80	6...12 nf	High-grade st. steel	24	IP 68 / IP 69K	≤ 50 / ≤ 200	3	GI701S
	40 x 40 x 66	10...15 nf	PPE	24	IP 65 / IP 67	≤ 50 / ≤ 200	4	GM701S
	40 x 40 x 66	4...20 nf	PPE	24	IP 65 / IP 67	≤ 50 / ≤ 200	4	GM705S

f = flush / nf = non flush

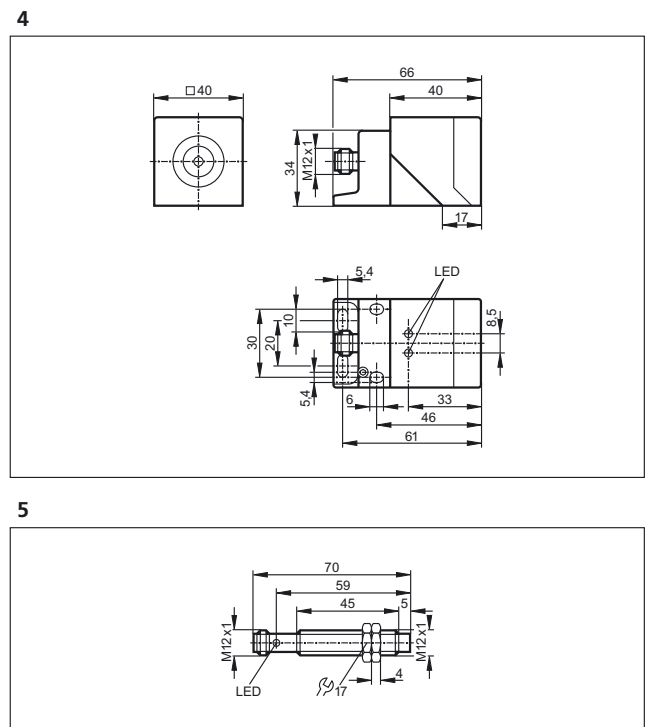
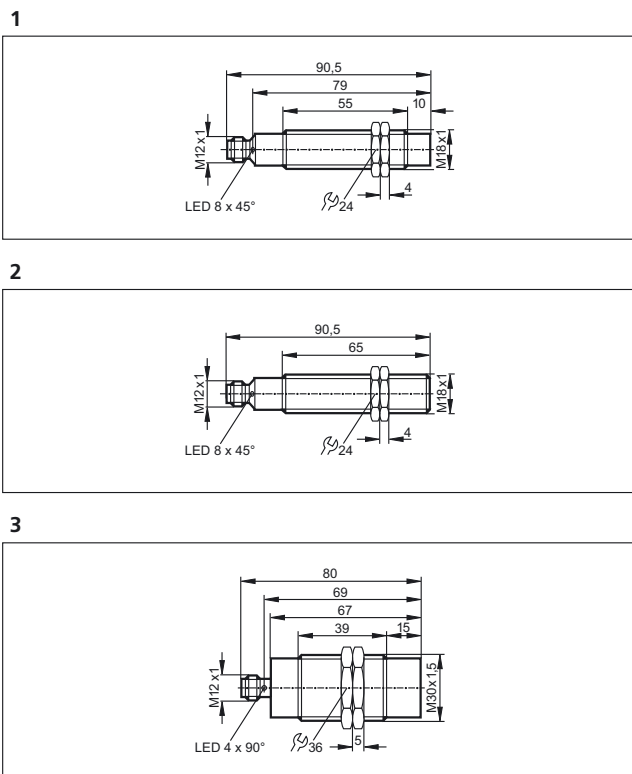
Accessories

Type	Description	Order no.
	Safety T-splitter · M12 socket - 1 M12 connector / 1 M12 socket · T-piece for the pseudo-serial connection of fail-safe sensors · Housing materials: PUR	E11569

Wiring diagrams

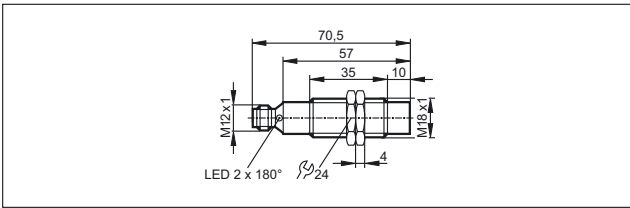


Scale drawings / drawing no. – CAD download: www.ifm.com

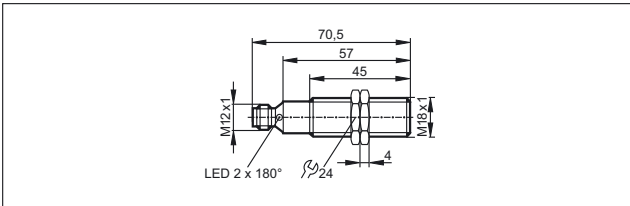


Scale drawings / drawing no. – CAD download: www.ifm.com

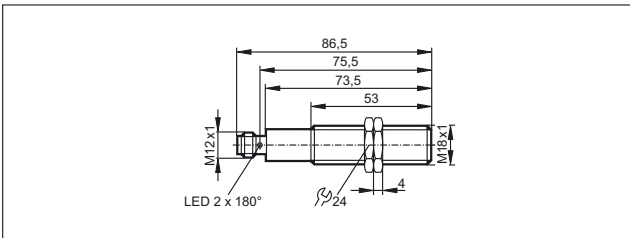
6



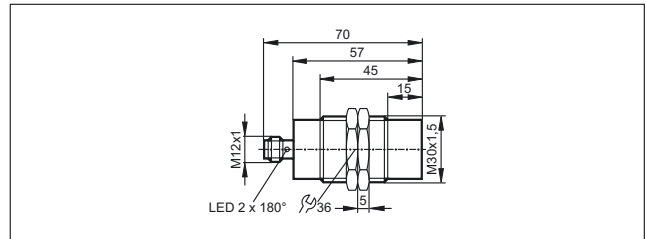
7



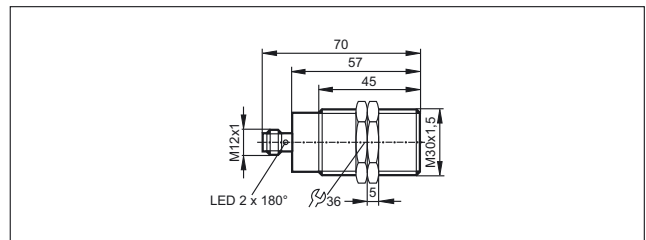
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10





Safety light curtains

Wherever motion of machine parts presents a danger to people or goods, safety light curtains or safety light grids are used.

The protective equipment ensures that the outputs are switched off which results in a machine halt.


System overview	Page
Safety light curtains type 4, SIL 3, PL e, resolution 14 mm, protected area width up to 6 m	387
Safety light curtains type 4, SIL 3, PL e, resolution 20 mm, protected area width up to 20 m	388
Safety light curtains type 4, SIL 3, PL e, resolution 30 mm, protected area width up to 12 m	388 - 389
Safety light curtains type 4, SIL 3, PL e, resolution 30 mm, protected area width up to 20 m	389 - 390
Safety light curtains type 4, SIL 3, PL e, resolution 40 mm, protected area width up to 12 m	390
Safety light curtains type 4, SIL 3, PL e, resolution 40 mm, protected area width up to 20 m	391
Safety light curtains type 4, SIL 3, PL e, resolution 50 mm, protected area width up to 12 m	391 - 392
Safety light curtains type 4, SIL 3, PL e, resolution 50 mm, protected area width up to 20 m	392 - 393
Safety light curtains type 4, SIL 3, PL e, resolution 90 mm, protected area width up to 12 m	393
Safety light curtains type 4, SIL 3, PL e, resolution 90 mm, protected area width up to 20 m	393 - 394
Safety light curtains type 2, SIL 2, PL d, resolution 30 mm, protected area width up to 12 m	394
Safety light curtains type 2, SIL 2, PL d, resolution 40 mm, protected area width up to 12 m	395
Safety light curtains type 2, SIL 2, PL d, protected area width up to 12 m	395 - 396
Safety light curtains type 2, SIL 2, PL d, resolution 90 mm, protected area width up to 12 m	396
Safety light curtains for hygienic and wet areas, IP 69K, type 4, SIL 3, PL e, resolution 14 mm, protected area width up to 5 m	397
Safety light curtains for hygienic and wet areas, IP 69K, type 4, SIL 3, PL e, resolution 30 mm, protected area width up to 15 m	397
Safety light curtains for hygienic and wet areas, IP 69K, type 2, SIL 2, PL d, resolution 30 mm, protected area width up to 10 m	398
Safety light curtains with floating blanking type 4, SIL 3, PL e, resolution 14 mm, protected area width up to 5 m	398 - 399
Safety light curtains with floating blanking type 4, SIL 3, PL e, resolution 20 mm, protected area width up to 18 m	399
Safety light curtains with floating blanking type 4, SIL 3, PL e, resolution 40 mm, protected area width up to 18 m	399 - 400
Accessories for safety light curtains	400 - 401
Bases for safety light curtains	401 - 402
Bases for safety light curtains with corner mirror	402
Accessories necessary for bases	402

System overview	Page
Wiring diagrams	402 - 403
Scale drawings / drawing no. – CAD download: www.ifm.com	404 - 405

Safety light curtains type 4, SIL 3, PL e, resolution 14 mm, protected area width up to 6 m

Type	Sensor length [mm]	Resolution / detection capacity [mm]	Protected area height [mm]	Protected area width [m]	Response time [ms]	U _b [V]	Draw- ing no.	Order no.
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M12 connector · Wiring diagram no. 1, 2 · Connector groups 16, 17

	213	14	160	0...3 / 1...6	4	24	1	OY001S
	363	14	310	0...3 / 1...6	5.5	24	1	OY002S
	513	14	460	0...3 / 1...6	7.5	24	1	OY003S
	663	14	610	0...3 / 1...6	9	24	1	OY004S
	813	14	760	0...3 / 1...6	11	24	1	OY005S
	963	14	910	0...3 / 1...6	13	24	1	OY006S
	1113	14	1060	0...3 / 1...6	14.5	24	1	OY007S
	1263	14	1210	0...3 / 1...6	16.5	24	1	OY008S
	1413	14	1360	0...3 / 1...6	18	24	1	OY009S
	1563	14	1510	0...3 / 1...6	20	24	1	OY010S
	1863	14	1810	0...3 / 1...6	20	24	1	OY011S

Safety light curtains type 4, SIL 3, PL e, resolution 20 mm, protected area width up to 20 m

Type	Sensor length [mm]	Resolution / detection capacity [mm]	Protected area height [mm]	Protected area width [m]	Response time [ms]	U _b [V]	Draw- ing no.	Order no.
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M12 connector · Wiring diagram no. 1, 2 · Connector groups 16, 17

	213	20	160	0...10 / 3...20	4	24	1	OY221S
	363	20	310	0...10 / 3...20	5.5	24	1	OY222S
	513	20	460	0...10 / 3...20	7.5	24	1	OY223S
	663	20	610	0...10 / 3...20	9	24	1	OY224S
	813	20	760	0...10 / 3...20	11	24	1	OY225S
	963	20	910	0...10 / 3...20	13	24	1	OY226S
	1113	20	1060	0...10 / 3...20	14.5	24	1	OY227S
	1263	20	1210	0...10 / 3...20	16.5	24	1	OY228S
	1413	20	1360	0...10 / 3...20	18	24	1	OY229S
	1563	20	1510	0...10 / 3...20	20	24	1	OY230S

Safety light curtains type 4, SIL 3, PL e, resolution 30 mm, protected area width up to 12 m


Type	Sensor length [mm]	Resolution / detection capacity [mm]	Protected area height [mm]	Protected area width [m]	Response time [ms]	U _b [V]	Draw- ing no.	Order no.
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M12 connector · Wiring diagram no. 1, 2 · Connector groups 16, 17

	213	30	160	0...4 / 3...12	4	24	2	OY041S
	363	30	310	0...4 / 3...12	5.5	24	2	OY042S
	513	30	460	0...4 / 3...12	7.5	24	2	OY043S

Type	Sensor length [mm]	Resolution / detection capacity [mm]	Protected area height [mm]	Protected area width [m]	Response time [ms]	U _b [V]	Drawing no.	Order no.
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M12 connector · Wiring diagram no. 1, 2 · Connector groups 16, 17

	663	30	610	0...4 / 3...12	8.5	24	2	OY044S
	813	30	760	0...4 / 3...12	10.5	24	2	OY045S
	963	30	910	0...4 / 3...12	12	24	2	OY046S
	1113	30	1060	0...4 / 3...12	14	24	2	OY047S
	1263	30	1210	0...4 / 3...12	15.5	24	2	OY048S
	1413	30	1360	0...4 / 3...12	17	24	2	OY049S
	1563	30	1510	0...4 / 3...12	18.5	24	2	OY050S

Safety light curtains type 4, SIL 3, PL e, resolution 30 mm, protected area width up to 20 m


Type	Sensor length [mm]	Resolution / detection capacity [mm]	Protected area height [mm]	Protected area width [m]	Response time [ms]	U _b [V]	Drawing no.	Order no.
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M12 connector · Wiring diagram no. 1, 2 · Connector groups 16, 17

	213	30	160	0...10 / 3...20	3	24	1	OY241S
	363	30	310	0...10 / 3...20	4	24	1	OY242S
	513	30	460	0...10 / 3...20	5	24	1	OY243S
	663	30	610	0...10 / 3...20	6	24	1	OY244S
	813	30	760	0...10 / 3...20	6.5	24	1	OY245S
	963	30	910	0...10 / 3...20	7.5	24	1	OY246S
	1113	30	1060	0...10 / 3...20	8.5	24	1	OY247S

Type	Sensor length [mm]	Resolution / detection capacity [mm]	Protected area height [mm]	Protected area width [m]	Response time [ms]	U _b [V]	Draw- ing no.	Order no.
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M12 connector · Wiring diagram no. 1, 2 · Connector groups 16, 17

	1263	30	1210	0...10 / 3...20	9.5	24	1	OY248S
	1413	30	1360	0...10 / 3...20	10	24	1	OY249S
	1563	30	1510	0...10 / 3...20	11	24	1	OY250S

Safety light curtains type 4, SIL 3, PL e, resolution 40 mm, protected area width up to 12 m

Type	Sensor length [mm]	Resolution / detection capacity [mm]	Protected area height [mm]	Protected area width [m]	Response time [ms]	U _b [V]	Draw- ing no.	Order no.
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M12 connector · Wiring diagram no. 1, 2 · Connector groups 16, 17

	213	40	160	0...4 / 3...12	3.5	24	2	OY061S
	363	40	310	0...4 / 3...12	4.5	24	2	OY062S
	513	40	460	0...4 / 3...12	5.5	24	2	OY063S
	663	40	610	0...4 / 3...12	6.5	24	2	OY064S
	813	40	760	0...4 / 3...12	7.5	24	2	OY065S
	963	40	910	0...4 / 3...12	9	24	2	OY066S
	1113	40	1060	0...4 / 3...12	10	24	2	OY067S
	1263	40	1210	0...4 / 3...12	11	24	2	OY068S
	1413	40	1360	0...4 / 3...12	12	24	2	OY069S
	1563	40	1510	0...4 / 3...12	13	24	2	OY070S

Safety light curtains type 4, SIL 3, PL e, resolution 40 mm, protected area width up to 20 m

Type	Sensor length [mm]	Resolution / detection capacity [mm]	Protected area height [mm]	Protected area width [m]	Response time [ms]	U _b [V]	Draw- ing no.	Order no.
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M12 connector · Wiring diagram no. 1, 2 · Connector groups 16, 17


	213	40	160	0...10 / 3...20	3	24	1	OY261S
	363	40	310	0...10 / 3...20	3.5	24	1	OY262S
	513	40	460	0...10 / 3...20	4	24	1	OY263S
	663	40	610	0...10 / 3...20	4.5	24	1	OY264S
	813	40	760	0...10 / 3...20	5	24	1	OY265S
	963	40	910	0...10 / 3...20	6	24	1	OY266S
	1113	40	1060	0...10 / 3...20	6.5	24	1	OY267S
	1263	40	1210	0...10 / 3...20	7	24	1	OY268S
	1413	40	1360	0...10 / 3...20	7.5	24	1	OY269S
	1563	40	1510	0...10 / 3...20	8	24	1	OY270S

Safety light curtains type 4, SIL 3, PL e, resolution 50 mm, protected area width up to 12 m


Type	Sensor length [mm]	Resolution / detection capacity [mm]	Protected area height [mm]	Protected area width [m]	Response time [ms]	U _b [V]	Draw- ing no.	Order no.
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M12 connector · Wiring diagram no. 1, 2 · Connector groups 16, 17

	363	50	310	0...4 / 3...12	4	24	2	OY082S
	513	50	460	0...4 / 3...12	4.5	24	2	OY083S
	663	50	610	0...4 / 3...12	5.5	24	2	OY084S

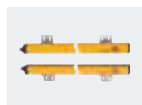
Type	Sensor length [mm]	Resolution / detection capacity [mm]	Protected area height [mm]	Protected area width [m]	Response time [ms]	U _b [V]	Draw- ing no.	Order no.
M12 connector · Wiring diagram no. 1, 2 · Connector groups 16, 17								
	813	50	760	0...4 / 3...12	6.5	24	2	OY0855
	963	50	910	0...4 / 3...12	7.5	24	2	OY0865
	1113	50	1060	0...4 / 3...12	8.5	24	2	OY0875
	1263	50	1210	0...4 / 3...12	9	24	2	OY0885
	1413	50	1360	0...4 / 3...12	10	24	2	OY0895
	1563	50	1510	0...4 / 3...12	11	24	2	OY0905

Safety light curtains type 4, SIL 3, PL e, resolution 50 mm, protected area width up to 20 m

Type	Sensor length [mm]	Resolution / detection capacity [mm]	Protected area height [mm]	Protected area width [m]	Response time [ms]	U _b [V]	Draw- ing no.	Order no.
M12 connector · Wiring diagram no. 1, 2 · Connector groups 16, 17								
	363	50	310	0...10 / 3...20	3	24	1	OY2825
	513	50	460	0...10 / 3...20	3.5	24	1	OY2835
	663	50	610	0...10 / 3...20	4	24	1	OY2845
	813	50	760	0...10 / 3...20	4.5	24	1	OY2855
	963	50	910	0...10 / 3...20	5	24	1	OY2865
	1113	50	1060	0...10 / 3...20	5.5	24	1	OY2875
	1263	50	1210	0...10 / 3...20	6	24	1	OY2885
	1413	50	1360	0...10 / 3...20	6.5	24	1	OY2895

Type	Sensor length [mm]	Resolution / detection capacity [mm]	Protected area height [mm]	Protected area width [m]	Response time [ms]	U _b [V]	Draw- ing no.	Order no.
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M12 connector · Wiring diagram no. 1, 2 · Connector groups 16, 17

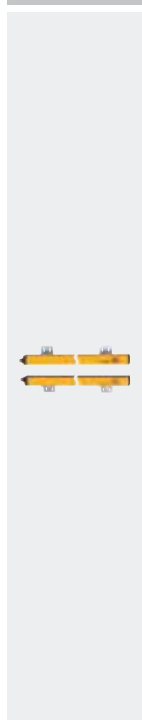


1563	50	1510	0...10 / 3...20	7	24	1	OY290S
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Safety light curtains type 4, SIL 3, PL e, resolution 90 mm, protected area width up to 12 m

Type	Sensor length [mm]	Resolution / detection capacity [mm]	Protected area height [mm]	Protected area width [m]	Response time [ms]	U _b [V]	Draw- ing no.	Order no.
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M12 connector · Wiring diagram no. 1, 2 · Connector groups 16, 17



663	90	610	0...4 / 3...12	4	24	2	OY104S
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813	90	760	0...4 / 3...12	4.5	24	2	OY105S
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963	90	910	0...4 / 3...12	5	24	2	OY106S
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1113	90	1060	0...4 / 3...12	5.5	24	2	OY107S
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1263	90	1210	0...4 / 3...12	5.5	24	2	OY108S
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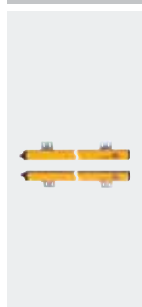
1413	90	1360	0...4 / 3...12	6	24	2	OY109S
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1563	90	1510	0...4 / 3...12	6.5	24	2	OY110S
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Safety light curtains type 4, SIL 3, PL e, resolution 90 mm, protected area width up to 20 m

Type	Sensor length [mm]	Resolution / detection capacity [mm]	Protected area height [mm]	Protected area width [m]	Response time [ms]	U _b [V]	Draw- ing no.	Order no.
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M12 connector · Wiring diagram no. 1, 2 · Connector groups 16, 17




663	90	610	0...10 / 3...20	3	24	1	OY204S
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813	90	760	0...10 / 3...20	3.5	24	1	OY205S
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963	90	910	0...10 / 3...20	3.5	24	1	OY206S
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Type	Sensor length [mm]	Resolution / detection capacity [mm]	Protected area height [mm]	Protected area width [m]	Response time [ms]	U _b [V]	Draw- ing no.	Order no.
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M12 connector - Wiring diagram no. 1, 2 - Connector groups 16, 17

	1113	90	1060	0...10 / 3...20	3.5	24	1	OY2075
	1263	90	1210	0...10 / 3...20	4	24	1	OY2085
	1413	90	1360	0...10 / 3...20	4	24	1	OY2095
	1563	90	1510	0...10 / 3...20	4.5	24	1	OY2105

Safety light curtains type 2, SIL 2, PL d, resolution 30 mm, protected area width up to 12 m

Type	Sensor length [mm]	Resolution / detection capacity [mm]	Protected area height [mm]	Protected area width [m]	Response time [ms]	U _b [V]	Draw- ing no.	Order no.
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M12 connector - Wiring diagram no. 1, 2 - Connector groups 16, 17

	213	30	160	0...4 / 3...12	4.5	24	2	OY0315
	363	30	310	0...4 / 3...12	6	24	2	OY0325
	513	30	460	0...4 / 3...12	8	24	2	OY0335
	663	30	610	0...4 / 3...12	9.5	24	2	OY0345
	813	30	760	0...4 / 3...12	11	24	2	OY0355
	963	30	910	0...4 / 3...12	12.5	24	2	OY0365
	1113	30	1060	0...4 / 3...12	14.5	24	2	OY0375
	1263	30	1210	0...4 / 3...12	16	24	2	OY0385
	1413	30	1360	0...4 / 3...12	17.5	24	2	OY0395
	1563	30	1510	0...4 / 3...12	19.5	24	2	OY0405

Safety light curtains type 2, SIL 2, PL d, resolution 40 mm, protected area width up to 12 m

Type	Sensor length [mm]	Resolution / detection capacity [mm]	Protected area height [mm]	Protected area width [m]	Response time [ms]	U _b [V]	Draw- ing no.	Order no.
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M12 connector · Wiring diagram no. 1, 2 · Connector groups 16, 17


	213	40	160	0...4 / 3...12	4	24	2	OY051S
	363	40	310	0...4 / 3...12	5	24	2	OY052S
	513	40	460	0...4 / 3...12	6	24	2	OY053S
	663	40	610	0...4 / 3...12	7	24	2	OY054S
	813	40	760	0...4 / 3...12	8	24	2	OY055S
	963	40	910	0...4 / 3...12	9.5	24	2	OY056S
	1113	40	1060	0...4 / 3...12	10.5	24	2	OY057S
	1263	40	1210	0...4 / 3...12	11.5	24	2	OY058S
	1413	40	1360	0...4 / 3...12	12.5	24	2	OY059S
	1563	40	1510	0...4 / 3...12	13.5	24	2	OY060S

Safety light curtains type 2, SIL 2, PL d, protected area width up to 12 m


Type	Sensor length [mm]	Resolution / detection capacity [mm]	Protected area height [mm]	Protected area width [m]	Response time [ms]	U _b [V]	Draw- ing no.	Order no.
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M12 connector · Wiring diagram no. 1, 2 · Connector groups 16, 17

	363	50	310	0...4 / 3...12	4.5	24	2	OY072S
	513	50	460	0...4 / 3...12	5.5	24	2	OY073S
	663	50	610	0...4 / 3...12	6	24	2	OY074S

Type	Sensor length [mm]	Resolution / detection capacity [mm]	Protected area height [mm]	Protected area width [m]	Response time [ms]	U _b [V]	Draw- ing no.	Order no.
M12 connector · Wiring diagram no. 1, 2 · Connector groups 16, 17								
	813	50	760	0...4 / 3...12	7	24	2	OY075S
	963	50	910	0...4 / 3...12	8	24	2	OY076S
	1113	50	1060	0...4 / 3...12	9	24	2	OY077S
	1263	50	1210	0...4 / 3...12	10	24	2	OY078S
	1413	50	1360	0...4 / 3...12	10.5	24	2	OY079S
	1563	50	1510	0...4 / 3...12	11.5	24	2	OY080S

Safety light curtains type 2, SIL 2, PL d, resolution 90 mm, protected area width up to 12 m

Type	Sensor length [mm]	Resolution / detection capacity [mm]	Protected area height [mm]	Protected area width [m]	Response time [ms]	U _b [V]	Draw- ing no.	Order no.
M12 connector · Wiring diagram no. 1, 2 · Connector groups 16, 17								
	663	90	610	0...4 / 3...12	4	24	2	OY094S
	813	90	760	0...4 / 3...12	4.5	24	2	OY095S
	963	90	910	0...4 / 3...12	5	24	2	OY096S
	1113	90	1060	0...4 / 3...12	5.5	24	2	OY097S
	1263	90	1210	0...4 / 3...12	6	24	2	OY098S
	1413	90	1360	0...4 / 3...12	6.5	24	2	OY099S
	1563	90	1510	0...4 / 3...12	7	24	2	OY100S

Safety light curtains for hygienic and wet areas, IP 69K, type 4, SIL 3, PL e, resolution 14 mm, protected area width up to 5 m

Type	Sensor length [mm]	Resolution / detection capacity [mm]	Protected area height [mm]	Protected area width [m]	Response time [ms]	U _b [V]	Drawing no.	Order no.
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Cable 15 m · Wiring diagram no. 4, 5

	637	14	460	0...2 / 1...5	7.5	24	3	OY403S
	937	14	760	0...2 / 1...5	11	24	3	OY405S
	1237	14	1060	0...2 / 1...5	14.5	24	3	OY407S

Safety light curtains for hygienic and wet areas, IP 69K, type 4, SIL 3, PL e, resolution 30 mm, protected area width up to 15 m

Type	Sensor length [mm]	Resolution / detection capacity [mm]	Protected area height [mm]	Protected area width [m]	Response time [ms]	U _b [V]	Drawing no.	Order no.
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Cable 15 m · Wiring diagram no. 4, 5

	337	30	160	0...7 / 3...15	3	24	3	OY441S
	487	30	310	0...7 / 3...15	4	24	3	OY442S
	637	30	460	0...7 / 3...15	5	24	3	OY443S
	787	30	610	0...7 / 3...15	6	24	3	OY444S
	937	30	760	0...7 / 3...15	6.5	24	3	OY445S
	1087	30	910	0...7 / 3...15	7.5	24	3	OY446S
	1237	30	1060	0...7 / 3...15	8.5	24	3	OY447S
	1387	30	1210	0...7 / 3...15	9.5	24	3	OY448S
	1537	30	1360	0...7 / 3...15	10	24	3	OY449S
	1687	30	1510	0...7 / 3...15	11	24	3	OY450S

Safety light curtains for hygienic and wet areas, IP 69K, type 2, SIL 2, PL d, resolution 30 mm, protected area width up to 10 m

Type	Sensor length [mm]	Resolution / detection capacity [mm]	Protected area height [mm]	Protected area width [m]	Response time [ms]	U _b [V]	Draw- ing no.	Order no.
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Cable 15 m · Wiring diagram no. 4, 5

	337	30	160	0...3 / 2...10	4.5	24	4	OY431S
	487	30	310	0...3 / 2...10	6	24	4	OY432S
	637	30	460	0...3 / 2...10	8	24	4	OY433S
	787	30	610	0...3 / 2...10	9.5	24	4	OY434S
	937	30	760	0...3 / 2...10	11	24	4	OY435S
	1087	30	910	0...3 / 2...10	12.5	24	4	OY436S
	1237	30	1060	0...3 / 2...10	14.5	24	4	OY437S
	1387	30	1210	0...3 / 2...10	16	24	4	OY438S
	1537	30	1360	0...3 / 2...10	17.5	24	4	OY439S
	1687	30	1510	0...3 / 2...10	19.5	24	4	OY440S

Safety light curtains with floating blanking type 4, SIL 3, PL e, resolution 14 mm, protected area width up to 5 m


Type	Sensor length [mm]	Resolution / detection capacity [mm]	Protected area height [mm]	Protected area width [m]	Response time [ms]	U _b [V]	Draw- ing no.	Order no.
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M12 connector · Wiring diagram no. 1, 3 · Connector groups 16, 17

	711	14	610	0...3 / 0...5	11.5	24	5	OY804S
	861	14	760	0...3 / 0...5	13.5	24	5	OY805S
	1011	14	910	0...3 / 0...5	15.5	24	5	OY806S

Type	Sensor length [mm]	Resolution / detection capacity [mm]	Protected area height [mm]	Protected area width [m]	Response time [ms]	U _b [V]	Draw- ing no.	Order no.
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M12 connector · Wiring diagram no. 1, 3 · Connector groups 16, 17

	1161	14	1060	0...3 / 0...5	17	24	5	OY8075
	1311	14	1210	0...3 / 0...5	19	24	5	OY8085

Safety light curtains with floating blanking type 4, SIL 3, PL e, resolution 20 mm, protected area width up to 18 m

Type	Sensor length [mm]	Resolution / detection capacity [mm]	Protected area height [mm]	Protected area width [m]	Response time [ms]	U _b [V]	Draw- ing no.	Order no.
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M12 connector · Wiring diagram no. 1, 3 · Connector groups 16, 17


	711	20	610	0...6 / 3...18	11.5	24	5	OY8155
	861	20	760	0...6 / 3...18	13.5	24	5	OY8165
	1011	20	910	0...6 / 3...18	15.5	24	5	OY8175
	1161	20	1060	0...6 / 3...18	17	24	5	OY8185
	1311	20	1210	0...6 / 3...18	19	24	5	OY8195

Safety light curtains with floating blanking type 4, SIL 3, PL e, resolution 40 mm, protected area width up to 18 m



Type	Sensor length [mm]	Resolution / detection capacity [mm]	Protected area height [mm]	Protected area width [m]	Response time [ms]	U _b [V]	Draw- ing no.	Order no.
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M12 connector · Wiring diagram no. 1, 3 · Connector groups 16, 17

	711	40	610	0...6 / 3...18	8.5	24	5	OY8255
	861	40	760	0...6 / 3...18	9.5	24	5	OY8265
	1011	40	910	0...6 / 3...18	10.5	24	5	OY8275
	1161	40	1060	0...6 / 3...18	11.5	24	5	OY8285


Type	Sensor length [mm]	Resolution / detection capacity [mm]	Protected area height [mm]	Protected area width [m]	Response time [ms]	U _b [V]	Draw- ing no.	Order no.
M12 connector · Wiring diagram no. 1, 3 · Connector groups 16, 17								
	1311	40	1210	0...6 / 3...18	12.5	24	5	OY8295


Accessories for safety light curtains

Type	Description	Order no.
	Corner mirror · Length: 250 mm · for safety light curtains · Protected area height · 160 mm · for type OY · Housing materials: aluminium epoxy-powder coated / plastics / Accessories: steel galvanised	EY1001
	Corner mirror · Length: 400 mm · for safety light curtains · Protected area height · 310 mm · for type OY · Housing materials: aluminium epoxy-powder coated / plastics / Accessories: steel galvanised	EY1002
	Corner mirror · Length: 540 mm · for safety light curtains · Protected area height · 460 mm · for type OY · Housing materials: aluminium epoxy-powder coated / plastics / Accessories: steel galvanised	EY1003
	Corner mirror · Length: 715 mm · for safety light curtains · Protected area height · 610 mm · for safety light grids · 2 beams · for type OY · Housing materials: aluminium epoxy-powder coated / plastics / Accessories: steel galvanised	EY1004
	Corner mirror · Length: 885 mm · for safety light curtains · Protected area height · 760 mm · for type OY · Housing materials: aluminium epoxy-powder coated / plastics / Accessories: steel galvanised	EY1005
	Corner mirror · Length: 1060 mm · for safety light curtains · Protected area height · 910 mm · for safety light grids · 3 beams · for type OY · Housing materials: aluminium epoxy-powder coated / plastics / Accessories: steel galvanised	EY1006
	Corner mirror · Length: 1230 mm · for safety light curtains · Protected area height · 1060 mm · for safety light grids · 4 beams · for type OY · Housing materials: aluminium epoxy-powder coated / plastics / Accessories: steel galvanised	EY1007
	Corner mirror · Length: 1400 mm · for safety light curtains · Protected area height · 1210 mm · for type OY · Housing materials: aluminium epoxy-powder coated / plastics / Accessories: steel galvanised	EY1008
	Corner mirror · Length: 1450 mm · for safety light curtains · Protected area height · 1360 mm · for type OY · Housing materials: aluminium epoxy-powder coated / plastics / Accessories: steel galvanised	EY1009
	Corner mirror · Length: 1600 mm · for safety light curtains · Protected area height · 1510 mm · for type OY · Housing materials: aluminium epoxy-powder coated / plastics / Accessories: steel galvanised	EY1010
	Vibration damper · for type OY · Housing materials: rubber / metal galvanised	EY3001
	Vibration damper · for type OY · Housing materials: rubber / metal galvanised	EY3002


Type	Description	Order no.
	Rotatable brackets · axial $\pm 90^\circ$ · for type OY · Housing materials: Angle bracket: steel black	EY3011
	Adjustable brackets · axial $\pm 7^\circ$ · for type OY · Housing materials: metal galvanised	EY3004
	Adjustable brackets · axial $\pm 7^\circ$ · for type OY · Housing materials: metal galvanised	EY3005
	Test rod · $\varnothing 14$ mm · Probe length: 150 mm · for safety light curtains · for type OY · Housing materials: aluminium	EY3006
	Test rod · $\varnothing 20$ mm · Probe length: 150 mm · for safety light curtains · for type OY · Housing materials: aluminium	EY3007
	Test rod · $\varnothing 30$ mm · Probe length: 150 mm · for safety light curtains · for type OY · Housing materials: aluminium	EY3008
	Test rod · $\varnothing 40$ mm · Probe length: 150 mm · for safety light curtains · for type OY · Housing materials: aluminium	EY3009
	Test rod · $\varnothing 50$ mm · Probe length: 150 mm · for safety light curtains · for type OY · Housing materials: aluminium	EY3010
	Adapter cable · straight · For the connection of safety light curtains / safety light grids with OSSD · for receiver · Configured for automatic operation · Free from silicone · Free from halogen · Gold-plated contacts · 0.1 m · Housing materials: TPU orange / PA	EY3090
	Adapter cable · straight · For the connection of safety light curtains / safety light grids with OSSD · for transmitter · Configured for "long range" · Free from silicone · Free from halogen · Gold-plated contacts · 0.1 m · Housing materials: TPU orange / PA	EY3091
	Adapter cable · straight · For the connection of safety light curtains / safety light grids with OSSD · for transmitter · Configured for "short range" · Free from silicone · Free from halogen · Gold-plated contacts · 0.1 m · Housing materials: TPU orange / PA	EY3092
	Laser adjustment aid · for type OY9xxS · for safety light grids · Housing materials: plastics	EY3098
	Laser adjustment aid · for safety light curtains · for type OY · Housing materials: plastics	EY3099

Bases for safety light curtains


Type	Description	Order no.
	Base · Length: 1010 mm · for safety light grids · 2 beams · for safety light curtains · ≤ 760 mm · for type OY · Housing materials: aluminium epoxy-powder coated / plastics	EY2001

Type	Description	Order no.
	Base · Length: 1340 mm · for safety light grids · 3 beams · 4 beams · for safety light curtains · ≤ 1060 mm · for type OY · Housing materials: aluminium epoxy-powder coated / plastics	EY2002
	Base · Length: 1680 mm · for safety light curtains · ≤1360 mm · for type OY · Housing materials: aluminium epoxy-powder coated / plastics	EY2003
	Base · Length: 1980 mm · for safety light curtains · ≤ 1510 mm · for type OY · Housing materials: aluminium epoxy-powder coated / plastics	EY2004

Bases for safety light curtains with corner mirror

Type	Description	Order no.
	Corner mirror with base · Length: 1010 mm · for safety light grids · 2 beams · for safety light curtains · ≤ 760 mm · for type OY · Housing materials: aluminium epoxy-powder coated / plastics	EY1011
	Corner mirror with base · Length: 1340 mm · for safety light grids · 3 beams · 4 beams · for safety light curtains · ≤ 1060 mm · for type OY · Housing materials: aluminium epoxy-powder coated / plastics	EY1013
	Corner mirror with base · Length: 1680 mm · for safety light curtains · ≤1360 mm · for type OY · Housing materials: aluminium epoxy-powder coated / plastics	EY1014
	Corner mirror with base · Length: 1980 mm · for safety light curtains · ≤ 1510 mm · for type OY · Housing materials: aluminium epoxy-powder coated / plastics	EY1015

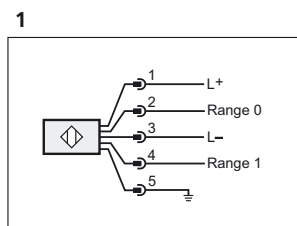
Accessories necessary for bases

Type	Description	Order no.
	Mounting base · for type OY	EY2005

Wiring diagrams

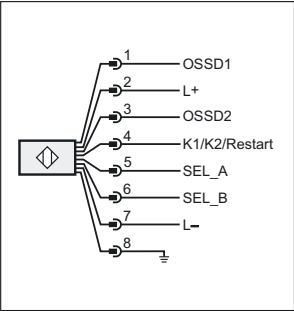
Core colours

BK	black
BN	brown
BU	blue
GN	green
GY	grey
PK	pink
RD	red
VT	lilac
WH	white
YE	yellow

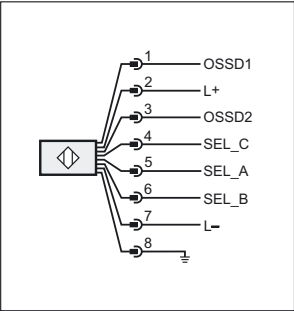


Wiring diagrams

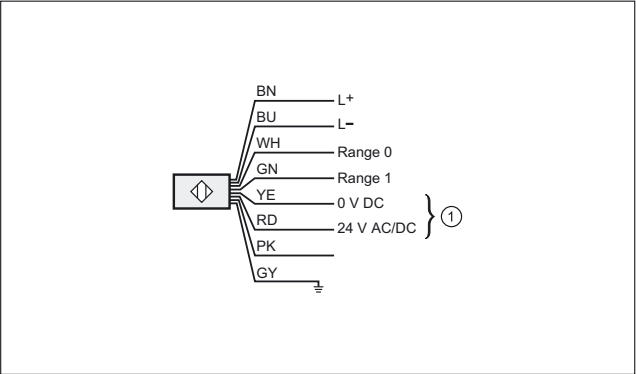
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3

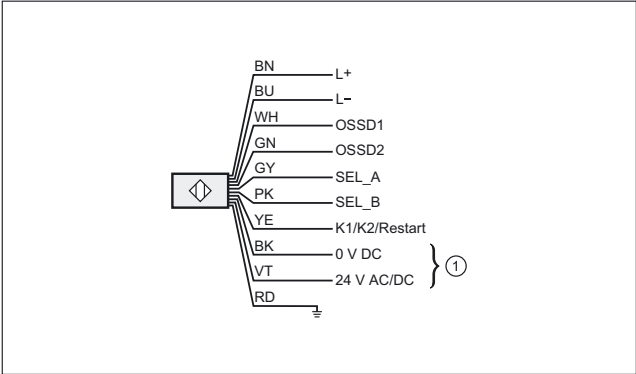


4



1: Heating, pink: not used

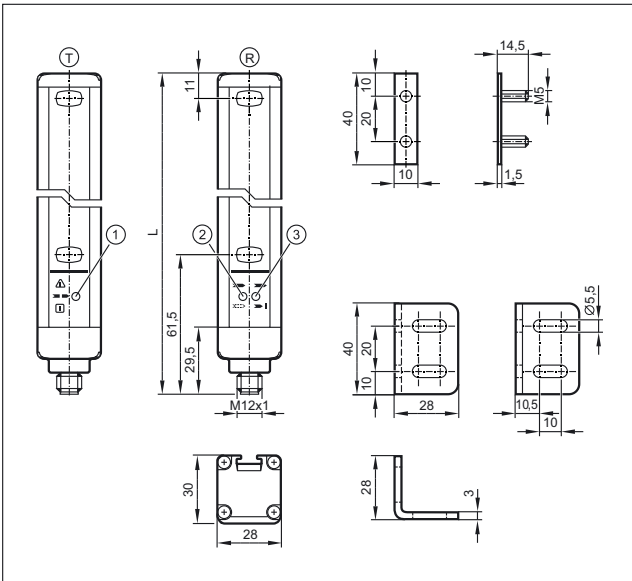
5



1: Heating

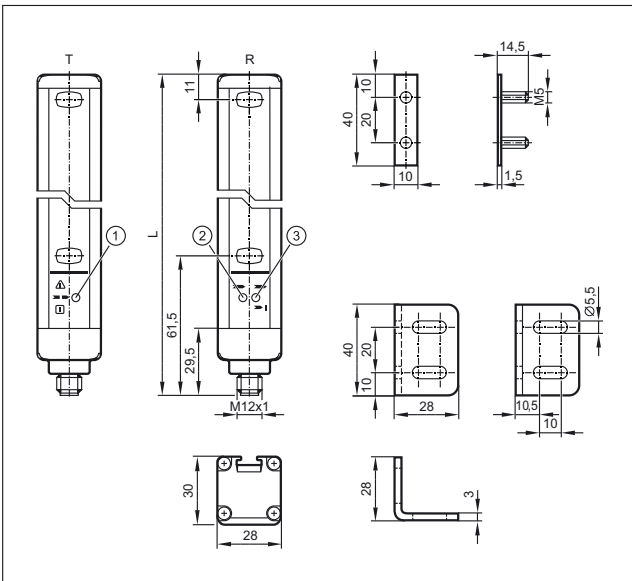
Scale drawings / drawing no. – CAD download: www.ifm.com

1



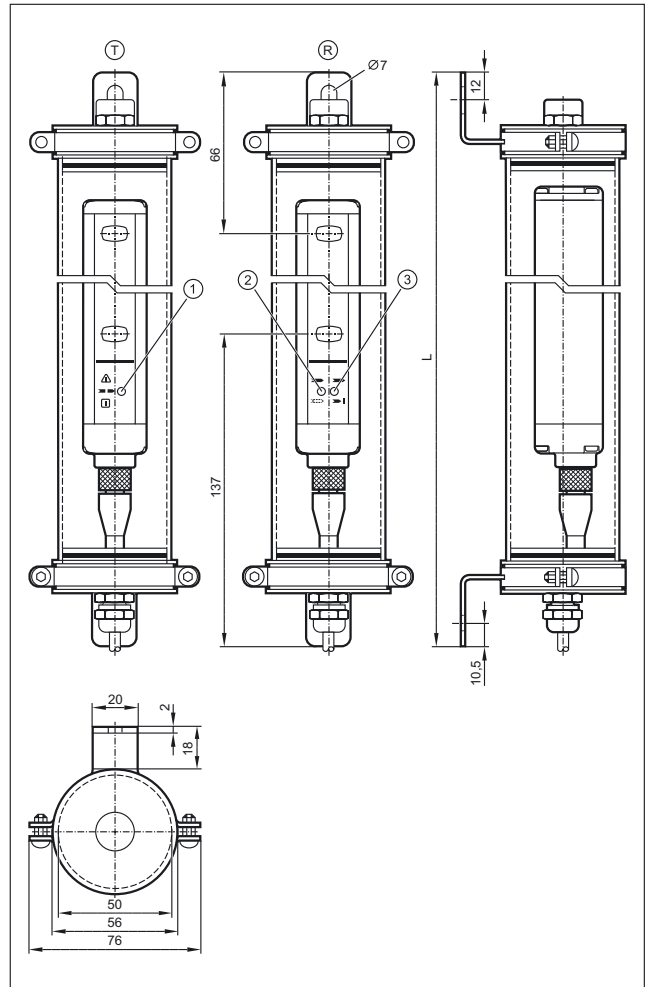
T: Transmitter, R: Receiver, 1: LED 3 colours (red/green/orange),
2: LED 2 colours (yellow/blue), 3: LED 2 colours (red/green)

2



T: Transmitter, R: Receiver, 1: LED 3 colours (red/green/orange),
2: LED (yellow), 3: LED 2 colours (red/green)

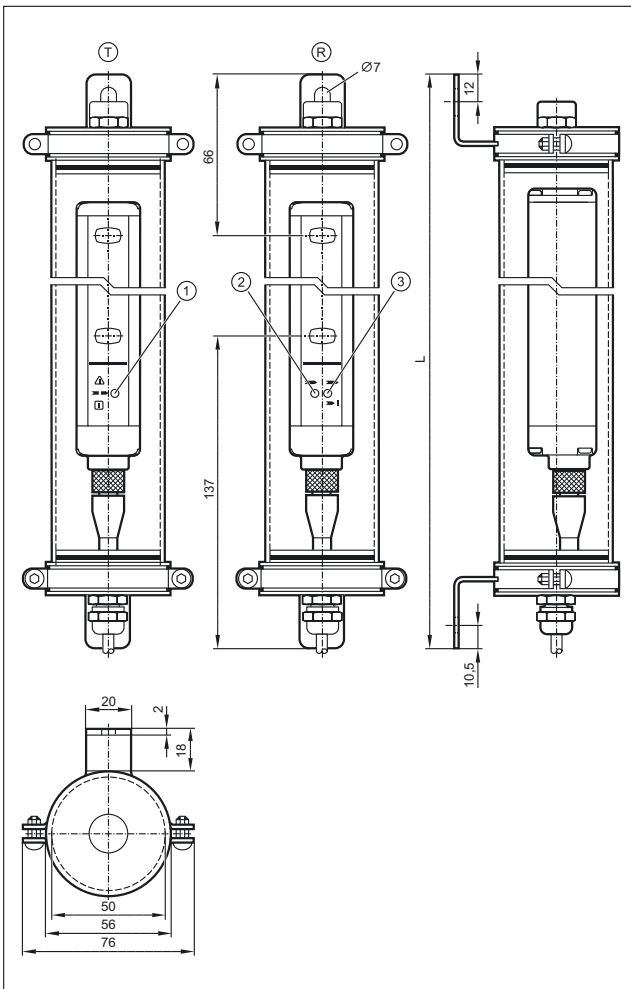
3



T: Transmitter, R: Receiver, 1: LED 3 colours (red/green/orange),
2: LED 2 colours (yellow/blue), 3: LED 2 colours (red/green)

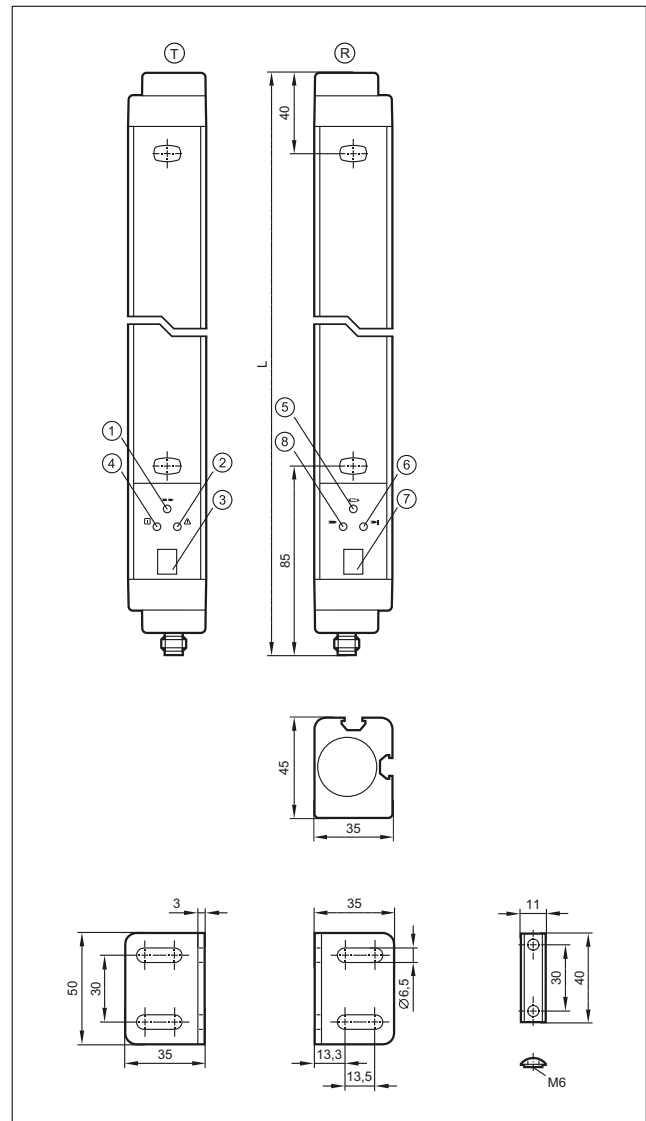
Scale drawings / drawing no. – CAD download: www.ifm.com

4



T: Transmitter, R: Receiver, 1: LED 3 colours (red/green/orange),
2: LED 2 colours (yellow/blue), 3: LED 2 colours (red/green)

5



T: Transmitter, R: Receiver, 1: LED yellow, 2: LED red, 3: 7-segment
LED display, 4: LED green, 5: LED yellow, 6: LED red, 7: 7-segment
LCD display, 8: LED green



Safety light grids

Wherever motion of machine parts presents a danger to people or goods, safety light curtains or safety light grids are used.

The protective equipment ensures that the outputs are switched off which results in a machine halt.

System overview	Page
Safety light grids type 2, SIL 2, PL d, 2, 3, 4 beams, protected area width up to 10 m	406
Safety light grids type 4, SIL 3, PL e, 2, 3, 4 beams, protected area width up to 12 m	407
Safety light grids type 4, SIL 3, PL e, 2, 3, 4 beams, protected area width up to 20 m	407
Safety light grids for hygienic and wet areas type 4, SIL 3, PL e, 2, 3, 4 beams, protected area width up to 15 m	407
Safety light grids type 4, SIL 3, PL e, 2, 3, 4 beams, protected area width up to 60 m	408
Safety light grids with active / passive system type 4, SIL 3, PL e, 2, 3, 4 beams, protected area width up to 6 m	408
Safety light grids for hygienic and wet areas type 2, SIL 2, PL d, 2, 3, 4 beams, protected area width up to 10 m	408
Accessories for safety light grids	409
Bases for safety light grids	410
Bases for safety light grids with corner mirror	410
Accessories necessary for bases	410
Wiring diagrams	410 - 411
Scale drawings / drawing no. – CAD download: www.ifm.com	411 - 413

Safety light grids type 2, SIL 2, PL d, 2, 3, 4 beams, protected area width up to 10 m

Type	Dimensions [mm]	Number of beams	Protected area height [mm]	Protected area width [m]	Response time [ms]	U _b [V]	Draw- ing no.	Order no.
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M12 connector · Wiring diagram no. 1, 2 · Connector groups 16, 17

	L x 28 x 30	2	510	0...4 / 3...12	3	24	1	OY111S
	L x 28 x 30	3	810	0...4 / 3...12	3.5	24	1	OY112S
	L x 28 x 30	4	910	0...4 / 3...12	3.5	24	1	OY113S

Safety light grids type 4, SIL 3, PL e, 2, 3, 4 beams, protected area width up to 12 m

Type	Dimensions [mm]	Number of beams	Protected area height [mm]	Protected area width [m]	Response time [ms]	U _b [V]	Draw- ing no.	Order no.
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M12 connector · Wiring diagram no. 1, 2 · Connector groups 16, 17

	L x 28 x 30	2	510	0...4 / 3...12	2.5	24	1	OY1145
	L x 28 x 30	3	810	0...4 / 3...12	3	24	1	OY1155
	L x 28 x 30	4	910	0...4 / 3...12	3	24	1	OY1165

Safety light grids type 4, SIL 3, PL e, 2, 3, 4 beams, protected area width up to 20 m

Type	Dimensions [mm]	Number of beams	Protected area height [mm]	Protected area width [m]	Response time [ms]	U _b [V]	Draw- ing no.	Order no.
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M12 connector · Wiring diagram no. 1, 2 · Connector groups 16, 17

	L x 28 x 30	2	510	0...10 / 3...20	2.5	24	1	OY1205
	L x 28 x 30	3	810	0...10 / 3...20	2.5	24	1	OY1215
	L x 28 x 30	4	910	0...10 / 3...20	2.5	24	1	OY1225

Safety light grids for hygienic and wet areas type 4, SIL 3, PL e, 2, 3, 4 beams, protected area width up to 15 m

Type	Dimensions [mm]	Number of beams	Protected area height [mm]	Protected area width [m]	Response time [ms]	U _b [V]	Draw- ing no.	Order no.
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Cable 15 m · Wiring diagram no. 3, 4

	L x 76 x 74	2	510	0...7 / 3...15	2.5	24	2	OY4215
	L x 76 x 74	3	810	0...7 / 3...15	2.5	24	2	OY4225
	L x 76 x 74	4	910	0...7 / 3...15	2.5	24	2	OY4235

Safety light grids type 4, SIL 3, PL e, 2, 3, 4 beams, protected area width up to 60 m

Type	Dimensions [mm]	Number of beams	Protected area height [mm]	Protected area width [m]	Response time [ms]	U _b [V]	Drawing no.	Order no.
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M12 connector · Wiring diagram no. 1, 2 · Connector groups 16, 17

	L x 50 x 60	2	510	8...30 / 18...60	7	24	3	OY951S
	L x 50 x 60	3	810	8...30 / 18...60	7	24	3	OY952S
	L x 50 x 60	4	910	8...30 / 18...60	7	24	3	OY953S

Safety light grids with active / passive system type 4, SIL 3, PL e, 2, 3, 4 beams, protected area width up to 6 m

Type	Dimensions [mm]	Number of beams	Protected area height [mm]	Protected area width [m]	Response time [ms]	U _b [V]	Drawing no.	Order no.
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M12 connector · Wiring diagram no. 2 · Connector groups 16, 17

	L x 50 x 60	2	510	0...6 / 0...6	10	24	4	OY901S
	L x 50 x 60	3	810	0...6 / 0...6	10.5	24	4	OY902S
	L x 50 x 60	4	910	0...6 / 0...6	10.5	24	4	OY903S














Safety light grids for hygienic and wet areas type 2, SIL 2, PL d, 2, 3, 4 beams, protected area width up to 10 m

Type	Dimensions [mm]	Number of beams	Protected area height [mm]	Protected area width [m]	Response time [ms]	U _b [V]	Drawing no.	Order no.
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Cable 15 m · Wiring diagram no. 3, 4

	L x 76 x 74	2	510	0...3 / 2...10	3	24	5	OY411S
	L x 76 x 74	3	810	0...3 / 2...10	3.5	24	5	OY412S
	L x 76 x 74	4	910	0...3 / 2...10	3.5	24	5	OY413S


Accessories for safety light grids

Type	Description	Order no.
	Corner mirror · Length: 715 mm · for safety light curtains · Protected area height · 610 mm · for safety light grids · 2 beams · for type OY · Housing materials: aluminium epoxy-powder coated / plastics / Accessories: steel galvanised	EY1004
	Corner mirror · Length: 1060 mm · for safety light curtains · Protected area height · 910 mm · for safety light grids · 3 beams · for type OY · Housing materials: aluminium epoxy-powder coated / plastics / Accessories: steel galvanised	EY1006
	Corner mirror · Length: 1230 mm · for safety light curtains · Protected area height · 1060 mm · for safety light grids · 4 beams · for type OY · Housing materials: aluminium epoxy-powder coated / plastics / Accessories: steel galvanised	EY1007
	Vibration damper · for type OY · Housing materials: rubber / metal galvanised	EY3001
	Vibration damper · for type OY · Housing materials: rubber / metal galvanised	EY3002
	Rotatable brackets · axial $\pm 90^\circ$ · for type OY · Housing materials: Angle bracket: steel black	EY3011
	Adjustable brackets · axial $\pm 7^\circ$ · for type OY · Housing materials: metal galvanised	EY3004
	Adjustable brackets · axial $\pm 7^\circ$ · for type OY · Housing materials: metal galvanised	EY3005
	Adapter cable · straight · For the connection of safety light curtains / safety light grids with OSSD · for receiver · Configured for automatic operation · Free from silicone · Free from halogen · Gold-plated contacts · 0.1 m · Housing materials: TPU orange / PA	EY3090
	Adapter cable · straight · For the connection of safety light curtains / safety light grids with OSSD · for transmitter · Configured for "long range" · Free from silicone · Free from halogen · Gold-plated contacts · 0.1 m · Housing materials: TPU orange / PA	EY3091
	Adapter cable · straight · For the connection of safety light curtains / safety light grids with OSSD · for transmitter · Configured for "short range" · Free from silicone · Free from halogen · Gold-plated contacts · 0.1 m · Housing materials: TPU orange / PA	EY3092
	Laser adjustment aid · for type OY9xxS · for safety light grids · Housing materials: plastics	EY3098
	Laser adjustment aid · for safety light curtains · for type OY · Housing materials: plastics	EY3099

Bases for safety light grids

Type	Description	Order no.
	Base · Length: 1010 mm · for safety light grids · 2 beams · for safety light curtains · ≤ 760 mm · for type OY · Housing materials: aluminium epoxy-powder coated / plastics	EY2001
	Base · Length: 1340 mm · for safety light grids · 3 beams · 4 beams · for safety light curtains · ≤ 1060 mm · for type OY · Housing materials: aluminium epoxy-powder coated / plastics	EY2002

Bases for safety light grids with corner mirror

Type	Description	Order no.
	Corner mirror with base · Length: 1010 mm · for safety light grids · 2 beams · for safety light curtains · ≤ 760 mm · for type OY · Housing materials: aluminium epoxy-powder coated / plastics	EY1011
	Corner mirror with base · Length: 1340 mm · for safety light grids · 3 beams · 4 beams · for safety light curtains · ≤ 1060 mm · for type OY · Housing materials: aluminium epoxy-powder coated / plastics	EY1013

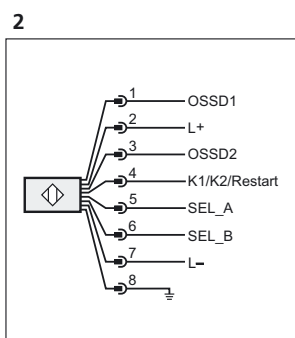
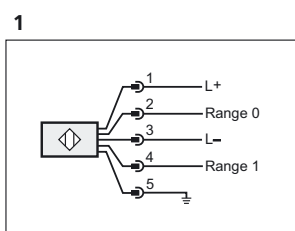
Accessories necessary for bases

Type	Description	Order no.
	Mounting base · for type OY	EY2005

Wiring diagrams

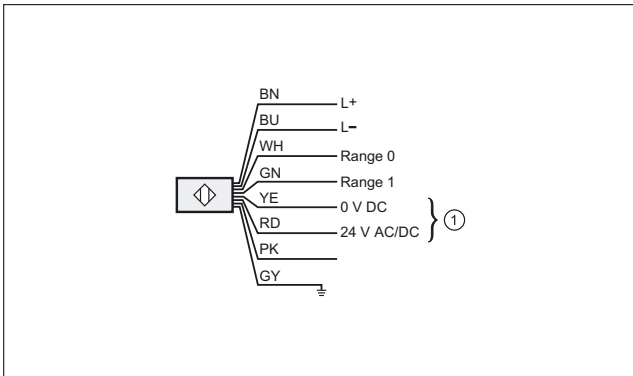
Core colours

BK	black
BN	brown
BU	blue
GN	green
GY	grey
PK	pink
RD	red
VT	lilac
WH	white
YE	yellow



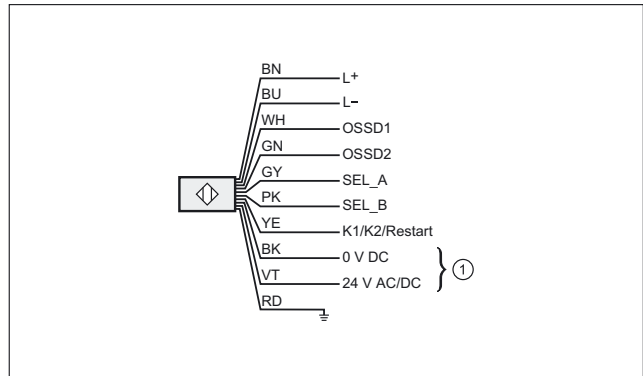
Wiring diagrams

3



1: Heating, pink: not used

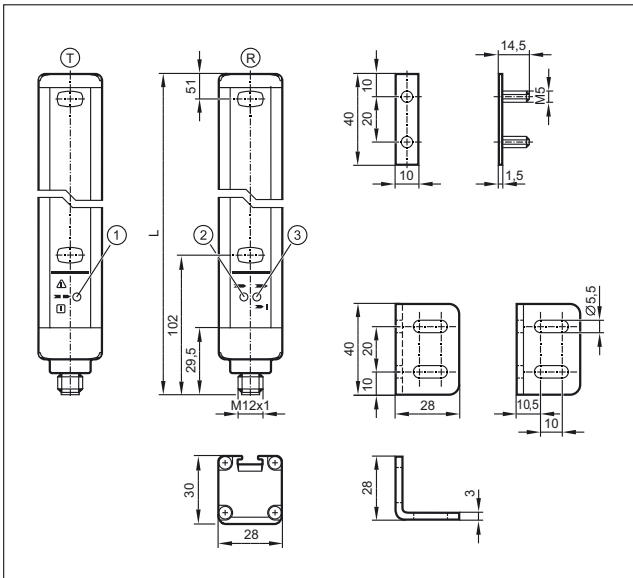
4



1: Heating

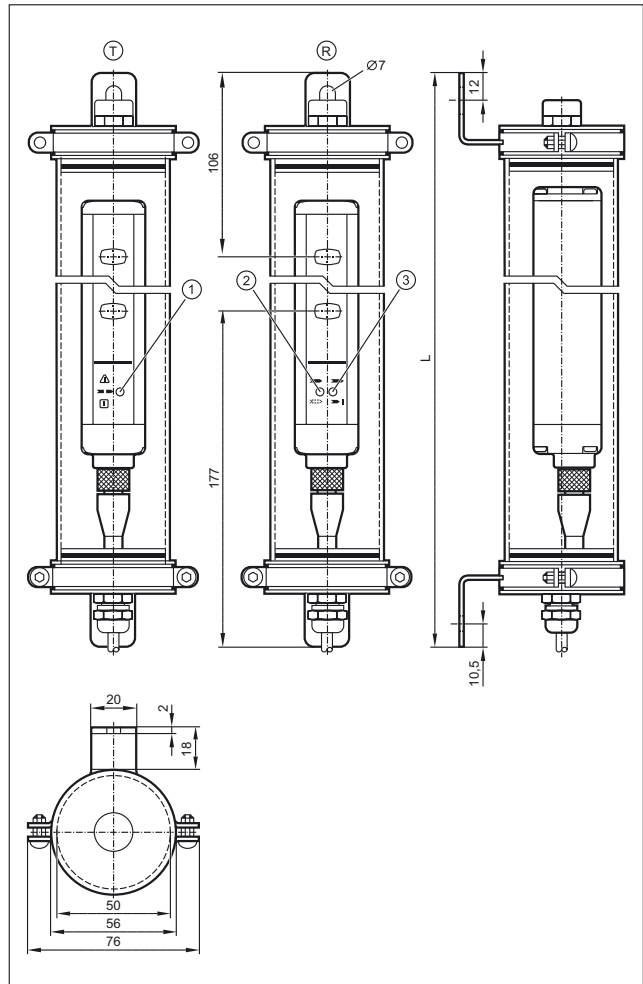
Scale drawings / drawing no. – CAD download: www.ifm.com

1



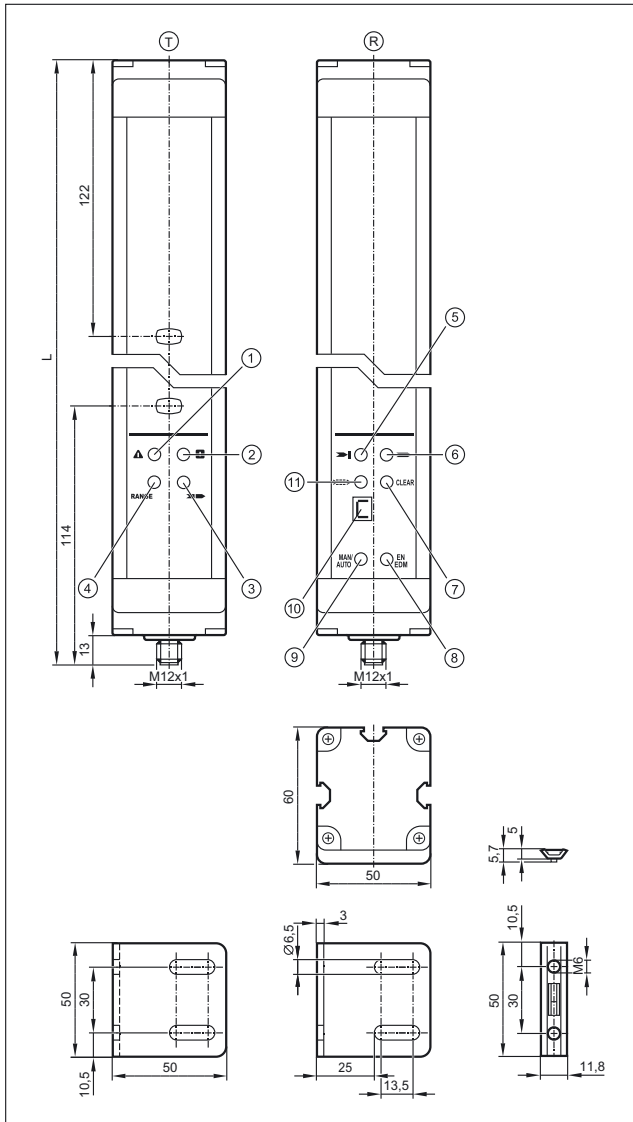
T: Transmitter, R: Receiver, 1: LED 3 colours (red/green/orange), 2: LED yellow, 3: LED 2 colours (red/green)

2



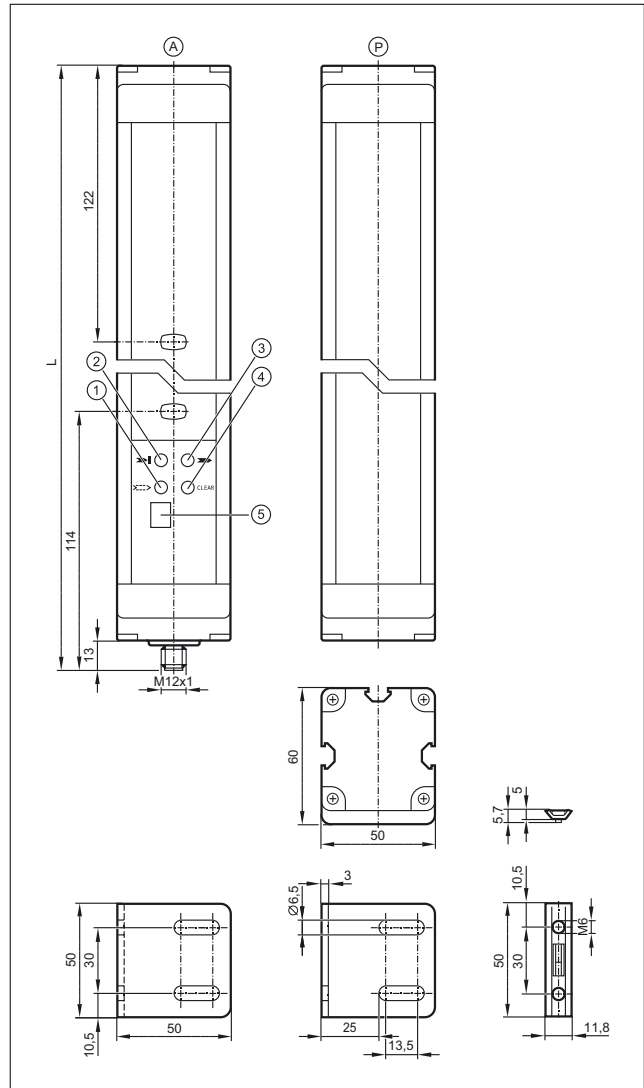
T: Transmitter, R: Receiver, 1: LED 3 colours (red/green/orange), 2: LED 2 colours (yellow/blue), 3: LED 2 colours (red/green)

3



T: Transmitter, R: Receiver, 1: LED (red), 2: LED (green), 3: LED (yellow), 4: LED (orange), 5: LED (red), 6: LED (green), 7: LED (yellow), 8: LED (yellow), 9: LED (yellow), 10: display, 11: LED (orange)

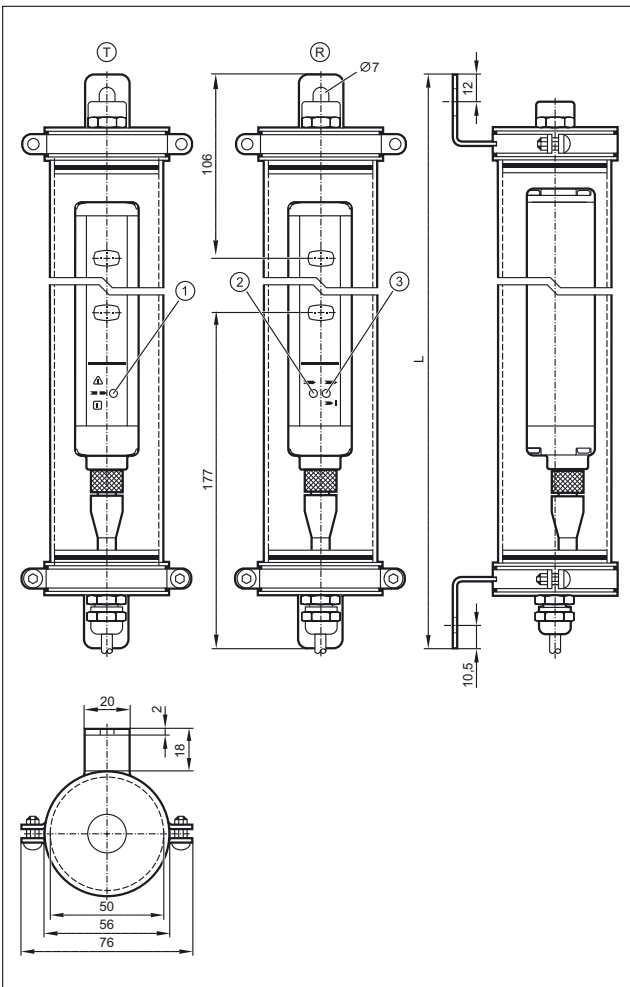
4



A: active element, P: passive element, 1: LED (orange), 2: LED (red), 3: LED (green), 4: LED (yellow), 5: display

Scale drawings / drawing no. – CAD download: www.ifm.com

5



T: Transmitter, R: Receiver, 1: LED 3 colours (red/green/orange),
 2: LED 2 colours (yellow/blue), 3: LED 2 colours (red/green)





Safety relays


Multifunctional with the advantage on your side: The safety relays provide various connection options for safety light curtains, fail-safe inductive sensors or other non-contact guards. They meet the highest requirement with SIL 3 (IEC 61508). "Monitored" or "automatic start" as well as external muting are only some of numerous functions.

System overview	Page
Safety relays with relay outputs for fail-safe sensors	414
Safety relays with solid state outputs for fail-safe sensors	414
Safety relays for safety light curtains	415
Safety standstill monitors, SIL 3, PL e	415
Accessories	415
Scale drawings / drawing no. – CAD download: www.ifm.com	415 - 416


Safety relays with relay outputs for fail-safe sensors

Type	U _b [V]	Electrical design	ISO 13849-1: Category / performance level	IEC 61508: SIL	Draw- ing no.	Order no.
	24	Relay	4 / e	3	1	G1501S
	24	Relay	4 / e	3	2	G1502S


Safety relays with solid state outputs for fail-safe sensors

Type	U _b [V]	Electrical design	ISO 13849-1: Category / performance level	IEC 61508: SIL	Draw- ing no.	Order no.
	24	Semi-conductor outputs	4 / e	3	3	G1503S

Safety relays for safety light curtains

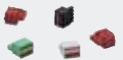
Type	U _b [V]	Electrical design	ISO 13849-1: Category / performance level	IEC 61508: SIL	Draw- ing no.	Order no.
	24	Relay	4 / e	3	4	G20015

Safety standstill monitors, SIL 3, PL e

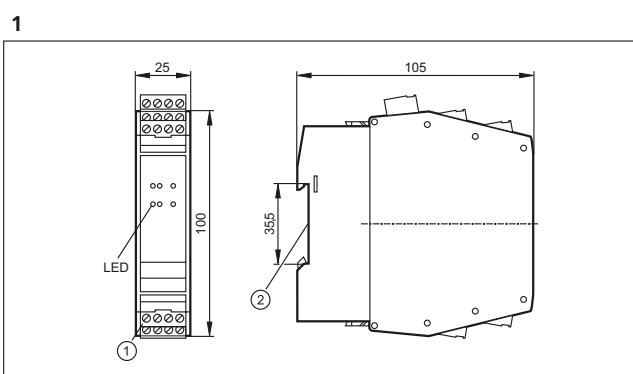
Type	U _b [V]	In- puts	Input function	Setting range [puls. / min.]	Setting range [Hz]	Out- puts analogue	Out- puts relays	Out- puts transist.	Draw- ing no.	Order no.
	24 DC	1	PNP	–	0.2 / 0.5 / 1.0 / 2.0	–	2	1	1	DA1015

Monitoring rotational or linear movements for minimum switch point not reached (standstill)

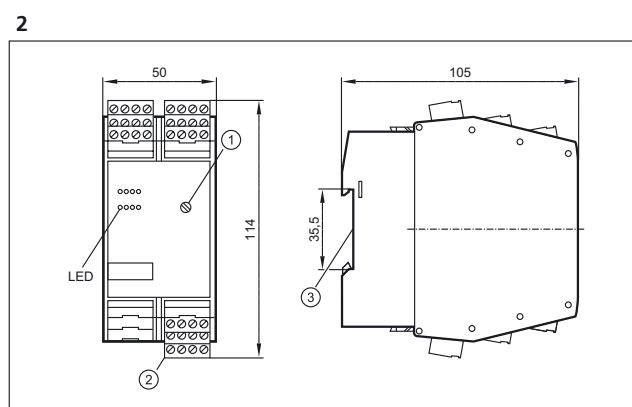
Accessories

Type	Description	Order no.
	Combin connector · with cage clamps 4 poles · Housing materials: PA / current carrying parts: copper alloy tin-plated	E11930

Scale drawings / drawing no. – CAD download: www.ifm.com



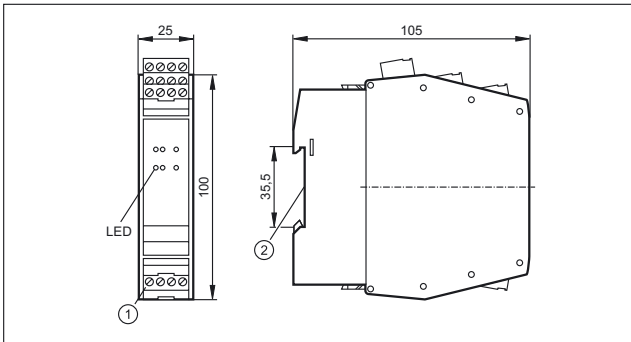
1: Combin connector with screw terminals, 2: Mounting on DIN rail



1: Rotary switch for switch-off delay, 2: Combin connector with screw terminals, 3: Mounting on DIN rail

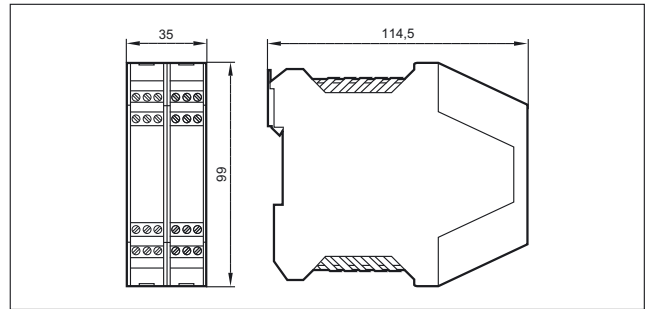
Scale drawings / drawing no. – CAD download: www.ifm.com

3



1: Combicon connector with screw terminals, 2: Mounting on DIN rail

4










Safety controllers


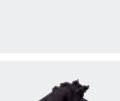

Controllers for safety-related applications up to safety category 3 (EN 954-1) are called "safety controllers". Special test routines for hardware and software monitoring are implemented in the devices. Due to the certification of the hardware, operating system software and programming tools it is easy for the project engineer to get the approval for the machine.



System overview	Page
16-bit SafetyController	418
Accessories and software	418 - 419
Scale drawings / drawing no. – CAD download: www.ifm.com	419

16-bit SafetyController

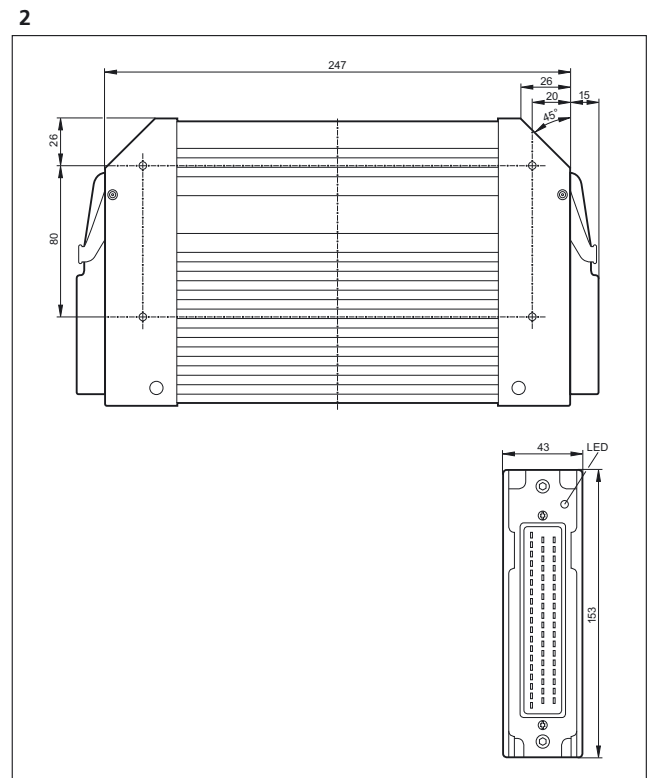
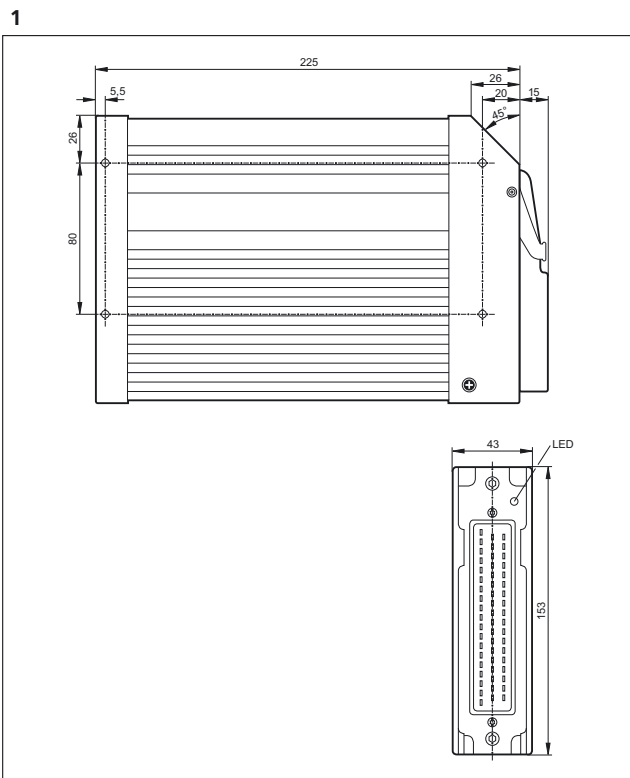
Type	Inputs / outputs	Description	Drawing no.	Order no.
	24	SafetyController · 16 Bit · Programmable mobile controller type R 360 · for safety applications · SILcl 2 (IEC 62061) · PL d (EN ISO 13849-1) · 2 nd CAN interface for gateway function according to SAE J 1939 · Configurable input / output functions · Programming according to IEC 61131-3 · 24 inputs/outputs · 10...32 V DC	1	CR7506
	40	SafetyController · 16 Bit · Programmable mobile controller type R 360 · for safety applications · SILcl 2 (IEC 62061) · PL d (EN ISO 13849-1) · 2 nd CAN interface for gateway function according to SAE J 1939 · Configurable input / output functions · Programming according to IEC 61131-3 · 40 inputs/outputs · 10...32 V DC	1	CR7021
	80	SafetyController · 16 Bit · Programmable mobile controller type R 360 · for safety applications · SILcl 2 (IEC 62061) · PL d (EN ISO 13849-1) · 2 nd CAN interface for gateway function according to SAE J 1939 · Configurable input / output functions · Programming according to IEC 61131-3 · 80 inputs/outputs · 10...32 V DC	2	CR7201

Accessories and software

Type	Description	Order no.
	Programming software CoDeSys · for configuration, programming and diagnosis of ifm controller systems · German version · incl. the DVD "Software, tools and documentation"	CP9006
	Programming software CoDeSys · for configuration, programming and diagnosis of ifm controller systems · English version · incl. the DVD "Software, tools and documentation"	CP9008
	Connector AMP 55-pole · wirable · with contacts (Junior Power Timer)	EC2013

Type	Description	Order no.
	Cable with connector · AMP 55-pole · wired · Cable length 1.2 m · Cores sealed individually · Core cross-section 1 mm ²	EC2084
	Cable with connector · AMP 55-pole · wired · Cable length 2.5 m · Cores sealed individually · Core cross-section 1 mm ²	EC2097
	Cable with connector · AMP 55-pole · wired · Cable length 1.2 m · Core cross-section 1 mm ²	EC2086
	Cable with connector · AMP 55-pole · wired · Cable length 2.5 m · Core cross-section 1 mm ²	EC2046

Scale drawings / drawing no. – CAD download: www.ifm.com









AS-Interface Safety at Work

The sophisticated AS-i technology and the extended diagnostic possibilities provide high reliability and machine uptime. "Safety at Work" is the extension of the AS-interface by safety-related components. Safety components up to the highest control category 4 to EN 954-1, SIL 3 to IEC 61508 and EN ISO 13849 - 1 / PL e can be connected to AS-i.


System overview	Page
Safety at Work	420 - 422
Accessories Safety at Work	422
AS-i manuals	423
Scale drawings / drawing no. – CAD download: www.ifm.com	423 - 425

Safety at Work

Type	Description	Draw- ing no.	Order no.
	AS-i safety monitor · Basic version · 1-channel · Configuration and setup by configuration software ASIMON · Screw terminal · polyamide black · Complies with the requirements: ISO 13849-1: PL e · IEC 61508: SIL 3	1	AC001S
	AS-i safety monitor · Basic version · 2-channel · Configuration and setup by configuration software ASIMON · Screw terminal · polyamide black · Complies with the requirements: ISO 13849-1: PL e · IEC 61508: SIL 3	1	AC002S
	AS-i safety monitor · Extended functionality · 1-channel · Configuration and setup by configuration software ASIMON · Screw terminal · polyamide black · Complies with the requirements: ISO 13849-1: PL e · IEC 61508: SIL 3	1	AC003S
	AS-i safety monitor · Extended functionality · 2-channel · Configuration and setup by configuration software ASIMON · Screw terminal · polyamide black · Complies with the requirements: ISO 13849-1: PL e · IEC 61508: SIL 3	1	AC004S
	AS-i safety monitor · Extended functionality and integrated safe slave for triggering a safe AS-i output · 2-channel · Configuration and setup by configuration software ASIMON V3.0 · Screw terminal · polyamide black · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3	2	AC032S
	AS-i safety monitor · 2 safe semi-conductor outputs · SIL 3 to EN 62061, IEC 61508 / SIL 3 and EN ISO 13849 - 1 / PL e · Chip card to save the configuration data · Configuration and setup by configuration software ASIMON V3 G2 · USB 2.0 interface · Chip card and Combicon screw terminals supplied with the device · Screw terminal	3	AC041S
	Safe active AS-i module · Performance Level e to EN ISO 13849-1 et IEC 61508 / SIL 3 for the connection of mechanical contacts · Combicon connection · PA · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3	4	AC009S
	Safe active AS-i output module · SIL 3 to EN 62061, IEC 61508 / SIL 3 and EN ISO 13849 - 1 / PL e · for the safe triggering of actuators · Combicon connection · PA · Complies with the requirements: ISO 13849-1: PL e · IEC 61508: SIL 3	5	AC030S
	Safe active AS-i module · Connection via M12x1 sockets or cage clamps · For connection of an electro-sensitive protective equipment (ESPE) type 4 to EN 61496-1 · PA 6 · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3	6	AC007S

Product selectors and further information can be found at: www.ifm.com


Type	Description	Draw- ing no.	Order no.
	AS-i Safety at Work · Safe AS-i input module 2SI - 2LO · Addressing socket · Three orientations of the flat cable are possible · Sockets M12 x 1 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 62061: SILcl 3	7	AC505S
	AS-i Safety at Work · Safe AS-i input module 4SI / 2DO T / 2LO · Addressing socket · Three orientations of the flat cable are possible · Sockets M12 x 1 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated · Complies with the requirements: ISO 13849-1: PL d · IEC 62061: SILcl 2	7	AC506S
	Safe active AS-i ClassicLine module · IR addressing possible · Performance Level e to EN ISO 13849-1 for the connection of mechanical contacts · Sockets M12 x 1 · PBT · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3	8	AC006S
	Illuminated E-STOP · front mounting · reset by turning · 2 NC contacts / 1 red LED · fool-proof E-STOP to EN ISO 13850	–	E7007S
	Illuminated E-STOP with integrated AS-i connection · fool-proof E-STOP to EN ISO 13850 · Pull to reset · AS-i interface via AS-i flat cable IP 67 · PC GF20 · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3	9	AC010S
	Key-release E-STOP with integrated AS-i connection · Connector M12 x 1 · AS-i interface via AS-i flat cable IP 67 · fool-proof E-STOP to EN ISO 13850 · Reset by key operation · PC GF20 · Complies with the requirements: ISO 13849-1: PL e · IEC 61508: SIL 3	10	AC011S
	safe AS-i e-stop operating unit with integrated AS-i connection · AS-i interface via M12 x 1 connector · fool-proof E-STOP to EN ISO 13850 · Pull to reset · interchangeable button inserts	11	AC012S
	Safe active AS-i ClassicLine module · AS-i version 2.1 · IR addressing possible · Control category 4 according to EN954-1 · For the connection of fail-safe inductive sensors of the control category 4 · Sockets M12 x 1 · PBT · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3	–	AC016S
	AS-i safety PCB · Connection of mechanical contact and LED components · Certification to ISO 13849-1: PL e and IEC 61508 / SIL 3 · Complies with the requirements: · IEC 61508: SIL 3	12	AC015S
	Fail-safe inductive sensor · M12 connector, Gold-plated contacts · PPE / diecast zinc · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3	13	GM504S
	Fail-safe inductive sensor · M12 connector, Gold-plated contacts · PPE / diecast zinc · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3	13	GM505S
	Fail-safe inductive sensor · M18 x 1 · M12 connector, Gold-plated contacts · high-grade stainless steel / PBT · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3	14	GG505S
	Fail-safe inductive sensor · M30 x 1.5 · M12 connector, Gold-plated contacts · PEEK / high-grade stainless steel / O-ring: EPDM · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3	15	GI505S
	Safety switch with guard locking · Normally closed principle · Rotatable actuating head made of metal · Mechanical release on the front · Supply via AS-i / solenoid supply ext. from 24 V DC · M12 connector · thermoplastic reinforced glass-fibre	16	AC901S
	Safety switch with guard locking · Normally open principle · Rotatable actuating head made of metal · Mechanical release on the front · Supply via AS-i / solenoid supply ext. from 24 V DC · M12 connector · thermoplastic reinforced glass-fibre	16	AC902S
	Safety switch with guard locking · Normally closed principle · Rotatable actuating head made of metal · Mechanical release on the front · Supply via AS-i / solenoid supply from AS-i · M12 connector · thermoplastic reinforced glass-fibre	17	AC903S

Type	Description	Draw- ing no.	Order no.
	Safety switch with guard locking · Normally open principle · Rotatable actuating head made of metal · Mechanical release on the front · Supply via AS-i / solenoid supply from AS-i · M12 connector · thermoplastic reinforced glass-fibre	17	AC904S

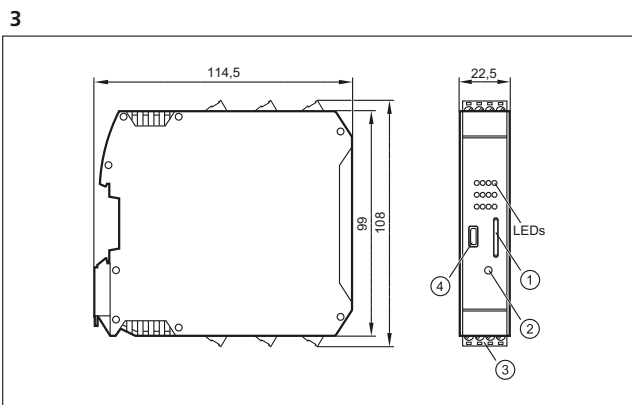
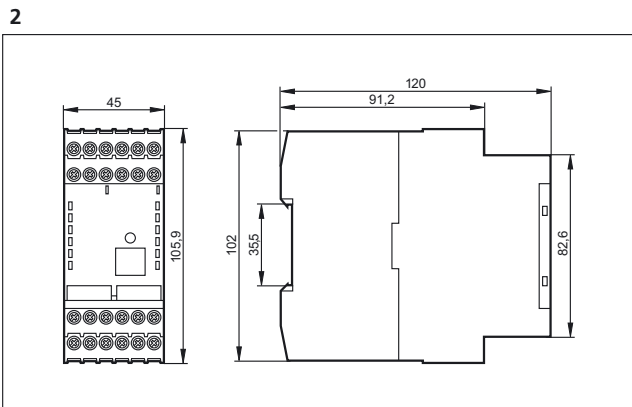
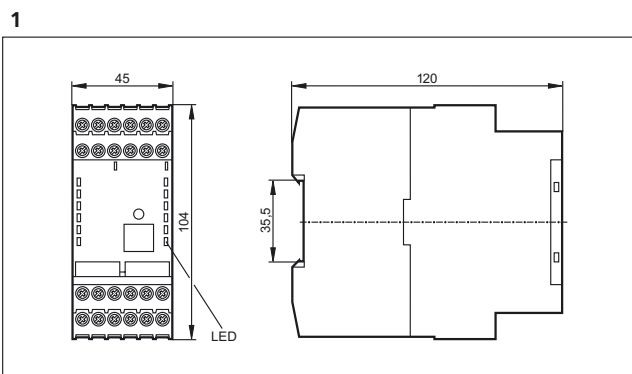
Accessories Safety at Work

Type	Description	Order no.
	AS-i Safety at Work · Programming software for AS-i safety monitor AC001S / AC002S / AC003S / AC004S / AC032S · Version 3.0 · Configuration, set-up and diagnostics of the AS-i safety monitor	E7040S
	Software ASIMON V3 G2 · Configuration, set-up and diagnostics of the AS-i safety monitor · AC041S	E7050S
	USB interface cable for the connection of the safety monitor AC041S to the PC · cable length 1.8 m · 1.8 m	E7051S
	Chip card to save the configuration data of the AS-i safety monitor AC041S · 256 K	E7052S
	Safe contact expander without delay · 2 independent channels · 4 contact blocks (NO) per channel · 1 feedback circuit (NC) per channel · Mounting on DIN rail · Screw terminal	E7053S
	Connection cable PC / AS-i safety monitor · Parameter setting cable PC / AS-i safety monitor · Western connector RJ 45 8 poles / D-Sub socket 9 poles · 2.5 m	E7001S
	Connection cable AS-i safety monitor / AS-i safety monitor · Download cable AS-i safety monitor / AS-i safety monitor · Western connector RJ 45 8 poles · 0.3 m	E7002S
	EMERGENCY STOP label IP66 4 languages D,GB,F,I · EMERGENCY STOP label 4 languages for a safe illuminated EMERGENCY STOP button with integrated AS-i interface AC010S / AC011S / AC012S · 50 x 50 mm	E7003S
	EMERGENCY STOP protective collar · EMERGENCY STOP protective collar for safe E-STOP AC010S / AC011S / AC012S · Housing materials: PC GF20 RAL 1004	E7004S
	bridging plug for safety modules · Housing materials: PUR	E7005S
	Adapter plug · straight · M20 - M12 · M12 connector · 0.07 m · Housing materials: polyamide	E7006S

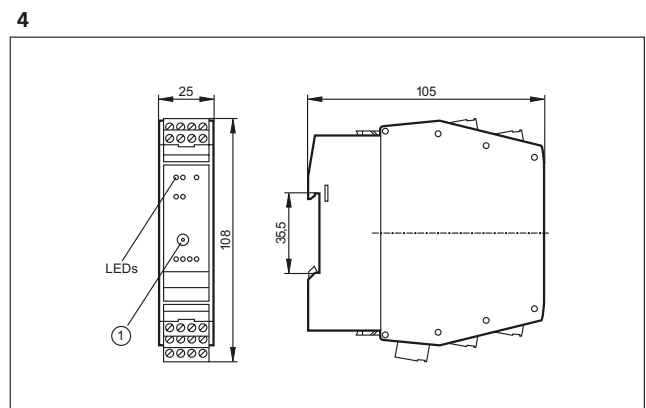
AS-i manuals

Type	Description	Order no.
	ecolog asi system · AS-Interface Manual (German)	AC0115
	ecolog asi system · AS-Interface Manual (English)	AC0116

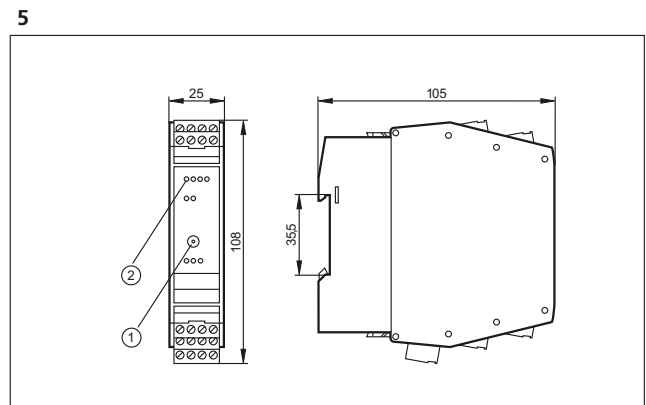
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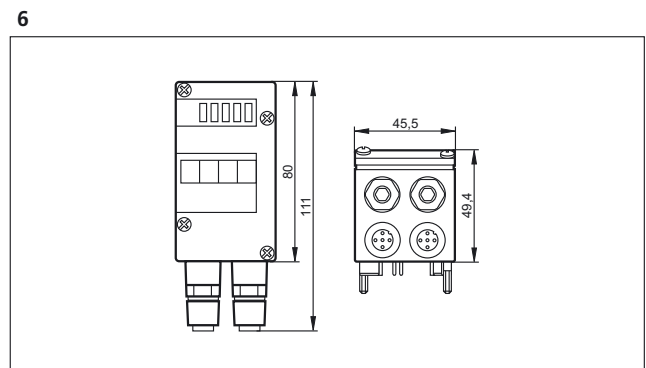
1: Chip card, 2: service button, 3: Combincon connector with screw terminals, 4: Micro USB interface



1: Addressing socket

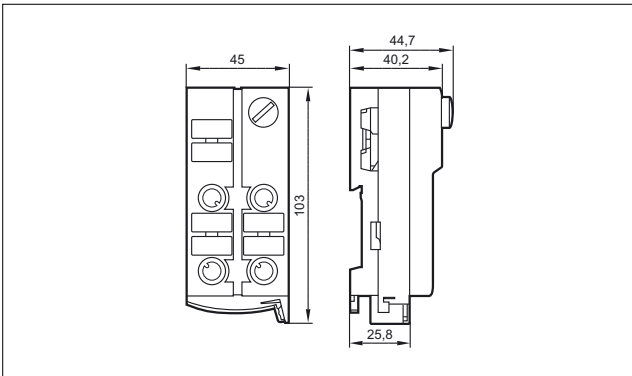


1: Addressing socket, 2: LED

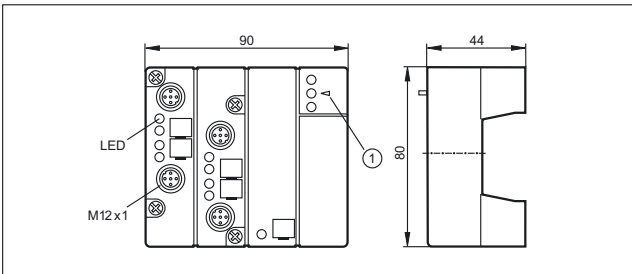


Scale drawings / drawing no. – CAD download: www.ifm.com

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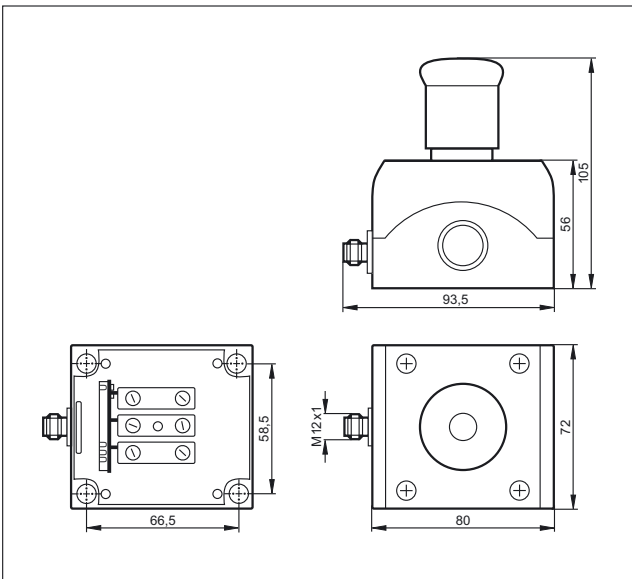


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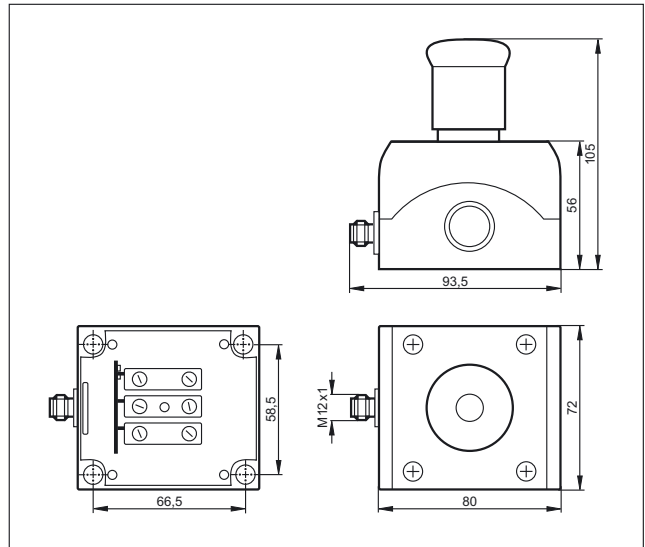


1: fixture infrared adapter

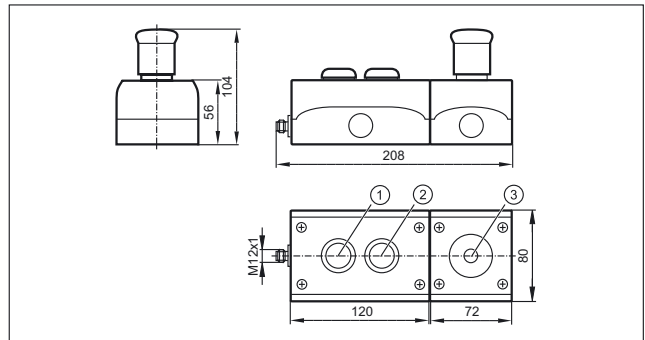
9



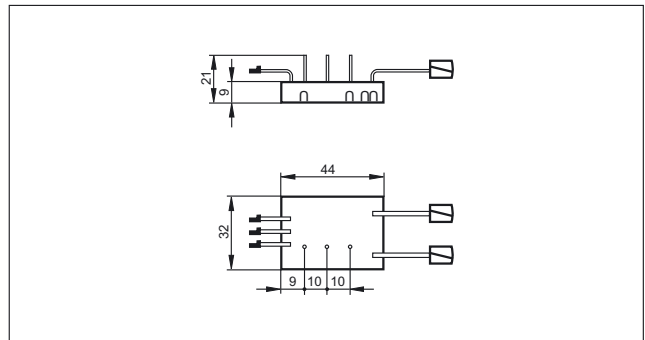
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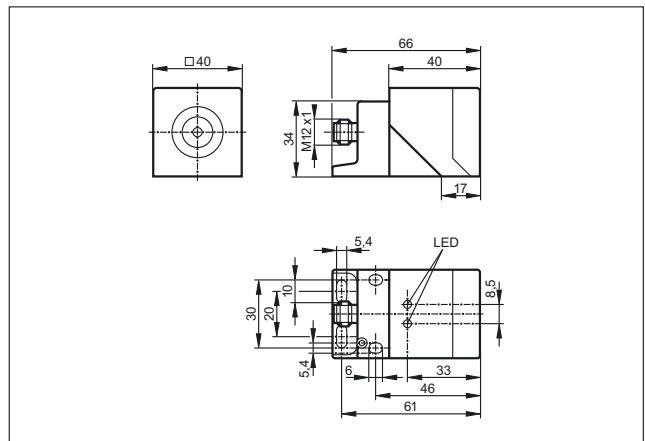
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12

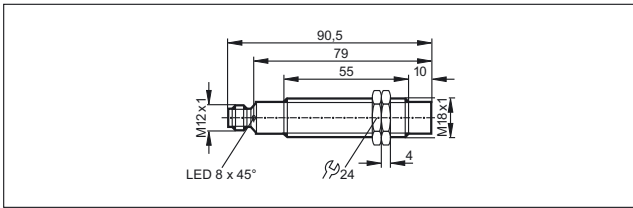


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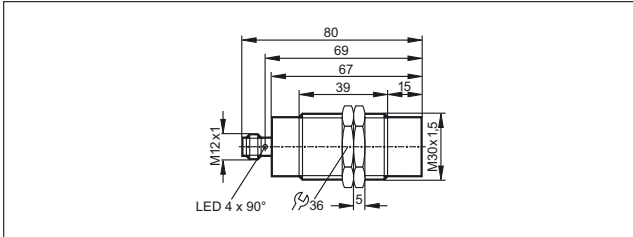


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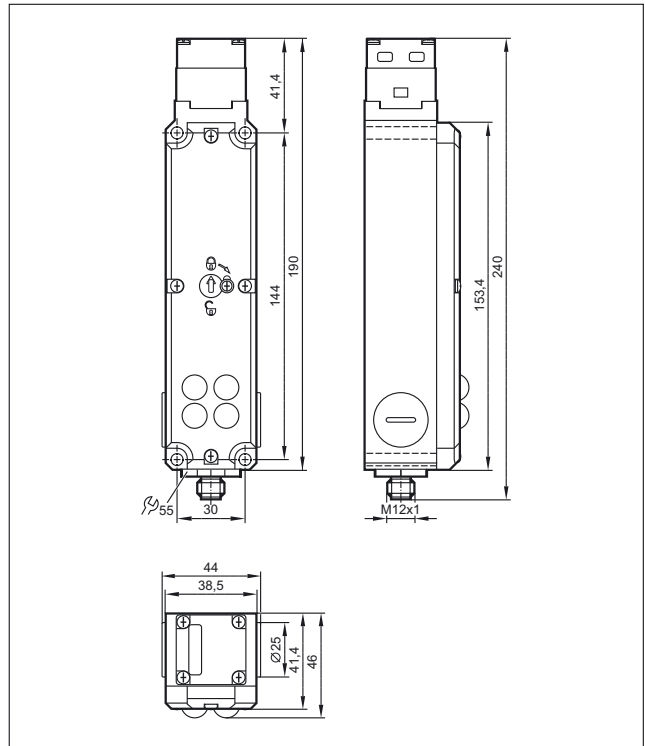
14



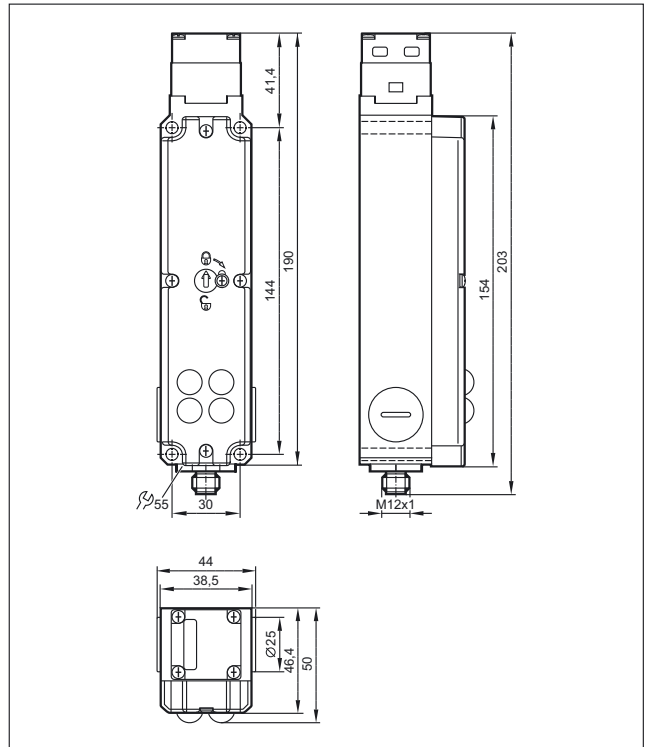
15



16



17



Measuring and monitoring fluids



Pressure, flow, temperature, level and valve sensors for automation in the process industries.



Multiple features

ifm process sensors can be used for control and measurement of the most important parameters of fluids – no matter whether it is pressure, level, flow, temperature or valve position. The range of applications spans from simple monitoring tasks and presence detection of media to accurate and highly repeatable measurements.

The applied microprocessor technology allows for a selection of key parameter settings. A four-digit alphanumeric display and sealed pushbuttons allows local indication and adjustment of the parameters. This can be done with or without the media present, even before arrival on site. Output options include simple switched outputs, pulsed outputs for metering systems, and current or voltage analogue outputs. Most units also have the additional ability to transfer analogue values across IO-Link digitally, without any conversion losses.







As the sensors are mostly in direct contact with the medium, the design of the units and the selection of the materials were driven by the high requirements in the applications. These include in particular resistance to pressure, vibration, shock, media and temperature as well as electromagnetic compatibility and a high ingress protection rating.

Multiple applications

The broad range of ifm fluid sensors can be used across many different applications. The main areas of application are machine building and mobile equipment, hygienic applications (e.g. in the food and beverage industries) and industrial or chemical process plant.

An extensive range of process adapters and mounting accessories guarantees easy mechanical integration of the sensors into the application. Moreover, the units comply with required approvals such as EHEDG, 3A, FDA, KTW, ATEX and e1 for safe use in the application.

Regular examinations in production and high test requirements at the development stage ensure a consistently high quality.

	<i>Pressure sensors</i>	428 - 463
	<i>Flow sensors / flow meters</i>	464 - 491
	<i>Level sensors</i>	492 - 511
	<i>Temperature sensors</i>	512 - 541
	<i>Signal evaluation systems</i>	542 - 547
	<i>Feedback systems for valves and valve actuators</i>	548 - 561



- Sensors and transmitters with integrated control monitor
- Units with special design for hygienic applications
- Measuring principles with overload protection and a good long-term stability
- Measuring range from -1...600 bar
- Variable process connection and sealing technology via adapter

Pressure sensors

ifm offers a wide range of electronic pressure and vacuum sensors to meet the requirements of various industrial applications. The ceramic-capacitive measuring cell, tried and tested millions of times, is complemented by a stainless steel measuring cell with thin-film or thick-film wire strain gauges (series PK, PV, PT) and a piezoresistive measuring technique (for pneumatic applications).

All units have robust housings and do not require moving parts such as pistons or springs. The result: the sensors are extremely shock and vibration resistant and operate without any wear or maintenance.

The tried and tested ceramic-capacitive measuring principle is corrosion-resistant and long-term stable. In the long run this guarantees continuous accuracy of the measured values. The sensors are resistant to dynamic pressure peaks and guarantee high overload resistance even in the case of extreme pressure peaks that occur for example with fast closing valves.

Units with wire strain gauge in thin-film or thick-film technology on a stainless steel measuring cell are distinguished by their very compact and robust design. They can be used in almost all industrial areas. The welded stainless steel measuring cell without any seals ensures a high degree of safety, in particular for applications with gas pressures of up to 600 bar as well as in air-conditioning and refrigerating technology where aggressive coolants (freons) are used.



Local display: the clearly readable LED display shows the current system pressure.

Pressure measurement in pneumatic systems.




System overview	Page
Sensors with switching outputs and analogue outputs and display	430 - 431
Sensors with switching outputs and display with IO-Link	432 - 433
Electronic contact manometers with switching output and analogue output	433
PK sensors with mechanical setting and switching outputs	434 - 435
PP sensors for mobile and industrial applications with switching outputs, IO-Link	435 - 436
Sensors for pneumatic applications	436 - 437
PT sensors for industrial applications with analogue outputs	437 - 438
PT / PU sensors for mobile applications with analogue outputs	438 - 440
PA sensors with analogue outputs	440 - 442
Part seat monitoring	442
Sensors for hydrostatic level monitoring	442
Sensors for hydrostatic level monitoring ATEX category 1G/1D	442 - 443
PNI sensors with analogue input	443
Sensors with ATEX approval 3D	443 - 444
Sensors with ATEX approval 3D/3G	444
Full metal sensors for hygienic and wet areas with switching and analogue outputs, IO-Link	444 - 445
Full-metal high-temperature sensors up to 200 °C for hygienic and wet areas with switching output and analogue output, IO-Link	445 - 446
Electronic contact manometers for hygienic and wet areas with switching and analogue outputs	446 - 447
PF sensors for hygienic and wet areas with switching and analogue outputs	447 - 448
PL / PM sensors without display for hygienic and wet areas with analogue output	448
PE sensors with display with 2 switching outputs or switching and analogue output	449
Fixing components for pressure sensors	450
Accessories and software	450 - 451
Certificates	451
Adapters and accessories for adapters	452 - 453
Flange adapters	453 - 456
Wiring diagrams	456 - 457
Scale drawings / drawing no. – CAD download: www.ifm.com	457 - 463



Sensors with switching outputs and analogue outputs and display

Type	Process connection	Display LED	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
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M12 connector · Output function 1 x normally open / closed programmable + 1 x analogue (I / U, scaleable 1:4) · Wiring diagram no. 19 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147



	G ¼ I	Display unit	-0.25...0.25	10	30	18...32	1	PY2068
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M12 connector · Output function 2 x normally open / closed programmable or 1 x normally open / closed programmable + 1 x analogue (4...20 mA / 0...10 V; scaleable 1:4) · Wiring diagram no. 20 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147

	G ¼ I	Display unit	0...400	600	1000	18...32	2	PN2020
	G ¼ I	Display unit	0...250	400	850	18...32	2	PN2021
	G ¼ I	Display unit	0...100	300	650	18...32	2	PN2022
	G ¼ I	Display unit	-1...25	100	350	18...32	2	PN2023
	G ¼ I	Display unit	-1...10	75	150	18...32	2	PN2024
	G ¼ I	Display unit	-0.1253...2.5	20	50	18...32	2	PN2026
	G ¼ I	Display unit	-0.05...1	10	30	18...32	2	PN2027
	G ¼ I	Display unit	-0.0125...0.25	10	30	18...32	2	PN2028
	G ¼ I	Display unit	-1...1	20	50	18...32	2	PN2009

M12 connector · Output function normally open / closed programmable; 4...20 mA or 0...10 V · Wiring diagram no. 1 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147



	G ¼ I	Display unit	0...600	800	2500	18...30	3	PN3160
	G ¼ I	Display unit	0...400	800	1700	18...30	3	PN3070
	G ¼ I	Display unit	0...250	500	1100	18...30	3	PN3071
	G ¼ I	Display unit	0...100	300	650	18...30	3	PN3092

Type	Process connection	Display LED	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
M12 connector · Output function normally open / closed programmable; 4...20 mA or 0...10 V · Wiring diagram no. 1 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147								
	G ¼ I	Display unit	0...25	150	350	18...30	3	PN3093
	G ¼ I	Display unit	-1...10	75	150	18...30	3	PN3094
	G ¼ I	Display unit	0...2.5	20	50	18...30	3	PN3096
	G ¼ I	Display unit	0...1	10	30	18...30	3	PN3097
	G ¼ I	Display unit	-1...0	20	50	18...30	3	PN3129
	G¼ male / M5 female	Display unit	0...600	800	2500	18...30	4	PN3560
	G¼ male / M5 female	Display unit	0...400	800	1700	18...30	4	PN3570
	G¼ male / M5 female	Display unit	0...250	500	1100	18...30	4	PN3571
	G¼ male / M5 female	Display unit	0...100	300	650	18...30	4	PN3592
	G¼ male / M5 female	Display unit	0...25	150	350	18...30	4	PN3593
	G¼ male / M5 female	Display unit	0...10	75	150	18...30	4	PN3594
	G¼ male / M5 female	Display unit	0...2.5	20	50	18...30	4	PN3596
	G¼ male / M5 female	Display unit	0...1	10	30	18...30	4	PN3597
G¼ male / M5 female	Display unit	-1...0	20	50	18...30	4	PN3529	

Sensors with switching outputs and display with IO-Link


Type	Process connection	Display LED	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
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M12 connector · Output function 2 x normally open / closed programmable · DC PNP/NPN · Wiring diagram no. 1 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147

	G ¼ I	Display unit	0...600	800	2500	18...30	3	PN7160
	G ¼ I	Display unit	0...400	800	1700	18...30	3	PN7070
	G ¼ I	Display unit	0...250	500	1100	18...30	3	PN7071
	G ¼ I	Display unit	0...100	300	650	18...30	3	PN7092
	G ¼ I	Display unit	0...25	150	350	18...30	3	PN7093
	G ¼ I	Display unit	-1...10	75	150	18...30	3	PN7094
	G ¼ I	Display unit	0...2.5	20	50	18...30	3	PN7096
	G ¼ I	Display unit	0...2.5	10	30	18...30	3	PN7097
	G ¼ I	Display unit	-1...1	20	50	18...30	3	PN7099
	G¼ male / M5 female	Display unit	0...600	800	2500	18...30	4	PN7560
	G¼ male / M5 female	Display unit	0...400	800	1700	18...30	4	PN7570
	G¼ male / M5 female	Display unit	0...250	500	1100	18...30	4	PN7571
	G¼ male / M5 female	Display unit	0...100	300	650	18...30	4	PN7592
	G¼ male / M5 female	Display unit	0...25	150	350	18...30	4	PN7593
	G¼ male / M5 female	Display unit	-1...10	75	150	18...30	4	PN7594
	G¼ male / M5 female	Display unit	0...2.5	20	50	18...30	4	PN7596

Type	Process connection	Display LED	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
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M12 connector · Output function 2 x normally open / closed programmable · DC PNP/NPN · Wiring diagram no. 1 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147

	G 1/4 male / M5 female	Display unit	0...2.5	10	30	18...30	4	PN7597
	G 1/4 male / M5 female	Display unit	-1...1	20	50	18...30	4	PN7599

Electronic contact manometers with switching output and analogue output


Type	Process connection	Display LED	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
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M12 connector · Output function 1 x normally open / closed programmable + 1 x analogue (4...20 / 20...4 mA, scalable) · DC PNP/NPN · Wiring diagram no. 19 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147

	G 1/2	Display unit	0...400	800	1200	18...32	5	PG2450
	G 1/2	Display unit	0...250	600	1000	18...32	5	PG2451
	G 1/2	Display unit	0...100	300	700	18...32	5	PG2452
	G 1/2	Display unit	-1...25	100	300	18...32	5	PG2453
	G 1/2	Display unit	-1...10	50	150	18...32	5	PG2454
	G 1/2	Display unit	-1...4	30	100	18...32	5	PG2455
	G 1/2	Display unit	-0.125...2.5	20	50	18...32	5	PG2456
	G 1/2	Display unit	-0.05...1	10	30	18...32	5	PG2457
	G 1/2	Display unit	-0.0125...0.25	10	30	18...32	5	PG2458
	G 1/2	Display unit	-0.005...0.1	4	30	18...32	5	PG2489
G 1/2	Display unit	-1...1	10	30	18...32	5	PG2409	


PK sensors with mechanical setting and switching outputs


Type	Process connection	Display LED	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Drawing no.	Order no.
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M12 connector · Output function  · DC PNP · Wiring diagram no. 2 · Connector groups 8, 10, 11, 18, 20, 117, 118, 119, 147, 148

	G ¼ male / M5 female	Operation	0...400	600	1600	9.6...32	6	PK5520
	G ¼ A / M5 I	Operation	0...250	400	1000	9.6...32	6	PK5521
	G ¼ A / M5 I	Operation	0...100	200	1000	9.6...32	6	PK5522
	G ¼ A / M5 I	Operation	0...25	60	500	9.6...32	6	PK5523
	G ¼ A / M5 I	Operation	0...10	25	300	9.6...32	6	PK5524

M12 connector · Output function normally open / closed complementary · DC PNP · Wiring diagram no. 3 · Connector groups 8, 10, 11, 18, 20, 117, 118, 119, 147, 148


	G ¼ A / M5 I	Operation	0...400	600	1600	9.6...32	6	PK6520
	G ¼ A / M5 I	Operation	0...250	400	1000	9.6...32	6	PK6521
	G ¼ A / M5 I	Operation	0...100	200	1000	9.6...32	6	PK6522
	G ¼ A / M5 I	Operation	0...25	60	500	9.6...32	6	PK6523
	G ¼ male / M5 female	Operation	0...10	25	300	9.6...32	6	PK6524

M12 connector · Output function  · DC PNP · Wiring diagram no. 4 · Connector groups 8, 10, 11, 18, 20, 117, 118, 119, 147, 148


	G ¼ A / M5 I	Switching status	0...400	600	1600	9.6...32	6	PK7520
	G ¼ A / M5 I	Switching status	0...250	400	1000	9.6...32	6	PK7521
	G ¼ A / M5 I	Switching status	0...100	200	1000	9.6...32	6	PK7522
	G ¼ A / M5 I	Switching status	0...25	60	500	9.6...32	6	PK7523
	G ¼ A / M5 I	Switching status	0...10	25	300	9.6...32	6	PK7524

Type	Process connection	Display LED	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
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M12 connector · Output function normally open / closed complementary · DC PNP · Wiring diagram no. 3 · Connector groups 8, 10, 11, 18, 20, 117, 118, 119, 147, 148

	R¼ A / M5 I	Operation	0...100	200	1000	9.6...32	7	PK6732
	R¼ A / M5 I	Operation	0...10	25	300	9.6...32	7	PK6734


M12 connector · Output function normally open / closed complementary · DC NPN · Wiring diagram no. 5 · Connector groups 8, 10, 11, 18, 20, 117, 118, 119, 147, 148

	R¼ A / M5 I	Operation	0...400	600	1600	9.6...32	7	PK8730
	R¼ A / M5 I	Operation	0...250	400	1000	9.6...32	7	PK8731
	R¼ A / M5 I	Operation	0...100	200	1000	9.6...32	7	PK8732
	R¼ A / M5 I	Operation	0...10	25	300	9.6...32	7	PK8734


PP sensors for mobile and industrial applications with switching outputs, IO-Link

Type	Process connection	Display LED	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
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M12 connector · Output function 2 x normally open / closed programmable or 1 x normally open / closed programmable + 1 x normally closed (diagnostic function) · DC PNP · Wiring diagram no. 6 · Connector groups 8, 10, 11, 18, 20, 117, 118, 119, 147, 148

	G¼ male / M5 female	Operation	0...400	600	1000	9.6...36	8	PP7550
	G¼ male / M5 female	Operation	0...250	400	850	9.6...36	8	PP7551
	G¼ male / M5 female	Operation	0...100	300	650	9.6...36	9	PP7552
	G¼ male / M5 female	Operation	0...25	150	350	9.6...36	10	PP7553
	G¼ male / M5 female	Operation	-1...10	75	150	9.6...36	10	PP7554
	G¼ male / M5 female	Operation	0...2.5	20	50	9.6...36	10	PP7556

Process sensors

Type	Process connection	Display LED	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
M12 connector · Output function 2 x normally open / closed programmable or 1 x normally open / closed programmable + 1 x normally closed (diagnostic function) · DC NPN · Wiring diagram no. 6 · Connector groups 8, 10, 11, 18, 20, 117, 118, 119, 147, 148								
	G 1/4 male / M5 female	Operation	0...400	600	1000	9.6...36	8	PP0520
	G 1/4 male / M5 female	Operation	0...250	400	850	9.6...36	8	PP0521
	G 1/4 male / M5 female	Operation	0...100	300	650	9.6...36	9	PP0522
	G 1/4 male / M5 female	Operation	0...25	150	350	9.6...36	10	PP0523
	G 1/4 male / M5 female	Operation	-1...10	75	150	9.6...36	10	PP0524

Sensors for pneumatic applications

Type	Process connection	Display LED	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
M12 connector · Output function 2 x normally open / closed programmable or 1 x normally open / closed programmable + 1 x normally closed (diagnostic function) · DC PNP/NPN · Wiring diagram no. 21 · Connector groups 8, 10, 11, 18, 20, 117, 118, 119, 147, 148								
	G 1/8 I	Display unit	-1...1	20	30	18...36	11	PN7809
	G 1/8 I	Display unit	-1...10	20	30	18...36	11	PN7834
M8 connector · Output function 2 x normally open / closed programmable or 1 x normally open / closed programmable + 1 x normally closed (diagnostic function) · DC PNP · Wiring diagram no. 4 · Connector groups 4, 5, 74, 80, 116								
	G 1/8 I	Display unit	-1...1	20	30	18...32	12	PQ7809
	G 1/8 I	Display unit	-1...10	20	30	18...32	12	PQ7834
M8 connector · Output function 2 x normally open / closed programmable or 1 x normally open / closed programmable + 1 x normally closed (diagnostic function) · DC NPN · Wiring diagram no. 7 · Connector groups 4, 5, 74, 80, 116								
	G 1/8 I	Display unit	-1...1	20	30	18...32	12	PQ0809
	G 1/8 I	Display unit	-1...10	20	30	18...32	12	PQ0834
M8 connector · Output function 1 x NO / NC programmable + 1 x current output · DC PNP · Wiring diagram no. 8 · Connector groups 4, 5, 74, 80, 116								
	G 1/8 I / M5 I	Display unit	-1...1	20	30	18...32	13	PQ3809

Type	Process connection	Display LED	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
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M8 connector · Output function 1 x NO / NC programmable + 1 x current output · DC PNP · Wiring diagram no. 8 · Connector groups 4, 5, 74, 80, 116

	G 1/8 I / M5 I	Display unit	-1...10	20	30	18...32	13	PQ3834
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PT sensors for industrial applications with analogue outputs

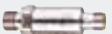
Type	Process connection	Display LED	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
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M12 connector · Output function 4...20 mA analogue · DC · Wiring diagram no. 9 · Connector groups 8, 10, 18, 20, 117, 118, 147


	G ¼ A	–	0...600	1500	2400	8.5...36	14	PT5460
	G ¼ A	–	0...400	1000	1700	8.5...36	14	PT5400
	G ¼ A	–	0...250	625	1200	8.5...36	14	PT5401
	G ¼ A	–	0...160	400	1100	8.5...36	14	PT5412
	G ¼ A	–	0...100	250	1000	8.5...36	14	PT5402
	G ¼ A	–	0...60	150	900	8.5...36	14	PT5423
	G ¼ A	–	0...40	100	800	8.5...36	14	PT5443
	G ¼ A	–	0...25	65	600	8.5...36	14	PT5403
	G ¼ A	–	0...16	40	450	8.5...36	14	PT5414
	G ¼ A	–	0...10	25	300	8.5...36	14	PT5404
	G ¼ A	–	0...6	15	200	8.5...36	14	PT5415

M12 connector · Output function 0...10 V analogue · DC · Wiring diagram no. 10 · Connector groups 8, 10, 18, 20, 117, 118, 147

	G ¼ A	–	0...600	1500	2400	16...36	14	PU5460
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Type	Process connection	Display LED	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
M12 connector · Output function 0...10 V analogue · DC · Wiring diagram no. 10								
	G ¼ A	–	0...400	1000	1700	16...36	14	PU5400
	G ¼ A	–	0...250	625	1200	16...36	14	PU5401
	G ¼ A	–	0...160	400	1100	16...36	14	PU5412
	G ¼ A	–	0...100	250	1000	16...36	14	PU5402
	G ¼ A	–	0...40	100	800	16...36	14	PU5443
	G ¼ A	–	0...60	150	900	16...36	14	PU5423
	G ¼ A	–	0...25	65	600	16...36	14	PU5403
	G ¼ A	–	0...16	40	450	16...36	14	PU5414
	G ¼ A	–	0...10	25	300	16...36	14	PU5404
	G ¼ A	–	0...6	15	200	16...36	14	PU5415

PT / PU sensors for mobile applications with analogue outputs


Type	Process connection	Display LED	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
M12 connector · Output function 4...20 mA analogue · DC · Wiring diagram no. 11 · Connector group 147								
	G ¼ A	–	0...400	600	1600	8.5...36	15	PT3550
	G ¼ A	–	0...250	400	1000	8.5...36	15	PT3551
	G ¼ A	–	0...100	200	1000	8.5...36	15	PT3552
	G ¼ A	–	0...25	60	600	8.5...36	15	PT3553

Type	Process connection	Display LED	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
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M12 connector · Output function 4...20 mA analogue · DC · Wiring diagram no. 11 · Connector group 147

	G ¼ A	–	0...10	25	300	8.5...36	15	PT3554
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M12 connector · Output function 0...10 V analogue · DC · Wiring diagram no. 12 · Connector group 147

	G ¼ A	–	0...400	600	1600	16...36	15	PT9550
	G ¼ A	–	0...250	400	1000	16...36	15	PT9551
	G ¼ A	–	0...100	200	1000	16...36	15	PT9552
	G ¼ A	–	0...25	60	600	16...36	15	PT9553
	G ¼ A	–	0...10	25	300	16...36	15	PT9554

DEUTSCH connector DT04-3P · Output function 0...10 V analogue · DC · Wiring diagram no. 13

	G ¼ A	–	0...10	25	300	16...32	16	PU5704
	G ¼ A	–	0...25	65	600	16...32	16	PU5703
	G ¼ A	–	0...100	250	1000	16...32	16	PU5702
	G ¼ A	–	0...250	625	1200	16...32	16	PU5701
	G ¼ A	–	0...400	1000	1700	16...32	16	PU5700
	G ¼ A	–	0...600	1500	2400	16...32	16	PU5760

AMP Superseal · Output function 0...10 V analogue · DC · Wiring diagram no. 14


	G ¼ A	–	0...10	25	300	16...32	17	PU5604
	G ¼ A	–	0...25	65	600	16...32	17	PU5603
	G ¼ A	–	0...100	250	1000	16...32	17	PU5602

You can find wiring diagrams and scale drawings from page 456

Process sensors

Type	Process connection	Display LED	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Drawing no.	Order no.
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AMP Superseal · Output function 0...10 V analogue · DC · Wiring diagram no. 14

	G ¼ A	–	0...250	625	1200	16...32	17	PU5601
	G ¼ A	–	0...400	1000	1700	16...32	17	PU5600
	G ¼ A	–	0...600	1500	2400	16...32	17	PU5660

PA sensors with analogue outputs


Type	Process connection	Display LED	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Drawing no.	Order no.
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M12 connector · Output function 4...20 mA · DC · Wiring diagram no. 11 · Connector groups 8, 10, 18, 20, 117, 118, 147

	G ¼ I	–	0...600	800	1200	9.6...32	18	PA3060
	G ¼ I	–	0...400	600	1000	9.6...32	19	PA3020
	G ¼ I	–	0...250	400	850	9.6...32	19	PA3021
	G ¼ I	–	0...100	300	650	9.6...32	20	PA3022
	G ¼ I	–	0...25	150	350	9.6...32	20	PA3023
	G ¼ I	–	0...10	75	150	9.6...32	20	PA3024
	G ¼ I	–	0...2.5	20	50	9.6...32	20	PA3026
	G ¼ I	–	0...1	10	30	9.6...32	20	PA3027
	G ¼ I	–	0...0.25	10	30	9.6...32	20	PA3028
	G ¼ I	–	-1...0	10	30	9.6...32	20	PA3029
	G ¼ male / M5 female	–	0...250	400	850	9.6...32	21	PA3521

Type	Process connection	Display LED	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
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M12 connector · Output function 4...20 mA · DC · Wiring diagram no. 11 · Connector groups 8, 10, 18, 20, 117, 118, 147

	G ¼ male / M5 female	–	0...100	300	650	9.6...32	21	PA3522
	G ¼ male / M5 female	–	0...25	150	350	9.6...32	21	PA3523
	G ¼ male / M5 female	–	0...10	75	150	9.6...32	21	PA3524
	G ¼ male / M5 female	–	0...2.5	20	50	9.6...32	21	PA3526
	G ¼ male / M5 female	–	0...0.25	10	30	9.6...32	21	PA3528

M12 connector · Output function 4...20 mA · DC · Wiring diagram no. 9

	G ¼ male / M5 female	–	0...0.1	4	30	9.6...32	21	PA3589
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M12 connector · Output function 0...10 V · DC · Wiring diagram no. 12 · Connector groups 8, 10, 18, 20, 117, 118, 147

	G ¼ I	–	0...600	800	1200	16...32	18	PA9060
	G ¼ I	–	0...400	600	1000	16...32	19	PA9020
	G ¼ I	–	0...250	400	850	16...32	20	PA9021
	G ¼ I	–	0...100	300	650	16...32	20	PA9022
	G ¼ I	–	0...25	150	350	16...32	20	PA9023
	G ¼ I	–	0...10	75	150	16...32	20	PA9024
	G ¼ I	–	0...2.5	20	50	16...32	20	PA9026
	G ¼ I	–	0...1	10	30	16...32	20	PA9027
	G ¼ I	–	0...0.25	10	30	16...32	20	PA9028

Process sensors


Type	Process connection	Display LED	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
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M12 connector · Output function 0...10 V · DC · Wiring diagram no. 12 · Connector groups 8, 10, 18, 20, 117, 118, 147

	G 1/4 I	–	-1...0	10	30	16...32	20	PA9029
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Part seat monitoring


Type	Description	Order no.
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	Control unit for part seat monitoring · Setting by adjustment of the pneumatic bridge · Integrated pressure sensor with 2 switching outputs · and 4-digit alphanumerical display for trend display or display of current pressure · Cable	PS7570
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Sensors for hydrostatic level monitoring

Type	Measuring range [bar]	Cable length / material	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
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Output function 4...20 mA analogue · Wiring diagram no. 15

	0...0.25	5 m PUR cable	2	2.4	10...30	22	PS3208
	0...0.6	10 m PUR cable	4	4.8	10...30	22	PS3407
	0...0.6	15 m PUR cable	4	4.8	10...30	22	PS3427
	0...0.6	30 m PUR cable	4	4.8	10...30	22	PS3607
	0...1	15 m PUR cable	5	6	10...30	22	PS3417
	0...1	30 m PUR cable	5	6	10...30	22	PS3617

Sensors for hydrostatic level monitoring ATEX category 1G/1D


Type	Measuring range [bar]	Cable length / material	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
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Output function 4...20 mA analogue · Wiring diagram no. 16

	0...0.25	5 m FEP cable	2	2.4	10...30	23	PS308A
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Type	Measuring range [bar]	Cable length / material	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
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Output function 4...20 mA analogue · Wiring diagram no. 16

	0...0.6	10 m FEP cable	4	4.8	10...30	23	PS307A
	0...1	15 m FEP cable	5	6	10...30	23	PS317A

PNI sensors with analogue input

Type	Process connection	Display LED	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
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M12 connector · Output function 2 x normally open / closed programmable · DC PNP/NPN · Wiring diagram no. 17 · Connector groups 15, 16, 17

	G ¼ I	Display unit	0...250	400	850	18...30	1	PNI021
	G ¼ I	Display unit	0...100	300	650	18...30	1	PNI022
	G ¼ I	Display unit	0...25	100	350	18...30	1	PNI023
	G ¼ I	Display unit	0...10	50	150	18...30	1	PNI024


Sensors with ATEX approval 3D

Type	Process connection	Display LED	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
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M12 connector · Output function normally open / closed programmable; 4...20 mA or 0...10 V · DC PNP · Wiring diagram no. 18 · Connector groups 144, 146

	G ¼ I	Display unit	-1...10	75	150	18...36	24	PN004A
	G ¼ I	Display unit	0...2.5	20	50	18...36	24	PN006A
	G ¼ I	Display unit	0...1	10	30	18...36	24	PN007A

M12 connector · Output function 2 x normally open / closed programmable or 1 x normally open / closed programmable + 1 x normally closed (diagnostic function) · DC PNP/NPN · Wiring diagram no. 21 · Connector groups 144, 146

	G ¼ I	Display unit	-1...10	75	150	18...36	24	PN014A
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Process sensors

Type	Process connection	Display LED	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
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M12 connector · Output function 2 x normally open / closed programmable or 1 x normally open / closed programmable + 1 x normally closed (diagnostic function) · DC PNP/NPN · Wiring diagram no. 21 · Connector groups 144, 146

	G ¼ I	Display unit	0...2.5	20	50	18...36	24	PN016A
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Sensors with ATEX approval 3D/3G

Type	Process connection	Display LED	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
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M12 connector · Output function 1 x normally open / closed programmable + 1 x analogue (I / U, scalable 1:4) · DC PNP/NPN · Wiring diagram no. 19 · Connector groups 144, 146

	Sealing cone G1 male	Display unit	-1...25	100	350	18...32	25	PI003A
	Sealing cone G1 male	Display unit	-0.0124...0.25	10	30	18...32	25	PI008A
	Sealing cone G1 male	Display unit	-1...1	10	30	18...32	25	PI009A

Full metal sensors for hygienic and wet areas with switching and analogue outputs, IO-Link



Type	Process connection	Display LED	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
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M12 connector · Output function 1 x normally open / normally closed programmable + 1 x normally open / normally closed programmable or 1 x analogue (4...20 / 20...4 mA, scalable) · Wiring diagram no. 22 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147

	Aseptoflex Vario	Display unit	-1...25	100	350	20...32	26	PI2793
	Aseptoflex Vario	Display unit	-1...10	50	150	20...32	26	PI2794
	Aseptoflex Vario	Display unit	-1...4	30	100	20...32	26	PI2795
	Aseptoflex Vario	Display unit	-0.124...2.5	20	50	20...32	26	PI2796
	Aseptoflex Vario	Display unit	-0.05...1	10	30	20...32	26	PI2797
	Aseptoflex Vario	Display unit	-0.0124...0.25	10	30	20...32	26	PI2798
	Aseptoflex Vario	Display unit	-0.005...0.1	4	30	20...32	26	PI2789

Type	Process connection	Display LED	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
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M12 connector · Output function 1 x normally open / normally closed programmable + 1 x normally open / normally closed programmable or 1 x analogue (4...20 / 20...4 mA, scalable) · Wiring diagram no. 22 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120,


	Aseptoflex Vario	Display unit	-1...1	10	30	20...32	26	PI2799
	Sealing cone G1 male	Display unit	-1...25	100	350	20...32	27	PI2893*
	Sealing cone G1 male	Display unit	-1...10	50	150	20...32	27	PI2894*
	Sealing cone G1 male	Display unit	-1...4	30	100	20...32	27	PI2895*
	Sealing cone G1 male	Display unit	-0.124...2.5	20	50	20...32	27	PI2896*
	Sealing cone G1 male	Display unit	-0.05...1	10	30	20...32	27	PI2897*
	Sealing cone G1 male	Display unit	-0.0124...0.25	10	30	20...32	27	PI2898*
	Sealing cone G1 male	Display unit	-0.005...0.1	4	30	20...32	27	PI2889*
	Sealing cone G1 male	Display unit	-1...1	10	30	20...32	27	PI2899*

Attention: The unit must only be installed in a process connection for G1 sealing cone! The G1A sealing cone of the unit is only suited for adapters with metal end stop!



