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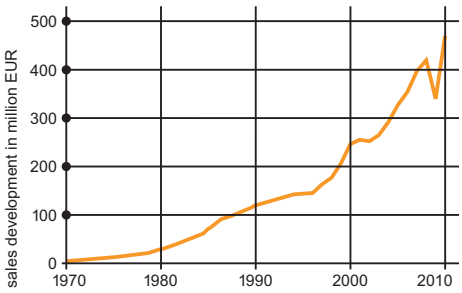
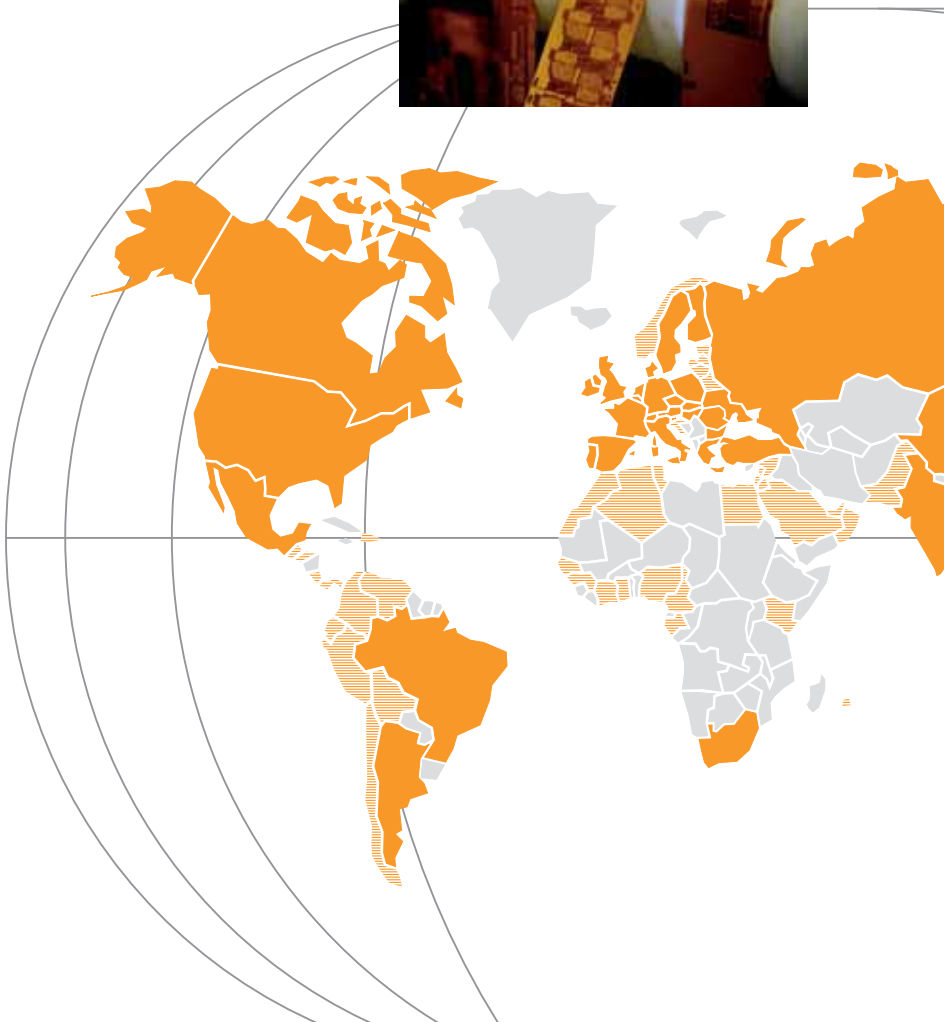


Turnover development since 1970.



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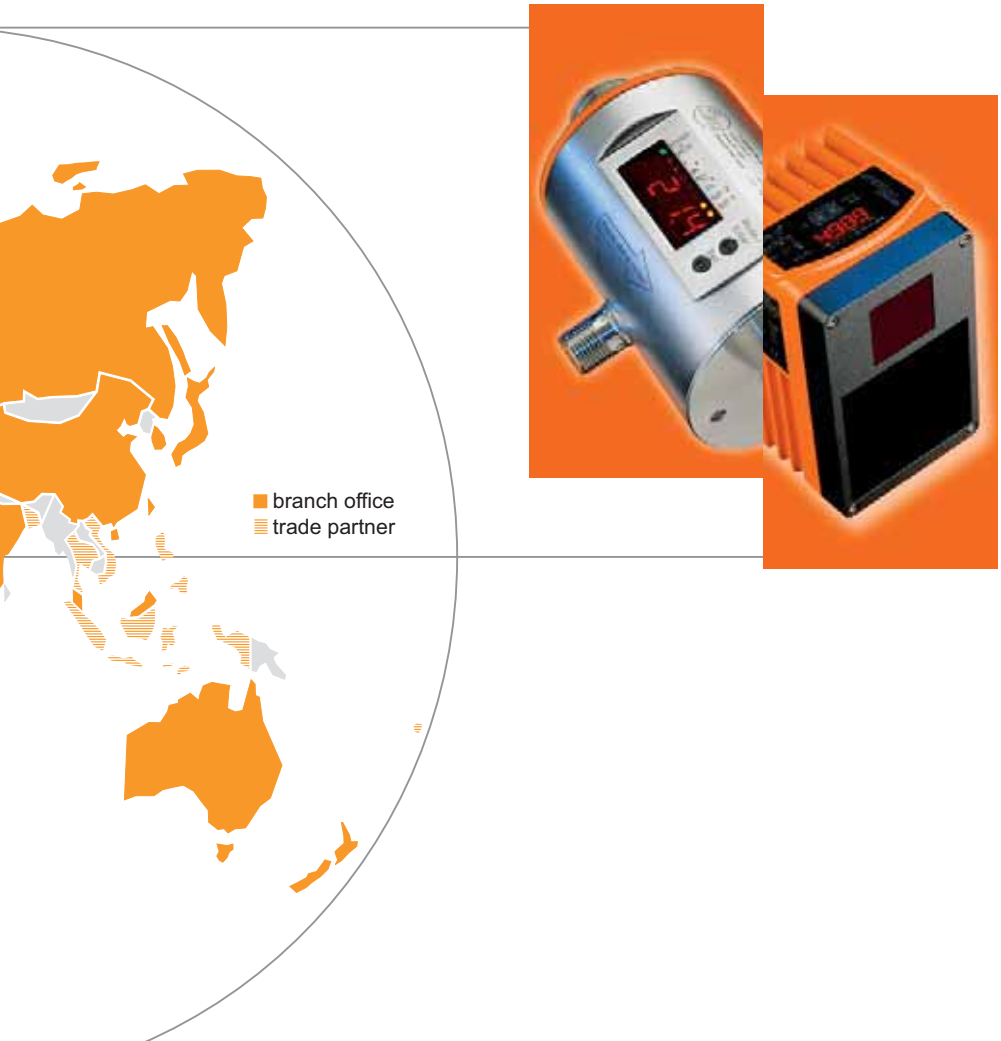

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3A	3A Sanitary Standards, Inc. (3-A SSI) is an independent, not-for-profit corporation dedicated to advancing hygienic equipment design for the food, beverage, and pharmaceutical industries.
AS-i	Actuator-Sensor Interface. Bus system for the first 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 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 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 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.
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.
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.

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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).

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

- **Sensors for almost all application areas.**
- **Wide choice of housing styles and operating voltages.**
- **High-quality housing materials.**
- **Cylindrical housings: Ø 3…34 mm, rectangular housings: 5 x 5 x 24 to 105 x 80 x 40.**
- **Extensive range of fixing accessories and connection technology.**

Inductive sensors

In all automated processes sensors are absolutely necessary to provide the PLC with information. They supply the necessary signals on positions, limits or serve as pulse pick-ups for counting tasks or for monitoring rotational speed. Inductive and capacitive sensors are nowadays indispensable for industrial usage. As compared to mechanical switches they offer ideal conditions: 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 principle of inductive sensors

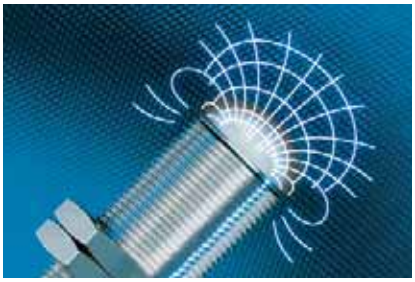
Inductive sensors take advantage of the physical effect of the change in the quality factor in a resonant circuit caused by eddy current losses in conductive materials. This is how it works: An LC tuned circuit generates a high frequency electromagnetic field. This field is radiated from the active face of the sensor. If a conductive material enters this field, eddy currents will be formed in accordance with the law of inductance which draw energy from the oscillator. This reduces the oscillation amplitude. The change is converted into a switching signal. The operating principle permits detection of all metals irrespective of whether they are moving or not.

Application sensors

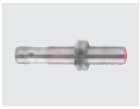
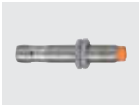
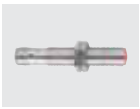
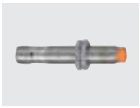
Every application has its own requirements as regards the sensors to be used. Temperature shocks, mechanical influences or aggressive cleaning agents are just a few of the possible environmental influences to which sensors are subjected. ifm electronic therefore offers inductive sensors which have been developed for special applications. This includes for example the use of selected housing materials such as stainless steel, LCP, PEEK, PBT or Duroplast. An innovative, consistent 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.

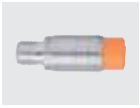
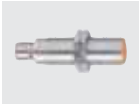
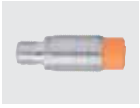
High frequency electromagnetic field: The inductive sensor detects all metals.

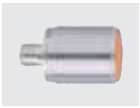
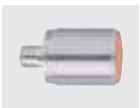


Sensors with increased sensing range for industrial applications

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 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M12 / L = 45	4 f	brass	10...36	IP 67	700	100	1	**IFS204**
	M12 / L = 50	7 nf	brass	10...36	IP 67	700	100	2	**IFS205**
	M12 / L = 70	4 f	brass	10...36	IP 67	700	100	3	**IFS212**
	M12 / L = 70	7 nf	brass	10...36	IP 67	700	100	4	**IFS213**
M12 connector · Output function ⎍⎽ · 3-wire · DC PNP · Wiring diagram no. 2 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M12 / L = 45	4 f	brass	10...36	IP 67	700	100	1	**IFS206**
	M12 / L = 50	7 nf	brass	10...36	IP 67	700	100	2	**IFS207**
M12 connector · Output function ⎍⎽ · 3-wire · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 31 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M12 / L = 70	4 f	brass	10...30	IP 67	500	100	3	**IFS208**
	M12 / L = 70	7 nf	brass	10...30	IP 67	500	100	4	**IFS209**
M12 connector · Output function ⎍⎽ · 2-wire · DC PNP/NPN · Wiring diagram no. 32 · Connector groups 9, 11, 107, 108, 135									
	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**
M8 connector · Output function ⎍⎽ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 1, 2, 3, 68									
	M12 / L = 46	4 f	brass	10...36	IP 67	700	100	5	**IFS210**
	M12 / L = 51	7 nf	brass	10...36	IP 67	700	100	6	**IFS211**

You can find wiring diagrams and scale drawings from page 114

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 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M18 / L = 46	8 f	brass	10...36	IP 67	400	100	7	**IGS204**
	M18 / L = 51	12 nf	brass	10...36	IP 67	300	100	8	**IGS205**
	M18 / L = 70	8 f	brass	10...36	IP 67	400	100	9	**IGS212**
	M18 / L = 70	12 nf	brass	10...36	IP 67	300	100	10	**IGS213**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 2 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M18 / L = 46	8 f	brass	10...36	IP 67	400	100	7	**IGS206**
	M18 / L = 51	12 nf	brass	10...36	IP 67	300	100	8	**IGS207**
M12 connector · Output function ⎍ · 3-wire · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 31 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M18 / L = 70	8 f	brass	10...30	IP 67	400	100	9	**IGS208**
	M18 / L = 70	12 nf	brass	10...30	IP 67	300	100	10	**IGS209**
M12 connector · Output function ⎍ · 2-wire · DC PNP/NPN · Wiring diagram no. 32 · Connector groups 9, 11, 107, 108, 135									
	M18 / L = 46	8 f	brass	10...30	IP 67	300	100	7	**IGS200**
	M18 / L = 51	12 nf	brass	10...30	IP 67	250	100	8	**IGS201**
M12 connector · Output function ⎍ / ⎍ · 2-wire · DC PNP/NPN · Wiring diagram no. 33 · Connector groups 9, 11, 107, 108, 135									
	M18 / L = 70	8 f	brass	10...36	IP 68	400	100	11	**IG5953**
	M18 / L = 72	12 nf	brass	10...36	IP 67	250	100	12	**IG5954**

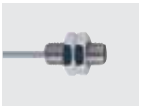
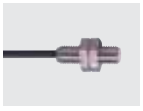
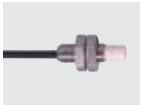
Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Drawing no.	Order no.
M8 connector · Output function ⎍⎽ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 1, 2, 3, 68									
	M18 / L = 46	8 f	brass	10...36	IP 67	400	100	13	**IGS210**
M12 connector · Output function ⎍⎽ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M30 / L = 50	15 f	brass	10...36	IP 67	100	100	14	**IIS204**
	M30 / L = 50	22 nf	brass	10...36	IP 67	100	100	15	**IIS205**
	M30 / L = 70	15 f	high-grade st. steel	10...36	IP 67	100	100	16	**IIS210**
	M30 / L = 70	22 nf	high-grade st. steel	10...36	IP 67	100	100	17	**IIS211**
M12 connector · Output function ⎍⎽ · 3-wire · DC PNP · Wiring diagram no. 2 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M30 / L = 50	15 f	brass	10...36	IP 67	100	100	14	**IIS208**
	M30 / L = 50	22 nf	brass	10...36	IP 67	100	100	15	**IIS209**
M12 connector · Output function ⎍⎽ · 3-wire · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 31 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M30 / L = 70	15 f	brass	10...36	IP 67	100	100	16	**IIS206**
	M30 / L = 70	22 nf	brass	10...36	IP 67	100	100	17	**IIS207**

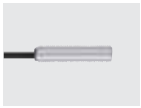
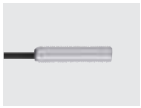
f = flush / nf = non flush

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.
Cable 2 m · Output function ⎍⎽ · 3-wire · DC PNP · Wiring diagram no. 3									
	M5 / L = 30	0.8 f	stainless steel	10...36	IP 65	2000	100	18	**IY5029**

You can find wiring diagrams and scale drawings from page 114

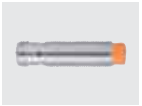
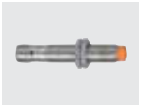
Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Drawing no.	Order no.
Cable 2 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 3									
	M5 / L = 23	0.8 f	stainless steel	10...30	IP 65	2000	100	19	**IY5051**
	M5 / L = 23	1.2 f	stainless steel	10...30	IP 65	< 2000	100	19	**IY5052**
	M5 / L = 27	1.5 nf	stainless steel	10...30	IP 67	1800	100	20	**IY5049**
M8 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 1, 2, 3, 68									
	M5 / L = 45	0.8 f	stainless steel	10...36	IP 65	2000	100	21	**IY5036**
	M5 / L = 41	1.5 nf	stainless steel	10...30	IP 67	1800	100	22	**IY5048**
Cable 2 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 3									
	M8 / L = 35	1 f	brass	10...36	IP 67	750	200	23	**IE5072**
	M8 / L = 50	1 f	brass	10...36	IP 67	750	200	24	**IE5121**
	M8 / L = 50	1 f	PBT	10...36	IP 67	1000	200	24	**IE5129**
	M8 / L = 20	1.5 f	stainless steel	10...30	IP 67	4000	200	25	**IE5348**
	M8 / L = 27	2 f	high-grade st. steel	10...30	IP 67	1500	100	26	**IE5368**
	M8 / L = 35	2 nf	PBT	10...36	IP 67	800	200	23	**IE5099**
	M8 / L = 27	4 nf	high-grade st. steel	10...30	IP 67	500	100	27	**IE5369**
Cable 2 m · Output function ⎍ / ⎍ · 2-wire · DC PNP/NPN · Wiring diagram no. 34									
	M8 / L = 50	1 f	brass	5...36	IP 67	2000	200	24	**IE5222**

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. 34									
	M8 / L = 50	2 nf	brass	5...36	IP 67	2700	200	28	**IE5238**
	M8 / L = 50	2 nf	PBT (Pocan)	5...36	IP 67	2000	200	24	**IE5202**
Cable 2 m · Output function ⎍ · 3-wire · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 35									
	M8 / L = 37	3 f	brass	10...30	IP 67	1000	100	29	**IE5343**
	M8 / L = 37	5 nf	brass	10...30	IP 67	700	100	30	**IE5345**
Cable with connector 0.3 m · Output function ⎍ · 3-wire · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 31 · Connector groups 1, 2, 3, 68									
	M8 / L = 37	3 f	brass	10...30	IP 67	1000	100	29	**IE5344**
	M8 / L = 37	5 nf	brass	10...30	IP 67	700	100	30	**IE5346**
Cable with connector 0.3 m · Output function ⎍ · 3-wire · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 31 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M8 / L = 37	3 f	brass	10...30	IP 67	1000	100	29	**IE5351**
	M8 / L = 37	5 nf	brass	10...30	IP 67	700	100	30	**IE5352**
M8 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 1, 2, 3, 68									
	M8 / L = 50	2 f	brass	10...36	IP 67	1000	250	31	**IE5287**
	M8 / L = 30	2 f	high-grade st. steel	10...30	IP 67 /	1500	100	32	**IE5366**
	M8 / L = 30	4 nf	high-grade st. steel	10...30	IP 67	700	100	33	**IE5367**
M8 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 4 · Connector groups 1, 2, 3, 68									
	M8 / L = 50	1 f	brass	10...36	IP 65	> 2000	250	34	**IE5258**

You can find wiring diagrams and scale drawings from page 114

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Drawing no.	Order no.
M8 connector · Output function ⎍ · 3-wire · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 31 · Connector groups 1, 2, 3, 68									
	M8 / L = 40	3 f	brass	10...30	IP 67	1000	100	35	**IE5338**
	M8 / L = 40	5 nf	high-grade st. steel	10...30	IP 67	700	100	36	**IE5340**
M8 connector · Output function ⎍ · 3-wire · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 36 · Connector groups 1, 2, 3, 68									
	M8 / L = 40	3 f	brass	10...30	IP 67	1000	100	37	**IE5349**
	M8 / L = 40	5 nf	high-grade st. steel	10...30	IP 67	700	100	36	**IE5350**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M8 / L = 53	1 f	brass	10...36	IP 67	750	200	38	**IE5090**
	M8 / L = 62	2 f	brass	10...36	IP 67	1000	250	39	**IE5312**
	M8 / L = 50	2 f	high-grade st. steel	10...36	IP 68	1000	100	40	**IE5379**
	M8 / L = 62	4 nf	brass	10...36	IP 67	300	200	41	**IE5288**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 2 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M8 / L = 62	2 f	brass	10...36	IP 67	800	250	42	**IE5327**
M12 connector · Output function ⎍ / ⎍ · 2-wire · DC PNP/NPN · Wiring diagram no. 33 · Connector groups 9, 11, 107, 108, 135									
	M8 / L = 69	1 f	brass	5...36	IP 67	2700	200	43	**IE5203**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M12 / L = 45	2 f	brass	10...36	IP 67	700	100	1	**IFS214**
	M12 / L = 70	2 f	brass	10...36	IP 67	700	100	3	**IFS216**

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

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 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M12 / L = 50	4 nf	brass	10...36	IP 67	700	100	2	**IFS215**
	M12 / L = 70	4 nf	brass	10...36	IP 67	700	100	4	**IFS217**
Cable 2 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 3									
	M12 / L = 35	2 f	brass	10...36	IP 67	1500	150	44	**IF5188**
	M12 / L = 71	2 f	brass	10...55	IP 67	800	250	45	**IF5297**
	M12 / L = 71	2 f	PBT	10...55	IP 67	800	250	45	**IF5313**
	M12 / L = 35	4 nf	brass	10...36	IP 67	1500	150	46	**IF5249**
	M12 / L = 71	4 nf	brass	10...36	IP 67	1500	250	47	**IF5329**
	M12 / L = 71	4 nf	PBT	10...36	IP 67	400	250	45	**IF5345**
Cable 2 m · Output function ⎍ / ⏚ · 2-wire · DC PNP/NPN · Wiring diagram no. 34									
	M12 / L = 71	2 f	brass	10...55	IP 67	1100	400	45	**IF5645**
	M12 / L = 71	2 f	PBT	10...55	IP 67	1100	400	45	**IF5644**
	M12 / L = 71	4 nf	brass	10...55	IP 67	1500	400	47	**IF5646**
	M12 / L = 71	4 nf	PBT	10...55	IP 67	1500	400	45	**IF5597**
M12 connector · Output function ⎍ / ⏚ · 2-wire · DC PNP/NPN · Wiring diagram no. 33 · Connector groups 9, 11, 107, 108, 135									
	M12 / L = 83	2 f	brass	10...55	IP 67	1100	300	48	**IF5598**

You can find wiring diagrams and scale drawings from page 114

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. 33 · Connector groups 9, 11, 107, 108, 135									
	M12 / L = 83	4 nf	brass	10...55	IP 67	1500	300	49	**IF5647**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M18 / L = 46	5 f	brass	10...36	IP 67	400	100	7	**IGS214**
	M18 / L = 70	5 f	brass	10...36	IP 67	400	100	9	**IGS216**
	M18 / L = 70	8 nf	brass	10...36	IP 67	300	100	10	**IGS217**
Cable 2 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 3									
	M18 / L = 38	5 f	brass	18...36	IP 67	500	150	50	**IG5221**
	M18 / L = 80	5 f	brass	10...36	IP 67	500	250	51	**IG5397**
	M18 / L = 80	5 f	PBT	10...36	IP 67	500	250	51	**IG5399**
	M18 / L = 38	8 nf	brass	18...36	IP 67	200	150	52	**IG5285**
	M18 / L = 80	8 nf	brass	10...36	IP 67	300	250	53	**IG5398**
	M18 / L = 80	8 nf	PBT	10...36	IP 67	300	250	51	**IG5401**
Cable 2 m · Output function ⎍ / ⎍ · 2-wire · DC PNP/NPN · Wiring diagram no. 34									
	M18 / L = 80	5 f	PBT	10...55	IP 67	700	400	51	**IG5593**
	M18 / L = 80	5 f	brass	10...55	IP 67	700	400	51	**IG5594**
	M18 / L = 80	8 nf	PBT	10...55	IP 67	300	400	51	**IG5533**

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 ⎍ / ⎍ · 2-wire · DC PNP/NPN · Wiring diagram no. 34									
	M18 / L = 80	8 nf	brass	10...55	IP 67	300	400	53	**IG5596**
M12 connector · Output function ⎍ / ⎍ · 2-wire · DC PNP/NPN · Wiring diagram no. 33 · Connector groups 9, 11, 107, 108, 135									
	M18 / L = 70	5 f	brass	10...55	IP 67	700	400	54	**IG5595**
	M18 / L = 76	8 nf	brass	10...55	IP 67	300	400	55	**IG5597**
Terminals · Output function ⎍ / ⎍ · 2-wire · DC PNP/NPN · Wiring diagram no. 37									
	M18 / L = 110	5 f	PBT	10...55	IP 65	800	400	56	**IG5718**
	M18 / L = 110	8 nf	PBT	10...55	IP 65	300	400	56	**IG5719**
Cable 2 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 3									
	M30 / L = 45	10 f	brass	18...36	IP 67	300	150	57	**II5166**
	M30 / L = 81	10 f	brass	10...36	IP 67	250	250	58	**II5256**
	M30 / L = 81	10 f	PBT	10...36	IP 67	250	250	58	**II5369**
	M30 / L = 45	15 nf	brass	18...36	IP 67	250	150	59	**II5346**
	M30 / L = 81	15 nf	brass	10...36	IP 67	250	250	60	**II5284**
	M30 / L = 81	15 nf	PBT	10...36	IP 67	250	250	58	**II5300**
Cable 2 m · Output function ⎍ / ⎍ · 2-wire · DC PNP/NPN · Wiring diagram no. 34									
	M30 / L = 45	10 f	brass	10...55	IP 67	450	400	57	**II5493**
	M30 / L = 81	10 f	PBT	10...55	IP 67	450	400	58	**II5488**

You can find wiring diagrams and scale drawings from page 114

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 ⎓ / ⏦ · 2-wire · DC PNP/NPN · Wiring diagram no. 34									
	M30 / L = 81	10 f	brass	10...55	IP 67	450	400	58	**II5489**
	M30 / L = 81	15 nf	PBT	10...55	IP 67	200	400	58	**II5436**
	M30 / L = 81	15 nf	brass	10...55	IP 67	200	400	60	**II5491**
M12 connector · Output function ⎓ / ⏦ · 2-wire · DC PNP/NPN · Wiring diagram no. 33 · Connector groups 9, 11, 107, 108, 135									
	M30 / L = 78	10 f	brass	10...55	IP 67	450	400	61	**II5490**
	M30 / L = 78	15 nf	brass	10...55	IP 67	200	400	62	**II5492**

f = flush / nf = non flush

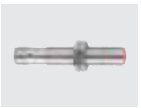
Sensors with analogue output 4...20 mA for industrial applications

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...20 mA analogue · 3-wire · DC analogue · Wiring diagram no. 5 · Connector groups 9, 11, 107, 108, 135									
	M12 / L = 70	0.2...2 f	brass	15...30	IP 67	–	–	3	**IF6028**
	M12 / L = 70	0.4...4 nf	brass	15...30	IP 67	–	–	4	**IF6030**
	M18 / L = 60	0.5...5 f	brass	15...30	IP 67	–	–	63	**IG6086**
	M18 / L = 60	0.8...8 nf	brass	15...30	IP 67	–	–	64	**IG6083**
	M30 / L = 70	1.0...10 f	brass	15...30	IP 67	–	–	16	**II5916**

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...20 mA analogue · 3-wire · DC analogue · Wiring diagram no. 5 · Connector groups 9, 11, 107, 108, 135									
	M30 / L = 70	1.0...15 nf	brass	15...30	IP 67	–	–	17	**II5913**
	40 x 40 x 54	1...15 f	PA (polyamide)	15...30	IP 67	–	–	65	**IM5139**
	40 x 40 x 54	1...26 nf	PA (polyamide)	15...30	IP 67	–	–	65	**IM5141**

f = flush / nf = non flush

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

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Drawing no.	Order no.
M12 connector · Output function 0...10 V analogue · 3-wire · DC analogue · Wiring diagram no. 5 · Connector groups 9, 11, 107, 108, 135									
	M12 / L = 70	0.2...2 f	brass	15...30	IP 67	–	–	3	**IF6029**
	M12 / L = 70	0.4...4 nf	brass	15...30	IP 67	–	–	4	**IF6031**
	M18 / L = 60	0.5...5 f	brass	15...30	IP 67	–	–	63	**IG6087**
	M18 / L = 60	0.8...8 nf	brass	15...30	IP 67	–	–	64	**IG6084**
	M30 / L = 70	1.0...10 f	brass	15...30	IP 67	–	–	16	**II5917**
	M30 / L = 70	1.0...15 nf	brass	15...30	IP 67	–	–	17	**II5914**
	40 x 40 x 54	1...15 f	PA (polyamide)	15...30	IP 67	–	–	65	**IM5140**
	40 x 40 x 54	1...26 nf	PA (polyamide)	15...30	IP 67	–	–	65	**IM5142**

f = flush / nf = non flush

You can find wiring diagrams and scale drawings from page 114

Sensors with smooth sleeve for industrial applications

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. 3									
	Ø 4 / L = 30	0.8 f	stainless steel	10...36	IP 65	2000	100	66	**IZ5026**
	Ø 4 / L = 23	0.8 f	stainless steel	10...30	IP 65	2000	100	67	**IZ5051**
	Ø 3 / L = 27	1 nf	stainless steel	10...30	IP 67	5000	100	68	**IZ5048**
	Ø 4 / L = 23	1.2 f	stainless steel	10...30	IP 65	> 2000	100	67	**IZ5052**
	Ø 4 / L = 27	1.5 nf	stainless steel	10...30	IP 67	1800	100	69	**IZ5047**
M8 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 1, 2, 3, 68									
	Ø 4 / L = 45	0.8 f	stainless steel	10...36	IP 65	2000	100	70	**IZ5035**
M8 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 104, 105									
	Ø 4 / L = 41	1.5 nf	stainless steel	10...30	IP 67	1800	100	71	**IZ5046**
Cable 2 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 3									
	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**
M8 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 1, 2, 3, 68									
	Ø 6.5 / L = 49	1 f	brass	10...36	IP 65	> 2000	250	75	**IT5021**
	Ø 6.5 / L = 49	1.5 f	brass	10...36	IP 65	2000	250	75	**IT5034**

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

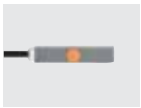
Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Drawing no.	Order no.
M8 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 1, 2, 3, 68									
	Ø 6.5 / L = 30	2 f	high-grade st. steel	10...30	IP 67	1500	100	76	**IT5040**
	Ø 6.5 / L = 50	4 nf	high-grade st. steel	10...30	IP 67	300	100	77	**IT5044**
Cable 2 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 3									
	Ø 20 / L = 77	10 nf	PBT	10...36	IP 67	300	250	78	**IA5082**
Cable 2 m · Output function ⎍/⎎ · 2-wire · DC PNP/NPN · Wiring diagram no. 34									
	Ø 20 / L = 77	10 nf	PBT	10...55	IP 67	300	400	78	**IA5108**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	Ø 20 / L = 93	10 nf	PBT	10...36	IP 67	300	250	79	**IA5127**
Terminals · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 6									
	Ø 20 / L = 92	10 nf	PBT	10...36	IP 65	300	250	80	**IA5062**
Terminals · Output function ⎎ · 3-wire · DC PNP · Wiring diagram no. 6									
	Ø 20 / L = 92	10 nf	PBT	10...36	IP 65	300	250	80	**IA5063**
Terminals · Output function ⎍/⎎ · 2-wire · DC PNP/NPN · Wiring diagram no. 37									
	Ø 20 / L = 92	10 nf	PBT	10...55	IP 65	300	300	80	**IA5122**
Cable 2 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 3									
	Ø 34 / L = 82	20 nf	PBT	10...36	IP 67	60	250	81	**IB5096**

You can find wiring diagrams and scale drawings from page 114

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Drawing no.	Order no.
Terminals · Output function ⎍ / ⎍ · 2-wire · DC PNP/NPN · Wiring diagram no. 37									
	Ø 34 / L = 98	20 nf	PBT	10...55	IP 65	300	300	82	**IB5124**
Terminals · Output function ⎍ / ⎍ · 3-wire · DC PNP · Wiring diagram no. 6									
	Ø 34 / L = 98	20 nf	PBT	10...36	IP 65	350	250	82	**IB5063**
	Ø 34 / L = 98	30 nf	PBT	10...36	IP 65	350	200	82	**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.
Cable 2 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 3									
	25 x 5 x 5	0.8 f	aluminium	10...30	IP 65	1000	100	83	**IL5022**
	40 x 8 x 8	2 f	brass	10...36	IP 65	2000	250	84	**IL5002**
	40 x 8 x 8	2 f	brass	10...36	IP 65	2000	250	84	**IL5003**
	40 x 8 x 8	2.5 f	brass	10...36	IP 65	2000	250	84	**IL5020**
M8 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 1, 2, 3, 68									
	40 x 8 x 8	2 f	brass	10...36	IP 65	2000	250	85	**IL5004**
	40 x 8 x 8	2 f	brass	10...36	IP 65	2000	250	85	**IL5005**
Cable 2 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 3									
	28 x 10 x 16	2 f	PBT	10...36	IP 67	800	200	86	**IS5001**

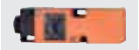
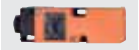
Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Drawing no.	Order no.
Cable 2 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 3									
	28 x 10 x 16	3 nf	PBT	10...36	IP 67	100	200	86	**IS5031**
	28 x 10 x 16	4 nf	PBT	10...36	IP 67	2000	250	87	**IS5070**
Cable 2 m · Output function ⎍ / ⎍ · 2-wire · DC PNP/NPN · Wiring diagram no. 34									
	28 x 10 x 16	2 f	PBT	5...36	IP 67	2000	200	86	**IS5026**
M8 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 1, 2, 3, 68									
	28 x 10 x 16	2 f	PBT	10...36	IP 67	800	200	88	**IS5035**
	28 x 10 x 16	4 nf	PBT	10...36	IP 67	2000	250	88	**IS5071**
Cable 2 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 3									
	40 x 12 x 26	2 f	PBT	10...36	IP 67	1400	250	89	**IN5121**
	40 x 12 x 26	4 nf	PBT	10...36	IP 67	1300	250	89	**IN5129**
Cable 2 m · Output function ⎍ / ⎍ · 2-wire · DC PNP/NPN · Wiring diagram no. 34									
	40 x 12 x 26	2 f	PBT	10...55	IP 67	1300	400	89	**IN5207**
	40 x 12 x 26	4 nf	PBT	10...55	IP 67	1200	400	89	**IN5208**
Cable 2 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 7									
	40 x 12 x 26	2 f	PBT	10...36	IP 67	1400	250	89	**IN5186**
	40 x 12 x 26	4 nf	PBT	10...36	IP 67	1300	250	89	**IN5188**
M8 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 1, 2, 3, 68									
	40 x 12 x 26	2 f	PBT	10...36	IP 67	1400	250	90	**IN5230**

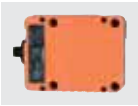
You can find wiring diagrams and scale drawings from page 114

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Drawing no.	Order no.
M8 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 1, 2, 3, 68									
	40 x 12 x 26	4 nf	PBT	10...36	IP 65	1300	250	90	**IN5212**
Cable 2 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 3									
	60 x 36 x 10	5 f	PBT	10...36	IP 67	400	250	91	**IW5051**
	60 x 36 x 10	8 nf	PBT	10...36	IP 67	300	250	91	**IW5058**
Cable 2 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 7									
	60 x 36 x 10	8 nf	PBT	10...36	IP 67	300	250	92	**IW5053**
M8 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 1, 2, 3, 68									
	60 x 36 x 10	8 nf	PBT	10...36	IP 65	300	250	93	**IW5064**
M8 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 4 · Connector groups 1, 2, 3, 68									
	60 x 36 x 10	8 nf	PBT	10...36	IP 67	300	250	93	**IW5062**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	40 x 40 x 54	20 f	PA (polyamide)	10...36	IP 67	100	200	65	**IM5115**
	40 x 40 x 54	20 f	PA (polyamide)	10...36	IP 67	200	200	65	**IM5128**
	40 x 40 x 54	20 f	PA (polyamide)	10...36	IP 67	200	200	94	**IM5119**
	40 x 40 x 54	35 nf	PA (polyamide)	10...36	IP 67	80	200	65	**IM5116**
	40 x 40 x 54	35 nf	PA (polyamide)	10...36	IP 67	200	200	65	**IM5130**
	40 x 40 x 54	35 nf	PA (polyamide)	10...36	IP 67	200	200	94	**IM5120**

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 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	40 x 40 x 54	40 nf	PA (polyamide)	10...36	IP 67	60	200	65	**IM5117**
	40 x 40 x 54	40 nf	PA (polyamide)	10...36	IP 67	200	200	65	**IM5131**
	40 x 40 x 54	40 nf	PA (polyamide)	10...36	IP 67	200	200	94	**IM5129**
M12 connector · Output function ⎍+⎍ · 3-wire · DC PNP · Wiring diagram no. 8 · Connector groups 9, 11, 107, 108, 135									
	40 x 40 x 54	20 f	PA (polyamide)	10...36	IP 67	100	200	65	**IM5123**
M12 connector · Output function ⎍+⎍ · 4-wire · DC PNP · Wiring diagram no. 8 · Connector groups 9, 11, 12, 107, 108, 109, 135, 136									
	40 x 40 x 54	20 f	PA (polyamide)	10...36	IP 67	200	200	65	**IM5132**
M12 connector · Output function ⎍+⎍ · 3-wire · DC PNP · Wiring diagram no. 8 · Connector groups 97, 98, 99, 100									
	40 x 40 x 54	20 f	PA (polyamide)	10...36	IP 67	200	200	94	**IM5124**
M12 connector · Output function ⎍+⎍ · 4-wire · DC PNP · Wiring diagram no. 8 · Connector groups 9, 11, 12, 107, 108, 109, 135, 136									
	40 x 40 x 54	35 nf	PA (polyamide)	10...36	IP 67	80	200	65	**IM5134**
	40 x 40 x 54	35 nf	PA (polyamide)	10...36	IP 67	200	200	65	**IM5133**
M12 connector · Output function ⎍+⎍ · 4-wire · DC PNP · Wiring diagram no. 8 · Connector groups 97, 98, 99, 100									
	40 x 40 x 54	35 nf	PA (polyamide)	10...36	IP 67	200	200	94	**IM5125**
M12 connector · Output function ⎍+⎍ · 4-wire · DC PNP · Wiring diagram no. 8 · Connector groups 9, 11, 12, 107, 108, 109, 135, 136									
	40 x 40 x 54	40 nf	PA (polyamide)	10...36	IP 67	60	200	65	**IM5136**
	40 x 40 x 54	40 nf	PA (polyamide)	10...36	IP 67 / IP 69K	200	200	65	**IM5135**

You can find wiring diagrams and scale drawings from page 114

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. 8 · Connector groups 97, 98, 99, 100									
	40 x 40 x 54	40 nf	PA (polyamide)	10...36	IP 67	200	200	94	**IM5126**
M12 connector · 2-wire · AS-i · Wiring diagram no. 9 · Connector groups 9, 11, 107, 108, 135									
	40 x 40 x 54	15 f	PBT	26.5...31.6	IP 67	100	–	65	**IM5118**
Terminals · Output function ⎍/⎍ · 3-wire · DC PNP · Wiring diagram no. 6									
	40 x 40 x 120	15 f	PPE	10...36	IP 65	350	250	95	**IM5020**
	40 x 40 x 120	20 nf	PPE	10...36	IP 65	350	250	95	**IM5019**
	40 x 40 x 120	30 nf	PPE	10...36	IP 65	100	250	95	**IM5046**
Terminals · Output function ⎍/⎍ · 2-wire · DC PNP/NPN · Wiring diagram no. 37									
	40 x 40 x 120	15 f	PPE	10...55	IP 65	> 350	400	95	**IM5037**
	40 x 40 x 120	20 nf	PPE	10...55	IP 65	> 300	400	95	**IM5038**
Terminals · Output function ⎍+⎍ · 4-wire · DC PNP · Wiring diagram no. 10									
	40 x 40 x 118	15 f	PBT	10...60	IP 67	150	200	96	**IV5003**
	40 x 40 x 118	20 f	PBT	10...60	IP 67	150	200	97	**IV5004**
Terminals · Output function ⎍/⎍ · 3-wire · DC PNP · Wiring diagram no. 38									
	90 x 60 x 40	40 nf	PPE	10...36	IP 65	15	250	98	**IC5005**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	92 x 80 x 40	50 f	PPE	10...36	IP 67	70	250	99	**ID5055**

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. 8 · Connector groups 9, 11, 12, 107, 108, 109, 135, 136									
	92 x 80 x 40	50 f	PPE	10...36	IP 67	70	250	99	**ID5058**
Terminals · Output function ⎍/⎍ · 3-wire · DC PNP · Wiring diagram no. 38									
	105 x 80 x 40	60 nf	PPE	10...36	IP 65	100	250	100	**ID5005**
M12 connector · Output function normally open / closed programmable · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	105 x 80 x 40	60 nf	PPE	10...36	IP 67	100	250	101	**ID5046**
Cable 2 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 3									
	120 x 80 x 30	50 nf	PPE	10...36	IP 67	100	250	102	**ID5026**

f = flush / nf = non flush

Ring sensors for industrial applications

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 PNP · Wiring diagram no. 11 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	10.1	static	1.5	35	10...150	0.5 / 10	103	**I7R201**
	10.1	dynamic	0.6	35	0.1...150	0.2 / 0.2	103	**I7R203**
	15.1	static	2	35	10...150	0.5 / 10	104	**I7R205**
	15.1	dynamic	0.8	35	0.1...150	0.2 / 0.2	104	**I7R207**
	20.1	static	2.5	35	10...150	0.5 / 10	105	**I7R209**
	20.1	dynamic	1.0	35	0.1...150	0.2 / 0.2	105	**I7R211**

You can find wiring diagrams and scale drawings from page 114

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]	Draw-ing no.	Order no.
M12 connector · Output function ⎍ / ⎍ · 3-wire · DC PNP · Wiring diagram no. 11 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	25.1	static	3.0	35	10...150	0.5 / 10	106	**I7R213**
	25.1	dynamic	1.2	35	0.1...150	0.2 / 0.2	106	**I7R215**
M12 connector · Output function ⎍ / ⎍ · 3-wire · DC NPN · Wiring diagram no. 12 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	10.1	static	1.5	35	10...150	0.5 / 10	103	**I7R202**
M12 connector · Output function ⎍ / ⎍ · 3-wire · DC NPN · Wiring diagram no. 12 · Connector groups 9, 11, 107, 108, 135								
	10.1	dynamic	0.6	35	0.1...150	0.2 / 0.2	103	**I7R204**
	15.1	static	2	35	10...150	0.5 / 10	104	**I7R206**
	15.1	dynamic	0.8	35	0.1...150	0.2 / 0.2	104	**I7R208**
	20.1	static	2.5	35	10...150	0.5 / 10	105	**I7R210**
	20.1	dynamic	1.0	35	0.1...150	0.2 / 0.2	105	**I7R212**
	25.1	static	3.0	35	10...150	0.5 / 10	106	**I7R214**
	25.1	dynamic	1.2	35	0.1...150	0.2 / 0.2	106	**I7R216**
M12 connector · Output function ⎍ / ⎍ · 3-wire · DC PNP · Wiring diagram no. 11 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	51	static	6	35	10...150	0.5 / 10	107	**I7R217**

Tube sensors for industrial applications

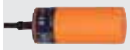
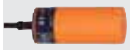
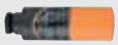
Type	Sensing range [mm]	Operating principle	Minimum diameter of the steel ball [Ø mm]	Part speed max. [m/s]	Pulse stretching [ms]	Response time / break time [ms]	Drawing no.	Order no.
M8 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 11 · Connector groups 1, 2, 3, 68								
	≤ 14	static	3.0	35	100	0.5 / 100	108	**I85000**
M8 connector · Output function ⎍ · 3-wire · DC NPN · Wiring diagram no. 12 · Connector groups 1, 3, 68								
	≤ 14	static	3.0	35	100	0.5 / 100	108	**I85001**
Cable with connector 0.09 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 11 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	≤ 14	static	3.0	35	100	0.5 / 100	109	**I85002**
Cable with connector 0.09 m · Output function ⎍ · 3-wire · DC NPN · Wiring diagram no. 12 · Connector groups 9, 11, 107, 108, 135								
	≤ 14	static	3.0	35	100	0.5 / 100	109	**I85003**
M8 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 11 · Connector groups 1, 2, 3, 68								
	≤ 20	dynamic	1.0	35	100	0.2 / 100	108	**I85004**
M8 connector · Output function ⎍ · 3-wire · DC NPN · Wiring diagram no. 12 · Connector groups 1, 3, 68								
	≤ 20	dynamic	1.0	35	100	0.2 / 100	108	**I85005**
Cable with connector 0.09 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 11 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	≤ 20	dynamic	1.0	35	100	0.2 / 100	109	**I85006**
Cable with connector 0.09 m · Output function ⎍ · 3-wire · DC NPN · Wiring diagram no. 12 · Connector groups 9, 11, 107, 108, 135								
	≤ 20	dynamic	1.0	35	100	0.2 / 100	109	**I85007**

You can find wiring diagrams and scale drawings from page 114

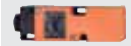
Sensors for industrial applications, AC and AC/DC

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f AC / DC [Hz]	I_{load} AC / DC [mA]	Drawing no.	Order no.
Cable 2 m · Output function ⎓ · 2-wire · AC · Wiring diagram no. 13									
	M12 / L = 71	2 f	PBT	20...250	IP 67	25	250	45	**IF0001***
	M12 / L = 71	2 f	brass	20...250	IP 67	25	250	45	**IF0005***
	M12 / L = 71	4 nf	PBT	20...250	IP 67	25	250	45	**IF0003***
	M12 / L = 71	4 nf	brass	20...250	IP 67	25	250	47	**IF0007***
Cable 2 m · Output function ⎓ · 2-wire · AC/DC · Wiring diagram no. 14									
	M18 / L = 80	5 f	PBT	20...250	IP 67	25 / 50	350 / 100	51	**IG0005***
	M18 / L = 80	5 f	brass	20...250	IP 67	25 / 50	350 / 100	51	**IG0011***
	M18 / L = 80	8 nf	PBT	20...250	IP 67	25 / 50	350 / 100	51	**IG0006***
	M18 / L = 80	8 nf	brass	20...250	IP 67	25 / 50	350 / 100	53	**IG0012***
	Ø 20 / L = 77	10 nf	PBT	20...250	IP 67	25 / 70	350 / 100	78	**IA0004***
Cable 2 m · Output function ⎓ · 2-wire · AC/DC · Wiring diagram no. 15									
	Ø 20 / L = 77	10 nf	PBT	20...250	IP 67	25 / 70	350 / 100	78	**IA0027***
Terminals · Output function ⎓ / ⎓ · 2-wire · AC/DC · Wiring diagram no. 16									
	Ø 20 / L = 92	10 nf	PBT	20...250	IP 65	25 / 70	350 / 100	80	**IA0032***
Cable 2 m · Output function ⎓ · 2-wire · AC/DC · Wiring diagram no. 14									
	M30 / L = 81	10 f	PBT	20...250	IP 67	25 / 50	350 / 100	58	**II0005***

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]	Drawing no.	Order no.
Cable 2 m · Output function ⎓ · 2-wire · AC/DC · Wiring diagram no. 14									
	M30 / L = 81	10 f	brass	20...250	IP 67	25 / 50	350 / 100	58	**II0011***
	M30 / L = 81	15 nf	PBT	20...250	IP 67	25 / 50	350 / 100	58	**II0006***
	M30 / L = 81	15 nf	brass	20...250	IP 67	25 / 50	350 / 100	60	**II0012***
	Ø 34 / L = 82	20 nf	PBT	20...250	IP 67	25 / 50	350 / 100	81	**IB0004***
	Ø 34 / L = 82	30 nf	PBT	20...250	IP 67	25 / 50	350 / 100	81	**IB0026***
Cable 2 m · Output function ⎓ · 2-wire · AC/DC · Wiring diagram no. 15									
	Ø 34 / L = 82	20 nf	PBT	20...250	IP 67	25 / 50	350 / 100	81	**IB0017***
	Ø 34 / L = 82	30 nf	PBT	20...250	IP 67	25 / 50	350 / 100	81	**IB0027***
Terminals · Output function ⎓ / ⎓ · 2-wire · AC/DC · Wiring diagram no. 16									
	Ø 34 / L = 98	20 nf	PBT	20...250	IP 65	25 / 50	350 / 100	82	**IB0016***
Cable 2 m · Output function ⎓ · 2-wire · AC/DC · Wiring diagram no. 14									
	40 x 12 x 26	2 f	PBT	20...250	IP 67	25 / 50	350 / 100	89	**IN0073***
	40 x 12 x 26	4 nf	PBT	20...250	IP 67	25 / 50	350 / 100	89	**IN0081***
Cable 2 m · Output function ⎓ · 2-wire · AC/DC · Wiring diagram no. 15									
	40 x 12 x 26	2 f	PBT	20...250	IP 67	25 / 50	350 / 100	89	**IN0077***
	40 x 12 x 26	4 nf	PBT	20...250	IP 67	25 / 50	350 / 100	89	**IN0085***

You can find wiring diagrams and scale drawings from page 114

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f AC / DC [Hz]	I_{load} AC / DC [mA]	Drawing no.	Order no.
Terminals · Output function ⎓ / ⎓ · 2-wire · AC/DC · Wiring diagram no. 16									
	40 x 40 x 120	15 f	PPE	20...250	IP 65	20 / 55	350 / 100	95	**IM0011***
	40 x 40 x 120	20 nf	PPE	20...250	IP 65	20 / 55	350 / 100	95	**IM0010***
1/2" connector · Output function ⎓ · 2-wire · AC/DC · Wiring diagram no. 17 · Connector group 26									
	40 x 40 x 66	35 nf	PPE	20...250	IP 67	20 / 50	350 / 100	110	**IM0049***
M12 connector · Output function ⎓ · 2-wire · AC/DC · Wiring diagram no. 17 · Connector group 8									
	40 x 40 x 66	20 f	PPE	20...250	IP 67	25 / 140	350 / 100	111	**IM0054***
	40 x 40 x 66	35 nf	PPE	20...250	IP 67	20 / 50	350 / 100	111	**IM0053***
Terminals · Output function ⎓ / ⎓ · 2-wire · AC/DC · Wiring diagram no. 39									
	90 x 60 x 40	40 nf	PPE	20...250	IP 65	10	350 / 100	98	**IC0003***
Cable 2 m · Output function ⎓ · 2-wire · AC/DC · Wiring diagram no. 14									
	120 x 80 x 30	50 nf	modified PPE	20...250	IP 65	25 / 35	350 / 100	102	**ID0014***
M12 connector · Output function ⎓ · 2-wire · AC/DC · Wiring diagram no. 17 · Connector group 8									
	92 x 80 x 40	50 f	modified PPE	20...250	IP 67	25	350 / 100	99	**ID0049***
Terminals · Output function ⎓ / ⎓ · 2-wire · AC/DC · Wiring diagram no. 39									
	105 x 80 x 40	60 nf	modified PPE	20...250	IP 65	4	350 / 100	100	**ID0013***

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 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.
M12 connector · Output function ⎍⎽ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 107, 109									
	M12 / L = 45	4 f	high-grade st. steel	10...36	IP 68 / IP 69K	800	100	1	**IFT203**
	M12 / L = 50	7 nf	high-grade st. steel	10...36	IP 68 / IP 69K	800	100	112	**IFT200**
	M12 / L = 70	4 f	high-grade st. steel	10...36	IP 68 / IP 69K	700	100	3	**IFT216**
	M12 / L = 70	7 nf	high-grade st. steel	10...36	IP 68 / IP 69K	800	100	4	**IFT217**
M12 connector · Output function ⎍⎿ · 3-wire · DC PNP · Wiring diagram no. 2 · Connector groups 107, 109									
	M12 / L = 45	4 f	high-grade st. steel	10...36	IP 68 / IP 69K	800	100	1	**IFT204**
	M12 / L = 50	7 nf	high-grade st. steel	10...36	IP 68 / IP 69K	800	100	112	**IFT201**
M12 connector · Output function ⎍⎽ · 3-wire · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 31 · Connector groups 107, 109									
	M12 / L = 70	4 f	high-grade st. steel	10...36	IP 68 / IP 69K	500	100	3	**IFT205**
	M12 / L = 70	7 nf	high-grade st. steel	10...30	IP 68 / IP 69K	700	100	113	**IFT202**
	Ø 12 / L = 70	7 nf	high-grade st. steel	10...30	IP 68 / IP 69K	700	100	114	**IFT210**
Cable 6 m · Output function ⎍⎽ · 3-wire · DC PNP · Wiring diagram no. 3									
	M12 / L = 50	4 f	high-grade st. steel	10...36	IP 68 / IP 69K	800	100	115	**IFT206**
	M12 / L = 61	7 nf	high-grade st. steel	10...36	IP 68 / IP 69K	800	100	116	**IFT208**
Cable 10 m · Output function ⎍⎽ · 3-wire · DC PNP · Wiring diagram no. 3									
	M12 / L = 50	4 f	high-grade st. steel	10...36	IP 68 / IP 69K	800	100	115	**IFT207**

You can find wiring diagrams and scale drawings from page 114

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 ⎍ · 3-wire · DC PNP · Wiring diagram no. 3									
	M12 / L = 61	7 nf	high-grade st. steel	10...36	IP 68 / IP 69K	800	100	116	**IFT209**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 107, 109									
	M18 / L = 46	8 f	high-grade st. steel	10...36	IP 68 / IP 69K	600	100	7	**IGT203**
	M18 / L = 51	12 nf	high-grade st. steel	10...36	IP 68 / IP 69K	300	100	117	**IGT200**
	M18 / L = 70	8 f	high-grade st. steel	10...36	IP 68 / IP 69K	400	100	9	**IGT219**
	M18 / L = 70	12 nf	high-grade st. steel	10...36	IP 68 / IP 69K	300	100	10	**IGT220**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 2 · Connector groups 107, 109									
	M18 / L = 46	8 f	high-grade st. steel	10...36	IP 68 / IP 69K	600	100	7	**IGT204**
	M18 / L = 51	12 nf	high-grade st. steel	10...36	IP 68 / IP 69K	300	100	117	**IGT201**
M12 connector · Output function ⎍ · 3-wire · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 31 · Connector groups 107, 109									
	M18 / L = 70	8 f	high-grade st. steel	10...36	IP 68 / IP 69K	400	100	9	**IGT205**
	M18 / L = 70	12 nf	high-grade st. steel	10...30	IP 68 / IP 69K	300	100	118	**IGT202**
Cable 6 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 3									
	M18 / L = 57	8 f	high-grade st. steel	10...36	IP 68 / IP 69K	600	100	119	**IGT206**
	M18 / L = 62	12 nf	high-grade st. steel	10...36	IP 68 / IP 69K	300	100	120	**IGT208**
Cable 10 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 3									
	M18 / L = 57	8 f	high-grade st. steel	10...36	IP 68 / IP 69K	400	100	119	**IGT207**

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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 10 m · Output function ⎍⎽ · 3-wire · DC PNP · Wiring diagram no. 3									
	M18 / L = 62	12 nf	high-grade st. steel	10...36	IP 68 / IP 69K	300	100	120	**IGT209**
M12 connector · Output function ⎍⎽ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 107, 109									
	M30 / L = 50	14 f	high-grade st. steel	10...36	IP 68 / IP 69K	100	100	14	**IIT205**
	M30 / L = 50	22 nf	high-grade st. steel	10...36	IP 68 / IP 69K	100	100	121	**IIT200**
	M30 / L = 70	15 f	high-grade st. steel	10...36	IP 68 / IP 69K	100	100	16	**IIT212**
	M30 / L = 70	22 nf	high-grade st. steel	10...36	IP 68 / IP 69K	100	100	17	**IIT213**
M12 connector · Output function ⎍⎽ · 3-wire · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 31 · Connector groups 107, 109									
	M30 / L = 70	14 f	high-grade st. steel	10...36	IP 68 / IP 69K	50	100	16	**IIT204**
	M30 / L = 70	22 nf	high-grade st. steel	10...36	IP 68 / IP 69K	100	100	17	**IIT202**
1/2" UNF-Connector · Output function ⎍⎽ · 2-wire · AC/DC · Wiring diagram no. 18 · Connector group 26									
	M30 / L = 70	22 nf	high-grade st. steel	20...140	IP 68 / IP 69K	25 / 100	200	122	**IIT002**
Cable 6 m · Output function ⎍⎽ · 3-wire · DC PNP · Wiring diagram no. 3									
	M30 / L = 59	22 nf	high-grade st. steel	10...36	IP 68 / IP 69K	100	100	123	**IIT207**
	M30 / L = 59	14 f	high-grade st. steel	10...36	IP 68 / IP 69K	100	100	124	**IIT209**
Cable 10 m · Output function ⎍⎽ · 3-wire · DC PNP · Wiring diagram no. 3									
	M30 / L = 59	14 f	high-grade st. steel	10...36	IP 68 / IP 69K	100	100	124	**IIT206**

You can find wiring diagrams and scale drawings from page 114

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 ⎍ · 3-wire · DC PNP · Wiring diagram no. 3									
	M30 / L = 59	22 nf	high-grade st. steel	10...36	IP 68 / IP 69K	100	100	123	**IIT208**

f = flush / nf = non flush

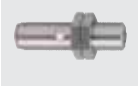
Full metal sensors for hygienic and wet areas

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 PNP · Wiring diagram no. 1 · Connector groups 107, 109									
	M12 / L = 60	3 f	high-grade st. steel	10...36	IP 68 / IP 69K	100	100	125	**IFT243**
	M12 / L = 60	3 f	high-grade st. steel	10...36	IP 68 / IP 69K	100	100	126	**IFT240**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 107, 109, 113									
	M12 / L = 70	6 nf	high-grade st. steel	10...36	IP 65 / IP 67 / IP 68 / IP 69K	500	100	127	**IFT245**
M12 connector · Output function ⎍ · 3-wire · DC NPN · Wiring diagram no. 19 · Connector group 107									
	M12 / L = 60	3 f	high-grade st. steel	10...36	IP 68 / IP 69K	100	100	126	**IFT244**
M12 connector · Output function ⎍ · 3-wire · DC NPN · Wiring diagram no. 19 · Connector groups 107, 113									
	M12 / L = 70	6 nf	high-grade st. steel	10...36	IP 65 / IP 67 / IP 68 / IP 69K	500	100	127	**IFT246**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 107, 109									
	M18 / L = 70	5 f	high-grade st. steel	10...36	IP 68 / IP 69K	100	100	54	**IGT247**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 107, 109, 113									
	M18 / L = 70	12 nf	high-grade st. steel	10...36	IP 65 / IP 67 / IP 68 / IP 69K	500	100	128	**IGT249**

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. 19 · Connector groups 107, 109									
	M18 / L = 70	5 f	high-grade st. steel	10...36	IP 68 / IP 69K	100	100	54	**IGT248**
M12 connector · Output function ⎍ · 3-wire · DC NPN · Wiring diagram no. 19 · Connector groups 107, 113									
	M18 / L = 70	12 nf	high-grade st. steel	10...36	IP 65 / IP 67 / IP 68 / IP 69K	500	100	128	**IGT250**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 107, 109									
	M30 / L = 70	10 f	high-grade st. steel	10...36	IP 68 / IP 69K	50	100	129	**IIT228**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 107, 109, 113									
	M30 / L = 70	25 nf	high-grade st. steel	10...36	IP 65 / IP 67 / IP 68 / IP 69K	250	100	130	**IIT231**
M12 connector · Output function ⎍ · 3-wire · DC NPN · Wiring diagram no. 19 · Connector group 107									
	M30 / L = 70	10 f	high-grade st. steel	10...36	IP 68 / IP 69K	50	100	129	**IIT230**
M12 connector · Output function ⎍ · 3-wire · DC NPN · Wiring diagram no. 19 · Connector groups 107, 113									
	M30 / L = 70	25 nf	high-grade st. steel	10...36	IP 65 / IP 67 / IP 68 / IP 69K	250	100	130	**IIT232**

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]	Drawing no.	Order no.
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 107, 108, 109, 110, 135, 136									
	M8 / L = 70	1 f	high-grade st. steel	10...36	IP 67	2000	200	131	**IE5215**
	M8 / L = 55	2 nf	high-grade st. steel	10...36	IP 67	2000	200	132	**IE5295**
	M12 / L = 44	2 f	high-grade st. steel	10...36	IP 67	1200	250	133	**IF5815**

You can find wiring diagrams and scale drawings from page 114

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 107, 108, 109, 110, 135, 136									
	M12 / L = 59	2 f	high-grade st. steel	10...36	IP 67	1100	200	134	**IF5514**
	M12 / L = 83	2 f	high-grade st. steel	10...36	IP 67	800	250	48	**IF5851**
	M12 / L = 44	4 nf	high-grade st. steel	10...36	IP 67	1400	150	135	**IF5796**
	M12 / L = 59	4 nf	high-grade st. steel	10...36	IP 67	1400	250	136	**IF5813**
	M12 / L = 83	4 nf	high-grade st. steel	10...36	IP 67	400	250	49	**IF5594**
M12 connector · Output function ⎍⎽ /⎽⎍ · 2-wire · DC PNP/NPN · Wiring diagram no. 33 · Connector groups 107, 108, 135									
	M12 / L = 83	2 f	high-grade st. steel	10...55	IP 67	1100	400	48	**IF5759**
	M12 / L = 83	4 nf	high-grade st. steel	10...55	IP 67	1500	300	49	**IF5760**
Cable 2 m · Output function ⎍⎽+⎽⎍ · 4-wire · DC PNP · Wiring diagram no. 20									
	M18 / L = 80	8 nf	high-grade st. steel	10...36	IP 67	320	250	53	**IG5202**
M12 connector · Output function ⎍⎽ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 107, 108, 109, 110, 135, 136									
	M18 / L = 76	5 f	high-grade st. steel	10...36	IP 67	500	250	137	**IG5813**
	M18 / L = 90	8 nf	high-grade st. steel	10...36	IP 67	300	250	138	**IG5602**
M12 connector · Output function ⎍⎽+⎽⎍ · 4-wire · DC PNP · Wiring diagram no. 8 · Connector groups 107, 108, 109, 135, 136									
	M18 / L = 45	10 nf	high-grade st. steel	10...36	IP 67	300	250	139	**IG5846**
M12 connector · Output function ⎍⎽ /⎽⎍ · 2-wire · DC PNP/NPN · Wiring diagram no. 33 · Connector groups 107, 108, 135									
	M18 / L = 90	5 f	high-grade st. steel	10...55	IP 67	700	400	140	**IG5806**

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. 33 · Connector groups 107, 108, 135									
	M18 / L = 77	8 nf	high-grade st. steel	10...55	IP 67	300	300	141	**IG5772**
M12 connector · Output function ⎍ · 3-wire · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 31 · Connector groups 107, 109									
	M18 / L = 70	8 nf	high-grade st. steel	10...36	IP 68 / IP 69K	300	100	118	**IGT240**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 107, 108, 109, 110, 135, 136									
	M30 / L = 92	10 f	high-grade st. steel	10...36	IP 67	250	250	142	**II5689**
	M30 / L = 92	15 nf	high-grade st. steel	10...36	IP 67	200	250	143	**II5776**
M12 connector · Output function ⎍ / ⎍ · 2-wire · DC PNP/NPN · Wiring diagram no. 33 · Connector groups 107, 108, 135									
	M30 / L = 92	10 f	high-grade st. steel	10...55	IP 67	450	400	142	**II5751**
	M30 / L = 78	15 nf	high-grade st. steel	10...55	IP 67	200	400	62	**II5733**

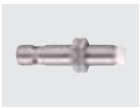
f = flush / nf = non flush

Sensors for oils and coolants with increased sensing range

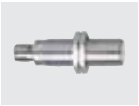
Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Drawing no.	Order no.
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M8 / L = 50	2 f	high-grade st. steel	10...36	IP 67	1000	200	40	**IE5381**
	M8 / L = 50	4 nf	high-grade st. steel	10...36	IP 67	700	200	144	**IE5382**
	M12 / L = 45	4 f	brass	10...36	IP 68	700	100	1	**IFC204**
	M12 / L = 45	4 f	brass	10...36	IP 68	700	100	1	**IFC206**

You can find wiring diagrams and scale drawings from page 114

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 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M12 / L = 60	4 f	brass	10...36	IP 68	700	200	126	**IFC229**
	M12 / L = 70	4 f	brass	10...36	IP 68	700	100	3	**IFC237**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 2 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M12 / L = 45	4 f	brass	10...36	IP 68	700	100	1	**IFC207**
	M12 / L = 45	4 f	brass	10...36	IP 68	700	100	1	**IFC209**
M12 connector · Output function ⎍ · 2-wire · DC PNP/NPN · Wiring diagram no. 32 · Connector groups 9, 11, 107, 108, 135									
	M12 / L = 45	4 f	brass	10...30	IP 68	700	100	1	**IFC200**
M12 connector · Output function ⎍ · 2-wire · DC PNP/NPN · Wiring diagram no. 40 · Connector groups 9, 11, 107, 108, 135									
	M12 / L = 45	4 f	brass	10...30	IP 68	700	100	1	**IFC202**
M12 connector · Output function ⎍ · 3-wire · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 31 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M12 / L = 70	4 f	brass	10...30	IP 68	500	100	3	**IFC210**
M12 connector · Output function ⎍ / ⎍ · 2-wire · DC PNP/NPN · Wiring diagram no. 33 · Connector groups 9, 11, 107, 108, 135									
	M12 / L = 60	4 f	brass	10...36	IP 68	700	100	126	**IFC234**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M12 / L = 50	7 nf	brass	10...36	IP 68	700	100	2	**IFC205**
	M12 / L = 60	7 nf	brass	10...36	IP 68	700	200	145	**IFC230**
	M12 / L = 70	7 nf	brass	10...36	IP 68	700	100	4	**IFC238**

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 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M12 / L = 50	7 nf	brass	10...36	IP 68	700	100	2	**IFC208**
M12 connector · Output function ⎍ · 2-wire · DC PNP/NPN · Wiring diagram no. 32 · Connector groups 9, 11, 107, 108, 135									
	M12 / L = 50	7 nf	brass	10...30	IP 68	700	100	2	**IFC201**
M12 connector · Output function ⎍/⎍ · 2-wire · DC PNP/NPN · Wiring diagram no. 33 · Connector groups 9, 11, 107, 108, 135									
	M12 / L = 60	7 nf	brass	10...36	IP 68	500	100	145	**IFC235**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M18 / L = 46	8 f	brass	10...36	IP 68	400	100	7	**IGC204**
	M18 / L = 46	8 f	brass	10...36	IP 68	400	100	7	**IGC206**
	M18 / L = 60	8 f	brass	10...36	IP 68	400	200	63	**IGC221**
	M18 / L = 70	8 f	brass	10...36	IP 68	400	100	9	**IGC224**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 2 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M18 / L = 46	8 f	brass	10...36	IP 68	400	100	7	**IGC207**
	M18 / L = 46	8 f	brass	10...36	IP 68	400	100	7	**IGC209**
M12 connector · Output function ⎍ · 2-wire · DC PNP/NPN · Wiring diagram no. 32 · Connector groups 9, 11, 107, 108, 135									
	M18 / L = 46	8 f	brass	10...30	IP 68	400	100	7	**IGC200**
M12 connector · Output function ⎍ · 2-wire · DC PNP/NPN · Wiring diagram no. 40 · Connector groups 9, 11, 107, 108, 135									
	M18 / L = 46	8 f	brass	10...30	IP 68	300	100	7	**IGC202**

You can find wiring diagrams and scale drawings from page 114

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. 33 · Connector groups 9, 11, 107, 108, 135									
	M18 / L = 70	8 f	brass	10...30	IP 68	400	100	9	**IGC222**
M12 connector · Output function ⎍ · 3-wire · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 31 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M18 / L = 70	8 f	brass	10...30	IP 68	400	100	9	**IGC210**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M18 / L = 51	12 nf	brass	10...36	IP 68	300	100	8	**IGC205**
	M18 / L = 60	12 nf	brass	10...36	IP 68	300	200	64	**IGC220**
	M18 / L = 70	12 nf	brass	10...36	IP 68	300	100	10	**IGC225**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 2 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M18 / L = 51	12 nf	brass	10...36	IP 68	300	100	8	**IGC208**
M12 connector · Output function ⎍ · 2-wire · DC PNP/NPN · Wiring diagram no. 32 · Connector groups 9, 11, 107, 108, 135									
	M18 / L = 51	12 nf	brass	10...30	IP 68	250	100	8	**IGC201**
M12 connector · Output function ⎍ · 2-wire · DC PNP/NPN · Wiring diagram no. 40 · Connector groups 9, 11, 107, 108, 135									
	M18 / L = 51	12 nf	brass	10...30	IP 68	250	100	8	**IGC203**
M12 connector · Output function ⎍ / ⎍ · 2-wire · DC PNP/NPN · Wiring diagram no. 33 · Connector groups 9, 11, 107, 108, 135									
	M18 / L = 70	12 nf	brass	10...36	IP 68	300	100	10	**IGC223**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M30 / L = 50	15 f	brass	10...36	IP 68	100	100	14	**IIC200**
	M30 / L = 60	15 f	brass	10...36	IP 68	100	200	146	**IIC206**

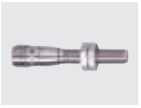
Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Drawing no.	Order no.
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M30 / L = 70	15 f	high-grade st. steel	10...36	IP 68	100	100	16	**IIC210**
M12 connector · Output function ⎍ / ⎍ · 2-wire · DC PNP/NPN · Wiring diagram no. 33 · Connector groups 9, 11, 107, 108, 135									
	M30 / L = 70	15 f	brass	10...30	IP 68	100	100	16	**IIC208**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M30 / L = 50	22 nf	brass	10...36	IP 68	100	100	15	**IIC201**
	M30 / L = 60	22 nf	brass	10...36	IP 68	100	200	147	**IIC207**
	M30 / L = 70	22 nf	high-grade st. steel	10...36	IP 68	100	100	17	**IIC211**
M12 connector · Output function ⎍ / ⎍ · 2-wire · DC PNP/NPN · Wiring diagram no. 33 · Connector groups 9, 11, 107, 108, 135									
	M30 / L = 70	22 nf	brass	10...30	IP 68	100	100	17	**IIC209**