Full-metal high-temperature sensors up to 200 °C for hygienic and wet areas with switching output and analogue output, IO-Link

Type	Process connection	Display LED	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
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M12 connector · Output function 1 x normally open / normally closed programmable + 1 x normally open / normally closed programmable or 1 x analogue (4...20 / 20...4 mA, scalable) · Wiring diagram no. 22 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147

	Clamp DN 38 / 1 1/2"	Display unit	-1...25	80	150	20...32	28	PI2203
	Clamp DN 38 / 1 1/2"	Display unit	-1...10	50	100	20...32	28	PI2204
	Clamp DN 38 / 1 1/2"	Display unit	-1...4	30	50	20...32	28	PI2205
	Clamp DN 38 / 1 1/2"	Display unit	-0.124...2.5	20	50	20...32	28	PI2206

Process sensors



Type	Process connection	Display LED	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
M12 connector · Output function 1 x normally open / normally closed programmable + 1 x normally open / normally closed programmable or 1 x analogue (4...20 / 20...4 mA, scalable) · Wiring diagram no. 22 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147								
	Clamp DN 38 / 1 1/2"	Display unit	-0.05...1	10	30	20...32	28	PI2207
	Clamp DN 38 / 1 1/2"	Display unit	-1...1	10	30	20...32	28	PI2209
	Clamp DN 51 / 2"	Display unit	-1...25	80	150	20...32	29	PI2303
	Clamp DN 51 / 2"	Display unit	-1...10	50	100	20...32	29	PI2304
	Clamp DN 51 / 2"	Display unit	-1...4	30	50	20...32	29	PI2305
	Clamp DN 51 / 2"	Display unit	-0.124...2.5	20	50	20...32	29	PI2306
	Clamp DN 51 / 2"	Display unit	-0.05...1	10	30	20...32	29	PI2307
	Clamp DN 51 / 2"	Display unit	-1...1	10	30	20...32	29	PI2309

Electronic contact manometers for hygienic and wet areas with switching and analogue outputs

Type	Process connection	Display LED	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
M12 connector · Output function 1 x normally open / closed programmable + 1 x analogue (4...20 / 20...4 mA, scalable) · DC PNP/NPN · Wiring diagram no. 19 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147								
	Aseptoflex Vario	Display unit	-1...25	100	350	18...32	30	PG2793
	Aseptoflex Vario	Display unit	-1...10	50	150	18...32	30	PG2794
	Aseptoflex Vario	Display unit	-1...4	30	100	18...32	30	PG2795
	Aseptoflex Vario	Display unit	-1...1	10	30	18...32	30	PG2799
	Aseptoflex Vario	Display unit	-0.124...2.5	20	50	18...32	30	PG2796
	Aseptoflex Vario	Display unit	-0.05...1	10	30	18...32	30	PG2797

Type	Process connection	Display LED	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
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M12 connector · Output function 1 x normally open / closed programmable + 1 x analogue (4...20 / 20...4 mA, scalable) · DC PNP/NPN · Wiring diagram no. 19 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147


	Aseptoflex Vario	Display unit	-0.0124...0.25	10	30	18...32	30	PG2798
	Aseptoflex Vario	Display unit	-0.005...0.1	4	30	18...32	30	PG2789
	Sealing cone G1 male	Display unit	-1...25	100	350	18...32	31	PG2893*
	Sealing cone G1 male	Display unit	-1...10	50	150	18...32	31	PG2894*
	Sealing cone G1 male	Display unit	-1...4	30	100	18...32	31	PG2895*
	Sealing cone G1 male	Display unit	-0.124...2.5	20	50	18...32	31	PG2896*
	Sealing cone G1 male	Display unit	-0.05...1	10	30	18...32	31	PG2897*
	Sealing cone G1 male	Display unit	-0.0124...0.25	10	30	18...32	31	PG2898*
	Sealing cone G1 male	Display unit	-1...1	10	30	18...32	31	PG2899*
Sealing cone G1 male	Display unit	-0.005...0.1	4	30	18...32	31	PG2889*	

Attention: The unit must only be installed in a process connection for G1 sealing cone! The G1A sealing cone of the unit is only suited for adapters with metal end stop!

PF sensors for hygienic and wet areas with switching and analogue outputs

Type	Process connection	Display LED	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
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M12 connector · Output function 2 x normally open / closed programmable or 1 x normally open / closed programmable + 1 x analogue (4...20 mA / 0...10 V; scaleable 1:4) · Wiring diagram no. 20 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147

	G ¾ A	Switching status	-1...25	100	200	20...30	32	PF2953
	G ¾ A	Switching status	-0.5...10	50	150	20...30	32	PF2954
	G ¾ A	Switching status	-0.13...2.5	20	50	20...30	32	PF2956

Process sensors

Type	Process connection	Display LED	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
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M12 connector · Output function 2 x normally open / closed programmable or 1 x normally open / closed programmable + 1 x analogue (4...20 mA / 0...10 V; scaleable 1:4) · Wiring diagram no. 20 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147

	G 3/4 A	Switching status	-0.05...1	10	30	20...30	32	PF2957
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PL / PM sensors without display for hygienic and wet areas with analogue output

Type	Process connection	Display LED	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
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M12 connector · Output function 4...20 mA analogue · 3-wire DC; 2-wire DC · Wiring diagram no. 23 · Connector groups 8, 10, 18, 20, 117, 118, 147

	Sealing cone G1 male	–	-1...100	200	650	14...30	33	PL2652
	Sealing cone G1 male	–	-1...25	100	350	14...30	34	PL2653
	Sealing cone G1 male	–	-0.5...10	50	150	14...30	34	PL2654
	Sealing cone G1 male	–	-0.13...2.5	20	50	14...30	34	PL2656
	Sealing cone G1 male	–	-0.05...1	10	30	14...30	34	PL2657
	Sealing cone G1 male	–	-0.0125...0.25	10	30	14...30	34	PL2658
	Sealing cone G1 male	–	-1...25	100	350	14...30	35	PM2653
	Sealing cone G1 male	–	-0.5...10	50	150	14...30	35	PM2654
	Sealing cone G1 male	–	-0.99...4	30	100	14...30	35	PM2655
	Sealing cone G1 male	–	-0.13...2.5	20	50	14...30	35	PM2656
	Sealing cone G1 male	–	-0.05...1	10	30	14...30	35	PM2657
	Sealing cone G1 male	–	-0.0125...0.25	10	30	14...30	35	PM2658



PE sensors with display with 2 switching outputs or switching and analogue output

Type	Process connection	Display LED	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
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M12 connector · Output function 2 x normally open / closed programmable or 1 x normally open / closed programmable + 1 x normally closed (diagnostic function) · DC PNP/NPN · Wiring diagram no. 21 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147

	G ¼ I	Display unit	0...100	300	650	18...36	1	PE7002
	G ¼ I	Display unit	0...25	150	350	18...36	1	PE7003
	G ¼ I	Display unit	-1...10	75	150	18...36	1	PE7004
	G ¼ I	Display unit	0...2.5	20	50	18...36	1	PE7006
	G ¼ I	Display unit	-1...1	20	50	18...36	1	PE7009









M12 connector · Output function normally open / closed programmable; 4...20 mA or 0...10 V · DC PNP · Wiring diagram no. 18 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147











	G ¼ I	Display unit	0...400	600	1000	18...36	36	PE3000
	G ¼ I	Display unit	0...250	400	850	18...36	1	PE3001
	G ¼ I	Display unit	0...100	300	650	18...36	1	PE3002
	G ¼ I	Display unit	0...25	150	350	18...36	1	PE3003
	G ¼ I	Display unit	-1...10	75	150	18...36	1	PE3004
	G ¼ I	Display unit	0...2.5	20	50	18...36	1	PE3006
	G ¼ I	Display unit	-1...0	10	30	18...36	1	PE3029
	G ¼ I	Display unit	-1...1	20	50	18...36	1	PE3009

Fixing components for pressure sensors

Type	Description	Order no.
	Angle bracket · Housing materials: PA66-	E30421
	Mounting clamp · Ø 34 mm · Housing materials: PBT	E10017
	Mounting clamp · Ø 34 mm · Housing materials: PA	E10193
	Mounting device 2 way · for fluid sensors · Housing materials: POM	E30078
	Mounting device 3 way · for fluid sensors · Housing materials: POM	E30079

Accessories and software















Type	Description	Order no.
	Protective cover · for fluid sensors with M12 connector · Housing materials: Polypropylene homopolymer	E30420
	Protective cover · for fluid sensors with M12 connector · Housing materials: polyurethane	E30006
	Protective cover · for fluid sensors · stainless steel with transparent Teflon window · Housing materials: stainless steel 316Ti / 1.4571 / PFA / FKM / ventilation strip: Teflon film 0.32 mm / O-ring: FKM	E30101
	Protective cover · for fluid sensors · stainless steel with transparent Teflon window · Housing materials: stainless steel 316Ti / 1.4571 / PFA / EPDM / ventilation strip: Teflon film 0.32 mm / O-ring: EPDM	E30104
	Memory plug · Parameter memory for IO-Link sensors · Storage capacity: 2 Kbytes · Housing materials: PA PACM 12 / PET / sealing: FPM / nut: stainless steel 316L / 1.4404 / connector: TPU	E30398
	Teach button · for sensors PP0xE, PP052x, PP755x · for memory plug (E30398) · 0.9 m · Housing materials: stainless steel / PA / PMMA	E30405
	Programming/ display unit · for EPS and IO-Link sensors · Connector · Housing materials: stainless steel 316L / 1.4404 / PC copolymer / PBT / FPM	PP2001
	Protective cover · with lead seal option · for pressure sensors type PK · for temperature sensors type TK · for vibration sensors type VK · Housing materials: PP transparent	E30094



Type	Description	Order no.
	IO-Link interface · for parameter setting and analysis of units · Supported communication protocols: IO-Link (4800 and 38400 bits/s) EPS protocol (19200 bits/s) · for operation with FDT framework software "ifm Container" or software "LINERECORDER SENSOR"	E30396
	USB IO-Link master · for parameter setting and analysis of units · Supported communication protocols: IO-Link (4.8, 38.4 and 230 Kbits/s) · for operation with FDT framework software "ifm Container" or software "LINERECORDER SENSOR"	E30390
	LINERECORDER SENSOR · Software for parameter setting and set-up of IO-Link sensors · Recording and distribution of parameter sets (duplication) · Capture and evaluation of sensor values over a longer period of time · Resetting of sensor parameters to factory setting · Use via USB connection cable E30396 or E30390 (drivers are contained in the corresponding software package)	ZGS210
	Cable clamp fastener · for submersible pressure transmitter PS3 · Housing materials: steel / plastics	E30399
	Filter element · for submersible pressure transmitter PS3 · for fixing on the capillary tube	E30400
	Splitter box · with ventilation and terminal block · for submersible pressure transmitter PS3 · Housing materials: plastics	E30401
	Additional weight · for submersible pressure transmitter PS3 · Housing materials: stainless steel 316Ti / 1.4571	E30402
	DIN rail clip · Housing materials: stainless steel	E37340
	Connector · QS-G 1/8-6 · with hexagonal socket 4 mm a/f · for tube with Ø 6 mm · Housing materials: steel / PBT / Brass / aluminium	E30076
	Connector · QS-G 1/8-8 · with hexagonal socket 5 mm a/f · for tube with Ø 8 mm · Housing materials: steel / PBT / Brass / aluminium	E30077

Certificates

Description	Order no.
Factory calibration certificate for pressure sensors (and flow sensors, see below) · Number of measuring points: 6-point factory calibration · Measurement points: in 20 % steps of the measuring range (according to ISO 9001) · Minimum measurement uncertainty [bar]: 20 µbar...140 mbar (depending on the reference pressure)	ZC0004
DAkKS calibration certificate for pressure sensors · Number of measuring points: 11-point DAkKS calibration · Measurement points: in 10 % steps of the measuring range (according to directive DAkKS-DKD-R 6-1) · Minimum measurement uncertainty [bar]: 20 µbar...140 mbar (depending on the reference pressure)	ZC0005

Adapters and accessories for adapters

Type	Description	Order no.
	Adapter · R1/8 - R1/8 · rotatable · Housing materials: Brass nickel-plated	E37350
	T-pipe mounting set · G1/2 · with reducer G1/2 - G1/8, adapter R1/8 - R1/8 rotatable, seal G1/2 · Housing materials: Brass nickel-plated	E37360
	Flange adapter · G ¼ · Hole spacing · 31.1 mm · Housing materials: sealing: NBR, acrylonitrile-butadiene-rubber / flange: aluminium / hollow screw: Brass	E30003
	Adapter · G ¼ - G ½ · Housing materials: stainless steel / sealing: FPM	E30000
	Adapter · G ¼ A - G ¼ A · Housing materials: 1.4404	E30143
	Adapter · G ¼ - M20 x 1.5 · Housing materials: stainless steel / FPM	E30010
	Adapter · G ¼ - G ½ · Housing materials: stainless steel / sealing: FPM	E30050
	Adapter · ¼" NPT - G ¼ · Housing materials: stainless steel 316Ti / 1.4571	E30058
	Adapter · ¼" NPT - G ½ · Housing materials: stainless steel 316Ti / 1.4571	E30059
	Adapter · G ¼ - DN16 · G¼ small flange DIN 28403 DN16 · Housing materials: stainless steel	E30065
	Flange adapter · G ¼ · for pressure sensors type PP7 / type PK · Housing materials: stainless steel / O-ring: NBR	E30063
	Adapter · G 1 - G ½ · Housing materials: stainless steel 316L / 1.4404 / sealing: FPM	E30116
	Adapter · G ¼ - G ½ · Housing materials: stainless steel 316Ti / 1.4571 / sealing: FPM	E30135
	Damping screw · for pressure sensors with M5 internal thread	E30057






Type	Description	Order no.
	O-ring · 24 x 2 · Housing materials: FKM FDA compliant	E30123
	Sealing ring · for Aseptoflex Vario adapter · Housing materials: PEEK FDA compliant	E30124

Flange adapters

Type	Description	Order no.
Clamp adapter · 1-1.5" · Aseptoflex Vario		
	Clamp adapter · Clamp · 1-1.5" · ISO 2852 · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	E33201
	Clamp adapter · with leakage port · Clamp · 1-1.5" · with sealing ring · ISO 2852 · for units with Aseptoflex Vario adapter · Housing materials: stainless steel 316L / 1.4435	E33208
	Clamp adapter · Clamp · 1-1.5" · ISO 2852 · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	E33701
Clamp adapter · 2" · Aseptoflex Vario		
	Clamp adapter · Clamp · 2" · ISO 2852 · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	E33202
	Aseptoflex Vario adapter · with leakage port · Clamp · 2" · with sealing ring · ISO 2852 · for units with Aseptoflex Vario adapter · Housing materials: stainless steel 316L / 1.4435	E33209
	Clamp adapter · Clamp · 2" · ISO 2852 · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	E33702
Varivent Adapter · Type F, DN25 (1"), D = 50 · Aseptoflex Vario		
	Clamp adapter · Varivent Adapter · Varivent type F · DN25 (1"), D = 50 · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	E33221
	Clamp adapter · Varivent Adapter · with leakage port · Varivent type F · DN25 (1"), D = 50 · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	E33228
	Clamp adapter · Varivent Adapter · Varivent type F · DN25 (1"), D = 50 · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	E33721
Varivent Adapter · Type N, DN40...DN150 (1.5...6"), D = 68 · Aseptoflex Vario		
	Clamp adapter · Varivent Adapter · Varivent type N · DN40...DN150 (1.5...6"), D = 68 · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	E33222

You can find wiring diagrams and scale drawings from page 456

Type	Description	Order no.
Varivent Adapter · Type N, DN40...DN150 (1.5...6"), D = 68 · Aseptoflex Vario		
	Clamp adapter · Varivent Adapter · with leakage port · Varivent type N · DN40 (1.5"), D = 68 · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	E33229
	Clamp adapter · Varivent Adapter · Varivent type N · DN40...DN150 (1.5...6"), D = 68 · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	E33722
Hygienic pipe fitting · DN32 (1.25") · Aseptoflex Vario		
	Pipe fitting · Hygienic pipe fitting · Hygienic pipe fitting · DN32 (1.25") · DIN 11851 · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	E33211
	Pipe fitting · Hygienic pipe fitting · Hygienic pipe fitting · DN32 (1.25") · DIN 11851 · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	E33711
Hygienic pipe fitting · DN40 (1.5") · Aseptoflex Vario		
	Pipe fitting · Hygienic pipe fitting · Hygienic pipe fitting · DN40 (1.5") · DIN 11851 · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	E33212
	Pipe fitting · Hygienic pipe fitting · Hygienic pipe fitting · DN40 (1.5") · DIN 11851 · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	E33712
Hygienic pipe fitting · DN50 (2") · Aseptoflex Vario		
	Pipe fitting · Hygienic pipe fitting · Hygienic pipe fitting · DN50 (2") · DIN 11851 · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	E33213
	Pipe fitting · Hygienic pipe fitting · Hygienic pipe fitting · DN50 (2") · DIN 11851 · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	E33713
SMS pipe fitting · DN40 (1.5") · Aseptoflex Vario		
	Pipe fitting · SMS pipe fitting · Pipe fitting · DN40 (1.5") · SMS · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	E33731
SMS pipe fitting · DN50 (2") · Aseptoflex Vario		
	Pipe fitting · SMS pipe fitting · Pipe fitting · DN50 (2") · SMS · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	E33732
DRD adapter · D65 · Aseptoflex Vario		
	Flange adapter · DRD adapter · flange · DRD · D = 65 · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	E33242

Type	Description	Order no.
universal process adapter · Rd52 · Aseptoflex Vario		
	Pipe fitting · universal process adapter · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	E33340
Welding adapter · D50 · Aseptoflex Vario		
	Welding adapter · Ø 50 mm · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	E30122
	Welding adapter · Ø 50 mm · with leakage port · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	E30130
Aseptoflex Vario · Aseptoflex Vario		
	sealing plug · Aseptoflex Vario · Housing materials: adapter: stainless steel 316L / 1.4435 / sealing ring: FKM	E30128
Clamp adapter · 1-1.5" · G 1		
	Clamp adapter · Clamp · 1-1.5" · ISO 2852 · for units with G 1 adaptation · Housing materials: stainless steel 316L / 1.4435	E33601
Hygienic pipe fitting · DN40 (1.5") · G 1		
	Pipe fitting · Hygienic pipe fitting · Hygienic pipe fitting · DN40 (1.5") · DIN 11851 · for units with G 1 adaptation · Housing materials: stainless steel 316L / 1.4435	E33612
Welding adapter · D50 · G 1		
	Welding adapter · G 1 - Ø 50 mm · Housing materials: stainless steel 316L / 1.4404	E30013
	Welding adapter · G 1 - Ø 50 mm · Housing materials: stainless steel 316L / 1.4404 / O-ring: FKM / O-ring: EPDM	E30072
G 1		
	sealing plug · G 1 · Housing materials: high-grade stainless steel	E30070
Welding adapter · D50 · G ¾		
	Welding adapter · G ¾ - Ø 50 mm · Housing materials: stainless steel 316L / 1.4404	E30009

Type	Description	Order no.
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G ¾



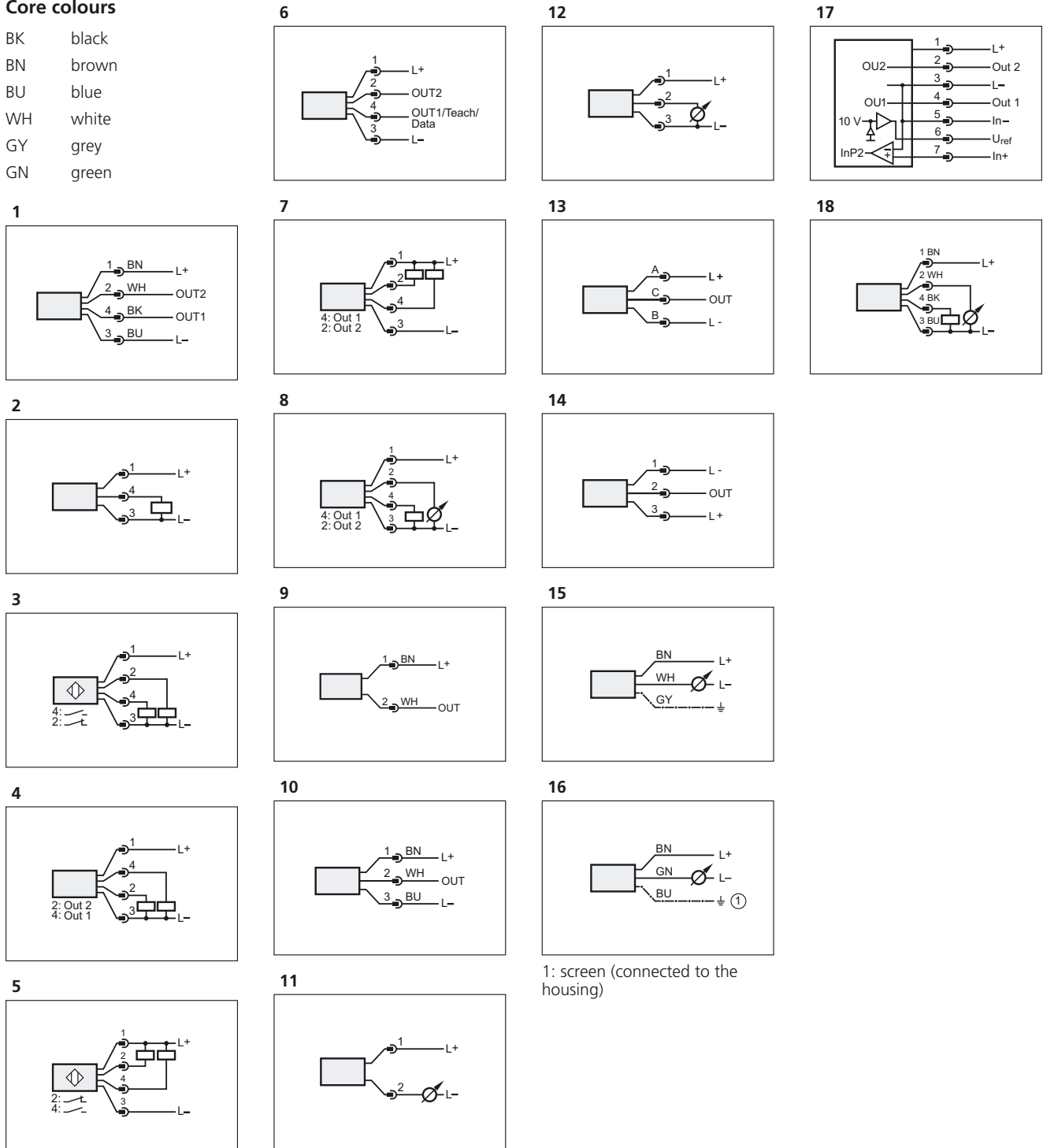
sealing plug · G ¾ · Housing materials: high-grade stainless steel

E30071

Wiring diagrams

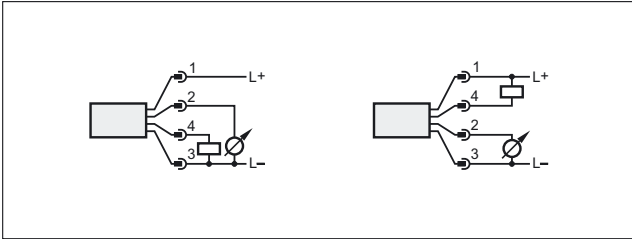
Core colours

- BK black
- BN brown
- BU blue
- WH white
- GY grey
- GN green

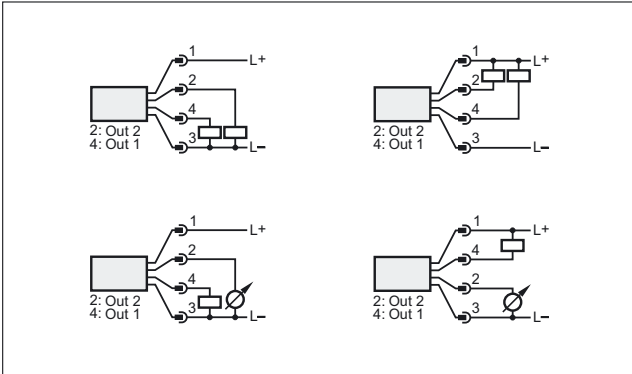


Wiring diagrams

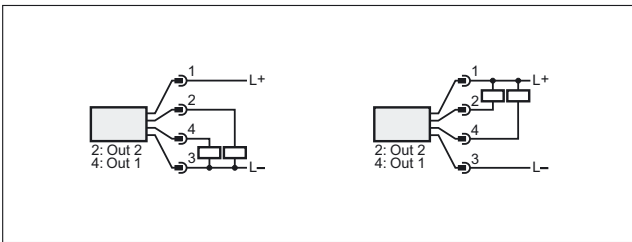
19



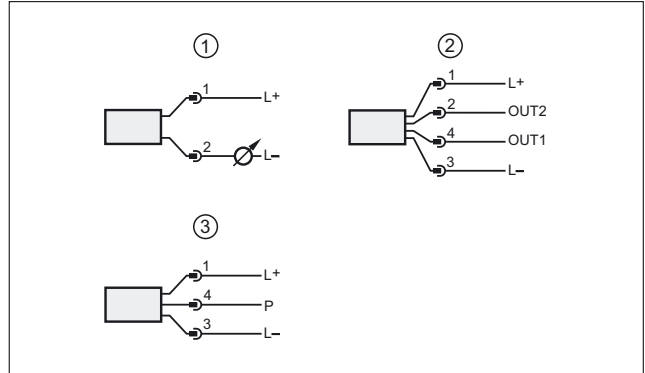
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21

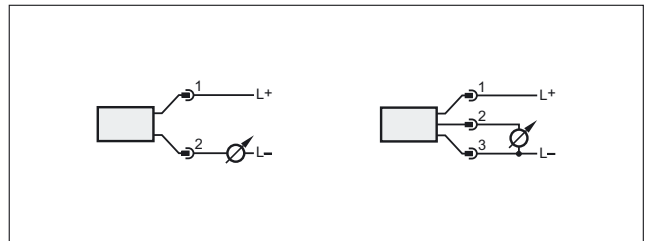


22



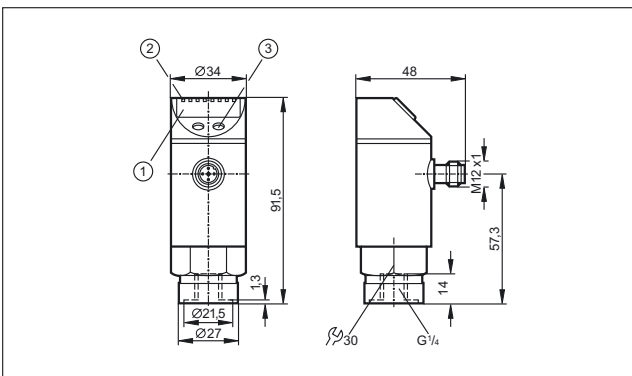
1: connection for 2-wire operation, 2: connection for 3-wire operation, 3: connection for IO-Link parameter setting (P = communication via IO-Link)

23



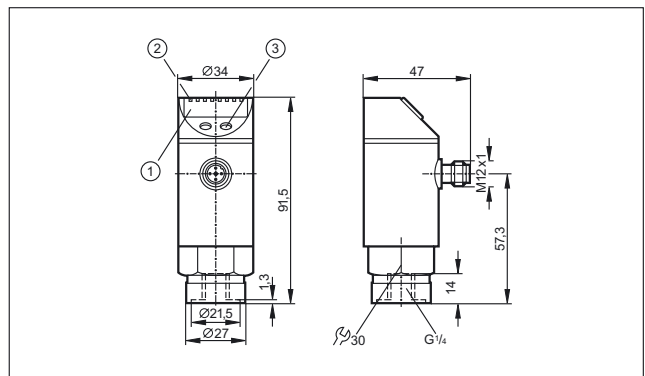
Scale drawings / drawing no. – CAD download: www.ifm.com

1



1: 4-digit alphanumeric display, 2: LEDs (display unit / switching status), 3: Programming button

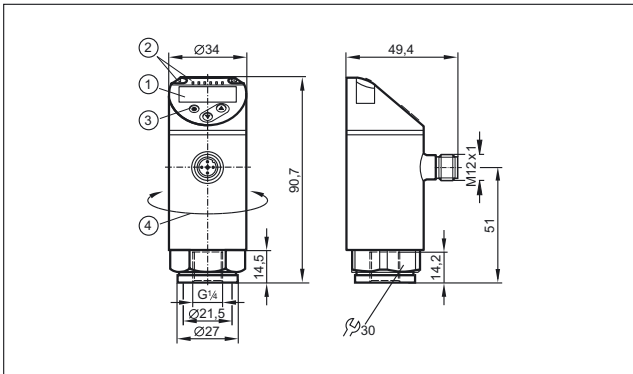
2



1: 4-digit alphanumeric display, 2: LEDs (display unit / switching status), 3: Programming button

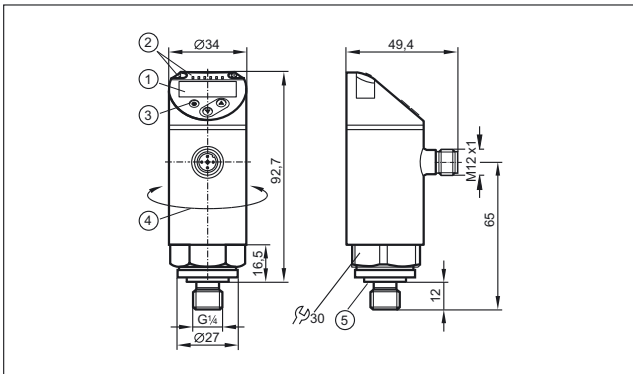
Scale drawings / drawing no. – CAD download: www.ifm.com

3



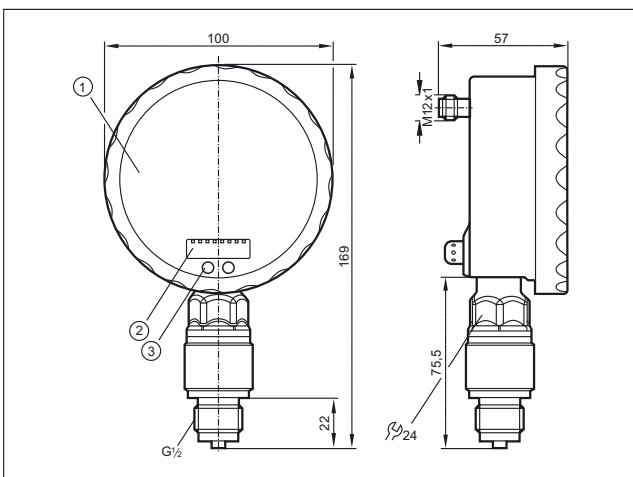
1: 4-digit alphanumeric display / alternating indication of red and green, 2: LEDs (display unit / switching status), 3: Programming button, 4: Upper part of the housing can be rotated by 345°

4



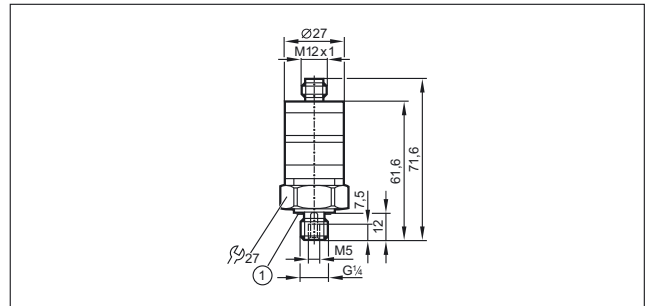
1: 4-digit alphanumeric display / alternating indication of red and green, 2: LEDs (display unit / switching status), 3: Programming button, 4: Upper part of the housing can be rotated by 345°, 5: sealing FKM / DIN 3869

5

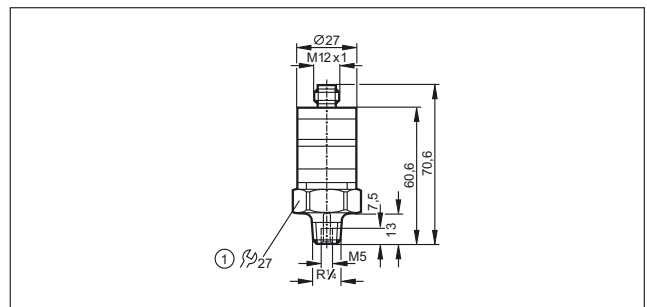


1: Analogue display, 2: 4-digit alphanumeric display, 3: Touch button (programming button)

6

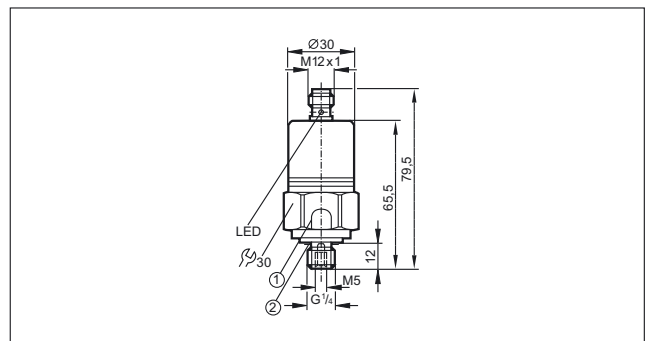


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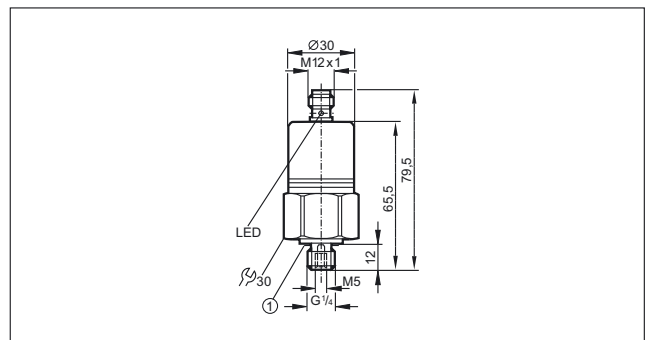
1: tightening torque 25 Nm

8



1: Pressure relief mechanism, No mechanical force must be exerted on the pressure relief mechanism., 2: sealing FPM / DIN 3869-14

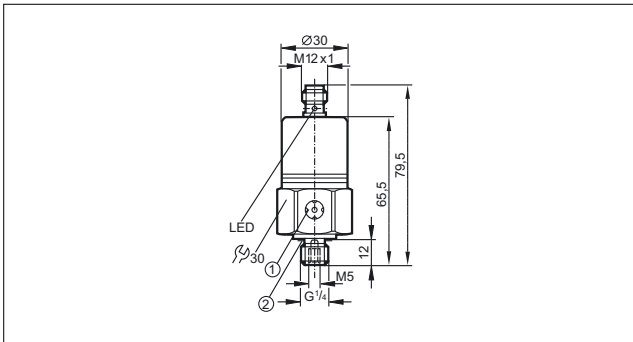
9



1: sealing FPM / DIN 3869-14

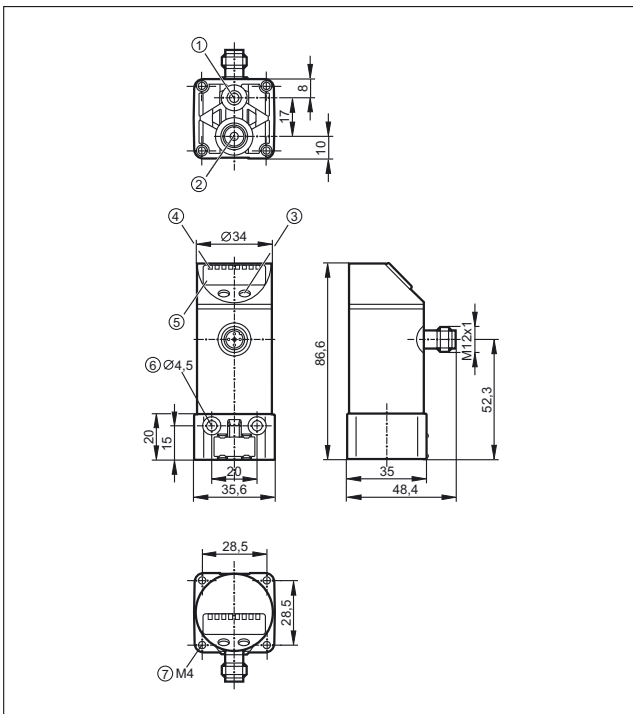
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10



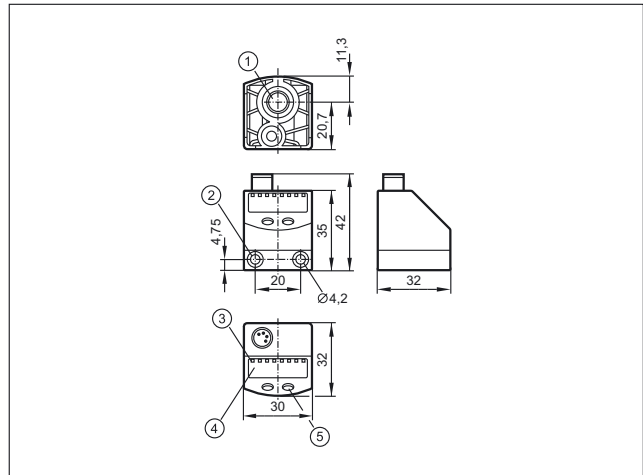
1: ventilation, 2: sealing FPM / DIN 3869-14

11



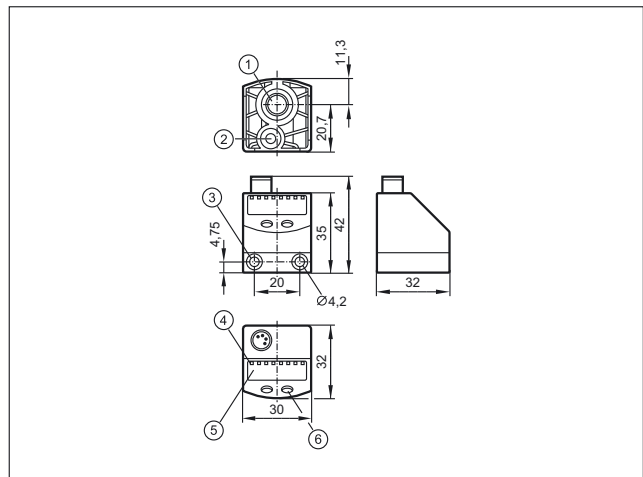
1: ventilation connection M5; max. tightening torque 2.5 Nm, 2: main pressure connection G 1/8; tightening torque max. 8 Nm, 3: Programming button, 4: LEDs (display unit / switching status), 5: 4-digit alphanumeric display, 6: for mounting screw M4; max. tightening torque 2.5 Nm, 7: for mounting screw M4; max. tightening torque 2.5 Nm

12



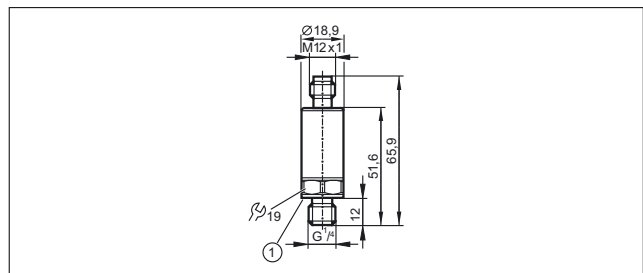
1: main pressure connection G 1/8; tightening torque max. 8 Nm, thread length max: 7.5 mm, 2: for mounting screw M4; max. tightening torque 2.5 Nm, 3: LEDs (display unit / switching status), 4: 4-digit alphanumeric display, 5: Programming button

13



1: Main pressure connection G 1/8; Tightening torque max. 8 Nm, insertion depth max. 7.5 mm, 2: Auxiliary pressure connection M5; Tightening torque max. 2.5 Nm, insertion depth max. 7.5 mm, 3: for mounting screw M4; max. tightening torque 2.5 Nm, 4: LEDs (display unit / switching status), 5: 4-digit alphanumeric display, 6: Programming button

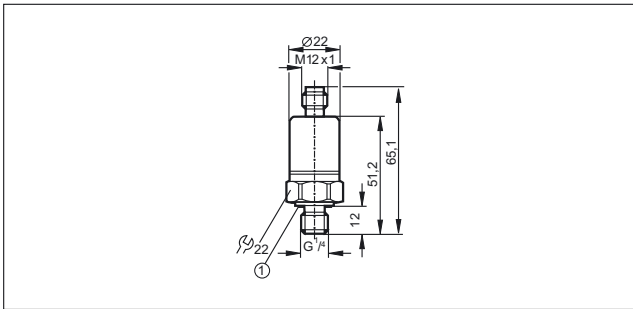
14



1: FKM seal / DIN 3869-14

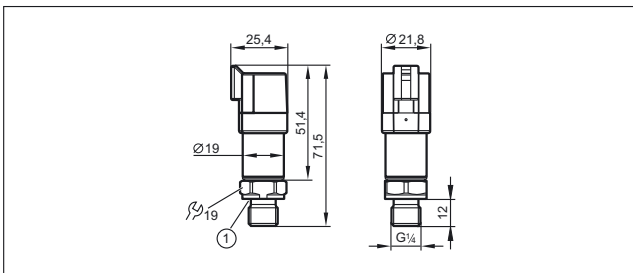
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15



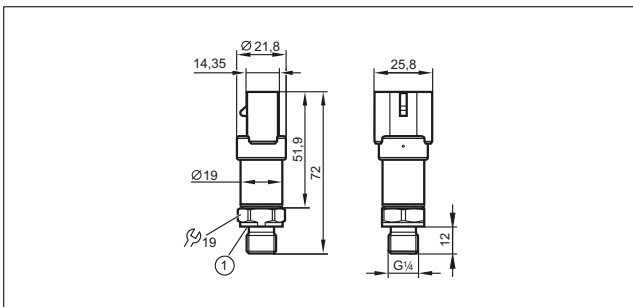
1: FKM seal / DIN 3869-14, tightening torque 25 Nm

16



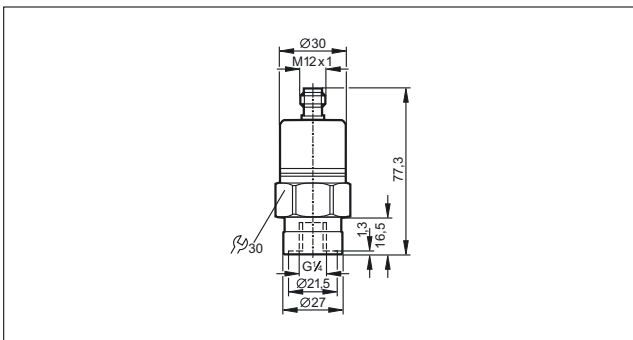
1: sealing FKM / DIN 3869

17

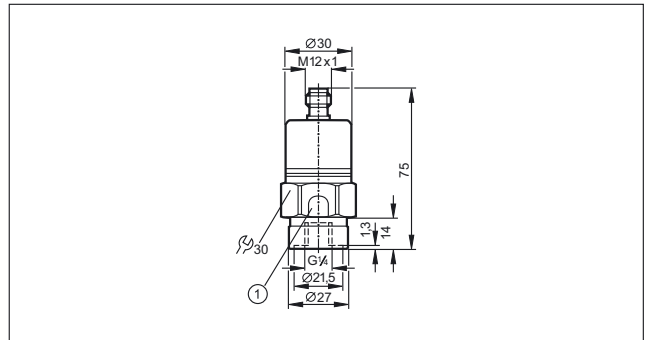


1: sealing FKM / DIN 3869

18

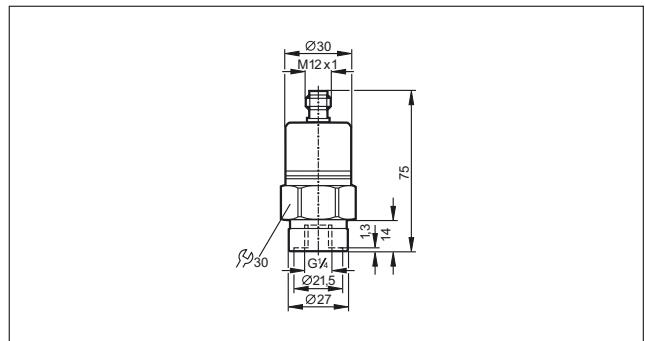


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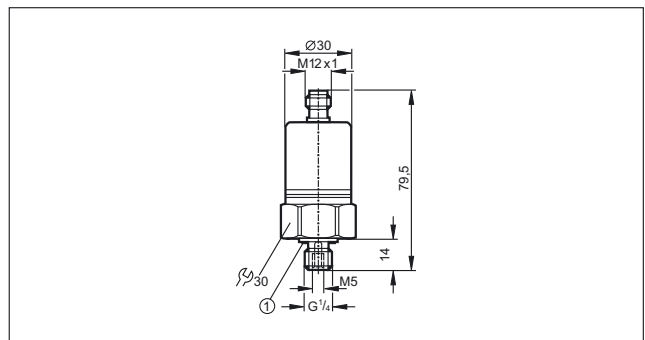


1: Pressure relief mechanism, No mechanical force must be exerted on the pressure relief mechanism.

20

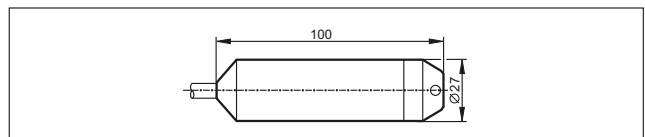


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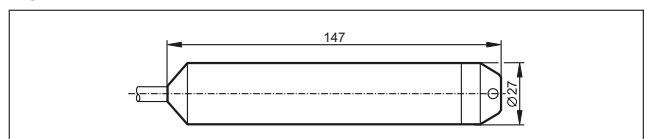


1: sealing FPM / DIN 3869-14

22

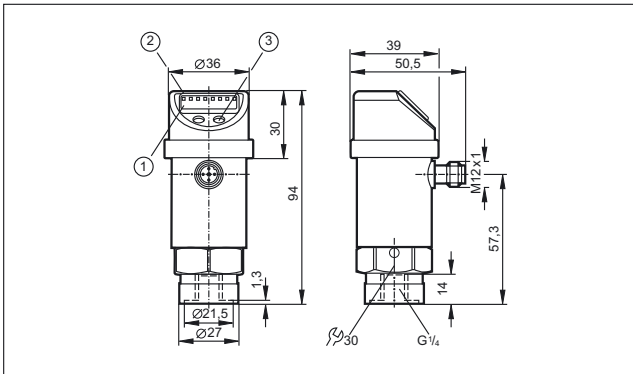


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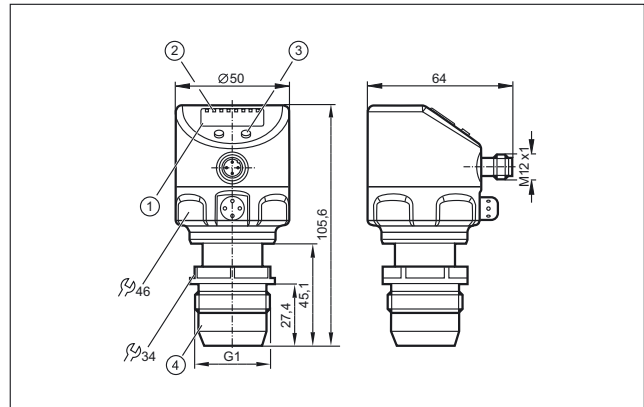
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24



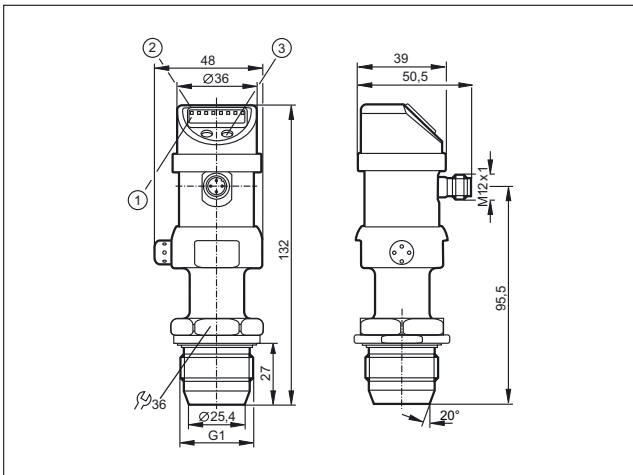
1: 4-digit alphanumeric display, 2: LEDs (display unit / switching status), 3: Programming button

27



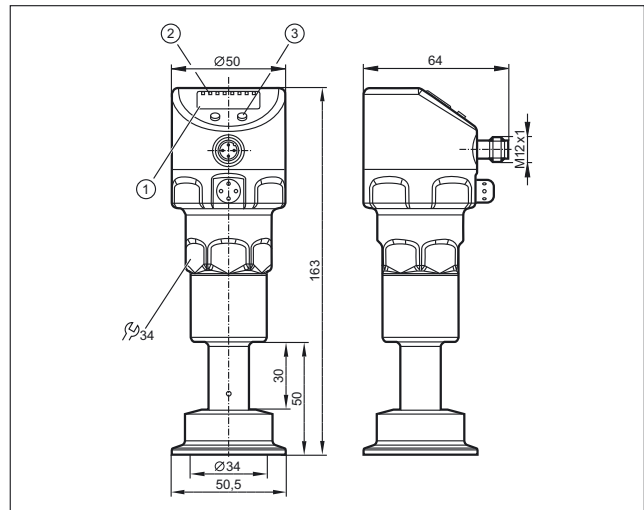
1: 4-digit alphanumeric display, 2: LEDs, 3: Programming button, 4: Sealing cone G1 male, Attention: The unit must only be installed in a process connection for G1 sealing cone! The G1A sealing cone of the unit is only suited for adapters with metal end stop!

25



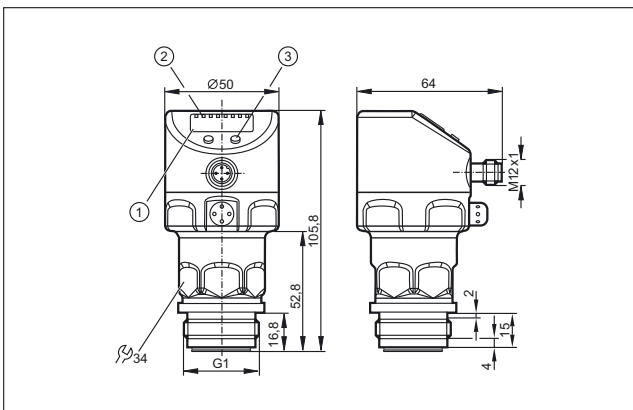
1: 4-digit alphanumeric display, 2: LEDs, 3: Programming button

28



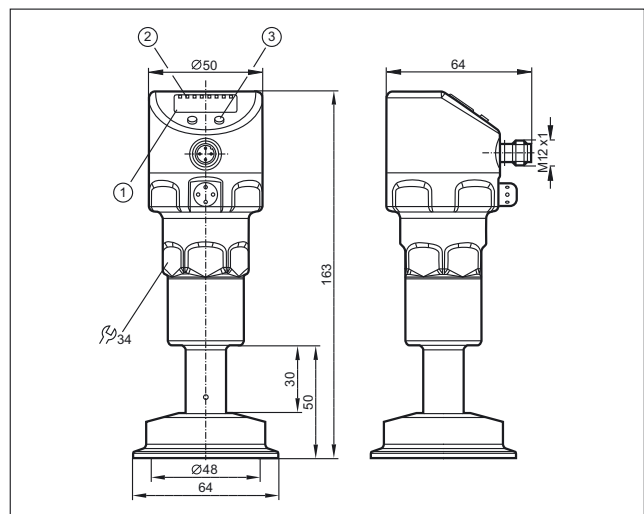
1: 4-digit alphanumeric display, 2: LEDs, 3: Programming button

26



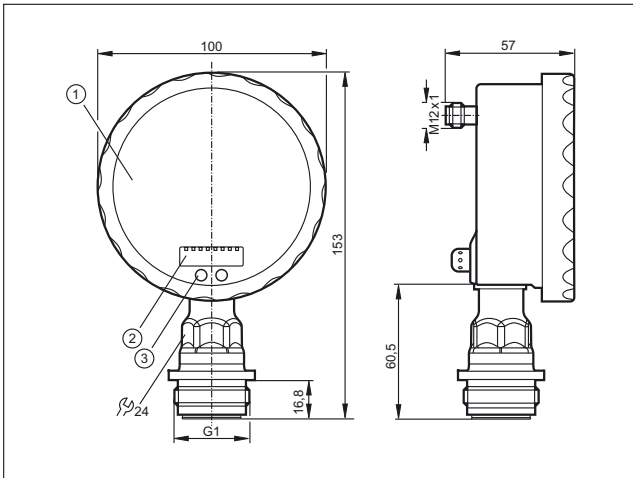
1: 4-digit alphanumeric display, 2: LEDs, 3: Programming button

29



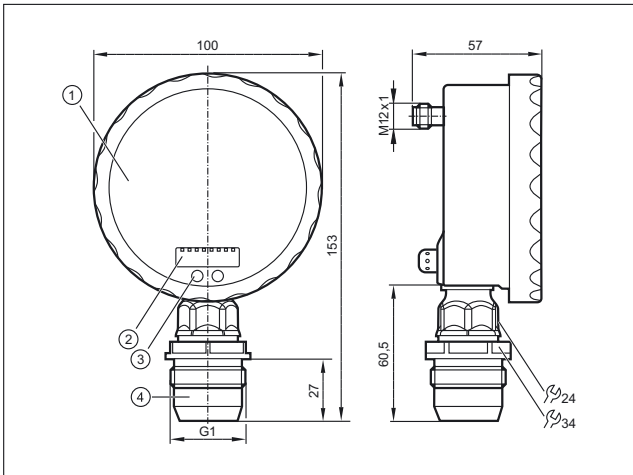
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30



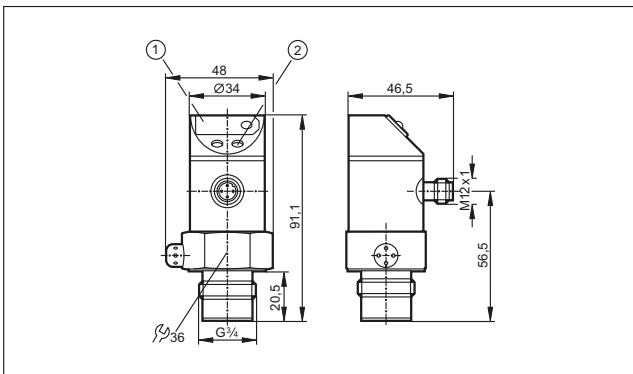
1: Analogue display, 2: 4-digit alphanumeric display, 3: Programming button

31



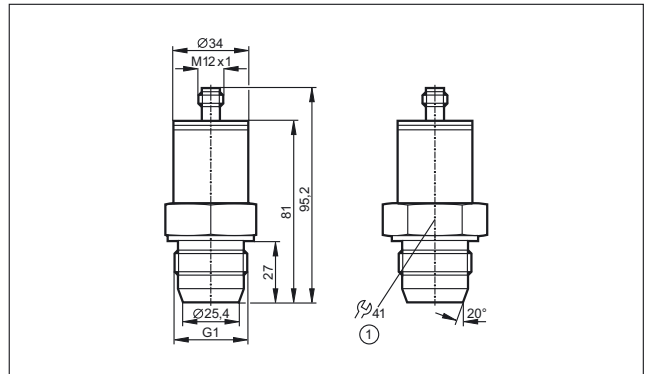
1: Analogue display, 2: 4-digit alphanumeric display, 3: Touch button (programming button), 4: Sealing cone G1 male, Attention: The unit must only be installed in a process connection for G1 sealing cone! The G1A sealing cone of the unit is only suited for adapters with metal end stop!

32



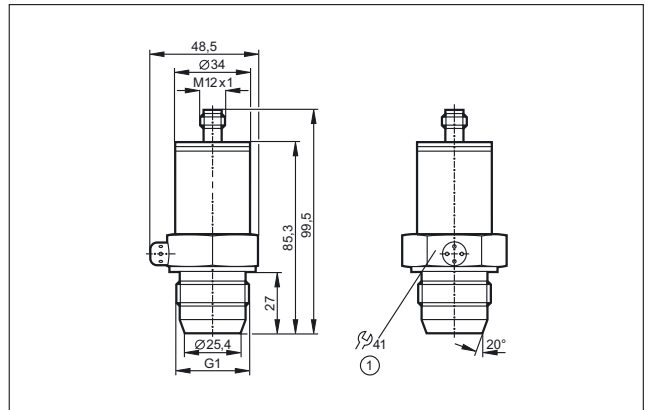
1: 7-segment LED display, 2: Programming button

33



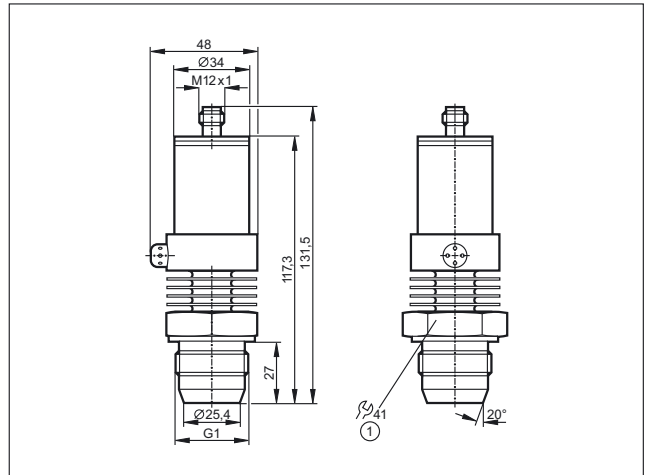
1: tightening torque 20 Nm

34



1: tightening torque 20 Nm

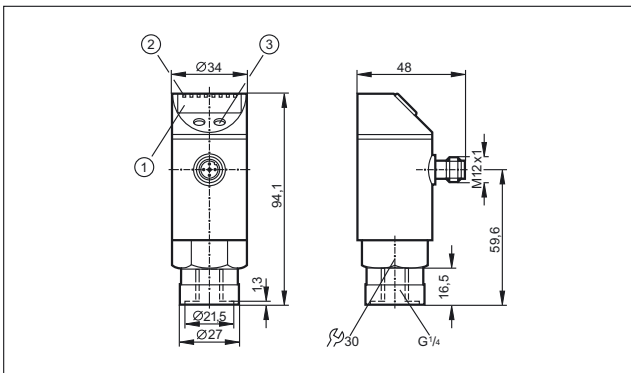
35



1: tightening torque 20 Nm

Scale drawings / drawing no. – CAD download: www.ifm.com

36



1: 4-digit alphanumeric display, 2: LEDs (display unit / switching status), 3: Programming button



- For liquids and gases
- Special versions for food applications and hazardous areas
- Optional fittings for variable process connection
- Flow monitoring also for aggressive media

Flow sensors

In almost all fields of process and plant engineering liquids or gases are used for coolant and lubricant supply of machines and units, ventilation of installations and buildings and the processing of products. In case of no flow of these media considerable damage and downtime may result. Thus it is very important to monitor these media. In modern installations electronic flow monitors are used for this purpose. They work without wear and tear and without mechanical components. This guarantees reliable monitoring even in case of difficult media over a long period.

Operating principle

Electronic flow sensors from ifm operate with different measurement techniques. They meet all requirements from a simple monitoring function to the exact detection of flow quantities.

Harmonised operating menus ensure that operators who use different flow sensors can quickly and precisely carry out settings on the sensors. Some flow sensors feature an integrated temperature monitor which makes an additional measuring point unnecessary. This enables to control processes in the optimum operating status especially with regard to energy savings.

Analogue, binary and pulse outputs offer various possibilities to process the measured data. Due to the flexible programming by means of pushbuttons the flow sensors can be adapted to different conditions. The sensors are mounted via adapters.



Monitoring very small flow rates: Flow monitor with flow adapter.

Optimised consumption of compressed air.



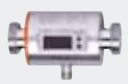


System overview	Page
Magnetic-inductive flow meters with integrated temperature measurement (sealing material FKM)	466
Magnetic-inductive flow meters with integrated temperature monitoring (sealing material EPDM) KTW / W270 approval	466 - 467
Magnetic-inductive flow meters (sealing material FKM)	467
Compact housings for adapters for flow monitoring	467 - 468
Compact housings can be configured for T-pieces for flow monitoring	468
Compact housings for adapters for flow monitoring, Hastelloy sensor tip	468
Compact housings for adapters for flow monitoring, titanium sensor tip	469
Compact designs for adapter with flow and temperature monitoring	469
Compact housings for adapters with ATEX approval group II, category 3D / 3G	469
Compact housings for adapters with Germanischer Lloyd (GL) approval	469
Compact housings for adapters for hygienic and wet areas	470
Mechatronic flow sensors for machine tools	470
Mechatronic flow sensors for liquids	471
Mechatronic flow sensors for high temperatures	471 - 472
Flow sensors for connection to control monitors, industrial applications	472 - 473
Flow sensors for connection to control monitors, industrial applications, titanium housing	473
Flow sensors for connection to control monitors for hygienic and wet areas	473
Flow sensors for connection to control monitors for aggressive media, ceramic housing	474
Flow sensors for connection to control monitors with ATEX approval	474 - 475
Flow sensors for connection to control monitors with ATEX approval, ceramic housing	475
Flow sensors for connection to control monitors with ATEX approval 2G	475
Air flow monitors	476
Compressed air meters	476 - 477
Compressed air meter for special gases	477
Inline sensor for small dosing quantities of water and aqueous solutions	477
Ultrasonic flow meters for liquids (water, glycol solutions, oils)	477 - 478
Accessories for flow sensors and control monitors	478 - 479
Flange adapters for flow sensors	480 - 481
Accessories for airflow monitors	481
Accessories for flow meters	481 - 482
Grounding clamps for magnetic-inductive flow meters	482
Wiring diagrams	483 - 484
Scale drawings / drawing no. – CAD download: www.ifm.com	484 - 491


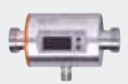

Magnetic-inductive flow meters with integrated temperature measurement (sealing material FKM)

Type	Process connection	Measuring range [l/min]	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U _b [V]	Drawing no.	Order no.
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Output function OUT1: normally open / closed programmable or pulse OUT2: normally open / closed programmable or analogue (4...20 mA / 0...10 V, scalable) · Wiring diagram no. 1 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147

	G½	0.25...25.00	-10...70	16	< 0.150	19...30	1	SM6000
	G¾	0.5...50.0	-10...70	16	< 0.150	19...30	2	SM7000
	G1	0.7...100.0	-10...70	16	< 0.150	19...30	3	SM8000


Output function 2 x analogue (4...20 mA scalable) · Wiring diagram no. 1 · Connector groups 8, 10, 18, 20, 117, 118, 147

	G½	0.1...25.00	-10...70	16	< 0.150	20...30	1	SM6004
	G¾	0.2...50.0	-10...70	16	< 0.150	20...30	2	SM7004
	G1	0.2...100.0	-10...70	16	< 0.150	20...30	3	SM8004

Output function OUT1: norm. open/norm. closed progr. or pulse or frequency or empty pipe detection or IO-Link OUT2: norm. open/norm. closed progr. or analogue (4...20 mA; 0...10 V, scalable) or empty pipe detection · Wiring diagram no. 1 · Connector groups 8, 9, 10, 12, 13, 18, 19, 20, 21, 117, 118, 119, 120, 121, 122, 147, 149

	G2 flat seal	8...600	-10...70	16	< 0.35	18...32	4	SM2000
	G2 flat seal	6.5...300	-10...70	16	< 0.35	18...32	4	SM9000

Output function OUT1: analogue (4...20 mA) or IO-Link OUT2: Analogue (4...20 mA) · Wiring diagram no. 1 · Connector groups 8, 10, 18, 20, 117, 118, 147

	G2 flat seal	5...600	-10...70 / 14...158	16	< 0.35	18...32	4	SM2004
	G2 flat seal	5...300	-10...70 / 14...158	16	< 0.35	18...32	4	SM9004


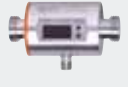
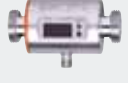

Magnetic-inductive flow meters with integrated temperature monitoring (sealing material EPDM) KTW / W270 approval

Type	Process connection	Measuring range [l/min]	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U _b [V]	Drawing no.	Order no.
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Output function OUT1: norm. open / norm. closed progr. or pulse or frequency or empty pipe detection or IO-Link OUT2: norm. open / norm. closed progr. or analogue (4...20 mA; 0...10 V, scalable) or empty pipe detection · Wiring diagram no. 1 · Connector groups 8, 9, 10, 12, 13, 18, 19, 20, 21, 117, 118, 119, 120, 121, 122, 147, 149

	G2 flat seal	8...600	-10...70	16	< 0.35	18...32	4	SM2100
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Product selectors and further information can be found at: www.ifm.com

Type	Process connection	Measuring range [l/min]	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U _b [V]	Drawing no.	Order no.
Output function OUT1: normally open / closed programmable or pulse OUT2: normally open / closed programmable or analogue (4...20 mA / 0...10 V, scaleable) · Wiring diagram no. 1 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147								
	G½	0.25...25.00	-10...70	16	< 0.150	19...30	1	SM6100
	G¾	0.5...50.0	-10...70	16	< 0.150	19...30	2	SM7100
	G1	0.7...100.0	-10...70	16	< 0.150	19...30	3	SM8100
Output function OUT1: norm. open / norm. closed progr. or pulse or frequency or empty pipe detection or IO-Link OUT2: norm. open / norm. closed progr. or analogue (4...20 mA; 0...10 V, scaleable) or empty pipe detection · Wiring diagram no. 1 · Connector groups 8, 9, 10, 12, 13, 18, 19, 20, 21, 117, 118, 119, 120, 121, 122, 147, 149								
	G2 flat seal	6.5...300	-10...70	16	< 0.35	18...32	4	SM9100

Magnetic-inductive flow meters (sealing material FKM)

Type	Process connection	Measuring range [l/min]	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U _b [V]	Drawing no.	Order no.
M12 connector · Output function 4...20 mA analogue · DC · Wiring diagram no. 2 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147								
	G½	0...25	-10...70	16	< 0.150	19...30	5	SM6050
	G¾	0...50	-10...70	16	< 0.150	19...30	6	SM7050
	G1	0...100	-10...70	16	< 0.150	19...30	7	SM8050

Compact housings for adapters for flow monitoring

Type	Setting range liquids / gases [cm/s]	Material sensor tip	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U _b [V]	Drawing no.	Order no.
M12 connector · Wiring diagram no. 3 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147								
	3...300 / 200...3000	stainless steel 316L / 1.4404	-25...80	30	1...10	19...36	8	SI5000
M12 connector · Wiring diagram no. 4 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147								
	3...300 / 200...3000	stainless steel 316L / 1.4404	-25...80	300	1...10	19...36	9	SI5002


Process sensors

Type	Setting range liquids / gases [cm/s]	Material sensor tip	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U _b [V]	Draw- ing no.	Order no.
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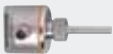
1/2" UNF-Connector · Wiring diagram no. 5 · Connector group 30

	3...300 / 200...3000	stainless steel 316L / 1.4404	-25...80	300	1...10	85...265	10	SI5006*
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M12 connector · Wiring diagram no. 6 · Connector groups 8, 10, 18, 20, 117, 118, 147

	3...300 / -	stainless steel 316L / 1.4404	-25...80	300	1...10	19...36	9	SI5004
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M12 connector · Wiring diagram no. 7 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147

	3...300 / 200...3000	stainless steel 316L / 1.4404	-25...80	300	1...2 / 1...10	18...36	9	SI5010
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* Note for AC and AC/DC units

Miniature fuse to IEC60127-2 sheet 1, ≤ 5 A (fast acting) Recommendation: check the unit for reliable function after a short circuit.

Compact housings can be configured for T-pieces for flow monitoring

Type	Setting range liquids / gases [cm/s]	Material sensor tip	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U _b [V]	Draw- ing no.	Order no.
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M12 connector · Wiring diagram no. 24 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147

	0.1...12.0 (NW15) 0.2...24.0 (NW19) 0.4...48.0 (NW24)	stainless steel 316L / 1.4404	0...80	30	5	20...28	11	SA3010
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Compact housings for adapters for flow monitoring, Hastelloy sensor tip

Type	Setting range liquids / gases [cm/s]	Material sensor tip	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U _b [V]	Draw- ing no.	Order no.
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M12 connector · Wiring diagram no. 8 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147

	3...300 / 200...3000	Hastelloy C-4 (2.4610)	-25...80	300	1...2 / 1...10	19...36	9	SI0553
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Compact housings for adapters for flow monitoring, titanium sensor tip

Type	Setting range liquids / gases [cm/s]	Material sensor tip	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U _b [V]	Draw- ing no.	Order no.
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M12 connector · Wiring diagram no. 8 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147

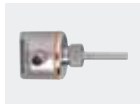


3...300 / 200...3000	titanium (3.7035)	-25...80	300	1...2 / 1...10	19...36	9	SI5100
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Compact designs for adapter with flow and temperature monitoring

Type	Setting range liquids / gases [cm/s]	Material sensor tip	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U _b [V]	Draw- ing no.	Order no.
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M12 connector · Wiring diagram no. 4 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147

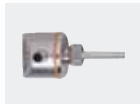


3...300 / 200...3000	stainless steel 316L / 1.4404	-25...80	300	1...10	19...36	9	SI5007
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Compact housings for adapters with ATEX approval group II, category 3D / 3G

Type	Setting range liquids / gases [cm/s]	Material sensor tip	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U _b [V]	Draw- ing no.	Order no.
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M12 connector · Wiring diagram no. 3 · Connector groups 144, 146

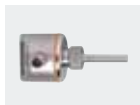


3...300 / 200...3000	stainless steel 316L / 1.4404	-25...80	30	1...10	19...36	8	SI500A
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Compact housings for adapters with Germanischer Lloyd (GL) approval

Type	Setting range liquids / gases [cm/s]	Material sensor tip	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U _b [V]	Draw- ing no.	Order no.
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M12 connector · Wiring diagram no. 4 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147


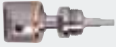



3...300	stainless steel 316L / 1.4404	-15...70	-	1...10	24	9	SI0521
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Compact housings for adapters for hygienic and wet areas


Type	Setting range liquids / gases [cm/s]	Material sensor tip	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U _b [V]	Draw- ing no.	Order no.
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M12 connector · Wiring diagram no. 3 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147

	3...300 / 200...3000	stainless steel 316L / 1.4435	-25...95	30	1...10	–	12	SI6600
	3...300 / 200...3000	stainless steel 316L / 1.4435	-25...95	30	1...10	54.8	13	SI6700
	3...300 / 200...3000	stainless steel 316L / 1.4435	-25...95	30	1...10	–	14	SI6800


Mechatronic flow sensors for machine tools

Type	Process connection	Measuring range [l/min]	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U _b [V]	Draw- ing no.	Order no.
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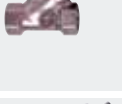




M12 connector · Output function  · DC PNP · Wiring diagram no. 9 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147

	G ½	0.3...25	0...60	200	< 0.01	24	15	SBU323
	G ½	0.3...50	0...60	200	< 0.01	24	15	SBU324
	G ½	0.3...75	0...60	200	< 0.01	24	15	SBU325


M12 connector · Output function analogue · DC · Wiring diagram no. 10 · Connector groups 8, 10, 18, 20, 117, 118, 147

	G ½	0.3...25	0...60	200	< 0.01	24	16	SBU623
	G ½	0.3...50	0...60	200	< 0.01	24	16	SBU624
	G ½	0.3...75	0...60	200	< 0.01	24	16	SBU625

Mechatronic flow sensors for liquids

Type	Process connection	Measuring range [l/min]	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U _b [V]	Drawing no.	Order no.
M12 connector · Output function  · DC PNP · Wiring diagram no. 11 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147								
	Rp 3/4	1...15	0...85	25	< 0.01	24	17	SBY332
	Rp 1/2	2...20	0...85	25	< 0.01	24	18	SBY323
	Rp 3/4	1...25	0...85	25	< 0.01	24	17	SBY333
	Rp 3/4	2...50	0...85	25	< 0.01	24	17	SBY334
	Rp 1	5...100	0...85	25	< 0.01	24	19	SBY346
	Rp 1 1/2	20...200	0...85	25	< 0.01	24	20	SBY357
	G 1/2	1...15	0...85	25	< 0.01	24	21	SBG332
	G 1/2	1...25	0...85	25	< 0.01	24	21	SBG333
	G 1/2	2...50	0...85	25	< 0.01	24	21	SBG334
	G 3/4	5...100	0...85	25	< 0.01	24	22	SBG346
	G 1 1/4	20...200	0...85	25	< 0.01	24	23	SBG357




Mechatronic flow sensors for high temperatures

Type	Process connection	Measuring range [l/min]	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U _b [V]	Drawing no.	Order no.
M12 connector · Output function analogue · DC · Wiring diagram no. 10 · Connector groups 8, 10, 18, 20, 117, 118, 147								
	Rp 3/4	1...25	-10...100	25	< 0.01	18...32	24	SBY433



Process sensors

Type	Process connection	Measuring range [l/min]	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U _b [V]	Draw- ing no.	Order no.
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M12 connector · Output function analogue · DC · Wiring diagram no. 10 · Connector groups 8, 10, 18, 20, 117, 118, 147

	Rp ¾	2...50	-10...100	25	< 0.01	18...32	24	SBY434
	Rp 1	4...100	-10...100	25	< 0.01	18...32	25	SBY446
	Rp 1½	8...200	-10...100	25	< 0.01	18...32	26	SBY457

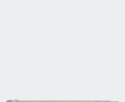
Cable with connector 0.3 m · Output function analogue · DC · Wiring diagram no. 10 · Connector groups 8, 10, 18, 20, 117, 118, 147

	Rp ¾	0.3...25	10...180	15	< 0.01	24	27	SBT633
	Rp ¾	0.3...50	10...180	15	< 0.01	24	27	SBT634
	G ¾	0.3...25	10...180	15	< 0.01	24	28	SBM613


Flow sensors for connection to control monitors, industrial applications

Type	Setting range liquids / gases [cm/s]	Greatest sensitivity [cm/s]	Medium temperature [°C]	Response time [s]	Max. T ₀ gradient [K/min]	Pressure rating [bar]	Draw- ing no.	Order no.
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M12 connector · Wiring diagram no. 12 · Connector groups 12, 13, 19, 21, 121, 122, 149

	3...300 / 200...3000	3...60 / 200...800	-25...80	1...10	30	30	29	SF6200
	3...300 / 200...3000	3...60 / 200...800	-25...80	1...10	30	30	30	SF6201

M12 connector · Wiring diagram no. 12 · Connector groups 121, 122, 149

	3...300 / 200...3000	3...60 / 200...800	-25...80	1...10	300	300	31	SF5200
	3...300 / 200...3000	3...60 / 200...800	-25...80	1...10	300	30	32	SF5201

Cable 6 m · Wiring diagram no. 13

	3...300 / 200...3000	3...60 / 200...800	-25...80	1...10	300	300	33	SF5350
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Type	Setting range liquids / gases [cm/s]	Greatest sensitivity [cm/s]	Medium temperature [°C]	Response time [s]	Max. T ₀ gradient [K/min]	Pressure rating [bar]	Draw- ing no.	Order no.
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Cable 6 m · Wiring diagram no. 13

	3...300 / 200...3000	3...60 / 200...800	0...120 / 0...100	1...10	300	300	33	SF5300
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Flow sensors for connection to control monitors, industrial applications, titanium housing

Type	Setting range liquids / gases [cm/s]	Greatest sensitivity [cm/s]	Medium temperature [°C]	Response time [s]	Max. T ₀ gradient [K/min]	Pressure rating [bar]	Draw- ing no.	Order no.
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Cable 6 m · Wiring diagram no. 13

	3...300 / 200...3000	3...60 / 200...800	0...120 / 0...100	1...10	300	100	33	SF5800
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M12 connector · Wiring diagram no. 12 · Connector groups 121, 122, 149

	3...300 / 200...3000	3...60 / 200...800	-25...80	1...10	300	100	31	SF5700
	3...300 / 200...3000	3...60 / 200...800	-25...80	1...10	300	100	34	SF5701
	3...300 / 200...3000	3...60 / 200...800	-25...80	1...10	300	100	35	SF5702
	3...300 / 200...3000	3...60 / 200...800	-25...80	1...10	300	100	36	SF5703
	3...300 / 200...3000	3...60 / 200...800	-25...80	1...10	300	100	37	SF5704

Flow sensors for connection to control monitors for hygienic and wet areas

Type	Setting range liquids / gases [cm/s]	Greatest sensitivity [cm/s]	Medium temperature [°C]	Response time [s]	Max. T ₀ gradient [K/min]	Pressure rating [bar]	Draw- ing no.	Order no.
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Cable 6 m · Wiring diagram no. 13

	3...300 / 200...2000	3...60 / 200...800	0...120 / 0...100	1...10	15	30	–	SF0516
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Flow sensors for connection to control monitors for aggressive media, ceramic housing

Type	Setting range liquids / gases [cm/s]	Greatest sensitivity [cm/s]	Medium temperature [°C]	Response time [s]	Max. T ₀ gradient [K/min]	Pressure rating [bar]	Drawing no.	Order no.
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M12 connector · Wiring diagram no. 12 · Connector groups 12, 13, 19, 21, 121, 122, 149

	3...60 / -	3...40 / -	5...70	2...20	7	30	38	SF2405
	3...60 / -	3...40 / -	5...70	2...20	7	30	39	SF3405

Cable 6 m · Wiring diagram no. 13

	3...60 / -	3...40 / -	5...70	2...20	7	30	40	SF2410
	3...60 / -	3...40 / -	5...70	2...20	7	30	41	SF3410







Cable 16 m · Wiring diagram no. 13




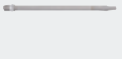
	3...60	3...40	5...70	2...20	7	30	40	SF0540
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Flow sensors for connection to control monitors with ATEX approval

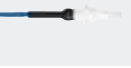
Type	Setting range liquids / gases [cm/s]	Greatest sensitivity [cm/s]	Medium temperature [°C]	Response time [s]	Max. T ₀ gradient [K/min]	Pressure rating [bar]	Drawing no.	Order no.
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Cable 6 m · Wiring diagram no. 14


	3...300 / 200...2000	3...60 / 200...800	-20...60	1...10	15	300	42	SF111A
	3...300 / 200...2000	3...60 / 200...800	-20...60	1...10	15	300	43	SF211A
	3...300 / 200...2000	3...60 / 200...800	-20...60	1...10	15	300	44	SF311A
	3...300 / 200...2000	3...60 / 200...800	-20...70	1...10	15	30	45	SF121A
	3...300 / 200...2000	3...60 / 200...800	-20...70	1...10	15	30	46	SF221A
	3...300 / 200...2000	3...60 / 200...800	-20...70	1...10	15	30	47	SF321A

Type	Setting range liquids / gases [cm/s]	Greatest sensitivity [cm/s]	Medium temperature [°C]	Response time [s]	Max. T ₀ gradient [K/min]	Pressure rating [bar]	Draw- ing no.	Order no.
M12 connector · Wiring diagram no. 15 · Connector group 145								
	3...300 / 200...2000	3...60 / 200...800	-20...70	1...10	15	30	48	SF120A
	3...300 / 200...2000	3...60 / 200...800	-20...70	1...10	15	30	49	SF220A
	3...300 / 200...2000	3...60 / 200...800	-20...70	1...10	15	30	50	SF320A
	3...300 / 200...3000	3...60 / 200...800	-20...70	1...10	15	30	29	SF620A

Flow sensors for connection to control monitors with ATEX approval, ceramic housing

Type	Setting range liquids / gases [cm/s]	Greatest sensitivity [cm/s]	Medium temperature [°C]	Response time [s]	Max. T ₀ gradient [K/min]	Pressure rating [bar]	Draw- ing no.	Order no.
Cable 6 m · Wiring diagram no. 14								
	3...60 / -	3...40 / -	5...70	2...20	7	30	40	SF223A
	3...60 / -	3...40 / -	5...70	2...20	7	30	41	SF323A

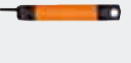
Flow sensors for connection to control monitors with ATEX approval 2G

Type	Setting range liquids / gases [cm/s]	Greatest sensitivity [cm/s]	Medium temperature [°C]	Response time [s]	Max. T ₀ gradient [K/min]	Pressure rating [bar]	Draw- ing no.	Order no.
Cable 6 m · Wiring diagram no. 16								
	3...300 / 100...15000	3...100 / 100...7500	-20...70	1...10	30	30	51	SP321A

Air flow monitors

Type	Setting range liquids / gases [cm/s]	Greatest sensitivity [cm/s]	Medium temperature [°C]	Response time [s]	U _b / tolerance [V] / [%]	Drawing no.	Order no.
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Cable 2 m · Wiring diagram no. 17

	100...1000	100...400	-10...50	3...60	80...250 AC	52	SL0101*
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Cable 2 m · Wiring diagram no. 18

	100...1000	100...400	-10...50	3...60	24 AC	52	SL0201*
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Cable 2 m · Wiring diagram no. 19

	100...1000	100...400	-10...50	3...60	24 DC ± 25 %	52	SL5101
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* Note for AC and AC/DC units

Miniature fuse to IEC60127-2 sheet 1, ≤ 5 A (fast acting) Recommendation: check the unit for reliable function after a short circuit.

Compressed air meters


Type	Process connection	Setting range [Nm ³ /h]	Pressure rating [bar]	Response time [s]	U _b [V]	Drawing no.	Order no.
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Output function OUT1: normally open / closed programmable or pulse OUT2: normally open / closed programmable or analogue (4...20 mA scaleable) · Wiring diagram no. 20 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147

	G ¼ (DN8)	0.12...15.00	16	< 0.1	18...30	53	SD5000
	R½ (DN15)	0.6...75.0	16	< 0.1	18...30	54	SD6000
	G ½ (DN15)	0.6...75	16	< 0.1	18...30	55	SD6050
	R1 (DN25)	1.8...225.0	16	< 0.1	18...30	56	SD8000
	R1½ (DN40)	3.5...410.0	16	< 0.1	18...30	57	SD9000
	R2 (DN50)	5...700	16	< 0.1	18...30	58	SD2000

Type	Process connection	Setting range [Nm ³ /h]	Pressure rating [bar]	Response time [s]	U _b [V]	Draw- ing no.	Order no.
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Output function OUT1: normally open / closed programmable or pulse OUT2: normally open / closed programmable or analogue (4...20 mA scaleable) · Wiring diagram no. 25 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147

	G 1 I	18...2110	16	< 0.1	18...30	59	SD0523
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Compressed air meter for special gases

Type	Process connection	Setting range [Nm ³ /h]	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U _b [V]	Draw- ing no.	Order no.
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Output function OUT1: normally open / closed programmable or pulse OUT2: normally open / closed programmable or analogue (4...20 mA scaleable) · Wiring diagram no. 26 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147

	G ¼ (DN8)	Ar: 0.08...24.54 / CO ₂ : 0.047 (0.04)...14.38 / N ₂ : 0.05 (0.06)...14.94	0...60	16	< 0.1	18...30	53	SD5100
	R½ (DN15)	Ar: 0.39 (0.4)...118.2 / CO ₂ : 0.24 (0.2)...71.7 / N ₂ : 0.24 (0.2)...73.0	0...60	16	< 0.1	18...30	60	SD6100

Inline sensor for small dosing quantities of water and aqueous solutions

Type	Process connection	Measuring range [ml/min]	Display range [ml/min]	Pressure rating [bar]	Medium temp. [°C]	Draw- ing no.	Order no.
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M12 connector · Wiring diagram no. 26 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147

	G	1...200	0...240	10	0...60	61	SQ0500
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Ultrasonic flow meters for liquids (water, glycol solutions, oils)

Type	Process connection	Measuring range [l/min]	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U _b [V]	Draw- ing no.	Order no.
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Output function 2 x normally open / closed programmable · Wiring diagram no. 21 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147

	G¾	0.1...50.0	-10...80	16	< 0.250	19...30	62	SU7200
	G1	0.2...100.0	-10...80	16	< 0.250	19...30	63	SU8200







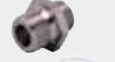


Output function OUT1: normally open / closed programmable or pulse OUT2: normally open / closed programmable or analogue (4...20 mA / 0...10 V, scaleable) · Wiring diagram no. 22 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147














	G¾	0.1...50.0	-10...80	16	< 0.250	19...30	62	SU7000
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Process sensors











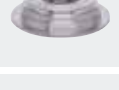



Type	Process connection	Measuring range [l/min]	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U _b [V]	Draw- ing no.	Order no.
Output function OUT1: normally open / closed programmable or pulse OUT2: normally open / closed programmable or analogue (4...20 mA / 0...10 V, scaleable) · Wiring diagram no. 22 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147								
	G1	0.2...100.0	-10...80	16	< 0.250	19...30	63	SU8000
	G1¼	0.4...200.0	-10...80	16	< 0.250	19...30	64	SU9000
Output function 2 x analogue (4...20 mA scaleable) · Wiring diagram no. 23 · Connector groups 8, 10, 18, 20, 117, 118, 147								
	G1¼	0.0...200.0	-10...80	16	< 0.250	19...30	64	SU9004





Accessories for flow sensors and control monitors

Type	Description	Order no.
	T-piece · R½ · M26 x 1.5 · R½ · for sensors and adapters with process connection M26 x 1.5 · Flow rate: 0...10 l/min · Housing materials: stainless steel 316L / 1.4404	E40136
	Progressive ring T-piece DIN 2353 · QL 18-18-18 · for sensors and adapters with process connection M26 x 1.5 · Recommendation: precision steel pipes 18 x 1.5 to DIN 2391/ISO 3304 · Housing materials: stainless steel 316Ti / 1.4571	E40078
	Progressive ring T-piece DIN 2353 · QL 22-18-22 · for sensors and adapters with process connection M26 x 1.5 · Recommendation: precision steel pipes 22 x 1.5 to DIN 2391/ISO 3304 · Housing materials: stainless steel 316Ti / 1.4571	E40079
	Progressive ring T-piece DIN 2353 · QL 28-18-28 · for sensors and adapters with process connection M26 x 1.5 · Recommendation: precision steel pipes 28 x 1.5 to DIN 2391/ISO 3304 · Housing materials: brass	E40083
	Adapter block · D10 / G ¼ · for flow sensors type SID, SF5 · Optimised for the following volumetric flow quantities (factory setting with water): · 0.2...2 l/min (SI1xxx) 0.2...3 l/min (SI5xxx) · Housing materials: stainless steel 316L / 1.4404	E40161
	Adapter block · D15 / G ½ · for flow sensors type SID, SF5 · Optimised for the following volumetric flow quantities (factory setting with water): · 0.5...5 l/min (SI1xxx) 0.5...7 l/min (SI5xxx) · Housing materials: stainless steel 316L / 1.4404	E40162
	Adapter · M18 x 1.5 · G ½ · Insertion depth of the probe of SID, SFD, TN: · 21 mm · Housing materials: titanium	E40114
	Adapter · M18 x 1.5 · G ¼ · Insertion depth of the probe of SID, SFD, TN: · 13.5 mm · Housing materials: titanium	E40115
	Adapter · M18 x 1.5 · L18 · for mounting in T-pieces · Insertion depth of the probe of SID, SFD, TN: · 28.5 mm · Housing materials: nut: stainless steel 316Ti / 1.4571 / adapter: stainless steel 316L / 1.4404 / O-ring: FKM 16 x 1.5 gr 70° Shore A	E40104


Type	Description	Order no.
	Adapter · M18 x 1.5 - M12 x 1 · Insertion depth of the probe of SID, SFD, TN: · 13.5 mm · Housing materials: stainless steel 316L / 1.4404	E40101
	Adapter · M18 x 1.5 - M12 x 1 · Insertion depth of the probe of SID, SFD, TN: · 13.5 mm · Housing materials: brass	E40100
	Adapter · M18 x 1.5 - 1/4" NPT · Insertion depth of the probe of SID, SFD, TN: · 13.9 mm · Housing materials: stainless steel 316L / 1.4404	E40106
	Adapter · M18 x 1.5 - G 1/4 · Insertion depth of the probe of SID, SFD, TN: · 13.5 mm · Housing materials: stainless steel 316L / 1.4404	E40099
	Adapter · M18 x 1.5 - G 1/4 · Insertion depth of the probe of SID, SFD, TN: · 13.5 mm · Housing materials: brass	E40098
	Adapter · M18 x 1.5 - G 1/2 · Insertion depth of the probe of SID, SFD, TN: · 21 mm · Housing materials: stainless steel 316L / 1.4404	E40096
	Adapter · M18 x 1.5 - G 1/2 · Insertion depth of the probe of SID, SFD, TN: · 21 mm · Housing materials: brass	E40097
	Mounting adapter · M18 x 1.5 - Ø 23 mm · Insertion depth of the probe of SID, SFD, TN: · 21 mm · Housing materials: PE-100	E40138
	Welding adapter · M18 x 1.5 - Ø 24 mm · Insertion depth of the probe of SID, SFD, TN: · 15 mm · Housing materials: stainless steel 316L / 1.4404	E40124
	Welding adapter · Ø 20 mm · for compressed air meter type SD · Housing materials: stainless steel 316L / 1.4404	E40195
	Flow adapter (for low flow rates) · M12 x 1 - G 1/8 · for flow sensors and compact flow monitors with adapter · Housing materials: stainless steel 316L / 1.4404	E40129
	Combicon connector · with cage clamps 4 poles · Housing materials: current carrying parts: copper alloy tin-plated	E40171
	Protective cover · for flow sensors type SI5xxx, SI6xxx, SR59xx · Housing materials: PP uncoloured	E40203

Flange adapters for flow sensors



Type	Description	Order no.
	Clamp adapter · Clamp · 1-1.5" · ISO 2852 · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	E33201
	Clamp adapter · Clamp · 2" · ISO 2852 · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	E33202
	Clamp adapter · Clamp · 1-1.5" · ISO 2852 · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	E33701
	Clamp adapter · Clamp · 2" · ISO 2852 · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	E33702
	Pipe fitting · Hygienic pipe fitting · Hygienic pipe fitting · DN32 (1.25") · DIN 11851 · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	E33211
	Pipe fitting · Hygienic pipe fitting · Hygienic pipe fitting · DN40 (1.5") · DIN 11851 · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	E33212
	Pipe fitting · Hygienic pipe fitting · Hygienic pipe fitting · DN50 (2") · DIN 11851 · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	E33213
	Pipe fitting · Hygienic pipe fitting · Hygienic pipe fitting · DN32 (1.25") · DIN 11851 · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	E33711
	Pipe fitting · Hygienic pipe fitting · Hygienic pipe fitting · DN40 (1.5") · DIN 11851 · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	E33712
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	Clamp adapter · Varivent Adapter · Varivent type F · DN25 (1"), D = 50 · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	E33221
	Clamp adapter · Varivent Adapter · Varivent type N · DN40...DN150 (1.5...6"), D = 68 · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	E33222
	Clamp adapter · Varivent Adapter · Varivent type F · DN25 (1"), D = 50 · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	E33721
	Clamp adapter · Varivent Adapter · Varivent type N · DN40...DN150 (1.5...6"), D = 68 · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	E33722













Type	Description	Order no.
	Pipe fitting · SMS pipe fitting · Pipe fitting · DN40 (1.5") · SMS · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	E33731
	Pipe fitting · SMS pipe fitting · Pipe fitting · DN50 (2") · SMS · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	E33732
	Flange adapter · DRD adapter · flange · DRD · D = 65 · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	E33242
	Welding adapter · Ø 50 mm · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	E30122

Accessories for airflow monitors


Type	Description	Order no.
	Mounting clamp · Ø 23 mm · for air flow monitor SLG · Housing materials: PBT	E40048

Accessories for flow meters

Type	Description	Order no.
	Adapter · G ½ - R ½ · for flow monitor type SM6 · flat seal · Housing materials: stainless steel 316Ti / 1.4571	E40199
	Adapter · G ½ - G ¾ · for flow monitor type SM6 · flat seal · Housing materials: stainless steel 316L / 1.4404	E40189
	Adapter · G ¾ - R ½ · for flow monitor type SM7 / SU7 · Housing materials: stainless steel 316L / 1.4404	E40178
	Adapter · G 1 - R ½ · for flow monitor type SM8 / SU8 · Housing materials: stainless steel 316L / 1.4404	E40179
	Adapter · G 1 - R ¾ · for flow monitor type SM8 / SU8 · Housing materials: stainless steel 316L / 1.4404	E40180
	Adapter · G ¾ I - R ½ · for flow monitor type SM7 / SU7 · Housing materials: Brass	E40151
	Adapter · G 1 - R ¾ · for flow monitor type SM8 / SU8 · Housing materials: Brass	E40153

Type	Description	Order no.
	Adapter · G 1 1/4 - R 1 · for flow monitor type SU9 · Housing materials: stainless steel 316L / 1.4404	E40205
	Adapter · G 1/2 - G 1/2 · for flow monitor type SM6 · Housing materials: stainless steel 316L / 1.4404	E40213
	Adapter · G 3/4 - G 1/2 · for flow monitor type SM7 / SU7 · Housing materials: stainless steel 316L / 1.4404	E40214
	Adapter · G 1 - G 3/4 · for flow monitor type SM8 / SU8 · Housing materials: stainless steel 316L / 1.4404	E40215
	Adapter · G 3/4 - G 3/4 · for flow monitor type SM7 / SU7 · Housing materials: stainless steel 316L / 1.4404	E40216
	Adapter · G 1 - G 1 · for flow monitor type SM8 / SU8 · Housing materials: stainless steel 316L / 1.4404	E40217
	Adapter · Victaulic · for flow sensors type SM2, SM9 · Housing materials: stainless steel 316Ti / 1.4571	E40227
	Adapter · 2" NPT · for flow sensors type SM2, SM9 · Housing materials: stainless steel 316Ti / 1.4571	E40228
	Adapter · 1 1/2" NPT · for flow sensors type SM2, SM9 · Housing materials: stainless steel 316Ti / 1.4571	E40229
	Adapter · G 1 1/2 · for flow sensors type SM2, SM9 · Housing materials: stainless steel 316Ti / 1.4571	E40230
	Adapter · R 2" A · for flow sensors type SM2, SM9 · Housing materials: stainless steel 316Ti / 1.4571	E40231
	Flange adapter · Flange adapter · Adapter · rotatable · for type SM2, SM9 · Housing materials: flange: stainless steel / adapter: stainless steel 316Ti / 1.4571 / O-ring: EPDM	E40240

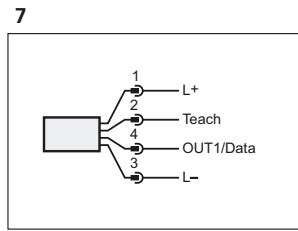
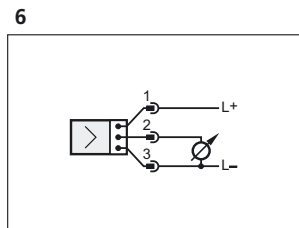
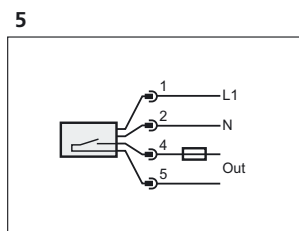
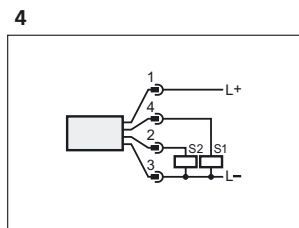
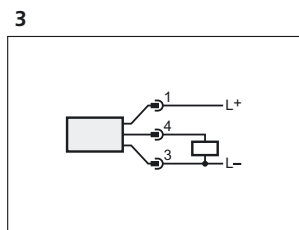
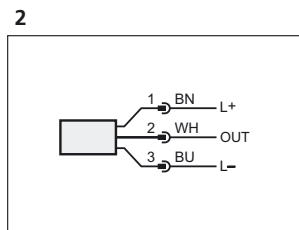
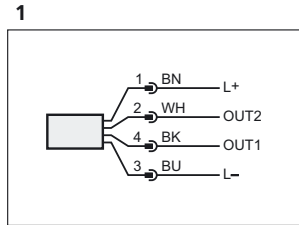
Grounding clamps for magnetic-inductive flow meters

Type	Description	Order no.
	Grounding clamp · Housing materials: stainless steel 316L / 1.4404	E40234

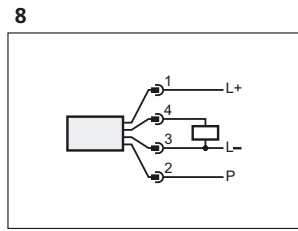
Wiring diagrams

Core colours

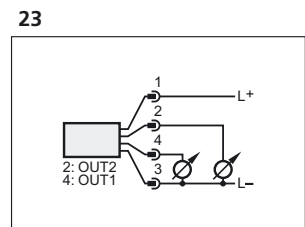
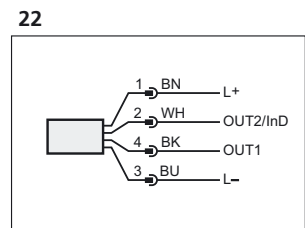
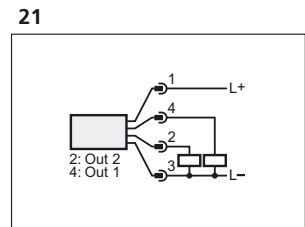
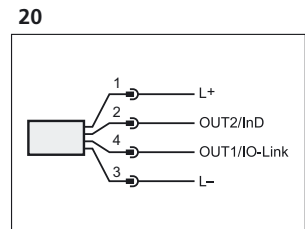
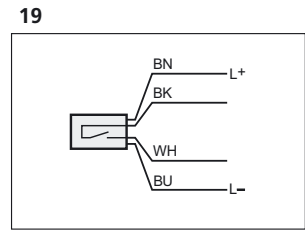
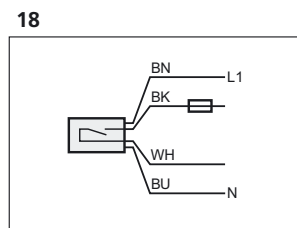
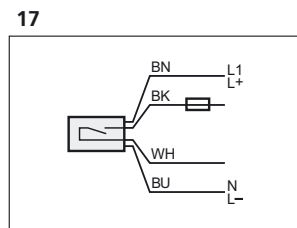
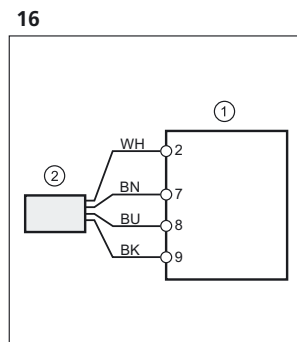
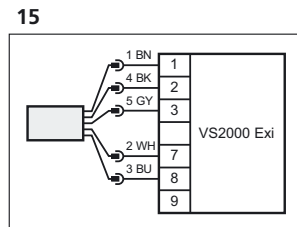
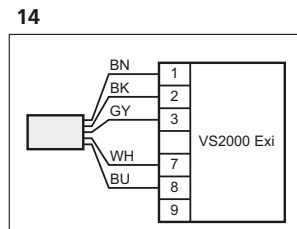
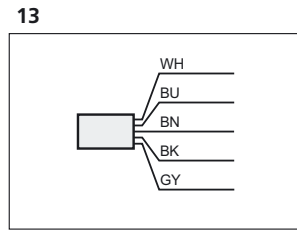
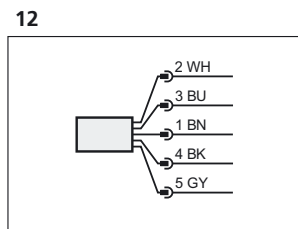
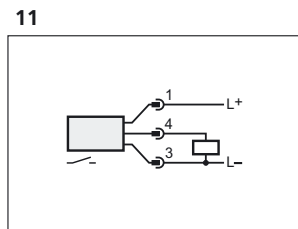
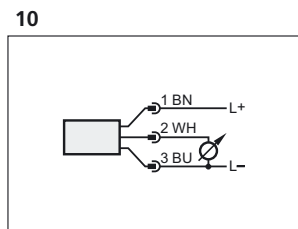
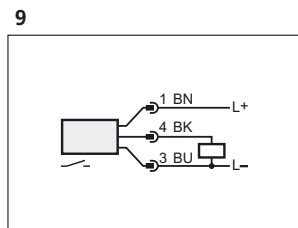
- BK black
- BN brown
- BU blue
- WH white
- GY grey



OUT1 / Data = switching signal for flow limit value and data channel for bidirectional communication, Teach = input for teach signal

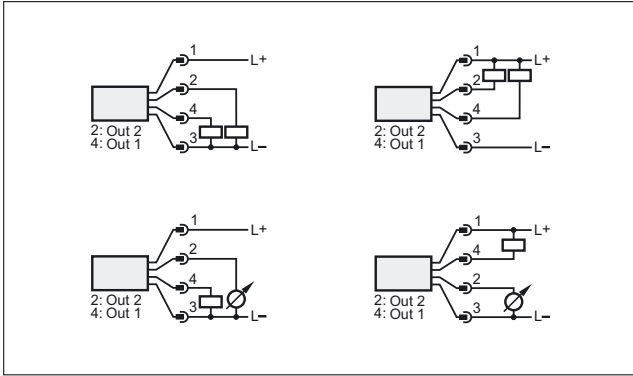


P = programming wire (for remote adjustment)

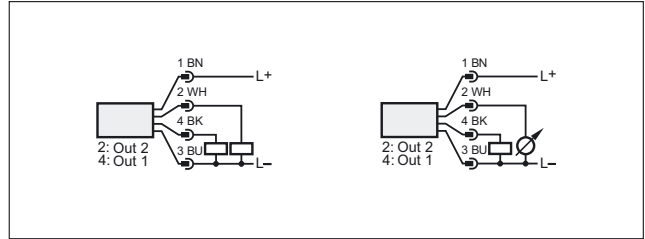


Wiring diagrams

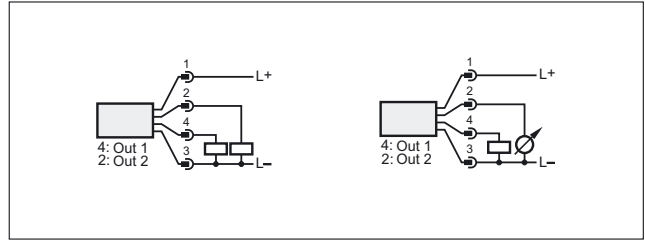
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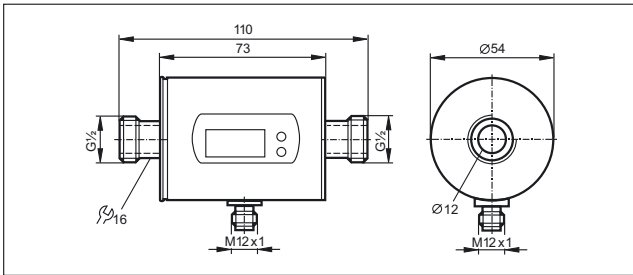


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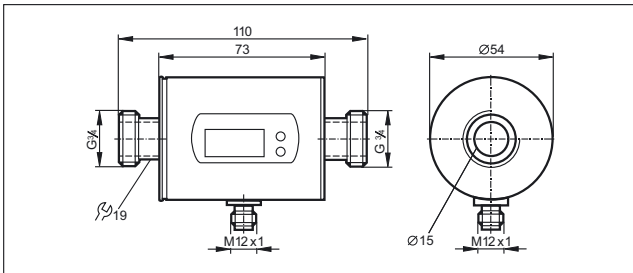


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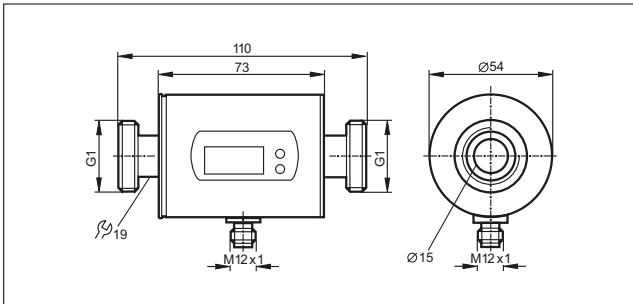
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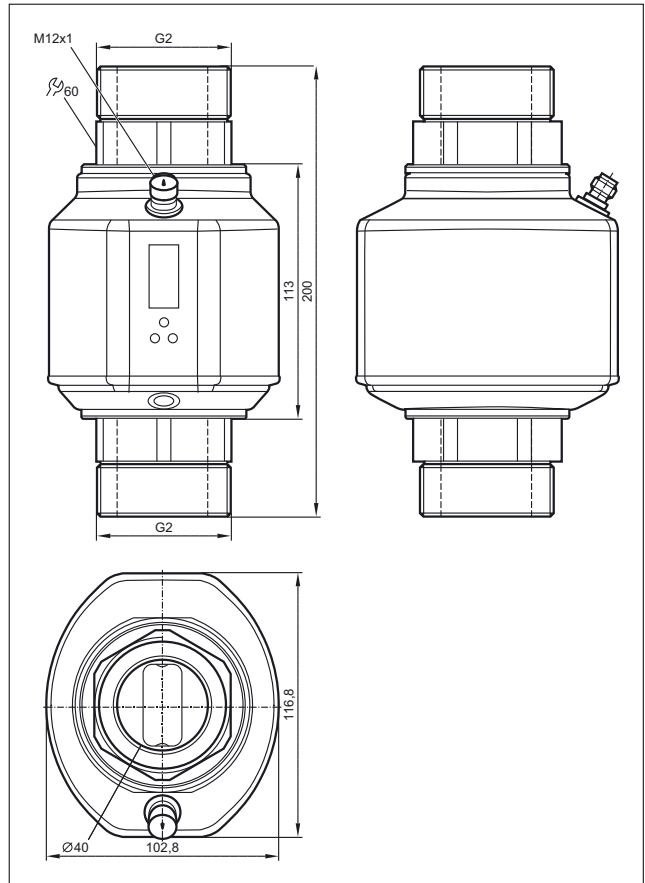
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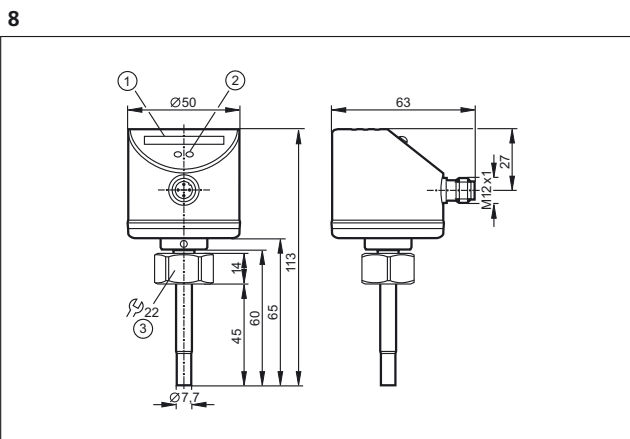
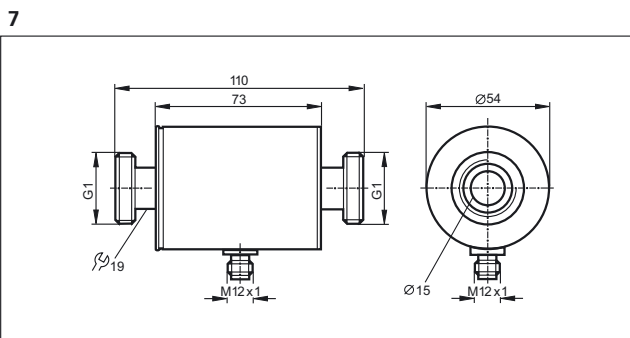
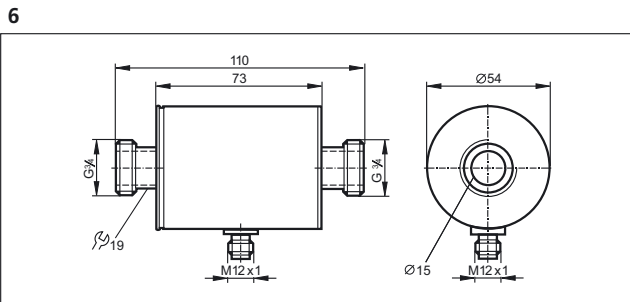
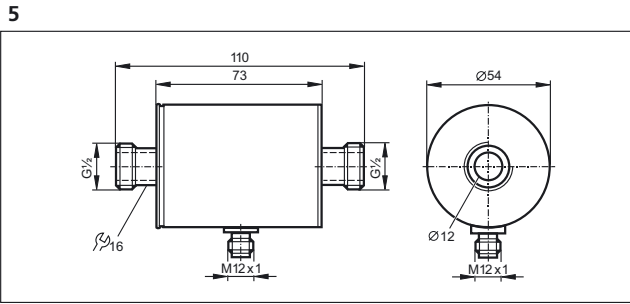
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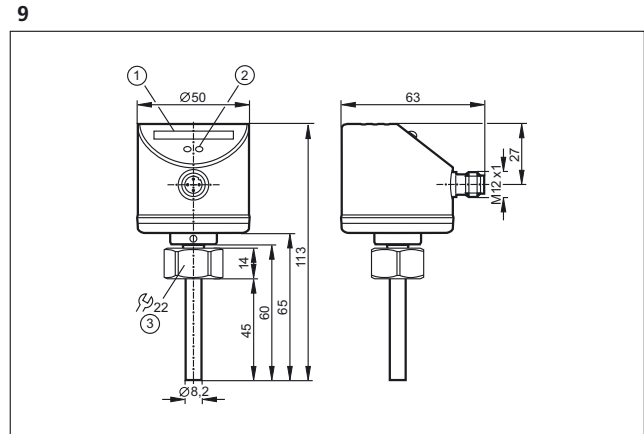
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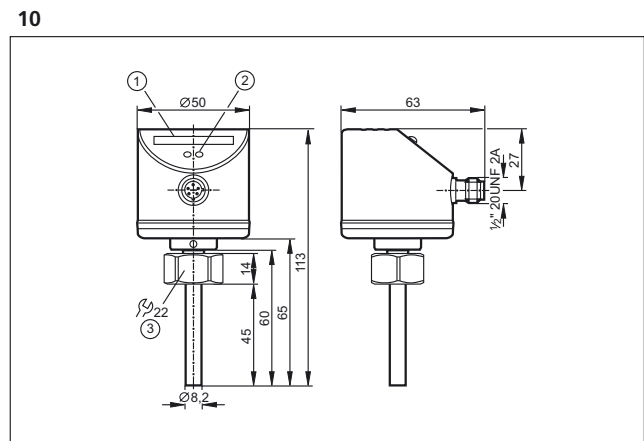
Scale drawings / drawing no. – CAD download: www.ifm.com



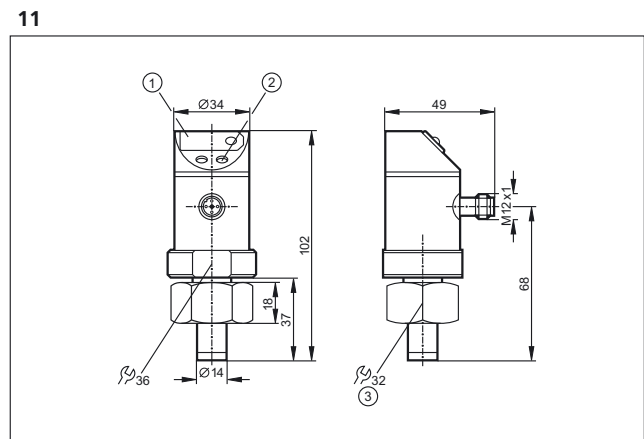
1: LED display, 2: setting pushbutton, 3: tightening torque 25 Nm



1: LED display, 2: setting pushbutton, 3: tightening torque 25 Nm



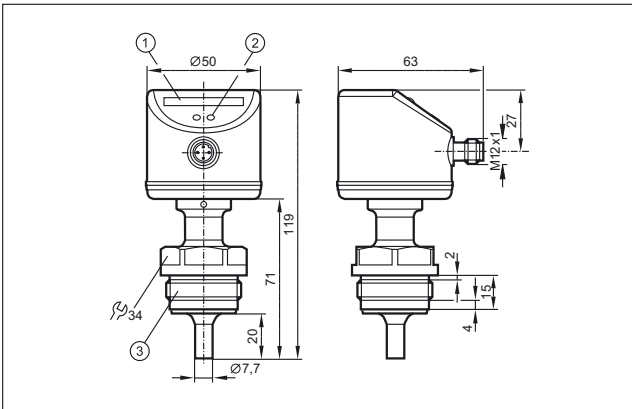
1: LED display, 2: setting pushbutton, 3: tightening torque 25 Nm



1: 7-segment LED display, 2: Programming buttons, 3: internal thread M26 x 1.5

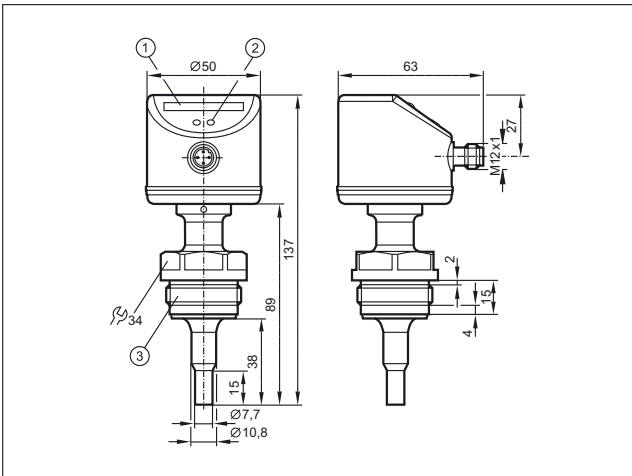
Scale drawings / drawing no. – CAD download: www.ifm.com

12



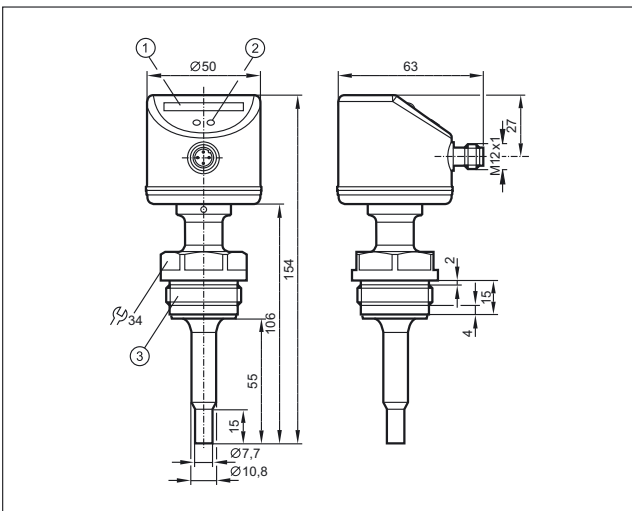
1: LED display, 2: setting pushbutton, 3: G1/Aseptoflex Vario thread

13



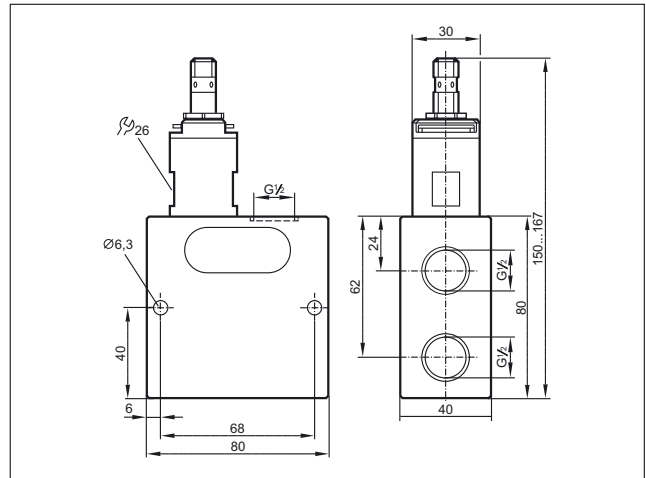
1: LED display, 2: setting pushbutton, 3: G1/Aseptoflex Vario thread

14

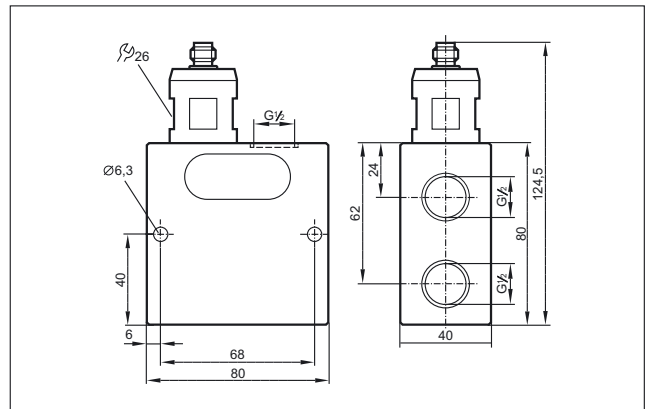


1: LED display, 2: setting pushbutton, 3: G1/Aseptoflex Vario thread

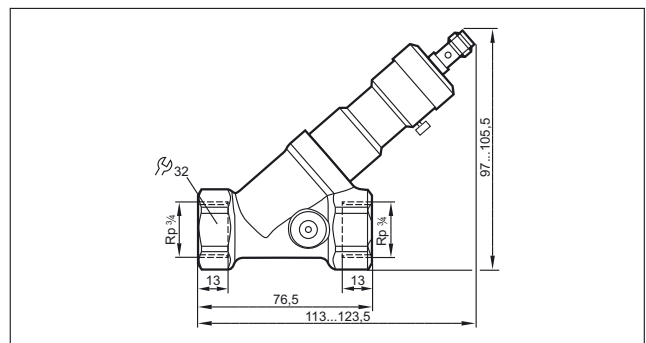
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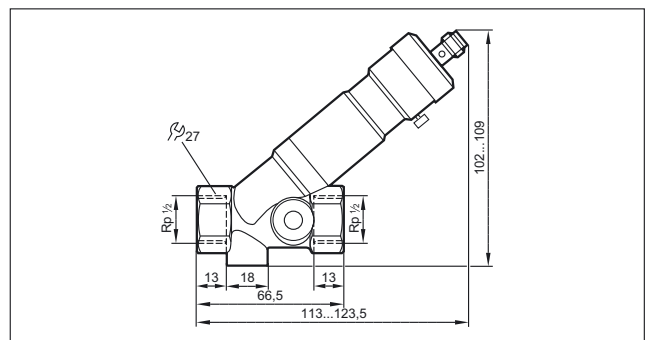
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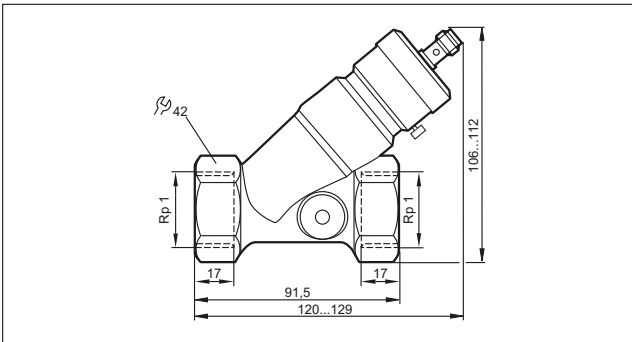


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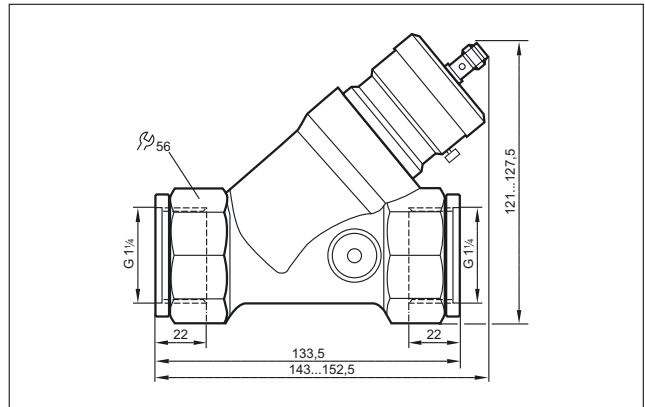


Scale drawings / drawing no. – CAD download: www.ifm.com

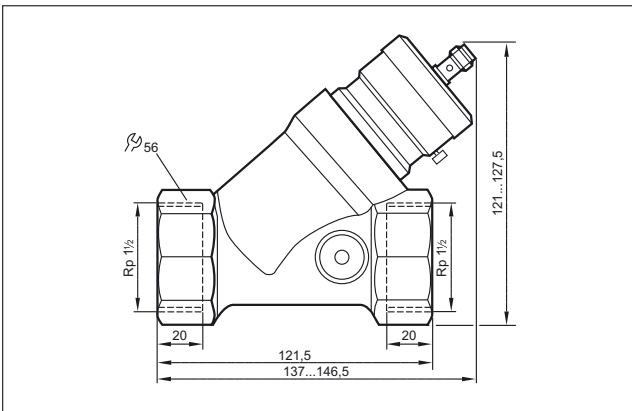
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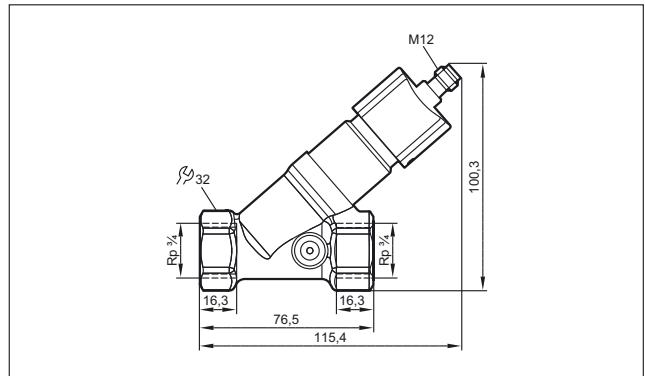
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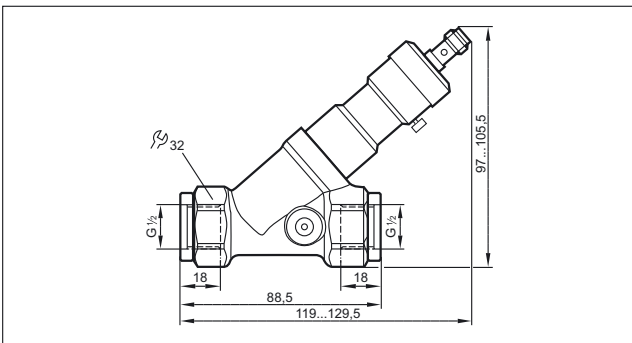
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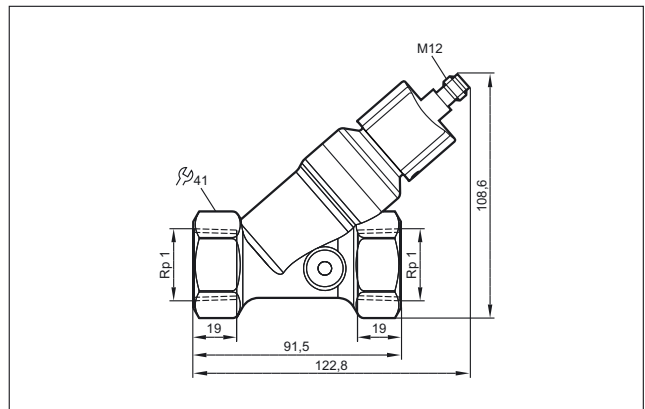
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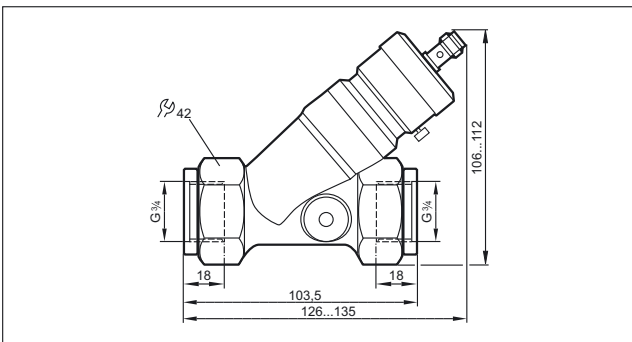
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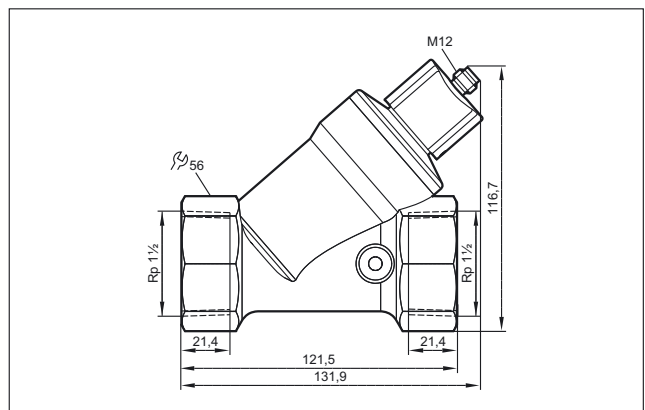
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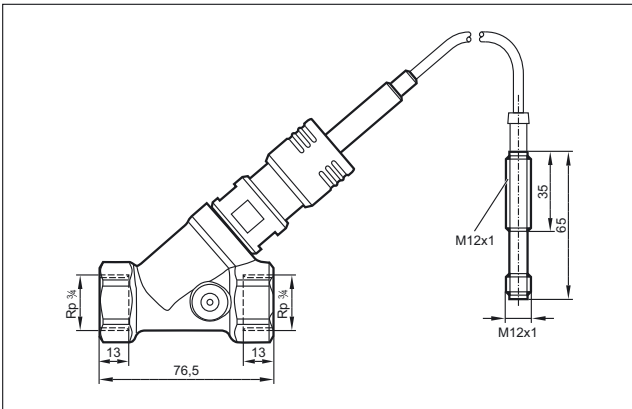


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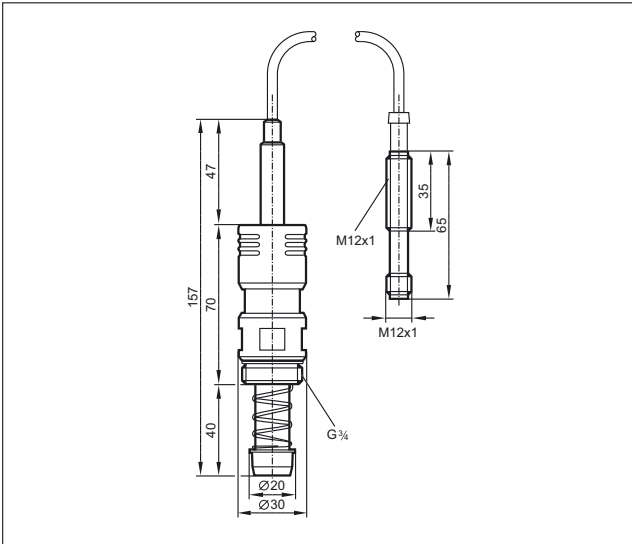


Scale drawings / drawing no. – CAD download: www.ifm.com

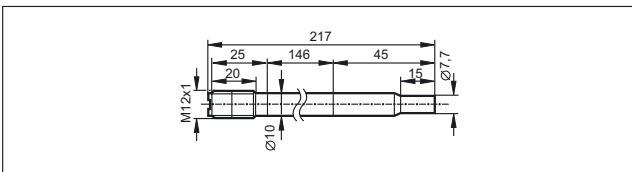
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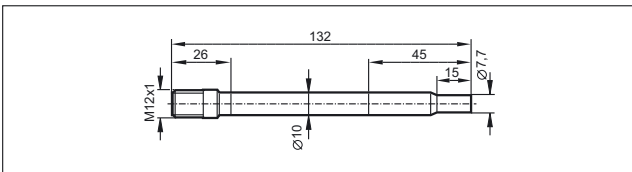
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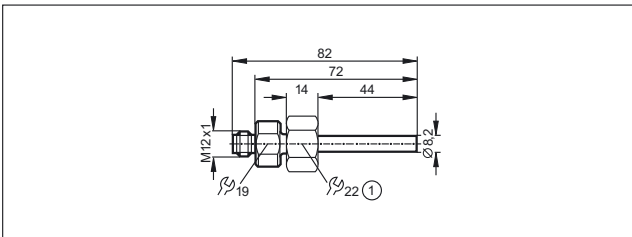
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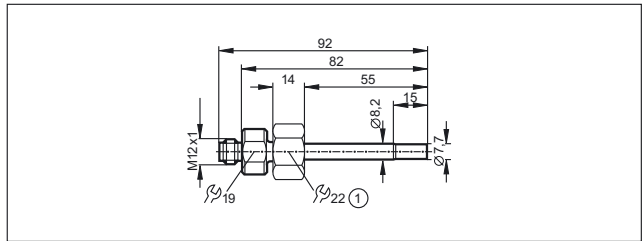


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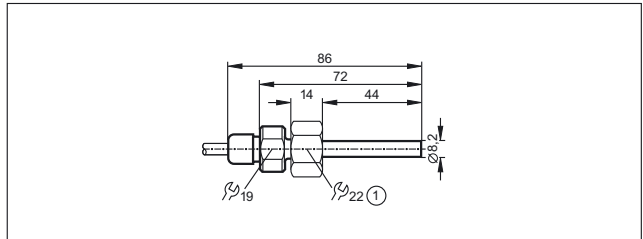
1: internal thread M18 x 1.5

32



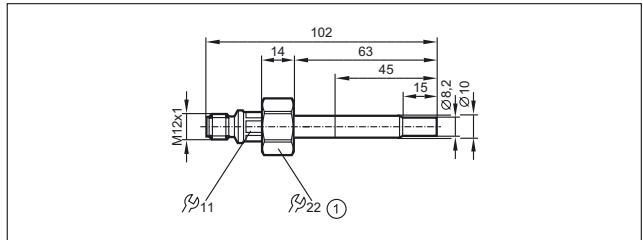
internal thread M18 x 1.5

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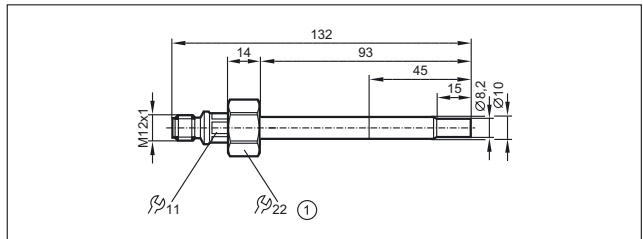
1: internal thread M18 x 1.5

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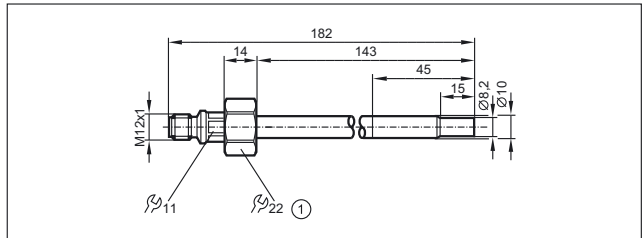
1: internal thread M18 x 1.5

35



1: internal thread M18 x 1.5

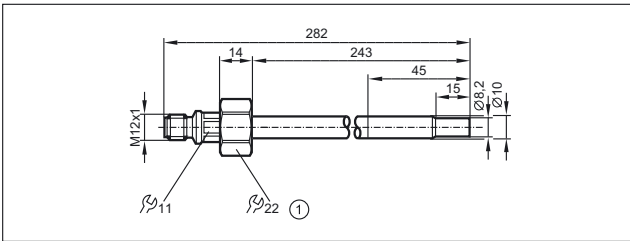
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1: internal thread M18 x 1.5

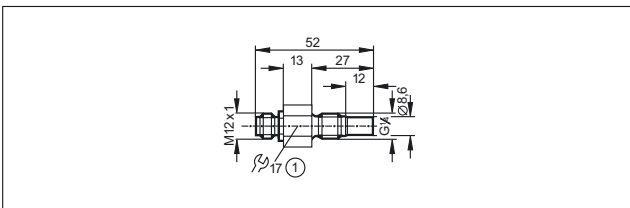
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37



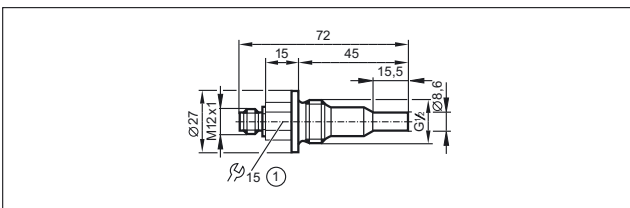
1: internal thread M18 x 1.5

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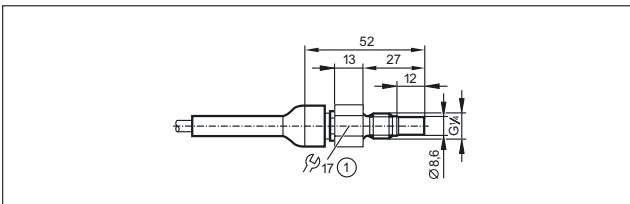
1: tightening torque max. 8 Nm

39



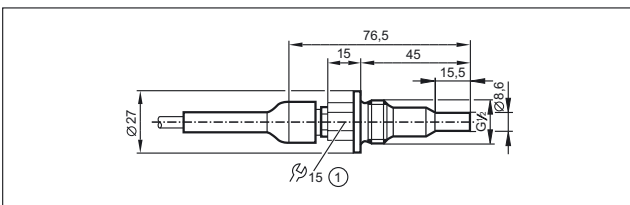
1: tightening torque max. 30 Nm

40



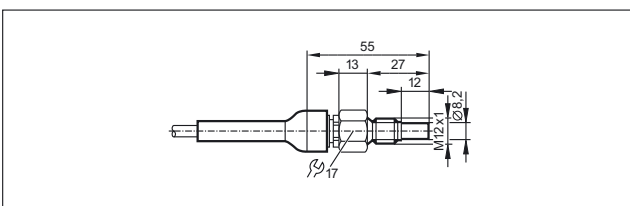
1: tightening torque max. 8 Nm

41

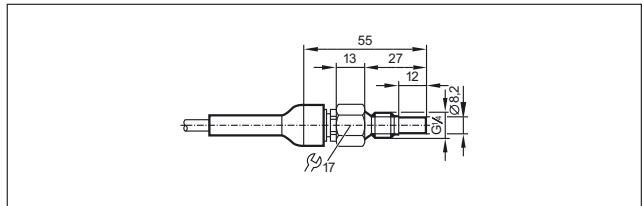


1: tightening torque max. 30 Nm

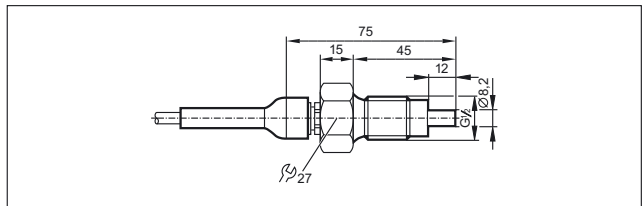
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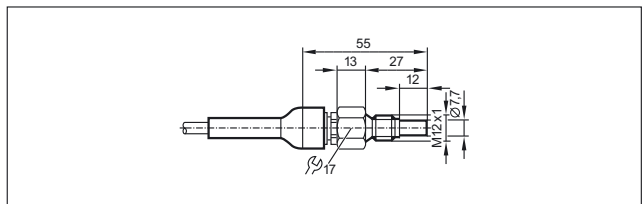
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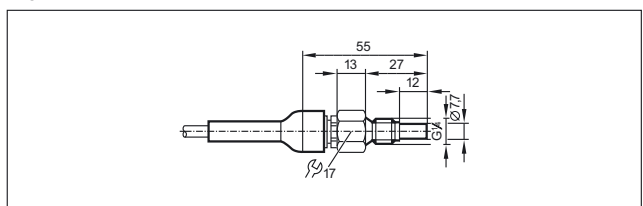
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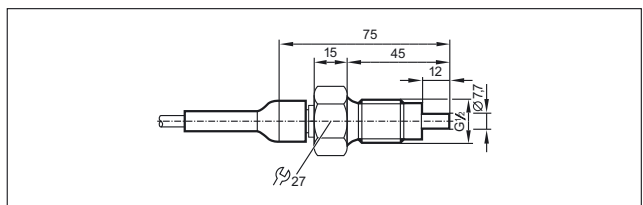
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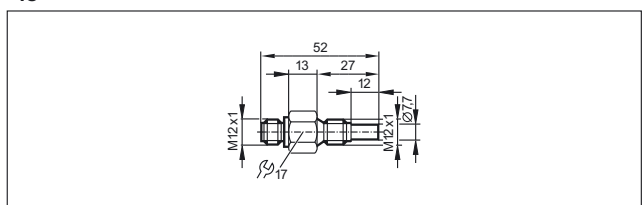
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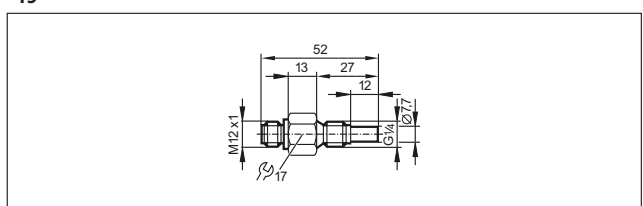
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48

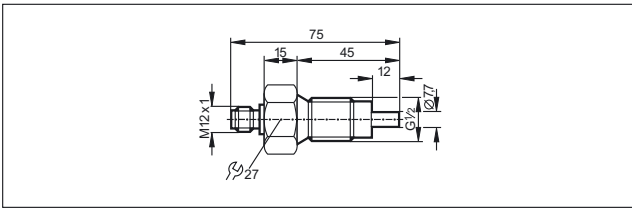


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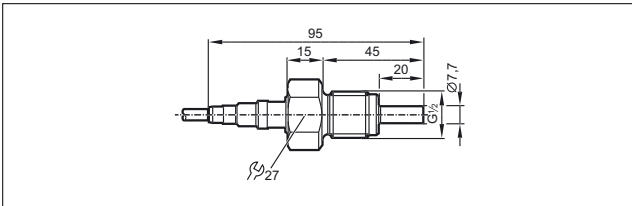


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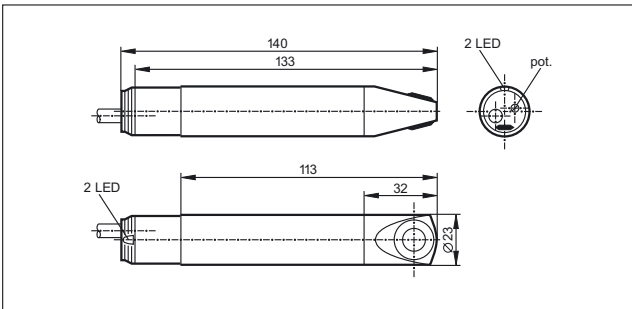
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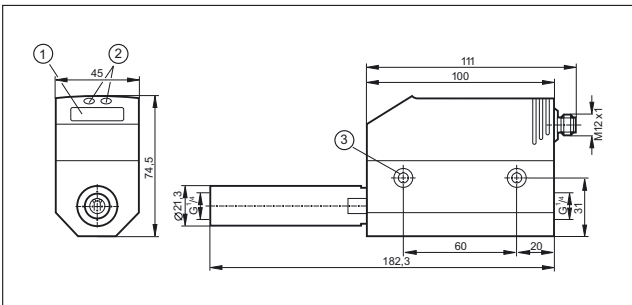
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52

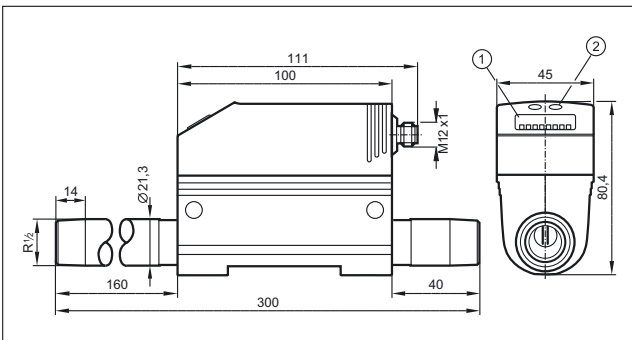


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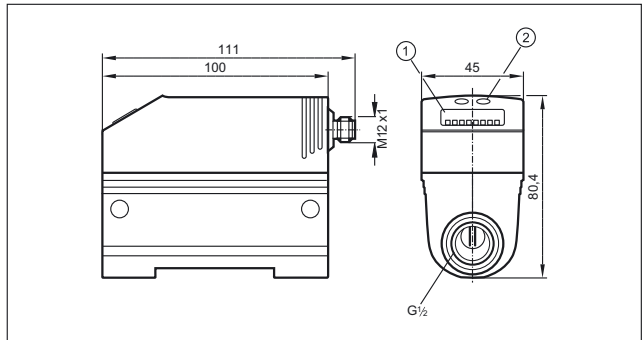
1: 4-digit alphanumeric display, 2: Programming buttons, 3: hole for M5 fixing screw

54



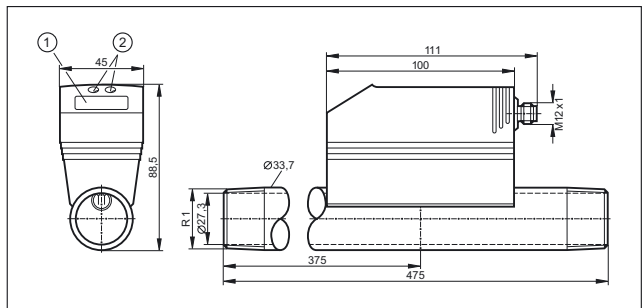
1: 4-digit alphanumeric display, 2: Programming buttons

55



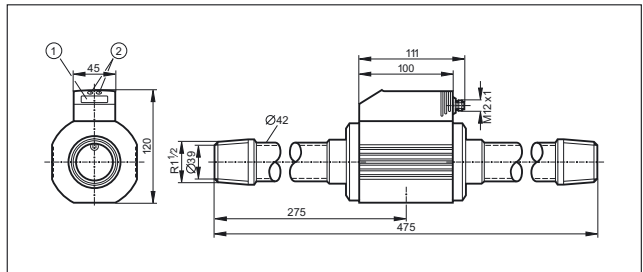
1: 4-digit alphanumeric display, 2: Programming buttons

56



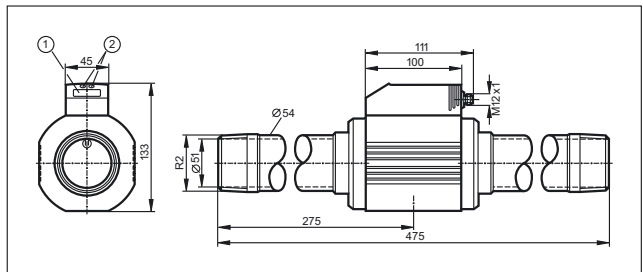
1: 4-digit alphanumeric display, 2: Programming buttons

57



1: 4-digit alphanumeric display, 2: Programming buttons

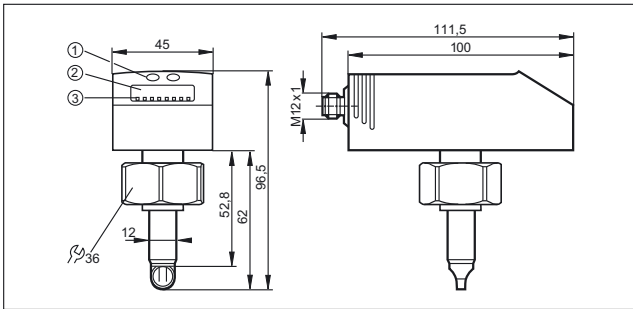
58



1: 4-digit alphanumeric display, 2: Programming buttons

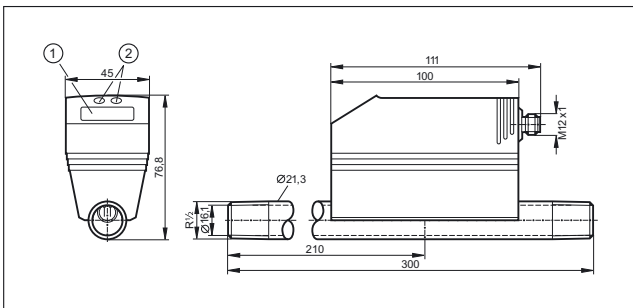
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59



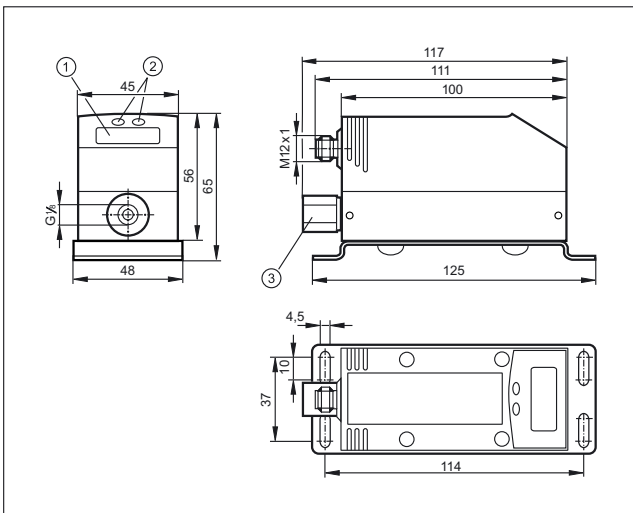
1: Programming buttons, 2: 4-digit alphanumeric display, 3: LEDs

60



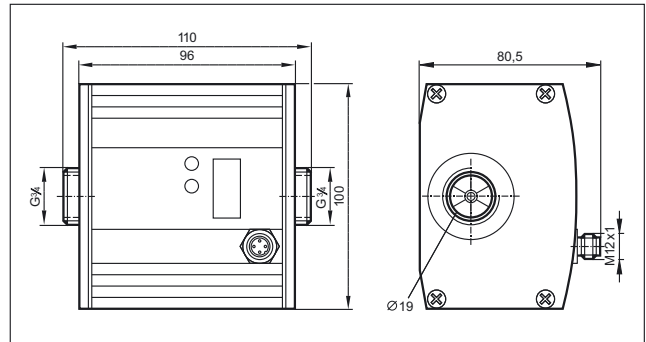
1: 4-digit alphanumeric display, 2: Programming buttons

61



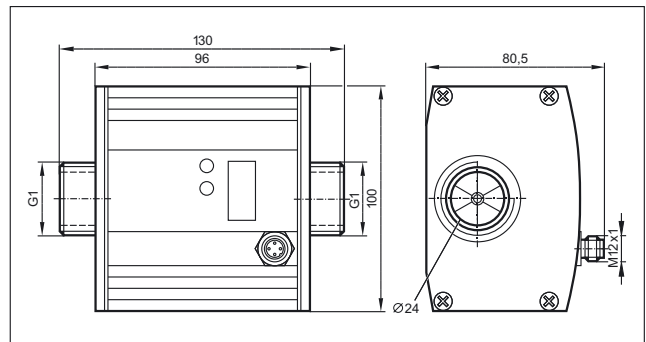
1: 4-digit alphanumeric display, 2: Programming buttons, 3: flow conditioner

62



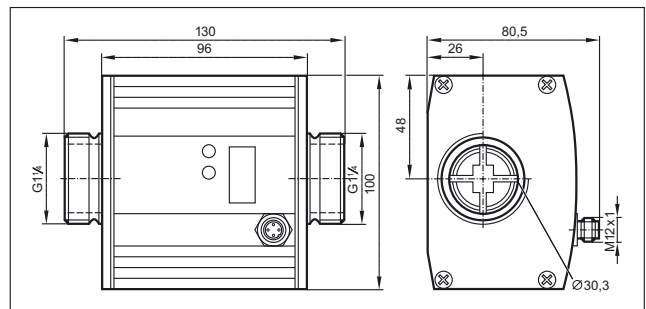
installation length with pipe adapter E40151 / E40154: 185 mm

63



installation length with pipe adapter E40152 / E40155: 205 mm,
installation length with pipe adapter E40153 / E40156: 215 mm

64





- Guided wave radar, capacitive and hydrostatic level sensors
- Designed for common industrial and process fluids
- No moving parts means high reliability and long service life
- Outputs for continuous or point level measurement
- Integrated LED display for local indication

Level sensors

ifm offers a range of level sensing technologies to suit a wide variety of level monitoring applications. From monitoring simple automatic filling system and overflow prevention sensors to continuous process control ifm level sensors can give an effective solution to your application requirements.

Advantages of electronic sensors

Level monitoring systems that rely on mechanical movement are prone to erratic behaviour and failure. Simple wear and tear or the build-up of deposits can cause mechanical devices to stick or break apart. Electronic sensors from ifm have no moving parts and evaluate level using either guided wave radar, capacitance or hydrostatic pressure. This makes ifm's sensors especially robust and reliable.

Other advantages of electronic sensors are the local indication of the level and the easy setting of output function, such as the switch point.

Measurement principles

Continuous level sensors from ifm use one of four different physical measuring principles: For capacitive measurement the probe and the tank form an electrical capacitor. The capacitance changes with the level and is converted into a level measurement by a microprocessor. For hydrostatic level measurement a measuring cell detects the hydrostatic pressure of the medium. Here the pressure change is a measure for the level. The efactor gwr level sensor operates on the principle of guided wave radar. Electromagnetic pulses are transmitted by the sensor head and guided along the probe. When the microwave pulse hits the medium to be detected, it is reflected and the elapsed time is evaluated by the sensor.

Point levels can be set on many of the units using any of the three technologies above. The LM family adds a fourth; impedance spectroscopy is used to generate reliable switch points while ignoring foam and product residue sticking to the probe.



Point level switches make direct contact with the medium to be monitored.

For special applications: Level sensor mounted in the top of a tank.




System overview	Page
Electronic level sensors for oils and coolants, approval to the German Federal Water Act (WHG), section 19	494
Electronic level sensors for oils and coolants	494
Point level sensors for oils and coolants, approval to the German Federal Water Act (WHG), section 19	495
Point level sensors for oils and lubricants	495
Point level sensors for hygienic areas	495 - 496
Variable level sensors, guided wave radar	496 - 497
Compact sensors for level and temperature monitoring	497
Compact sensors for level and leakage monitoring	497
Sensors for hydrostatic level monitoring	497 - 498
Sensors for hydrostatic level monitoring ATEX category 1G/1D	498
Sensors for hydrostatic level monitoring in hygienic and wet areas	498 - 500
Accessories for level sensors LK, LT, LL, LI	500 - 501
Parameter-setting system	501 - 502
Certificates	502
Accessories for level sensors LM	502 - 503
Accessories 3A	503 - 504
Accessories for oil humidity sensor LDH	504
Accessories for level sensors LR	504 - 506
Accessories for level sensors PA, PG, PI, PN, PS, PY	506 - 507
Wiring diagrams	507 - 508
Scale drawings / drawing no. – CAD download: www.ifm.com	508 - 511

Electronic level sensors for oils and coolants, approval to the German Federal Water Act (WHG), section 19

Type	Probe length [mm]	Active zone [mm]	Inactive zone [mm]	U _b [V]	Medium temperature water [°C]	Medium temperature oil [°C]	I _{load} [mA]	Drawing no.	Order no.
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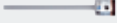
M12 connector · Output function 1 x normally open / closed programmable (OUT1) 1 x normally closed (OUT-OP, overflow output) · DC PNP · Wiring diagram no. 1 · Connector groups 8, 10, 11, 18, 20, 117, 118, 119, 147, 148

	264	195	53 / 15	12...30	0...35	0...65	200	1	LK1222
	472	390	53 / 30	12...30	0...35	0...65	200	1	LK1223
	728	585	102 / 40	12...30	0...35	0...65	200	1	LK1224

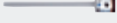
Electronic level sensors for oils and coolants

Type	Probe length [mm]	Active zone [mm]	Inactive zone [mm]	U _b [V]	Medium temperature water [°C]	Medium temperature oil [°C]	I _{load} [mA]	Drawing no.	Order no.
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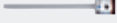
M12 connector (according to EN 61076-2-101) · Output function 1 x analogue 4...20 mA / 0...10 V (OUT2); 1 x normally open / closed programmable (OUT-OP) · DC PNP · Wiring diagram no. 2 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147

	264	195	53 / 15	18...30	0...35 (LK3122 + E43100: 0...65)	0...70	200	2	LK3122
	472	390	53 / 30	18...30	0...35 (LK3123 + E43101: 0...60)	0...70	200	2	LK3123
	728	585	102 / 40	18...30	0...35 (LK3124 + E43102: 0...55)	0...70	200	2	LK3124

M12 connector (according to EN 61076-2-101) · Output function 2 x normally open / closed programmable · DC PNP · Wiring diagram no. 3 · Connector groups 8, 10, 11, 18, 20, 117, 118, 119, 147, 148


	264	195	53 / 15	18...30	0...35 (LK1022 + E43100: 0...65)	0...70	200	2	LK1022
	472	390	53 / 30	18...30	0...35 (LK1023 + E43101: 0...60)	0...70	200	2	LK1023
	728	585	102 / 40	18...30	0...35 (LK1024 + E43102: 0...55)	0...70	200	2	LK1024

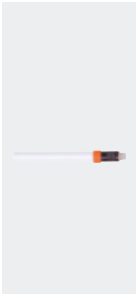
M12 connector (according to EN 61076-2-101) · Output function 3 x normally open / closed programmable (OUT1...OUT3); 1 x normally open / closed programmable (OUT-OP) · DC PNP · Wiring diagram no. 4 · Connector groups 16, 17

	264	195	53 / 15	18...30	0...35 (LK8122 + E43100: 0...65)	0...70	200	3	LK8122
	472	390	53 / 30	18...30	0...35 (LK8123 + E43101: 0...60)	0...70	200	3	LK8123
	728	585	102 / 40	18...30	0...35 (LK8124 + E43102: 0...55)	0...70	200	3	LK8124

Point level sensors for oils and coolants, approval to the German Federal Water Act (WHG), section 19


Type	Probe length [mm]	Output	U _b [V]	Medium temperature water [°C]	Medium temperature oil [°C]	I _{load} [mA]	Draw- ing no.	Order no.
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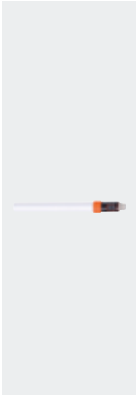
M12 connector · Output function  · DC PNP · Wiring diagram no. 5 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148

	132	Normally closed	10...36	0...35	0...65	200	4	LI2141
	273	Normally closed	10...36	0...35	0...65	200	4	LI2142
	481	Normally closed	10...36	0...35	0...65	200	4	LI2143

Point level sensors for oils and lubricants

Type	Probe length [mm]	Output	U _b [V]	Medium temperature water [°C]	Medium temperature oil [°C]	I _{load} [mA]	Draw- ing no.	Order no.
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M12 connector · Output function  · DC PNP · Wiring diagram no. 5 · Connector groups 8, 9, 10, 11, 18, 20, 117, 118, 119, 120, 147, 148

	132	normally open / closed programmable	10...36	0...35 (LI5141 + E43103: 0...65)	0...65	200	4	LI5141
	273	normally open / closed programmable	10...36	0...35 (LI5142 + E43100: 0...65)	0...65	200	4	LI5142
	481	normally open / closed programmable	10...36	0...35 (LI5143 + E43101: 0...60)	0...65	200	4	LI5143
	737	normally open / closed programmable	10...36	0...35 (LI5144 + E43102: 0...55)	0...65	200	4	LI5144


Point level sensors for hygienic areas

Type	Process connection	Process pressure max. [bar]	Application	Protection	Draw- ing no.	Order no.
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M12 connector · Output function normally open / closed complementary · DC PNP · Wiring diagram no. 6 · Connector groups 8, 10, 11, 18, 20, 117, 118, 119, 147, 148

	G ½ A	-1...16	water, water-based media	IP 68 / IP 69K	5	LMT100
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M12 connector · Output function 2 x normally open / closed programmable · DC PNP/NPN · Wiring diagram no. 14 · Connector groups 8, 10, 11, 18, 20, 117, 118, 119, 147, 148

	G ½ A	-1...40	liquid, viscous and powdery media	IP 68 / IP 69K	6	LMT102
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Process sensors

Type	Process connection	Process pressure max. [bar]	Application	Protection	Drawing no.	Order no.
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M12 connector · Output function 2 x normally open / closed programmable · DC PNP/NPN · Wiring diagram no. 14 · Connector groups 8, 10, 11, 18, 20, 117, 118, 119, 147, 148

	G 3/4 A	-1...40	liquid, viscous and powdery media	IP 68 / IP 69K	7	LMT202
	G1 male	-1...40	liquid, viscous and powdery media	IP 68 / IP 69K	8	LMT302
	G 1/2 A	-1...40	liquid, viscous and powdery media	IP 68 / IP 69K	9	LMT104
	G 1/2 A	-1...40	liquid, viscous and powdery media	IP 68 / IP 69K	10	LMT105

M12 connector · Output function normally open / closed complementary · DC PNP · Wiring diagram no. 6 · Connector groups 8, 10, 11, 18, 20, 117, 118, 119, 147, 148

	G 1/2 A	-1...16	oils, grease	IP 68 / IP 69K	5	LMT110
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M12 connector · Output function 2 x normally open / closed programmable · DC PNP/NPN · Wiring diagram no. 14 · Connector groups 8, 10, 11, 18, 20, 117, 118, 119, 147, 148

	G 1/2 A	-1...40	liquid, viscous and powdery media	IP 68 / IP 69K	11	LMT121
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Variable level sensors, guided wave radar

Type	Process connection	Probe length [mm]	Active zone [mm]	Inactive zone [mm]	U _b [V]	Medium temperature [°C]	I _{load} [mA]	Drawing no.	Order no.
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M12 connector (according to EN 61076-2-101) · Output function normally open / closed programmable; 4...20 mA or 0...10 V · DC PNP · Wiring diagram no. 7 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147

	G 3/4 A	100...1600	L-40 (L-60)	30 / 10 (30)	18...30	0...80	200	12	LR3000
	3/4" NPT	100...1600	L-40	30 / 10	18...30	0...80	200	13	LR3300

M12 connector (according to EN 61076-2-101) · Output function 2 x normally open / closed programmable · DC PNP · Wiring diagram no. 7 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147

	G 3/4 A	100...1600	L-40 (L-60)	30 / 10 (30)	18...30	0...80	200	12	LR7000
	3/4" NPT	100...1600	L-40	30 / 10	18...30	0...80	200	13	LR7300

M12 connector (according to EN 61076-2-101) · Output function 4 x normally open / closed programmable · DC PNP · Wiring diagram no. 8 · Connector groups 16, 17

	G 3/4 A	100...1600	L-40 (L-60)	30 / 10 (30)	18...30	0...80	200	14	LR8000
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Type	Process connection	Probe length [mm]	Active zone [mm]	Inactive zone [mm]	U _b [V]	Medium temperature [°C]	I _{load} [mA]	Drawing no.	Order no.
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M12 connector (according to EN 61076-2-101) · Output function 4 x normally open / closed programmable · DC PNP · Wiring diagram no. 8 · Connector groups 16, 17



3/4" NPT	100...1600	L-40	30 / 10	18...30	0...80	200	15	LR8300
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Compact sensors for level and temperature monitoring

Type	Probe length [mm]	Active zone [mm]	Inactive zone [mm]	U _b [V]	Medium temperature water [°C]	Medium temperature oil [°C]	I _{load} [mA]	Drawing no.	Order no.
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M12 connector (according to EN 61076-2-101) · Output function 2 x normally open / closed programmable (level) 2 x normally open / closed programmable (temperature) · DC PNP · Wiring diagram no. 9 · Connector groups 16, 17



264	195	53 / 15	18...30	–	0...70	200	16	LT8022
472	390	53 / 30	18...30	–	0...70	200	16	LT8023
728	585	102 / 40	18...30	–	0...70	200	16	LT8024

Compact sensors for level and leakage monitoring

Type	Probe length [mm]	Active zone [mm]	Inactive zone [mm]	U _b [V]	Medium temperature water [°C]	Medium temperature oil [°C]	I _{load} [mA]	Drawing no.	Order no.
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M12 connector (according to EN 61076-2-101) · Output function 4 x normally open / closed programmable · DC PNP · Wiring diagram no. 10 · Connector groups 16, 17



264	195	53 / 15	18...30	0...35 (LL8022 + E43100: 0...65)	0...70	200	16	LL8022
472	390	53 / 30	18...30	0...35 (LL8023 + E43101: 0...60)	0...70	200	16	LL8023
728	585	102 / 40	18...30	0...35 (LL8024 + E43102: 0...55)	0...70	200	16	LL8024

Sensors for hydrostatic level monitoring

Type	Measuring range [bar]	Cable length / material	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Drawing no.	Order no.
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Output function 4...20 mA analogue · Wiring diagram no. 11




0...0.25	5 m PUR cable	2	2.4	10...30	17	PS3208
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Process sensors

Type	Measuring range [bar]	Cable length / material	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
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Output function 4...20 mA analogue · Wiring diagram no. 11

	0...0.6	10 m PUR cable	4	4.8	10...30	17	PS3407
	0...0.6	15 m PUR cable	4	4.8	10...30	17	PS3427
	0...1	15 m PUR cable	5	6	10...30	17	PS3417
	0...0.6	30 m PUR cable	4	4.8	10...30	17	PS3607
	0...1	30 m PUR cable	5	6	10...30	17	PS3617


Output function 4...20 mA · Wiring diagram no. 12 · Connector groups 8, 10, 18, 20, 117, 118, 147

	0...0.25	M12 connector	10	30	9.6...32	18	PA3028
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Sensors for hydrostatic level monitoring ATEX category 1G/1D

Type	Measuring range [bar]	Cable length / material	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
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Output function 4...20 mA analogue · Wiring diagram no. 13

	0...0.25	5 m FEP cable	2	2.4	10...30	19	PS308A
	0...0.6	10 m FEP cable	4	4.8	10...30	19	PS307A
	0...1	15 m FEP cable	5	6	10...30	19	PS317A

Sensors for hydrostatic level monitoring in hygienic and wet areas




Type	Process connection	Display LED	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
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M12 connector · Output function 1 x normally open / normally closed programmable + 1 x normally open / normally closed programmable or 1 x analogue (4...20 / 20...4 mA, scalable) · Wiring diagram no. 15 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147


	Aseptoflex Vario	Display unit	-0.005...0.1	4	30	20...32	20	PI2789
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Type	Process connection	Display LED	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
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M12 connector · Output function 1 x normally open / normally closed programmable + 1 x normally open / normally closed programmable or 1 x analogue (4...20 / 20...4 mA, scalable) · Wiring diagram no. 15 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147

	Aseptoflex Vario	Display unit	-0.0124...0.25	10	30	20...32	20	PI2798
	Aseptoflex Vario	Display unit	-1...1	10	30	20...32	20	PI2799
	Aseptoflex Vario	Display unit	-0.05...1	10	30	20...32	20	PI2797
	Aseptoflex Vario	Display unit	-0.124...2.5	20	50	20...32	20	PI2796
	Sealing cone G1 male	Display unit	-0.005...0.1	4	30	20...32	21	PI2889*
	Sealing cone G1 male	Display unit	-0.124...2.5	20	50	20...32	21	PI2896*
	Sealing cone G1 male	Display unit	-0.05...1	10	30	20...32	21	PI2897*
	Sealing cone G1 male	Display unit	-0.0124...0.25	10	30	20...32	21	PI2898*
	Sealing cone G1 male	Display unit	-1...1	10	30	20...32	21	PI2899*
	Clamp DN 38 / 1 1/2"	Display unit	-0.124...2.5	20	50	20...32	22	PI2206
	Clamp DN 38 / 1 1/2"	Display unit	-0.05...1	10	30	20...32	22	PI2207
	Clamp DN 38 / 1 1/2"	Display unit	-1...1	10	30	20...32	22	PI2209

M12 connector · Output function 1 x normally open / closed programmable + 1 x analogue (4...20 / 20...4 mA, scalable) · Wiring diagram no. 16 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147


	Aseptoflex Vario	Display unit	-0.005...0.1	4	30	18...32	23	PG2789
	Aseptoflex Vario	Display unit	-0.0124...0.25	10	30	18...32	23	PG2798
	Aseptoflex Vario	Display unit	-0.05...1	10	30	18...32	23	PG2797
	Aseptoflex Vario	Display unit	-0.124...2.5	20	50	18...32	23	PG2796










Process sensors

Type	Process connection	Display LED	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
M12 connector · Output function 1 x normally open / closed programmable + 1 x analogue (4...20 / 20...4 mA, scalable) · Wiring diagram no. 16 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147								
	Aseptoflex Vario	Display unit	-1...1	10	30	18...32	23	PG2799
	Sealing cone G1 male	Display unit	-0.124...2.5	20	50	18...32	24	PG2896*
	Sealing cone G1 male	Display unit	-0.05...1	10	30	18...32	24	PG2897*
	Sealing cone G1 male	Display unit	-0.0124...0.25	10	30	18...32	24	PG2898*
	Sealing cone G1 male	Display unit	-1...1	10	30	18...32	24	PG2899*
	Sealing cone G1 male	Display unit	-0.005...0.1	4	30	18...32	24	PG2889*


Attention: The unit must only be installed in a process connection for G1 sealing cone! The G1A sealing cone of the unit is only suited for adapters with metal end stop!

Accessories for level sensors LK, LT, LL, LI





Type	Description	Order no.
	Flange plate · 54-52X52 D16 · for capacitive level sensors LK, LI, LT, LL · Housing materials: flange: aluminium anodised / nut: stainless steel / Spacer: Brass / rubber ring: FPM / sealing: Tesnit	E43007
	Flange plate · 65-80 D16 · for capacitive level sensors LK, LI, LT, LL · Housing materials: flange: aluminium anodised / nut: stainless steel / Spacer: Brass / rubber ring: FPM	E43006
	Flange plate · 73-90 D16 · for capacitive level sensors LK, LI, LT, LL · according to DIN 24557 · Housing materials: aluminium anodised / nut: stainless steel / Spacer: Brass / rubber ring: FPM / sealing: NBR	E43001
	Mounting adapter · G ¾ D16 · for capacitive level sensors LK, LI, LT, LL · Housing materials: flange: stainless steel / nut: stainless steel / Spacer: Brass / rubber ring: FPM / sealing: Tesnit	E43003
	Mounting adapter · G ¾ D16 · for capacitive level sensors LI · Housing materials: Brass nickel-plated / TPE / sealing: FKM	E43019
	Mounting adapter · G ¾ D22 · for climatic tube LK / LI · Housing materials: stainless steel / NBR / Tesnit / Brass	E43008
	Mounting adapter · ¾" NPT D16 · for capacitive level sensors LK, LI, LT, LL · Housing materials: flange: stainless steel / nut: stainless steel / Spacer: Brass / rubber ring: FPM	E43012

Type	Description	Order no.
	Mounting adapter · 3/4" NPT D22 · for climatic tube LK / LI · Housing materials: stainless steel / NBR / Brass	E43014
	Mounting adapter · G 1 D16 · for capacitive level sensors LK, LI, LT, LL · Housing materials: flange: stainless steel / nut: stainless steel / Spacer: Brass / rubber ring: FPM / sealing: Tesnit	E43004
	Mounting adapter · G 1 D22 · for climatic tube LK / LI · Housing materials: stainless steel / NBR / Tesnit / Brass	E43009
	Mounting adapter · 1" NPT D16 · for capacitive level sensors LK, LI, LT, LL · Housing materials: flange: stainless steel / nut: stainless steel / Spacer: Brass / rubber ring: FPM	E43013
	Climatic tube · Length: 132 mm · for capacitive level sensors LK, LI · Housing materials: PPH / NBR	E43103
	Climatic tube · Length: 264 mm · for capacitive level sensors LK, LI · Housing materials: PPH / NBR	E43100
	Climatic tube · Length: 472 mm · for capacitive level sensors LK, LI · Housing materials: PPH / NBR	E43101
	Climatic tube · Length: 728 mm · for capacitive level sensors LK, LI · Housing materials: PPH / NBR	E43102
	Mounting clamp · Ø 16 mm · for capacitive level sensors LK, LI, LT, LL · Housing materials: PP	E43000
	Mounting set · Ø 16 mm · for capacitive level sensors LK, LI, LT, LL · Housing materials: PP / Metal parts: steel galvanised	E43016
	Welding adapter · Ø 50 D16 · for capacitive level sensors LK, LI, LT, LL · Housing materials: flange: stainless steel / nut: stainless steel / Spacer: Brass / rubber ring: FPM	E43002
	Protective cover · for LK / LL / LR / LT sensors · Housing materials: PP	E43910

Parameter-setting system

Type	Description	Order no.
	IO-Link interface · for parameter setting and analysis of units · Supported communication protocols: IO-Link (4800 and 38400 bits/s) EPS protocol (19200 bits/s) · for operation with FDT framework software "ifm Container" or software "LINERECORDER SENSOR"	E30396

Process sensors









Type	Description	Order no.
	ifm Container · FDT frame software · for parameter setting and analysis of units with DTM specification · e.g. ifm sensors with EPS programming interface, · sensors with IO-Link	E30110
	LINERECORDER SENSOR · Software for parameter setting and set-up of IO-Link sensors · Recording and distribution of parameter sets (duplication) · Capture and evaluation of sensor values over a longer period of time · Resetting of sensor parameters to factory setting · Use via USB connection cable E30396 or E30390 (drivers are contained in the corresponding software package)	ZGS210
	Memory plug · Parameter memory for IO-Link sensors · Storage capacity: 2 Kbytes · Housing materials: PA PACM 12 / PET / sealing: FPM / nut: stainless steel 316L / 1.4404 / connector: TPU	E30398
	USB IO-Link master · for parameter setting and analysis of units · Supported communication protocols: IO-Link (4.8, 38.4 and 230 Kbits/s) · for operation with FDT framework software "ifm Container" or software "LINERECORDER SENSOR"	E30390

Certificates






Description	Order no.
Factory calibration certificate for pressure sensors (and flow sensors, see below) · Number of measuring points: 6-point factory calibration · Measurement points: in 20 % steps of the measuring range (according to ISO 9001) · Minimum measurement uncertainty [bar]: 20 µbar...140 mbar (depending on the reference pressure)	ZC0004
DAkKS calibration certificate for pressure sensors · Number of measuring points: 11-point DAkKS calibration · Measurement points: in 10 % steps of the measuring range (according to directive DAkKS-DKD-R 6-1) · Minimum measurement uncertainty [bar]: 20 µbar...140 mbar (depending on the reference pressure)	ZC0005



Accessories for level sensors LM

Type	Description	Order no.
	Clamp adapter · Clamp · 1-1.5" · ISO 2852 / DIN 32676 · for units with G ½ adaptation · Housing materials: stainless steel 316L / 1.4404	E33401
	Clamp adapter · Clamp · 2" · ISO 2852 / DIN 32676 · for units with G ½ adaptation · Housing materials: stainless steel 316L / 1.4404	E33402
	Welding adapter · G ½ - Ø 35 mm · Housing materials: stainless steel 316L / 1.4404	E30055
	Welding adapter · G ½ - Ø 45 mm · Housing materials: stainless steel 316L / 1.4404	E30056
	Welding adapter · G ½ - Ø 30 mm · for tanks · Housing materials: stainless steel 316L / 1.4435	E43300
	Welding adapter · G ½ - Ø 29 mm · for pipes · Housing materials: stainless steel 316L / 1.4435	E43301


Type	Description	Order no.
	Adapter · G ¾ · Housing materials: stainless steel 316L / 1.4435	E43302
	Adapter · G 1 · Housing materials: stainless steel 316L / 1.4435	E43303
	Adapter · ¾" NPT · Housing materials: stainless steel 316L / 1.4404	E43313
	Pipe fitting · G ½ · Hygienic pipe fitting · DN25 (1") · DIN 11851 · Housing materials: stainless steel 316L / 1.4435	E43304
	Pipe fitting · G ½ · Hygienic pipe fitting · DN40 (1.5") · DIN 11851 · Housing materials: stainless steel 316L / 1.4435	E43305
	Clamp adapter · G ½ · Varivent type F · DN25 (1"), D = 50 · Housing materials: stainless steel 316L / 1.4435	E43306
	Clamp adapter · G ½ · Varivent type N · DN40...DN150 (1.5...6"), D = 68 · Housing materials: stainless steel 316L / 1.4435	E43307
	Welding mandrel · G ½ · carries away heat during welding · Housing materials: brass	E43314

Accessories 3A










Type	Description	Order no.
	Pipe fitting · SMS pipe fitting · DN25 · SMS · for units with G ½ adaptation · Housing materials: stainless steel 316L / 1.4404	E33430
	sealing plug · G ½ · Housing materials: stainless steel 316L / 1.4435	E43308
	Welding adapter · G ½ · Ø 30 mm · for tanks · with leakage port · with leakage port · Housing materials: stainless steel 316L / 1.4435	E43309
	Welding adapter · G ½ · Ø 29 mm · for pipes · with leakage port · with leakage port · Housing materials: stainless steel 316L / 1.4435	E43310
	Welding adapter · G ½ · with leakage port · Housing materials: stainless steel 316L / 1.4404	E43315

Type	Description	Order no.
	Clamp adapter · G ½ · with leakage port · Clamp · 1-1.5" · ISO 2852 / DIN 32676 · with leakage port · Housing materials: stainless steel 316L / 1.4435	E43311
	Clamp adapter · G ½ · with leakage port · Clamp · 2" · ISO 2852 / DIN 32676 · with leakage port · Housing materials: stainless steel 316L / 1.4435	E43312

Accessories for oil humidity sensor LDH

Type	Description	Order no.
	Adapter block · D33 / G ¾ · for oil humidity sensor LDH100 · Housing materials: aluminium	E43400










Accessories for level sensors LR





Type	Description	Order no.
	Flange plate · 65-80 / G ¾ · for level sensors LR · Housing materials: flange: stainless steel	E43202
	Flange plate · 73-90 / G ¾ · for level sensors LR · according to DIN 24557 · Housing materials: flange: stainless steel / sealing: NBR	E43201
	Flange plate · 73-90 / ¾" NPT · for level sensors LR · according to DIN 24557 · Housing materials: flange: stainless steel / sealing: NBR	E43206
	Probe · Probe length: 150 mm · for level sensors LR · Housing materials: stainless steel 316L / 1.4404	E43225
	Probe · Probe length: 240 mm · for level sensors LR · Housing materials: stainless steel 316L / 1.4404	E43203
	Probe · Probe length: 300 mm · for level sensors LR · Housing materials: stainless steel 316L / 1.4404	E43226
	Probe · Probe length: 450 mm · for level sensors LR · Housing materials: stainless steel 316L / 1.4404	E43204
	Probe · Probe length: 500 mm · for level sensors LR · Housing materials: stainless steel 316L / 1.4404	E43227
	Probe · Probe length: 700 mm · for level sensors LR · Housing materials: stainless steel 316L / 1.4404	E43205

Type	Description	Order no.
	Probe · Probe length: 1000 mm · for level sensors LR · Housing materials: stainless steel 316L / 1.4404	E43207
	Probe · Probe length: 1200 mm · for level sensors LR · Housing materials: stainless steel 316L / 1.4404	E43208
	Probe · Probe length: 1400 mm · for level sensors LR · Housing materials: stainless steel 316L / 1.4404	E43209
	Probe · Probe length: 1600 mm · for level sensors LR · Housing materials: stainless steel 316L / 1.4404	E43210
	Coaxial pipe · Length: 150 mm · G 3/4 · for level sensors LR · Housing materials: stainless steel / sealing: Tesnit	E43230
	Coaxial pipe · Length: 240 mm · G 3/4 · for level sensors LR · Housing materials: stainless steel / sealing: Tesnit / centring piece: PP / fixing bracket: stainless steel	E43211
	Coaxial pipe · Length: 300 mm · G 3/4 · for level sensors LR · Housing materials: stainless steel / sealing: Tesnit / centring piece: PP / fixing bracket: stainless steel	E43228
	Coaxial pipe · Length: 450 mm · G 3/4 · for level sensors LR · Housing materials: stainless steel / sealing: Tesnit / centring piece: PP / fixing bracket: stainless steel	E43212
	Coaxial pipe · Length: 500 mm · G 3/4 · for level sensors LR · Housing materials: stainless steel / sealing: Tesnit / centring piece: PP / fixing bracket: stainless steel	E43229
	Coaxial pipe · Length: 700 mm · G 3/4 · for level sensors LR · Housing materials: stainless steel / sealing: Tesnit / centring piece: PP / fixing bracket: stainless steel	E43213
	Coaxial pipe · Length: 1000 mm · G 3/4 · for level sensors LR · Housing materials: stainless steel / sealing: Tesnit / centring piece: PP / fixing bracket: stainless steel	E43214
	Coaxial pipe · Length: 1200 mm · G 3/4 · for level sensors LR · Housing materials: stainless steel / sealing: Tesnit / centring piece: PP / fixing bracket: stainless steel	E43215
	Coaxial pipe · Length: 1400 mm · G 3/4 · for level sensors LR · Housing materials: stainless steel / sealing: Tesnit / centring piece: PP / fixing bracket: stainless steel	E43216
	Coaxial pipe · Length: 1600 mm · G 3/4 · for level sensors LR · Housing materials: stainless steel / sealing: Tesnit / centring piece: PP / fixing bracket: stainless steel	E43217
	Coaxial pipe · Length: 450 mm · 3/4" NPT · for level sensors LR · Housing materials: stainless steel / centring piece: PP / fixing bracket: stainless steel	E43218
	Coaxial pipe · Length: 700 mm · 3/4" NPT · for level sensors LR · Housing materials: stainless steel / centring piece: PP / fixing bracket: stainless steel	E43219

Type	Description	Order no.
	Coaxial pipe · Length: 1000 mm · ¾" NPT · for level sensors LR · Housing materials: stainless steel / centring piece: PP / fixing bracket: stainless steel	E43220
	Coaxial pipe · Length: 1200 mm · ¾" NPT · for level sensors LR · Housing materials: stainless steel / centring piece: PP / fixing bracket: stainless steel	E43223
	Coaxial pipe · Length: 1400 mm · ¾" NPT · for level sensors LR · Housing materials: stainless steel / centring piece: PP / fixing bracket: stainless steel	E43224
	Coaxial pipe · Length: 1600 mm · ¾" NPT · for level sensors LR · Housing materials: stainless steel / centring piece: PP / fixing bracket: stainless steel	E43221

Accessories for level sensors PA, PG, PI, PN, PS, PY

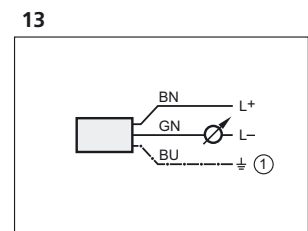
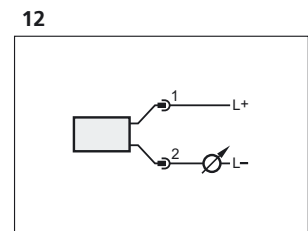
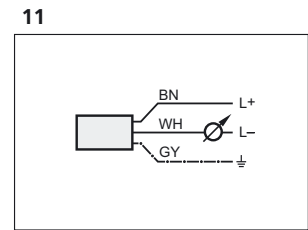
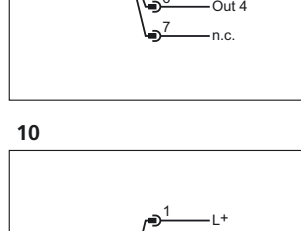
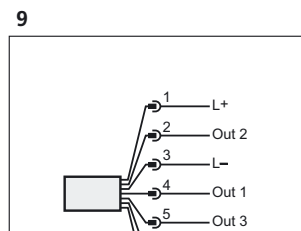
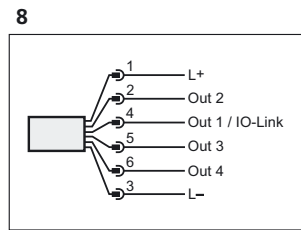
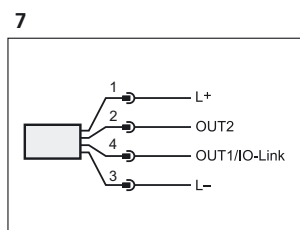
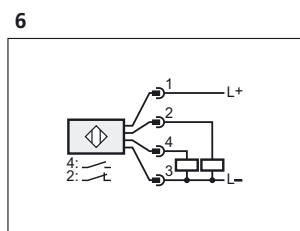
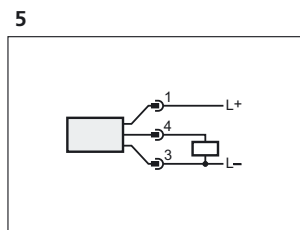
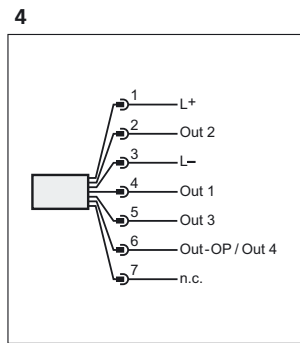
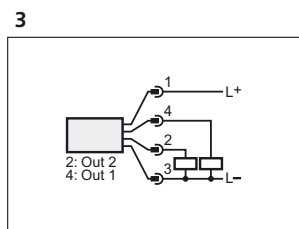
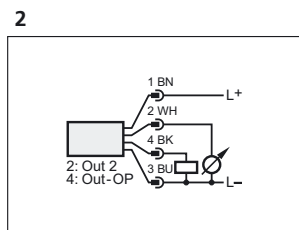
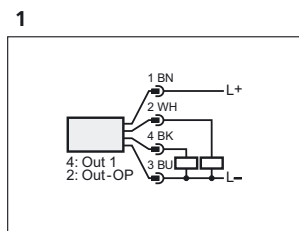
Type	Description	Order no.
	Adapter · G ¼ - G ½ · Housing materials: stainless steel / sealing: FPM	E30000
	Adapter · G ¼ - G ¼ · Housing materials: stainless steel / FPM	E30007
	Cable clamp fastener · for submersible pressure transmitter PS3 · Housing materials: steel / plastics	E30399
	Filter element · for submersible pressure transmitter PS3 · for fixing on the capillary tube	E30400
	Splitter box · with ventilation and terminal block · for submersible pressure transmitter PS3 · Housing materials: plastics	E30401
	Additional weight · for submersible pressure transmitter PS3 · Housing materials: stainless steel 316Ti / 1.4571	E30402
	Welding adapter · Ø 50 mm · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	E30122
	Pipe fitting · Hygienic pipe fitting · Hygienic pipe fitting · DN40 (1.5") · DIN 11851 · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	E33212
	Pipe fitting · Hygienic pipe fitting · Hygienic pipe fitting · DN50 (2") · DIN 11851 · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	E33213

Type	Description	Order no.
	Pipe fitting · Hygienic pipe fitting · Hygienic pipe fitting · DN40 (1.5") · DIN 11851 · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	E33712
	Pipe fitting · Hygienic pipe fitting · Hygienic pipe fitting · DN50 (2") · DIN 11851 · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	E33713
	Clamp adapter · Clamp · 1-1.5" · ISO 2852 · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	E33201
	Clamp adapter · Clamp · 1-1.5" · ISO 2852 · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	E33701

Wiring diagrams

Core colours

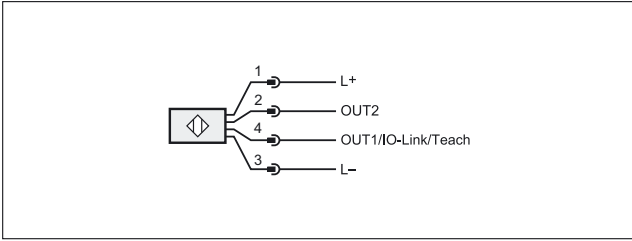
- BN brown
- GY grey
- WH white
- BU blue
- GN green



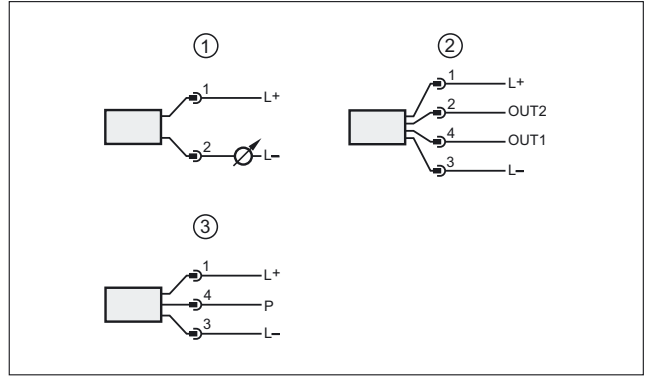
1: screen (connected to the housing)

Wiring diagrams

14

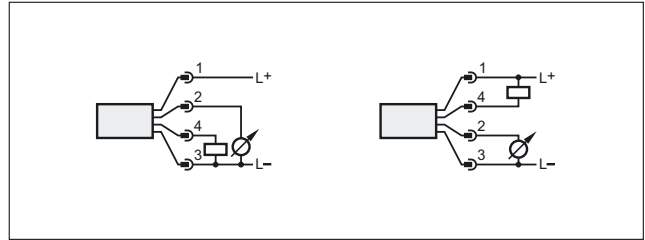


15



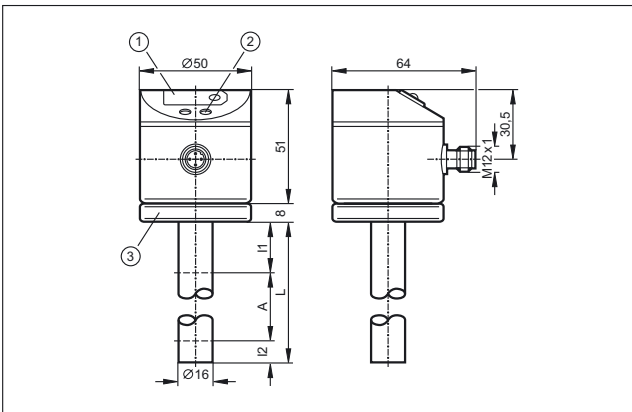
1: connection for 2-wire operation, 2: connection for 3-wire operation, 3: connection for IO-Link parameter setting (P = communication via IO-Link)

16



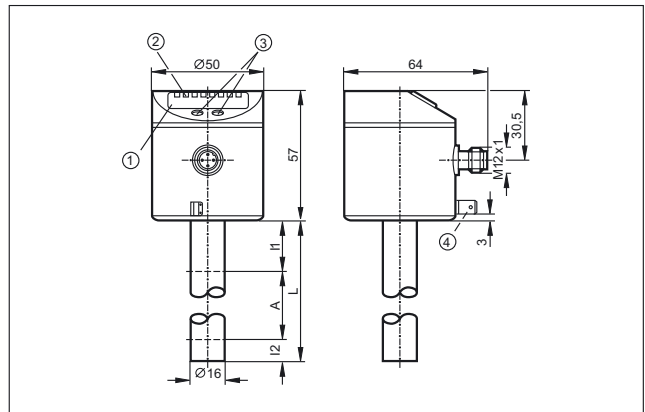
Scale drawings / drawing no. – CAD download: www.ifm.com

1



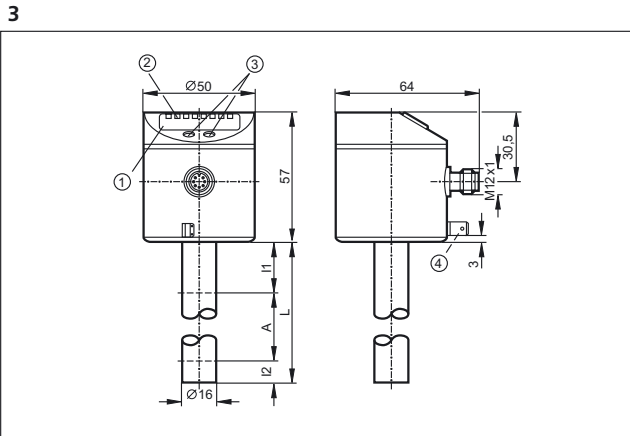
1: 7-segment LED display, 2: Programming buttons, 3: Housing connection with cable lug for cable 1.5 - 2.5 mm²

2

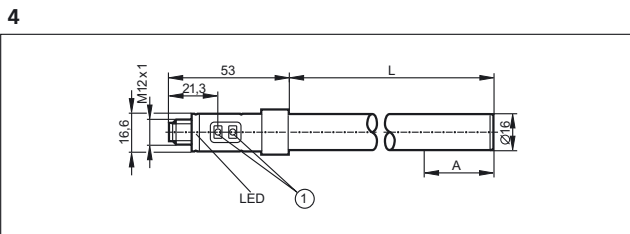


1: 4-digit alphanumeric display, 2: LEDs, 3: Programming buttons, 4: Housing connection (flat-pin connector 6.3 mm following DIN 46244)

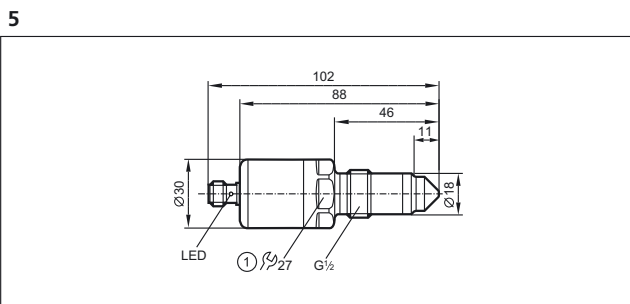
Scale drawings / drawing no. – CAD download: www.ifm.com



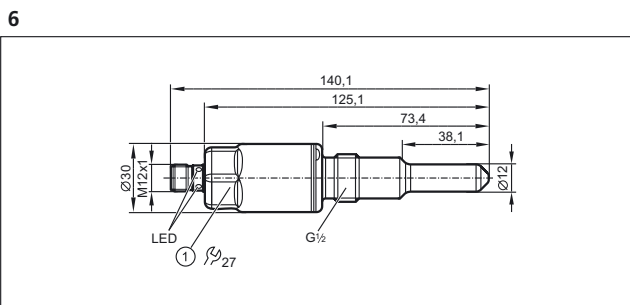
1: 4-digit alphanumeric display, 2: LEDs, 3: Programming buttons, 4: Housing connection (flat-pin connector 6.3 mm following DIN 46244)



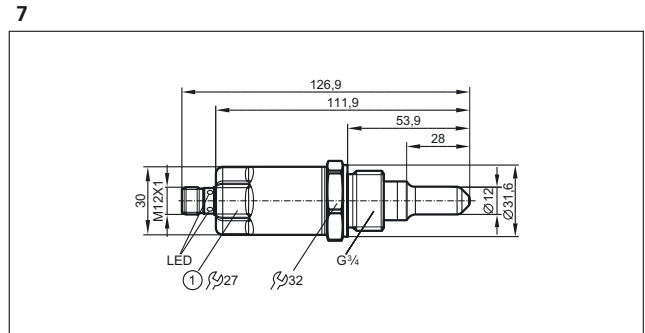
1: Programming buttons



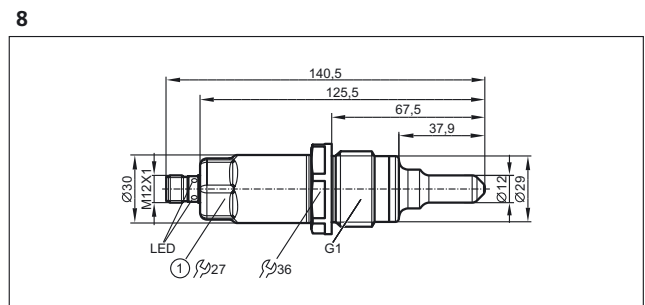
1: tightening torque 20...25 Nm



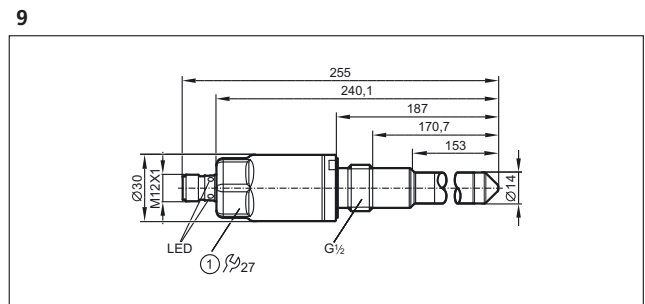
1: tightening torque 20...25 Nm



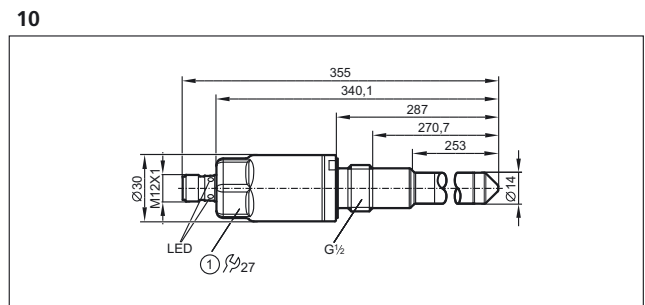
1: tightening torque 35 Nm



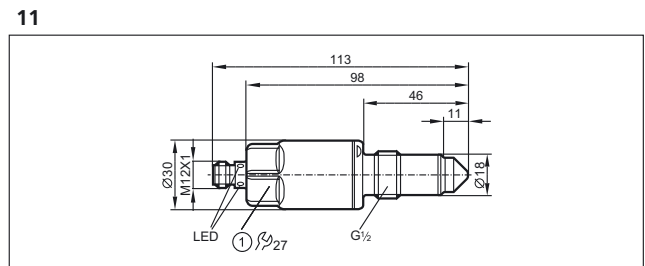
1: tightening torque 35 Nm



1: tightening torque 20...25 Nm



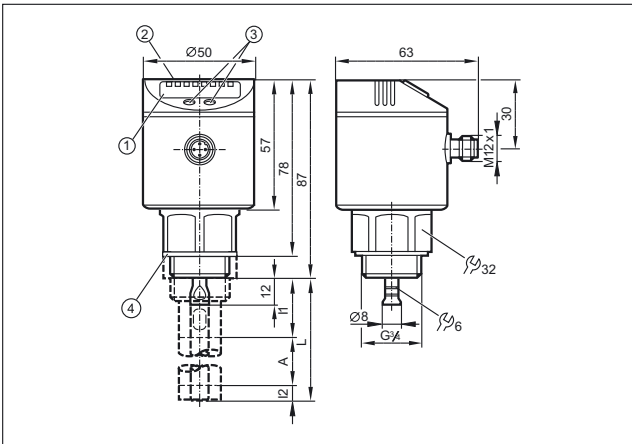
1: tightening torque 20...25 Nm



1: tightening torque 20...25 Nm

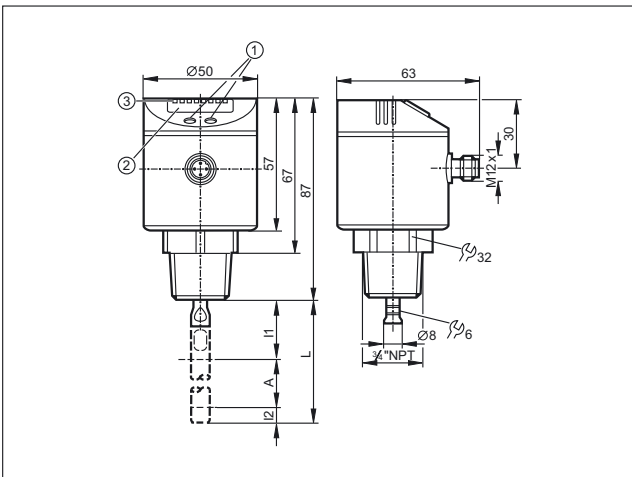
Scale drawings / drawing no. – CAD download: www.ifm.com

12



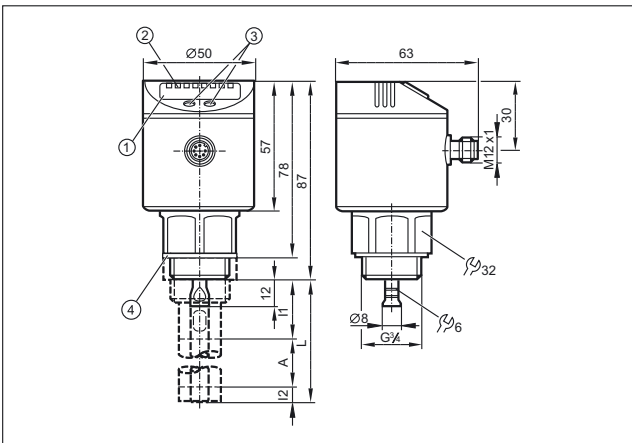
1: 4-digit alphanumeric display, 2: LEDs (display unit / switching status), 3: Programming buttons, 4: sealing, A: Active range, I1 / I2: Inactive ranges

13



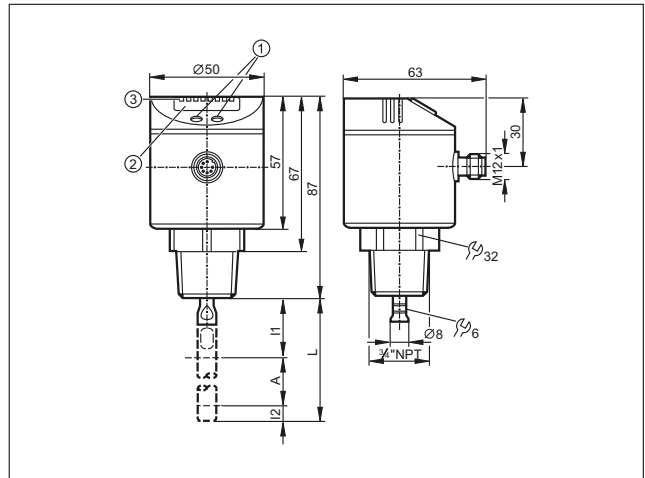
1: 4-digit alphanumeric display, 2: LEDs (display unit / switching status), 3: Programming buttons, A: Active range, I1 / I2: Inactive ranges

14

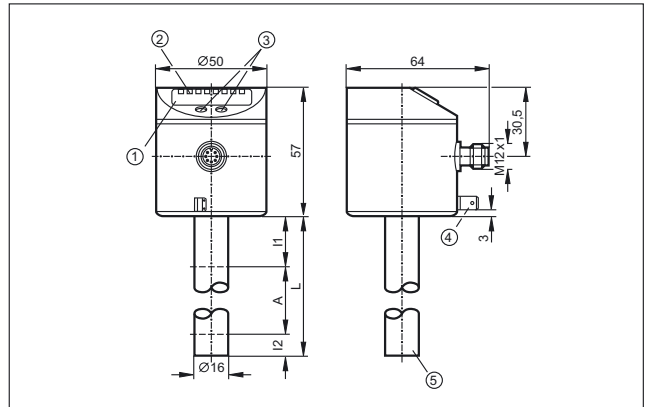


1: 4-digit alphanumeric display, 2: LEDs (display unit / switching status), 3: Programming buttons, 4: sealing, A: Active range, I1 / I2: Inactive ranges

15

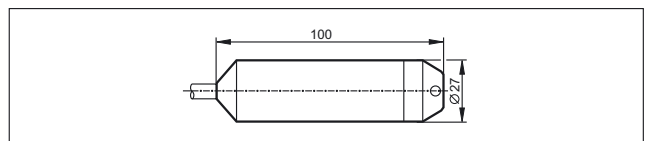


16

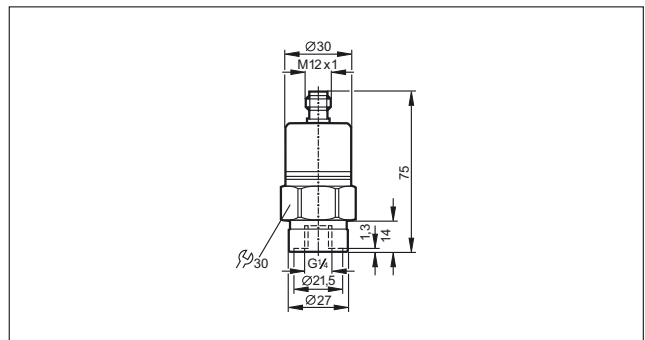


1: 4-digit alphanumeric display, 2: LEDs, 3: Programming buttons, 4: Housing connection (flat-pin connector 6.3 mm following DIN 46244), 5: Position of the temperature measuring element

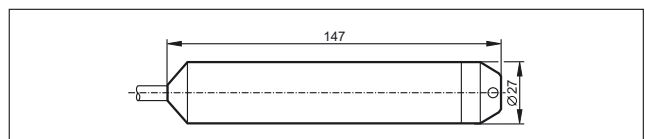
17



18

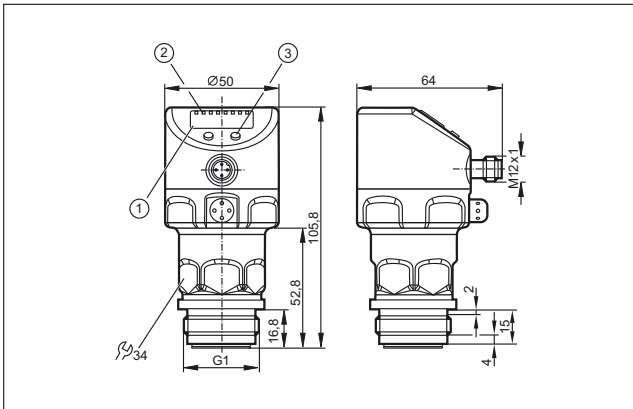


19



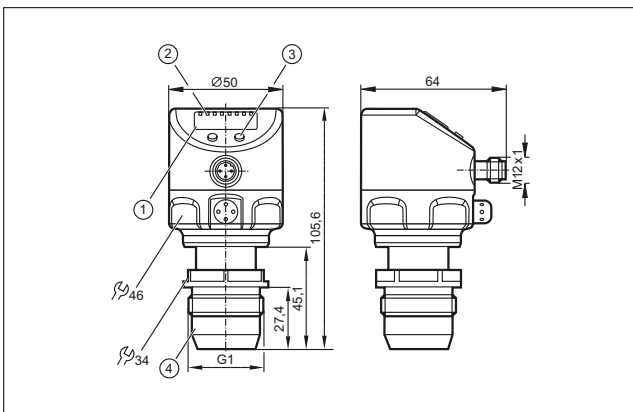
Scale drawings / drawing no. – CAD download: www.ifm.com

20



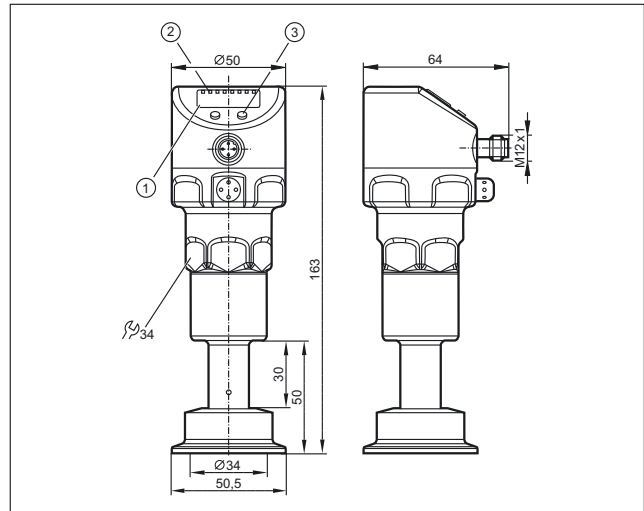
1: 4-digit alphanumeric display, 2: LEDs, 3: Programming button

21



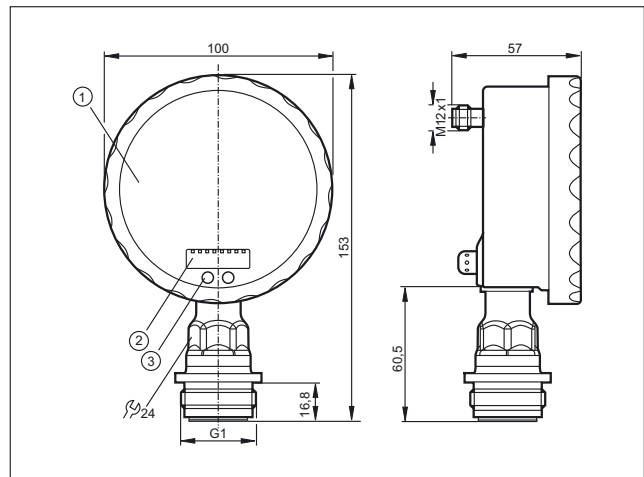
1: 4-digit alphanumeric display, 2: LEDs, 3: Programming button, 4: Sealing cone G1 male, Attention: The unit must only be installed in a process connection for G1 sealing cone! The G1A sealing cone of the unit is only suited for adapters with metal end stop!

22



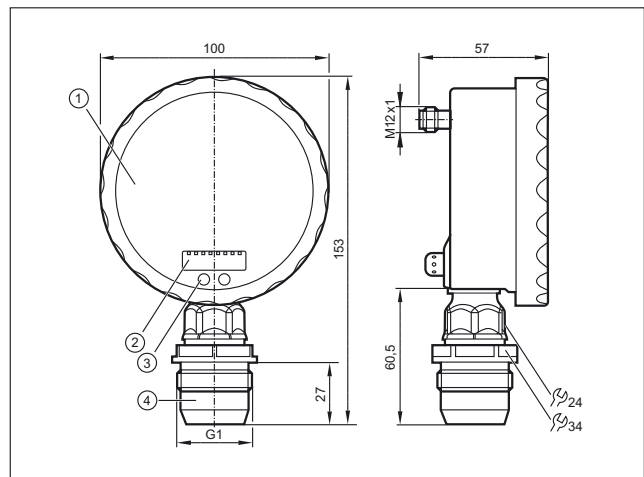
1: 4-digit alphanumeric display, 2: LEDs, 3: Programming button

23



1: Analogue display, 2: 4-digit alphanumeric display, 3: Programming button

24



1: Analogue display, 2: 4-digit alphanumeric display, 3: Touch button (programming button), 4: Sealing cone G1 male, Attention: The unit must only be installed in a process connection for G1 sealing cone! The G1A sealing cone of the unit is only suited for adapters with metal end stop!



- Temperature monitors using Pt100 and Pt1000 sensors
- Probes in a variety of shapes, sizes and lengths
- Simple transmitters up to multifunction heads with display
- Modular concept allows optimised product combinations
- Units with self-checking function and 5 year warranty

Temperature sensors

ifm offers a very wide range of temperature monitoring products to suit the needs of many industries. One end of the range offers simple probes based on Pt100 or Pt1000 resistive elements. At the top end we have a diverse redundant transmitter design which is warranted to stay within tolerance for 5 years or raise an alarm if it drifts – ideal for those critical or difficult to reach installations.

What makes an ifm probe different?

The key to a good temperature probe is the balance between being responsive to changing temperatures and being robust enough to cope with an ever changing environment. ifm uses flexible, temperature-resistant and extremely stable polyamide film as a carrier of the SMD Pt100 components in place of circuit boards. This allows us to position the sensing element right up to the probe wall, making for a very fast response.

From sensor to system

ifm provides a selection of options for customers requiring temperature monitoring. The simplest systems are the all-in-one temperature transmitters which can be supplied for both industrial and hygienic applications. Others prefer the flexibility of sourcing the probe and monitor separately and then combining them on site in one of several ways. This gives the widest range of probe shapes and sizes for specific applications. The evaluation can be achieved locally with a simple head transmitter, type TP, or by using a more feature-laden monitor like the TR which has its own display. The top end solution is the TAD transmitter. It uses two independent temperature monitoring technologies which are then internally cross-checked by the microprocessor. If ever they stop agreeing with each other's measurement then the transmitter will raise an alarm to alert the customer that he can no longer be 100 % certain of that measure and some action should be taken. ifm offers a 5 year warranty on that peace of mind.

Indirect temperature measurement

In most cases the infrared temperature measurement is used where temperatures can only be measured indirectly, that means without contact. The reason for this can for example be a high temperature of the object. The sensors detect the infrared radiation emitted by the objects and convert them into an output signal.



Local display of the current temperature.

Essential: Temperature monitoring in air conditioning.



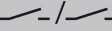
<i>System overview</i>	<i>Page</i>
Compact temperature sensors	514
Compact temperature sensors with display, IO-Link	514
Control monitors for temperature sensors	514
Control monitors for temperature sensors, IO-Link	515
Modular temperature transmitters	515
Pt1000 probe sensors for standard applications	515 - 516
Pt100 probe sensors for standard applications	516
Pt100 probe sensors for standard applications	517
Cable sensors for standard applications	517 - 518
Cable sensors with bolt-on sensor for standard applications	518
Screw-in sensor with ATEX approval 3D/3G	519
Cable sensors for ATEX applications 3D/3G	519
Cable sensors with bolt-on sensors for ATEX 3D / 3G applications	519
Temperature transmitters for standard applications	519
Temperature transmitter in compact housing, IO-Link	520
Probe sensors for hygienic and wet areas	520
Sensors with process connection for hygienic and wet areas	521
Temperature transmitters for hygienic and wet areas	522
Self-monitoring temperature transmitters for hygienic and wet areas, IO-Link	522
Temperature transmitter with display for hygienic and wet areas, IO-Link	523 - 524
Infrared temperature sensors	525
Accessories for temperature sensors TN / TR	525 - 526
Accessories for infrared temperature sensors	526
Accessories and software	526 - 527
Certificates	527
Thermowells for temperature sensors	527 - 529
Adapters	529 - 531
Hygienic adapters	531 - 534
Wiring diagrams	535 - 536
Scale drawings / drawing no. – CAD download: www.ifm.com	536 - 541

Compact temperature sensors

Type	Measuring range [°C]	Process connection	Installation length [mm]	U _b [V]	Dynamic response T05 / T09 [s]	Drawing no.	Order no.
------	-------------------------	--------------------	-----------------------------	-----------------------	--------------------------------------	-------------	-----------

M12 connector · Output function normally open / closed complementary · DC PNP · Wiring diagram no. 1 · Connector groups 8, 10, 11, 18, 20, 117, 118, 119, 147, 148

	-25...140	G ¼ A	39	9.6...32	1 / 3	1	TK6130
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M12 connector · Output function  · DC PNP · Wiring diagram no. 2 · Connector groups 8, 10, 11, 18, 20, 117, 118, 119, 147, 148

	-25...140	G ¼ A	39	9.6...32	1 / 3	1	TK7130
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M12 connector · Output function 1 x normally open / 1 x normally closed · DC PNP · Wiring diagram no. 2 · Connector groups 8, 10, 11, 18, 20, 117, 118, 119, 147, 148

	-25...140	G ½ A	267	9.6...32	1 / 3	2	TK7480
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Compact temperature sensors with display, IO-Link

Type	Measuring range [°C]	Process connection	Installation length [mm]	U _b [V]	Dynamic response T05 / T09 [s]	Drawing no.	Order no.
------	-------------------------	--------------------	-----------------------------	-----------------------	--------------------------------------	-------------	-----------

M12 connector · Output function 1 x normally open / closed programmable + 1 x analogue (4...20 mA / 0...10 V, scalable) · DC PNP/NPN · Wiring diagram no. 5 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147

	-40...150	M18 x 1.5	45	18...32	1 / 3	3	TN2531
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M12 connector · Output function 2 x normally open / closed programmable · DC PNP/NPN · Wiring diagram no. 6 · Connector groups 8, 10, 11, 18, 20, 117, 118, 119, 147, 148

	-40...150	M18 x 1.5	45	18...32	1 / 3	3	TN7531
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Control monitors for temperature sensors

Type	Measuring range [°C]	Process connection	Display LED	U _b [V]	Current consumption [mA]	I _{load} [mA]	Drawing no.	Order no.
------	-------------------------	--------------------	----------------	-----------------------	-----------------------------	---------------------------	-------------	-----------


M12 connector · Output function 4 x normally open / closed programmable · DC PNP · Wiring diagram no. 7 · Connector groups 16, 17

	-40...150	G ½ A	Display unit	18...28	90	< 500	4	TR8430
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Control monitors for temperature sensors, IO-Link

Type	Measuring range [°C]	Process connection	Display LED	U _b [V]	Current consumption [mA]	I _{load} [mA]	Drawing no.	Order no.
------	-------------------------	--------------------	----------------	-----------------------	-----------------------------	---------------------------	-------------	-----------

M12 connector · Output function 1 x normally open / closed programmable + 1 x analogue (4...20 mA / 0...10 V, scalable) · DC PNP/NPN · Wiring diagram no. 8 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147

	-40...300	G ½ A	Display unit	18...32	50	250	5	TR2432
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M12 connector · Output function 2 x normally open / closed programmable · DC PNP/NPN · Wiring diagram no. 9 · Connector groups 117, 118, 147

	-40...300	G ½ A	Display unit	18...32	50	250	5	TR7432
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Modular temperature transmitters

Type	Factory setting [°C]	Process connection	U _b [V]	Ambient temperature [°C]	Measuring element	Drawing no.	Order no.
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M12 connector · Output function 4...20 mA analogue · DC · Wiring diagram no. 10 · Connector groups 8, 10, 18, 20, 117, 118, 147

	-50...300	M12	20...32	-25...70	for Pt100 and Pt1000 measuring elements	6	TP3232
	0...100	M12	20...32	-25...70	for Pt100 and Pt1000 measuring elements	6	TP3237
	-50...150	M12	20...32	-25...70	for Pt100 and Pt1000 measuring elements	6	TP3231
	-18...149	M12	20...32	-25...70	for Pt100 and Pt1000 measuring elements	6	TP3233


M12 connector · Output function 0...10 V analogue · DC · Wiring diagram no. 11 · Connector groups 8, 10, 18, 20, 117, 118, 147

	0...100	M12	18...32	-25...70	for Pt100 and Pt1000 measuring elements	6	TP9237
---	---------	-----	---------	----------	---	---	--------

Pt1000 probe sensors for standard applications

Type	Measuring range [°C]	Diameter [mm]	Installation length [mm]	Sensor element	Dynamic response T05 / T09 [s]	Drawing no.	Order no.
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M12 connector · high-grade stainless steel · Wiring diagram no. 3


	-40...150	10	160	1 x Pt 1000	1 / 3	7	TT1050
	-40...150	10	260	1 x Pt 1000	1 / 3	7	TT2050

You can find wiring diagrams and scale drawings from page 535

Process sensors

Type	Measuring range [°C]	Diameter [mm]	Installation length [mm]	Sensor element	Dynamic response T05 / T09 [s]	Drawing no.	Order no.
------	-------------------------	------------------	-----------------------------	----------------	--------------------------------------	-------------	-----------




M12 connector · high-grade stainless steel · Wiring diagram no. 3

	-40...150	10	360	1 x Pt 1000	1 / 3	7	TT3050
	-40...150	10	560	1 x Pt 1000	1 / 3	7	TT5050

Pt100 probe sensors for standard applications

Type	Measuring range [°C]	Diameter [mm]	Installation length [mm]	Sensor element	Dynamic response T05 / T09 [s]	Drawing no.	Order no.
------	-------------------------	------------------	-----------------------------	----------------	--------------------------------------	-------------	-----------



M12 connector · high-grade stainless steel · Connector groups 8, 10, 18, 20, 117, 118, 147

	-40...150	6	100	1 x Pt 100	1 / 3	8	TT0281
	-40...150	6	150	1 x Pt 100	1 / 3	8	TT1281
	-40...150	6	250	1 x Pt 100	1 / 3	8	TT2281
	-40...150	6	350	1 x Pt 100	1 / 3	8	TT3281
	-40...150	6	50	1 x Pt 100	1 / 3	8	TT9281
	-40...150	10	160	1 x Pt 100	1 / 3	7	TT1081
	-40...150	10	260	1 x Pt 100	1 / 3	7	TT2081
	-40...150	10	360	1 x Pt 100	1 / 3	7	TT3081
	-40...150	10	560	1 x Pt 100	1 / 3	7	TT5081
	-40...125	8.2	60	1 x Pt 100	1 / 3	9	TM9950







M12 connector · titanium · Connector groups 8, 10, 18, 20, 117, 118, 147

	-40...125	8.2	60	1 x Pt 100	1 / 3	9	TM9900
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Pt100 probe sensors for standard applications

Type	Measuring range [°C]	Process connection	Installation length [mm]	Sensor element	Dynamic response T05 / T09 [s]	Drawing no.	Order no.
M12 connector · high-grade stainless steel · Connector groups 8, 10, 18, 20, 117, 118, 147							
	-40...150	G ¼	25	1 x Pt 100	1 / 3	10	TM4101
	-40...150	G ½	50	1 x Pt 100	1 / 3	11	TM4411
	-40...150	G ½	100	1 x Pt 100	1 / 3	11	TM4431
	-40...150	G ½	150	1 x Pt 100	1 / 3	11	TM4441
	-40...150	G ½	250	1 x Pt 100	1 / 3	11	TM4461




Cable sensors for standard applications

Type	Measuring range [°C]	Diameter [mm]	Cable material	Sensor element	Dynamic response T05 / T09 [s]	Drawing no.	Order no.
Cable 4 m · high-grade stainless steel							
	-30...180	M5	silicone cable	1 x Pt 100	3 / 8	12	TS4759
Cable with connector 0.15 m · high-grade stainless steel · Connector groups 8, 10, 18, 20, 117, 118, 147							
	-50...250	Ø 6 mm	PTFE cable	1 x Pt 1000	11 / 37	13	TS9256
Cable with connector 2 m · high-grade stainless steel · Connector groups 8, 10, 18, 20, 117, 118, 147							
	-40...90	Ø 6 mm / L = 45 mm	PUR cable	1 x Pt 100	3 / 10	14	TS2289
	-40...90	Ø 10 mm	PUR cable	1 x Pt 100	6 / 25	15	TS2089
	-50...250	Ø 6 mm	PTFE cable	1 x Pt 100	11 / 37	13	TS2256
	-50...250	Ø 10 mm	PTFE cable	1 x Pt 100	12 / 39	16	TS2056


Process sensors

Type	Measuring range [°C]	Diameter [mm]	Cable material	Sensor element	Dynamic response T05 / T09 [s]	Drawing no.	Order no.
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Cable with connector 2 m · high-grade stainless steel · Connector groups 8, 10, 18, 20, 117, 118, 147

	-30...90	M5 / L = 25.7	PUR cable	1 x Pt 100	3 / 8	17	TS2789
	-40...90	M6 / L = 26	PUR cable	1 x Pt 100	3 / 9	18	TS2689
	-30...180	M5 / L = 25.7	silicone cable	1 x Pt 100	3 / 8	19	TS2759
	-30...180	M6	silicone cable	1 x Pt 100	3 / 8	20	TS2659


Cable with connector 2.5 m · high-grade stainless steel · Connector groups 8, 10, 18, 20, 117, 118, 147

	-40...90	Ø 6 mm / L = 45 mm	PUR cable	1 x Pt 100	3 / 10	14	TS9289
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Cable with connector 5 m · high-grade stainless steel · Connector groups 8, 10, 18, 20, 117, 118, 147

	-40...90	Ø 10 mm	PUR cable	1 x Pt 100	6 / 25	15	TS5089
	-40...90	Ø 6 mm / L = 45 mm	PUR cable	1 x Pt 100	3 / 10	14	TS5289


Cable with connector 10 m · high-grade stainless steel · Connector groups 8, 10, 18, 20, 117, 118, 147

	-30...180	M5 / L = 25.7	silicone cable	1 x Pt 100	3 / 8	19	TS0759
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Cable sensors with bolt-on sensor for standard applications

Type	Measuring range [°C]	Diameter [mm]	Cable material	Sensor element	Dynamic response T05 / T09 [s]	Drawing no.	Order no.
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Cable with connector 2 m · stainless steel · Connector groups 8, 10, 18, 20, 117, 118, 147

	-25...90	12	PUR cable	1 x Pt 100	9 / 15	21	TS2229
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Cable 2 m · stainless steel

	-25...90	12	PUR cable	1 x Pt 100	12 / 39	22	TS2239
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Screw-in sensor with ATEX approval 3D/3G

Type	Measuring range [°C]	Diameter [mm]	Cable material	Sensor element	Dynamic response T05 / T09 [s]	Drawing no.	Order no.
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Cable 2 m · high-grade stainless steel · DC



-	M5	silicone cable	1 x Pt 100	8 / 20	23	TS285A
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Cable sensors for ATEX applications 3D/3G

Type	Measuring range [°C]	Diameter [mm]	Cable material	Sensor element	Dynamic response T05 / T09 [s]	Drawing no.	Order no.
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Cable 3 m · high-grade stainless steel



-20...80	Ø 5/6 mm / L = 40	silicone cable	1 x Pt 100	4 / 10	24	TS325A
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Cable sensors with bolt-on sensors for ATEX 3D / 3G applications

Type	Measuring range [°C]	Diameter [mm]	Cable material	Sensor element	Dynamic response T05 / T09 [s]	Drawing no.	Order no.
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Cable 5 m · high-grade stainless steel



-20...80	10	silicone cable	1 x Pt 100	13 / 39	25	TS522A
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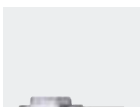


-20...80	18	silicone cable	1 x Pt 1000	18 / 42	26	TS502A
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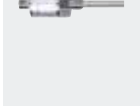
Temperature transmitters for standard applications

Type	Measuring range [°C]	Process connection	Installation length [mm]	U _b [V]	Dynamic response T05 / T09 [s]	Drawing no.	Order no.
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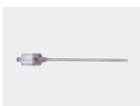
M12 connector · high-grade stainless steel · DC · Connector groups 8, 10, 18, 20, 117, 118, 147



-50...150	G ¼ A	60	10...30	1 / 3	27	TA3131
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0...140	G ¼ A	60	10...30	1 / 3	27	TA3130
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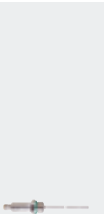
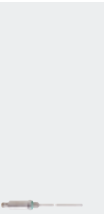


-50...150	G ¼ A	200	10...30	1 / 3	28	TA3171
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Temperature transmitter in compact housing, IO-Link

Type	Measuring range [°C]	Process connection	Installation length [mm]	U _b [V]	Dynamic response T05 / T09 [s]	Drawing no.	Order no.
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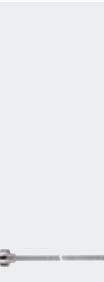
M12 connector · high-grade stainless steel · DC · Connector groups 8, 10, 18, 20, 117, 118, 147

	-50...150	G ½	30	18...32	1 / 3	29	TA2405
	-50...150	G ½	50	18...32	1 / 3	29	TA2415
	-50...150	G ½	100	18...32	1 / 3	29	TA2435
	-50...150	G ½	150	18...32	1 / 3	29	TA2445
	-50...150	G ¼	25	18...32	1 / 3	30	TA2105
	-50...150	G ¼	50	18...32	1 / 3	30	TA2115
	-50...150	G ¼	100	18...32	1 / 3	30	TA2135
	-50...150	G ¼	150	18...32	1 / 3	30	TA2145




Probe sensors for hygienic and wet areas

Type	Measuring range [°C]	Diameter [mm]	Installation length [mm]	Sensor element	Dynamic response T05 / T09 [s]	Drawing no.	Order no.
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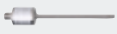
M12 connector · high-grade stainless steel · Connector groups 8, 10, 18, 20, 117, 118, 147

	-40...150	6	50	1 x Pt 100	1 / 3	8	TT9291
	-40...150	6	100	1 x Pt 100	1 / 3	8	TT0291
	-40...150	6	150	1 x Pt 100	1 / 3	8	TT1291
	-40...150	6	250	1 x Pt 100	1 / 3	8	TT2291
	-40...150	6	350	1 x Pt 100	1 / 3	8	TT3291







Sensors with process connection for hygienic and wet areas

Type	Measuring range [°C]	Process connection	Installation length [mm]	Sensor element	Dynamic response T05 / T09 [s]	Drawing no.	Order no.
M12 connector · high-grade stainless steel · Connector groups 8, 10, 18, 20, 117, 118, 147							
	-40...150	Clamp 1-1.5" ISO 2852	30	1 x Pt 100	1 / 3	31	TM4801
	-40...150	Clamp 1-1.5" ISO 2852	50	1 x Pt 100	1 / 3	31	TM4811
	-40...150	Clamp 1-1.5" ISO 2852	100	1 x Pt 100	1 / 3	31	TM4831
	-40...150	Clamp 1-1.5" ISO 2852	150	1 x Pt 100	1 / 3	31	TM4841
	-40...150	Clamp 2"	30	1 x Pt 100	1 / 3	32	TM4901
	-40...150	Clamp 2"	50	1 x Pt 100	1 / 3	32	TM4911
	-40...150	Clamp 2"	100	1 x Pt 100	1 / 3	32	TM4931
	-40...150	Clamp 2"	150	1 x Pt 100	1 / 3	32	TM4941
	-40...150	G½ with sealing cone	20	1 x Pt 100	1 / 3	33	TM4591
	-40...150	G½ with sealing cone	30	1 x Pt 100	1 / 3	33	TM4501
	-40...150	G½ with sealing cone	50	1 x Pt 100	1 / 3	33	TM4511
	-40...150	G½ with sealing cone	100	1 x Pt 100	1 / 3	33	TM4531
	-40...150	G½ with sealing cone	150	1 x Pt 100	1 / 3	33	TM4541



Temperature transmitters for hygienic and wet areas



Type	Measuring range [°C]	Process connection	Installation length [mm]	U _b [V]	Dynamic response T05 / T09 [s]	Drawing no.	Order no.
M12 connector · high-grade stainless steel · DC · Connector groups 8, 10, 18, 20, 117, 118, 147							
	0...100	G ½ A	87.5	10...30	1 / 3	34	TA3437
	0...140	G ½ A	87.5	10...30	1 / 3	34	TA3430
	-10...150	G ½ A	87.5	10...30	1 / 3	35	TA3431
	0...100	Ø 6 mm	123	10...30	1 / 3	36	TA3237
	-10...150	Ø 6 mm	123	10...30	1.2 / 3.5	36	TA3231

Self-monitoring temperature transmitters for hygienic and wet areas, IO-Link

Type	Factory setting	Process connection	Installation length [mm]	U _b [V]	Dynamic response T05 / T09 [s]	Drawing no.	Order no.
M12 connector · Output function normally open / normally closed / heartbeat programmable, 4...20 mA analogue · DC PNP/NPN · Wiring diagram no. 12 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147							
	0...150°C / 32...302°F	Aseptoflex Vario	50	18...32	3 / 6	37	TAD081
	0...150°C / 32...302°F	Aseptoflex Vario	87.5	18...32	3 / 6	38	TAD181
	0...150°C / 32...302°F	Aseptoflex Vario	33	18...32	3 / 6	39	TAD981
	0...150°C / 32...302°F	G ½ A	50	18...32	3 / 6	40	TAD091
	0...150°C / 32...302°F	G ½ A	87.5	18...32	3 / 6	41	TAD191
	0...150°C / 32...302°F	G ½ A	33	18...32	3 / 6	42	TAD991



Temperature transmitter with display for hygienic and wet areas, IO-Link





Type	Factory setting [°C]	Process connection	Installation length [mm]	U _b [V]	Dynamic response T05 / T09 [s]	Drawing no.	Order no.
M12 connector · DC · Wiring diagram no. 13 · Connector groups 8, 10, 18, 20, 117, 118, 147							
	0...100	G½ with sealing cone	30	18...32	1 / 3	43	TD2507
	0...100	G½ with sealing cone	50	18...32	1 / 3	43	TD2517
	0...100	G½ with sealing cone	100	18...32	1 / 3	43	TD2537
	0...100	G½ with sealing cone	150	18...32	1 / 3	43	TD2547
	-10...150	G½ with sealing cone	30	18...32	1 / 3	43	TD2501
	-10...150	G½ with sealing cone	50	18...32	1 / 3	43	TD2511
	-10...150	G½ with sealing cone	100	18...32	1 / 3	43	TD2531
	-10...150	G½ with sealing cone	150	18...32	1 / 3	43	TD2541
	0...100	1.5" clamp (ISO 2852)	30	18...32	1 / 3	44	TD2807
	0...100	1.5" clamp (ISO 2852)	50	18...32	1 / 3	44	TD2817
	0...100	1.5" clamp (ISO 2852)	100	18...32	1 / 3	44	TD2837
	0...100	1.5" clamp (ISO 2852)	150	18...32	1 / 3	44	TD2847
	-10...150	1.5" clamp (ISO 2852)	30	18...32	1 / 3	44	TD2801
	-10...150	1.5" clamp (ISO 2852)	50	18...32	1 / 3	44	TD2811
	-10...150	1.5" clamp (ISO 2852)	100	18...32	1 / 3	44	TD2831
	-10...150	1.5" clamp (ISO 2852)	150	18...32	1 / 3	44	TD2841



Type	Factory setting [°C]	Process connection	Installation length [mm]	U _b [V]	Dynamic response T05 / T09 [s]	Drawing no.	Order no.
M12 connector · DC · Wiring diagram no. 13 · Connector groups 8, 10, 18, 20, 117, 118, 147							
	0...100	2" triclamp (ISO 2852)	30	18...32	1 / 3	45	TD2907
	0...100	2" triclamp (ISO 2852)	50	18...32	1 / 3	45	TD2917
	0...100	2" triclamp (ISO 2852)	100	18...32	1 / 3	45	TD2937
	0...100	2" triclamp (ISO 2852)	150	18...32	1 / 3	45	TD2947
	-10...150	2" triclamp (ISO 2852)	30	18...32	1 / 3	45	TD2901
	-10...150	2" triclamp (ISO 2852)	50	18...32	1 / 3	45	TD2911
	-10...150	2" triclamp (ISO 2852)	100	18...32	1 / 3	45	TD2931
	-10...150	2" triclamp (ISO 2852)	150	18...32	1 / 3	45	TD2941
	0...100	Ø 6 mm	50	18...32	1 / 3	46	TD2217
	0...100	Ø 6 mm	100	18...32	1 / 3	46	TD2237
	0...100	Ø 6 mm	150	18...32	1 / 3	46	TD2247
	0...100	Ø 6 mm	250	18...32	1 / 3	46	TD2267
	-10...150	Ø 6 mm	50	18...32	1 / 3	46	TD2211
	-10...150	Ø 6 mm	100	18...32	1 / 3	46	TD2231
	-10...150	Ø 6 mm	150	18...32	1 / 3	46	TD2241
	-10...150	Ø 6 mm	250	18...32	1 / 3	46	TD2261


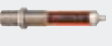

Infrared temperature sensors

Type	Temperature range [°C]	Wave length range [μm]	Material lens	Response time [ms]	Drawing no.	Order no.
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M12 connector · Output function   · Switching output, Analogue output · DC PNP · Wiring diagram no. 4

	0...999.5	8...14	Infrared transparent crystal lens with anti-reflex coating	< 100	47	TW2000
	250...1600	1.0...1.7	tempered optical glass	< 2	48	TW2001
	500...2500	0.78...1.06	tempered optical glass	< 2	48	TW2002
	300...1600	1.0...1.7	tempered optical glass	< 2	49	TW2011


M12 connector · Output function   · 2 switching outputs · DC PNP · Wiring diagram no. 4

	50...500	8...14	Infrared transparent crystal lens with anti-reflex coating	< 100	50	TW7000
	250...1250	1.0...1.7	tempered optical glass	≤ 2	51	TW7001
	350...1350	1.0...1.7	tempered optical glass	≤ 2	52	TW7011

Accessories for temperature sensors TN / TR

Type	Description	Order no.
	Angle bracket · Housing materials: PA66-	E30421
	Mounting clamp · Ø 34 mm · Housing materials: PBT	E10017
	Mounting clamp · Ø 34 mm · Housing materials: PA	E10193
	Mounting device 2 way · for fluid sensors · Housing materials: POM	E30078
	Mounting device 3 way · for fluid sensors · Housing materials: POM	E30079




Process sensors



Type	Description	Order no.
	Protective cover · for fluid sensors with M12 connector · Housing materials: polyurethane	E30006

Accessories for infrared temperature sensors

Type	Description	Order no.
	Measuring head · for infrared temperature sensors TWxx11, M30 design · for type TW · Housing materials: AlMg3 black anodised / stainless steel / lock nuts: stainless steel / O-ring: FPM	E35060
	Fibre optics with stainless steel sheathing · straight · Connection to infrared temperature sensors TWxx11 · ¼"-36UNS-2A · Housing materials: stainless steel, Fibre optic: Quartz/Quartz fibre (VIS/IR)	E35061
	Fibre optics with stainless steel sheathing · straight · Connection to infrared temperature sensors TWxx11 · ¼"-36UNS-2A · Housing materials: stainless steel, Fibre optic: Quartz/Quartz fibre (VIS/IR)	E35062
	Air purge · for infrared temperature sensors TWxxxx, M30 design · for type TW · Housing materials: stainless steel / Brass / sealing ring: aluminium	E35063
	Cooling jacket · for infrared temperature sensors TWxxxx, M30 design · for type TW · Housing materials: Brass / copper / steel galvanised	E35064
	Mounting bracket · Ø 30 mm · for types M30 · Housing materials: Steel galvanised	E35065
	Protective tube · for infrared temperature sensors TWxxxx, M30 design · for type TW · Housing materials: stainless steel	E35066
	Insulating tube · for infrared temperature sensors TWxxxx, M30 design · for type TW · Housing materials: POM	E35067

Accessories and software




Type	Description	Order no.
	IO-Link interface · for parameter setting and analysis of units · Supported communication protocols: IO-Link (4800 and 38400 bits/s) EPS protocol (19200 bits/s) · for operation with FDT framework software "ifm Container" or software "LINERECORDER SENSOR"	E30396
	LINERECORDER SENSOR · Software for parameter setting and set-up of IO-Link sensors · Recording and distribution of parameter sets (duplication) · Capture and evaluation of sensor values over a longer period of time · Resetting of sensor parameters to factory setting · Use via USB connection cable E30396 or E30390 (drivers are contained in the corresponding software package)	ZGS210
	Memory plug · Parameter memory for IO-Link sensors · Storage capacity: 2 Kbytes · Housing materials: PA PACM 12 / PET / sealing: FPM / nut: stainless steel 316L / 1.4404 / connector: TPU	E30398

Type	Description	Order no.
	Teach button · for sensors PP0xE, PP052x, PP755x · for memory plug (E30398) · 0.9 m · Housing materials: stainless steel / PA / PMMA	E30405
	USB IO-Link master · for parameter setting and analysis of units · Supported communication protocols: IO-Link (4.8, 38.4 and 230 Kbits/s) · for operation with FDT framework software "ifm Container" or software "LINERECORDER SENSOR"	E30390

Certificates

Description	Order no.
DAkKS calibration certificate for temperature sensors · Number of measuring points: 3-point DAkKS calibration · Measurement points [°C]: 65, 85, 123 (to directive DAkKS-DKD-R 5-1) · Minimum measurement uncertainty [K]: 0.1	ZC0013
DAkKS calibration certificate for temperature sensors · Number of measuring points: 5-point DAkKS calibration · Measurement points [°C]: 20, 65, 85, 100, 123 (to directive DAkKS-DKD-R 5-1) · Minimum measurement uncertainty [K]: 0.1	ZC0014
DAkKS calibration certificate for temperature sensors · Number of measuring points: n-point DAkKS calibration · Measurement points [°C]: number and positions as requested by the customer, maximum 4 points in the range from -20...150 °C (to directive DAkKS-DKD-R 5-1) · Minimum measurement uncertainty [K]: 0.1	ZC0015
Factory calibration certificate for temperature sensors · Number of measuring points: 3-point factory calibration · Measurement points [°C]: 65, 85, 123 (to ISO 9001) · Minimum measurement uncertainty [K]: 0.1	ZC0016
Factory calibration certificate for temperature sensors · Number of measuring points: 5-point factory calibration · Measurement points [°C]: 20, 65, 85, 100, 123 (to ISO 9001) · Minimum measurement uncertainty [K]: 0.1	ZC0017
Factory calibration certificate for temperature sensors · Number of measuring points: n-point factory calibration · Measurement points [°C]: number and positions as requested by the customer, maximum 4 points in the range from -20...150 °C (to ISO 9001) · Minimum measurement uncertainty [K]: 0.1	ZC0018
Factory calibration sheet for first delivery of infrared temperature sensors · TW2000 / TW2001 / TW2002 / TW2011 · Minimum measurement uncertainty [K]: ± 4	ZC0061




Thermowells for temperature sensors





Type	Description	Order no.
	Welding thermowell · Ø 35 mm · Probe length: 126.5 mm · for type TA343x, TAA431, TAD191 · Housing materials: stainless steel 316L / 1.4404	E30403
	Thermowell for temperature sensors · G ½ · Probe length: 53 mm · for type TA34xx, TAA431, TAD191 · Housing materials: stainless steel 316L / 1.4404	E30393
	Thermowell for temperature sensors · Ø 10 mm - G ½ · Probe length: 82 mm · Housing materials: stainless steel 316L / 1.4404	E35010









Type	Description	Order no.
	Thermowell for temperature sensors · Ø 10 mm · G ½ · Probe length: 182 mm · Housing materials: stainless steel 316L / 1.4404	E35020
	Thermowell for temperature sensors · Ø 10 mm · G ½ · Probe length: 282 mm · Housing materials: stainless steel 316L / 1.4404	E35030
	Thermowell for temperature sensors · Ø 10 mm · G ½ · Probe length: 482 mm · Housing materials: stainless steel 316L / 1.4404	E35050
	Thermowell for temperature sensors · Ø 6 mm · Installation length EL: 64 mm · for temperature sensors with installation length EL = 100 mm · Housing materials: stainless steel 316L / 1.4404	E37810
	Thermowell for temperature sensors · Ø 6 mm · Installation length EL: 115 mm · for temperature sensors with installation length EL = 150 mm · Housing materials: stainless steel 316L / 1.4404	E37820
	Thermowell for temperature sensors · Ø 6 mm · Installation length EL: 191 mm · for temperature sensors with installation length EL = 300 mm · Housing materials: stainless steel 316L / 1.4404	E37830
	Thermowell for temperature sensors · Ø 6 mm · Installation length EL: 267 mm · for temperature sensors with installation length EL = 350 mm · Housing materials: stainless steel 316L / 1.4404	E37850
	Thermowell for temperature sensors · Ø 6 mm · Installation length EL: 64 mm · for temperature sensors with installation length EL = 100 mm · Housing materials: stainless steel 316L / 1.4404	E37910
	Thermowell for temperature sensors · Ø 6 mm · Installation length EL: 115 mm · for temperature sensors with installation length EL = 150 mm · Housing materials: stainless steel 316L / 1.4404	E37920
	Thermowell for temperature sensors · Ø 6 mm · Installation length EL: 191 mm · for temperature sensors with installation length EL = 300 mm · Housing materials: stainless steel 316L / 1.4404	E37930
	Thermowell for temperature sensors · Ø 6 mm · Installation length EL: 267 mm · for temperature sensors with installation length EL = 350 mm · Housing materials: stainless steel 316L / 1.4404	E37950
	Thermowell for temperature sensors · Ø 6 mm · Installation length EL: 33 mm · for temperature sensors with installation length EL = 50 mm · Housing materials: stainless steel 316Ti / 1.4571	E37603
	Thermowell for temperature sensors · Ø 6 mm · Installation length EL: 83 mm · for temperature sensors with installation length EL = 100 mm · Housing materials: stainless steel 316Ti / 1.4571	E37613
	Thermowell for temperature sensors · Ø 6 mm · Installation length EL: 128 mm · for temperature sensors with installation length EL = 150 mm · Housing materials: stainless steel 316Ti / 1.4571	E37623
	Thermowell for temperature sensors · Ø 6 mm · Installation length EL: 233 mm · for temperature sensors with installation length EL = 250 mm · Housing materials: stainless steel 316Ti / 1.4571	E37643
	Thermowell for temperature sensors · Ø 6 mm · Installation length EL: 333 mm · for temperature sensors with installation length EL = 350 mm · Housing materials: stainless steel 316Ti / 1.4571	E37663

Type	Description	Order no.
	Thermowell for temperature sensors · Ø 6 mm · Installation length EL: 68 mm · for temperature sensors with installation length EL = 100 mm · Housing materials: stainless steel 316L / 1.4404	E37511
	Thermowell for temperature sensors · Ø 6 mm · Installation length EL: 118 mm · for temperature sensors with installation length EL = 150 mm · Housing materials: stainless steel 316L / 1.4404	E37521
	Thermowell for temperature sensors · Ø 6 mm · Installation length EL: 27 mm · for temperature sensors with installation length EL = 50 mm · Housing materials: stainless steel 316L / 1.4404	E37600
	Thermowell for temperature sensors · Ø 6 mm · Installation length EL: 74 mm · for temperature sensors with installation length EL = 100 mm · Housing materials: stainless steel 316L / 1.4404	E37610
	Thermowell for temperature sensors · Ø 6 mm · Installation length EL: 124 mm · for temperature sensors with installation length EL = 150 mm · Housing materials: stainless steel 316L / 1.4404	E37620
	Thermowell for temperature sensors · Ø 6 mm · Installation length EL: 224 mm · for temperature sensors with installation length EL = 250 mm · Housing materials: stainless steel 316L / 1.4404	E37640
	Welding thermowell for temperature sensors · Ø 6 mm · Installation length EL: 49 mm · for temperature sensors with installation length EL = 50 mm · Housing materials: stainless steel 316L / 1.4404	E37411
	Welding thermowell for temperature sensors · Ø 6 mm · Installation length EL: 99 mm · for temperature sensors with installation length EL = 100 mm · Housing materials: stainless steel 316L / 1.4404	E37421
	Welding thermowell for temperature sensors · Ø 6 mm · Installation length EL: 149 mm · for temperature sensors with installation length EL = 150 mm · Housing materials: stainless steel 316L / 1.4404	E37431
	Welding thermowell for temperature sensors · Ø 6 mm · Installation length EL: 191 mm · for temperature sensors with installation length EL = 300 mm · Housing materials: stainless steel 316L / 1.4404	E37430
	Welding thermowell for temperature sensors · Ø 6 mm · Installation length EL: 267 mm · for temperature sensors with installation length EL = 350 mm · Housing materials: stainless steel 316L / 1.4404	E37450


Adapters

Type	Description	Order no.
	Thread cover · Ø 24 mm - G ½ · to cover the G½ thread for installation in hygienic areas · for type TR · Housing materials: stainless steel	E30091
	Mounting set · for direct connection of temperature sensors TT to control monitors TR · Housing materials: stainless steel	E30017
	Clamp fitting · Ø 6/8/10 mm - G ½ · for temperature sensors · Housing materials: stainless steel / FPM	E30018











Type	Description	Order no.
	Clamp fitting · Ø 6/8/10 mm - ½" NPT · for temperature sensors · Housing materials: stainless steel / FPM	E30025
	Mounting adapter · M18 x 1.5 - Ø 23 mm · PVC adapter to be glued into the pipe · Insertion depth of the probe of SID, SFD, TN: · 21 mm · Housing materials: PVC	E40148
	Adapter · M18 x 1.5 - G ½ · Housing materials: stainless steel 316L / 1.4404 / O-ring: FPM (fitted)	E30073
	Welding adapter · M18 x 1.5 - Ø 24 mm · Insertion depth of the probe of SID, SFD, TN: · 15 mm · Housing materials: stainless steel 316L / 1.4404	E40124
	Welding adapter · Ø 24.7 mm · ball · for temperature sensors Ø 6 mm · Clamp fitting · Housing materials: stainless steel 316L / 1.4404	E30108
	Welding adapter · Ø 25 mm · ball · for temperature sensors Ø 6 mm · Clamp fitting · Housing materials: stainless steel 316L / 1.4404 / rubber ring: PEEK	E30407
	Progressive ring fitting for temperature sensors · Ø 10 mm - G ½ · Housing materials: stainless steel 316Ti / 1.4571	E30016
	Progressive ring fitting for temperature sensors · Ø 10 mm - ½" NPT · Housing materials: stainless steel 316Ti / 1.4571	E30024
	Progressive ring fitting for temperature sensors · Ø 6 mm - G ½ · Housing materials: stainless steel 316Ti / 1.4571	E30047
	Progressive ring fitting for temperature sensors · Ø 6 mm - ¼" NPT · Housing materials: stainless steel 316Ti / 1.4571	E30049
	Progressive ring fitting for temperature sensors · Ø 6 mm - G ¼ · Housing materials: stainless steel 316Ti / 1.4571	E33431
	Adapter · M18 x 1.5 - G ½ · Insertion depth of the probe of SID, SFD, TN: · 21 mm · Housing materials: titanium	E40114
	Adapter · M18 x 1.5 - M12 x 1 · Insertion depth of the probe of SID, SFD, TN: · 13.5 mm · Housing materials: titanium	E40128
	Adapter · M18 x 1.5 - L18 · for mounting in T-pieces · Insertion depth of the probe of SID, SFD, TN: · 28.5 mm · Housing materials: nut: stainless steel 316Ti / 1.4571 / adapter: stainless steel 316L / 1.4404 / O-ring: FKM 16 x 1.5 gr 70° Shore A	E40104
	Adapter · M18 x 1.5 - M12 x 1 · Insertion depth of the probe of SID, SFD, TN: · 13.5 mm · Housing materials: stainless steel 316L / 1.4404	E40101

Type	Description	Order no.
	Adapter · M18 x 1.5 - M12 x 1 · Insertion depth of the probe of SID, SFD, TN: · 13.5 mm · Housing materials: brass	E40100
	Adapter · M18 x 1.5 - G 1/4 · Insertion depth of the probe of SID, SFD, TN: · 13.5 mm · Housing materials: stainless steel 316L / 1.4404	E40099
	Adapter · M18 x 1.5 - G 1/4 · Insertion depth of the probe of SID, SFD, TN: · 13.5 mm · Housing materials: brass	E40098
	Adapter · M18 x 1.5 - G 1/2 · Insertion depth of the probe of SID, SFD, TN: · 21 mm · Housing materials: stainless steel 316L / 1.4404	E40096
	Adapter · M18 x 1.5 - G 1/2 · Insertion depth of the probe of SID, SFD, TN: · 21 mm · Housing materials: brass	E40097
	Adapter · M18 x 1.5 - 1/2" NPT · Insertion depth of the probe of SID, SFD, TN: · 23 mm · Housing materials: stainless steel 316L / 1.4404	E40107
	Adapter · M18 x 1.5 - G 1/2 · Housing materials: stainless steel 316L / 1.4404 / O-ring: FPM (fitted)	E30073
	Protective cover · with lead seal option · for pressure sensors type PK · for temperature sensors type TK · for vibration sensors type VK · Housing materials: PP transparent	E30094











Hygienic adapters

Type	Description	Order no.
Clamp adapter · 1-1.5" · Aseptoflex Vario		
	Clamp adapter · Clamp · 1-1.5" · ISO 2852 · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	E33201
Clamp adapter · 2" · Aseptoflex Vario		
	Clamp adapter · Clamp · 2" · ISO 2852 · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	E33202
Clamp adapter · 1-1.5" · Aseptoflex Vario		
	Clamp adapter · Clamp · 1-1.5" · ISO 2852 · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	E33701

Type	Description	Order no.
Clamp adapter · 2" · Aseptoflex Vario		
	Clamp adapter · Clamp · 2" · ISO 2852 · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	E33702
Hygienic pipe fitting · DN40 (1.5") · Aseptoflex Vario		
	Pipe fitting · Hygienic pipe fitting · Hygienic pipe fitting · DN40 (1.5") · DIN 11851 · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	E33212
Hygienic pipe fitting · DN50 (2") · Aseptoflex Vario		
	Pipe fitting · Hygienic pipe fitting · Hygienic pipe fitting · DN50 (2") · DIN 11851 · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	E33213
Hygienic pipe fitting · DN40 (1.5") · Aseptoflex Vario		
	Pipe fitting · Hygienic pipe fitting · Hygienic pipe fitting · DN40 (1.5") · DIN 11851 · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	E33712
Hygienic pipe fitting · DN50 (2") · Aseptoflex Vario		
	Pipe fitting · Hygienic pipe fitting · Hygienic pipe fitting · DN50 (2") · DIN 11851 · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	E33713
Varivent Adapter · Type N, DN40...DN150 (1.5...6"), D = 68 · Aseptoflex Vario		
	Clamp adapter · Varivent Adapter · Varivent type N · DN40...DN150 (1.5...6"), D = 68 · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	E33222
	Clamp adapter · Varivent Adapter · Varivent type N · DN40...DN150 (1.5...6"), D = 68 · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	E33722
SMS pipe fitting · DN40 (1.5") · Aseptoflex Vario		
	Pipe fitting · SMS pipe fitting · Pipe fitting · DN40 (1.5") · SMS · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	E33731
SMS pipe fitting · DN50 (2") · Aseptoflex Vario		
	Pipe fitting · SMS pipe fitting · Pipe fitting · DN50 (2") · SMS · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	E33732
Welding adapter · D50 · Aseptoflex Vario		
	Welding adapter · Ø 50 mm · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	E30122

Type	Description	Order no.
Aseptoflex Vario · Aseptoflex Vario		
	sealing plug · Aseptoflex Vario · Housing materials: adapter: stainless steel 316L / 1.4435 / sealing ring: FKM	E30128
Clamp adapter · 1-1.5" · G ½		
	Clamp adapter · Clamp · 1-1.5" · ISO 2852 / DIN 32676 · for units with G ½ adaptation · Housing materials: stainless steel 316L / 1.4404	E33401
Clamp adapter · 2" · G ½		
	Clamp adapter · Clamp · 2" · ISO 2852 / DIN 32676 · for units with G ½ adaptation · Housing materials: stainless steel 316L / 1.4404	E33402
SMS pipe fitting · DN25 · G ½		
	Pipe fitting · SMS pipe fitting · DN25 · SMS · for units with G ½ adaptation · Housing materials: stainless steel 316L / 1.4404	E33430
Welding adapter · D30 · G ½		
	Welding adapter · G ½ · Ø 30 mm · for tanks · Housing materials: stainless steel 316L / 1.4435	E43300
Welding adapter · D29 · G ½		
	Welding adapter · G ½ · Ø 29 mm · for pipes · Housing materials: stainless steel 316L / 1.4435	E43301
Hygienic pipe fitting · DN25 (1") · G ½		
	Pipe fitting · G ½ · Hygienic pipe fitting · DN25 (1") · DIN 11851 · Housing materials: stainless steel 316L / 1.4435	E43304
Hygienic pipe fitting · DN40 (1.5") · G ½		
	Pipe fitting · G ½ · Hygienic pipe fitting · DN40 (1.5") · DIN 11851 · Housing materials: stainless steel 316L / 1.4435	E43305
Varivent Adapter · Type F, DN25 (1"), D = 50 · G ½		
	Clamp adapter · G ½ · Varivent type F · DN25 (1"), D = 50 · Housing materials: stainless steel 316L / 1.4435	E43306
Varivent Adapter · Type N, DN40...DN150 (1.5...6"), D = 68 · G ½		
	Clamp adapter · G ½ · Varivent type N · DN40...DN150 (1.5...6"), D = 68 · Housing materials: stainless steel 316L / 1.4435	E43307

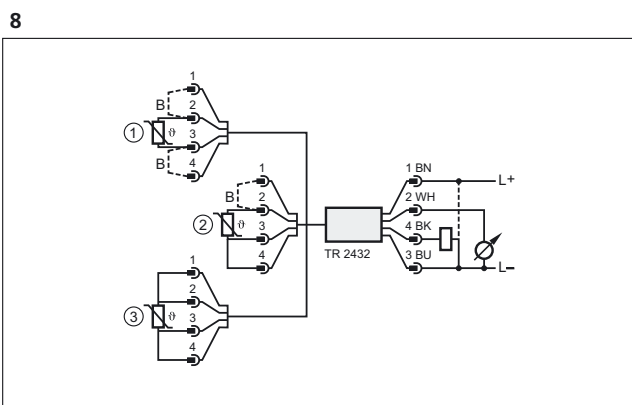
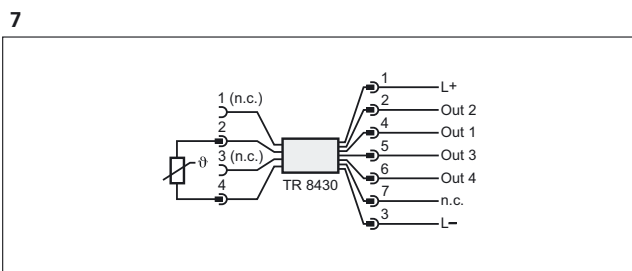
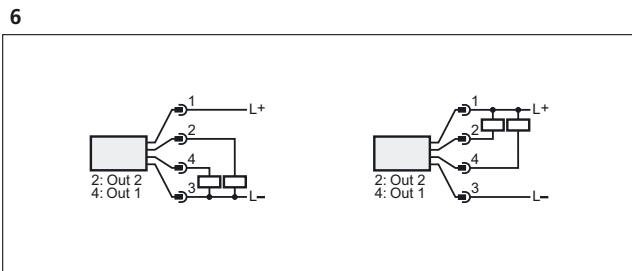
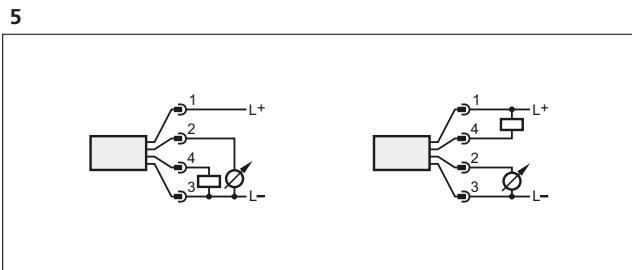
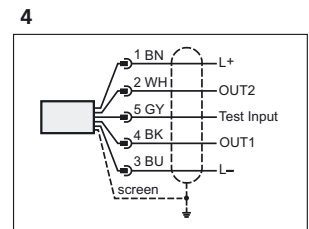
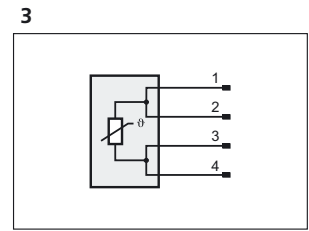
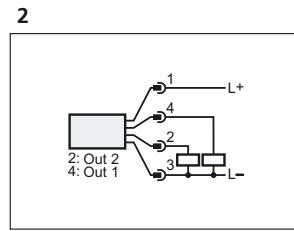
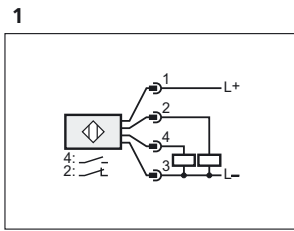
You can find wiring diagrams and scale drawings from page 535

Type	Description	Order no.
sealing plug · G ½		
	sealing plug · G ½ · Housing materials: stainless steel 316L / 1.4435	E43308
Welding adapter · Ball D35 · G ½		
	Welding adapter · G ½ · Ø 35 mm · Housing materials: stainless steel 316L / 1.4404	E30055
Welding adapter · Collar D45 · G ½		
	Welding adapter · G ½ · Ø 45 mm · Housing materials: stainless steel 316L / 1.4404	E30056
Welding adapter · D30 · G ½		
	Welding adapter · G ½ · Ø 30 mm · for tanks · with leakage port · with leakage port · Housing materials: stainless steel 316L / 1.4435	E43309
Welding adapter · D29 · G ½		
	Welding adapter · G ½ · Ø 29 mm · for pipes · with leakage port · with leakage port · Housing materials: stainless steel 316L / 1.4435	E43310
Clamp adapter · 1-1.5" · G ½		
	Clamp adapter · G ½ · with leakage port · Clamp · 1-1.5" · ISO 2852 / DIN 32676 · with leakage port · Housing materials: stainless steel 316L / 1.4435	E43311
Clamp adapter · 2" · G ½		
	Clamp adapter · G ½ · with leakage port · Clamp · 2" · ISO 2852 / DIN 32676 · with leakage port · Housing materials: stainless steel 316L / 1.4435	E43312
	Welding mandrel · G ½ · carries away heat during welding · Housing materials: brass	E43314
Welding adapter · Collar D45 · G ½		
	Welding adapter · G ½ · with leakage port · Housing materials: stainless steel 316L / 1.4404	E43315
Welding adapter · D50 · G ½		
	Welding adapter · G ½ · long design for deeper installation · long design for deeper installation · Housing materials: stainless steel 316L / 1.4435	E43319

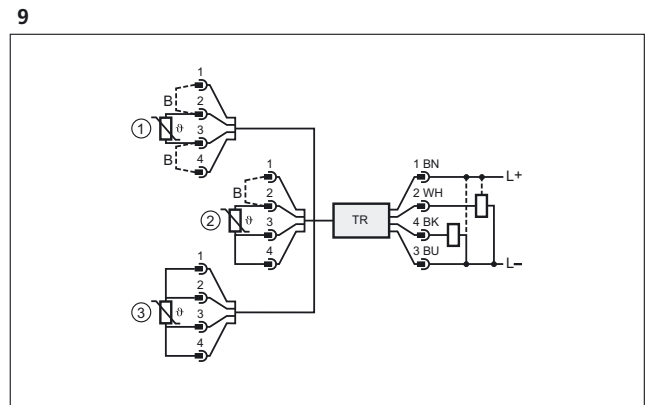
Wiring diagrams

Core colours

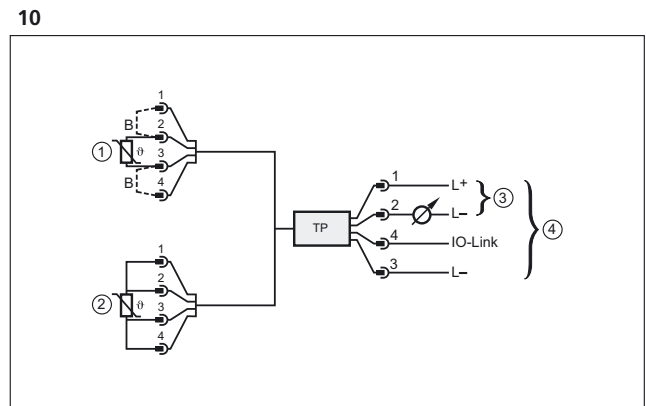
BK	black
BN	brown
BU	blue
GY	grey
WH	white



1: Two-wire sensor, 2: Three-wire sensor, 3: Four-wire sensor, B: link



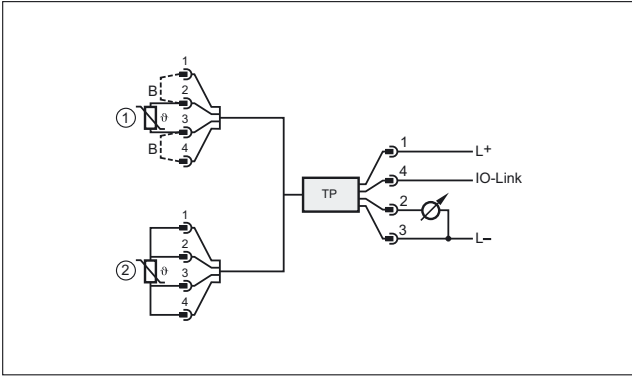
1: Two-wire sensor, 2: Three-wire sensor, 3: Four-wire sensor, B: link



1: Two-wire sensor, 2: Four-wire sensor, 3: Operation as 2-wire temperature transmitter, 4: Operation as 3-wire unit, IO-Link communication possible, B: link

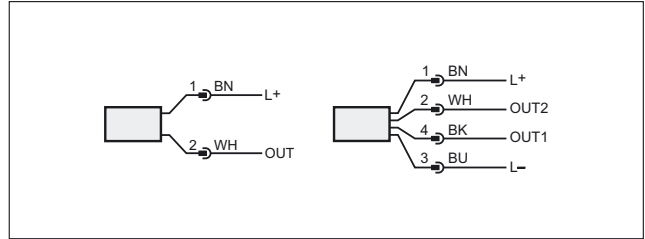
Wiring diagrams

11

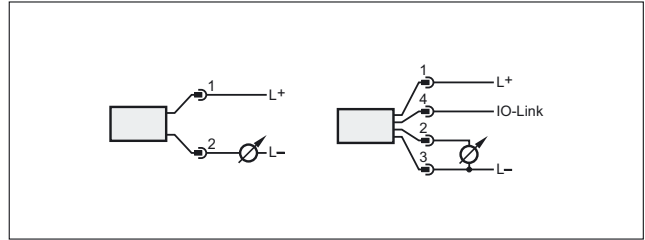


2: Two-wire sensor, 2: Four-wire sensor, B: link

12

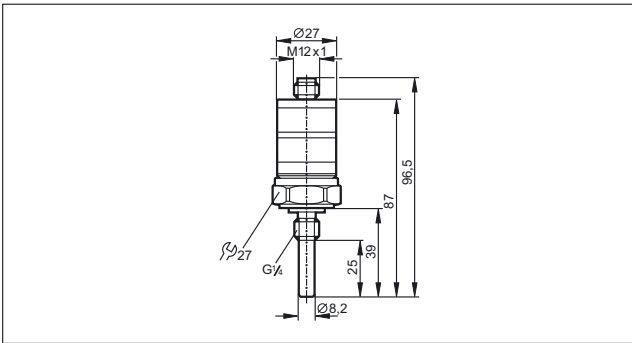


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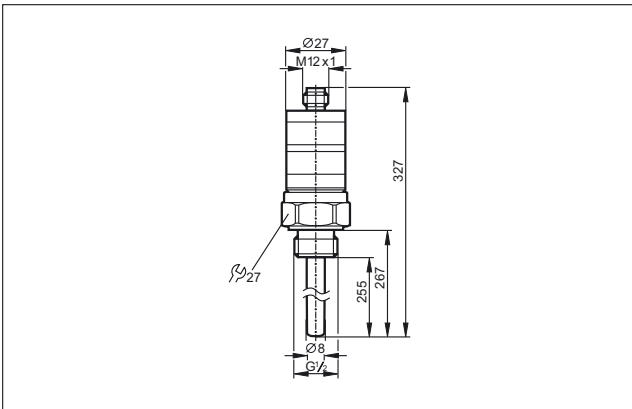


Scale drawings / drawing no. – CAD download: www.ifm.com

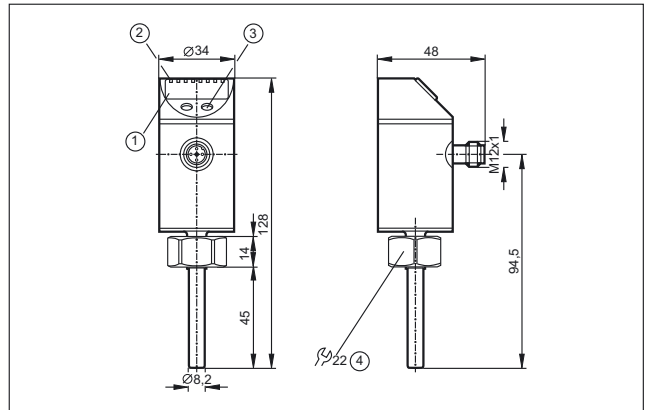
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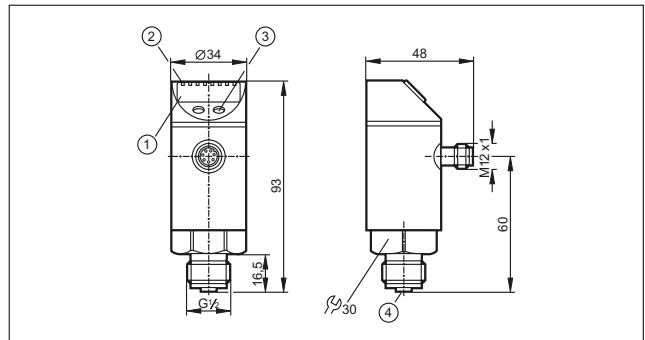


3



1: 4-digit alphanumeric display, 2: LEDs, 3: Programming button, 4: internal thread M18 x 1.5

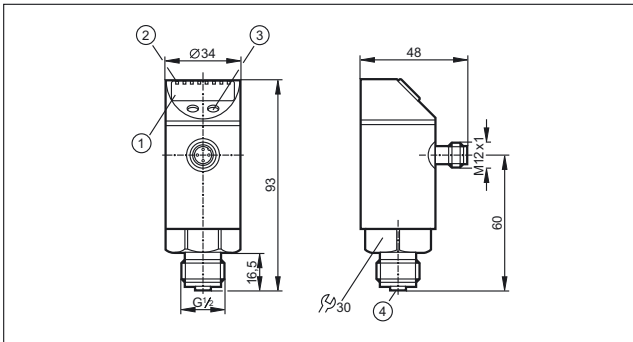
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1: 4-digit alphanumeric display, 2: LEDs, 3: Programming button, 4: connector for temperature sensor (M12 x 1)

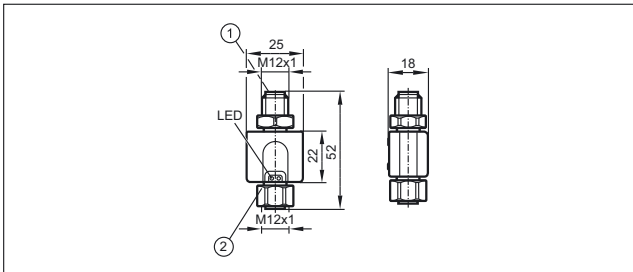
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5



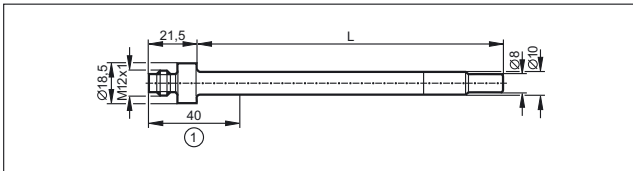
1: 4-digit alphanumeric display, 2: LEDs, 3: Programming button, 4: connector for temperature sensor (M12 x 1)

6



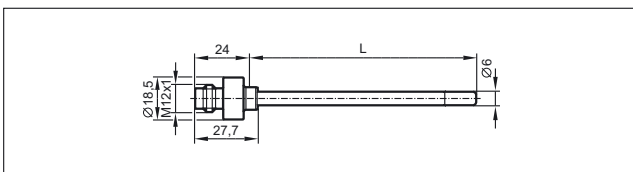
1: connection for voltage supply and output signals, 2: connection for temperature sensor

7



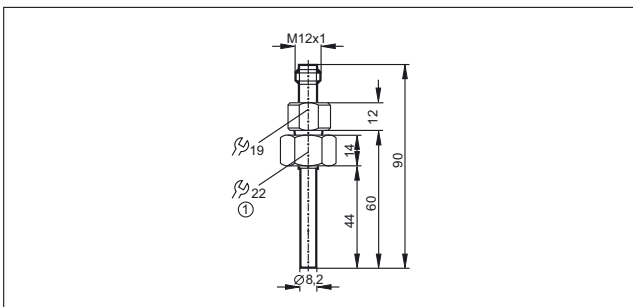
1: plug area, L = probe length (corresponds to installation length EL)