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]	Drawing no.	Order no.
M8 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 1, 2, 3, 68									
	M8 / L = 50	2 f	high-grade st. steel	10...36	IP 67	100	100	148	**IEC201**
M8 connector · Output function ⎍ · 3-wire · DC NPN · Wiring diagram no. 19 · Connector groups 1, 3, 68									
	M8 / L = 50	2 f	high-grade st. steel	10...36	IP 67	100	100	148	**IEC202**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 107, 108, 109, 110, 135, 136									
	M8 / L = 60	2 f	high-grade st. steel	10...36	IP 67 / IP 68	100	100	149	**IEC200**

You can find wiring diagrams and scale drawings from page 114

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. 19 · Connector groups 9, 11, 107, 108, 135									
	M8 / L = 60	2 f	high-grade st. steel	10...36	IP 67 / IP 68	100	100	149	**IEC203**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M12 / L = 60	3 f	high-grade st. steel	10...36	IP 67 / IP 68	100	100	126	**IFC258**
M12 connector · Output function ⎍ · 3-wire · DC NPN · Wiring diagram no. 19 · Connector groups 9, 11, 107, 108, 135									
	M12 / L = 60	3 f	high-grade st. steel	10...36	IP 67 / IP 68	100	100	126	**IFC266**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M18 / L = 70	5 f	high-grade st. steel	10...36	IP 67 / IP 68	100	100	54	**IGC248**
M12 connector · Output function ⎍ · 3-wire · DC NPN · Wiring diagram no. 19 · Connector groups 9, 11, 107, 108, 135									
	M18 / L = 70	5 f	high-grade st. steel	10...36	IP 67 / IP 68	100	100	54	**IGC252**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M30 / L = 70	10 f	high-grade st. steel	10...36	IP 67 / IP 68	50	100	129	**IIC224**
M12 connector · Output function ⎍ · 3-wire · DC NPN · Wiring diagram no. 19 · Connector groups 9, 11, 107, 108, 135									
	M30 / L = 70	10 f	high-grade st. steel	10...36	IP 67 / IP 68	50	100	129	**IIC226**

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]	Drawing no.	Order no.
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M12 / L = 60	2.5 f	high-grade st. steel	10...36	IP 68	100	100	126	**IFC263**

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 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M12 / L = 60	2.5 f	high-grade st. steel	10...36	IP 68	100	100	126	**IFC264**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M18 / L = 70	4.5 f	high-grade st. steel	10...36	IP 68	100	100	150	**IGC249**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 2 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M18 / L = 70	4.5 f	high-grade st. steel	10...36	IP 68	100	100	150	**IGC250**

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.
M8 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 1, 2, 3, 68									
	M8 / L = 65	1.5 f	high-grade st. steel	10...30	IP 67	1000	200	151	**IE5390**
	M8 / L = 65	4 nf	high-grade st. steel	10...30	IP 67	1000	200	152	**IE5391**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 97, 98, 99, 100									
	M12 / L = 65	3 f	brass	10...30	IP 68	> 2000	200	153	**IFC259**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M12 / L = 65	8 nf	high-grade st. steel	10...30	IP 68	> 2000	200	154	**IFC246**
	M18 / L = 65	5 f	high-grade st. steel	10...30	IP 68	> 2000	200	155	**IGC232**

You can find wiring diagrams and scale drawings from page 114

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 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M18 / L = 65	12 nf	high-grade st. steel	10...30	IP 68	> 2000	200	156	**IGC233**
	M30 / L = 65	10 f	high-grade st. steel	10...30	IP 68	1000	200	157	**IIC218**
	M30 / L = 65	22 nf	high-grade st. steel	10...30	IP 68	1000	200	158	**IIC219**

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.
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M12 / L = 45	4 f	brass	10...36	IP 68	700	100	1	**IFC206**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 2 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M12 / L = 45	4 f	brass	10...36	IP 68	700	100	1	**IFC209**
M12 connector · Output function ⎍ · 3-wire · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 31 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M12 / L = 70	4 f	brass	10...30	IP 68	500	100	3	**IFC210**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 2 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M18 / L = 46	8 f	brass	10...36	IP 68	400	100	7	**IGC209**
M12 connector · Output function ⎍ · 3-wire · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 31 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M18 / L = 70	8 f	brass	10...30	IP 68	400	100	9	**IGC210**

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 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M30 / L = 60	15 f	brass	10...36	IP 68	100	200	146	**IIC206**

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]	Drawing no.	Order no.
M12 connector · 2-wire · AS-i · Wiring diagram no. 9 · Connector groups 9, 11, 107, 108, 135									
	M12 / L = 60	4 f	high-grade st. steel	26.5...31.6	IP 68	100	–	126	**IFC247**
	M18 / L = 60	8 f	high-grade st. steel	26.5...31.6	IP 68	100	–	63	**IGC234**
	M18 / L = 60	12 nf	high-grade st. steel	26.5...31.6	IP 68	100	–	64	**IGC235**
	M30 / L = 60	14 f	high-grade st. steel	26.5...31.6	IP 68	100	–	146	**IIC220**
	M30 / L = 60	22 nf	high-grade st. steel	26.5...31.6	IP 68	100	–	147	**IIC221**

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.
Cable 2 m · Output function ⎍ · 2-wire · DC PNP/NPN · Wiring diagram no. 41									
	M8 / L = 42	2 f	brass	10...55	IP 67	1000	100	159	**IE9203**
Cable with connector 0.8 m · Output function ⎍ · 2-wire · DC PNP/NPN · Wiring diagram no. 21 · Connector groups 9, 11, 107, 108, 135									
	M8 / L = 42	2 f	brass	10...55	IP 67	1000	100	160	**IE9902**

You can find wiring diagrams and scale drawings from page 114

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. 21 · Connector groups 9, 11, 107, 108, 135									
	M8 / L = 69	1 f	brass	5...36	IP 65	2000	200	43	**IE9940**
Cable 2 m · Output function ⎍ · 2-wire · DC PNP/NPN · Wiring diagram no. 41									
	M12 / L = 54	2 f	brass	10...55	IP 67	800	100	161	**IF9222**
Cable with connector 0.8 m · Output function ⎍ · 2-wire · DC PNP/NPN · Wiring diagram no. 21 · Connector groups 9, 11, 107, 108, 135									
	M12 / L = 54	2 f	brass	10...55	IP 67	800	100	162	**IF9920**
Cable 2 m · Output function ⎍ · 2-wire · DC PNP/NPN · Wiring diagram no. 22									
	M18 / L = 54	5 f	brass	10...55	IP 67	700	400	163	**IG5682**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M12 / L = 45	2 f	brass	10...36	IP 68	700	200	1	**IFC239**
	M12 / L = 60	2 f	brass	10...36	IP 68	700	200	126	**IFC243**
	M12 / L = 70	2 f	brass	10...36	IP 68	700	200	3	**IFC241**
M12 connector · Output function ⎍ · 2-wire · DC PNP/NPN · Wiring diagram no. 21 · Connector groups 9, 11, 107, 108, 135									
	M12 / L = 60	2 f	brass	10...55	IP 67	800	100	164	**IF9924**
Cable with connector 0.8 m · Output function ⎍ · 2-wire · DC PNP/NPN · Wiring diagram no. 21 · Connector groups 9, 11, 107, 108, 135									
	M18 / L = 58	5 f	brass	10...55	IP 67	700	400	165	**IG9984**
M12 connector · Output function ⎍ · 2-wire · DC PNP/NPN · Wiring diagram no. 21 · Connector groups 9, 11, 107, 108, 135									
	M18 / L = 65	5 f	brass	10...55	IP 67	700	400	166	**IG9983**

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 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M30 / L = 50	15 nf	high-grade st. steel	10...36	IP 68	100	200	15	**IIC213**

f = flush / nf = non flush

Sensors for oils and coolants, rectangular housings

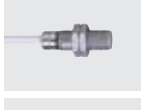
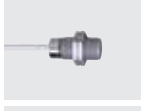
Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Drawing no.	Order no.
Cable with connector 0.8 m · Output function ⎍⎓ · 2-wire · DC PNP/NPN · Wiring diagram no. 21 · Connector groups 9, 11, 107, 108, 135									
	26 x 26 x 26	10 f	polyamide	10...36	IP 67	250	100	167	**IO5017**
Cable with connector 0.15 m · Output function ⎍⎓ · 2-wire · DC PNP/NPN · Wiring diagram no. 21 · Connector groups 9, 11, 107, 108, 135									
	26 x 26 x 26	10 f	polyamide	10...36	IP 67	250	100	167	**IO5018**
M12 connector · Output function ⎍⎓ · 2-wire · DC PNP/NPN · Wiring diagram no. 21 · Connector groups 9, 11, 107, 108, 135									
	26 x 26 x 43	10 f	polyamide	10...36	IP 67	250	100	168	**IO5016**
Cable with connector 0.8 m · Output function ⎍⏚ · 2-wire · DC PNP/NPN · Wiring diagram no. 42 · Connector groups 9, 11, 107, 108, 135									
	40 x 40 x 54	15 f	PA (polyamide)	10...36	IP 67	200	100	169	**IM5137**
Cable with connector 0.8 m · Output function ⎍⎓ · 2-wire · DC PNP/NPN · Wiring diagram no. 43 · Connector groups 9, 11, 107, 108, 135									
	40 x 40 x 54	15 f	PA (polyamide)	10...36	IP 67	200	100	169	**IM5138**
M12 connector · Output function ⎍⎓ · 2-wire · DC PNP/NPN · Wiring diagram no. 43 · Connector groups 9, 11, 107, 108, 135									
	40 x 40 x 54	15 f	PA (polyamide)	10...36	IP 67	200	100	170	**IM5127**

f = flush / nf = non flush

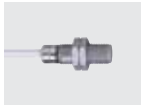
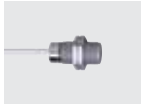
You can find wiring diagrams and scale drawings from page 114

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]	Drawing no.	Order no.
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 97, 98, 99, 100									
	M8 / L = 60	2 f	high-grade st. steel	10...36	IP 67 / IP 68	100	100	149	**IER200**
M12 connector · Output function ⎍ · 3-wire · DC NPN · Wiring diagram no. 19 · Connector groups 97, 99, 100									
	M8 / L = 60	2 f	high-grade st. steel	10...36	IP 67 / IP 68	100	100	149	**IER201**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 97, 98, 99, 100									
	M12 / L = 60	4 f	high-grade st. steel	10...36	IP 67	2	100	126	**IFR200**
M12 connector · Output function ⎍ · 3-wire · DC NPN · Wiring diagram no. 19 · Connector groups 97, 99, 100									
	M12 / L = 60	4 f	high-grade st. steel	10...36	IP 67	2	100	126	**IFR202**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 97, 98, 99, 100									
	M18 / L = 70	6 f	high-grade st. steel	10...36	IP 67	2	100	54	**IGR200**
M12 connector · Output function ⎍ · 3-wire · DC NPN · Wiring diagram no. 19 · Connector groups 97, 99, 100									
	M18 / L = 70	6 f	high-grade st. steel	10...36	IP 67	2	100	54	**IGR202**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 97, 98, 99, 100									
	M30 / L = 70	12 f	high-grade st. steel	10...36	IP 67	2	100	129	**IIR200**
M12 connector · Output function ⎍ · 3-wire · DC NPN · Wiring diagram no. 19 · Connector groups 97, 99, 100									
	M30 / L = 70	12 f	high-grade st. steel	10...36	IP 67	2	100	129	**IIR202**
Cable with connector 0.3 m · Output function ⎍ · 2-wire · DC PNP/NPN · Wiring diagram no. 21 · Connector groups 97, 99, 100									
	M8 / L = 45	2 f	high-grade st. steel	10...36	IP 67	150	100	171	**IER203**

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Drawing no.	Order no.
Cable with connector 0.3 m · Output function ⎓ · 2-wire · DC PNP/NPN · Wiring diagram no. 23 · Connector groups 97, 99, 100									
	M8 / L = 45	2 f	high-grade st. steel	10...36	IP 67	150	100	171	**IER206**
Cable with connector 0.3 m · Output function ⎓ · 2-wire · DC PNP/NPN · Wiring diagram no. 21 · Connector groups 97, 99, 100									
	M12 / L = 40	4 f	high-grade st. steel	10...36	IP 67	75	100	172	**IFR203**
Cable with connector 0.3 m · Output function ⎓ · 2-wire · DC PNP/NPN · Wiring diagram no. 23 · Connector groups 97, 99, 100									
	M12 / L = 40	4 f	high-grade st. steel	10...36	IP 67	75	100	172	**IFR206**
Cable with connector 0.3 m · Output function ⎓ · 2-wire · DC PNP/NPN · Wiring diagram no. 21 · Connector groups 97, 99, 100									
	M18 / L = 40	6 f	high-grade st. steel	10...36	IP 67	50	100	173	**IGR203**
Cable with connector 0.3 m · Output function ⎓ · 2-wire · DC PNP/NPN · Wiring diagram no. 23 · Connector groups 97, 99, 100									
	M18 / L = 40	6 f	high-grade st. steel	10...36	IP 67	50	100	173	**IGR206**
Cable with connector 0.3 m · Output function ⎓ · 2-wire · DC PNP/NPN · Wiring diagram no. 21 · Connector groups 97, 99, 100									
	M30 / L = 40	12 f	high-grade st. steel	10...36	IP 67	25	100	174	**IIR203**
Cable with connector 0.3 m · Output function ⎓ · 2-wire · DC PNP/NPN · Wiring diagram no. 23 · Connector groups 97, 99, 100									
	M30 / L = 40	12 f	high-grade st. steel	10...36	IP 67	25	100	174	**IIR206**
Cable 3 m · Output function ⎓ · 2-wire · DC PNP/NPN · Wiring diagram no. 24									
	M8 / L = 45	2 f	high-grade st. steel	10...36	IP 67	150	100	175	**IER204**
	M12 / L = 40	4 f	high-grade st. steel	10...36	IP 67	75	100	176	**IFR204**
	M18 / L = 40	6 f	high-grade st. steel	10...36	IP 67	50	100	177	**IGR204**
	M30 / L = 40	12 f	high-grade st. steel	10...36	IP 67	25	100	178	**IIR204**

You can find wiring diagrams and scale drawings from page 114

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 ⎍ · 2-wire · DC PNP/NPN · Wiring diagram no. 24									
	M8 / L = 45	2 f	high-grade st. steel	10...36	IP 67	150	100	175	**IER205**
	M12 / L = 40	4 f	high-grade st. steel	10...36	IP 67	75	100	176	**IFR205**
	M18 / L = 40	6 f	high-grade st. steel	10...36	IP 67	50	100	177	**IGR205**
	M30 / L = 40	12 f	high-grade st. steel	10...36	IP 67	25	100	178	**IIR205**

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 97, 98, 99, 100									
	M12 / L = 65	3 f	brass	10...30	IP 67	4000	200	179	**IFW200**
	M12 / L = 65	8 nf	brass	10...30	IP 67	4000	200	180	**IFW201**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M18 / L = 65	5 f	brass	10...30	IP 67	2000	200	155	**IGW200**
	M18 / L = 65	12 nf	brass	10...30	IP 67	2000	200	156	**IGW201**
	M30 / L = 65	10 f	brass	10...30	IP 67	1000	200	157	**IIW200**
	M30 / L = 65	22 nf	brass	10...30	IP 67	1000	200	181	**IIW201**
	40 x 40 x 54	20 f	PA (polyamide)	10...36	IP 67	200	200	94	**IM5119**

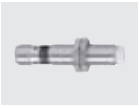
Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Drawing no.	Order no.
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	40 x 40 x 54	35 nf	PA (polyamide)	10...36	IP 67	200	200	94	**IM5120**
	40 x 40 x 54	40 nf	PA (polyamide)	10...36	IP 67	200	200	94	**IM5129**
M12 connector · Output function ⎍+⏚ · 3-wire · DC PNP · Wiring diagram no. 8 · Connector groups 97, 98, 99, 100									
	40 x 40 x 54	20 f	PA (polyamide)	10...36	IP 67	200	200	94	**IM5124**
M12 connector · Output function ⎍+⏚ · 4-wire · DC PNP · Wiring diagram no. 8 · Connector groups 97, 98, 99, 100									
	40 x 40 x 54	35 nf	PA (polyamide)	10...36	IP 67	200	200	94	**IM5125**
	40 x 40 x 54	40 nf	PA (polyamide)	10...36	IP 67	200	200	94	**IM5126**
M12 connector · Output function ⎍+⏚ · 4-wire · DC PNP · Wiring diagram no. 8 · Connector groups 9, 11, 12, 107, 108, 109, 135, 136									
	40 x 40 x 54	20 f	PA (polyamide)	10...36	IP 67	200	200	65	**IM5132**
	40 x 40 x 54	35 nf	PA (polyamide)	10...36	IP 67	200	200	65	**IM5133**
	40 x 40 x 54	40 nf	PA (polyamide)	10...36	IP 67 / IP 69K	200	200	65	**IM5135**

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.
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 97, 98, 99, 100									
	M12 / L = 60	2 f	brass	10...36	IP 67	1000	250	182	**IF5670**
	M12 / L = 60	2 f	brass	10...36	IP 67	1000	250	182	**IF5750**

You can find wiring diagrams and scale drawings from page 114

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 97, 98, 99, 100									
	M12 / L = 60	4 nf	brass	10...36	IP 67	1000	250	183	**IF5675**
	M12 / L = 60	4 nf	brass	10...36	IP 67	1000	250	183	**IF5751**
	M18 / L = 60	5 f	brass	10...36	IP 67	700	250	63	**IG5647**
	M18 / L = 60	5 f	brass	10...36	IP 67	700	250	63	**IG5667**
	M30 / L = 60	10 f	brass	10...36	IP 67	250	250	184	**II5503**
	40 x 40 x 118	15 f	modified PPE	10...60	IP 67	50	200	185	**IV5025**
M12 connector · Output function ⎍+⎍ · 4-wire · DC PNP · Wiring diagram no. 8 · Connector groups 97, 98, 99, 100									
	92 x 80 x 40	50 f	PPE	10...36	IP 67	70	250	99	**ID5059**

f = flush / nf = non flush

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 6 m · Output function ⎍ · 3-wire · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 35									
	M12 / L = 79	4 f	stainless steel	10...36	IP 67 / IP 69K	400	100	186	**IFM207**
Cable 6 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 3									
	M12 / L = 79	4 f	stainless steel	10...60	IP 67 / IP 69K	400	200	186	**IFM209**
Cable 6 m · Output function ⎍ · 3-wire · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 35									
	M12 / L = 79	7 nf	stainless steel	10...36	IP 67 / IP 69K	300	100	187	**IFM208**

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Drawing no.	Order no.
Cable 6 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 3									
	M12 / L = 79	7 nf	high-grade st. steel	10...60	IP 67 / IP 69K	300	200	187	**IFM210**
M12 connector · Output function ⎍ · 3-wire · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 31 · Connector groups 135, 136									
	M12 / L = 70	4 f	high-grade st. steel	10...36	IP 67 / IP 69K	400	100	188	**IFM203**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 135, 136									
	M12 / L = 70	4 f	high-grade st. steel	10...60	IP 67 / IP 69K	400	200	188	**IFM205**
M12 connector · Output function ⎍ · 3-wire · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 31 · Connector groups 135, 136									
	M12 / L = 70	7 nf	high-grade st. steel	10...36	IP 67 / IP 69K	300	100	113	**IFM204**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 135, 136									
	M12 / L = 70	7 nf	stainless steel	10...60	IP 67 / IP 69K	300	200	113	**IFM206**
Cable 6 m · Output function ⎍ · 3-wire · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 35									
	M18 / L = 81	8 f	stainless steel	10...36	IP 67 / IP 69K	200	100	189	**IGM202**
Cable 6 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 3									
	M18 / L = 81	8 f	stainless steel	10...60	IP 67 / IP 69K	200	200	189	**IGM206**
Cable 6 m · Output function ⎍ · 3-wire · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 35									
	M18 / L = 81	12 nf	stainless steel	10...36	IP 67 / IP 69K	200	100	190	**IGM203**
Cable 6 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 3									
	M18 / L = 81	12 nf	stainless steel	10...60	IP 67 / IP 69K	200	200	190	**IGM207**
M12 connector · Output function ⎍ · 3-wire · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 31 · Connector groups 135, 136									
	M18 / L = 70	8 f	stainless steel	10...36	IP 67 / IP 69K	200	100	150	**IGM200**

You can find wiring diagrams and scale drawings from page 114

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 135, 136									
	M18 / L = 70	8 f	stainless steel	10...60	IP 67 / IP 69K	200	200	150	**IGM204**
M12 connector · Output function ⎍ · 3-wire · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 31 · Connector groups 135, 136									
	M18 / L = 70	12 nf	stainless steel	10...36	IP 67 / IP 69K	200	100	191	**IGM201**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 135, 136									
	M18 / L = 70	12 nf	stainless steel	10...60	IP 67 / IP 69K	200	200	191	**IGM205**
Cable 6 m · Output function ⎍ · 3-wire · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 35									
	M30 / L = 81	12 f	stainless steel	10...36	IP 67 / IP 69K	100	100	192	**IIM202**
Cable 6 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 3									
	M30 / L = 81	12 f	stainless steel	10...60	IP 67 / IP 69K	100	200	192	**IIM210**
Cable 6 m · Output function ⎍ · 3-wire · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 35									
	M30 / L = 81	22 nf	stainless steel	10...36	IP 67 / IP 69K	100	100	193	**IIM203**
Cable 6 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 3									
	M30 / L = 81	22 nf	stainless steel	10...60	IP 67 / IP 69K	100	200	193	**IIM211**
M12 connector · Output function ⎍ · 3-wire · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 31 · Connector groups 135, 136									
	M30 / L = 70	12 f	stainless steel	10...36	IP 67 / IP 69K	100	100	16	**IIM200**
M12 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 135, 136									
	M30 / L = 70	12 f	stainless steel	10...60	IP 67 / IP 69K	100	200	16	**IIM208**
M12 connector · Output function ⎍ · 3-wire · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 31 · Connector groups 135, 136									
	M30 / L = 70	22 nf	stainless steel	10...36	IP 67 / IP 69K	100	100	17	**IIM201**

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

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 135, 136									
	M30 / L = 70	22 nf	stainless steel	10...60	IP 67 / IP 69K	100	200	17	**IIM209**
Cable 3 m · Output function ⎍ · 2-wire · DC PNP · Wiring diagram no. 25									
	40 x 12 x 26	4 nf	PBT	10...36	IP 67	70	–	89	**IN5281**
Cable 3 m · Output function ⎍ · 2-wire · DC PNP · Wiring diagram no. 26									
	40 x 12 x 26	4 nf	PBT	10...36	IP 67	70	–	89	**IN5282**

f = flush / nf = non flush

Fail-safe inductive sensors for series connection to IEC 62061 SILcl 3 and ISO 13849-1 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.
M12 connector · Wiring diagram no. 44 · Connector groups 107, 108, 135								
	55	3...6 nf	high-grade st. steel	24	IP 68 / IP 69K	≤ 20 / ≤ 200	194	**GG505S**
	65	1...4 f	brass	24	IP 68 / IP 69K	≤ 20 / ≤ 200	195	**GG507S**
	39	6...12 nf	high-grade st. steel	24	IP 68 / IP 69K	≤ 20 / ≤ 200	196	**GI505S**
	39	6...12 nf	high-grade st. steel	24	IP 68 / IP 69K	≤ 20 / ≤ 200	196	**GI506S**
	66	10...15 nf	PPE	24	IP 65 / IP 67	≤ 20 / ≤ 200	197	**GM504S**
	66	10...20 nf	PPE	24	IP 67	≤ 20 / ≤ 200	197	**GM505S**

f = flush / nf = non flush

You can find wiring diagrams and scale drawings from page 114

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.
M12 connector · Wiring diagram no. 45 · Connector groups 107, 108, 135								
	45	0.5...4 nf	high-grade st. steel	24	IP 65 / IP 67	≤ 1 / ≤ 1	113	**GF711S**
	35	1...8 nf	high-grade st. steel	24	IP 65 / IP 67	≤ 1 / ≤ 1	198	**GG711S**
	44.5	1...5 f	brass	24	IP 65 / IP 67	≤ 1 / ≤ 1	199	**GG712S**
M12 connector · Wiring diagram no. 27 · Connector groups 107, 108, 135								
	53	> 10 f	brass	24	IP 65 / IP 67	≤ 5 / ≤ 5	200	**GG851S**
M12 connector · Wiring diagram no. 45 · Connector groups 107, 108, 135								
	30	1...15 nf	high-grade st. steel	24	IP 65 / IP 67	≤ 10 / ≤ 1	201	**GI711S**
	45	1...10 f	high-grade st. steel	24	IP 65 / IP 67	≤ 10 / ≤ 1	202	**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.
M12 connector · Wiring diagram no. 45 · Connector groups 107, 108, 135								
	39	6...12 nf	high-grade st. steel	24	IP 68 / IP 69K	≤ 50 / ≤ 200	196	**GI701S**
	66	10...15 nf	PPE	24	IP 65 / IP 67	≤ 50 / ≤ 200	197	**GM701S**
	66	4...20 nf	PPE	24	IP 65 / IP 67	≤ 50 / ≤ 200	197	**GM705S**

f = flush / nf = non flush

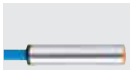
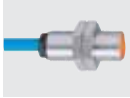
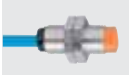
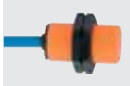
Safety relays with relay outputs for fail-safe sensors

Type	Description	Order no.
	Safety relay · Terminal block Phoenix Contact MSTBO · For the connection of electronic and mechanical fail-safe sensors/switches and for use as two-hand control · Housing materials: PA · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3 · EN 574: type IIIC	**G1501S**
	Safety relay · Terminal block Phoenix Contact MSTBO · For the connection of electronic and mechanical fail-safe sensors/switches and for use as two-hand control · Housing materials: PA · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3 · EN 574: type IIIC	**G1502S**

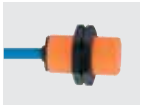
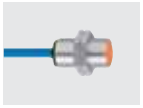
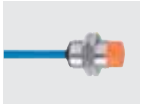
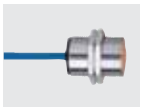
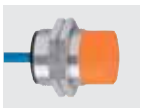
Safety relays with solid state outputs for fail-safe sensors

Type	Description	Order no.
	Safety relay · Terminal block Phoenix Contact MSTBO · For the connection of electronic and mechanical fail-safe sensors/switches and for use as two-hand control · Housing materials: PA · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3 · EN 574: type IIIC	**G1503S**

Sensors with ATEX approval 1D / 2G

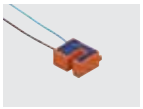
Type	Dimensions [mm]	Sensing range [mm]	Material	$U_{nom.}$ at 1 KΩ [V]	U_b [V]	Internal capacit. [nF]	Internal inductance [µH]	f [Hz]	Drawing no.	Order no.
Cable 2 m · Output function ⏦ · 2-wire · Connection to certified intrinsically safe circuits with the max. values U = 15 V / I = 50 mA / P = 120 mW · Wiring diagram no. 28										
	Ø 6.5 / L = 30	1 f	brass	8.2 DC	7.5...30	80	70	2000	203	**NT5001**
	M8 / L = 30	1 f	brass	8.2 DC	7.5...30	80	70	2000	204	**NE5001**
	M12 / L = 30	2 f	PBT	8.2 DC	7.5...30	140	340	1200	205	**NF5001**
	M12 / L = 30	4 nf	PBT	8.2 DC	7.5...30	140	130	1500	205	**NF5003**
	M12 / L = 30	2 f	brass	8.2 DC	7.5...30	140	340	1200	205	**NF5002**
	M12 / L = 30	4 nf	brass	8.2 DC	7.5...30	140	130	1500	206	**NF5004**
	M18 / L = 33	5 f	PBT	8.2 DC	7.5...30	145	45	720	207	**NG5001**

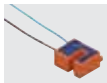
You can find wiring diagrams and scale drawings from page 114

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 · Connection to certified intrinsically safe circuits with the max. values U = 15 V / I = 50 mA / P = 120 mW · Wiring diagram no. 28										
	M18 / L = 33	8 nf	PBT	8.2 DC	7.5...30	155	50	300	207	**NG5003**
	M18 / L = 33	5 f	brass	8.2 DC	7.5...30	145	45	720	207	**NG5002**
	M18 / L = 33	8 nf	brass	8.2 DC	7.5...30	155	50	300	208	**NG5004**
	M30 / L = 41	10 f	PBT	8.2 DC	7.5...30	145	140	450	209	**NI5001**
	M30 / L = 41	15 nf	PBT	8.2 DC	7.5...30	145	110	200	209	**NI5003**
	M30 / L = 41	10 f	brass	8.2 DC	7.5...30	145	140	450	209	**NI5002**
	M30 / L = 41	15 nf	brass	8.2 DC	7.5...30	145	110	200	210	**NI5004**
	28 x 10 x 16	2 f	PBT	8.2 DC	7.5...30	80	110	800	211	**NS5002**
	40 x 12 x 26	4 nf	PBT	8.2 DC	7.5...30	110	135	400	212	**NN5002**

f = flush / nf = non flush

Slot sensors for industrial applications

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Draw-ing no.	Order no.
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	–	213	**N7S20A**
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. 29									
	Special design	–	PBT	–	IP 67	3000	–	214	**N7S21A**

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Drawing no.	Order no.
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. 30									
	special design	–	PBT	–	IP 67	3000	–	215	**N7S23A**

Switching amplifiers with ATEX approval

Type	Description	Order no.
	Switching amplifier for Namur sensors according to 94/9/EG (ATEX) · NV1121/230VAC/RL/1D/1G · 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) · NV1221/115VAC/RL/1D/1G · 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) · NV1221/230VAC/RL/1D/1G · ATEX approval · Group II, category (1) G D · 2-channel · Relay outputs · Programmable output function · Short-circuit and wire monitoring	**N0033A**
	Switching amplifier for Namur sensors according to 94/9/EG (ATEX) · NV1121/24VDC/RL/1D/1G · 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) · NV1122/24VDC/TR/1D/1G · 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) · NV1223/24VDC/OK/1D/1G · 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) · NV1221/24VDC/RL/1D/1G · 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) · NV1222/24VDC/TR/1D/1G · 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: V4A	**E11530**
	Mounting clip · Ø 18 mm · for smooth body switches - Ø 18 mm · Form V · Housing materials: V4A	**E11531**

You can find wiring diagrams and scale drawings from page 114

Type	Description	Order no.
	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 · Form O · 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 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**
	Mounting sleeve · M16 x 1 - Ø 12 mm · with end stop · for type M12 · Housing materials: brass nickel-plated	**E11114**

Accessories for threaded M18 housings

Type	Description	Order no.
	Angle bracket · for type M18 · Housing materials: stainless steel	**E10736**
	Mounting clip · Form O · 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 sleeve · M24 x 1.5 - Ø 18 mm · 58 mm · with end stop · for type M18 · Housing materials: brass nickel-plated	**E10742**

You can find wiring diagrams and scale drawings from page 114

Type	Description	Order no.
	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

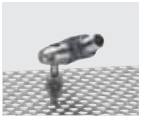
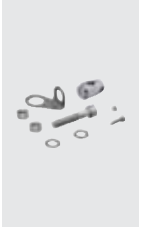
Accessories for threaded M30 housings

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 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

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, OW · 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**
	Mounting set · Ø 18.5 mm · Clamp mounting · free-standing M10 · for type OG, IG, KG · Housing materials: clamp: diecast zinc / fixture: steel	**E20719**
	Angle bracket · Clamp mounting · for type IW, OW, KQ5 · Housing materials: stainless steel 316Ti / 1.4571	**E20811**
	Protective bracket · for cable units · for type IW, KW, OW · Housing materials: stainless steel 316Ti / 1.4571	**E20813**
	Protective bracket · for devices with M8 connection · for type OW, 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**

You can find wiring diagrams and scale drawings from page 114

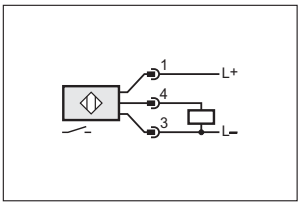
Type	Description	Order no.
	Mounting set · Ø 18.5 mm · Clamp mounting · free-standing M10 · for type OG, IG, KG · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: stainless steel	E20870
	Mounting set · Ø 30.2 mm · Clamp mounting · free-standing M12 · for type OI, II, KI · Housing materials: 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 OI, II, KI · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: diecast zinc / Cube: diecast zinc	E20875

Wiring diagrams

Core colours

BN	brown
BU	blue
BK	black
WH	white

1



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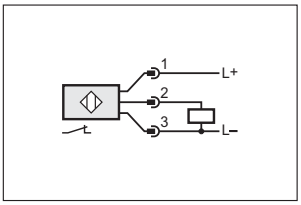

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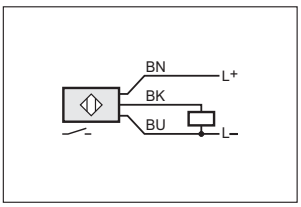

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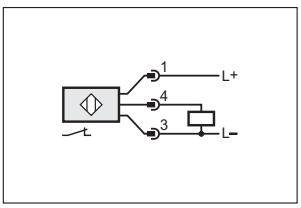

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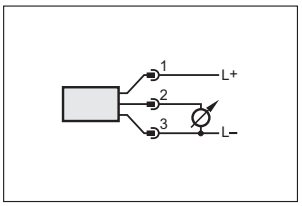

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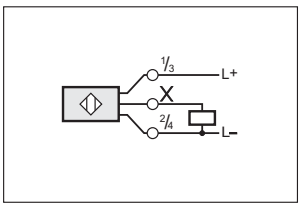

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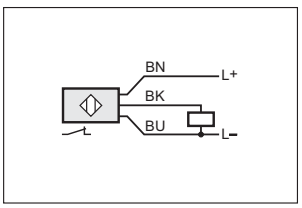

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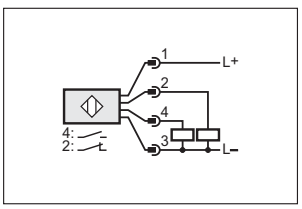

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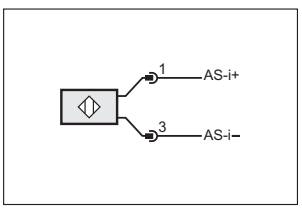

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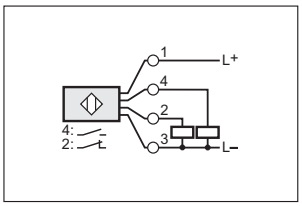

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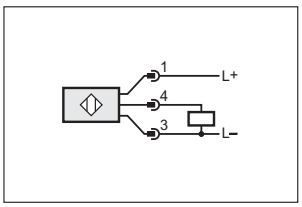

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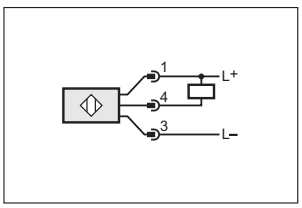

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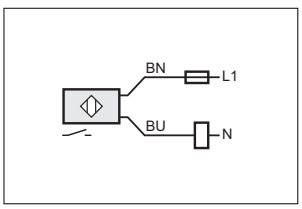

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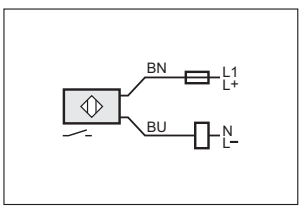

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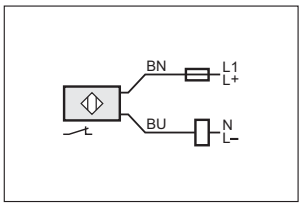

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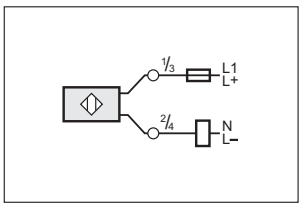

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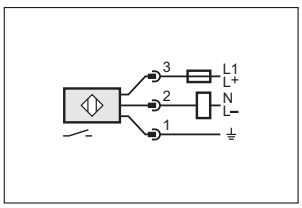

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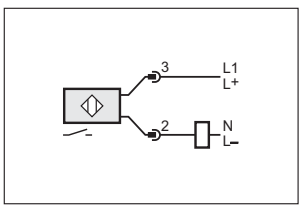

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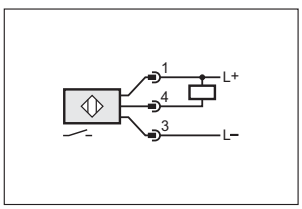

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Wiring diagrams

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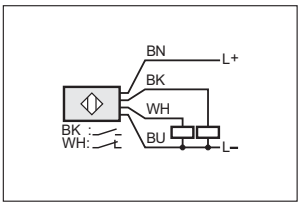

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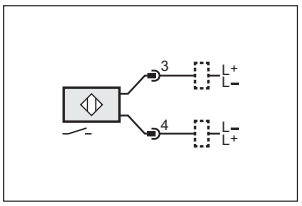

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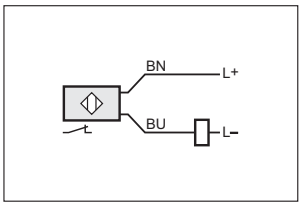

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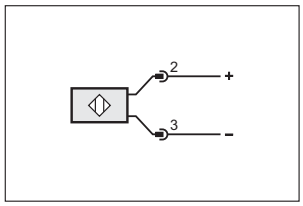

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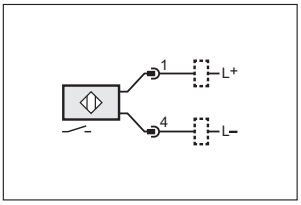

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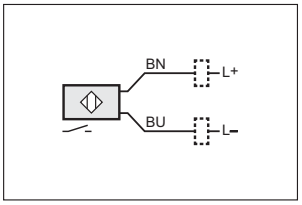

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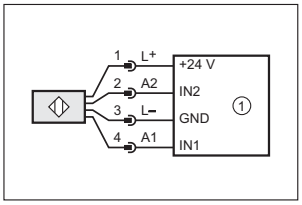

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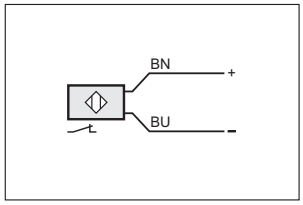

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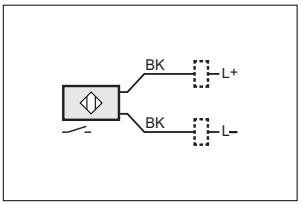

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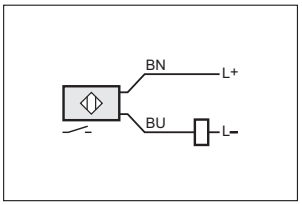

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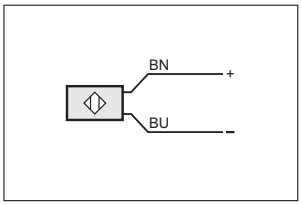

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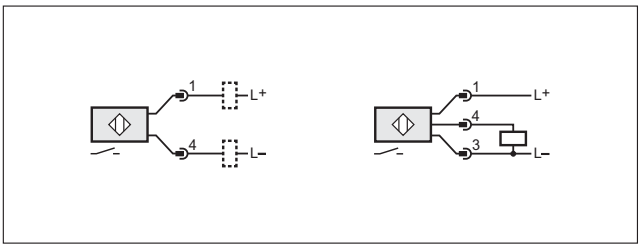

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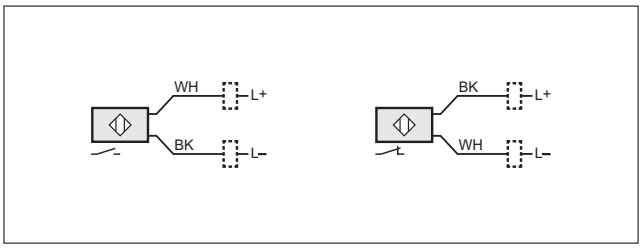

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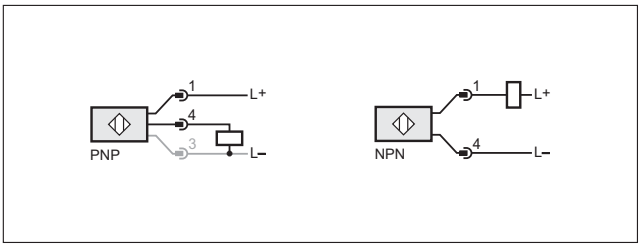

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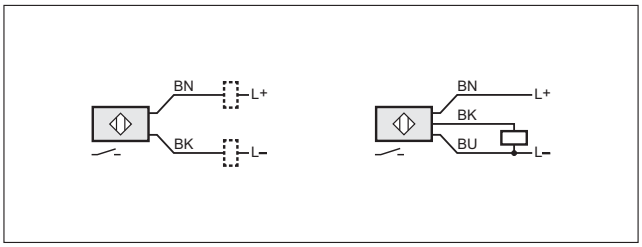

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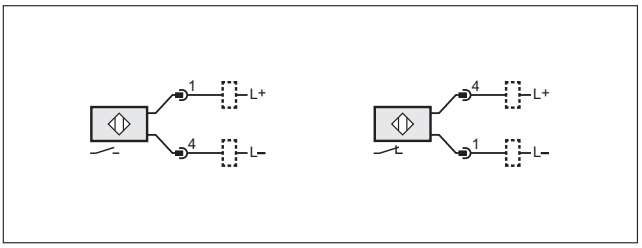

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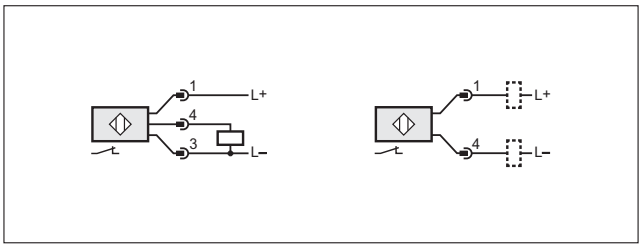

Wiring diagrams

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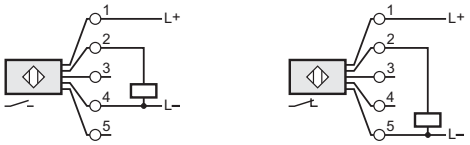

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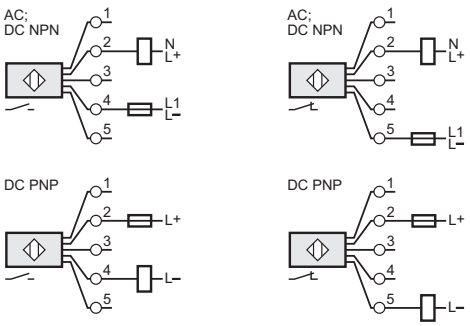

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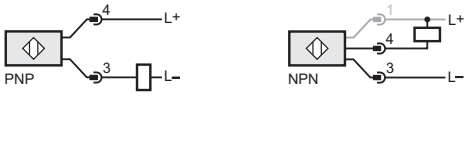

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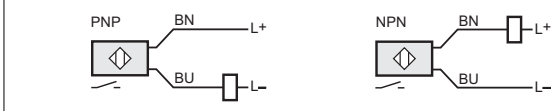

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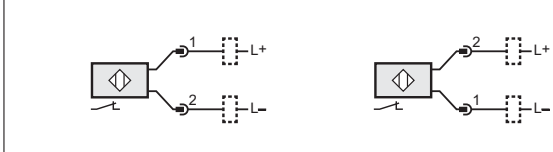

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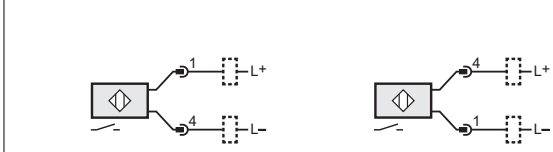

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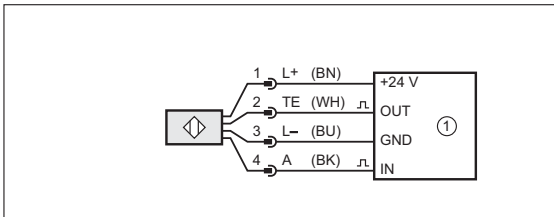

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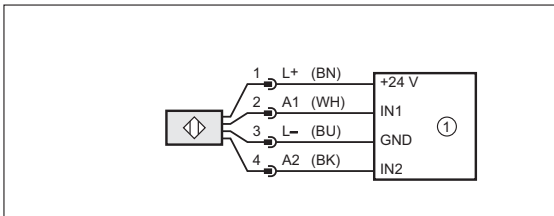

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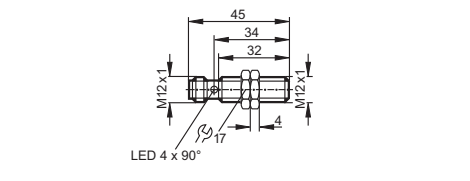

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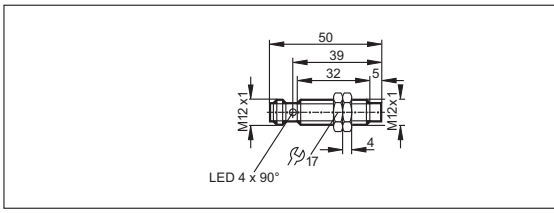

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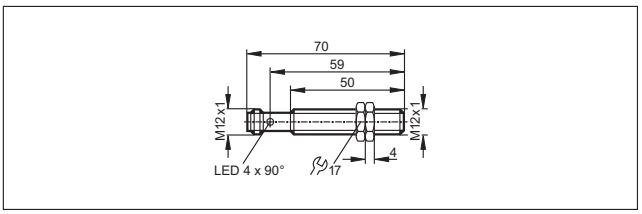

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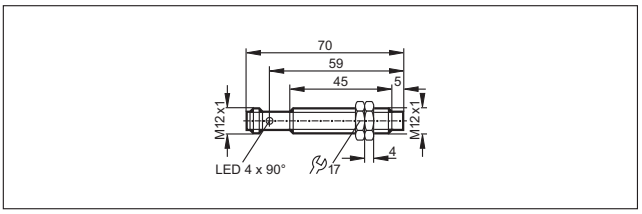

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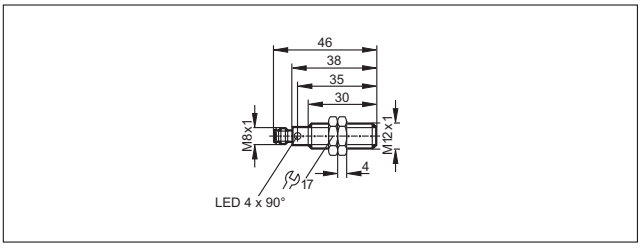

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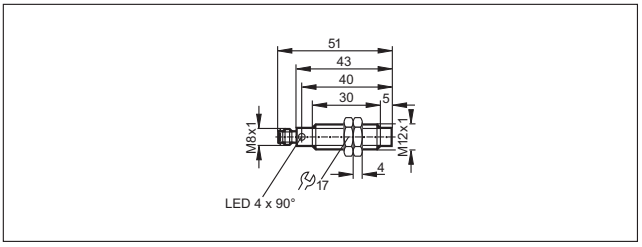

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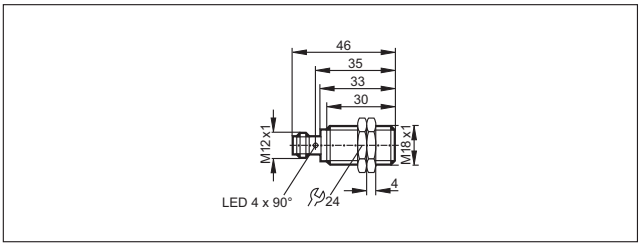

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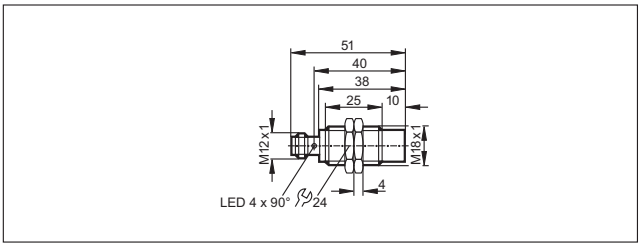

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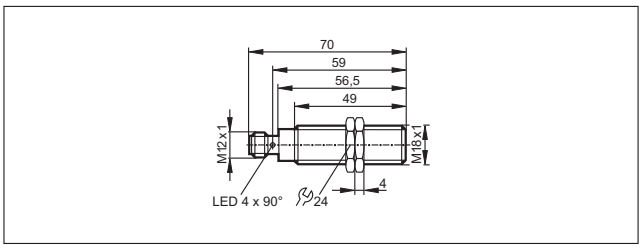

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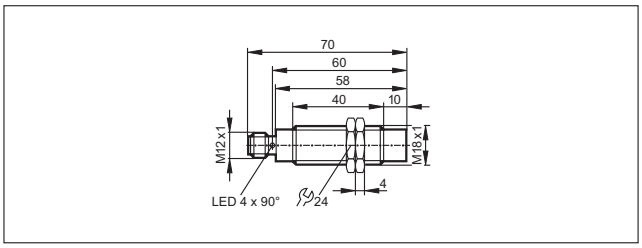

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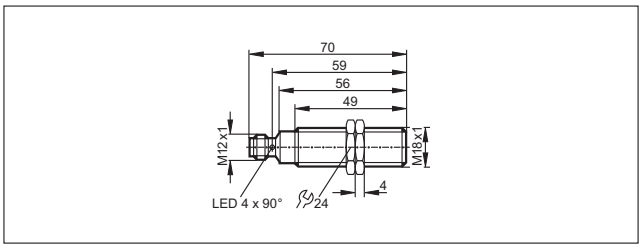

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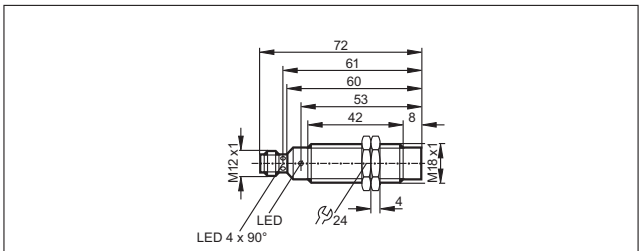

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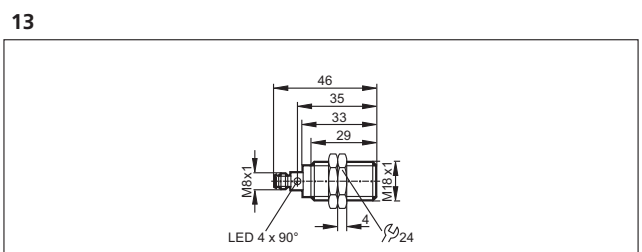

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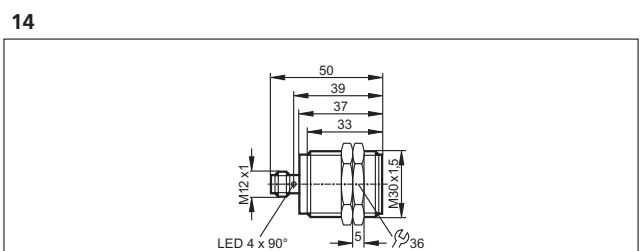

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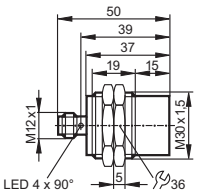

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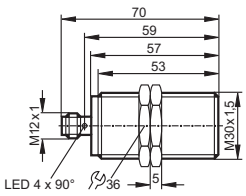

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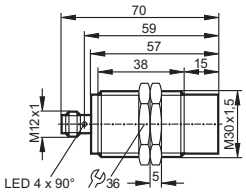

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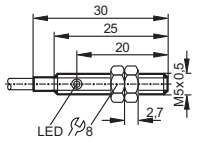

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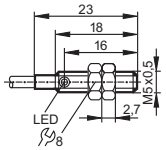

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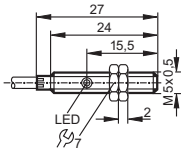

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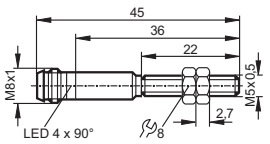

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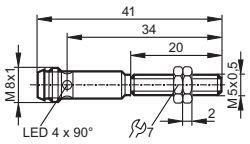

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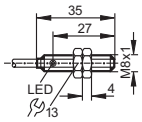

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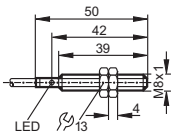

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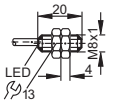

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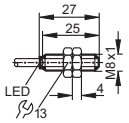

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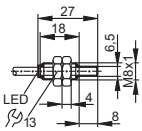

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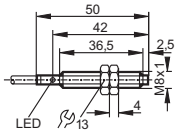

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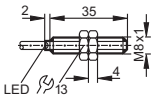

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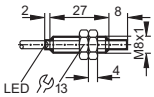

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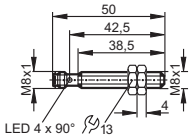

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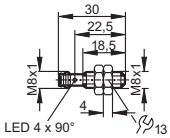

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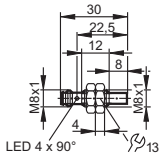

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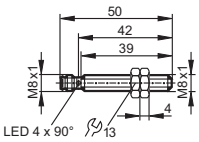

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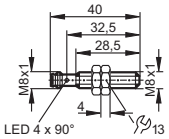

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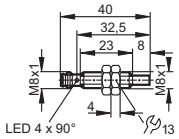

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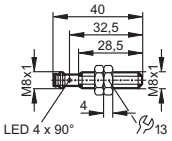

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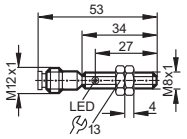

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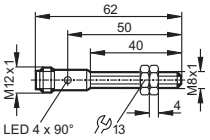

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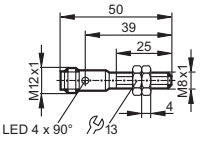

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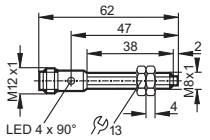

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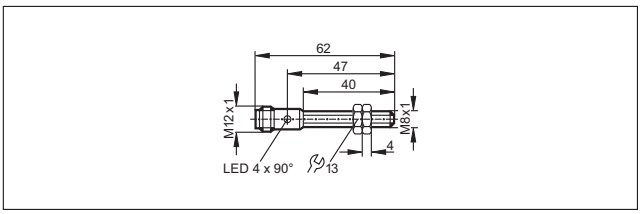

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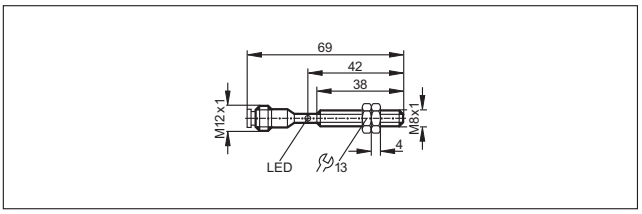

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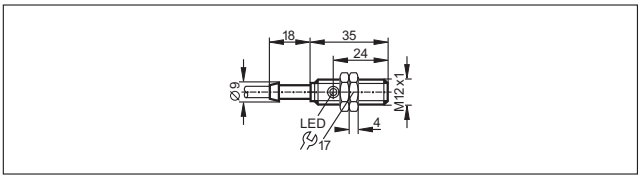

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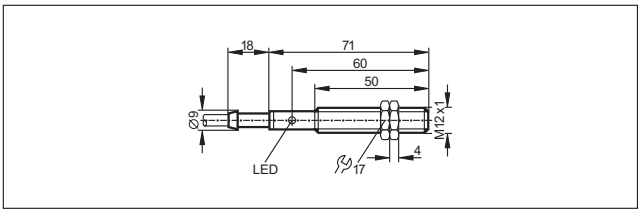

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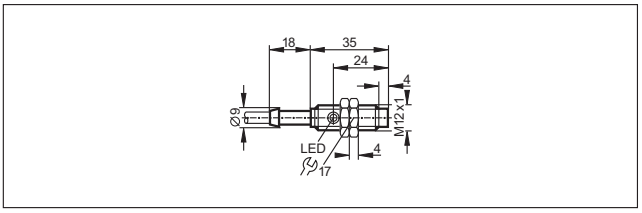

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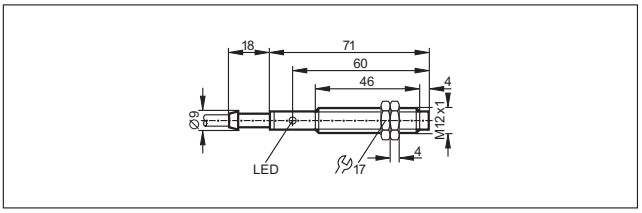

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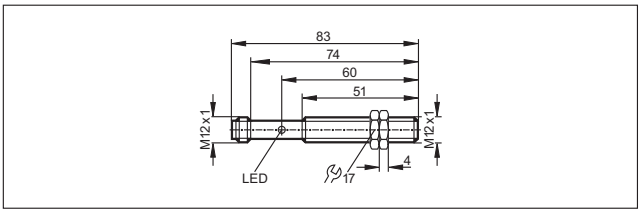

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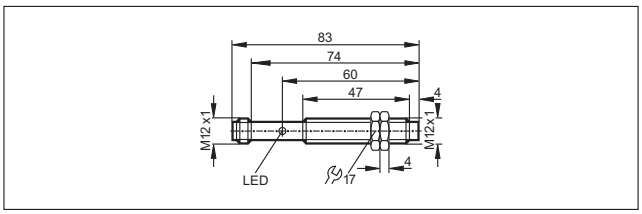

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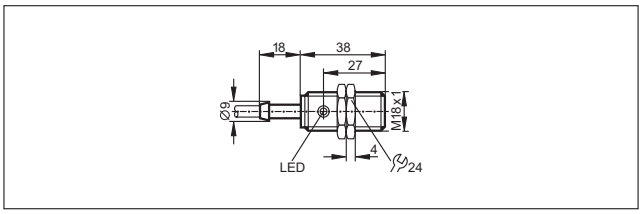

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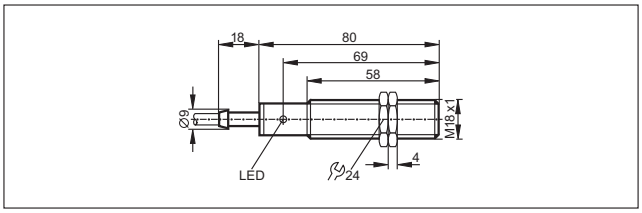

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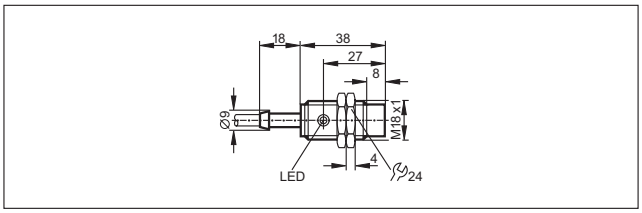

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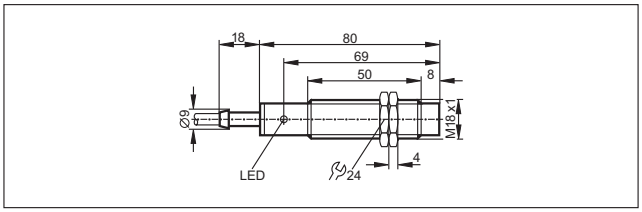

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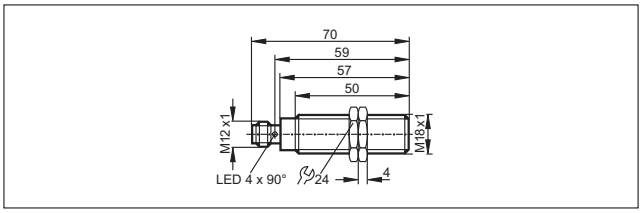

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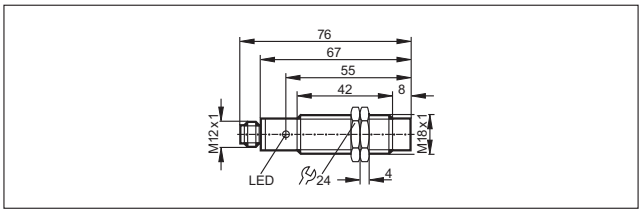

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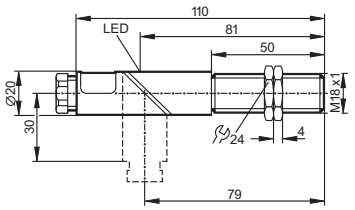

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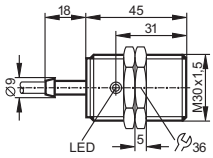

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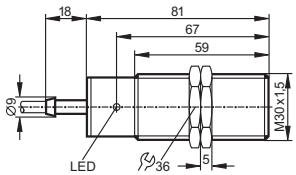

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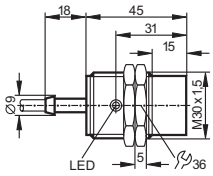

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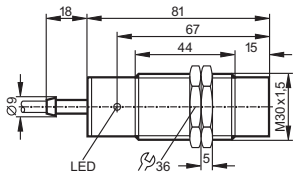

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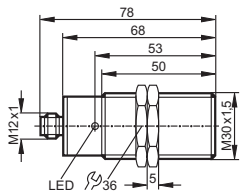

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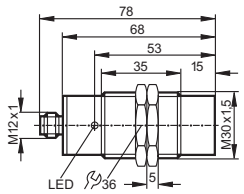

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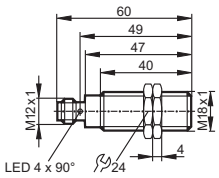

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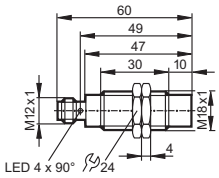

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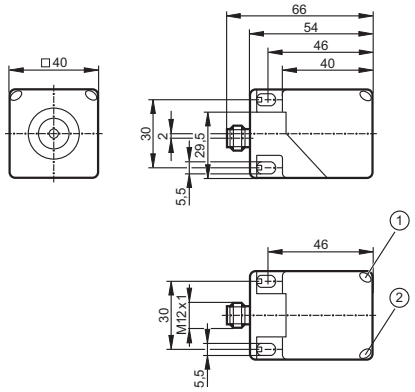
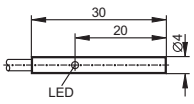


1: LED yellow, 2: LED green

66



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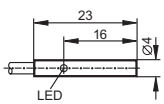

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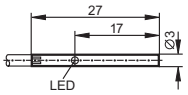

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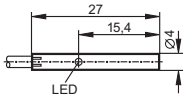

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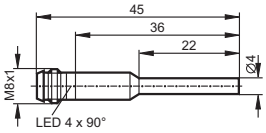

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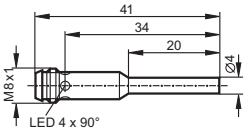

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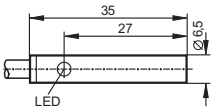

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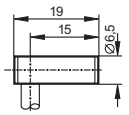

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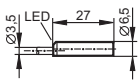

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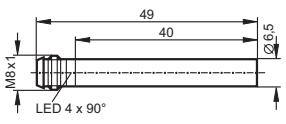

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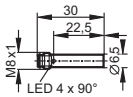

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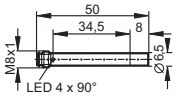

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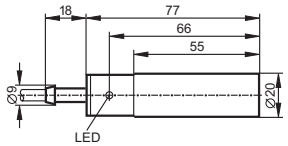

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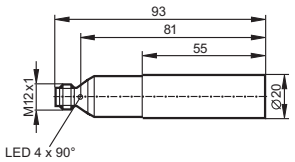

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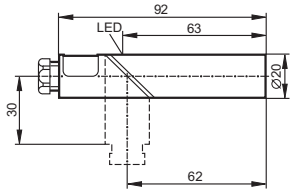

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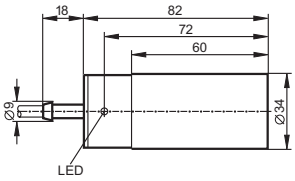

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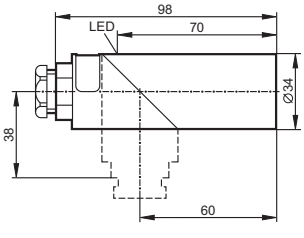

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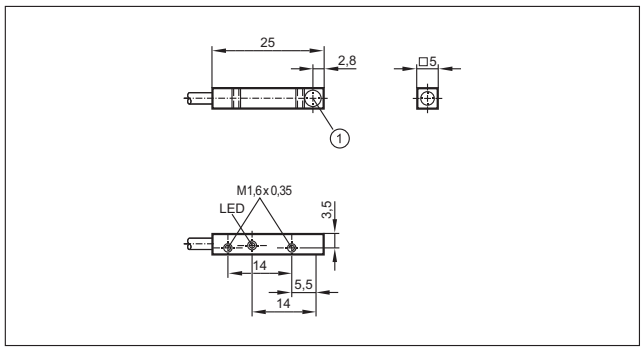
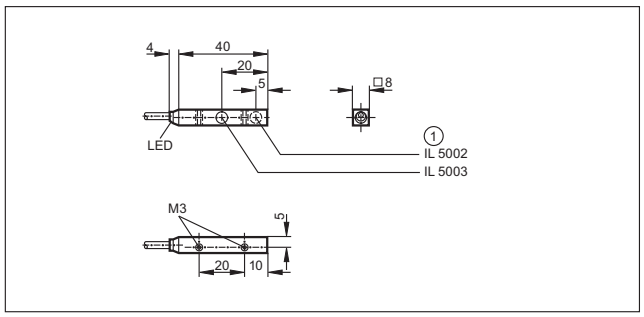


1: sensing face

84



1: sensing face

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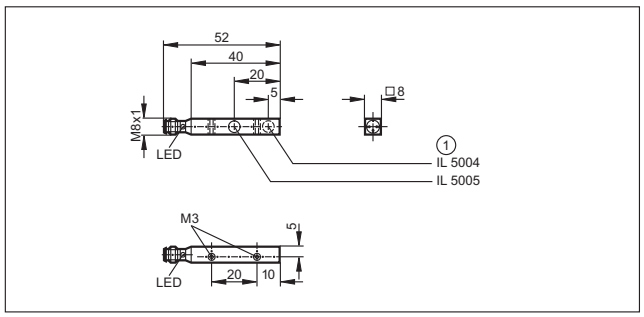

1: sensing face

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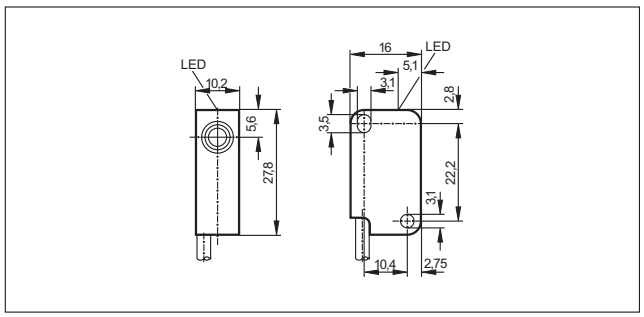

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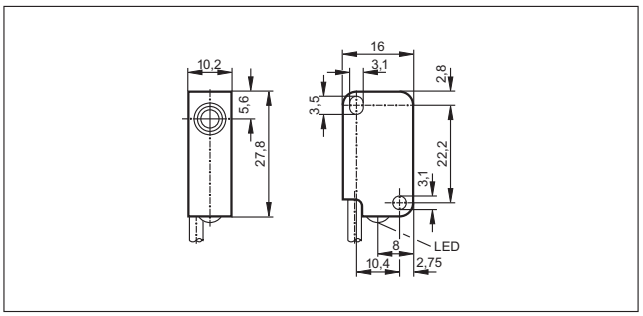

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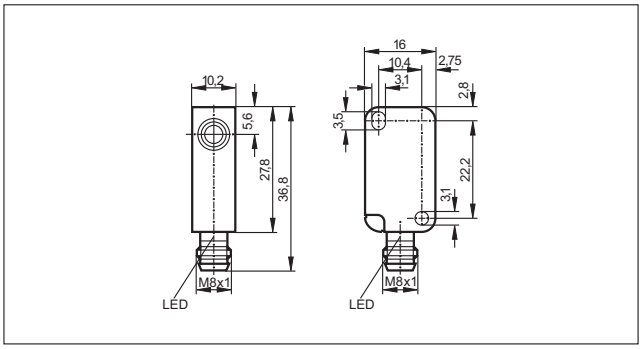

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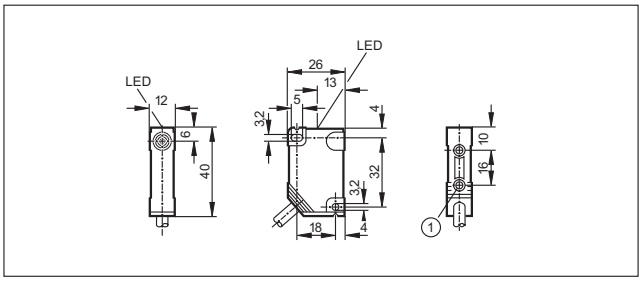
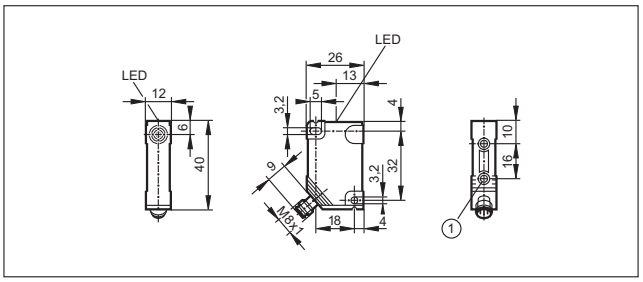


1: threaded insert M3, depth 5.8 mm, max. tightening torque 1.2 Nm (screw fixing class 8.8) when brass insert in contact with counterpart.