8



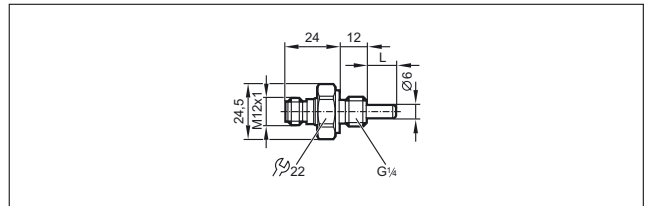
L = probe length (corresponds to installation length EL)

9

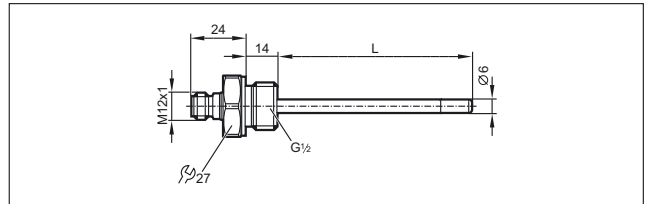


1: internal thread M18 x 1.5

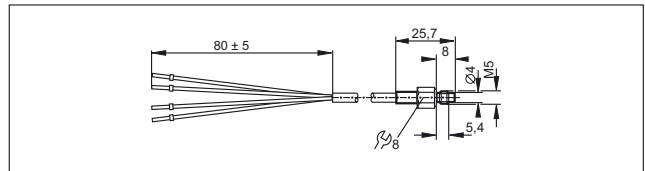
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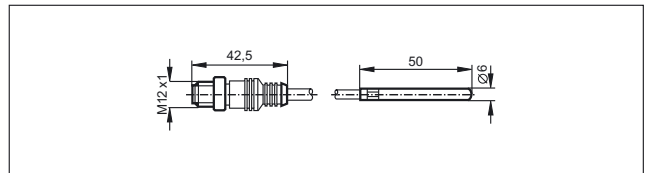
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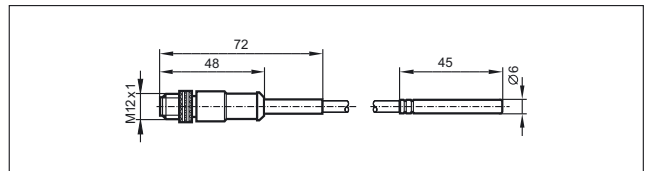
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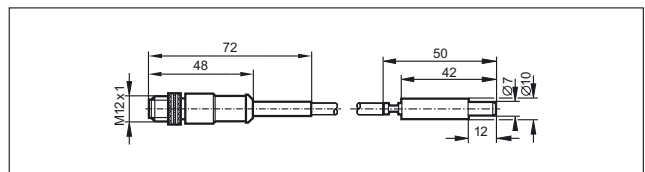
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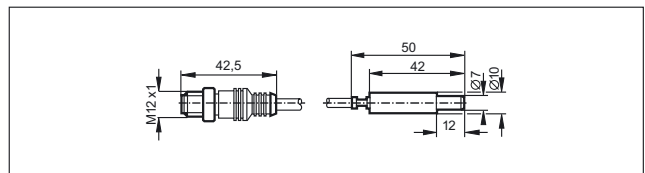
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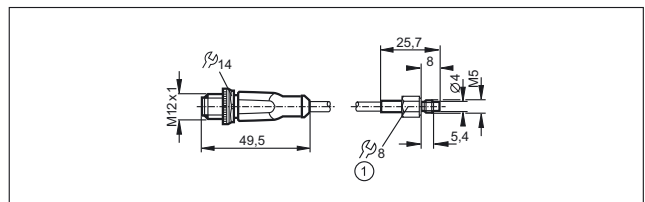
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16



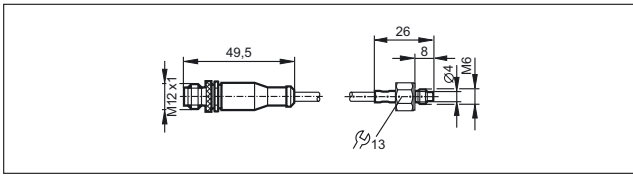
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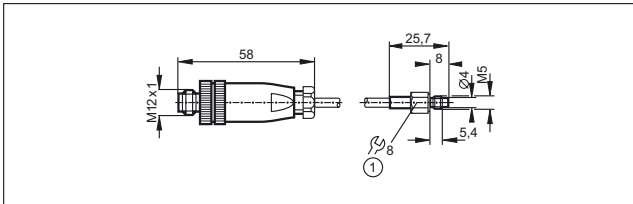
1: tightening torque 1.5 Nm

Scale drawings / drawing no. – CAD download: www.ifm.com

18

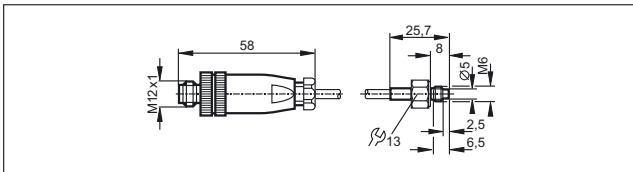


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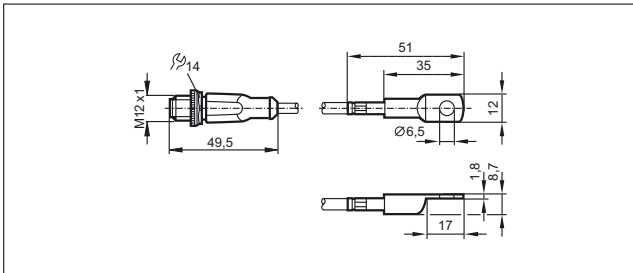


1: tightening torque 1.5 Nm

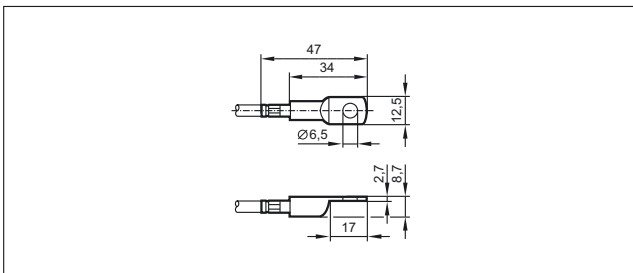
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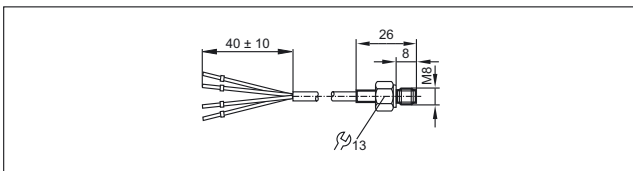
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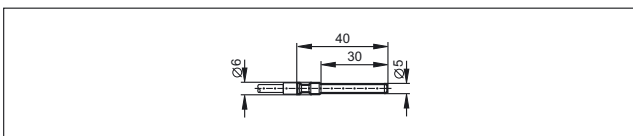
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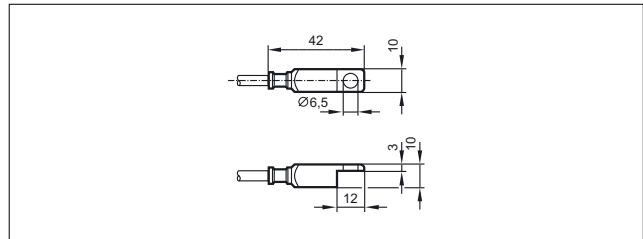
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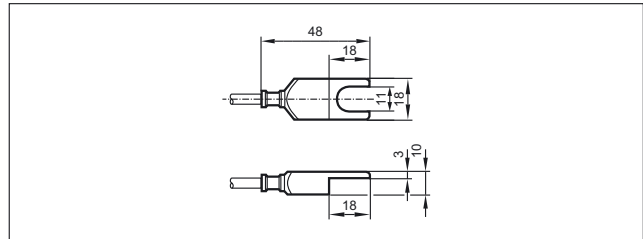
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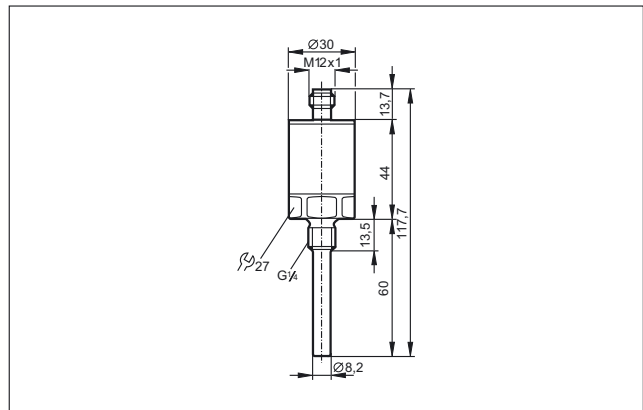
25



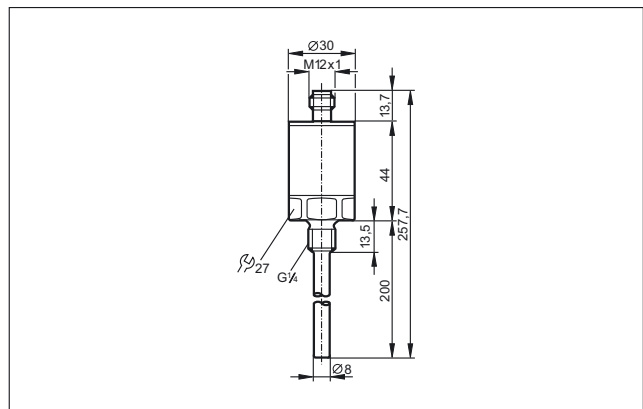
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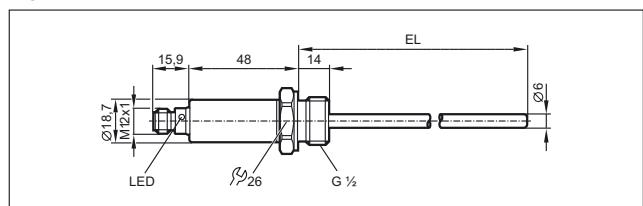
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28

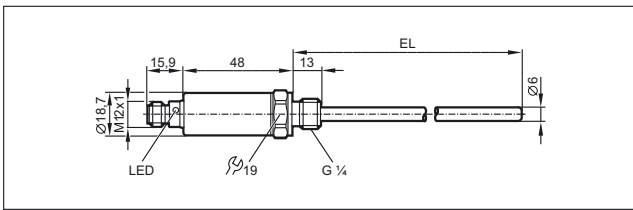


29

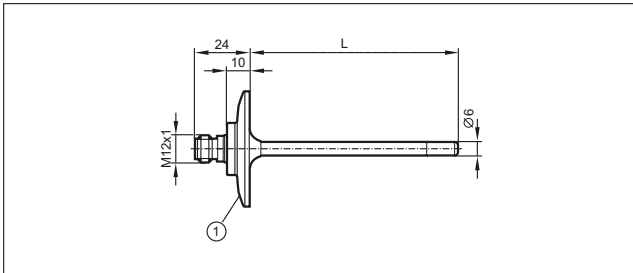


Scale drawings / drawing no. – CAD download: www.ifm.com

30

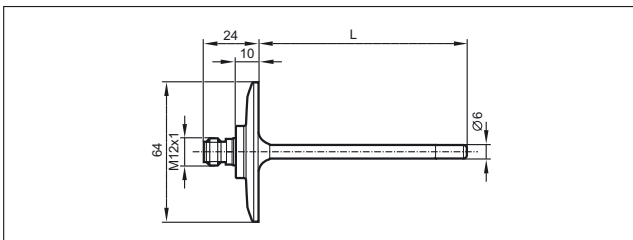


31



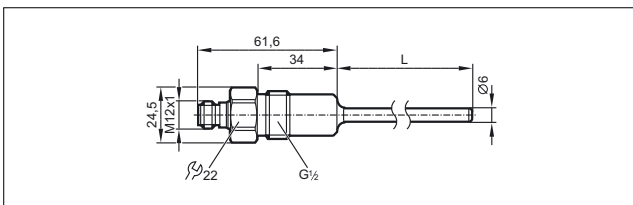
1: 1.5" clamp (ISO 2852), L = probe length (corresponds to installation length EL)

32



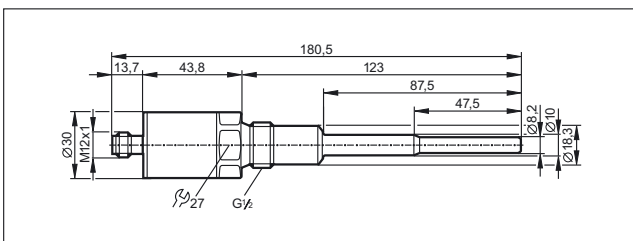
L = probe length (corresponds to installation length EL)

33

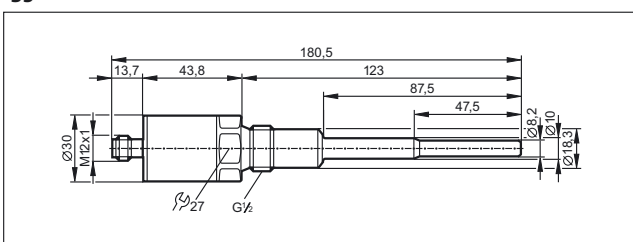


L = probe length (corresponds to installation length EL)

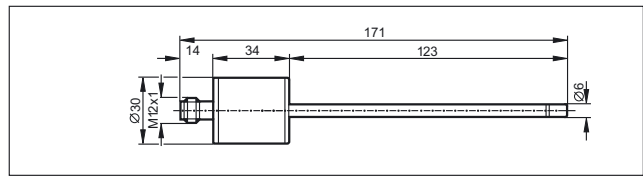
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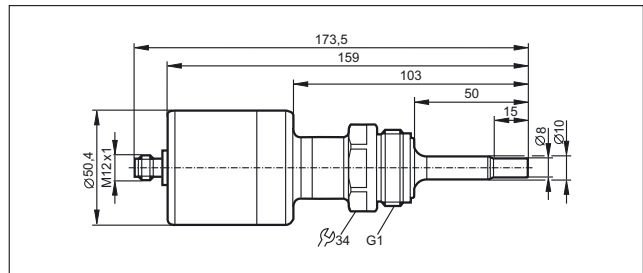
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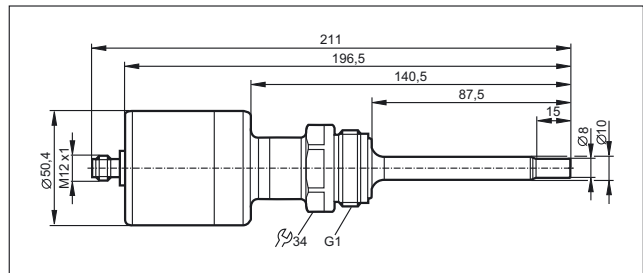
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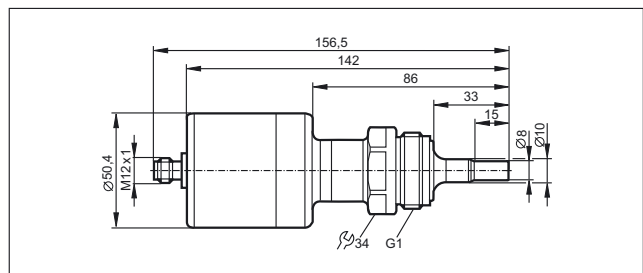
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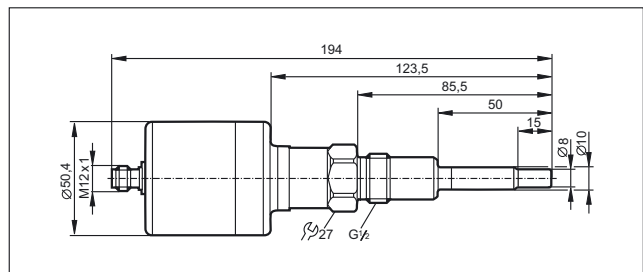
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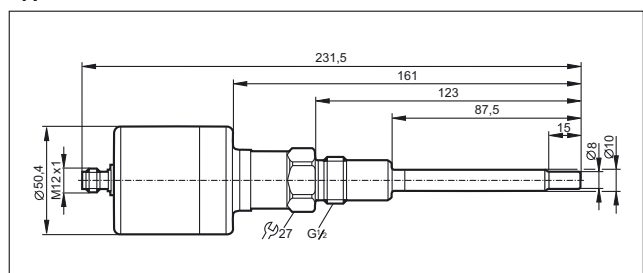
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40

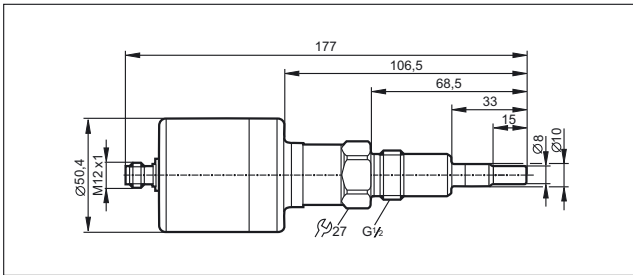


41

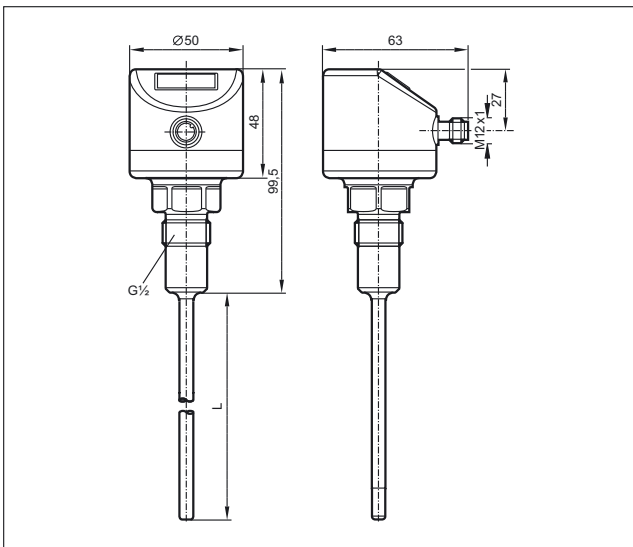


Scale drawings / drawing no. – CAD download: www.ifm.com

42

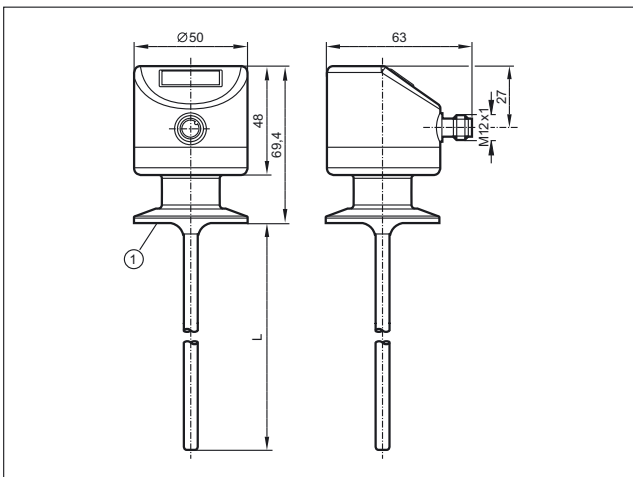


43



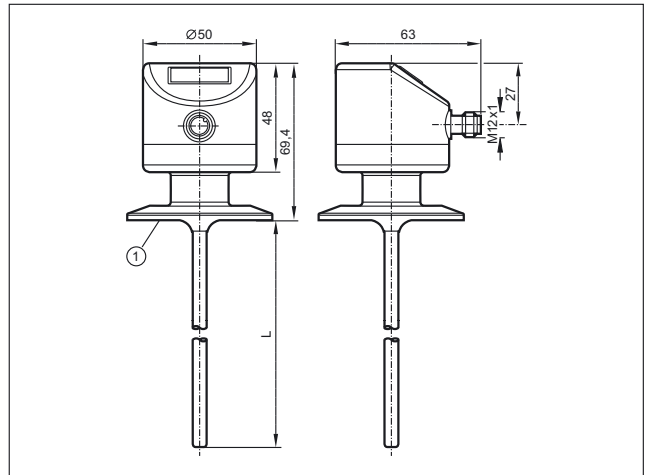
L = probe length (corresponds to installation length EL)

44



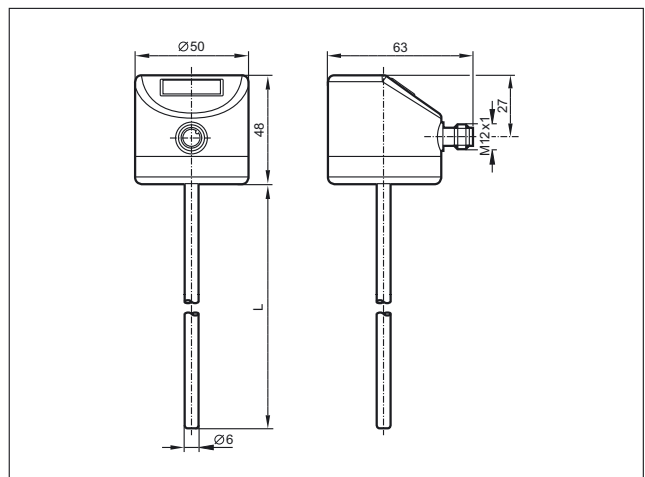
1: 1.5" clamp (ISO 2852), L = probe length (corresponds to installation length EL)

45



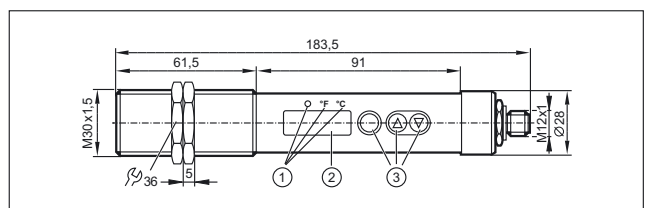
1: 2" triclamp (ISO 2852), L = probe length (corresponds to installation length EL)

46



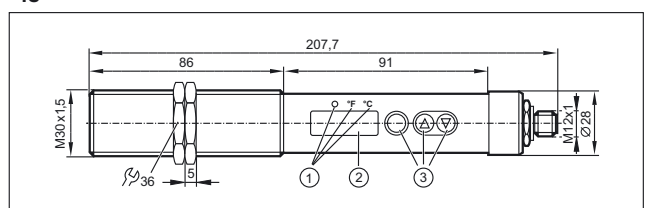
L = probe length (corresponds to installation length EL)

47



1: LEDs (display unit / switching status), 2: 7-segment LED display (4 digits), 3: Programming buttons

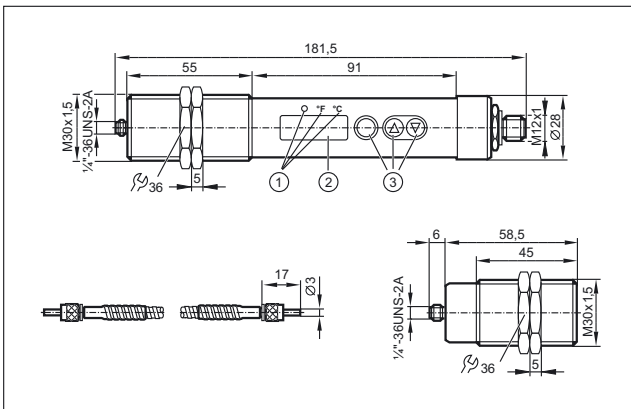
48



1: LEDs (display unit / switching status), 2: 7-segment LED display (4 digits), 3: Programming buttons

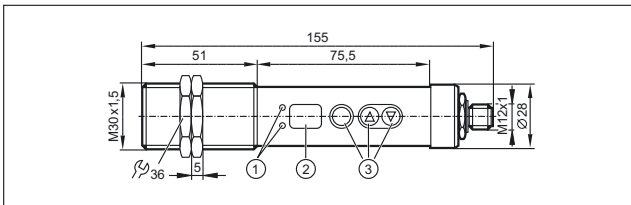
Scale drawings / drawing no. – CAD download: www.ifm.com

49



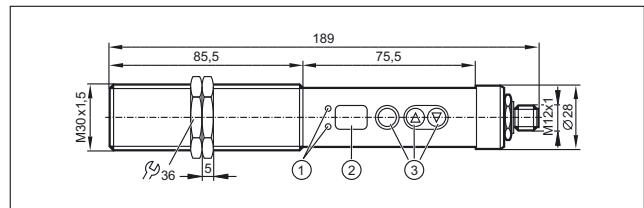
1: LEDs (display unit / switching status), 2: 7-segment LED display (4 digits), 3: Programming buttons

50



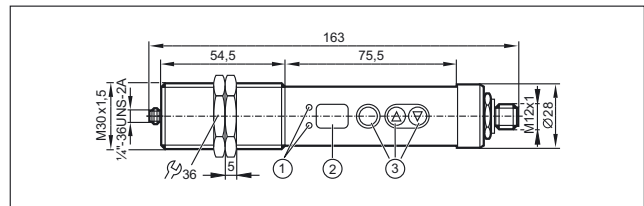
1: Programming buttons, 2: 7-segment LED display

51



1: LEDs (switching status), 2: 7-segment LED display (2 digits), 3: Programming buttons

52



1: LEDs (switching status), 2: 7-segment LED display (2 digits), 3: Programming buttons



- **Integrated flow, temperature and wire-break monitoring**
- **Adjustable switch points for flow and temperature**
- **Multicolour LED bar graph display for quick setting**
- **Signal output using potential-free relay contacts (changeover contacts)**
- **Connection options: Insulation displacement / screw terminals and cage clamps**

Evaluation systems for flow sensors

Various evaluation systems are offered for flow sensors types SF/SP. The VS3000 series ensures high functionality in a space-saving housing for control cabinet mounting. A multi-coloured LED bar graph indicates the flow. Moreover it is signalled via LEDs and relay outputs when an adjustable medium temperature has been reached or if there is a possible wire break from the sensor to the electronics. The operating elements are located on the front. The evaluation systems are available both for AC and for DC supply voltage.

Sensors and control monitors are designed and approved for use in hazardous areas for applications in potentially explosive atmospheres. Wire monitoring between sensor and evaluation system as well as medium-temperature monitoring with optical display and signalling via potential-free relay outputs are also standard here.

The evaluation systems for local mounting are connected directly at the measuring point with the flow sensor via M12 connectors. The units are set via pushbutton with feedback via the LED bar-graph display. Electronic locking of the setting values and the possibility to reset the parameters to the factory setting provide additional safety.



Evaluation system for control cabinet mounting.

Evaluation system for local mounting.




System overview	Page
Control monitors for industrial applications	544
Control monitors with ATEX approval	544 - 545
Control monitors with ATEX approval 2G	545
Accessories	545
Wiring diagrams	545 - 546
Scale drawings / drawing no. – CAD download: www.ifm.com	547


Control monitors for industrial applications

Type	U _b / Tolerance [V] / [%]	Current consumpt. [mA]	Power consumpt. [VA]	Power-on delay time [s]	Output when flow is present	Output when temperature is exceeded	Output in case of wire break	Drawing no.	Order no.
------	---	---------------------------	-------------------------	----------------------------	-----------------------------	-------------------------------------	------------------------------	-------------	-----------


Combicon connector · Wiring diagram no. 3

	90...240 AC /-5/+10	–	4	10...80	relay energised	relay energised	relay de-energised	1	SN0150*
---	------------------------	---	---	---------	-----------------	-----------------	--------------------	---	---------


Combicon connector · Wiring diagram no. 4

	90...240 AC /-5/+10	–	4	10...80	relay energised	–	relay de-energised	1	SN0151*
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
Combicon connector · Wiring diagram no. 5

	24 DC / +10 /-20	90	–	10...80	relay energised	relay energised	relay de-energised	1	SR0150*
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
Combicon connector · Wiring diagram no. 6

	24 DC / +10 /-10	90	–	10...80	relay energised	–	relay de-energised	1	SR0153*
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M12 connector · Wiring diagram no. 1 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147

	19...36 DC	70	–	10	no / nc programmable	–	–	2	SR5900
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1/2" UNF-Connector · Wiring diagram no. 2 · Connector group 30

	85...265 AC /-5/+10	–	< 3.5	10	no / nc programmable	–	–	3	SR5906*
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*** Note for AC and AC/DC units**

Miniature fuse to IEC60127-2 sheet 1, ≤ 5 A (fast acting) Recommendation: check the unit for reliable function after a short circuit.

Control monitors with ATEX approval


Type	U _b / Tolerance [V] / [%]	Current consumpt. [mA]	Power consumpt. [VA]	Power-on delay time [s]	Output when flow is present	Output when temperature is exceeded	Output in case of wire break	Drawing no.	Order no.
------	---	---------------------------	-------------------------	----------------------------	-----------------------------	-------------------------------------	------------------------------	-------------	-----------

15 terminals...2.5 mm²

	230 AC / ± 10	–	5	30	relay energised	–	relay de-energised	4	SN2301*
	110 AC / ± 10	–	5	30	relay energised	–	relay de-energised	4	SN2302*

Type	U _b / Tolerance [V] / [%]	Current consumpt. [mA]	Power consumpt. [VA]	Power-on delay time [s]	Output when flow is present	Output when temperature is exceeded	Output in case of wire break	Draw- ing no.	Order no.
------	---	---------------------------	-------------------------	----------------------------	-----------------------------	-------------------------------------	------------------------------	---------------	-----------

15 terminals...2.5 mm²

	24 DC / ± 10	125	–	30	relay energised	–	relay de-energised	4	SR2301*
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*** Note for AC and AC/DC units**

Miniature fuse to IEC60127-2 sheet 1, ≤ 5 A (fast acting) Recommendation: check the unit for reliable function after a short circuit.

Control monitors with ATEX approval 2G

Type	U _b / Tolerance [V] / [%]	Current consumpt. [mA]	Power consumpt. [VA]	Power-on delay time [s]	Output when flow is present	Output when temperature is exceeded	Output in case of wire break	Draw- ing no.	Order no.
------	---	---------------------------	-------------------------	----------------------------	-----------------------------	-------------------------------------	------------------------------	---------------	-----------

15 terminals...2.5 mm² · Wiring diagram no. 7


	24 DC / ± 15	100	–	10	relay energised	–	–	5	SR307A*
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*** Note for AC and AC/DC units**

Miniature fuse to IEC60127-2 sheet 1, ≤ 5 A (fast acting) Recommendation: check the unit for reliable function after a short circuit.

Accessories

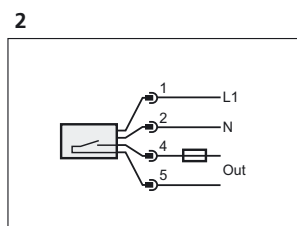
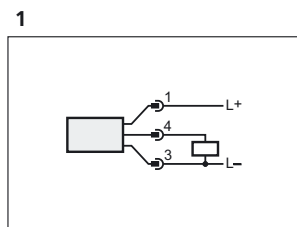
Type	Description	Order no.
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	Combincon connector · with cage clamps 4 poles · Housing materials: current carrying parts: copper alloy tin-plated	E40171
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Wiring diagrams

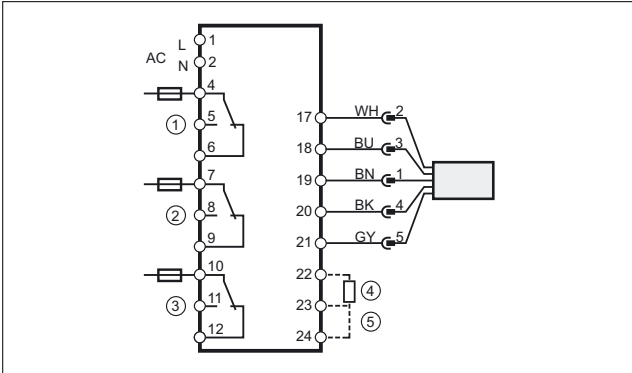
Core colours

- BN brown
- BU blue
- BK black
- WH white
- GY grey



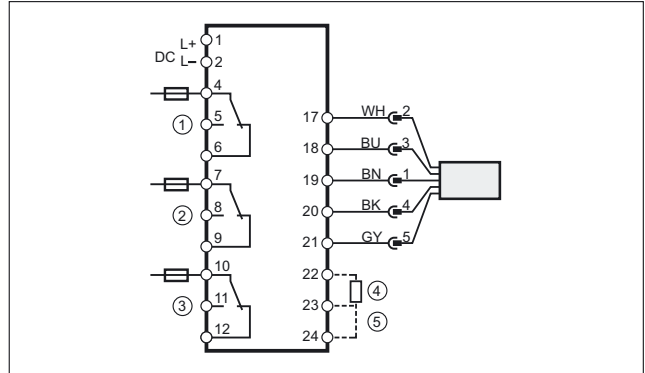
Wiring diagrams

3



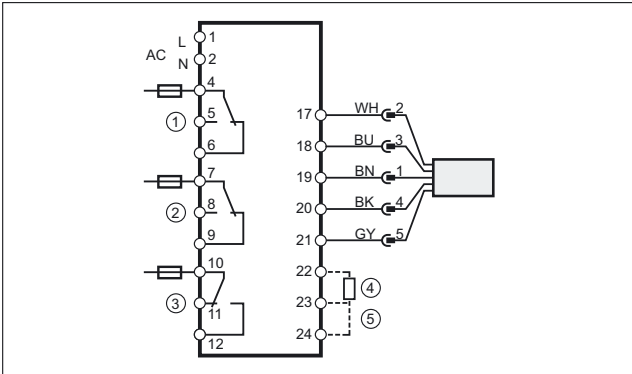
1: Flow monitoring, 2: Wire break monitoring, 3: Temperature monitoring, 4: Power-on delay time, 5: Selection liquid / gas

5



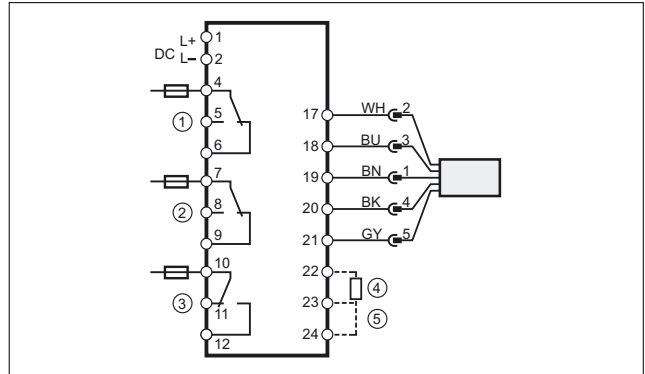
1: Flow monitoring, 2: Wire break monitoring, 3: Temperature monitoring, 4: Power-on delay time, 5: Selection liquid / gas

4



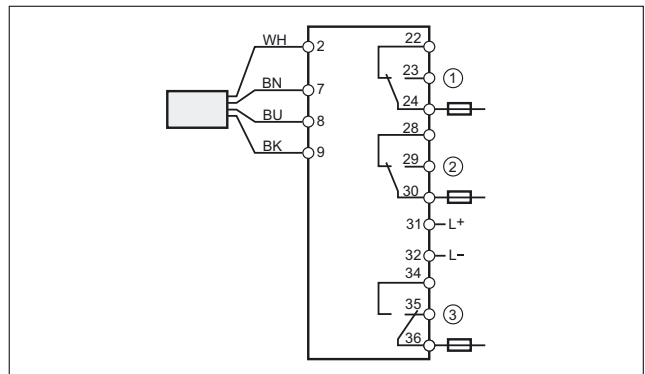
1: Flow monitoring, 2: Wire break monitoring, 3: Temperature monitoring, 4: Power-on delay time, 5: Selection liquid / gas, Note: miniature fuse to IEC60127-2 sheet 1,, ≤ 5 A (fast acting)

6



1: Flow monitoring, 2: Wire break monitoring, 3: Temperature monitoring, 4: Power-on delay time, 5: Selection liquid / gas, Note: miniature fuse to IEC60127-2 sheet 1,, ≤ 5 A (fast acting)

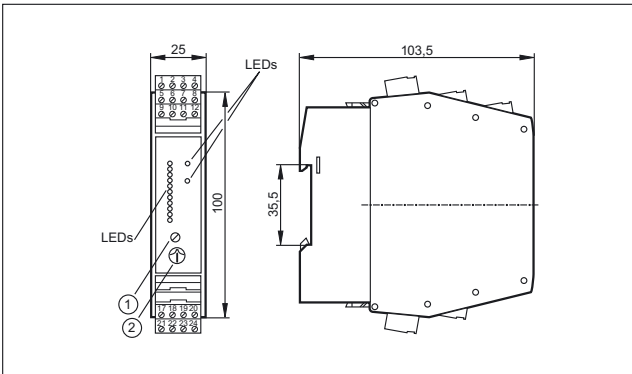
7



1: Flow monitoring, 2: Fault monitoring, 3: Temperature monitoring, Note: miniature fuse to IEC60127-2 sheet 1,, ≤ 5 A (fast acting), Place the fuse outside the hazardous area.

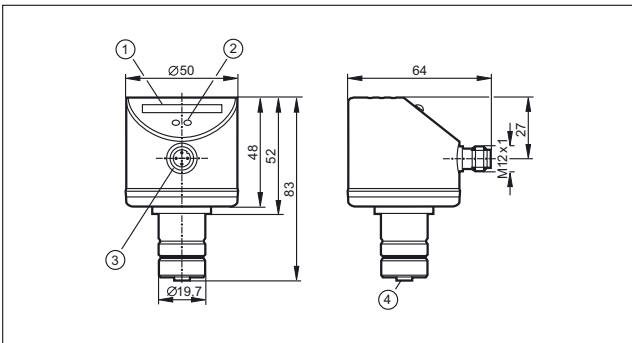
Scale drawings / drawing no. – CAD download: www.ifm.com

1



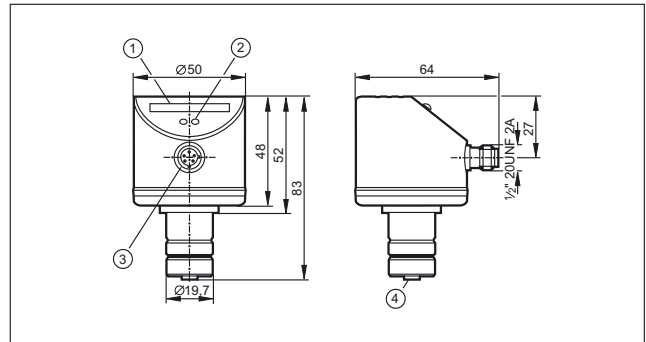
1: Potentiometer (switch point flow), 2: Potentiometer (switch point temperature)

2



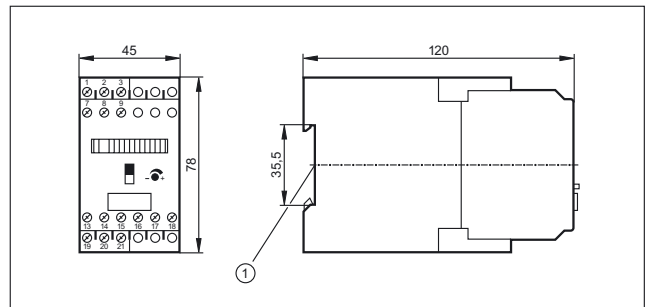
1: LED display, 2: setting pushbutton, 3: connection for voltage supply and output signals, 4: connection for flow sensor

3



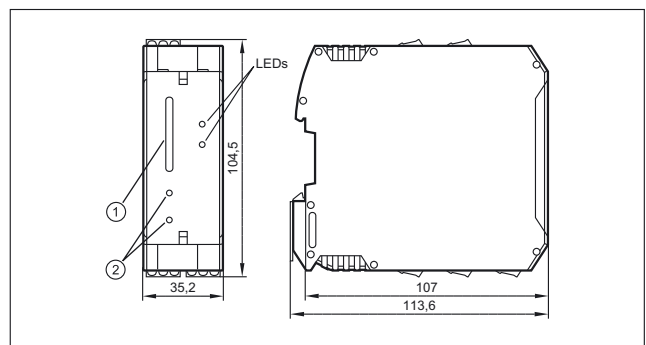
1: LED display, 2: setting pushbutton, 3: connection for voltage supply and output signals, 4: connection for flow sensor

4



1: Mounting on DIN rail

5



1: LED display, 2: setting pushbuttons



- Dual inductive feedback sensors for pneumatic actuators and valves
- Designed for simple fit to common actuators based on VDI / VDE 3845
- AS-i versions for even simpler and neater wiring
- Compact, weatherproof and low maintenance
- Mounting sets available for manual valves and non-standard actuators

Valve sensors

Butterfly and ball valves in a variety of specifications are common across a broad spectrum of industrial processes. A large proportion of these have been automated with the addition of a pneumatic actuator to drive the valve between its open and closed positions. Feedback can then be added to confirm that the valve has achieved its desired position. This often takes the form of a rotating cam arrangement with a couple of microswitches or small inductive sensors mounted inside a plastic switch box. Such switch boxes can be difficult to set up, suffer from ingress and the cams can sometimes slip under normal plant vibration.

Operating principle

In 1992 ifm electronic released our first alternative to this old and failure prone design. The IND dual sensor is essentially a pair of inductive sensors, operating at different frequencies so as not to interfere with each other, combined into a custom design housing which mechanically matches the top works on standard pneumatic actuators. The dual sensor fits neatly onto the actuator's existing M5 holes. A plastic target "puck" is then fitted onto the slotted actuator shaft, again using the existing threaded hole. The puck has two metal targets spaced 90 degrees apart which are picked up by either the OPEN sensor or the CLOSED sensor.

Advantages

This simple construction addresses all the shortcomings of the switchbox solution. It is weatherproof surviving heavy rain, ice and strong sunshine. It is low profile allowing valve / actuator packages to fit where a switchbox would not. This also means that feedback can be fitted to even small manually operated valves. It is low weight so will not fail even if pumps are causing pipe vibration. It allows for back wiring a local solenoid through the common multi-pin connector, saving on wiring and cable tray costs.






Feedback: Position monitoring of both pneumatically actuated and manual valves is needed for plant control.






System overview	Page
Sensors for industrial applications	550 - 551
Sensors for industrial applications, AS-i system	551
Sensors with ATEX approval 1G / 2G and 1D	552
Sensors with ATEX approval 3D and / or 3G	553
Sensors for rising stem valves	553 - 554
Sensors for rising stem valves, AS-i system	554
Added value packages with Bürkert solenoid valve	554
Added value packages with Norgren Herion solenoid valve	554
Switching cams for sensors with quarter-turn actuators	555 - 556
Accessories for quarter-turn actuator sensors	556 - 557
Accessories for rising stem valve sensors	557
Wiring diagrams	558 - 559
Scale drawings / drawing no. – CAD download: www.ifm.com	559 - 561



Sensors for industrial applications

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f AC / DC [Hz]	I _{load} AC / DC [mA]	Drawing no.	Order no.
Cable 2 m · Output function  · AC/DC · Wiring diagram no. 1									
	40 x 26 x 40	4 nf	PBT	20...250	IP 67	25 / 50	350 / 100	1	IN0110*
Cable 2 m · Output function  · DC PNP · Wiring diagram no. 2									
	40 x 26 x 26	4 nf	PBT	10...36	IP 67	1300	250	2	IN5251
Cable 6 m · Output function  · DC PNP · Wiring diagram no. 2									
	40 x 26 x 26	4 nf	PC (polycarbonate)	10...36	IP 67	1300	250	2	IN5304
Cable 10 m · Output function  · DC PNP · Wiring diagram no. 2									
	40 x 26 x 26	4 nf	PBT	10...36	IP 67	1300	250	2	IN5323
M12 connector · Output function  · DC PNP/NPN · Wiring diagram no. 13 · Connector groups 8, 10, 18, 20, 117, 118, 147									
	40 x 26 x 26	4 nf	PBT	10...36	IP 67	1300	250	3	IN5224
M12 connector · Output function  · DC PNP/NPN · Wiring diagram no. 3 · Connector groups 8, 10, 18, 20, 117, 118, 147									
	40 x 26 x 47	4 nf	PBT	10...36	IP 67	250	250	4	IN5331
M12 connector · Output function  · DC PNP · Wiring diagram no. 4 · Connector groups 8, 10, 11, 18, 20, 117, 118, 119, 147, 148									
	40 x 26 x 26	4 nf	PBT	10...36	IP 67	1300	250	3	IN5225
	40 x 26 x 47	4 nf	PBT	10...36	IP 67	1300	250	4	IN5327
M18 connector · Output function  · DC PNP · Wiring diagram no. 4 · Connector group 24									
	40 x 26 x 26	4 nf	PBT	10...36	IP 67	1300	250	5	IN5285

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f AC / DC [Hz]	I _{load} AC / DC [mA]	Draw- ing no.	Order no.
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M18 connector · Output function  /  · AC/DC · Wiring diagram no. 5 · Connector group 24

	40 x 26 x 40	4 nf	PBT	20...250	IP 67	25 / 50	350 / 100	6	IN0108*
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Rd 24 x 1/8 connector 6 pins · Output function  /  · DC PNP · Connector groups 34, 40, 125, 126

	40 x 26 x 60	4 nf	PBT	10...36	IP 67	1300	250	7	IN5334
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Terminals · Output function  /  · DC PNP · Wiring diagram no. 14

	33 x 60 x 92	4 nf	PA (polyamide)	10...30	IP 67	500	100	8	IN5409
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f = flush / nf = non flush


*** Note for AC and AC/DC units**

Miniature fuse to IEC60127-2 sheet 1, ≤ 2 A (fast acting) Recommendation: check the unit for reliable function after a short circuit.


Sensors for industrial applications, AS-i system

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f AC / DC [Hz]	I _{load} AC / DC [mA]	Draw- ing no.	Order no.
------	--------------------	--------------------------	----------	-----------------------	------------	----------------------	--------------------------------------	---------------------	--------------

M12 connector · 1 x 2 inputs · Wiring diagram no. 6 · Connector groups 10, 12, 13, 18, 19, 20, 21, 117, 121, 122, 147, 149

	55 x 60 x 35	4 nf	PBT (Pocan)	26.5...31.6	IP 67	–	–	9	AC2315
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M12 connector · Output function transistor PNP · 2 inputs / 1 output · Connector groups 8, 10, 18, 20, 40, 117, 118, 125, 126, 147

	55 x 60 x 35	4 nf	PBT (Pocan)	26.5...31.6	IP 67	–	–	10	AC2316
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M12 connector · Output function transistor PNP · 2 inputs / 2 outputs · Connector groups 8, 10, 18, 20, 40, 117, 118, 125, 126, 147

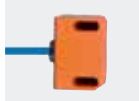
	55 x 60 x 35	4 nf	PBT (Pocan)	26.5...31.6	IP 67	–	–	10	AC2317
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f = flush / nf = non flush

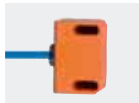
Sensors with ATEX approval 1G / 2G and 1D

Type	Dimensions [mm]	Sensing range [mm]	Material	U _{nom.} at 1 KΩ [V]	U _b [V]	Internal capacit. [nF]	Internal inductance [μH]	f [Hz]	Drawing no.	Order no.
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Cable 2 m · Output function 2 x normally closed · Connection to certified intrinsically safe circuits with the max. values U = 15 V / I = 50 mA / P = 120 mW · Wiring diagram no. 7

	40 x 26 x 26	4 nf	PBT	8.2 DC	7.5...15 DC	140	130	1800	2	NN5009
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Cable 10 m · Output function 2 x normally closed · Connection to certified intrinsically safe circuits with the max. values U = 15 V / I = 50 mA / P = 120 mW · Wiring diagram no. 7

	40 x 26 x 26	4 nf	PBT	8.2 DC	7.5...15 DC	140	140	1800	2	NN5011
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M12 connector · Output function 2 x normally closed · Connection to certified intrinsically safe circuits with the max. values U = 15 V / I = 50 mA / P = 120 mW · Wiring diagram no. 8 · Connector group 143

	40 x 26 x 26	4 nf	PBT	8.2 DC	7.5...15 DC	140	130	1800	11	NN5008
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M18 connector · Output function 2 x normally closed · Connection to certified intrinsically safe circuits with the max. values U = 15 V / I = 50 mA / P = 120 mW · Wiring diagram no. 9 · Connector group 24

	40 x 26 x 26	4 nf	PBT	8.2 DC	7.5...15 DC	140	130	1800	5	NN5013
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Rd 24 x 1/8 connector 6 pins · Output function 2 x normally closed · Connection to certified intrinsically safe circuits with the max. values U = 15 V / I = 50 mA / P = 120 mW · Connector groups 34, 56, 64, 127, 142

	40 x 26 x 60	4 nf	PBT	8.2 DC	–	150	150	250	7	N95001
	40 x 26 x 60	4 nf	PBT	8.2 DC	–	100	150	1300	7	N95002

Terminals · Output function 2 x normally closed · Connection to certified intrinsically safe circuits with the max. values U = 15 V / I = 50 mA / P = 120 mW · Wiring diagram no. 15

	33 x 60 x 92	4 nf	PA (polyamide)	8.2 DC	7.5...15 DC	–	–	500	8	NN504A
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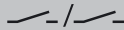
Terminals · Output function 2 x normally closed · Connection to certified intrinsically safe circuits with the max. values U = 15 V / I = 50 mA / P = 120 mW · Wiring diagram no. 16

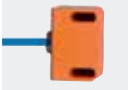
	33 x 60 x 92	4 nf	PA (polyamide)	8.2 DC	7.5...15 DC	–	–	500	12	NN505A
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f = flush / nf = non flush

Sensors with ATEX approval 3D and / or 3G

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f AC / DC [Hz]	I _{load} AC / DC [mA]	Draw- ing no.	Order no.
------	--------------------	--------------------------	----------	-----------------------	------------	----------------------	--------------------------------------	---------------------	--------------

Cable 2 m · Output function  · DC PNP · Wiring diagram no. 2


	40 x 26 x 26	4 nf	PBT (Pocan)	10...30	IP 67	1300	100	2	IN508A
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M12 connector · Output function transistor PNP · 2 inputs / 2 outputs · Connector groups 144, 146

	55 x 60 x 35	4 nf	PBT (Pocan)	26.5...31.6	IP 5x	–	–	10	AC317A
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M12 connector · Output function transistor PNP · 2 inputs / 1 output · Connector groups 144, 146

	55 x 60 x 35	4 nf	PBT (Pocan)	26.5...31.6	IP 5x	–	–	10	AC316A
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	55 x 60 x 35	4	PBT (Pocan)	26.5...31.6	IP 67	–	–	13	AC326A
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M12 connector · 1 x 2 inputs · Wiring diagram no. 6 · Connector groups 144, 146

	55 x 60 x 35	4 nf	PBT (Pocan)	26.5...31.6	IP 5x	–	–	9	AC315A
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M12 connector · Output function  · DC PNP · Wiring diagram no. 4 · Connector groups 144, 146

	40 x 26 x 47	4	PBT	10...30	IP 67	1300	100	14	IN507A
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	40 x 26 x 47	4 nf	PBT (Pocan)	10...30	IP 67	1300	100	4	IN509A
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f = flush / nf = non flush


Sensors for rising stem valves

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f AC / DC [Hz]	I _{load} AC / DC [mA]	Draw- ing no.	Order no.
------	--------------------	--------------------------	----------	-----------------------	------------	----------------------	--------------------------------------	---------------------	--------------

Cable 2 m · Output function 1...5 V analogue · DC · Wiring diagram no. 10



	67.5 x 43 x 110	–	PA	18...36	IP 65 / IP 67	–	–	15	IX5002
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Cable 2 m · Output function 3 x normally open · DC PNP · Wiring diagram no. 11


	67.5 x 43 x 110	–	PA	18...36	IP 65 / IP 67	–	100	16	IX5006
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You can find wiring diagrams and scale drawings from page 558

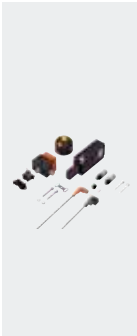
Process sensors

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f AC / DC [Hz]	I _{load} AC / DC [mA]	Draw- ing no.	Order no.
Cable with connector 0.3 m · Output function 3 x normally open · DC PNP · Wiring diagram no. 12 · Connector groups 121, 122, 149									
	65 x 52 x 110	–	PA	18...36	IP 65 / IP 67	–	100	17	IX5010
	65 x 43 x 110	0.2	PA	18...36	IP 65 / IP 67	–	100	18	ZZ0214

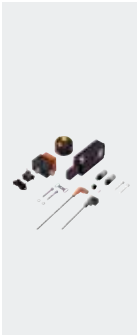
Sensors for rising stem valves, AS-i system

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f AC / DC [Hz]	I _{load} AC / DC [mA]	Draw- ing no.	Order no.
Cable with connector 0.3 m · AS-i · Wiring diagram no. 6 · Connector groups 10, 12, 13, 18, 19, 20, 21, 117, 121, 122, 147, 149									
	65 x 52 x 110	–	PA	26.5...31.6	IP 65 / IP 67	–	–	17	IX5030












Added value packages with Bürkert solenoid valve

Type	Description	Order no.
	Added value package AS-i for pneumatic quarter-turn actuators · A/B slave · Shaft height 20 mm · Hole spacing 80 mm · Connector	AC0017
	Added value package AS-i for pneumatic quarter-turn actuators · A/B slave · Shaft height 30 mm · Hole spacing 80 mm · Connector	AC0019
	Added value package AS-i for pneumatic quarter-turn actuators · A/B slave · Shaft height 30 mm · Hole spacing 130 mm · Connector	AC0020

Added value packages with Norgren Herion solenoid valve


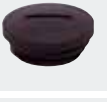

Type	Description	Order no.
	Added value package AS-i for pneumatic quarter-turn actuators · A/B slave · Shaft height 20 mm · Hole spacing 80 mm · Connector	AC0021
	Added value package AS-i for pneumatic quarter-turn actuators · A/B slave · Shaft height 30 mm · Hole spacing 80 mm · Connector	AC0022
	Added value package AS-i for pneumatic quarter-turn actuators · A/B slave · Shaft height 30 mm · Hole spacing 130 mm · Connector	AC0023





Switching cams for sensors with quarter-turn actuators

Type	Description	Order no.
	Target puck · Ø 53 mm · Adjustable between 0° and 360° · Housing materials: Target puck: PVC / screws: high-grade stainless steel	E10661
	Target puck · Ø 53 mm · 6 possible switching flag positions · with drain holes · Housing materials: Target puck: PA 6 / screws: high-grade stainless steel	E17105
	Target puck · Ø 53 mm · Housing materials: Target puck: PBT / screws: high-grade stainless steel	E17118
	Target puck · Ø 53 mm · 8 possible switching flag positions · with drain holes · Housing materials: Target puck: PA 6 / screws: high-grade stainless steel	E17294
	Target puck · Ø 53 mm · 3 possible switching flag positions · Housing materials: Target puck: PA 6 black / screws: V2A	E17320
	Target puck · Ø 53 mm · 8 possible switching flag positions · Housing materials: Target puck: PA 6 black / screws: V2A	E17321
	Target puck · Ø 53 mm · Housing colour: blue · 8 possible switching flag positions · Housing materials: Target puck: PA 6 blue / screws: V2A	E17322
	Target puck · Ø 53 mm · Housing colour: red · 8 possible switching flag positions · Housing materials: Target puck: PA 6 / screws: V2A	E17323
	Target puck · Ø 55 mm · Inverted function · Housing materials: Target puck: PVC / screws: high-grade stainless steel / Metal ring: stainless steel	E17205
	Target puck · Ø 59 mm · for Neles actuator type B1CU 6/20E · Housing materials: Target puck: POM	E11278
	Target puck · Ø 65 mm · Housing materials: Target puck: PVC / screws: high-grade stainless steel	E17148
	Target puck · Ø 65 mm · Housing colour: black · 8 possible switching flag positions · Housing materials: Target puck: PA 6 / screws: V2A	E17324
	Target puck · Ø 65 mm · Housing colour: blue · 8 possible switching flag positions · Housing materials: Target puck: PA 6 / screws: V2A	E17325
	Target puck · Ø 65 mm · Housing colour: red · 8 possible switching flag positions · Housing materials: Target puck: PA 6 / screws: V2A	E17326






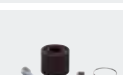


Type	Description	Order no.
	Target puck · Ø 65 mm · Housing materials: Target puck: PA 6 / screws: V2A	E17327
	Target puck · Ø 102 mm · Housing materials: Target puck: PA 6 / screws: V2A	E17328
	Target puck · Ø 102 mm · Housing colour: black · 8 possible switching flag positions · Housing materials: Target puck: PA 6 / screws: V2A	E17329
	Target puck · Ø 102 mm · Housing colour: blue · 8 possible switching flag positions · Housing materials: Target puck: PA 6 / screws: V2A	E17330
	Target puck · Ø 102 mm · Housing colour: red · 8 possible switching flag positions · Housing materials: Target puck: PA 6 / screws: V2A	E17331
	direction indicator black · 12 x 4.8 · For target puck · Housing materials: POM	E17295
	direction indicator yellow · 12 x 4.8 · For target puck · Housing materials: POM	E17296

Accessories for quarter-turn actuator sensors

Type	Description	Order no.
	Spacer · 10 mm · for compensation between target pucks and dual sensor IND · Housing materials: PBT	E10579
	Spacer · 3 mm · for compensation between target pucks and dual sensor IND · Housing materials: PBT	E10584
	Spacer · 5 mm · for compensation between target pucks and dual sensor IND · Housing materials: PBT	E10585
	Cable gland · M20 x 1.5 · Housing materials: PA 6.6	E12208
	Protective cap · M20 x 1.5 · Housing materials: PA 6.6	E12209
	Plug for covering the oblong holes · Housing materials: EPDM	E12212

Type	Description	Order no.
	reinforcement bracket · for type IND · Housing materials: stainless steel 316Ti / 1.4571	E11310
	protective housing · Accessory for valve sensors · for type IND · Housing materials: stainless steel	E11984
	Mounting kit · MS-MEC-KU-RA--F04A · for ball valve Mecafrance ISO5211/F04 DN25 PN40 · Detection of the "ON/OFF" position by means of the IND dual sensor	E10597
	Mounting kit for limit position feedback · tyco 792E-100 · for Keystone actuators	E11243

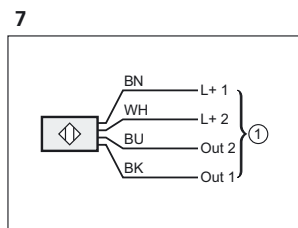
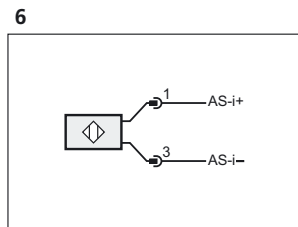
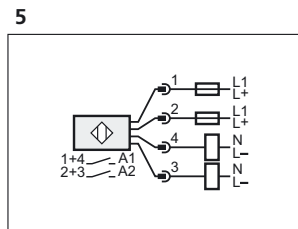
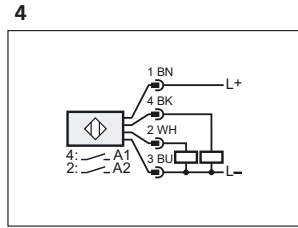
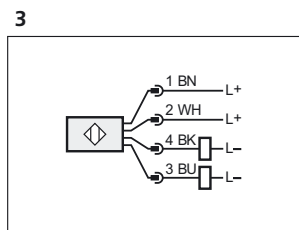
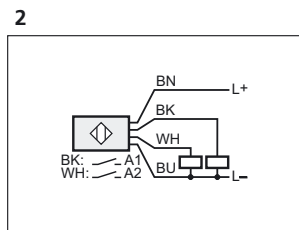
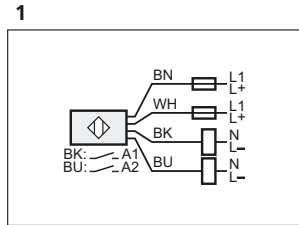
Accessories for rising stem valve sensors

Type	Description	Order no.
	Mounting adapter · for Kieselmann seat valves · accessory for IX5010, IX5030 · Housing materials: adapter: PA / Target: stainless steel 316L / 1.4404	E12123
	Mounting adapter · for Alfa Laval valves · accessory for IX5010, IX5030 · Housing materials: adapter: PA / Target: stainless steel 316L / 1.4404	E11900
	Mounting adapter · for Südmo valves · accessory for IX5010, IX5030 · Housing materials: adapter: PA / Target: stainless steel 316L / 1.4404	E11989
	Mounting adapter · for Georg Fischer diaphragm valve Diastar with mounting kit M12 · accessory for IX5010, IX5030 · Housing materials: adapter: POM / Target: stainless steel	E12009
	Mounting adapter · for Georg Fischer diaphragm valve Diastar with mounting kit M16 · accessory for IX5010, IX5030 · Housing materials: adapter: POM / Target: stainless steel	E12010
	Mounting adapter · for Bardiani valves · accessory for IX5010, IX5030 · Housing materials: adapter: PA / Target: stainless steel 316L / 1.4404	E12170
	Mounting adapter · IX / Ø 30 mm · for Gemü actuators with mounting kit · accessory for IX5010, IX5030 · Housing materials: adapter: POM / Target: stainless steel	E12042
	Mounting adapter · IX / Ø 45 mm · for Gemü actuators with mounting kit · accessory for IX5010, IX5030 · Housing materials: adapter: POM / Target: stainless steel	E12043

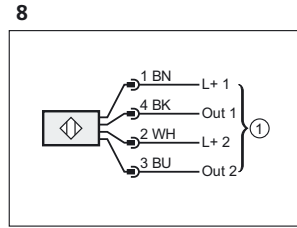
Wiring diagrams

Core colours

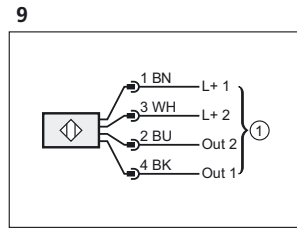
BN	brown
BU	blue
BK	black
WH	white
GY	grey



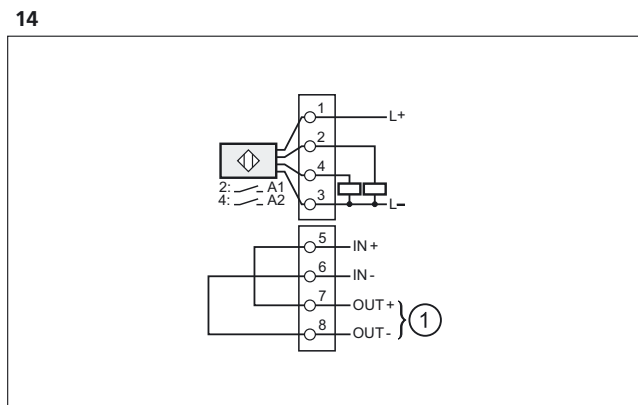
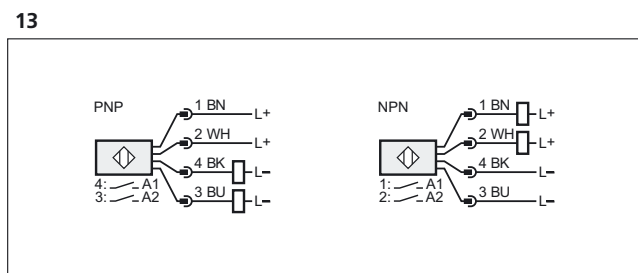
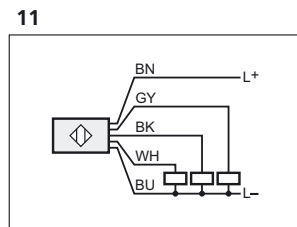
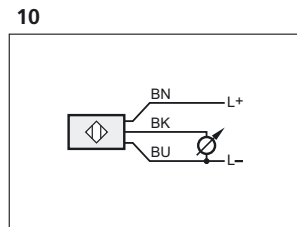
1: connection to NAMUR-amplifier



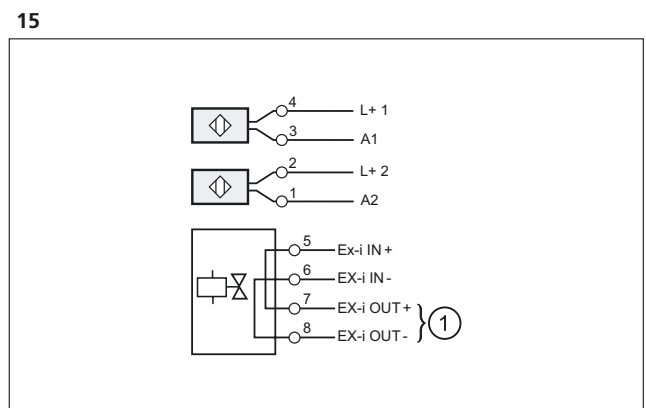
1: connection to NAMUR-amplifier



1: connection to NAMUR-amplifier



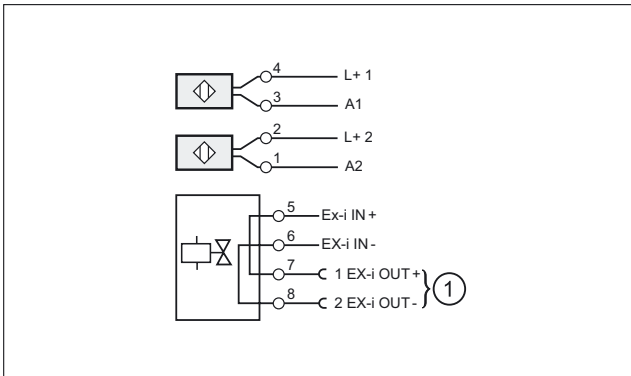
1: solenoid valve



solenoid valve output

Wiring diagrams

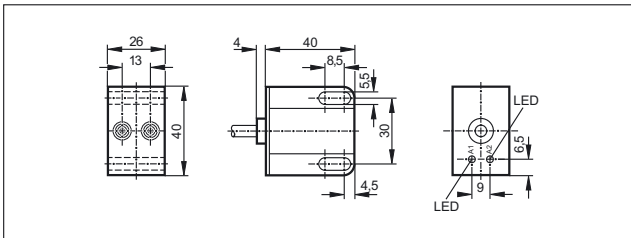
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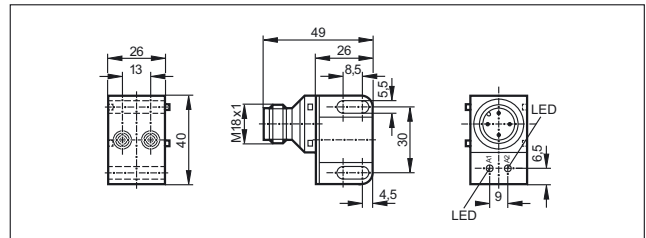
solenoid valve output

Scale drawings / drawing no. – CAD download: www.ifm.com

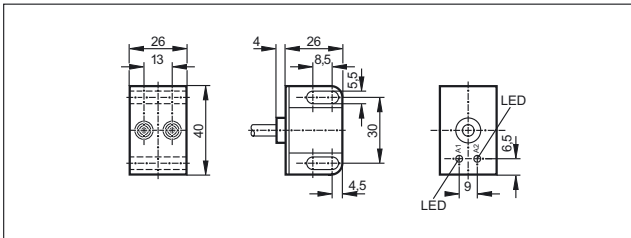
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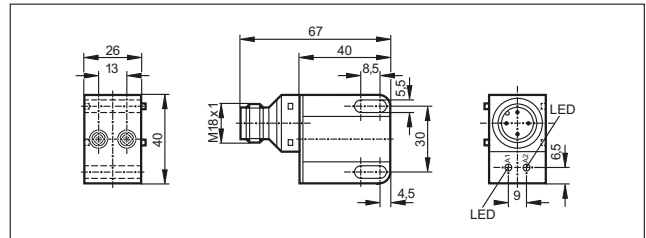
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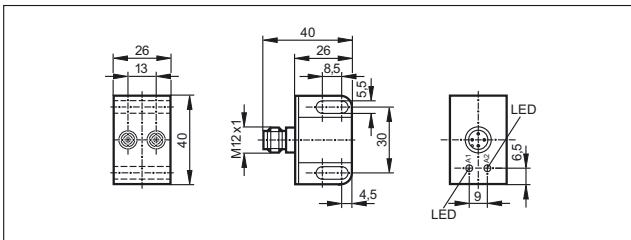
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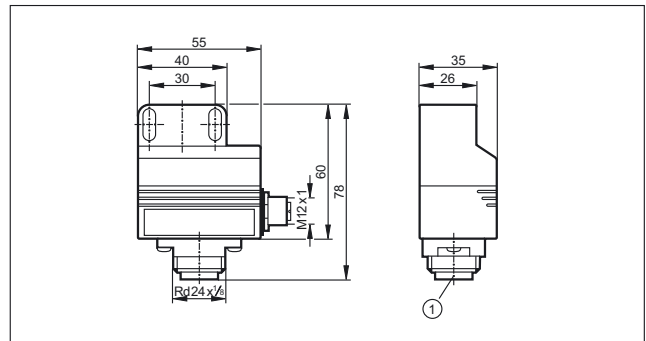
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3

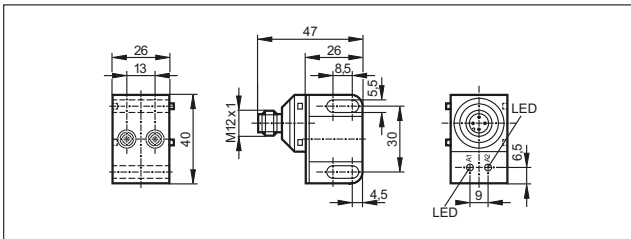


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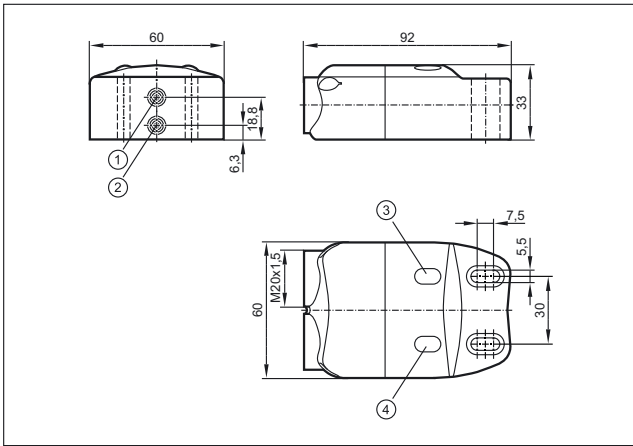
1: field connection

4



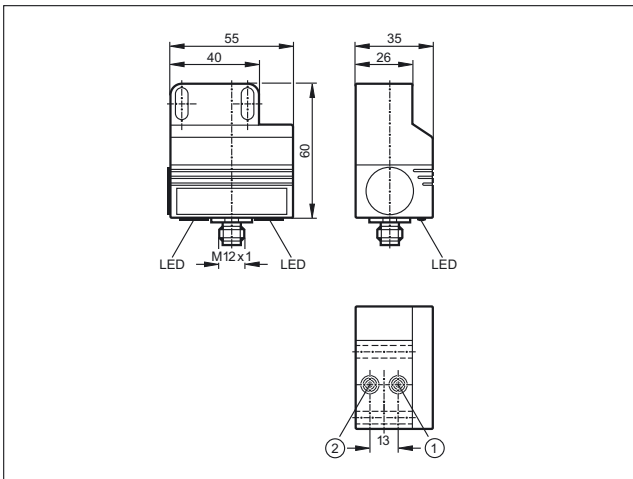
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8



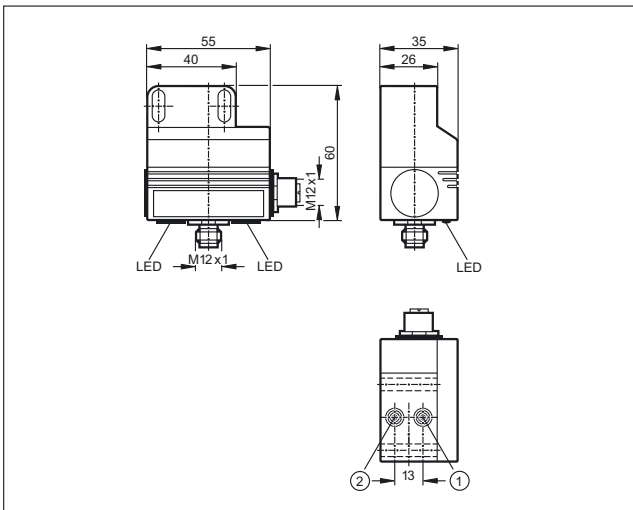
1: sensor 1, 2: sensor 2, 3: LED OUT 2, 4: LED OUT 1

9



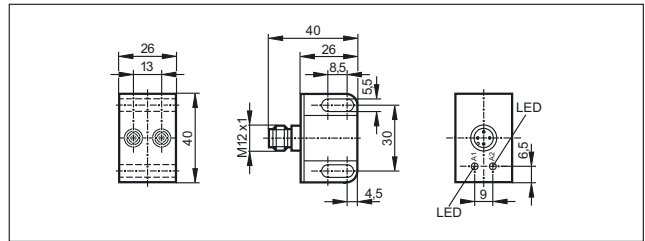
1: sensor 1, 2: sensor 2

10

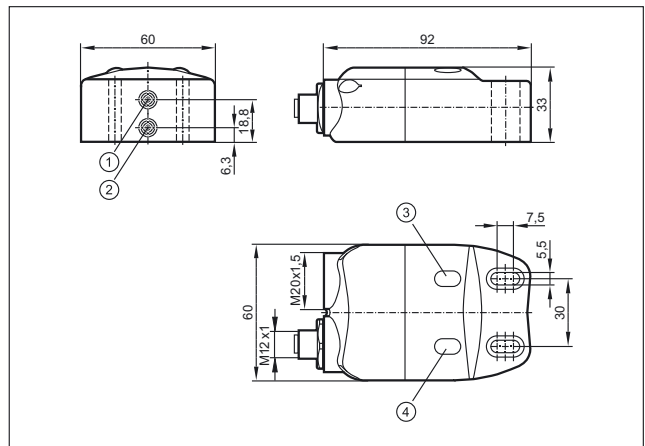


1: sensor 1, 2: sensor 2

11

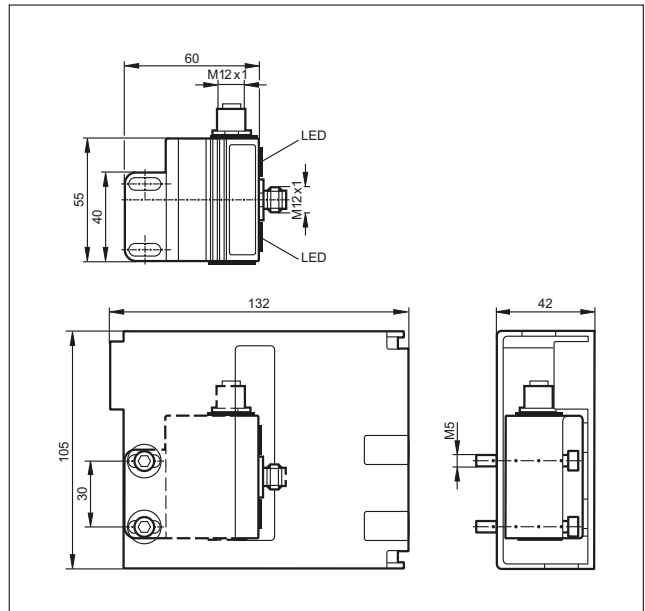


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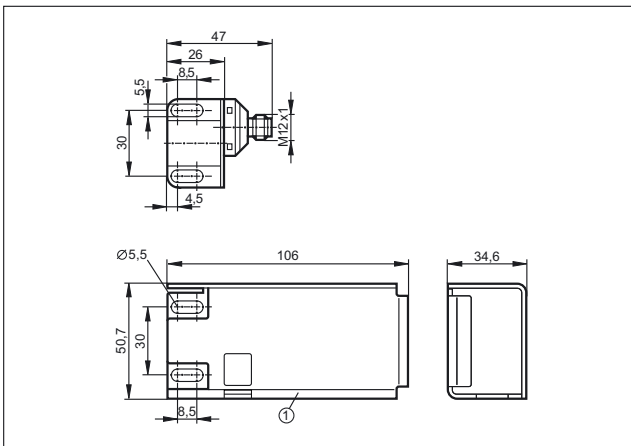
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13



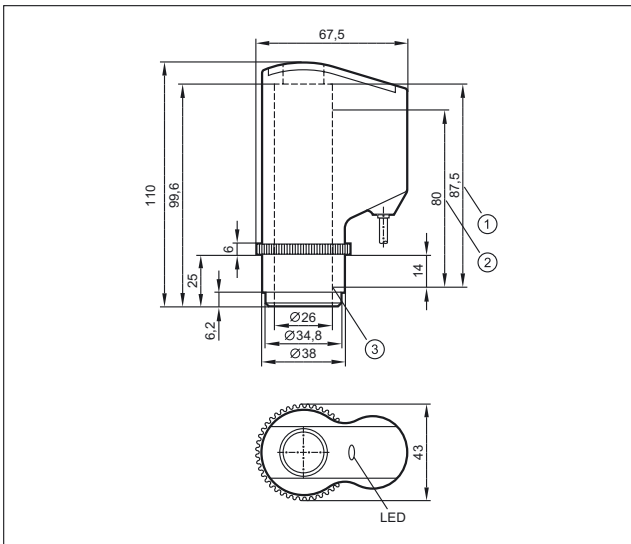
Scale drawings / drawing no. – CAD download: www.ifm.com

14



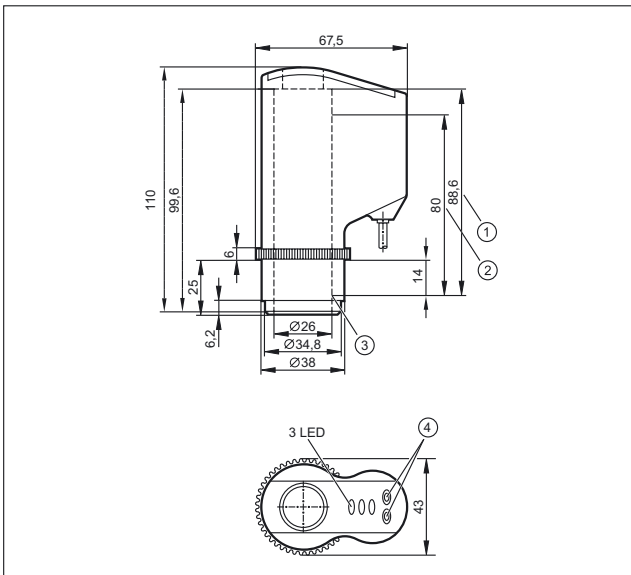
1: protective housing

15



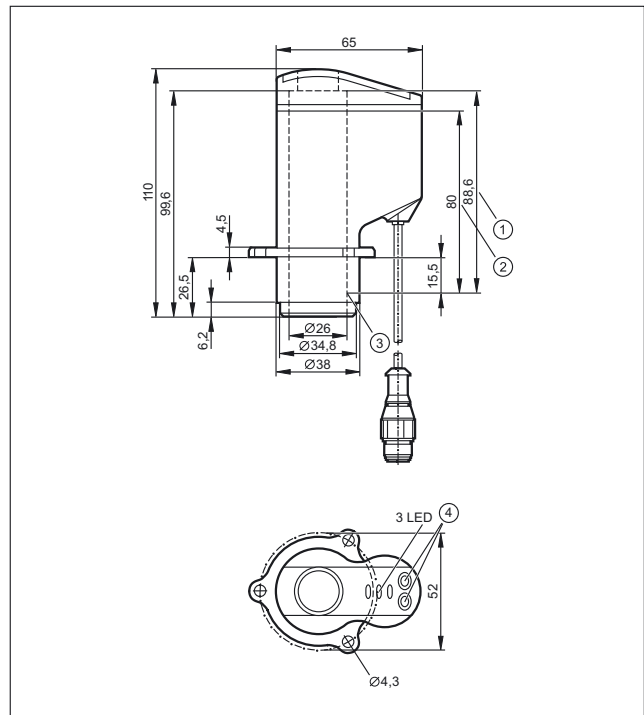
1: Max. spindle stroke, 2: Measuring range, 3: Initial value of the measuring range (zero point)

16



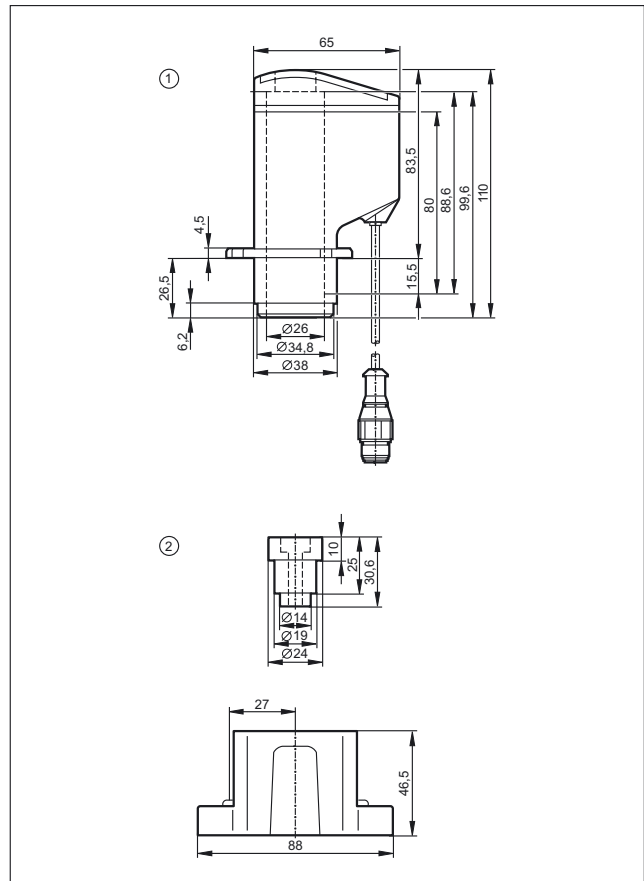
1: Max. spindle stroke, 2: Measuring distance, 3: Initial value of the measuring range (zero point), 4: Programming buttons

17



1: Max. spindle stroke, 2: Measuring distance, 3: Initial value of the measuring range (zero point), 4: Programming buttons

18



1: Valve sensor IX5010, 2: Mounting adapter E11900

Safe, easy, cost-optimised



Reduced cost: Reduced wiring complexity for faster installation and fewer error sources.



Bus system AS-Interface

AS-Interface (AS-i = actuator sensor interface) is a manufacturer-independent standard for the connection of actuators and sensors of the first field level. It is the only wiring system accepted worldwide. With more than 20 million slaves installed AS-i has been tried and tested as a low-cost feeder for all common fieldbuses for many years.

The product range includes AS-i components for different areas from packaging and conveying via silo applications, machine tools, robotics and automation to the food industry and mobile vehicles.

Safe

The sophisticated AS-i technology and the extended diagnostic possibilities provide high reliability and machine uptime.

“Safety at Work” is the extension of the AS-interface by safety-related components. Safety components up to SIL 3 to IEC 61508 and EN ISO 13849 - 1 / PL e can be connected to AS-i.

Easy

Due to the standardised system, the low wiring complexity and the quick connection technology, AS-i enables simple “Plug & Play”. The reduction of terminals leads to reduced documentation.

Data and energy are jointly transmitted via a two-wire cable. The reverse polarity protected insulation displacement technology helps avoid errors. The modularity and the tree structure smoothly fit to the way the plant is put together.

Cost-optimised

It's the end result that matters: Wiring complexity, documentation and set-up times are significantly reduced. The decentralisation of the AS-i participants leads to smaller and less expensive control cabinets. Simple diagnosis and a clear system design result in high machine uptime and avoid downtimes.

	<i>AS-Interface controllers / gateways</i>	564 - 568
	<i>AS-Interface power supplies / earth fault monitors</i>	570 - 571
	<i>AS-Interface I/O modules</i>	572 - 588
	<i>AS-Interface AirBoxes for pneumatics</i>	590 - 593
	<i>AS-Interface sensors</i>	594 - 596
	<i>AS-Interface devices for valves and valve actuators</i>	598 - 600
	<i>AS-Interface expansion</i>	602 - 602
	<i>AS-Interface Safety at Work</i>	604 - 610







AS-Interface controllers / gateways

AS-i controller and gateways have AS-i master functionality and are thus an elementary part of AS-i networks. These components are usually in a control cabinet and ensure data communication. A wide product range provides suitability for different applications. An integrated CoDeSys-programmable PLC allows that the AS-i controllers can also be used as supplementary or independent control system.






System overview	Page
Controllers, gateways and software	564 - 565
Controllers / Gateways	565 - 566
AS-i manuals	566
Scale drawings / drawing no. – CAD download: www.ifm.com	566 - 568



Controllers, gateways and software

Type	Number of AS-i masters	Description	Drawing no.	Order no.
	1	AS-i DP controller E · AS-i PLC with Profibus-DP interface · Full master functions · Graphic display · Housing materials: aluminium / steel sheet galvanised	1	AC1365
	2	AS-i DP controller E · AS-i PLC with Profibus-DP interface · Full master functions · Graphic display · Housing materials: aluminium / steel sheet galvanised	1	AC1366
	1	AS-i controller E · AS-i controller freely programmable · Profibus DP interface · Ethernet programming interface · Full master functions · Graphic display · Housing materials: aluminium / steel sheet galvanised	1	AC1355
	2	AS-i controller E · AS-i controller freely programmable · Profibus DP interface · Ethernet programming interface · Full master functions · Graphic display · Housing materials: aluminium / steel sheet galvanised	1	AC1356
	1	AS-i Ethernet / IP Controller E · Full master functions · Graphic display · Housing materials: aluminium / steel sheet galvanised	2	AC1327
	2	AS-i Ethernet / IP Controller E · Full master functions · Graphic display · Housing materials: aluminium / steel sheet galvanised	2	AC1337
	1	AS-i DeviceNet controller E · AS-i controller with DeviceNet interface · Full master functions · Graphic display · Housing materials: aluminium / steel sheet galvanised	3	AC1318
	2	AS-i DeviceNet controller E · AS-i controller with DeviceNet interface · Full master functions · Graphic display · Housing materials: aluminium / steel sheet galvanised	3	AC1324
	1	AS-i CANopen Controller E · AS-i controller with CANopen interface · Full master functions · Graphic display · Housing materials: aluminium / steel sheet galvanised	4	AC1331



Type	Number of AS-i masters	Description	Drawing no.	Order no.
	2	AS-i CANopen Controller E · AS-i controller with CANopen interface · Full master functions · Graphic display · Housing materials: aluminium / steel sheet galvanised	5	AC1332
	1	AS-i controller E · AS-i controller freely programmable · Full master functions · Graphic display · Ethernet programming interface · Housing materials: aluminium / steel sheet galvanised	6	AC1357
	2	AS-i controller E · AS-i controller freely programmable · Full master functions · Graphic display · Ethernet programming interface · Housing materials: aluminium / steel sheet galvanised	7	AC1358
	–	CoDeSys for Automation Alliance · Software CD for controller E Version 2.3 in several languages · Single user licence · Compatible operating systems: Win2000 (32 bits), WinXP (32/64 bits), WinVista (32/64 bits), Win7 (32/64 bits)	–	AC0340

Controllers / Gateways

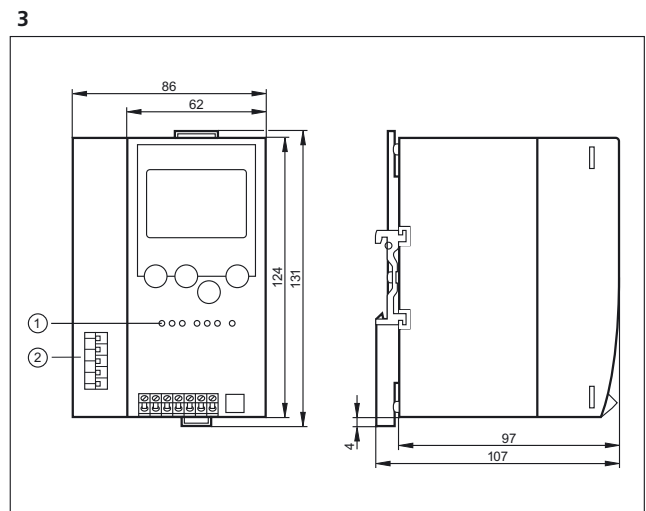
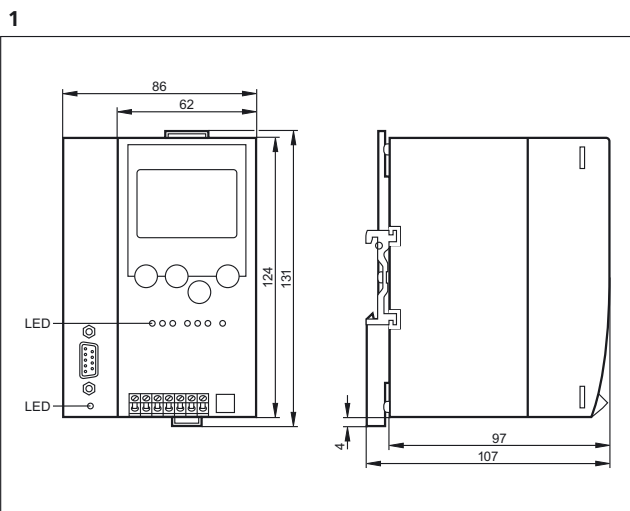
Type	Number of AS-i masters	Description	Drawing no.	Order no.
	1	SmartLink DP · AS-i gateway / Profibus DP · Full master functions · Graphic display · Housing materials: aluminium / steel sheet galvanised	8	AC1375
	2	AS-i DP gateway · Full master functions · Graphic display · Profibus DP interface · Housing materials: aluminium / steel sheet galvanised	1	AC1376
	1	AS-i Profinet gateway · AS-i master · Ethernet configuration interface with dynamic web interface for configuration and diagnosis including remote maintenance · Profinet RT device class B · LCD colour display · Device supply either via 24 V or AS-i (AS-i bus 1) · Housing materials: aluminium powder-coated / steel sheet galvanised / Makrolon	9	AC1401
	2	AS-i Profinet gateway · AS-i master · Ethernet configuration interface with dynamic web interface for configuration and diagnosis including remote maintenance · Profinet RT device class B · LCD colour display · Device supply either via 24 V or AS-i (AS-i bus 1) · Housing materials: aluminium powder-coated / steel sheet galvanised / Makrolon	9	AC1402
	1	AS-i Profibus gateway · AS-i master · Ethernet configuration interface with dynamic web interface for configuration and diagnosis including remote maintenance · Profibus DP (DPV0 + DPV1) · LCD colour display · Device supply either via 24 V or AS-i (AS-i bus 1) · Housing materials: aluminium powder-coated / steel sheet galvanised / Makrolon	10	AC1411
	2	AS-i Profibus gateway · AS-i master · Ethernet configuration interface with dynamic web interface for configuration and diagnosis including remote maintenance · Profibus DP (DPV0 + DPV1) · LCD colour display · Device supply either via 24 V or AS-i (AS-i bus 1) · Housing materials: aluminium powder-coated / steel sheet galvanised / Makrolon	10	AC1412
	1	AS-i EtherNet/IP gateway · AS-i master · Ethernet configuration interface with dynamic web interface for configuration and diagnosis including remote maintenance · LCD colour display · Device supply either via 24 V or AS-i (AS-i bus 1) · Housing materials: aluminium powder-coated / steel sheet galvanised / Makrolon	9	AC1421

Type	Number of AS-i masters	Description	Drawing no.	Order no.
	2	AS-i EtherNet/IP gateway · AS-i master · Ethernet configuration interface with dynamic web interface for configuration and diagnosis including remote maintenance · LCD colour display · Device supply either via 24 V or AS-i (AS-i bus 1) · Housing materials: aluminium powder-coated / steel sheet galvanised / Makrolon	9	AC1422
	–	AS-i data decoupling module · Combicon connection · Housing materials: Makrolon	11	AC1250

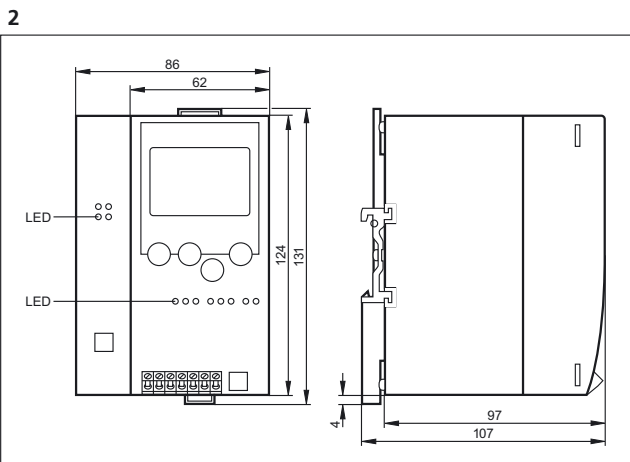
AS-i manuals

Type	Description	Order no.
	ecolog asi system · AS-Interface Manual (German)	AC0115
	ecolog asi system · AS-Interface Manual (English)	AC0116

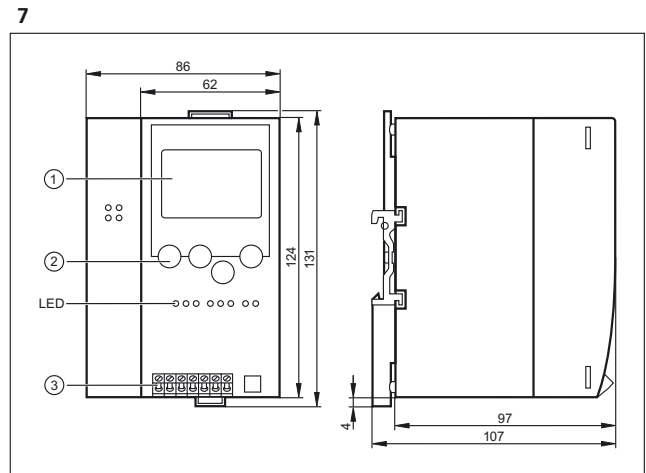
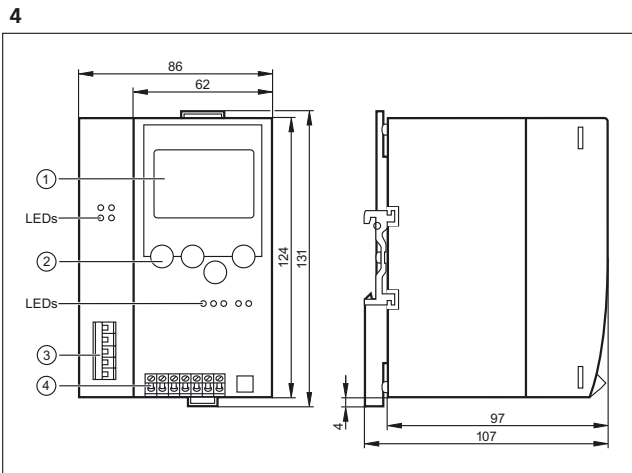
Scale drawings / drawing no. – CAD download: www.ifm.com



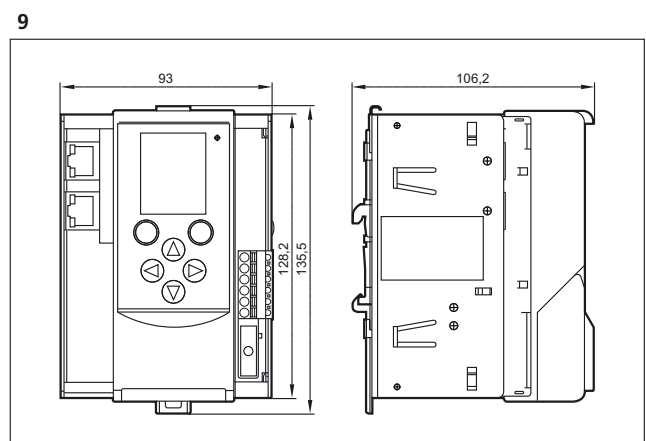
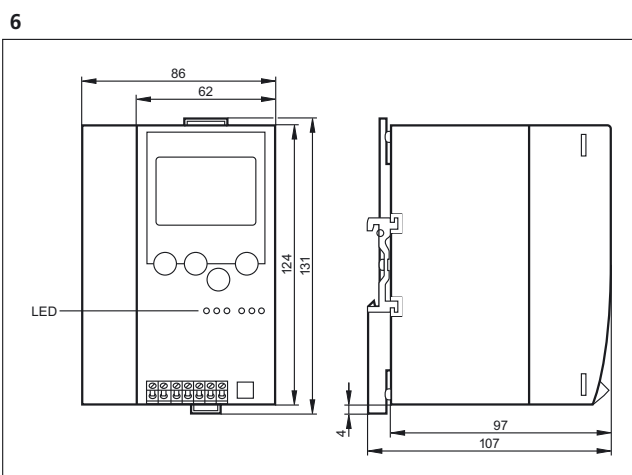
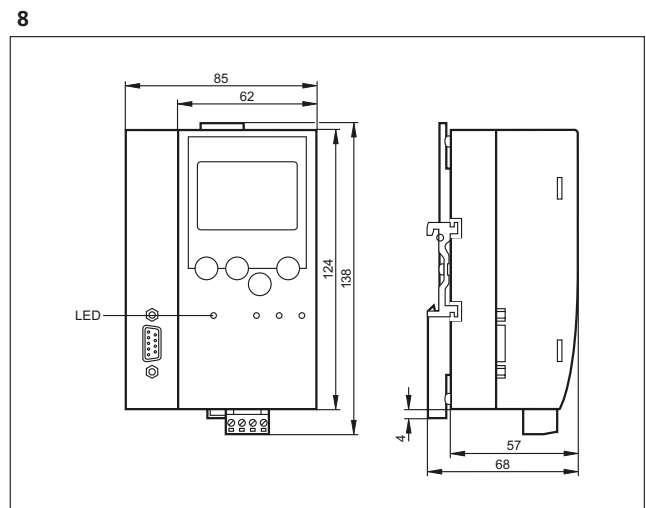
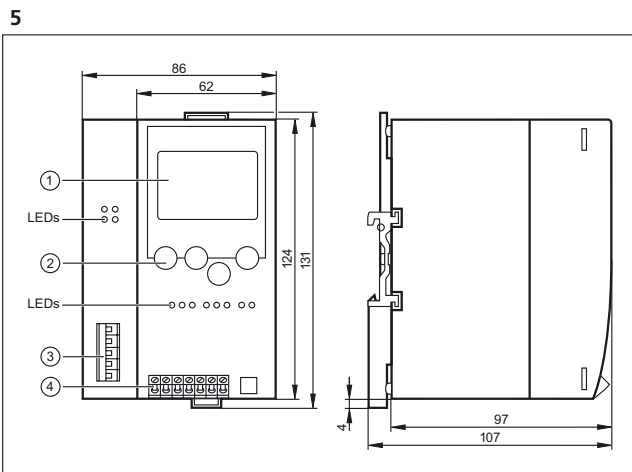
1: LED, 2: DeviceNet interface



Scale drawings / drawing no. – CAD download: www.ifm.com

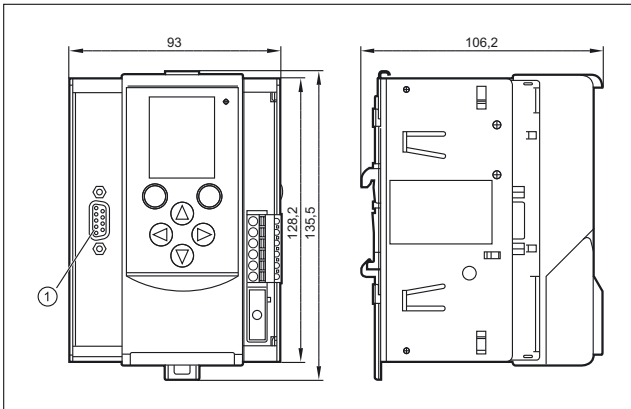


1: display, 2: control keys, 3: Ethernet interface



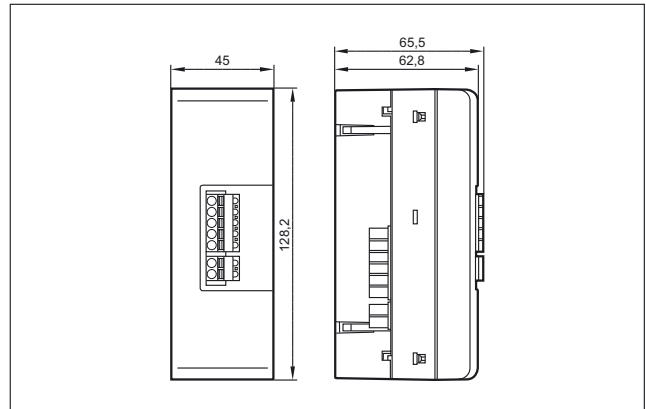
Scale drawings / drawing no. – CAD download: www.ifm.com

10



Sub-D (9-pole)

11












AS-Interface power supplies / earth fault monitors


AS-i needs special AS-i power supplies for the communication and the voltage supply of the AS-i modules and the connected inputs and outputs (partly). They supply an unearthed voltage that is in particular suitable for communication insensitive to interference, in particular in industrial environments. By means of earth fault monitors the installation can be monitored for earthing problems.

System overview	Page
AS-i power supplies	570
Insulation monitors	570
Scale drawings / drawing no. – CAD download: www.ifm.com	571

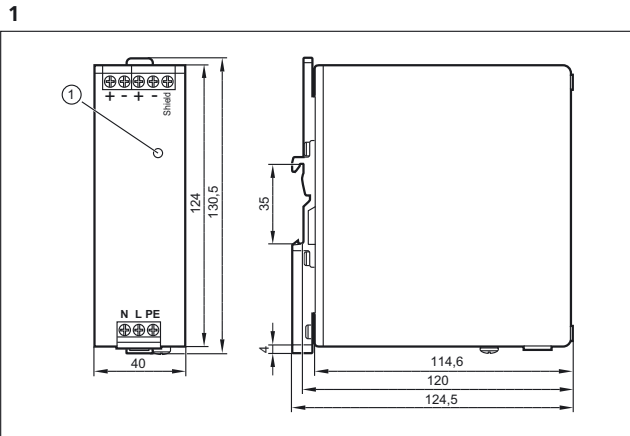
AS-i power supplies

Type	Output current AS-i [A]	Description	Draw-ing no.	Order no.
	2.8	Power supply · AS-i power supply 115/230 V AC · Integrated data decoupling · NEC Class II Power Source · steel sheet	1	AC1256
	4	Power supply · DC convertor 24 V DC for AS-i system voltage · Integrated data decoupling · steel sheet	2	AC1257
	4	Power supply · AS-i power supply 115/230 V AC · Integrated data decoupling · steel sheet	1	AC1254
	8	Power supply · AS-i power supply 115/230 V AC · Integrated data decoupling · steel sheet	3	AC1258
	8	Power supply · Three-phase AS-i power supply 380...480 V AC · Integrated data decoupling · steel sheet	4	AC1253

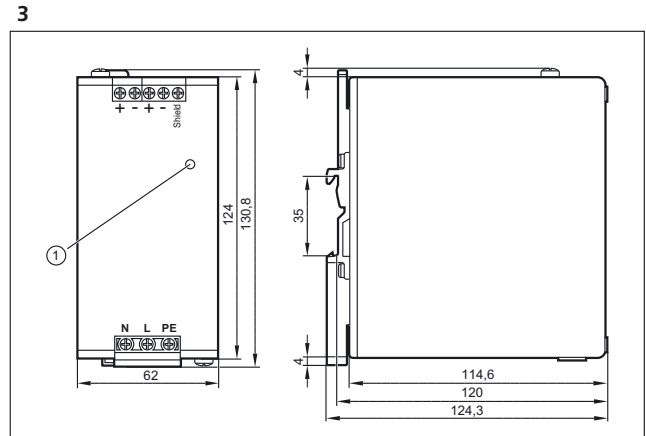
Insulation monitors

Type	Description	Draw-ing no.	Order no.
	AS-i insulation monitor · Detection of asymmetric insulation faults · Screw terminal	5	AC2211
	AS-i insulation monitor · Detection of symmetric and asymmetric insulation faults · Screw terminal	5	AC2212

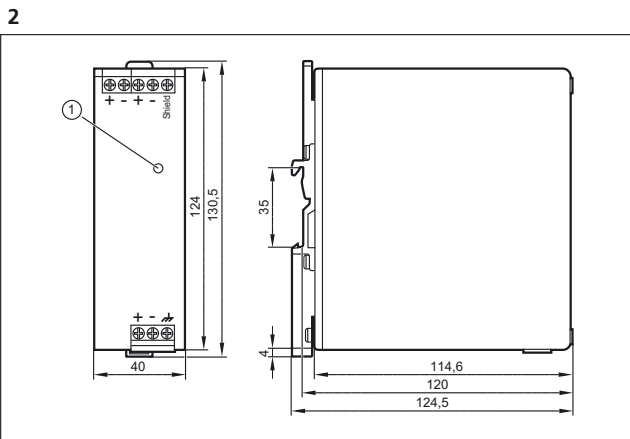
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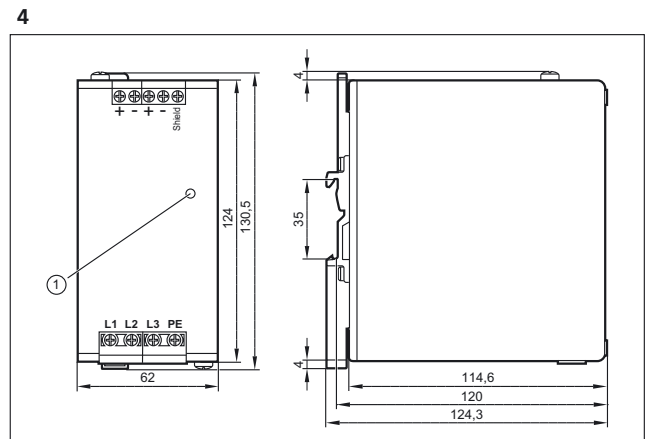
1: LED AS-i ok



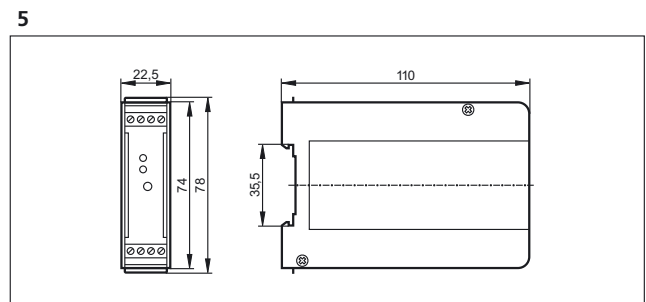
1: LED AS-i ok



1: LED AS-i ok



1: LED AS-i ok





AS-Interface I/O modules



The I/O modules are decentralised input and output modules of the AS-i interface for the connection of your digital and analogue inputs and outputs. Different applications have various requirements on the I/O modules regarding protection rating, resistance and materials used. The product range covers PCB solutions, control cabinet modules and I/O modules with protection rating IP69K.

System overview	Page
I/O modules for control cabinets	572 - 574
Field modules IP 67 AS-Interface	574 - 576
CompactLine modules	577 - 578
Field modules IP 67 Profibus DP	578 - 579
Universal modules AS-Interface	579
Field modules IP 69K and accessories	580
Module lower parts	580
Combicon connectors	581
Flat cable splitters and accessories	581 - 582
Accessories lower parts and addressing units	583 - 584
Scale drawings / drawing no. – CAD download: www.ifm.com	584 - 588


I/O modules for control cabinets

Type	Inputs / outputs	Description	Draw- ing no.	Order no.
	4 inputs	Active AS-i module · String mounting possible · Addressing socket · Version 2.1 with extended addressing mode · Digital inputs · Combicon connection · PA	1	AC2250
	4 inputs	Active AS-i module · String mounting possible · Addressing socket · Input supply from external PELV voltage source · Version 2.1 with extended addressing mode · Digital inputs · Combicon connection · PA	1	AC2254
	4 outputs	Active AS-i module · String mounting possible · Addressing socket · Version 2.1 · Digital outputs · Combicon connection · PA	1	AC2252
	4 inputs / 2 outputs / relay	Active AS-i module · String mounting possible · Addressing socket · Version 2.1 with extended addressing mode · Digital inputs · Combicon connection · PA	1	AC2256
	4 inputs / 2 outputs / relay	Active AS-i module · String mounting possible · Addressing socket · Input supply from external PELV voltage source · Version 2.1 with extended addressing mode · Digital inputs and outputs · Combicon connection · PA	1	AC2255


Type	Inputs / outputs	Description	Draw- ing no.	Order no.
	4 inputs / 3 outputs	Active AS-i module · String mounting possible · Addressing socket · Version 2.1 with extended addressing mode · Digital inputs and outputs · Combicon connection · PA	1	AC2264
	4 inputs / 4 outputs	Active AS-i module · String mounting possible · Addressing socket · Version 2.1 · Digital inputs and outputs · Combicon connection · PA	1	AC2251
	4 inputs / 4 outputs	Active AS-i module · String mounting possible · Addressing socket · External sensor supply PELV · Version 2.1 · Digital inputs and outputs · Combicon connection · PA	1	AC2257
	4 inputs / 4 outputs	Active AS-i module · String mounting possible · Addressing socket · External sensor supply PELV · Version 3.0 with extended addressing mode · Only for operation with AS-i masters with the profile M4 · Digital inputs and outputs · Combicon connection · PA	2	AC2267
	4 inputs 4...20 mA	Active AS-i module · AS-i profile S-7.3 · 4 analogue inputs 4...20 mA · Supply either from AS-i or an external 24 V source · For the connection of 2-wire, 3-wire or 4-wire sensors · Combicon connector for sensor connection · PA 6.6	1	AC2216
	4 inputs 0...10 V	Active AS-i module · AS-i profile S-7.3 · 4 analogue inputs 0...10 V · For the connection of 2-wire, 3-wire or 4-wire sensors · Combicon connector for sensor connection · PA 6.6	1	AC2217
	4 outputs 0...20 mA	Active AS-i module · AS-i profile S-7.3 · 4 analogue outputs 0...20 mA · For the connection of 2-wire actuators or 4-wire actuators with separate 24 V supply · Combicon connector for actuator connection · PA 6.6	1	AC2218
	4 outputs 0...10 V	Active AS-i module · AS-i profile S-7.3 · 4 analogue outputs 0...10 V · For the connection of 2-wire actuators or 4-wire actuators with separate 24 V supply · Combicon connector for actuator connection · PA 6.6	1	AC2219
	4 inputs Pt100	Active AS-i module · 4 analogue inputs temperature Pt100 · AS-i profile S-7.3 · Combicon connection · PBT	1	AC2220
	4 inputs / 4 outputs / relay	Active AS-i module · String mounting possible · Addressing socket · Version 2.1 · Combicon connection · PA 6.6	3	AC2258
	4 inputs / 4 outputs / relay	Active AS-i module · String mounting possible · Addressing socket · Input supply from external PELV voltage source · Version 2.1 · Combicon connection · PA 6.6	3	AC2259
	4 inputs / 4 outputs	Active AS-i module · PCB size 105 x 45 x 17 mm · Wire length 0.2 m · Digital inputs and outputs	4	AC2709
	4 inputs / 3 outputs	Active AS-i module · AS-i slave with extended addressing mode · PCB size 105 x 45 x 17 mm · Wire length 0.2 m · Digital inputs and outputs	4	AC2739
	2 inputs / 1 LED output	Active AS-i module · Only suited for mechanical contacts · Wire length 0.1 m	5	AC2729
	3 inputs / 3 outputs	Active AS-i module · AS-i version 2.1 with extended addressing mode	6	AC2731
	4 inputs / 4 outputs	Active AS-i module · AS-i slave with extended addressing mode · Only for operation with AS-i masters with the profile M4 · 12 x 0.2 m · housing: PC potted	7	AC2750
	4 inputs / 3 outputs	Active AS-i module · AS-i slave with extended addressing mode · 11 x 0.2 m · housing: PC potted	8	AC2751

Type	Inputs / outputs	Description	Drawing no.	Order no.
	4 inputs / 4 outputs	Active AS-i module · AS-i slave with extended addressing mode · Only for operation with AS-i masters with the profile M4 · housing: PC potted	9	AC2752
	4 inputs / 3 outputs	Active AS-i module · AS-i slave with extended addressing mode · housing: PC potted	10	AC2753




Field modules IP 67 AS-Interface







Type	Inputs / outputs	Description	Drawing no.	Order no.
	4-way splitter box	ClassicLine splitter box module · Three orientations of the flat cable are possible · AS-i and AUX splitter box for the connection of intelligent sensors/actuators · Sockets M12 x 1 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated	11	AC5200
	4 inputs	Active ClassicLine module · Addressing socket · Three orientations of the flat cable are possible · Digital inputs · Sockets M12 x 1 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated	11	AC5205
	4 inputs	Active ClassicLine module · Version 2.11 and 3.0 with extended addressing mode · Addressing socket · Three orientations of the flat cable are possible · Digital inputs · Sockets M12 x 1 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated	11	AC5215
	3 outputs	Active ClassicLine module · Version 2.11 and 3.0 with extended addressing mode · Addressing socket · Three orientations of the flat cable are possible · Digital outputs · Sockets M12 x 1 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated	11	AC5203
	4 outputs	Active ClassicLine module · Addressing socket · Three orientations of the flat cable are possible · Digital outputs · Sockets M12 x 1 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated	11	AC5208
	4 outputs	Active ClassicLine module · Addressing socket · Three orientations of the flat cable are possible · Digital outputs 2 A · Sockets M12 x 1 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated	11	AC5213
	2 outputs / 2 inputs	Active ClassicLine module · Version 2.11 and 3.0 with extended addressing mode · Addressing socket · Three orientations of the flat cable are possible · Digital outputs and inputs · Sockets M12 x 1 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated	11	AC5214
	2 inputs / 2 outputs	Active ClassicLine module · Addressing socket · Three orientations of the flat cable are possible · Digital inputs and outputs (2 A) · Sockets M12 x 1 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated	11	AC5211
	2 outputs / 2 inputs	Active ClassicLine module · Version 2.11 and 3.0 with extended addressing mode · Addressing socket · Three orientations of the flat cable are possible · Outputs supplied from AS-i · Digital outputs and inputs · Sockets M12 x 1 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated	11	AC5224

Type	Inputs / outputs	Description	Draw- ing no.	Order no.
	4 inputs / 3 outputs	Active ClassicLine module · Version 2.11 and 3.0 with extended addressing mode · Addressing socket · Three orientations of the flat cable are possible · inputs externally supplied · Sockets M12 x 1 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated	12	AC5292
	8 digital inputs (2 slaves)	Active ClassicLine module · Version 2.11 and 3.0 with extended addressing mode · Addressing socket · Three orientations of the flat cable are possible · Digital inputs · Sockets M12 x 1 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated	12	AC5210
	4 inputs / 4 outputs	Active ClassicLine module · Addressing socket · Three orientations of the flat cable are possible · Digital inputs and outputs · Sockets M12 x 1 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated	12	AC5209
	4 inputs / 4 outputs	Active ClassicLine module · Addressing socket · Three orientations of the flat cable are possible · Digital inputs and outputs (2 A) · Sockets M12 x 1 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated	12	AC5212
	4 inputs / 3 outputs	Active ClassicLine module · Addressing socket · Three orientations of the flat cable are possible · Version 2.11 and 3.0 with extended addressing mode · Digital inputs and outputs · Sockets M12 x 1 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated	12	AC5204
	4 inputs / 4 outputs	Active ClassicLine module · Only for operation with AS-i masters with the profile M4 · Addressing socket · Three orientations of the flat cable are possible · Version 3.0 with extended addressing mode · Digital inputs and outputs · Sockets M12 x 1 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated	12	AC5235
	4 inputs / 4 outputs	Active ClassicLine module · Addressing socket · Three orientations of the flat cable are possible · Version 3.0 with extended addressing mode · Only for operation with AS-i masters with the profile M4 · Digital inputs and outputs (2 A) · Sockets M12 x 1 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated	12	AC5236
	2 pushbuttons / 2 LED displays	Active module upper parts AS-i illuminated pushbutton module · Power supply via AS-i cable · A/B slave · Pushbutton functions: normally open / normally closed · PBT	–	AC2088
	2 pushbuttons / 2 LED displays	Active module upper parts AS-i illuminated pushbutton module · Power supply via AS-i cable · Colour inserts changeable · PBT	13	AC2086
	1 pushbutton / 1 key-operated switch / 1 LED display	Active module upper part AS-i illuminated pushbutton module with key-operated switch · Power supply via AS-i cable · Version 2.1 with extended addressing mode · PBT	13	AC2087
	4 inputs 4...20 mA	Active ClassicLine module · AS-i profile S-7.3 · 4 analogue inputs 4...20 mA · IR addressing possible · For the connection of 2-wire, 3-wire or 4-wire sensors · Sockets M12 x 1 · PBT	14	AC2516
	4 inputs 0...10 V	Active ClassicLine module · AS-i profile S-7.3 · 4 analogue inputs 0...10 V · IR addressing possible · For the connection of 2-wire, 3-wire or 4-wire sensors · Sockets M12 x 1 · PBT	14	AC2517


Type	Inputs / outputs	Description	Draw- ing no.	Order no.
	2 inputs 4...20 mA	Active ClassicLine module · 2 analogue inputs 4...20 mA · For the connection of 2-wire and 3-wire sensors · Addressing socket · Three orientations of the flat cable are possible · PA / Piercing contacts: CuSn6 surface nickel and tin-plated	11	AC5222
	2 inputs 4...20 mA	Active ClassicLine module · 2 analogue inputs 4...20 mA · For the connection of 2-wire and 4-wire sensors · Electrical isolation · Addressing socket · Three orientations of the flat cable are possible · PA / Piercing contacts: CuSn6 surface nickel and tin-plated	11	AC5223
	2 IO-Link ports	Active ClassicLine module · 2 IO-Link ports · For the connection of IO-Link sensors and actuators, binary sensors and binary actuators · Addressing socket · Three orientations of the flat cable are possible · Only for operation with AS-i masters with the profile M4 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated	11	AC5225
	2 digital inputs / 1 analogue input / 1 analogue output	Active ClassicLine module · Only for operation with AS-i masters with the profile M4 · Electrical isolation · Three orientations of the flat cable are possible · Sockets M12 x 1 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated	11	AC5230
	4 inputs	Active ClassicLine module · Addressing socket · Three orientations of the flat cable are possible · ATEX approval · Group II, category 3D · Only in conjunction with impact protection housing E7000A or equivalent protection · Sockets M12 x 1 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated	11	AC505A
	4 inputs	Active ClassicLine module · Version 2.11 and 3.0 with extended addressing mode · Addressing socket · Three orientations of the flat cable are possible · ATEX approval · Group II, category 3D · Only in conjunction with impact protection housing E7000A or equivalent protection · Sockets M12 x 1 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated	11	AC515A
	4 outputs	Active ClassicLine module · Addressing socket · Three orientations of the flat cable are possible · ATEX approval · Group II, category 3D · Only in conjunction with impact protection housing E7000A or equivalent protection · Sockets M12 x 1 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated	11	AC508A
	2 inputs / 2 outputs	Active ClassicLine module · Addressing socket · Three orientations of the flat cable are possible · ATEX approval · Group II, category 3D · Only in conjunction with impact protection housing E7000A or equivalent protection · Digital inputs and outputs (2 A) · Sockets M12 x 1 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated	11	AC507A
	2 outputs / 2 inputs	Active ClassicLine module · Version 2.11 and 3.0 with extended addressing mode · Addressing socket · Three orientations of the flat cable are possible · ATEX approval · Group II, category 3D · Only in conjunction with impact protection housing E7000A or equivalent protection · Sockets M12 x 1 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated	11	AC514A
	2 inputs 4...20 mA	Active AS-i module · 2 analogue inputs 4...20 mA · For the connection of 2-wire and 3-wire sensors · Addressing socket · Three orientations of the flat cable are possible · ATEX approval · Group II, category 3D · Only in conjunction with impact protection housing E7000A or equivalent protection · PA / Piercing contacts: CuSn6 surface nickel and tin-plated	11	AC522A
	4 inputs / 4 outputs	Active ClassicLine module · Only for operation with AS-i masters with the profile M4 · Addressing socket · Three orientations of the flat cable are possible · Version 3.0 with extended addressing mode · ATEX approval · Group II, category 3D · Only in conjunction with impact protection housing E7000A or equivalent protection · Sockets M12 x 1 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated	12	AC535A


CompactLine modules

Type	Inputs / outputs	Description	Drawing no.	Order no.
	2 inputs 4...20 mA	Active CompactLine module · 2 analogue inputs 4...20 mA · For the connection of 2-wire and 3-wire sensors · IR addressing possible · high-grade stainless steel · Sockets M12 x 1 · PA / socket: stainless steel 316L / 1.4404 / threaded inserts in the lower part: stainless steel 316L / 1.4404 / screws in the lower part: stainless steel / Piercing contacts: CuSn6 surface nickel and tin-plated	15	AC2402
	2 inputs 4...20 mA	Active CompactLine module · 2 analogue inputs 4...20 mA · For the connection of 2-wire and 4-wire sensors · Electrical isolation · IR addressing possible · high-grade stainless steel · Sockets M12 x 1 · PA / socket: stainless steel 316L / 1.4404 / threaded inserts in the lower part: stainless steel 316L / 1.4404 / screws in the lower part: stainless steel / Piercing contacts: CuSn6 surface nickel and tin-plated	15	AC2403
	4-way splitter box	Passive compact module · AS-i splitter box for the connection of intelligent sensors/actuators · Sockets M12 x 1 · PA 6.6 / socket: Brass nickel-plated / threaded inserts in the lower part: Brass nickel-plated / O-Ring : Viton / Piercing contacts: CuSn6 surface nickel and tin-plated	16	AC2413
	4 inputs	Active CompactLine module · fully potted housing · IR addressing possible · Digital inputs · Sockets M12 x 1 · PA / socket: Brass nickel-plated / threaded inserts in the lower part: Brass nickel-plated / O-Ring : Viton / Piercing contacts: CuSn6 surface nickel and tin-plated	17	AC2410
	4 inputs	Active CompactLine module · IR addressing possible · Version 2.11 and 3.0 with extended addressing mode · Digital inputs · Sockets M12 x 1 · PA / socket: Brass nickel-plated / threaded inserts in the lower part: Brass nickel-plated / O-Ring : Viton / Piercing contacts: CuSn6 surface nickel and tin-plated	17	AC2457
	4 inputs	Active CompactLine module · IR addressing possible · Metal parts from stainless steel · Digital inputs · Sockets M12 x 1 · PA / socket: stainless steel 316L / 1.4404 / threaded inserts in the lower part: stainless steel 316L / 1.4404 / screws: stainless steel / Piercing contacts: CuSn6 surface nickel and tin-plated / O-Ring : EPDM	17	AC2451
	4 outputs	Active CompactLine module · IR addressing possible · Digital outputs · Sockets M12 x 1 · PA / socket: Brass nickel-plated / threaded inserts in the lower part: Brass nickel-plated / O-Ring : Viton / Piercing contacts: CuSn6 surface nickel and tin-plated	18	AC2417
	2 inputs / 2 outputs	Active CompactLine module · 60 x 118.2 x 27 · IR addressing possible · Digital inputs and outputs · Sockets M12 x 1 · PA / socket: Brass nickel-plated / threaded inserts in the lower part: Brass nickel-plated / O-Ring : Viton / Piercing contacts: CuSn6 surface nickel and tin-plated	18	AC2411
	2 inputs / 2 outputs	Active CompactLine module · IR addressing possible · Digital inputs and outputs · Sockets M12 x 1 · PA / socket: Brass nickel-plated / threaded inserts in the lower part: Brass nickel-plated / O-Ring : Viton / Piercing contacts: CuSn6 surface nickel and tin-plated	18	AC2458
	4 inputs / 4 outputs	Active CompactLine module · 60 x 152 x 27 · IR addressing possible · Digital inputs and outputs · Sockets M12 x 1 · PA / socket: Brass nickel-plated / threaded inserts in the lower part: Brass nickel-plated / O-Ring : Viton / Piercing contacts: CuSn6 surface nickel and tin-plated	19	AC2412
	4 inputs / 4 outputs	Active CompactLine module · IR addressing possible · Digital inputs and outputs · Sockets M12 x 1 · PA / socket: Brass nickel-plated / threaded inserts in the lower part: Brass nickel-plated / O-Ring : Viton / Piercing contacts: CuSn6 surface nickel and tin-plated	19	AC2459





Type	Inputs / outputs	Description	Draw- ing no.	Order no.
	4 inputs / 4 outputs	Active CompactLine module · IR addressing possible · External sensor supply PELV · Digital inputs and outputs · Sockets M12 x 1 · PA / socket: Brass nickel-plated / threaded inserts in the lower part: Brass nickel-plated / O-Ring : Viton / Piercing contacts: CuSn6 surface nickel and tin-plated	19	AC2466
	4 inputs / 4 outputs	Active CompactLine module · IR addressing possible · Metal parts from stainless steel · Digital inputs and outputs · Sockets M12 x 1 · PA / socket: stainless steel 316L / 1.4404 / threaded inserts in the lower part: stainless steel 316L / 1.4404 / screws: stainless steel / Piercing contacts: CuSn6 surface nickel and tin-plated / O-Ring : EPDM	19	AC2452
	4 inputs / 4 outputs	Active CompactLine module · IR addressing possible · Version 3.0 with extended addressing mode · Only for operation with AS-i masters with the profile M4 · Digital inputs and outputs · Sockets M12 x 1 · PA / socket: Brass nickel-plated / threaded inserts in the lower part: Brass nickel-plated / O-Ring : Viton / Piercing contacts: CuSn6 surface nickel and tin-plated	19	AC2471
	4 inputs	Active CompactLine module · AS-i connection via M12 connector · Digital inputs · Sockets M12 x 1 · PA / socket: Brass nickel-plated / O-Ring : Viton	20	AC2464
	4 inputs / 4 outputs	Active CompactLine module · AS-i and AUX connection via M12 connector · Digital inputs and outputs · Sockets M12 x 1 · PA / socket: Brass nickel-plated / O-Ring : Viton	21	AC2465
	2 outputs / 2 inputs	Compact M8 AS-i module · 90.5 x 30 x 23.5 · Digital inputs and outputs supplied via AS-i · AS-i connection via M12 connector · Version 2.11 and 3.0 with extended addressing mode · M8 ecolink interface · Sockets M8 x 1 · PBT	22	AC2482
	4 inputs	Compact M8 AS-i module · 90.5 x 30 x 23.5 · Digital inputs · AS-i connection via M12 connector · Version 2.11 and 3.0 with extended addressing mode · M8 ecolink interface · Sockets M8 x 1 · PBT	22	AC2484
	8 inputs	Compact M8 AS-i module · 134.5 x 30 x 23.5 · Digital inputs · AS-i connection via M12 connector · Version 3.0 with extended addressing mode · M8 ecolink interface · Only for operation with AS-i masters with the profile M4 · Sockets M8 x 1 · PBT	23	AC2488

Field modules IP 67 Profibus DP








Type	Inputs / outputs	Description	Draw- ing no.	Order no.
	4 IO-Link ports / 4 digital inputs	I/O modules for field applications · Profibus DP interface · Sockets M12 x 1 · housing: PA 6 / potting compound: PU / Contact pins: Brass gold-plated	24	AC2625
	8 inputs	I/O modules for field applications · Profibus DP interface · Sockets M12 x 1 · housing: PA 6 / potting compound: PU / Contact pins: Brass gold-plated	24	AC2630

Type	Inputs / outputs	Description	Draw- ing no.	Order no.
	4 inputs / 4 outputs	I/O modules for field applications · Profibus DP interface · Sockets M12 x 1 · housing: PA 6 / potting compound: PU / Contact pins: Brass gold-plated	24	AC2631
	4 inputs Pt100	I/O modules for field applications · Profibus DP interface · Sockets M12 x 1 · housing: PA 6 / potting compound: PU / Contact pins: Brass gold-plated	24	AC2634
	4 analogue inputs 0/4...20 mA	I/O modules for field applications · Profibus DP interface · Sockets M12 x 1 · housing: PA 6 / potting compound: PU / Contact pins: Brass gold-plated	24	AC2636
	4 analogue outputs 0/4...20 mA	I/O modules for field applications · Profibus DP interface · Sockets M12 x 1 · housing: PA 6 / potting compound: PU / Contact pins: Brass gold-plated	24	AC2637
	4 analogue inputs -10...0 V / 10 V	I/O modules for field applications · Profibus DP interface · Sockets M12 x 1 · housing: PA 6 / potting compound: PU / Contact pins: Brass gold-plated	24	AC2638


Universal modules AS-Interface

Type	Inputs / outputs	Description	Draw- ing no.	Order no.
	4 inputs	Active module upper part AS-universal module · Digital inputs · Connection via cage clamps · PBT / stainless steel	25	AC2032
	4 inputs / 4 outputs	Active module upper part AS-universal module · Digital inputs and outputs · Connection via cage clamps · PBT / stainless steel	26	AC2035
	2 inputs 4...20 mA	Active AS-i module IP 65 · 2 analogue inputs 4...20 mA · AS-i profile S-7.3 · For the connection of 2-wire, 3-wire or 4-wire sensors · Connection via cage clamps · PBT	27	AC2616
	2 inputs 0...10 V	Active AS-i module IP 65 · 2 analogue inputs 0...10 V · AS-i profile S-7.3 · For the connection of 2-wire, 3-wire or 4-wire sensors · Connection via cage clamps · PBT	27	AC2617
	2 outputs 0...20 mA	Active AS-i module IP 65 · 2 analogue outputs 0...20 mA · AS-i profile S-7.3 · For the connection of 2-wire actuators or 4-wire actuators with separate 24 V supply · Connection via cage clamps · PBT	27	AC2618
	2 outputs 0...10 V	Active AS-i module IP 65 · 2 analogue outputs 0...10 V · AS-i profile S-7.3 · For the connection of 2-wire actuators or 4-wire actuators with separate 24 V supply · Connection via cage clamps · PBT	27	AC2619
	4 inputs Pt100	Active AS-i module IP 65 · 4 analogue inputs temperature Pt100 · AS-i profile S-7.3 · Connection via cage clamps · PBT	26	AC2620

Field modules IP 69K and accessories

Type	Inputs / outputs	Description	Drawing no.	Order no.
	4 inputs / 3 outputs	Active ProcessLine module · Version 2.1 with extended addressing mode · Protection rating IP 69K · high-grade stainless steel · Digital inputs and outputs · Sockets M12 x 1 · high-grade stainless steel / Makrolon / O-ring: EPDM	28	AC2904
	8 digital inputs (2 slaves)	Active ProcessLine module · Version 2.1 with extended addressing mode · Protection rating IP 69K · high-grade stainless steel · Digital inputs · Sockets M12 x 1 · high-grade stainless steel / Makrolon / O-ring: EPDM	29	AC2910
	8-way splitter box	Passive splitter box AS-i ProcessLine · Protection rating IP 69K · high-grade stainless steel · AS-i and AUX splitter box for the connection of intelligent sensors/actuators · Sockets M12 x 1 · high-grade stainless steel / Makrolon	30	AC2900
	4 inputs 4...20 mA	Active AS-i module · 4 analogue inputs 4...20 mA · For the connection of 2-wire and 3-wire sensors · Threaded bush: stainless steel 316L / 1.4404 / Makrolon / O-ring: EPDM	31	AC2916
	4 inputs 4...20 mA	Active AS-i module · 4 analogue inputs 4...20 mA · For the connection of 2-wire, 3-wire or 4-wire sensors · Electrical isolation · Threaded bush: stainless steel 316L / 1.4404 / Makrolon / O-ring: EPDM	31	AC2923
	AS-i / 24 V	FC splitter · V4A · AS-i voltage and external auxiliary voltage via the M12 socket · Metal parts: stainless steel 316L / 1.4404 / Blanks: FPM / O-ring: EPDM	–	E70354
	AS-i	FC splitter · AS-i voltage via M12 socket · Metal parts: stainless steel 316L / 1.4404 / O-ring: EPDM / socket: PP GF30 / blade seal: TPE	–	E70454
	AS-i / 24 V	FC splitter · Metal parts: stainless steel 316L / 1.4404 / Blanks: FPM / O-ring: EPDM	–	E70377

Module lower parts




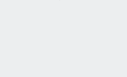





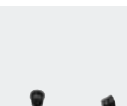

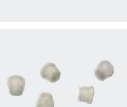
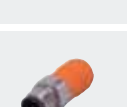
Type	Inputs / outputs	Description	Drawing no.	Order no.
	FC coupling module	Module lower part flat cable · AS-i interface to module upper part · Quick mounting technology for AS-i flat cable · PBT	32	AC5000
	FC-E coupling module with external power supply	FC-E coupling module · AS-i interface to module upper part · Quick mounting technology for AS-i flat cable · PBT	32	AC5003
	FC coupling module	Module lower part flat cable · with addressing plug · AS-i interface to module upper part · Quick mounting technology for AS-i flat cable · PBT	33	AC5010
	FC-E coupling module with external power supply	FC-E coupling module · with addressing plug · AS-i interface to module upper part · Quick mounting technology for AS-i flat cable · PBT	33	AC5011
	FC coupling module	Module lower part flat cable · stainless steel · AS-i interface to module upper part · Quick mounting technology for AS-i flat cable · PBT / stainless steel	32	AC5014
	FC-E coupling module with external power supply	FC-E coupling module · stainless steel · AS-i interface to module upper part · Quick mounting technology for AS-i flat cable · PBT / stainless steel	32	AC5015

Combicon connectors








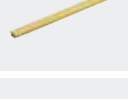
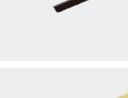




Type	Description	Order no.
	Combicon connector · with screw terminals 4-pole · Housing materials: current carrying parts: copper alloy tin-plated	E70230
	Combicon connector · with screw terminals 4-pole · Housing materials: current carrying parts: copper alloy tin-plated	E70231
	Combicon connector · with cage clamps 4 poles · Housing materials: current carrying parts: copper alloy tin-plated	E70232
	Combicon connector · with cage clamps 4 poles · Housing materials: current carrying parts: copper alloy tin-plated	E70233
	Combicon connector · with insulation displacement terminals 4-pole (0.75...1 mm ²) · Housing materials: current carrying parts: copper alloy tin-plated	E70236

Flat cable splitters and accessories

Type	Description	Order no.
	PAAS M12 · AS-i and external voltage via M12 socket · Sockets M12 x 1 · Housing materials: PA 6.6 / socket housing: stainless steel 316L / 1.4404 / screws: stainless steel 316L / 1.4404 / O-Ring : NBR	E70188
	PAAS splitter box · Distribution of the AS-i voltage or the external 24 V supply · Housing materials: PA / screws: stainless steel 316L / 1.4404 / sealing: NBR	E70200
	FC splitter · Distribution of the AS-i voltage or the external 24 V supply · Housing materials: PA 6 GF35 Grivory	E70381
	FC splitter · high-grade stainless steel · ATEX approval · Group II, category 3D/3G · AS-i voltage and external auxiliary voltage via the M12 socket · Housing materials: Metal parts: stainless steel 316L / 1.4404 / Blanks: FPM / O-ring: EPDM	E7354A
	FC splitter · ATEX approval · Group II, category 3D/3G · Distribution of the AS-i voltage or the external 24 V supply · Housing materials: Metal parts: stainless steel 316L / 1.4404 / Blanks: FPM / O-ring: EPDM	E7377A
	FC insulation displacement connector · Socket M12 - AS-i flat cable · Housing materials: PA 6-GF-FR / Brass nickel-plated	AC5005
	FC insulation displacement connector · Socket M12 - AS-i flat cable · Housing materials: sealing: NBR / housing: PA / O-ring: FPM / screws: stainless steel / nut: stainless steel / Contact pins: bronze gold-plated	E70271
	FC insulation displacement connector · Socket M12 - AS-i flat cable · Housing materials: PA	E70096

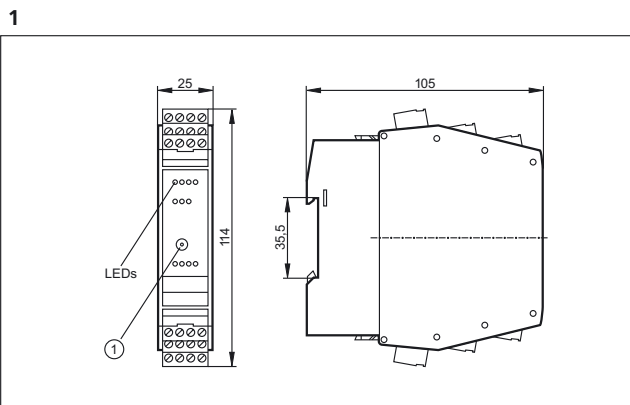
Type	Description	Order no.
	FC insulation displacement connector · Distribution of the AS-i voltage and the external 24 V supply to M12 socket · 1 m · Housing materials: housing: PA 6 GF35 Grivory / Socket: PUR	E70481
	FC insulation displacement connector · Distribution of the AS-i voltage to M12 socket · 0.6 m · Housing materials: housing: PA66 - GF25	E70483
	FC insulation displacement connector · Transition from flat cable to round cable · Cable length 2 m · 2 m · Housing materials: PA 6 GF35 Grivory / round cable: PUR / core insulation: PVC	E70498
	FC insulation displacement connector · Transition from flat cable to round cable · Cable length 5 m · 5 m · Housing materials: PA 6 GF35 Grivory / round cable: PUR / core insulation: PVC	E70499
	Flat cable insulation displacement connector	E79995
	FC insulation displacement connector · straight / angled	E79998
	Splitter box · 8 way · Cable · 25 m · Housing materials: high-grade stainless steel	E11847
	T splitter · M12 plug - 2 M8 sockets · Free from halogen · Free from silicone · Gold-plated contacts · Housing materials: PUR	E10802
	T splitter · M12 plug - 2 M12 sockets · Free from halogen · Free from silicone · Gold-plated contacts · Housing materials: PUR	E10803
	Protective cap · M8 · for CompactM8 modules · Housing materials: ULTRAMID black	E73005
	Protective cap · M12 · for M12 sockets of ClassicLine modules, CompactLine modules and AirBoxes · Housing materials: PA black	E73004
	Protective cap · M12 · for M12 socket to cover the unused inputs and outputs on the module; for unused inputs of splitter boxes · for ProcessLine modules · Housing materials: PVC	E70297
	Connector for analogue modules · for AC5222, AC5223, AC2516, AC2566 · Housing materials: PVC	E75222

Accessories lower parts and addressing units

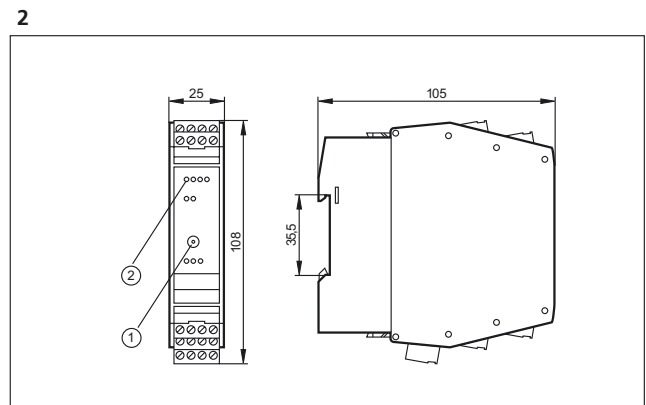
Type	Description	Order no.
	AS-i addressing unit · AS-i version 3.0 with extended addressing mode	AC1154
	Addressing cable · for AS-i slaves · 1.6 m	E70213
	Addressing cable · for the addressing of active AS-i compact modules	E70423
	Addressing cable · for the addressing of active AS-i modules with infrared addressing interface · 1 m · black	E70211
	Programming cable for controller E · Western connector RJ11 6 poles / D-Sub socket 9 poles · 1.55 m · grey	E70320
	Screw terminal insert for AC5101/AC5031 for additional 24 V supply	AC5007
	impact protection housing · for ATEX ClassicLine modules and ATEX AirBoxes · Housing materials: housing: stainless steel / button head hexagon socket screw: stainless steel	E7000A
	Use of the lower part as branching box · Housing materials: plastics	AC3000
	AS-i flat cable · Reverse polarity protection due to special shape · for use of insulation displacement technology · 100 m · PUR, halogen-free · yellow	E74100
	AS-i flat cable · Reverse polarity protection due to special shape · for use of insulation displacement technology · 100 m · PUR, halogen-free · black	E74110
	AS-i flat cable · Reverse polarity protection due to special shape · for use of insulation displacement technology · 100 m · EPDM, halogen-free · yellow	E74000
	AS-i flat cable · Reverse polarity protection due to special shape · for use of insulation displacement technology · 100 m · EPDM, halogen-free · black	E74010
	AS-i flat cable · Reverse polarity protection due to special shape · for use of insulation displacement technology · 100 m · TPE · yellow	E74200
	AS-i flat cable · Reverse polarity protection due to special shape · for use of insulation displacement technology · 100 m · TPE · black	E74210

Type	Description	Order no.
	AS-i flat cable · Reverse polarity protection due to special shape · for the food industry · for use of insulation displacement technology · 100 m · TPE-PVC compound · yellow	E74300
	AS-i flat cable · Reverse polarity protection due to special shape · for the food industry · for use of insulation displacement technology · 100 m · TPE-PVC compound · black	E74310
	JOKARI flat cable stripping tool	E70062
	Flat cable blank · Length: 60 mm · to cover the unused cable entry · for FC splitter E70354 · Housing materials: silicone rubber blue	E70299
	Flat cable blank · Length: 60 mm · to cover the unused cable entry · for CompactLine modules (AC24xx), ClassicLine modules (AC52xx) or AirBoxes (AC52xx) · Housing materials: EPDM black	E70399
	Heat-shrink cap · for sealing the flat cable ends · Housing materials: plastics	E70113
	Flat cable seal · Housing materials: ULTRAMID / sealing: NBR	E70413
	Cable clip for fixing the AS-i flat cable · for AC4000 / AC4002 · Housing materials: PA 6.6	E70067
	Torque wrench	E70390

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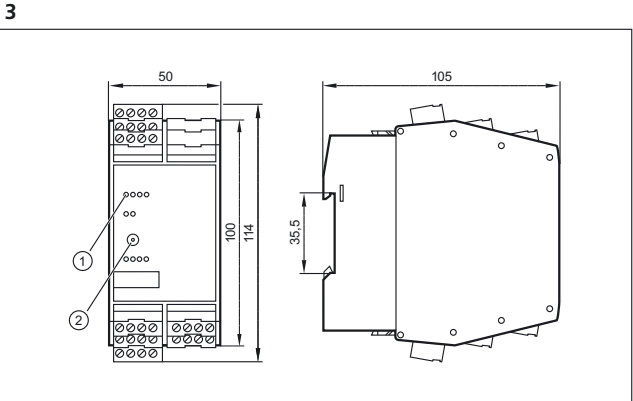


1: Addressing socket

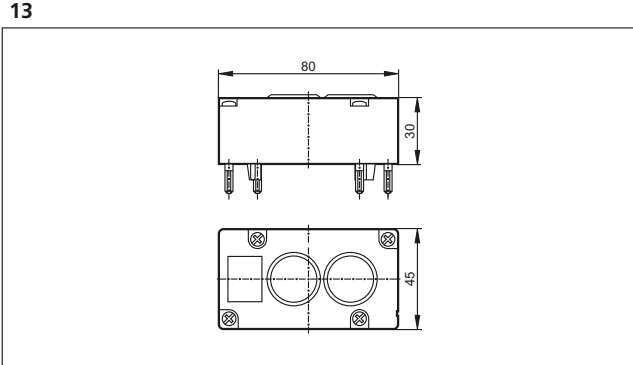
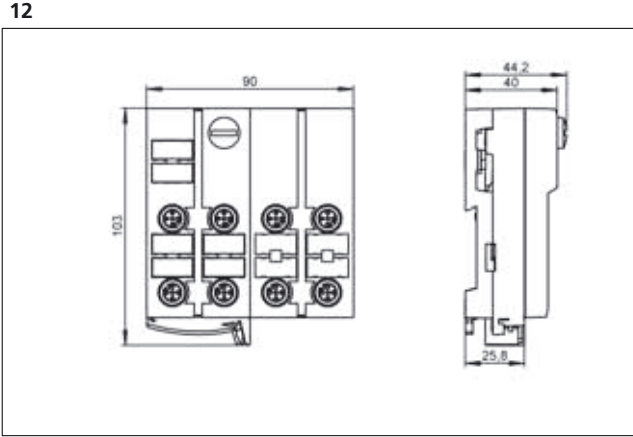
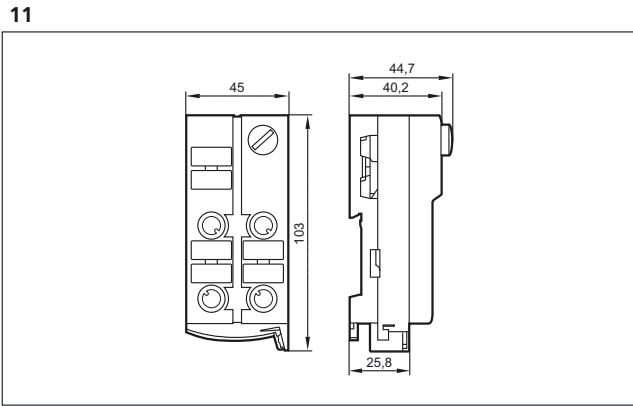
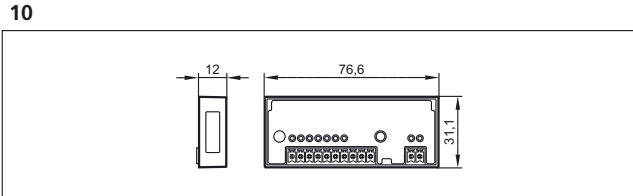
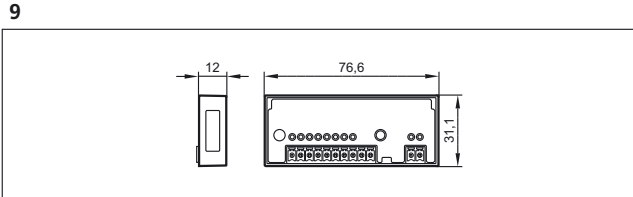
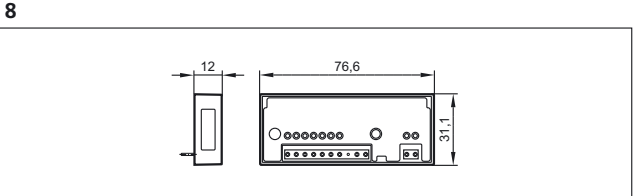
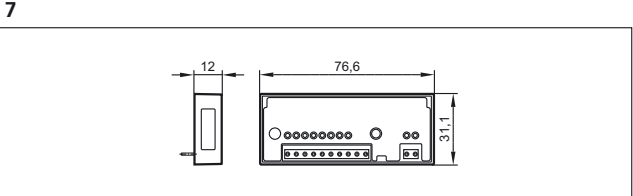
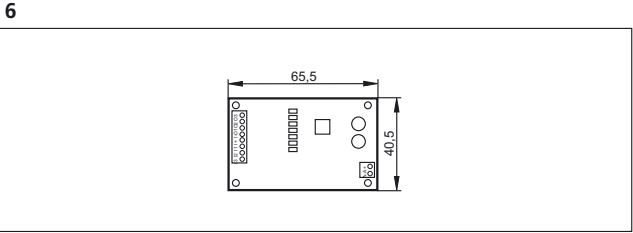
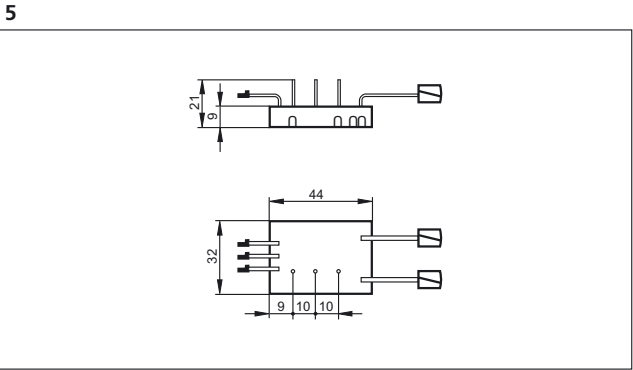
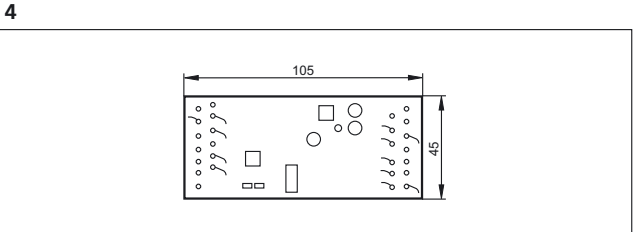


1: Addressing socket, 2: LED

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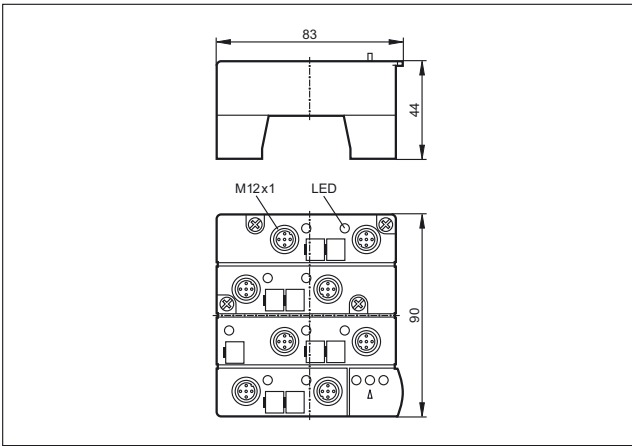


1: LED, 2: Addressing socket

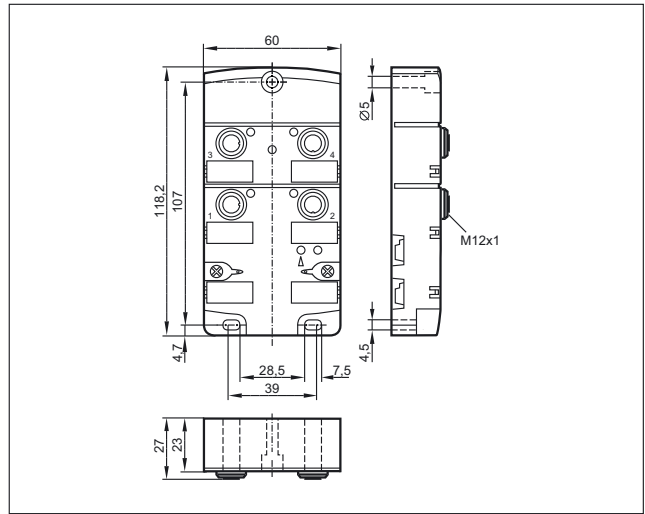


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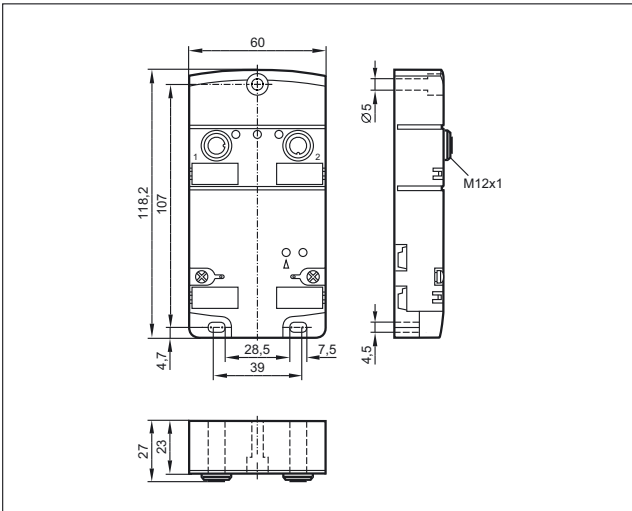
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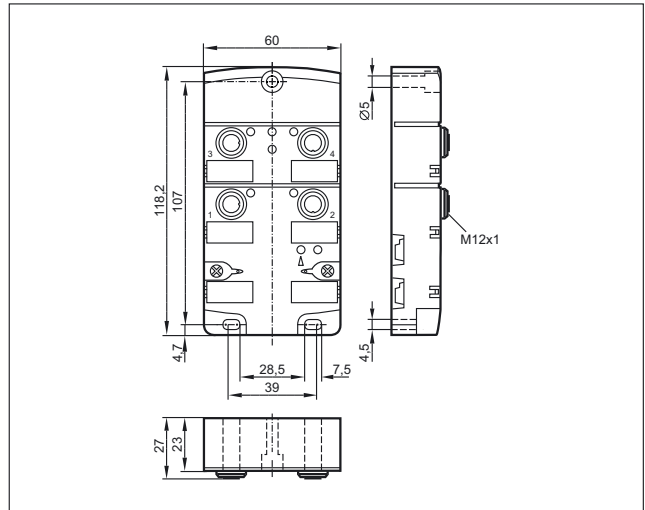
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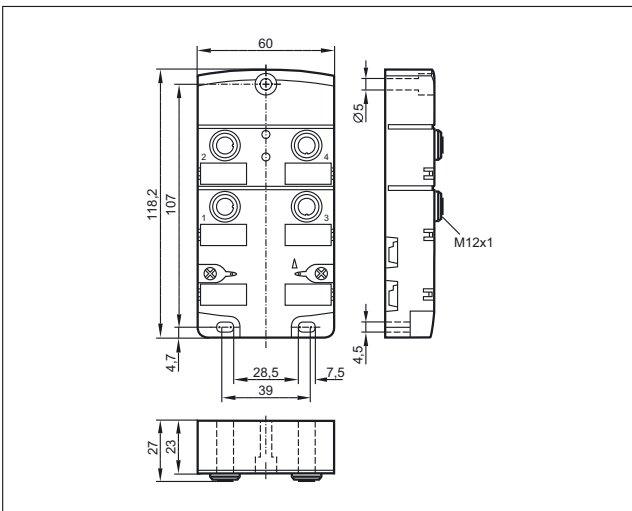
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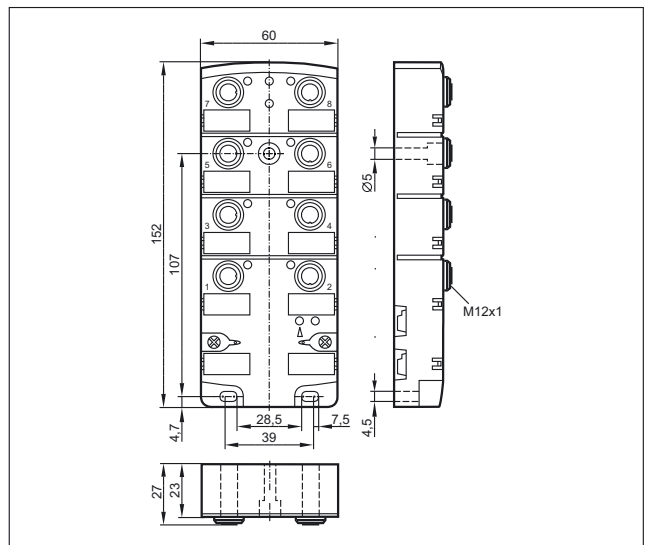
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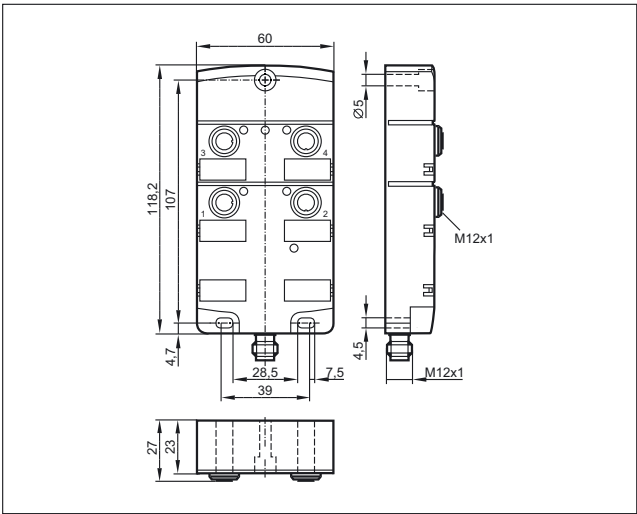


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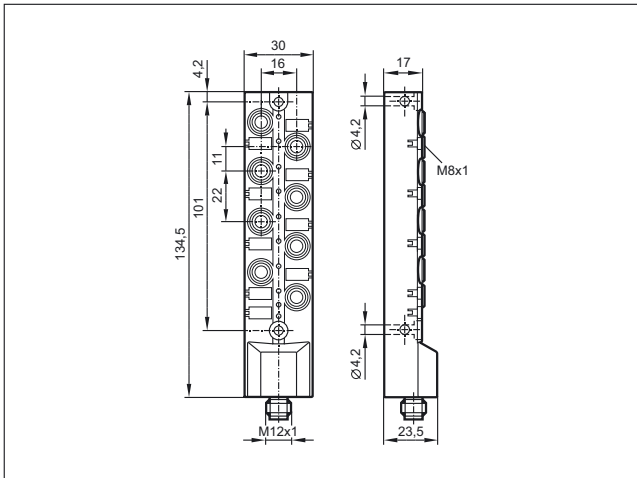


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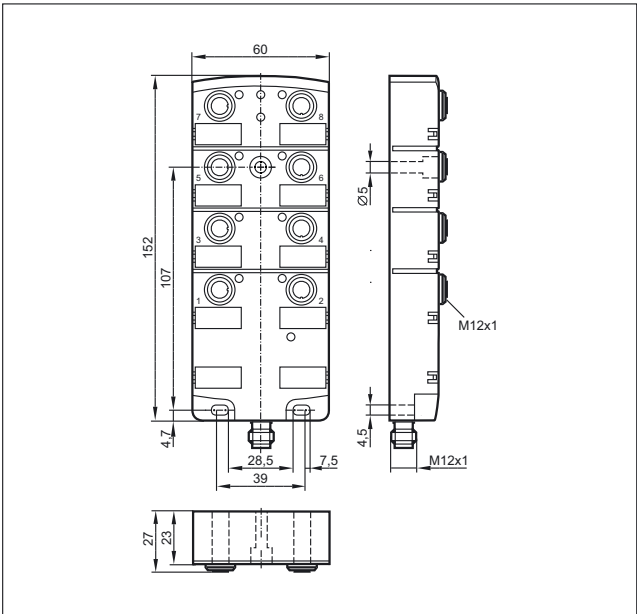
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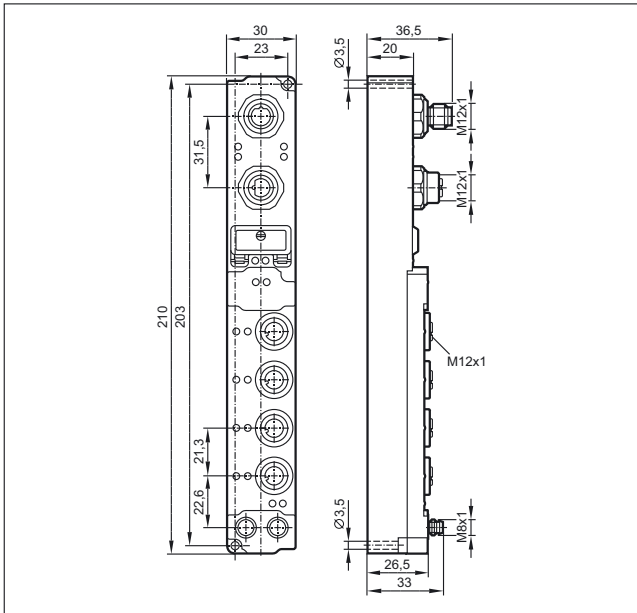
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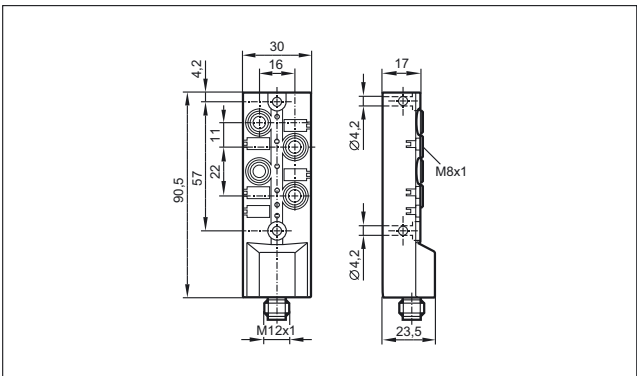
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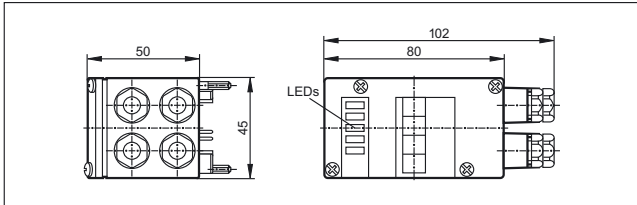
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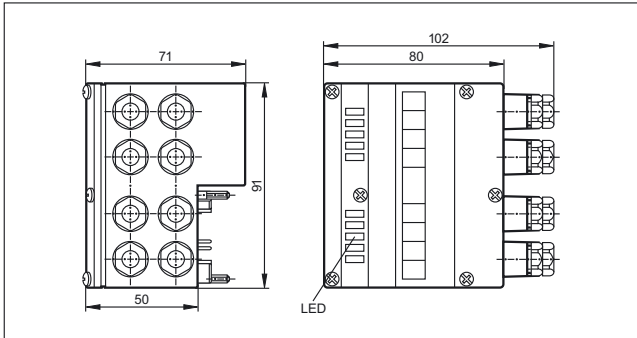
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25

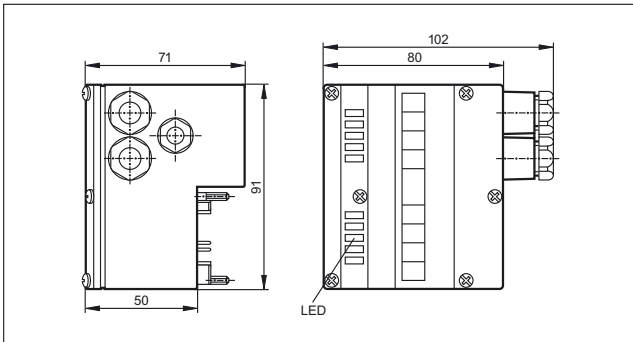


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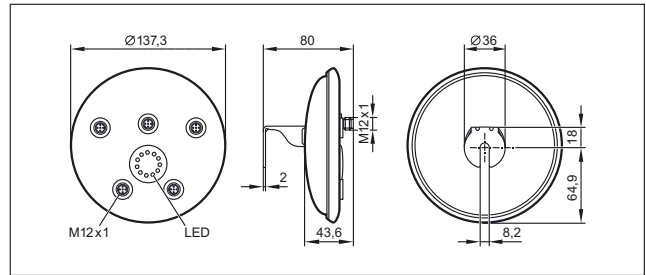


Scale drawings / drawing no. – CAD download: www.ifm.com

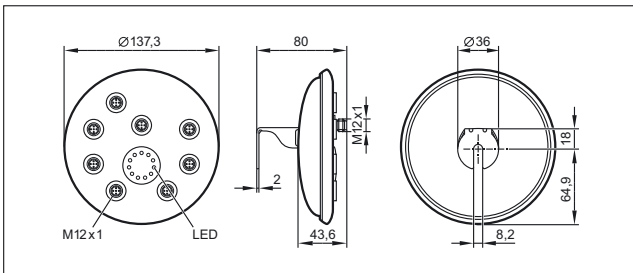
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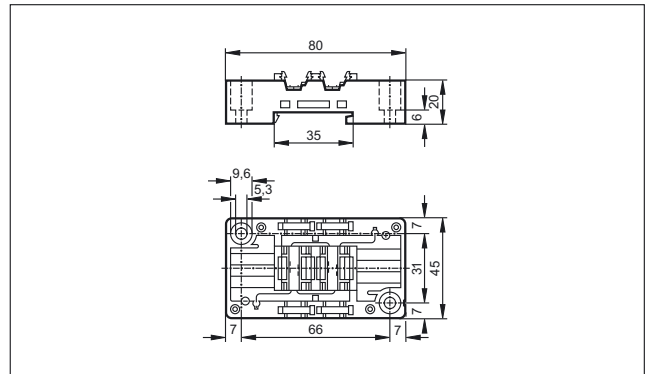
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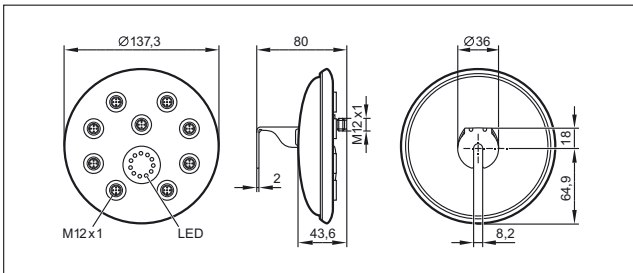
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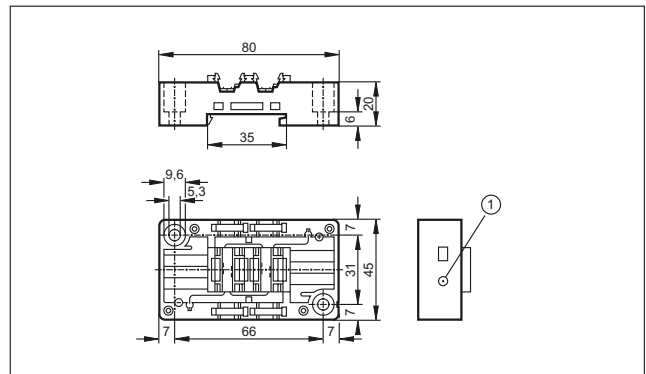
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29

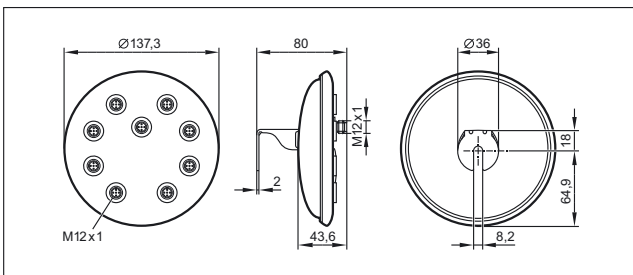


33



1: Addressing socket

30








AS-Interface AirBoxes for pneumatics

The AS-i AirBoxes are compact pneumatic valves, complemented by digital feedback inputs. They are integrated in a ClassicLine housing and are compatible in terms of space and mounting. The AS-i connection is carried out via the common flat cable or round cable lower parts. 3/2-way, 4/2-way, 5/2-way and 5/3-way valves are available.


System overview	Page
Pneumatic solutions (quick mounting)	590 - 591
Pneumatic solutions (ATEX)	591
Pneumatic solutions (screw mounting)	592
Accessories pneumatic components	592
Scale drawings / drawing no. – CAD download: www.ifm.com	593

Pneumatic solutions (quick mounting)


Type	Inputs / outputs	Description	Draw- ing no.	Order no.
	2 inputs / 2 outputs; AirBox supply via AS-i	AS-i AirBox · 2 x 3/2-way slide valves free from overlapping · monostable · Three orientations of the flat cable are possible · AS-i flat cable connection · Addressing socket · AS-i profile S-3.F.F · PA / POM / Piercing contacts: CuSn6 surface nickel and tin-plated	1	AC5227
	4 inputs / 2 outputs; AirBox supply via AS-i	AS-i AirBox · 2 x 3/2-way slide valves free from overlapping · monostable · Three orientations of the flat cable are possible · AS-i flat cable connection · Version 2.11 and 3.0 with extended addressing mode · Addressing socket · PA / POM / Piercing contacts: CuSn6 surface nickel and tin-plated	1	AC5228
	4 inputs / 2 outputs; AirBox supply via external 24 V DC	AS-i AirBox · 2 x 3/2-way slide valves free from overlapping · monostable · Three orientations of the flat cable are possible · AS-i flat cable connection · Version 2.11 and 3.0 with extended addressing mode · Addressing socket · PA / POM / Piercing contacts: CuSn6 surface nickel and tin-plated	1	AC5243
	4 inputs / 1 output ; AirBox supply via AS-i	AS-i AirBox · 5/2-way slide valve free from overlapping · monostable · Three orientations of the flat cable are possible · AS-i flat cable connection · Version 2.11 and 3.0 with extended addressing mode · Addressing socket · PA / POM / Piercing contacts: CuSn6 surface nickel and tin-plated	2	AC5246
	4 inputs / 1 output; AirBox supply via external voltage 24 V DC	AS-i AirBox · 5/2-way slide valve free from overlapping · monostable · Three orientations of the flat cable are possible · AS-i flat cable connection · Version 2.11 and 3.0 with extended addressing mode · Addressing socket · PA / POM / Piercing contacts: CuSn6 surface nickel and tin-plated	2	AC5249
	4 inputs / 2 outputs; AirBox supply via AS-i	AS-i AirBox · 5/2-way bistable slide valve free from overlapping · Three orientations of the flat cable are possible · AS-i flat cable connection · Version 2.11 and 3.0 with extended addressing mode · Addressing socket · PA / POM / Piercing contacts: CuSn6 surface nickel and tin-plated	1	AC5251

Type	Inputs / outputs	Description	Draw- ing no.	Order no.
	4 inputs / 2 outputs; AirBox supply via external 24 V DC	AS-i AirBox · 5/2-way bistable slide valve free from overlapping · Three orientations of the flat cable are possible · AS-i flat cable connection · Version 2.11 and 3.0 with extended addressing mode · Addressing socket · PA / POM / Piercing contacts: CuSn6 surface nickel and tin-plated	1	AC5253
	4 inputs / 2 outputs; AirBox supply via AS-i	AS-i AirBox · 5/3-way slide valve free from overlapping · closed · Three orientations of the flat cable are possible · AS-i flat cable connection · Version 2.11 and 3.0 with extended addressing mode · Addressing socket · PA / POM / Piercing contacts: CuSn6 surface nickel and tin-plated	1	AC5270
	4 inputs / 2 outputs; AirBox supply via external 24 V DC	AS-i AirBox · 5/3-way slide valve free from overlapping · closed · Three orientations of the flat cable are possible · AS-i flat cable connection · Addressing socket · Version 2.11 and 3.0 with extended addressing mode · PA / POM / Piercing contacts: CuSn6 surface nickel and tin-plated	1	AC5271


Pneumatic solutions (ATEX)

Type	Inputs / outputs	Description	Draw- ing no.	Order no.
	4 inputs / 2 outputs; AirBox supply via AS-i	AS-i AirBox · 2 x 3/2-way slide valves free from overlapping · monostable · Three orientations of the flat cable are possible · Digital inputs · Addressing socket · AS-i profile S-7.F.F · Versions 2.11 and 3.0 · ATEX approval · Group II, category 3D · Only in conjunction with impact protection housing E7000A or equivalent protection · PA / POM / Piercing contacts: CuSn6 surface nickel and tin-plated	1	AC542A
	4 inputs / 2 outputs; AirBox supply via AS-i	AS-i AirBox · 2 x 3/2-way slide valves free from overlapping · Three orientations of the flat cable are possible · AS-i flat cable connection · Version 2.11 and 3.0 with extended addressing mode · Addressing socket · ATEX approval · Group II, category 3D · Only in conjunction with impact protection housing E7000A or equivalent protection · PA / POM / Piercing contacts: CuSn6 surface nickel and tin-plated	1	AC528A
	4 inputs / 1 output ; AirBox supply via AS-i	AS-i AirBox · 5/2-way slide valve free from overlapping · monostable · Three orientations of the flat cable are possible · AS-i flat cable connection · Version 2.11 and 3.0 with extended addressing mode · Addressing socket · ATEX approval · Group II, category 3D · Only in conjunction with impact protection housing E7000A or equivalent protection · PA / POM / Piercing contacts: CuSn6 surface nickel and tin-plated	2	AC546A
	2 inputs / 1 output; AirBox supply via AS-i	AS-i AirBox · 5/2-way slide valve free from overlapping · monostable · Three orientations of the flat cable are possible · Digital inputs · Addressing socket · AS-i profile S-3.F.F · ATEX approval · Group II, category 3D · Only in conjunction with impact protection housing E7000A or equivalent protection · PA / POM / Piercing contacts: CuSn6 surface nickel and tin-plated	1	AC246A
	4 inputs / 2 outputs; AirBox supply via AS-i	AS-i AirBox · 5/2-way bistable slide valve free from overlapping · Three orientations of the flat cable are possible · AS-i flat cable connection · Version 2.11 and 3.0 with extended addressing mode · Addressing socket · ATEX approval · Group II, category 3D · Only in conjunction with impact protection housing E7000A or equivalent protection · PA / POM / Piercing contacts: CuSn6 surface nickel and tin-plated	1	AC551A
	4 inputs / 2 outputs; AirBox supply via AS-i	AS-i AirBox · 5/3-way slide valve free from overlapping · closed · Three orientations of the flat cable are possible · AS-i flat cable connection · Version 2.11 and 3.0 with extended addressing mode · Addressing socket · ATEX approval · Group II, category 3D · Only in conjunction with impact protection housing E7000A or equivalent protection · PA / POM / Piercing contacts: CuSn6 surface nickel and tin-plated	1	AC570A

Pneumatic solutions (screw mounting)

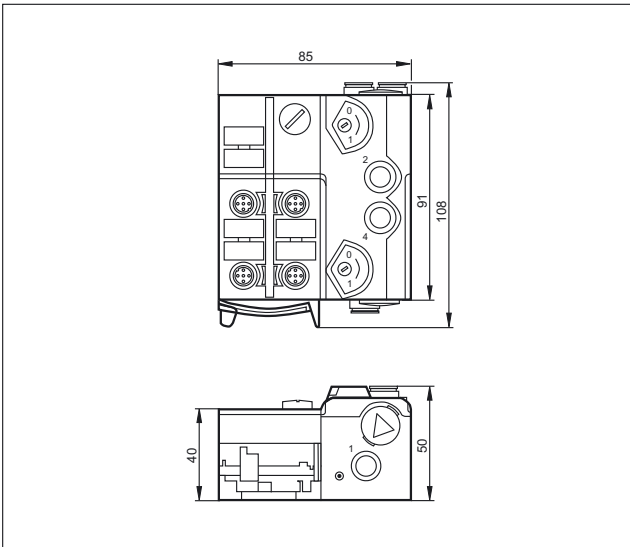
Type	Inputs / outputs	Description	Draw- ing no.	Order no.
	2 x 2 inputs / 2 outputs	AS-i AirBox · Connection to the pneumatic system by tube fittings · Manual override by pressing/releasing or pressing/turning/locking · 2 x 2 digital inputs · 2 pneumatic outputs · Sockets M12 x 1 · housing: PBT / Metal parts: stainless steel / sealing: Viton	3	AC2055
	2 inputs / 1 output NO/NC selectable (monostable)	AS-i AirBox · Connection to the pneumatic system by tube fittings · 1 x 2 or 2 x 1 digital inputs · 1 pneumatic output (NO/NC selectable) · Sockets M12 x 1 · housing: PBT / Metal parts: stainless steel / sealing: Viton	4	AC2057

Accessories pneumatic components

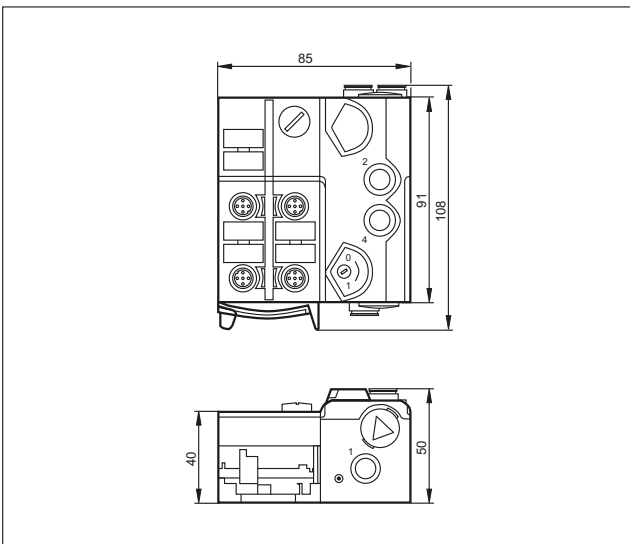
Type	Description	Order no.
	Silencer · Housing materials: connection piece: PP / filter: PE	E75232
	Push-in T-fitting · Housing materials: housing: Nickel-plated brass / PA66 / tooth lock washer: stainless steel	E75227
	Push-in L-fitting · Housing materials: housing: PA66 / release ring: polyoxymethylene / tooth lock washer: stainless steel / form ring: acrylonitrile butadiene caoutchouc	E75228
	Push-in L-fitting · Diameter reduction from Ø8 mm to Ø6 mm · Housing materials: housing: Nickel-plated brass / PA66 / tooth lock washer: stainless steel	E75229
	Sealing plug for AirBox · Housing materials: housing: PA66	E75231

Scale drawings / drawing no. – CAD download: www.ifm.com

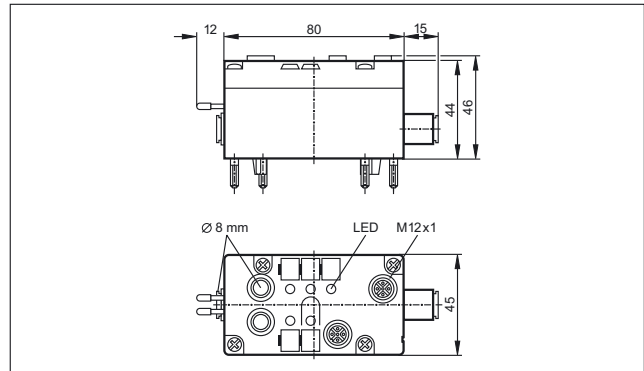
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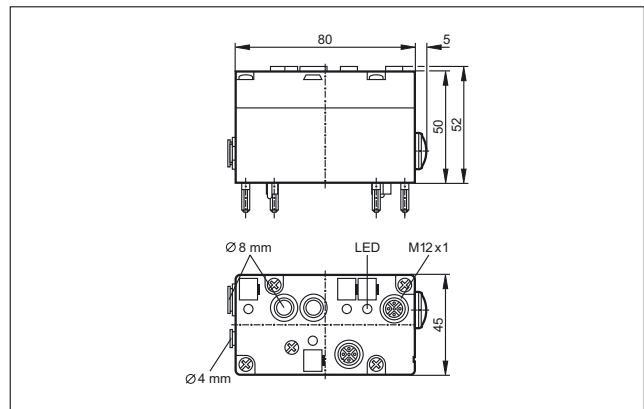
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3



4






AS-Interface sensors

The bus connection is already integrated in the intelligent AS-i sensors. So they can be directly connected to the yellow cable. In addition to the pure sensor information, further diagnostic data are available via the AS-interface, which can be transmitted and evaluated at a low cost.

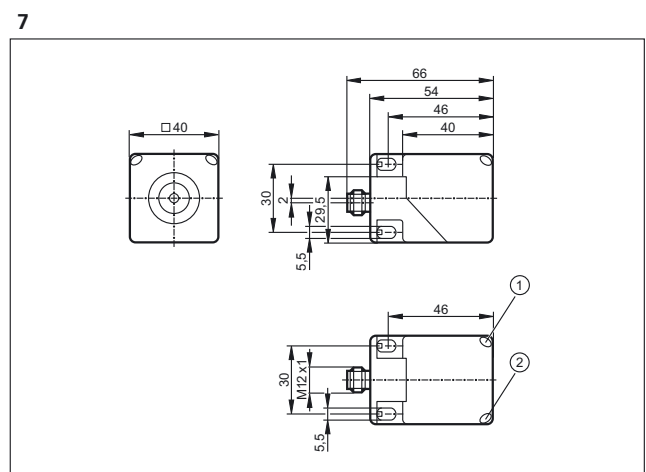
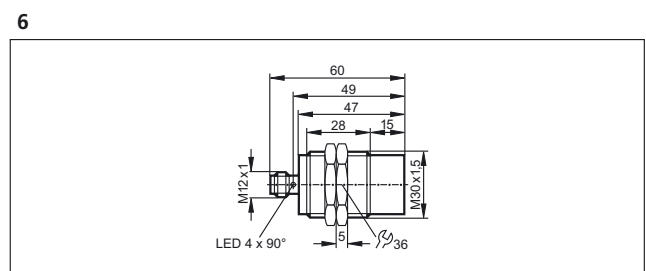
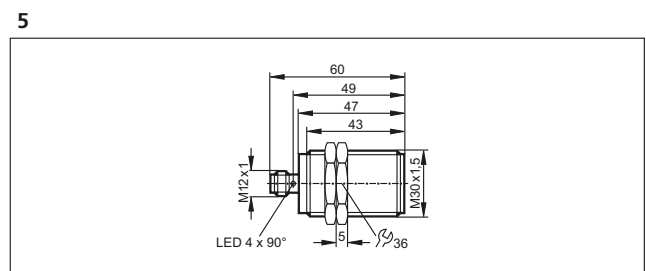
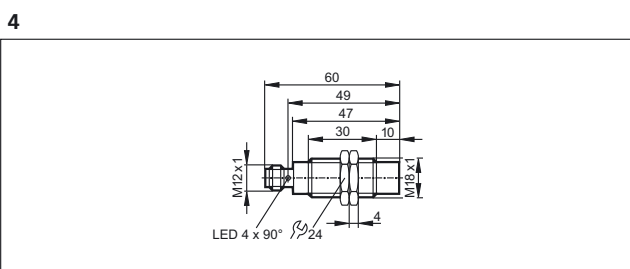
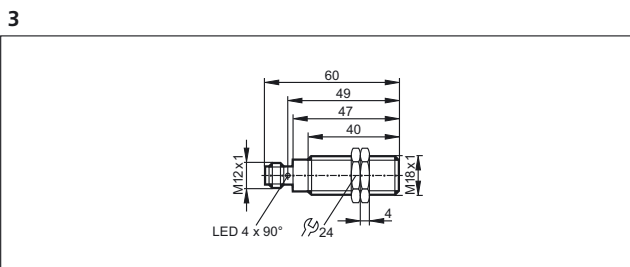
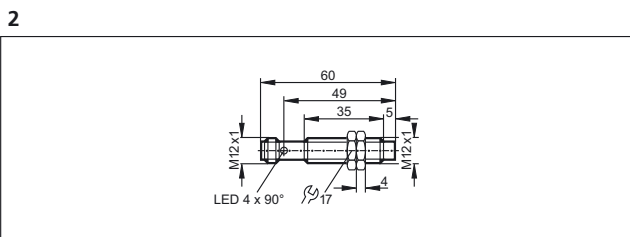
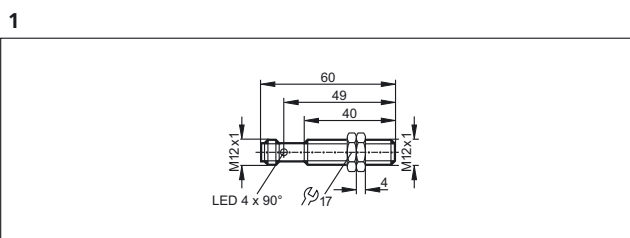
System overview	Page
AS-i sensors	594 - 595
Scale drawings / drawing no. – CAD download: www.ifm.com	595 - 596

AS-i sensors

Type	Description	Draw- ing no.	Order no.
	Inductive sensor · M12 x 1 · Sensing range 4 mm · Gold-plated contacts · Connector, Gold-plated contacts · stainless steel / active face: LCP uncoloured	1	IFC247
	Inductive sensor · M12 x 1 · Sensing range 7 mm · Gold-plated contacts · Connector, Gold-plated contacts · stainless steel / active face: LCP uncoloured	2	IFC248
	Inductive sensor · M18 x 1 · Sensing range 8 mm · Gold-plated contacts · Connector, Gold-plated contacts · threaded sleeve: stainless steel / active face: LCP uncoloured / lock nuts: Brass	3	IGC234
	Inductive sensor · M18 x 1 · Sensing range 12 mm · Gold-plated contacts · Connector, Gold-plated contacts · threaded sleeve: stainless steel / active face: LCP uncoloured / lock nuts: Brass	4	IGC235
	Inductive sensor · M30 x 1.5 · Sensing range 14 mm · Gold-plated contacts · Connector, Gold-plated contacts · stainless steel / active face: LCP uncoloured	5	IIC220
	Inductive sensor · M30 x 1.5 · Sensing range 22 mm · Gold-plated contacts · Connector, Gold-plated contacts · stainless steel / active face: LCP uncoloured	6	IIC221
	Inductive sensor · Sensing range 15 mm · 5 positions of the sensing face selectable · Connector, rotatable, locking · PBT / PPE	7	IM5118
	Temperature transmitter · Analogue value (16 bit value incl. sign) · AS-i profile S-7.3 · Max. medium temperature · 150°C / 302°F (max. 40 min.) · Connector, Gold-plated contacts · stainless steel 316L / 1.4404 / stainless steel / stainless steel / PA	8	TAA131
	Temperature transmitter · Analogue value (16 bit value incl. sign) · AS-i profile S-7.3 · Max. medium temperature · 150°C / 302°F (max. 40 min.) · Connector, Gold-plated contacts · stainless steel 316L / 1.4404 / stainless steel / stainless steel / PA	9	TAA431

Type	Description	Draw- ing no.	Order no.
	Read/write head · With integrated AS-i slave profile 7.4 · M12 connector · rotatable · PA	10	DTA100
	Read head · with integrated AS-i slave profile 7.3 · M12 connector · rotatable · PA	10	DTA101
	Read/write head · With integrated AS-i slave profile 7.4 · M12 connector · 5 positions of the sensing face selectable · rotatable, locking · PA	7	DTA200
	Read head · with integrated AS-i slave profile 7.3 · M12 connector · 5 positions of the sensing face selectable · rotatable, locking · PA	7	DTA201
	Read/write head · With integrated AS-i slave profile 7.4 · M12 connector · rotatable · housing: PPE / Metal parts: diecast zinc / brass nickel-plated	11	DTA300
	Read head · DTSLF DCROASUS01 · with integrated AS-i slave profile 7.3 · M12 connector · rotatable · housing: PPE / Metal parts: diecast zinc / brass nickel-plated	11	DTA301

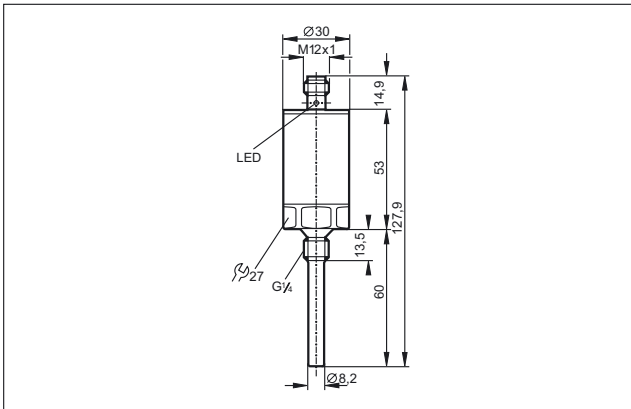
Scale drawings / drawing no. – CAD download: www.ifm.com



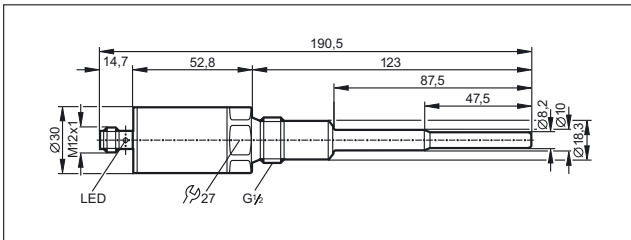
1: LED yellow, 2: LED green

Scale drawings / drawing no. – CAD download: www.ifm.com

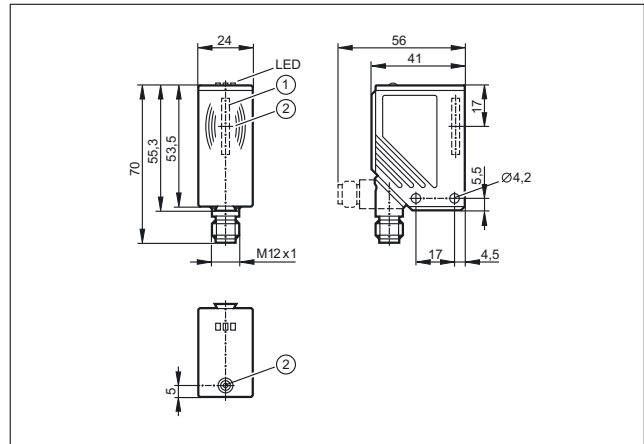
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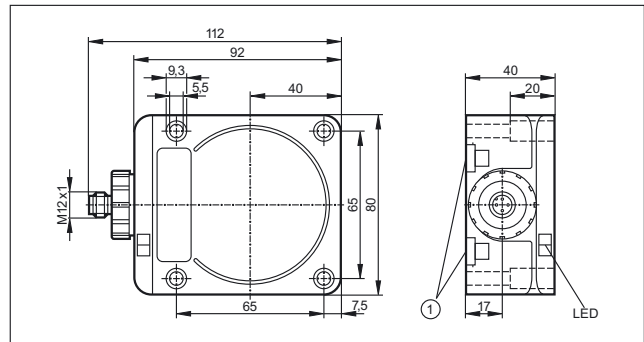


10



1: integrated antenna, 2: tag positioning mark (middle of the antenna)

11



1: Mounting on DIN rail





AS-Interface devices for valves and valve actuators

The valve controls for pneumatic quarter-turn actuators can be directly mounted to most quarter-turn actuators by means of the standardised mechanical interface. They contain two inductive sensors for position feedback, one or two outputs for the control of the pilot valve, and an AS-i slave.

System overview	Page
Sensors with ATEX approval 3D and / or 3G	598
Sensors for industrial applications, AS-i system	598 - 599
Wiring diagrams	599
Scale drawings / drawing no. – CAD download: www.ifm.com	599 - 600

Sensors with ATEX approval 3D and / or 3G

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f AC / DC [Hz]	I _{load} AC / DC [mA]	Draw- ing no.	Order no.
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M12 connector · Output function transistor PNP · 2 inputs / 2 outputs · Connector groups 144, 146

	55 x 60 x 35	4	PBT	26.5...31.6	IP 5x	–	–	1	AC327A
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M12 connector · Output function transistor PNP · 2 inputs / 1 output · Connector groups 144, 146

	55 x 60 x 35	4	PBT	26.5...31.6	IP 5x	–	–	1	AC336A
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Sensors for industrial applications, AS-i system

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f AC / DC [Hz]	I _{load} AC / DC [mA]	Draw- ing no.	Order no.
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M12 connector · Output function transistor PNP · 2 inputs / 1 output · Connector group --


	55 x 60 x 35	4 nf	PBT (Pocan)	26.5...31.6	IP 67	–	–	2	AC2310
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Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f AC / DC [Hz]	I _{load} AC / DC [mA]	Drawing no.	Order no.
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M12 connector · 1 x 2 inputs · Wiring diagram no. 1 · Connector groups 10, 12, 13, 18, 19, 20, 21, 117, 121, 122, 147, 149

	55 x 60 x 35	4 nf	PBT (Pocan)	26.5...31.6	IP 67	-	-	3	AC2315
---	--------------	------	-------------	-------------	-------	---	---	---	--------

M12 connector · Output function transistor PNP · 2 inputs / 1 output · Connector groups 8, 10, 18, 20, 40, 117, 118, 125, 126, 147

	55 x 60 x 35	4 nf	PBT (Pocan)	26.5...31.6	IP 67	-	-	2	AC2316
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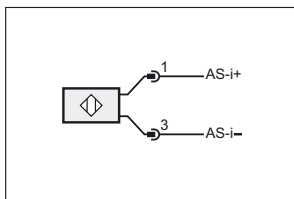
M12 connector · Output function transistor PNP · 2 inputs / 2 outputs · Connector groups 8, 10, 18, 20, 40, 117, 118, 125, 126, 147

	55 x 60 x 35	4 nf	PBT (Pocan)	26.5...31.6	IP 67	-	-	2	AC2317
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f = flush / nf = non flush

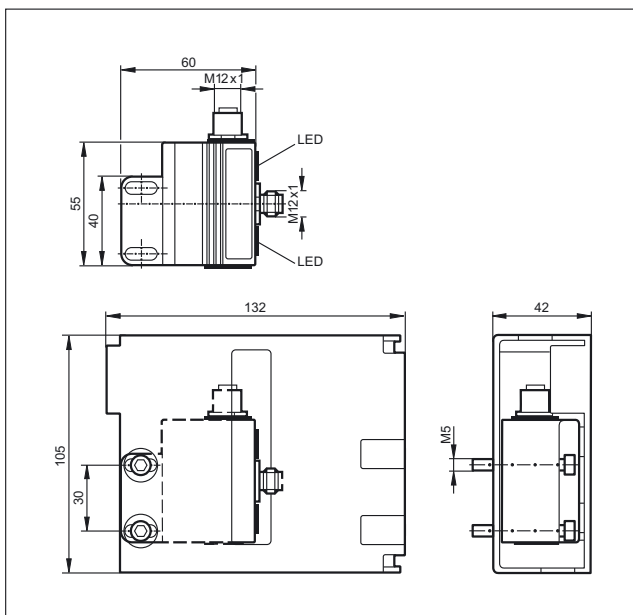
Wiring diagrams

1

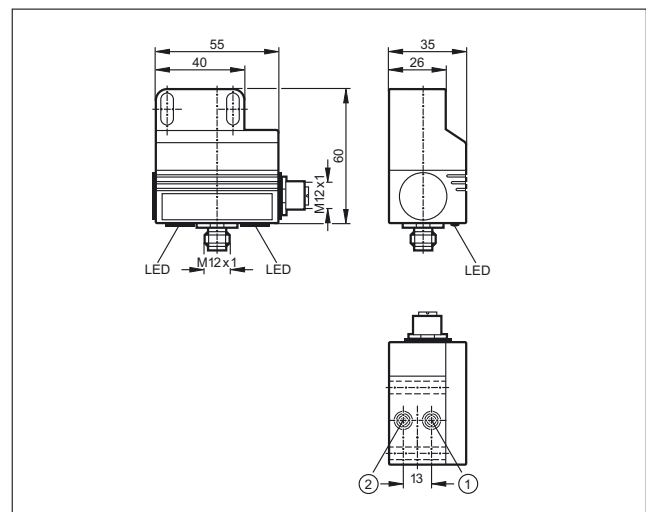


Scale drawings / drawing no. – CAD download: www.ifm.com

1



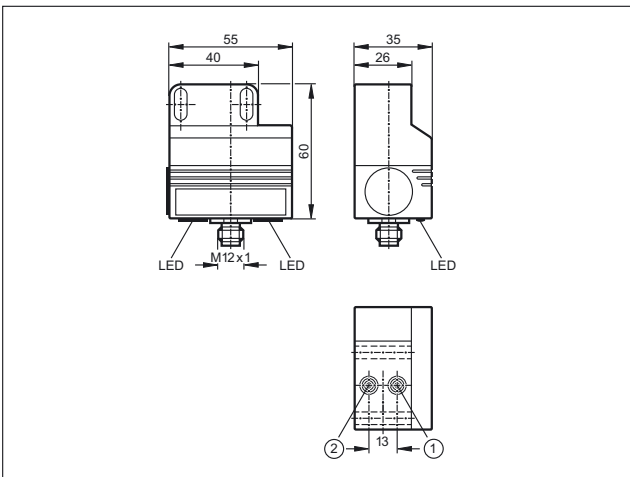
2



1: sensor 1, 2: sensor 2

Scale drawings / drawing no. – CAD download: www.ifm.com

3



1: sensor 1, 2: sensor 2









AS-Interface expansion

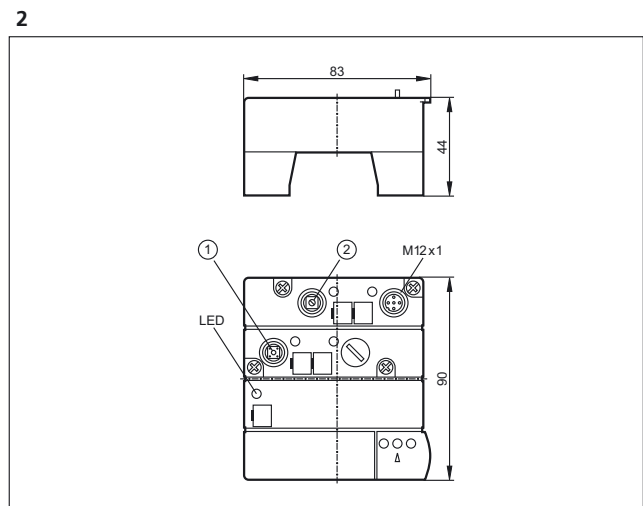
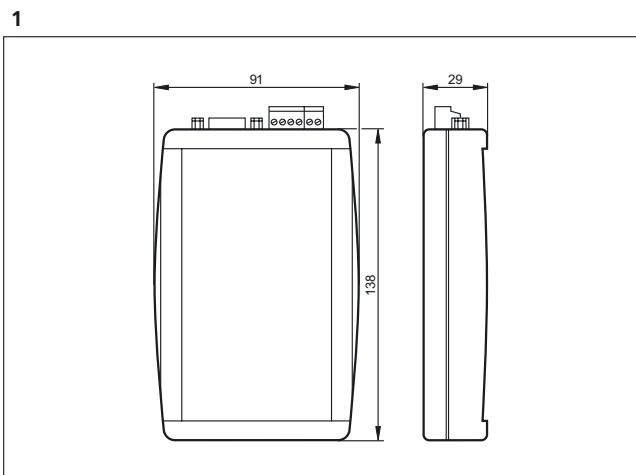
There are different ways to extend the AS-i cable. The specified one hundred metres can be extended up to 1000 metres in extreme cases.

System overview	Page
AS-i repeaters	602
Scale drawings / drawing no. – CAD download: www.ifm.com	602

AS-i repeaters

Type	Description	Drawing no.	Order no.
	AS-i repeater · Extension of the AS-i network by another 100 m · One additional AS-i power supply necessary · Combicon connection · PA 6.6	–	AC2225
	Passive AS-i bus termination · Extension of the cable to a maximum of 200 m without additional repeater · Improvement of the signal quality · Monitoring of the supply voltage by means of LEDs	–	AC1147
	eASI-Tester · Local diagnosis of the AS-i network · Creation of test reports for AS-i networks · User-friendly diagnosis and evaluation via the connected PC	1	AC1145
	AS-i tuner diagnostic module · Extension of the cable to a maximum of 200 m without additional repeater · Monitoring of the message quality · Display of critical states by "traffic light" LEDs · PBT	2	AC1146

Scale drawings / drawing no. – CAD download: www.ifm.com



1: tune button, 2: mode selector









AS-Interface Safety at Work


The sophisticated AS-i technology and the extended diagnostic possibilities provide high reliability and machine uptime. "Safety at Work" is the extension of the AS-interface by safety-related components. Safety components up to the highest control category 4 to EN 954-1, SIL 3 to IEC 61508 and EN ISO 13849 - 1 / PL e can be connected to AS-i.

System overview	Page
Safety at Work	604 - 606
Accessories Safety at Work	606 - 607
AS-i manuals	607
Scale drawings / drawing no. – CAD download: www.ifm.com	607 - 610





Safety at Work






Type	Description	Drawing no.	Order no.
	AS-i safety monitor · Basic version · 1-channel · Configuration and setup by configuration software ASIMON · Screw terminal · polyamide black · Complies with the requirements: ISO 13849-1: PL e · IEC 61508: SIL 3	1	AC001S
	AS-i safety monitor · Basic version · 2-channel · Configuration and setup by configuration software ASIMON · Screw terminal · polyamide black · Complies with the requirements: ISO 13849-1: PL e · IEC 61508: SIL 3	1	AC002S
	AS-i safety monitor · Extended functionality · 1-channel · Configuration and setup by configuration software ASIMON · Screw terminal · polyamide black · Complies with the requirements: ISO 13849-1: PL e · IEC 61508: SIL 3	1	AC003S
	AS-i safety monitor · Extended functionality · 2-channel · Configuration and setup by configuration software ASIMON · Screw terminal · polyamide black · Complies with the requirements: ISO 13849-1: PL e · IEC 61508: SIL 3	1	AC004S
	AS-i safety monitor · Extended functionality and integrated safe slave for triggering a safe AS-i output · 2-channel · Configuration and setup by configuration software ASIMON V3.0 · Screw terminal · polyamide black · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3	2	AC032S
	AS-i safety monitor · 2 safe semi-conductor outputs · SIL 3 to EN 62061, IEC 61508 / SIL 3 and EN ISO 13849 - 1 / PL e · Chip card to save the configuration data · Configuration and setup by configuration software ASIMON V3 G2 · USB 2.0 interface · Chip card and Combicon screw terminals supplied with the device · Screw terminal	3	AC041S
	Safe active AS-i module · Performance Level e to EN ISO 13849-1 et IEC 61508 / SIL 3 for the connection of mechanical contacts · Combicon connection · PA · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3	4	AC009S
	Safe active AS-i output module · SIL 3 to EN 62061, IEC 61508 / SIL 3 and EN ISO 13849 - 1 / PL e · for the safe triggering of actuators · Combicon connection · PA · Complies with the requirements: ISO 13849-1: PL e · IEC 61508: SIL 3	5	AC030S
	Safe active AS-i module · Connection via M12x1 sockets or cage clamps · For connection of an electro-sensitive protective equipment (ESPE) type 4 to EN 61496-1 · PA 6 · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3	6	AC007S

Type	Description	Draw- ing no.	Order no.
	AS-i Safety at Work · Safe AS-i input module 2SI - 2LO · Addressing socket · Three orientations of the flat cable are possible · Sockets M12 x 1 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 62061: SILcl 3	7	AC505S
	AS-i Safety at Work · Safe AS-i input module 4SI / 2DO T / 2LO · Addressing socket · Three orientations of the flat cable are possible · Sockets M12 x 1 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated · Complies with the requirements: ISO 13849-1: PL d · IEC 62061: SILcl 2	7	AC506S
	Safe active AS-i ClassicLine module · IR addressing possible · Performance Level e to EN ISO 13849-1 for the connection of mechanical contacts · Sockets M12 x 1 · PBT · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3	8	AC006S
	Illuminated E-STOP · front mounting · reset by turning · 2 NC contacts / 1 red LED · fool-proof E-STOP to EN ISO 13850	–	E7007S
	Illuminated E-STOP with integrated AS-i connection · fool-proof E-STOP to EN ISO 13850 · Pull to reset · AS-i interface via AS-i flat cable IP 67 · PC GF20 · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3	9	AC010S
	Key-release E-STOP with integrated AS-i connection · Connector M12 x 1 · AS-i interface via AS-i flat cable IP 67 · fool-proof E-STOP to EN ISO 13850 · Reset by key operation · PC GF20 · Complies with the requirements: ISO 13849-1: PL e · IEC 61508: SIL 3	10	AC011S
	safe AS-i e-stop operating unit with integrated AS-i connection · AS-i interface via M12 x 1 connector · fool-proof E-STOP to EN ISO 13850 · Pull to reset · interchangeable button inserts	11	AC012S
	Safe active AS-i ClassicLine module · AS-i version 2.1 · IR addressing possible · Control category 4 according to EN954-1 · For the connection of fail-safe inductive sensors of the control category 4 · Sockets M12 x 1 · PBT · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3	–	AC016S
	AS-i safety PCB · Connection of mechanical contact and LED components · Certification to ISO 13849-1: PL e and IEC 61508 / SIL 3 · Complies with the requirements: · IEC 61508: SIL 3	12	AC015S
	Fail-safe inductive sensor · M12 connector, Gold-plated contacts · PPE / diecast zinc · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3	13	GM504S
	Fail-safe inductive sensor · M12 connector, Gold-plated contacts · PPE / diecast zinc · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3	13	GM505S
	Fail-safe inductive sensor · M18 x 1 · M12 connector, Gold-plated contacts · high-grade stainless steel / PBT · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3	14	GG505S
	Fail-safe inductive sensor · M30 x 1.5 · M12 connector, Gold-plated contacts · PEEK / high-grade stainless steel / O-ring: EPDM · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3	15	GI505S
	Safety switch with guard locking · Normally closed principle · Rotatable actuating head made of metal · Mechanical release on the front · Supply via AS-i / solenoid supply ext. from 24 V DC · M12 connector · thermoplastic reinforced glass-fibre	16	AC901S
	Safety switch with guard locking · Normally open principle · Rotatable actuating head made of metal · Mechanical release on the front · Supply via AS-i / solenoid supply ext. from 24 V DC · M12 connector · thermoplastic reinforced glass-fibre	16	AC902S
	Safety switch with guard locking · Normally closed principle · Rotatable actuating head made of metal · Mechanical release on the front · Supply via AS-i / solenoid supply from AS-i · M12 connector · thermoplastic reinforced glass-fibre	17	AC903S


Type	Description	Draw- ing no.	Order no.
	Safety switch with guard locking · Normally open principle · Rotatable actuating head made of metal · Mechanical release on the front · Supply via AS-i / solenoid supply from AS-i · M12 connector · thermoplastic reinforced glass-fibre	17	AC904S

Accessories Safety at Work

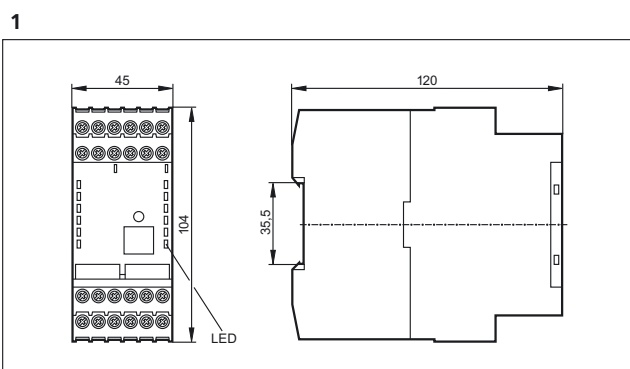
Type	Description	Order no.
	AS-i Safety at Work · Programming software for AS-i safety monitor AC001S / AC002S / AC003S / AC004S / AC032S · Version 3.0 · Configuration, set-up and diagnostics of the AS-i safety monitor	E7040S
	Software ASIMON V3 G2 · Configuration, set-up and diagnostics of the AS-i safety monitor · AC041S	E7050S
	USB interface cable for the connection of the safety monitor AC041S to the PC · cable length 1.8 m · 1.8 m	E7051S
	Chip card to save the configuration data of the AS-i safety monitor AC041S · 256 K	E7052S
	Safe contact expander without delay · 2 independent channels · 4 contact blocks (NO) per channel · 1 feedback circuit (NC) per channel · Mounting on DIN rail · Screw terminal	E7053S
	Connection cable PC / AS-i safety monitor · Parameter setting cable PC / AS-i safety monitor · Western connector RJ 45 8 poles / D-Sub socket 9 poles · 2.5 m	E7001S
	Connection cable AS-i safety monitor / AS-i safety monitor · Download cable AS-i safety monitor / AS-i safety monitor · Western connector RJ 45 8 poles · 0.3 m	E7002S
	EMERGENCY STOP label IP66 4 languages D,GB,F,I · EMERGENCY STOP label 4 languages for a safe illuminated EMERGENCY STOP button with integrated AS-i interface AC010S / AC011S / AC012S · 50 x 50 mm	E7003S
	EMERGENCY STOP protective collar · EMERGENCY STOP protective collar for safe E-STOP AC010S / AC011S / AC012S · Housing materials: PC GF20 RAL 1004	E7004S
	bridging plug for safety modules · Housing materials: PUR	E7005S
	Adapter plug · straight · M20 · M12 · M12 connector · 0.07 m · Housing materials: polyamide	E7006S
	Bolt for safety guards · for heavy doors · For right or left hinged doors without escape release · No additional door handle required · screw mounting onto common aluminium profiles and machine panels · Housing materials: diecast aluminium yellow	E7901S

Type	Description	Order no.
	Bolt for safety guards · for heavy doors · For right or left hinged doors without escape release · No additional door handle required · screw mounting onto common aluminium profiles and machine panels · Housing materials: glass-fibre reinforced plastic yellow	E7902S
	Actuator S standard straight · With rubber bush, overtravel 5 mm · Suitable for a maximum pull force of 2500 N for the door switches AC901S - AC904S	E7903S
	Actuator S standard angled · With rubber bush, overtravel 5 mm · Suitable for a maximum pull force of 2500 N for the door switches AC901S - AC904S	E7904S
	Hinged actuator left / right · For left or right hinged doors, overtravel 5 mm	E7905S
	Hinged actuator top / bottom · For top and bottom hinged doors, overtravel 5 mm	E7906S

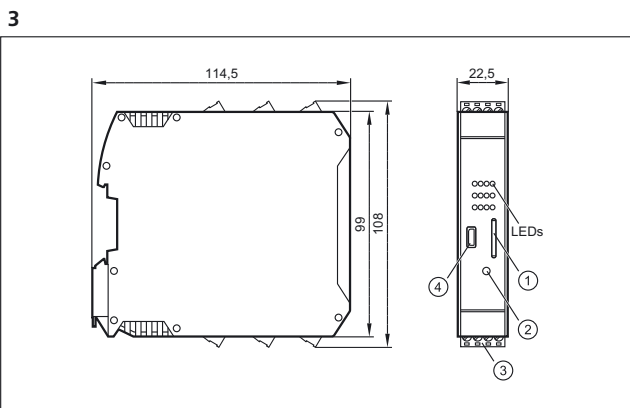
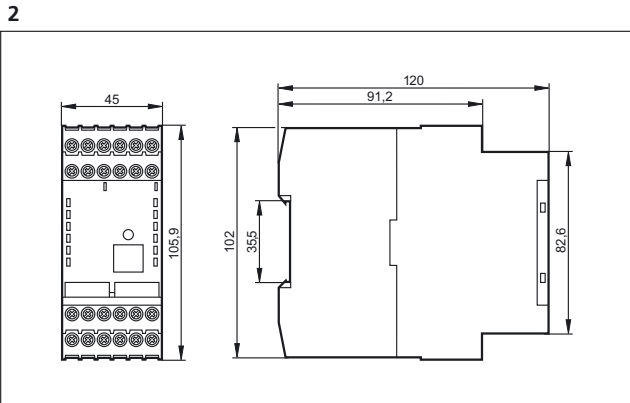
AS-i manuals

Type	Description	Order no.
	ecolog asi system · AS-Interface Manual (German)	AC0115
	ecolog asi system · AS-Interface Manual (English)	AC0116
	AS-i Manual – Tips and tricks for users · German version	AC0350
	AS-i Manual – Tips and tricks for users · English version	AC0351
	AS-i Manual – Tips and tricks for users · French version	AC0352

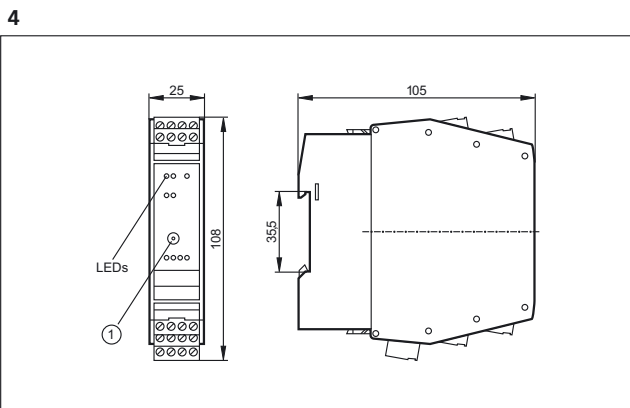
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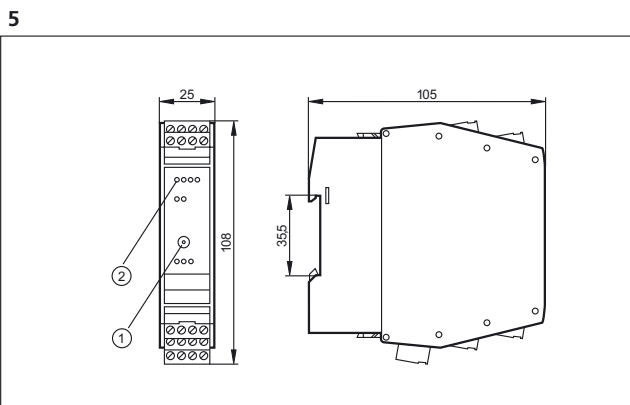
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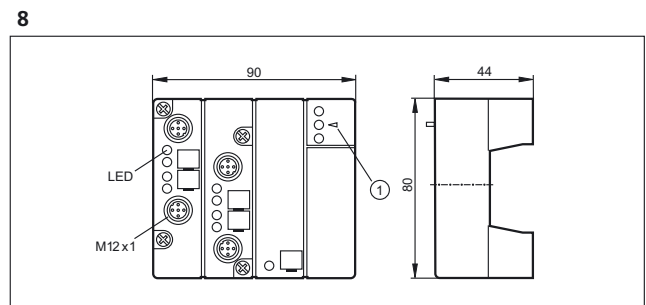
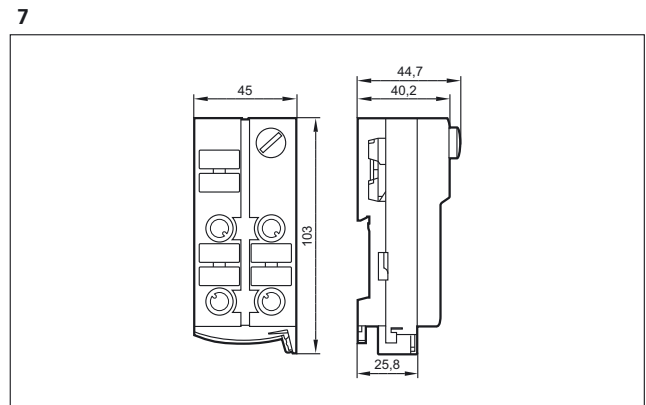
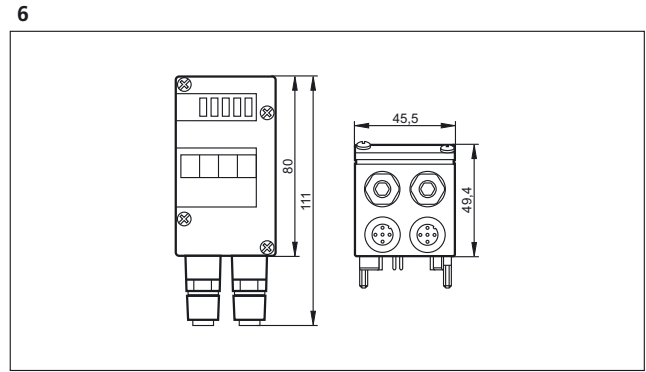
1: Chip card, 2: service button, 3: Combicon connector with screw terminals, 4: Micro USB interface



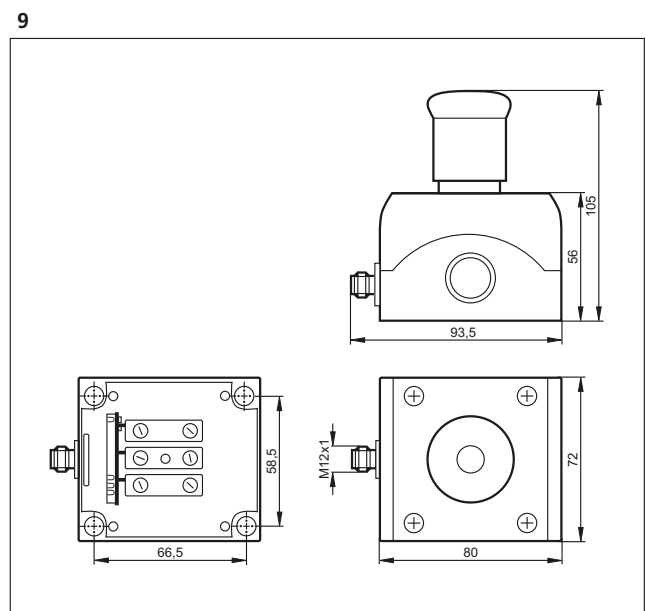
1: Addressing socket



1: Addressing socket, 2: LED

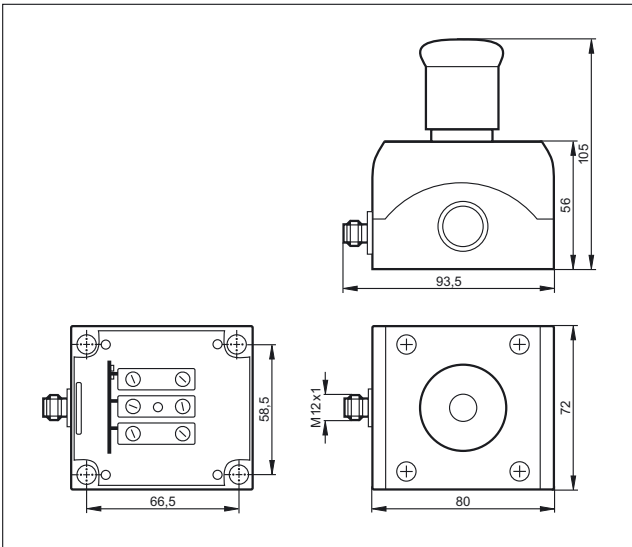


1: fixture infrared adapter

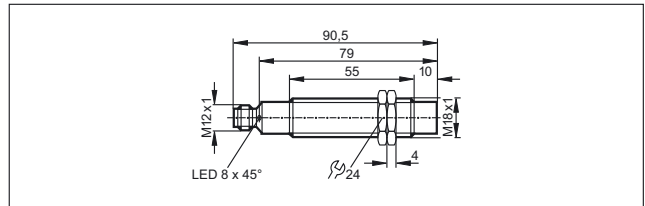


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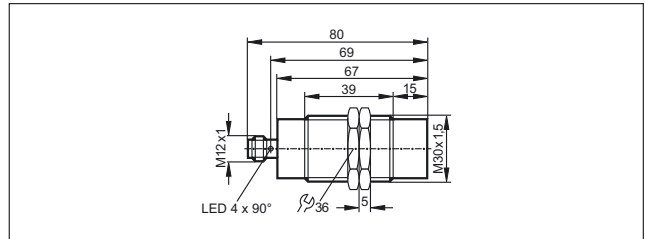
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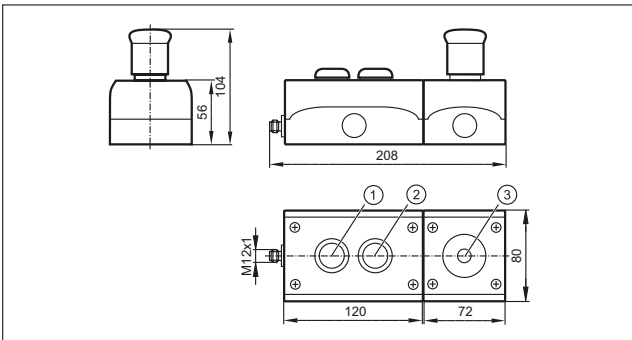
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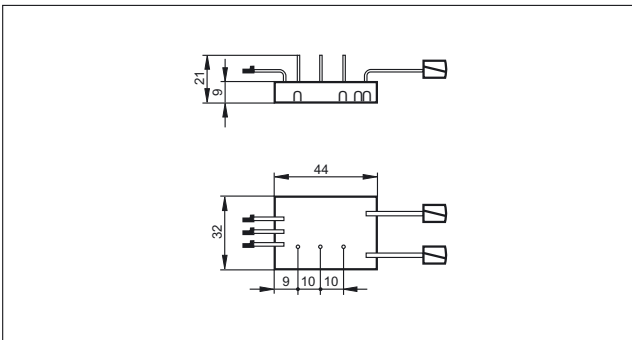
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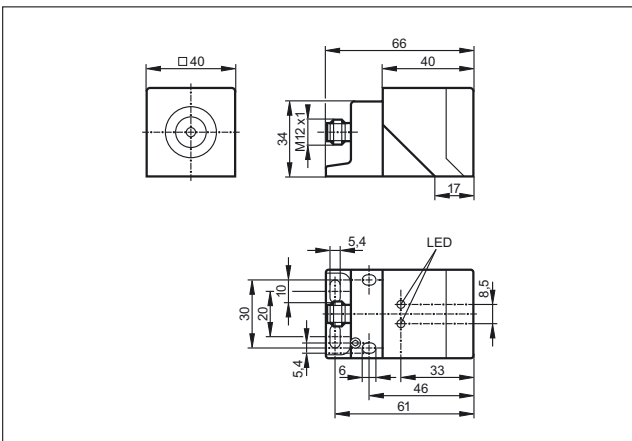
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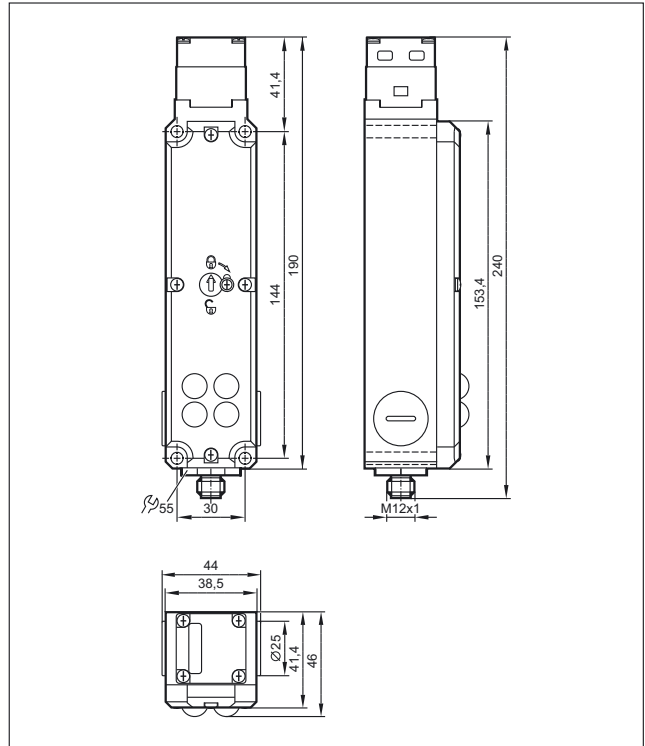
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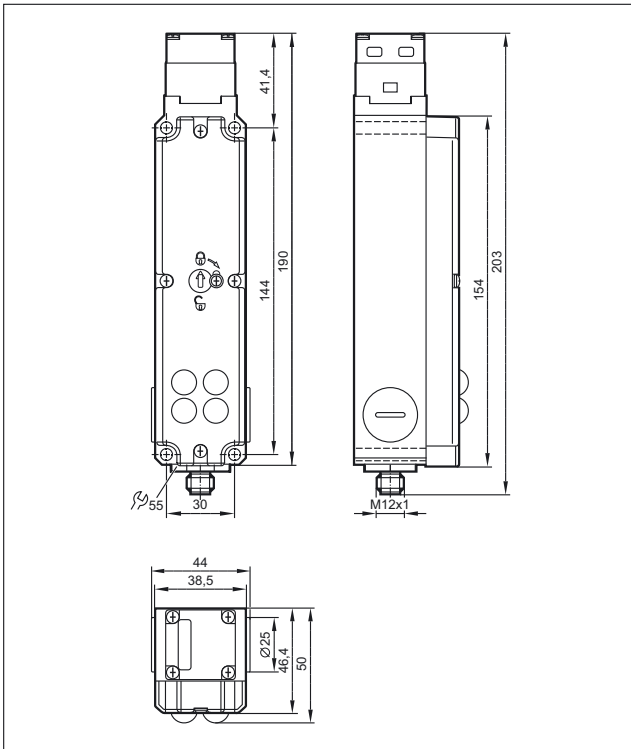
13



16



17





For more transparency in the system



Multicode reader type O2I – the compact all-rounder for optical identification tasks.



Multicode readers

ifm multicode readers handle not only the ECC200 Data Matrix code, but also many more 2D and 1D codes. Code reading is not dependent on the orientation of the code to the sensor. The industrially compatible mounting and wiring technology as well as the standardised process interfaces enable easy and quick integration into the industrial control system.

There is a wide range of applications for multicode readers in industry – from product tracking and production control to product identification. They are used for the automotive and food industries, conveying, the production of solar installations as well as machine tools and print machines.

RF identification systems

ifm offers different RFID systems using different frequencies, ranges, interfaces and data volumes.

LF 125 kHz system with AS-Interface

ifm supplies the first RFID system for AS-Interface worldwide. Up to 31 read / write heads can be connected to one AS-i master. Antenna, electronics and AS-Interface are integrated in a compact housing.





LF 125 kHz / HF 13.56 MHz system with different fieldbus interfaces

The RFID evaluation units DTE10x with integrated fieldbus interfaces and web server is widely used in production to mark tools, for quality assurance, to monitor production steps, in conveying and in automation technology. The antenna concept guarantees easy and quick connection of the LF and HF RFID antennas to the evaluation unit by means of M12 connectors and standardised connection cables of up to 20 metres.

You will find an overview of all connection cables in the chapter "Connection technology".

UHF system with Ethernet

As components of the UHF system platform, the read / write units DTE800 and DTE900 are compliant with the UHF bands in Europe and the USA respectively. The data transmission and parameter setting are carried out via Ethernet. The ultra low and low range antennas achieve selectivities of a few centimetres. The mid range antenna is chosen for applications in the near / far field with reading ranges of up to 2 m. The wide range antenna attains reading ranges of up to 10 m.

	RFID 125 kHz	614 - 619
	RFID 13.56 MHz	620 - 623
	RFID UHF	624 - 627
	1D/2D code readers	628 - 633







RFID 125 kHz



RFID systems based on 125 kHz for production and conveying technology, identification of workpiece carriers and products.

- System DTS 125 with AS-Interface
- System DTE 100 with Profibus DP
- System DTE 101 with Profinet
- System DTE 102 with Ethernet/IP








System overview	Page
RFID system 125 kHz with AS-Interface	614 - 615
ID tags 125 kHz for system DTS 125	615
Handheld readers for system DTS 125	616
Fixing components	616
RFID system DTE 101 with ProfiNet	616
DTE102 RFID system with EtherNet/IP	617
RFID system DTE 100 with Profibus DP	617
DTE104 RFID system with Ethernet TCP/IP	617
RFID antennas 125 kHz for system DTE100, DTE101, DTE102, DTE104	617
RFID tags 125 kHz for antenna ANT512	617
Accessories DTE 100	618
Connection technology	618
Scale drawings / drawing no. – CAD download: www.ifm.com	618 - 619

RFID system 125 kHz with AS-Interface


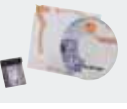

Type	Dimensions [mm]	Travel speed read / write [m/s]	Process interface	Drawing no.	Order no.
M12 connector · Connector groups 8, 10, 18, 20, 117, 118, 147					
	55 x 24 x 41	read: ≤ 0.5 (distance to the ID tag 15 mm) write: only static	AS-i	1	DTA100
	55 x 24 x 41	read: ≤ 0.5 (distance to the ID tag 15 mm)	AS-i	1	DTA101
	40 x 40 x 54	read: ≤ 0.5 (distance to the ID tag 30 mm) write: only static	AS-i	2	DTA200

Type	Dimensions [mm]	Travel speed read / write [m/s]	Process interface	Draw- ing no.	Order no.
M12 connector · Connector groups 8, 10, 18, 20, 117, 118, 147					
	40 x 40 x 54	read: ≤ 0.5 (distance to the ID tag 30 mm)	AS-i	2	DTA201
	92 x 80 x 40	read: ≤ 0.5 (distance to the ID tag 40 mm) write: only static	AS-i	3	DTA300
	92 x 80 x 40	read: ≤ 0.5 (distance to the ID tag 40 mm)	AS-i	3	DTA301






ID tags 125 kHz for system DTS 125

Type	Description	Order no.
	ID tag · ID-TAG/M5x16.5/01 · M5 x 16.5 mm · Screw mounting · Housing materials: PA black (RAL 9005)	E80301
	ID tag · ID-TAG/TRIANGLE HOUSING/01 · with ID tag E80301 · Housing materials: PBT orange (RAL 2003) / PA black (RAL 9005)	E80302
	ID tag · ID-TAG/M18x1/01 · M18 x 1 · Screw mounting · in metal · Housing materials: threaded sleeve: PBT orange	E80311
	ID tag · ID-TAG/D12x2/01 · Ø 12 x 2 mm · Housing materials: PPS black	E80312
	ID tag · ID-TAG/D20x2.15/01 · Ø 20 x 2.15 mm · Housing materials: polycarbonate black	E80317
	ID tag · ID-TAG/D30x2.15/01 · Ø 30 x 2.15 mm · Housing materials: polycarbonate black	E80318
	ID tag · ID-TAG/D50x2.2/01 · Ø 50 x 2.2 mm · Housing materials: polycarbonate black	E80319
	ID tag · ID-TAG/D26x4/01 · Ø 26 x 4 mm · Housing materials: PA High Temperature	E80322
	ID tag · ID-TAG/ISO-Card/01 · 54 x 86 x 1 mm · Housing materials: PVC white	E80320


Handheld readers for system DTS 125

Type	Description	Order no.
	RFID Handheld Reader USB · suitable for use in PCs or notebooks · 125 kHz · 1.8 m · Housing materials: PS	E80321
	RFID Handheld Reader CF Card · suitable for use in handheld PCs, pocket PCs or PDAs with CompactFlash interface · 125 kHz	E80323
	RFID Handheld Reader RS-232 · suitable for use in PCs or notebooks · 125 kHz · Housing materials: PS	E80324

Fixing components

Type	Description	Order no.
	Angle bracket · Housing materials: stainless steel	E80304
	Mounting set · Clamp mounting · aluminium profile · for type OC · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: diecast zinc / Cube: diecast zinc	E20901
	Mounting bracket · with integrated snap-on rail · for type IDC · Housing materials: stainless steel	E10730
	Mounting set · Clamp mounting · aluminium profile · for type OC · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: diecast zinc / Cube: diecast zinc	E20901
	Dovetail clamp · for type DTS, O4, O5 · Housing materials: AlMgSi0.5	E21088


RFID system DTE 101 with ProfiNet

Type	Description	Draw- ing no.	Order no.
Type DTE1 · M12 connector			
	RFID evaluation unit · for up to 4 read/write heads type ANT41x/ANT51x · Housing materials: Upper part: PA Grivory GV-5H orange / Upper part: TPE / lower part: GD-AlSi12	4	DTE101

DTE102 RFID system with EtherNet/IP

Type	Description	Drawing no.	Order no.
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Type DTE1 · M12 connector

	RFID evaluation unit · for up to 4 read/write heads type ANT41x/ANT51x · Housing materials: Upper part: PA Grivory GV-5H orange / Upper part: TPE / lower part: GD-AISI12	4	DTE102
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RFID system DTE 100 with Profibus DP

Type	Description	Drawing no.	Order no.
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Type DTE1 · M12 connector

	RFID evaluation unit · for up to 4 read/write heads type ANT41x/ANT51x · Housing materials: Upper part: PA Grivory GV-5H orange / Upper part: TPE / lower part: GD-AISI12	5	DTE100
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DTE104 RFID system with Ethernet TCP/IP


Type	Description	Drawing no.	Order no.
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Type DTE1 · M12 connector

	RFID evaluation unit · for up to 4 read/write heads type ANT41x/ANT51x · Housing materials: Upper part: PA Grivory GV-5H orange / Upper part: TPE / lower part: GD-AISI12	4	DTE104
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RFID antennas 125 kHz for system DTE100, DTE101, DTE102, DTE104

Type	Description	Drawing no.	Order no.
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	Read/write head · M12 connector · 5 positions of the sensing face selectable · Housing materials: housing: PA / Metal parts: stainless steel	2	ANT512
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RFID tags 125 kHz for antenna ANT512





Type	Description	Order no.
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	ID tag · ID-TAG/30X2.5/05 - 256 bit · Ø 30 x 2.5 mm · Housing materials: PA 6 black	E80360
	ID tag · ID-TAG/30X2.5/05 - 2048 bit · Ø 30 x 2.5 mm · Housing materials: PA 6 black	E80361

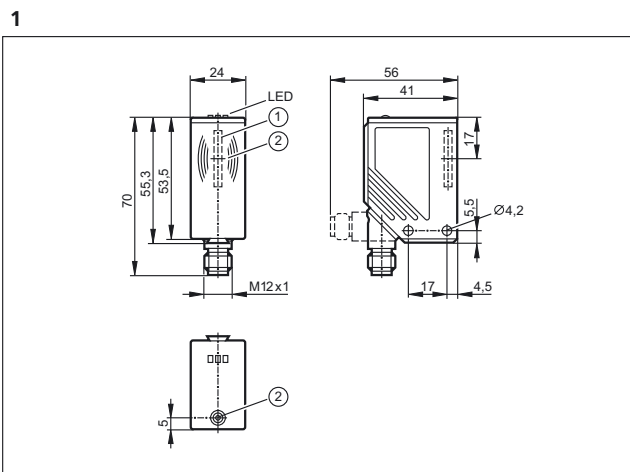
Accessories DTE 100

Type	Description	Order no.
	Terminating resistor plug · straight · Free from silicone · Free from halogen · Gold-plated contacts · Housing materials: PUR	E12315
	Jumper · straight / straight · Free from halogen · Gold-plated contacts · 10 m · Housing materials: PUR	E12317
	Cable plug · straight · Free from halogen · Gold-plated contacts · M12 connector · 10 m · Housing materials: PUR	E12319
	Socket · straight · Free from halogen · Gold-plated contacts · M12 connector · 10 m · Housing materials: PUR	E12321

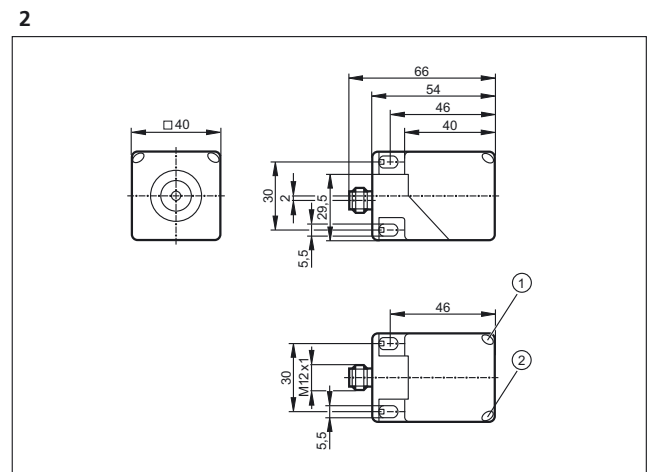
Connection technology

Type	Description	Order no.
	Jumper · straight / straight · Ethernet · Cross-over patch cable · 2 m · Housing materials: PUR / PC	E11898
	Jumper · straight / straight · Ethernet · Patch cable · 2 m · Housing materials: PUR / PC	E12090
	Jumper · straight / straight · Ethernet · Cross-over patch cable · 10 m · Housing materials: PUR / PC	E12204
	Jumper · straight / straight · Ethernet · Cross-over patch cable · 20 m · Housing materials: PUR / PC	E12205

Scale drawings / drawing no. – CAD download: www.ifm.com



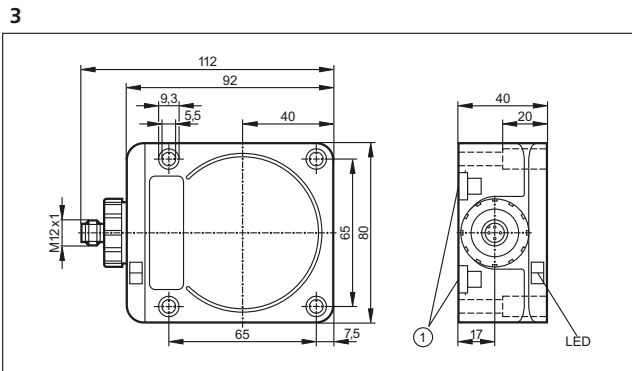
1: integrated antenna, 2: tag positioning mark (middle of the antenna)



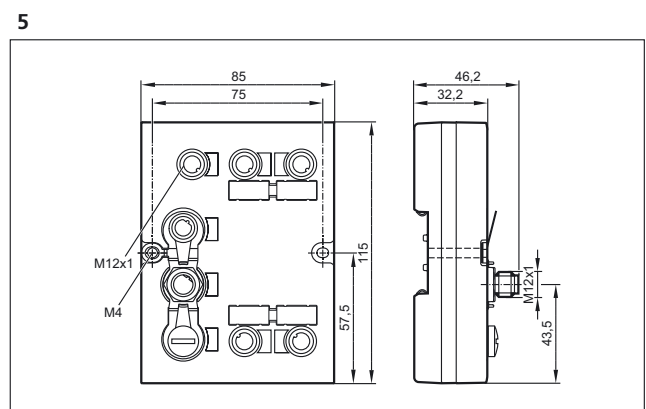
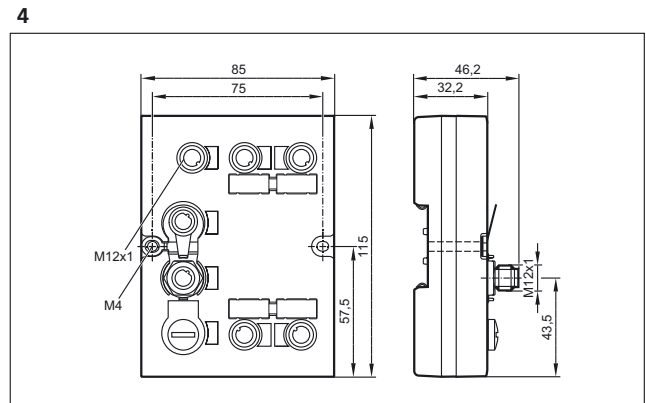
1: LED yellow, 2: LED green

Product selectors and further information can be found at: www.ifm.com

Scale drawings / drawing no. – CAD download: www.ifm.com



1: Mounting on DIN rail





RFID 13.56 MHz

Flexible system for production, assembly and handling technology. Ensures fast data transmission and supports the ISO 15693 standard.


- DTE100 system with Profibus DP
- DTE101 system with Profinet
- DTE102 system with EtherNet/IP
- DTE104 system with EtherNet TCP/IP

System overview	Page
DTE104 RFID system with Ethernet TCP/IP	620
DTE102 RFID system with EtherNet/IP	620
RFID system DTE 100 with Profibus DP	621
RFID system DTE 101 with ProfiNet	621
RFID antennas 13.56 MHz for system DTE100, DTE101, DTE102, DTE104	621
RFID tags 13.56 MHz for antennas ANT513, ANT410, ANT411, ANT430, ANT431	621 - 622
Accessories DTE 100	622
Connection technology	622 - 623
Scale drawings / drawing no. – CAD download: www.ifm.com	623

DTE104 RFID system with Ethernet TCP/IP

Type	Description	Draw- ing no.	Order no.
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Type DTE1 · M12 connector

	RFID evaluation unit · for up to 4 read/write heads type ANT41x/ANT51x · Housing materials: Upper part: PA Grivory GV-5H orange / Upper part: TPE / lower part: GD-ALSi12	1	DTE104
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DTE102 RFID system with EtherNet/IP

Type	Description	Draw- ing no.	Order no.
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Type DTE1 · M12 connector

	RFID evaluation unit · for up to 4 read/write heads type ANT41x/ANT51x · Housing materials: Upper part: PA Grivory GV-5H orange / Upper part: TPE / lower part: GD-ALSi12	1	DTE102
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RFID system DTE 100 with Profibus DP

Type	Description	Draw- ing no.	Order no.
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Type DTE1 · M12 connector

	RFID evaluation unit · for up to 4 read/write heads type ANT41x/ANT51x · Housing materials: Upper part: PA Grivory GV-5H orange / Upper part: TPE / lower part: GD-AISI12	2	DTE100
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RFID system DTE 101 with ProfiNet





Type	Description	Draw- ing no.	Order no.
------	-------------	---------------------	--------------

Type DTE1 · M12 connector

	RFID evaluation unit · for up to 4 read/write heads type ANT41x/ANT51x · Housing materials: Upper part: PA Grivory GV-5H orange / Upper part: TPE / lower part: GD-AISI12	1	DTE101
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RFID antennas 13.56 MHz for system DTE100, DTE101, DTE102, DTE104






Type	Description	Draw- ing no.	Order no.
------	-------------	---------------------	--------------

	Read/write head · M12 connector · Housing materials: housing: stainless steel / Top: PPS	3	ANT410
	Read/write head · M12 connector · Housing materials: housing: stainless steel / Top: PPS	4	ANT411
	Read/write head · M12 connector · Housing materials: housing: stainless steel / Top: PPS	5	ANT430
	Read/write head · M12 connector · Housing materials: housing: stainless steel / Top: PPS	6	ANT431
	Read/write head · M12 connector · 5 positions of the sensing face selectable · Housing materials: housing: PA / Metal parts: stainless steel	7	ANT513

RFID tags 13.56 MHz for antennas ANT513, ANT410, ANT411, ANT430, ANT431

Type	Description	Order no.
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	ID tag · ID-TAG/30X2.8/03 · 64 Kbit · Ø 30 x 2.8 mm · Housing materials: PA 6	E80380
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Type	Description	Order no.
	ID tag · ID-TAG/30X2.8/03 - 16 Kbit · Ø 30 x 2.8 mm · Housing materials: PA 6 black	E80370
	ID tag · ID-TAG/30X2.5/06 - 896 bit · Ø 30 x 2.5 mm · Housing materials: PA 6 black	E80371
	ID tag · ID-TAG/R20X2.5/06 - 896 Bit · Ø 20 x 2.5 mm · Housing materials: PPA	E80377
	ID tag · ID-TAG/4.35X3.6/03 - 896 bit · Ø 4.3 x 3.6 mm	E80381
	ID tag · ID-TAG/Label 65X30/03 - 896 bit	E80382
	ID tag · ID-TAG/Label 80x50/03 - 896 bit	E80379

Accessories DTE 100

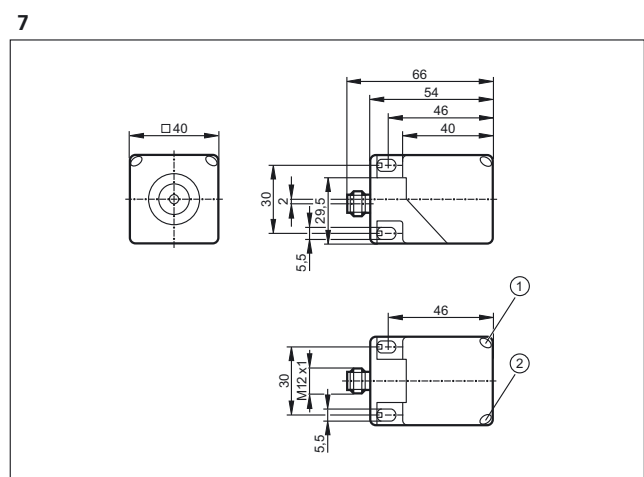
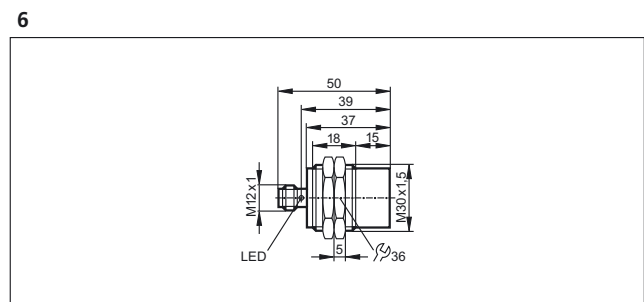
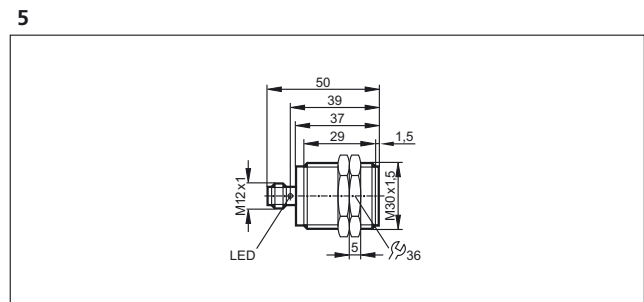
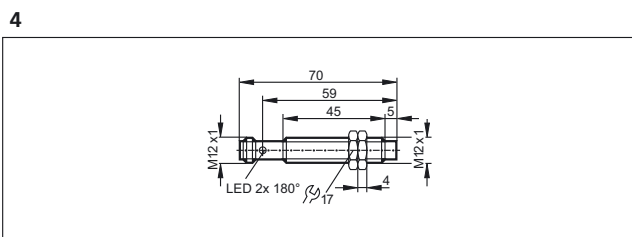
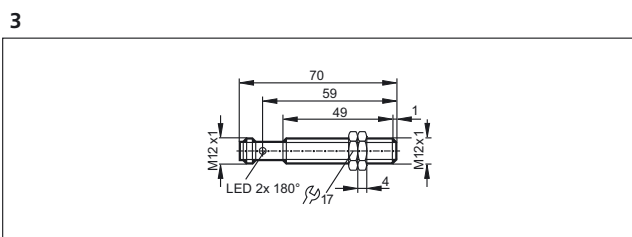
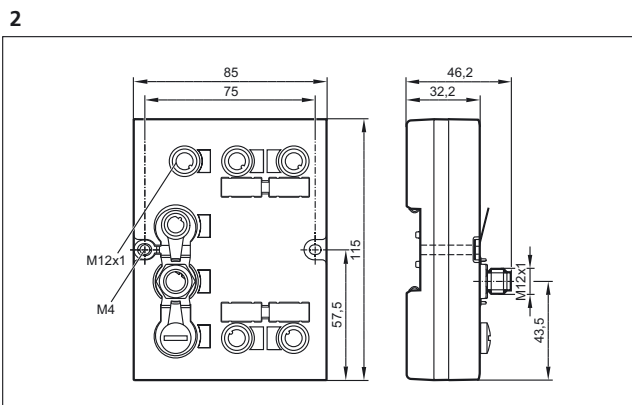
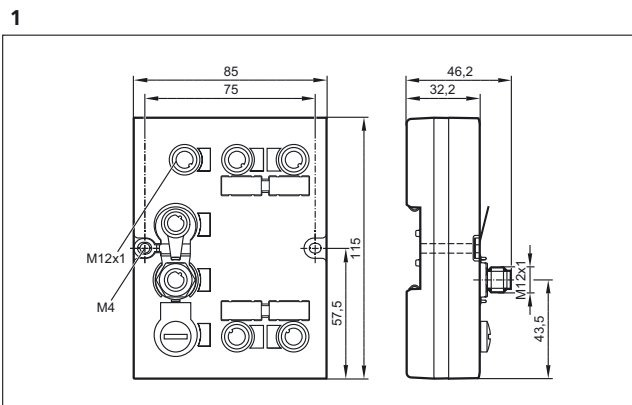
Type	Description	Order no.
	Terminating resistor plug · straight · Free from silicone · Free from halogen · Gold-plated contacts · Housing materials: PUR	E12315
	Jumper · straight / straight · Free from halogen · Gold-plated contacts · 10 m · Housing materials: PUR	E12317
	Cable plug · straight · Free from halogen · Gold-plated contacts · M12 connector · 10 m · Housing materials: PUR	E12319
	Socket · straight · Free from halogen · Gold-plated contacts · M12 connector · 10 m · Housing materials: PUR	E12321

Connection technology

Type	Description	Order no.
	Jumper · straight / straight · Ethernet · Cross-over patch cable · 2 m · Housing materials: PUR / PC	E11898
	Jumper · straight / straight · Ethernet · Patch cable · 2 m · Housing materials: PUR / PC	E12090

Type	Description	Order no.
	Jumper · straight / straight · Ethernet · Cross-over patch cable · 10 m · Housing materials: PUR / PC	E12204
	Jumper · straight / straight · Ethernet · Cross-over patch cable · 20 m · Housing materials: PUR / PC	E12205

Scale drawings / drawing no. – CAD download: www.ifm.com



1: LED yellow, 2: LED green



RFID UHF

The system is optimised for applications in production control, asset management, material flow control, track & trace and supply chain management:

- System DTE 800 for EU/ETSI
- System DTE 810 with Ethernet/IP
- System DTE 900 for US/FCC
- System DTE 910 with Ethernet/IP






System overview	Page
RFID UHF readers	624
RFID UHF antennas	624 - 625
ID tags UHF	625
Accessories for UHF systems	625 - 626
Scale drawings / drawing no. – CAD download: www.ifm.com	626 - 627

RFID UHF readers

Type	Dimensions [mm]	Operating frequency [MHz]	Transmission power [mW ERP]	Number of antenna inputs	Process interface	Output	Drawing no.	Order no.
M12 connector - Connector groups 8, 10, 18, 20, 117, 118, 147								
	233.5 x 270 x 68	865-868 (ETSI)	2000	4	Ethernet TCP/IP	–	1	DTE800
	233.5 x 270 x 68	902...928 (FCC)	2000	4	Ethernet TCP/IP	–	1	DTE900
	233.5 x 270 x 68	865-868 (ETSI)	2000	4	EtherNet/IP	–	1	DTE810
	233.5 x 270 x 68	902...928 (FCC)	2000	4	EtherNet/IP	–	1	DTE910

RFID UHF antennas


Type	Dimensions [mm]	Operating frequency [MHz]	Antenna gain [cBic]	Max. input power [mW]	Protection	Drawing no.	Order no.
TNC socket							
	63 x 28 x 90	865...928	-30	1000	IP 67	2	ANT805

Type	Dimensions [mm]	Operating frequency [MHz]	Antenna gain [cBic]	Max. input power [mW]	Protection	Drawing no.	Order no.
TNC socket							
	63 x 28 x 90	865...870	-15	500	IP 67	2	ANT810
	126 x 37 x 156	865...870	4	–	IP 67	3	ANT820
	271 x 270 x 42	865...870	8.5	–	IP 67	4	ANT830
	63 x 28 x 90	902...928 (FCC)	-15	500	IP 67	2	ANT910
	271 x 270 x 42	902...928 (FCC)	8.3	–	IP 65	4	ANT930

ID tags UHF

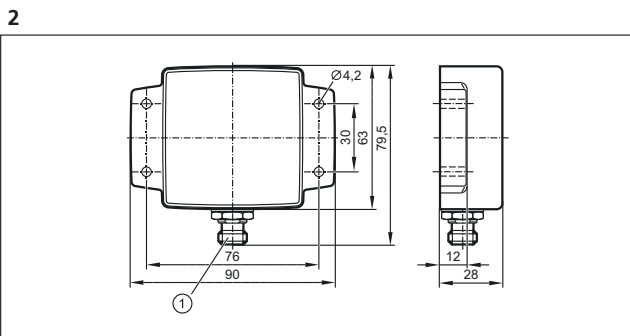
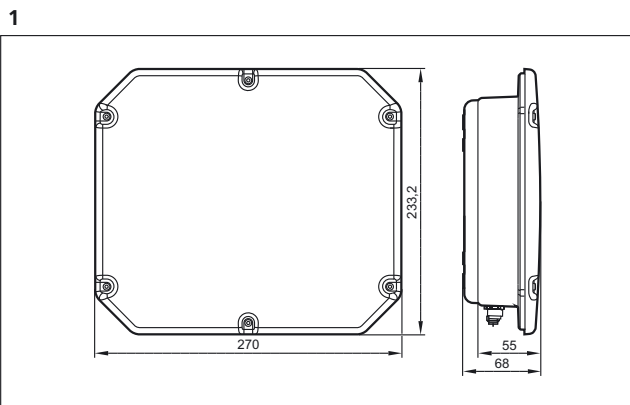
Type	Description	Order no.
	ID tag · ID-TAG/D50x3.3/04 · Ø 50 x 3,3 mm · Housing materials: PA 6	E80350
	ID tag · ID-TAG/D55x13/04 · Ø 55 x 13 mm · Housing materials: PA 6	E80351
	ID tag · ID-TAG/R30X10/04 · Ø 30 x 10 mm · Housing materials: PU black	E80353
	ID tag · ID-TAG/R40X10/04 · 40 x 32 x 8 mm · Housing materials: nylon black	E80354

Accessories for UHF systems

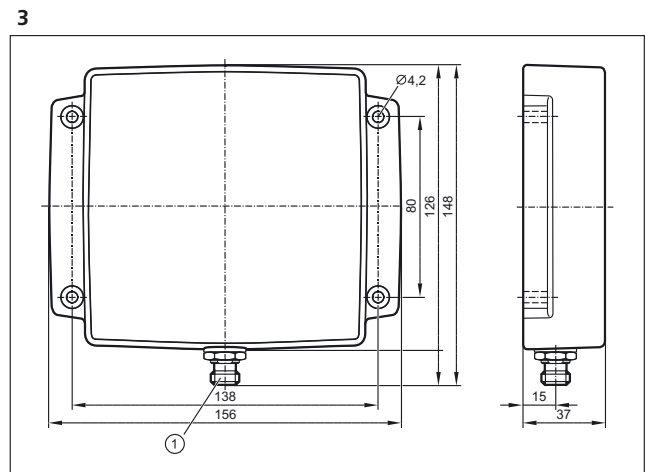
Type	Description	Order no.
	Jumper · straight / straight · For RFID antenna · 3 m	E80330
	Jumper · straight / straight · For RFID antenna · 6 m	E80331

Type	Description	Order no.
	Jumper · straight / straight · For RFID antenna · 10 m	E80332
	Jumper · straight / straight · For RFID antenna · 15 m	E80333
	Jumper · straight / straight · Ethernet · Cross-over patch cable · 2 m · Housing materials: PUR / PC	E11898
	Jumper · straight / straight · Ethernet · Cross-over patch cable · 10 m · Housing materials: PUR / PC	E12204
	Clamp · for RFID UHF readers DTE800/DTE900 and antennas ANT830/ANT930 · Housing materials: fixture: steel sheet galvanised / screws: stainless steel / Fixing strap: stainless steel	E80340

Scale drawings / drawing no. – CAD download: www.ifm.com



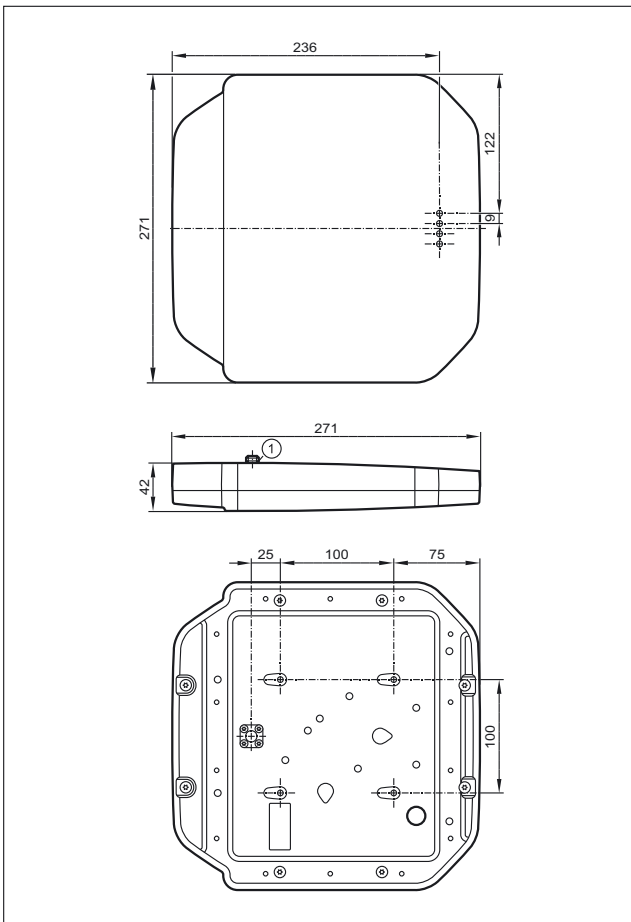
1: TNC socket



1: TNC socket

Scale drawings / drawing no. – CAD download: www.ifm.com

4



1: TNC socket



1D/2D code readers

Photoelectric multicode reader for 1D bar codes and 2D codes. Versions with infrared light and red light as well as different field of view sizes are available.


System overview	Page
Multicode reader	628 - 629
Illumination units	629
Software	629 - 630
Panel PC for Multicode Reader	630
Fixing components	630 - 631
Protective panes and diffusers	631
Connection technology	631 - 632
Wiring diagrams	632
Scale drawings / drawing no. – CAD download: www.ifm.com	632 - 633

Multicode reader

Type	Dimensions [mm]	Max. field of view size [mm]	Type of light LED	Motion speed int. / ext. lighting [m/s]	Process interface	Drawing no.	Order no.
Multicode Reader · M12 plug, 8 poles · M12 socket, 4 poles · Connector groups 16, 17							
	60 x 42 x 53.5	64 x 48	red light	3 / 5	Ethernet TCP/IP, EtherNet/IP, RS-232	1	O21100
	60 x 42 x 53.5	132 x 94	red light	3 / 5	Ethernet TCP/IP, EtherNet/IP, RS-232	1	O21102
	60 x 42 x 59	400 x 300	red light	3 / 5	Ethernet TCP/IP, EtherNet/IP, RS-232	2	O21104
	60 x 42 x 53.5	64 x 48	infrared	3 / 5	Ethernet TCP/IP, EtherNet/IP, RS-232	1	O21101
	60 x 42 x 53.5	132 x 94	infrared	3 / 5	Ethernet TCP/IP, EtherNet/IP, RS-232	1	O21103

Type	Dimensions [mm]	Max. field of view size [mm]	Type of light LED	Motion speed int. / ext. lighting [m/s]	Process interface	Draw- ing no.	Order no.
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Multicode Reader · M12 plug, 8 poles · M12 socket, 4 poles · Connector groups 16, 17

	60 x 42 x 59	400 x 300	infrared	3 / 5	Ethernet TCP/IP, EtherNet/IP, RS-232	2	O2I105
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Illumination units


Type	Dimensions [mm]	Type of light	Active illuminated area [mm]	I ₀ normal light intensity [mA]	I ₀ high light intensity [mA]	Trigger	Draw- ing no.	Order no.
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M12 connector · metal · DC · Wiring diagram no. 1 · Connector groups 8, 10, 18, 20, 117, 118, 147


	42 x 42 x 31	Red	–	180	90	External; 24 V PNP to IEC61131-1	3	O2D909
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	42 x 42 x 32.2	Red	–	180	90	External; 24 V PNP to IEC61131-1	4	O2D913
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PUR cable with M12 connector 0.3 m · metal · DC · Wiring diagram no. 1 · Connector groups 8, 10, 18, 20, 117, 118, 147


	Ø 122 / L = 20.5	Infrared	–	800	1400	external; 24 V PNP	5	O2D917
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	116 x 13 x 18	Infrared	–	185	325	external; 24 V PNP	6	O2D922
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	200 x 13 x 18	Infrared	–	415	640	external; 24 V PNP	7	O2D925
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Software


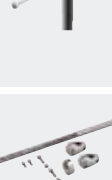








Type	Description	Number of connections	Order no.
	Operating software · O2I · for multicode reader · Create and manage application-specific configurations Monitor mode for set-up and service · Service reports for statistical evaluations	–	E2I200
	Multicode reader OPC server · Software · German/English	25	E2I210
	Multicode reader OPC server · Software · German/English	50	E2I211
	Multicode reader OPC server · Software · German/English	75	E2I212







Type	Description	Number of connections	Order no.
	Multicode reader OPC server · Software · German/English	100	E2I213

Panel PC for Multicode Reader


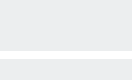

Type	Description	Order no.
	Touch Panel PC · 12.1" colour display · Intel Atom CPU 1.6 GHz · 2 GByte RAM · Windows 7 Embedded	E2D400

Fixing components


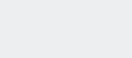
Type	Description	Order no.
	Mounting set · O2D, O2M, O2I, O2V · Clamp mounting · rod mounting Ø 12 mm · Housing materials: fixture: stainless steel / clamp: stainless steel	E2D110
	Mounting set · O2D, O2M, O2I, O2V · Clamp mounting · rod mounting Ø 14 mm · Housing materials: fixture: stainless steel / clamp: stainless steel	E2D112
	Mounting set · Bar light · Clamp mounting · Housing materials: Mounting bracket: stainless steel / clamp: high-grade stainless steel	E2D114
	Mounting set · Bar light · Clamp mounting · for 4 bar lights 10x75 mm · Housing materials: Mounting bracket: stainless steel / clamp: high-grade stainless steel	E2D116
	Mounting set · Ring light · Clamp mounting · Housing materials: Mounting bracket: stainless steel / clamp: high-grade stainless steel	E2D201
	clamp · Ø 12 mm; M10 · Free-standing M10 · Housing materials: clamp: stainless steel	E20946
	clamp · Ø 12 mm · rod mounting Ø 12 mm · Housing materials: clamp: stainless steel	E21110
	clamp · Ø 14 mm; M12 · free-standing M12 · Housing materials: clamp: stainless steel	E20948
	clamp · Ø 14 mm · rod mounting Ø 14 mm · Housing materials: clamp: stainless steel	E21109
	mounting rod · Ø 12 · Length: 200 mm · straight · Housing materials: stainless steel 316Ti / 1.4571	E21112


Type	Description	Order no.
	mounting rod · Ø 12 · Length: 300 mm · straight · Housing materials: stainless steel 316Ti / 1.4571	E21113
	mounting rod · Ø 12 / M10 · Length: 130 mm · straight · Housing materials: stainless steel 316Ti / 1.4571	E20938
	mounting rod · Ø 12 / M10 · Length: 200 mm · angled · Housing materials: stainless steel 316Ti / 1.4571	E20940
	mounting rod · Ø 14 / M12 · Length: 130 mm · straight · Housing materials: stainless steel 316Ti / 1.4571	E20939
	mounting rod · Ø 14 / M12 · Length: 200 mm · angled · Housing materials: stainless steel 316Ti / 1.4571	E20941
	Connection piece · Ø 20 mm · for the connection of two clamps with Ø 20 mm · Housing materials: stainless steel 316L / 1.4404	E21076

Protective panes and diffusers

Type	Description	Order no.
	Plastic diffuser · O2D / O2I · Housing materials: housing: diecast zinc black / lens: PMMA	E21165
	Plastic protective pane for the food industry · O2D / O2I · Housing materials: housing: diecast zinc black / lens: PMMA	E21166
	Glass protective pane · O2D / O2I · Housing materials: housing: diecast zinc black / lens: float glass	E21168
	Laser protection pane plastic · O2D / O2I · Housing materials: housing: diecast zinc black / lens: PMMA / filter: polycarbonate	E21169

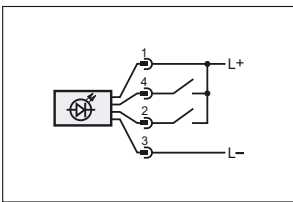
Connection technology

Type	Description	Order no.
	Jumper · straight / straight · Ethernet · Cross-over patch cable · 2 m · Housing materials: PUR / PC	E11898
	Jumper · straight / straight · Ethernet · Patch cable · 2 m · Housing materials: PUR / PC	E12090

Type	Description	Order no.
	Jumper · straight / straight · Ethernet · Cross-over patch cable · 10 m · Housing materials: PUR / PC	E12204
	Jumper · straight / straight · Ethernet · Cross-over patch cable · 20 m · Housing materials: PUR / PC	E12205

Wiring diagrams

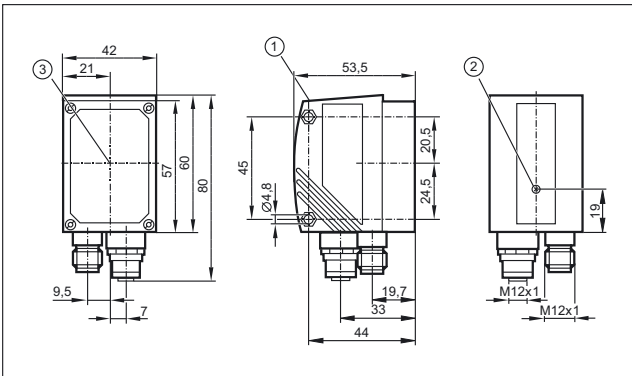
1



1: Trigger, 2: Operating mode "high light intensity"

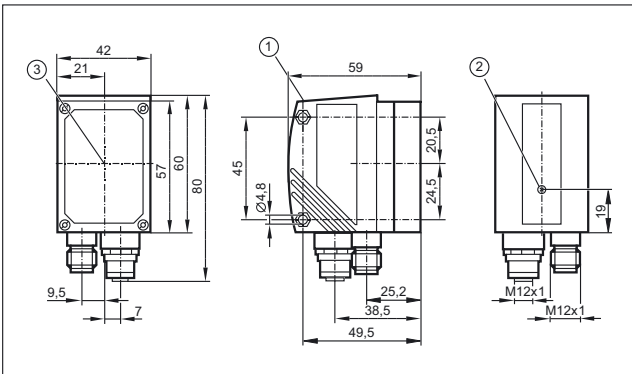
Scale drawings / drawing no. – CAD download: www.ifm.com

1



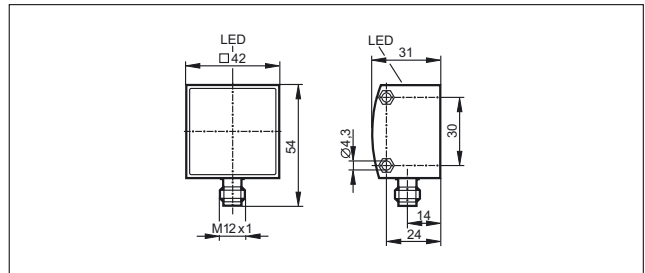
1: display, 2: Focus setting, 3: Centre of the lens axes

2

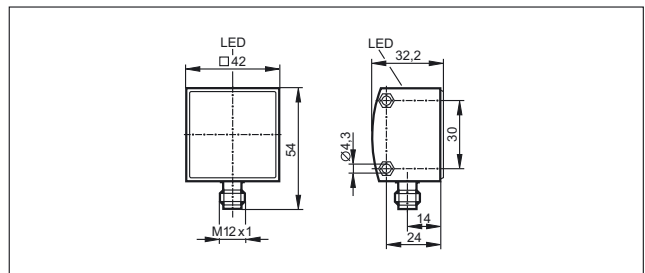


1: display, 2: Focus setting, 3: Centre of the lens axes

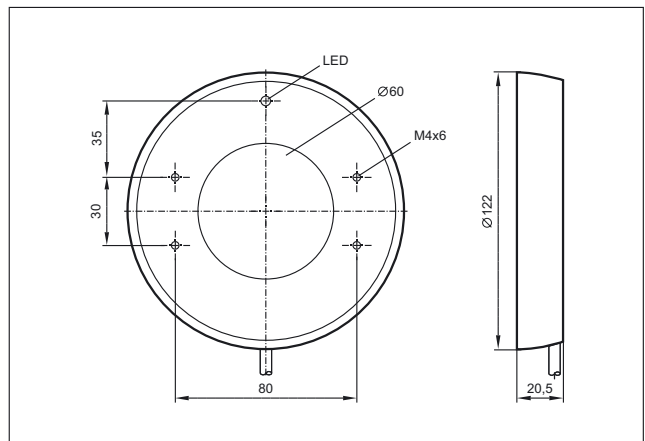
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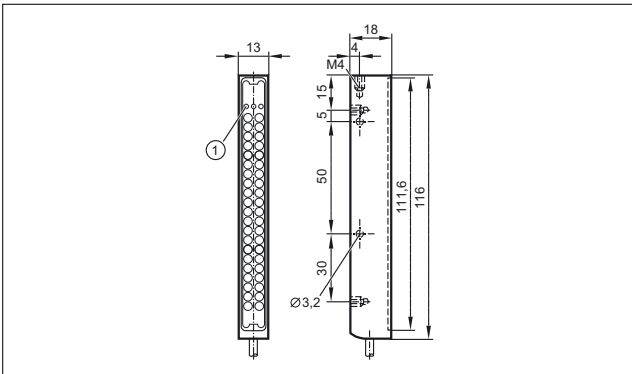


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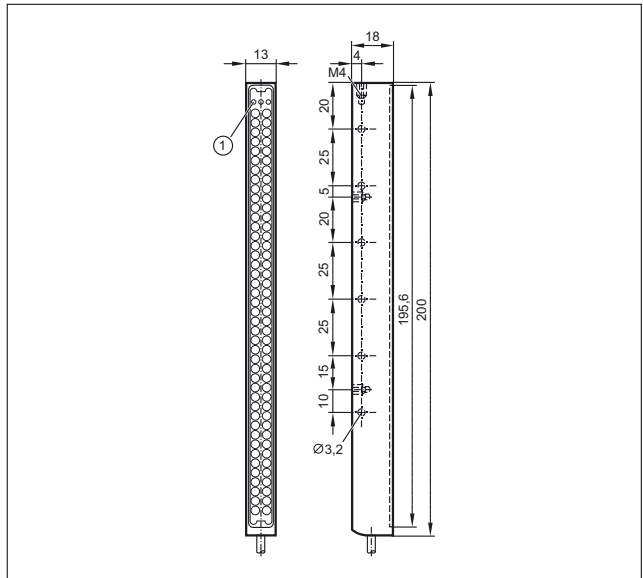
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6



3 LED

7



3 LED

Condition monitoring made transparent



Condition monitoring on a machine tool.