90



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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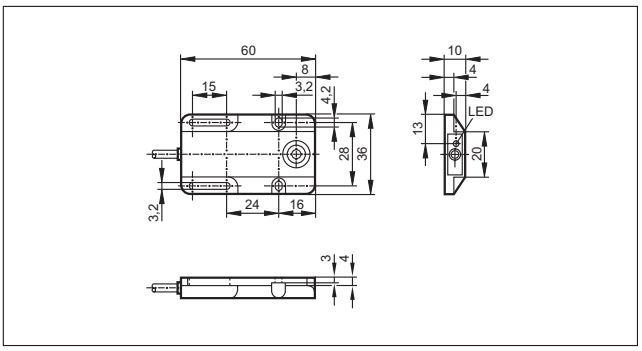
91



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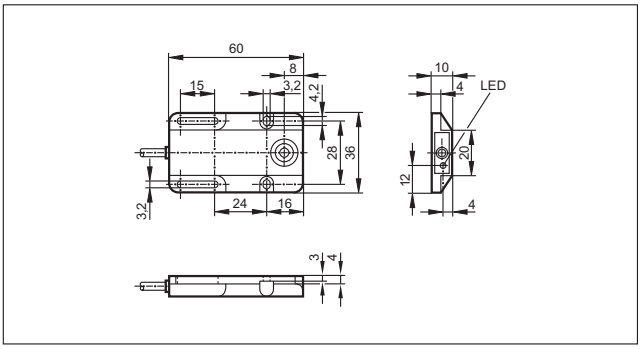

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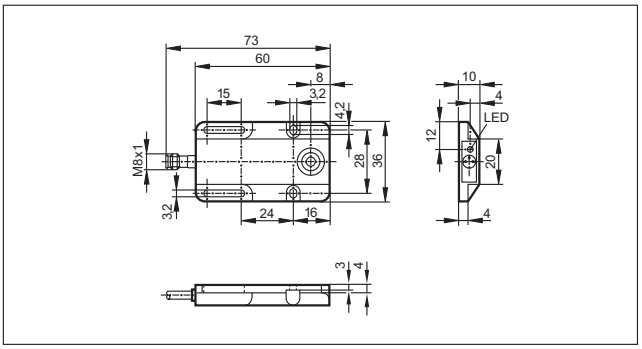

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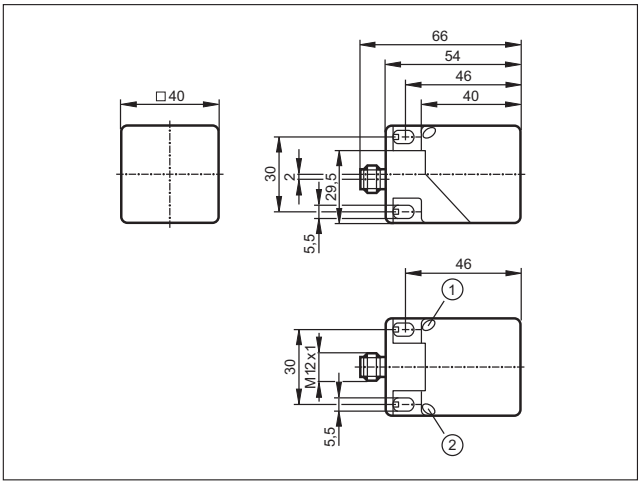
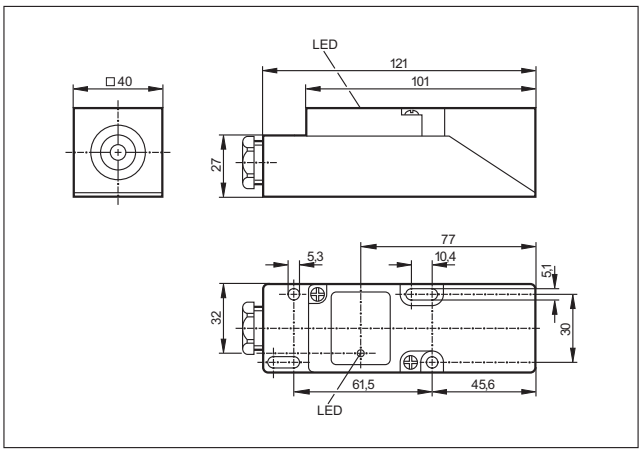


1: LED yellow, 2: LED green

95



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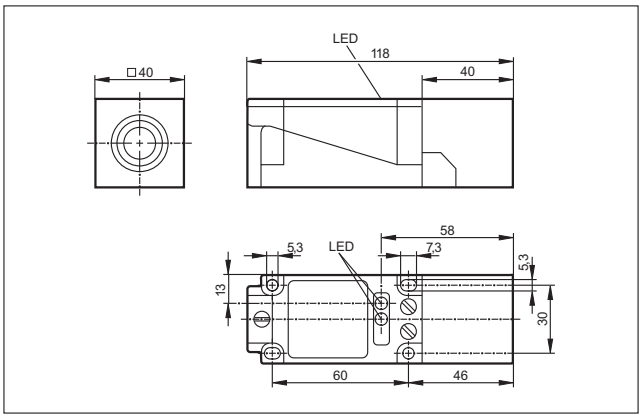

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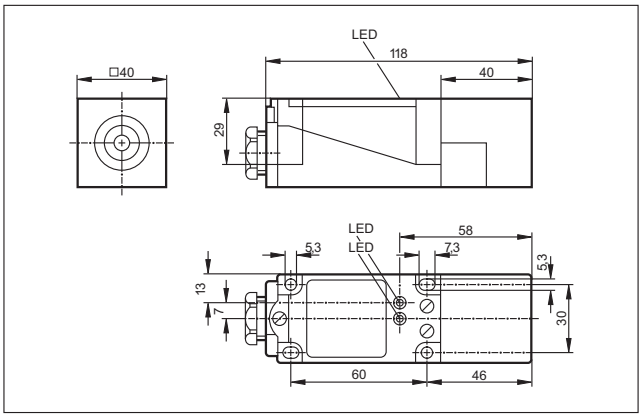

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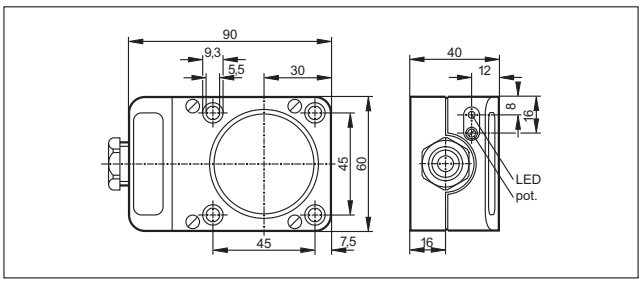

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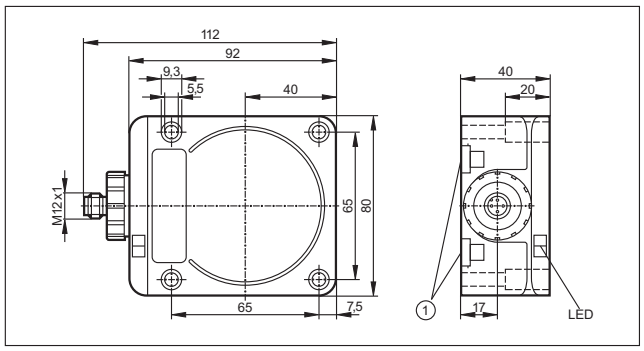
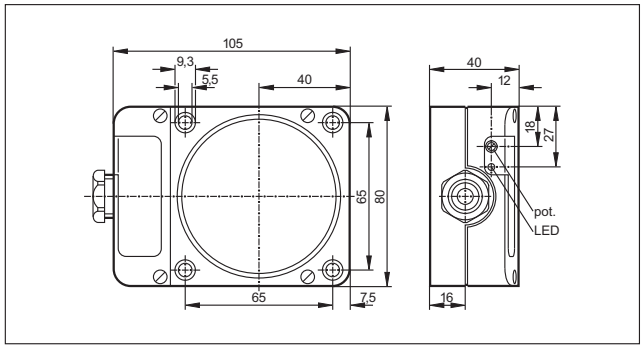
99



1: mounting on DIN rail

100



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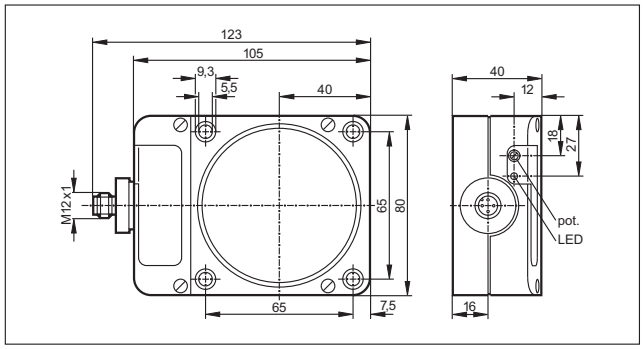

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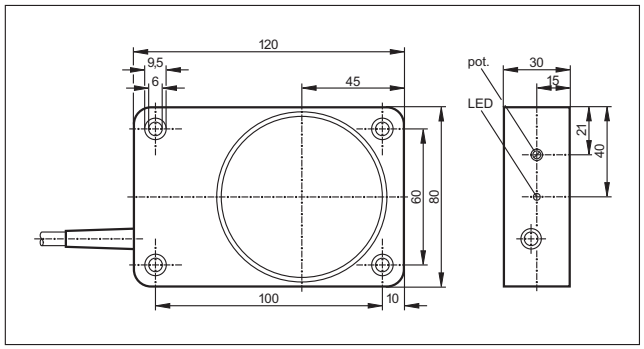

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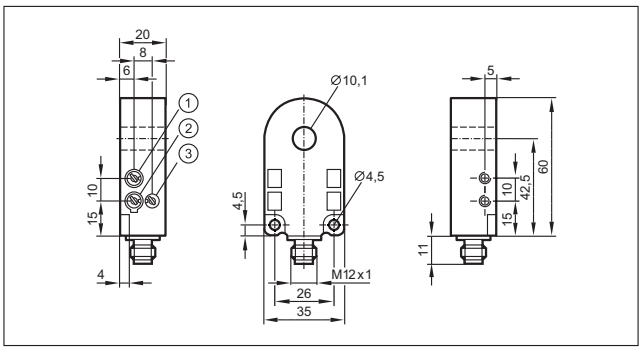
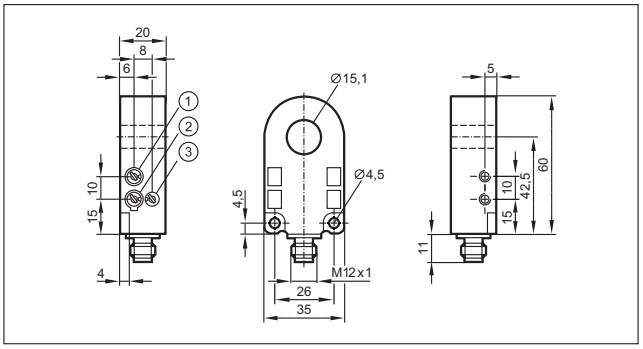


1: Sensitivity, 2: Output function, 3: Pulse stretching time

104



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

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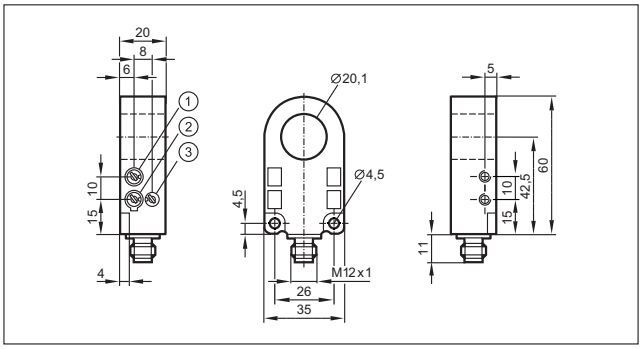
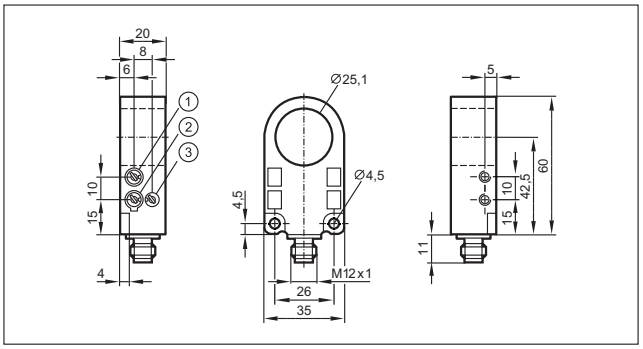


1: Sensitivity, 2: Output function, 3: Pulse stretching time

106



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

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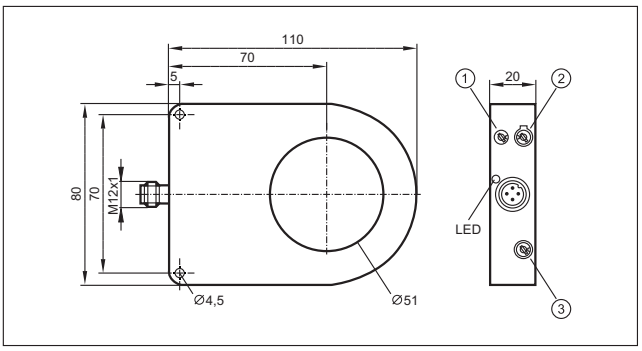
107



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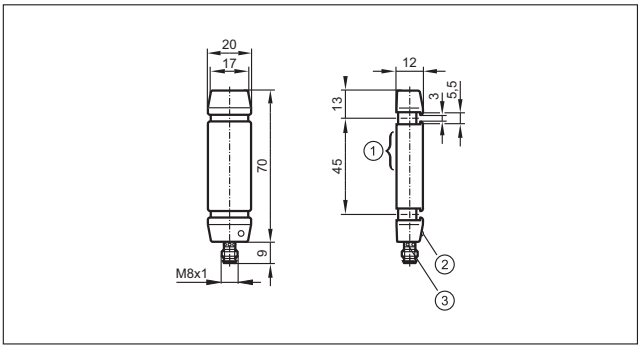
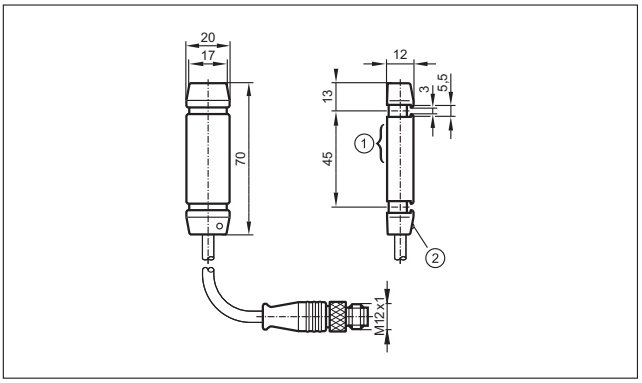


1: sensing face, 2: LED operating status, 3: LED switching status

109



1: sensing face, 2: LED operating status

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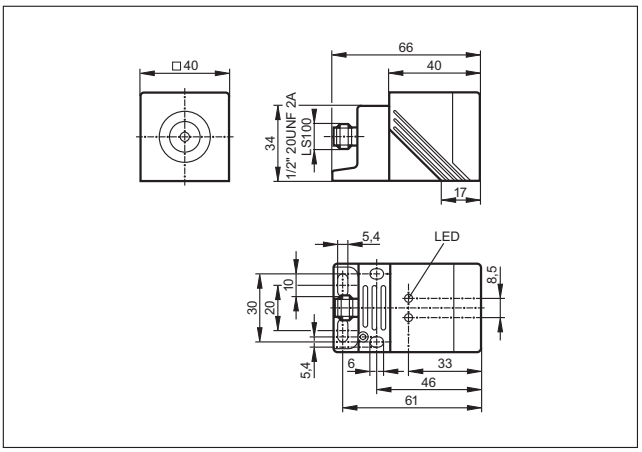

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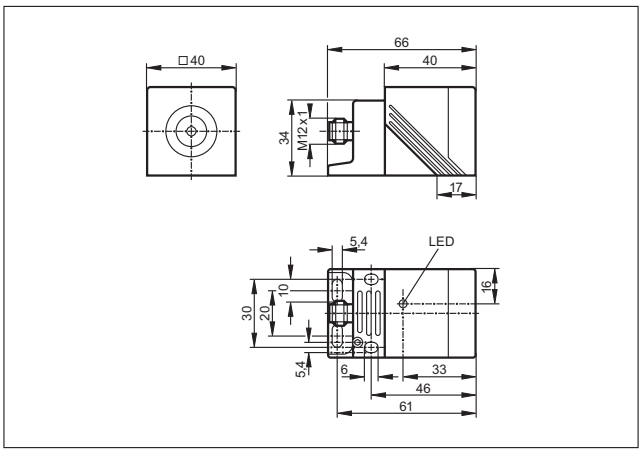

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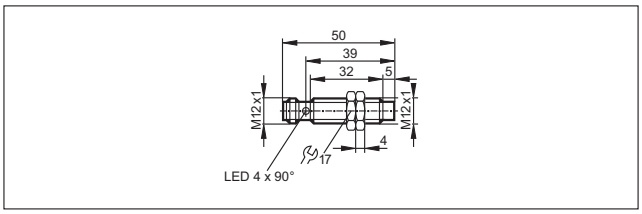

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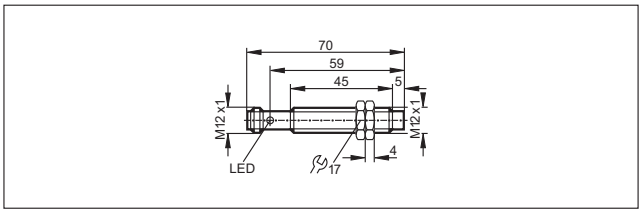

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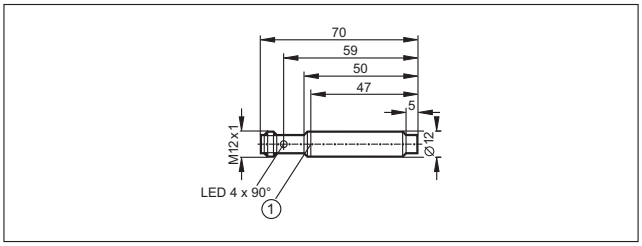
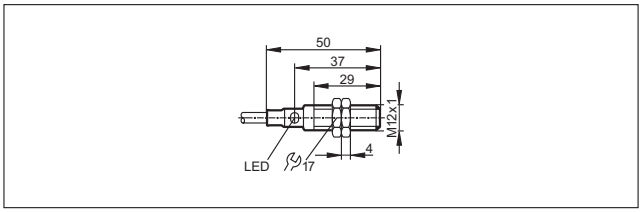


1: locating groove

115



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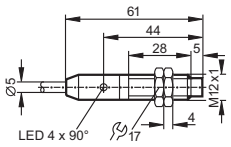

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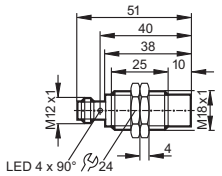

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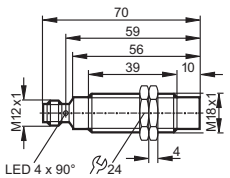

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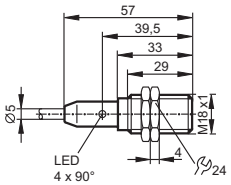

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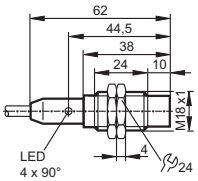

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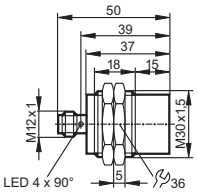

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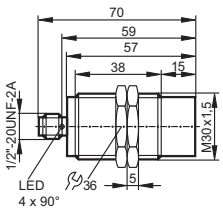

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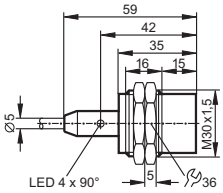

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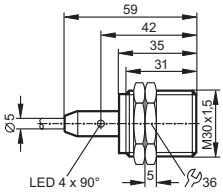

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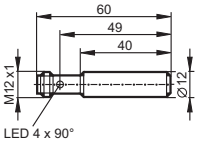

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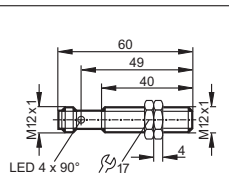

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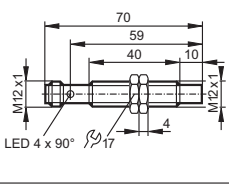

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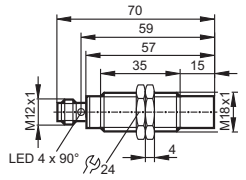

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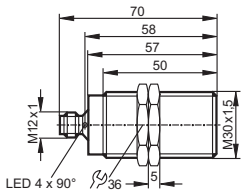

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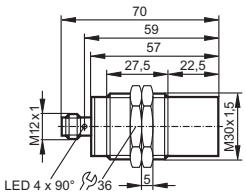

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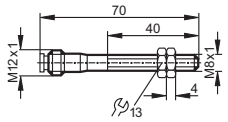

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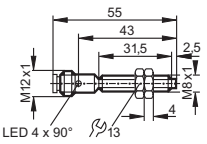

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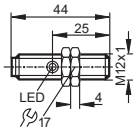

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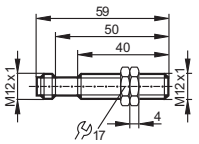

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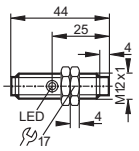

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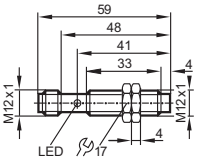

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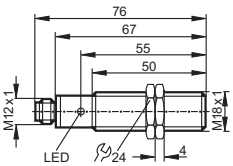

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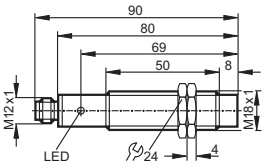

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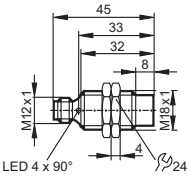

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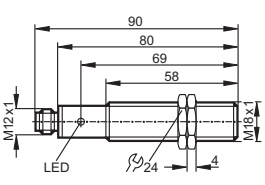

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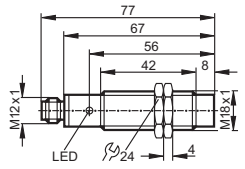

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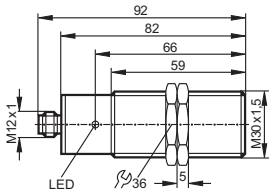

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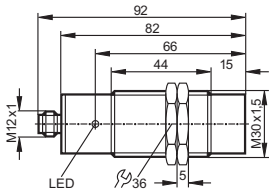

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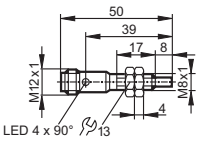

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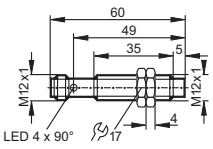

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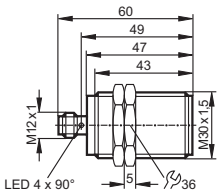

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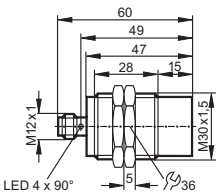

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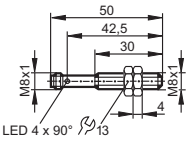

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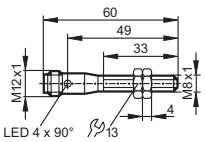

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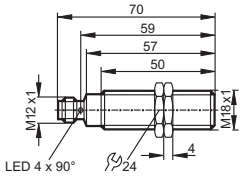

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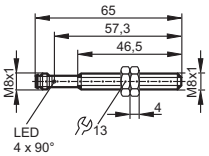

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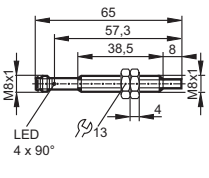

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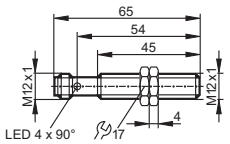

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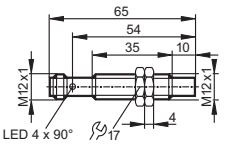

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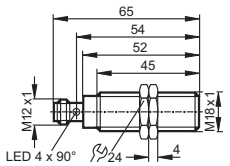

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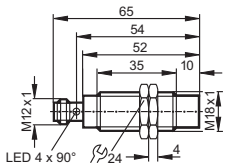

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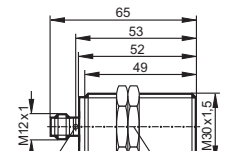

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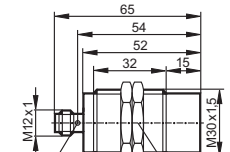

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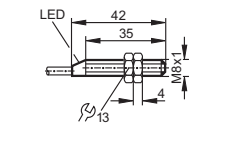

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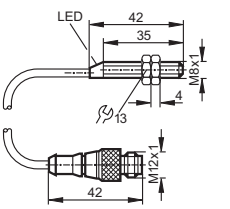

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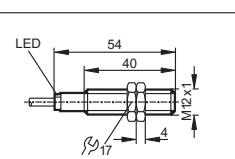

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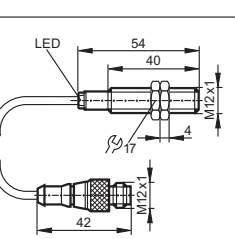

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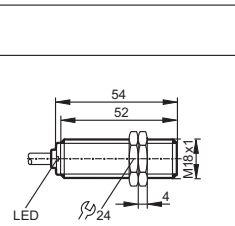

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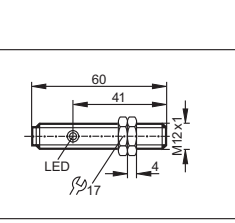

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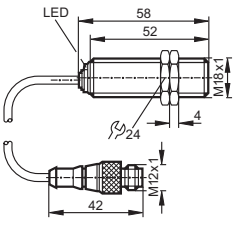

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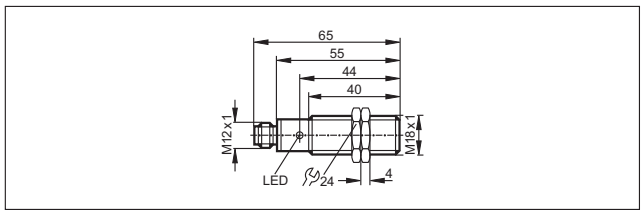

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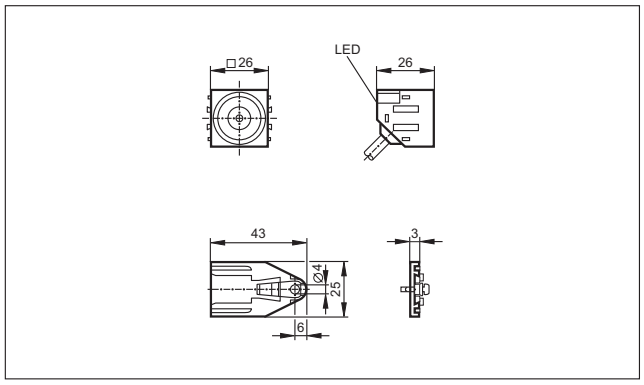

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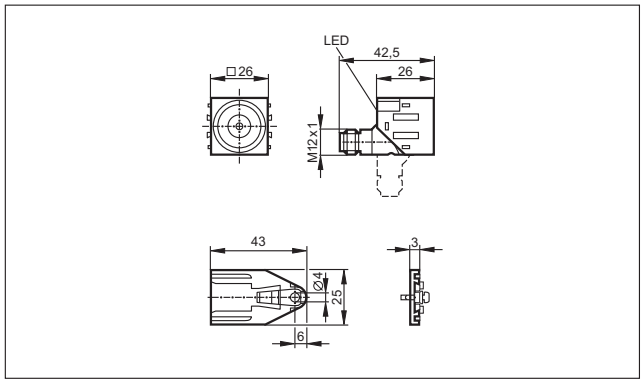

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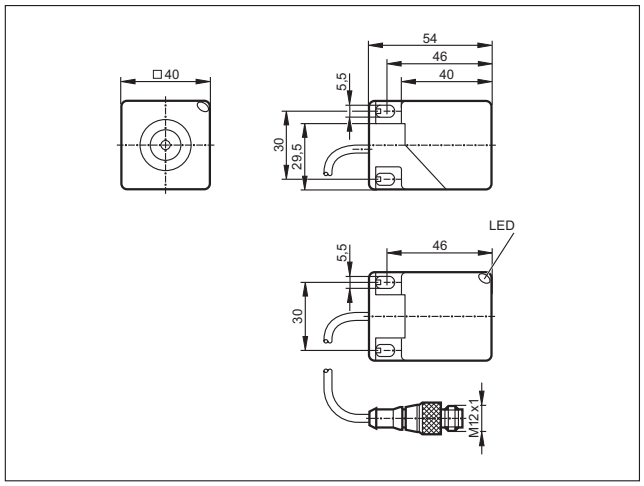

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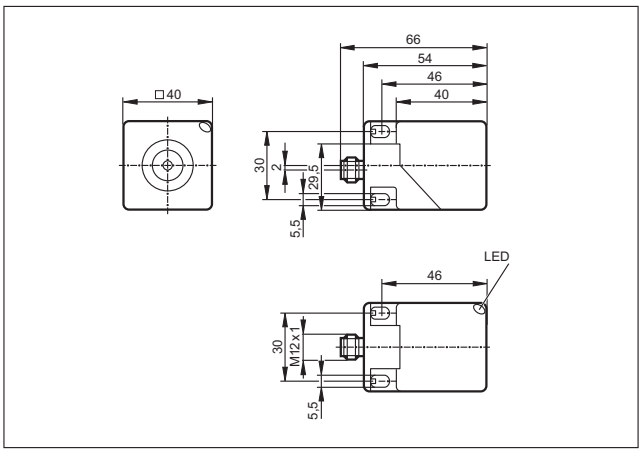

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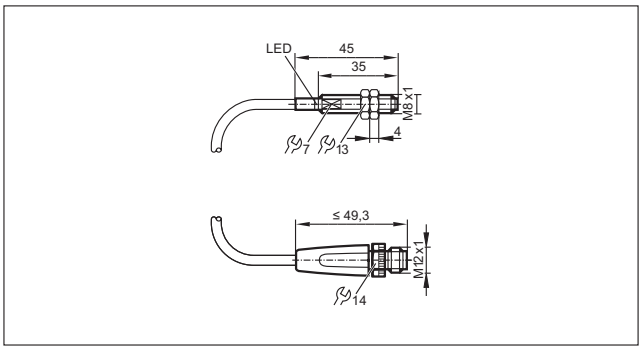

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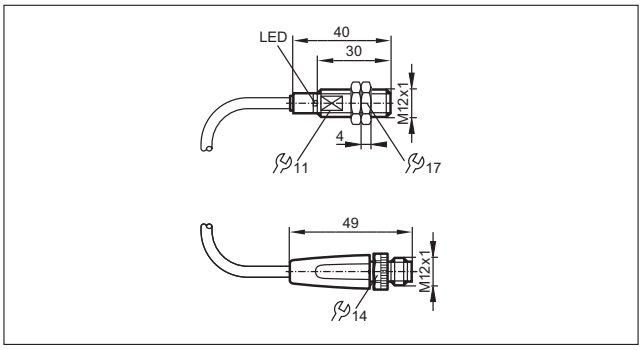

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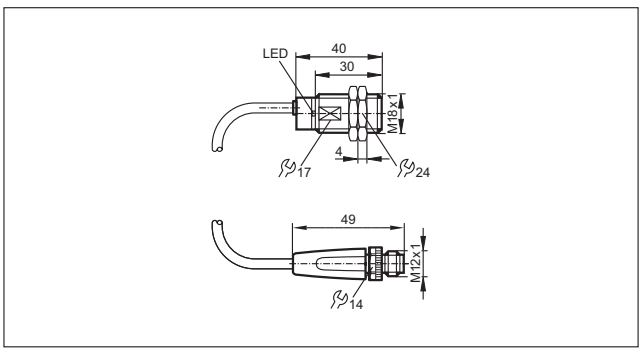

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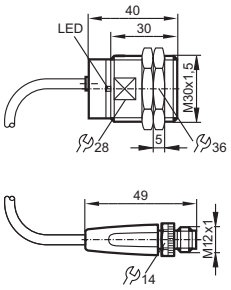

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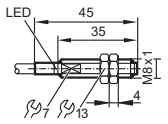

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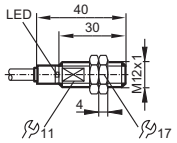

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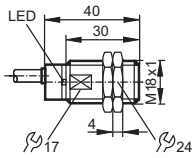

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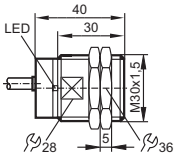

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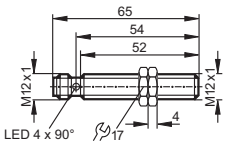

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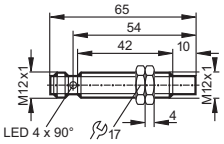

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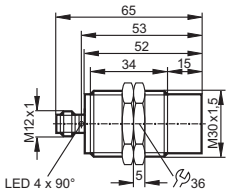

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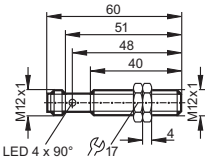

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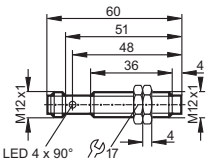

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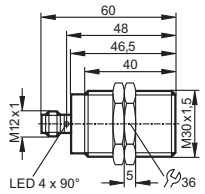

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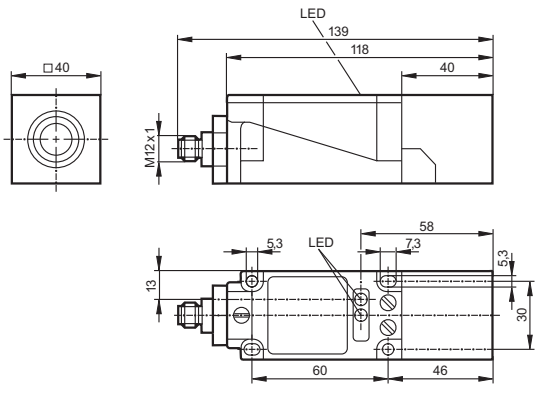

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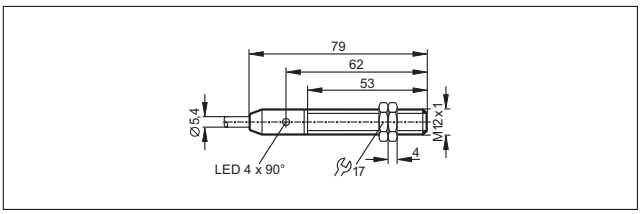

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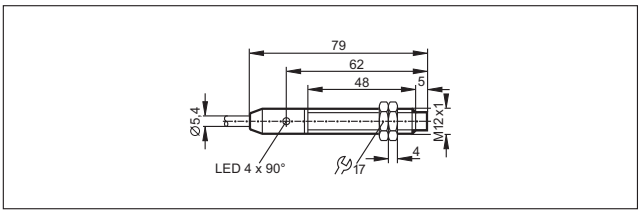

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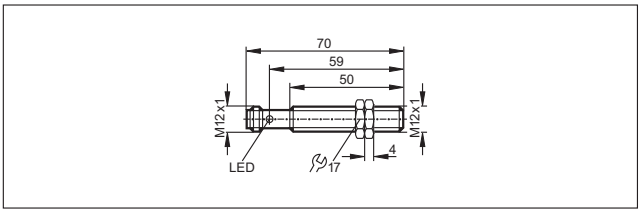

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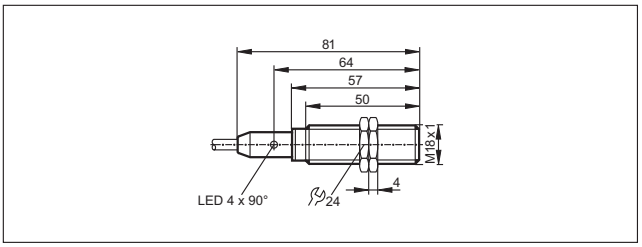

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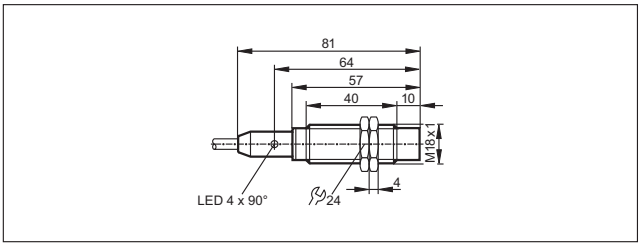

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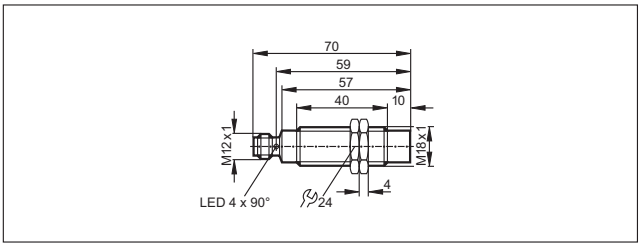

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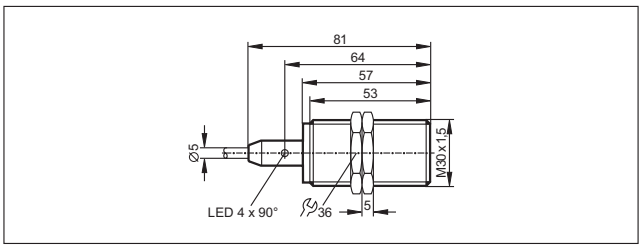

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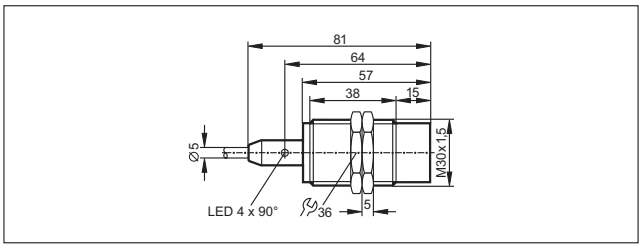

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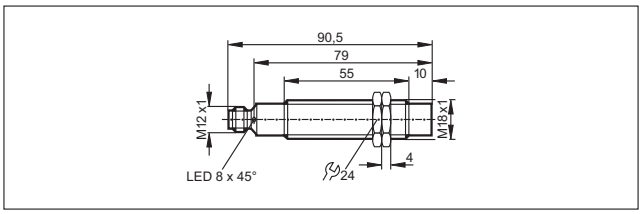

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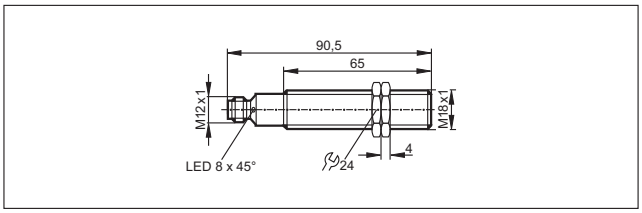

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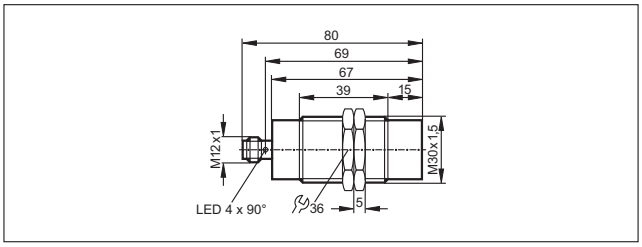

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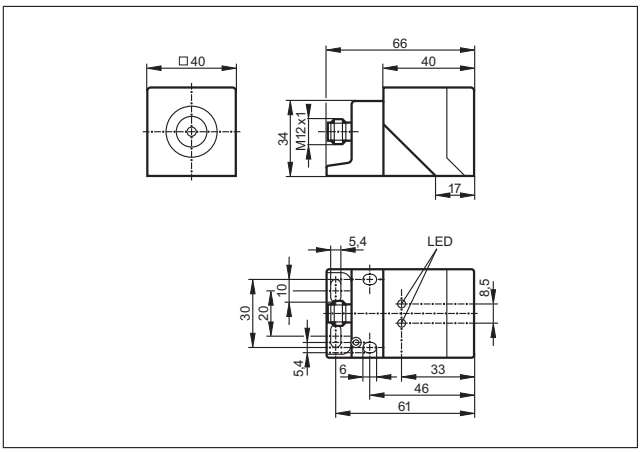

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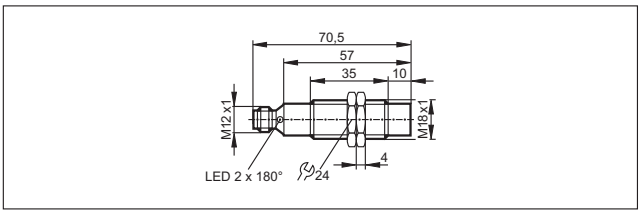

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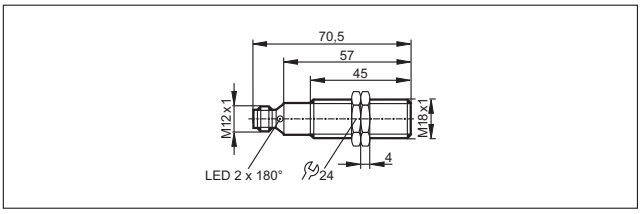

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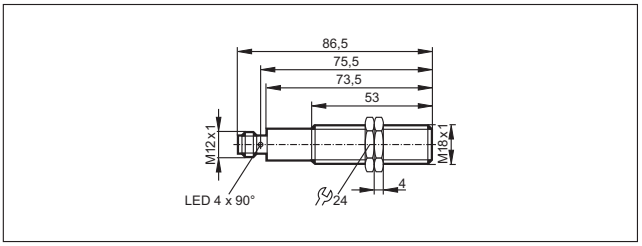

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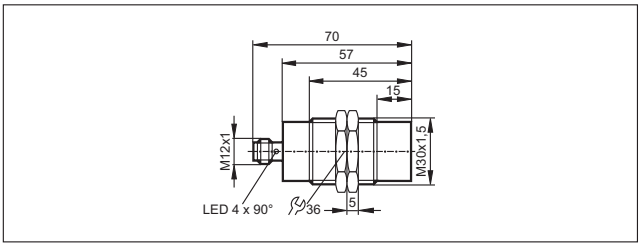

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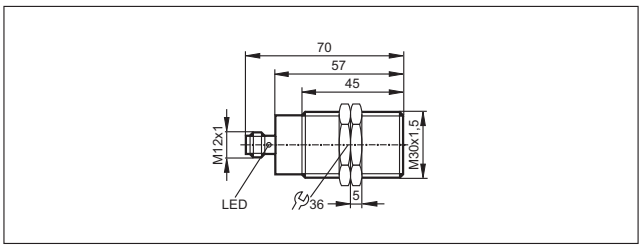

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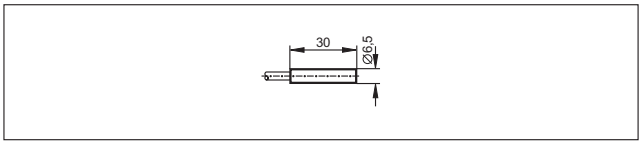

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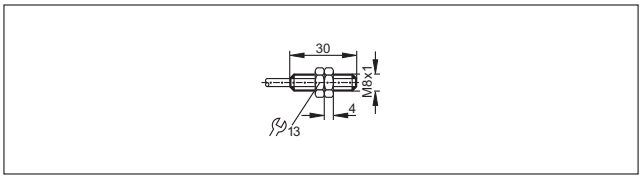

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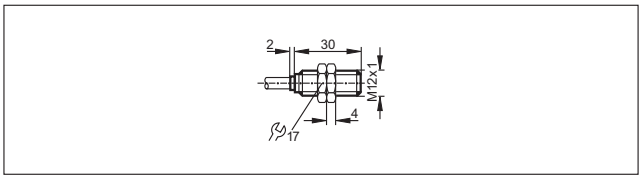

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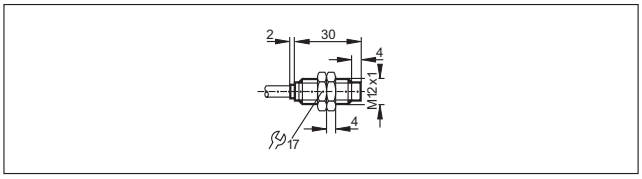

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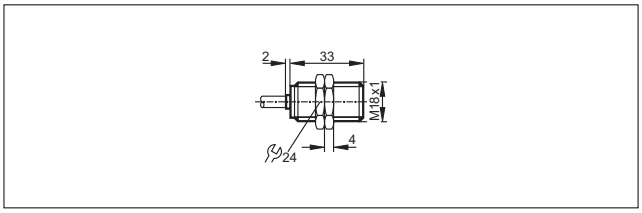
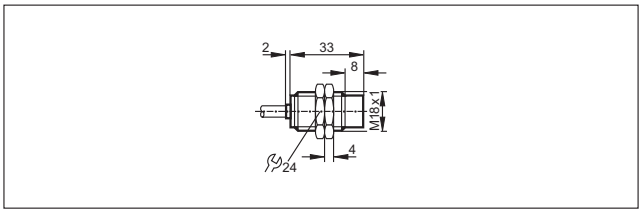
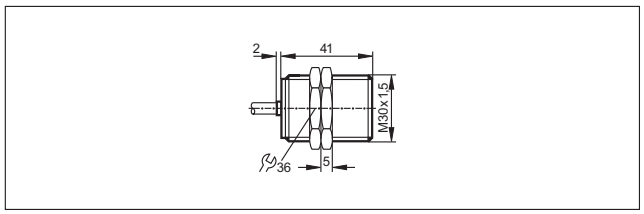


208

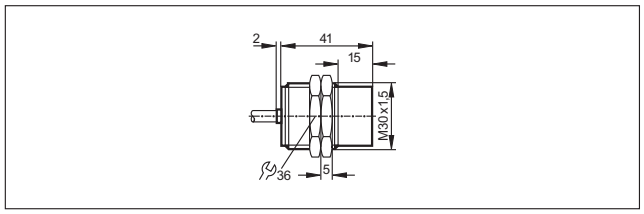


Scale drawings / drawing no. – CAD download: www.ifm.com

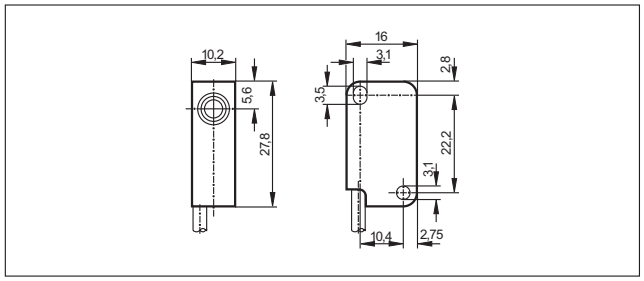
209



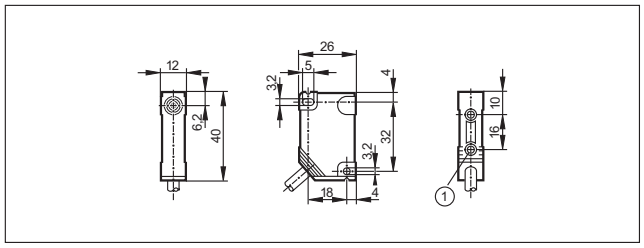
210



211

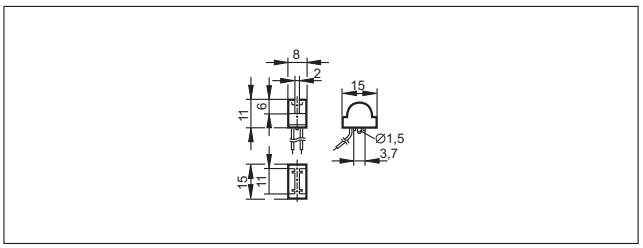


212

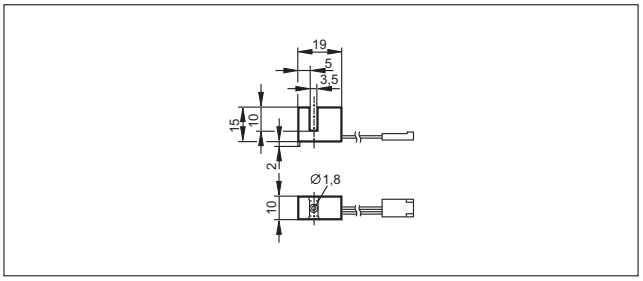


1: threaded insert M3, depth 5.8 mm, max. tightening torque 1.2 Nm (screw fixing class 8.8) when brass insert in contact with counterpart.

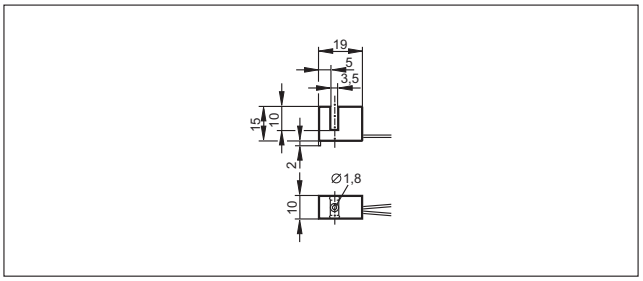
213



214



215



- **High operational reliability due to increased noise immunity.**
- **Sensing range adjustable by means of a potentiometer or pushbutton.**
- **Plastic or metal housing for different applications.**
- **Variable: connector, connection cable or connection terminals.**
- **Assortment of tank and sight glass mounting acccessories.**

Capacitive sensors

Capacitive sensors are used for the non-contact detection of any objects. In contrast to inductive sensors, which only detect metallic objects, capacitive sensors can also detect non-metallic materials. Typical applications are in the wood, paper, glass, plastic, food and chemical industries. In a packaging system, capacitive sensors monitor that the contents of a cardboard box is complete, for example, or check the presence of non-metallic caps. Another application is to monitor the conveying of sheets of glass on a roller conveyor.

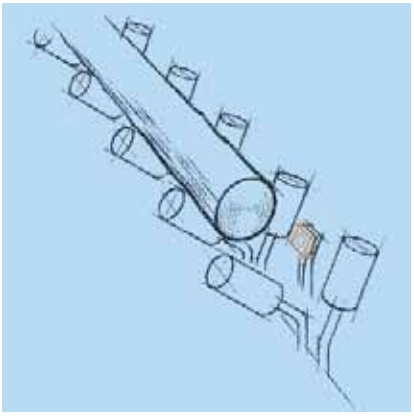
Operating principle

The capacitance between the active electrode of the sensor and the electrical earth potential is evaluated. An approaching object influences the electrical alternating field between these two "capacitor plates" and, consequently, the capacitance. This applies to metallic and non-metallic objects. By means of the potentiometer or the pushbutton the user can set the sensitivity.

Increased noise immunity

When detecting objects, very small changes in capacitance must be evaluated and converted into switching signals. This makes high requirements for the electronics. The sensors must be designed so that they are insensitive to fluctuations of the parasitic basic capacitances, as these can amount to a multiple of the change in capacitance to be measured. Moreover, the sensors must be insensitive to electro-magnetic interference which typically occurs in the application area.

ifm electronic has developed future-oriented solutions to meet the high sensor requirements. A patented circuit concept efficiently prevents the mentioned problems and ensures reliable functioning for all relevant noise parameters.



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

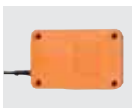
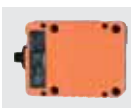
Sensors for industrial applications, DC

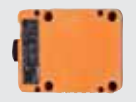
Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Drawing no.	Order no.
Cable 2 m · Output function ⎍ · DC PNP · Wiring diagram no. 1									
	M18 / L = 84	8 nf	PBT	10...36	IP 67	50	250	1	**KG5043**
Cable 2 m · Output function ⎍ / ⎍ · DC PNP/NPN · Wiring diagram no. 22									
	M18 / L = 84	8 nf	PBT	10...55	IP 67	50	400	1	**KG5047**
M12 connector · Output function ⎍ · DC PNP · Wiring diagram no. 2 · Connector groups 9, 10, 11									
	M12 / L = 60	4 f	high-grade st. steel	10...36	IP 65	50	100	2	**KF5001**
	M12 / L = 61	8 nf	high-grade st. steel	10...36	IP 65	50	100	3	**KF5002**
M12 connector · Output function ⎍ · DC NPN · Wiring diagram no. 3 · Connector groups 9, 10, 11									
	M12 / L = 60	4 f	high-grade st. steel	10...36	IP 65	50	100	2	**KF5013**
Terminals · Output function ⎍ · DC PNP · Wiring diagram no. 4									
	M18 / L = 110	8 nf	PBT	10...36	IP 65	50	250	4	**KG5041**
M12 connector · Output function ⎍ · DC PNP · Wiring diagram no. 5 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M18 / L = 93.8	8 nf	PBT	10...36	IP 67	50	250	5	**KG5057**
Terminals · Output function ⎍ / ⎍ · DC PNP/NPN · Wiring diagram no. 23									
	M18 / L = 110	8 nf	PBT	10...55	IP 65	50	400	4	**KG5040**
Cable 2 m · Output function ⎍ · DC PNP · Wiring diagram no. 1									
	M30 / L = 81	15 nf	PBT	10...36	IP 65	40	250	6	**KI5002**
Cable 2 m · Output function ⎍ · DC PNP · Wiring diagram no. 6									
	M30 / L = 81	15 nf	PBT	10...36	IP 65	40	250	6	**KI5001**

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

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. 7									
	M30 / L = 81	15 nf	PBT	10...36	IP 65	40	250	6	**KI5015**
Cable 2 m · Output function ⎍ · DC NPN · Wiring diagram no. 8									
	M30 / L = 81	15 nf	PBT	10...36	IP 65	40	250	6	**KI5019**
Cable 2 m · Output function ⎍ / ⎍ · DC PNP · Wiring diagram no. 24									
	M30 / L = 81	15 nf	PBT	10...36	IP 65	40	250	6	**KI5207**
connector (DIN EN 175301-803) · Output function ⎍ / ⎍ · DC PNP · Wiring diagram no. 9 · Connector group 30									
	M30 / L = 92	15 nf	PBT	10...36	IP 65	40	250	7	**KI5038**
M12 connector · Output function ⎍ / ⎍ · DC PNP · Wiring diagram no. 2 · Connector groups 9, 10, 11, 12									
	M30 / L = 90	8 f	high-grade st. steel	10...36	IP 65 / IP 67	10	100	8	**KI5085**
	M30 / L = 90	15 nf	high-grade st. steel	10...36	IP 65 / IP 67	10	100	9	**KI5087**
M12 connector · Output function ⎍ / ⎍ · DC PNP/NPN · Wiring diagram no. 25 · Connector groups 9, 10, 11, 12									
	M30 / L = 90	8 f	high-grade st. steel	10...36	IP 65 / IP 67	10	100	8	**KI5084**
	M30 / L = 90	15 nf	high-grade st. steel	10...36	IP 65 / IP 67	10	100	9	**KI5086**
Terminals · Output function ⎍ / ⎍ · DC PNP · Wiring diagram no. 10									
	M30 / L = 125	15 nf	PBT	10...55	IP 65	40	250	10	**KI5023**
Terminals · Output function ⎍ / ⎍ · DC NPN · Wiring diagram no. 11									
	M30 / L = 125	15 nf	PBT	10...36	IP 65	40	250	10	**KI5024**

You can find wiring diagrams and scale drawings from page 148

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 PNP · Wiring diagram no. 1									
	Ø 34 / L = 81	20 nf	PBT	10...36	IP 65	40	250	11	**KB5004**
Cable 2 m · Output function ⎍⎽ · DC PNP · Wiring diagram no. 6									
	Ø 34 / L = 81	20 nf	PBT	10...36	IP 65	40	250	11	**KB5002**
Cable 2 m · Output function ⎍⎽ · DC NPN · Wiring diagram no. 7									
	Ø 34 / L = 81	20 nf	PBT	10...36	IP 65	40	250	11	**KB5001**
Cable 2 m · Output function ⎍⎽ · DC NPN · Wiring diagram no. 8									
	Ø 34 / L = 81	20 nf	PBT	10...36	IP 65	40	250	11	**KB5003**
M12 connector · Output function ⎍⎽ · DC PNP · Wiring diagram no. 5 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	Ø 34 / L = 93	20 nf	PBT	10...36	IP 65	40	250	12	**KB5062**
M12 connector · Output function ⎍⎽ · DC PNP · Wiring diagram no. 12 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	Ø 34 / L = 93	20 nf	PBT	10...36	IP 65	40	250	12	**KB5096**
Cable 2 m · Output function ⎍⎽ · DC PNP · Wiring diagram no. 1									
	120 x 80 x 30	60 nf	modified PPO	10...36	IP 65	10	250	13	**KD5022**
Cable 2 m · Output function ⎍⎽ · DC NPN · Wiring diagram no. 7									
	120 x 80 x 30	60 nf	modified PPO	10...36	IP 65	10	250	13	**KD5024**
M12 connector · Output function ⎍⎽ / ⎍⎽ · DC PNP · Wiring diagram no. 26 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	105 x 80 x 40	60 nf	modified PPO	10...36	IP 65	10	250	14	**KD5039**

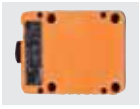
Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Drawing no.	Order no.
Terminals · Output function ⎍/⎍ · DC PNP · Wiring diagram no. 27									
	105 x 80 x 40	60 nf	modified PPO	10...36	IP 65	10	250	15	**KD5018**

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.
Cable 2 m · Output function ⎍ · AC/DC · Wiring diagram no. 13									
	M18 / L = 84	8 nf	PBT	20...250	IP 67	25 / 50	350 / 100	1	**KG0009***
Cable 2 m · Output function ⎍ · AC/DC · Wiring diagram no. 14									
	M18 / L = 84	8 nf	PBT	20...250	IP 67	25 / 50	350 / 100	1	**KG0010***
Terminals · Output function ⎍/⎍ · AC/DC · Wiring diagram no. 15									
	M18 / L = 110	8 nf	PBT	20...250	IP 65	25 / 50	350 / 100	4	**KG0008***
Cable 2 m · Output function ⎍ · AC/DC · Wiring diagram no. 13									
	M30 / L = 81	15 nf	PBT	20...250	IP 65	25 / 40	250	6	**KI0016***
Cable 2 m · Output function ⎍ · AC/DC · Wiring diagram no. 14									
	M30 / L = 81	15 nf	PBT	20...250	IP 65	25 / 40	250	6	**KI0020***
connector (DIN EN 175301-803) · Output function ⎍/⎍ · AC/DC · Wiring diagram no. 16 · Connector group 30									
	M30 / L = 92	15 nf	PBT	20...250	IP 65	25 / 40	250	7	**KI0040***
Terminals · Output function ⎍/⎍ · AC/DC · Wiring diagram no. 17									
	M30 / L = 125	15 nf	PBT	20...250	IP 65	25 / 40	250	10	**KI0024***

You can find wiring diagrams and scale drawings from page 148

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. 13									
	Ø 34 / L = 81	20 nf	PBT	20...250	IP 65	25 / 40	250	11	**KB0025***
Cable 2 m · Output function ⎍ · AC/DC · Wiring diagram no. 14									
	Ø 34 / L = 81	20 nf	PBT	20...250	IP 65	25 / 40	250	11	**KB0029***
Cable 2 m · Output function ⎍ · AC/DC · Wiring diagram no. 13									
	120 x 80 x 30	60 nf	modified PPO	20...250	IP 65	10	250	13	**KD0012***
Cable 2 m · Output function ⎍ · AC/DC · Wiring diagram no. 14									
	120 x 80 x 30	60 nf	modified PPO	20...250	IP 65	10	250	13	**KD0013***
Terminals · Output function ⎍ / ⎍ · AC/DC · Wiring diagram no. 28									
	105 x 80 x 40	60 nf	modified PPO	20...250	IP 65	10	250	15	**KD0009***

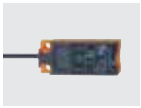
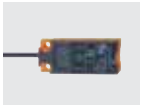
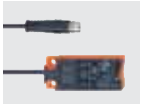
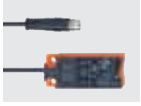
f = flush / nf = non flush

*** 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 the detection of conductive media through a wall

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 PNP/NPN · Wiring diagram no. 29									
	M18 / L = 77	8 nf	PP	10...36	IP 65 / IP 67	10	200	16	**KG5067**
Cable 2 m · Output function ⎍ / ⎍ · DC PNP · Wiring diagram no. 18									
	M18 / L = 77	8 nf	PP	10...36	IP 65 / IP 67	10	200	16	**KG5069**

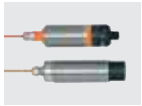
Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Drawing no.	Order no.
M12 connector · Output function ⎍/⎍ · DC PNP · Wiring diagram no. 2 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M18 / L = 87	8 nf	PBT	10...36	IP 65 / IP 67	10	200	17	**KG5071**
Cable 2 m · Output function ⎍/⎍ · 1x open collector with automatic load detection (DC PNP or DC NPN) · Wiring diagram no. 29									
	20 x 14 x 48	12 nf	PBT	10...36	IP 65 / IP 67	10	100	18	**KQ6001**
Cable 2 m · Output function ⎍/⎍ · 1x open collector DC PNP · Wiring diagram no. 18									
	20 x 14 x 48	12 nf	PBT	10...36	IP 65 / IP 67	10	100	18	**KQ6002**
Cable with connector 0.04 m · Output function ⎍/⎍ · 1x open collector with automatic load detection (DC PNP or DC NPN) · Wiring diagram no. 25 · Connector groups 4, 5									
	20 x 14 x 48	12 nf	PBT	10...36	IP 65 / IP 67	10	100	18	**KQ6003**
Cable with connector 0.04 m · Output function ⎍/⎍ · 1x open collector DC PNP · Wiring diagram no. 2 · Connector groups 4, 5									
	20 x 14 x 48	12 nf	PBT	10...36	IP 65 / IP 67	10	100	18	**KQ6004**
Cable with connector 0.1 m · Output function ⎍/⎍ · 1x open collector DC PNP · Wiring diagram no. 2 · Connector groups 9, 10, 11									
	20 x 14 x 48	12 nf	PBT	10...36	IP 65 / IP 67	10	100	18	**KQ6005**

f = flush / nf = non flush

Sensors for the detection of granulates for the plastics industry, DC

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/NPN · Wiring diagram no. 25 · Connector groups 9, 10, 11, 12									
	M18 / L = 87	12 nf	PBT	10...36	IP 65 / IP 67	10	200	17	**KG5065**
M12 connector · Output function ⎍/⎍ · DC PNP · Wiring diagram no. 2 · Connector groups 9, 10, 11, 12									
	M18 / L = 87	12 nf	PBT	10...36	IP 65 / IP 67	10	200	17	**KG5066**

You can find wiring diagrams and scale drawings from page 148

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. 30 · Connector groups 9, 11, 107, 108, 135									
	M30 / L = 116	nf	PPS	10...30	IP 67	10	200	19	**KN5121**
M12 connector · Output function ⎍/⎍ · DC PNP/NPN · Wiring diagram no. 25 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M30 / L = 90	20 nf	PBT	10...36	IP 65 / IP 67	10	200	20	**KI5082**
M12 connector · Output function ⎍/⎍ · DC PNP · Wiring diagram no. 2 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M30 / L = 90	20 nf	PBT	10...36	IP 65 / IP 67	10	200	20	**KI5083**

f = flush / nf = non flush

Sensors for the detection of granulates for the plastics industry, AC / DC

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 ⎍/⎍ · AC/DC · Wiring diagram no. 19 · Connector group 26									
	M18 / L = 87	12 nf	PBT	20...250	IP 65 / IP 67	10	150	21	**KG0016***
	M30	20 nf	PBT	20...250	IP 65 / IP 67	10	150	22	**KI0054***

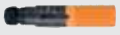
f = flush / nf = non flush

*** 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

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 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. 20										
	M30 / L = 81	15 nf	PBT	8.2 DC	7.5...15	375	1	40	6	**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]	Draw-ing 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. 20										
	M30 / L = 81	15 nf	PBT	8.2 DC	7.5...15	375.64	3	40	6	**KI5031**
Terminals · Output function ⏦ / ⏦ · DC PNP · Wiring diagram no. 10										
	M30 / L = 151	15 nf	PBT	10...30 DC	–	–	–	10	23	**KI5065**
Terminals · Output function ⏦ / ⏦ · AC/DC · Wiring diagram no. 17										
	M30 / L = 151	15 nf	PBT	20...250 AC/DC	–	–	–	25 / 50	23	**KI0042***
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. 21										
	M34 / L = 92	15 nf	brass	8.2 DC	7.5...15	375	1	40	24	**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. 21										
	M34 / L = 92	15 nf	brass	8.2 DC	7.5...15	375.64	3	40	24	**KX5002**

f = flush / nf = non flush

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

Miniature fuse to IEC60127-2 sheet 1, ≤ 2 A (fast acting), Place the fuse outside the hazardous area. 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	25	**N0030A**
	230	1.0 /	10	-20...60	relay (1 changeover contact)	IP 20	25	**N0031A**
	115	1.3 /	10	-20...60	relay (1 changeover contact per channel)	IP 20	25	**N0032A**
	230	1.3 /	10	-20...60	relay (1 changeover contact per channel)	IP 20	25	**N0033A**

You can find wiring diagrams and scale drawings from page 148

Type	U_b [V]	Power / current consumption [VA] / [mA]	f [Hz]	T_a [°C]	Output	Protection	Drawing no.	Order no.
	24	/ < 23	10	-20...60	relay (1 changeover contact)	IP 20	25	**N0530A**
	24	/ < 50	5000	-20...60	2 transistor outputs PNP (100 mA, short-circuit protection)	IP 20	25	**N0531A**
	24	/ < 50	5000	-20...60	2 outputs (optocoupler, bipolar, 100 mA, short-circuit protection)	IP 20	25	**N0532A**
	24	/ < 50	10	-20...60	relay (1 changeover contact per channel)	IP 20	25	**N0533A**
	24	/ < 50	5000	-20...60	2 transistor outputs PNP (100 mA, short-circuit protection)	IP 20	25	**N0534A**

Accessories mounting adapters

Type	Description	Order no.
	Mounting adapter · M18 x 1 - G ¾ · Housing materials: POM	**E43900**
	Mounting adapter · M18 x 1 - G 1 · Housing materials: POM	**E43904**
	Mounting adapter · M30 x 1.5 - G 1¼ · Housing materials: PVDF / EPDM	**E11036**
	Mounting adapter · M30 x 1.5 - G 1½ · Housing materials: PVDF / EPDM	**E11034**
	Mounting adapter · Ø 34 mm - G 1½ · Housing materials: POM	**E11027**
	Locknut · G ¾ · for mounting adapter · Housing materials: POM	**E43902**
	Locknut · G 1¼ · for mounting adapter · Housing materials: PVDF	**E11030**
	Locknut · G 1½ · for mounting adapter · Housing materials: PVDF	**E11032**