Condition-based monitoring of plant and assets has been shown to be the most cost effective strategy for ensuring high production efficiency. Timely intervention based on good information is the key. Too much and too early is wasteful, too little and too late means long unscheduled stoppages and even collateral damage.

Continuous vibration monitoring

Vibration monitoring offers a key indicator of plant condition, forming a core part of any CBM strategy. Typically used on rotating equipment such as fans, pumps, large motors, gear boxes and so on the cost effective octavis units from ifm allow permanent monitoring to be added not only to critical assets but to any piece of plant.

Consumption of compressed air

Compressed air is one of the most expensive energy carriers in the world.

efector metris monitors compressed air and specialty gases to detect leakage areas and improve energy efficiency. By identifying leakage areas, efector metris can optimize compressed air and gas usage, improve system performance and reduce energy costs.

Flow at a glance

The use of liquid coolants has a direct influence on the quality of the end product. It is therefore important to monitor the coolant flow to improve efficiency and reduce costs.





The SM magmeter efector mid which also measures the medium temperature is a cost-effective solution with high benefits. The unit also has a KTW approval which makes it suitable for use in drinking water.

Oil quality sensor

Excessive water content in oil causes damage to plant, reduces plant efficiency and shortens the useful life of the oil. The LDH sensor from ifm measures the oil humidity and generates an analogue signal across the 0...100 % humidity range.

An additional analogue output for temperature allows the asset manager to choose values at which action can be taken to minimise any damage.

For more product information we refer you to www.ifm.com

	<i>Vibration monitoring systems</i>	636 - 641
	<i>Flow meters for compressed air</i>	642 - 644
	<i>Flow meters for water</i>	646 - 650
	<i>Systems for oil quality monitoring</i>	652 - 654



Vibration monitoring systems


efector octavis is a simple to implement vibration monitoring system which detects vibration data and automatically determines the machine diagnosis directly on the machine.

The machine condition is forwarded to the PLC or to SCADA systems.


It fulfils the main requirements for modern machine monitoring: compatibility, modularity, and transferable configuration.

System overview	Page
Vibration sensors for vibration monitoring of machines and plants to ISO 10816 type VK	636
Accessories VK	637
Vibration transmitters for vibration monitoring of machines and plants to ISO 10816 type VT	637
Vibration transmitter with ATEX approval 3D/3G	637
Compact vibration sensors type VN	637
Accessories VN	637
Diagnostic electronics – control cabinet modules for vibration diagnosis type VSE	638
Accessories VSE	638
Connection cables VSE	638
Vibration sensors for connection to external diagnostic electronics VSE – type VSA / VSP	639
Accessories VSA	639
Scale drawings / drawing no. – CAD download: www.ifm.com	640 - 641


Vibration sensors for vibration monitoring of machines and plants to ISO 10816 type VK

Type	Description	Draw- ing no.	Order no.
	Vibration monitor to DIN ISO 10816 · Measuring range RMS: 0...25 mm/s · Switching outputs: normally closed and analogue 4...20 mA · Frequency range 10...1000 Hz · Ambient temperature -30...125 °C · M12 connector · Operating voltage 18...32 V DC · IP 67	1	VKV021
	Vibration monitor to DIN ISO 10816 · Measuring range RMS: 0...50 mm/s · Switching outputs: normally closed and analogue 4...20 mA · Frequency range 10...1000 Hz · Ambient temperature -30...125 °C · M12 connector · Operating voltage 18...32 V DC · IP 67	1	VKV022


Accessories VK

Type	Description	Order no.
	Protective cover · with lead seal option · for pressure sensors type PK · for temperature sensors type TK · for vibration sensors type VK · Housing materials: PP transparent	E30094


Vibration transmitters for vibration monitoring of machines and plants to ISO 10816 type VT

Type	Description	Draw- ing no.	Order no.
	Vibration transmitter to ISO 10816 · Measuring range RMS: 0...25 mm/s · Analogue output 4...20 mA · Frequency range 10...1000 Hz · Ambient temperature -30...125 °C · M12 connector · Operating voltage 9.6...32 V DC · IP 69K	2	VTV122




Vibration transmitter with ATEX approval 3D/3G

Type	Description	Draw- ing no.	Order no.
	Vibration transmitter to ISO 10816 · Measuring range RMS: 0...25 mm/s · Analogue output 4...20 mA · ATEX approval · Group II, category 3D/3G · Frequency range 10...1000 Hz · Ambient temperature -20...60 °C · M12 connector · Operating voltage 9.6...32 V DC · IP 67	2	VTV12A



Compact vibration sensors type VN

Type	Description	Draw- ing no.	Order no.
	Vibration sensor to ISO 10816 · Parameter setting via pushbuttons · 3 Inputs / outputs total, configurable · Analogue input 4...20 mA · Measuring range 0...500 mm/s · Frequency range 2...1000 Hz · 4-digit alphanumeric display · Ambient temperature -30...60 °C · M12 connector · M8 connector · Operating voltage 9.6...30 V DC · IP 67	3	VNB001

Accessories VN

Type	Description	Order no.
	USB adapter cable · straight / straight · USB adapter cable and history tool for VNB001 · 5 m	E30136
	Adapter · UNF-M5 · Housing materials: stainless steel	E30137
	Power supply · 2 m · Housing materials: PPE	E30080


Diagnostic electronics – control cabinet modules for vibration diagnosis type VSE

Type	Description	Draw- ing no.	Order no.
	Diagnostics electronics for vibration sensors type VSA / VSP · Mounting on DIN rail · 4 sensor inputs 0...10 mA or IEPE · TCP/IP Ethernet interface · Frequency-selective machine monitoring of up to 4 measuring points · Integrated history memory with real-time clock · Counter function · 6 Inputs / outputs total, configurable · Analogue input 0...10 mA / IEPE · Ambient temperature 0...70 °C · Operating voltage 24 V DC ± 20 % · IP 20	4	VSE002
	Diagnostics electronics for vibration sensors type VSA / VSP · Mounting on DIN rail · 4 sensor inputs 0...10 mA or IEPE · TCP/IP Ethernet interface · Frequency-selective machine monitoring of up to 4 measuring points · Integrated history memory with real-time clock · Counter function · 14 Inputs / outputs total, configurable · Ambient temperature 0...70 °C · Operating voltage 24 V DC ± 20 % · IP 20	5	VSE100



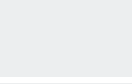


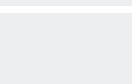



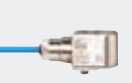
Accessories VSE

Type	Description	Number of connections	Order no.
	Parameter setting software for VSExxx	–	VES003
	octavis OPC server · Software · German/English	25	VOS001
	octavis OPC server · Software · German/English	50	VOS002
	octavis OPC server · Software · German/English	75	VOS003
	octavis OPC server · Software · German/English	100	VOS004
	octavis OPC server · Software · German/English	1000	VOS005



Connection cables VSE

Type	Description	Order no.
	Jumper · straight / straight · Ethernet · Cross-over patch cable · 5 m · Housing materials: PUR	E30112
	Jumper · straight / straight · Ethernet · Cross-over patch cable · 2 m · Housing materials: PUR	EC2080

Vibration sensors for connection to external diagnostic electronics VSE – type VSA / VSP

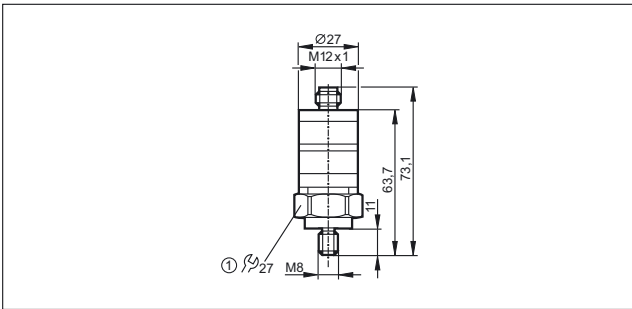
Type	Description	Draw- ing no.	Order no.
	Vibration sensor · for connection to external diagnostic electronics type VSE · Measuring range ± 25 g · Frequency range 0...6000 Hz · Ambient temperature -30...125 °C · M12 connector · Operating voltage 9 V DC · IP 68 / IP 69K	6	VSA001
	Vibration sensor · for connection to external diagnostic electronics type VSE · Measuring range ± 3.3 g · Frequency range 0...1000 Hz · Ambient temperature -30...125 °C · M12 connector · Operating voltage 9 V DC · IP 68 / IP 69K	6	VSA101
	Vibration sensor · for connection to external diagnostic electronics type VSE · Measuring range ± 250 g · Frequency range 0...6000 Hz · Ambient temperature -30...125 °C · M12 connector · Operating voltage 9 V DC · IP 68 / IP 69K	6	VSA201
	Vibration sensor · for connection to external diagnostic electronics type VSE · Measuring range ± 25 g · Frequency range 0...10000 Hz · Ambient temperature -30...85 °C · PUR cable with M12 connector, 0.8 m · Operating voltage 9 V DC · IP 67	7	VSA002
	Vibration sensor · for connection to external diagnostic electronics type VSE · Measuring range ± 25 g · Frequency range 0...10000 Hz · Ambient temperature -30...85 °C · PUR cable, 6 m · Operating voltage 9 V DC · IP 67	7	VSA006
	Vibration sensor · for connection to external diagnostic electronics type VSE · Measuring range ± 25 g · Frequency range 0...10000 Hz · Ambient temperature -20...80 °C · PUR cable, 3 m · Operating voltage 9 V DC · IP 67	8	VSA004
	Vibration sensor · for connection to external diagnostic electronics type VSE · Measuring range ± 25 g · Frequency range 0...10000 Hz · Ambient temperature -20...80 °C · PUR cable, 10 m · Operating voltage 9 V DC · IP 67	8	VSA005
	Accelerometer · for connection to external diagnostic electronics type VSE · Measuring range ± 50 g · Frequency range 2...10000 $\pm 5\%$ Hz · Ambient temperature -55...125 °C · M12 connector · Operating voltage 10...12 V DC · IP 67	9	VSP001
	Accelerometer · ATEX approval · Group II, category 1D · Group II, category 1G · For connection to VSExxx type external diagnostic electronics via safety barrier · Measuring range ± 80 g · Frequency range 2...10000 Hz · Ambient temperature -55...90 °C · PUR cable, 10 m · Operating voltage 10...12 V DC · IP 68	10	VSP01A
	Accelerometer · ATEX approval · group 1, M1 · For connection to VSExxx type external diagnostic electronics via safety barrier · Measuring range ± 80 g · Frequency range 2...10000 Hz · Ambient temperature -55...90 °C · PUR cable, 10 m · Operating voltage 10...12 V DC · IP 68	10	VSP02A

Accessories VSA

Type	Description	Order no.
	conical washer · $\varnothing 8.4 / 15$ mm · for vibration sensors VSA001, VSA101, VSA201 · Housing materials: stainless steel 316Ti / 1.4571	E30115
	Adapter · M8-M8 · for vibration sensors VSA001, VSA101, VSA201 · Electrical isolation · Housing materials: PEEK	E30132

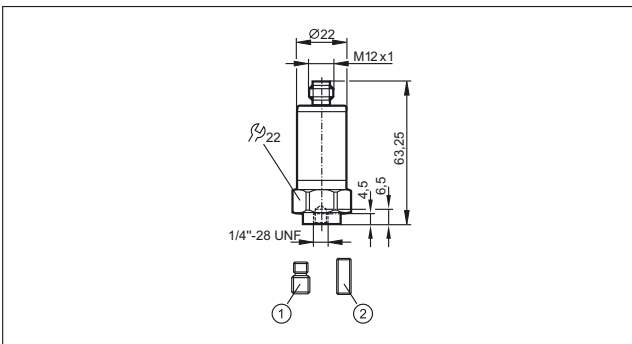
Scale drawings / drawing no. – CAD download: www.ifm.com

1



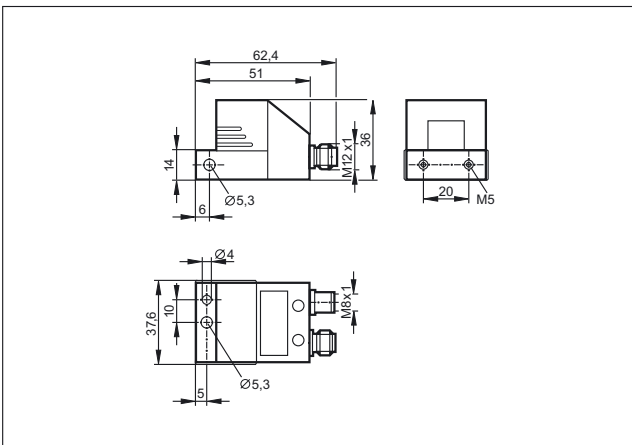
1: tightening torque 15 Nm

2

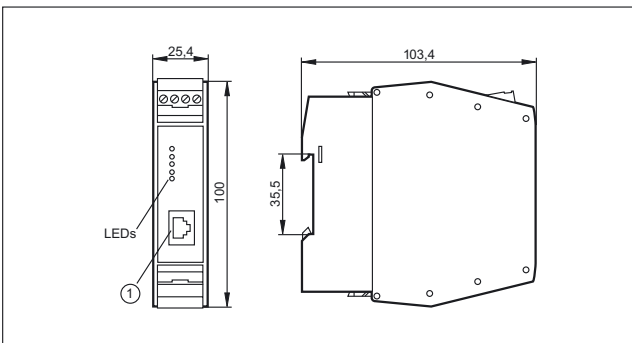


1: Threaded adapter 1/4"-28 UNF / M8 x 1.25 mm, 2: Threaded adapter 1/4"-28 UNF, tightening torque 8 Nm

3

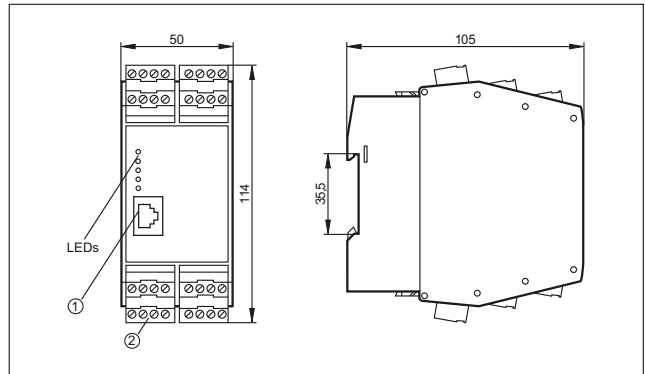


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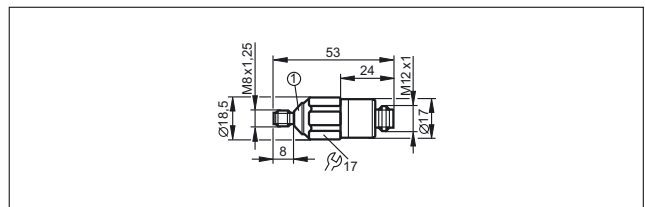
1: Ethernet interface

5



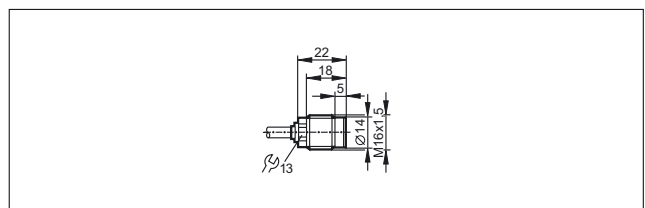
1: Ethernet interface, 2: Combicon plug with screw terminals (optional)

6

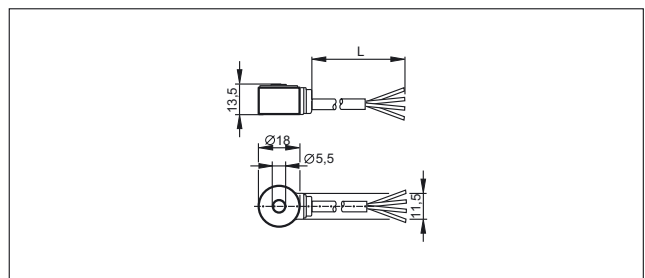


1: conical angle = 90°

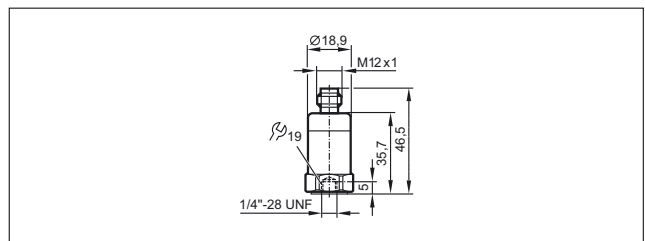
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8

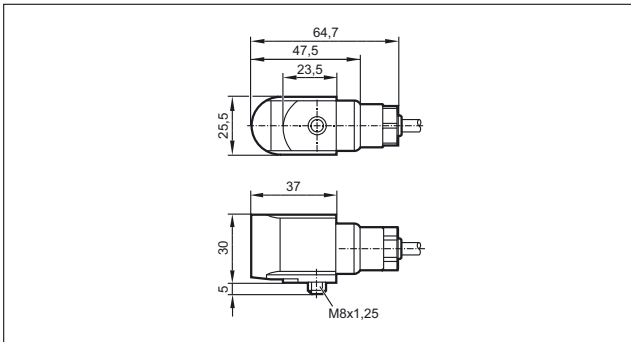


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Scale drawings / drawing no. – CAD download: www.ifm.com

10





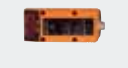






Flow meters for compressed air

efector metris is used to measure the consumption of compressed air. The high measurement dynamics in conjunction with high measurement accuracy and a fast response time result in an application range from leakage detection to operational measurement of consumption. Many possibilities of supplying the values measured for current and temperature allow almost universal coupling to process or control systems.

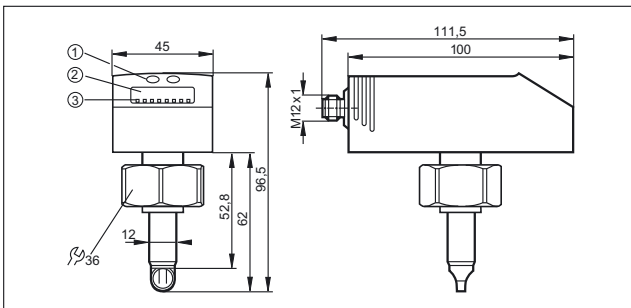
System overview	Page
Compressed air meters	642
Wiring diagrams	643
Scale drawings / drawing no. – CAD download: www.ifm.com	643 - 644

Compressed air meters

Type	Process connection	Setting range [Nm ³ /h]	Pressure rating [bar]	Response time [s]	U _b [V]	Draw- ing no.	Order no.
Output function OUT1: normally open / closed programmable or pulse OUT2: normally open / closed programmable or analogue (4...20 mA scaleable) · Wiring diagram no. 1 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147							
	G ¼ (DN8)	0.12...15.00	16	< 0.1	18...30	1	SD5000
	R½ (DN15)	0.6...75.0	16	< 0.1	18...30	2	SD6000
	G ½ (DN15)	0.6...75	16	< 0.1	18...30	3	SD6050
	R1 (DN25)	1.8...225.0	16	< 0.1	18...30	4	SD8000
	R1½ (DN40)	3.5...410.0	16	< 0.1	18...30	5	SD9000
	R2 (DN50)	5...700	16	< 0.1	18...30	6	SD2000
Output function OUT1: normally open / closed programmable or pulse OUT2: normally open / closed programmable or analogue (4...20 mA scaleable) · Wiring diagram no. 2 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147							
	G 1 I	18...2110	16	< 0.1	18...30	7	SD0523

Scale drawings / drawing no. – CAD download: www.ifm.com

7



1: Programming buttons, 2: 4-digit alphanumeric display, 3: LEDs





Flow meters for water

Efforts to reduce water consumption presuppose knowledge of the current consumption. Measuring systems such as magnetic-inductive or ultrasound flow meters can also be used for applications in drinking water circuits due to their compact design. The use in drinking water supply is ensured by the use of approved materials. Many possibilities of supplying the values measured for current and temperature allow almost universal coupling to process or control systems.

System overview	Page
Magnetic-inductive flow meters with integrated temperature monitoring (sealing material EPDM) KTW / W270 approval	646
Ultrasonic flow meters for liquids (water, glycol solutions, oils)	647
Accessories for flow meters	647 - 649
Grounding clamps for magnetic-inductive flow meters	649
Wiring diagrams	649
Scale drawings / drawing no. – CAD download: www.ifm.com	650

Magnetic-inductive flow meters with integrated temperature monitoring (sealing material EPDM) KTW / W270 approval

Type	Process connection	Measuring range [l/min]	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U _b [V]	Drawing no.	Order no.
Output function OUT1: norm. open / norm. closed progr. or pulse or frequency or empty pipe detection or IO-Link OUT2: norm. open / norm. closed progr. or analogue (4...20 mA; 0...10 V, scalable) or empty pipe detection · Wiring diagram no. 1 · Connector groups 8, 9, 10, 12, 13, 18, 19, 20, 21, 117, 118, 119, 120, 121, 122, 147, 149								
	G2 flat seal	8...600	-10...70	16	< 0.35	18...32	1	SM2100
Output function OUT1: normally open / closed programmable or pulse OUT2: normally open / closed programmable or analogue (4...20 mA / 0...10 V, scalable) · Wiring diagram no. 1 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147								
	G½	0.25...25.00	-10...70	16	< 0.150	19...30	2	SM6100
	G¾	0.5...50.0	-10...70	16	< 0.150	19...30	3	SM7100
	G1	0.7...100.0	-10...70	16	< 0.150	19...30	4	SM8100
Output function OUT1: norm. open / norm. closed progr. or pulse or frequency or empty pipe detection or IO-Link OUT2: norm. open / norm. closed progr. or analogue (4...20 mA; 0...10 V, scalable) or empty pipe detection · Wiring diagram no. 1 · Connector groups 8, 9, 10, 12, 13, 18, 19, 20, 21, 117, 118, 119, 120, 121, 122, 147, 149								
	G2 flat seal	6.5...300	-10...70	16	< 0.35	18...32	1	SM9100




Ultrasonic flow meters for liquids (water, glycol solutions, oils)

Type	Process connection	Measuring range [l/min]	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U _b [V]	Drawing no.	Order no.
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Output function 2 x normally open / closed programmable · Wiring diagram no. 2 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147

	G $\frac{3}{4}$	0.1...50.0	-10...80	16	< 0.250	19...30	5	SU7200
	G1	0.2...100.0	-10...80	16	< 0.250	19...30	6	SU8200


Output function OUT1: normally open / closed programmable or pulse OUT2: normally open / closed programmable or analogue (4...20 mA / 0...10 V, scaleable) · Wiring diagram no. 3 · Connector groups 8, 9, 10, 18, 20, 117, 118, 120, 147
















	G $\frac{3}{4}$	0.1...50.0	-10...80	16	< 0.250	19...30	5	SU7000
	G1	0.2...100.0	-10...80	16	< 0.250	19...30	6	SU8000
	G1 $\frac{1}{4}$	0.4...200.0	-10...80	16	< 0.250	19...30	7	SU9000


Output function 2 x analogue (4...20 mA scaleable) · Wiring diagram no. 4 · Connector groups 8, 10, 18, 20, 117, 118, 147

	G1 $\frac{1}{4}$	0.0...200.0	-10...80	16	< 0.250	19...30	7	SU9004
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Accessories for flow meters

Type	Description	Order no.
	Adapter · G $\frac{1}{2}$ - R $\frac{1}{2}$ · for flow monitor type SM6 · flat seal · Housing materials: stainless steel 316Ti / 1.4571	E40199
	Adapter · G $\frac{1}{2}$ - G $\frac{3}{4}$ · for flow monitor type SM6 · flat seal · Housing materials: stainless steel 316L / 1.4404	E40189
	Adapter · G $\frac{3}{4}$ - R $\frac{1}{2}$ · for flow monitor type SM7 / SU7 · Housing materials: stainless steel 316L / 1.4404	E40178
	Adapter · G 1 - R $\frac{1}{2}$ · for flow monitor type SM8 / SU8 · Housing materials: stainless steel 316L / 1.4404	E40179
	Adapter · G 1 - R $\frac{3}{4}$ · for flow monitor type SM8 / SU8 · Housing materials: stainless steel 316L / 1.4404	E40180

Type	Description	Order no.
	Adapter · G ¾ I - R ½ · for flow monitor type SM7 / SU7 · Housing materials: Brass	E40151
	Adapter · Victaulic · for flow sensors type SM2, SM9 · Housing materials: stainless steel 316Ti / 1.4571	E40227
	Adapter · 2" NPT · for flow sensors type SM2, SM9 · Housing materials: stainless steel 316Ti / 1.4571	E40228
	Adapter · R 2" A · for flow sensors type SM2, SM9 · Housing materials: stainless steel 316Ti / 1.4571	E40231
	Adapter · 1½" NPT · for flow sensors type SM2, SM9 · Housing materials: stainless steel 316Ti / 1.4571	E40229
	Adapter · G 1½ · for flow sensors type SM2, SM9 · Housing materials: stainless steel 316Ti / 1.4571	E40230
	Adapter · G 1 - R ¾ · for flow monitor type SM8 / SU8 · Housing materials: Brass	E40153
	Adapter · G 1¼ - R 1 · for flow monitor type SU9 · Housing materials: stainless steel 316L / 1.4404	E40205
	Adapter · G ½ - G ½ · for flow monitor type SM6 · Housing materials: stainless steel 316L / 1.4404	E40213
	Adapter · G ¾ - G ½ · for flow monitor type SM7 / SU7 · Housing materials: stainless steel 316L / 1.4404	E40214
	Adapter · G 1 - G ¾ · for flow monitor type SM8 / SU8 · Housing materials: stainless steel 316L / 1.4404	E40215
	Adapter · G ¾ - G ¾ · for flow monitor type SM7 / SU7 · Housing materials: stainless steel 316L / 1.4404	E40216
	Adapter · G 1 - G 1 · for flow monitor type SM8 / SU8 · Housing materials: stainless steel 316L / 1.4404	E40217
	Adapter · G 1½ · for flow sensors type SM2, SM9 · Housing materials: stainless steel 316Ti / 1.4571	E40230
	Adapter · R 2" A · for flow sensors type SM2, SM9 · Housing materials: stainless steel 316Ti / 1.4571	E40231

Type	Description	Order no.
	Flange adapter · Flange adapter · Adapter · rotatable · for type SM2, SM9 · Housing materials: flange: stainless steel / adapter: stainless steel 316Ti / 1.4571 / O-ring: EPDM	E40240

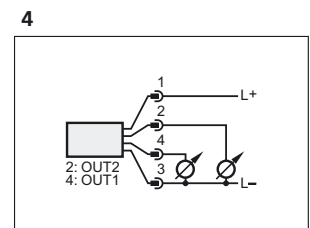
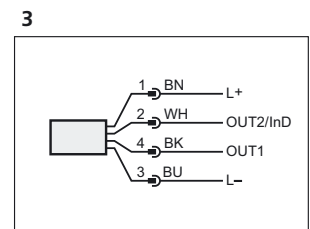
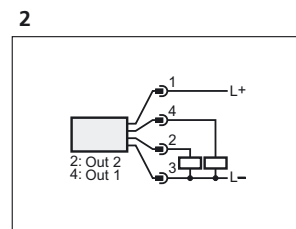
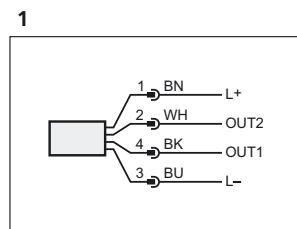
Grounding clamps for magnetic-inductive flow meters

Type	Description	Order no.
	Grounding clamp · Housing materials: stainless steel 316L / 1.4404	E40234

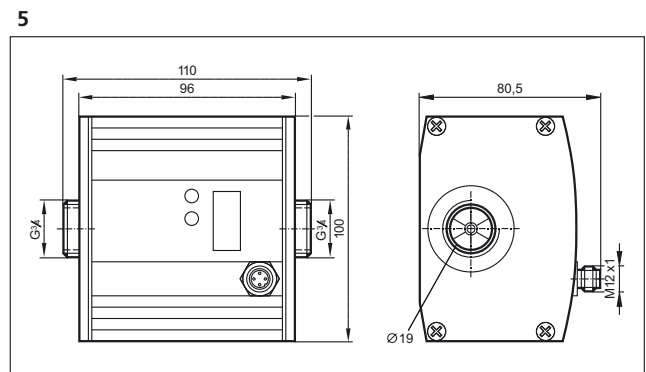
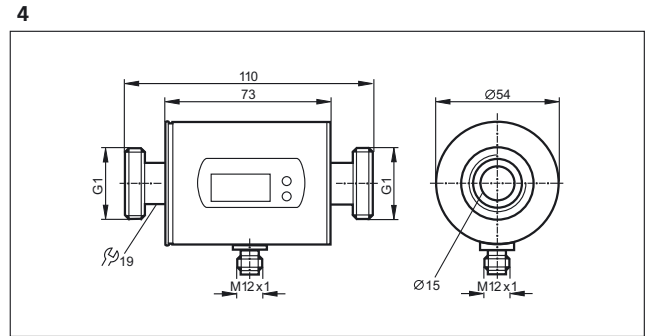
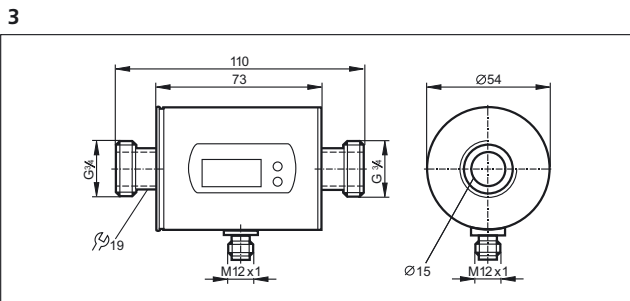
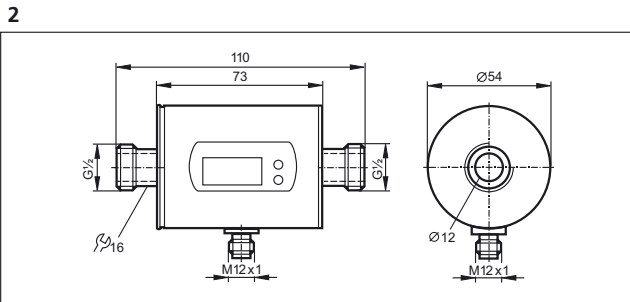
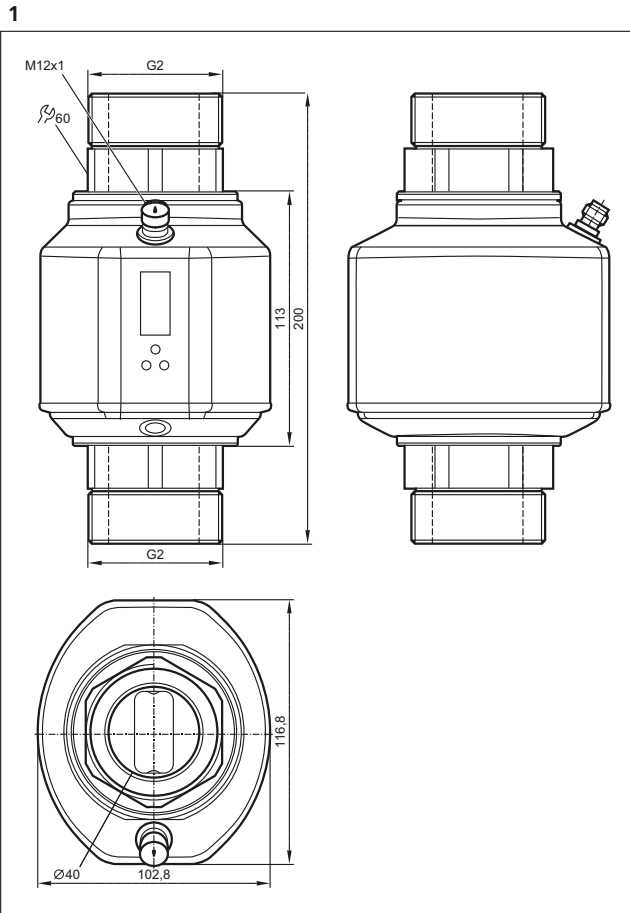
Wiring diagrams

Core colours

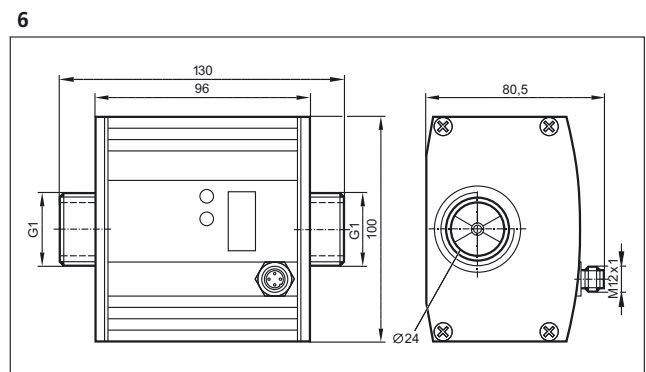
BK	black
BN	brown
BU	blue
WH	white



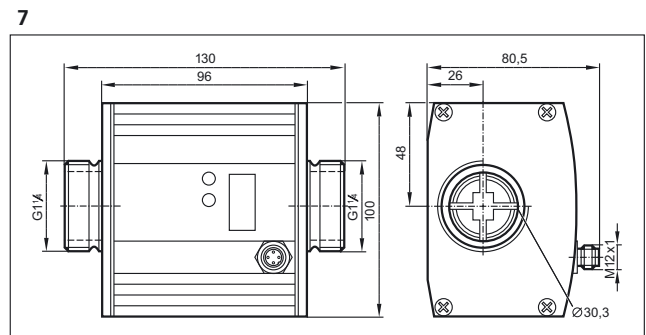
Scale drawings / drawing no. – CAD download: www.ifm.com



installation length with pipe adapter E40151 / E40154: 185 mm



installation length with pipe adapter E40152 / E40155: 205 mm,
installation length with pipe adapter E40153 / E40156: 215 mm








Systems for oil quality monitoring


For an early detection of too high a water content in lubricants and oils it is useful to continuously monitor the relative moisture in the media using a sensor. The sensor measures the relative moisture in the oil in the range of 0...100 % by means of a capacitive measuring element. Besides the relative moisture the sensor also provides the medium temperature as an analogue signal. LDP100 monitors the degree of cleanliness or the level of contamination in fluids. Compatible media are mineral oils, ester oils and biodegradable oils. The calibration is made in accordance with ISO 11943. The purity classes are indicated on the LCD display and provided via analogue output and CAN bus

System overview	Page
Oil particle sensor	652
Oil humidity sensor	652
Accessories for LDP oil particle monitor	653
Accessories for oil humidity sensor LDH	653
Wiring diagrams	653
Scale drawings / drawing no. – CAD download: www.ifm.com	654

Oil particle sensor

Type	Process connection	Pressure rating [bar]	Protection	Medium temperature oil [°C]	Ambient temperature [°C]	Drawing no.	Order no.
M12 connector · Output function 4...20 mA (can be configured); digital alarm output · Wiring diagram no. 1 · Connector groups 14, 15, 16, 17							
	Minimes M16 x 2	420	IP 67	-10...80	-10...60	1	LDP100


Oil humidity sensor

Type	Process connection	Pressure rating [bar]	Protection	Medium temperature oil [°C]	Ambient temperature [°C]	Drawing no.	Order no.
M12 connector · Output function 4...20 mA analogue · Wiring diagram no. 2 · Connector groups 15, 16, 17							
	G 3/4	10	IP 67	-20...100	-20...85	2	LDH100

Accessories for LDP oil particle monitor

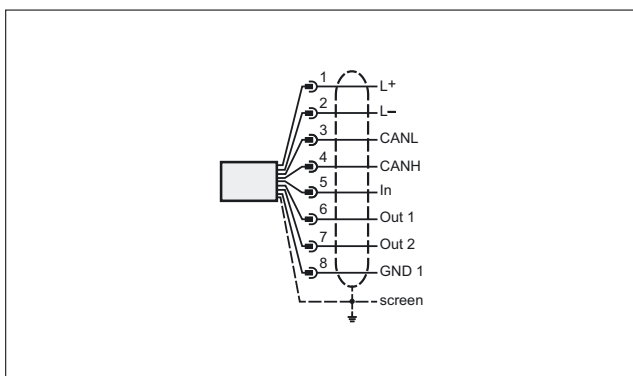
Type	Description	Order no.
	Screw couplings with cover plate · Blende 0.18 mm · Housing materials: socket housing: steel / surface characteristics: zinc/nickel grey / sealing: NBR	E43330
	Screw couplings with cover plate · Blende 0.3 mm · Housing materials: socket housing: steel / surface characteristics: zinc/nickel grey / sealing: NBR	E43331
	Jumper · straight / straight · CAN adapter cable: M12 plug, 5-pole / M12 socket, 8-pole · Gold-plated contacts · 0.15 m · Housing materials: PUR	E43332
	BasicDisplay · 2.8" colour display · 5 freely programmable backlit function keys · Navigation key for cursor function · CAN interface · Programming according to IEC 61131-3 · 8...32 V DC	CR0451

Accessories for oil humidity sensor LDH

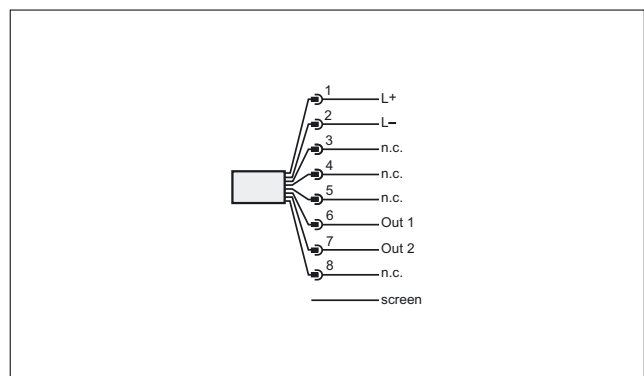
Type	Description	Order no.
	Adapter block · D33 / G 3/4 · for oil humidity sensor LDH100 · Housing materials: aluminium	E43400

Wiring diagrams

1



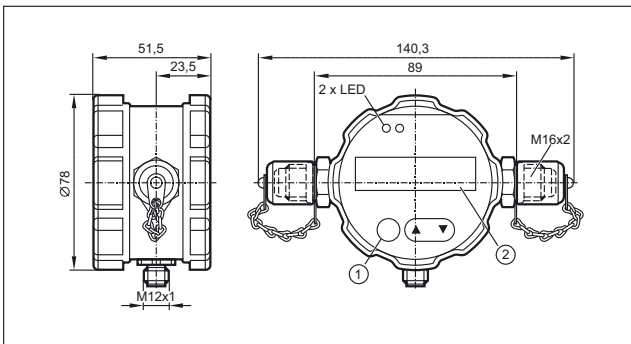
2



In: Switching input (low level activates measuring cycle), Out 1: Analogue output, Out 2: Switching output, GND 1: Signal ground
Out 1

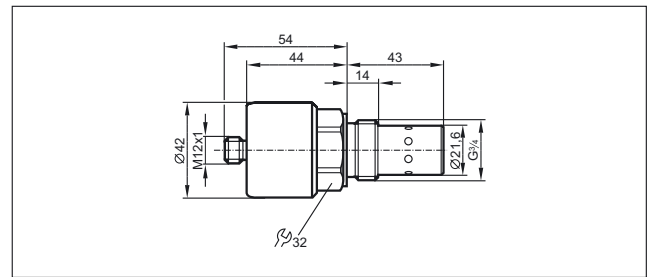
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1



1: Programming buttons, 2: display

2





For mobile applications



Extreme shock and vibration: Reliable function of the sensitive electronics must be guaranteed under harsh operating conditions as well.



Control technology for mobile applications

Life today cannot be imagined without electronics in modern motor vehicles and mobile machines. Many necessary and convenient functions could not be implemented without electronic support. In contrast to electronics in consumer goods and "normal" industrial applications such as packaging machines and conveyors the requirements for components for mobile applications are much higher.

Electronic requirements

The components need to be carefully selected, mainly because of the extreme mechanical stress caused by impacts and shocks and the use at extreme operating temperatures. The direct influence of dirt, humidity and water often cannot be excluded in field applications. Therefore a high protection rating and a special selection of the materials are required for the devices.

In addition to mechanical and environmental influences, electrical interference affecting the whole system as well as individual devices, have to be taken into account. A wide supply voltage range and well-adapted protective measures ensure safe operation of the devices even in case of large voltage fluctuations by the battery / generator system. Strong conducted or radiated interference must not influence the function either.

For device networking the CAN bus has become the successful standard in the last few years. Whereas for the high volume production of passenger cars special, optimised and well-adapted protocols are used, the CANopen protocol has become indispensable in mobile machines. Manufacturer and industry-specific protocols, such as diagnostic engine data according to SAE J 1939, can be coupled to the machine process via gateways.

	Basic control systems	658 - 661
	Mobile controllers	662 - 668
	I/O modules	670 - 675
	Dialogue modules / displays	676 - 678
	Cameras	680 - 683
	Diagnostic and service units	684 - 686
	Signal converters	688 - 689
	Sensors	690 - 700



Basic control systems




The ecomat*mobile* Basic control system has a modular design, is easy to install and to operate and is cost-optimised.

Besides pure control functions it provides solutions for wiring and protection.


In addition, a graphical visualisation module ensures the indication of system messages and simple display instruments.

System overview	Page
BasicController	658
Starter set ecomatmobile Basic	658
BasicRelay	659
BasicDisplay	659
BasicDisplay XL	659
Accessories for the mini control system Basic	659 - 660
Scale drawings / drawing no. – CAD download: www.ifm.com	661


BasicController

Type	Inputs / outputs total	Inputs	Outputs	Interfaces	Drawing no.	Order no.
Configurable input / output functions, Programming according to IEC 61131-3						
	16	8 x Digital 4 x analogue (U/I) 4 x frequency 4 x Resistor	8 x Digital 8 x PWM-I 8 x PWM 4 x H bridge	2 x CAN	1	CR0411
	20	12 x Digital 4 x analogue (U/I) 4 x frequency 4 x Resistor	8 x Digital 8 x PWM	2 x CAN	2	CR0401
	24	12 x Digital 4 x analogue (U/I) 4 x frequency 4 x Resistor	12 x Digital 2 x PWM-I 10 x PWM	2 x CAN	3	CR0403


Starter set ecomatmobile Basic

Type	Description	Order no.
	Starter set ecomatmobile Basic	EC0400


BasicRelay

Type	Inputs / outputs	Description	Drawing no.	Order no.
	–	BasicRelay · Locations for 6 automotive relays and 10 automotive fuses (6.3 mm) · 2 supply rails and 6 power distributors · freely wirable	4	CR0421





BasicDisplay

Type	Display	Operating elements	Inputs / outputs	Interfaces	Drawing no.	Order no.
5 freely programmable backlit function keys, Programming according to IEC 61131-3 · M12 connector						
	2.8" colour display 320 x 240 pixels	5 Pushbuttons 1 Navigation key for cursor function	–	1 x CAN	5	CR0451

BasicDisplay XL

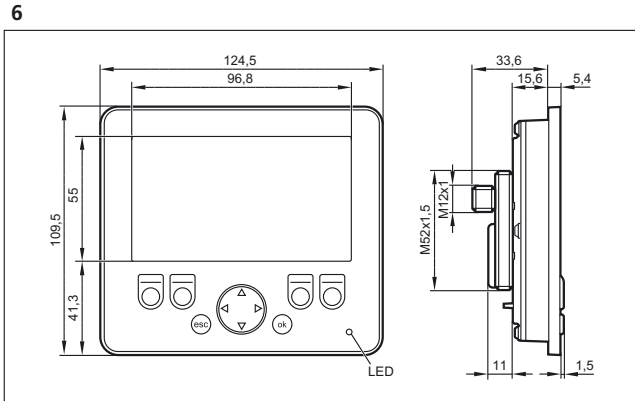
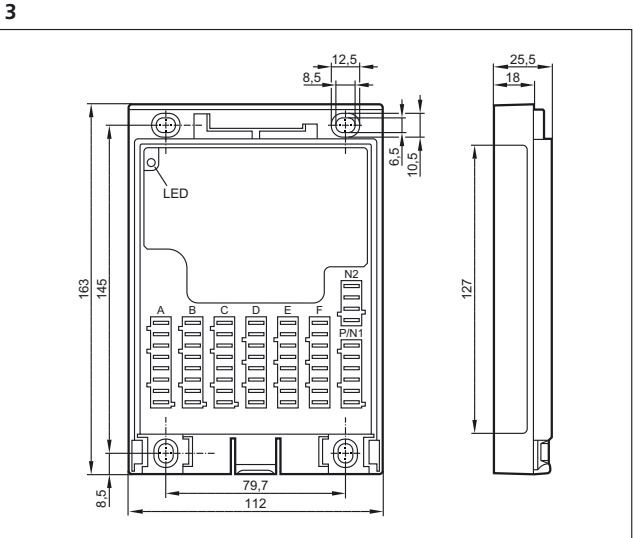
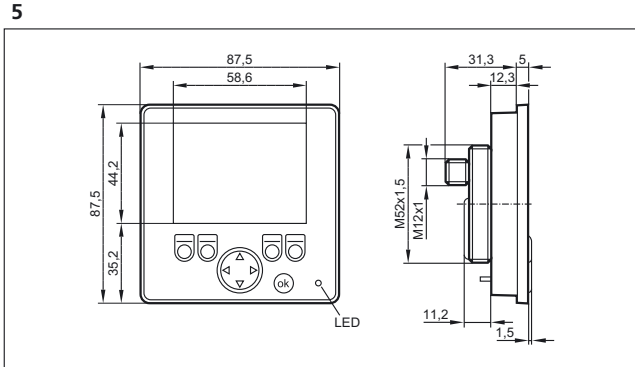
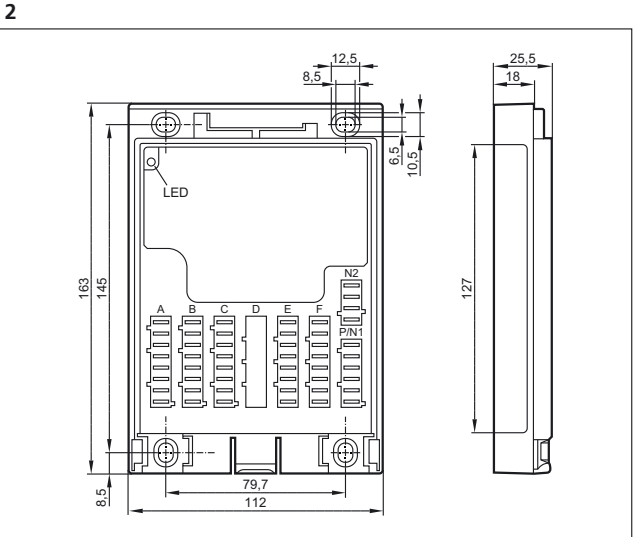
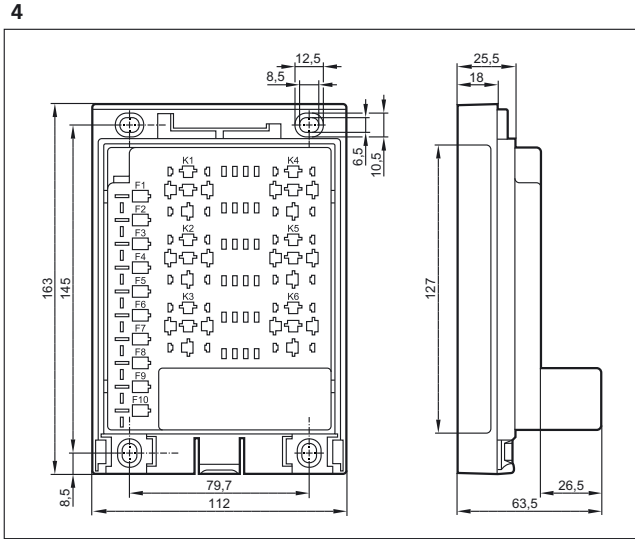
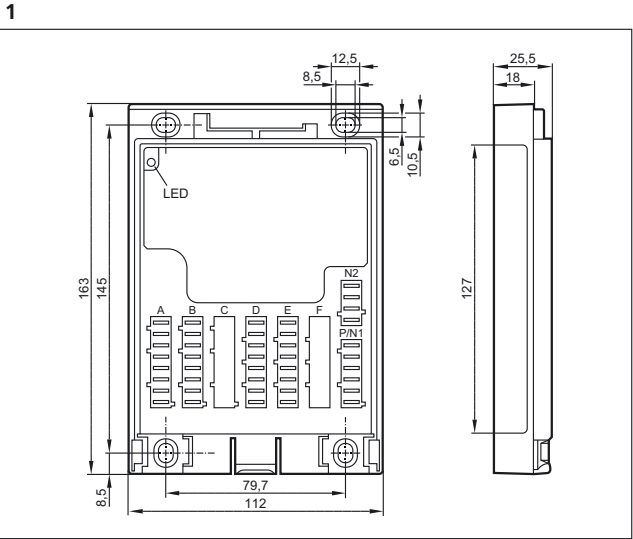
Type	Display	Operating elements	Inputs / outputs	Interfaces	Drawing no.	Order no.
6 freely programmable backlit function keys, Programming according to IEC 61131-3 · M12 connector						
	4.3" colour display 480 x 272 pixels	6 Pushbuttons 1 Navigation key for cursor function	–	1 x CAN	6	CR0452

Accessories for the mini control system Basic

Type	Description	Order no.
	cover · for BasicController CR04xx and BasicRelay CR042x · incl. cable seal	EC0401
	cover · for BasicController CR04xx · Built-in display recess for BasicDisplay CR0451 · incl. cable seal	EC0402
	Mounting frame · for BasicDisplay CR0451 · panel · Housing materials: stainless steel	EC0403
	Mounting frame · for BasicDisplay XL CR0452 · panel · Housing materials: stainless steel	EC0404
	RAM mount set · Ball size 1" (B) · e.g. for BasicDisplay · for use as a desktop unit · Housing materials: Mounting arm: aluminium black anodised / Mounting plate: aluminium black anodised / ball: rubber / Display carrier: plastics black	EC0405

Type	Description	Order no.
	RAM mount set · Ball size 1" (B) · e.g. for BasicDisplay XL · for use as a desktop unit · Housing materials: Mounting arm: aluminium black anodised / Mounting plate: aluminium black anodised / ball: rubber / Display carrier: plastics black	EC0406
	Jumper · wired · for 2 BasicControllers CR04xx · CAN interface · Power supply · 0.5 m	EC0451
	Jumper · wired · for 1 BasicController CR04xx and 1 BasicDisplay CR045x · CAN interface · Power supply · M12 connector · 0.1 m	EC0452
	Jumper · wired · for 2 BasicControllers CR04xx and 1 BasicDisplay CR045x · CAN interface · Power supply · M12 connector · 0.5 m	EC0453
	Jumper · wired · for 1 BasicController CR04xx and 1 BasicDisplay CR045x · CAN interface · Power supply · M12 connector · 5 m	EC0454
	Jumper · wired · for 2 BasicControllers CR04xx and 1 BasicDisplay CR045x · CAN interface · Power supply · M12 connector · 5 m	EC0455
	Plug set · for BasicController CR04xx · wirable · Complete set of contacts / contact housings utilising all connections to a BasicController	EC0456
	Set of contacts · for BasicRelay CR0421 · wirable · utilising all connections to a BasicRelay	EC0457
	Jumper · wired · for 1 BasicController CR04xx and 1 BasicDisplay CR045x · CAN interface · Power supply · M12 connector · 10 m	EC0458
	CANfox · CAN/RS232-USB interface · Programming and diagnosis of CAN systems · 5 V DC (via USB interface)	EC2112
	Adapter cable · for CAN interface CANfox · CAN adapter: DIN connector, 6 poles / M12 connector, 5 poles · RS-232 adapter: DIN connector, 6 poles / Sub-D plug, 9 poles · Cable length 1 m	EC2113
	Set of programming cables · for CAN interface CANfox · Cable BasicController: DIN connector, 6-pole / standard timer contact housing, 6-pole · Cable BasicDisplay: DIN connector, 6-pole / M12 socket, 5-pole · CAN interface · Voltage supply via individual wires with end ferrules · Cable length 1 m · 1 m	EC2114
	Socket · angled · Free from silicone · Free from halogen · Gold-plated contacts · M12 connector with integrated CAN terminating resistor (120 ohm) · 5 m · Housing materials: housing: TPU black / sealing: FKM	EVC492
	Programming software CoDeSys · for configuration, programming and diagnosis of ifm controller systems · German version · incl. the DVD "Software, tools and documentation"	CP9006
	Programming software CoDeSys · for configuration, programming and diagnosis of ifm controller systems · English version · incl. the DVD "Software, tools and documentation"	CP9008

Scale drawings / drawing no. – CAD download: www.ifm.com






Mobile controllers

The platform of the ecomat*mobile* control system: the powerful controller family. Free programmability and the variety of configuration options enable use in a wide range of different applications.

System overview	Page
16-bit ClassicController	662
16-bit ExtendedController	663
16-bit SmartController	663
SmartController 32 bits	663
16-bit SafetyController	663
SafetyController 32 bits	664
32-bit ClassicController	664
32-bit ExtendedController	664
CabinetController for use in control cabinets	665
Accessories and software	665
Connection technology for control systems	665 - 667
Scale drawings / drawing no. – CAD download: www.ifm.com	667 - 668

16-bit ClassicController

Type	Inputs / outputs total	Inputs	Outputs	Interfaces	Draw- ing no.	Order no.
Configurable input / output functions, Programming according to IEC 61131-3						
	24	24 x Digital 8 x analogue (U/I) 8 x frequency	8 x Digital 8 x PWM-I 8 x PWM	2 x CAN 1 x RS-232	1	CR0505
	40	40 x Digital 8 x analogue (U/I) 8 x frequency	24 x Digital 8 x PWM-I 12 x PWM 2 x H bridge	2 x CAN 1 x RS-232	1	CR0020

16-bit ExtendedController

Type	Inputs / outputs total	Inputs	Outputs	Interfaces	Drawing no.	Order no.
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Configurable input / output functions, Programming according to IEC 61131-3

	80	80 x Digital 16 x analogue (U/I) 16 x frequency	48 x Digital 16 x PWM-I 24 x PWM 4 x H bridge	2 x 2 x CAN 2 x RS-232	2	CR0200
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16-bit SmartController

Type	Inputs / outputs total	Inputs	Outputs	Interfaces	Drawing no.	Order no.
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Configurable input / output functions, Programming according to IEC 61131-3

	12	8 x Digital 4 x analogue (U/I) 2 x frequency	4 x Digital 4 x PWM-I 4 x PWM	2 x CAN 1 x RS-232	3	CR2500
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SmartController 32 bits

Type	Inputs / outputs total	Inputs	Outputs	Interfaces	Drawing no.	Order no.
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Configurable input / output functions, Programming according to IEC 61131-3

	32	16 x Digital 4 x analogue (U/I) 4 x frequency 2 x Resistor	16 x Digital 2 x analogue (0.2...10 V) 2 x PWM-I 12 x PWM	2 x CAN	3	CR2530
	64	32 x Digital 8 x analogue (U/I) 8 x frequency 4 x Resistor	32 x Digital 4 x analogue (0.2...10 V) 4 x PWM-I 24 x PWM	3 x CAN	4	CR2532

16-bit SafetyController

Type	Inputs / outputs total	Inputs	Outputs	Interfaces	Drawing no.	Order no.
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SILCl 2 (IEC 62061), PL d (EN ISO 13849-1), Configurable input / output functions, Programming according to IEC 61131-3

	24	24 x Digital 8 x analogue (U/I) 8 x frequency	8 x Digital 8 x PWM-I 8 x PWM	2 x CAN 1 x RS-232	1	CR7506
	40	40 x Digital 8 x analogue (U/I) 8 x frequency	24 x Digital 8 x PWM-I 12 x PWM 2 x H bridge	2 x CAN 1 x RS-232	1	CR7021
	80	80 x Digital 16 x analogue (U/I) 16 x frequency	48 x Digital 16 x PWM-I 24 x PWM 4 x H bridge	2 x 2 x CAN 2 x RS-232	2	CR7201

SafetyController 32 bits

Type	Inputs / outputs total	Inputs	Outputs	Interfaces	Drawing no.	Order no.
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SILCl 2 (IEC 62061), PL d (EN ISO 13849-1), Configurable input / output functions, Programming according to IEC 61131-3

	32	16 x Digital 16 x analogue (U/I) 16 x frequency	16 x Digital 16 x PWM-I 16 x PWM 2 x H bridge	4 x CAN 1 x RS-232 1 x USB	5	CR7032
	80	32 x Digital 32 x analogue (U/I) 32 x frequency	48 x Digital 32 x PWM-I 32 x PWM 4 x H bridge	4 x CAN 1 x RS-232 1 x USB	6	CR7132

32-bit ClassicController

Type	Inputs / outputs total	Inputs	Outputs	Interfaces	Drawing no.	Order no.
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Configurable input / output functions, Programming according to IEC 61131-3

	32	16 x Digital 16 x analogue (U/I) 16 x frequency	16 x Digital 16 x PWM-I 16 x PWM 2 x H bridge	4 x CAN 1 x RS-232 1 x USB	1	CR0032
	32	16 x Digital 12 x analogue (U/I) 12 x frequency 4 x Resistor	16 x Digital 16 x PWM-I 16 x PWM 2 x H bridge	4 x CAN 1 x RS-232 1 x USB	5	CR0033
	64	32 x Digital 16 x analogue (U/I) 16 x frequency 6 x Resistor	32 x Digital 2 x analogue (0.2...10 V) 18 x PWM-I, 28 x PWM 2 x H bridge	5 x CAN 1 x RS-232 1 x USB	6	CR0133




32-bit ExtendedController

Type	Inputs / outputs total	Inputs	Outputs	Interfaces	Drawing no.	Order no.
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Configurable input / output functions, Programming according to IEC 61131-3

	80	32 x Digital 32 x analogue (U/I) 32 x frequency	48 x Digital 32 x PWM-I 32 x PWM 4 x H bridge	2 x 2 x CAN 1 x RS-232 1 x USB	2	CR0232
	80	40 x Digital 36 x analogue (U/I) 36 x frequency 4 x Resistor	40 x Digital 32 x PWM-I 32 x PWM 4 x H bridge	2 x 2 x CAN 1 x RS-232 1 x USB	6	CR0233



CabinetController for use in control cabinets

Type	Inputs / outputs total	Inputs	Outputs	Interfaces	Drawing no.	Order no.
Configurable input / output functions, Programming according to IEC 61131-3						
	42	24 x Digital 8 x analogue (U/I) 4 x frequency	18 x Digital 4 x PWM 10 x Relay	1 x CAN 1 x RS-232	7	CR0301
	36	24 x Digital 8 x analogue (U/I) 4 x frequency	12 x Digital 4 x PWM	1 x CAN 1 x RS-232	8	CR0302
	42	24 x Digital 8 x analogue (U/I) 4 x frequency	18 x Digital 8 x PWM 6 x PNP 10 A	2 x CAN 1 x RS-232	9	CR0303

Accessories and software



Type	Description	Order no.
	Programming software CoDeSys · for configuration, programming and diagnosis of ifm controller systems · German version · incl. the DVD "Software, tools and documentation"	CP9006
	Programming software CoDeSys · for configuration, programming and diagnosis of ifm controller systems · English version · incl. the DVD "Software, tools and documentation"	CP9008
	Starter set ecomat R 360 Smart Controller · consisting of: · controller CR2500 · I/O simulator box incl. connection cable and connectors · plug-in power supply · DVD with programming software CoDeSys · project examples and manuals	EC2074

Connection technology for control systems

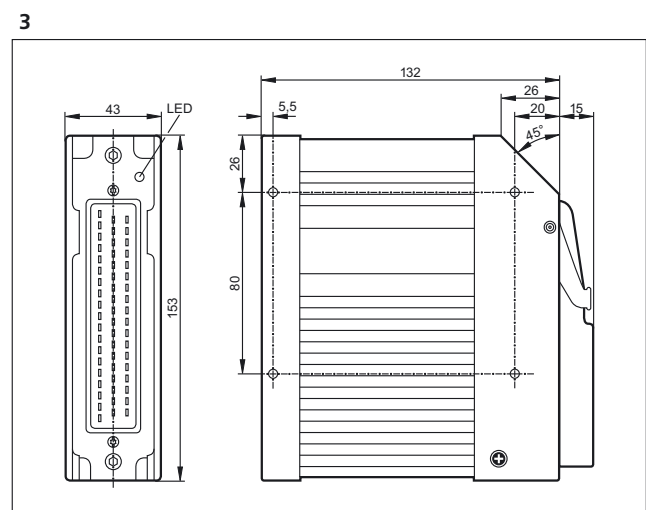
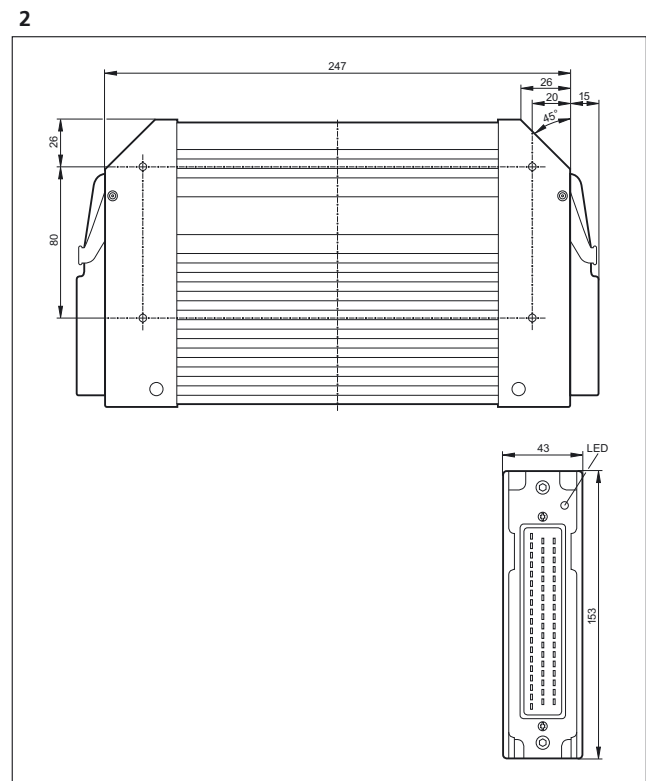
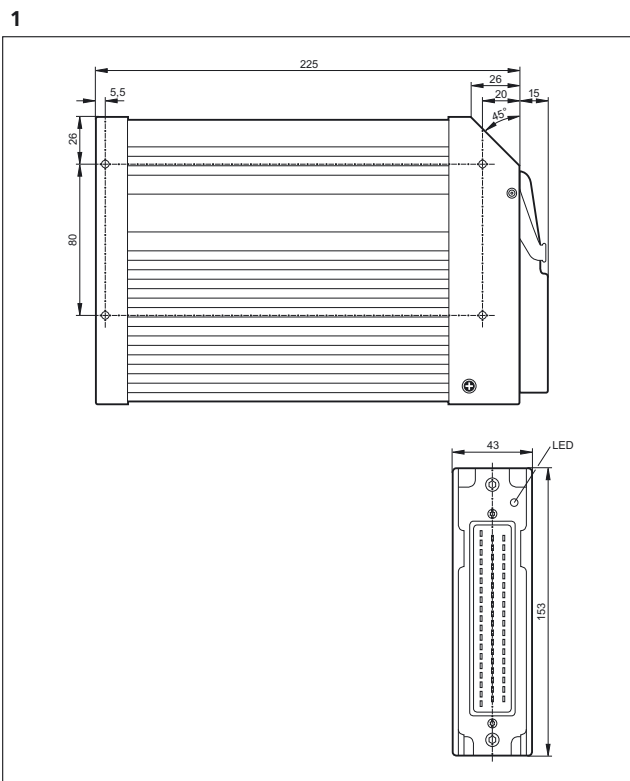
Type	Description	Order no.
	Connector AMP 55-pole · wirable · with contacts (Junior Power Timer)	EC2013
	Cable with connector · AMP 55-pole · wired · Cable length 1.2 m · Cores sealed individually · Core cross-section 1 mm ²	EC2084
	Cable with connector · AMP 55-pole · wired · Cable length 2.5 m · Cores sealed individually · Core cross-section 1 mm ²	EC2097
	Cable with connector · AMP 55-pole · wired · Cable length 1.2 m · Core cross-section 1 mm ²	EC2086
	Cable with connector · AMP 55-pole · wired · Cable length 2.5 m · Core cross-section 1 mm ²	EC2046

You can find scale drawings from page 667

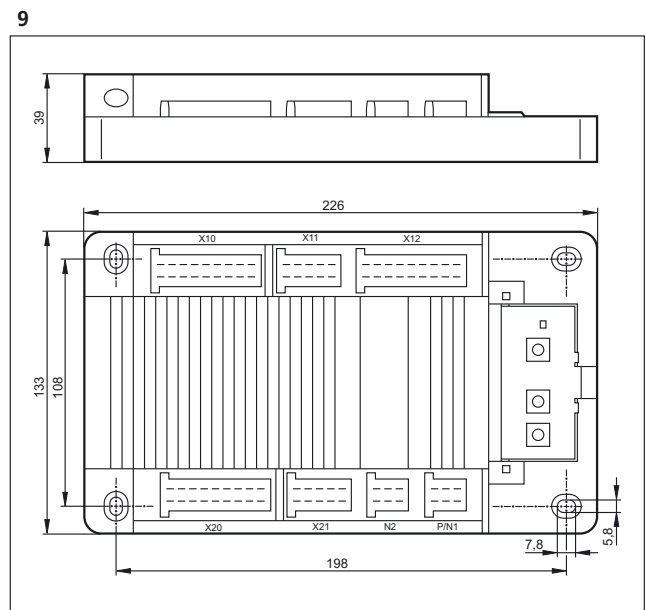
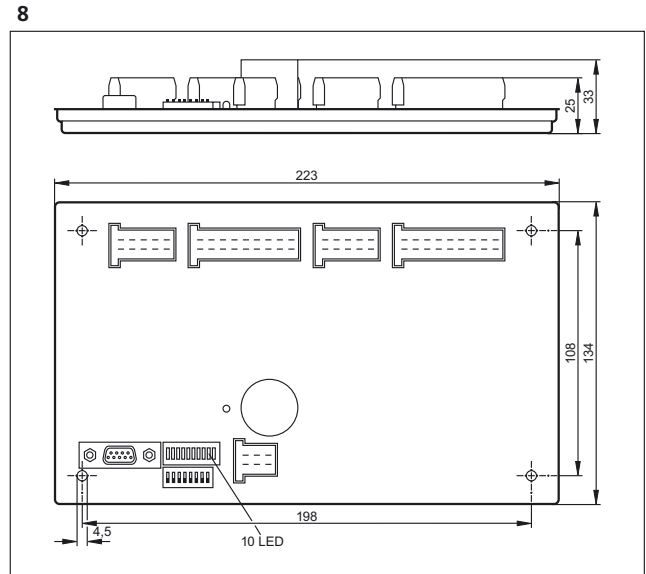
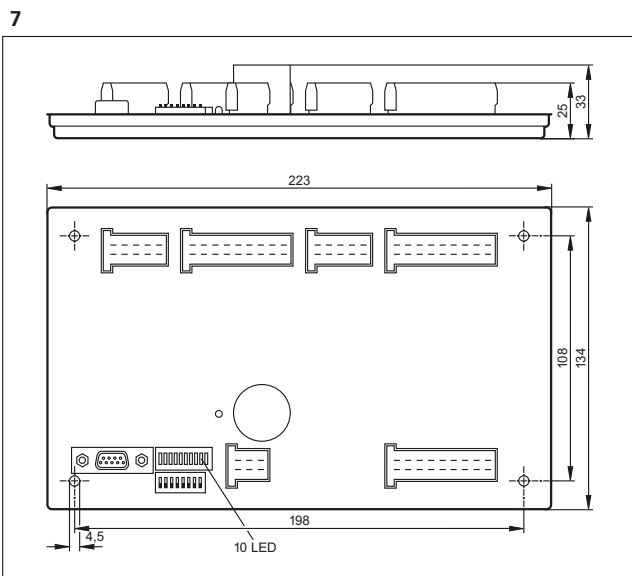
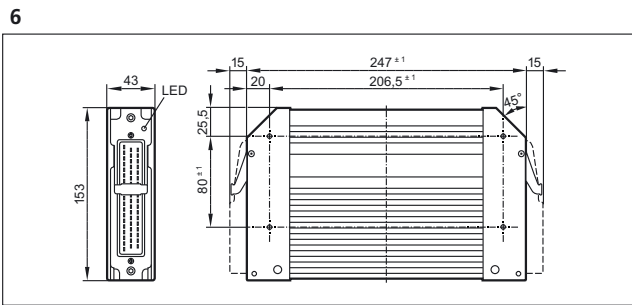
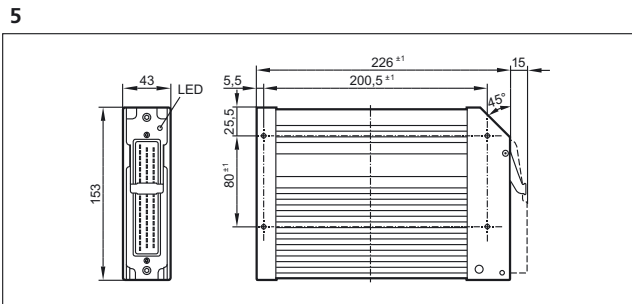
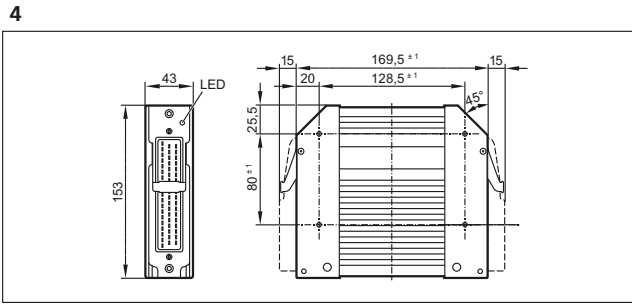
Type	Description	Order no.
	Cable with connector · AMP 6-pole · wired · fully wired · Cable length 1.2 m · Core cross-section 1 mm ²	EC1520
	Cable with connector · AMP 10-pole · wired · fully wired · Cable length 1.2 m · Core cross-section 1 mm ²	EC1521
	Cable with connector · AMP 14-pole · wired · fully wired · Cable length 1.2 m · Core cross-section 1 mm ²	EC1522
	Cable with connector · AMP 18-pole · wired · fully wired · Cable length 1.2 m · Core cross-section 1 mm ²	EC1523
	Cable with connector · AMP 18-pole · wired · partially wired · for input signals · Cable length 1.2 m · Core cross-section 1 mm ²	EC1524
	Cable with connector · AMP 18-pole · wired · fully wired · Cable length 2.5 m · Core cross-section 1 mm ²	EC1533
	Plug set for CabinetModule CR2012 / CR2014 · wirable · consisting of: · AMP Crimp housing 1 x 6 pins, 2 x 18 pins incl. Crimp contacts (Junior Power Timer)	EC2053
	Plug set for CabinetController CR0301 / CR0302 · wirable · consisting of: · AMP Crimp housing 1 x 6 pins, 2 x 10 pins, 3 x 18 pins incl. Crimp contacts (Junior Power Timer)	EC2075
	Plug set for CabinetModule CR201x · wirable · consisting of: · AMP Crimp housing 1 x 6 pins, 2 x 14 pins, 2 x 18 pins incl. Crimp contacts (Junior Power Timer)	EC2089
	Plug set · wirable · consisting of: · AMP Crimp housing 2 x 6 pins, 2 x 10 pins, 3 x 18 pins incl. Crimp contacts (Junior Power Timer)	EC2090
	RS-232 Programming adapter · with gender changer for pin-socket conversion	EC2076
	programming cable · cable length 2 m interface 9-pole D-SUB (female) · AMP 6-pole · Test input (AMP connector, pin 5) connected to VBB via link	EC2091
	programming cable · e.g. for ClassicController CR0032 or ExtendedController CR0232 · wired	EC2096
	Load-Dump-Module · 12 V DC	EC2015
	Load-Dump-Module · 24 V DC	EC2016

Type	Description	Order no.
	Spring terminal box · e.g. for starter set	EC2032
	Serial interface cable · 2 x 9-pole D-SUB (female) · 1:1 · e.g. for PC communication, configuration or uploads of firmware updates · Cable length 2 m · e.g. for process and dialogue monitors PDM360	EC2063

Scale drawings / drawing no. – CAD download: www.ifm.com



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I/O modules

Decentralised I/O modules for use in CANopen bus systems. Considerably reduced wiring, they are mounted where the signals are generated.


The flexible configuration of the inputs and outputs enables universal use and reduces the costs for stockholding.

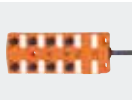
System overview	Page
CompactModules metal	670
CompactModules	670 - 671
SmartModules	671
CabinetModules	671
KeypadModules	672
Accessories for I/O modules	672 - 674
Scale drawings / drawing no. – CAD download: www.ifm.com	674 - 675

CompactModules metal




Type	Inputs / outputs total	Inputs	Outputs	Interfaces	Drawing no.	Order no.
CAN parameters adjustable via coding switch, Configurable input / output functions · M12 connector						
	8	–	8 x Digital 8 x PWM-I 8 x PWM	1 x CAN	1	CR2031
	16	8 x Digital 4 x analogue (U/I)	8 x Digital 4 x PWM	1 x CAN	2	CR2032
	12	8 x Digital 4 x analogue (U/I)	4 x Digital 4 x PWM	1 x CAN	3	CR2033

CompactModules



Type	Inputs / outputs total	Inputs	Outputs	Interfaces	Drawing no.	Order no.
Configurable output functions · M12 connector						
	8	–	8 x Digital 8 x PWM	1 x CAN	4	CR2011

Type	Inputs / outputs total	Inputs	Outputs	Interfaces	Drawing no.	Order no.
Configurable input / output functions · M12 connector						
	8	4 x Digital 4 x analogue (0...10 V)	4 x Digital 4 x PWM	1 x CAN	4	CR2013

SmartModules

Type	Inputs / outputs total	Inputs	Outputs	Interfaces	Drawing no.	Order no.
Configurable output functions · 55-pole connec.						
	8	–	8 x Digital 8 x PWM-I 8 x PWM	1 x CAN	5	CR2511
Configurable input / output functions · 55-pole connec.						
	12	4 x Digital	8 x Digital 8 x PWM-I 8 x PWM	1 x CAN	5	CR2512
	12	8 x Digital 4 x analogue (U/I)	4 x Digital 4 x PWM	1 x CAN	5	CR2513
	30	15 x Digital 4 x analogue (U/I)	15 x Digital 3 x PWM 4 x PNP 10 A 4 x H bridge	1 x CAN	6	CR2520

CabinetModules

Type	Inputs / outputs total	Inputs	Outputs	Interfaces	Drawing no.	Order no.
CAN parameters adjustable via coding switch, Configurable input / output functions · Connector						
	16	16 x Digital 4 x analogue (0...10 V)	4 x Digital 2 x PWM	1 x CAN	7	CR2012
	16	16 x Digital 4 x analogue (0...5 V)	4 x Digital 2 x PWM	1 x CAN	7	CR2014
	32	16 x Digital 4 x analogue (U/I) 4 x frequency	16 x Digital 4 x PWM	1 x CAN	8	CR2016

KeypadModules








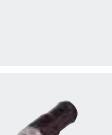



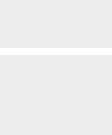

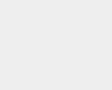
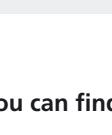
Type	Display	Operating elements	Inputs / outputs	Interfaces	Drawing no.	Order no.
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Programming according to IEC 61131-3 · cage clamps

	2 x LED bar graph (10-digit) 12 x LEDs	12 Pushbuttons 4 arrow keys	–	1 x CAN	9	CR1500
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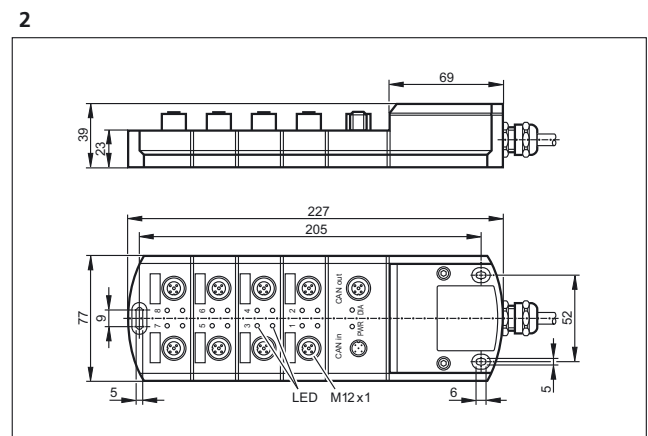
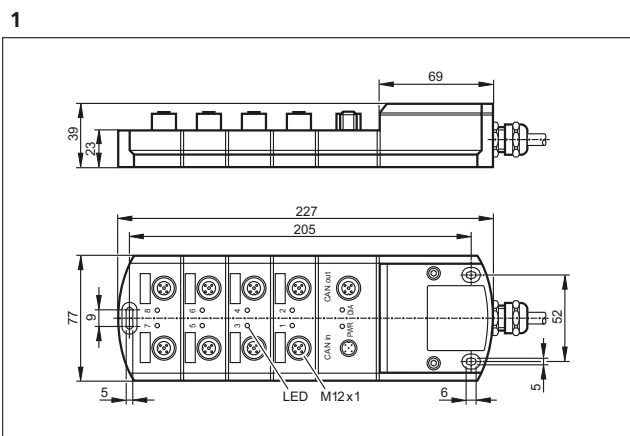
Accessories for I/O modules

Type	Description	Order no.
	label tag · 20 x 9 mm · Housing materials: plastics white	E70424
	Protective cap · M12 · for M12 sockets of ClassicLine modules, CompactLine modules and AirBoxes · Housing materials: PA black	E73004
	Protective cap · M12 · for M12 sockets of CompactModule Metal · Housing materials: PA black	EC2098
	Connector AMP 55-pole · wirable · with contacts (Junior Power Timer)	EC2013
	Cable with connector · AMP 55-pole · wired · Cable length 1.2 m · Cores sealed individually · Core cross-section 1 mm ²	EC2084
	Cable with connector · AMP 55-pole · wired · Cable length 2.5 m · Cores sealed individually · Core cross-section 1 mm ²	EC2097
	Cable with connector · AMP 55-pole · wired · Cable length 1.2 m · Core cross-section 1 mm ²	EC2086
	Cable with connector · AMP 55-pole · wired · Cable length 2.5 m · Core cross-section 1 mm ²	EC2046
	Plug set for CabinetModule CR2012 / CR2014 · wirable · consisting of: · AMP Crimp housing 1 x 6 pins, 2 x 18 pins incl. Crimp contacts (Junior Power Timer)	EC2053
	Plug set for CabinetModule CR201x · wirable · consisting of: · AMP Crimp housing 1 x 6 pins, 2 x 14 pins, 2 x 18 pins incl. Crimp contacts (Junior Power Timer)	EC2089
	Plug set · wirable · consisting of: · AMP Crimp housing 2 x 6 pins, 2 x 10 pins, 3 x 18 pins incl. Crimp contacts (Junior Power Timer)	EC2090

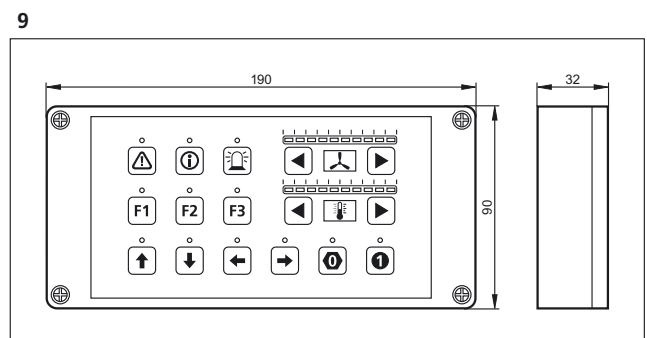
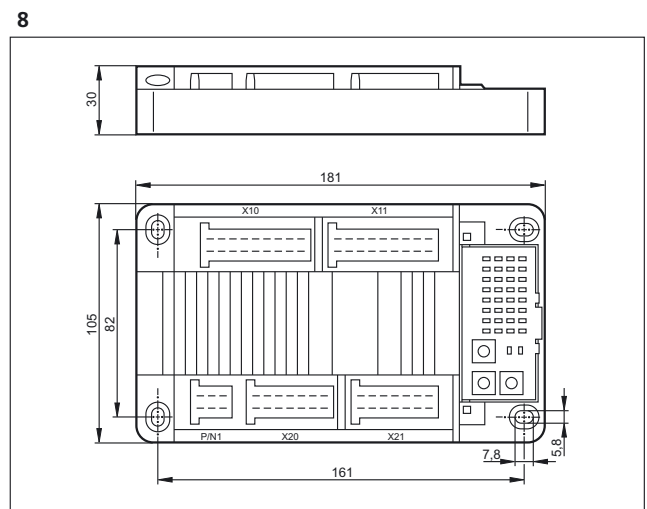
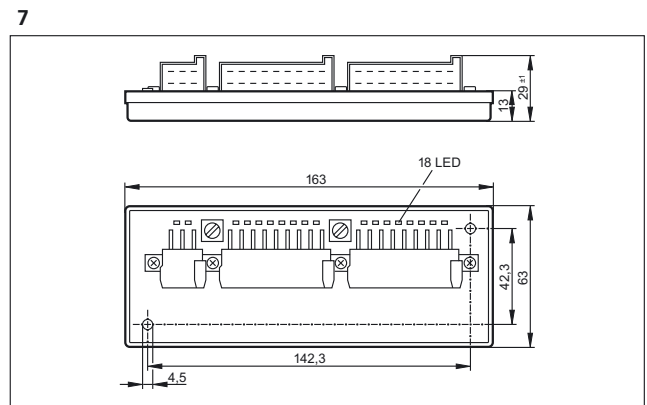
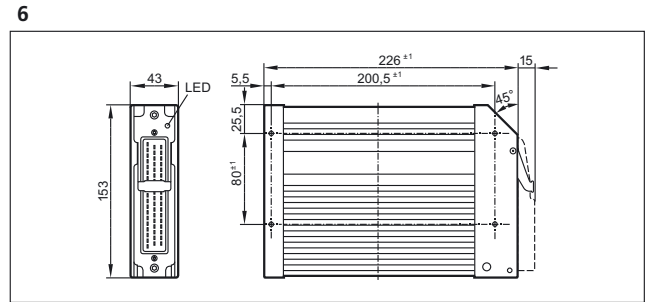
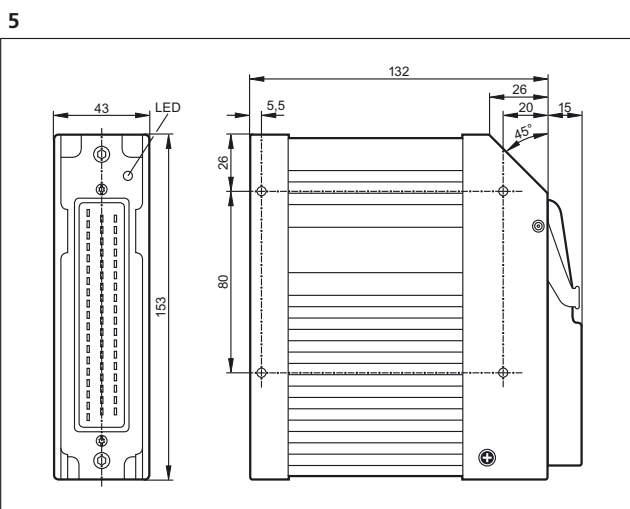
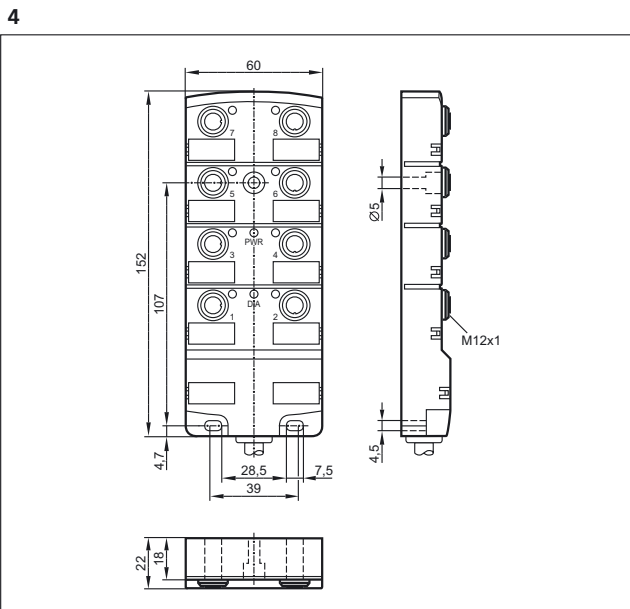
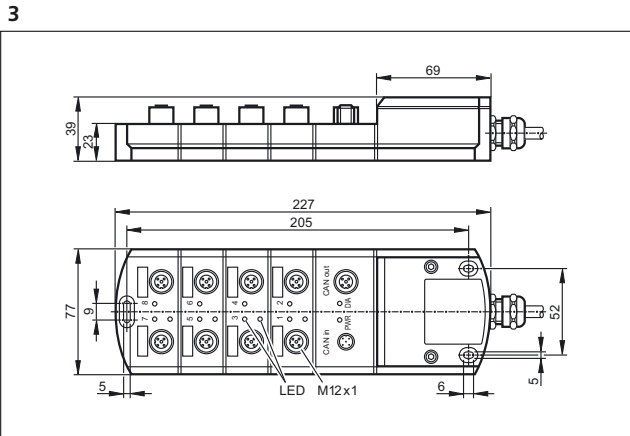
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	Cable with connector · AMP 10-pole · wired · fully wired · Cable length 1.2 m · Core cross-section 1 mm ²	EC1521
	Cable with connector · AMP 14-pole · wired · fully wired · Cable length 1.2 m · Core cross-section 1 mm ²	EC1522
	Cable with connector · AMP 18-pole · wired · fully wired · Cable length 1.2 m · Core cross-section 1 mm ²	EC1523
	Cable with connector · AMP 18-pole · wired · partially wired · for input signals · Cable length 1.2 m · Core cross-section 1 mm ²	EC1524
	Cable with connector · AMP 18-pole · wired · fully wired · Cable length 2.5 m · Core cross-section 1 mm ²	EC1533
	Socket · straight · Free from halogen · Gold-plated contacts · M12 connector · 2 m · 5-pole · Housing materials: PUR	E11596
	Socket · straight · Free from halogen · Gold-plated contacts · M12 connector · 5 m · 5-pole · Housing materials: PUR	E11597
	Terminating resistor socket · straight · Gold-plated contacts · M12 connector · 5-pole · Housing materials: TPU	E11589
	Terminating resistor plug · straight · Gold-plated contacts · M12 connector · 5-pole · Housing materials: TPU	E11590
	Cable plug · straight · Free from halogen · Gold-plated contacts · M12 connector · 2 m · 5-pole · Housing materials: PUR	E11598
	Cable plug · straight · Free from halogen · Gold-plated contacts · M12 connector · 5 m · 5-pole · Housing materials: PUR	E11599
	Jumper · straight / straight · Free from halogen · Gold-plated contacts · 0.3 m · 5-pole · Housing materials: PUR	E11591
	Jumper · straight / straight · Free from halogen · Gold-plated contacts · 1 m · 5-pole · Housing materials: PUR	E11592
	Jumper · straight / straight · Free from halogen · Gold-plated contacts · 2 m · 5-pole · Housing materials: PUR	E11593

Type	Description	Order no.
	Jumper · straight / straight · Free from halogen · Gold-plated contacts · 5 m · 5-pole · Housing materials: PUR	E11594
	Wirable plug · straight · Free from silicone · Free from halogen · wirable · Gold-plated contacts · M12 connector · 5-pole · Housing materials: PA	E11506
	Wirable socket · straight · Free from silicone · Free from halogen · wirable · Gold-plated contacts · M12 connector · 5-pole · Housing materials: PA	E11511
	Wirable plug · straight · Free from silicone · Free from halogen · wirable · Gold-plated contacts · M12 connector · 4-pole · Housing materials: PA	E11504
	Wirable plug · angled · Free from silicone · Free from halogen · wirable · Gold-plated contacts · M12 connector · 4-pole · Housing materials: PA	E11505
	Load-Dump-Module · 12 V DC	EC2015
	Load-Dump-Module · 24 V DC	EC2016
	Plug for Danfoss PWM valves · wirable · terminals	EC2056
	Plug for Danfoss PWM valves · M12 connector	EC2088
	Adapter cable for CAN devices with M12 connector (5 pole) · e.g. CANmem, CANremote or inclination sensors	EC2062

Scale drawings / drawing no. – CAD download: www.ifm.com



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Dialogue modules / displays

Displays with graphics capabilities, free programming to IEC 61131 and various interfaces are features of the dialogue modules.

The convenient user interface for service and machine handling – the dialogue modules of the ecomat*mobile* control system.






System overview	Page
PDM360 smart with 2.5" monochrome display	676
PDM360 NG with 7" display	676 - 677
Accessories for displays	677 - 678
Connection technology for displays	678
Scale drawings / drawing no. – CAD download: www.ifm.com	678

PDM360 smart with 2.5" monochrome display








Type	Display	Operating elements	Inputs / outputs	Interfaces	Drawing no.	Order no.
12 freely programmable backlit function keys, Programming according to IEC 61131-3 · M12 connector						
	2.5" monochrome display 128 x 64 pixels	12 Pushbuttons	–	1 x CAN 1 x RS-232	1	CR1070
	2.5" monochrome display 128 x 64 pixels	12 Pushbuttons	4 x digital in 4 x digital out	1 x CAN 1 x RS-232	1	CR1071


PDM360 NG with 7" display

Type	Display	Operating elements	Inputs / outputs	Interfaces	Drawing no.	Order no.
Real-time clock, 8 freely programmable backlit function keys, Programming according to IEC 61131-3 · M12 connector						
	7" colour display 800 x 480 pixels	8 Pushbuttons	1 x digital in 1 x analogue in 1 x digital out 2 x Video (CVBS) 1 x Buzzer	4 x CAN 1 x Ethernet 2 x USB	2	CR1083
	7" colour display 800 x 480 pixels	8 Pushbuttons	1 x digital in 1 x analogue in 1 x digital out 1 x Buzzer Real-time clock	4 x CAN 1 x Ethernet 2 x USB	2	CR1087



Type	Display	Operating elements	Inputs / outputs	Interfaces	Draw- ing no.	Order no.
Real-time clock, 9 freely programmable backlit function keys, Programming according to IEC 61131-3 · M12 connector						
	7" colour display 800 x 480 pixels	9 Pushbuttons 1 Encoder with pushbutton	1 x digital in 1 x analogue in 1 x digital out 1 x Buzzer Real-time clock	4 x CAN 1 x Ethernet 2 x USB	3	CR1080
	7" colour display 800 x 480 pixels	9 Pushbuttons 1 Navigation key with pushbutton	1 x digital in 1 x analogue in 1 x digital out 1 x Buzzer Real-time clock	4 x CAN 1 x Ethernet 2 x USB	4	CR1081
	7" colour display 800 x 480 pixels	9 Pushbuttons 1 Navigation key with pushbutton 1 Touch screen	1 x digital in 1 x analogue in 1 x digital out 2 x Video (CVBS) 1 x Buzzer	4 x CAN 1 x Ethernet 2 x USB	4	CR1082
	7" colour display 800 x 480 pixels	9 Pushbuttons 1 Encoder with pushbutton	1 x digital in 1 x analogue in 1 x digital out 2 x Video (CVBS) 1 x Buzzer	4 x CAN 1 x Ethernet 2 x USB	3	CR1084
	7" colour display 800 x 480 pixels	9 Pushbuttons 1 Navigation key with pushbutton	1 x digital in 1 x analogue in 1 x digital out 2 x Video (CVBS) 1 x Buzzer	4 x CAN 1 x Ethernet 2 x USB	4	CR1085

Accessories for displays

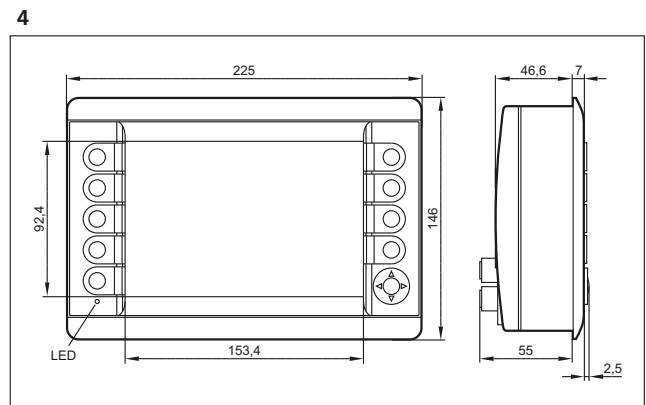
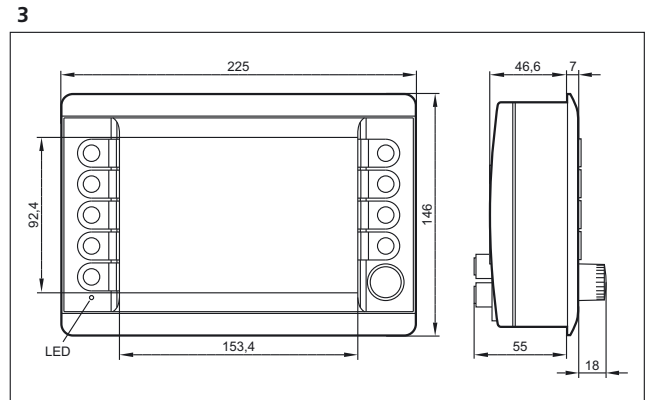
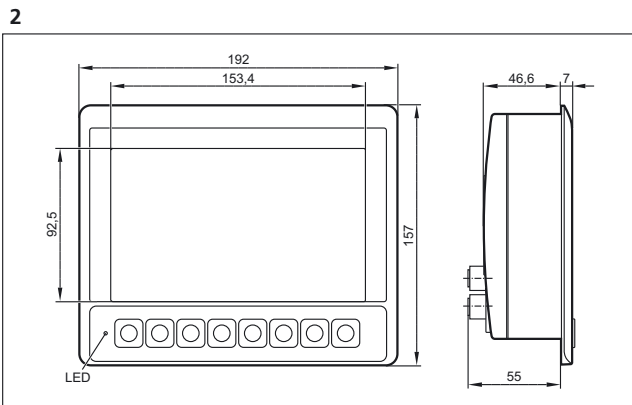
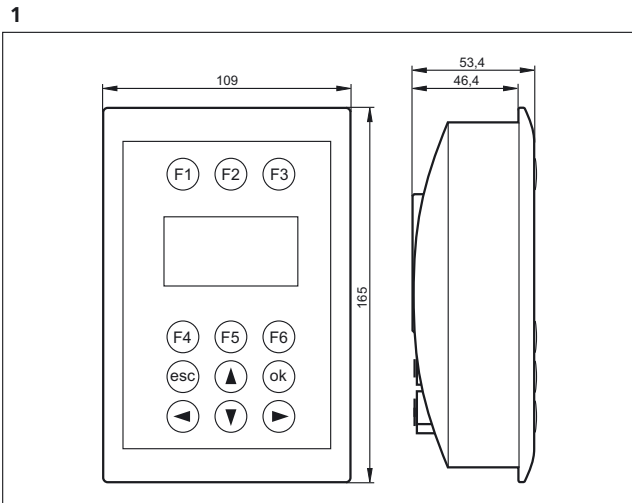
Type	Description	Order no.
	Mounting plate · RAM mount system · Ball size 1.5" (C) · e.g. for process and dialogue monitors PDM360 NG, PDM360, PDM360 compact or PDM360 smart · for use as a desktop unit	EC1410
	Mounting arm short · 90 mm · RAM mount system · Ball size 1.5" (C) · e.g. for process and dialogue monitors PDM360 NG, PDM360, PDM360 compact or PDM360 smart · for use as a desktop unit	EC1411
	Mounting arm standard · 144 mm · RAM mount system · Ball size 1.5" (C) · e.g. for process and dialogue monitors PDM360 NG, PDM360, PDM360 compact or PDM360 smart · for use as a desktop unit	EC1412
	Mounting arm long · 231 mm · RAM mount system · Ball size 1.5" (C) · e.g. for process and dialogue monitors PDM360 NG, PDM360, PDM360 compact or PDM360 smart · for use as a desktop unit	EC1413
	Seal and vibration absorber · for process and dialogue modules PDM360 smart, PDM360 compact	EC1450
	Load-Dump-Module · 12 V DC	EC2015
	Load-Dump-Module · 24 V DC	EC2016

Type	Description	Order no.
	plug-in power supply · with interchangeable mains plugs (EU/UK/USA/AUS) · Output 24 V DC / 1000 mA	EC2059

Connection technology for displays

Type	Description	Order no.
	Jumper · for process and dialogue modules PDM360 NG · USB socket for installation in control panel or dashboard · 1.5 m	EC2099
	Jumper · straight / straight · Ethernet · Cross-over patch cable · 2 m · Housing materials: PUR / PC	E11898

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Cameras



In almost all mobile machines, users today use displays for indicating machine information. At the same time camera systems monitor the operating areas. Here, the new camera system is used. Designed for extreme operating conditions.





System overview	Page
3D sensors for mobile machines	680
Accessories	680 - 681
Camera systems for PDM360 NG	681
Connection technology for displays	681
Accessories	682
Camera systems for PDM360 color and PDM360 NG	682
Connection technology for displays	682
Scale drawings / drawing no. – CAD download: www.ifm.com	683

3D sensors for mobile machines


Type	Image resolution	Angle of aperture [°]	Additional functions	Interfaces	Drawing no.	Order no.
M12 connector						
	64 x 16 pixels	70 x 23	–	Fast-Ethernet	1	O3M150
	64 x 16 pixels	70 x 23	CAN-output	Fast-Ethernet	1	O3M151

Accessories

Type	Description	Order no.
	3D Mobile Illumination · O3M · Device interfaces: MCI · Angle of aperture 70° x 23° (vertical x horizontal) · PMD 3D illumination for the operation of O3M15x and O3M25x · Connector · Housing materials: housing: diecast aluminium	O3M950
	CANfox · CAN/RS232-USB interface · Programming and diagnosis of CAN systems · 5 V DC (via USB interface)	EC2112

Type	Description	Order no.
	Set of programming cables · for CAN interface CANfox · Cable BasicController: DIN connector, 6-pole / standard timer contact housing, 6-pole · Cable BasicDisplay: DIN connector, 6-pole / M12 socket, 5-pole · CAN interface · Voltage supply via individual wires with end ferrules · Cable length 1 m · 1 m	EC2114
	Parametriersoftware für Vision Sensoren	E3D300
	Mounting set · O3M · U-shaped fixture, adjustable · rod mounting Ø 14 mm · Housing materials: fixture: stainless steel / clamp: stainless steel	E3M100
	Mounting set · O3M · Clamp mounting · rod mounting Ø 14 mm · Housing materials: fixture: stainless steel / clamp: stainless steel	E3M103





Camera systems for PDM360 NG

Type	Image resolution	Angle of aperture [°]	Additional functions	Interfaces	Drawing no.	Order no.
M16 connector						
	640 x 480	78	lens heating	Video signal analogue	2	O2M200
	640 x 480	78	Integrated mirror function lens heating	Video signal analogue	2	O2M201
	640 x 480	115	lens heating	Video signal analogue	2	O2M202
	640 x 480	115	Integrated mirror function lens heating	Video signal analogue	2	O2M203


Connection technology for displays

Type	Description	Order no.
	Adapter cable · straight / straight · M16 - M12 · Gold-plated contacts · Free from silicone · 0.6 m · Housing materials: housing: PUR / sealing: EPDM	E2M200
	Adapter cable · straight / straight · Y adapter cable M12 plug / 2 x M16 socket · Gold-plated contacts · Free from silicone · 0.95 m · Housing materials: housing: PUR / sealing: EPDM	E2M201
	Jumper · straight / straight · M16 - M16 · Gold-plated contacts · Free from silicone · 5 m · Housing materials: housing: PUR / sealing: EPDM	E2M203
	Jumper · straight / straight · M16 - M16 · Gold-plated contacts · Free from silicone · 16 m · Housing materials: housing: PUR / sealing: EPDM	E2M205


Accessories

Type	Description	Order no.
	protective housing · O2M2 · Housing materials: housing: 1.4301	E2M212
	Mounting bracket · O2M2 · Housing materials: housing: ABS reinforced glass-fibre / PC / PA	E2M211
	Vibration damper · O2M2 · Housing materials: Absorber: rubber / set screw: steel M6 x 15 mm	E2M213
	Mounting set · O2M2 · Housing materials: fixture: ABS	E2M210

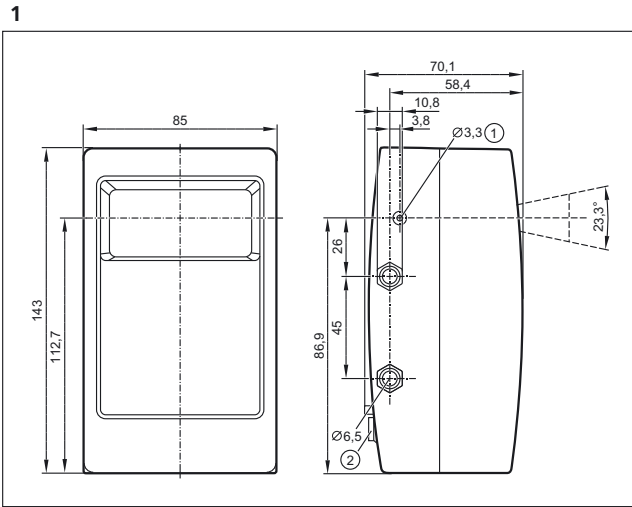
Camera systems for PDM360 color and PDM360 NG

Type	Image resolution	Angle of aperture [°]	Additional functions	Interfaces	Draw- ing no.	Order no.
M12 connector						
	320 x 240 pixels	75°	image mirroring lens heating	1 x Ethernet	3	O2M110
	320 x 240 pixels	115°	image mirroring lens heating	1 x Ethernet	3	O2M113

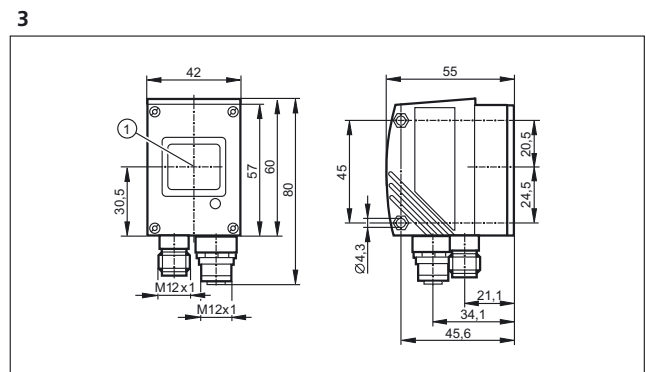
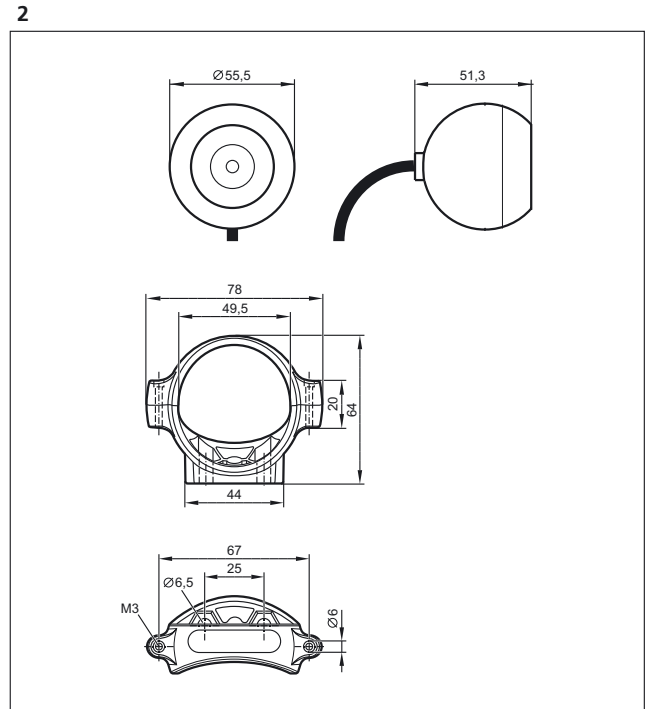
Connection technology for displays

Type	Description	Order no.
	Ethernet switch · 5 ports · Autosensing · Autocrossing · 10/100Base-TX · Redundant voltage supply · 10...30 V DC	EC2095
	Jumper · straight / straight · Ethernet · Cross-over patch cable · 2 m · Housing materials: PUR / PC	E11898
	Jumper · straight / straight · Ethernet · Gold-plated contacts · 2 m · Housing materials: TPU	E21138
	Jumper · straight / straight · Ethernet · Gold-plated contacts · 5 m · Housing materials: TPU	E21139
	Jumper · straight / straight · Ethernet · Gold-plated contacts · 10 m · Housing materials: TPU	E21137

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1: Reference socket, 2: Connections








Diagnostic and service units


Detection of diagnostic data – the basis for a powerful and low-cost remote maintenance and monitoring concept. Reduced service costs and standstill times in cases of failure are essential advantages of this modern technology.

System overview	Page
Remote maintenance	684
Data memory	684
CAN interface and diagnosis	685
Accessories for remote maintenance	685
Accessories for data memory	685
CAN cables	685 - 686
Scale drawings / drawing no. – CAD download: www.ifm.com	686




Remote maintenance

Type	Description	Draw- ing no.	Order no.
M12 connector, 5-pole · FME connector, GSM antenna · SMA socket, GPS antenna			
	CAN GPRS/GPS radio modem · GSM/GPRS (850/900/1800/1900 MHz) · for the transfer of SMS messages and data packages · with GPS receiver for location tracking · aluminium powder-coated	1	CR3108
	CAN 3G/GPS radio modem (European version) · GSM/GPRS/EDGE (850/900/1800 MHz) · UMTS/HSDPA (900/2100 MHz) · for the transfer of SMS messages and data packages · with GPS receiver for location tracking · aluminium powder-coated	1	CR3110
	CAN 3G/GPS radio modem (USA version) · GSM/GPRS/EDGE (850/900/1800/1900 MHz) · UMTS/HSDPA (850/1900 MHz) · for the transfer of SMS messages and data packages · with GPS receiver for location tracking · aluminium powder-coated	1	CR3112


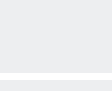

Data memory

Type	Display	Memory type	Storage functions	Interfaces	Draw- ing no.	Order no.
Data memory and logger for CANopen systems · M12 connector						
	5 LEDs	SD memory card (max. 2 Gbytes)	linear ring on address	1 x CAN 1 x USB	2	CR3101


CAN interface and diagnosis

Type	Description	Draw- ing no.	Order no.
	CANfox · CAN/RS232-USB interface · Programming and diagnosis of CAN systems · 5 V DC (via USB interface)	3	EC2112
	Adapter cable · for CAN interface CANfox · CAN adapter: DIN connector, 6 poles / M12 connector, 5 poles · RS-232 adapter: DIN connector, 6 poles / Sub-D plug, 9 poles · Cable length 1 m	–	EC2113
	CAN Bus tester · mobile device for the analysis of CAN networks · Touch screen · 11/29-bit identifier · plastics: ABS	4	EC2100



Accessories for remote maintenance





Type	Description	Order no.
	CANremote GSM planar aerial · GSM 850/900/1800/1900 · UMTS 1920...2170 MHz · Cable length 3 m · FME socket (GSM) · flat design for mounting on all plain surfaces	EC2092
	CANremote GPS planar aerial · with integrated amplifier · Cable length 3 m · SMA aerial connector · flat design for mounting on all plain surfaces	EC2093
	GSM/GPS combined antenna · GSM 850/900/1800/1900 · UMTS 1920...2170 MHz · with integrated amplifier · Cable length 3 m · FME socket (GSM) · SMA plug (GPS) · flat design for mounting on all plain surfaces · e.g. for CANremote CR3108, CR3110 or CR3112 · thread M16 x 1.5	EC2116

Accessories for data memory

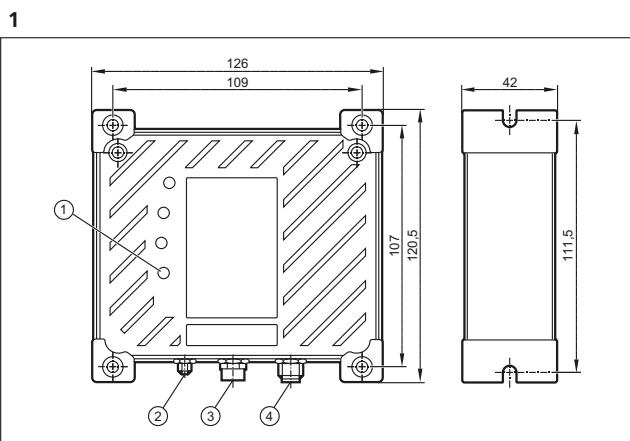
Type	Description	Order no.
	SD memory card · 2 GByte · for mobile applications	EC1021

CAN cables

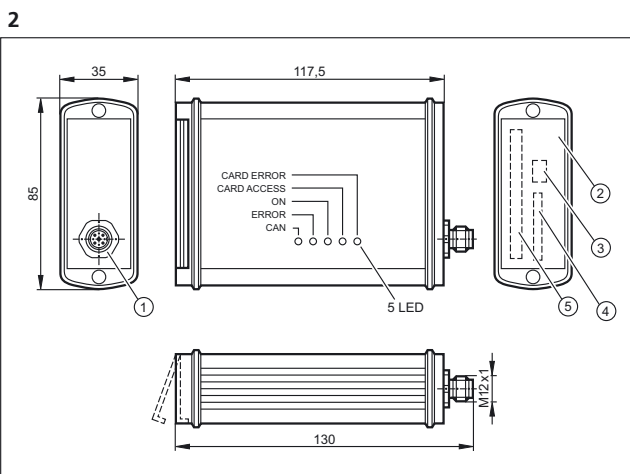
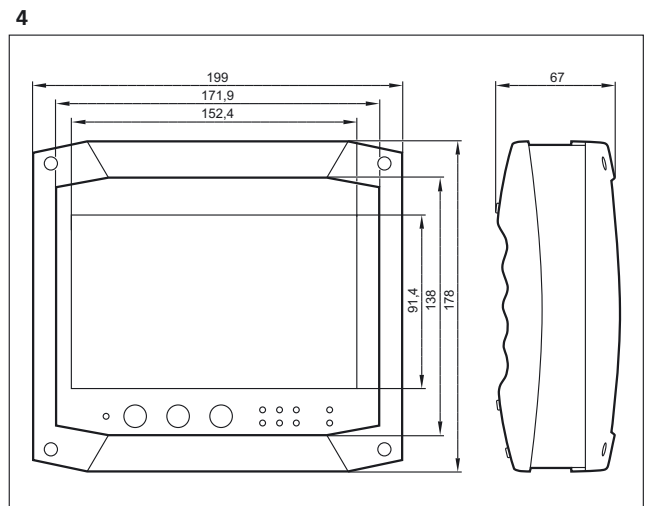
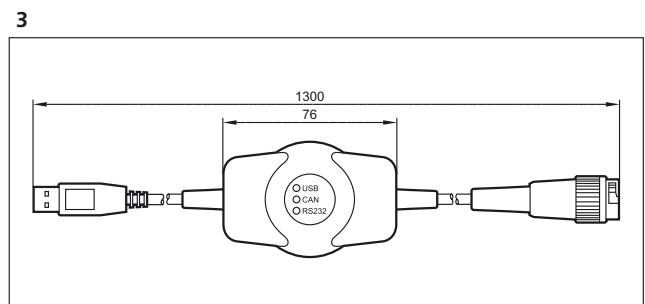
Type	Description	Order no.
	Adapter cable · 9-pole D-SUB (female) · 5-pole socket; M12 · 2-pole cable for power supply with bare ends · integrated CAN terminal resistor (120 Ω) switchable	EC2050
	Adapter cable for CAN devices with M12 connector (5 pole) · e.g. CANmem, CANremote or inclination sensors	EC2062

Type	Description	Order no.
	CAN communication cable · cable length 2 m interface 9-pole D-SUB (female) · cable ends with lugs	EC2034
	Serial interface cable · 2 x 9-pole D-SUB (female) · 1:1 · e.g. for PC communication, configuration or uploads of firmware updates · Cable length 2 m · e.g. for process and dialogue monitors PDM360	EC2063
	USB connection cable · type A to type Mini B · for PC communication, configuration and uploads of firmware updates · cable length 1.8 m · e.g. for CANmem	EC2058
	Wireable socket · straight · Free from silicone · Free from halogen · wireable · Gold-plated contacts · M12 connector · 5-pole · Housing materials: PA	E11511

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1: LEDs, 2: SMA socket, GPS antenna, 3: FME connector, GSM antenna, 4: M12 connector, 5-pole



1: CANopen interface, 2: protective cover, 3: USB, type Mini-B (socket), 4: SD/MMC slot, 5: PCMCIA slot











Signal converters

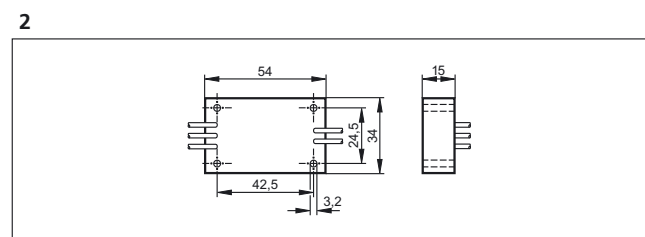
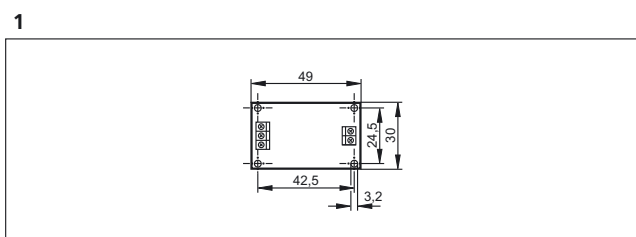
The solution provider for special applications. Signal converter to adapt sensor and actuator signals to the inputs and outputs of the controller or CANopen modules.

System overview	Page
Converters and PWM modules	688
Scale drawings / drawing no. – CAD download: www.ifm.com	688 - 689

Converters and PWM modules

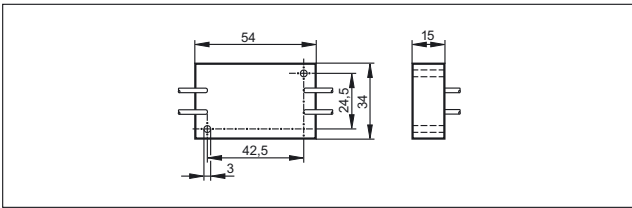
Type	Description	Draw- ing no.	Order no.
	PWM / analogue module · PCB · Input 24 V DC PWM signal · Output 0...5 V DC	1	CR3001
	PWM / analogue module · PCB · Input 24 V DC PWM signal · Output 0...10 V DC	1	CR3002
	PWM / analogue module · Housing · Input 24 V DC PWM signal · Output 0...5 V DC	2	CR3003
	PWM / analogue module · Housing · Input 24 V DC PWM signal · Output 0...10 V DC	2	CR3004
	DC/DC converter · Input 18...36 V DC · Output 10 V DC	3	EC2025
	Module for current measurement with ecomat R 360 controller	4	EC2049

Scale drawings / drawing no. – CAD download: www.ifm.com

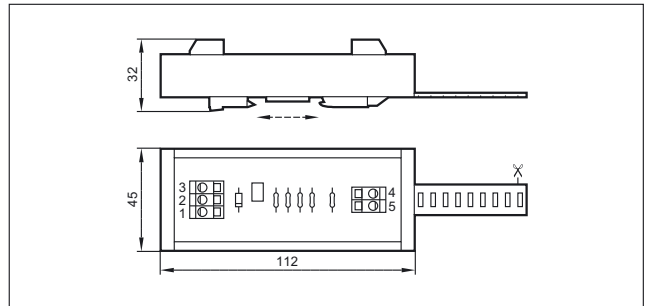


Scale drawings / drawing no. – CAD download: www.ifm.com

3



4





Sensors

From CAN-bus compatible or analogue inclination sensors to inductive proximity switches and pressure sensors for mobile applications.

The sensors of the ecomat*mobile* system are reliable even under the extreme conditions of use in a mobile machine.

System overview	Page
Absolute multiturn-encoders (CANopen) for mobile applications	690
CAN inclination sensors	690 - 691
Inclination sensors	691
Tilt sensors	691
Inductive sensors for mobile applications	691 - 693
Electronic pressure sensors for mobile applications	693 - 695
Accessories for sensors for mobile applications	696
Connection technology for sensors for mobile use	696 - 697
Wiring diagrams	697
Scale drawings / drawing no. – CAD download: www.ifm.com	697 - 700

Absolute multiturn-encoders (CANopen) for mobile applications

Type	Resolution	U _b	f	I _{load}	Shaft	Ambient temperature	Cable entry	Drawing no.	Order no.
		[V]	[kHz]	[mA]	[mm]	[°C]			


M12 connector · Output function CANopen interface · Connector group 149


	24 bits	10...30	–	–	10	-40...85	axial	1	RM9000
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CAN inclination sensors



Type	Angular range	Number of axes	Resolution / accuracy	Interfaces	Drawing no.	Order no.
	[°]		[°]			

2 x M12 connector


	0...360° / ± 180°	2	0.05 / ± 0.5°	2 x CAN	2	JN2100
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Type	Angular range [°]	Number of axes	Resolution / accuracy [°]	Interfaces	Drawing no.	Order no.
2 x M12 connector						
	± 45°	2	0.01 / ≤ ± 0.1°	2 x CAN	2	JN2101



Inclination sensors

Type	Angular range [°]	Supply voltage	Output signal	Repeatability [°]	Drawing no.	Order no.
Cable						
	±90°	15...30 V DC	1 x analogue (0...10 V)	0.1°	3	EC2019
	±90°	8...30 V DC	1 x analogue (0.5...4.5 V)	0.1°	3	EC2045
M12 connector						
	±20°	11...15 V DC	1 x analogue (4...20 mA)	0.1°	3	EC2060
	±90°	20...30 V DC	1 x analogue (4...20 mA)	0.1°	3	EC2082

Tilt sensors

Type	Angular range [°]	Supply voltage	Output signal	Repeatability [°]	Drawing no.	Order no.
Cable						
	2.5...5.5°	10...30 V DC	1 x Digital	0.2°	4	EC2061

Inductive sensors for mobile applications

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
Cable 3 m · Output function  · DC PNP · Wiring diagram no. 1									
	40 x 12 x 26	4 nf	PBT	10...36	IP 67	70	–	5	IN5281

Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Drawing no.	Order no.
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Cable 3 m · Output function  · DC PNP · Wiring diagram no. 2



40 x 12 x 26	4 nf	PBT	10...36	IP 67	70	–	5	IN5282
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Cable 6 m · Output function  · DC PNP · Wiring diagram no. 3



M12 / L = 79	4 f	stainless steel	10...60	IP 67 / IP 69K	400	200	6	IFM209
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M12 / L = 79	7 nf	High-grade st. steel	10...60	IP 67 / IP 69K	300	200	7	IFM210
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M18 / L = 81	8 f	stainless steel	10...60	IP 67 / IP 69K	200	200	8	IGM206
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M18 / L = 81	12 nf	stainless steel	10...60	IP 67 / IP 69K	200	200	9	IGM207
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M30 / L = 81	12 f	stainless steel	10...60	IP 67 / IP 69K	100	200	10	IIM210
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M30 / L = 81	22 nf	stainless steel	10...60	IP 67 / IP 69K	100	200	11	IIM211
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Cable 6 m · Output function  · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 8



M12 / L = 79	4 f	stainless steel	10...36	IP 67 / IP 69K	400	100	6	IFM207
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M12 / L = 79	7 nf	stainless steel	10...36	IP 67 / IP 69K	300	100	7	IFM208
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M18 / L = 81	8 f	stainless steel	10...36	IP 67 / IP 69K	200	100	8	IGM202
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M18 / L = 81	12 nf	stainless steel	10...36	IP 67 / IP 69K	200	100	9	IGM203
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M30 / L = 81	12 f	stainless steel	10...36	IP 67 / IP 69K	100	100	10	IIM202
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














M30 / L = 81	22 nf	stainless steel	10...36	IP 67 / IP 69K	100	100	11	IIM203
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M12 connector · Output function  · DC PNP · Wiring diagram no. 4 · Connector groups 147, 148




M12 / L = 70	4 f	High-grade st. steel	10...60	IP 67 / IP 69K	400	200	12	IFM205
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Type	Dimensions [mm]	Sensing range [mm]	Material	U _b [V]	Protection	f [Hz]	I _{load} [mA]	Draw- ing no.	Order no.
M12 connector · Output function  · DC PNP · Wiring diagram no. 4 · Connector groups 147, 148									
	M12 / L = 70	7 nf	stainless steel	10...60	IP 67 / IP 69K	300	200	13	IFM206
	M18 / L = 70	8 f	stainless steel	10...60	IP 67 / IP 69K	200	200	14	IGM204
	M18 / L = 70	12 nf	stainless steel	10...60	IP 67 / IP 69K	200	200	15	IGM205
	M30 / L = 70	12 f	stainless steel	10...60	IP 67 / IP 69K	100	200	16	IIM208
	M30 / L = 70	22 nf	stainless steel	10...60	IP 67 / IP 69K	100	200	17	IIM209

M12 connector · Output function  · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 9 · Connector groups 147, 148									
	M12 / L = 70	4 f	High-grade st. steel	10...36	IP 67 / IP 69K	400	100	12	IFM203
	M12 / L = 70	7 nf	High-grade st. steel	10...36	IP 67 / IP 69K	300	100	13	IFM204
	M18 / L = 70	8 f	stainless steel	10...36	IP 67 / IP 69K	200	100	14	IGM200
	M18 / L = 70	12 nf	stainless steel	10...36	IP 67 / IP 69K	200	100	15	IGM201
	M30 / L = 70	12 f	stainless steel	10...36	IP 67 / IP 69K	100	100	16	IIM200
	M30 / L = 70	22 nf	stainless steel	10...36	IP 67 / IP 69K	100	100	17	IIM201

f = flush / nf = non flush


Electronic pressure sensors for mobile applications

Type	Process connection	Display LED	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
M12 connector · Output function 2 x normally open / closed programmable or 1 x normally open / closed programmable + 1 x normally closed (diagnostic function) · Wiring diagram no. 5 · Connector groups 8, 10, 11, 18, 20, 117, 118, 119, 147, 148								
	G¼ male / M5 female	Operation	0...400	600	1000	9.6...36	18	PP7550


You can find wiring diagrams and scale drawings from page 697

Type	Process connection	Display LED	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
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M12 connector · Output function 2 x normally open / closed programmable or 1 x normally open / closed programmable + 1 x normally closed (diagnostic function) · Wiring diagram no. 5 · Connector groups 8, 10, 11, 18, 20, 117, 118, 119, 147, 148

	G 1/4 male / M5 female	Operation	0...250	400	850	9.6...36	18	PP7551
	G 1/4 male / M5 female	Operation	0...100	300	650	9.6...36	19	PP7552
	G 1/4 male / M5 female	Operation	0...25	150	350	9.6...36	20	PP7553
	G 1/4 male / M5 female	Operation	-1...10	75	150	9.6...36	20	PP7554

M12 connector · Output function 4...20 mA · Wiring diagram no. 6 · Connector groups 8, 10, 18, 20, 117, 118, 147


	G 1/4 I	–	0...400	600	1000	9.6...32	21	PA3020
	G 1/4 I	–	0...250	400	850	9.6...32	21	PA3021
	G 1/4 I	–	0...100	300	650	9.6...32	22	PA3022
	G 1/4 I	–	0...25	150	350	9.6...32	22	PA3023
	G 1/4 I	–	0...10	75	150	9.6...32	22	PA3024
	G 1/4 I	–	0...600	800	1200	9.6...32	23	PA3060

M12 connector · Output function 0...10 V · Wiring diagram no. 7 · Connector groups 8, 10, 18, 20, 117, 118, 147


	G 1/4 I	–	0...400	600	1000	16...32	21	PA9020
	G 1/4 I	–	0...250	400	850	16...32	22	PA9021
	G 1/4 I	–	0...100	300	650	16...32	22	PA9022
	G 1/4 I	–	0...25	150	350	16...32	22	PA9023
	G 1/4 I	–	0...10	75	150	16...32	22	PA9024

Type	Process connection	Display LED	Measuring range [bar]	P _{overload} max. [bar]	P _{bursting} min. [bar]	U _b DC [V]	Draw- ing no.	Order no.
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M12 connector · Output function 2 x normally open / closed programmable or 1 x normally open / closed programmable + 1 x normally closed (diagnostic function) · Wiring diagram no. 5 · Connector groups 147, 148

	G ¼ male / M5 female	Operation	0...400	600	1000	9.6...36	18	PP000E
	G ¼ male / M5 female	Operation	0...250	400	850	9.6...36	18	PP001E
	G ¼ male / M5 female	Operation	0...100	300	650	9.6...36	19	PP002E
	G ¼ male / M5 female	Operation	0...25	150	350	9.6...36	20	PP003E
	G ¼ male / M5 female	Operation	-1...10	75	150	9.6...36	20	PP004E






M12 connector · Output function 4...20 mA analogue · Wiring diagram no. 6 · Connector group 147

	G ¼ A	–	0...400	600	1600	8.5...36	24	PT3550
	G ¼ A	–	0...250	400	1000	8.5...36	24	PT3551
	G ¼ A	–	0...100	200	1000	8.5...36	24	PT3552
	G ¼ A	–	0...25	60	600	8.5...36	24	PT3553
	G ¼ A	–	0...10	25	300	8.5...36	24	PT3554




M12 connector · Output function 0...10 V analogue · Wiring diagram no. 7 · Connector group 147


	G ¼ A	–	0...400	600	1600	16...36	24	PT9550
	G ¼ A	–	0...250	400	1000	16...36	24	PT9551
	G ¼ A	–	0...100	200	1000	16...36	24	PT9552
	G ¼ A	–	0...25	60	600	16...36	24	PT9553
	G ¼ A	–	0...10	25	300	16...36	24	PT9554

Accessories for sensors for mobile applications

Type	Description	Order no.
	Programming/ display unit · for EPS and IO-Link sensors · Connector · Housing materials: stainless steel 316L / 1.4404 / PC copolymer / PBT / FPM	PP2001
	Mounting clamp · Ø 12 mm · with end stop · for type M12 · Housing materials: PC	E11047
	Mounting clamp · Ø 18 mm · with end stop · for type M18 · Housing materials: PC	E11048
	Mounting clamp · Ø 30 mm · with end stop · for type M30 · Housing materials: PC	E11049
	Angle bracket · for type M12 · Housing materials: stainless steel	E10735
	Angle bracket · for type M18 · Housing materials: stainless steel	E10736
	Angle bracket · for type M30 · Housing materials: stainless steel	E10737

Connection technology for sensors for mobile use

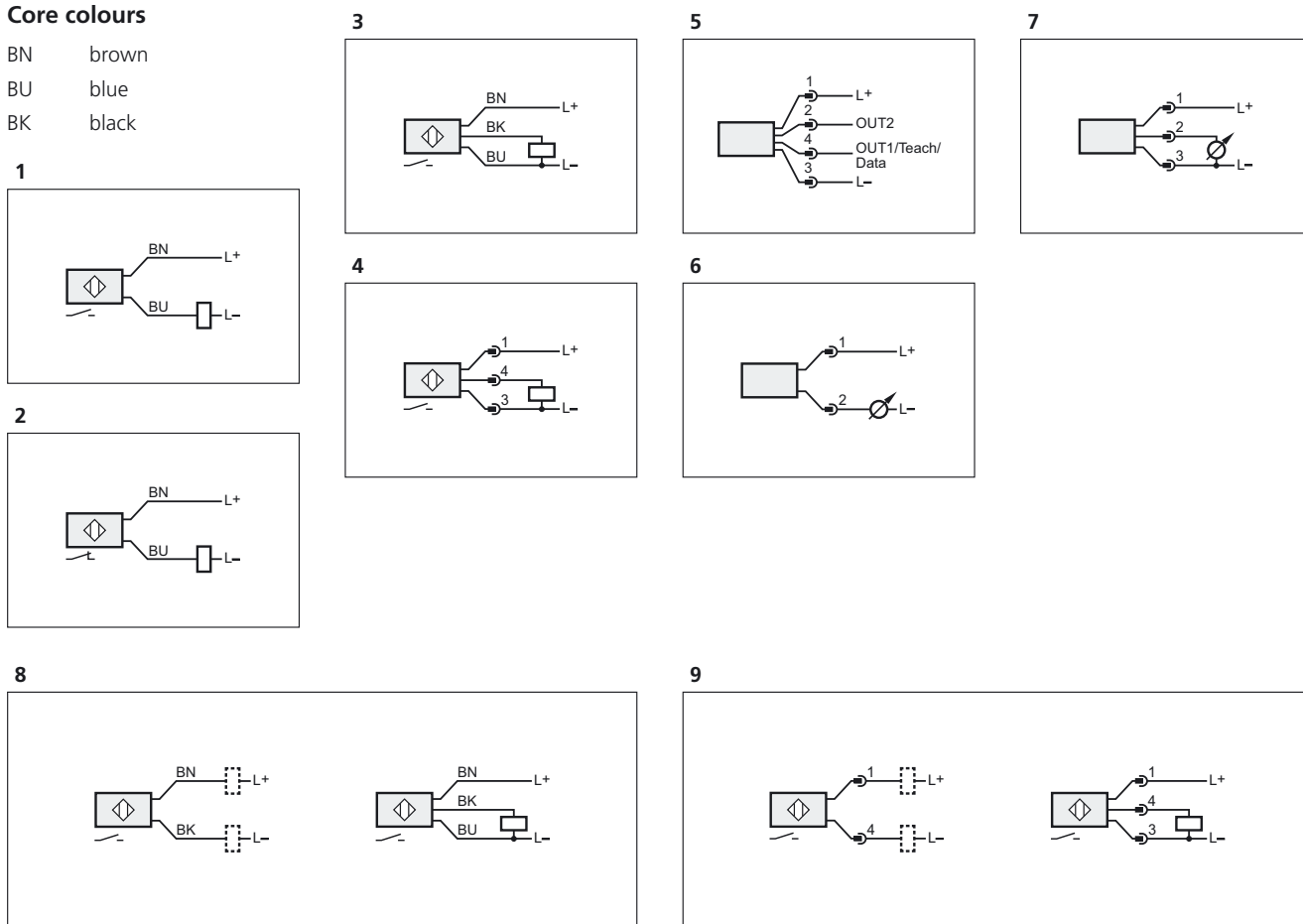
Type	Description	Order no.
	Socket · angled · Free from silicone · Free from halogen · Gold-plated contacts · M12 connector · 2 m · Housing materials: housing: TPU orange / sealing: FKM	EVC004
	Socket · angled · Free from silicone · Free from halogen · Gold-plated contacts · M12 connector · 5 m · Housing materials: housing: TPU orange / sealing: FKM	EVC005
	Socket · angled · Free from silicone · Free from halogen · Gold-plated contacts · M12 connector · 10 m · Housing materials: housing: TPU orange / sealing: FKM	EVC006
	Jumper · straight / straight · Free from silicone · Free from halogen · Gold-plated contacts · 1 m · Housing materials: housing: TPU orange / sealing: FKM	EVC012
	Jumper · straight / straight · Free from silicone · Free from halogen · Gold-plated contacts · 0.3 m · Housing materials: housing: TPU orange / sealing: FKM	EVC010
	Socket · straight · Free from silicone · Free from halogen · Gold-plated contacts · M12 connector · 2 m · Housing materials: housing: TPU orange / sealing: FKM	EVC001

Type	Description	Order no.
	Socket - straight · Free from silicone · Free from halogen · Gold-plated contacts · M12 connector · 5 m · Housing materials: housing: TPU orange / sealing: FKM	EVC002
	Socket - straight · Free from silicone · Free from halogen · Gold-plated contacts · M12 connector · 10 m · Housing materials: housing: TPU orange / sealing: FKM	EVC003

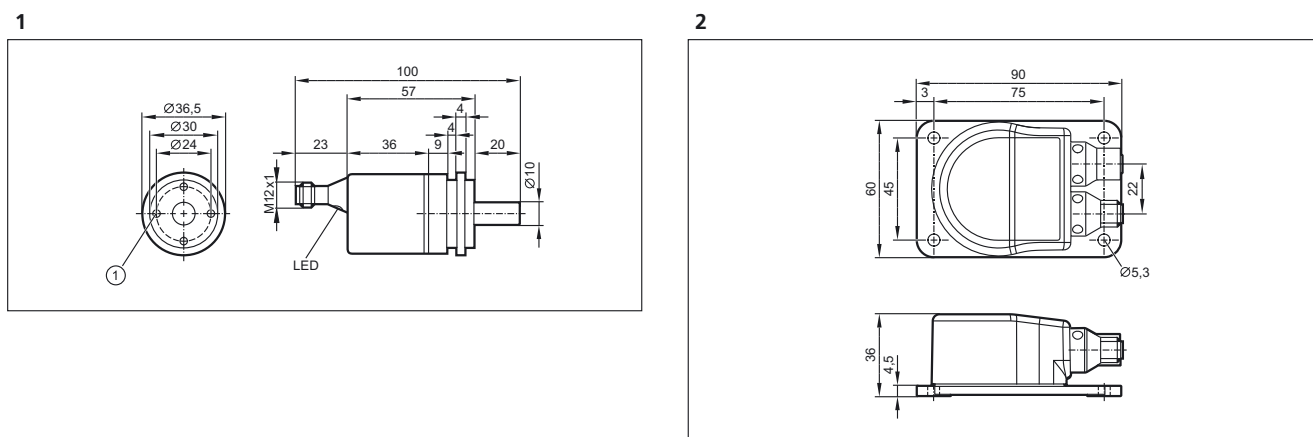
Wiring diagrams

Core colours

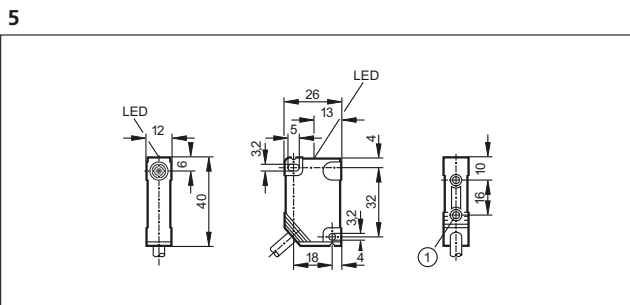
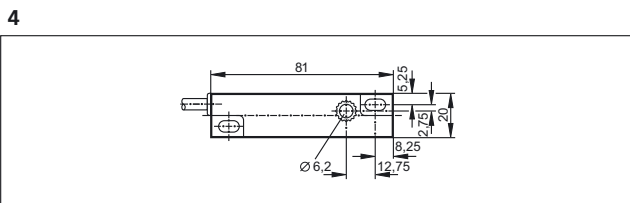
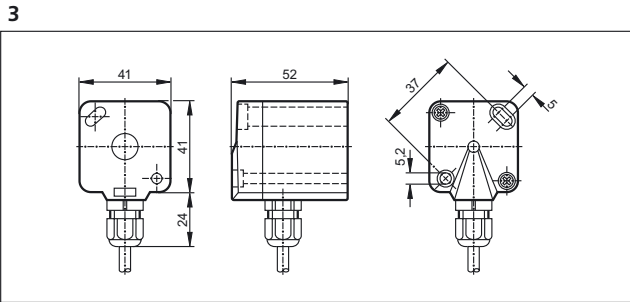
- BN brown
- BU blue
- BK black



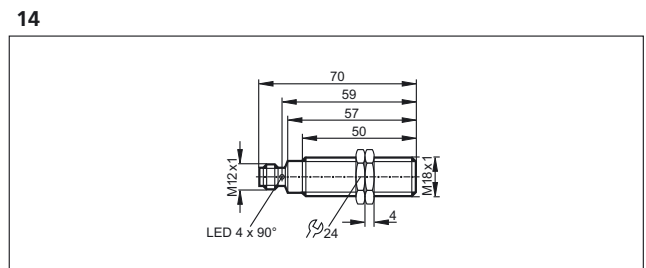
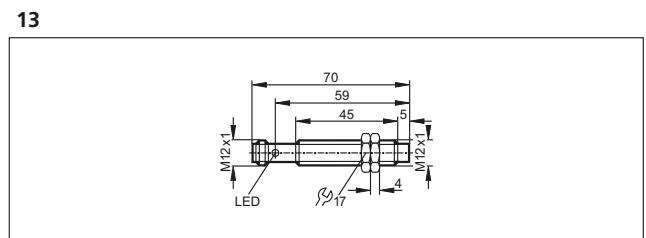
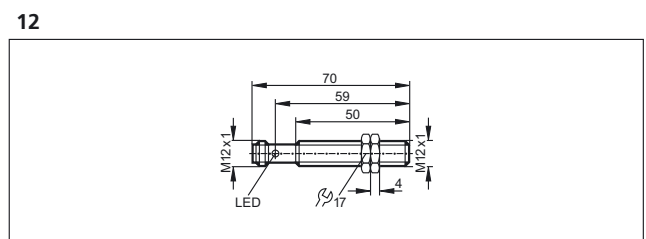
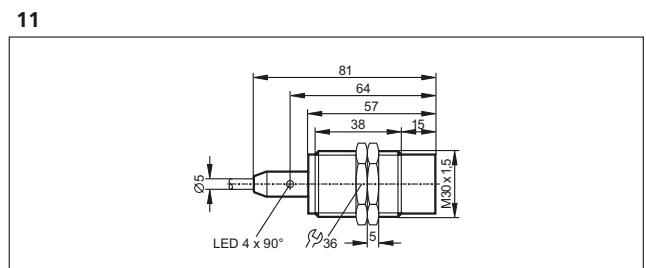
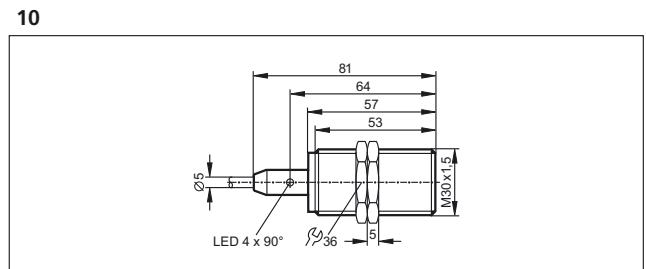
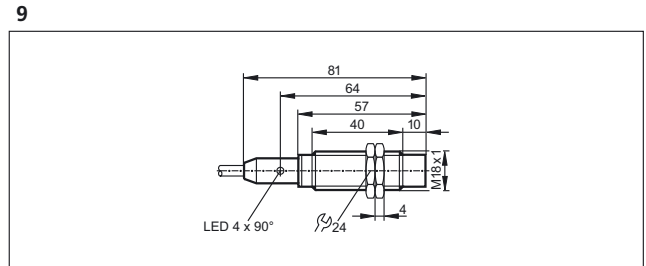
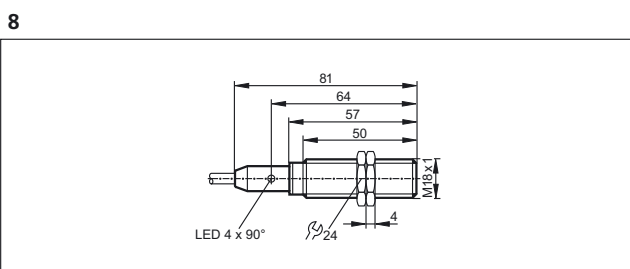
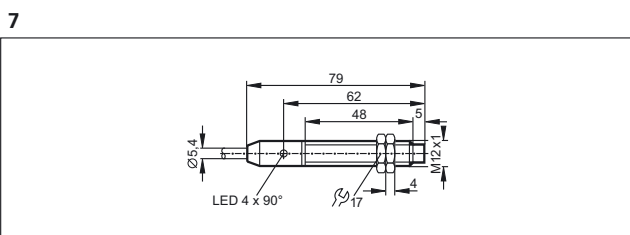
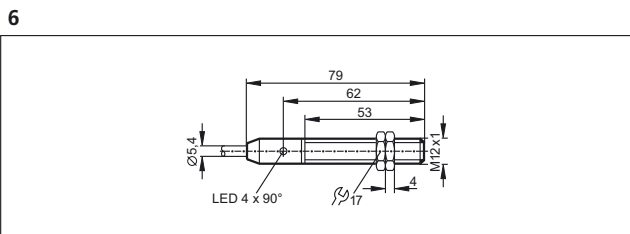
Scale drawings / drawing no. – CAD download: www.ifm.com



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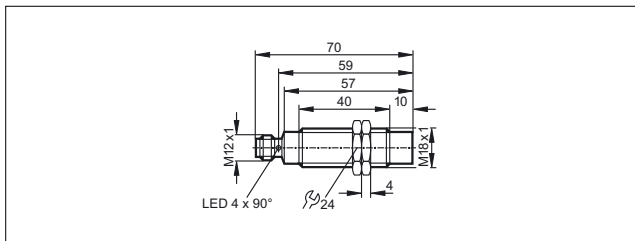


1: threaded insert M3, depth 5.8 mm, max. tightening torque 1.2 Nm (screw fixing class 8.8) when brass insert in contact with counterpart.