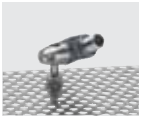
Type	Description	Order no.
	Protective cover · G 1¼ · for mounting adapter · Housing materials: PES black transparent	**E11078**

Accessories mounting components

Type	Description	Order no.
	Mounting clamp · Ø 34 mm · Housing materials: PBT	**E10017**
	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**
	Mounting clamp · Ø 34 mm · Housing materials: PA	**E10193**
	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**
	Mounting adapter for free-standing mounting · for type KQ5, KQ6 · Housing materials: adapter: PBT / inserts: brass / screw: steel galvanised · Pack quantity: 1	**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 · Pack quantity: 5	**E10880**
	Mounting set · M30 x 1.5 / G ¼...G 1 · for capacitive sensors on rising pipes G ¼" - 1" · Housing materials: POM	**E11037**

You can find wiring diagrams and scale drawings from page 148

Accessories mounting sets

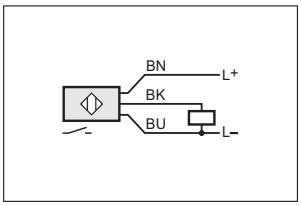
Type	Description	Order no.
	Mounting set · Ø 18.5 mm · Clamp mounting · free-standing M10 · for type OG, IG, KG · Housing materials: clamp: diecast zinc / fixture: steel	E20718
	Mounting set · Ø 18.5 mm · Clamp mounting · free-standing M10 · for type OG, IG, KG · Housing materials: clamp: diecast zinc / fixture: steel	E20719
	Mounting set · Ø 18.5 mm · Clamp mounting · 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
	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 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 OI, II, KI · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: diecast zinc / Cube: diecast zinc	E20875
	Angle bracket · Clamp mounting · for type IW, OW, KQ5 · Housing materials: stainless steel 316Ti / 1.4571	E20811

Wiring diagrams

Core colours

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

1



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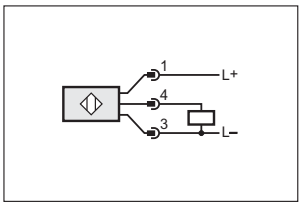

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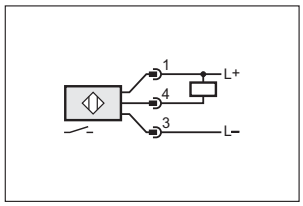
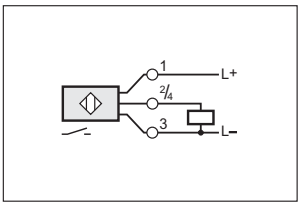


Wiring diagrams

4



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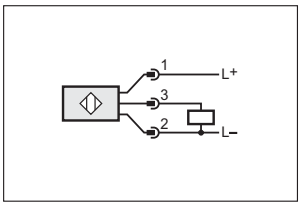

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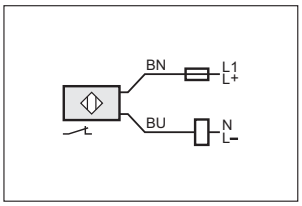

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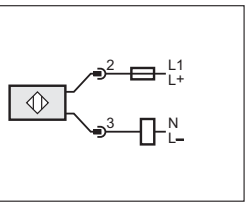

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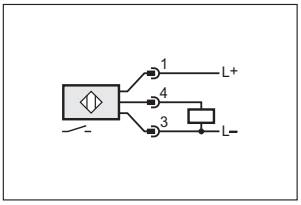

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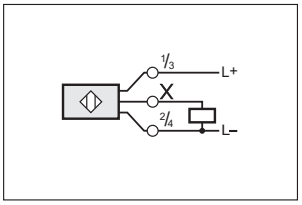

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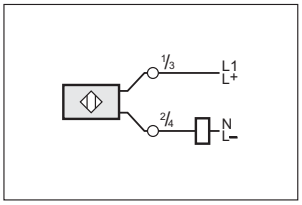

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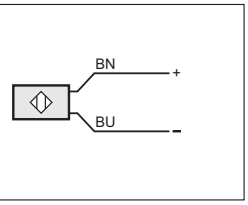

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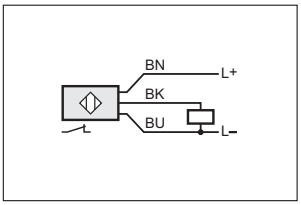

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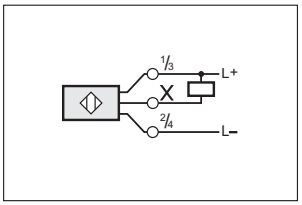

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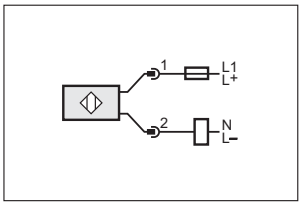

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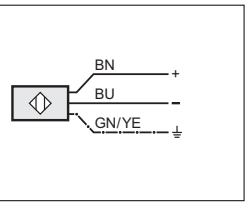

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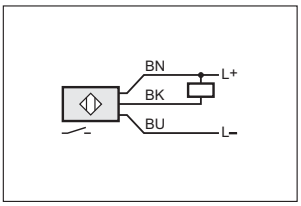

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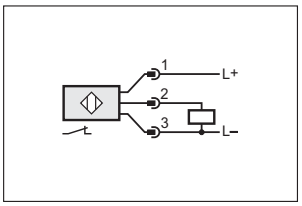

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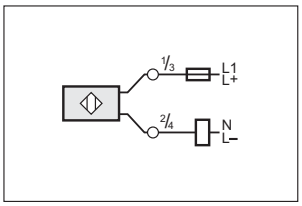

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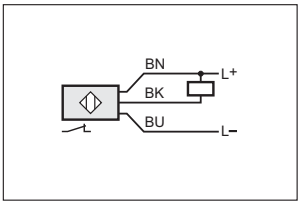

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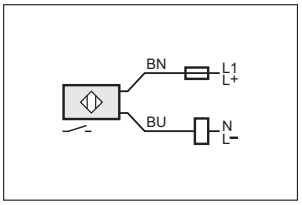

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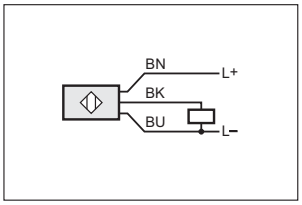

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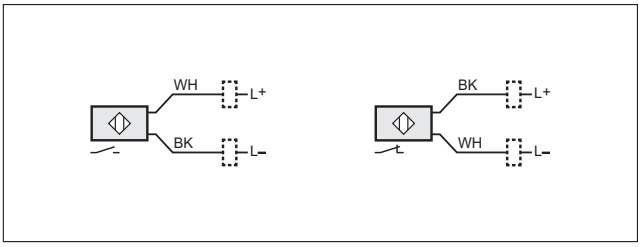

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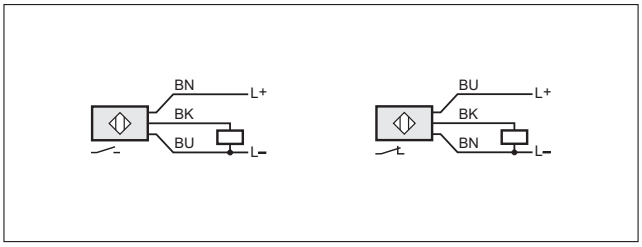

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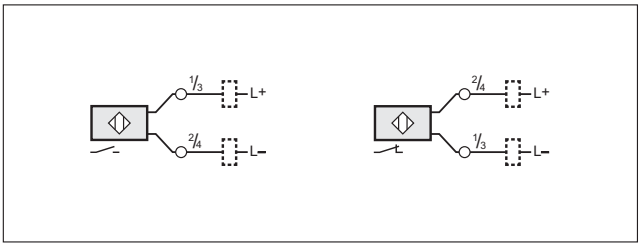

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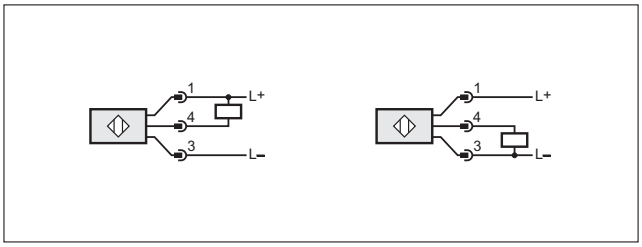
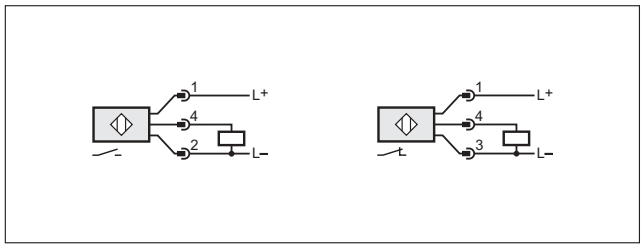


Wiring diagrams

26



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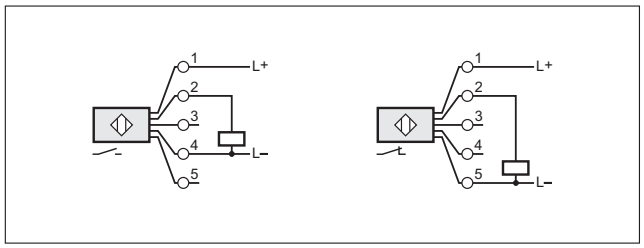

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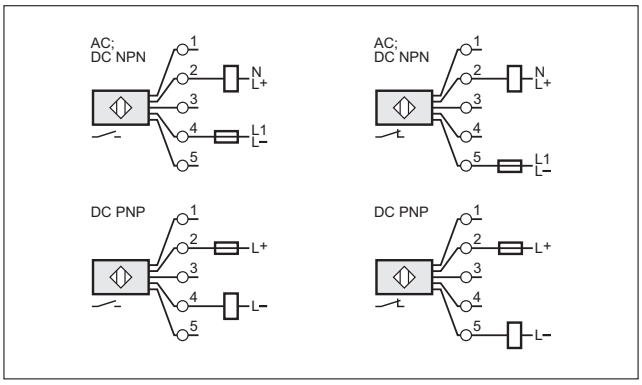

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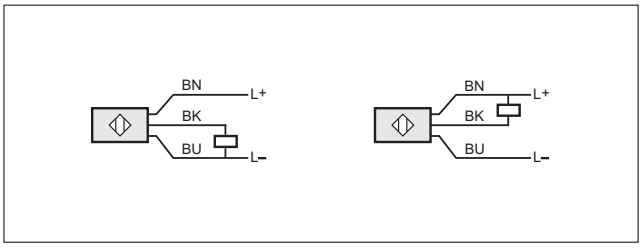

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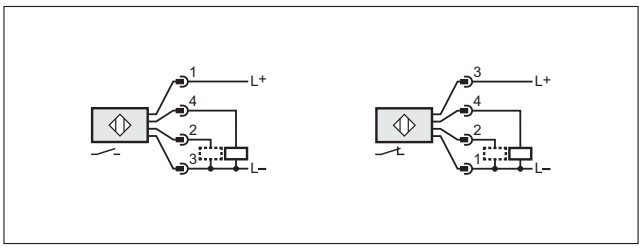

Scale drawings / drawing no. – CAD download: www.ifm.com

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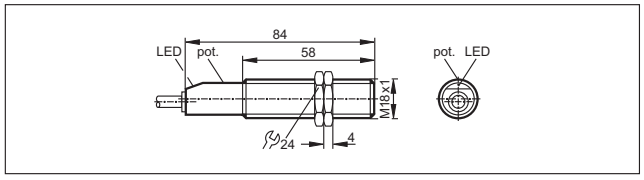

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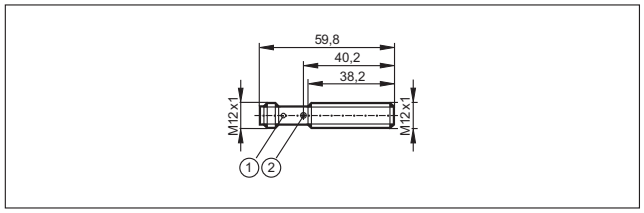

1: LED 4 x 90°, 2: with pot.

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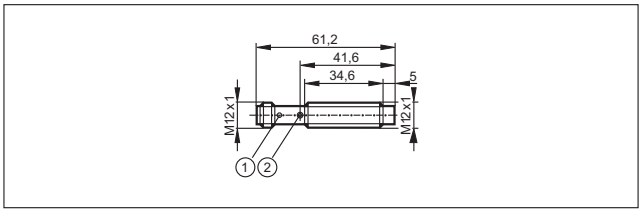

1: LED 4 x 90°, 2: with pot.

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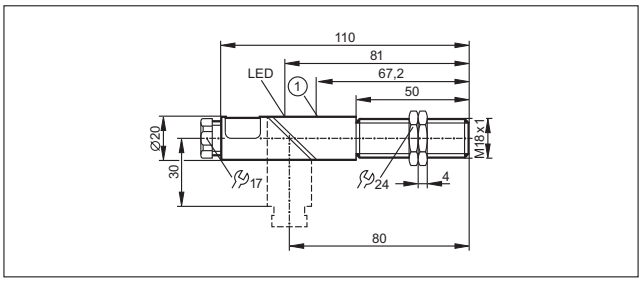
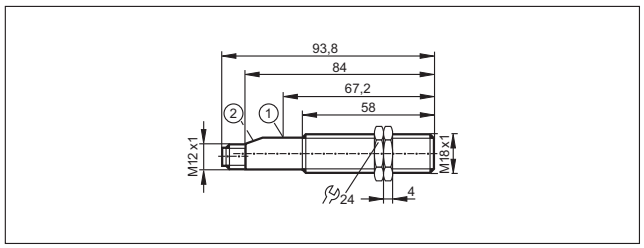


1: with pot.

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

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

5



1: with pot., 2: LED

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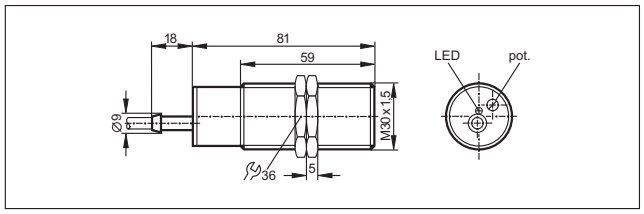

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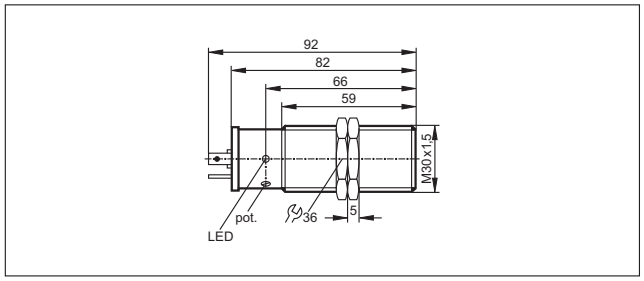

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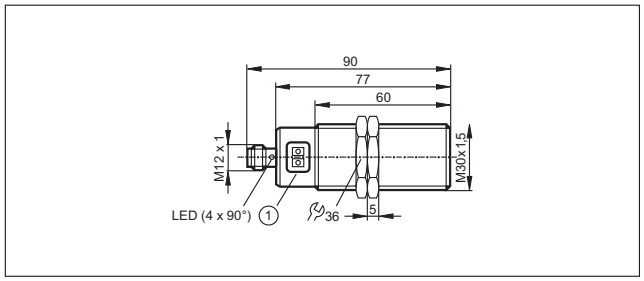

1: Programming buttons

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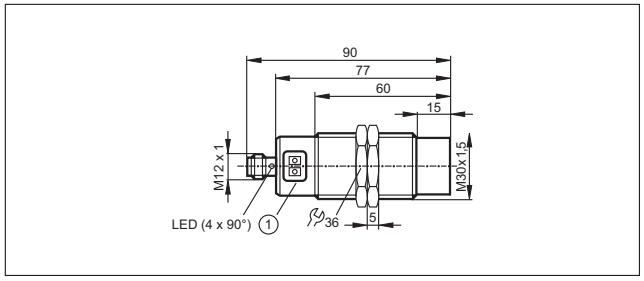

1: Programming buttons

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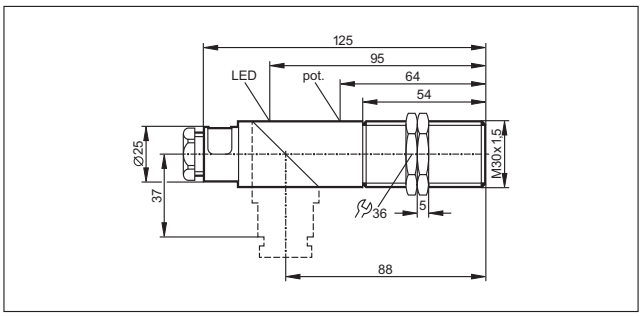

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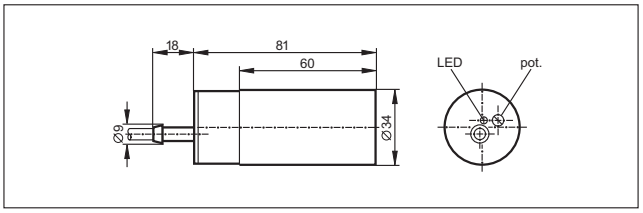

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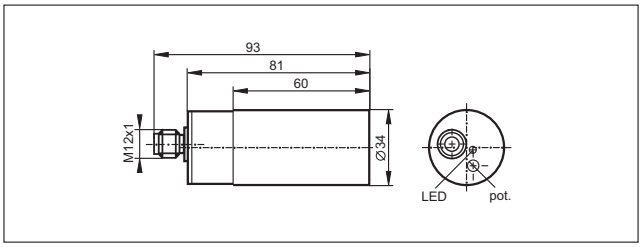

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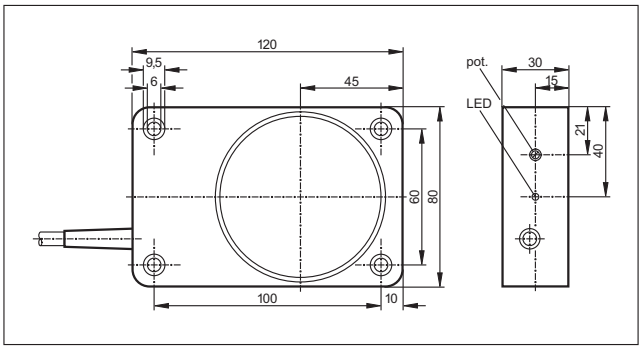

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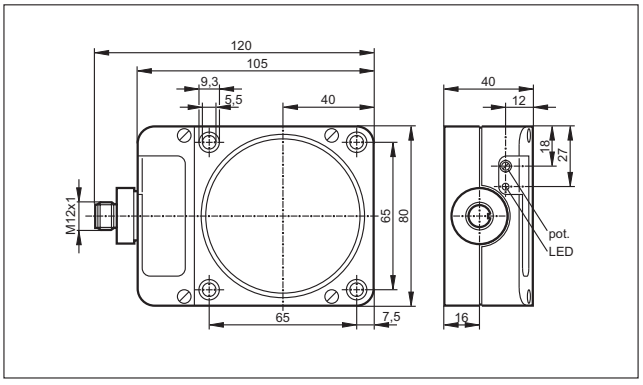

Scale drawings / drawing no. – CAD download: www.ifm.com

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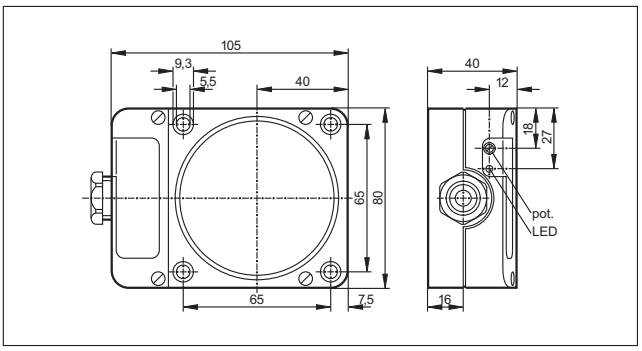

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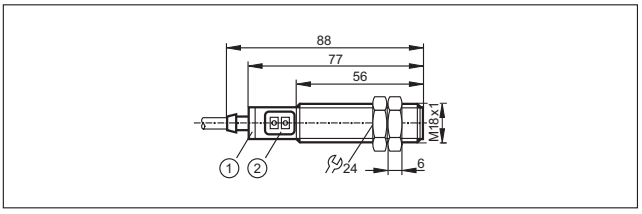
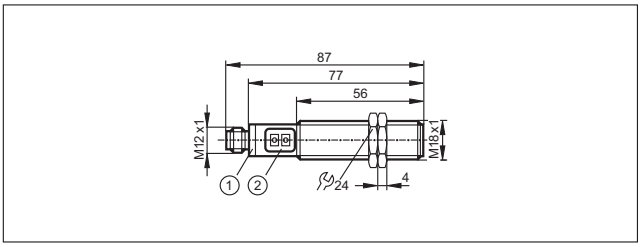


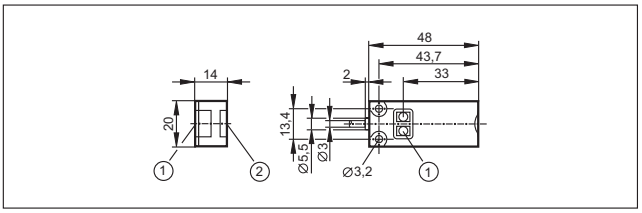
1: LED ring, 2: Programming buttons

17



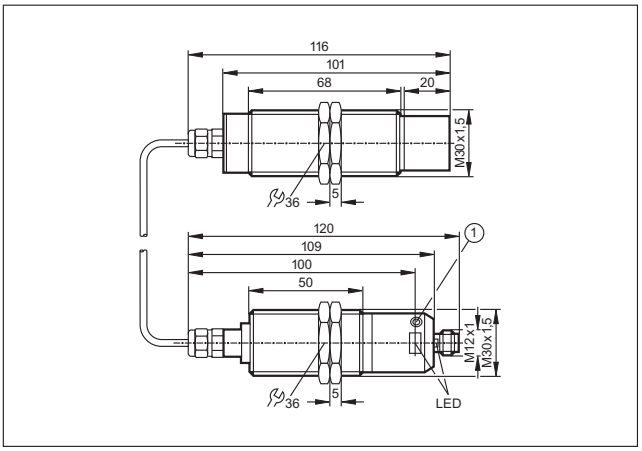
1: LED ring, 2: Programming buttons

18



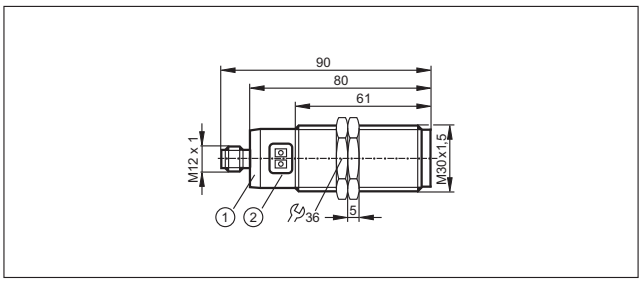
1: Programming buttons, 2: sensing face

19



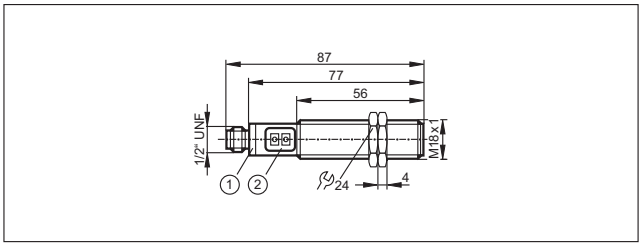
1: Programming button

20



1: LED ring, 2: Programming buttons

21



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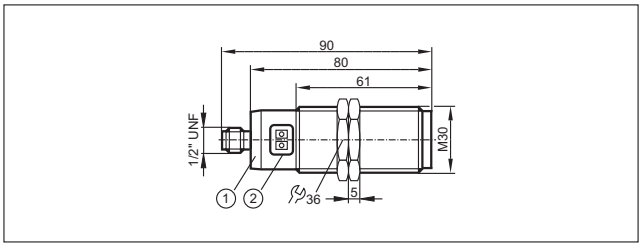
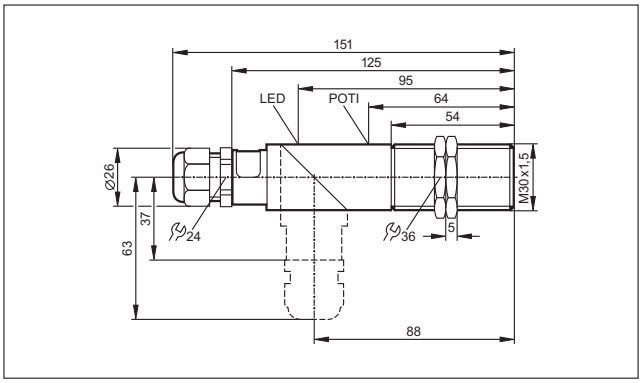


1: LED ring, 2: Programming buttons

23



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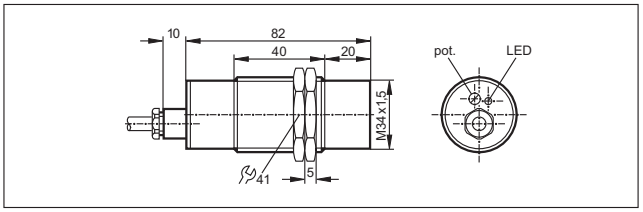

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Scale drawings / drawing no. – CAD download: www.ifm.com

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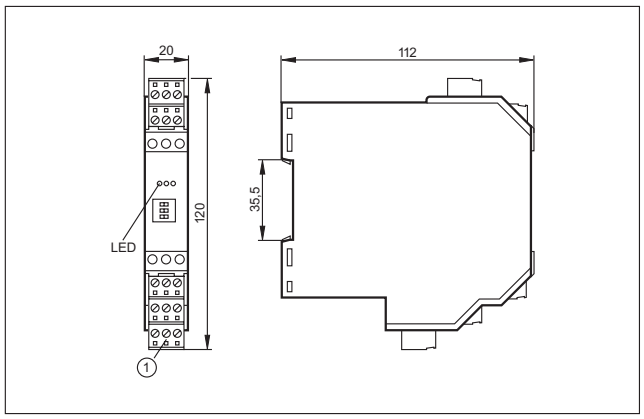


1: Combicon plug with screw terminals (optional)

- **Non-contact switching, no pressure necessary.**
- **Free of wear and maintenance.**
- **Optical feedback by LEDs in case of switching.**
- **Oil-resistant, protection rating IP 69K, impact and scratch resistant.**
- **Easy wiring thanks to tried-and-tested 3-wire technology.**

Capacitive touch sensors

Capacitive touch sensors are well known from trains where they are used for opening doors. They are also frequently used in industry, e.g. as start / stop buttons on machines. Moreover, capacitive touch sensors can be used as a button on mobile machinery. They are also used on pedestrian crossing lights. The advantage: designs for handicapped people with Braille are possible.

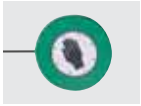
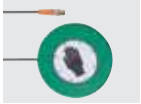
Touch sensitive switching

The dynamic-capacitive measuring principle detects an approaching human hand. The electronics suppresses interference such as water, layers of ice and static foreign bodies.

The touch sensors also switch through glass, thus offering further installation flexibility, e.g. for protection against vandalism.

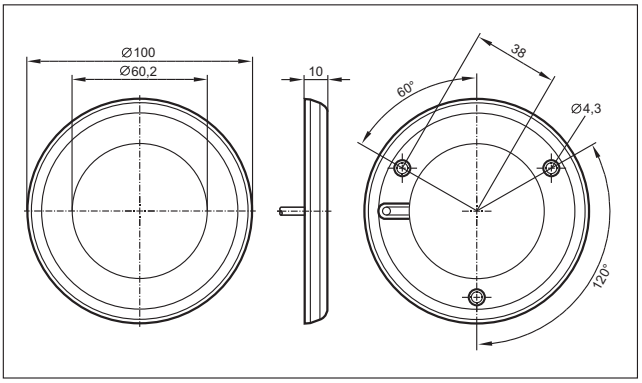
As compared to mechanical switches the sensors operate without wear. Since the touch sensors react to contact, no pressure is required for activation. This means considerably increased ease of use. LEDs as optical feedback signal that the sensor has been activated.

Dynamic 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 69K	1	**KT5001**
Cable with connector 0.3 m · Output function ⎍ · DC PNP							
	24	500	30	-40...85	IP 69K	2	**KT5002**

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

1



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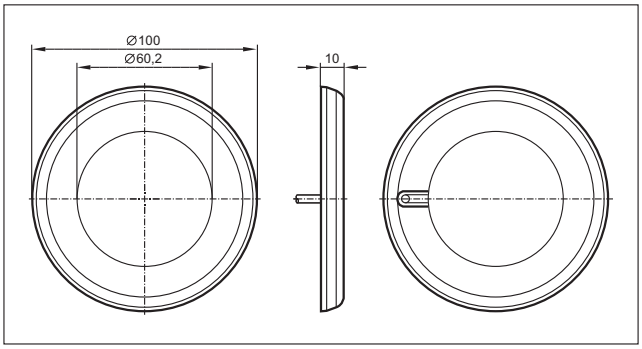


Product selectors and further information can be found at: www.ifm.com

- **Detection also through non-magnetisable metals.**
- **Small designs with very long sensing ranges up to 100 mm.**
- **Cylinder and rectangular designs for demanding applications.**
- **Wide temperature range for universal use.**
- **Flush or non-flush installation in non-magnetisable metals.**

Magnetic sensors

Magnetic sensors are used for the detection of positions without contact or wear and tear in control technology. They are used where inductive sensors reach their limits. The advantage: Compared to inductive sensors magnetic sensors have a considerably higher sensing range and smaller housings.

Since magnetic fields penetrate all non-magnetisable materials, the sensors can detect magnets through walls made of non-ferrous metal, stainless steel, aluminium, plastic or wood.

In gate systems, for example, the magnet sensor only detects the magnet which is to be detected. Any possible influences by aluminium in the environment do not impact the sensor.

In the food industry the magnetic sensor is often used in connection with pigs (cleaning devices which pass through the inside of pipes). By means of magnetic sensors their exact position can be detected from the outside through the wall of the stainless steel pipe.

Operating principle

Magnetic sensors from ifm electronic use state-of-the-art GMR (Giant Magneto Resistive Effect) technology. 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.

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.

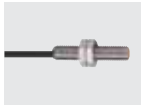
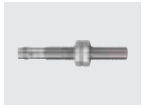
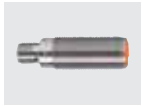
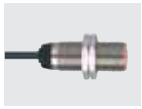
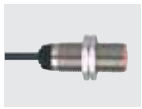
The sensor switches as soon as the magnet has reached the switch-on point. The direction of movement of the magnet is not important.

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.
M12 connector · Output function ⎍ · DC PNP · Wiring diagram no. 1 · Connector groups 107, 108, 109, 110, 135, 136									
	M12 / L = 60	60	high-grade st. steel	10...30	IP 65 / IP 67	5000	200	1	**MFS211**
M12 connector · Output function ⎍ · DC NPN · Wiring diagram no. 2 · Connector groups 107, 108, 109, 110, 135, 136									
	M12 / L = 60	60	high-grade st. steel	10...30	IP 65 / IP 67	5000	200	1	**MFS209**
M12 connector · Output function ⎍ · DC PNP · Wiring diagram no. 3 · Connector groups 107, 108, 135									
	M12 / L = 60	60	high-grade st. steel	10...30	IP 65 / IP 67	5000	200	1	**MFS210**
M12 connector · Output function ⎍ · DC PNP · Wiring diagram no. 1 · Connector groups 107, 108, 109, 110, 135, 136									
	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 107, 108, 135									
	M18 / L = 60	70	high-grade st. steel	10...30	IP 65 / IP 67	5000	200	2	**MGS205**
M12 connector · Output function ⎍ · DC PNP · Wiring diagram no. 3 · Connector groups 107, 108, 135									
	M18 / L = 60	70	high-grade st. steel	10...30	IP 65 / IP 67	5000	200	2	**MGS206**

Sensors for industrial applications

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 PNP · Wiring diagram no. 4									
	M8 / L = 50	60	V4A (316S12)	10...30	IP 67	5000	200	3	**ME5011**
	M12 / L = 50	60	high-grade st. steel	10...30	IP 67	5000	200	4	**MFS201**

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									
	M8 / L = 40	60	V4A (316S12)	10...30	IP 67	5000	200	5	**ME5015**
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**
M8 connector · Output function ⎍ · DC PNP · Wiring diagram no. 1 · Connector groups 1, 2, 3, 68									
	M8 / L = 60	60	V4A (316S12)	10...30	IP 67	5000	200	6	**ME5010**
M12 connector · Output function ⎍ · DC NPN · Wiring diagram no. 2 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	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 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M12 / L = 60	60	stainless steel	10...30	IP 67	–	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									
	M18 / L = 50	70	stainless steel	10...30	IP 67	5000	200	7	**MGS201**
Cable 2 m · Output function ⎍ · DC PNP · Wiring diagram no. 6									
	M18 / L = 50	70	stainless steel	10...30	IP 67	5000	200	7	**MGS202**
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**

You can find wiring diagrams and scale drawings from page 164

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Drawing no.	Order no.
M8 connector · Output function ⎍ · DC PNP · Wiring diagram no. 1 · Connector groups 1, 2, 3, 68									
	28 x 10 x 16	60	PBT	10...30	IP 67	5000	200	9	**MS5010**
Cable with connector 0.15 m · Output function ⎍ · DC PNP · Wiring diagram no. 1 · Connector groups 1, 2, 3, 68									
	40 x 12 x 26	60	PBT	10...30	IP 67	–	200	10	**MN5200**

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 ⎍ · DC PNP · Wiring diagram no. 1 · Connector groups 107, 108, 109, 110, 135, 136									
	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**

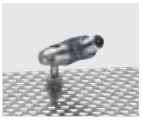
Sensors for hygienic and wet areas

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Drawing no.	Order no.
M12 connector · Output function ⎍ · DC PNP · Wiring diagram no. 1 · Connector groups 107, 108, 109, 110, 135, 136									
	M12 / L = 60	60	high-grade st. steel	10...30	IP 68 / IP 69K	5000	200	1	**MFT200**
M12 connector · Output function ⎍ · DC PNP · Wiring diagram no. 1 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	M18 / L = 60	70	high-grade st. steel	10...30	IP 68 / IP 69K	5000	200	2	**MGT200**
M12 connector · Output function ⎍ · DC PNP · Wiring diagram no. 1 · Connector groups 107, 109									
	M18 / L = 60	100	high-grade st. steel	10...30	IP 68 / IP 69K	–	200	2	**MGT201**

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**
	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**

You can find wiring diagrams and scale drawings from page 164

Accessories damping magnets

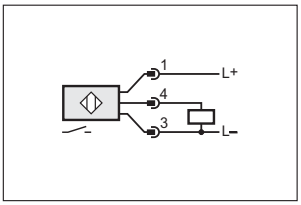
Type	Description	Order no.
	Damping magnet · M 1.0 · Housing materials: Samarium cobalt	E10749
	Damping magnet · M 2.0 · Housing materials: AlNiCo	E10750
	Damping magnet · M 3.0 · Housing materials: Barium ferrite	E10751
	Damping magnet · M 4.0 · Housing materials: Barium ferrite	E10752
	Damping magnet · 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

Wiring diagrams

Core colours

BK	black
BN	brown
BU	blue

1



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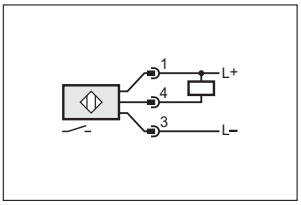

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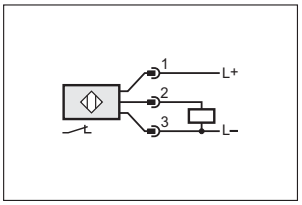

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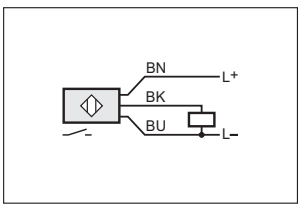

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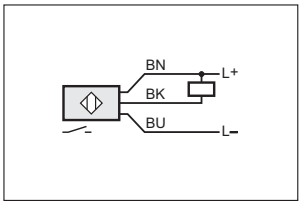

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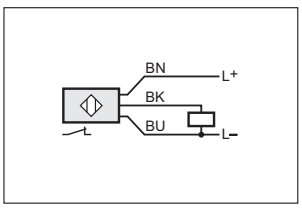

Scale drawings / drawing no. – CAD download: www.ifm.com

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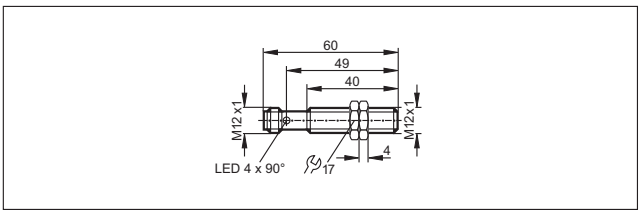

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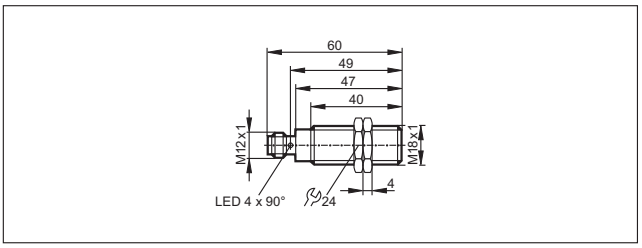
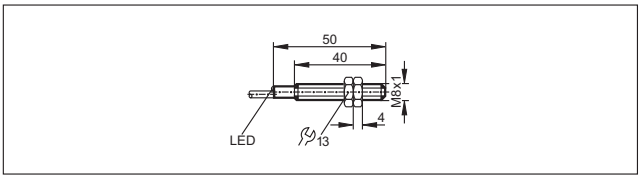
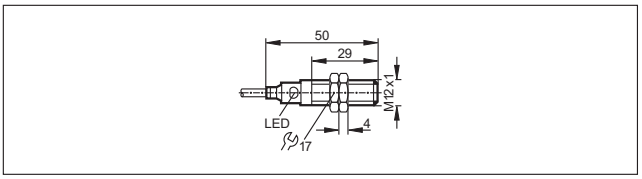


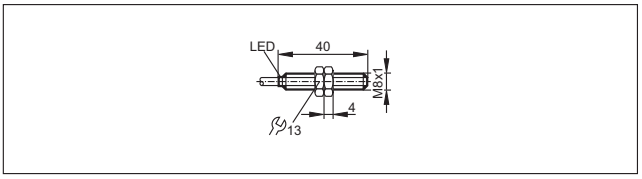
3



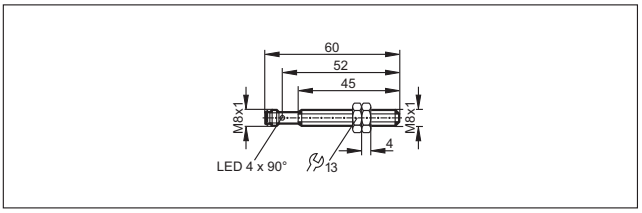
4



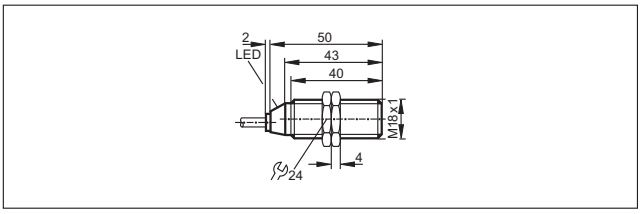
5



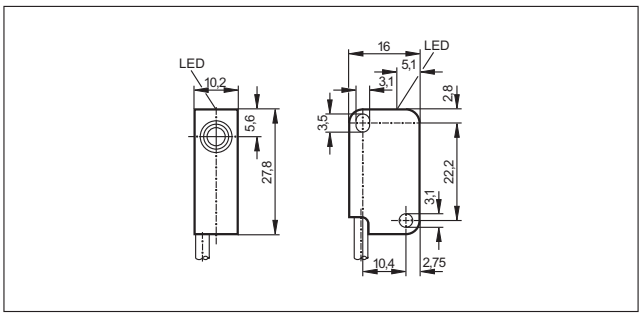
6



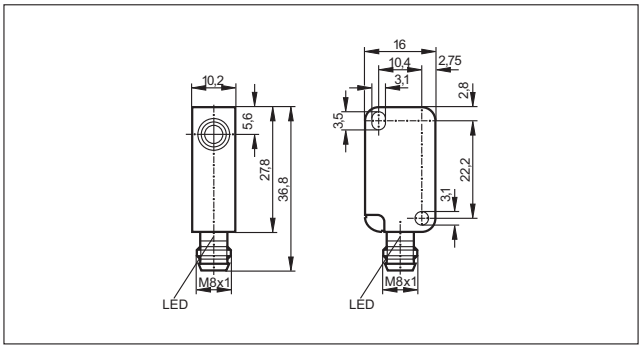
7



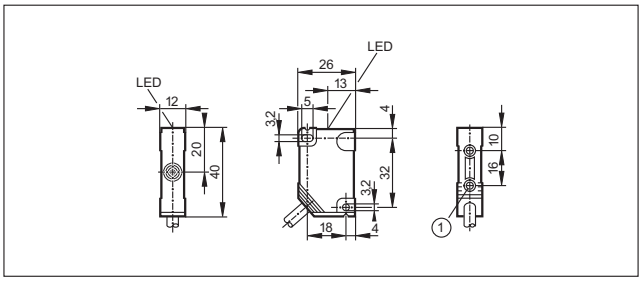
8



9

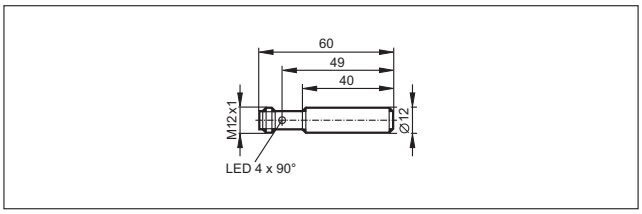


10



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.

11



- **Self-clamping fixture for easy adjustment and quick mounting.**
- **Convenient: can be easily inserted into the slot from the top.**
- **Suitable for almost all C and T slots.**
- **Unit versions available with connection cable and M8 / M12 cable plug.**
- **Wide selection of adapter accessories.**

Cylinder sensors

Cylinder sensors are used for position detection of pistons in pneumatic cylinders. They are directly mounted onto the cylinder. The ring magnet attached to the piston is sensed through the housing wall of non-magnetisable material (e.g. aluminium, brass or stainless steel). ifm electronic offers a standard solution for different cylinder types and manufacturers.

Operating principle

ifm electronic's cylinder sensors use state-of-the-art GMR and AMR technology: A GMR element is made up of extremely thin magnetic layers, each separated by a nonmagnetic layer. Without external field they align in an antiparallel 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. Advantage: 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 detect these magnetic fields safely.

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.

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.
M8 connector · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 1, 2, 3, 68									
	27.5 x 18 x 15.5	PA (polyamide)	10...30	> 6000	IP 65 / IP 67	100	-25...85	1	**MK5900**
M8 connector · Output function ⎍ · 3-wire · DC NPN · Wiring diagram no. 2 · Connector groups 1, 2, 3, 68									
	27.5 x 18 x 15.5	PA (polyamide)	10...30	> 6000	IP 65 / IP 67	100	-25...85	1	**MK5902**
Cable 2 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 4									
	25 x 5 x 6.5	PA (polyamide)	10...30	> 10000	IP 65 / IP 67	100	-25...85	2	**MK5100**
	25 x 5 x 6.5	PA (polyamide)	10...30	> 10000	IP 65 / IP 67	200	-25...85	2	**MK5115**
Cable 2 m · Output function ⎍ · 3-wire · DC NPN · Wiring diagram no. 5									
	25 x 5 x 6.5	PA (polyamide)	10...30	> 10000	IP 65 / IP 67	100	-25...85	2	**MK5114**
Cable 2 m · Output function ⎍ · 2-wire · DC PNP/NPN · Wiring diagram no. 6									
	25 x 5 x 6.5	PA (polyamide)	10...30	4000	IP 65 / IP 67	100	-25...85	2	**MK5103**
Cable 6 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 4									
	25 x 5 x 6.5	PA (polyamide)	10...30	> 10000	IP 65 / IP 67	200	-25...85	2	**MK5117**
Cable 10 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 4									
	25 x 5 x 6.5	PA (polyamide)	10...30	> 10000	IP 65 / IP 67	100	-25...85	2	**MK5124**
Cable with connector 0.3 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 1, 2, 3, 68									
	25 x 5 x 6.5	PA (polyamide)	10...30	> 10000	IP 65 / IP 67	100	-25...85	3	**MK5101**

Type	Dimensions [mm]	Material	U_b [V]	f [Hz]	Protection	I_{load} [mA]	T_a [°C]	Drawing no.	Order no.
Cable with connector 0.3 m · Output function ⎓ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 1, 2, 3, 68									
	25 x 5 x 6.5	PA (polyamide)	10...30	> 10000	IP 65 / IP 67	200	-25...85	3	**MK5106**
	25 x 5 x 6.5	PA (polyamide)	10...30	> 10000	IP 65 / IP 67	100	-25...85	4	**MK5102**
Cable with connector 0.3 m · Output function ⎓ · 3-wire · DC NPN · Wiring diagram no. 2 · Connector groups 1, 3, 68									
	25 x 5 x 6.5	PA (polyamide)	10...30	> 10000	IP 65 / IP 67	100	-25...85	3	**MK5112**
Cable with connector 0.3 m · Output function ⎓ · 2-wire · DC PNP/NPN · Wiring diagram no. 7 · Connector groups 1, 3									
	25 x 5 x 6.5	PA (polyamide)	10...30	4000	IP 65 / IP 67	100	-25...85	3	**MK5104**
	25 x 5 x 6.5	PA (polyamide)	10...30	4000	IP 65 / IP 67	100	-25...85	4	**MK5105**
Cable with connector 1 m · Output function ⎓ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 1, 2, 3, 68									
	25 x 5 x 6.5	PA (polyamide)	10...30	> 10000	IP 65 / IP 67	100	-25...85	4	**MK5122**
Cable with connector 0.3 m · Output function ⎓ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	25 x 5 x 6.5	PA (polyamide)	10...30	> 10000	IP 65 / IP 67	100	-25...85	5	**MK5107**
	25 x 5 x 6.5	PA (polyamide)	10...30	> 10000	IP 65 / IP 67	200	-25...85	5	**MK5108**
Cable with connector 0.3 m · Output function ⎓ · 2-wire · DC PNP/NPN · Wiring diagram no. 7 · Connector groups 9, 11, 107, 108, 135									
	25 x 5 x 6.5	PA (polyamide)	10...30	4000	IP 65 / IP 67	100	-25...85	5	**MK5109**

*** 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.

You can find wiring diagrams and scale drawings from page 180

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.
M8 connector · Output function ⎓ · 2-wire · AC/DC PNP/NPN · Wiring diagram no. 8									
	27.5 x 18 x 15.5	PA (polyamide)	5...50	1000	IP 65 / IP 67	100	-25...70	1	**MR0901***
Cable 2 m · Output function ⎓ · 2-wire · AC/DC PNP/NPN · Wiring diagram no. 9									
	30.5 x 5 x 6.5	PA (polyamide)	5...120	1000	IP 67	100	-25...70	6	**MR0100***
Cable 6 m · Output function ⎓ · 2-wire · AC/DC PNP/NPN · Wiring diagram no. 9									
	30.5 x 5 x 6.5	PA (polyamide)	5...120	1000	IP 67	100	-25...70	6	**MR0117***
Cable with connector 0.3 m · Output function ⎓ · 2-wire · AC/DC PNP/NPN · Wiring diagram no. 8 · Connector groups 1, 3									
	30.5 x 5 x 6.5	PA (polyamide)	5...60	1000	IP 67	100	-25...70	7	**MR0101***
	30.5 x 5 x 6.5	PA (polyamide)	5...60	1000	IP 67	100	-25...70	8	**MR0102***
Cable with connector 0.3 m · Output function ⎓ · 2-wire · AC/DC PNP/NPN · Wiring diagram no. 8 · Connector groups 9, 11, 107, 108, 135									
	30.5 x 5 x 6.5	PA (polyamide)	5...60	1000	IP 67	100	-25...70	9	**MR0107***

*** 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 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.
M8 connector · Output function ⎓ · 3-wire · AC/DC PNP · Wiring diagram no. 3									
	27.5 x 18 x 15.5	PA (polyamide)	5...50	1000	IP 65 / IP 67	350 / 500	-25...70	1	**MR0902***
Cable with connector 0.3 m · Output function ⎓ · 3-wire · AC/DC PNP · Wiring diagram no. 3 · Connector groups 1, 2, 3, 68									
	30.5 x 5 x 6.5	PA (polyamide)	5...50	1000	IP 65 / IP 67	350 / 500	-25...70	7	**MR0119***

Type	Dimensions [mm]	Material	U_b [V]	f [Hz]	Protection	I_{load} [mA]	T_a [°C]	Drawing no.	Order no.
Cable with connector 0.3 m · Output function ⎍ · 3-wire · AC/DC PNP · Wiring diagram no. 3 · Connector groups 1, 2, 3, 68									
	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***
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 with connector 0.3 m · Output function ⎍ · 3-wire · AC/DC PNP · Wiring diagram no. 3 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	30.5 x 5 x 6.5	PA (polyamide)	5...50	1000	IP 65 / IP 67	350 / 500	-25...70	9	**MR0121***

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

Miniature fuse to IEC60127-2 sheet 1, ≤ 0.75 A (fast blow, DC operation), ≤ 0.6 A (fast blow, AC operation). Recommendation: check the unit for reliable function after a short circuit.

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.
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. 6									
	30.5 x 5 x 6.5	PA (polyamide)	–	–	IP 65 / IP 67	–	-25...70	6	**MR500A**

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.
Cable 6 m · Output function ⎍ · 2-wire · DC PNP/NPN · Wiring diagram no. 11									
	30.5 x 5 x 6.5	PA (polyamide)	5...30	–	IP 65 / IP 67	100	-20...60	6	**MR501A***

*** 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.

You can find wiring diagrams and scale drawings from page 180

T-slot sensors for hygienic and wet ares

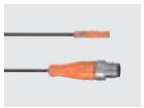
Type	Dimensions [mm]	Material	U_b [V]	f [Hz]	Protection	I_{load} [mA]	T_a [°C]	Drawing no.	Order no.
Cable 2 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 4									
	25 x 5 x 6.5	PA (polyamide)	10...30	> 10000	IP 65 / IP 67 / IP 69K	100	-25...85	2	**MK5110**
Cable 6 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 4									
	25 x 5 x 6.5	PA (polyamide)	10...30	> 10000	IP 65 / IP 67 / IP 69K	100	-25...85	2	**MK5128**
Cable with connector 0.3 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	25 x 5 x 6.5	PA (polyamide)	10...30	> 10000	IP 65 / IP 67 / IP 69K	100	-25...85	10	**MK5111**
Cable with connector 0.3 m · Output function ⎍ · 3-wire · DC NPN · Wiring diagram no. 2 · Connector groups 9, 11, 107, 108, 135									
	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. 4									
	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. 12									
	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. 4									
	25 x 5 x 6.5	PA (polyamide)	10...30	> 6000	IP 65 / IP 67	100	-25...85	12	**MK5161**
Cable with connector 0.3 m · Output function ⎍ · 3-wire · DC NPN · Wiring diagram no. 2 · Connector groups 1, 3, 68									
	25 x 5 x 6.5	PA (polyamide)	10...30	> 6000	IP 65 / IP 67	100	-25...85	13	**MK5137**

Type	Dimensions [mm]	Material	U_b [V]	f [Hz]	Protection	I_{load} [mA]	T_a [°C]	Drawing no.	Order no.
Cable with connector 0.3 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 1, 2, 3, 68									
	25 x 5 x 6.5	PA (polyamide)	10...30	> 6000	IP 65 / IP 67	100	-25...85	13	**MK5138**
Cable with connector 0.3 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 13 · Connector groups 1, 2, 3, 68									
	25 x 5 x 6.5	PA (polyamide)	10...30	> 6000	IP 65 / IP 67	100	-25...85	13	**MK5155**
Cable with connector 0.3 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 1, 2, 3, 68									
	25 x 5 x 6.5	PA (polyamide)	10...30	> 6000	IP 65 / IP 67	100	-25...85	14	**MK5159**
Cable with connector 0.3 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	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.
Cable 2 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 4									
	25 x 5 x 6.5	PA (polyamide)	10...30	> 6000	IP 65 / IP 67 / IP 69K	100	-25...85	12	**MK5158**
Cable with connector 0.3 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	25 x 5 x 6.5	PA (polyamide)	10...30	> 6000	IP 65 / IP 67 / IP 69K	100	-25...85	11	**MK5157**

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.
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. 6									
	25 x 5 x 6.5	PA (polyamide)	–	–	IP 65 / IP 67	–	-25...70	12	**MK502A**

You can find wiring diagrams and scale drawings from page 180

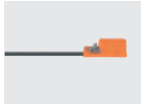
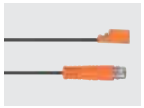
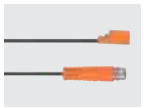
T-slot sensors with ATEX approval 3D/3G

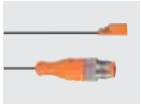
Type	Dimensions [mm]	Material	U_b [V]	f [Hz]	Protection	I_{load} [mA]	T_a [°C]	Drawing no.	Order no.
Cable 6 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 4									
	25 x 5 x 6.5	PA (polyamide)	10...30	> 6000	IP 65 / IP 67	100	-20...60	12	**MK503A**

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.
Cable 2 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 4									
	25 x 5 x 6.5	PA (polyamide)	10...30	> 10000	IP 67	100	-25...60	2	**MK500A**
Cable with connector 0.3 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 132, 134									
	25 x 5 x 6.5	PA (polyamide)	10...30	> 10000	IP 67	100	-25...60	10	**MK501A**

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.
Cable 2 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 4									
	17.5 x 2.8 x 7.7	PA (polyamide)	10...30	> 10000	IP 65 / IP 67	100	-25...85	16	**MK5300**
Cable 2 m · Output function ⎍ · 3-wire · DC NPN · Wiring diagram no. 5									
	17.5 x 2.8 x 7.7	PA (polyamide)	10...30	> 10000	IP 65 / IP 67	100	-25...85	16	**MK5306**
Cable with connector 0.3 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 1, 2, 3, 68									
	17.5 x 2.8 x 7.7	PA (polyamide)	10...30	> 10000	IP 65 / IP 67	100	-25...85	17	**MK5301**
Cable with connector 0.3 m · Output function ⎍ · 3-wire · DC NPN · Wiring diagram no. 2 · Connector groups 1, 3, 68									
	17.5 x 2.8 x 7.7	PA (polyamide)	10...30	> 10000	IP 65 / IP 67	100	-25...85	17	**MK5307**

Type	Dimensions [mm]	Material	U_b [V]	f [Hz]	Protection	I_{load} [mA]	T_a [°C]	Drawing no.	Order no.
Cable with connector 0.3 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 1, 2, 3, 68									
	17.5 x 2.8 x 7.7	PA (polyamide)	10...30	> 10000	IP 65 / IP 67	100	-25...85	18	**MK5302**
Cable with connector 0.5 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 1, 2, 3, 68									
	17.5 x 2.8 x 7.7	PA (polyamide)	10...30	> 10000	IP 65 / IP 67	100	-25...85	18	**MK5305**
Cable with connector 0.3 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	17.5 x 2.8 x 7.7	PA (polyamide)	10...30	> 10000	IP 65 / IP 67	100	-25...85	19	**MK5304**

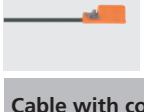
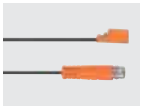
Flush C-slot sensors for industrial applications

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. 4									
	25.8 x 2.8 x 5	PA (polyamide)	10...30	> 10000	IP 65 / IP 67	100	-25...85	20	**MK5312**
Cable 2 m · Output function ⎍ · 3-wire · DC NPN · Wiring diagram no. 5									
	25.8 x 2.8 x 5	PA (polyamide)	10...30	> 10000	IP 65 / IP 67	100	-25...85	20	**MK5309**
Cable with connector 0.3 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 1, 2, 3, 68									
	25.8 x 2.8 x 5	PA (polyamide)	10...30	> 10000	IP 65 / IP 67	100	-25...85	21	**MK5310**
	25.8 x 2.8 x 5	PA (polyamide)	10...30	> 10000	IP 65 / IP 67	100	-25...85	22	**MK5311**
Cable with connector 0.3 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 9, 10, 11, 107, 108, 110, 135									
	25.8 x 2.8 x 5	PA (polyamide)	10...30	> 10000	IP 65 / IP 67	100	-25...85	23	**MK5314**
Cable with connector 0.3 m · Output function ⎍ · 3-wire · DC NPN · Wiring diagram no. 2 · Connector groups 1, 3, 68									
	25.8 x 2.8 x 5	PA (polyamide)	10...30	> 10000	IP 65 / IP 67	100	-25...85	21	**MK5308**

You can find wiring diagrams and scale drawings from page 180

Type	Dimensions [mm]	Material	U_b [V]	f [Hz]	Protection	I_{load} [mA]	T_a [°C]	Drawing no.	Order no.
Cable with connector 0.5 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 1, 2, 3, 68									
	25.8 x 2.8 x 5	PA (polyamide)	10...30	> 10000	IP 65 / IP 67	100	-25...85	22	**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. 4									
	25.8 x 2.8 x 5	PA (polyamide)	10...30	> 5000	IP 65 / IP 67	100	-25...85	20	**MK5325**
Cable with connector 0.3 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 1, 2, 3, 68									
	25.8 x 2.8 x 5	PA (polyamide)	10...30	> 5000	IP 65 / IP 67	100	-25...85	21	**MK5326**
	26.1 x 2.8 x 5.5	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. 4									
	17.5 x 2.8 x 7.7	PA (polyamide)	10...30	> 5000	IP 65 / IP 67	100	-25...85	25	**MK5329**
Cable with connector 0.3 m · Output function ⎍ · 3-wire · DC PNP · Wiring diagram no. 1 · Connector groups 1, 2, 3, 68									
	17.5 x 2.8 x 7.7	PA (polyamide)	10...30	> 5000	IP 65 / IP 67	100	-25...85	26	**MK5330**
	17.5 x 2.8 x 7.7	PA (polyamide)	10...30	> 5000	IP 65 / IP 67	100	-25...85	27	**MK5331**

Fixing straps for clean line cylinders

Type	Description	Order no.
	Fixing strap for clean-line cylinders · Piston diameter · Ø 8...12 mm · for type MKT · Housing materials: adapter: PA / Fixing strap: stainless steel	**E11816**
	Fixing strap for clean-line cylinders · Piston diameter · Ø 16...20 mm · for type MKT · Housing materials: adapter: PA / Fixing strap: stainless steel	**E11817**

Type	Description	Order no.
	Fixing strap for clean-line cylinders · Piston diameter · Ø 25...32 mm · for type MKT · Housing materials: adapter: PA / Fixing strap: stainless steel	**E11818**
	Fixing strap for clean-line cylinders · Piston diameter · Ø 40 mm · for type MKT · Housing materials: adapter: PA / Fixing strap: stainless steel	**E11819**
	Fixing strap for clean-line cylinders · Piston diameter · Ø 50 mm · for type MKT · Housing materials: adapter: PA / Fixing strap: stainless steel	**E11820**
	Fixing strap for clean-line cylinders · Piston diameter · Ø 63 mm · for type MKT · Housing materials: adapter: PA / Fixing strap: stainless steel	**E11821**
	Fixing strap for clean-line cylinders · Piston diameter · Ø 80 mm · for type MKT · Housing materials: adapter: PA / Fixing strap: stainless steel	**E11822**
	Fixing strap for clean-line cylinders · Piston diameter · Ø 100 mm · for type MKT · Housing materials: adapter: PA / Fixing strap: stainless steel	**E11823**
	Fixing strap for clean-line cylinders · Ø 10...16 mm · for type MKT · Housing materials: adapter: stainless steel / Fixing strap: stainless steel	**E11975**
	Fixing strap for clean-line cylinders · Ø 20...25 mm · for type MKT · Housing materials: adapter: stainless steel / Fixing strap: stainless steel	**E11976**
	Fixing strap for clean-line cylinders · Ø 32 mm · for type MKT · Housing materials: adapter: stainless steel / Fixing strap: stainless steel	**E11977**
	Fixing strap for clean-line cylinders · Ø 40 mm · for type MKT · Housing materials: adapter: stainless steel / Fixing strap: stainless steel	**E11978**
	Fixing strap for clean-line cylinders · Ø 50 mm · for type MKT · Housing materials: adapter: stainless steel / Fixing strap: stainless steel	**E11979**
	Fixing strap for clean-line cylinders · Ø 63 mm · for type MKT · Housing materials: adapter: stainless steel / Fixing strap: stainless steel	**E11980**
	Fixing strap for clean-line cylinders · Ø 80 mm · for type MKT · Housing materials: adapter: stainless steel / Fixing strap: stainless steel	**E11981**
	Fixing strap for clean-line cylinders · Ø 100 mm · for type MKT · Housing materials: adapter: stainless steel / Fixing strap: stainless steel	**E11982**

You can find wiring diagrams and scale drawings from page 180

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
	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 44-45 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

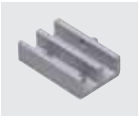
Type	Description	Order no.
	Adapter for tie rod / integrated profile cylinders · for types MKT (T-slot cylinder sensors) · Clamping range 5...11 mm · Housing materials: aluminium / screw: stainless steel	E11797
	Adapter for tie rod / integrated profile cylinders · for types MKT (T-slot cylinder sensors) · 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 / 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

Type	Description	Order no.
	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**
	Adapter for tie rod cylinders (or cylinders of the same dimensions) · for types MKT (T-slot cylinder sensors) · Clamping range 3...5 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**

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**

Various adapters and memorisation blocks

Type	Description	Order no.
	Adapter for clean-line cylinders · for types MKT (T-slot cylinder sensors) · Housing materials: PA · Pack quantity: 10	**E11846**
	Adapter for clean-line cylinders · for types MKT (T-slot cylinder sensors) · Housing materials: stainless steel	**E11877**
	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**

You can find wiring diagrams and scale drawings from page 180

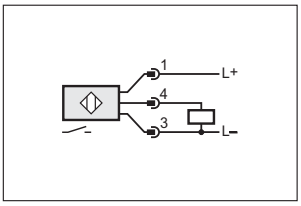
Type	Description	Order no.
	Adapter for SMC cylinders ECDQ2 series (or cylinders of the same dimensions) · for types MKT (T-slot cylinder sensors) · T-slot rail, flat · Housing materials: aluminium / screw: stainless steel	**E11890**
	Adapter for SMC cylinders CDQ2 series (or cylinders of the same dimensions) · 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**
	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

1



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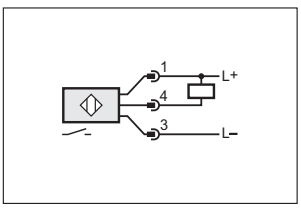

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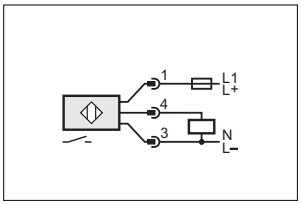

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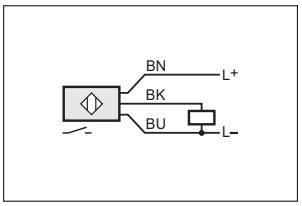

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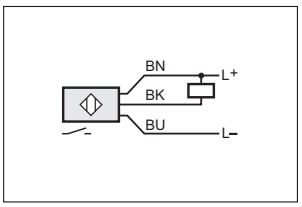

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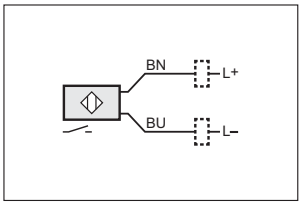

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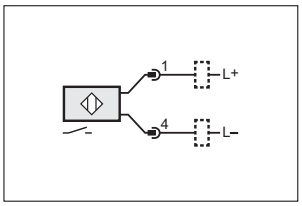

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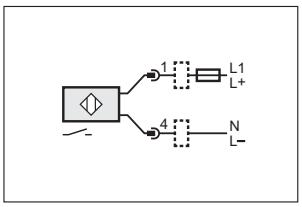

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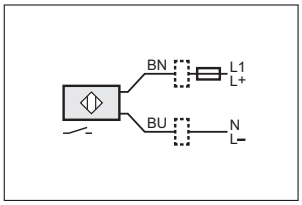

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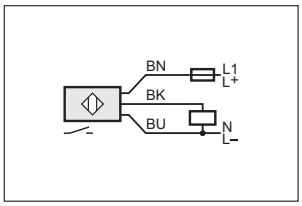

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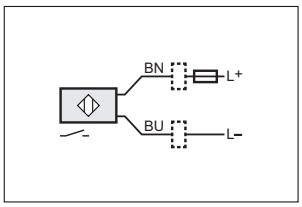
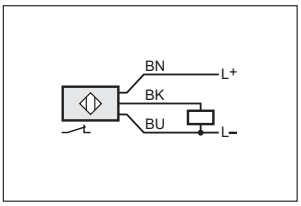


Product selectors and further information can be found at: www.ifm.com

Wiring diagrams

12



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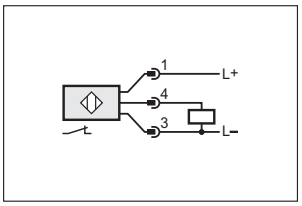

Scale drawings / drawing no. – CAD download: www.ifm.com

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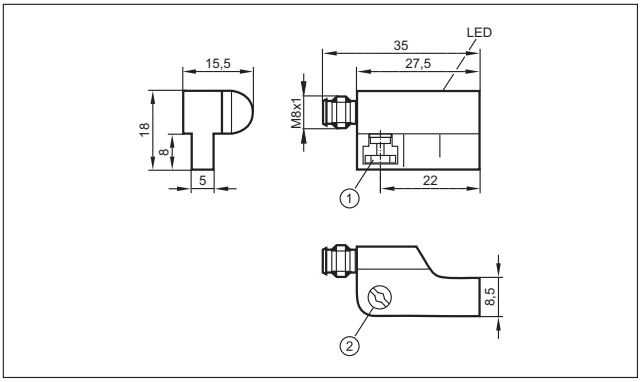
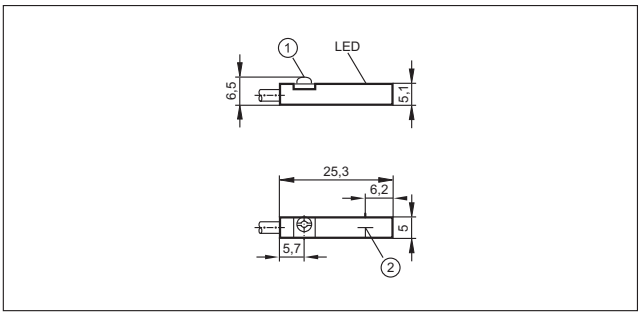


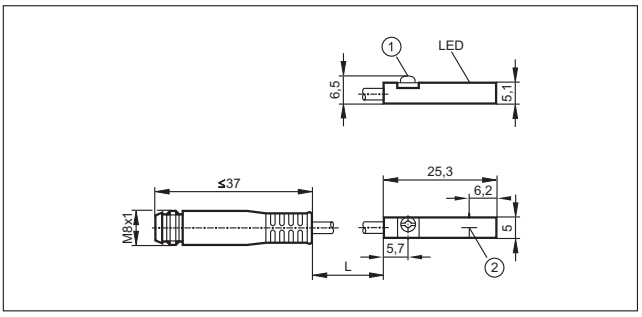
1: fixing element, 2: combined head screw for fixing element

2



1: Fastening clamp, 2: sensing face

3



1: Fastening clamp, 2: sensing face

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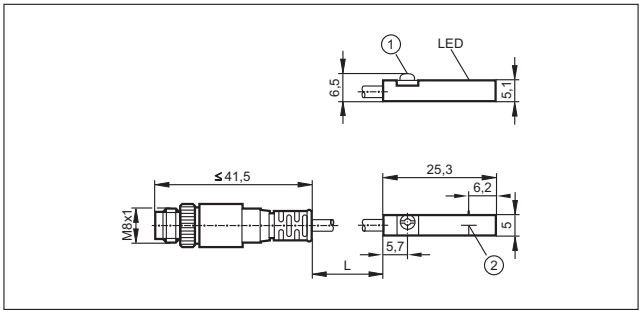

1: Fastening clamp, 2: sensing face

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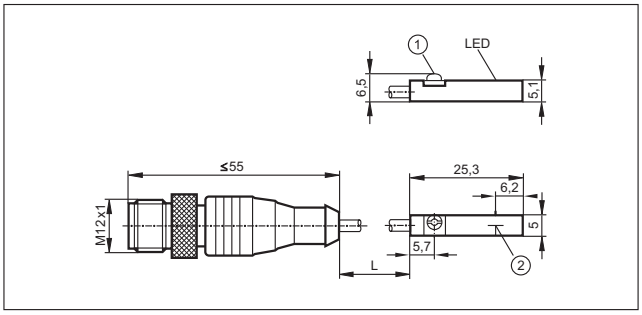

1: Fastening clamp, 2: sensing face

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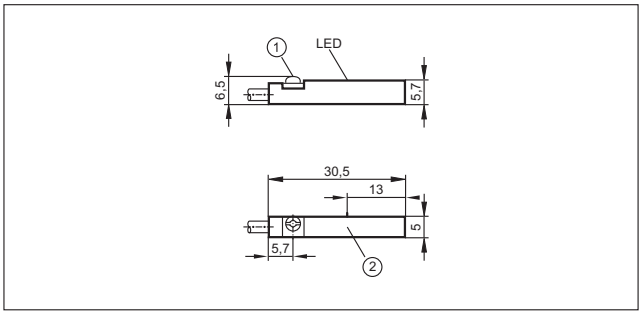
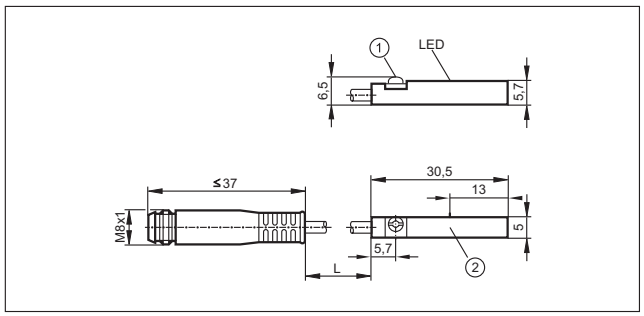


1: Fastening clamp, 2: sensing face

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

7



1: Fastening clamp, 2: sensing face

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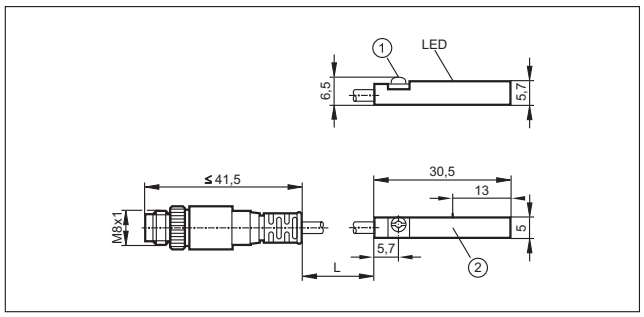

1: Fastening clamp, 2: sensing face

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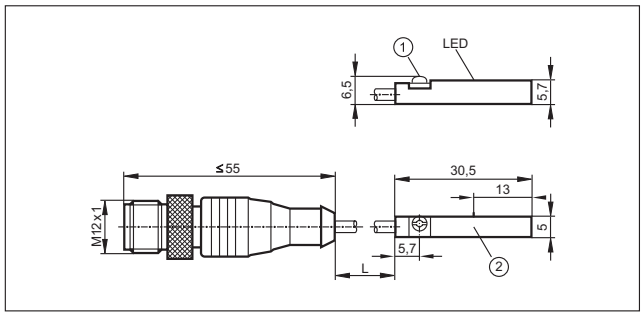

1: Fastening clamp, 2: sensing face

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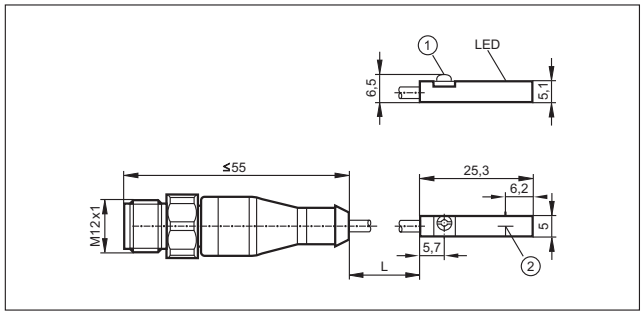

1: Fastening clamp, 2: sensing face

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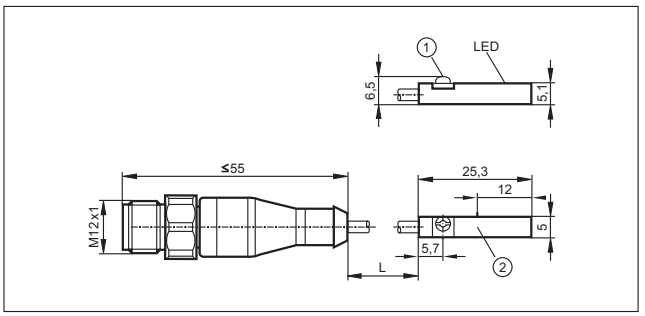

1: Fastening clamp, 2: sensing face

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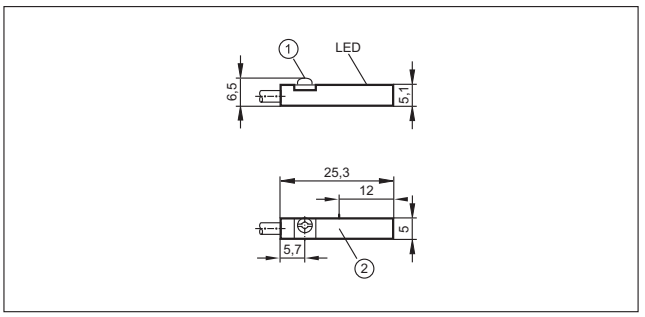

1: Fastening clamp, 2: sensing face

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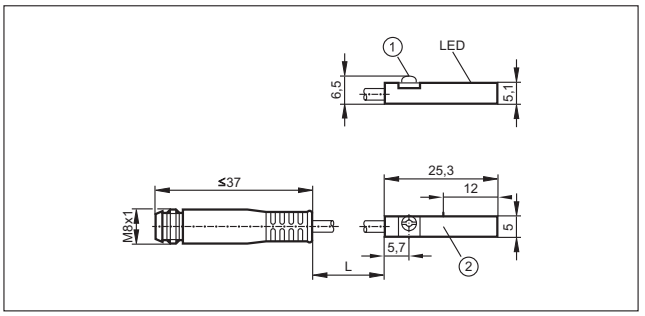

1: Fastening clamp, 2: sensing face

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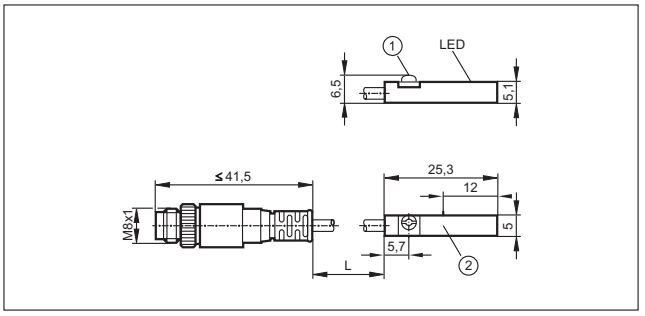
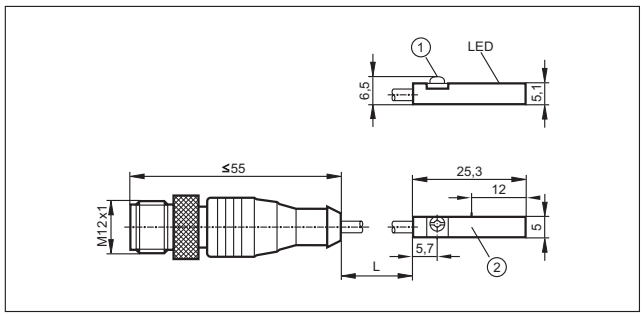


1: Fastening clamp, 2: sensing face

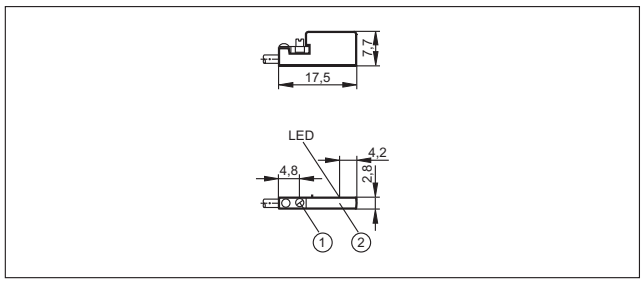
Scale drawings / drawing no. – CAD download: www.ifm.com

15



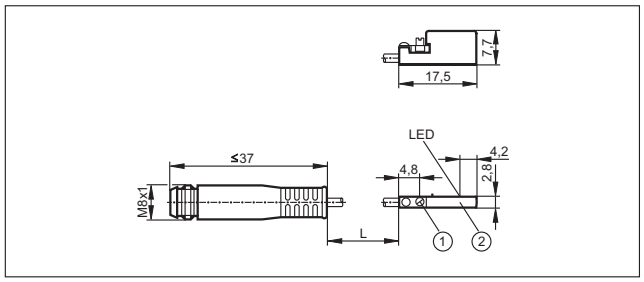
1: Fastening clamp, 2: sensing face

16



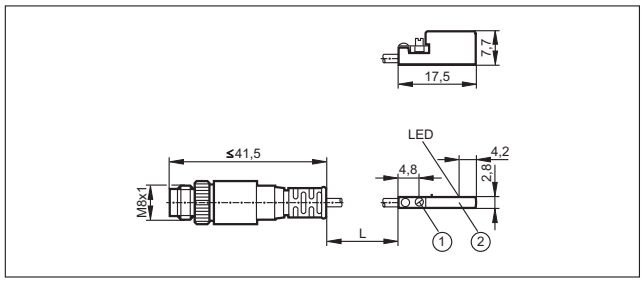
1: Fastening clamp, 2: sensing face

17



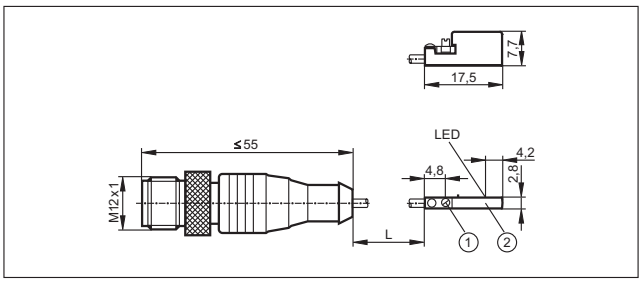
1: Fastening clamp, 2: sensing face

18



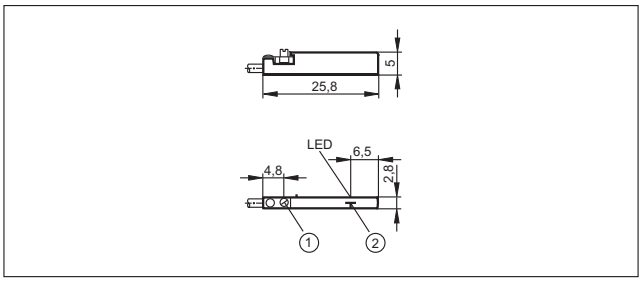
1: Fastening clamp, 2: sensing face

19



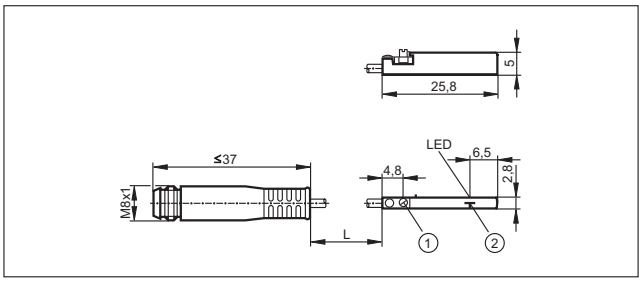
1: Fastening clamp, 2: sensing face

20



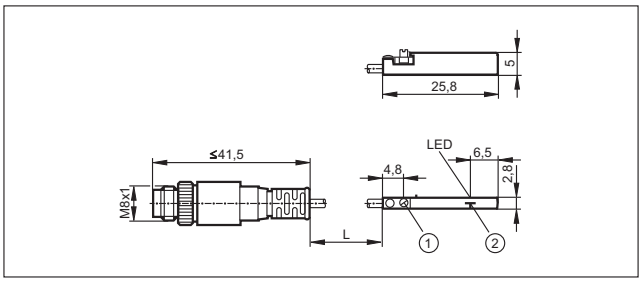
1: Fastening clamp, 2: sensing face

21



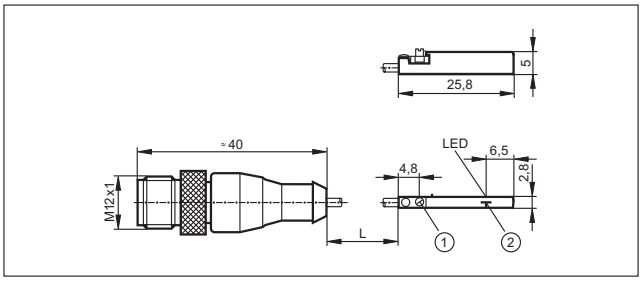
1: Fastening clamp, 2: sensing face

22



1: Fastening clamp, 2: sensing face

23



1: Fastening clamp, 2: sensing face

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

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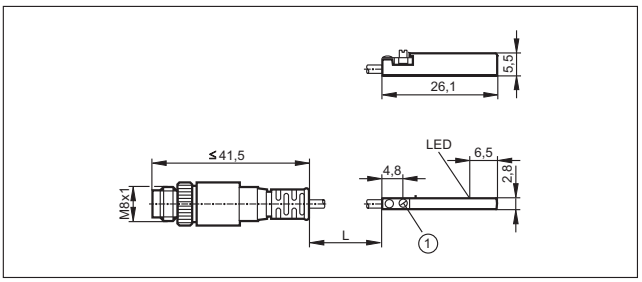
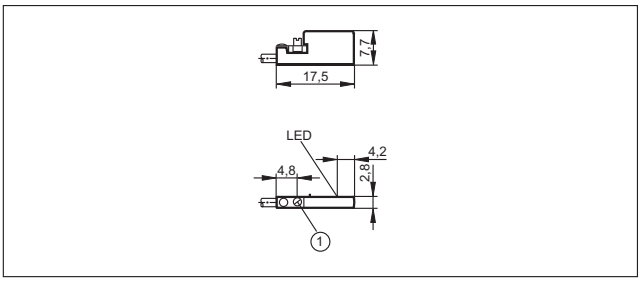


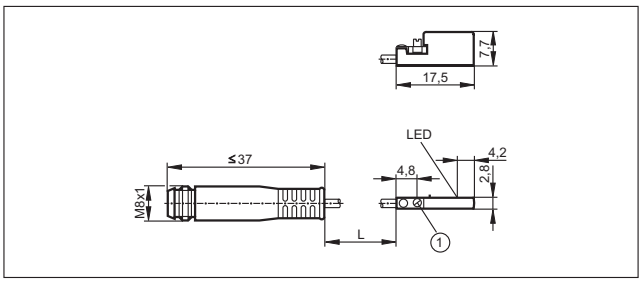
1: Fastening clamp

25



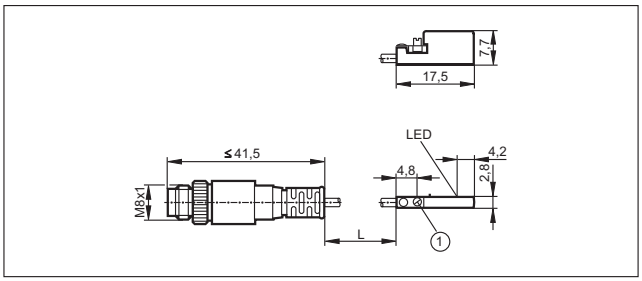
1: Fastening clamp

26



1: Fastening clamp

27



1: Fastening clamp

- **Dual inductive feedback sensors for valves and actuators.**
- **Straightforward fit to standard actuators based on VDI / VDE 3845.**
- **AS-i dual sensor for quick and safe installation due to “plug & play”.**
- **Compact, weatherproof and low maintenance.**
- **Also available as complete set including all the accessories for a valve.**

Valve sensors

In industrial processes where liquids, air or gases are used valves are needed for dosing and control. There is a wide variety of valve types; butterfly or ball valves being the most common quarter-turn types.

These valves are seldom operated manually. Pneumatic valve actuators are normally used for mechanical positioning. The valve position must be monitored electronically. On the one hand to provide a feedback to the controller when a certain position (e.g. “open” or “closed”) is reached. On the other hand it is necessary to monitor the valves centrally.

Mechanical switches are still often used for position feedback on the actuator shaft. For other solutions several inductive sensors are used together with a switch target for position detection. Disadvantage: Mounting is mechanically complex. Where there are temperature fluctuations condensing humidity leads to corrosion and thus malfunction.

Operating principle

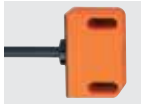
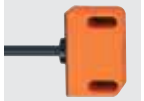
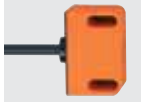
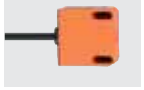
An innovative design eliminates the disadvantages of these conventional solutions. In 1992 ifm electronic developed a standard which is now used by many leading actuator manufacturers. A round switch target, known as a “puck”, with two metal screws offset by 90° is mounted on the actuator shaft. The screws are located at a different height. A compact dual inductive sensor (type IND) with two integral sensors detects the upper or lower metal screw depending on the valve position and thus the two switch positions.

Advantages

Due to the simple construction the system operates safely with no wear at all. It is virtually resistant to external influence and meets the protection rating IP 67. Under certain conditions the unit can even be self-cleaning. Compared to conventional solutions the sensor weight is low. The sensors are also resistant to mechanical stress such as vibration and shock.

Feedback: Monitoring of pneumatic and manual valves must be possible.

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 9, 11, 107, 108, 135									
	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 9, 11, 107, 108, 135									
	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 9, 11, 12, 107, 108, 109, 135, 136									
	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 21									
	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]	Drawing no.	Order no.
M18 connector · Output function ⎍⎽/⎍⎽ · AC/DC · Wiring diagram no. 5 · Connector group 21									
	40 x 26 x 40	4 nf	PBT	20...250	IP 67	25 / 50	350 / 100	6	**IN0108***
Rd 24 x 1/8 connector 6 pins · Output function ⎍⎽/⎍⎽ · DC PNP · Connector groups 31, 38									
	40 x 26 x 60	4 nf	PBT	10...36	IP 67	1300	250	7	**IN5334**
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**

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.

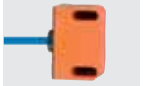
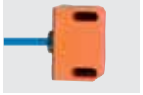
Sensors for industrial applications, AS-i system

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f AC / DC [Hz]	I_{load} AC / DC [mA]	Drawing no.	Order no.
M12 connector · 1 x 2 inputs · Wiring diagram no. 6 · Connector groups 11, 13, 14, 107, 113, 115, 135, 137									
	55 x 60 x 35	4 nf	PBT (Pocan)	26.5...31.6	IP 67	–	–	9	**AC2315**
M12 connector · Output function transistor PNP · 2 inputs / 1 output · Connector groups 9, 11, 38, 108, 116									
	55 x 60 x 35	4 nf	PBT (Pocan)	26.5...31.6	IP 67	–	–	10	**AC2316**
M12 connector · Output function transistor PNP · 2 inputs / 2 outputs · Connector groups 9, 11, 38, 108, 116									
	55 x 60 x 35	4 nf	PBT (Pocan)	26.5...31.6	IP 67	–	–	10	**AC2317**

f = flush / nf = non flush

You can find wiring diagrams and scale drawings from page 196

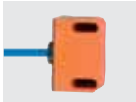
Sensors with ATEX approval 1G/2G and 1D

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 131										
	40 x 26 x 26	4 nf	PBT	8.2 DC	7.5...15 DC	140	130	1800	11	**NN5008**
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. 8										
	40 x 26 x 26	4 nf	PBT	8.2 DC	7.5...15 DC	140	130	1800	1	**NN5009**
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. 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 21										
	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 31, 61										
	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**

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.
M12 connector · Output function transistor PNP · 2 inputs / 2 outputs · Connector groups 132, 134									
	55 x 60 x 35	4 nf	PBT (Pocan)	26.5...31.6	IP5X	–	–	10	**AC317A**
M12 connector · Output function transistor PNP · 2 inputs / 1 output · Connector groups 132, 134									
	55 x 60 x 35	4 nf	PBT (Pocan)	26.5...31.6	IP5X	–	–	10	**AC316A**

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f AC / DC [Hz]	I_{load} AC / DC [mA]	Drawing no.	Order no.
M12 connector · Output function transistor PNP · 2 inputs / 1 output · Connector groups 132, 134									
	55 x 60 x 35	4	PBT (Pocan)	26.5...31.6	IP 67	–	–	12	**AC326A**
M12 connector · 1 x 2 inputs · Wiring diagram no. 6 · Connector groups 132, 134									
	55 x 60 x 35	4 nf	PBT (Pocan)	26.5...31.6	IP5X	–	–	9	**AC315A**
M12 connector · Output function ⎍/⎍ · DC PNP · Wiring diagram no. 4 · Connector groups 132, 134									
	40 x 26 x 47	4	PBT	10...30	IP 67	1300	100	13	**IN507A**
Cable 2 m · Output function ⎍/⎍ · DC PNP · Wiring diagram no. 1									
	40 x 26 x 26	4 nf	PBT (Pocan)	10...30	IP 67	1300	100	1	**IN508A**
M12 connector · Output function ⎍/⎍ · DC PNP · Wiring diagram no. 4 · Connector groups 132, 134									
	40 x 26 x 47	4 nf	PBT (Pocan)	10...30	IP 67	1300	100	4	**IN509A**

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]	Drawing no.	Order no.
Cable 2 m · Output function 1...5 V analogue · DC · Wiring diagram no. 10									
	67.5 x 43 x 110	0...80	PA	18...36	IP 65 / IP 67	–	–	14	**IX5002**
Cable 2 m · Output function 3 x normally open · DC PNP · Wiring diagram no. 11									
	67.5 x 43 x 110	0...80	PA	18...36	IP 65 / IP 67	–	100	15	**IX5006**
Cable with connector 0.3 m · Output function 3 x normally open · DC PNP · Wiring diagram no. 12 · Connector groups 113, 115, 137									
	65 x 52 x 110	0...80	PA	18...36	IP 65 / IP 67	–	100	16	**IX5010**

You can find wiring diagrams and scale drawings from page 196

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 with connector 0.3 m · Output function 3 x normally open · DC PNP · Wiring diagram no. 12 · Connector groups 113, 115, 137									
	65 x 43 x 110	0.2	PA	18...36	IP 65 / IP 67	–	100	17	**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]	Drawing no.	Order no.
Cable with connector 0.3 m · AS-i · Wiring diagram no. 6 · Connector groups 11, 13, 14, 107, 113, 115, 135, 137									
	65 x 52 x 110	0...80	PA	26.5...31.6	IP 65 / IP 67	–	–	16	**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**

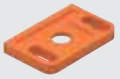
Switching cams for sensors with quarter-turn actuators

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**

You can find wiring diagrams and scale drawings from page 196

Type	Description	Order no.
	Target puck · Ø 65 mm · Housing materials: Target puck: PA 6 / screws: V2A	E17327
	Target puck · Ø 102 · Housing materials: Target puck: PA 6 / screws: V2A	E17328
	Target puck · Ø 102 · Housing colour: black · 8 possible switching flag positions · Housing materials: Target puck: PA 6 / screws: V2A	E17329
	Target puck · Ø 102 · Housing colour: blue · 8 possible switching flag positions · Housing materials: Target puck: PA 6 / screws: V2A	E17330
	Target puck · Ø 102 · 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 sensors with quarter-turn actuators

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 · Pack quantity: 10	E12212

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

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 sensors with rising stem valve

Type	Description	Order no.
	Mounting adapter · for Kieselmann seat valves · accessory for IX · Housing materials: adapter: PA / Target: stainless steel 1.4404	**E12123**
	Mounting adapter · for Alfa Laval valves · accessory for IX · Housing materials: adapter: PA / Target: stainless steel 316L / 1.4404	**E11900**
	Mounting adapter · for Südmo valves · accessory for IX · 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 IX · Housing materials: adapter: POM / Target: stainless steel	**E12009**
	Mounting adapter · for Georg Fischer diaphragm valve Diastar with mounting kit M16 · accessory for IX · Housing materials: adapter: POM / Target: stainless steel	**E12010**
	Mounting adapter · for Bardiani valves · accessory for IX · Housing materials: adapter: PA / Target: stainless steel 1.4404	**E12170**
	Mounting adapter · IX / Ø 30 mm · for Gemü actuators with mounting kit · accessory for IX · Housing materials: adapter: POM / Target: stainless steel	**E12042**
	Mounting adapter · IX / Ø 45 mm · for Gemü actuators with mounting kit · accessory for IX · Housing materials: adapter: POM / Target: stainless steel	**E12043**

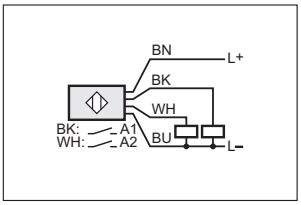
You can find wiring diagrams and scale drawings from page 196

Wiring diagrams

Core colours

BN	brown
BU	blue
BK	black
WH	white
GY	grey

1



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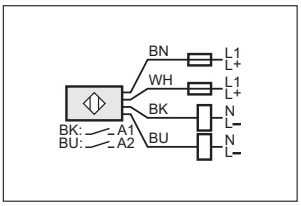

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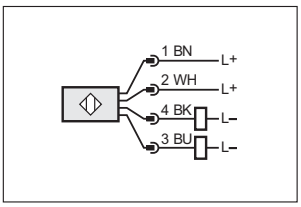

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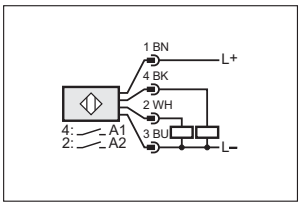

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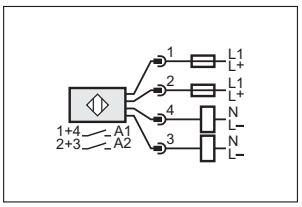

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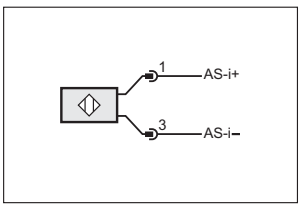

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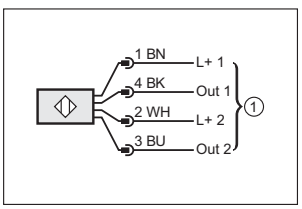

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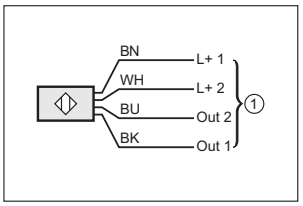

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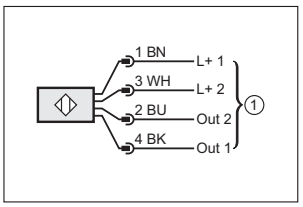

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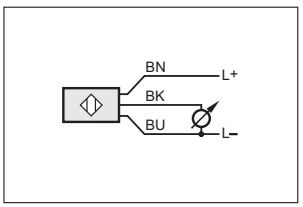

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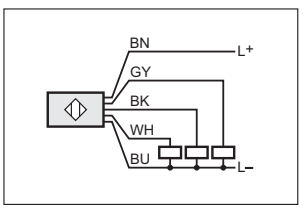

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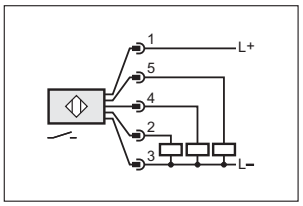

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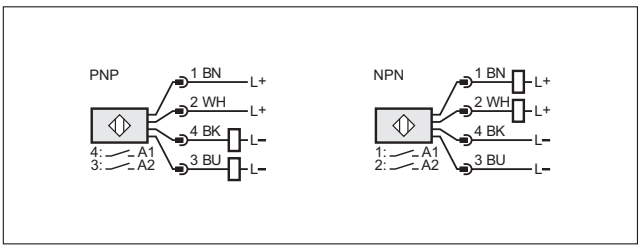

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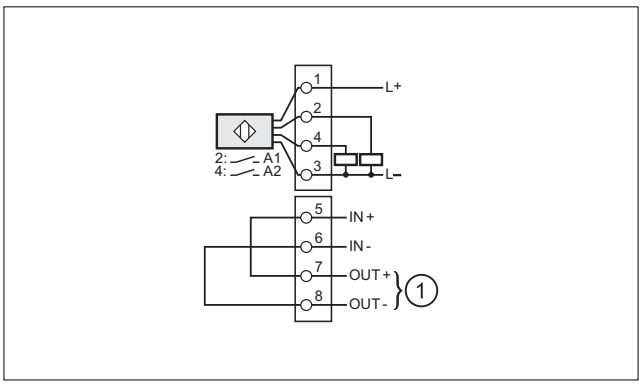

Scale drawings / drawing no. – CAD download: www.ifm.com

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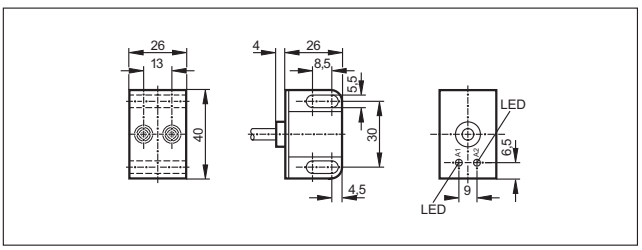

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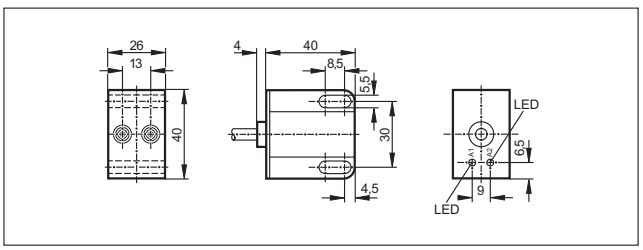
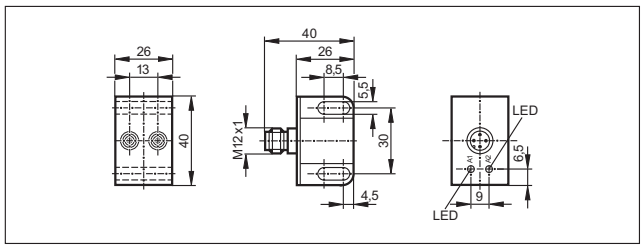


Product selectors and further information can be found at: www.ifm.com

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

3



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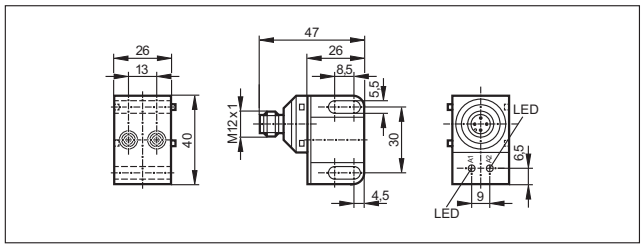

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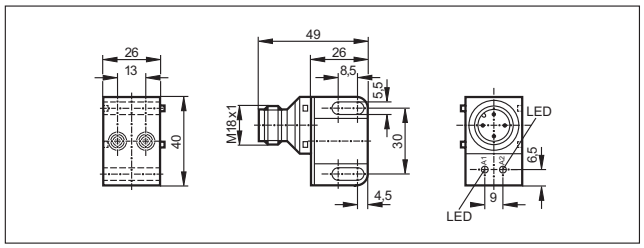

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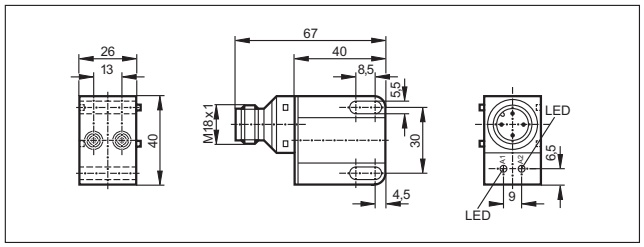

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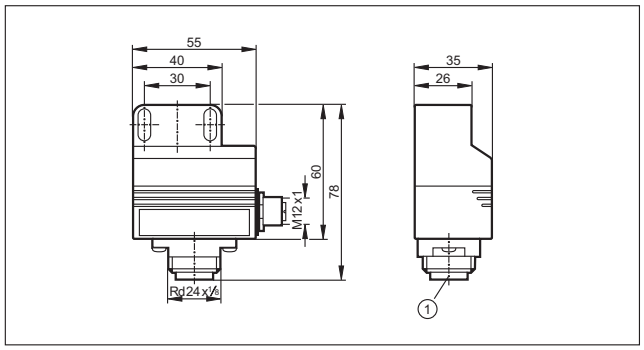

1: field connection

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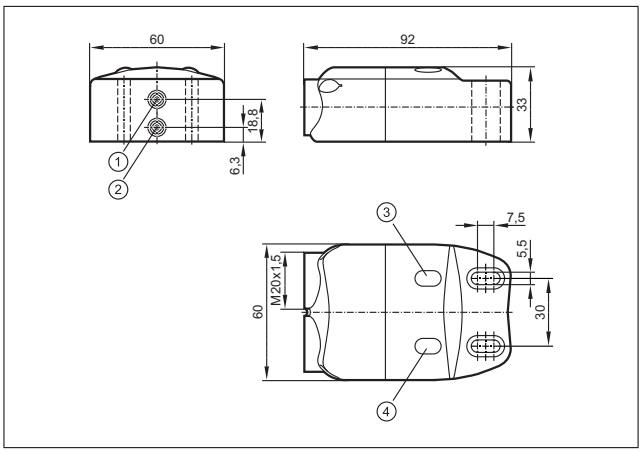
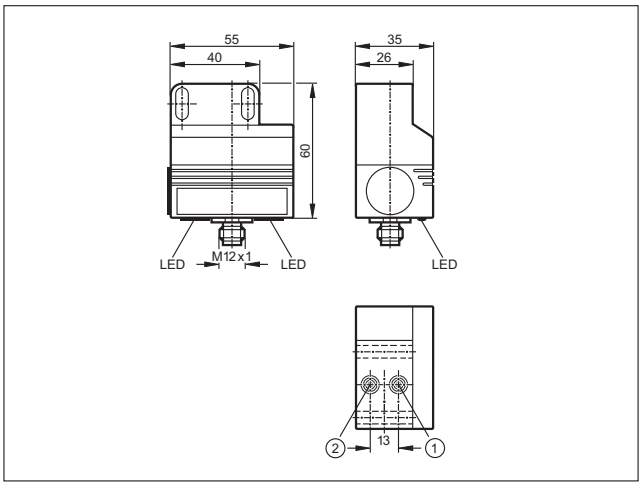


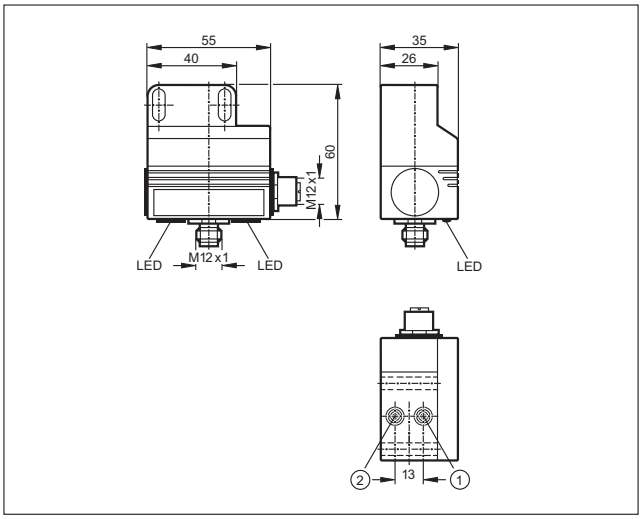
1: sensor 1, 2: sensor 2, 3: LED OUT 2, 4: LED OUT 1

9



1: sensor 1, 2: sensor 2

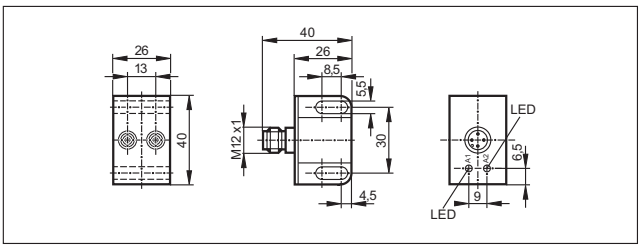
10



1: sensor 1, 2: sensor 2

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

11



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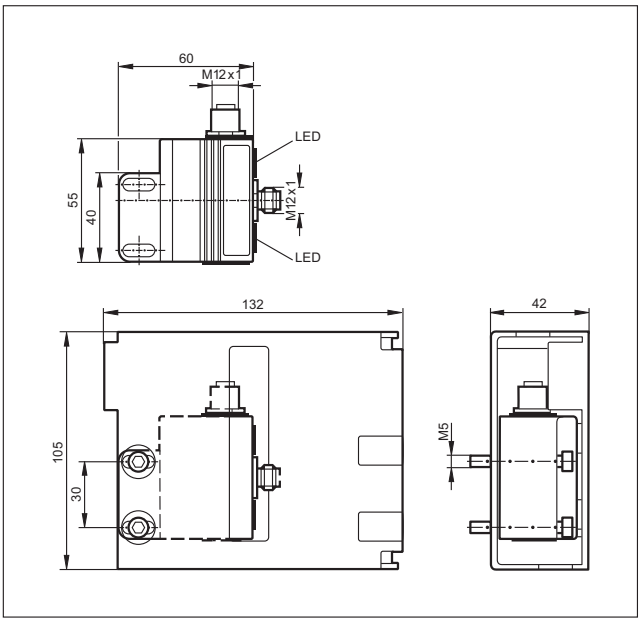

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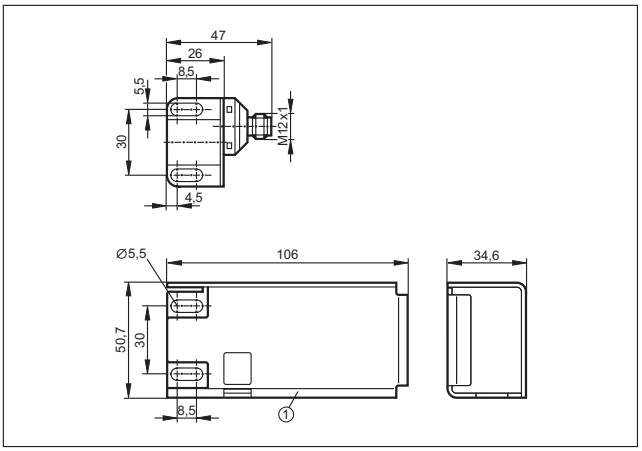
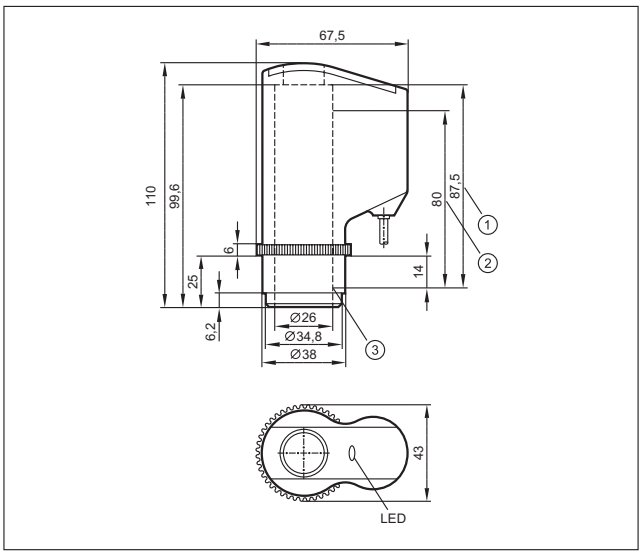


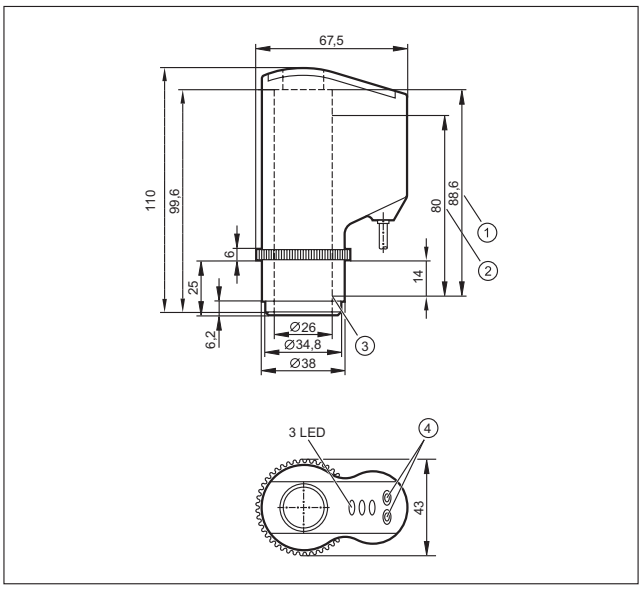
1: protective housing

14



1: Max. spindle stroke , 2: Measuring range, 3: Initial value of the measuring range (zero point)

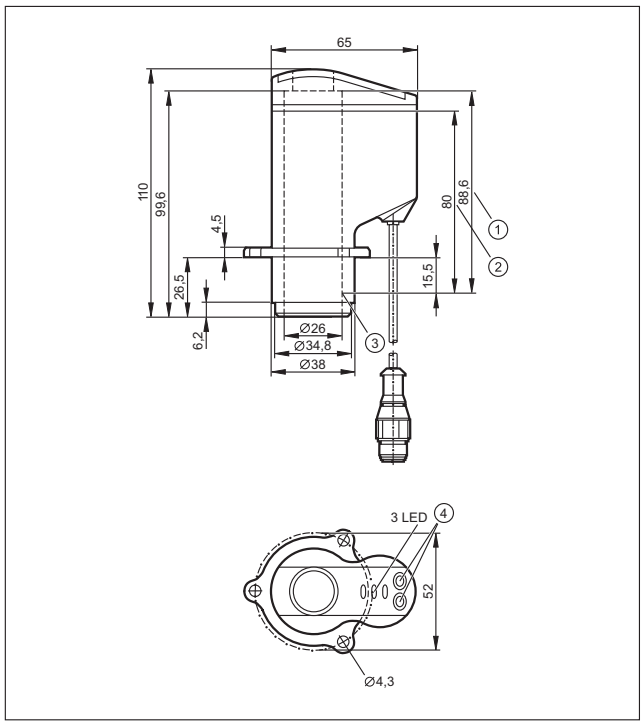
15



1: Max. spindle stroke , 2: Measuring distance, 3: Initial value of the measuring range (zero point) , 4: Programming buttons

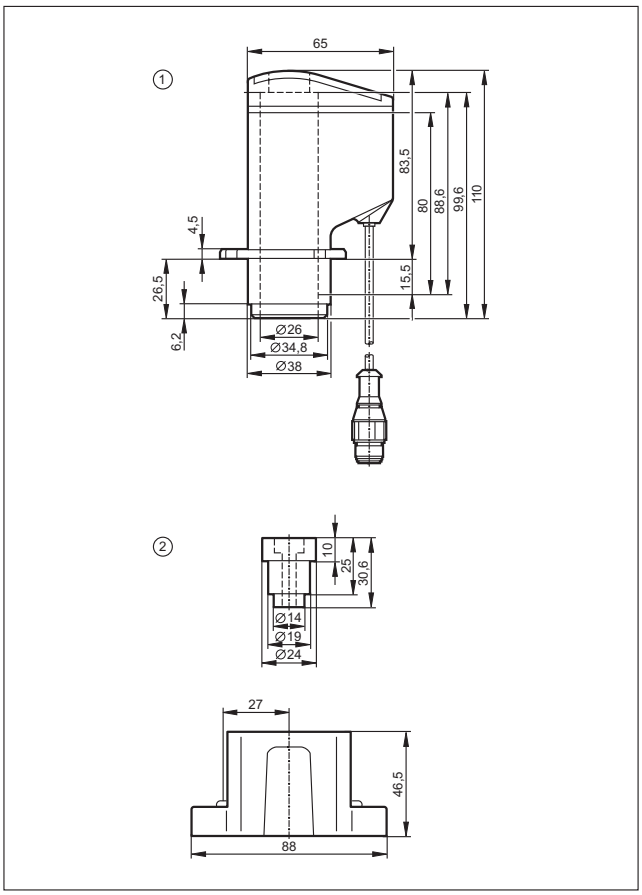
Scale drawings / drawing no. – CAD download: www.ifm.com

16



1: Max. spindle stroke , 2: Measuring distance, 3: Initial value of the measuring range (zero point) , 4: Programming buttons

17



1: Valve sensor IX5010, 2: Mounting adapter E11900

Infrared / red light sensors

Laser sensors

Distance detection

Fibre optics

For specific systems

Safety light curtains / light grids

- **Visible red light for easy adjustment.**
- **Versions for use in hygienic and wet areas.**
- **LED display to check operation, switching status and function.**
- **Quick set-up due to easy teaching.**
- **Extensive range of system components for easy and safe mounting.**

Photoelectric sensors

Automation technology can no longer be imagined without photoelectric sensors as "artificial eyes". They are used where safe and non-contact detection of the exact position of objects is required. The material of the objects to be detected is of no importance. Compared to inductive sensors photoelectric sensors have a much higher sensing zone.

Through-beam sensors

A through-beam sensor is distinguished by a long range. The system consists of two separate components: a transmitter and a receiver. The light only travels one way (from the transmitter to the receiver). 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 (high excess gain).

Retro-reflective sensors

For a retro-reflective sensor the transmitter and receiver are incorporated into one housing. By means of a reflector the transmitted light is returned to the receiver.

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 of an object.

Therefore additional components (e.g. reflectors for retro-reflective sensors) are not necessary to operate a diffuse reflection sensor.

Fixing options

ifm electronic offers a complete component system of easy-to-use mounting sets that make installation easier for you. The solutions consist of a clamp which is fastened with only one screw, keeps the sensors safely in place and at the same time guarantees free movement in all axes.

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.

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 · IP 67								
	Transmitter	4 m	infrared	700	–	1	1	**OF5018**
	Receiver	4 m	infrared	–	H/D PNP	24	1	**OF5019**
Through-beam sensor · M12 connector · 10...36 DC · metal · IP 65 · Connector groups 9, 11, 107, 108, 135								
	Transmitter	4 m	infrared	700	–	2	2	**OF5021**
Through-beam sensor · M12 connector · 10...36 DC · metal · IP 65 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	Receiver	4 m	infrared	–	H/D PNP	25	3	**OF5022**
Retro-reflective sensor · Cable 2 m · 10...36 DC · metal · IP 67								
	Retro-reflective sensor	0.05...2 m	infrared	140	H/D PNP	24	1	**OF5014**
	Polarisation filter	0.2...0.8 m	red	70	H/D PNP	24	1	**OF5024**
	Retro-reflective sensor	0.05...2 m	infrared	140	H/D NPN	26	1	**OF5050**
Retro-reflective sensor · M12 connector · 10...36 DC · metal · IP 65 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	Retro-reflective sensor	0.05...2 m	infrared	140	H/D PNP	25	3	**OF5016**
	Polarisation filter	0.2...0.8 m	red	70	H/D PNP	25	3	**OF5025**
Retro-reflective sensor · M12 connector · 10...36 DC · metal · IP 65 · Connector groups 9, 11, 107, 108, 135								
	Retro-reflective sensor	0.05...2 m	infrared	140	H/D NPN	27	3	**OF5051**
	Polarisation filter	0.2...0.8 m	red	70	H/D NPN	27	3	**OF5062**

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 2 m · 10...36 DC · metal · IP 67								
	Diffuse reflection sensor	1...200 mm	infrared	92	H/D PNP	24	1	**OF5010**
	Diffuse reflection sensor	1...200 mm	infrared	92	H/D NPN	28	1	**OF5048**
	Diffuse reflection sensor	1...400 mm	infrared	185	H/D PNP	24	1	**OF5026**
Diffuse reflection sensor · Cable 6 m · 10...36 DC · high-grade stainless steel · IP 67								
	Diffuse reflection sensor	1...200 mm	infrared	92	H/D PNP	24	1	**OF5032**
Diffuse reflection sensor · M12 connector · 10...36 DC · metal · IP 65 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	Diffuse reflection sensor	1...200 mm	infrared	92	H/D PNP	25	3	**OF5012**
	Diffuse reflection sensor	1...400 mm	infrared	185	H/D PNP	25	3	**OF5027**
Diffuse reflection sensor · M12 connector · 10...36 DC · metal · IP 65 · Connector groups 9, 11, 107, 108, 135								
	Diffuse reflection sensor	1...200 mm	infrared	92	H/D NPN	29	3	**OF5049**
	Diffuse reflection sensor	1...400 mm	infrared	185	H/D NPN	29	3	**OF5060**

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 · IP 67 · Connector groups 9, 11, 107, 108, 135								
	Transmitter	8 m	red	600	–	2	4	**OGS100**
Through-beam sensor · M12 connector · 10...30 DC · plastics · IP 67 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	Receiver	8 m	red	–	D PNP	3	4	**OGE100**

You can find wiring diagrams and scale drawings from page 233

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 · IP 67 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	Receiver	8 m	red	–	H PNP	4	4	**OGE101**
	Receiver	8 m	red	–	D NPN	5	4	**OGE102**
	Receiver	8 m	red	–	H NPN	5	4	**OGE103**
Through-beam sensor · M12 connector · 10...36 DC · high-grade stainless steel · IP 67 · Connector groups 9, 11, 107, 108, 135								
	Transmitter	20 m	red	800	–	2	5	**OGS200**
Through-beam sensor · M12 connector · 10...36 DC · high-grade stainless steel · IP 67 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	Receiver	20 m	red	–	D PNP	3	5	**OGE200**
	Receiver	20 m	red	–	H PNP	4	5	**OGE201**
Through-beam sensor · Cable 2 m · 20...250 AC/DC (47...63 Hz AC) · plastics · IP 67								
	Transmitter	15 m	infrared	2000	–	6	6	**OG0028**
	Receiver	15 m	infrared	–	H AC/DC	7	6	**OG0029**
	Receiver	15 m	infrared	–	D AC/DC	7	6	**OG0038**
Through-beam sensor · 1/2" connector · 20...250 AC/DC (47...63 Hz AC) · plastics · IP 67 · Connector group 26								
	Transmitter	15 m	infrared	2000	–	8	7	**OG0030**
	Receiver	15 m	infrared	–	H AC/DC	9	7	**OG0031**
	Receiver	15 m	infrared	–	D AC/DC	9	7	**OG0039**
Retro-reflective sensor · M12 connector · 10...30 DC · plastics · IP 67 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	Polarisation filter	0.05...2.5 m	red	200	D PNP	3	4	**OGP100**

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.
Retro-reflective sensor · M12 connector · 10...30 DC · plastics · IP 67 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	Polarisation filter	0.05...2.5 m	red	200	H PNP	4	4	**OGP101**
	Polarisation filter	0.05...2.5 m	red	200	D NPN	5	4	**OGP102**
	Polarisation filter	0.05...2.5 m	red	200	H NPN	5	4	**OGP103**
Retro-reflective sensor · M12 connector · 10...36 DC · high-grade stainless steel · IP 67 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	Polarisation filter	0.03...4 m	red	160	D PNP	3	5	**OGP200**
	Polarisation filter	0.03...4 m	red	160	H PNP	4	5	**OGP201**
Retro-reflective sensor · Cable 2 m · 20...250 AC/DC (47...63 Hz AC) · plastics · IP 67								
	Polarisation filter	3 m	red	262	H AC/DC	7	6	**OG0043**
	Polarisation filter	3 m	red	262	D AC/DC	7	6	**OG0032**
Retro-reflective sensor · 1/2" connector · 20...250 AC/DC (47...63 Hz AC) · plastics · IP 67 · Connector group 26								
	Polarisation filter	3 m	red	262	H AC/DC	9	7	**OG0044**
	Polarisation filter	3 m	red	262	D AC/DC	9	7	**OG0033**
Diffuse reflection sensor · M12 connector · 10...30 DC · plastics · IP 65 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	Diffuse reflection sensor	10...400 mm	red	25	H PNP	3	8	**OGT100**
	Diffuse reflection sensor	10...400 mm	red	25	D PNP	3	8	**OGT101**
	Diffuse reflection sensor	10...400 mm	red	25	H NPN	5	8	**OGT102**
	Diffuse reflection sensor	10...400 mm	red	25	D NPN	5	8	**OGT103**

You can find wiring diagrams and scale drawings from page 233

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...36 DC · high-grade stainless steel · IP 65 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	Diffuse reflection sensor	2...600 mm	red	50	H PNP	3	9	**OGT200**
	Background suppression	15...250 mm	red	15	H PNP	3	9	**OGH200**
Diffuse reflection sensor · Cable 2 m · 20...250 AC/DC (47...63 Hz AC) · plastics · IP 67								
	Diffuse reflection sensor	1...600 mm	infrared	< 169	H AC/DC	7	6	**OG0034**
	Diffuse reflection sensor	1...600 mm	infrared	< 169	D AC/DC	7	6	**OG0040**
Diffuse reflection sensor · Cable 0.377 m · 20...250 AC/DC (47...63 Hz AC) · plastics · IP 67								
	Diffuse reflection sensor	1...600 mm	infrared	< 169	H AC/DC	7	6	**OG0047**
Diffuse reflection sensor · 1/2" connector · 20...250 AC/DC (47...63 Hz AC) · plastics · IP 67 · Connector group 26								
	Diffuse reflection sensor	1...600 mm	infrared	< 169	H AC/DC	9	7	**OG0035**
	Diffuse reflection sensor	1...600 mm	infrared	< 169	D AC/DC	9	7	**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 · IP 67								
	Transmitter	25 m	red	1000	–	1	10	**OGS501**
	Receiver	25 m	red	–	H/D PNP	10	11	**OGE502**

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 · IP 67 · Connector groups 9, 11, 107, 108, 135								
	Transmitter	25 m	red	1000	–	2	12	**OGS500**
Through-beam sensor · M12 connector · 10...36 DC · high-grade stainless steel · IP 67 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	Receiver	25 m	red	–	H/D PNP	3	13	**OGE500**
Retro-reflective sensor · Cable 2 m · 10...36 DC · high-grade stainless steel · IP 67								
	Polarisation filter	0.03...5 m	red	200	H/D PNP	10	11	**OGP502**
Retro-reflective sensor · M12 connector · 10...36 DC · high-grade stainless steel · IP 67 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	Polarisation filter	0.03...5 m	red	200	H/D PNP	3	13	**OGP500**
Retro-reflective sensor · M12 connector · 10...36 DC · high-grade stainless steel · IP 67 · Connector groups 9, 11, 107, 108, 135								
	Polarisation filter	0.03...5 m	red	200	H/D NPN	5	13	**OGP503**
Diffuse reflection sensor · Cable 2 m · 10...36 DC · high-grade stainless steel · IP 67								
	Background suppression	15...300 mm	red	25	H/D PNP	10	11	**OGH501**
Diffuse reflection sensor · M12 connector · 10...36 DC · high-grade stainless steel · IP 67 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	Diffuse reflection sensor	2...800 mm	red	66	H/D PNP	3	13	**OGT500**
	Background suppression	15...300 mm	red	25	H/D PNP	3	13	**OGH500**
Diffuse reflection sensor · M12 connector · 10...36 DC · high-grade stainless steel · IP 67 · Connector groups 9, 11, 107, 108, 135								
	Background suppression	15...300 mm	red	25	H/D NPN	5	13	**OGH504**
	Background suppression	15...300 mm	red	25	H/D NPN	5	13	**OGH502**

You can find wiring diagrams and scale drawings from page 233

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.
Through-beam sensor · M12 connector · 10...30 DC · high-grade stainless steel · IP 68 · Connector groups 9, 11, 107, 108, 135								
	Transmitter	9 m	red	< 3000	–	2	14	**OG5129**
	Receiver	9 m	red	–	H PNP	11	14	**OG5127**
	Receiver	9 m	red	–	D PNP	12	14	**OG5128**
Retro-reflective sensor · M12 connector · 10...30 DC · high-grade stainless steel · IP 68 · Connector groups 9, 11, 107, 108, 135								
	Polarisation filter	3 m	red	< 96	H PNP	11	14	**OG5125**
	Polarisation filter	3 m	red	< 96	D PNP	12	14	**OG5126**
Diffuse reflection sensor · M12 connector · 10...30 DC · high-grade stainless steel · IP 68 · Connector groups 9, 11, 107, 108, 135								
	Background suppression	100 mm	red	< 16	H PNP	11	15	**OG5123**
Diffuse reflection sensor · M12 connector · 10...30 DC · high-grade stainless steel · IP 68 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	Background suppression	200 mm	red	< 28	H PNP	11	15	**OG5124**

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.
Through-beam sensor · Cable 6 m · 10...36 DC · high-grade stainless steel · IP 67 / IP 68 / IP 69K								
	Transmitter	20 m	red	800	–	1	16	**OGS301**
	Receiver	20 m	red	–	D PNP	10	16	**OGE302**
	Receiver	20 m	red	–	H PNP	10	16	**OGE303**

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.
Through-beam sensor · M12 connector · 10...36 DC · high-grade stainless steel · IP 67 / IP 68 / IP 69K · Connector group 107								
	Transmitter	20 m	red	800	–	2	5	**OGS300**
Through-beam sensor · M12 connector · 10...36 DC · high-grade stainless steel · IP 67 / IP 68 / IP 69K · Connector groups 107, 109								
	Receiver	20 m	red	–	D PNP	3	5	**OGE300**
	Receiver	20 m	red	–	H PNP	4	5	**OGE301**
Retro-reflective sensor · Cable 6 m · 10...36 DC · high-grade stainless steel · IP 67 / IP 68 / IP 69K								
	Polarisation filter	0.03...4 m	red	160	D PNP	10	16	**OGP302**
	Polarisation filter	0.03...4 m	red	160	H PNP	10	16	**OGP303**
Retro-reflective sensor · M12 connector · 10...36 DC · high-grade stainless steel · IP 67 / IP 68 / IP 69K · Connector groups 107, 109								
	Polarisation filter	0.03...4 m	red	160	D PNP	3	5	**OGP300**
	Polarisation filter	0.03...4 m	red	160	H PNP	4	5	**OGP301**
Diffuse reflection sensor · Cable 6 m · 10...36 DC · high-grade stainless steel · IP 67 / IP 68 / IP 69K								
	Background suppression	100 mm	red	8	H PNP	10	17	**OGH306**
	Background suppression	100 mm	red	8	D PNP	10	17	**OGH307**
	Background suppression	200 mm	red	12	H PNP	10	17	**OGH308**
	Background suppression	200 mm	red	12	D PNP	10	17	**OGH309**
	Background suppression	300 mm	red	15	H PNP	10	17	**OGH310**
	Background suppression	300 mm	red	15	D PNP	10	17	**OGH311**

You can find wiring diagrams and scale drawings from page 233

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...36 DC · high-grade stainless steel · IP 67 / IP 68 / IP 69K · Connector groups 107, 109								
	Background suppression	100 mm	red	8	H PNP	3	18	**OGH300**
	Background suppression	100 mm	red	8	D PNP	3	18	**OGH301**
	Background suppression	200 mm	red	12	H PNP	3	18	**OGH302**
	Background suppression	200 mm	red	12	D PNP	3	18	**OGH303**
	Background suppression	300 mm	red	15	H PNP	3	18	**OGH304**
	Background suppression	300 mm	red	15	D PNP	3	18	**OGH305**

OG housing (M18), rectangular

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 · high-grade stainless steel · IP 67 · Connector groups 9, 11, 107, 108, 135								
	Transmitter	20 m	red	800	–	2	19	**OGS280**
	Receiver	20 m	red	–	D NPN	13	19	**OGE282**
Through-beam sensor · M12 connector · 10...30 DC · high-grade stainless steel · IP 67 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	Receiver	20 m	red	–	D PNP	14	19	**OGE280**
	Receiver	20 m	red	–	H PNP	4	19	**OGE281**
Retro-reflective sensor · M12 connector · 10...30 DC · metal · IP 67 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	Polarisation filter	0.1...4 m	red	160	D PNP	14	19	**OGP280**
	Polarisation filter	0.1...4 m	red	160	H PNP	4	19	**OGP281**

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.
Retro-reflective sensor · M12 connector · 10...30 DC · metal · IP 67 · Connector groups 9, 11, 107, 108, 135								
	Polarisation filter	0.1...4 m	red	160	D NPN	13	19	**OGP282**
	Polarisation filter	0.1...4 m	red	160	H NPN	15	19	**OGP283**
Diffuse reflection sensor · M12 connector · 10...30 DC · metal · IP 67 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	Background suppression	100 mm	red	7	H PNP	4	19	**OGH280**
	Background suppression	200 mm	red	13	H PNP	4	19	**OGH281**
	Background suppression	15...200 mm	red	13	H/D PNP	3	20	**OGH580**
Diffuse reflection sensor · M12 connector · 10...30 DC · metal · IP 67 · Connector groups 9, 11, 107, 108, 135								
	Background suppression	100 mm	red	7	H NPN	15	19	**OGH282**
	Background suppression	200 mm	red	13	H NPN	15	19	**OGH283**
	Background suppression	15...200 mm	red	13	H/D NPN	5	20	**OGH581**

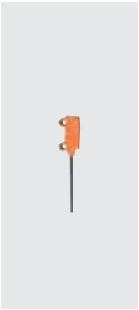
Rectangular OH housing BasicLine

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 · IP 67								
	Transmitter	1.2 m	red	10	–	1	21	**OH5001**
	Receiver	1.2 m	red	–	D PNP	16	21	**OH5002**
Through-beam sensor · Cable with connector 0.2 m · 10...30 DC · plastics · IP 67 · Connector groups 1, 3, 68								
	Transmitter	1.2 m	red	10	–	2	21	**OH5020**

You can find wiring diagrams and scale drawings from page 233

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 with connector 0.2 m · 10...30 DC · plastics · IP 67 · Connector groups 1, 2, 3, 68								
	Receiver	1.2 m	red	–	D PNP	14	21	**OH5015**
Through-beam sensor · Cable with connector 0.2 m · 10...30 DC · plastics · IP 67 · Connector groups 4, 5, 70								
	Transmitter	1.2 m	red	10	–	2	21	**OH5012**
	Receiver	1.2 m	red	–	D PNP	14	21	**OH5003**
Retro-reflective sensor · Cable 2 m · 10...30 DC · plastics · IP 67								
	Polarisation filter	0.8 m	red	10	D PNP	16	22	**OH5010**
Retro-reflective sensor · Cable with connector 0.2 m · 10...30 DC · plastics · IP 67 · Connector groups 1, 2, 3, 68								
	Polarisation filter	0.8 m	red	10	D PNP	14	22	**OH5019**
Retro-reflective sensor · Cable with connector 0.2 m · 10...30 DC · plastics · IP 67 · Connector groups 4, 5, 70								
	Polarisation filter	0.8 m	red	10	D PNP	14	22	**OH5011**
Diffuse reflection sensor · Cable 2 m · 10...30 DC · plastics · IP 67								
	Background suppression	1...15 mm	red	2.5	H PNP	17	23	**OH5008**
	Background suppression	1...30 mm	red	4.5	H PNP	17	23	**OH5006**
	Diffuse reflection sensor	2...50 mm	red	3.5	H PNP	17	23	**OH5004**
Diffuse reflection sensor · Cable with connector 0.2 m · 10...30 DC · plastics · IP 67 · Connector groups 1, 2, 3, 68								
	Diffuse reflection sensor	2...50 mm	red	3.5	H PNP	4	23	**OH5016**
	Background suppression	1...15 mm	red	2.5	H PNP	4	23	**OH5018**
	Background suppression	1...30 mm	red	4.5	H PNP	4	23	**OH5017**

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.
Diffuse reflection sensor · Cable with connector 0.2 m · 10...30 DC · plastics · IP 67 · Connector groups 4, 5, 70								
	Diffuse reflection sensor	2...50 mm	red	3.5	H PNP	4	23	**OH5005**
	Background suppression	1...15 mm	red	2.5	H PNP	4	23	**OH5009**
	Background suppression	1...30 mm	red	4.5	H PNP	4	23	**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.
Through-beam sensor · Cable with connector 0.2 m · 10...30 DC · plastics · IP 65 · Connector groups 1, 3, 68								
	Transmitter	0...1.5 m	red	90	–	2	24	**O7S200**
Through-beam sensor · Cable with connector 0.2 m · 10...30 DC · plastics · IP 65 · Connector groups 1, 2, 3, 68								
	Receiver	0...1.5 m	red	–	D PNP	14	25	**O7E200**
	Receiver	0...1.5 m	red	–	H PNP	4	25	**O7E201**
	Receiver	0...1.5 m	red	–	D NPN	13	25	**O7E202**
	Receiver	0...1.5 m	red	–	H NPN	15	25	**O7E203**
Retro-reflective sensor · Cable with connector 0.2 m · 10...30 DC · plastics · IP 65 · Connector groups 1, 2, 3, 68								
	Polarisation filter	0.03...1 m	red	55	D PNP	14	26	**O7P200**
	Polarisation filter	0.03...1 m	red	55	H PNP	4	26	**O7P201**
	Polarisation filter	0.03...1 m	red	55	D NPN	13	26	**O7P202**
	Polarisation filter	0.03...1 m	red	55	H NPN	15	26	**O7P203**

You can find wiring diagrams and scale drawings from page 233

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 with connector 0.2 m · 10...30 DC · plastics · IP 65 · Connector groups 1, 2, 3, 68								
	Background suppression	1...30 mm	red	2.5	H PNP	4	27	**O7H200**
	Background suppression	1...30 mm	red	2.5	D PNP	14	27	**O7H201**
	Background suppression	1...30 mm	red	2.5	H NPN	15	27	**O7H206**
	Background suppression	1...30 mm	red	2.5	D NPN	13	27	**O7H207**
	Background suppression	0...50 mm	red	2.5	H PNP	4	27	**O7H202**
	Background suppression	0...50 mm	red	2.5	H NPN	15	27	**O7H208**
	Background suppression	0...50 mm	red	2.5	D NPN	13	27	**O7H209**
	Background suppression	0...50 mm	red	2.5	D PNP	14	27	**O7H203**
	Background suppression	0...100 mm	red	7	H PNP	4	27	**O7H204**
	Background suppression	0...100 mm	red	7	D PNP	14	27	**O7H205**
	Background suppression	0...100 mm	red	7	H NPN	15	27	**O7H210**
	Background suppression	0...100 mm	red	7	D NPN	13	27	**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 · IP 67 · Connector groups 1, 3, 68								
	Transmitter	0...10 m	red	< 1000	–	2	28	**OJS200**

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 · IP 67 · Connector groups 1, 2, 3, 68								
	Receiver	10 m	–	–	D PNP	3	28	**OJE200**
Retro-reflective sensor · M8 connector · 10...30 DC · plastics · IP 67 · Connector groups 1, 2, 3, 68								
	Retro-reflective sensor	1.8 m	red	64	D PNP	3	28	**OJR200**
	Polarisation filter	1.8 m	red	64	D PNP	3	28	**OJP200**
Diffuse reflection sensor · M8 connector · 10...30 DC · plastics · IP 67 · Connector groups 1, 2, 3, 68								
	Background suppression	100 mm	red	< 13	H PNP	3	29	**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 · IP 67								
	Transmitter	10 m	red	1000	–	1	30	**OJ5033**
	Receiver	10 m	red	–	H/D PNP	18	30	**OJ5034**
Through-beam sensor · M8 connector · 10...30 DC · plastics · IP 67 · Connector groups 4, 5, 70								
	Transmitter	10 m	red	1000	–	2	31	**OJ5030**
	Receiver	10 m	red	–	H/D PNP	19	31	**OJ5031**
	Receiver	10 m	red	–	H/D NPN	20	31	**OJ5032**
	Transmitter	10 m	red	1000	–	2	32	**OJ5130**
	Receiver	10 m	–	–	H/D PNP	19	32	**OJ5131**

You can find wiring diagrams and scale drawings from page 233

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 2 m · 10...30 DC · plastics · IP 67								
	Polarisation filter	0...2 m	red	64	H/D PNP	18	30	**OJ5028**
Retro-reflective sensor · M8 connector · 10...30 DC · plastics · IP 67 · Connector groups 4, 5, 70								
	Polarisation filter	0...2 m	red	64	H/D PNP	19	31	**OJ5026**
	Polarisation filter	0...2 m	red	64	H/D NPN	20	31	**OJ5027**
	Polarisation filter	0...2 m	red	64	H/D PNP	19	32	**OJ5126**
Diffuse reflection sensor · Cable 2 m · 10...30 DC · plastics · IP 67								
	Diffuse reflection sensor	1...600 mm	red	60	H/D PNP	18	33	**OJ5024**
Diffuse reflection sensor · Cable with connector 0.15 m · 10...30 DC · plastics · IP 67 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	Background suppression	15...400 mm	red	< 18	H/D PNP	19	34	**OJ5078**
Diffuse reflection sensor · M8 connector · 10...30 DC · plastics · IP 67 · Connector groups 4, 5, 70								
	Diffuse reflection sensor	1...600 mm	red	60	H/D PNP	19	35	**OJ5022**
	Diffuse reflection sensor	1...600 mm	red	60	H/D NPN	20	35	**OJ5023**
	Diffuse reflection sensor	1...1000 mm	infrared	150	H/D PNP	19	35	**OJ5071**
	Background suppression	15...400 mm	red	< 18	H/D PNP	19	36	**OJ5048**
	Diffuse reflection sensor	1...600 mm	red	60	H/D PNP	19	37	**OJ5122**
	Background suppression	15...400 mm	red	< 18	H/D PNP	19	38	**OJ5148**

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.
Through-beam sensor · Cable 2 m · 10...30 DC · plastics · IP 67								
	Transmitter	10 m	red	1000	–	1	39	**OJ5011**
	Receiver	10 m	red	–	H/D PNP	18	39	**OJ5012**
Through-beam sensor · Cable with connector 0.15 m · 10...30 DC · plastics · IP 67 · Connector groups 9, 11, 107, 108, 135								
	Transmitter	10 m	red	1000	–	2	39	**OJ5065**
Through-beam sensor · Cable with connector 0.15 m · 10...30 DC · plastics · IP 67 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	Receiver	10 m	red	–	H/D PNP	19	39	**OJ5067**
Through-beam sensor · M8 connector · 10...30 DC · plastics · IP 67 · Connector groups 4, 5, 70								
	Transmitter	10 m	red	1000	–	2	40	**OJ5008**
	Receiver	10 m	red	–	H/D PNP	19	40	**OJ5009**
	Receiver	10 m	red	–	H/D NPN	20	40	**OJ5010**
	Transmitter	10 m	red	1000	–	2	41	**OJ5108**
	Receiver	10 m	red	–	H/D PNP	19	41	**OJ5109**
Retro-reflective sensor · Cable 2 m · 10...30 DC · plastics · IP 67								
	Polarisation filter	0...2 m	red	64	H/D PNP	18	39	**OJ5006**
Retro-reflective sensor · Cable with connector 0.15 m · 10...30 DC · plastics · IP 67 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	Polarisation filter	0...2 m	red	64	H/D PNP	19	39	**OJ5063**
	Polarisation filter	0...2 m	red	64	H/D PNP	19	39	**OJ5062**

You can find wiring diagrams and scale drawings from page 233

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 · plastics · IP 67 · Connector groups 4, 5, 70								
	Polarisation filter	0...2 m	red	64	H/D PNP	19	40	**OJ5004**
	Polarisation filter	0...2 m	red	64	H/D NPN	20	40	**OJ5005**
	Polarisation filter	0...2 m	red	64	H/D PNP	19	41	**OJ5104**
Diffuse reflection sensor · Cable with connector 0.15 m · 10...30 DC · plastics · IP 67 · Connector groups 9, 11, 107, 108, 135								
	Diffuse reflection sensor	1...600 mm	red	60	H/D PNP	19	42	**OJ5061**
	Diffuse reflection sensor	1...600 mm	red	60	H/D PNP	19	42	**OJ5060**
	Background suppression	15...400 mm	red	< 18	H/D PNP	19	43	**OJ5069**
Diffuse reflection sensor · M8 connector · 10...30 DC · plastics · IP 67 · Connector groups 4, 5, 70								
	Diffuse reflection sensor	1...600 mm	red	60	H/D PNP	19	44	**OJ5000**
	Diffuse reflection sensor	1...600 mm	red	60	H/D NPN	20	44	**OJ5001**
	Diffuse reflection sensor	1...1000 mm	infrared	150	H/D PNP	19	44	**OJ5070**
	Background suppression	15...400 mm	red	< 18	H/D PNP	19	45	**OJ5044**
	Diffuse reflection sensor	1...600 mm	red	60	H/D PNP	19	46	**OJ5100**
	Background suppression	15...400 mm	red	< 18	H/D PNP	19	47	**OJ5144**

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.
Through-beam sensor · M12 connector · 10...36 DC · plastics · IP 67 · Connector groups 9, 11, 107, 108, 135								
	Transmitter	20 m	red	500	–	2	48	**O5S200**
Through-beam sensor · M12 connector · 10...36 DC · plastics · IP 67 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	Receiver	20 m	red	–	D PNP	14	48	**O5E200**
Retro-reflective sensor · M12 connector · 10...36 DC · plastics · IP 67 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	Polarisation filter	0.1...7 m	red	175	D PNP	14	49	**O5P200**
	Polarisation filter	0.1...7 m	red	175	H PNP	21	49	**O5P201**
Diffuse reflection sensor · M12 connector · 10...36 DC · plastics · IP 65 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	Background suppression	50...1400 mm	red	50	H PNP	4	50	**O5H200**
Diffuse reflection sensor · M12 connector · 10...36 DC · plastics · IP 67 · Connector groups 9, 11, 107, 108, 135								
	Background suppression	50...1400 mm	red	50	H NPN	15	50	**O5H201**

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.	Draw-ing no.	Order no.
Through-beam sensor · Cable 2 m · 10...36 DC · plastics · IP 67								
	Transmitter	25 m	red	625	–	1	51	**O5S501**
	Receiver	25 m	red	–	H/D PNP	10	52	**O5E501**
Through-beam sensor · M12 connector · 10...36 DC · plastics · IP 67 · Connector groups 9, 11, 107, 108, 135								
	Transmitter	25 m	red	625	–	2	48	**O5S500**

You can find wiring diagrams and scale drawings from page 233

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 · IP 67 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	Receiver	25 m	red	–	H/D PNP	3	53	**O5E500**
	Receiver	25 m	red	–	H/D NPN	5	53	**O5E502**
Retro-reflective sensor · Cable 2 m · 10...36 DC · plastics · IP 67								
	Polarisation filter	0.075...10 m	red	250	H/D PNP	10	54	**O5P501**
Retro-reflective sensor · M12 connector · 10...36 DC · plastics · IP 67 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	Polarisation filter	0.075...10 m	red	250	H/D PNP	3	55	**O5P500**
Retro-reflective sensor · M12 connector · 10...36 DC · plastics · IP 67 · Connector groups 9, 11, 107, 108, 135								
	Polarisation filter	0.075...10 m	red	250	H/D NPN	5	55	**O5P502**
Diffuse reflection sensor · Cable 2 m · 10...36 DC · plastics · IP 67								
	Background suppression	50...1800 mm	red	50	H/D PNP	10	54	**O5H503**
Diffuse reflection sensor · M12 connector · 10...36 DC · plastics · IP 67 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	Background suppression	50...1800 mm	red	50	H/D PNP	3	55	**O5H500**
	Background suppression	60...700 mm	red	35	H/D PNP	3	55	**O5H501**
	Background suppression	50...1800 mm	red	50	H/D NPN	5	55	**O5H504**

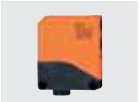
Rectangular housing O5 PerformanceLine with ATEX approval 3D

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.
Through-beam sensor · M12 connector · 10...30 DC · plastics · IP 65 · Connector groups 132, 134								
	Transmitter	25 m	red	625	–	2	56	**O5S51A**

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.
Through-beam sensor · M12 connector · 10...30 DC · plastics · IP 65 · Connector groups 132, 134								
	Receiver	25 m	red	–	H/D PNP	3	56	**O5E51A**
Retro-reflective sensor · M12 connector · 10...30 DC · plastics · IP 65 · Connector groups 132, 134								
	Polarisation filter	0.075...10 m	red	250	H/D PNP	3	56	**O5P51A**
Diffuse reflection sensor · M12 connector · 10...30 DC · plastics · IP 65 · Connector groups 132, 134								
	Background suppression	50...1800 mm	red	50	H/D PNP	3	56	**O5H51A**

Rectangular OL housing 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 · Terminals · 20...250 AC/DC (47...63 Hz AC) · plastics · IP 67								
	Transmitter	25 m	infrared	< 2500	–	22	57	**OL0006**
	Receiver	25 m	infrared	–	H/D relay	23	57	**OL0007**
Retro-reflective sensor · Terminals · 20...250 AC/DC (47...63 Hz AC) · plastics · IP 67								
	Polarisation filter	0.3...5 m	red	250	H/D relay	23	58	**OL0004***
Diffuse reflection sensor · Terminals · 20...250 AC/DC (47...63 Hz AC) · plastics · IP 67								
	Diffuse reflection sensor	1...1000 mm	infrared	< 300	H/D relay	23	57	**OL0005***
	Diffuse reflection sensor	1...800 mm	infrared	< 80	H/D relay	23	57	**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.