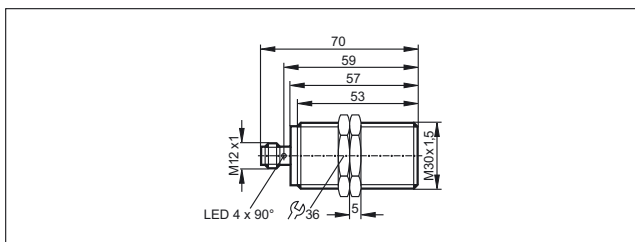


Scale drawings / drawing no. – CAD download: www.ifm.com

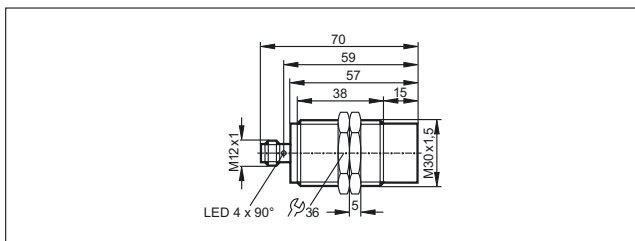
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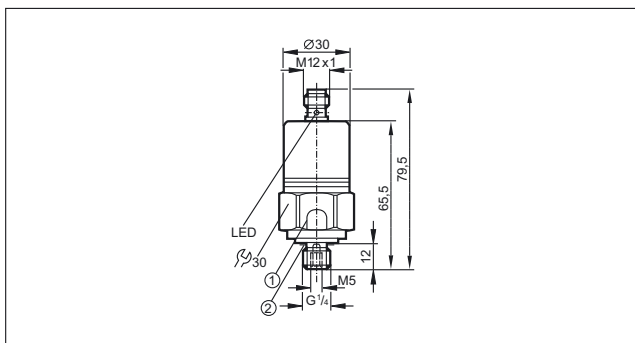
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17

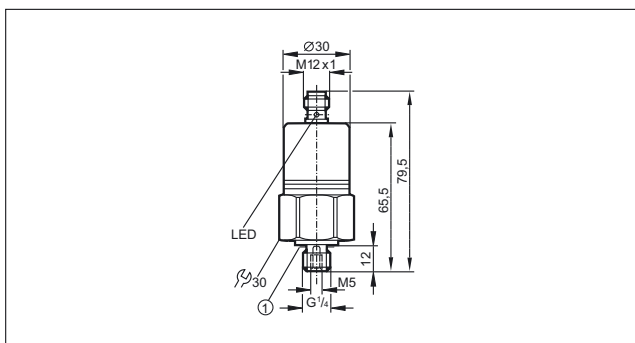


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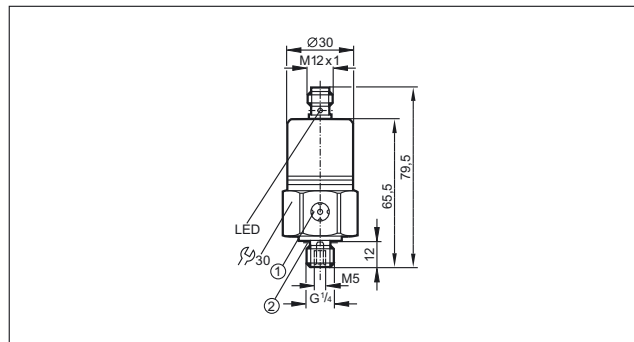
1: Pressure relief mechanism, No mechanical force must be exerted on the pressure relief mechanism., 2: sealing FPM / DIN 3869-14

19



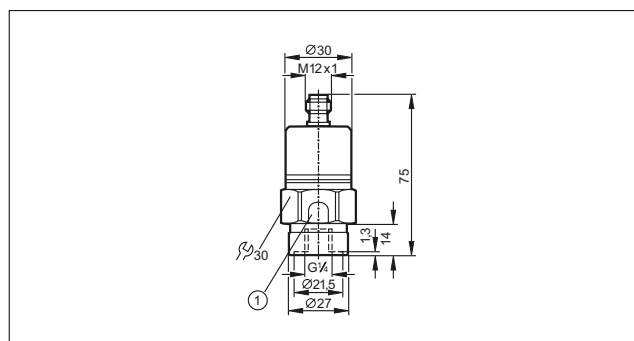
1: sealing FPM / DIN 3869-14

20



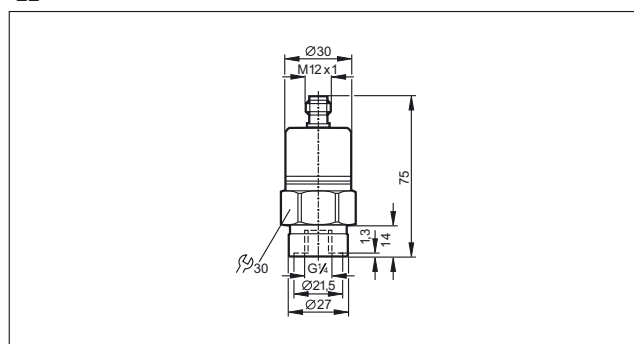
1: ventilation, 2: sealing FPM / DIN 3869-14

21

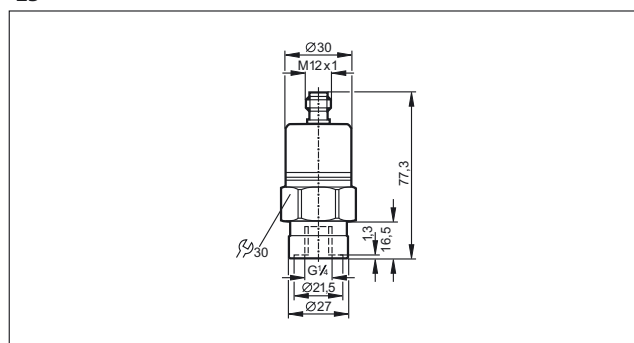


1: Pressure relief mechanism, No mechanical force must be exerted on the pressure relief mechanism.

22

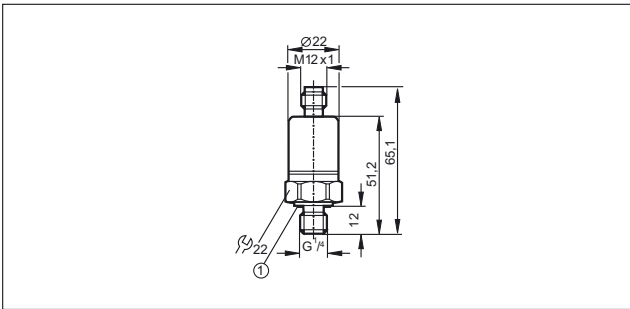


23



Scale drawings / drawing no. – CAD download: www.ifm.com

24



1: FKM seal / DIN 3869-14, tightening torque 25 Nm



Quickly and safely connected



Maximum operational reliability due to the new vibration protection with end stop.



Connection technology

With a wide variety of different sensor designs ifm electronic offers a wide range of high quality connectors. The choice of types covers common M8, M12, M18 types through to valve plugs. The "ecolink" connectors (order no. EVxxxx) offer additional quality features.

ecolink – a new dimension in connection technology

The innovative design incorporating a mechanical end stop ensures that the O-ring is always correctly compressed and so permanently maintains its sealing function. The connector remains securely positioned on the unit even in case of extreme

vibration and impacts. The use of a transparent black housing ensures that even in bright lighting conditions the LEDs are clearly visible.

For industrial applications

High-quality materials suited to the requirements in industrial environments. Largely resistant to oils, greases and coolants.

For hygienic and wet areas

PVC housing and cable, gold-plated contacts and high-grade stainless steel nuts are the optimum choice for long life.

For hazardous areas






Connection technology for ATEX categories 1D, 2D, 3D and 1G, 3G. With the EC type examination certificate for components from DEKRA EXAM the connection technology meets the strictest requirements.

For welding applications

Halogen-free PUR cables prevent burning-in of weld spatter; teflon-coated coupling nuts prevent weld spatter sticking. The cables are also suited for drag chains and torsional movements.

For sensors in robust applications

The saw tooth contoured vibration protection secures against strong shocks and vibrations. The high protection rating, wide temperature range and high-quality housing materials (high-grade stainless steel, TPU) ensure permanent safe connection in harsh environments.

	Sockets	704 - 728
	Plugs	730 - 734
	Jumper cables	736 - 768
	Splitter boxes	770 - 786
	Y-splitters	788 - 790




Sockets

Sockets are mainly used for the connection of sensors. High-quality socket contacts and materials ensure reliable electrical connections.







In addition to a wide range of standard products ifm also offers versions without silicone and halogen, versions for hygienic areas, for applications in contact with coolants and lubricants, as well as for welding applications.

System overview	Page
M8 sockets for industrial applications	704 - 706
M12 sockets for industrial applications	706 - 709
M12 sockets for industrial applications with screen	709 - 711
M16 sockets for industrial applications	711
M18 sockets for industrial applications	712
M23 sockets for industrial applications	712 - 713
1/2" sockets for industrial applications	713 - 714
7/8" sockets for industrial applications	714
DIN sockets for industrial applications	714
RD24 sockets for industrial applications	714 - 715
Connectors weld slag resistant	715 - 716
Connectors for hygienic and wet areas	716 - 719
Connectors for hazardous areas	719 - 720
Connectors for robust applications	721 - 722
Wiring diagrams	722 - 724
Scale drawings / drawing no. – CAD download: www.ifm.com	724 - 728

M8 sockets for industrial applications

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 1 · Socket M8, 3-pole, 3-wire · Wiring diagram no. 1									
	2 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	1	EVC141
	5 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	1	EVC142


Product selectors and further information can be found at: www.ifm.com

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 1 · Socket M8, 3-pole, 3-wire · Wiring diagram no. 1									
	10 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	1	EVC143
	2 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	2	EVC144
	5 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	2	EVC145
	10 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	2	EVC146
Group 2 · Socket M8, 3-pole, 3-wire, LED, PNP · Wiring diagram no. 2									
	2 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	3	EVC147
	5 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	3	EVC148
	10 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	3	EVC149
Group 3 · Wirable socket M8, 3-pole · Wiring diagram no. 3									
	wirable	–	PA / Brass	60 AC 75 DC	-25...90	IP 68	–	–	E11552
Group 4 · Socket M8, 4-pole, 4-wire · Wiring diagram no. 4									
	2 m black PUR cable	4 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	4	EVC150
	5 m black PUR cable	4 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	4	EVC151
	10 m black PUR cable	4 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	4	EVC152
	2 m black PUR cable	4 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	5	EVC153
	5 m black PUR cable	4 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	5	EVC154


Connection technology

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
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Group 4 · Socket M8, 4-pole, 4-wire · Wiring diagram no. 4

	10 m black PUR cable	4 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	5	EVC155
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Group 5 · Wirable socket M8, 4-pole · Wiring diagram no. 5

	wirable	-	PA / Brass	60 AC 75 DC	-25...90	IP 68	-	-	E11553
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M12 sockets for industrial applications

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
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Group 6 · Socket M12, 5-pole, 2-wire · Wiring diagram no. 6

	2 m black PUR cable	2 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	6	EVC164
	5 m black PUR cable	2 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	6	EVC165
	10 m black PUR cable	2 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	6	EVC166
	2 m black PUR cable	2 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	7	EVC161
	5 m black PUR cable	2 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	7	EVC162
	10 m black PUR cable	2 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	7	EVC163

Group 7 · socket M12, 2-pole + PE, 3-wire · Wiring diagram no. 7


	2 m orange PVC cable	3 x AWG 22 (3 x 0.34 mm ²), Ø 5 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 67	-	8	E10865
	5 m orange PVC cable	3 x AWG 22 (3 x 0.34 mm ²), Ø 5 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 67	-	8	E10866
	2 m orange PVC cable	3 x AWG 22 (3 x 0.34 mm ²), Ø 5 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 67	-	9	E10867
	5 m orange PVC cable	3 x AWG 22 (3 x 0.34 mm ²), Ø 5 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 67	-	9	E10868

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 8 · Wirable socket M12, 4-pole · Wiring diagram no. 5									
	wirable	...0.75 mm ² (Ø 4...6 mm)	PA / Brass	250 AC/DC	-25...85	IP 68	–	10	E11509
	wirable	...0.75 mm ² (Ø 4...6 mm)	PA / Brass	250 AC/DC	-25...85	IP 68	–	11	E11508
Group 9 · Wirable socket M12, 4-pole, LED, PNP · Wiring diagram no. 8									
	wirable	...0.75 mm ² (Ø 4...6 mm)	PA / Brass	10...30 DC	-25...85	IP 68	green / yellow	12	E11510
	wirable	...0.75 mm ² (Ø 4...6 mm)	PA	10...30 DC	-40...85	IP 67	green / yellow	11	E10136
Group 10 · Socket M12, 5/4-pole, 4-wire · Wiring diagram no. 4									
	2 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	6	EVC004
	5 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	6	EVC005
	10 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	6	EVC006
	2 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	7	EVC001
	5 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	7	EVC002
	10 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	7	EVC003
Group 11 · Socket M12, 5/4-pole, 4-wire, LED, PNP · Wiring diagram no. 9									
	2 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	13	EVC007
	5 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	13	EVC008
	10 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	13	EVC009

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 12 · Wirable socket M12, 5-pole · Wiring diagram no. 10									
	wirable	...0.75 mm ² (Ø 4...6 mm)	PA / Brass	125 AC/DC	-25...85	IP 68	–	14	E11512
	wirable	...0.75 mm ² (Ø 4...6 mm)	PA / Brass	125 AC/DC	-25...85	IP 68	–	15	E11511
Group 13 · Socket M12, 5-pole, 5-wire · Wiring diagram no. 11									
	2 m black PUR cable	5 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	6	EVC073
	5 m black PUR cable	5 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	6	EVC074
	10 m black PUR cable	5 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	6	EVC075
	2 m black PUR cable	5 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	7	EVC070
	5 m black PUR cable	5 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	7	EVC071
	10 m black PUR cable	5 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	7	EVC072
Group 14 · Socket M12, 8-pole, 6-wire · Wiring diagram no. 12									
	5 m black PUR cable	6 x 0.34 mm ² , Ø 6 mm	TPU / diecast zinc	60 AC/DC	-25...85	IP 68	–	16	E10976
	10 m black PUR cable	6 x 0.34 mm ² , Ø 6 mm	TPU / diecast zinc	60 AC/DC	-25...85	IP 68	–	16	E10977
Group 15 · socket M12, 8-pole, 7-wire + screen · Wiring diagram no. 13									
	2 m black PUR cable	7 x 0.25 mm ² + screen	TPU / diecast zinc	60 AC/DC	-25...85	IP 67	–	16	E20738
	5 m black PUR cable	7 x 0.25 mm ² + screen	TPU / diecast zinc	60 AC/DC	-25...85	IP 67	–	17	E20838
Group 16 · Socket M12, 8/7-pole, 8-wire · Wiring diagram no. 14									
	2 m black PUR cable	8 x 0.25 mm ² , Ø 6.2 mm	PUR / Brass	30 AC 36 DC	-25...80	IP 67	–	18	E11231

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
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Group 16 · Socket M12, 8/7-pole, 8-wire · Wiring diagram no. 14

	5 m black PUR cable	8 x 0.25 mm ² , Ø 6.2 mm	PUR / Brass	30 AC 36 DC	-25...80	IP 67	–	18	E11232
	2 m black PUR cable	8 x 0.25 mm ² , Ø 6.2 mm	PUR / Brass	30 AC 36 DC	-25...80	IP 68	–	19	E11950
	5 m black PUR cable	8 x 0.25 mm ² , Ø 6.2 mm	PUR / Brass	30 AC 36 DC	-25...80	IP 68	–	19	E11807
	10 m black PUR cable	8 x 0.25 mm ² , Ø 6.2 mm	PUR / Brass	30 AC 36 DC	-25...80	IP 68	–	19	E11311



Group 17 · Socket M12, 8/7-pole, 8-wire · Wiring diagram no. 15

	5 m black PUR cable	8 x 0.25 mm ²	TPU / Brass	30 AC 36 DC	-40...80	IP 68	–	18	E12168
	10 m black PUR cable	8 x 0.25 mm ²	TPU / Brass	30 AC 36 DC	-40...80	IP 68	–	18	E12169
	5 m black PUR cable	8 x 0.25 mm ²	TPU / Brass	30 AC 36 DC	-40...80	IP 67	–	19	E12166
	10 m black PUR cable	8 x 0.25 mm ²	TPU / Brass	30 AC 36 DC	-40...80	IP 67	–	19	E12167



M12 sockets for industrial applications with screen

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
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Group 18 · Socket M12, 5/4-pole, 4-wire · Wiring diagram no. 16

	2 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	7	EVC526
	5 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	7	EVC527
	10 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	7	EVC528
	2 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	6	EVC529



Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 18 · Socket M12, 5/4-pole, 4-wire · Wiring diagram no. 16									
	5 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	6	EVC530
	10 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	6	EVC531
Group 19 · Socket M12, 5-pole, 5-wire · Wiring diagram no. 17									
	2 m black PUR cable	5 x 0.25 mm ² , Ø 4.9 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	7	EVC532
	5 m black PUR cable	5 x 0.25 mm ² , Ø 4.9 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	7	EVC533
	10 m black PUR cable	5 x 0.25 mm ² , Ø 4.9 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	7	EVC534
	2 m black PUR cable	5 x 0.25 mm ² , Ø 4.9 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	6	EVC535
	5 m black PUR cable	5 x 0.25 mm ² , Ø 4.9 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	6	EVC536
	10 m black PUR cable	5 x 0.25 mm ² , Ø 4.9 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	6	EVC537
Group 20 · Socket M12, 5/4-pole, 4-wire · Wiring diagram no. 18									
	2 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67	–	7	EVC538
	5 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67	–	7	EVC539
	10 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67	–	7	EVC540
	2 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67	–	6	EVC541
	5 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67	–	6	EVC542
	10 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67	–	6	EVC543

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 21 · Socket M12, 5-pole, 5-wire · Wiring diagram no. 19									
	2 m black PUR cable	5 x 0.25 mm ² , Ø 4.9 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67	–	7	EVC544
	5 m black PUR cable	5 x 0.25 mm ² , Ø 4.9 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67	–	7	EVC545
	10 m black PUR cable	5 x 0.25 mm ² , Ø 4.9 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67	–	7	EVC546
	2 m black PUR cable	5 x 0.25 mm ² , Ø 4.9 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67	–	6	EVC547
	5 m black PUR cable	5 x 0.25 mm ² , Ø 4.9 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67	–	6	EVC548
	10 m black PUR cable	5 x 0.25 mm ² , Ø 4.9 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67	–	6	EVC549



M16 sockets for industrial applications

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 22 · socket M16, 14-pole, 10-wire · Wiring diagram no. 20									
	5 m black PUR cable	8 x 0.34 mm ² + 2 x 0.75 mm ² , Ø 9.1 mm	PUR / Brass	30 DC	-25...90	IP 68	–	20	E11226
	10 m black PUR cable	8 x 0.34 mm ² + 2 x 0.75 mm ² , Ø 9.1 mm	PUR / Brass	30 DC	-25...90	IP 68	–	20	E11227
Group 23 · Socket M16, 14-pole, 12-wire · Wiring diagram no. 21									
	2 m black PUR cable	2 x 0.34 mm ² + 9 x 0.25 mm ² , Ø 7.5 mm	PUR / Brass	30 DC	-25...90	IP 67	–	21	E11645
	5 m black PUR cable	2 x 0.34 mm ² + 9 x 0.25 mm ² , Ø 7.5 mm	PUR / Brass	30 DC	-25...90	IP 67	–	21	E11697



M18 sockets for industrial applications

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 24 · Wirable socket M18, 4-pole · Wiring diagram no. 5									
	wirable	...0.75 mm ² (Ø 6...8 mm)	PA	20...250 AC/DC	-40...85	IP 65	–	22	E10013
	wirable	...0.75 mm ² (Ø 6...8 mm)	PA / ULTRAMID	20...250 AC/DC	-40...85	IP 65	–	23	E10137


M23 sockets for industrial applications



Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 25 · Socket M23, 12-pole, 12-wire · Wiring diagram no. 22									
	5 m black PUR cable	8 x 0.5 mm ² + 3 x 1.0 mm ² , Ø 9.3 mm	PUR / Brass	63 AC/DC	-25...80	IP 67	–	24	E11739
	10 m black PUR cable	8 x 0.5 mm ² + 3 x 1.0 mm ² , Ø 9.3 mm	PUR / Brass	63 AC/DC	-25...80	IP 67	–	24	E11740
	15 m black PUR cable	8 x 0.5 mm ² + 3 x 1.0 mm ² , Ø 9.3 mm	PUR / Brass	63 AC/DC	-25...80	IP 67	–	24	E11741
	5 m black PUR cable	8 x 0.5 mm ² + 3 x 1.0 mm ² , Ø 9.3 mm	PUR / Brass	63 AC/DC	-25...80	IP 67	–	25	E11736
	10 m black PUR cable	8 x 0.5 mm ² + 3 x 1.0 mm ² , Ø 9.3 mm	PUR / Brass	63 AC/DC	-25...80	IP 67	–	25	E11737
	15 m black PUR cable	8 x 0.5 mm ² + 3 x 1.0 mm ² , Ø 9.3 mm	PUR / Brass	63 AC/DC	-25...80	IP 67	–	25	E11738

Group 26 · Wirable M23 socket, 12 poles



	wirable	...1 mm ² (Ø 10...14 mm)	Brass	10...30 DC	-25...90	IP 65	–	26	E10448
	wirable	...1 mm ² (Ø 10...14 mm)	Brass	10...30 DC	-25...90	IP 65	–	27	E10447

Group 27 · Socket M23, 19-pole, 19-wire · Wiring diagram no. 28


	5 m black PUR cable	16 x 0.5 mm ² + 3 x 1.0 mm ² , Ø 11.6 mm	PUR / Brass	63 AC/DC	-25...80	IP 67	–	28	E11745
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Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 27 · Socket M23, 19-pole, 19-wire · Wiring diagram no. 28									
	10 m black PUR cable	16 x 0.5 mm ² + 3 x 1.0 mm ² , Ø 11.6 mm	PUR / Brass	63 AC/DC	-25...80	IP 67	–	28	E11746
	15 m black PUR cable	16 x 0.5 mm ² + 3 x 1.0 mm ² , Ø 11.6 mm	PUR / Brass	63 AC/DC	-25...80	IP 67	–	28	E11747
	5 m black PUR cable	16 x 0.5 mm ² + 3 x 1.0 mm ² , Ø 11.6 mm	PUR / Brass	63 AC/DC	-25...80	IP 67	–	29	E11742
	10 m black PUR cable	16 x 0.5 mm ² + 3 x 1.0 mm ² , Ø 11.6 mm	PUR / Brass	63 AC/DC	-25...80	IP 67	–	29	E11743
	15 m black PUR cable	16 x 0.5 mm ² + 3 x 1.0 mm ² , Ø 11.6 mm	PUR / Brass	63 AC/DC	-25...80	IP 67	–	29	E11744



Group 28 · Wirable socket M23, 19-pole

	wirable	...1 mm ² (Ø 10...14 mm)	Brass	10...30 DC	-25...90	IP 65	–	–	E10887
	wirable	...1 mm ² (Ø 10...14 mm)	Brass	10...30 DC	-25...90	IP 65	–	–	E10886



1/2" sockets for industrial applications

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 29 · socket 1/2", 2-pole + PE, 3-wire · Wiring diagram no. 23									
	2 m yellow PVC cable	3 x AWG22, Ø 5.2 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 67	–	30	E10190
	5 m yellow PVC cable	3 x AWG22, Ø 5.2 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 67	–	31	E10200
	2 m yellow PVC cable	3 x AWG22, Ø 5.2 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 67	–	32	E10189
	5 m yellow PVC cable	3 x AWG22, Ø 5.2 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 67	–	33	E10191
	10 m yellow PVC cable	3 x AWG22, Ø 5.2 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 67	–	31	E10261


Connection technology

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 30 · socket 1/2", 5-pole, 4-wire · Wiring diagram no. 24									
	5 m black PUR cable	4 x 0.34 mm ² , Ø 4.7 mm	TPU / Brass	300 AC	-25...90	IP 67	–	34	E11248
	10 m black PUR cable	4 x 0.34 mm ² , Ø 4.7 mm	TPU / Brass	300 AC	-25...90	IP 67	–	34	E11249
	5 m black PUR cable	4 x 0.34 mm ² , Ø 4.7 mm	TPU / Brass	300 AC	-25...90	IP 67	–	35	E11250
	10 m black PUR cable	4 x 0.34 mm ² , Ø 4.7 mm	TPU / Brass	300 AC	-25...90	IP 67	–	36	E11251


7/8" sockets for industrial applications

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 31 · socket 7/8", 2-pole + PE, 3-wire									
	2 m black PVC cable	3 x 0.75 mm ² , Ø 5.2 mm	TPU / diecast zinc	250 AC	-40...80	IP 68	–	37	E20428
Group 32 · socket 7/8", 3-pole, 3-wire									
	2 m black PVC cable	3 x 0.5 mm ² , Ø 5.4 mm	TPU	10...30 DC	-40...80	IP 68	–	37	E20430

DIN sockets for industrial applications

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 33 · socket DIN A (DIN EN 175301-803) · Wiring diagram no. 25									
	wirable	...1.5 mm ² (Ø 6...8 mm)	PA	...250 AC ...300 DC	-40...125	IP 65	–	38	E10058

RD24 sockets for industrial applications

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 34 · socket Rd24, 6-pole + PE · Wiring diagram no. 26									
	wirable	...2.5 mm ² (Ø 10...12 mm)	PBT	250 AC 300 DC	-40...100	IP 67	–	39	E70142

Product selectors and further information can be found at: www.ifm.com

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
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Group 34 · socket Rd24, 6-pole + PE · Wiring diagram no. 26

	wirable	...2.5 mm ² (Ø 6...8 mm)	PBT / PA	250 AC 300 DC	-40...100	IP 67	–	40	E11043
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Connectors weld slag resistant

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
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Group 108 · Socket M12, 5/4-pole, 4-wire · Wiring diagram no. 4

	2 m grey PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	6	EVW004
	5 m grey PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	6	EVW005
	10 m grey PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	6	EVW006
	2 m grey PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	7	EVW001
	5 m grey PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	7	EVW002
	10 m grey PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	7	EVW003

Group 109 · Socket M12, 5/4-pole, 4-wire, LED, PNP · Wiring diagram no. 9

	2 m grey PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	13	EVW007
	5 m grey PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	13	EVW008
	10 m grey PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	13	EVW009

Group 110 · Socket M12, 5/4-pole, 5-wire · Wiring diagram no. 11


	2 m grey PUR cable	5 x 0.34 mm ² , Ø 5.1 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	6	EVW013
	5 m grey PUR cable	5 x 0.34 mm ² , Ø 5.1 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	6	EVW014

You can find wiring diagrams and scale drawings from page 722


Connection technology

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
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Group 110 · Socket M12, 5/4-pole, 5-wire · Wiring diagram no. 11

	10 m grey PUR cable	5 x 0.34 mm ² , Ø 5.1 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	6	EVW015
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Group 111 · Socket M12, 5/4-pole, 5-wire · Wiring diagram no. 11





	2 m grey PUR cable	5 x 0.34 mm ² , Ø 5.1 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	7	EVW010
	5 m grey PUR cable	5 x 0.34 mm ² , Ø 5.1 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	7	EVW011
	10 m grey PUR cable	5 x 0.34 mm ² , Ø 5.1 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	7	EVW012

Connectors for hygienic and wet areas

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
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Group 114 · Socket M8, 3-pole, 3-wire · Wiring diagram no. 1



	2 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	41	EVT122
	5 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	41	EVT123
	10 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	41	EVT124
	25 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	41	EVT125
	2 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	42	EVT126
	5 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	42	EVT127
	10 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	42	EVT128
	25 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	42	EVT129

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 115 · Socket M8, 3-pole, 3-wire, LED, PNP · Wiring diagram no. 2									
	2 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	43	EVT130
	5 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	43	EVT131
	10 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	43	EVT132
	25 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	43	EVT133
Group 116 · Socket M8, 4-pole, 4-wire · Wiring diagram no. 4									
	2 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	44	EVT134
	5 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	44	EVT135
	10 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	44	EVT136
	25 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	44	EVT137
	2 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	45	EVT138
	5 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	45	EVT139
	10 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	45	EVT140
	25 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	45	EVT141
Group 117 · Socket M12, 5/4-pole, 4-wire · Wiring diagram no. 4									
	2 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	-	46	EVT067
	5 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	-	46	EVT004



Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 117 · Socket M12, 5/4-pole, 4-wire · Wiring diagram no. 4									
	10 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	46	EVT005
	25 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	46	EVT006
	2 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	47	EVT064
	5 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	47	EVT001
	10 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	47	EVT002
	25 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	47	EVT003
Group 118 · Wirable socket M12, 4-pole · Wiring diagram no. 5									
	wirable	...0.75 mm ² (Ø 4...6 mm)	PA / high-grade st. steel	240 AC/DC	-25...85	IP 67	–	48	E11862
	wirable	...0.75 mm ² (Ø 4...6 mm)	PA / high-grade st. steel	240 AC/DC	-25...90	IP 67	–	49	E11861
Group 119 · Socket M12, 5/4-pole, 4-wire, LED, PNP · Wiring diagram no. 9									
	2 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	50	EVT069
	5 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	50	EVT007
	10 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	50	EVT008
	25 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	50	EVT009
Group 120 · Wirable socket M12, 5/4-pole, LED, PNP · Wiring diagram no. 27									
	wirable	...0.75 mm ² (Ø 4...6 mm)	PBT / high-grade st. steel	10...30 DC	-25...85	IP 67 / IP 69K	green / yellow	51	E11863

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
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Group 121 · Socket M12, 5-pole, 5-wire · Wiring diagram no. 11

	5 m orange PVC cable	5 x 0.34 mm ² , Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	30 AC 36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	46	EVT013
	10 m orange PVC cable	5 x 0.34 mm ² , Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	30 AC 36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	46	EVT014
	25 m orange PVC cable	5 x 0.34 mm ² , Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	30 AC 36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	46	EVT015
	5 m orange PVC cable	5 x 0.34 mm ² , Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	30 AC 36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	47	EVT010
	10 m orange PVC cable	5 x 0.34 mm ² , Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	30 AC 36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	47	EVT011
	25 m orange PVC cable	5 x 0.34 mm ² , Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	30 AC 36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	47	EVT012



Group 122 · Wirable socket M12, 5-pole · Wiring diagram no. 10





	wirable	...0.75 mm ² (Ø 4...6 mm)	PA / high-grade st. steel	60 AC/DC	-25...85	IP 67	–	52	E11865
	wirable	...0.75 mm ² (Ø 4...6 mm)	PA / high-grade st. steel	60 AC/DC	-25...90	IP 67	–	53	E11864

Connectors for hazardous areas

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
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Group 143 · Socket M12, 5/4 poles, 4 wires, cat. 1D / 1G · Wiring diagram no. 4

	2 m blue PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	...30 DC	-25...90	IP 67	–	6	ENC04A
	5 m blue PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	...30 DC	-25...90	IP 67	–	6	ENC05A
	10 m blue PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	...30 DC	-25...90	IP 67	–	6	ENC06A
	2 m blue PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	...30 DC	-25...90	IP 67	–	7	ENC01A

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 143 · Socket M12, 5/4 poles, 4 wires, cat. 1D / 1G · Wiring diagram no. 4									
	5 m blue PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	...30 DC	-25...90	IP 67	–	7	ENC02A
	10 m blue PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	...30 DC	-25...90	IP 67	–	7	ENC03A
Group 144 · Socket M12, 5/4 poles, 4 wires, cat. 2D / 3G · Wiring diagram no. 4									
	2 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	60 AC 60 DC	-20...60	IP 67	–	54	EVC04A
	5 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	60 AC 60 DC	-20...60	IP 67	–	54	EVC05A
	10 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	60 AC 60 DC	-20...60	IP 67	–	54	EVC06A
	25 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	60 AC 60 DC	-20...60	IP 67	–	54	EVC14A
Group 145 · socket M12, 5 poles, 5 wires, cat. 1D / 1G · Wiring diagram no. 11									
	2 m blue PUR cable	5 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	...30 DC	-25...90	IP 67	–	6	ENC10A
	5 m blue PUR cable	5 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	...30 DC	-25...90	IP 67	–	6	ENC11A
	10 m blue PUR cable	5 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	...30 DC	-25...90	IP 67	–	6	ENC12A
	25 m blue PUR cable	5 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	...30 DC	-25...90	IP 67	–	6	ENC13A
	50 m blue PUR cable	5 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	...30 DC	-25...90	IP 67	–	6	ENC14A
	2 m blue PUR cable	5 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	...30 DC	-25...90	IP 67	–	7	ENC07A
	5 m blue PUR cable	5 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	...30 DC	-25...90	IP 67	–	7	ENC08A
	10 m blue PUR cable	5 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	...30 DC	-25...90	IP 67	–	7	ENC09A

Connectors for robust applications

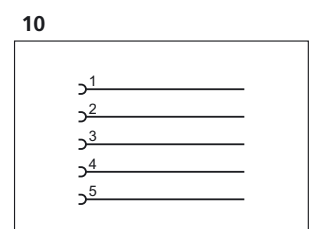
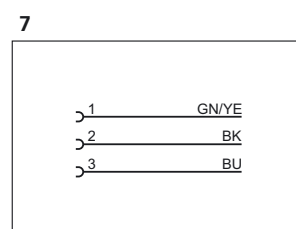
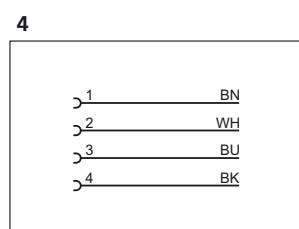
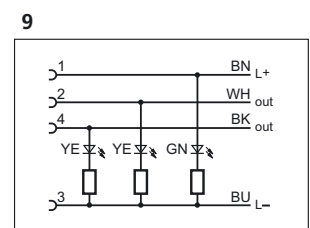
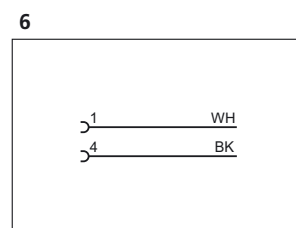
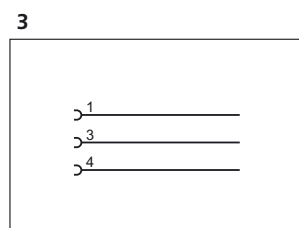
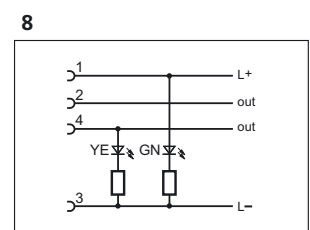
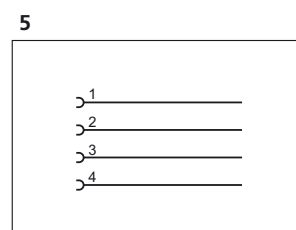
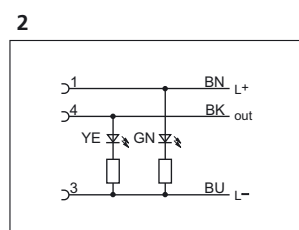
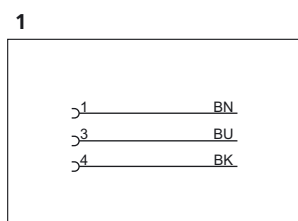
Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 147 · Socket M12, 5/4-pole, 4-wire · Wiring diagram no. 4									
	2 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	250 AC 300 DC	-40...90	IP 65 / IP 67 / IP 68 / IP 69K	–	54	EVM004
	5 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	250 AC 300 DC	-40...90	IP 65 / IP 67 / IP 68 / IP 69K	–	54	EVM005
	10 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	250 AC 300 DC	-40...90	IP 65 / IP 67 / IP 68 / IP 69K	–	54	EVM006
	25 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	250 AC 300 DC	-40...90	IP 65 / IP 67 / IP 68 / IP 69K	–	54	EVM012
	50 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	250 AC 300 DC	-40...90	IP 65 / IP 67 / IP 68 / IP 69K	–	54	EVM010
	2 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	250 AC 300 DC	-40...90	IP 65 / IP 67 / IP 68 / IP 69K	–	55	EVM001
	5 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	250 AC 300 DC	-40...90	IP 65 / IP 67 / IP 68 / IP 69K	–	55	EVM002
	10 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	250 AC 300 DC	-40...90	IP 65 / IP 67 / IP 68 / IP 69K	–	55	EVM003
	25 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	250 AC 300 DC	-40...90	IP 65 / IP 67 / IP 68 / IP 69K	–	55	EVM014
Group 148 · Socket M12, 5/4-pole, 4-wire, LED, PNP · Wiring diagram no. 9									
	2 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	10...36 DC	-40...90	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	56	EVM007
	5 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	10...36 DC	-40...90	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	56	EVM008
	10 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	10...36 DC	-40...90	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	56	EVM009
Group 149 · Socket M12, 5-pole, 5-wire · Wiring diagram no. 11									
	2 m black PUR cable	5 x 0.34 mm ² , Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	30 AC 36 DC	-40...90	IP 65 / IP 67 / IP 68 / IP 69K	–	54	EVM039

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 149 · Socket M12, 5-pole, 5-wire · Wiring diagram no. 11									
	5 m black PUR cable	5 x 0.34 mm ² , Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	30 AC 36 DC	-40...90	IP 65 / IP 67 / IP 68 / IP 69K	-	54	EVM040
	10 m black PUR cable	5 x 0.34 mm ² , Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	30 AC 36 DC	-40...90	IP 65 / IP 67 / IP 68 / IP 69K	-	54	EVM041
	2 m black PUR cable	5 x 0.34 mm ² , Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	30 AC 36 DC	-40...90	IP 65 / IP 67 / IP 68 / IP 69K	-	55	EVM036
	5 m black PUR cable	5 x 0.34 mm ² , Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	30 AC 36 DC	-40...90	IP 65 / IP 67 / IP 68 / IP 69K	-	55	EVM037
	10 m black PUR cable	5 x 0.34 mm ² , Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	30 AC 36 DC	-40...90	IP 65 / IP 67 / IP 68 / IP 69K	-	55	EVM038
	2 m black PUR cable	5 x 0.34 mm ² , Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	30 AC 36 DC	-40...90	IP 65 / IP 67 / IP 68 / IP 69K	-	54	EVM039
	5 m black PUR cable	5 x 0.34 mm ² , Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	30 AC 36 DC	-40...90	IP 65 / IP 67 / IP 68 / IP 69K	-	54	EVM040
	10 m black PUR cable	5 x 0.34 mm ² , Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	30 AC 36 DC	-40...90	IP 65 / IP 67 / IP 68 / IP 69K	-	54	EVM041

Wiring diagrams

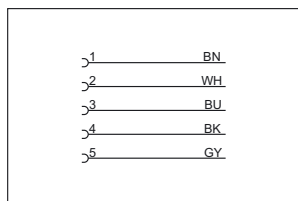
Core colours

BK	black
BN	brown
BU	blue
WH	white
GN/YE	green/yellow
GY	grey
GN	green
YE	yellow
PK	pink
screen	Screen
OG	orange
VT	lilac
RD	red
RD/BK	red/black
RD/WH	red/white

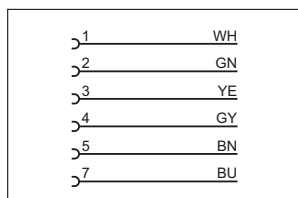


Wiring diagrams

11

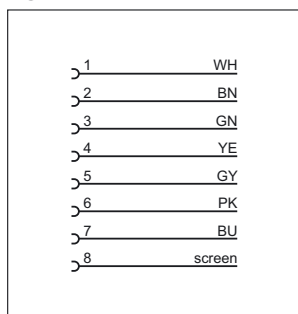


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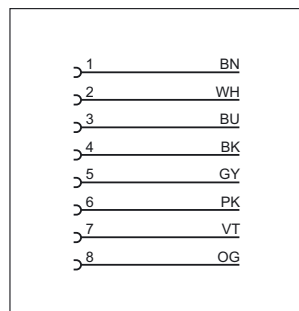


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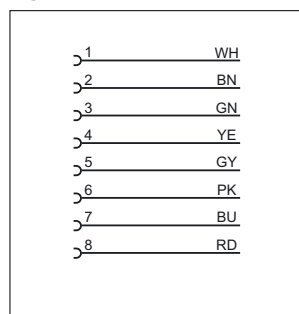


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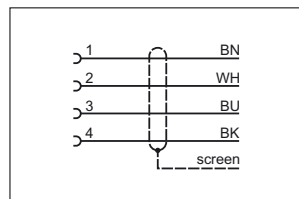


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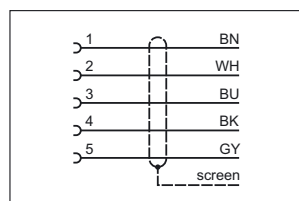
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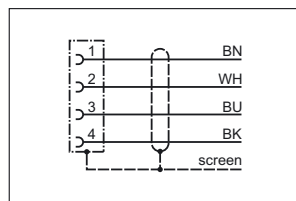
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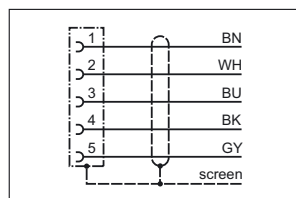
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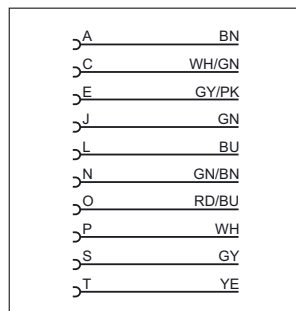
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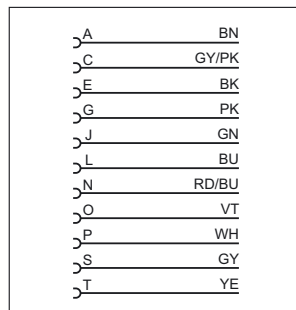
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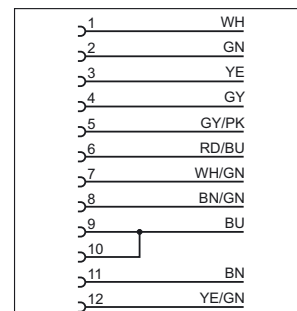
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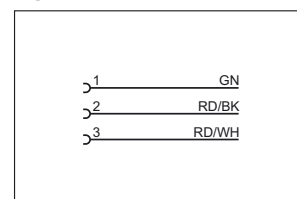
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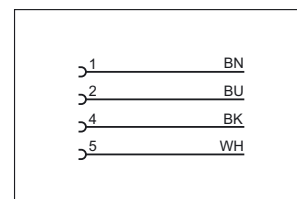
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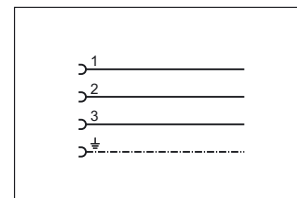
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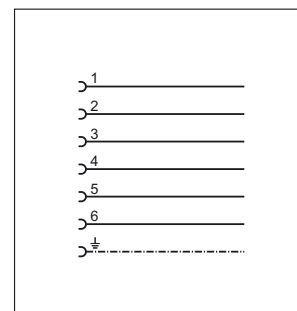
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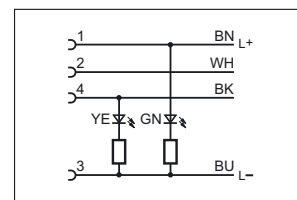
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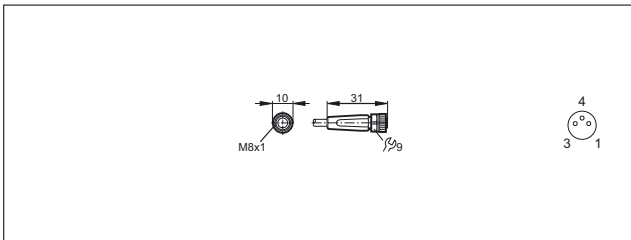
Wiring diagrams

28

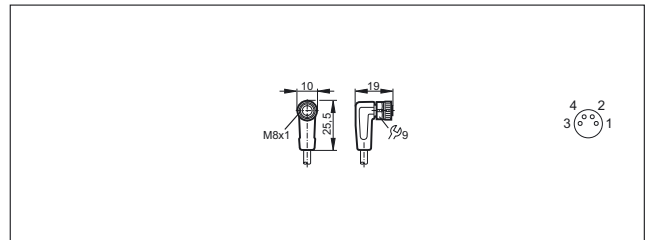
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5	GN
6	BU
7	GY/PK
8	WH/GN
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12	GN/YE
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19	BN

Scale drawings / drawing no. – CAD download: www.ifm.com

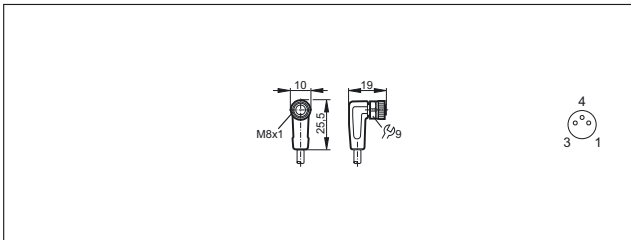
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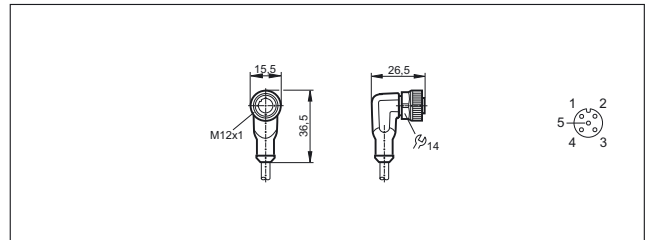
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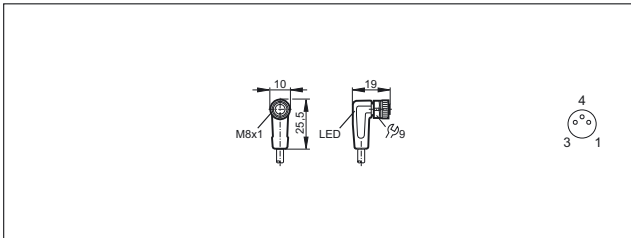
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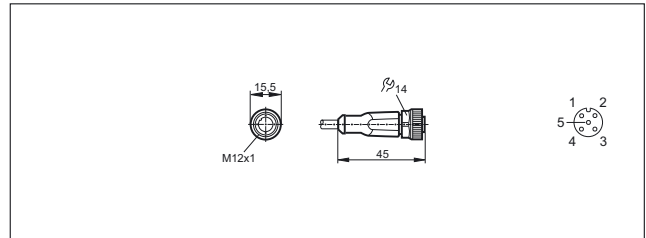
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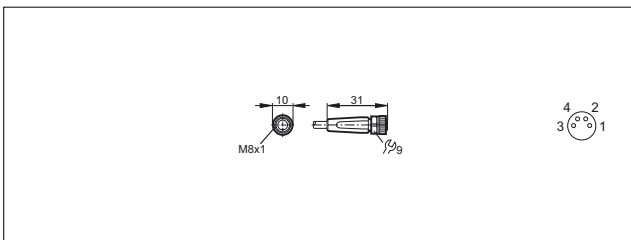
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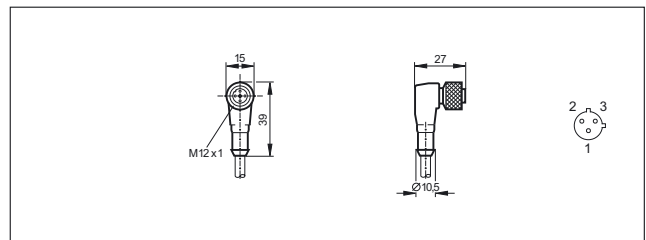
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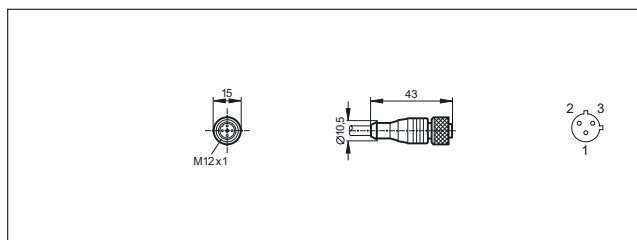


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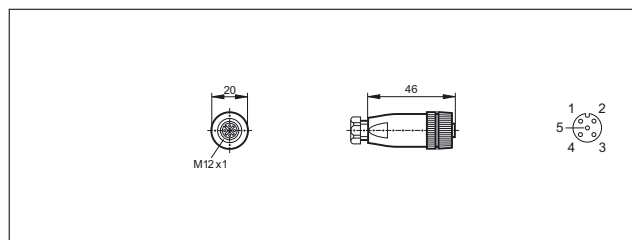


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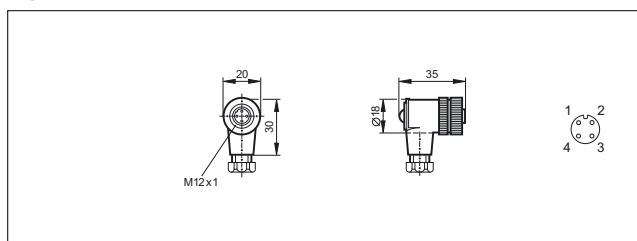
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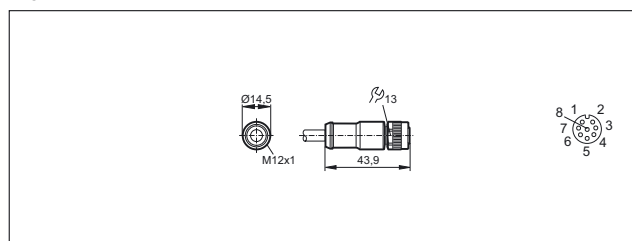
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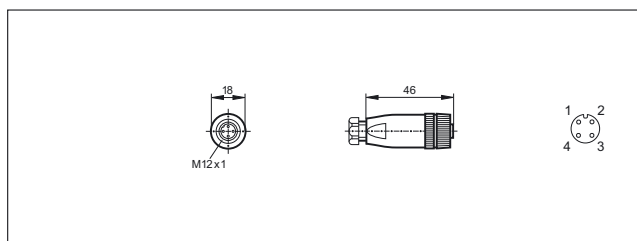
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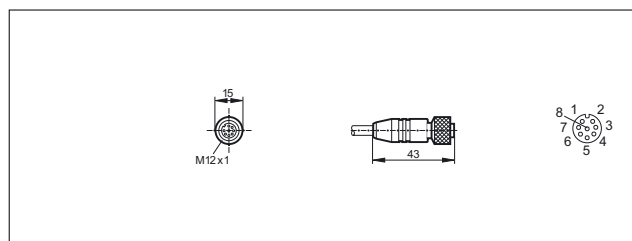
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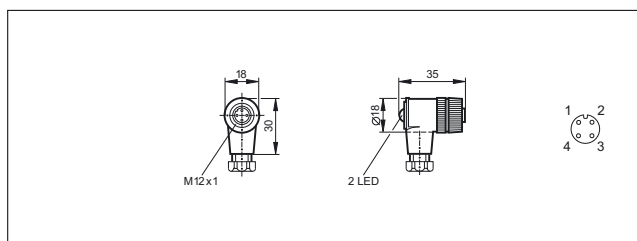
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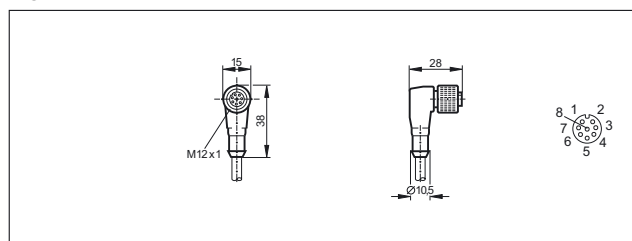
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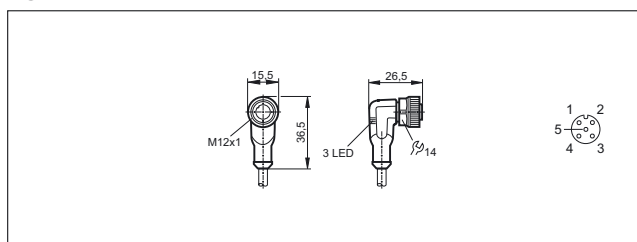
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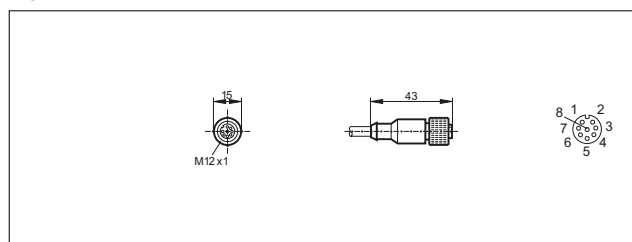
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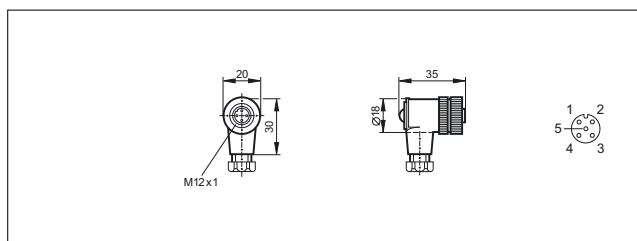
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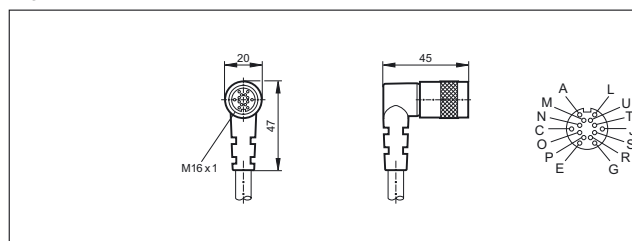
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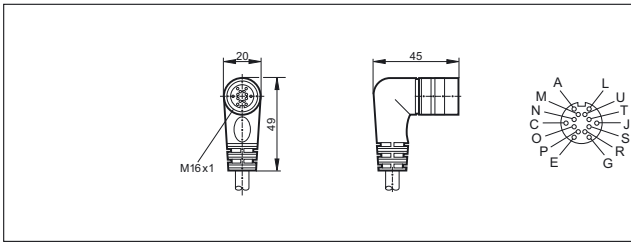


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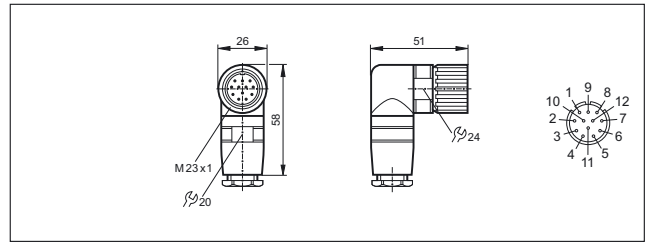


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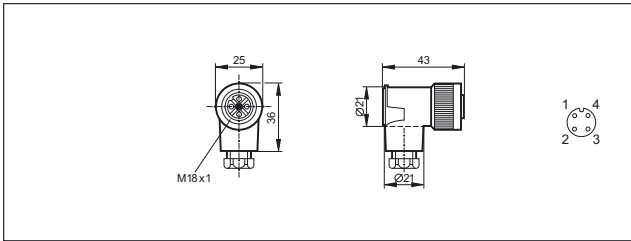
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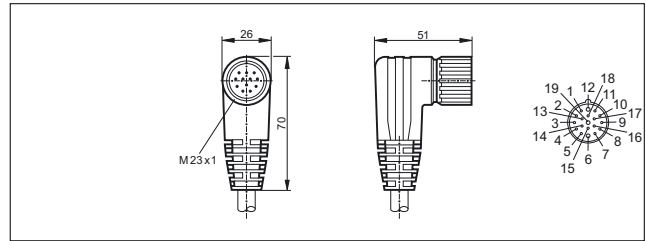
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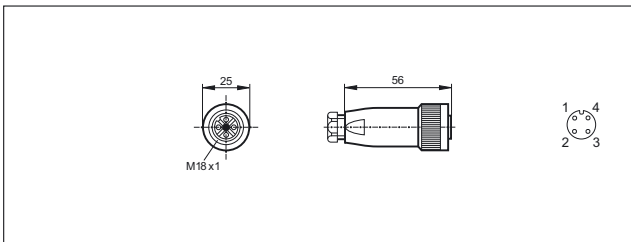
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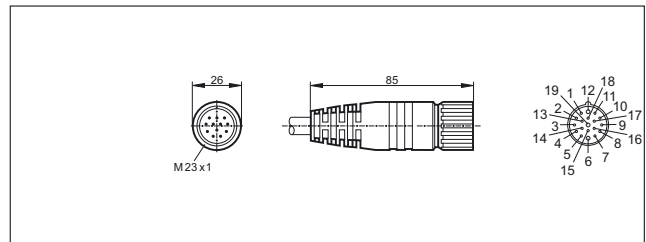
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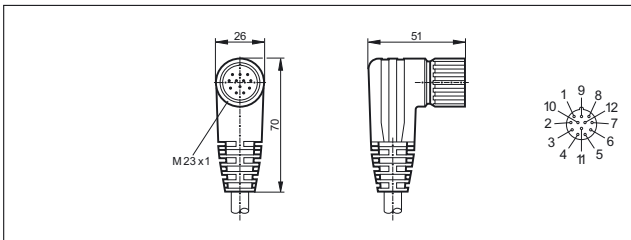
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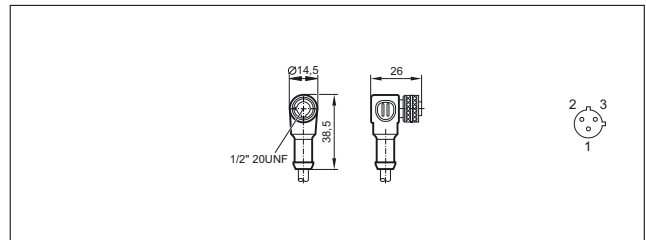
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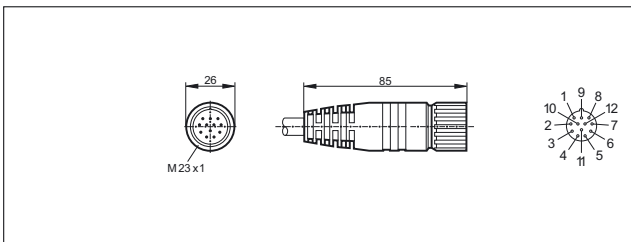
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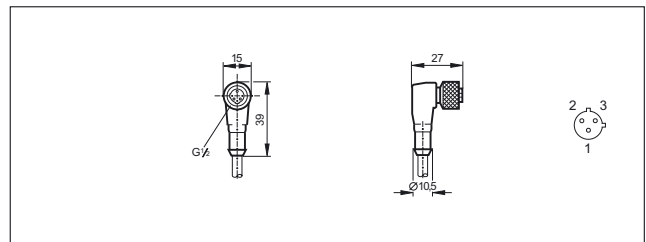
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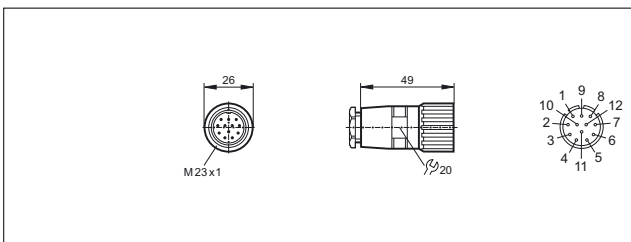
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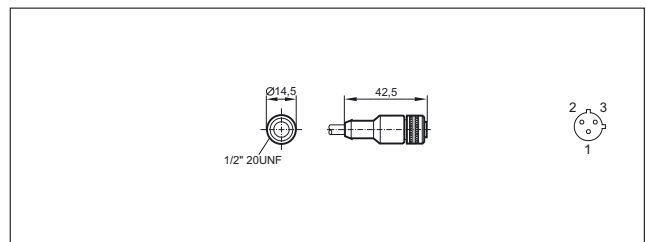
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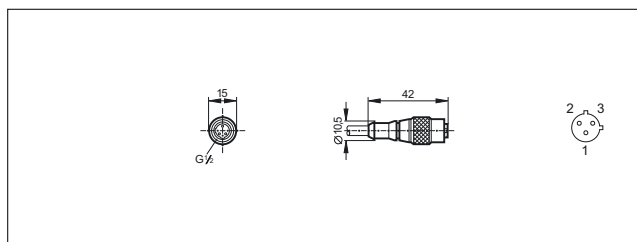


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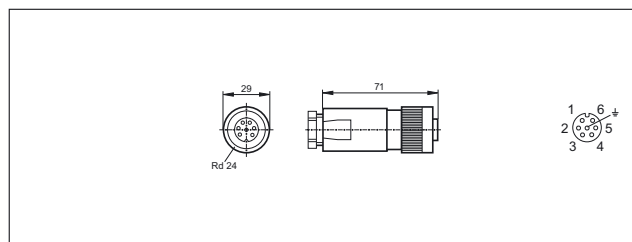


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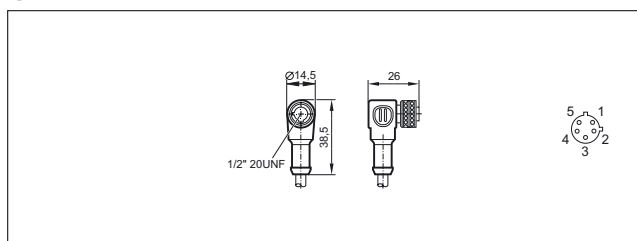
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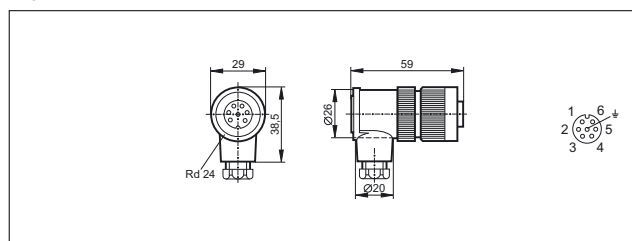
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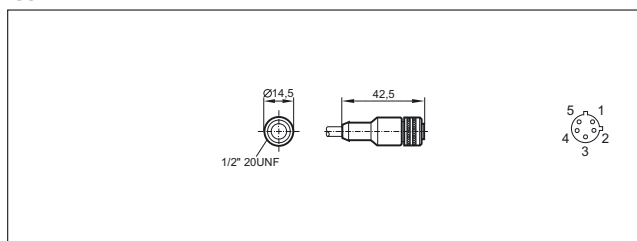
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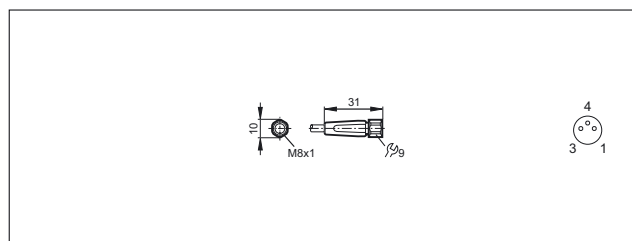
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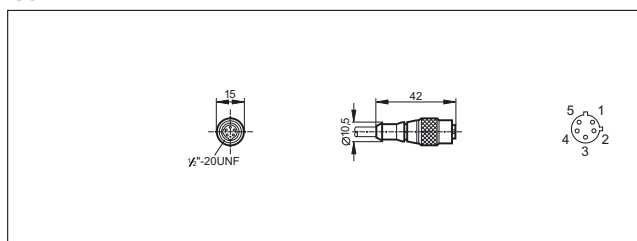
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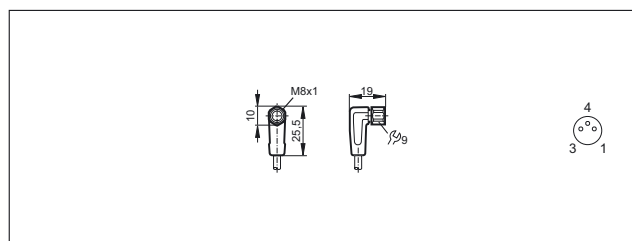
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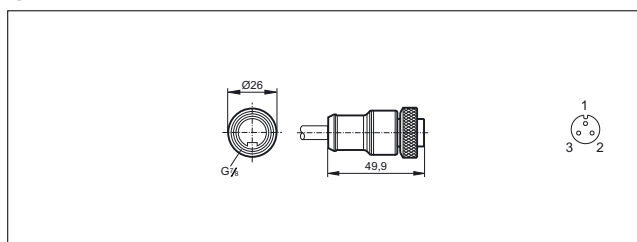
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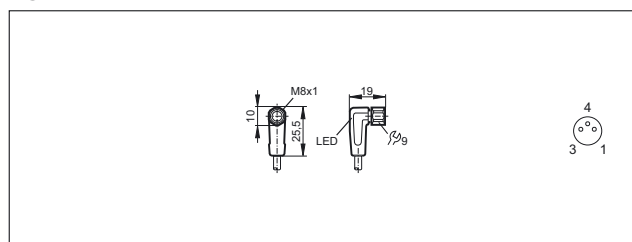
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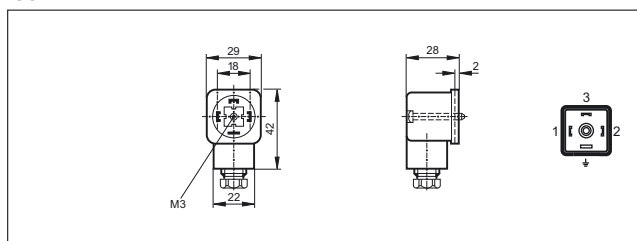
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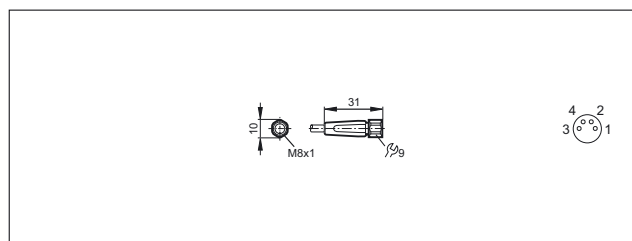
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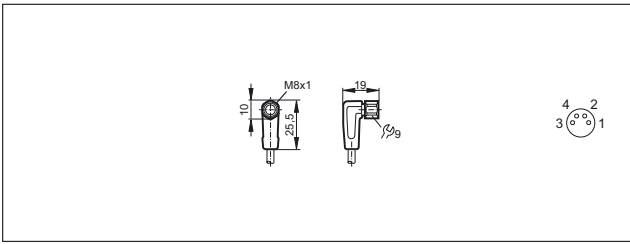


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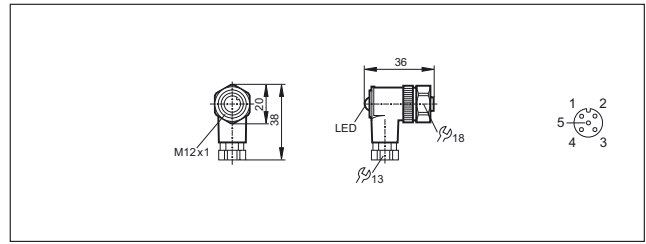


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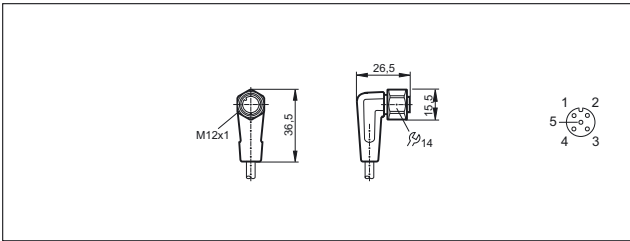
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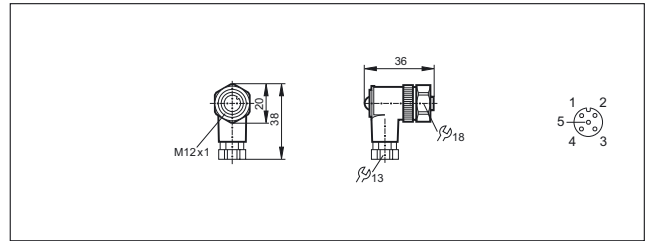
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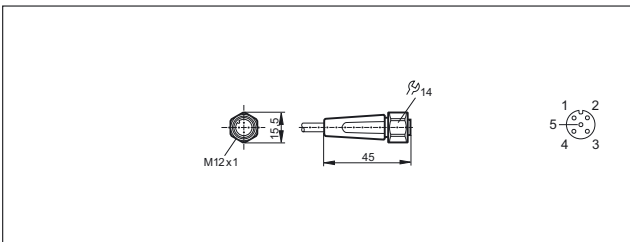
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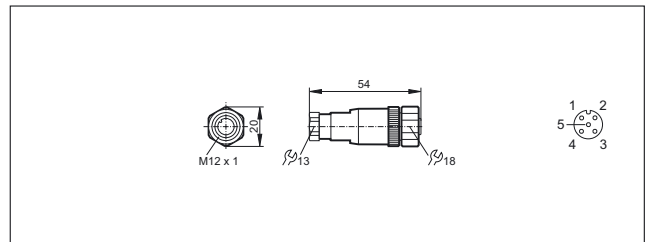
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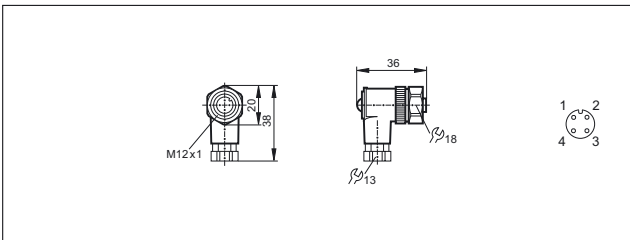
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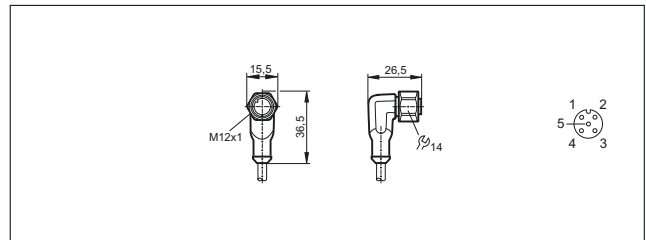
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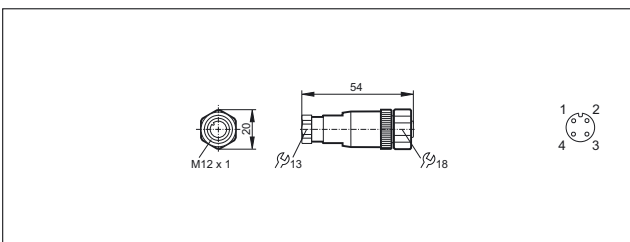
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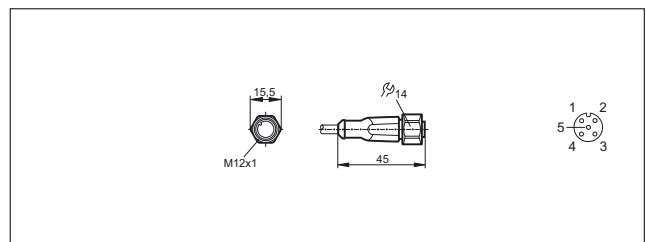
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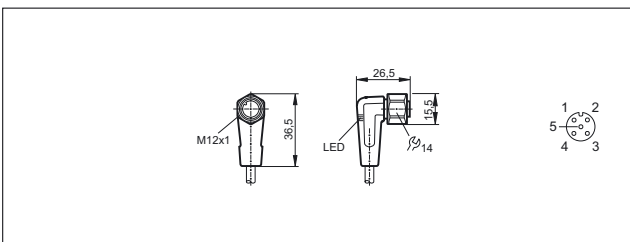
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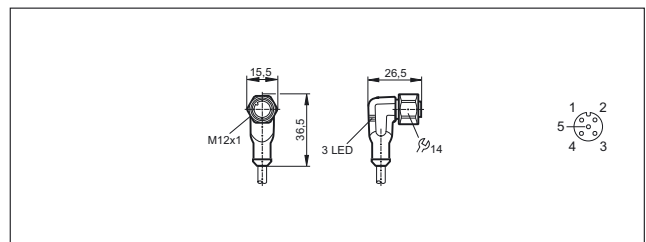
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50



56









Plugs

Plugs are mainly used for the connection to splitter boxes and modules. High-quality pin contacts and materials ensure reliable electrical connections.


In addition to a wide range of standard products ifm also offers versions without silicone and halogen, versions for hygienic areas, for applications in contact with coolants and lubricants, as well as for welding applications.

System overview	Page
M8 cable plugs for industrial applications	730
M12 cable plugs for industrial applications	730 - 731
Connectors for hygienic and wet areas	731 - 732
Wiring diagrams	732
Scale drawings / drawing no. – CAD download: www.ifm.com	733 - 734

M8 cable plugs for industrial applications

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 35 · Wirable plug M8, 3-pole · Wiring diagram no. 1									
	wirable	–	PA / Brass	60 AC 75 DC	-25...90	IP 68	–	–	E11550
Group 36 · Wirable plug M8, 4-pole · Wiring diagram no. 2									
	wirable	–	PA / Brass	60 AC 75 DC	-25...90	IP 68	–	–	E11551

M12 cable plugs for industrial applications



Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 37 · Cable plug M12, 4-pole, 4-wire · Wiring diagram no. 3									
	2 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	1	EVC079
	5 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	1	EVC080

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
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Group 37 · Cable plug M12, 4-pole, 4-wire · Wiring diagram no. 3

	10 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	1	EVC081
	2 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	2	EVC076
	5 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	2	EVC077
	10 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	2	EVC078



Group 38 · Wirable plug M12, 4-pole · Wiring diagram no. 2

	wirable	...0.75 mm ² (Ø 4...6 mm)	PA / Brass	250 AC/DC	-25...85	IP 68	-	3	E11505
	wirable	...0.75 mm ² (Ø 4...6 mm)	PA / Brass	250 AC/DC	-25...85	IP 68	-	4	E11504

Group 39 · Cable plug M12, 5-pole, 5-wire · Wiring diagram no. 4

	2 m black PUR cable	5 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	5	EVC095
	2 m black PUR cable	5 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	6	EVC094


Group 40 · Wirable plug M12, 5-pole · Wiring diagram no. 5

	wirable	...0.75 mm ² (Ø 4...6 mm)	PA / Brass	125 AC/DC	-25...85	IP 68	-	7	E11507
	wirable	...0.75 mm ² (Ø 4...6 mm)	PA / Brass	125 AC/DC	-25...85	IP 68	-	8	E11506

Connectors for hygienic and wet areas

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
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Group 123 · Cable plug M12, 4-pole, 4-wire · Wiring diagram no. 3

	2 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	-	9	EVT071
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You can find wiring diagrams and scale drawings from page 732

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
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Group 123 · Cable plug M12, 4-pole, 4-wire · Wiring diagram no. 3

	5 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	-	9	EVT072
	10 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	-	9	EVT073



Group 124 · Wirable plug M12, 4-pole · Wiring diagram no. 2

	wirable	...0.75 mm ² (Ø 4...6 mm)	PA / high-grade st. steel	240 AC/DC	-25...85	IP 67	-	10	E11858
	wirable	...0.75 mm ² (Ø 4...6 mm)	PA / high-grade st. steel	250 AC/DC	-25...85	IP 67	-	11	E11857

Group 125 · Cable plug M12, 5-pole, 5-wire · Wiring diagram no. 4

	2 m orange PVC cable	5 x 0.34 mm ² , Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	30 AC 36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	-	12	EVT074
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Group 126 · Wirable plug M12, 5-pole · Wiring diagram no. 5

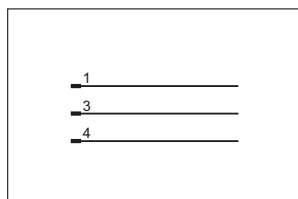
	wirable	...0.75 mm ² (Ø 4...6 mm)	PA / high-grade st. steel	60 AC/DC	-25...85	IP 67	-	13	E11860
	wirable	...0.75 mm ² (Ø 4...6 mm)	PA / high-grade st. steel	125 AC/DC	-25...85	IP 67	-	14	E11859

Wiring diagrams

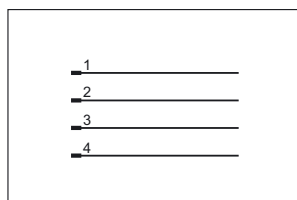
Core colours

BK	black
BN	brown
BU	blue
WH	white
GY	grey

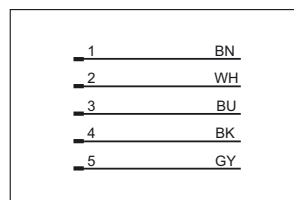
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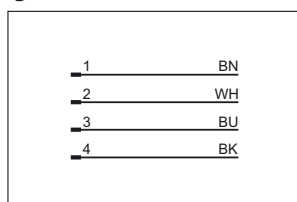
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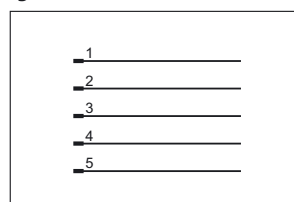
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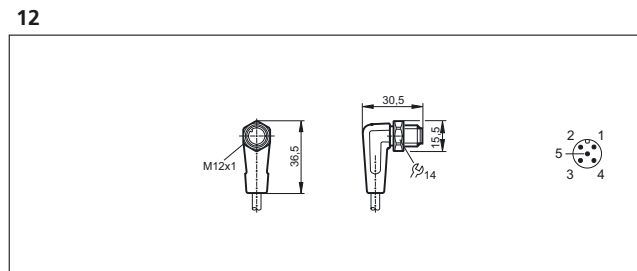
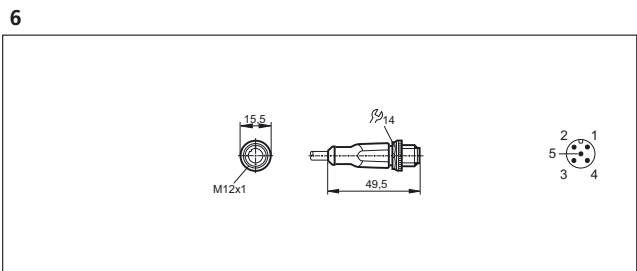
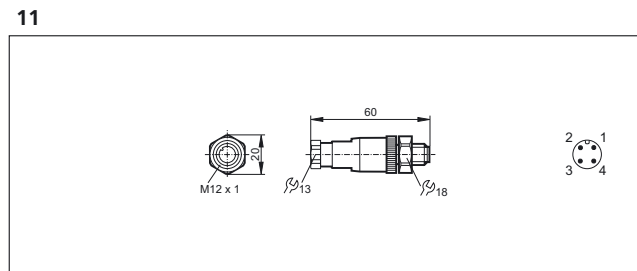
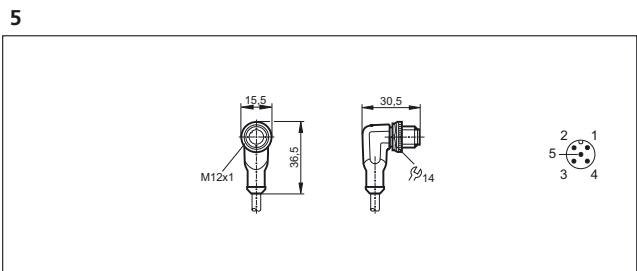
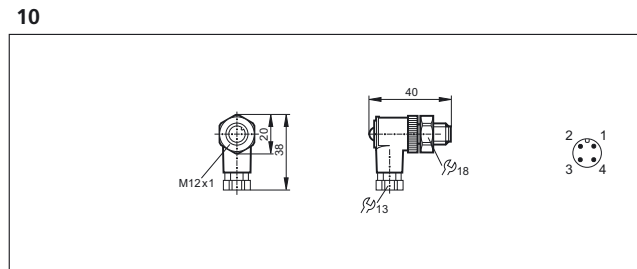
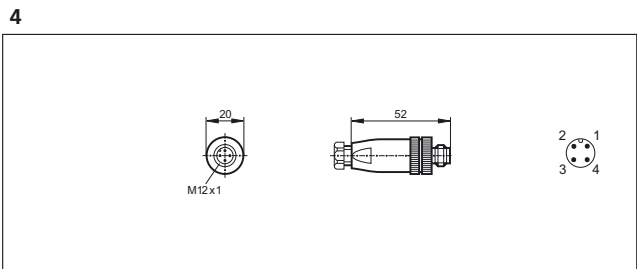
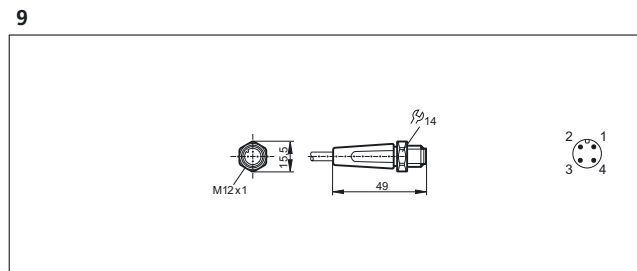
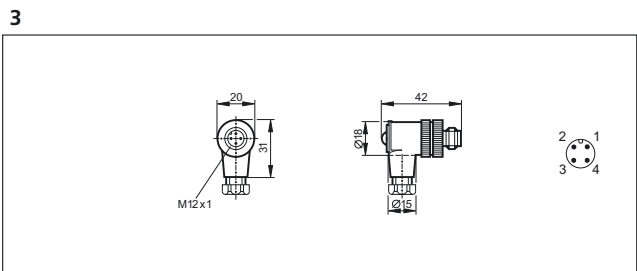
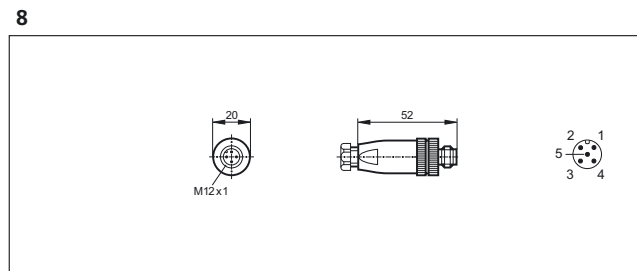
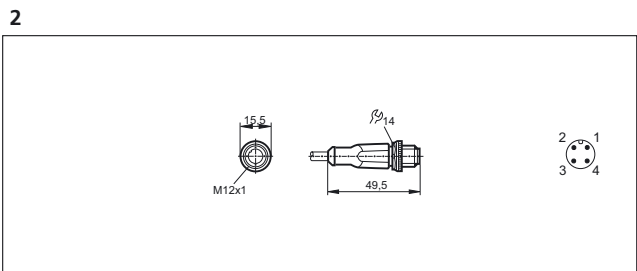
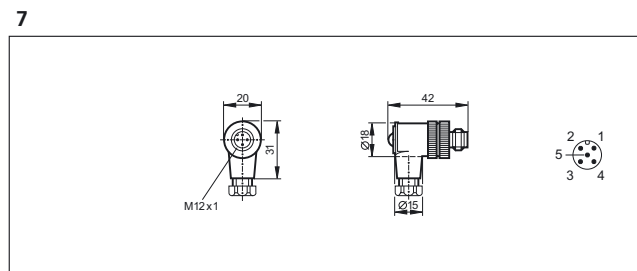
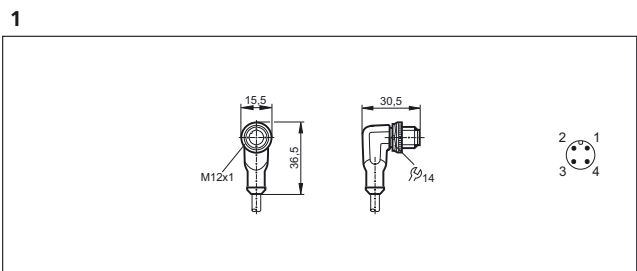
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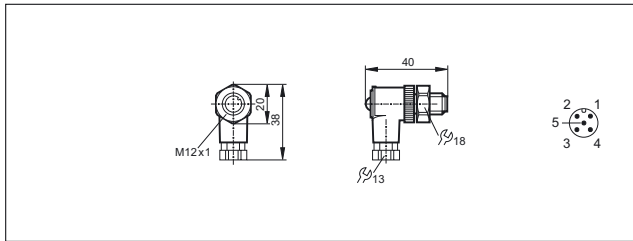


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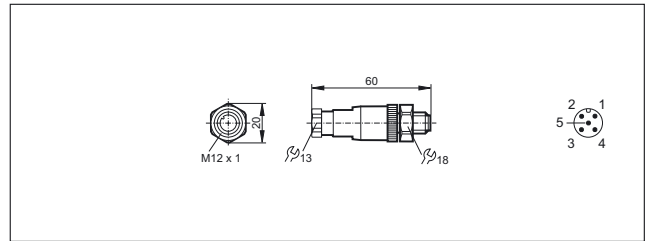


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13



14







Jumper cables

Connection cables feature a plug and a socket. They are used for the connection of sensors to splitter boxes and modules.




High-quality contacts and materials ensure reliable electrical connections.





In addition to a wide range of standard products ifm also offers versions without silicone and halogen, versions for hygienic areas, for applications in contact with coolants and lubricants, as well as for welding applications.




System overview	Page
M8 – M8 jumpers for industrial applications	736 - 739
M8 socket – M12 plug jumpers for industrial applications	740 - 742
M8 plug - M12 socket jumpers for industrial applications	742 - 744
M12 – M12 jumpers for industrial applications	744 - 748
Valve - plug jumpers for industrial applications	749 - 750
Jumpers weld slag resistant	751 - 752
Jumpers for hygienic and wet areas	752 - 758
Jumpers for hygienic and wet areas	758 - 762
Jumpers for hazardous areas	762
Wiring diagrams	763
Scale drawings / drawing no. – CAD download: www.ifm.com	763 - 768

M8 – M8 jumpers for industrial applications




Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 41 · Jumper , plug: M8, 3-pole, socket: M8, 3-pole, 3-wire · Wiring diagram no. 1									
	0.3 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	1	EVC275
	0.6 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	1	EVC276
	1 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	1	EVC277
	2 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	1	EVC278

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 41 · Jumper , plug: M8, 3-pole, socket: M8, 3-pole, 3-wire · Wiring diagram no. 1									
	5 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	1	EVC279
	0.3 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	2	EVC265
	0.6 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	2	EVC266
	1 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	2	EVC267
	2 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	2	EVC268
	5 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	2	EVC269
Group 42 · Jumper , plug: M8, 3-pole, socket: M8, 3-pole, 3-wire, LED, PNP · Wiring diagram no. 2									
	0.3 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	1	EVC280
	0.6 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	1	EVC281
	1 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	1	EVC282
	2 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	1	EVC283
	5 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	1	EVC284
Group 43 · Jumper , plug: M8, 4-pole, socket: M8, 3-pole, 3-wire · Wiring diagram no. 1									
	0.3 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	3	EVC305
	0.6 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	3	EVC306
	1 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	3	EVC307

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 43 · Jumper , plug: M8, 4-pole, socket: M8, 3-pole, 3-wire · Wiring diagram no. 1									
	2 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	3	EVC308
	5 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	3	EVC309
	0.3 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	4	EVC315
	0.6 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	4	EVC316
	1 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	4	EVC317
	2 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	4	EVC318
	5 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	4	EVC319
Group 44 · Jumper , plug: M8, 3-pole, socket: M8, 4-pole, 3-wire · Wiring diagram no. 1									
	0.3 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	5	EVC260
	0.6 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	5	EVC261
	1 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	5	EVC262
	2 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	5	EVC263
	5 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	5	EVC264
	0.3 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	6	EVC270
	0.6 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	6	EVC271
	1 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	6	EVC272


Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 44 · Jumper , plug: M8, 3-pole, socket: M8, 4-pole, 3-wire · Wiring diagram no. 1									
	2 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	6	EVC273
	5 m black PUR cable	3 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	6	EVC274
Group 45 · Jumper , plug: M8, 4-pole, socket: M8, 4-pole, 4-wire · Wiring diagram no. 3									
	0.3 m black PUR cable	4 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	7	EVC300
	0.6 m black PUR cable	4 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	7	EVC301
	1 m black PUR cable	4 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	7	EVC302
	2 m black PUR cable	4 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	7	EVC303
	5 m black PUR cable	4 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	7	EVC304
	0.3 m black PUR cable	4 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	8	EVC310
	0.6 m black PUR cable	4 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	8	EVC311
	1 m black PUR cable	4 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	8	EVC312
	2 m black PUR cable	4 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	8	EVC313
	5 m black PUR cable	4 x 0.25 mm ² , Ø 3.7 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	8	EVC314

M8 socket – M12 plug jumpers for industrial applications


Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 46 · Jumper , plug: M12, 3-pole, socket: M8, 3-pole, 3-wire · Wiring diagram no. 1									
	0.3 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	9	EVC230
	0.6 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	9	EVC231
	1 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	9	EVC232
	2 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	9	EVC233
	5 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	9	EVC234
	0.3 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	10	EVC215
	0.6 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	10	EVC216
	1 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	10	EVC217
	2 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	10	EVC218
	5 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	10	EVC219
Group 47 · Jumper , plug: M12, 3-pole, socket: M8, 3-pole, 3-wire, LED, PNP · Wiring diagram no. 2									
	0.3 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	11	EVC225
	0.6 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	11	EVC226
	1 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	11	EVC227
	2 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	11	EVC228


Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
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Group 47 · Jumper , plug: M12, 3-pole, socket: M8, 3-pole, 3-wire, LED, PNP · Wiring diagram no. 2


	5 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	11	EVC229
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Group 48 · Jumper , plug: M12, 3-pole, socket: M8, 4-pole, 3-wire · Wiring diagram no. 1

	0.3 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	12	EVC210
	0.6 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	12	EVC211
	1 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	12	EVC212
	2 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	12	EVC213
	5 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	12	EVC214


	0.3 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	13	EVC220
	0.6 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	13	EVC221
	1 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	13	EVC222
	2 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	13	EVC223
	5 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	13	EVC224

Group 49 · Jumper , plug: M12, 4-pole, socket: M8, 4-pole, 4-wire · Wiring diagram no. 3

	0.3 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	14	EVC235
	0.6 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	14	EVC236
	1 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	14	EVC237

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 49 · Jumper , plug: M12, 4-pole, socket: M8, 4-pole, 4-wire · Wiring diagram no. 3									
	2 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	14	EVC238
	5 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	14	EVC239
	0.3 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	15	EVC240
	0.6 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	15	EVC241
	1 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	15	EVC242
	2 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	15	EVC243
	5 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	15	EVC244

M8 plug - M12 socket jumpers for industrial applications

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 50 · Jumper , plug: M8, 3-pole, socket: M12, 5/4-pole, 3-wire · Wiring diagram no. 1									
	0.3 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	16	EVC245
	0.6 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	16	EVC246
	1 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	16	EVC247
	2 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	16	EVC248
	5 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	16	EVC249

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 51 · Jumper , plug: M8, 3-pole, socket: M12, 5-pole, 3-wire · Wiring diagram no. 1									
	0.3 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	17	EVC255
	0.6 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	17	EVC256
	1 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	17	EVC257
	2 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	17	EVC258
	5 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	17	EVC259
Group 52 · Jumper , plug: M8, 3-pole, socket: M12, 5-pole, 3-wire, LED, PNP · Wiring diagram no. 2									
	0.3 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	18	EVC250
	0.6 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	18	EVC251
	1 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	18	EVC252
	2 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	18	EVC253
	5 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	18	EVC254
Group 53 · Jumper , plug: M8, 4-pole, socket: M12, 5-pole, 4-wire · Wiring diagram no. 3									
	0.3 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	19	EVC285
	0.6 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	19	EVC286
	1 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	19	EVC287
	2 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	19	EVC288

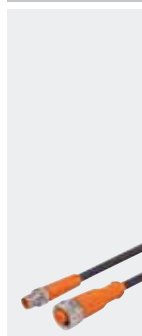
Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
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Group 53 · Jumper , plug: M8, 4-pole, socket: M12, 5-pole, 4-wire · Wiring diagram no. 3



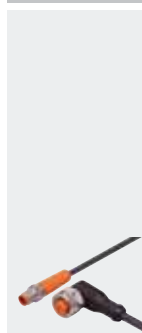
5 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	19	EVC289
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Group 54 · Jumper , plug: M8, 4-pole, socket: M12, 5/4-pole, 4-wire · Wiring diagram no. 3



0.3 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	20	EVC295
0.6 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	20	EVC296
1 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	20	EVC297
2 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	20	EVC298
5 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	50 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	20	EVC299

Group 55 · Jumper , plug: M8, 4-pole, socket: M12, 5-pole, 4-wire, LED, PNP · Wiring diagram no. 4



0.3 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	21	EVC290
0.6 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	21	EVC291
1 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	21	EVC292
2 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	21	EVC293
5 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	21	EVC294

M12 – M12 jumpers for industrial applications




Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
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Group 56 · Jumper , plug: M12, 3-pole, socket: M12, 5-pole, 3-wire · Wiring diagram no. 1



0.3 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	22	EVC045
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Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 56 · Jumper , plug: M12, 3-pole, socket: M12, 5-pole, 3-wire · Wiring diagram no. 1									
	0.6 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	22	EVC046
	1 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	22	EVC047
	2 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	22	EVC048
	5 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	22	EVC049
	0.3 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	23	EVC040
	0.6 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	23	EVC041
	1 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	23	EVC042
	2 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	23	EVC043
	5 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	23	EVC044
Group 58 · Jumper , plug: M12, 3-pole, socket: M12, 5-pole, 3-wire, LED, PNP · Wiring diagram no. 2									
	0.3 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	24	EVC050
	0.6 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	24	EVC051
	1 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	24	EVC052
	2 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	24	EVC053
	5 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	24	EVC054

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 60 · Jumper , plug: M12, 4-pole, socket: M12, 5/4-pole, 4-wire · Wiring diagram no. 3									
	0.3 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	25	EVC015
	0.6 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	25	EVC016
	1 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	25	EVC017
	2 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	25	EVC018
	5 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	25	EVC019
	0.3 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	26	EVC010
	0.6 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	26	EVC011
	1 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	26	EVC012
	2 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	26	EVC013
	5 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	26	EVC014
Group 61 · Jumper , plug: M12, 4-pole, socket: M12, 5/4-pole, 4-wire, LED, PNP · Wiring diagram no. 4									
	0.3 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	27	EVC020
	0.6 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	27	EVC021
	1 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	27	EVC022
	2 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	27	EVC023
	5 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	27	EVC024


Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
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Group 62 · Jumper , plug: M12, 4-pole, socket: M12, 5/4-pole, 4-wire · Wiring diagram no. 3

	0.3 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	28	EVC025
	0.6 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	28	EVC026
	1 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	28	EVC027
	2 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	28	EVC028
	5 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	28	EVC029

	0.3 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	29	EVC030
	0.6 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	29	EVC031
	1 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	29	EVC032
	2 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	29	EVC033
	5 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	29	EVC034

Group 63 · Jumper , plug: M12, 4-pole, socket: M12, 5/4-pole, 4-wire, LED, PNP · Wiring diagram no. 4


	0.3 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	30	EVC035
	0.6 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	30	EVC036
	1 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	30	EVC037
	2 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	30	EVC038
	5 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	30	EVC039

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 64 · Jumper , plug: M12, 5-pole, socket: M12, 5-pole, 5-wire · Wiring diagram no. 5									
	0.3 m black PUR cable	5 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	31	EVC060
	0.6 m black PUR cable	5 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	31	EVC061
	1 m black PUR cable	5 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	31	EVC062
	2 m black PUR cable	5 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	31	EVC063
	5 m black PUR cable	5 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	31	EVC064
	0.3 m black PUR cable	5 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	32	EVC055
	0.6 m black PUR cable	5 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	32	EVC056
	1 m black PUR cable	5 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	32	EVC057
	2 m black PUR cable	5 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	32	EVC058
	5 m black PUR cable	5 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	32	EVC059
	0.3 m black PUR cable	5 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	33	EVC065
	0.6 m black PUR cable	5 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	33	EVC066
	1 m black PUR cable	5 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	33	EVC067
	2 m black PUR cable	5 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	33	EVC068
	5 m black PUR cable	5 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	33	EVC069


Valve - plug jumpers for industrial applications

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
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Group 65 · Jumper , plug: M12, 3-pole, valve plug: Housing A, 4-pole, 3-wire, LED · Wiring diagram no. 6

	0.3 m black PUR cable	3 x 0.5 mm ² , Ø 5 mm	PUR / Brass	24 AC/DC	-25...80	IP 67	yellow	34	E11416
	0.6 m black PUR cable	3 x 0.5 mm ² , Ø 5 mm	PUR / Brass	24 AC/DC	-25...80	IP 67	yellow	34	E11417
	1 m black PUR cable	3 x 0.5 mm ² , Ø 5 mm	PUR / Brass	24 AC/DC	-25...80	IP 67	yellow	34	E11418
	2 m black PUR cable	3 x 0.5 mm ² , Ø 5 mm	PUR / Brass	24 AC/DC	-25...80	IP 67	yellow	34	E11419
	5 m black PUR cable	3 x 0.5 mm ² , Ø 5 mm	PUR / Brass	24 AC/DC	-25...80	IP 67	yellow	34	E11420

Group 66 · Jumper , plug: M12, 3-pole, valve plug: Housing B, 3-pole, 3-wire, LED · Wiring diagram no. 7

	0.3 m black PUR cable	3 x 0.5 mm ² , Ø 5 mm	PUR / Brass	24 AC/DC	-25...80	IP 67	yellow	35	E11421
	0.6 m black PUR cable	3 x 0.5 mm ² , Ø 5 mm	PUR / Brass	24 AC/DC	-25...80	IP 67	yellow	35	E11422
	1 m black PUR cable	3 x 0.5 mm ² , Ø 5 mm	PUR / Brass	24 AC/DC	-25...80	IP 67	yellow	35	E11423
	2 m black PUR cable	3 x 0.5 mm ² , Ø 5 mm	PUR / Brass	24 AC/DC	-25...80	IP 67	yellow	35	E11424
	5 m black PUR cable	3 x 0.5 mm ² , Ø 5 mm	PUR / Brass	24 AC/DC	-25...80	IP 67	yellow	35	E11425


Group 67 · Jumper , plug: M12, 3-pole, valve plug: Housing B (industrial standard), 3-pole, 3-wire, LED · Wiring diagram no. 7

	0.3 m black PUR cable	3 x 0.5 mm ² , Ø 5 mm	PUR / Brass	24 AC/DC	-25...80	IP 67	yellow	36	E11431
	0.6 m black PUR cable	3 x 0.5 mm ² , Ø 5 mm	PUR / Brass	24 AC/DC	-25...80	IP 67	yellow	36	E11432
	1 m black PUR cable	3 x 0.5 mm ² , Ø 5 mm	PUR / Brass	24 AC/DC	-25...80	IP 67	yellow	36	E11433


Connection technology

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
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Group 67 · Jumper , plug: M12, 3-pole, valve plug: Housing B (industrial standard), 3-pole, 3-wire, LED · Wiring diagram no. 7

	2 m black PUR cable	3 x 0.5 mm ² , Ø 5 mm	PUR / Brass	24 AC/DC	-25...80	IP 67	yellow	36	E11434
	5 m black PUR cable	3 x 0.5 mm ² , Ø 5 mm	PUR / Brass	24 AC/DC	-25...80	IP 67	yellow	36	E11435




Group 68 · Jumper , plug: M12, 3-pole, valve plug: Housing C, 4-pole, 3-wire, LED · Wiring diagram no. 6



	0.3 m black PUR cable	3 x 0.5 mm ² , Ø 5 mm	PUR / Brass	24 AC/DC	-25...80	IP 65	yellow	37	E11426
	0.6 m black PUR cable	3 x 0.5 mm ² , Ø 5 mm	PUR / Brass	24 AC/DC	-25...80	IP 65	yellow	37	E11427
	1 m black PUR cable	3 x 0.5 mm ² , Ø 5 mm	PUR / Brass	24 AC/DC	-25...80	IP 65	yellow	37	E11428
	2 m black PUR cable	3 x 0.5 mm ² , Ø 5 mm	PUR / Brass	24 AC/DC	-25...80	IP 65	yellow	37	E11429
	5 m black PUR cable	3 x 0.5 mm ² , Ø 5 mm	PUR / Brass	24 AC/DC	-25...80	IP 65	yellow	37	E11430

Group 69 · Jumper , plug: M12, 3-pole, valve plug: Housing C (industrial standard), 4-pole, 3-wire, LED · Wiring diagram no. 6


	0.3 m black PUR cable	3 x 0.5 mm ² , Ø 5 mm	PUR / Brass	24 AC/DC	-25...80	IP 67	yellow	38	E11436
	0.6 m black PUR cable	3 x 0.5 mm ² , Ø 5 mm	PUR / Brass	24 AC/DC	-25...80	IP 67	yellow	38	E11437
	1 m black PUR cable	3 x 0.5 mm ² , Ø 5 mm	PUR / Brass	24 AC/DC	-25...80	IP 67	yellow	38	E11438
	2 m black PUR cable	3 x 0.5 mm ² , Ø 5 mm	PUR / Brass	24 AC/DC	-25...80	IP 67	yellow	38	E11439
	5 m black PUR cable	3 x 0.5 mm ² , Ø 5 mm	PUR / Brass	24 AC/DC	-25...80	IP 67	yellow	38	E11440

Jumpers weld slag resistant

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 112 · Jumper , plug: M12, 4-pole, socket: M12, 5-pole, 4-wire · Wiring diagram no. 3									
	0.3 m grey PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	39	EVW036
	0.5 m grey PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	39	EVW022
	1 m grey PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	39	EVW030
	2 m grey PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	39	EVW031
	5 m grey PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	39	EVW034
	0.3 m grey PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	40	EVW037
	0.5 m grey PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	40	EVW023
	1 m grey PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	40	EVW024
	2 m grey PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	40	EVW025
	5 m grey PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	40	EVW028
Group 113 · Jumper , plug: M12, 5-pole, socket: M12, 5-pole, 4-wire · Wiring diagram no. 5									
	0.3 m grey PUR cable	5 x 0.34 mm ² , Ø 5.1 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	31	EVW054
	0.6 m grey PUR cable	5 x 0.34 mm ² , Ø 5.1 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	31	EVW055
	1 m grey PUR cable	5 x 0.34 mm ² , Ø 5.1 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	31	EVW056
	2 m grey PUR cable	5 x 0.34 mm ² , Ø 5.1 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	31	EVW057



Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 113 · Jumper , plug: M12, 5-pole, socket: M12, 5-pole, 4-wire · Wiring diagram no. 5									
	5 m grey PUR cable	5 x 0.34 mm ² , Ø 5.1 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	31	EVW058
	10 m grey PUR cable	5 x 0.34 mm ² , Ø 5.1 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	31	EVW059
	0.3 m grey PUR cable	5 x 0.34 mm ² , Ø 5.1 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	32	EVW048
	0.6 m grey PUR cable	5 x 0.34 mm ² , Ø 5.1 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	32	EVW049
	1 m grey PUR cable	5 x 0.34 mm ² , Ø 5.1 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	32	EVW050
	2 m grey PUR cable	5 x 0.34 mm ² , Ø 5.1 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	32	EVW051
	5 m grey PUR cable	5 x 0.34 mm ² , Ø 5.1 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	32	EVW052
	10 m grey PUR cable	5 x 0.34 mm ² , Ø 5.1 mm	TPU / Brass	30 AC 36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	-	32	EVW053

Jumpers for hygienic and wet areas


Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 127 · Jumper , plug: M8, 3-pole, socket: M8, 3-pole, 3-wire · Wiring diagram no. 1									
	0.3 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	41	EVT142
	0.6 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	41	EVT143
	1 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	41	EVT144
	2 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	41	EVT145
	5 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	41	EVT146

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
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Group 127 · Jumper , plug: M8, 3-pole, socket: M8, 3-pole, 3-wire · Wiring diagram no. 1




	10 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	41	EVT147
	0.3 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	42	EVT148
	0.6 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	42	EVT149
	1 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	42	EVT150
	2 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	42	EVT151
	5 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	42	EVT152
	10 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	42	EVT153

Group 129 · Jumper , plug: M8, 3-pole, socket: M8, 3-pole, 3-wire, LED, PNP · Wiring diagram no. 2

	0.3 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	43	EVT154
	0.6 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	43	EVT155
	1 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	43	EVT156
	2 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	43	EVT157
	5 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	43	EVT158
	10 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	43	EVT159

Group 131 · Jumper , plug: M8, 3-pole, socket: M8, 3-pole, 3-wire · Wiring diagram no. 1


	0.3 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	44	EVT160
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Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 131 · Jumper , plug: M8, 3-pole, socket: M8, 3-pole, 3-wire · Wiring diagram no. 1									
	0.6 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	44	EVT161
	1 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	44	EVT162
	2 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	44	EVT163
	5 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	44	EVT164
	10 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	44	EVT165
	0.3 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	45	EVT166
	0.6 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	45	EVT167
	1 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	45	EVT168
	2 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	45	EVT169
	5 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	45	EVT170
	10 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	45	EVT171
Group 132 · Jumper , plug: M8, 3-pole, socket: M8, 3-pole, 3-wire, LED, PNP · Wiring diagram no. 2									
	0.3 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	46	EVT172
	0.6 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	46	EVT173
	1 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	46	EVT174
	2 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	46	EVT175



Product selectors and further information can be found at: www.ifm.com

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
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Group 132 · Jumper , plug: M8, 3-pole, socket: M8, 3-pole, 3-wire, LED, PNP · Wiring diagram no. 2





	5 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	46	EVT176
	10 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	46	EVT177




Group 133 · Jumper , plug: M8, 3-pole, socket: M8, 4-pole, 3-wire · Wiring diagram no. 1


	0.3 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	47	EVT279
	0.6 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	47	EVT280
	1 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	47	EVT281
	2 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	47	EVT203
	5 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	47	EVT204
	0.3 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	48	EVT283
	0.6 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	48	EVT284
	1 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	48	EVT285
	2 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	48	EVT211
	5 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	48	EVT286

Group 134 · Jumper , plug: M8, 3-pole, socket: M12, 5-pole, 3-wire · Wiring diagram no. 1




	0.3 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	49	EVT260
	0.6 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	49	EVT261

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 134 · Jumper , plug: M8, 3-pole, socket: M12, 5-pole, 3-wire · Wiring diagram no. 1									
	1 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	49	EVT262
	2 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	49	EVT263
	0.3 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	50	EVT265
	0.6 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	50	EVT266
	1 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	50	EVT267
	2 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	50	EVT268
	5 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	50	EVT269
Group 135 · Jumper , plug: M8, 4-pole, socket: M8, 4-pole, 4-wire · Wiring diagram no. 3									
	0.3 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	51	EVT178
	0.6 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	51	EVT179
	1 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	51	EVT180
	2 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	51	EVT181
	5 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	51	EVT182
	10 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	51	EVT183
	0.3 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	52	EVT184
	0.6 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	52	EVT185

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 135 · Jumper , plug: M8, 4-pole, socket: M8, 4-pole, 4-wire · Wiring diagram no. 3									
	1 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	52	EVT186
	2 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	52	EVT187
	5 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	52	EVT188
	10 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	52	EVT189
	0.3 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	53	EVT190
	0.6 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	53	EVT191
	1 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	53	EVT192
	2 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	53	EVT193
	5 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	53	EVT194
	10 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	53	EVT195
	0.3 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	54	EVT196
	0.6 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	54	EVT197
	1 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	54	EVT198
	2 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	54	EVT199
	5 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	54	EVT200



Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 135 · Jumper , plug: M8, 4-pole, socket: M8, 4-pole, 4-wire · Wiring diagram no. 3									
	10 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	54	EVT201

Jumpers for hygienic and wet areas


Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 136 · Jumper , plug: M12, 3-pole, socket: M8, 3-pole, 3-wire · Wiring diagram no. 1									
	0.3 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	55	EVT236
	0.6 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	55	EVT237
	1 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	55	EVT238
	2 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	55	EVT239
	5 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	55	EVT240
	0.3 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	56	EVT242
	0.6 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	56	EVT243
	1 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	56	EVT244
	2 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	56	EVT245
	5 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	-	56	EVT246
Group 137 · Jumper , plug: M12, 3-pole, socket: M12, 5/4/3-pole, 3-wire · Wiring diagram no. 1									
	0.3 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	-	57	EVT028

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
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Group 137 · Jumper , plug: M12, 3-pole, socket: M12, 5/4/3-pole, 3-wire · Wiring diagram no. 1

	0.6 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	-	57	EVT029
	1 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	-	57	EVT030
	2 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	-	57	EVT031
	5 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	-	57	EVT032
	10 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	-	57	EVT033
	0.3 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	-	58	EVT022
	0.6 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	-	58	EVT023
	1 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	-	58	EVT024
	2 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	-	58	EVT025
	5 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	-	58	EVT026
	10 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	-	58	EVT027

Group 138 · Jumper , plug: M12, 3-pole, socket: M12, 5/4/3-pole, 3-wire, LED, PNP · Wiring diagram no. 2

	0.3 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	59	EVT034
	0.6 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	59	EVT035
	1 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	59	EVT036
	2 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	59	EVT037

You can find wiring diagrams and scale drawings from page 763

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 138 · Jumper , plug: M12, 3-pole, socket: M12, 5/4/3-pole, 3-wire, LED, PNP · Wiring diagram no. 2									
	5 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	59	EVT038
	10 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	59	EVT039
Group 139 · Jumper , plug: M12, 4-pole, socket: M8, 4-pole, 4-wire · Wiring diagram no. 3									
	0.3 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	60	EVT248
	0.6 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	60	EVT249
	1 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	60	EVT250
	5 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	60	EVT251
	0.3 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	61	EVT253
	0.6 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	61	EVT254
	1 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	61	EVT255
	2 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	61	EVT256
	5 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	61	EVT257
Group 140 · Jumper , plug: M12, 4-pole, socket: M12, 5/4-pole, 4-wire · Wiring diagram no. 3									
	0.3 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	62	EVT046
	0.6 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	62	EVT047
	1 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	62	EVT048

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
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Group 140 · Jumper , plug: M12, 4-pole, socket: M12, 5/4-pole, 4-wire · Wiring diagram no. 3

	2 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	-	62	EVT049
	5 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	-	62	EVT050
	10 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	-	62	EVT051
	0.3 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	-	63	EVT040
	0.6 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	-	63	EVT041
	1 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	-	63	EVT042
	2 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	-	63	EVT043
	5 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	-	63	EVT044
	10 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	-	63	EVT045


Group 141 · Jumper , plug: M12, 4-pole, socket: M12, 5/4-pole, 4-wire, LED, PNP · Wiring diagram no. 4

	0.3 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	64	EVT052
	0.6 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	64	EVT053
	1 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	64	EVT054
	2 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	64	EVT055
	5 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	64	EVT056
	10 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	64	EVT057

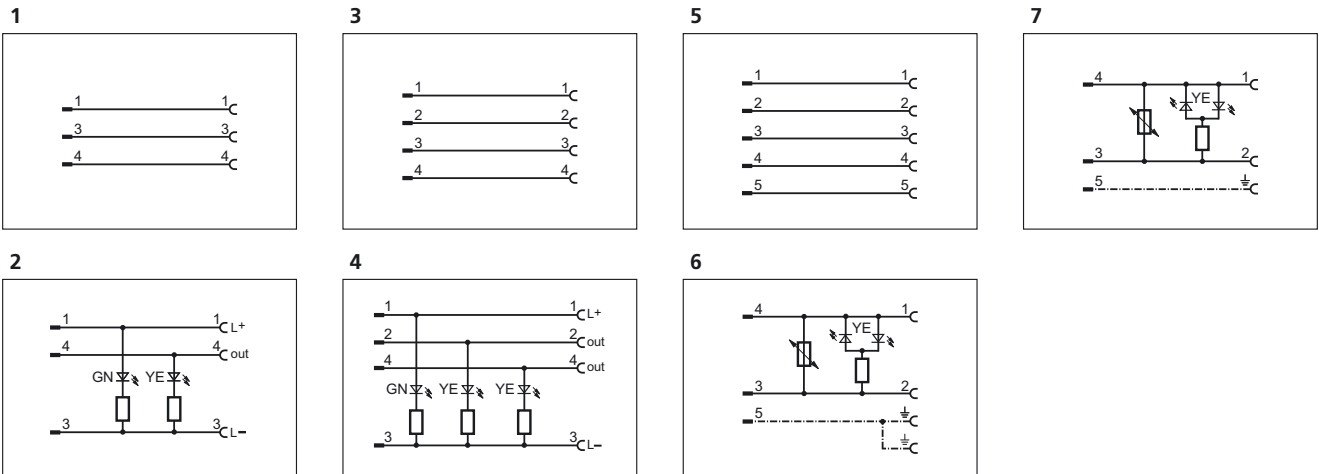
You can find wiring diagrams and scale drawings from page 763

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 142 · Jumper , plug: M12, 5-pole, socket: M12, 5-pole, 5-wire · Wiring diagram no. 5									
	0.3 m orange PVC cable	5 x 0.34 mm ² , Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	30 AC 36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	65	EVT058
	0.6 m orange PVC cable	5 x 0.34 mm ² , Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	30 AC 36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	65	EVT059
	1 m orange PVC cable	5 x 0.34 mm ² , Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	30 AC 36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	65	EVT060
	2 m orange PVC cable	5 x 0.34 mm ² , Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	30 AC 36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	65	EVT061
	5 m orange PVC cable	5 x 0.34 mm ² , Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	30 AC 36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	65	EVT062
	10 m orange PVC cable	5 x 0.34 mm ² , Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	30 AC 36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	65	EVT063

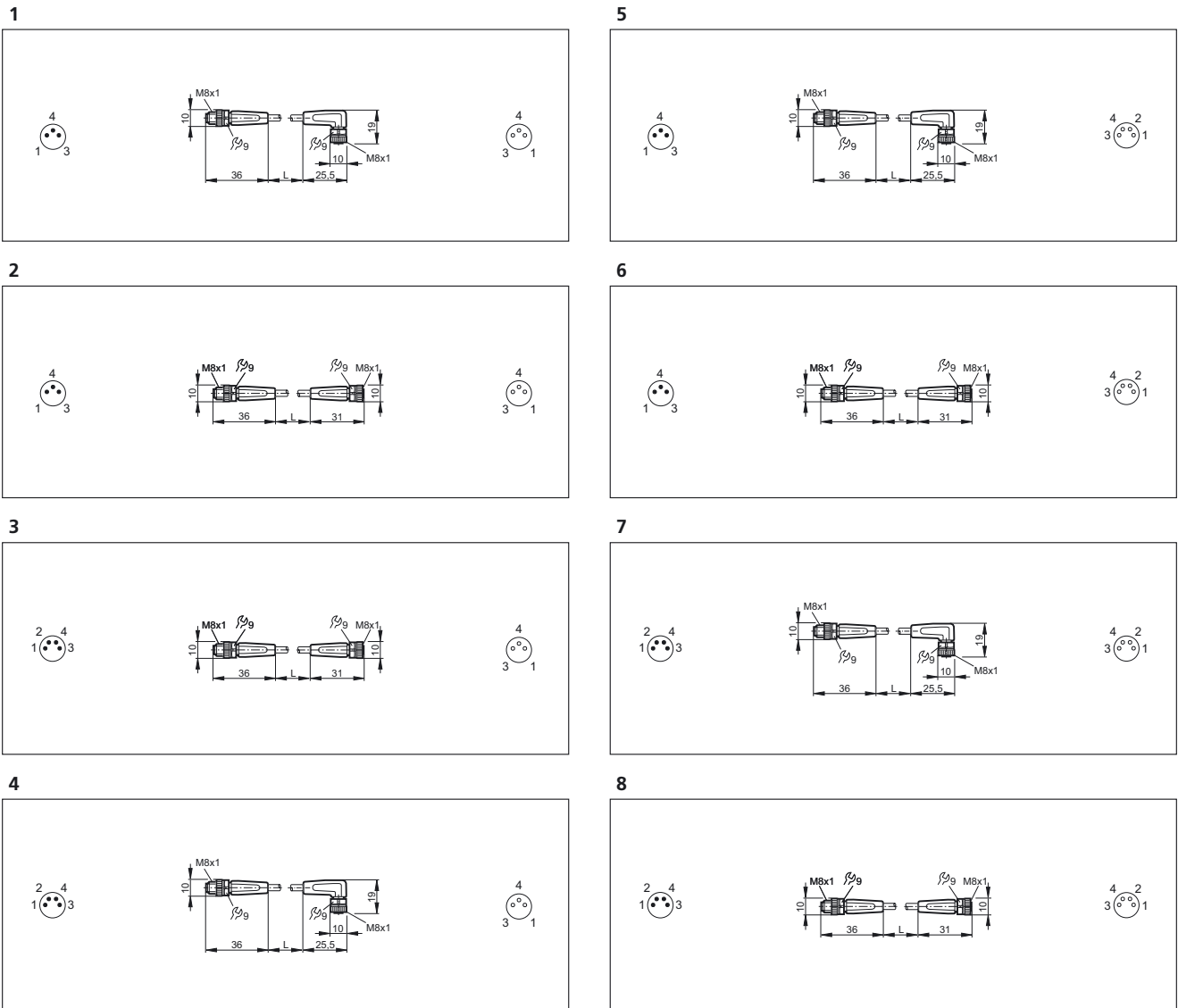
Jumpers for hazardous areas

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 146 · Jumper , plug: M12, 4-pole, socket: M12, 5/4-pole, 4-wire · Wiring diagram no. 3									
	0.3 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	60 AC 60 DC	-20...60	IP 67	–	66	EVC09A
	0.6 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	60 AC 60 DC	-20...60	IP 67	–	66	EVC10A
	1 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	60 AC 60 DC	-20...60	IP 67	–	66	EVC11A
	2 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	60 AC 60 DC	-20...60	IP 67	–	66	EVC07A
	5 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	60 AC 60 DC	-20...60	IP 67	–	66	EVC12A
	10 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	60 AC 60 DC	-20...60	IP 67	–	66	EVC13A

Wiring diagrams

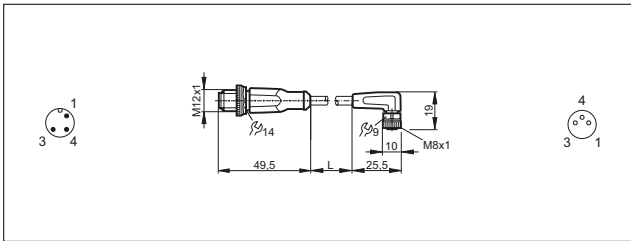


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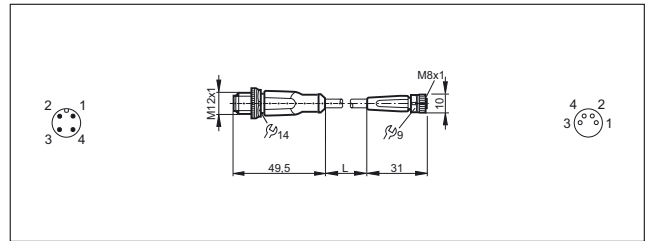


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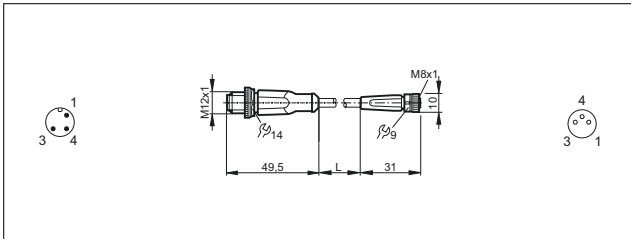
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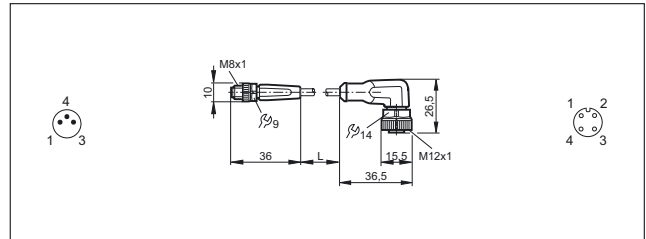
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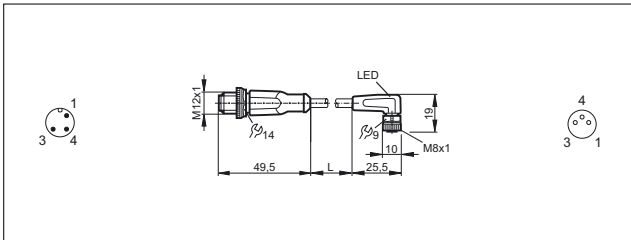
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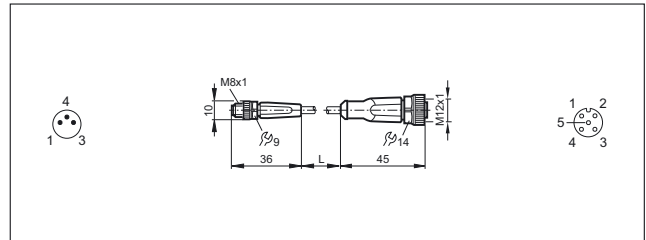
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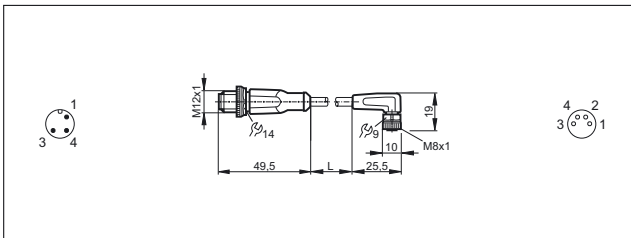
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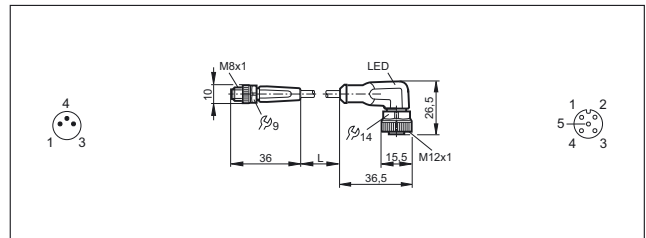
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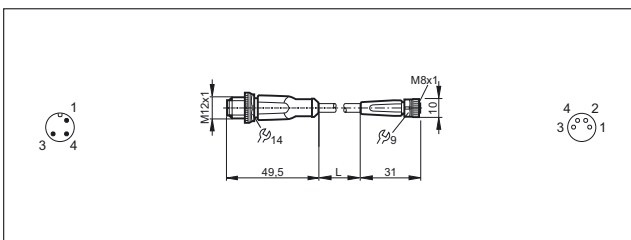
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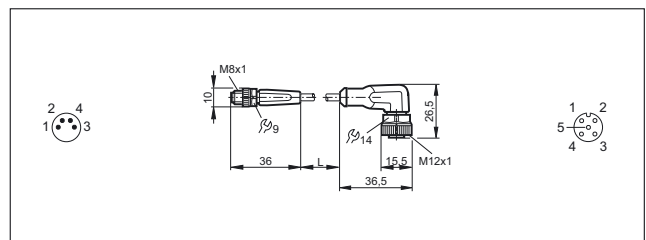
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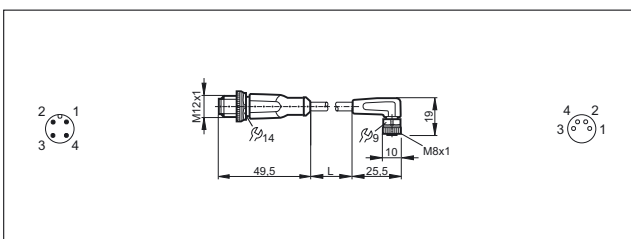
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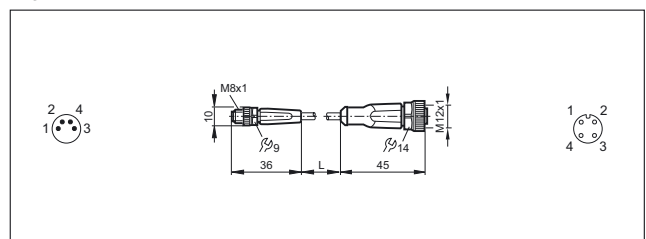
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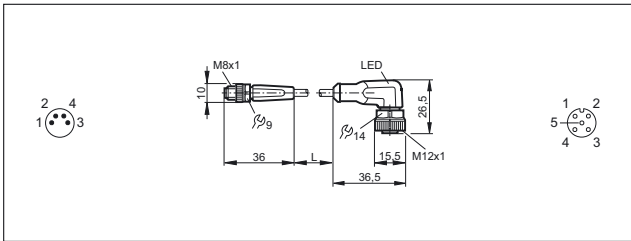


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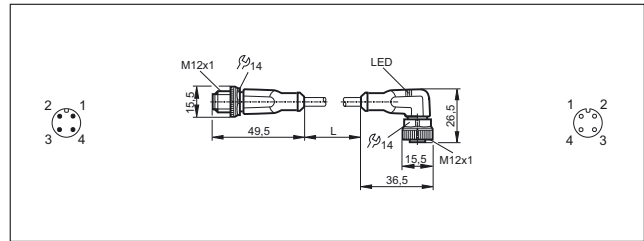