You can find wiring diagrams and scale drawings from page 233

Rectangular housing O4 BasicLine

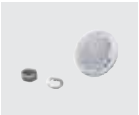
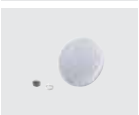
Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Wiring diagr. no.	Draw-ing no.	Order no.
Through-beam sensor · M12 connector · 10...36 DC · plastics · IP 67 · Connector groups 9, 11, 107, 108, 135								
	Transmitter	0...50 m	red	1000	–	2	59	**O4S200**
Through-beam sensor · M12 connector · 10...36 DC · plastics · IP 67 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	Receiver	0...50 m	red	–	D PNP	14	60	**O4E200**
	Receiver	0...50 m	red	–	H PNP	4	60	**O4E201**
Retro-reflective sensor · M12 connector · 10...36 DC · plastics · IP 67 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	Polarisation filter	0.3...18 m	red	500	D PNP	14	61	**O4P200**
	Polarisation filter	0.3...18 m	red	500	H PNP	4	61	**O4P201**
Diffuse reflection sensor · M12 connector · 10...36 DC · plastics · IP 65 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	Background suppression	100...2000 mm	red	100	H PNP	4	62	**O4H200**
	Background suppression	100...2000 mm	red	100	D PNP	14	62	**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.	Draw-ing no.	Order no.
Through-beam sensor · Cable 2 m · 10...36 DC · plastics · IP 67								
	Transmitter	80 m	red	2400	–	1	63	**O4S501**
	Receiver	80 m	red	–	H/D PNP	10	64	**O4E501**
Through-beam sensor · M12 connector · 10...36 DC · plastics · IP 67 · Connector groups 9, 11, 107, 108, 135								
	Transmitter	80 m	red	2400	–	2	59	**O4S500**

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 · IP 67 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	Receiver	80 m	red	–	H/D PNP	3	65	**O4E500**
Retro-reflective sensor · Cable 2 m · 10...36 DC · plastics · IP 67								
	Polarisation filter	0.3...22 m	red	660	H/D PNP	10	66	**O4P501**
Retro-reflective sensor · M12 connector · 10...36 DC · plastics · IP 67 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	Polarisation filter	0.3...22 m	red	660	H/D PNP	3	67	**O4P500**
Diffuse reflection sensor · Cable 2 m · 10...36 DC · plastics · IP 67								
	Background suppression	100...2600 mm	red	50	H/D PNP	10	68	**O4H501**
Diffuse reflection sensor · M12 connector · 10...36 DC · plastics · IP 67 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	Background suppression	100...2600 mm	red	50	H/D PNP	3	69	**O4H500**

Prismatic reflectors, reflective tape and fixing components

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

You can find wiring diagrams and scale drawings from page 233

Type	Description	Order no.
	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 · 50 x 50 mm · rectangular · for red light and infrared light retro-reflective sensors · Housing materials: plastics	**E20744**
	Prismatic reflector · 93 x 45 mm · rectangular · for red light and infrared light retro-reflective sensors · Housing materials: plastics	**E20453**
	Prismatic reflector · 95 x 95 mm · rectangular · for red light and infrared light retro-reflective sensors · Housing materials: plastics	**E20454**
	Mounting set · for reflector · Clamp mounting · rod mounting Ø 30 mm · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: aluminium transparent anodised	**E21007**
	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	**E21015**

Accessories OF housing

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: clamp: diecast zinc / 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 housing

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: clamp: diecast zinc / 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**

You can find wiring diagrams and scale drawings from page 233

Accessories OH housing

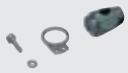
Type	Description	Order no.
	Angle bracket · for free-standing mounting · for type OH · Housing materials: Angle bracket: stainless steel 316Ti / 1.4571	**E21057**
	Mounting set · for type OH · Housing materials: ABS	**E21056**

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**

Type	Description	Order no.
	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 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**

You can find wiring diagrams and scale drawings from page 233

Type	Description	Order no.
	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 · Housing materials: stainless steel 316Ti / 1.4571 / clamp: diecast zinc	**E21211**
	Mounting set · Clamp mounting · rod mounting Ø 12 mm · for type O5 · 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**

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**

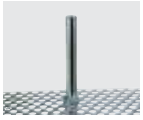
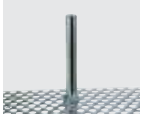
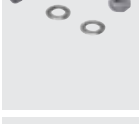
Type	Description	Order no.
	Mounting set · Clamp mounting · with protective cover · free-standing M12 · for type OL · Housing materials: clamp: stainless steel / fixture: stainless steel 316Ti / 1.4571	**E20877**

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**

You can find wiring diagrams and scale drawings from page 233

Accessories for system components

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

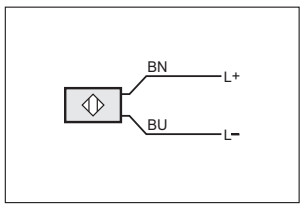
Type	Description	Order no.
	Head cap screw · M10 x 120 mm · ISO 4762 (DIN 912) · free-standing M10 · Housing materials: screw: steel galvanised	**E21213**
	Head cap screw · M10 x 120 mm · ISO 4762 (DIN 912) · free-standing M10 · Housing materials: screw: high-grade stainless steel	**E21214**
	Cube · 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

1



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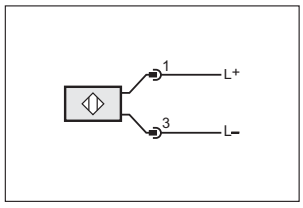

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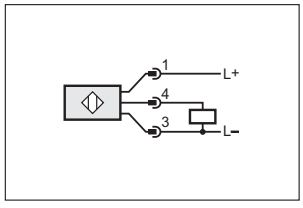

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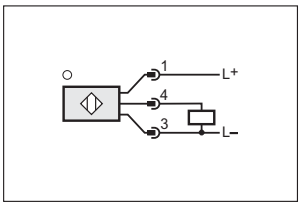

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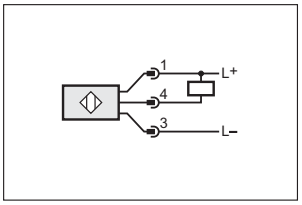

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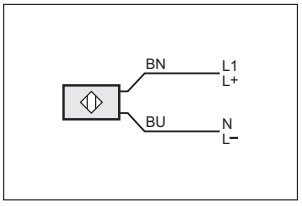

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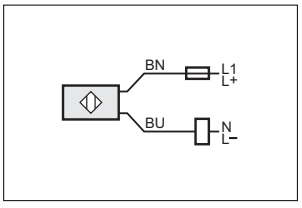

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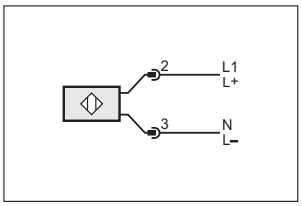

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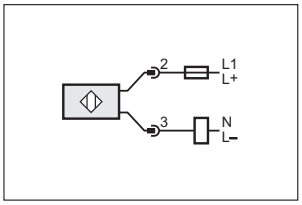

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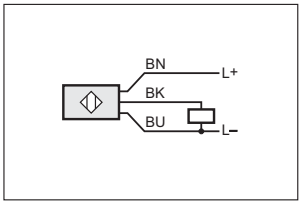

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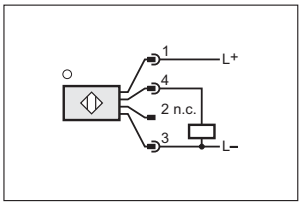

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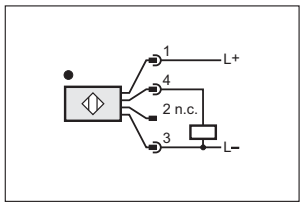

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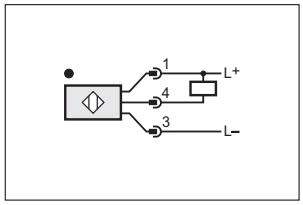

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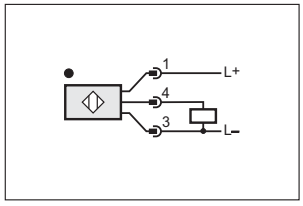

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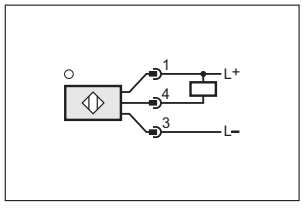

Wiring diagrams

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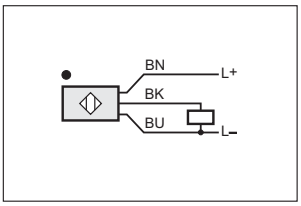

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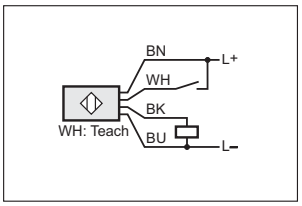

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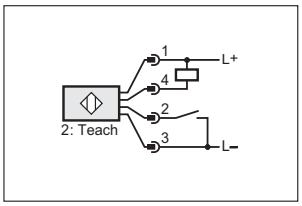

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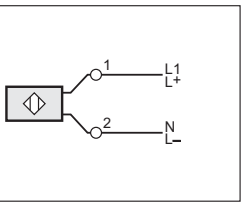

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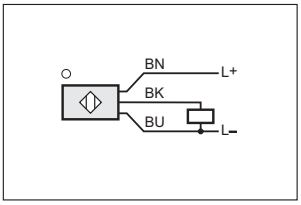

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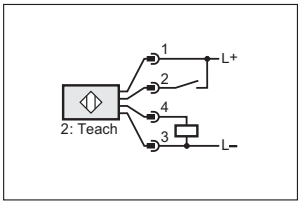

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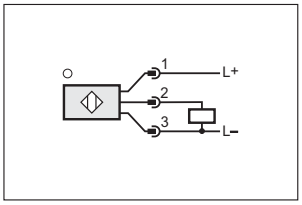

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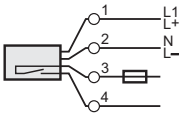

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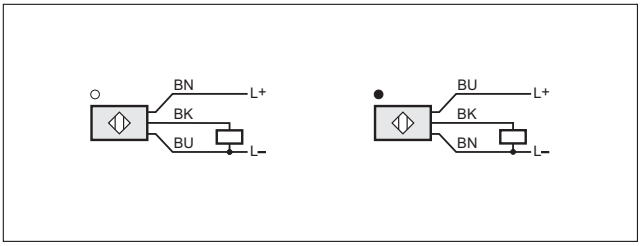

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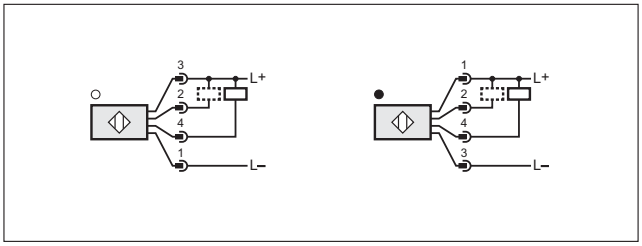

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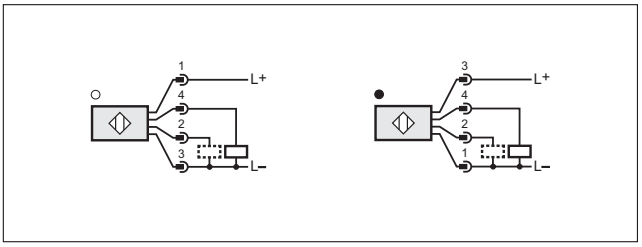

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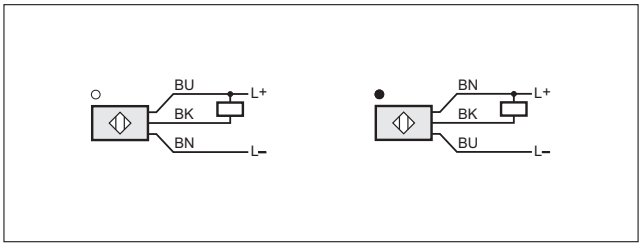

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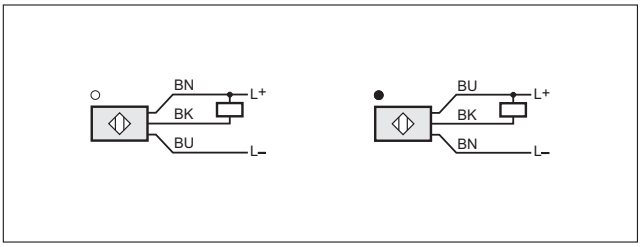

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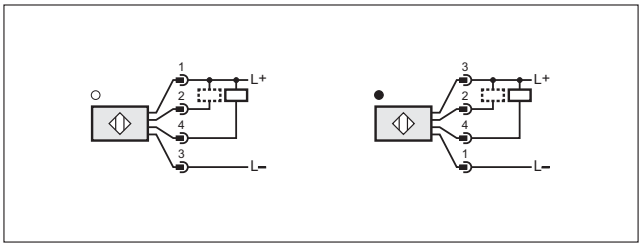

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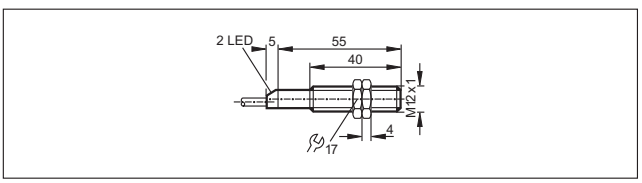

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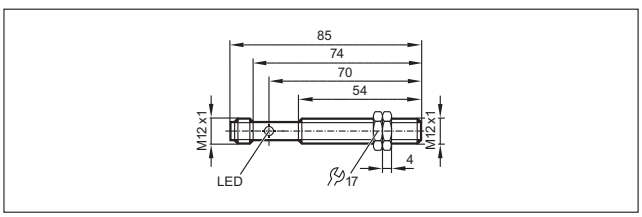

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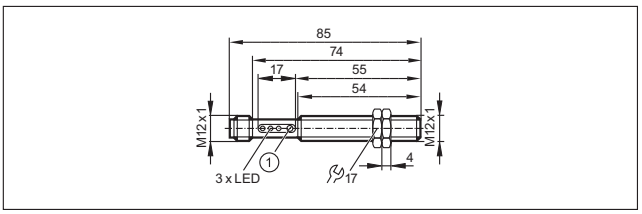

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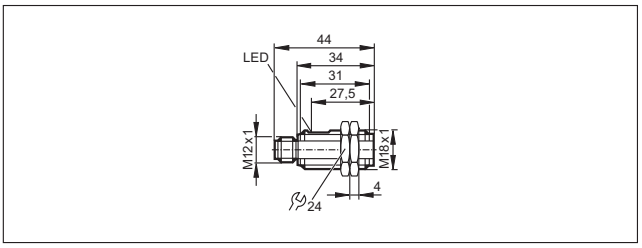

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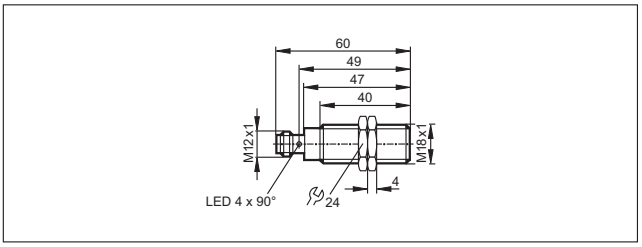

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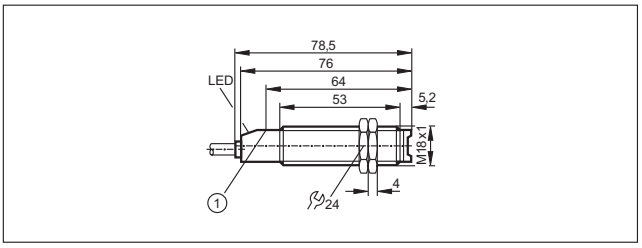

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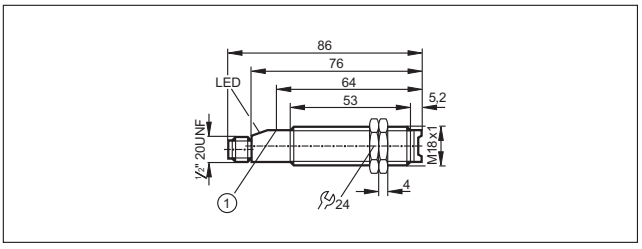

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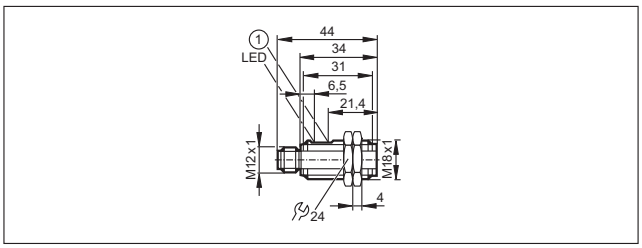

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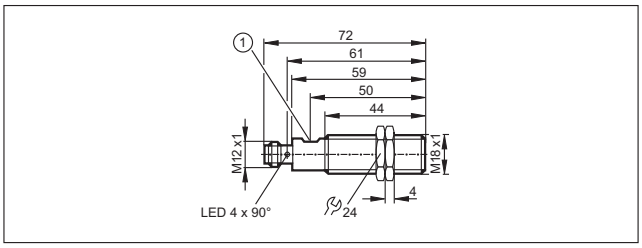

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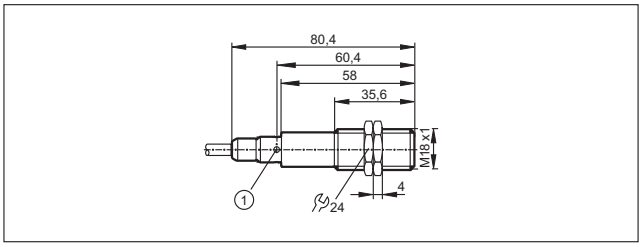

1: LED 4 x 90°

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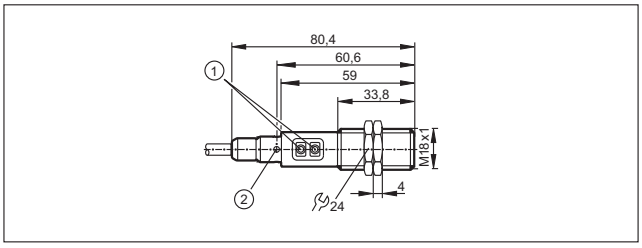

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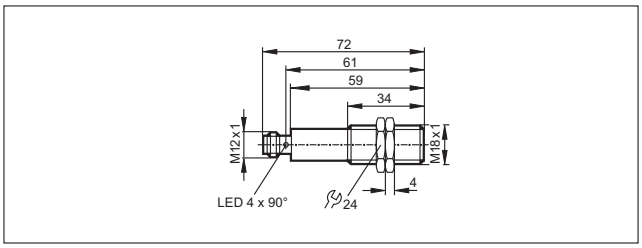

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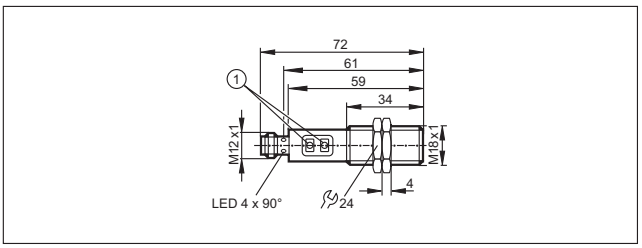

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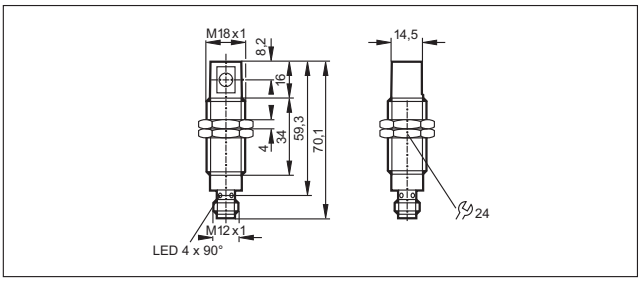

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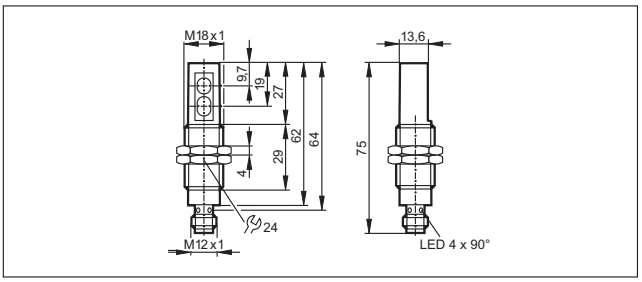

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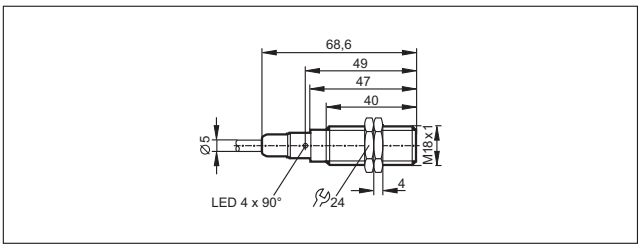

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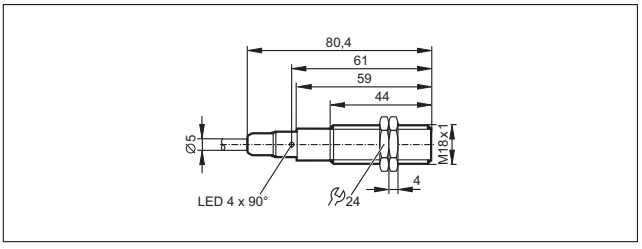

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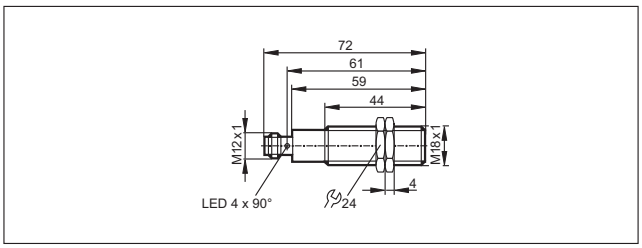

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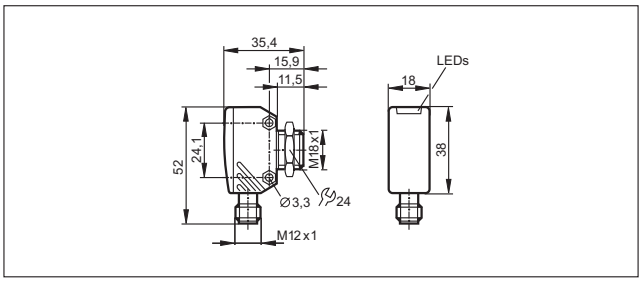

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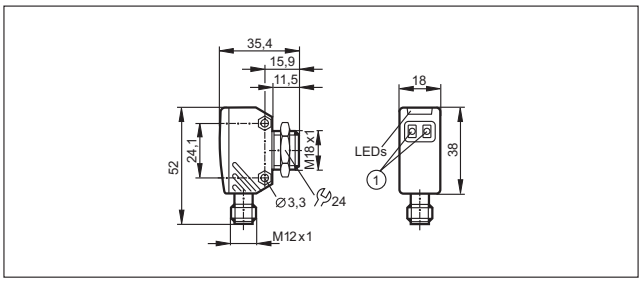

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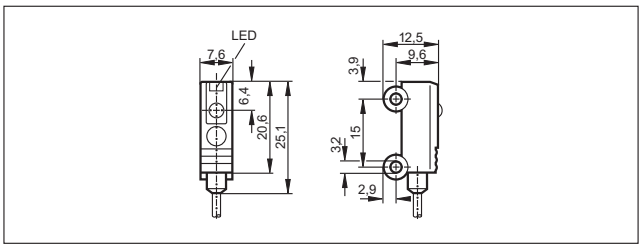

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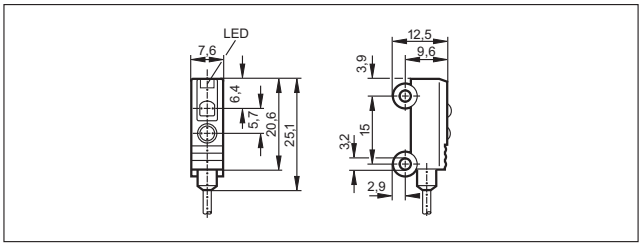

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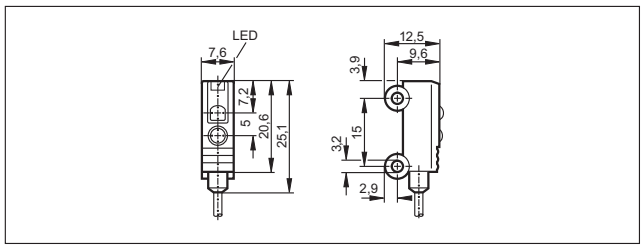

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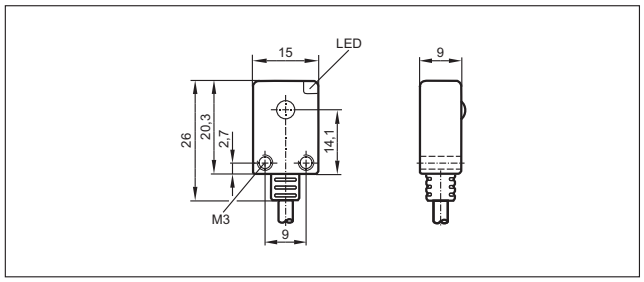

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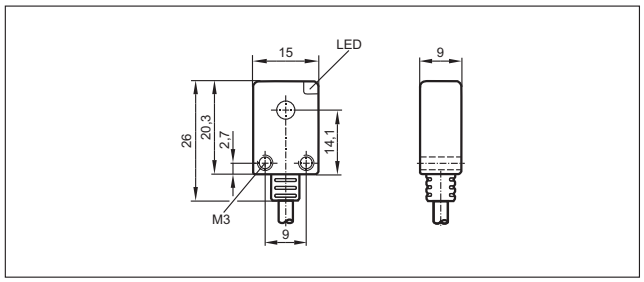

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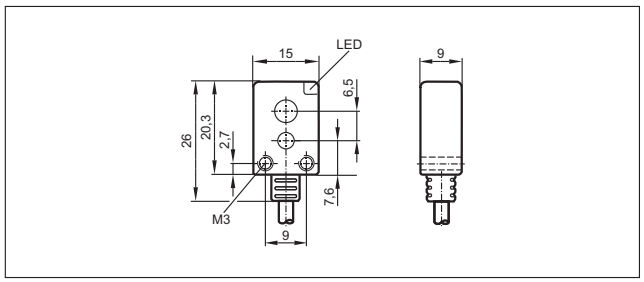

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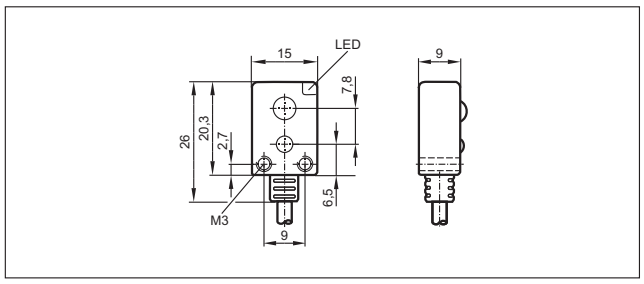

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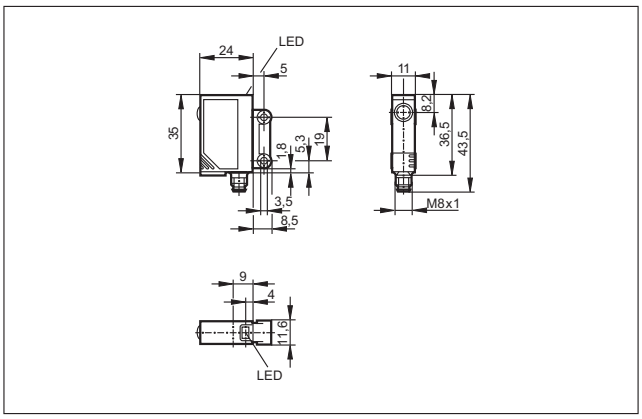

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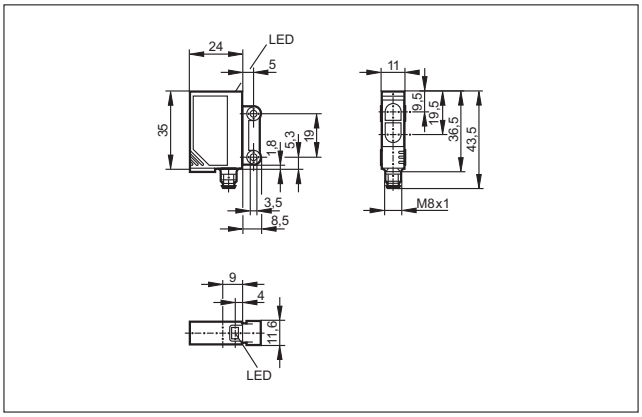

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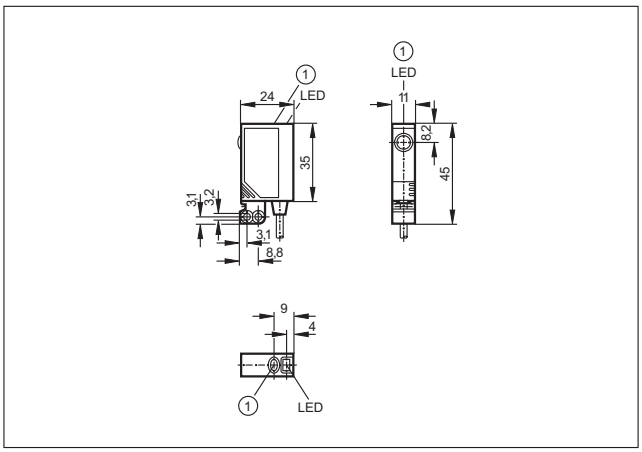

1: pushbutton

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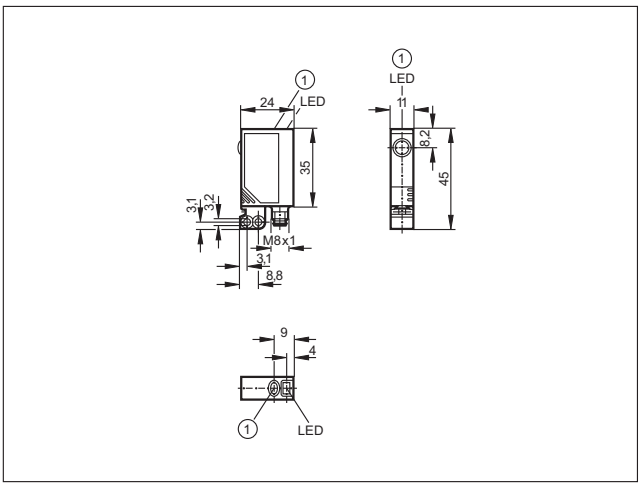
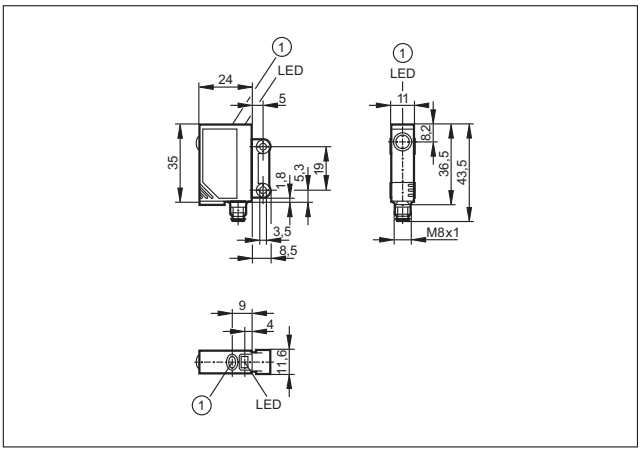


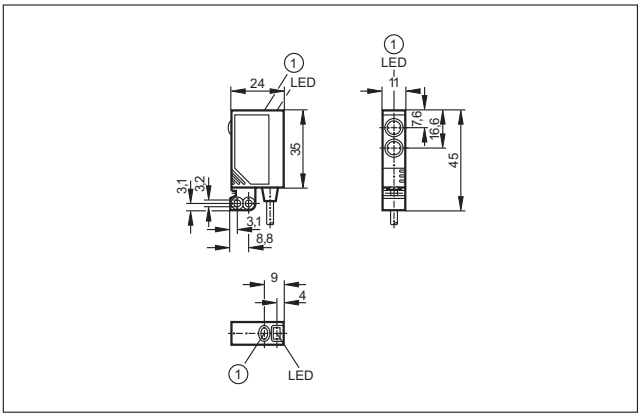
1: pushbutton

32



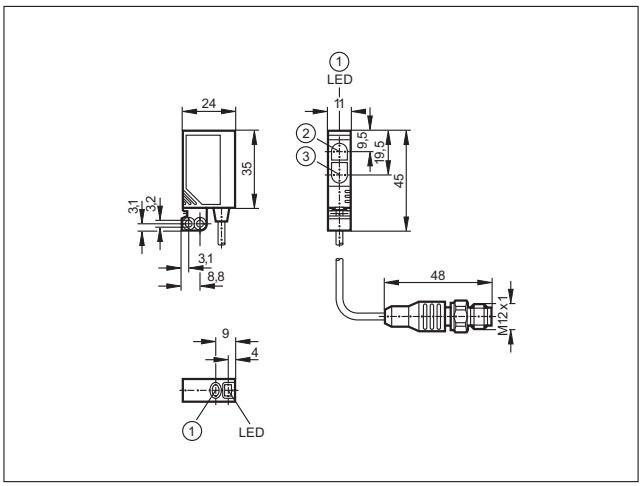
1: pushbutton

33



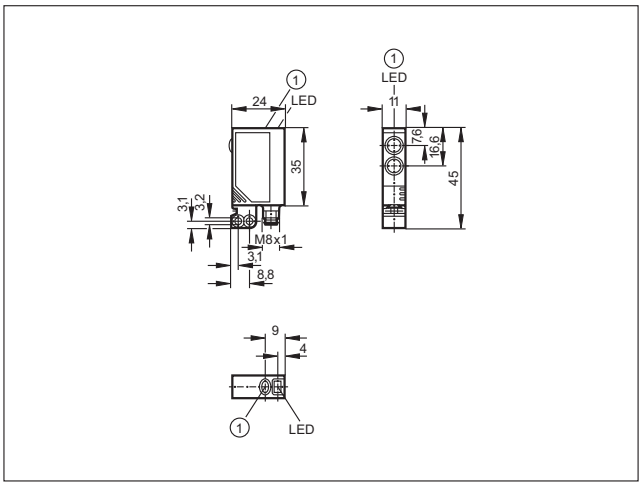
1: pushbutton

34



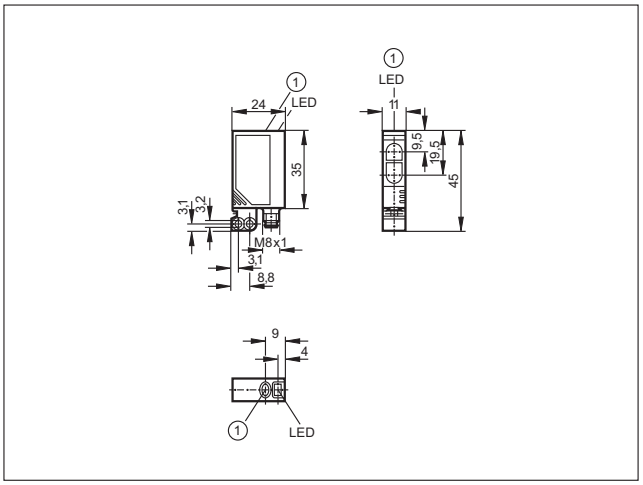
1: pushbutton, 2: Receiver, 3: Transmitter

35



1: pushbutton

36



1: pushbutton

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

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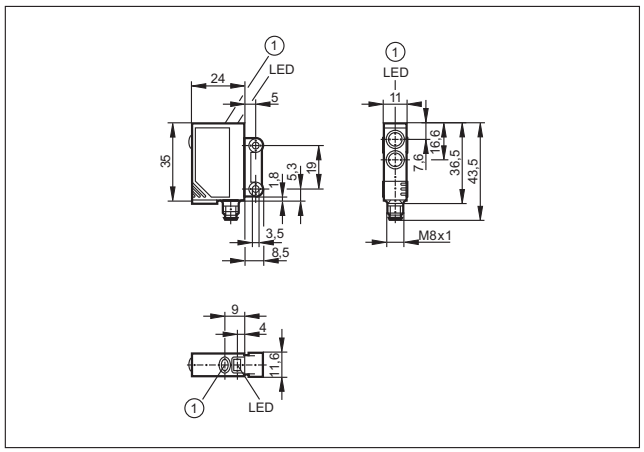
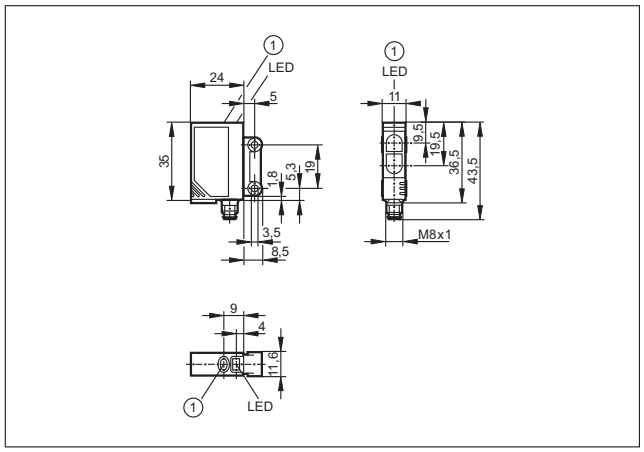
37



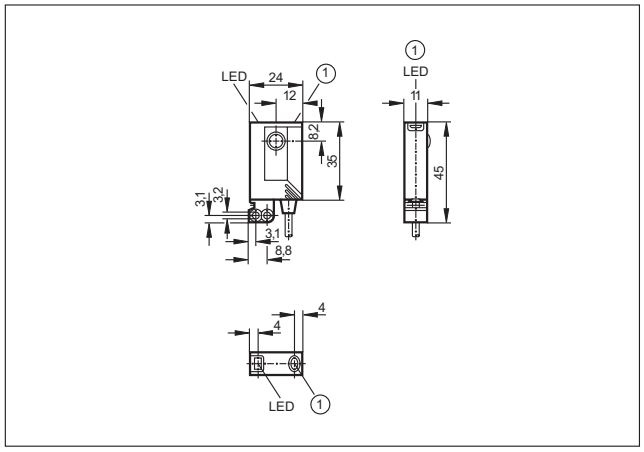
1: pushbutton

38



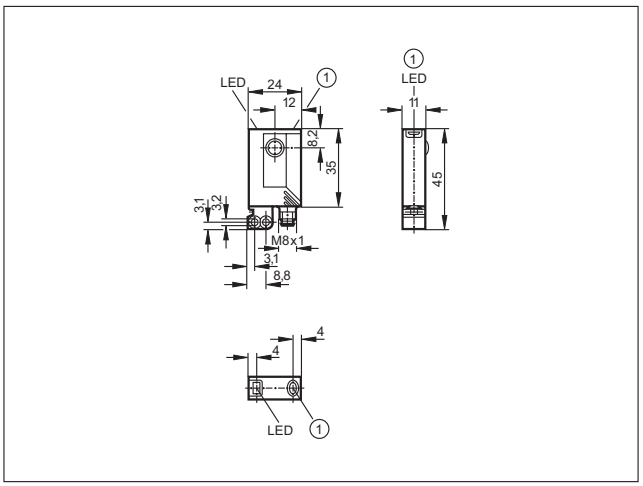
1: pushbutton

39



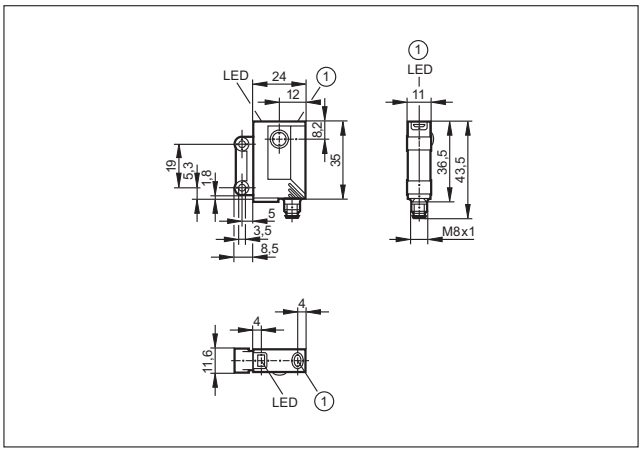
1: pushbutton

40



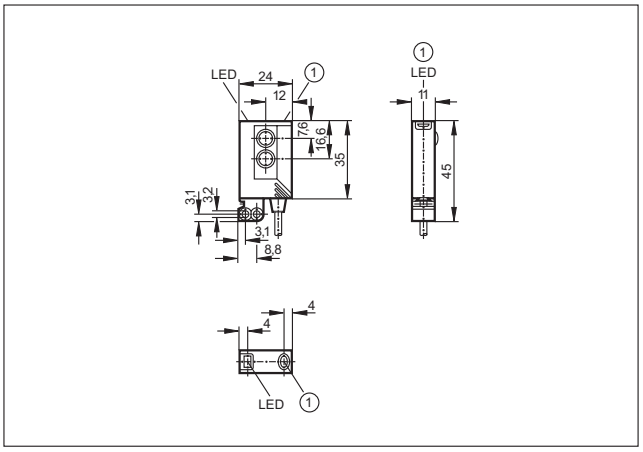
1: pushbutton

41



1: pushbutton

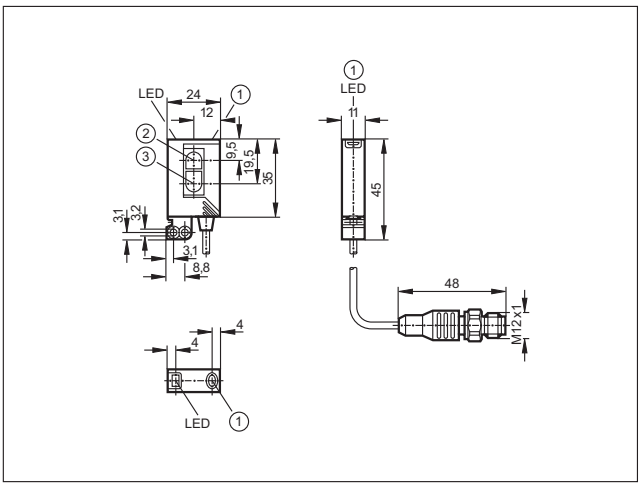
42



1: pushbutton

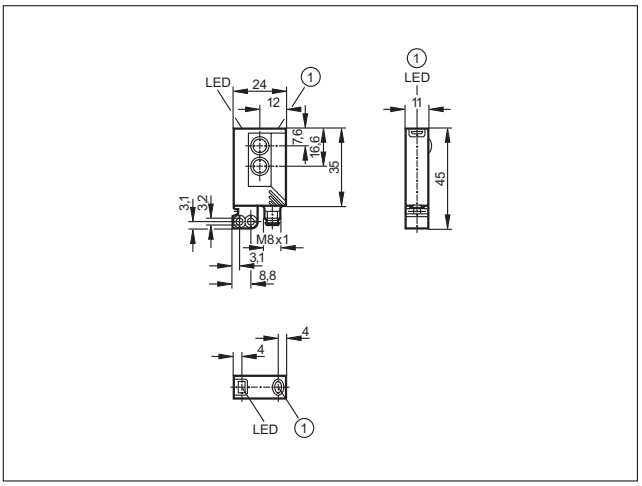
Scale drawings / drawing no. – CAD download: www.ifm.com

43



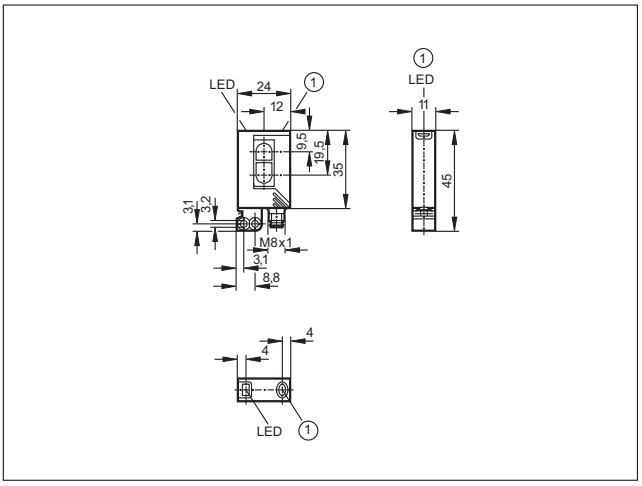
1: pushbutton, 2: Receiver, 3: Transmitter

44



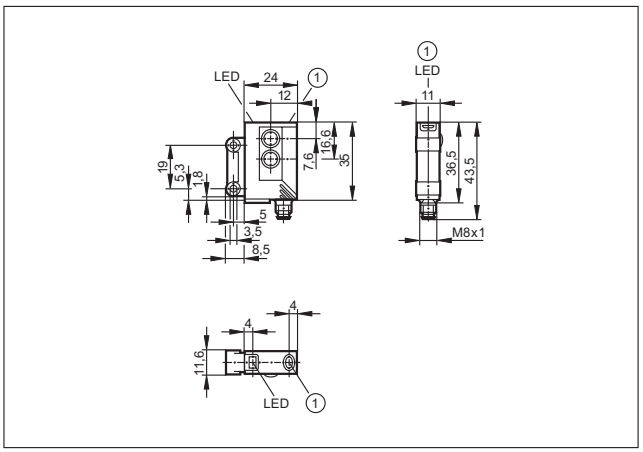
1: pushbutton

45



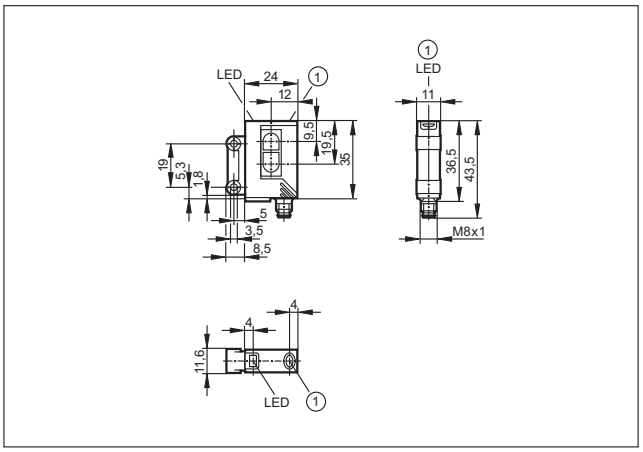
1: pushbutton

46



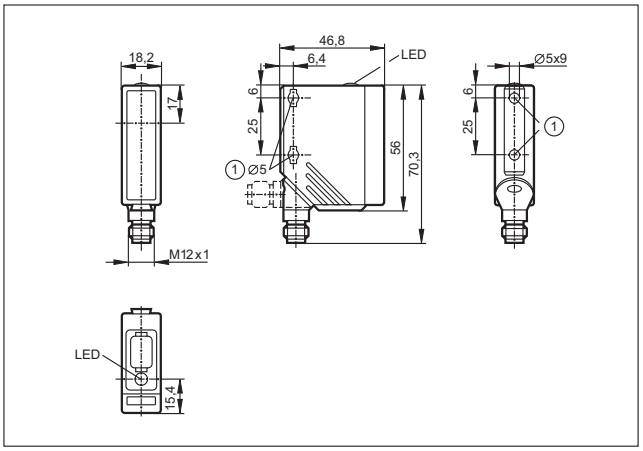
1: pushbutton

47



1: pushbutton

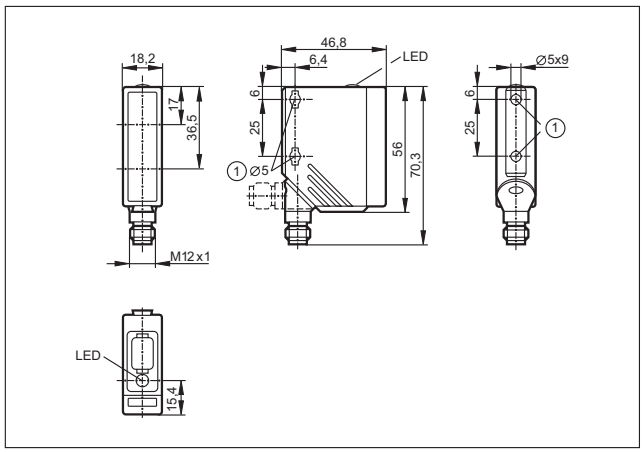
48



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

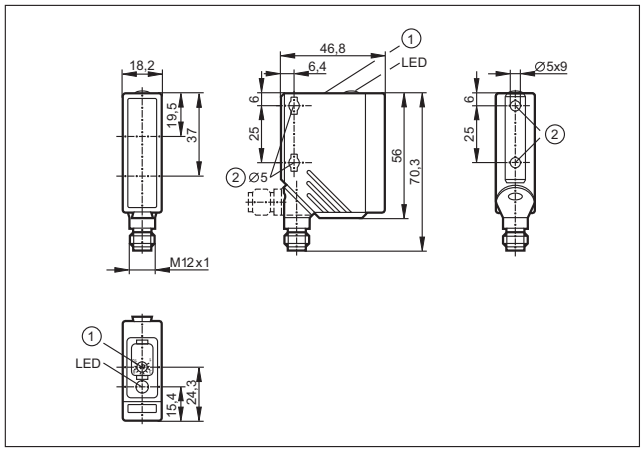
Scale drawings / drawing no. – CAD download: www.ifm.com

49



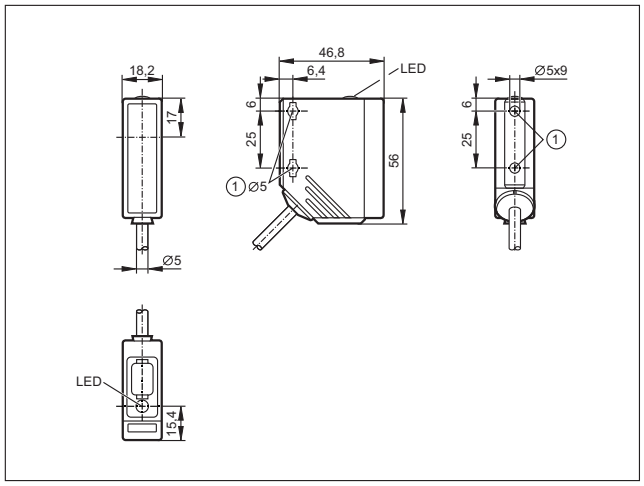
1: When a M5 mounting screw is used, the max. tightening torque is 2 Nm.

50



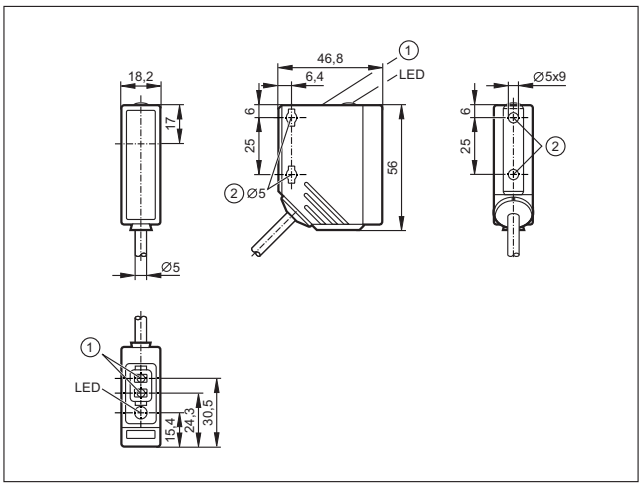
1: with pot., 2: When a M5 mounting screw is used, the max. tightening torque is 2 Nm.

51



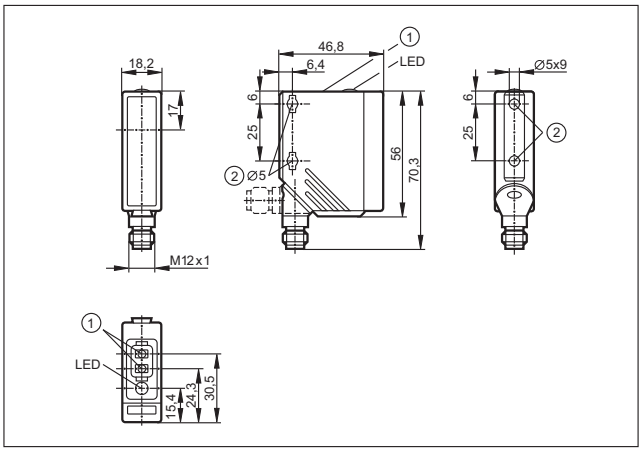
1: When a M5 mounting screw is used, the max. tightening torque is 2 Nm.

52



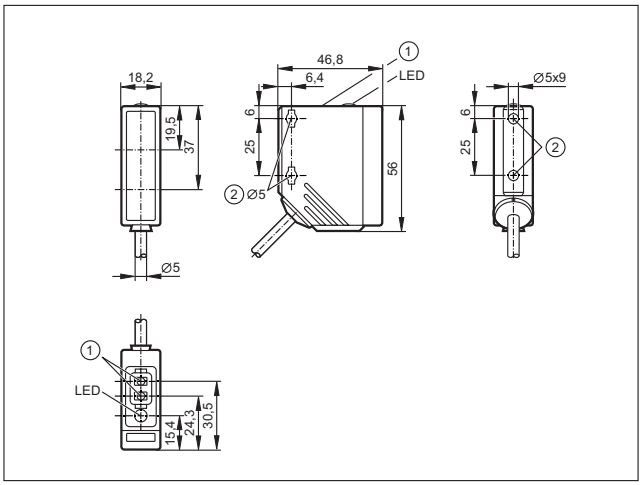
1: Programming buttons, 2: When a M5 mounting screw is used, the max. tightening torque is 2 Nm.

53



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

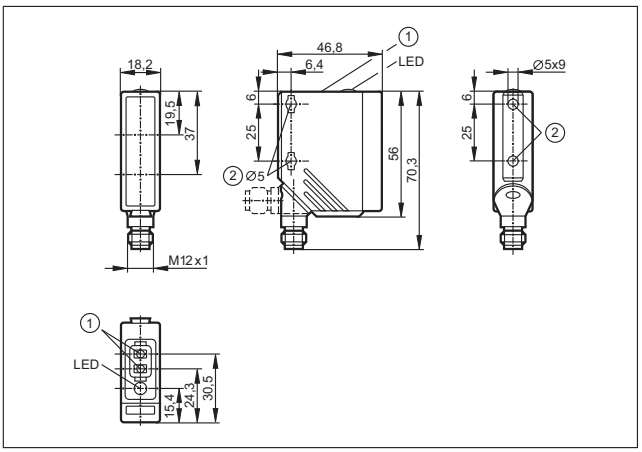
54



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

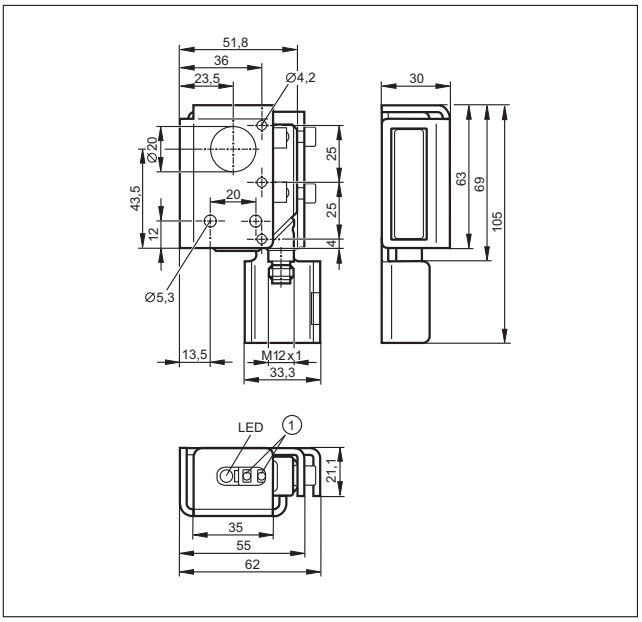
Scale drawings / drawing no. – CAD download: www.ifm.com

55



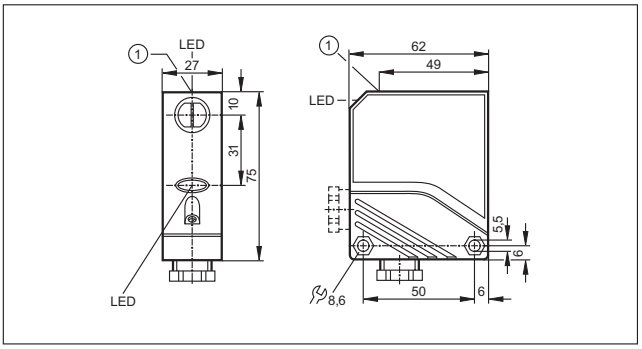
1: Programming buttons, 2: When a M5 mounting screw is used, the max. tightening torque is 2 Nm.

56



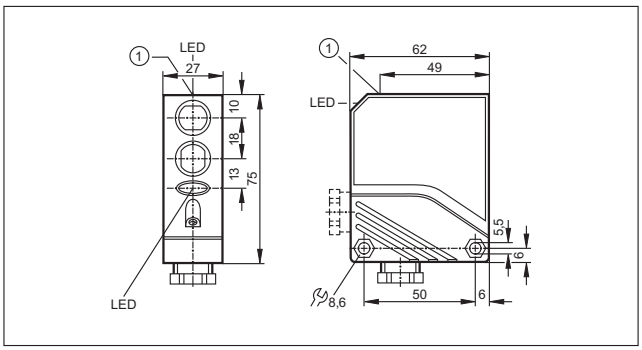
1: Programming buttons

57



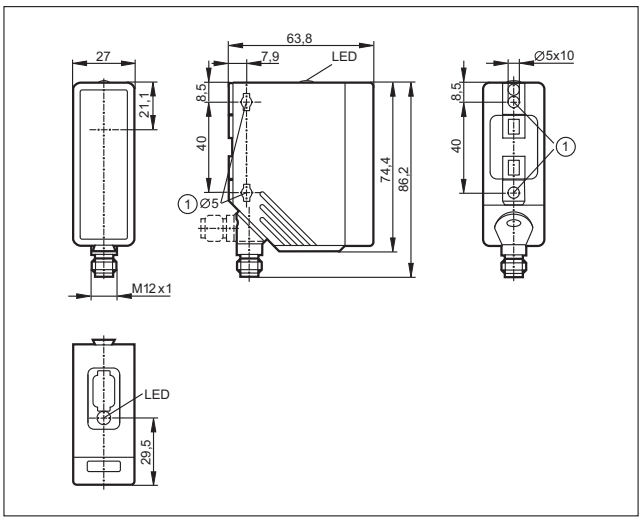
1: pushbutton

58



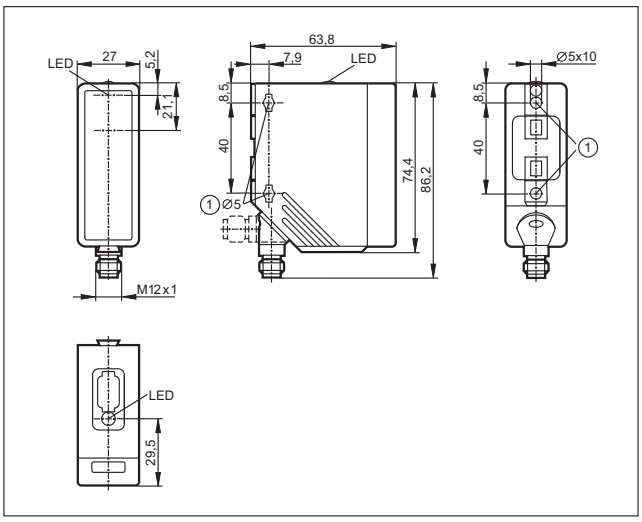
1: pushbutton

59



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

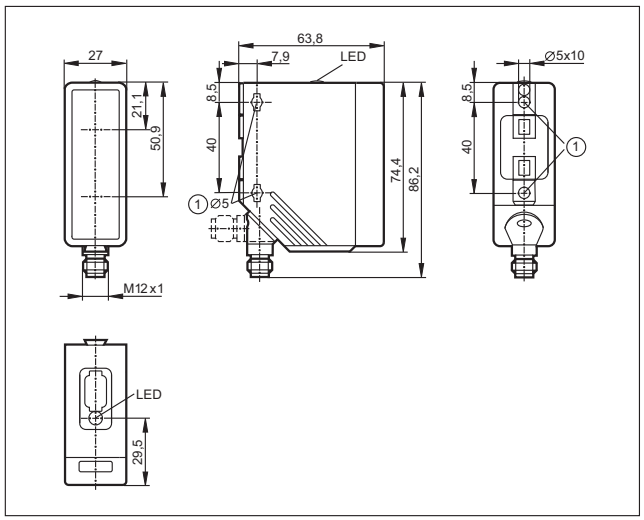
60



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

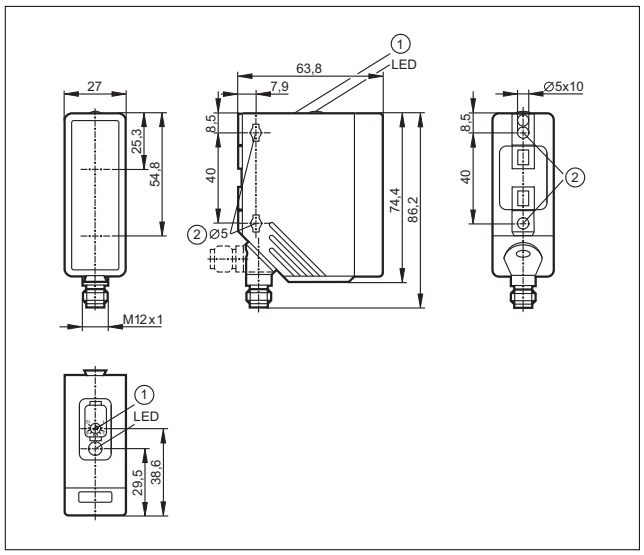
Scale drawings / drawing no. – CAD download: www.ifm.com

61



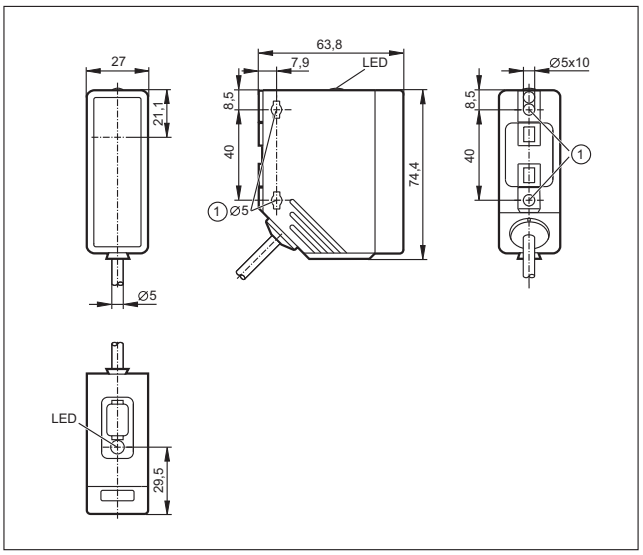
1: When a M5 mounting screw is used, the max. tightening torque is 2 Nm.

62



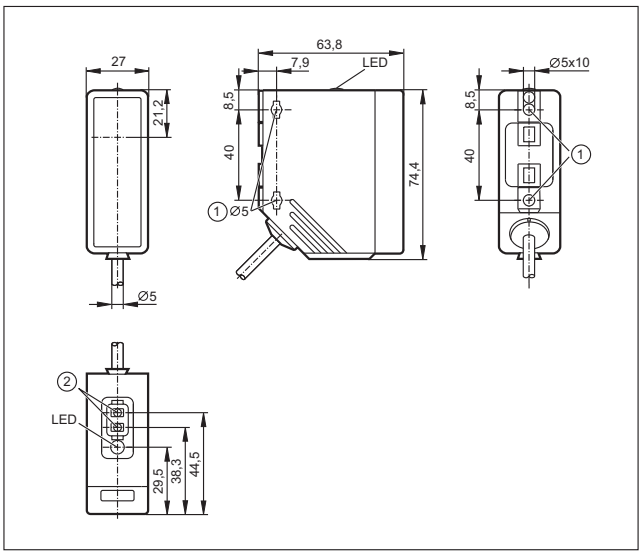
1: with pot., 2: When a M5 mounting screw is used, the max. tightening torque is 2 Nm.

63



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

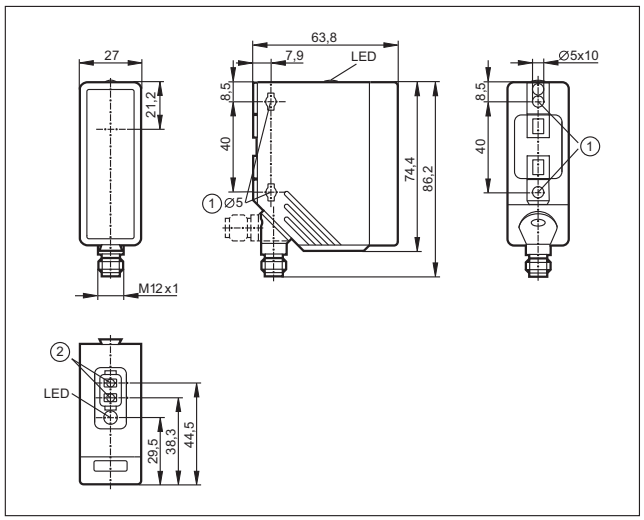
64



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

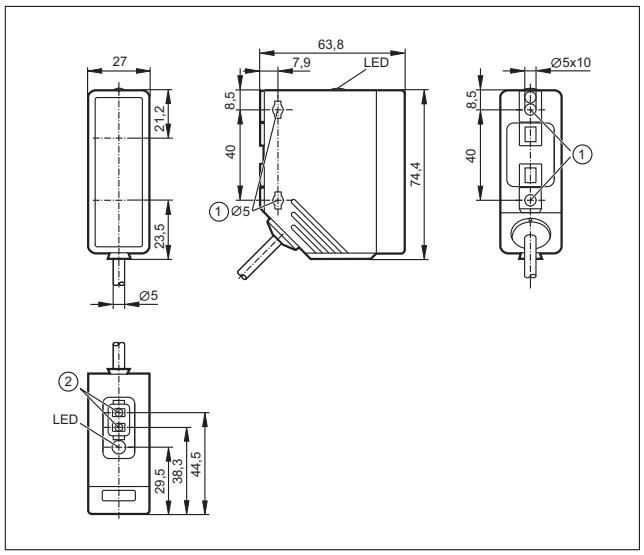
Scale drawings / drawing no. – CAD download: www.ifm.com

65



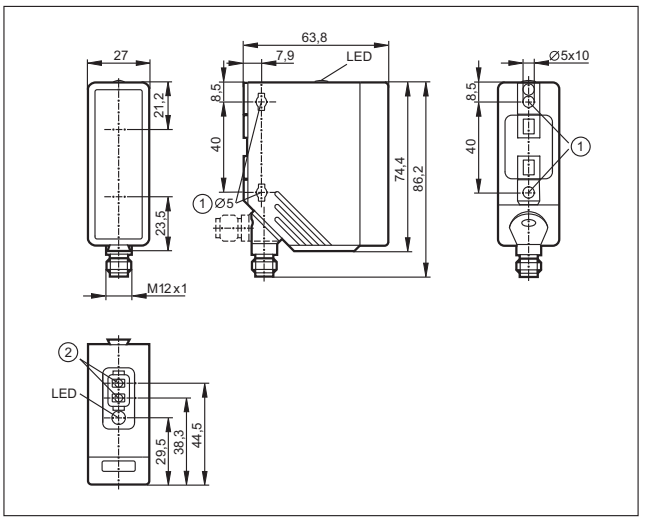
1: When a M5 mounting screw is used, the max. tightening torque is 2 Nm., 2: Programming buttons

66



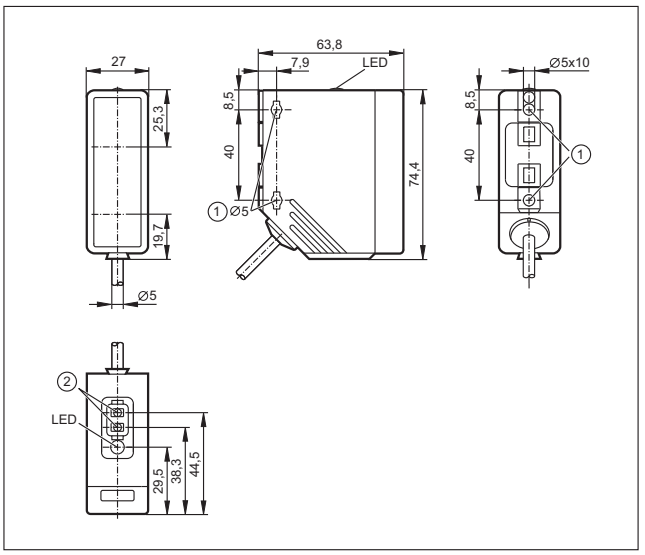
1: When a M5 mounting screw is used, the max. tightening torque is 2 Nm., 2: Programming buttons

67



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

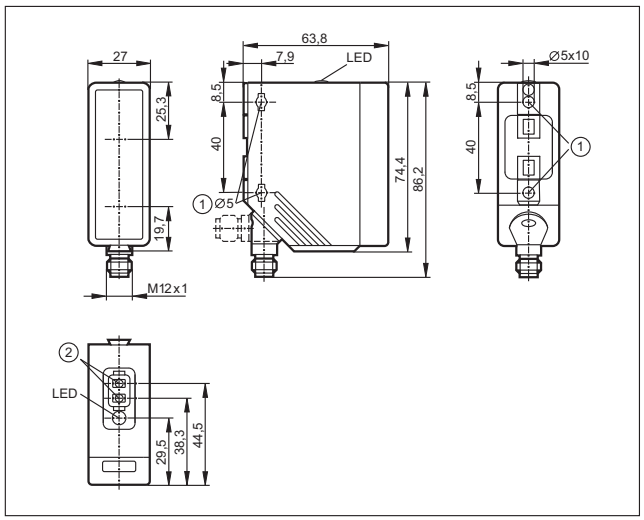
68



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

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

69



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

- **Detection of minute objects.**
- **Clearly visible red light for easy setting to the object.**
- **Automatic switch point setting by pressing a pushbutton.**
- **Application sensors available for special application areas.**
- **System components available for fine adjustment.**

Laser sensors

Laser sensors are used where detection of small objects or precise positioning is required. They 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. Result: Due to the small angle of divergence long ranges of up to 60 metres can be achieved. The laser spot which is also clearly visible at daylight simplifies the alignment of the system. Apart from the advantages some points have to be taken into account for the selection of the suitable optical system: Compared to standard sensors the laser sensors have a reduced temperature range (-10...60 °C). Life is limited to approx. 50,000 hours. Basically laser systems are more expensive than normal red light sensors. In view of the small light spot and the often high ranges the system is more sensitive to vibrations than standard sensors.

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

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 · IP 65 / IP 67 · Connector groups 9, 11, 107, 108, 135								
	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 · IP 65 / IP 67 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	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 · IP 65 / IP 67 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	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 · IP 65 / IP 67 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	Background suppression	20...200 mm	red	1.2	H/D PNP	2	2	**OGH700**

Rectangular OJ housing 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 · IP 67 · Connector groups 4, 5, 70								
	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**

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.
Through-beam sensor · M8 connector · 10...30 DC · plastics · IP 67 · Connector groups 4, 5, 70								
	Receiver	15 m	red	–	H/D PNP	3	3	**OJ5039**
	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 · IP 67 · Connector groups 4, 5, 70								
	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 · IP 67 · Connector groups 4, 5, 70								
	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 OJ housing 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.
Through-beam sensor · M8 connector · 10...30 DC · plastics · IP 67 · Connector groups 4, 5, 70								
	Transmitter	1 m	red	< 4	–	1	9	**OJ5019**

You can find wiring diagrams and scale drawings from page 254

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 · IP 67 · Connector groups 4, 5, 70								
	Receiver	1 m	red	–	H/D PNP	3	9	**OJ5020**
	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 · IP 67 · Connector groups 4, 5, 70								
	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 · IP 67 · Connector groups 4, 5, 70								
	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 O1 housing 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.
Optical distance sensor · M12 connector · 10...30 DC · metal · IP 67 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	Background suppression	0.2...10 m	–	6	normally open / closed programmable PNP	2	14	**O1D101**

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.
Optical distance sensor · M12 connector · 10...30 DC · metal · IP 67 · Connector groups 9, 11, 107, 108, 135								
	Background suppression	0.2...10 m	–	6	normally open / closed programmable NPN	4	14	**O1D104**

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 diagr. no.	Draw-ing no.	Order no.
Through-beam sensor · M12 connector · 10...36 DC · plastics · IP 67 · Connector groups 9, 11, 107, 108, 135								
	Transmitter	60 m	red	150	–	1	15	**O5S700**
Through-beam sensor · M12 connector · 10...36 DC · plastics · IP 67 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	Receiver	60 m	red	–	H/D PNP	2	16	**O5E700**
Retro-reflective sensor · M12 connector · 10...36 DC · plastics · IP 67 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	Polarisation filter	15 m	red	40	H/D PNP	2	17	**O5P700**
Diffuse reflection sensor · M12 connector · 10...36 DC · plastics · IP 67 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	Background suppression	20...200 mm	red	1.2	H/D PNP	2	18	**O5H700**

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**

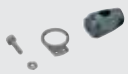
You can find wiring diagrams and scale drawings from page 254

Type	Description	Order no.
	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**
	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 · 50 x 50 mm · rectangular · for retro-reflective laser sensors and glass and film detection · Housing materials: plastics	**E20722**

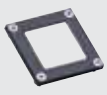
Accessories OG housing

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**

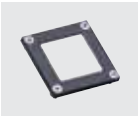
Accessories OJ housing

Type	Description	Order no.
	Fixture for mounting and fine adjustment of laser units · for front lens · for type OJ · Housing materials: diecast zinc	**E20975**
	Fixture for mounting and fine adjustment of laser units · for side lens · for type OJ · Housing materials: diecast zinc	**E20976**
	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**
	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 side lens · rod mounting Ø 10 mm · Housing materials: clamp: diecast zinc / fixture: stainless steel 316Ti / 1.4571	**E21095**
	Swivel-mount clip · for type OJ · Housing materials: diecast zinc	**E20974**

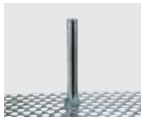
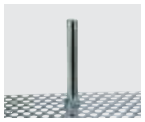
Accessories O1 housing

Type	Description	Order no.
	Prismatic reflector · 226 x 262 mm · rectangular · for type O1D · 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**
	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**

You can find wiring diagrams and scale drawings from page 254

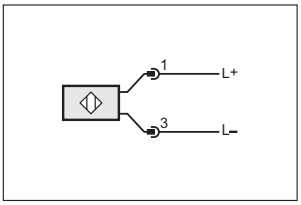
Type	Description	Order no.
	Protective cover · O1D · Housing materials: bezel: ZnAl4Cu1 finish black / window: glass transparent and colourless / sealing: FPM 75+/-5 Shore A black / screws: stainless steel	E21171

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
	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

Wiring diagrams

1



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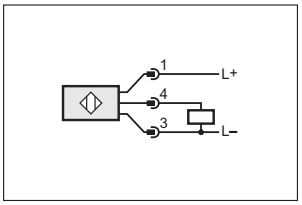

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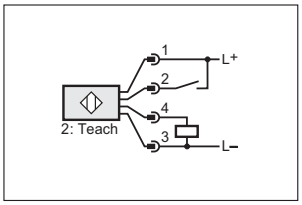

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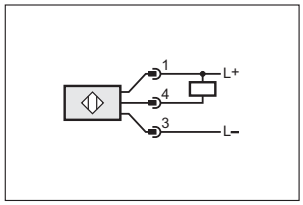

Scale drawings / drawing no. – CAD download: www.ifm.com

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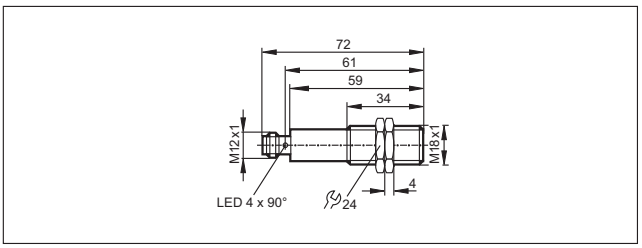

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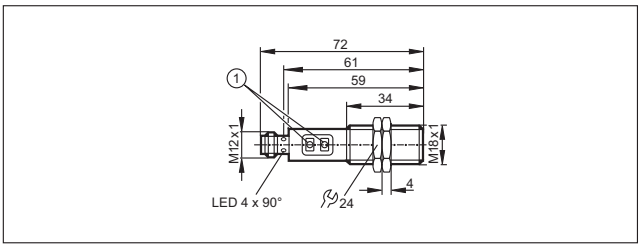
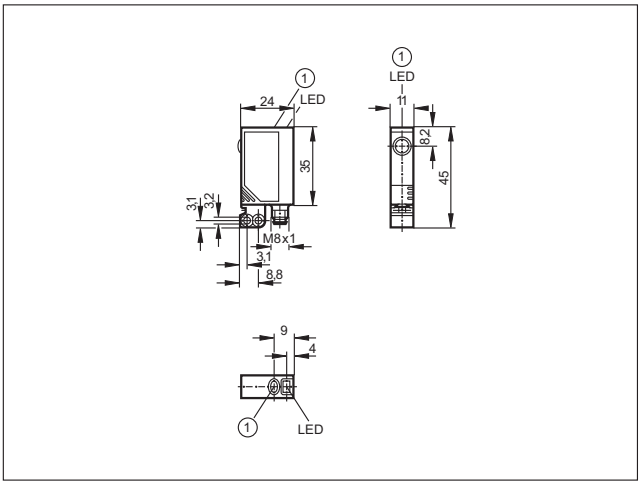


1: Programming buttons

3



1: pushbutton

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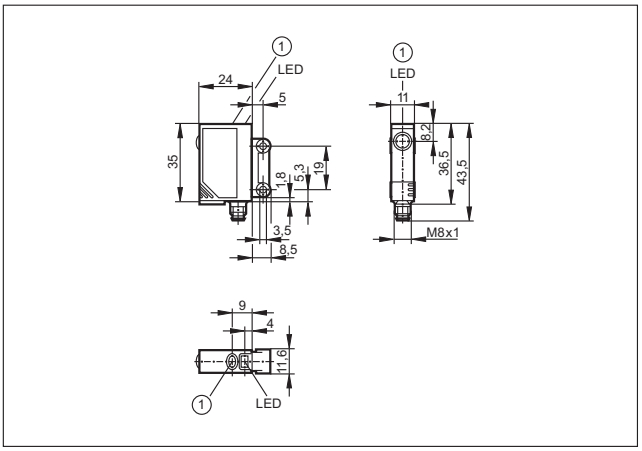

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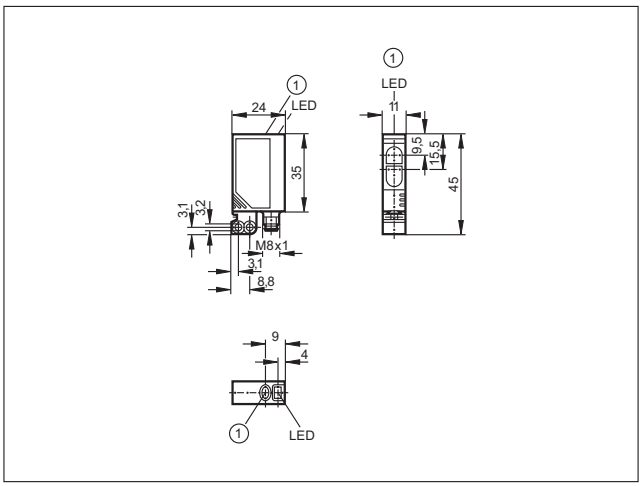

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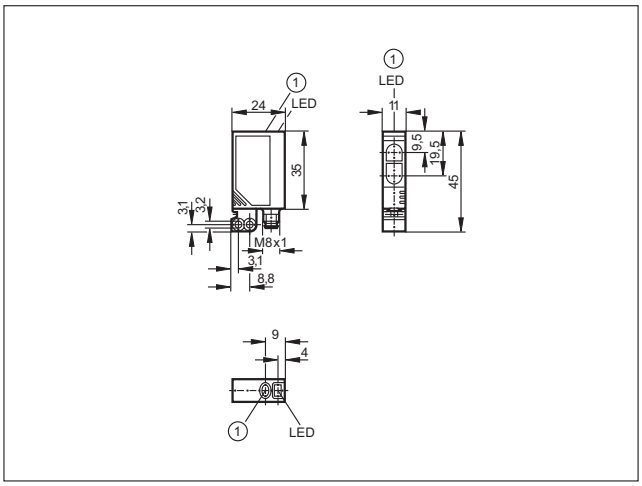

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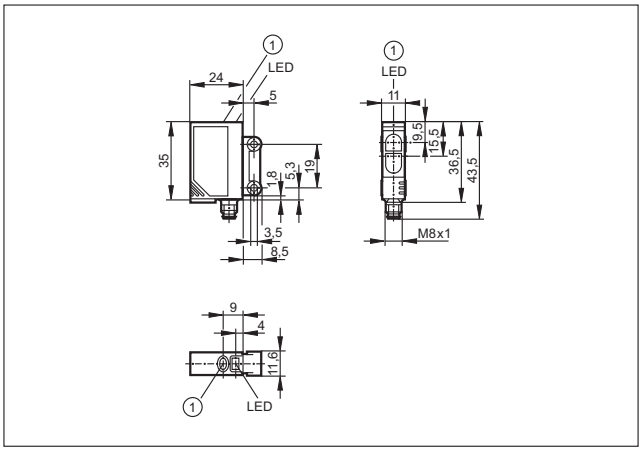
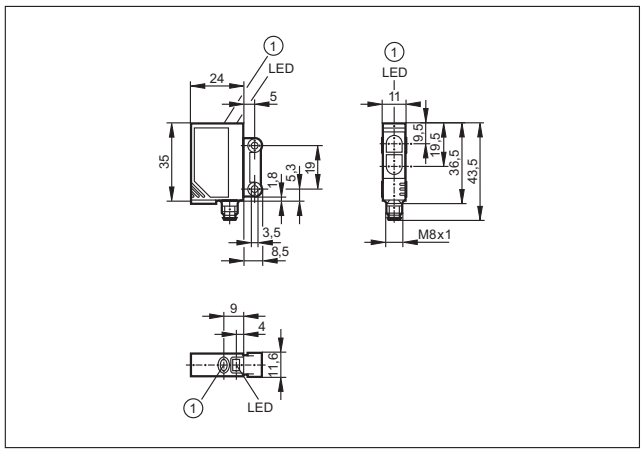


1: pushbutton

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

8



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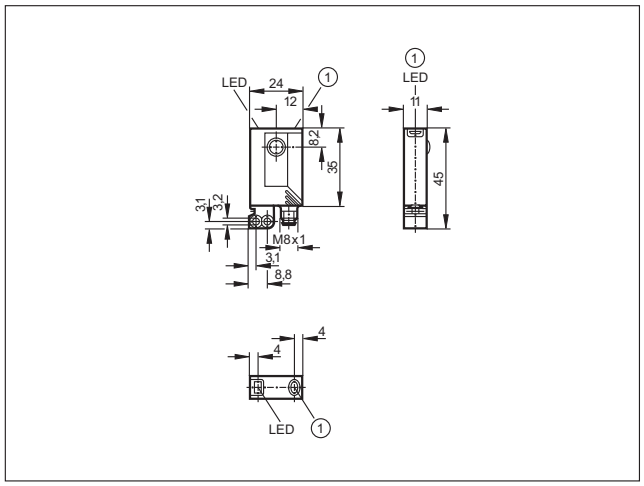

1: pushbutton

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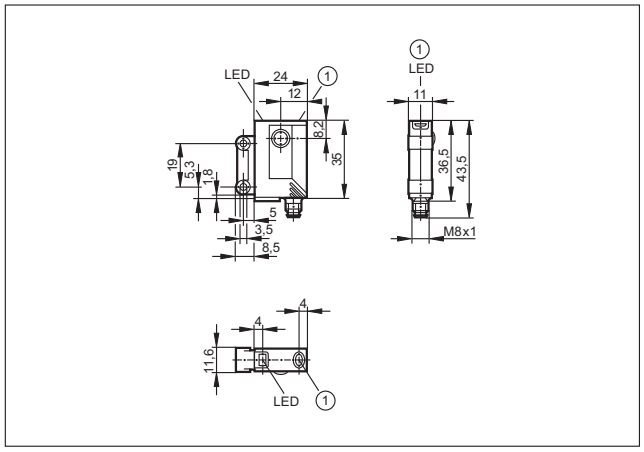

1: pushbutton

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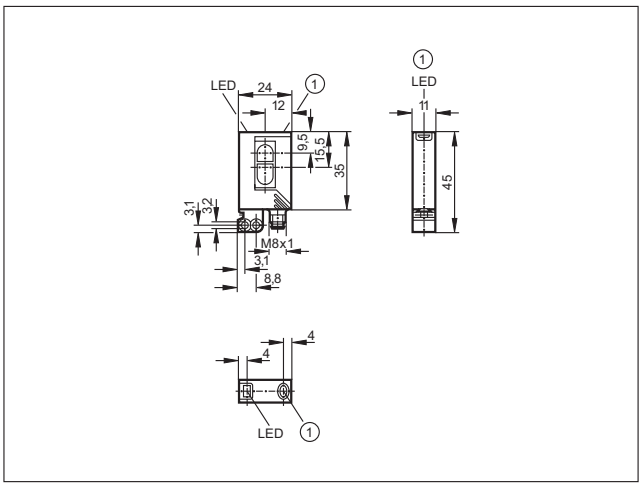
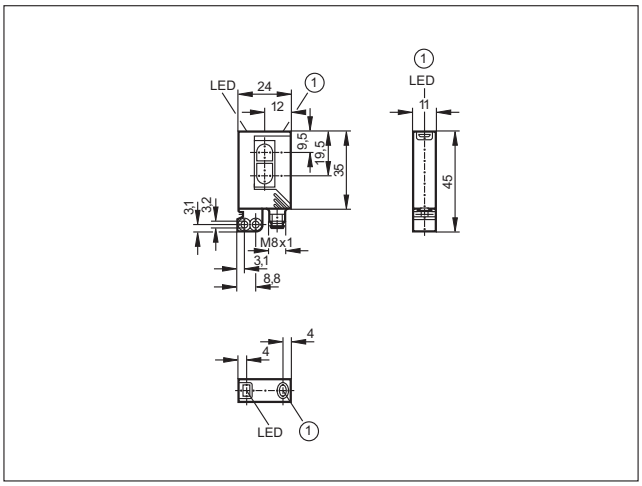


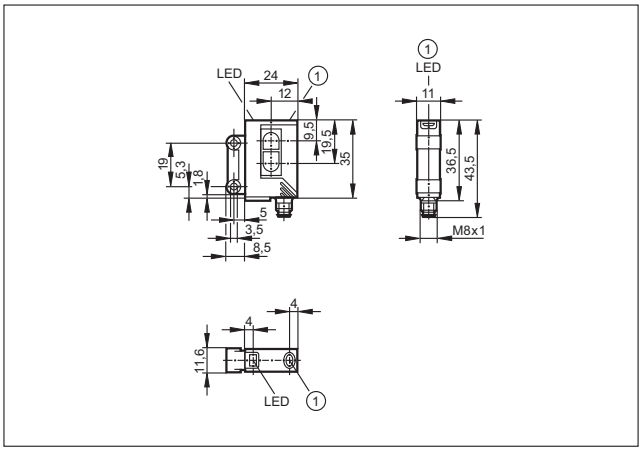
1: pushbutton

12



1: pushbutton

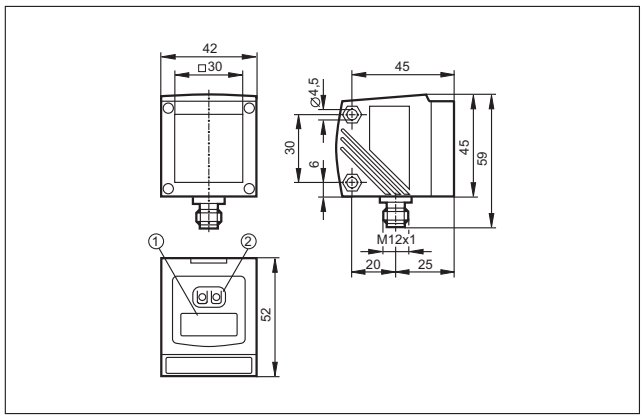
13



1: pushbutton

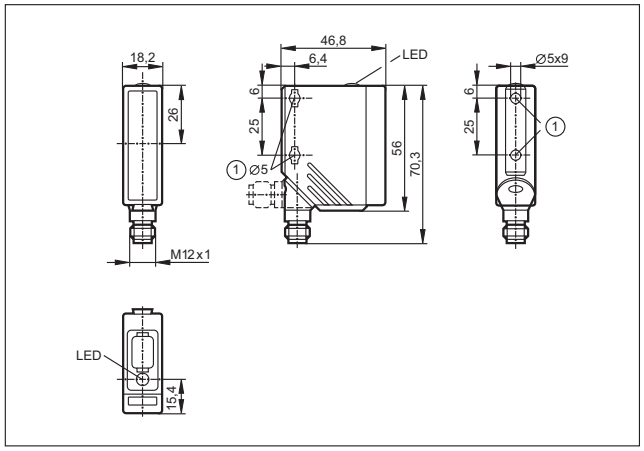
Scale drawings / drawing no. – CAD download: www.ifm.com

14



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

15



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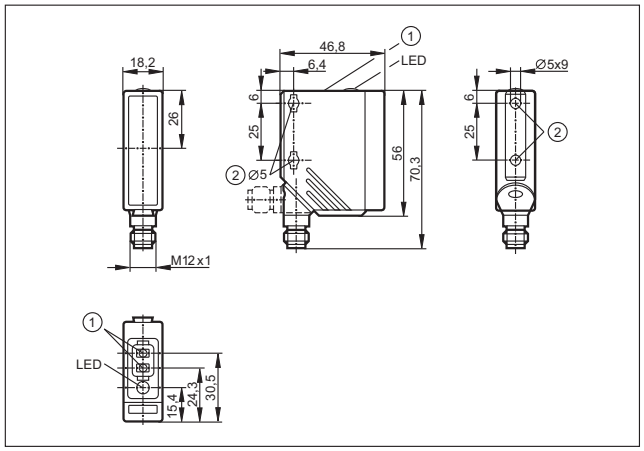

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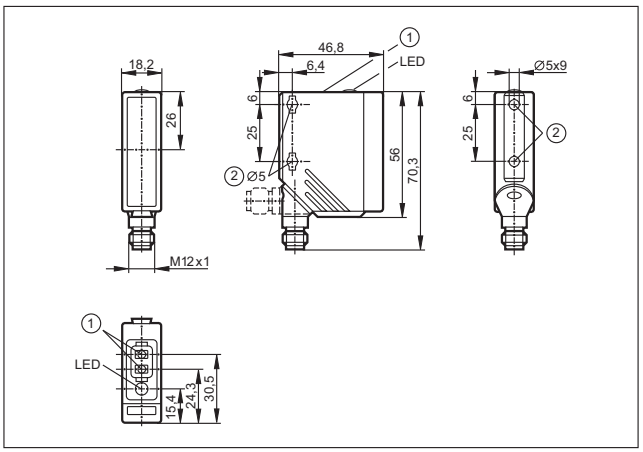
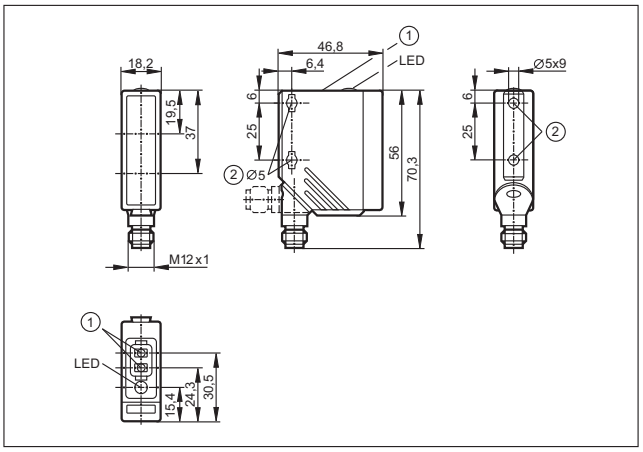
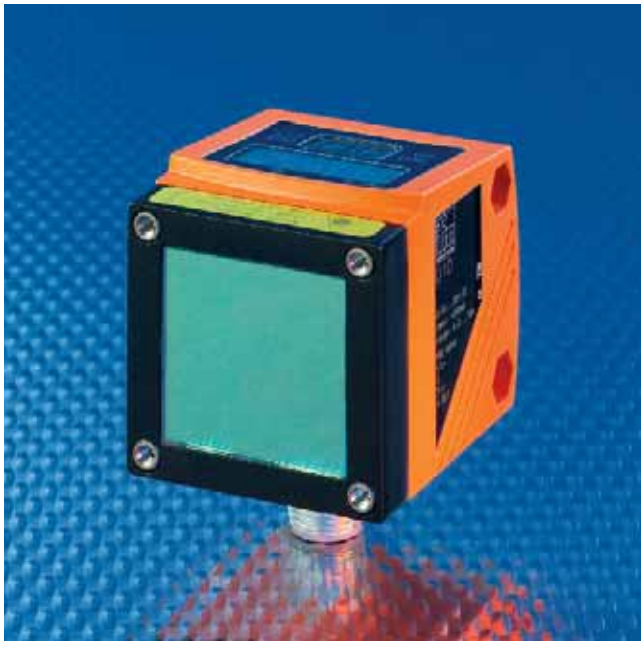


1: Programming buttons, 2: When a M5 mounting screw is used, the max. tightening torque is 2 Nm.

18



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



- **Non-contact distance detection at a high range.**
- **Analogue and switching outputs.**
- **Small light spot and exact background suppression.**
- **Compact and robust metal housing.**
- **Unbeatable price / performance ratio.**

Optical distance detection using PMD technology

For collision avoidance, completeness check, level monitoring or as diffuse reflection sensor with an extraordinary range: The efector pmd distance sensors can be used in a wide range of applications. Depending on the type, the laser sensors precisely determine distances up to 10 m or up to 75 m when a reflector is used. The robust metal housing ensures operational reliability even under rough operating conditions.

Operating principle

The efector pmd laser sensors operate to the time-of-flight principle.

The pmd sensor's receiver element is a „System-on-Chip" design. Both sensor element and electronics for signal evaluation are integrated on a single silicon chip called a Photonic Mixer Device (PMD). Advantage: This innovative ifm design offers high performance in a compact, industrially compatible housing – at a fraction of the price of conventional systems.

The determined distance is indicated on the 4-digit display and provided via the scalable analogue output (4…20 mA). The user can program two switching outputs which switch when a certain distance is reached. Up to 50 measurements per second are possible (adjustable). The light spot diameter is 6 mm at a 10 m distance. This makes the sensor suitable for applications requiring exact background suppression. An outstanding feature of efector pmd is the extremely compact size of only 42 x 45 x 52 mm.

The efector pmd provides an analogue signal that is proportional to the object-to-sensor distance.

Collision avoidance on an overhead conveyor: efector pmd monitors distances between products.

Rectangular O1 housing 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.	Draw-ing no.	Order no.
Output OUT1: normally open / closed programmable OUT2: normally open / closed programmable or analogue (4...20 mA / 0...10 V, scalable) · Wiring diagram no. 1 · Connector groups 9, 10, 11, 107, 108, 110, 135									
		Optical distance sensor	0.3...6 m	1...33	6	18...30	1	1	**O1D155**

Rectangular O1 housing 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.	Draw-ing no.	Order no.
Output OUT1: normally open / closed programmable OUT2: normally open / closed programmable or analogue (4...20 mA / 0...10 V, scalable) · Wiring diagram no. 1 · Connector groups 9, 10, 11, 107, 108, 110, 135									
		Optical distance sensor	1...75 m	1...33	150	18...30	1	1	**O1D106**
		Optical distance sensor	0.2...10 m	1...33	6	18...30	1	1	**O1D105**
		Optical distance sensor	0.2...10 m	1...50	6	18...30	1	1	**O1D100**
Output OUT1: normally open / closed programmable OUT2: normally open / closed programmable or analogue (4...20 mA / 0...10 V, scalable) · Wiring diagram no. 2 · Connector groups 9, 11, 107, 108, 135									
		Optical distance sensor	0.2...10 m	1...50	6	18...30	2	1	**O1D103**

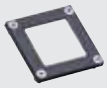
Rectangular O1 housing for optical level measurement, laser class 2

	Type	Operating principle	Range	Sampling rate [Hz]	Spot Ø at max. range [mm]	U_b [V]	Wiring diagr. no.	Draw-ing no.	Order no.
Output OUT1: normally open / closed programmable OUT2: normally open / closed programmable or analogue (4...20 mA / 0...10 V, scalable) · Wiring diagram no. 1 · Connector groups 9, 10, 11, 107, 108, 110, 135									
		Optical level sensor	0.2...10 m	1...33	6	18...30	1	1	**O1D300**

Accessories

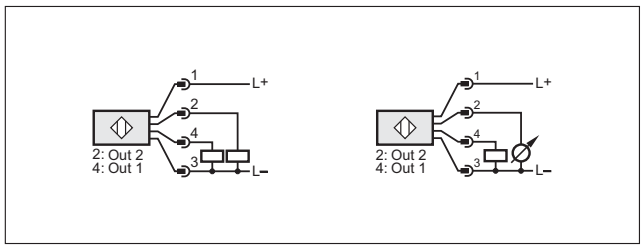
	Type	Description	Order no.
		Prismatic reflector · 226 x 262 mm · rectangular · for type O1D · Housing materials: plastics	**E21159**

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

Type	Description	Order no.
	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**
	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

1



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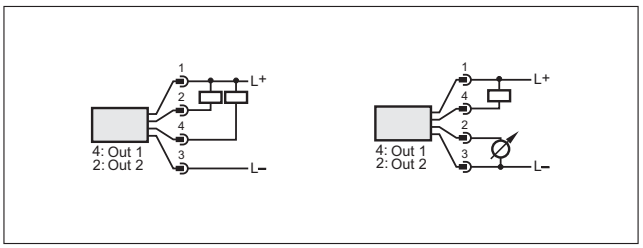

Scale drawings / drawing no. – CAD download: www.ifm.com

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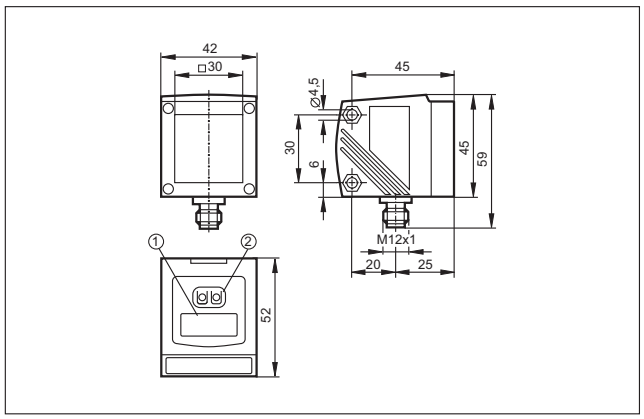


1: 4-digit alphanumeric display, 2: Programming buttons

- **Easy connection of different fibre optics.**
- **Manual or automatic setting by means of “teach in”.**
- **LED display to check operation, switching status and function.**
- **Various fibre materials for different applications.**
- **Easy mounting, also on DIN rail possible.**

Fibre optics systems

If there is only little mounting space for standard photoelectric sensors, fibre optics can be used. They are connected via fibre optic amplifiers which contain the control monitor and photoelectric components. There are two operating principles:

Through-beam principle

Transmitting and receiving fibre optics are laid separately. The two ends (fibre optic heads) are mounted opposite each other. The light beam interruption is evaluated according to the through-beam principle.

Diffuse reflection principle

Transmitting and receiving fibre optics are in one sheath and one sensing head. Evaluation is based on the diffuse reflection principle.

Classification of the fibre optics

Glass fibre optics

Fibre optics made of silicate glass are more resistant to heat, ageing and chemicals than acrylic fibre optics. They do not change their optical response when they are bent. Glass fibre optics cannot be cut to length by the user.

Acrylic fibre optics

Acrylic fibre optics are suited for standard applications if no particular demands such as heat or chemical resistance are made. They can be cut to length and are less expensive than glass fibre optics.

High-flex fibre optics

If the minimum bending radius is not adhered to, the fibre is damaged. High-flex fibre optics allow extremely small bending radii.

Three versions of fibre optic amplifiers are available

Some versions of the OOF and OBF housings feature special functions: the function check output indicates a problem of the unit before it fails (short circuit on the output, internal fault, low excess gain). The pulse stretching function (delay time) allows the user to set a minimum pulse duration on the switching output.

Minute objects up to 0.5 mm are detected safely.

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

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]	Draw-ing no.	Order no.
Type OOF · M12 connector · plastics · DC · Wiring diagram no. 1 · Connector groups 15, 17, 18									
	2	FE/FT-11	red	3.8 m	0...300 mm	H/D PNP	12...36	1	**OO5000**
Type OOF · M12 connector · plastics · DC · Wiring diagram no. 5 · Connector groups 17, 18									
	4	FE/FT-11	red	3.8 m	0...300 mm	H/D PNP	12...36	2	**OO5001**
Type OOF · M16 connector · plastics · DC · Wiring diagram no. 6 · Connector group 20									
	6	FE/FT-11	red	3.8 m	0...300 mm	H/D PNP	12...36	3	**OO5002**
Type OOF · M16 connector · plastics · DC · Wiring diagram no. 7 · Connector group 20									
	8	FE/FT-11	red	3.8 m	0...300 mm	H/D PNP	12...36	4	**OO5003**

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]	Draw-ing no.	Order no.
Type OBF · M12 connector · plastics · DC · Wiring diagram no. 8 · Connector groups 9, 10, 11, 107, 108, 110, 135									
	1	FE/FT-11	red	0...2 m	0...100 mm	H/D PNP/NPN	10...30	5	**OBF500**
Type OBF · M8 connector · plastics · DC · Wiring diagram no. 8 · Connector groups 4, 5, 70									
	1	FE/FT-11	red	0...2 m	0...100 mm	H/D PNP/NPN	10...30	6	**OBF501**
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**
Type OBF · M8 connector · plastics · DC · Wiring diagram no. 10 · Connector groups 1, 3									
	1	FE/FT-11	red	0...2 m	0...100 mm	H/D PNP/NPN	10...30	6	**OBF503**

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

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	Draw-ing 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	Draw-ing no.	Order no.
	FE-11	PMMA	50 / 56 / 120	aluminium	-40...60	PE (polyethylene)	8	**E21103**

You can find wiring diagrams and scale drawings from page 273

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**

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

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**

You can find wiring diagrams and scale drawings from page 273

Acrylic fibres on a reel for OBF housing

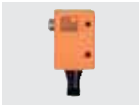
Type	Description	Order no.
	acrylic fibres on a reel · 20 m · for type OBF · Housing materials: PE (polyethylene), Fibre optic: PMMA, can be cut to length	**E20773**
	acrylic fibres on a reel · 50 m · for type OBF · Housing materials: PE (polyethylene), Fibre optic: PMMA, can be cut to length	**E20774**
	acrylic fibres on a reel · 20 m · for type OBF · Housing materials: PE (polyethylene), Fibre optic: PMMA, can be cut to length	**E20775**

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 15, 17, 18									
	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 17, 18									
	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 20									
	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 20									
	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...50	37	**OK5001**

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]	Draw-ing no.	Order no.
Type OKF · M12 connector · plastics · DC · Wiring diagram no. 12 · Connector groups 9, 10, 11, 107, 108, 110, 135									
	1	FE/FT-00	red	0...0.12 m	0...40 mm	H/D PNP	10...50	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]	Draw-ing no.	Order no.
Type OUF · Cable 2 m · plastics · DC · Wiring diagram no. 2									
	1	FE/FT-00	infrared	0.12 m	40 mm	H PNP	10...55	39	**OU5001**
	1	FE/FT-00	infrared	0.12 m	40 mm	D PNP	10...55	39	**OU5002**
Type OUF · M12 connector · plastics · DC · Wiring diagram no. 3 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	1	FE/FT-00	infrared	0...0.12 m	0...40 mm	H PNP	10...50	40	**OU5043**
Type OUF · M12 connector · plastics · DC · Wiring diagram no. 4 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136									
	1	FE/FT-00	infrared	0...0.12 m	0...40 mm	D PNP	10...50	40	**OU5044**

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	Draw-ing 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**

You can find wiring diagrams and scale drawings from page 273

Type	System	Fibre optic material	Range OOF / OKF / OUF [mm]	Sensing head material	Ambient temperature [°C]	Sheathing material	Draw-ing no.	Order no.
	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**
	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	Draw-ing 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**

Type	System	Fibre optic material	Range OOF / OKF / OUF [mm]	Sensing head material	Ambient temperature [°C]	Sheathing material	Draw-ing no.	Order no.
	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**
	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 · Pack quantity: 1	**E20679**
	Lens attachment · Ø 6 mm / M4 · for through-beam fibre optics · Housing materials: aluminium black anodised / glass · Pack quantity: 1	**E20680**
	Lens attachment · D5x10-M3-ALU · for through-beam fibre optics · M3 · Housing materials: aluminium black anodised · Pack quantity: 2	**E20754**

You can find wiring diagrams and scale drawings from page 273

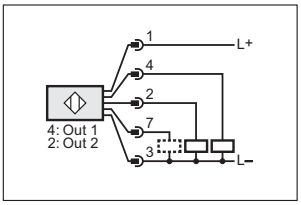
Type	Description	Order no.
	Lens attachment · D5x10-M4-ALU · for through-beam fibre optics · M4 · Housing materials: aluminium black anodised · Pack quantity: 2	**E20755**
	Diaphragm attachment · D5x10-M3-ALU/D0.4 · for through-beam fibre optics · M3 · Housing materials: aluminium black anodised · Pack quantity: 2	**E20762**
	Angle bracket · for type OBF · Housing materials: steel galvanised	**E20593**
	Angle bracket · OU · with mounting material · Housing materials: galvanised steel	**E20211**
	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

1



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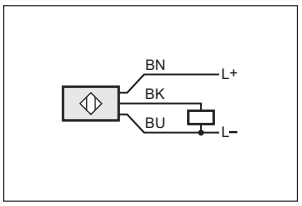

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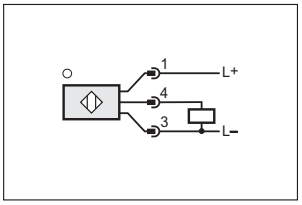

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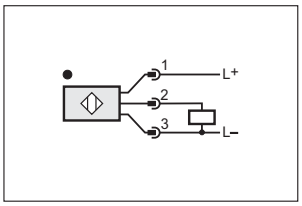

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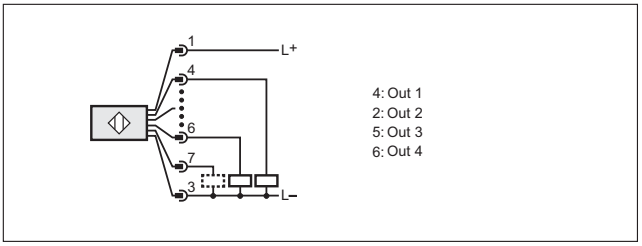

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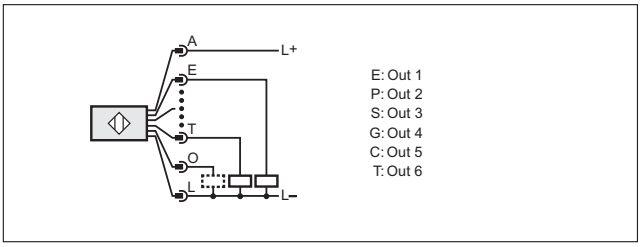

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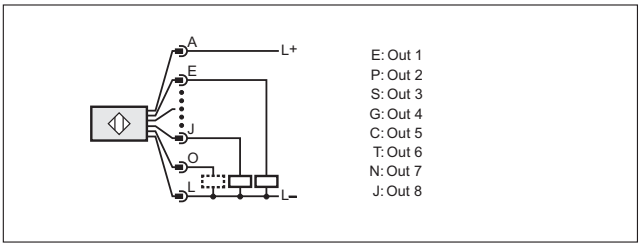

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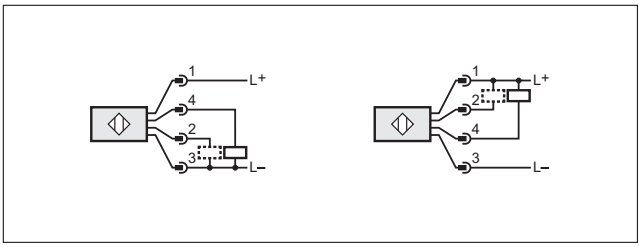

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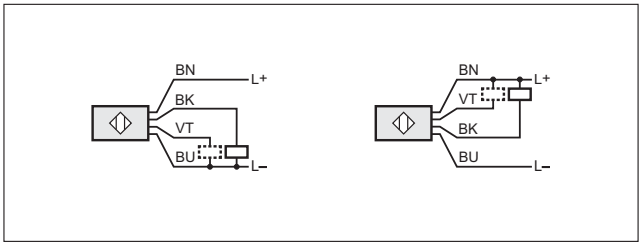

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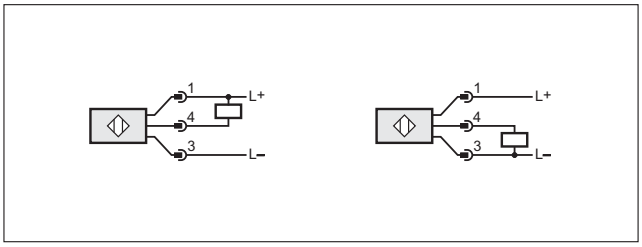

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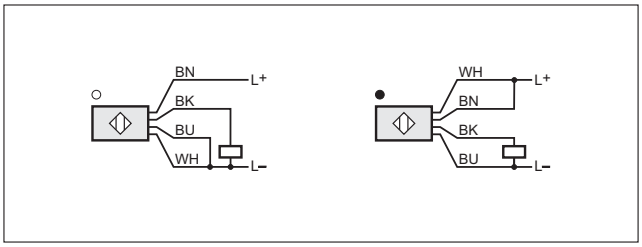

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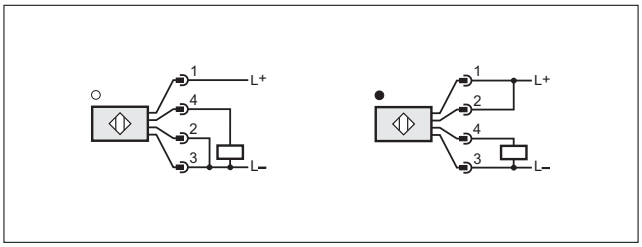

Scale drawings / drawing no. – CAD download: www.ifm.com

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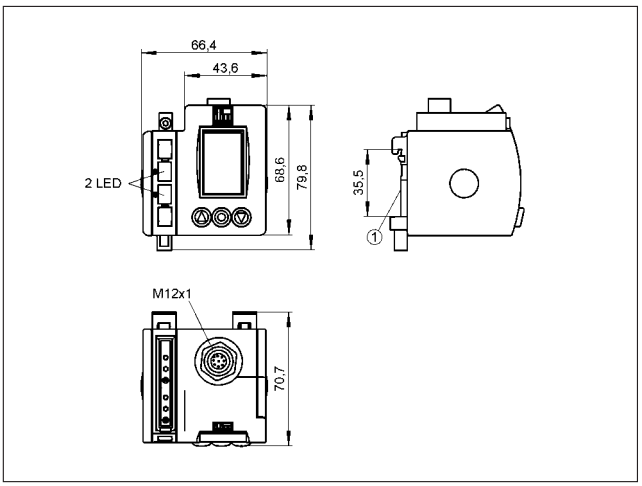
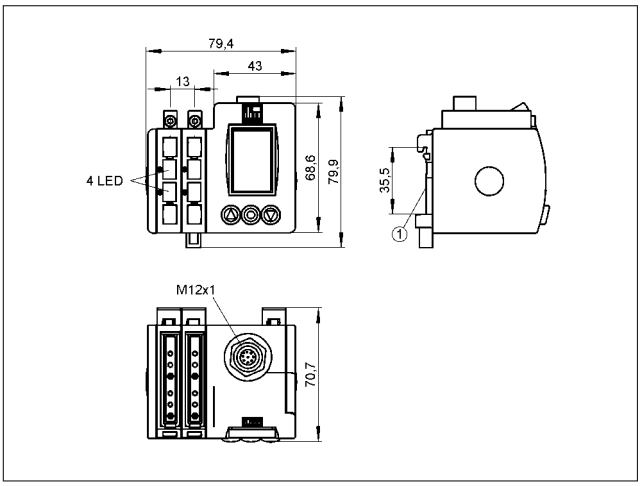


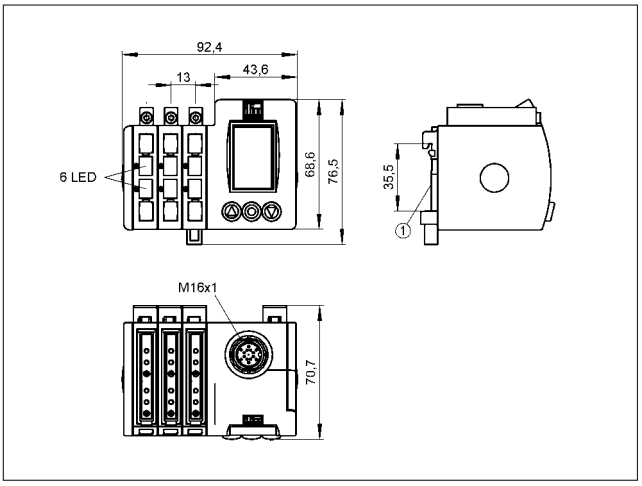
1: mounting on DIN rail

2



1: mounting on DIN rail

3



1: mounting on DIN rail

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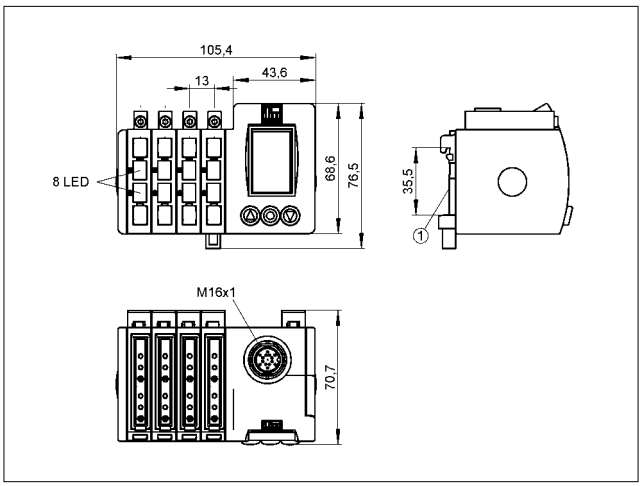

1: mounting on DIN rail

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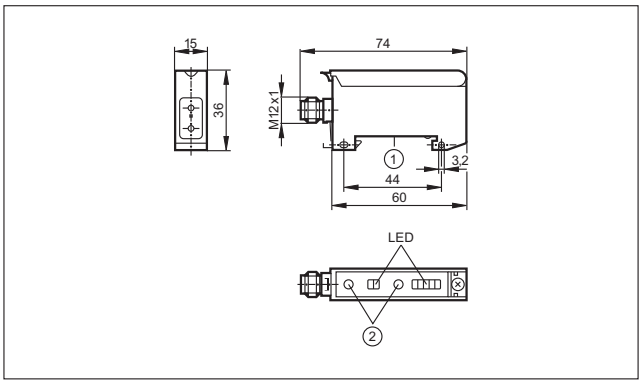
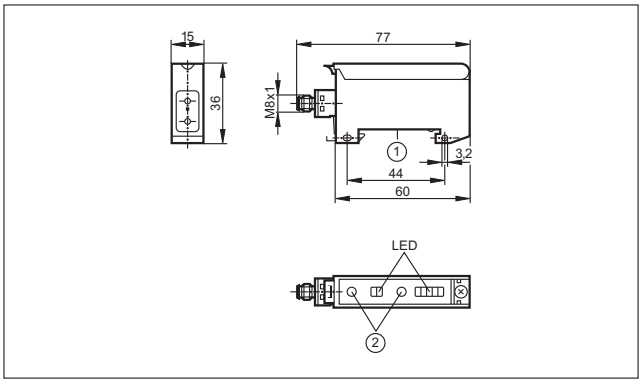


1: mounting on DIN rail, 2: setting pushbuttons

6



1: mounting on DIN rail, 2: setting pushbuttons

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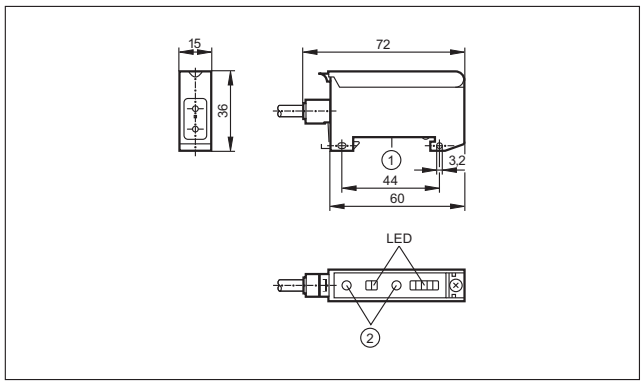
7



1: mounting on DIN rail, 2: setting pushbuttons

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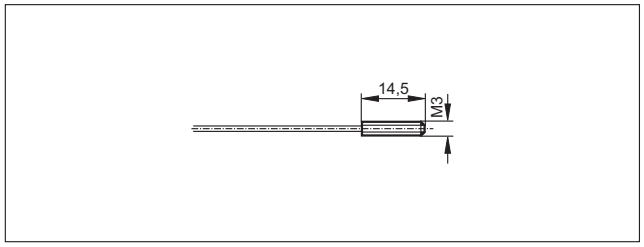

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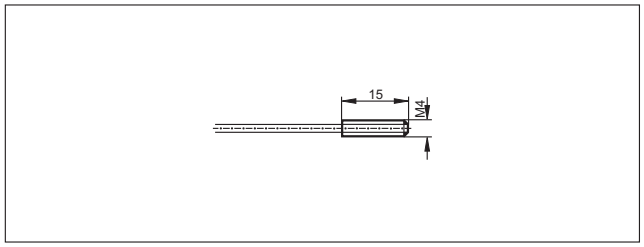

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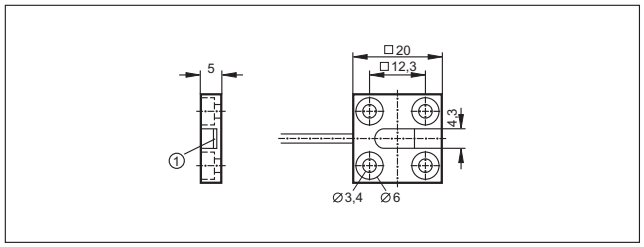
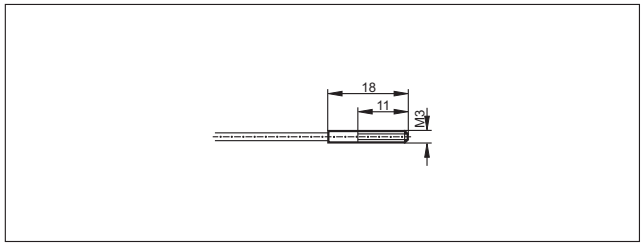


1: Sensing surface

11



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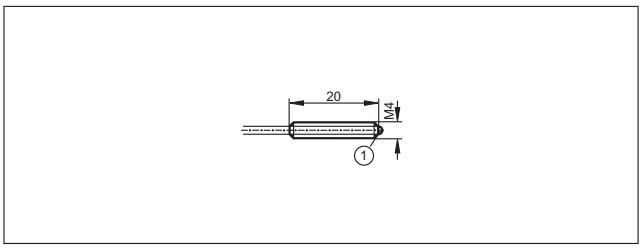

1: glass lens

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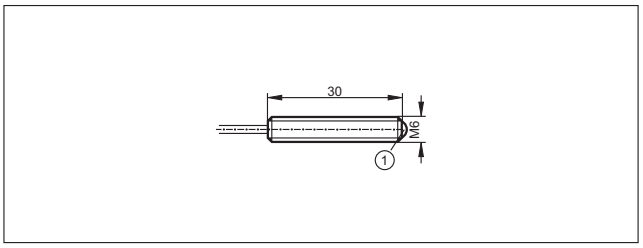

1: glass lens

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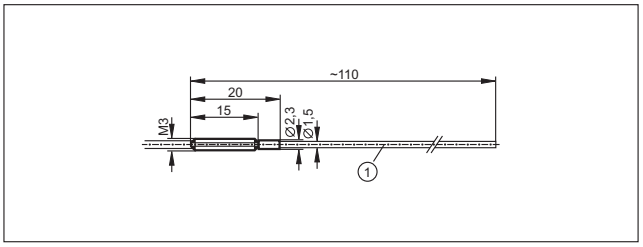

1: bendable

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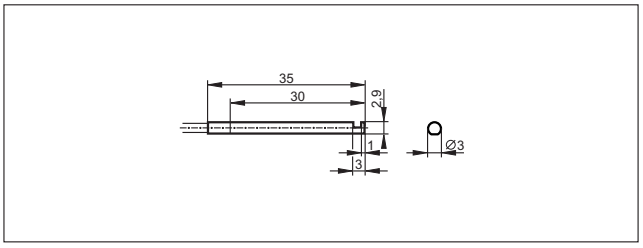

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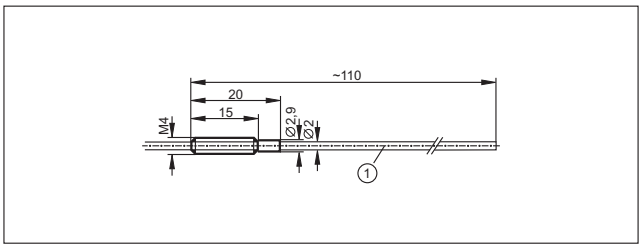

1: bendable

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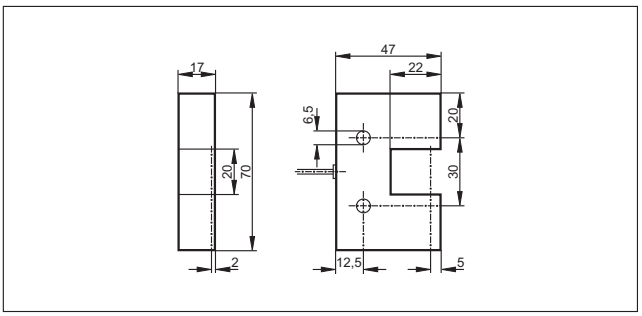
17



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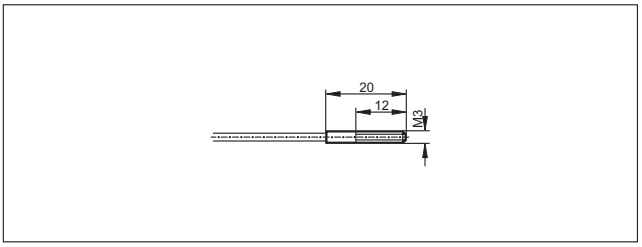

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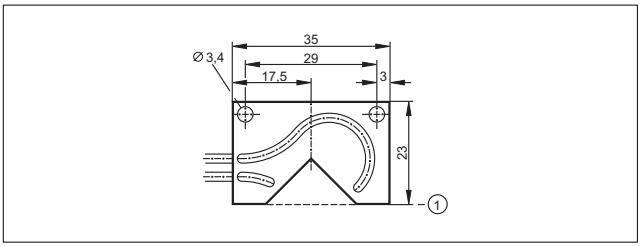

1: Reference edge

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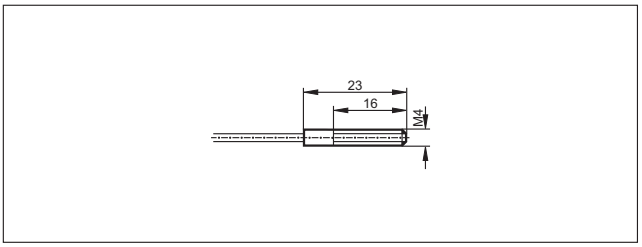

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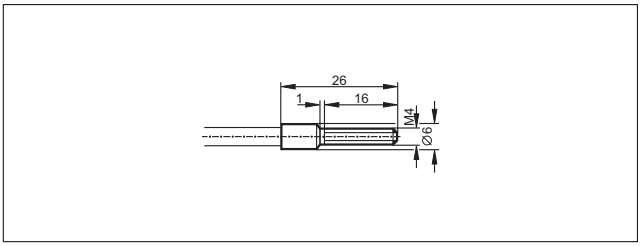

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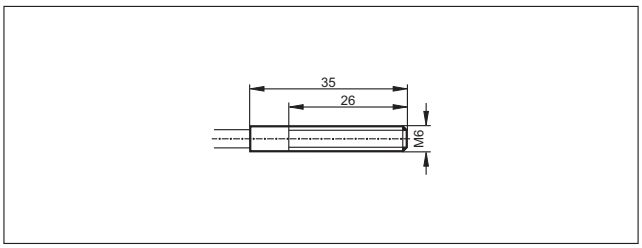

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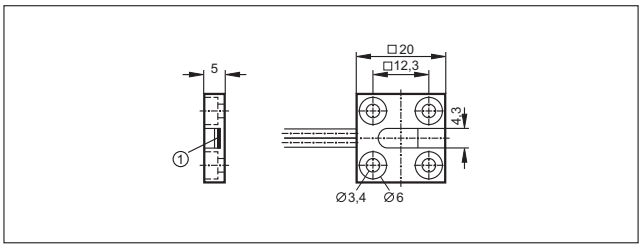

1: Sensing surface

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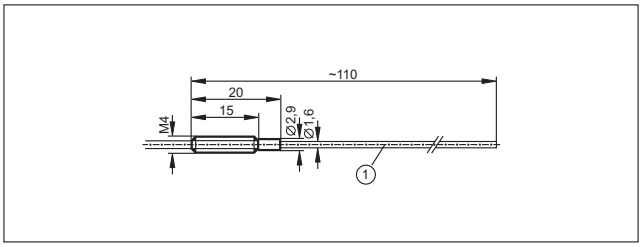

1: bendable

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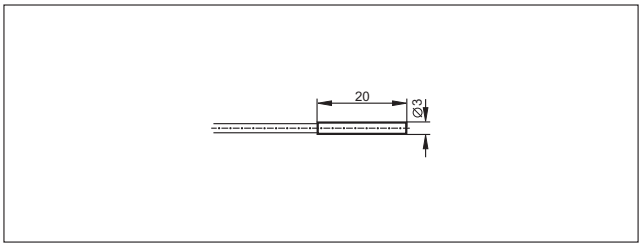

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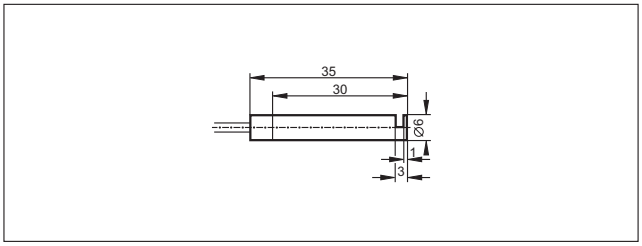