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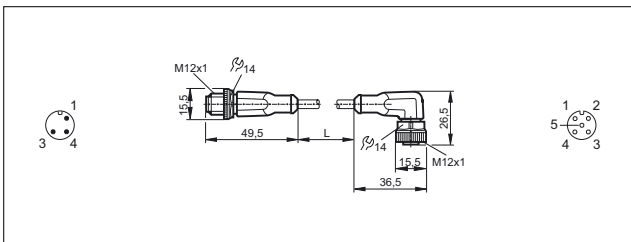
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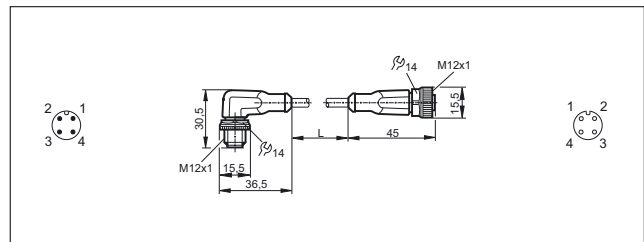
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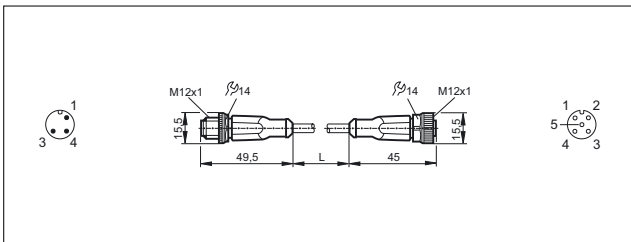
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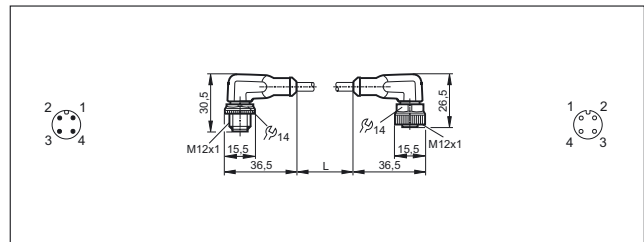
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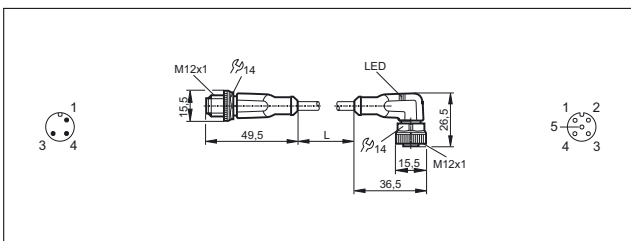
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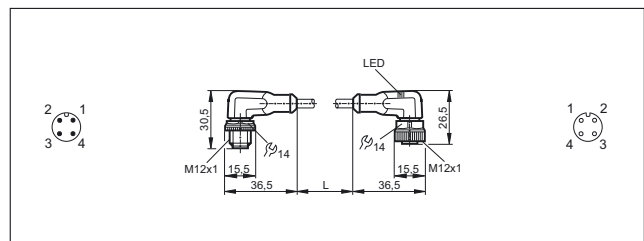
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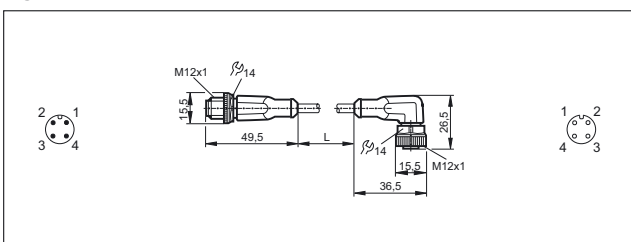
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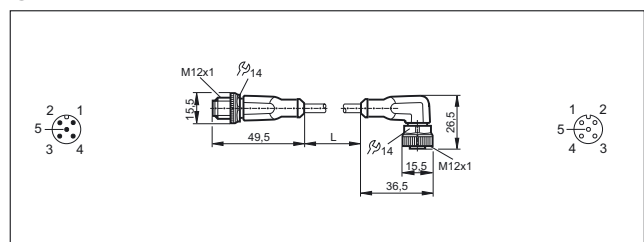
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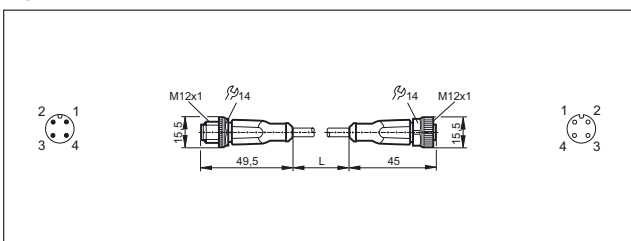
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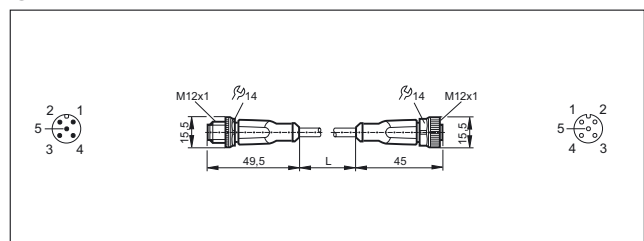
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26

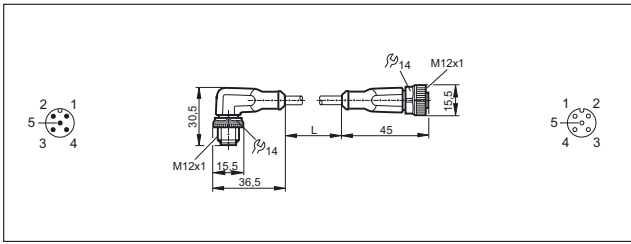


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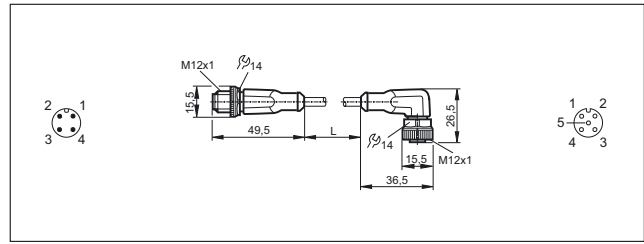


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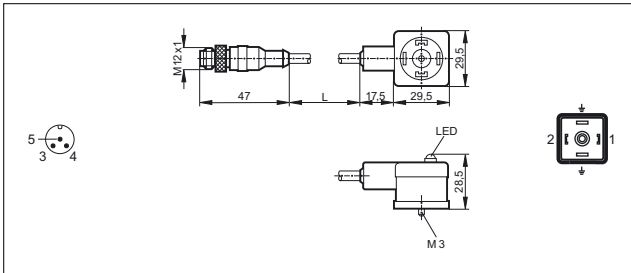
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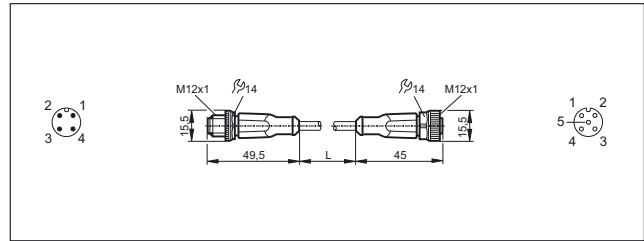
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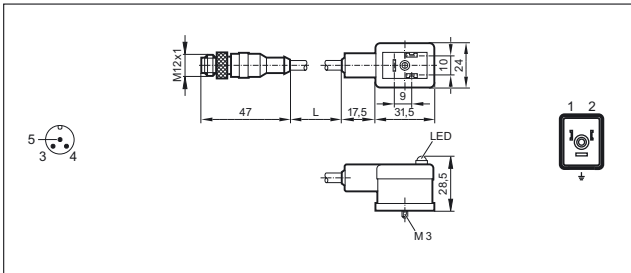
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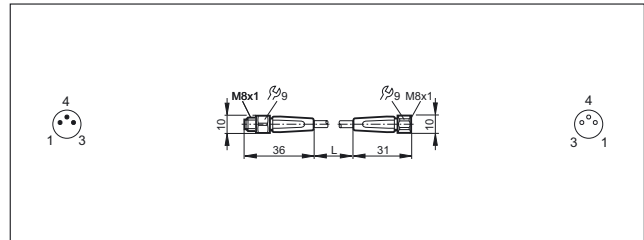
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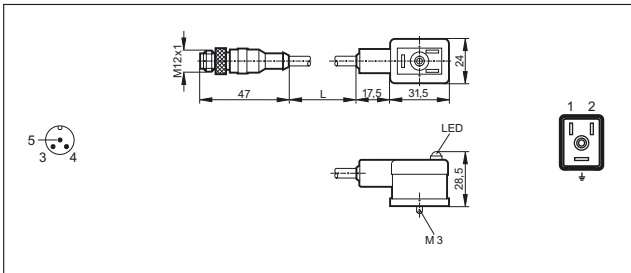
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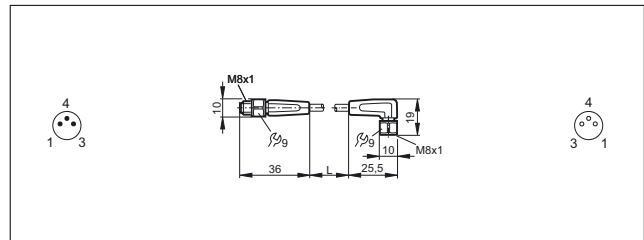
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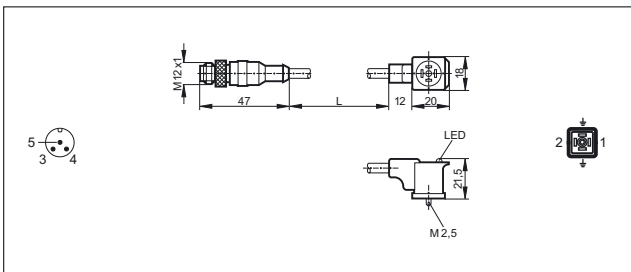
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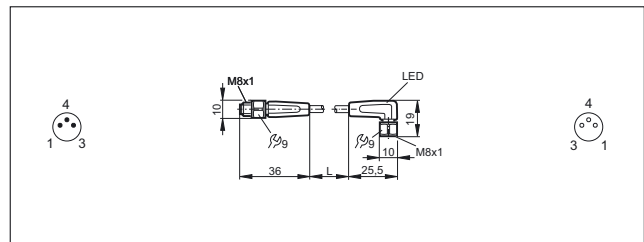
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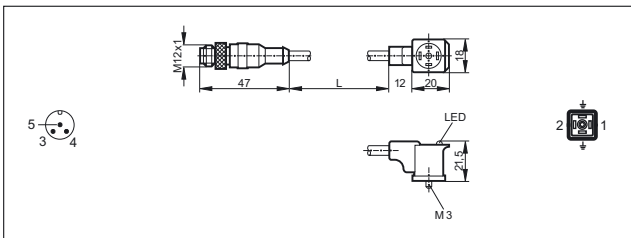
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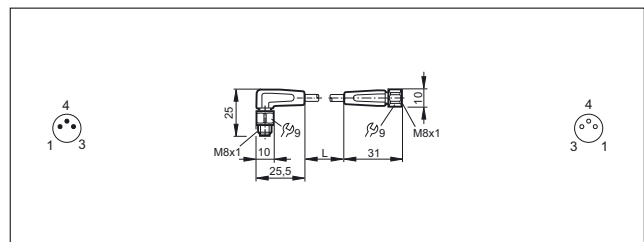
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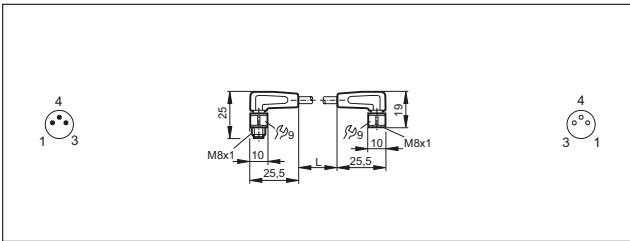


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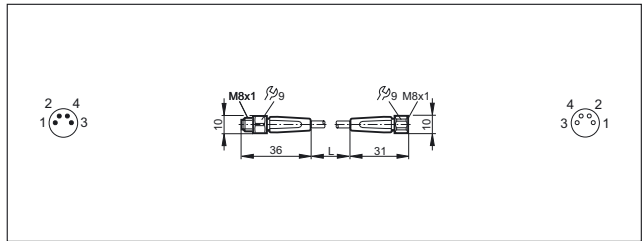


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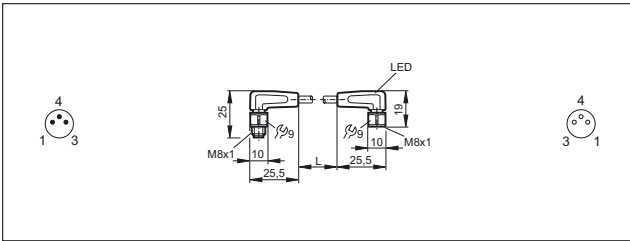
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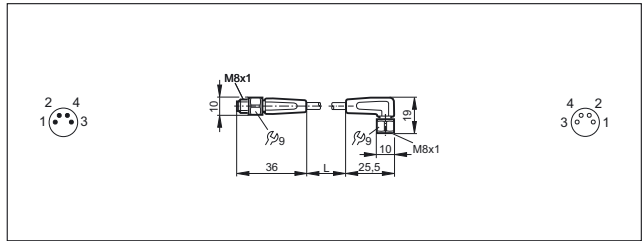
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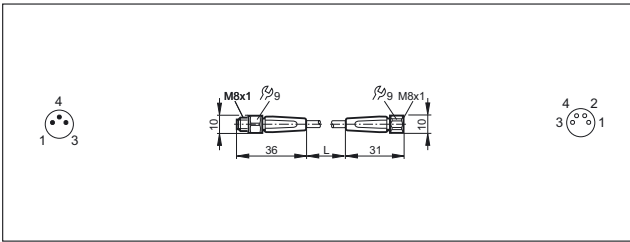
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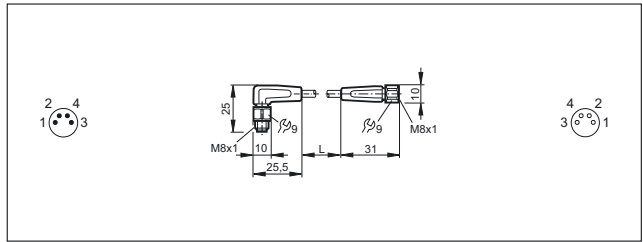
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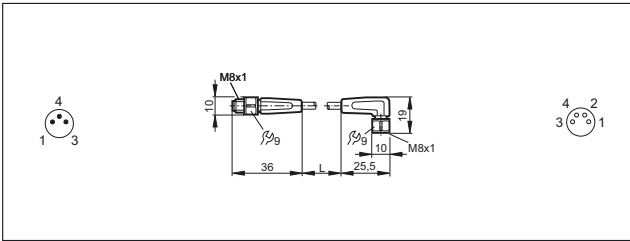
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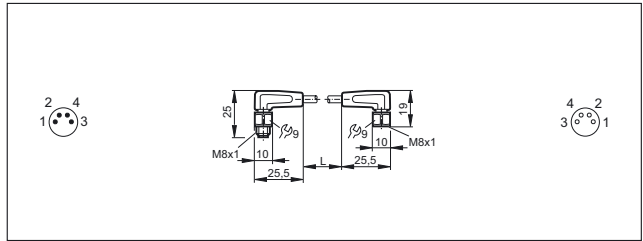
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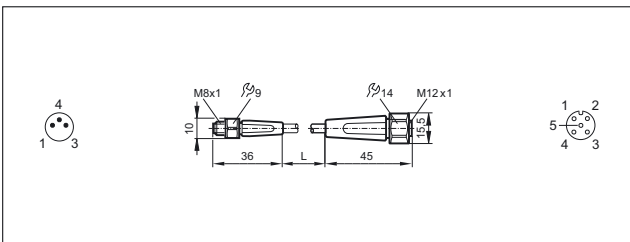
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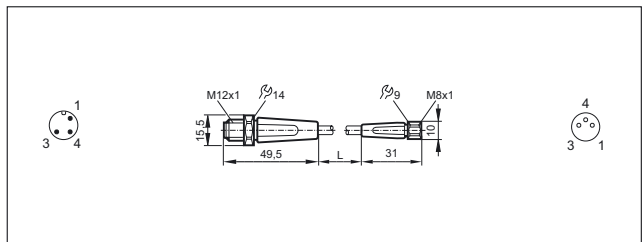
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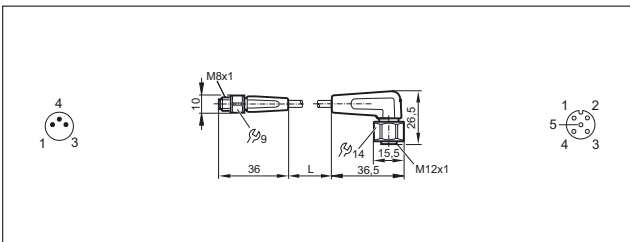
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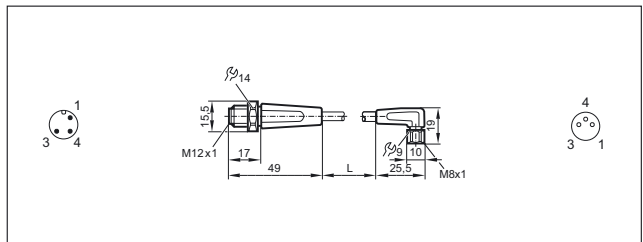
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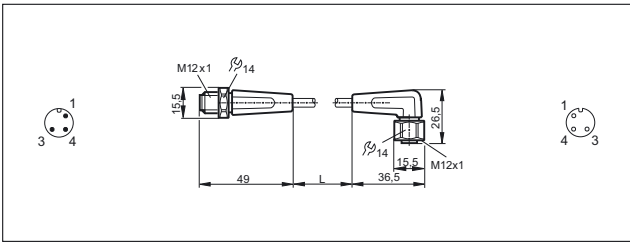


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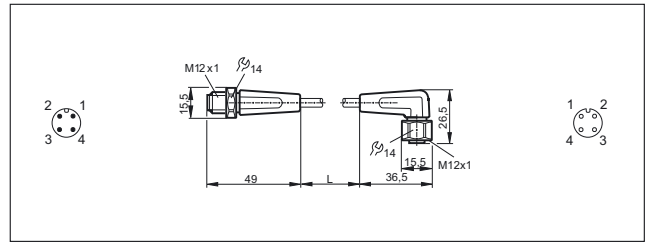


Scale drawings / drawing no. – CAD download: www.ifm.com

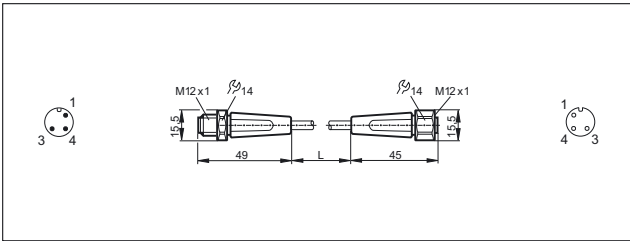
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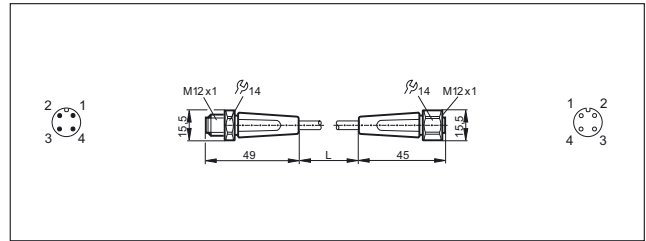
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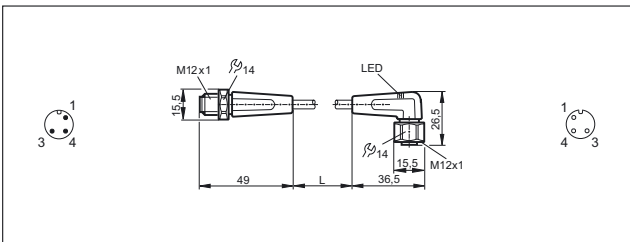
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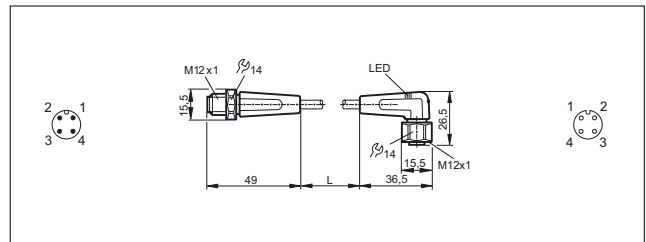
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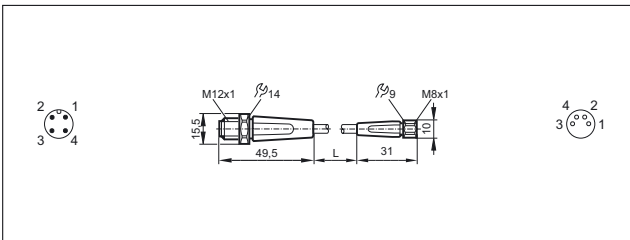
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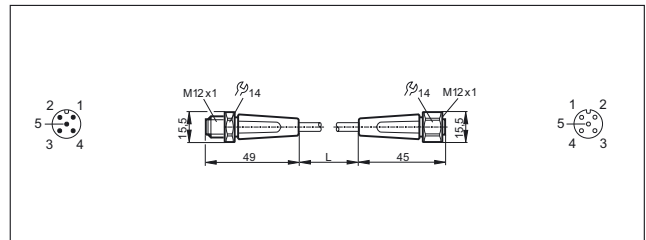
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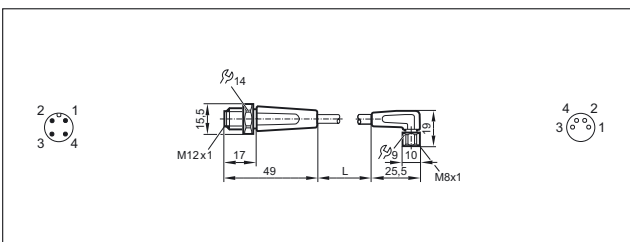
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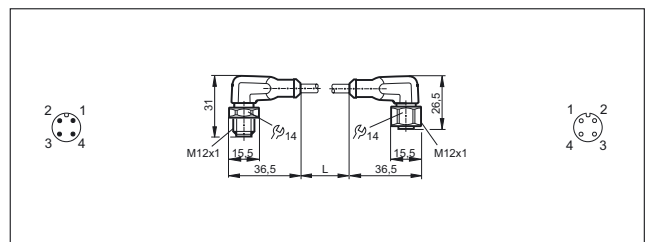
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61



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Splitter boxes







Splitter boxes enable the connection of several sensors and the transmission of the corresponding signals and supply voltages via a multi-wire cable.

This considerably reduces installation and wiring complexity.

In addition to splitter boxes with potted cable, versions with central connector are also available.

System overview	Page
Splitter boxes for industrial applications	770 - 775
Splitter boxes for hygienic and wet areas	775
Wiring diagrams	776 - 781
Scale drawings / drawing no. – CAD download: www.ifm.com	781 - 786

Splitter boxes for industrial applications

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 70 · M12 splitter box for 1 signal · Wiring diagram no. 1									
	5 m black PUR cable	4 x 0.25 mm ² , Ø 5 mm	TPU / Brass	10...55 DC	-25...80	IP 67	–	1	E10437
Group 71 · splitter box M8, 3-pole, LED · Wiring diagram no. 12									
	5 m black PUR cable	4 x 0.34 mm ² + 2 x 0.75 mm ² , Ø 6.4 mm	PBT-GF 20	10...30 DC	-25...80	IP 65 / IP 67 / IP 68	green / 4 x yellow	2	EBC048
	10 m black PUR cable	4 x 0.34 mm ² + 2 x 0.75 mm ² , Ø 6.4 mm	PBT-GF 20	10...30 DC	-25...80	IP 65 / IP 67 / IP 68	green / 4 x yellow	2	EBC049
Group 72 · splitter box M8, 3-pole, LED · Wiring diagram no. 13									
	M12 connector	–	PBT-GF 20	10...30 DC	-25...80	IP 67 / IP 68	green / 4 x yellow	3	EBC050
Group 73 · splitter box M8, 4-pole, LED · Wiring diagram no. 14									
	5 m black PUR cable	8 x 0.34 mm ² + 2 x 0.75 mm ² , Ø 7.4 mm	PBT-GF 20	10...30 DC	-25...80	IP 65 / IP 67 / IP 68	green / 8 x yellow	4	EBC051
	10 m black PUR cable	8 x 0.34 mm ² + 2 x 0.75 mm ² , Ø 7.4 mm	PBT-GF 20	10...30 DC	-25...80	IP 65 / IP 67 / IP 68	green / 8 x yellow	4	EBC052

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 74 · splitter box M8, 4-pole, LED · Wiring diagram no. 15									
	M16 connector	–	PBT-GF 20	10...30 DC	-25...80	IP 67 / IP 68	green / 8 x yellow	5	EBC053
Group 75 · splitter box M8, 3-pole, LED · Wiring diagram no. 16									
	5 m black PUR cable	8 x 0.34 mm ² + 2 x 0.75 mm ² , Ø 7.4 mm	PBT-GF 20	10...30 DC	-25...80	IP 65 / IP 67 / IP 68	green / 8 x yellow	6	EBC054
	10 m black PUR cable	8 x 0.34 mm ² + 2 x 0.75 mm ² , Ø 9.1 mm	PBT-GF 20	10...30 DC	-25...80	IP 65 / IP 67 / IP 68	green / 8 x yellow	6	EBC055
Group 76 · splitter box M8, 4-pole, LED · Wiring diagram no. 17									
	5 m black PUR cable	16 x 0.34 mm ² + 2 x 0.75 mm ² , Ø 8.5 mm	PBT-GF 20	10...30 DC	-25...80	IP 65 / IP 67 / IP 68	green / 16 x yellow	7	EBC056
	10 m black PUR cable	16 x 0.34 mm ² + 2 x 0.75 mm ² , Ø 8.5 mm	PBT-GF 20	10...30 DC	-25...80	IP 65 / IP 67 / IP 68	green / 16 x yellow	7	EBC057
Group 77 · splitter box M8, 3-pole, LED · Wiring diagram no. 18									
	5 m black PUR cable	4 x 0.34 mm ² + 2 x 0.75 mm ² , Ø 6.4 mm	PBT-GF 20	10...30 DC	-25...80	IP 65 / IP 67 / IP 68	green / 4 x yellow	2	EBC058
	10 m black PUR cable	4 x 0.34 mm ² + 2 x 0.75 mm ² , Ø 6.4 mm	PBT-GF 20	10...30 DC	-25...80	IP 65 / IP 67 / IP 68	green / 4 x yellow	2	EBC059
Group 78 · splitter box M8, 3-pole, LED · Wiring diagram no. 19									
	M12 connector	–	PBT-GF 20	10...30 DC	-25...80	IP 65 / IP 67 / IP 68	green / 4 x yellow	3	EBC060
Group 79 · splitter box M8, 4-pole, LED · Wiring diagram no. 20									
	5 m black PUR cable	8 x 0.34 mm ² + 2 x 0.75 mm ² , Ø 7.4 mm	PBT-GF 20	10...30 DC	-20...80	IP 65 / IP 67 / IP 68	green / 8 x yellow	4	EBC061
	10 m black PUR cable	8 x 0.34 mm ² + 2 x 0.75 mm ² , Ø 7.4 mm	PBT-GF 20	10...30 DC	-20...80	IP 65 / IP 67 / IP 68	green / 8 x yellow	4	EBC062
Group 80 · splitter box M8, 4-pole, LED · Wiring diagram no. 21									
	M16 connector	–	PBT-GF 20	10...30 DC	-25...80	IP 67 / IP 68	green / 8 x yellow	5	EBC063


Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 81 · splitter box M8, 3-pole, LED · Wiring diagram no. 22									
	5 m black PUR cable	8 x 0.34 mm ² + 2 x 0.75 mm ² , Ø 9.1 mm	PBT-GF 20	10...30 DC	-25...80	IP 65 / IP 67 / IP 68	green / 8 x yellow	6	EBC064
	10 m black PUR cable	8 x 0.34 mm ² + 2 x 0.75 mm ² , Ø 9.1 mm	PBT-GF 20	10...30 DC	-25...80	IP 65 / IP 67 / IP 68	green / 8 x yellow	6	EBC065
Group 82 · splitter box M8, 4-pole, LED · Wiring diagram no. 23									
	5 m black PUR cable	16 x 0.34 mm ² + 2 x 0.75 mm ² , Ø 8.5 mm	PBT-GF 20	10...30 DC	-20...80	IP 65 / IP 67 / IP 68	green / 16 x yellow	7	EBC066
	10 m black PUR cable	16 x 0.34 mm ² + 2 x 0.75 mm ² , Ø 8.5 mm	PBT-GF 20	10...30 DC	-20...80	IP 65 / IP 67 / IP 68	green / 16 x yellow	7	EBC067
Group 83 · M12 splitter box for 1 signal · Wiring diagram no. 2									
	5 m black PUR cable	4 x 0.34 mm ² + 3 x 1 mm ² , Ø 7.5 mm	PA	30 AC/DC	-25...80	IP 67 / IP 68	–	8	EBC013
	10 m black PUR cable	4 x 0.34 mm ² + 3 x 1 mm ² , Ø 7.5 mm	PA	30 AC/DC	-25...80	IP 67 / IP 68	–	9	EBC025
Group 84 · M12 splitter box for 1 signal, LED · Wiring diagram no. 24									
	5 m black PUR cable	4 x 0.34 mm ² + 3 x 1 mm ² , Ø 7.5 mm	PA	10...30 DC	-25...80	IP 67 / IP 68	green / 4 x yellow	10	EBC015
	10 m black PUR cable	4 x 0.34 mm ² + 3 x 1 mm ² , Ø 7.5 mm	PA	10...30 DC	-25...80	IP 67 / IP 68	green / 4 x yellow	11	EBC027
Group 85 · M12 splitter box for 1 signal · Wiring diagram no. 3									
	5 m black PUR cable	6 x 0.34 mm ² + 3 x 1 mm ² , Ø 7.8 mm	PA	30 AC/DC	-25...80	IP 67 / IP 68	–	12	EBC017
	10 m black PUR cable	6 x 0.34 mm ² + 3 x 1 mm ² , Ø 7.8 mm	PA	30 AC/DC	-25...80	IP 67 / IP 68	–	13	EBC029
Group 86 · M12 splitter box for 1 signal, LED · Wiring diagram no. 25									
	5 m black PUR cable	6 x 0.34 mm ² + 3 x 1 mm ² , Ø 7.8 mm	PA	10...30 DC	-25...80	IP 67 / IP 68	green / 6 x yellow	14	EBC019
	10 m black PUR cable	6 x 0.34 mm ² + 3 x 1 mm ² , Ø 7.8 mm	PA	10...30 DC	-25...80	IP 67 / IP 68	green / 6 x yellow	15	EBC031

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 87 · M12 splitter box for 1 signal · Wiring diagram no. 4									
	5 m black PUR cable	8 x 0.34 mm ² + 3 x 0.75 mm ² , Ø 8.2 mm	PA	30 AC/DC	-25...80	IP 67 / IP 68	–	16	EBC021
	10 m black PUR cable	8 x 0.34 mm ² + 3 x 0.75 mm ² , Ø 8.2 mm	PA	30 AC/DC	-25...80	IP 67 / IP 68	–	17	EBC033
Group 88 · M12 splitter box for 1 signal, LED · Wiring diagram no. 26									
	5 m black PUR cable	8 x 0.34 mm ² + 3 x 0.75 mm ² , Ø 8.2 mm	PA	10...30 DC	-25...80	IP 67 / IP 68	green / 8 x yellow	18	EBC023
	10 m black PUR cable	8 x 0.34 mm ² + 3 x 0.75 mm ² , Ø 8.2 mm	PA	10...30 DC	-25...80	IP 67 / IP 68	green / 8 x yellow	19	EBC035
Group 89 · M12 splitter box for 1 signal · Wiring diagram no. 5									
	M23 connector	–	PA	30 AC/DC	-25...80	IP 67	–	20	EBC001
Group 90 · M12 splitter box for 1 signal, LED · Wiring diagram no. 27									
	M23 connector	–	PA	10...30 DC	-25...80	IP 67	green / 4 x yellow	21	EBC002
Group 91 · M12 splitter box for 1 signal · Wiring diagram no. 6									
	M23 connector	–	PA	30 AC/DC	-25...80	IP 67	–	22	EBC005
Group 92 · M12 splitter box for 1 signal, LED · Wiring diagram no. 28									
	M23 connector	–	PA	10...30 DC	-25...80	IP 67	green / 6 x yellow	23	EBC006
Group 93 · M12 splitter box for 1 signal · Wiring diagram no. 7									
	M23 connector	–	PA	30 AC/DC	-25...80	IP 67	–	24	EBC009
Group 94 · M12 splitter box for 1 signal, LED · Wiring diagram no. 29									
	M23 connector	–	PA	10...30 DC	-25...80	IP 67	green / 8 x yellow	25	EBC010


Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 95 · M12 splitter box for 2 signals · Wiring diagram no. 8									
	5 m black PUR cable	8 x 0.34 mm ² + 3 x 1.0 mm ² , Ø 8.2 mm	PA	30 AC/DC	-25...80	IP 67 / IP 68	–	8	EBC014
	10 m black PUR cable	8 x 0.34 mm ² + 3 x 1.0 mm ² , Ø 8.2 mm	PA	30 AC/DC	-25...80	IP 67 / IP 68	–	9	EBC026
Group 96 · M12 splitter box for 2 signals, LED · Wiring diagram no. 30									
	5 m black PUR cable	8 x 0.34 mm ² + 3 x 1.0 mm ² , Ø 8.2 mm	PA	10...30 DC	-25...80	IP 67 / IP 68	green / 8 x yellow	26	EBC016
	10 m black PUR cable	8 x 0.34 mm ² + 3 x 1.0 mm ² , Ø 8.2 mm	PA	10...30 DC	-25...80	IP 67 / IP 68	green / 8 x yellow	27	EBC028
Group 97 · M12 splitter box for 2 signals · Wiring diagram no. 31									
	5 m black PUR cable	12 x 0.34 mm ² + 3 x 1.0 mm ² , Ø 8.8 mm	PA	30 AC/DC	-25...80	IP 67 / IP 68	–	12	EBC018
	10 m black PUR cable	12 x 0.34 mm ² + 3 x 1.0 mm ² , Ø 8.8 mm	PA	30 AC/DC	-25...80	IP 67 / IP 68	–	13	EBC030
Group 98 · M12 splitter box for 2 signals, LED · Wiring diagram no. 32									
	5 m black PUR cable	12 x 0.34 mm ² + 3 x 1.0 mm ² , Ø 8.8 mm	PA	10...30 DC	-25...80	IP 67 / IP 68	green / 12 x yellow	28	EBC020
	10 m black PUR cable	12 x 0.34 mm ² + 3 x 1.0 mm ² , Ø 8.8 mm	PA	10...30 DC	-25...80	IP 67 / IP 68	green / 12 x yellow	29	EBC032
Group 99 · M12 splitter box for 2 signals · Wiring diagram no. 33									
	5 m black PUR cable	16 x 0.34 mm ² + 3 x 0.75 mm ² , Ø 9.7 mm	PA	30 AC/DC	-25...80	IP 67 / IP 68	–	16	EBC022
	10 m black PUR cable	16 x 0.34 mm ² + 3 x 0.75 mm ² , Ø 9.7 mm	PA	30 AC/DC	-25...80	IP 67 / IP 68	–	17	EBC034
Group 100 · M12 splitter box for 2 signals, LED · Wiring diagram no. 34									
	5 m black PUR cable	16 x 0.34 mm ² + 3 x 1.0 mm ² , Ø 9.7 mm	PA	10...30 DC	-25...80	IP 67 / IP 68	green / 16 x yellow	30	EBC024
	10 m black PUR cable	16 x 0.34 mm ² + 3 x 1.0 mm ² , Ø 9.7 mm	PA	10...30 DC	-25...80	IP 67 / IP 68	green / 16 x yellow	31	EBC036

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
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Group 101 · M12 splitter box for 2 signals · Wiring diagram no. 9

	M23 connector	–	PA	30 AC/DC	-25...80	IP 67	–	32	EBC003
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Group 102 · M12 splitter box for 2 signals, LED · Wiring diagram no. 35

	M23 connector	–	PA	10...30 DC	-25...80	IP 67	green / 8 x yellow	33	EBC004
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Group 103 · M12 splitter box for 2 signals · Wiring diagram no. 10

	M23 connector	–	PA	30 AC/DC	-25...80	IP 67	–	34	EBC007
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Group 104 · M12 splitter box for 2 signals, LED · Wiring diagram no. 36

	M23 connector	–	PA	10...30 DC	-25...80	IP 67	green / 12 x yellow	35	EBC008
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Group 105 · M12 splitter box for 2 signals · Wiring diagram no. 11

	M23 connector	–	PA	30 AC/DC	-25...80	IP 67	–	36	EBC011
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Group 106 · M12 splitter box for 2 signals, LED · Wiring diagram no. 37

	M23 connector	–	PA	10...30 DC	-25...80	IP 67	green / 16 x yellow	37	EBC012
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Splitter boxes for hygienic and wet areas

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
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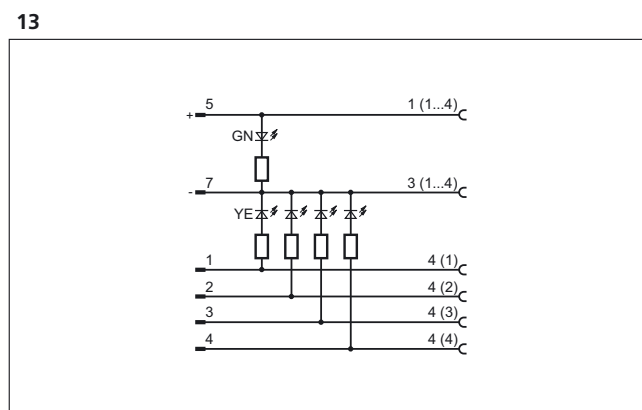
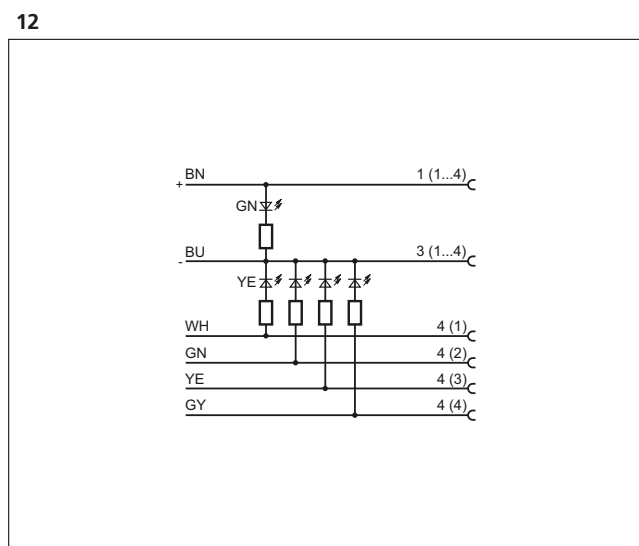
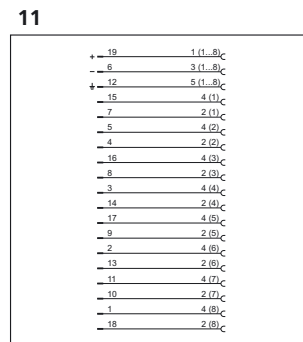
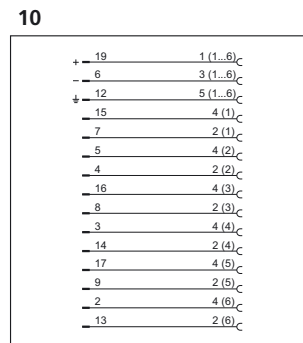
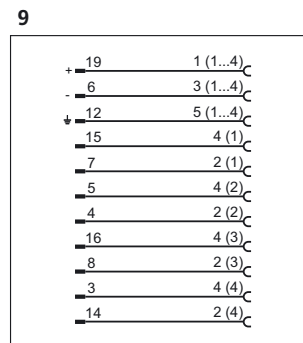
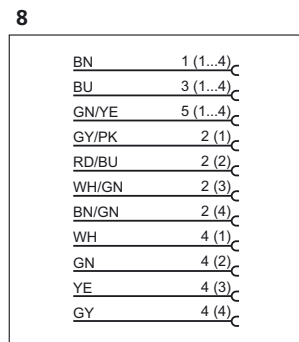
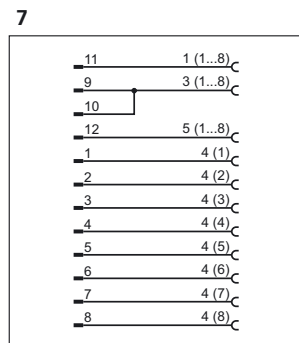
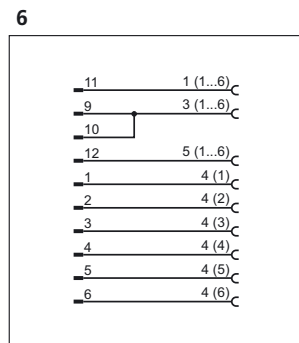
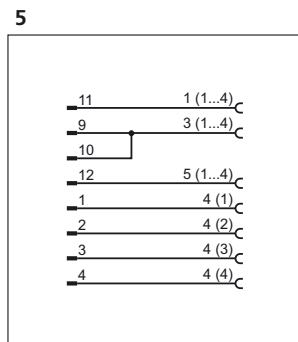
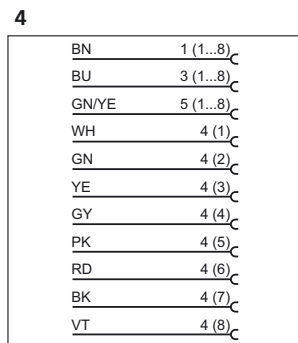
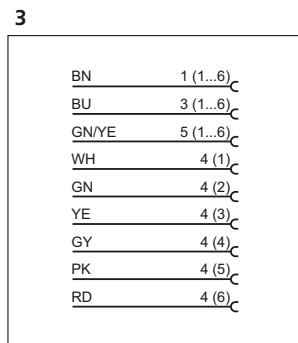
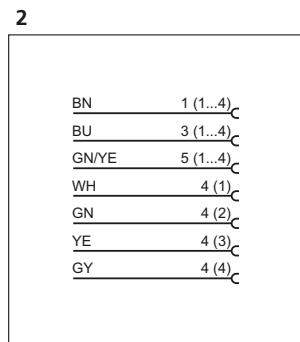
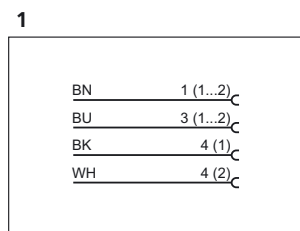
Group 107 · splitter box M12, LED · Wiring diagram no. 34

	10 m black PUR / PVC cable	3 x 0.75 mm ² + 16 x 0.34 mm ² , Ø 11 mm	high-grade stainless steel	10...36 DC	-5...70	IP 69K	green / 16 x yellow	38	E11775
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Wiring diagrams

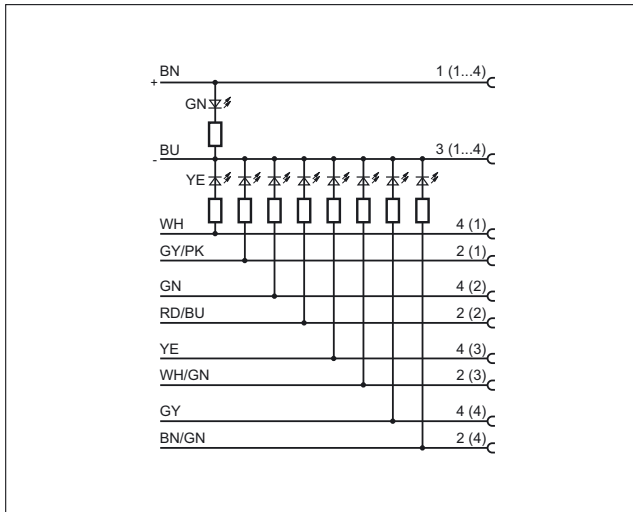
Core colours

- BK black
- BN brown
- BU blue
- WH white
- GN green
- GY grey
- YE yellow
- PK pink
- RD red
- VT lilac
- GN/YE green/yellow

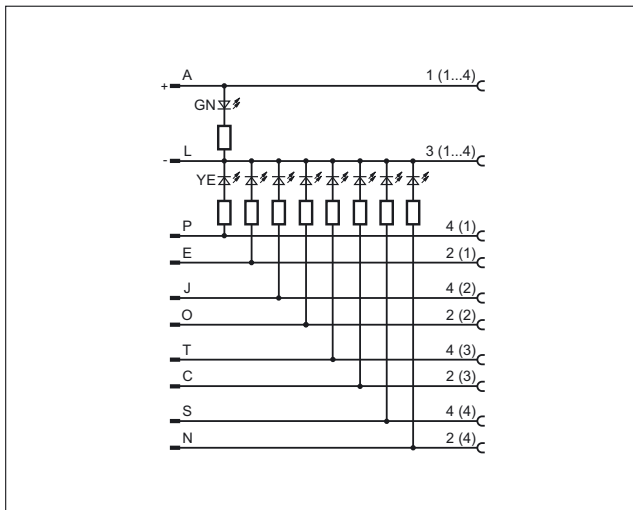


Wiring diagrams

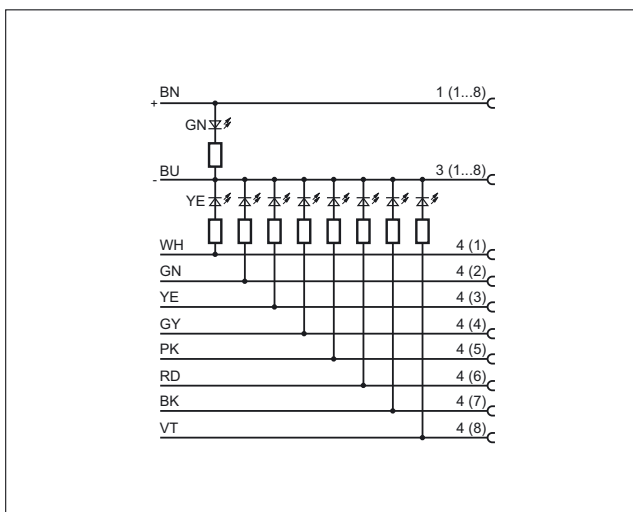
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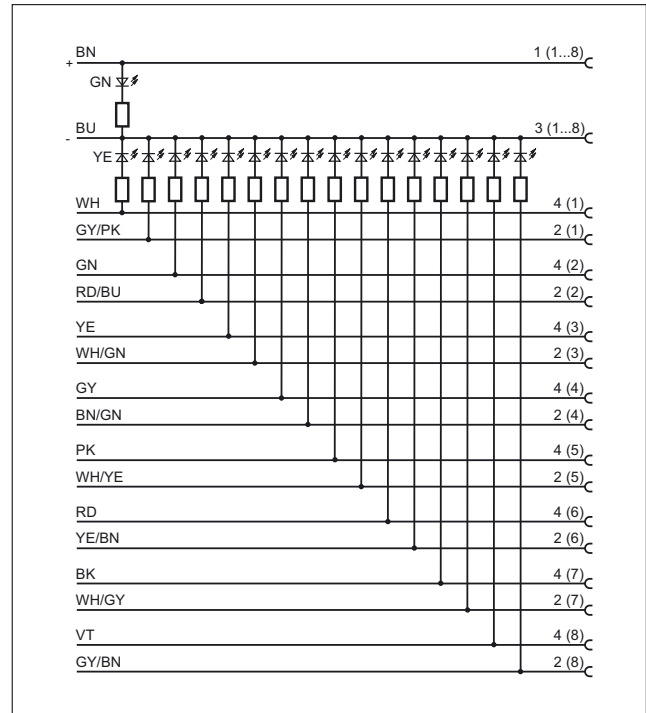
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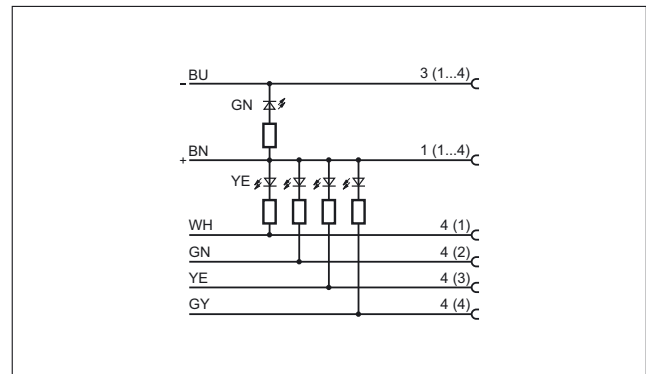
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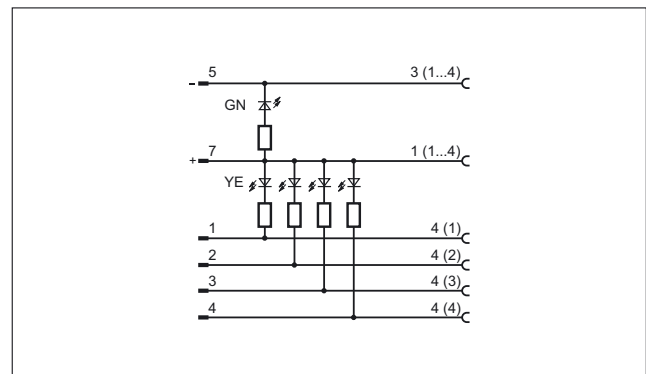
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18

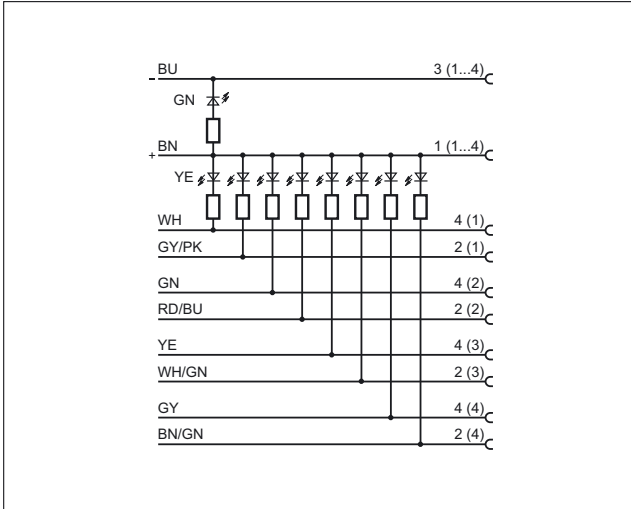


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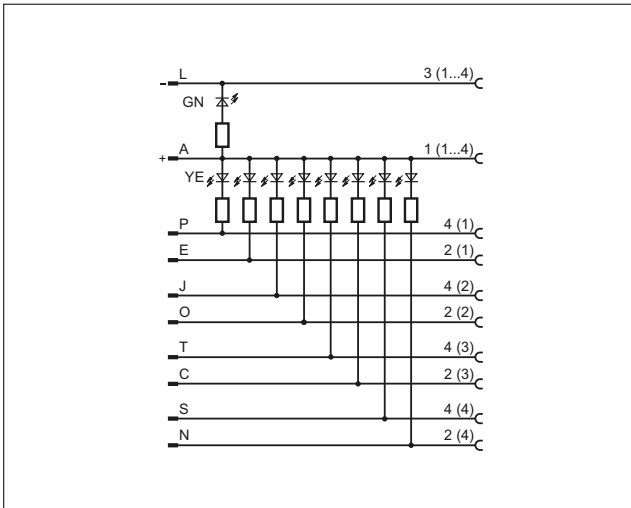


Wiring diagrams

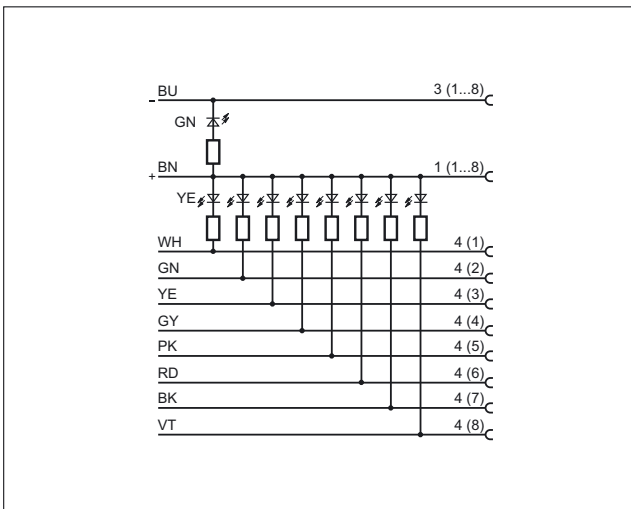
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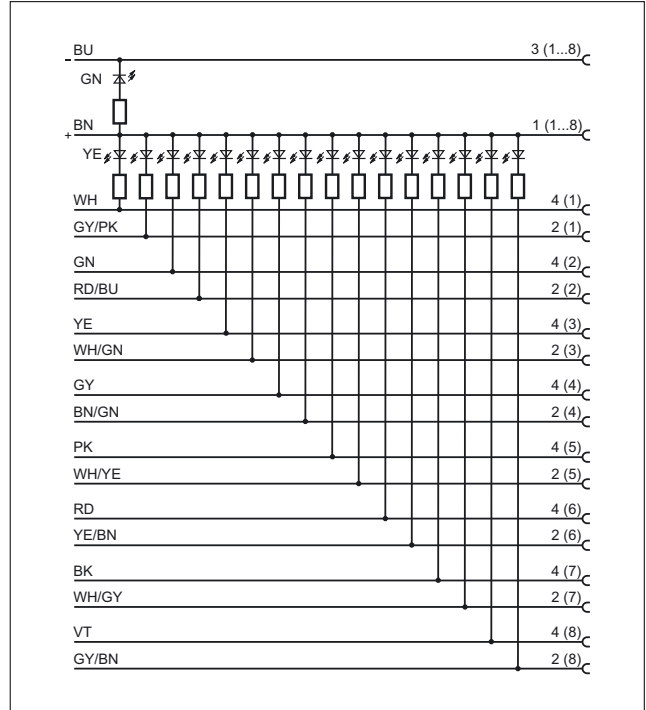
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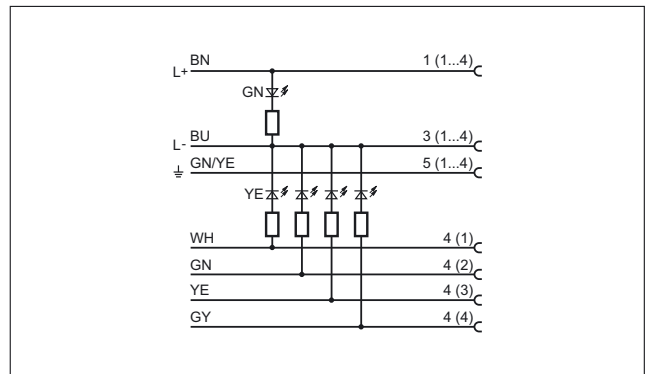
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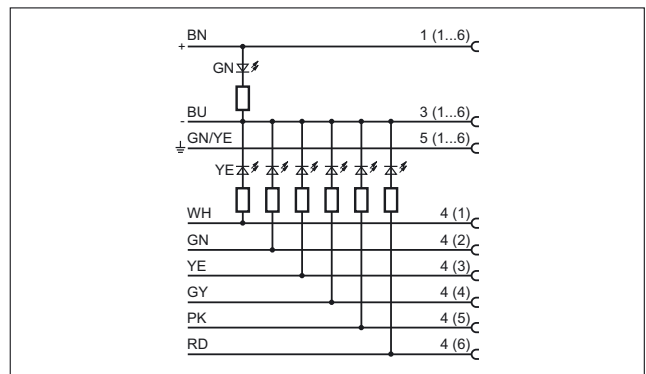
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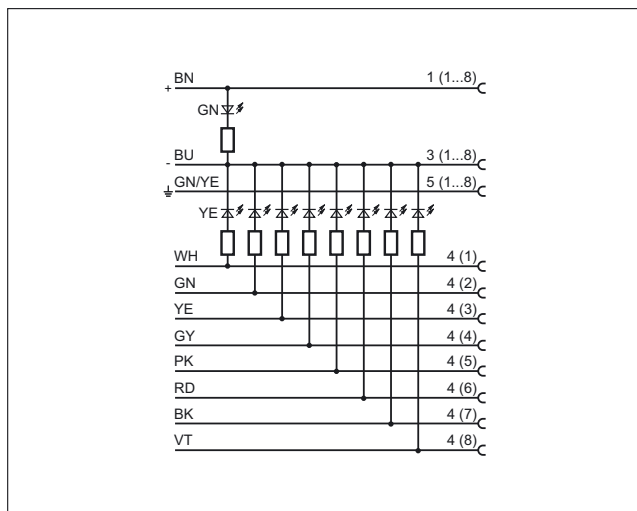


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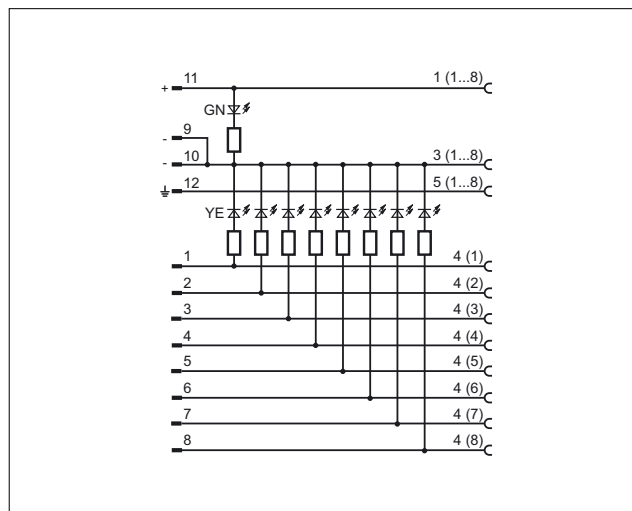


Wiring diagrams

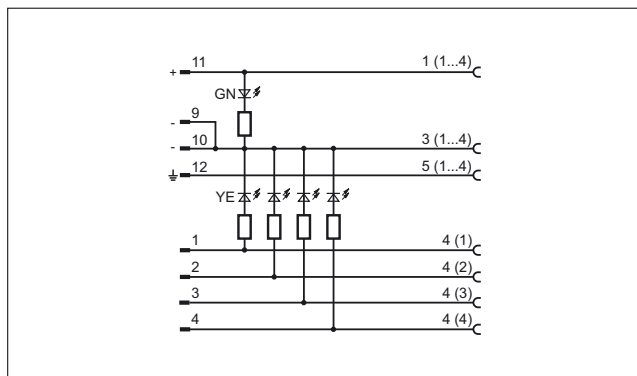
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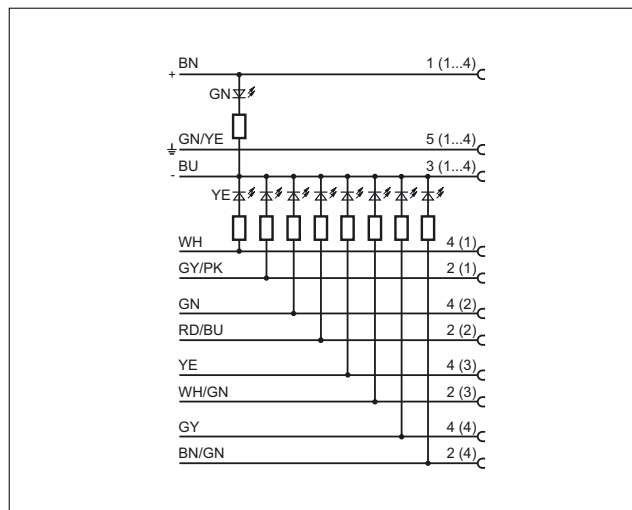
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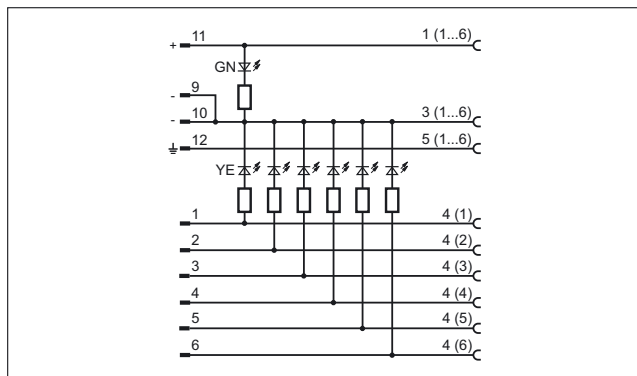
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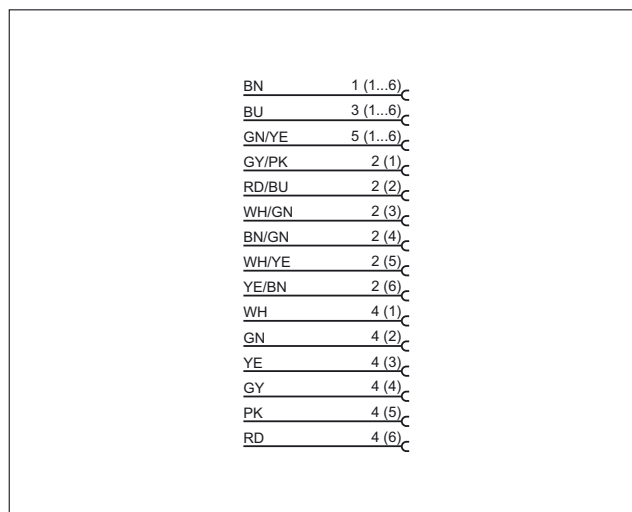
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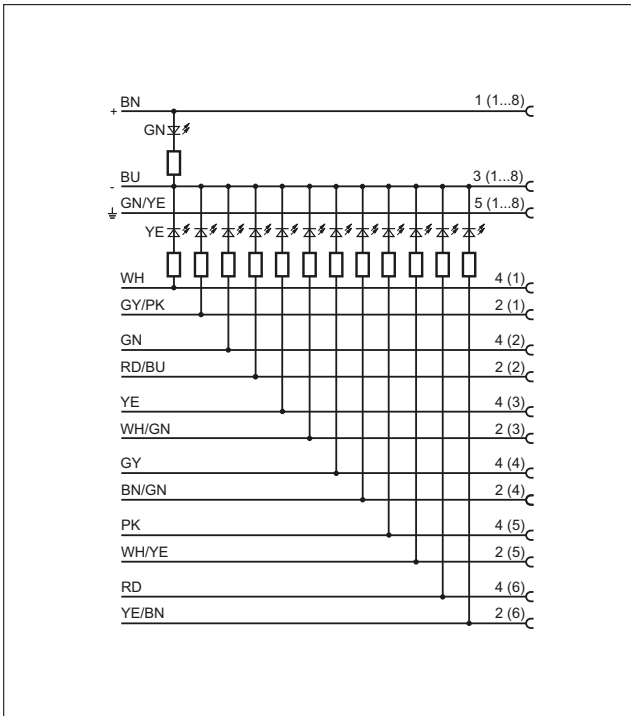


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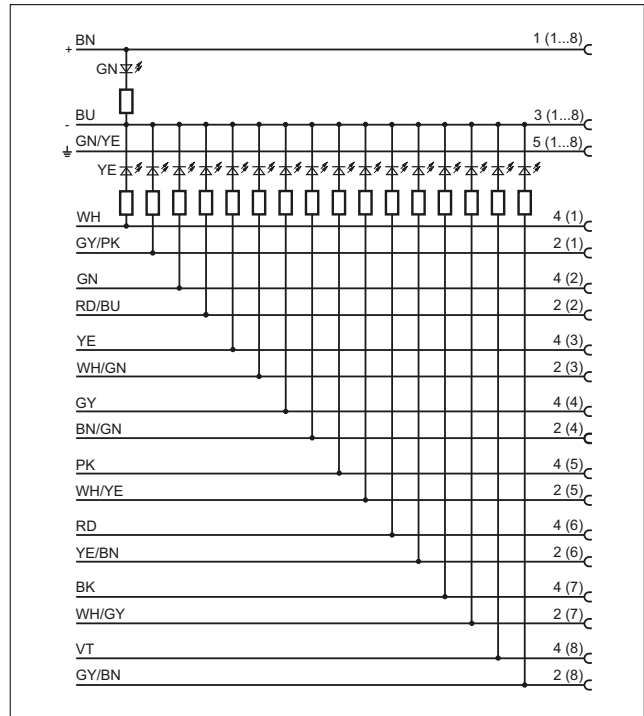


Wiring diagrams

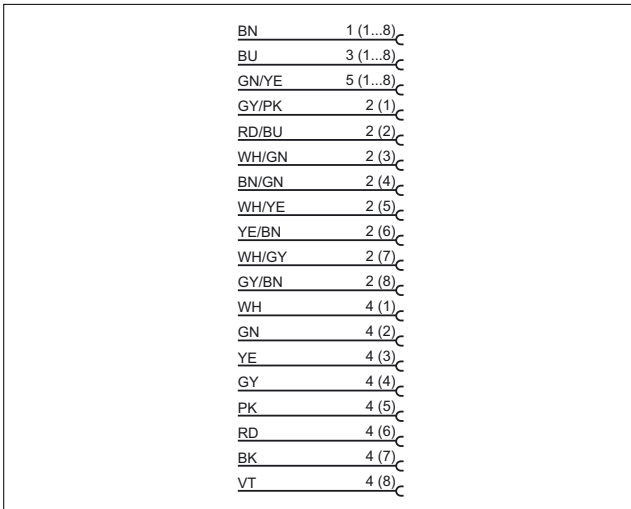
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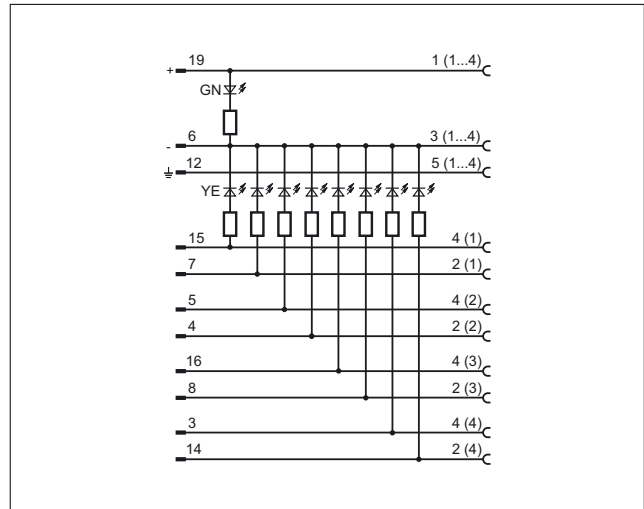
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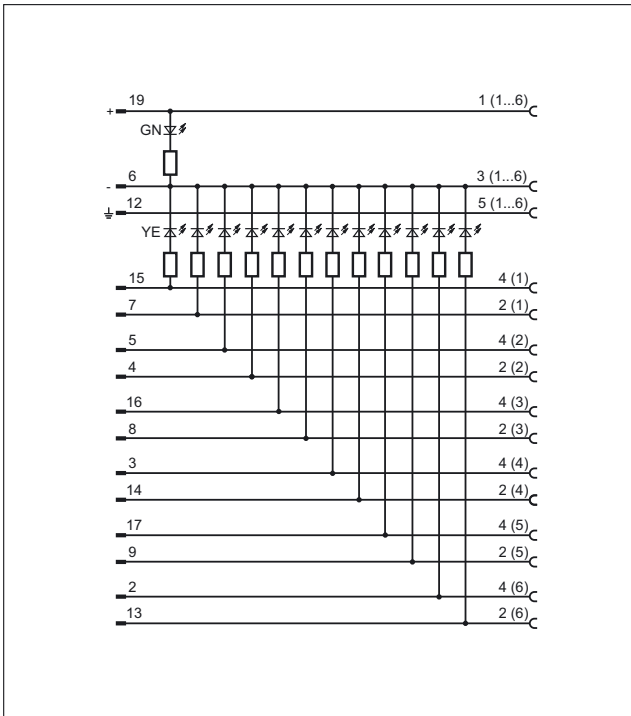


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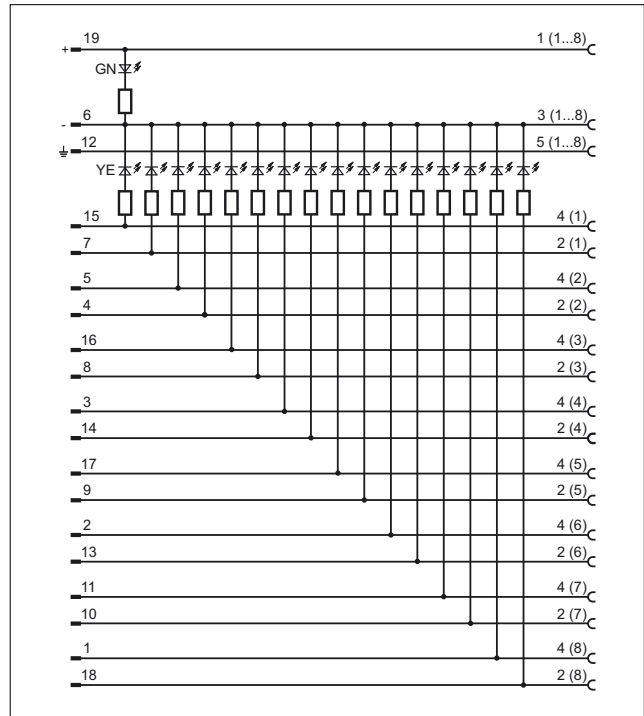


Wiring diagrams

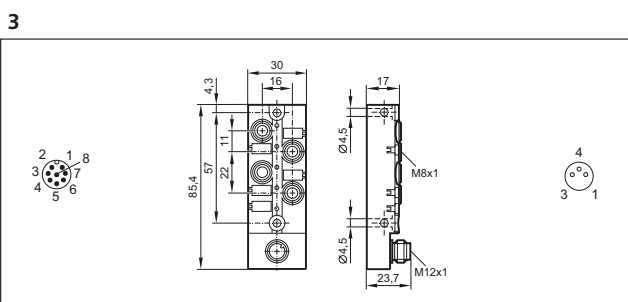
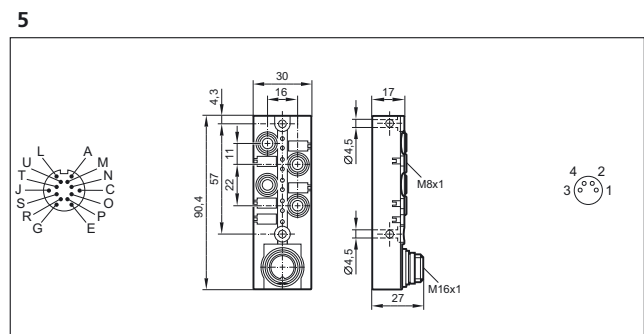
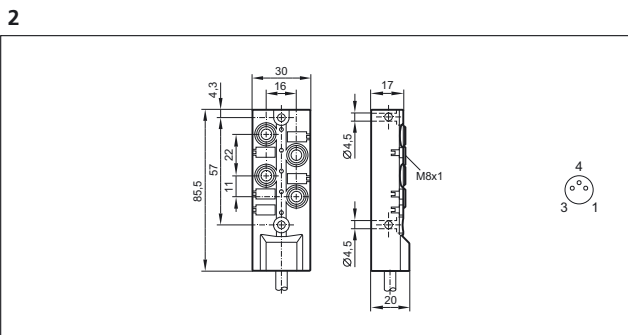
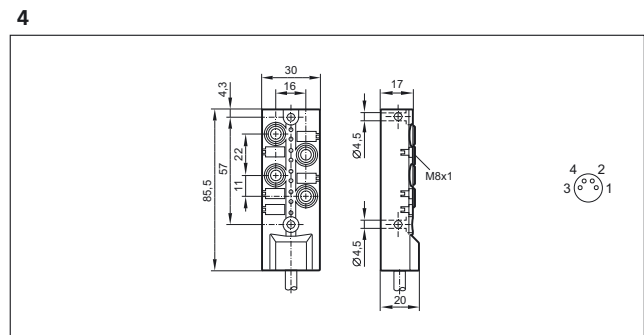
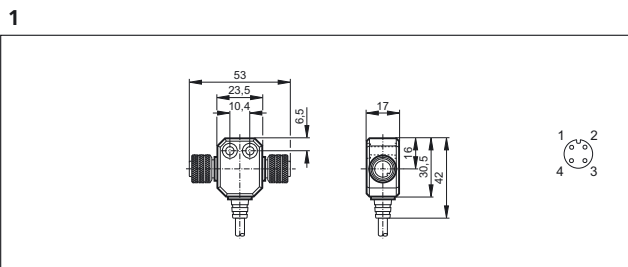
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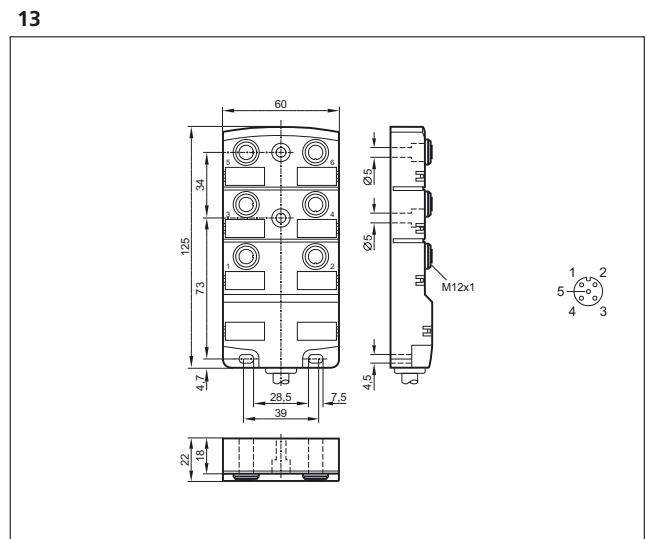
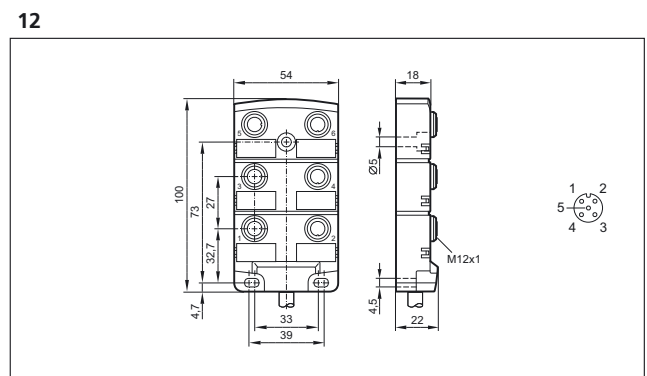
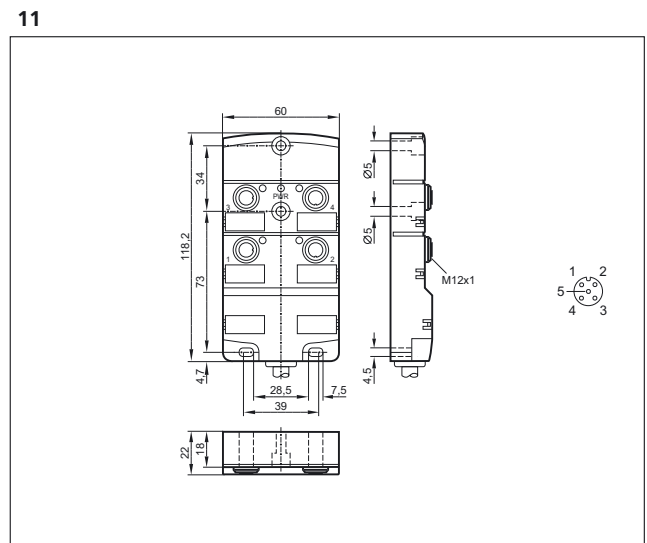
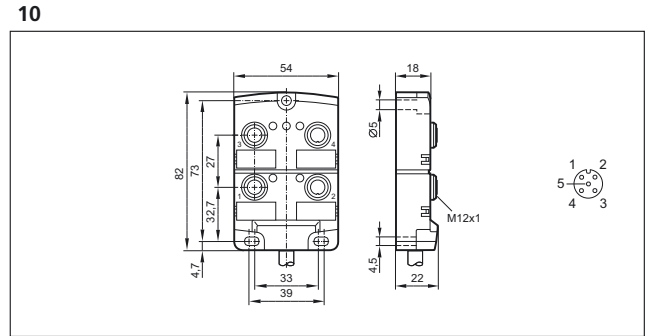
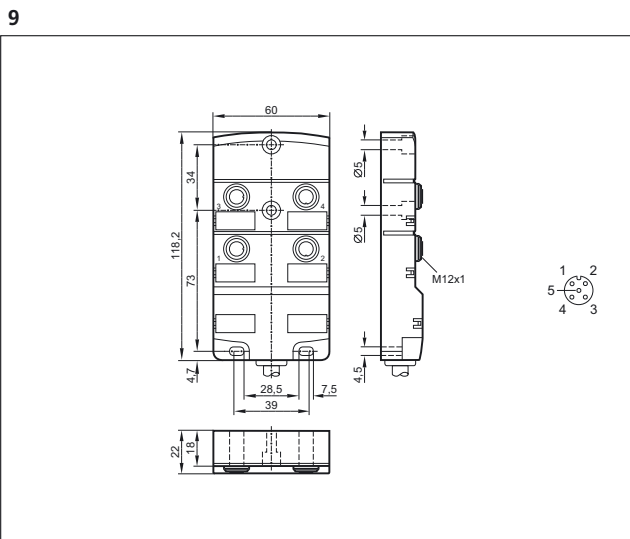
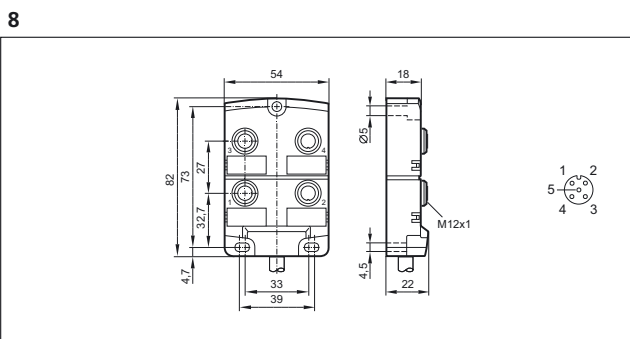
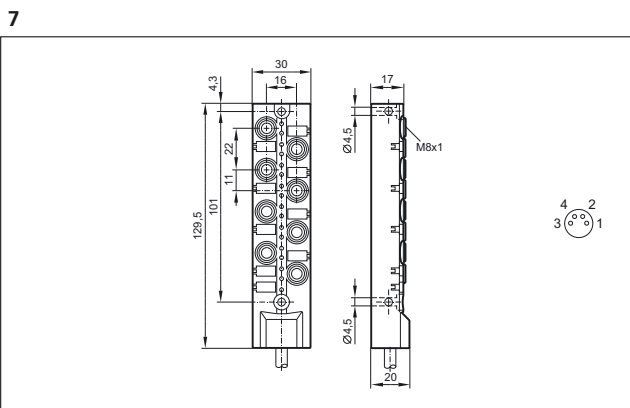
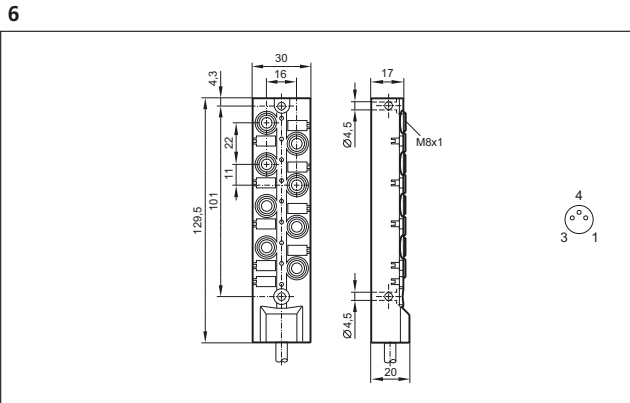
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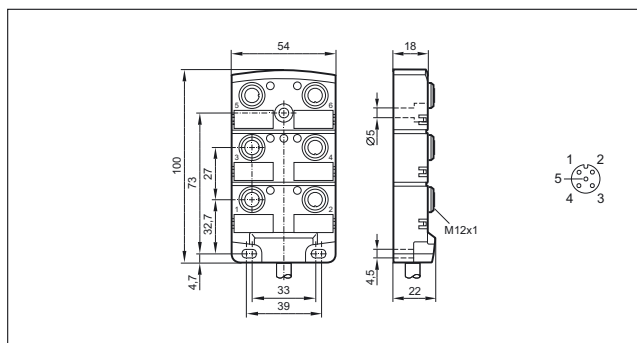


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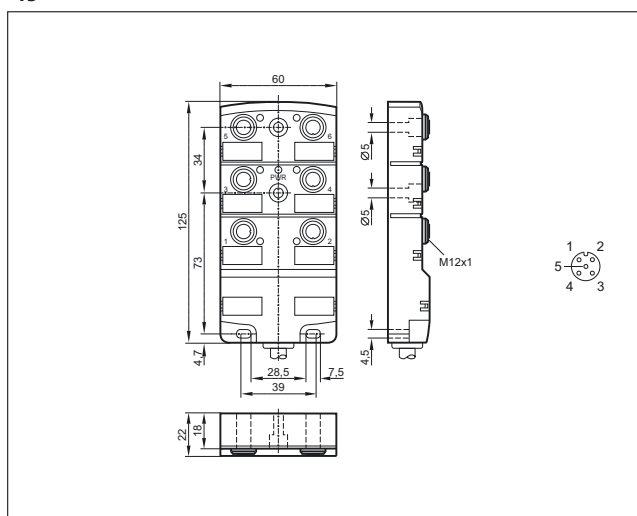


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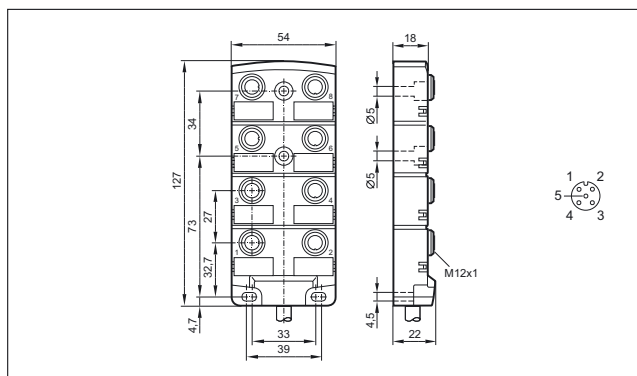
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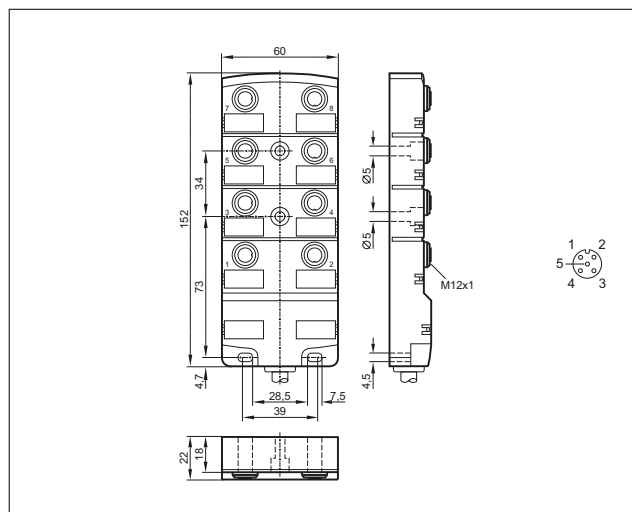
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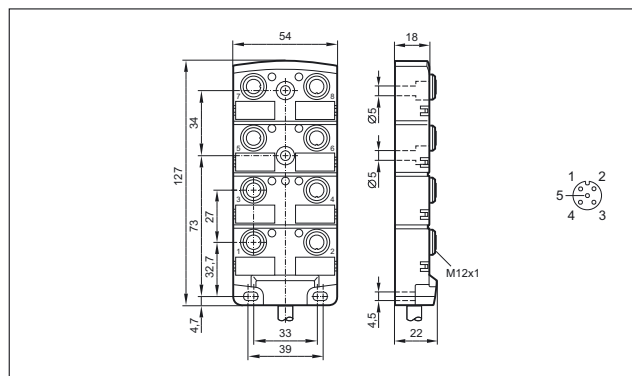
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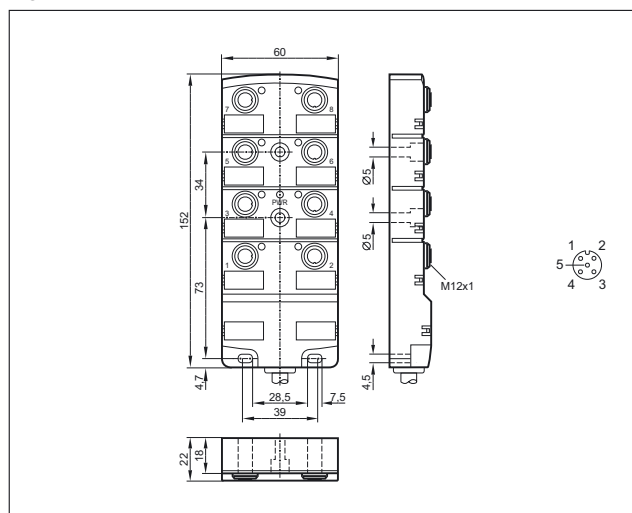
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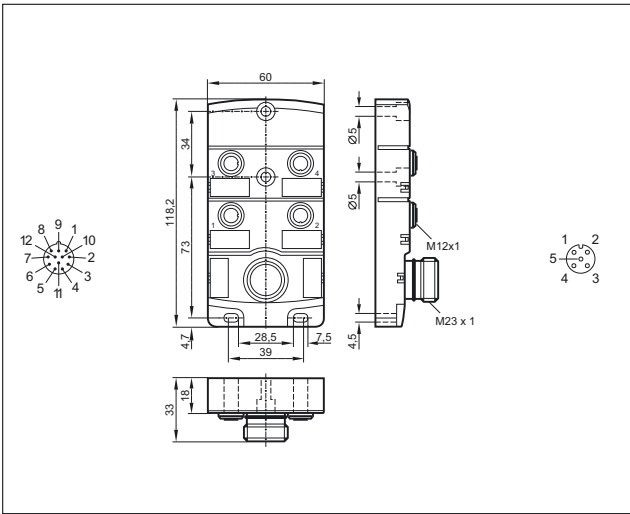


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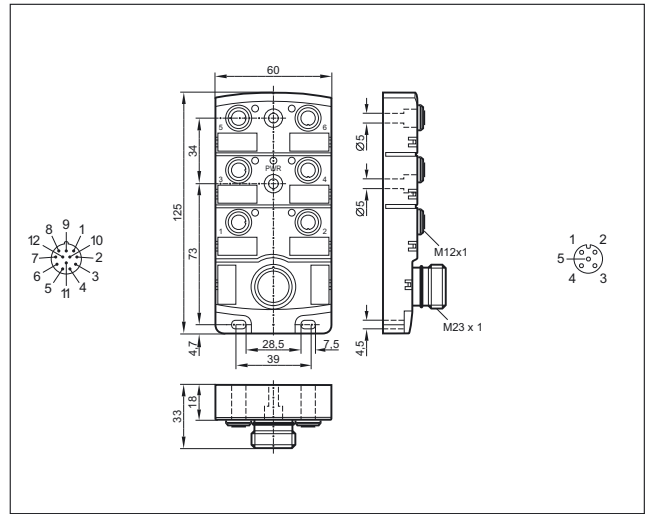


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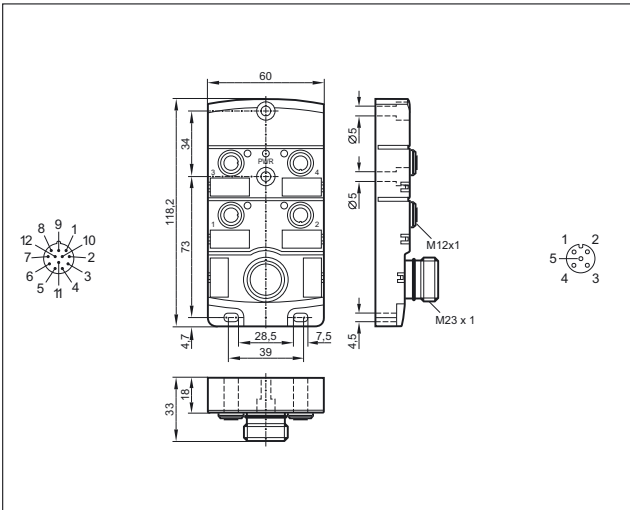
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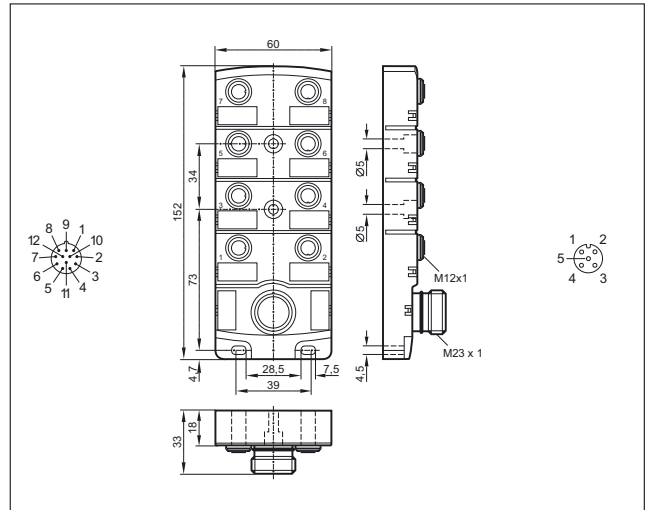
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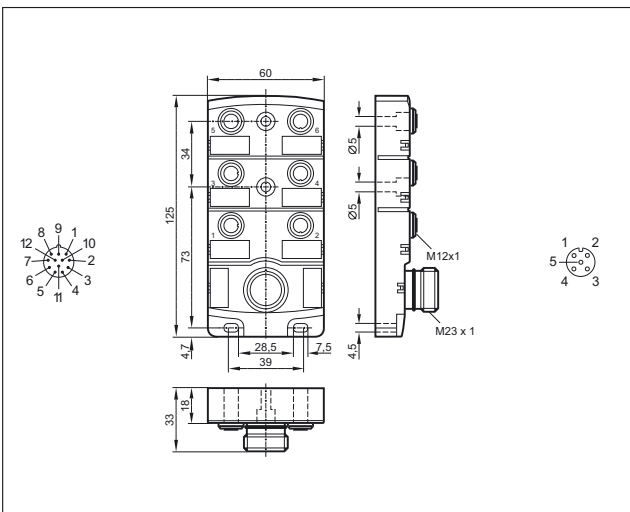
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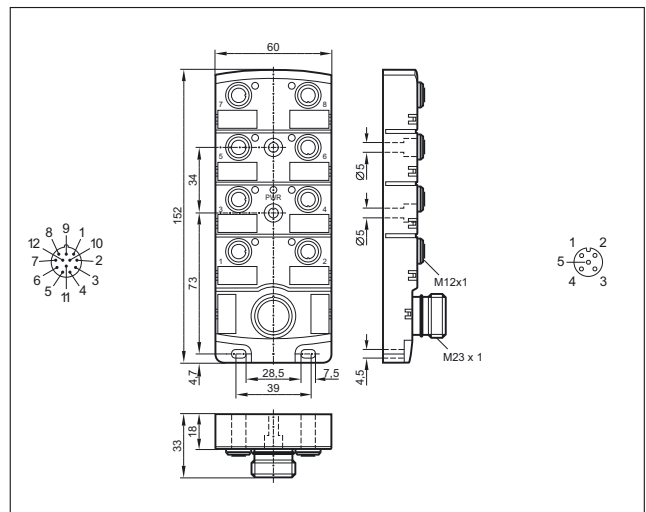
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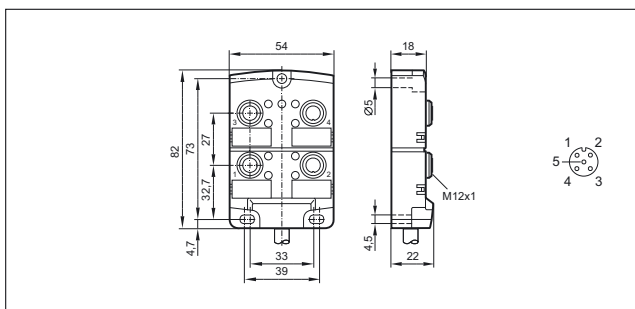


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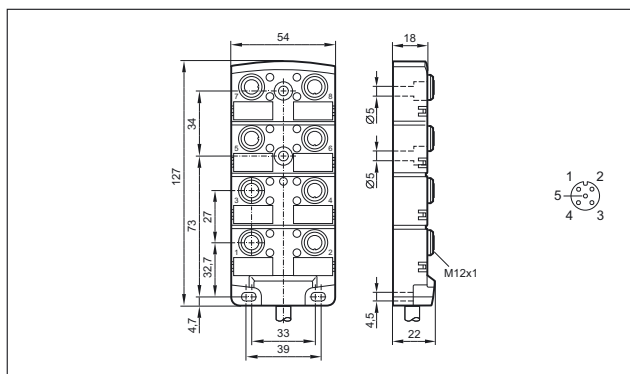


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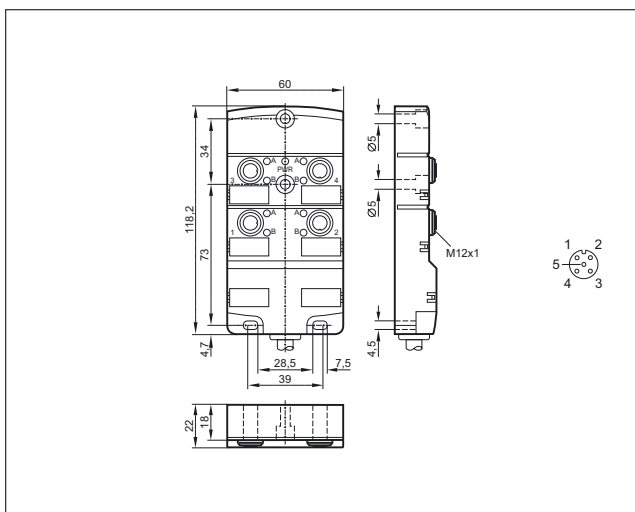
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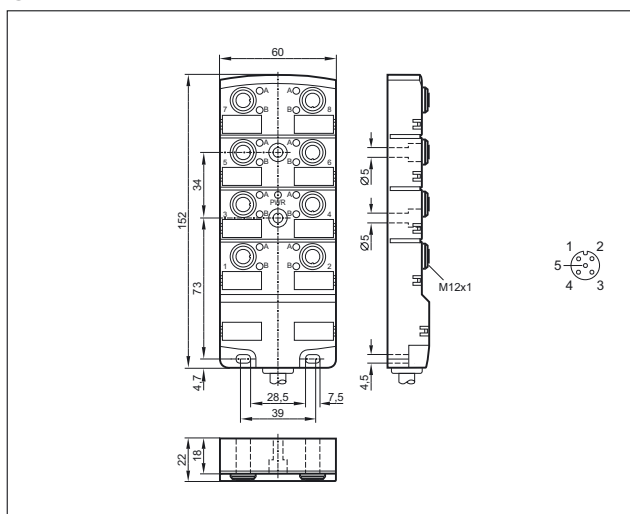
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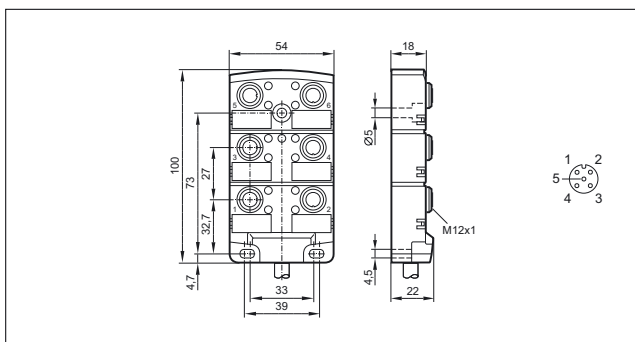
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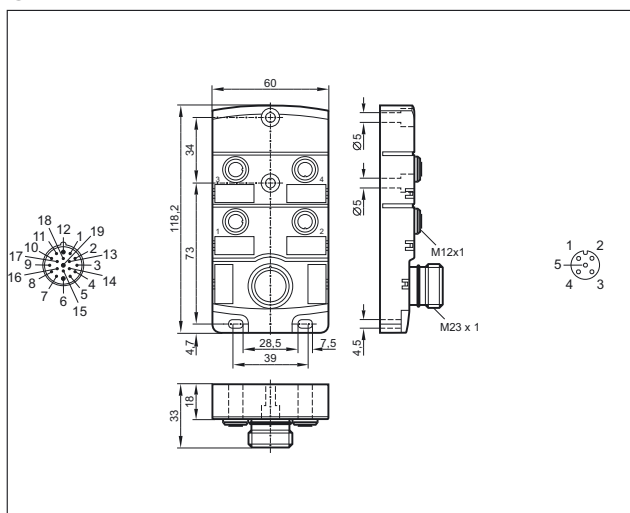
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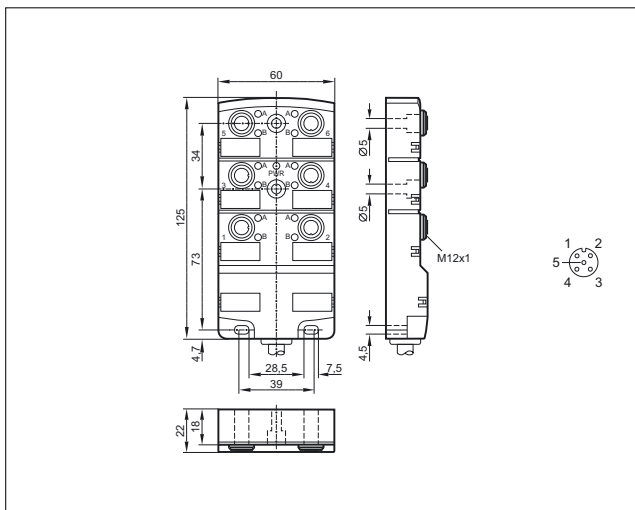
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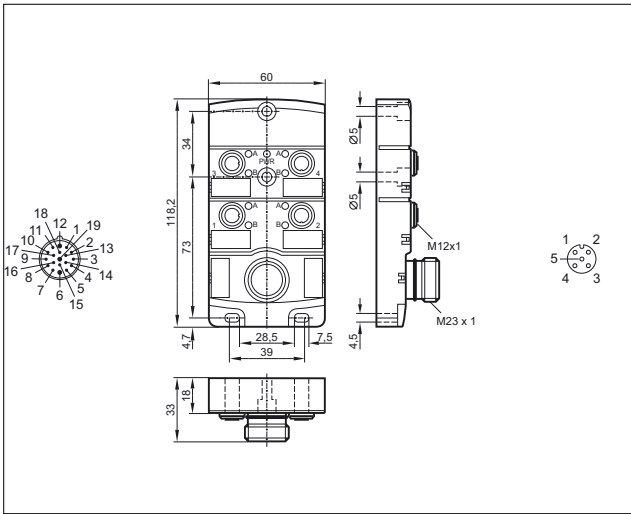


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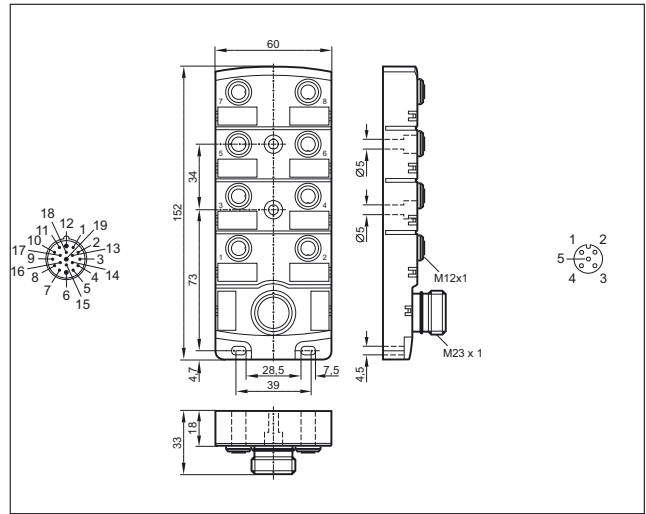


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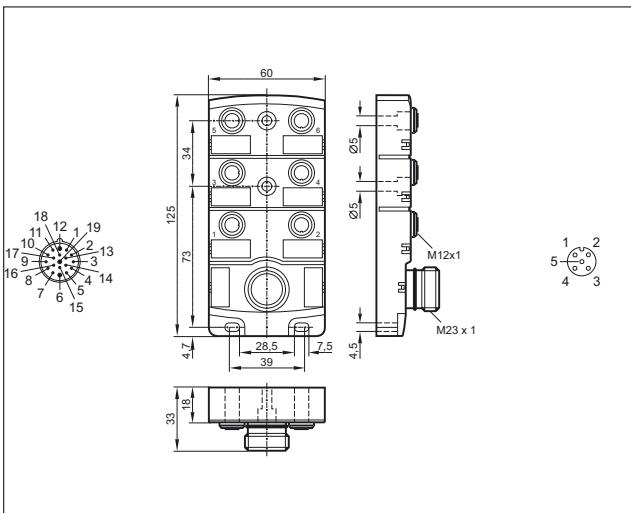
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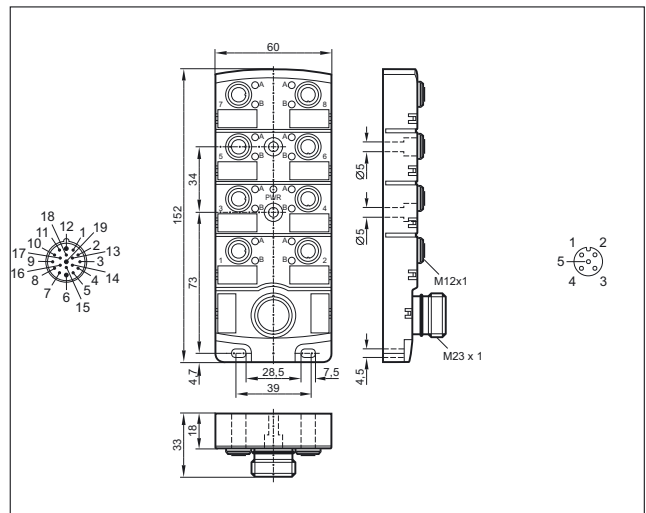
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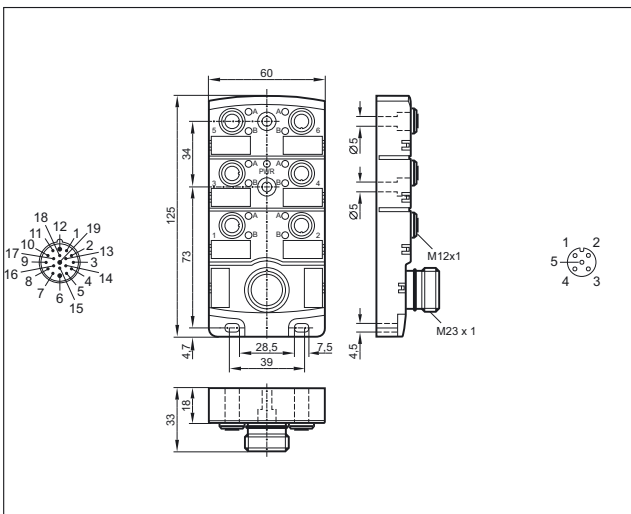
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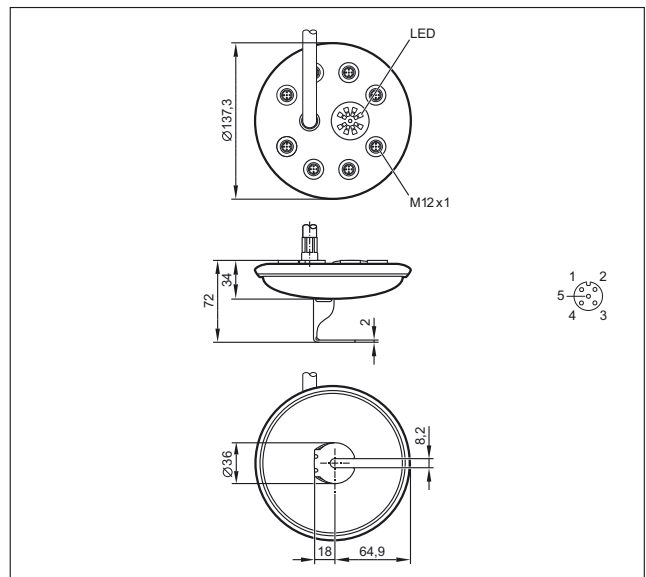
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38








Y-splitters

Y connection cables are used for the distribution of signals and the connection of two units to a connector.



System overview	Page
M12 – M12 jumpers for industrial applications	788 - 789
Jumpers for hygienic and wet areas	789
Wiring diagrams	790
Scale drawings / drawing no. – CAD download: www.ifm.com	790

M12 – M12 jumpers for industrial applications


Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Pro-tection	LEDs	Drawing no.	Order no.
Group 56 · Y connection cable , plug: M12, 5-pole, socket: M12, 5-pole, 5-wire · Wiring diagram no. 1									
	1 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	60 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	1	EVC431
	2 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	60 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	1	EVC432
	5 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	60 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	1	EVC433
	1 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	60 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	2	EVC434
	2 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	60 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	2	EVC435
	5 m black PUR cable	4 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	60 AC 60 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	2	EVC436
Group 58 · Y connection cable , plug: M12, 4-pole, socket: M12, 5-pole, 5-wire, LED · Wiring diagram no. 2									
	1 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	3	EVC437

Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 58 · Y connection cable , plug: M12, 4-pole, socket: M12, 5-pole, 5-wire, LED · Wiring diagram no. 2									
	2 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	3	EVC438
	5 m black PUR cable	3 x 0.34 mm ² , Ø 4.9 mm	TPU / Brass	10...36 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	3	EVC439

Jumpers for hygienic and wet areas

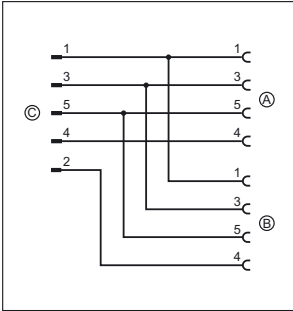
Type	Cable	Wire specification	Material housing / nut	U [V]	T _a [°C]	Protection	LEDs	Drawing no.	Order no.
Group 127 · Y connection cable , plug: M12, 5-pole, socket: M12, 5-pole, 5-wire · Wiring diagram no. 1									
	1 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	60 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	-	4	EVT329
	2 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	60 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	-	4	EVT330
	5 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	60 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	-	4	EVT331
	1 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	60 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	-	5	EVT332
	2 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	60 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	-	5	EVT333
	5 m orange PVC cable	4 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	60 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	-	5	EVT334

Group 129 · Y connection cable , plug: M12, 4-pole, socket: M12, 5-pole, 5-wire, LED, PNP · Wiring diagram no. 2

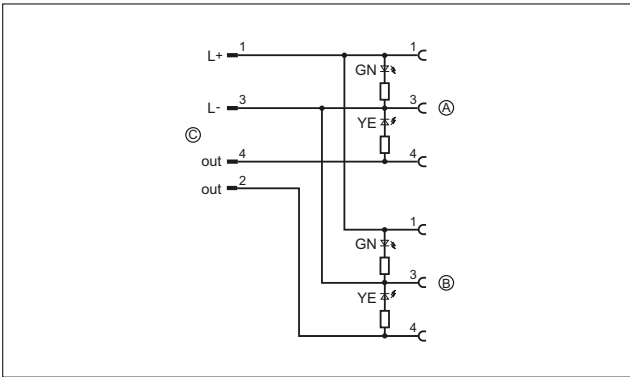
	1 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	6	EVT335
	2 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	6	EVT336
	5 m orange PVC cable	3 x 0.34 mm ² , Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	6	EVT337

Wiring diagrams

1

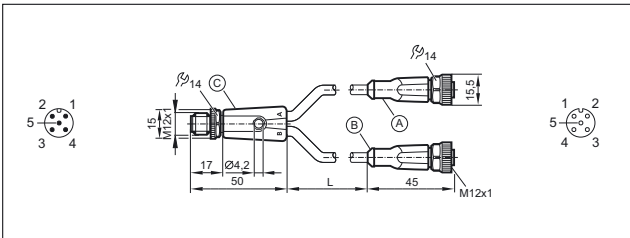


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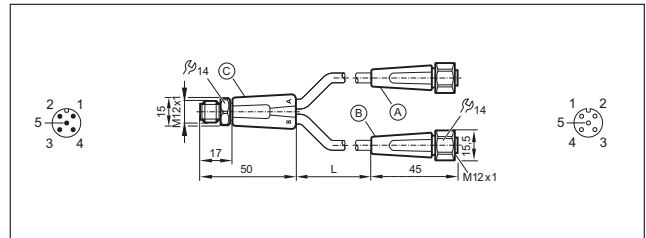


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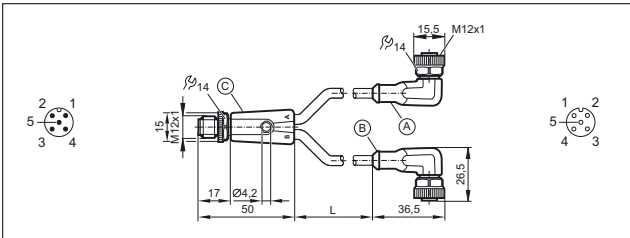
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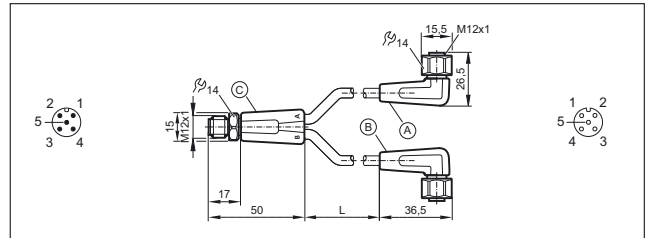
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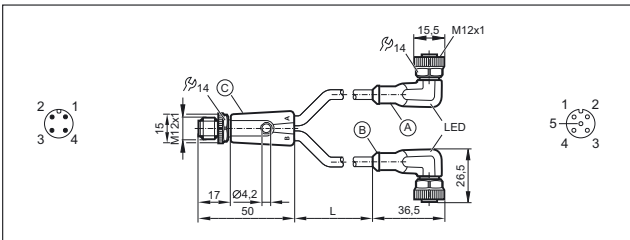
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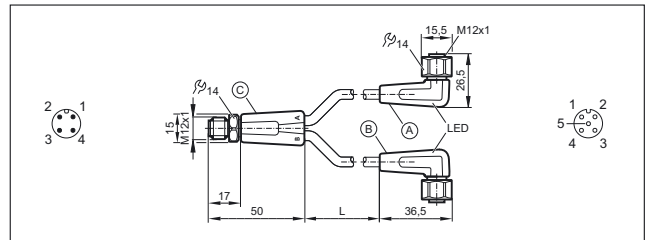
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3



6





Voltage guaranteed



Suitable for the application: ifm provides power supplies in different power classes.



Power supplies

Transformer power supplies provide a low voltage, normally 24 V DC. A transformer according to DIN 0551 ensures a safe electrical separation from mains voltage and low voltage. The output voltage can be regulated ($\pm 5\%$) or smoothed by means of capacitors. The different designs and output powers allow adaptation to diverse operating conditions.

Switched-mode power supplies

Primary switched-mode power supplies are a compact and economical solution to supply sensors and actuators. As opposed to conventional transformer power supplies with regulated output voltage primary switched-mode power supplies need no heavy transformers so that there are fewer iron and copper losses. They are therefore distinguished by a very high degree of efficiency of up to 95%. Due to the operating principle by means of high frequency transformers switched-mode power supplies are much smaller and lighter than transformer power supplies with identical power. Nevertheless they guarantee an electrical separation. Furthermore, they offer a wide input voltage range as standard, e.g. 100...240 or 323...576 V AC. This makes them fit for worldwide use. ifm switched-mode power supplies have a regulated output voltage of typ. 24 V DC with a tolerance of $\pm 2\%$.

Apart from few exceptions the output voltage can be set between 24 V and 28 V to compensate for example for a voltage drop on long cables. Between no load and full load they ensure a stable supply voltage and thus operational reliability in case of supply voltage fluctuations.

Power reserves

Switched-mode power supplies from ifm are rated for permanent operation in the specified performance limits. This allows the power supplies to be used at full load over almost the complete temperature range. Moreover the power supplies feature an excess gain of 20% while reaching 100% switch-on time.

Mains fluctuations and interference are compensated for. Even mains voltage dips of a few milliseconds are compensated for, the output voltage is completely maintained.

An inrush current limitation actively reduces the peak inrush current and thus enables the use of common automatic circuit breakers.

The outputs are protected against short circuits and overload.



24 V DC power supplies

794 - 798



AS-i power supplies

800 - 802






24 V DC power supplies


These high-quality 24V switched-mode power supplies excel by their wide range of performance. Flexible one-phase or three-phase primary voltages with wide-range inputs can be used worldwide. Degrees of efficiency of up to 94 percent ensure that the control cabinet only heats up slightly. The units are protected against over-voltage and permanent short circuit.

System overview	Page
Power supplies / switching amplifiers with one output	794
Power supplies / switching amplifiers with 2 inputs and 2 outputs	794
Power supplies / switching amplifiers with on and off delay with external output	795
Switched-mode power supplies, single phase, in compact plastic housing	795
Standard switched-mode power supplies, single phase, in robust metal housing	795
Standard switched-mode power supplies, two-phase, in robust metal housing	795
Standard switched-mode power supplies, three-phase, in robust metal housing	796
Scale drawings / drawing no. – CAD download: www.ifm.com	796 - 798


Power supplies / switching amplifiers with one output

Type	Current [mA]	Output voltage [V]	Nominal voltage [V]	Output	Draw- ing no.	Order no.
	–	24 DC SELV, ± 10 %, 300 mA	110...240 AC	relay (1 changeover contact)	1	DN0210



Power supplies / switching amplifiers with 2 inputs and 2 outputs

Type	Current [mA]	Output voltage [V]	Nominal voltage [V]	Output	Draw- ing no.	Order no.
	–	24 DC SELV, ± 10 %, 2 x ≤ 150 mA	110...240 AC / -20/+10 AC	2 relays (1 changeover contact per channel)	2	DN0220




Power supplies / switching amplifiers with on and off delay with external output

Type	Current [mA]	Output voltage [V]	Nominal voltage [V]	Output	Drawing no.	Order no.
	max. 40	24 DC $\pm 5\%$	230 AC (50...60 Hz) / 24 DC	relay (1 changeover contact)	3	DT0001


Switched-mode power supplies, single phase, in compact plastic housing

Type	Current [A]	Output voltage [V]	Nominal voltage [V]	Mains buffering time [ms]	Efficiency typ. [%]	Drawing no.	Order no.
	1.25	24...28	115 / 230 AC	–	84	4	DN1030
	2.5	24...28	115 / 230 AC	–	88	4	DN1031
	4.1	24...28 DC ($\pm 2\%$)	115 / 230 AC	–	90	5	DN1022




Standard switched-mode power supplies, single phase, in robust metal housing

Type	Current [A]	Output voltage [V]	Nominal voltage [V]	Mains buffering time [ms]	Efficiency typ. [%]	Drawing no.	Order no.
	3.3	24...28 DC	115 / 230 AC	–	88	6	DN4011
	5	24...28 DC	115 / 230 AC	–	89.4	6	DN4012
	10	24...28 DC	115 / 230 AC	–	91	7	DN4013
	20	24...28 DC	115 / 230 AC	–	92.7	8	DN4014

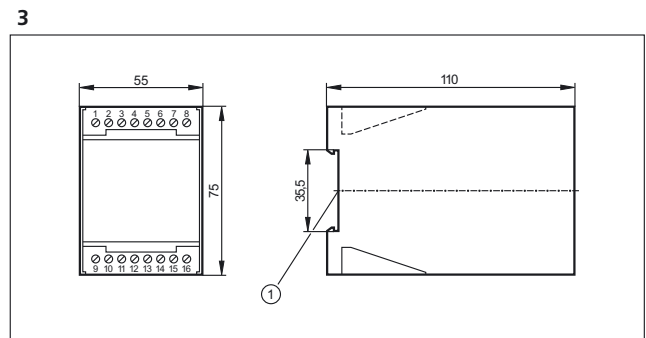
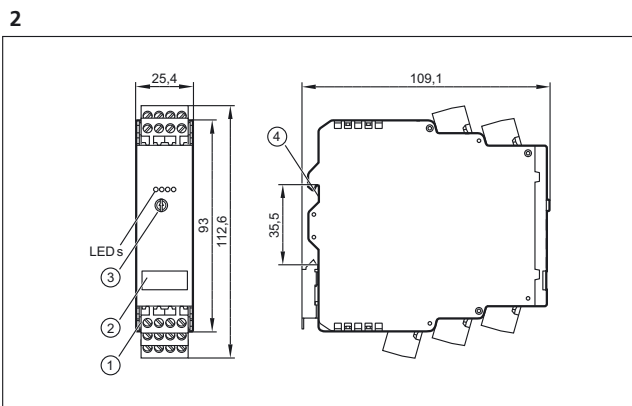
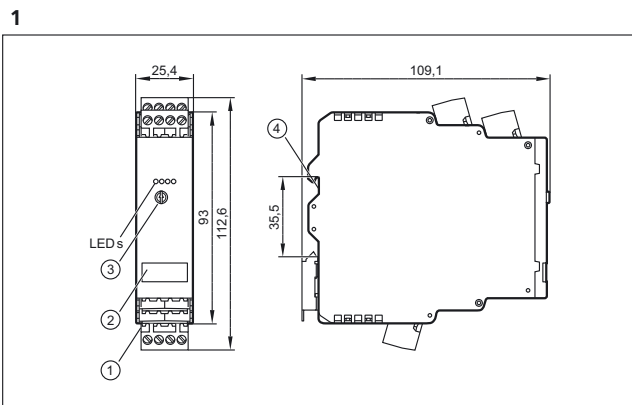
Standard switched-mode power supplies, two-phase, in robust metal housing

Type	Current [A]	Output voltage [V]	Nominal voltage [V]	Mains buffering time [ms]	Efficiency typ. [%]	Drawing no.	Order no.
	5	24...28 DC	2 x 400 AC	–	90.4	9	DN4032

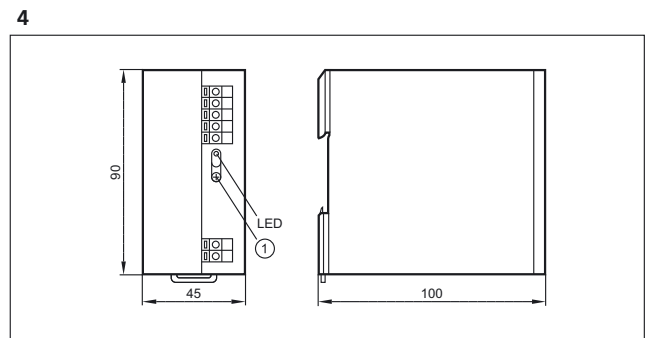
Standard switched-mode power supplies, three-phase, in robust metal housing

Type	Current [A]	Output voltage [V]	Nominal voltage [V]	Mains buffering time [ms]	Efficiency typ. [%]	Drawing no.	Order no.
	10	24...28 DC	3 x 400 AC	–	92.8	10	DN4033
	20	24...28 DC	3 x 400 AC	–	95	11	DN4034
	40	24...28 DC (±2%)	3 x 400...500 AC	–	92.5	12	DN2035
	30	24...28 DC (±2%)	3 x 400...500 AC	–	93	13	DN2036

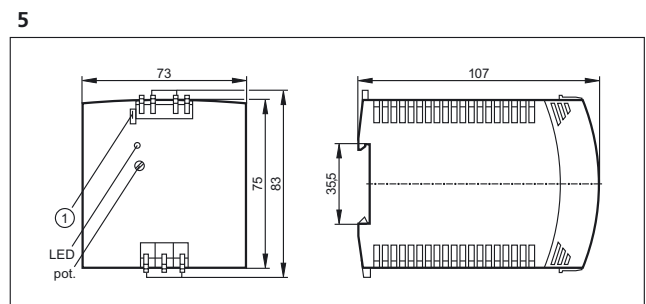
Scale drawings / drawing no. – CAD download: www.ifm.com



1: Mounting on DIN rail

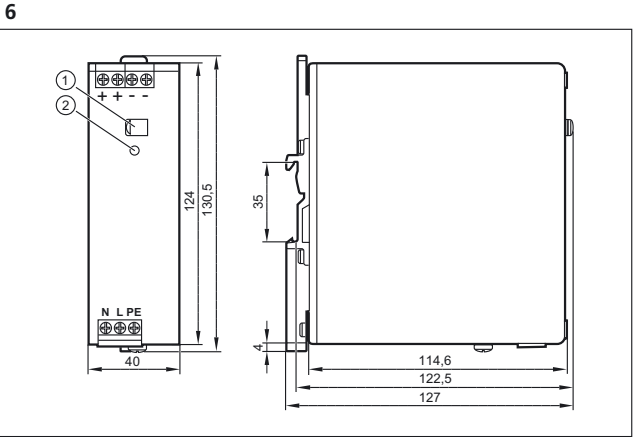


1: potentiometer

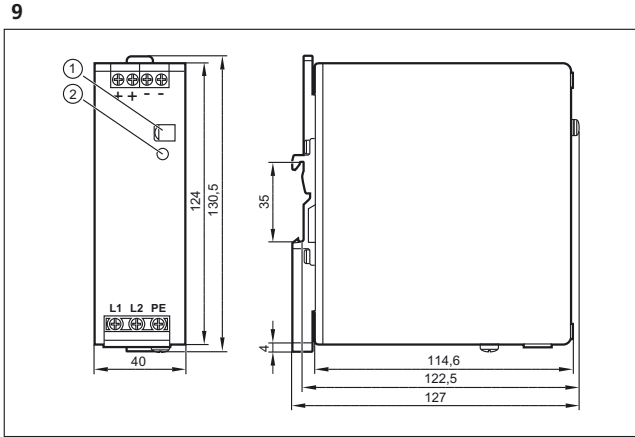


1: jumper "single/parallel operation"

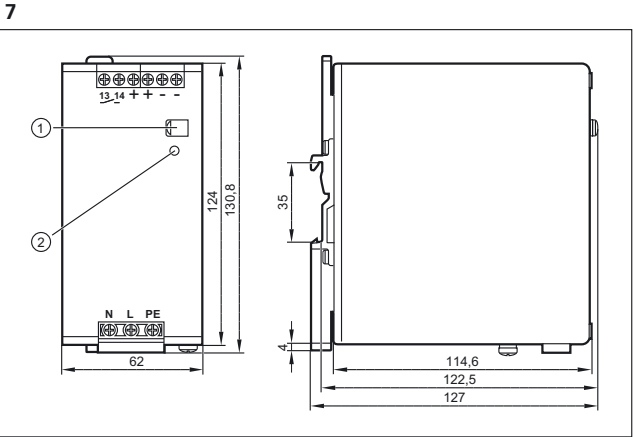
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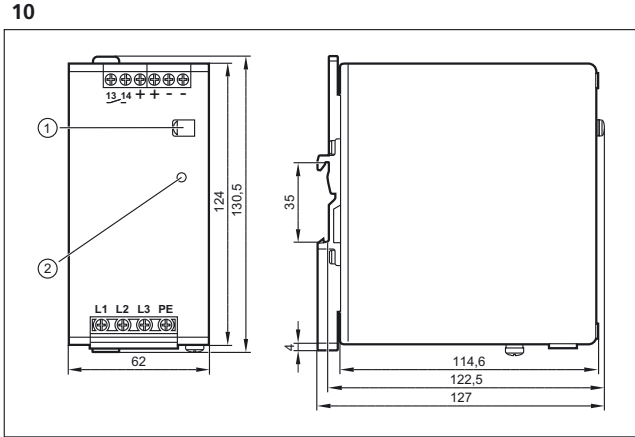
1: Potentiometer 24...28 V DC, 2: LED DC ok



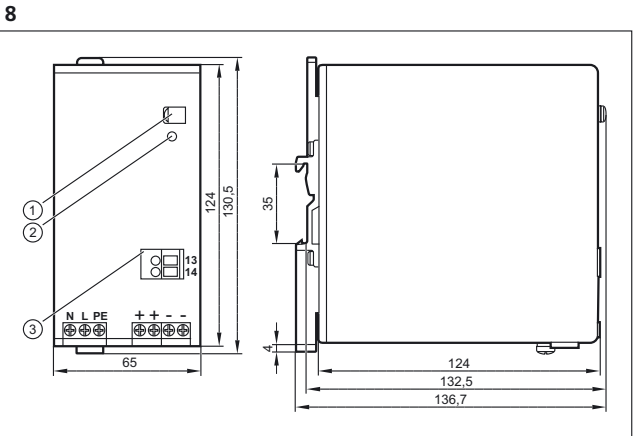
1: Potentiometer 24...28 V DC, 2: LED DC ok



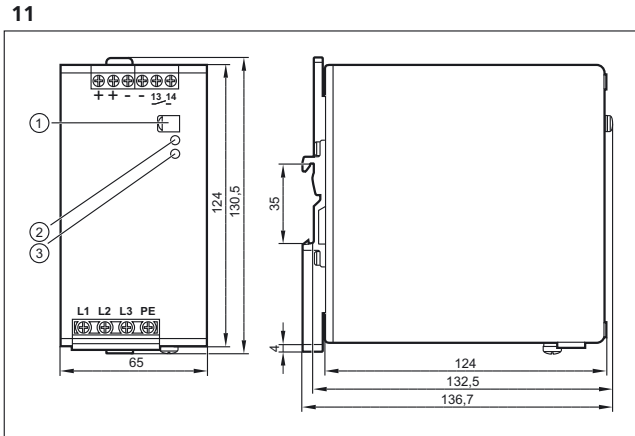
1: Potentiometer 24...28 V DC, 2: LED DC ok



1: Potentiometer 24...28 V DC, 2: LED DC ok



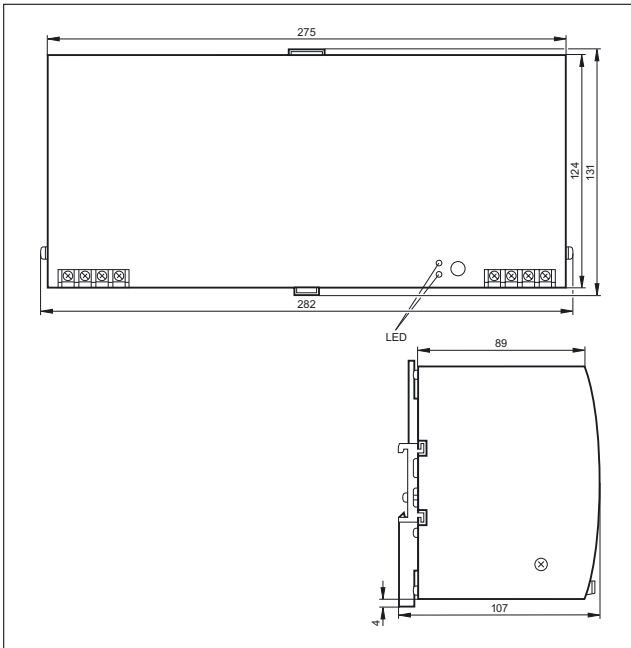
1: Potentiometer 24...28 V DC, 2: LED DC ok, 3: Terminals DC OK signal



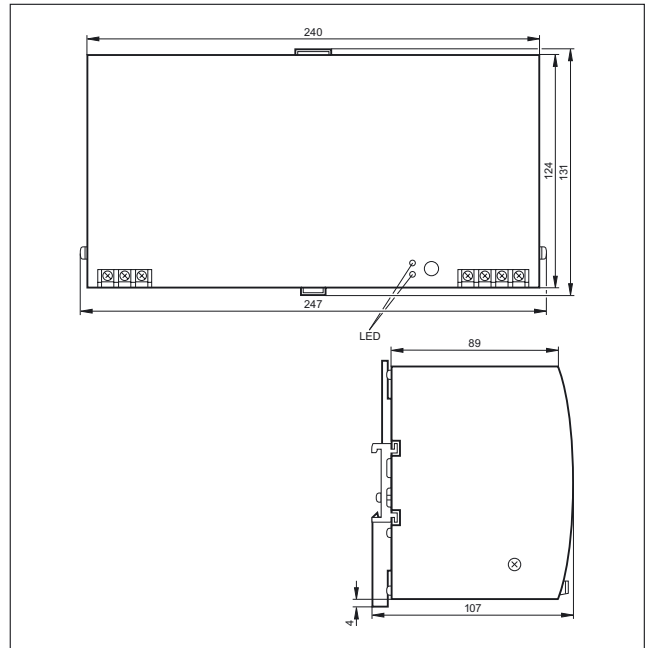
1: Potentiometer 24...28 V DC, 2: LED DC ok, 3: LED Overload

Scale drawings / drawing no. – CAD download: www.ifm.com

12



13










AS-i power supplies


All AS-i power supplies are primary switched-mode power supplies with a high degree of efficiency. The robust DIN rail housing can be easily integrated in large control cabinets as well as in local boxes. The primary voltage range stretches from 24 V DC via 230 V AC up to 400 V AC three-phase and can consequently be adapted to the local conditions.

System overview	Page
AS-i switched-mode power supplies, single phase, in robust metal housing	800
AS-i switched-mode power supplies, single phase, in compact plastic housing	800
AS-i switched-mode power supplies, three -phase, in robust metal housing	801
DC / DC converter (24 V / AS-i), in robust metal housing	801
Scale drawings / drawing no. – CAD download: www.ifm.com	801 - 802

AS-i switched-mode power supplies, single phase, in robust metal housing

Type	Current [A]	Output voltage [V]	Nominal voltage [V]	Mains buffering time [ms]	Efficiency typ. [%]	Drawing no.	Order no.
	2.8	30.5 DC	115 / 230 AC	–	86.9	1	AC1256
	4	30.5 DC	115 / 230 AC	–	88	1	AC1254
	8	30.5 DC	115 / 230 AC	–	89.4	2	AC1258

AS-i switched-mode power supplies, single phase, in compact plastic housing

Type	Current [A]	Output voltage [V]	Nominal voltage [V]	Mains buffering time [ms]	Efficiency typ. [%]	Drawing no.	Order no.
	0.95	29.5...31.6 DC	100...240 AC	–	86	3	AC1220
	1.9	29.5...31.6 DC	100...240 AC	–	88	3	AC1221

AS-i switched-mode power supplies, three -phase, in robust metal housing

Type	Current [A]	Output voltage [V]	Nominal voltage [V]	Mains buffering time [ms]	Efficiency typ. [%]	Drawing no.	Order no.
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8	30.5 DC	3 x 400 AC	-	92	4	AC1253
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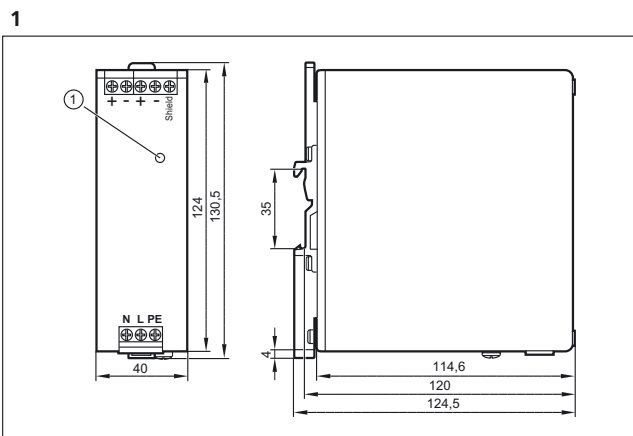
DC / DC converter (24 V / AS-i), in robust metal housing

Type	Current [A]	Output voltage [V]	Nominal voltage [V]	Mains buffering time [ms]	Efficiency typ. [%]	Drawing no.	Order no.
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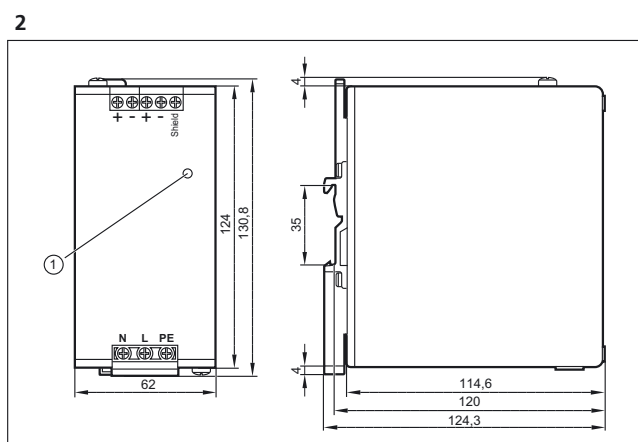


4	30.5 DC	24 DC	-	90.5	5	AC1257
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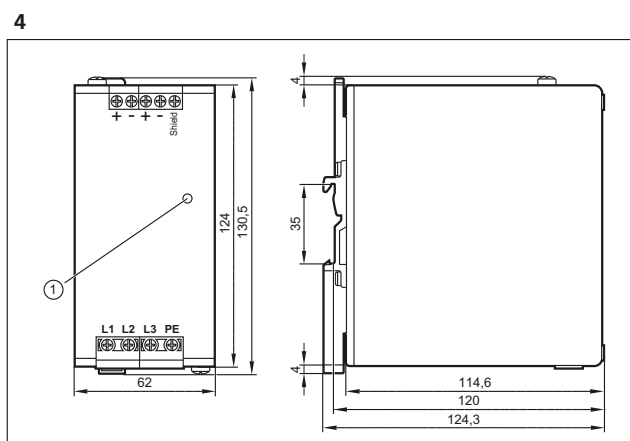
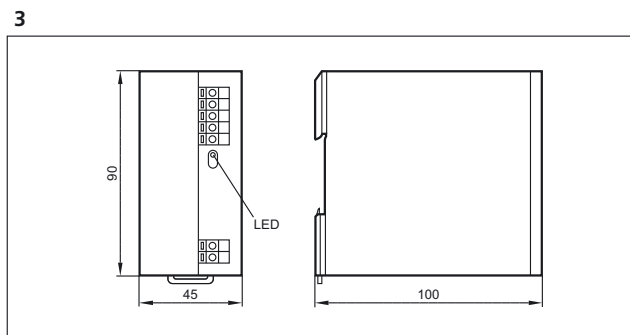
Scale drawings / drawing no. – CAD download: www.ifm.com



1: LED AS-i ok



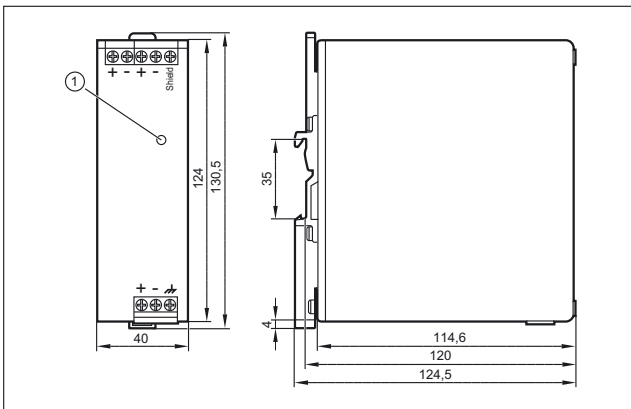
1: LED AS-i ok



1: LED AS-i ok

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5



1: LED AS-i ok



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