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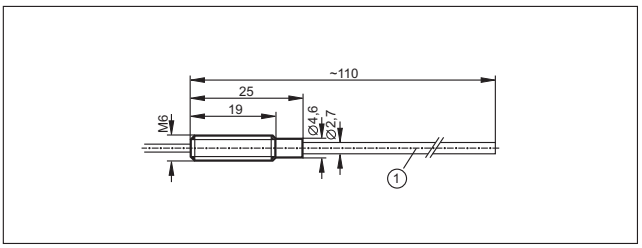

1: bendable

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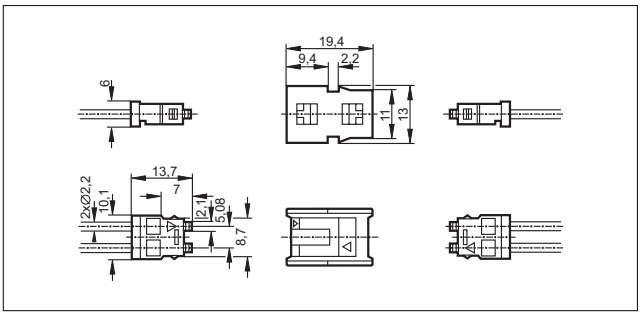

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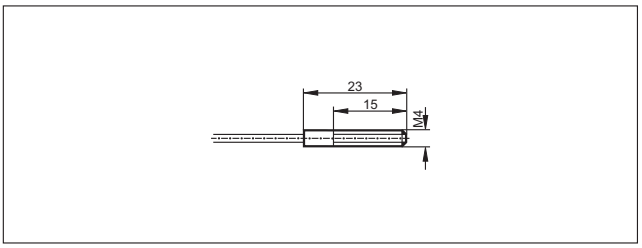

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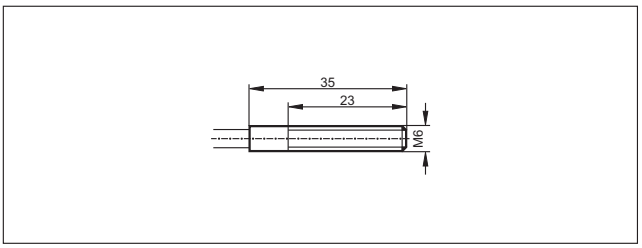

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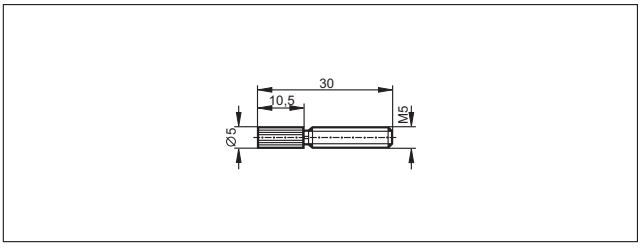

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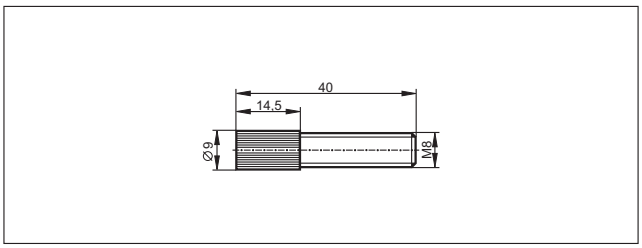

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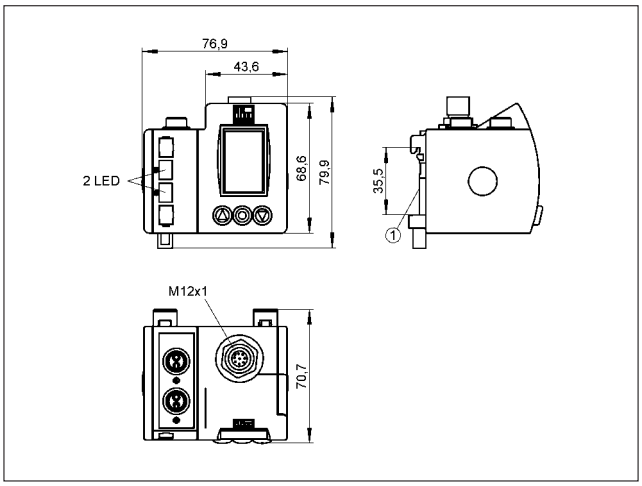
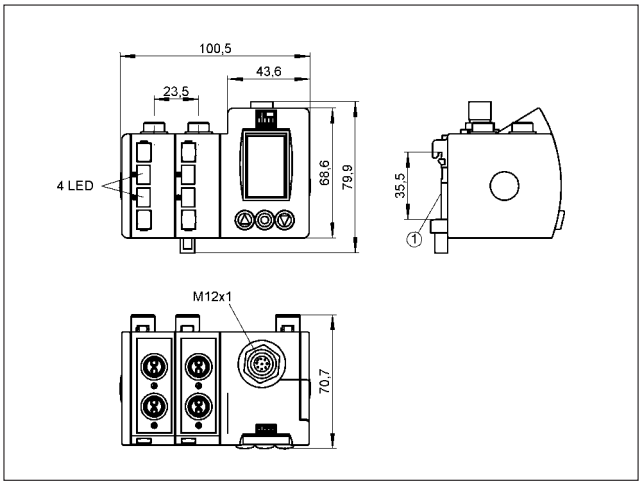


1: mounting on DIN rail

34



1: mounting on DIN rail

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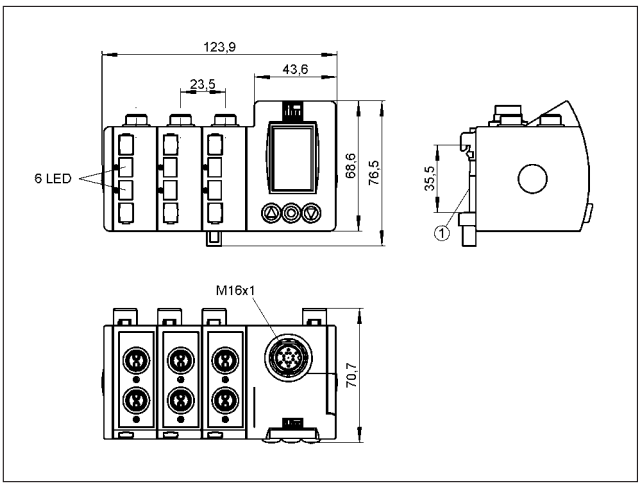

1: mounting on DIN rail

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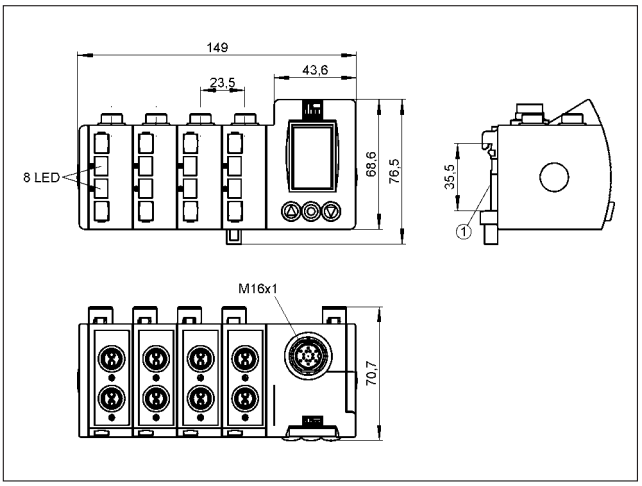

1: mounting on DIN rail

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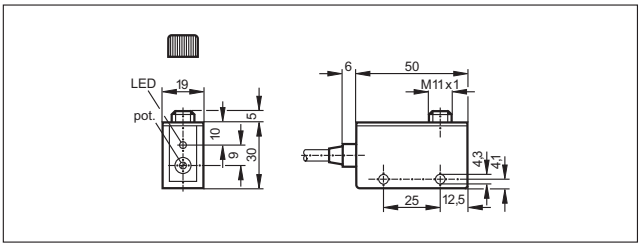

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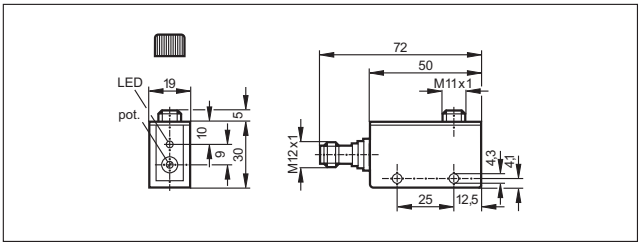

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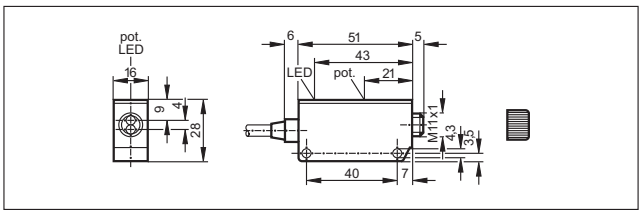

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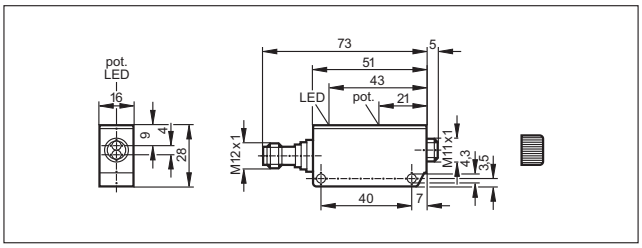

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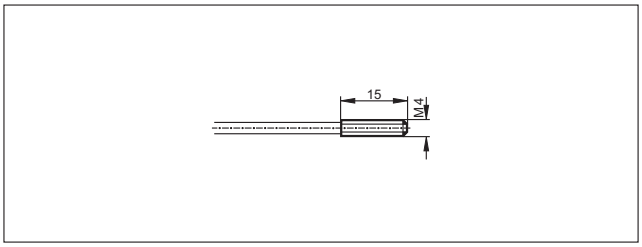

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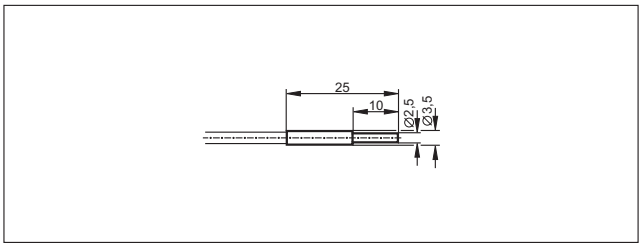

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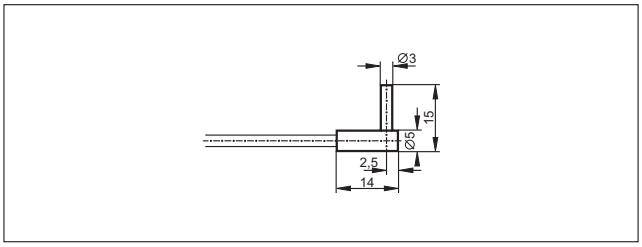

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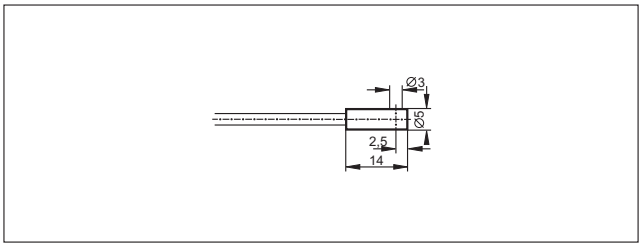

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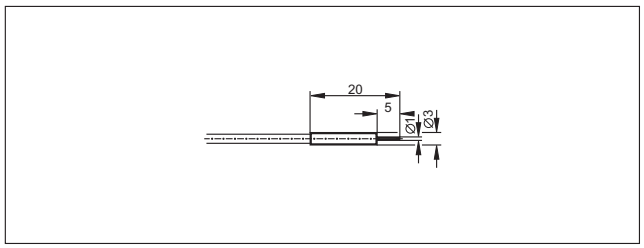

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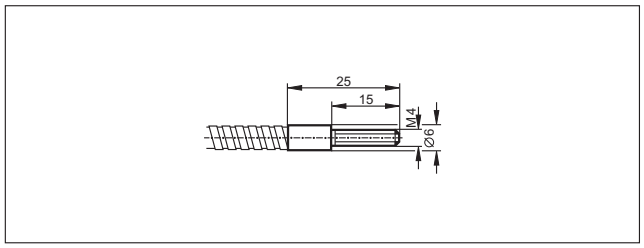

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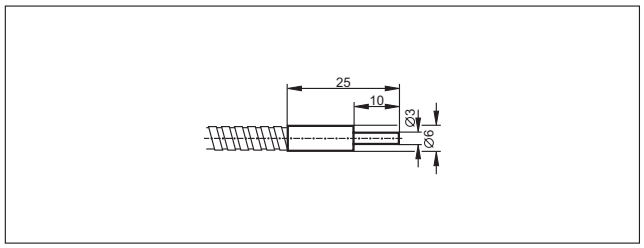

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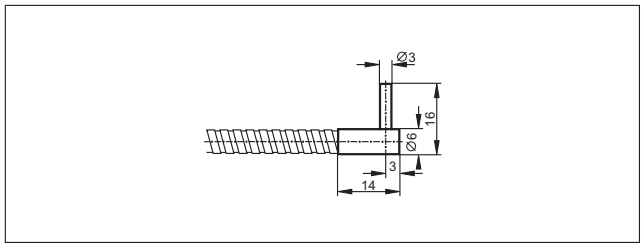

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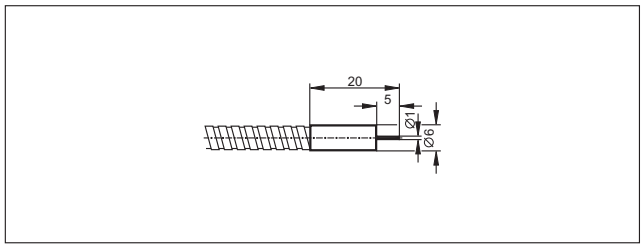

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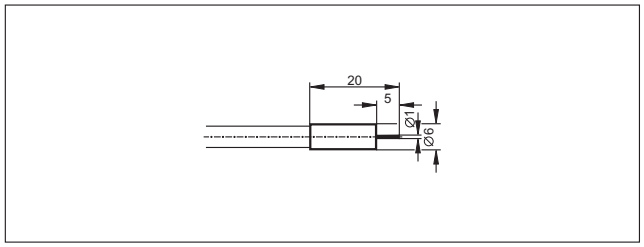

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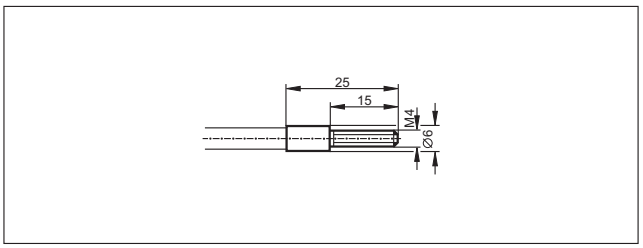

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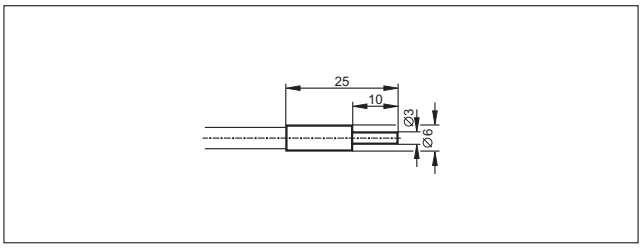

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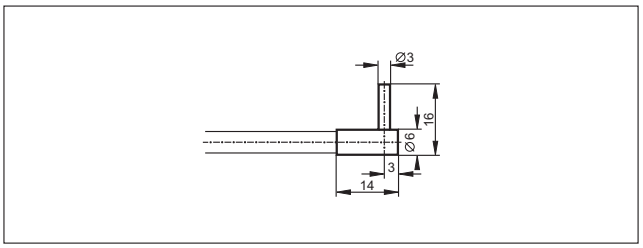

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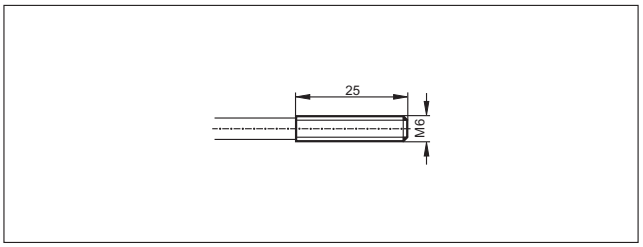

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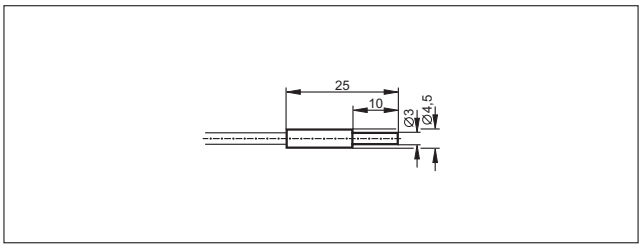

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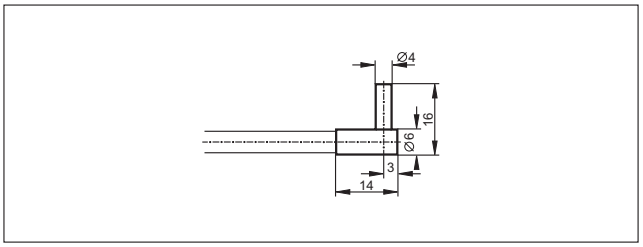

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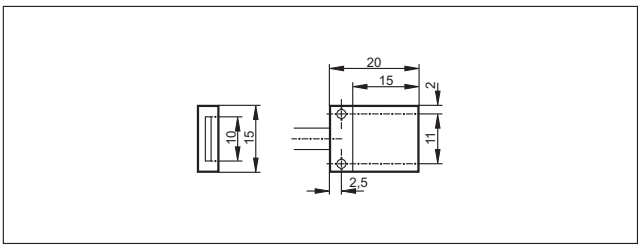

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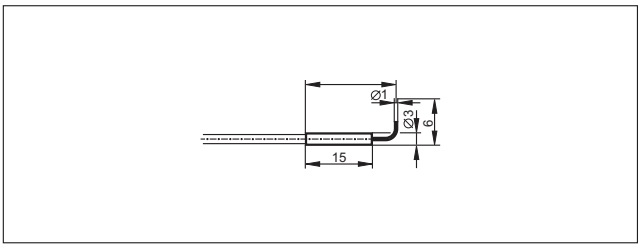

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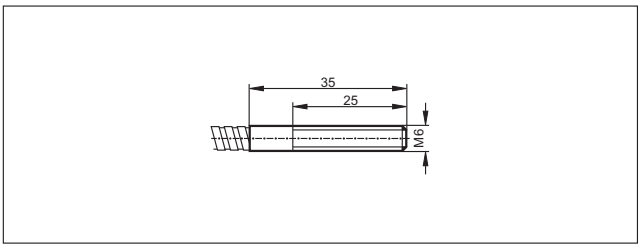

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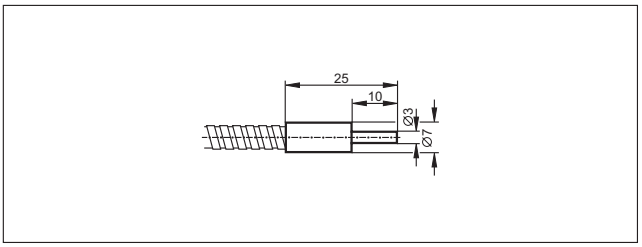

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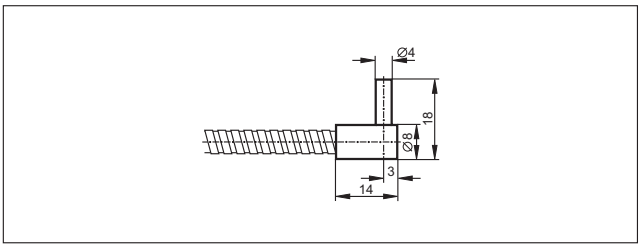

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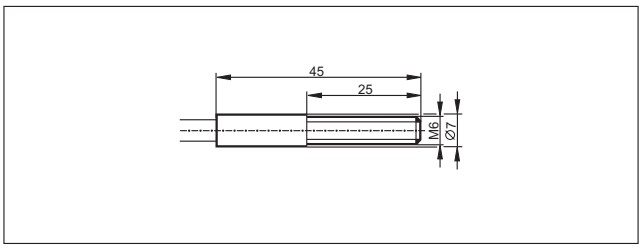

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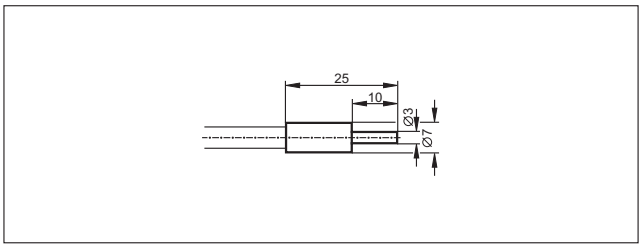

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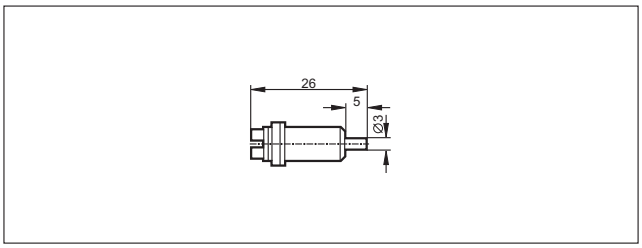

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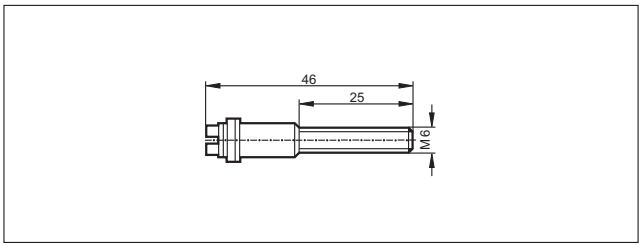


- **High-quality photoelectric sensors for different applications.**
- **Excellent price / performance ratio.**
- **Easy adjustment via teach buttons or potentiometer.**
- **Wide range of system components for easy and safe mounting.**

Detection of transparent objects

Counting bottles and glasses or the reliable monitoring of film for tear can be performed without problem using specially designed retro-reflective sensors. ifm electronic offers a retro-reflective sensor with a small switching hysteresis, in particular for the detection of transparent objects. Due to the 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 teach buttons.

Contrast sensor

The O5 contrast sensor is specially suitable for detecting print marks and particularly flat objects.

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 colours red green blue (RGB) to ensure maximum energy difference of the reflected light. In addition, the teach method saves time and money. Pressing the teach buttons twice is enough for the sensor to be ready for operation.

High-resolution colour sensor

The new electronic colour sensor from ifm electronic 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. This saves time and money.

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.

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.

Typical application for contrast sensors: Counting of glass bottles.

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

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 · 10...30 DC · plastics · IP 67 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	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 · IP 67 · Connector groups 4, 5, 70								
	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 · IP 67 · Connector groups 11, 13, 14, 107, 109, 110, 113, 115, 135, 137								
	Polarisation filter	0...1.5 m	red	40 / 80	H/D PNP/NPN	7	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 · IP 67 · Connector groups 11, 13, 14, 107, 109, 110, 113, 115, 135, 136, 137								
	Diffuse contrast sensor	18...22 mm	red	1.5 x 5	H/D PNP/NPN	8	8	**O5K500**

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 11, 13, 14, 107, 109, 110, 113, 115, 135, 137								
	Colour sensor	15...19 mm	2.5 x 6	10...36	50	2000	8	**O5C500**

Photoelectric 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 ⎍ · DC PNP · Wiring diagram no. 5 · Connector groups 107, 108, 110, 135									
	M12 / L = 63	50 f	high-grade st. steel	10...30	IP 68	1600	100	9	**JAC201**
	M12 / L = 63	50 f	high-grade st. steel	10...30	IP 68 / IP 69K	1600	100	9	**JAT201**

f = flush / nf = non flush

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.
Optical fork sensor · Type OPU · M8 connector · metal · DC · Wiring diagram no. 9 · Connector groups 1, 2, 3, 68								
	10	17	0.3	10000	H/D PNP/NPN	10...35	10	**OPU200**
Optical fork sensor · Type OPU · M8 connector · metal · DC · Wiring diagram no. 1 · Connector groups 1, 2, 3, 68								
	20	25	0.4	4000	H/D PNP	10...35	11	**OPU201**
	30	35	0.5	4000	H/D PNP	10...35	12	**OPU202**
	50	55	0.5	4000	H/D PNP	10...35	13	**OPU203**
	80	55	0.5	4000	H/D PNP	10...35	14	**OPU204**

You can find wiring diagrams and scale drawings from page 288

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.
Optical fork sensor · Type OPU · M8 connector · metal · DC · Wiring diagram no. 1 · Connector groups 1, 2, 3, 68								
	120	60	0.8	2000	H/D PNP	10...35	15	**OPU205**
Optical fork sensor · Type OPU · M8 connector · metal · DC · Wiring diagram no. 6 · Connector groups 1, 3, 68								
	20	25	0.4	4000	H/D NPN	10...35	11	**OPU207**
	30	35	0.5	4000	H/D NPN	10...35	12	**OPU208**
	50	55	0.5	4000	H/D NPN	10...35	13	**OPU209**
	80	55	0.5	4000	H/D NPN	10...35	14	**OPU210**
	120	60	0.8	2000	H/D NPN	10...35	15	**OPU211**

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.
Optical fork sensor · Type OPU · M8 connector · metal · DC · Wiring diagram no. 1 · Connector groups 1, 2, 3, 68								
	30	30	0.05	3000	H/D PNP	10...30	16	**OPU700**
	50	50	0.05	3000	H/D PNP	10...30	17	**OPU701**
	80	50	0.05	3000	H/D PNP	10...30	18	**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.
Optical angle sensor · Type OPL · M8 connector · metal · DC · Wiring diagram no. 1 · Connector groups 1, 2, 3, 68								
	50	60	0.5	4000	H/D PNP	10...35	19	**OPL200**
	80	100	0.7	4000	H/D PNP	10...35	20	**OPL201**
Optical angle sensor · Type OPL · M8 connector · metal · DC · Wiring diagram no. 6 · Connector groups 1, 3, 68								
	50	60	0.5	4000	H/D NPN	10...35	19	**OPL202**
	80	100	0.7	4000	H/D NPN	10...35	20	**OPL203**

Prismatic reflector

Type	Description	Order no.
	Prismatic reflector · 50 x 50 mm · rectangular · for red light and infrared light retro-reflective sensors · Housing materials: plastics	**E20744**
	Prismatic reflector · 50 x 50 mm · rectangular · for retro-reflective laser sensors and glass and film detection · Housing materials: plastics	**E20722**

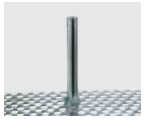
Accessories O5 housing

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**

You can find wiring diagrams and scale drawings from page 288

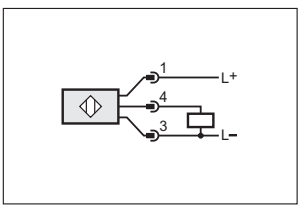
Type	Description	Order no.
	Mounting set · Clamp mounting · rod mounting Ø 12 mm · for type O5 · Housing materials: stainless steel 316Ti / 1.4571 / clamp: diecast zinc	E21211
	Mounting set · Clamp mounting · rod mounting Ø 12 mm · for type O5 · Housing materials: stainless steel 316Ti / 1.4571 / clamp: high-grade stainless steel	E21212
	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

1



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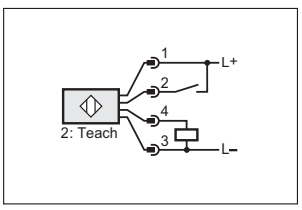

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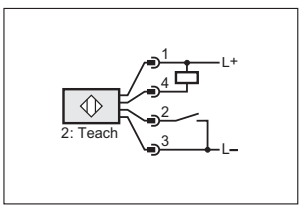

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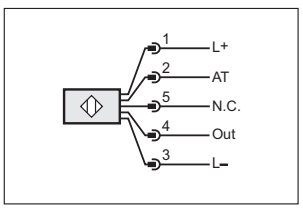
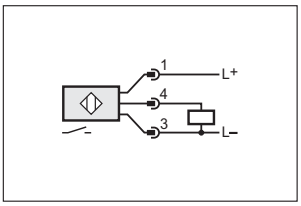


Wiring diagrams

5



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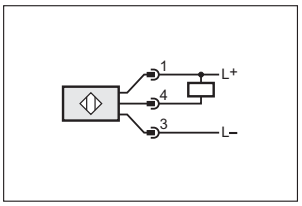

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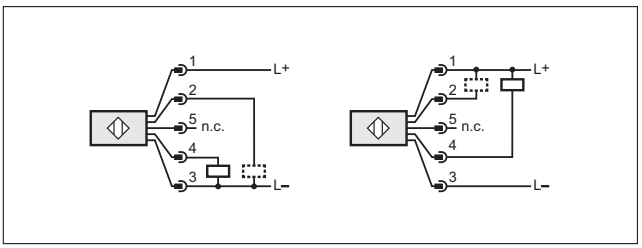

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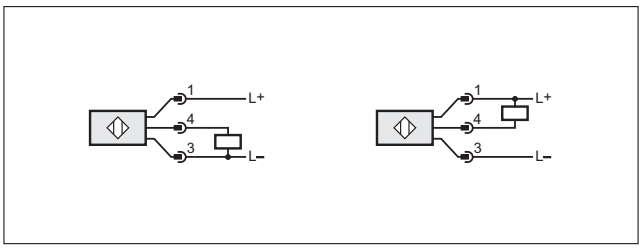

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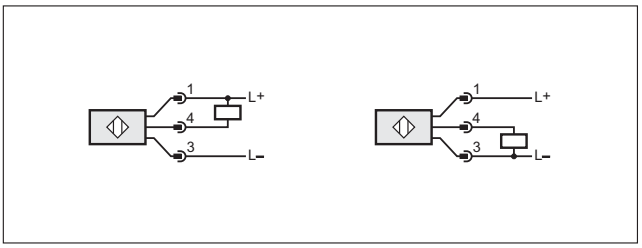
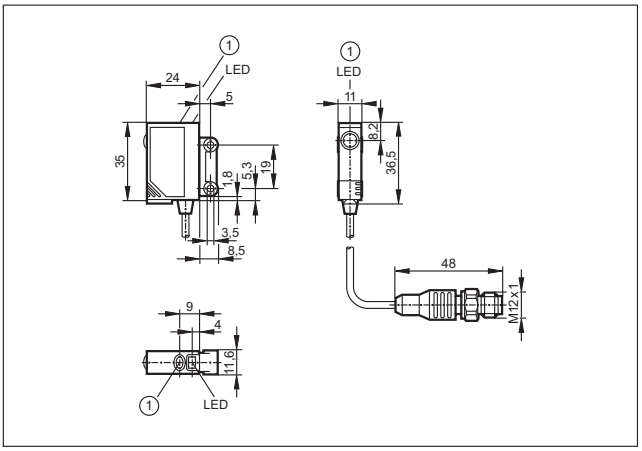


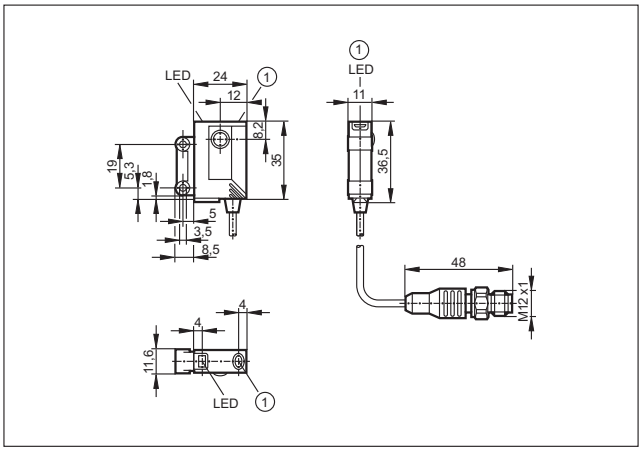
Scale drawings / drawing no. – CAD download: www.ifm.com

1



1: pushbutton

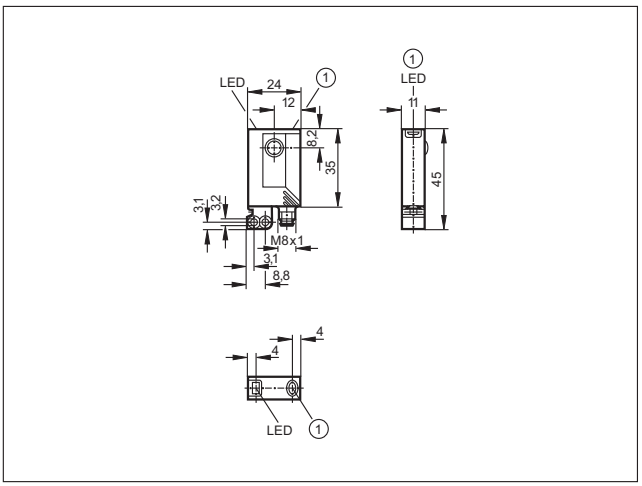
2



1: pushbutton

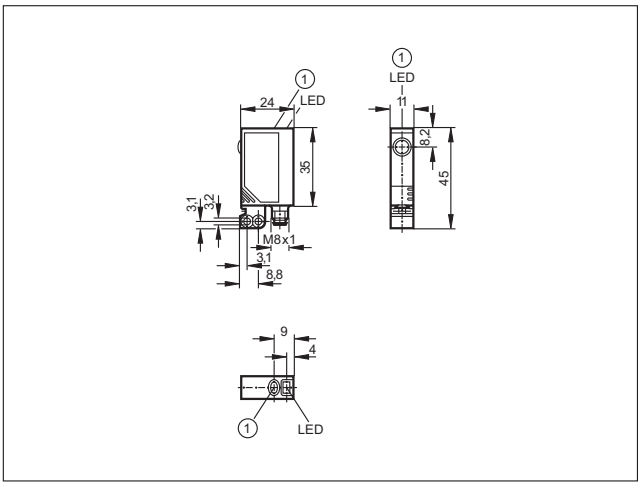
Scale drawings / drawing no. – CAD download: www.ifm.com

3



1: pushbutton

4



1: pushbutton

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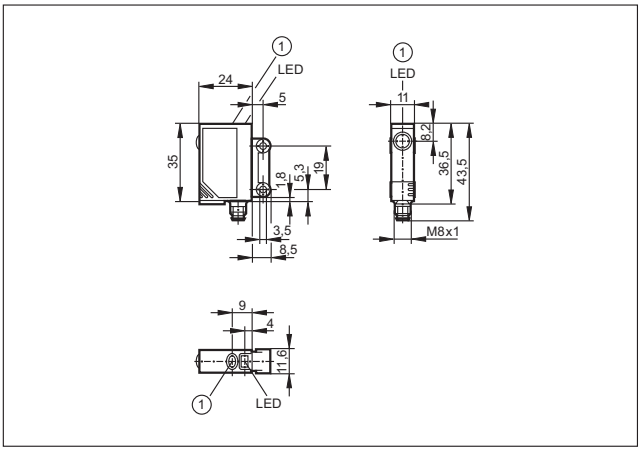

1: pushbutton

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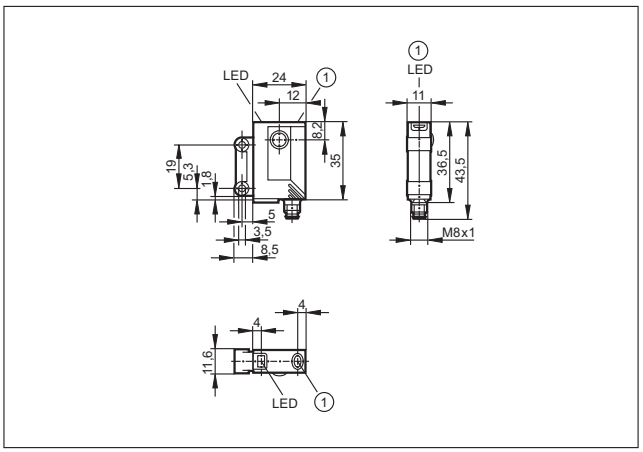

1: pushbutton

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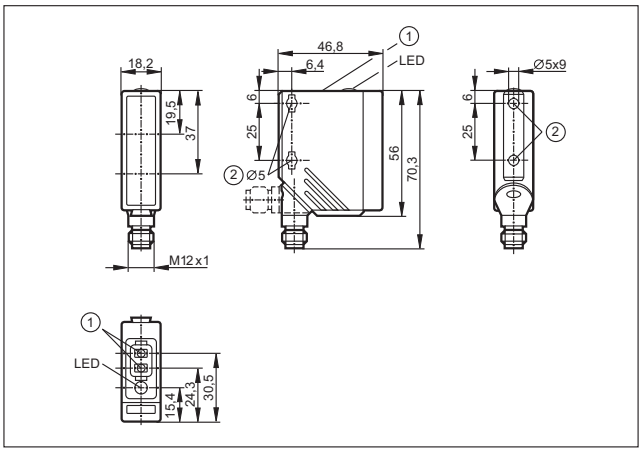
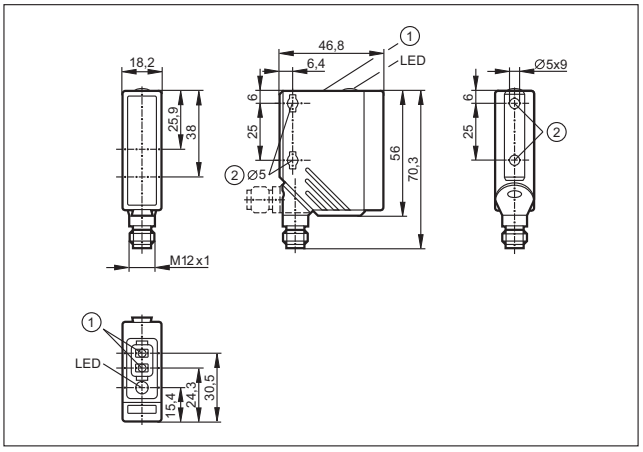


1: Programming buttons, 2: When a M5 mounting screw is used, the max. tightening torque is 2 Nm.

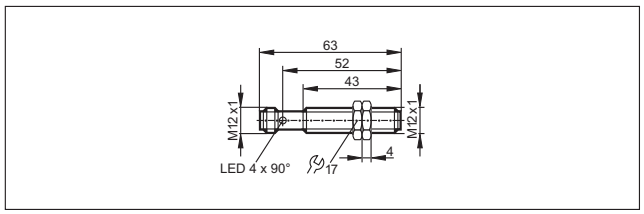
8



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

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

9



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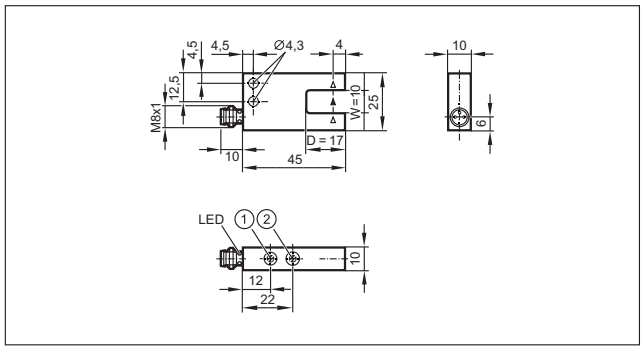
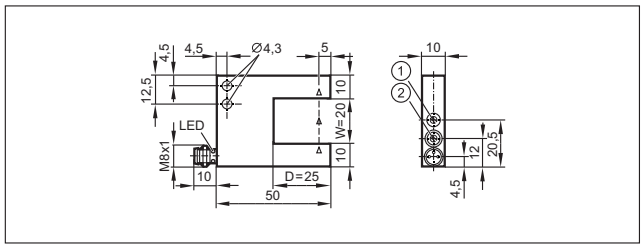


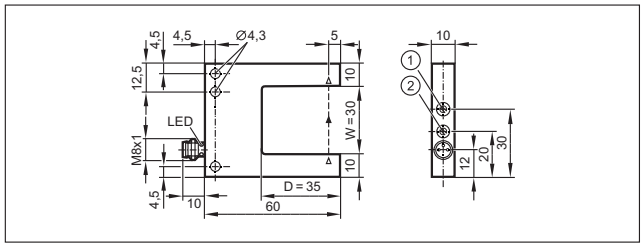
1: output function switch , 2: potentiometer sensitivity

11



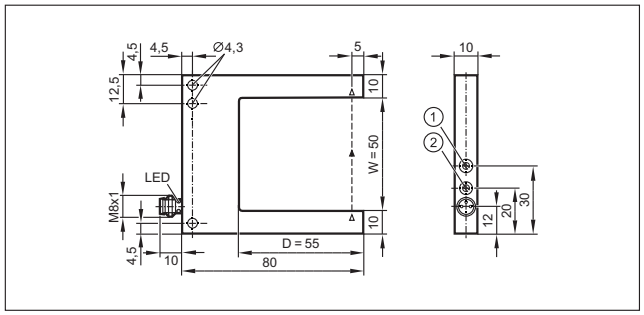
1: potentiometer sensitivity, 2: output function switch

12



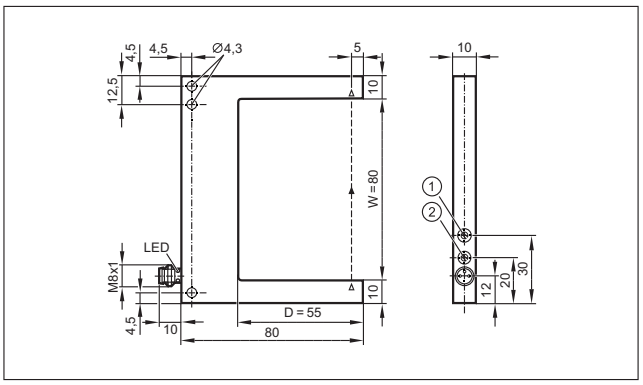
1: potentiometer sensitivity, 2: output function switch

13



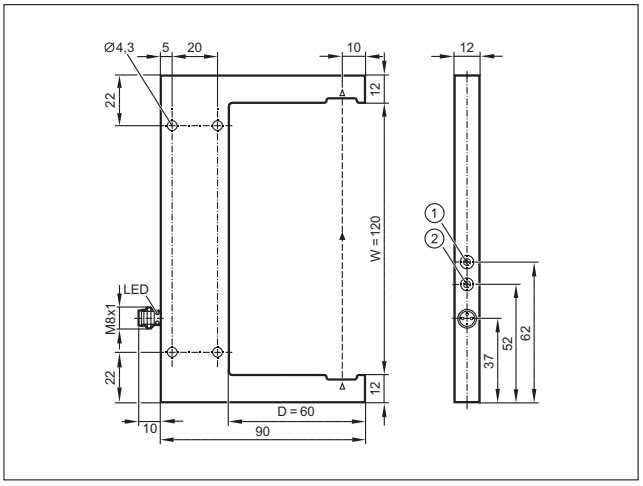
1: potentiometer sensitivity, 2: output function switch

14



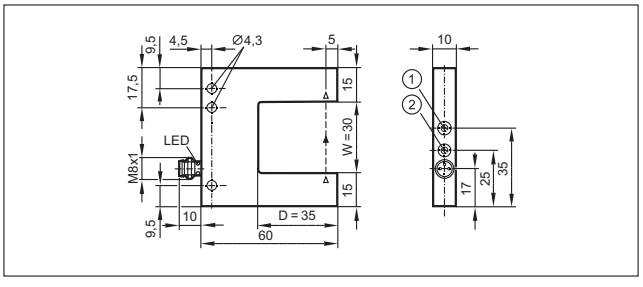
1: potentiometer sensitivity, 2: output function switch

15



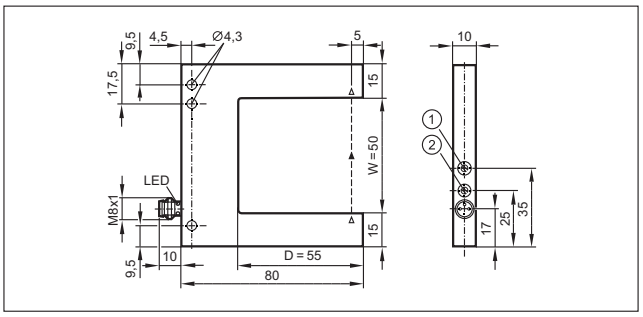
1: potentiometer sensitivity, 2: output function switch

16



1: potentiometer sensitivity, 2: output function switch

17



1: potentiometer sensitivity, 2: output function switch

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

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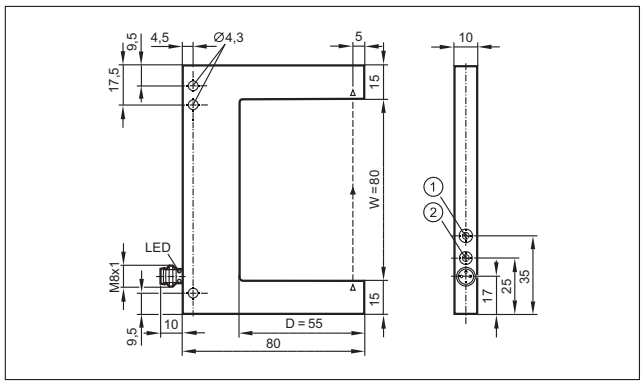
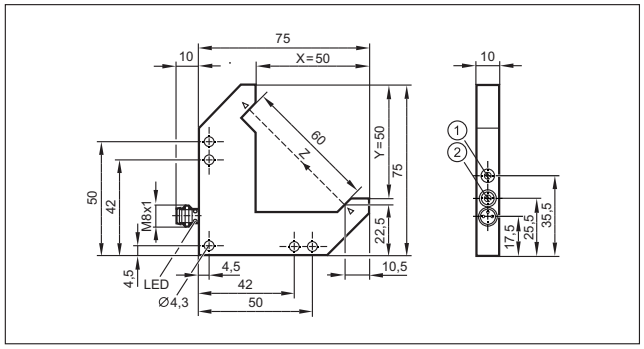


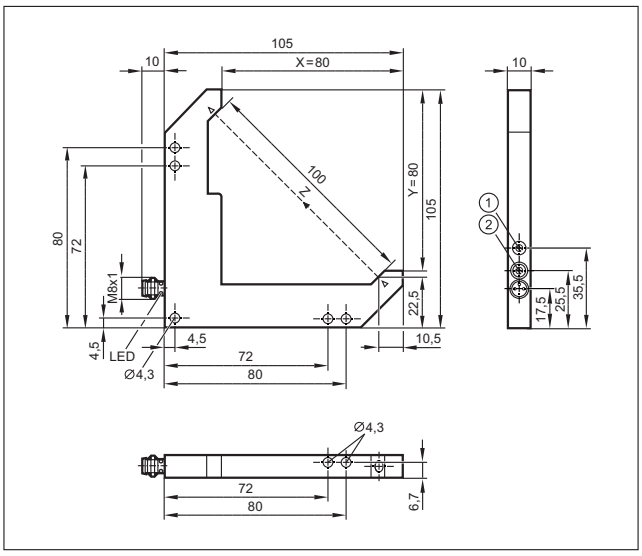
1: potentiometer sensitivity, 2: output function switch

19



1: potentiometer sensitivity, 2: output function switch

20



1: potentiometer sensitivity, 2: output function switch

- **Slim design with ranges up to 20 m for all protected areas.**
- **Type 2 and type 4 safety light curtains to IEC 61496.**
- **With SIL 2 & 3 to IEC 61508 and PL d & e to ISO 13849.**
- **Can be installed in L shape without dead band.**
- **Easy connection via the tried and tested M12 connector.**

Safety light curtains and light grids

Safety light curtains and safety light grids are used where movements of machine parts represent a risk for people or goods.

The difference of the systems is the different resolution of the beams.

Depending on the risk, the protective function is classified into finger, hand or body protection as well as primary guarding. When the light beam is interrupted, the protective equipment ensures deactivation of the outputs. The machine is brought into the state defined as safe.

Tested safety

The safety light curtains and light grids from ifm electronic have been developed according to the current standards EN 61496, ISO 13849-1 and IEC 62061 and certified by TÜV. They meet the requirements of type 2 with SILcl 2 and PL d as well as type 4 with SILcl 3 and PL e.

Slim design and long range

The safety light curtains and safety light grids from ifm electronic are distinguished by the very slim design (28 x 30 mm) and long ranges up to 20 m. Finger, hand and body protection reliably ensure primary guarding or access prevention. ifm offers new safety light grids for applications with especially long ranges. The new housing of our OY9 is slightly bigger and offers a range up to 60 m.

These light curtains are designed for protected area heights of 160 mm to 1510 mm in intervals of 150 mm. A resolution (detection capacity) of 14, 20, 30, 40, 50 or 90 mm can be selected. Light grids are offered with 2, 3 or 4 beams.

Safety light grids are also available as active / passive system.

Safety light curtains can be used for finger or hand protection.

Safe protection of bodies on a robot cell.

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]	Drawing no.	Order no.
M12 connector · Wiring diagram no. 1, 2 · Connector groups 17, 18								
	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**

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]	Drawing no.	Order no.
M12 connector · Wiring diagram no. 1, 2 · Connector groups 17, 18								
	213	20	160	0...10 / 3...20	4	24	1	**OY221S**
	363	20	310	0...10 / 3...20	5.5	24	1	**OY222S**

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.
M12 connector · Wiring diagram no. 1, 2 · Connector groups 17, 18								
	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]	Drawing no.	Order no.
M12 connector · Wiring diagram no. 1, 2 · Connector groups 17, 18								
	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**
	663	30	610	0...4 / 3...12	8.5	24	2	**OY044S**
	813	30	760	0...4 / 3...12	10.5	24	2	**OY045S**

You can find wiring diagrams and scale drawings from page 314

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.
M12 connector · Wiring diagram no. 1, 2 · Connector groups 17, 18								
	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.
M12 connector · Wiring diagram no. 1, 2 · Connector groups 17, 18								
	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**
	1263	30	1210	0...10 / 3...20	9.5	24	1	**OY248S**

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.
M12 connector · Wiring diagram no. 1, 2 · Connector groups 17, 18								
	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]	Drawing no.	Order no.
M12 connector · Wiring diagram no. 1, 2 · Connector groups 17, 18								
	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**

You can find wiring diagrams and scale drawings from page 314

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]	Drawing no.	Order no.
M12 connector · Wiring diagram no. 1, 2 · Connector groups 17, 18								
	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]	Drawing no.	Order no.
M12 connector · Wiring diagram no. 1, 2 · Connector groups 17, 18								
	363	50	310	0...4 / 3...12	4	24	2	**OY082S**
	513	50	460	0...4 / 3...12	4.5	24	2	**OY083S**

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.
M12 connector · Wiring diagram no. 1, 2 · Connector groups 17, 18								
	663	50	610	0...4 / 3...12	5.5	24	2	**OY084S**
	813	50	760	0...4 / 3...12	6.5	24	2	**OY085S**
	963	50	910	0...4 / 3...12	7.5	24	2	**OY086S**
	1113	50	1060	0...4 / 3...12	8.5	24	2	**OY087S**
	1263	50	1210	0...4 / 3...12	9	24	2	**OY088S**
	1413	50	1360	0...4 / 3...12	10	24	2	**OY089S**
	1563	50	1510	0...4 / 3...12	11	24	2	**OY090S**

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]	Drawing no.	Order no.
M12 connector · Wiring diagram no. 1, 2 · Connector groups 17, 18								
	363	50	310	0...10 / 3...20	3	24	1	**OY282S**
	513	50	460	0...10 / 3...20	3.5	24	1	**OY283S**
	663	50	610	0...10 / 3...20	4	24	1	**OY284S**
	813	50	760	0...10 / 3...20	4.5	24	1	**OY285S**
	963	50	910	0...10 / 3...20	5	24	1	**OY286S**
	1113	50	1060	0...10 / 3...20	5.5	24	1	**OY287S**

You can find wiring diagrams and scale drawings from page 314

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.
M12 connector · Wiring diagram no. 1, 2 · Connector groups 17, 18								
	1263	50	1210	0...10 / 3...20	6	24	1	**OY288S**
	1413	50	1360	0...10 / 3...20	6.5	24	1	**OY289S**
	1563	50	1510	0...10 / 3...20	7	24	1	**OY290S**

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]	Drawing no.	Order no.
M12 connector · Wiring diagram no. 1, 2 · Connector groups 17, 18								
	663	90	610	0...4 / 3...12	4	24	2	**OY104S**
	813	90	760	0...4 / 3...12	4.5	24	2	**OY105S**
	963	90	910	0...4 / 3...12	5	24	2	**OY106S**
	1113	90	1060	0...4 / 3...12	5.5	24	2	**OY107S**
	1263	90	1210	0...4 / 3...12	5.5	24	2	**OY108S**
	1413	90	1360	0...4 / 3...12	6	24	2	**OY109S**
	1563	90	1510	0...4 / 3...12	6.5	24	2	**OY110S**

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]	Drawing no.	Order no.
M12 connector · Wiring diagram no. 1, 2 · Connector groups 17, 18								
	663	90	610	0...10 / 3...20	3	24	1	**OY204S**
	813	90	760	0...10 / 3...20	3.5	24	1	**OY205S**
	963	90	910	0...10 / 3...20	3.5	24	1	**OY206S**
	1113	90	1060	0...10 / 3...20	3.5	24	1	**OY207S**
	1263	90	1210	0...10 / 3...20	4	24	1	**OY208S**
	1413	90	1360	0...10 / 3...20	4	24	1	**OY209S**
	1563	90	1510	0...10 / 3...20	4.5	24	1	**OY210S**

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]	Drawing no.	Order no.
M12 connector · Wiring diagram no. 1, 2 · Connector groups 17, 18								
	L x 28 x 30	2	510	0...4 / 3...12	2.5	24	3	**OY114S**
	L x 28 x 30	3	810	0...4 / 3...12	3	24	3	**OY115S**
	L x 28 x 30	4	910	0...4 / 3...12	3	24	3	**OY116S**

You can find wiring diagrams and scale drawings from page 314

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.
M12 connector · Wiring diagram no. 1, 2 · Connector groups 17, 18								
	L x 28 x 30	2	510	0...10 / 3...20	2.5	24	3	**OY120S**
	L x 28 x 30	3	810	0...10 / 3...20	2.5	24	3	**OY121S**
	L x 28 x 30	4	910	0...10 / 3...20	2.5	24	3	**OY122S**

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.
M12 connector · Wiring diagram no. 1, 2 · Connector groups 17, 18								
	213	30	160	0...4 / 3...12	4.5	24	2	**OY031S**
	363	30	310	0...4 / 3...12	6	24	2	**OY032S**
	513	30	460	0...4 / 3...12	8	24	2	**OY033S**
	663	30	610	0...4 / 3...12	9.5	24	2	**OY034S**
	813	30	760	0...4 / 3...12	11	24	2	**OY035S**
	963	30	910	0...4 / 3...12	12.5	24	2	**OY036S**
	1113	30	1060	0...4 / 3...12	14.5	24	2	**OY037S**
	1263	30	1210	0...4 / 3...12	16	24	2	**OY038S**
	1413	30	1360	0...4 / 3...12	17.5	24	2	**OY039S**

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.
M12 connector · Wiring diagram no. 1, 2 · Connector groups 17, 18								
	1563	30	1510	0...4 / 3...12	19.5	24	2	**OY040S**

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]	Drawing no.	Order no.
M12 connector · Wiring diagram no. 1, 2 · Connector groups 17, 18								
	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**

You can find wiring diagrams and scale drawings from page 314

Safety light curtains type 2, SIL 2, PL d, 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]	Drawing no.	Order no.
M12 connector · Wiring diagram no. 1, 2 · Connector groups 17, 18								
	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**
	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

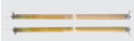
Type	Sensor length [mm]	Resolution / detection capacity [mm]	Protected area height [mm]	Protected area width [m]	Response time [ms]	U_b [V]	Drawing no.	Order no.
M12 connector · Wiring diagram no. 1, 2 · Connector groups 17, 18								
	663	90	610	0...4 / 3...12	4	24	2	**OY094S**
	813	90	760	0...4 / 3...12	4.5	24	2	**OY095S**
	963	90	910	0...4 / 3...12	5	24	2	**OY096S**

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.
M12 connector · Wiring diagram no. 1, 2 · Connector groups 17, 18								
	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 grids type 2, SIL 2, PL d, 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]	Drawing no.	Order no.
M12 connector · Wiring diagram no. 1, 2 · Connector groups 17, 18								
	L x 28 x 30	2	510	0...4 / 3...12	3	24	3	**OY111S**
	L x 28 x 30	3	810	0...4 / 3...12	3.5	24	3	**OY112S**
	L x 28 x 30	4	910	0...4 / 3...12	3.5	24	3	**OY113S**

Safety light curtains for hygienic and wet areas 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.
Cable 15 m · Wiring diagram no. 3, 4								
	630	14	460	0...2 / 1...5	7.5	24	4	**OY403S**
	930	14	760	0...2 / 1...5	11	24	4	**OY405S**
	1230	14	1060	0...2 / 1...5	14.5	24	4	**OY407S**

You can find wiring diagrams and scale drawings from page 314

Safety light curtains for hygienic and wet areas 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.
Cable 15 m · Wiring diagram no. 3, 4								
	330	30	160	0...7 / 3...15	3	24	4	**OY441S**
	480	30	310	0...7 / 3...15	4	24	4	**OY442S**
	630	30	460	0...7 / 3...15	5	24	4	**OY443S**
	780	30	610	0...7 / 3...15	6	24	4	**OY444S**
	930	30	760	0...7 / 3...15	6.5	24	4	**OY445S**
	1080	30	910	0...7 / 3...15	7.5	24	4	**OY446S**
	1230	30	1060	0...7 / 3...15	8.5	24	4	**OY447S**
	1380	30	1210	0...7 / 3...15	9.5	24	4	**OY448S**
	1530	30	1360	0...7 / 3...15	10	24	4	**OY449S**
	1680	30	1510	0...7 / 3...15	11	24	4	**OY450S**

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]	Drawing no.	Order no.
Cable 15 m · Wiring diagram no. 3, 4								
	L x 70 x 50	2	510	0...7 / 3...15	2.5	24	5	**OY421S**
	L x 70 x 50	3	810	0...7 / 3...15	2.5	24	5	**OY422S**

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.
Cable 15 m · Wiring diagram no. 3, 4								
	L x 70 x 50	4	910	0...7 / 3...15	2.5	24	5	**OY423S**

Safety light curtains for hygienic and wet areas 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.
Cable 15 m · Wiring diagram no. 3, 4								
	330	30	160	0...3 / 2...10	4.5	24	6	**OY431S**
	480	30	310	0...3 / 2...10	6	24	6	**OY432S**
	630	30	460	0...3 / 2...10	8	24	6	**OY433S**
	780	30	610	0...3 / 2...10	9.5	24	6	**OY434S**
	930	30	760	0...3 / 2...10	11	24	6	**OY435S**
	1080	30	910	0...3 / 2...10	12.5	24	6	**OY436S**
	1230	30	1060	0...3 / 2...10	14.5	24	6	**OY437S**
	1380	30	1210	0...3 / 2...10	16	24	6	**OY438S**
	1530	30	1360	0...3 / 2...10	17.5	24	6	**OY439S**
	1680	30	1510	0...3 / 2...10	19.5	24	6	**OY440S**

You can find wiring diagrams and scale drawings from page 314

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]	Draw-ing no.	Order no.
M12 connector · Wiring diagram no. 1, 2 · Connector groups 17, 18								
	L x 50 x 60	2	510	8...30 / 18...60	7	24	7	**OY951S**
	L x 50 x 60	3	810	8...30 / 18...60	7	24	7	**OY952S**
	L x 50 x 60	4	910	8...30 / 18...60	7	24	7	**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]	Draw-ing no.	Order no.
M12 connector · Wiring diagram no. 2 · Connector groups 17, 18								
	L x 50 x 60	2	510	0...6 / 0...6	10	24	8	**OY901S**
	L x 50 x 60	3	810	0...6 / 0...6	10.5	24	8	**OY902S**
	L x 50 x 60	4	910	0...6 / 0...6	10.5	24	8	**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]	Draw-ing no.	Order no.
Cable 15 m · Wiring diagram no. 3, 4								
	L x 70 x 50	2	510	0...3 / 2...10	3	24	9	**OY411S**
	L x 70 x 50	3	810	0...3 / 2...10	3.5	24	9	**OY412S**
	L x 70 x 50	4	910	0...3 / 2...10	3.5	24	9	**OY413S**

Safety relays for safety light curtains

Type	Description	Drawing no.	Order no.
	Safety relay · Muting relay · Housing for DIN rail mounting · For the connection of safety light curtains / safety light grids with OSSD · Safety category type 4 to IEC 61496 · for industrial applications · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3	10	**G2001S**
	Safety relay · Terminal block Phoenix Contact MSTBO · For the connection of electronic and mechanical fail-safe sensors/switches and for use as two-hand control · PA · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3 · EN 574: type IIIC	11	**G1501S**
	Safety relay · Terminal block Phoenix Contact MSTBO · For the connection of electronic and mechanical fail-safe sensors/switches and for use as two-hand control · PA · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3 · EN 574: type IIIC	12	**G1503S**
	Safety relay · Terminal block Phoenix Contact MSTBO · For the connection of electronic and mechanical fail-safe sensors/switches and for use as two-hand control · PA · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3 · EN 574: type IIIC	13	**G1502S**

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**

You can find wiring diagrams and scale drawings from page 314

Type	Description	Order no.
	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 · Pack quantity: 4	EY3001
	Vibration damper · for type OY · Housing materials: rubber / metal galvanised · Pack quantity: 6	EY3002
	Rotatable brackets · axial ± 90° · for type OY · Housing materials: Angle bracket: steel black · Pack quantity: 4	EY3011
	Adjustable brackets · axial ± 7° · for type OY · Housing materials: metal galvanised · Pack quantity: 4	EY3004
	Adjustable brackets · axial ± 7° · for type OY · Housing materials: metal galvanised · Pack quantity: 6	EY3005
	Test rod · Ø 14 mm · Probe length: 150 mm · for safety light curtains · for type OY · Housing materials: aluminium	EY3006
	Test rod · Ø 20 mm · Probe length: 150 mm · for safety light curtains · for type OY · Housing materials: aluminium	EY3007
	Test rod · Ø 30 mm · Probe length: 150 mm · for safety light curtains · for type OY · Housing materials: aluminium	EY3008
	Test rod · Ø 40 mm · Probe length: 150 mm · for safety light curtains · for type OY · Housing materials: aluminium	EY3009
	Test rod · Ø 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 · 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 · 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 · 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

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

Type	Description	Order no.
	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 · Pack quantity: 1	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 · Pack quantity: 1	EY2002
	Base · Length: 1680 mm · for safety light curtains · ≤1360 mm · for type OY · Housing materials: aluminium epoxy-powder coated / plastics · Pack quantity: 1	EY2003
	Base · Length: 1980 mm · for safety light curtains · ≤ 1510 mm · for type OY · Housing materials: aluminium epoxy-powder coated / plastics · Pack quantity: 1	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 · Pack quantity: 1	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 · Pack quantity: 1	EY1013
	Corner mirror with base · Length: 1680 mm · for safety light curtains · ≤1360 mm · for type OY · Housing materials: aluminium epoxy-powder coated / plastics · Pack quantity: 1	EY1014
	Corner mirror with base · Length: 1980 mm · for safety light curtains · ≤ 1510 mm · for type OY · Housing materials: aluminium epoxy-powder coated / plastics · Pack quantity: 1	EY1015

Accessories necessary for bases

Type	Description	Order no.
	Mounting base · for type OY · Pack quantity: 1	EY2005

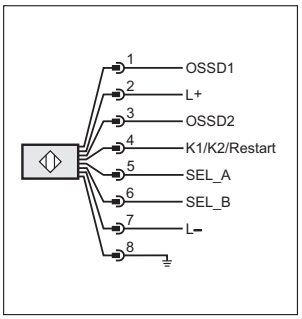
You can find wiring diagrams and scale drawings from page 314

Wiring diagrams

Core colours

BK	black
BN	brown
BU	blue
GN	green
GY	grey
PK	pink
RD	red
VT	lilac
WH	white
YE	yellow

2



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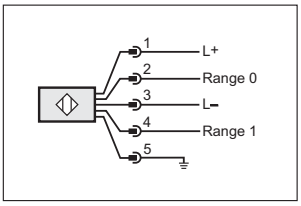

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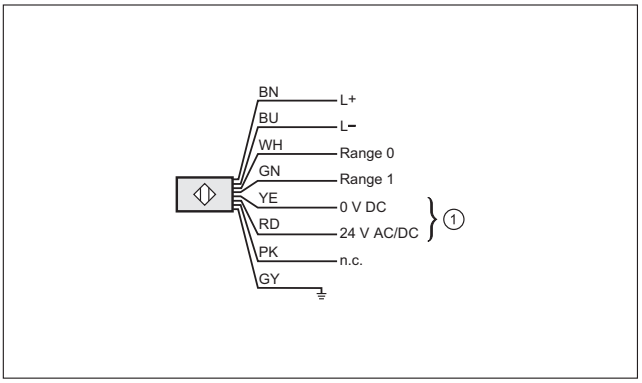
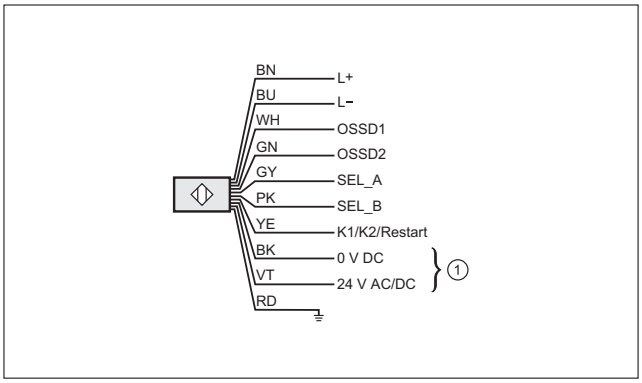


1: Heating

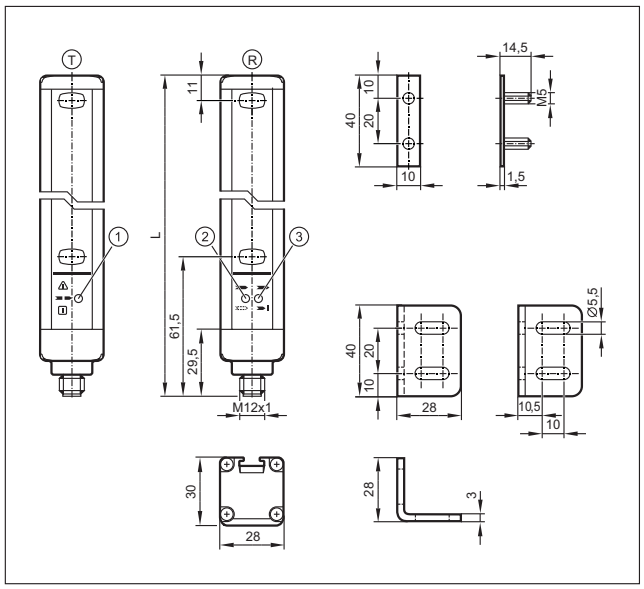
4



1: Heating

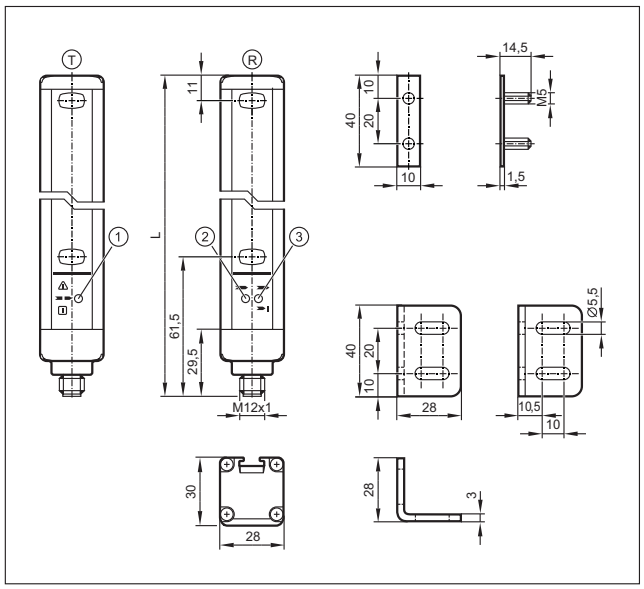
Scale drawings / drawing no. – CAD download: www.ifm.com

1



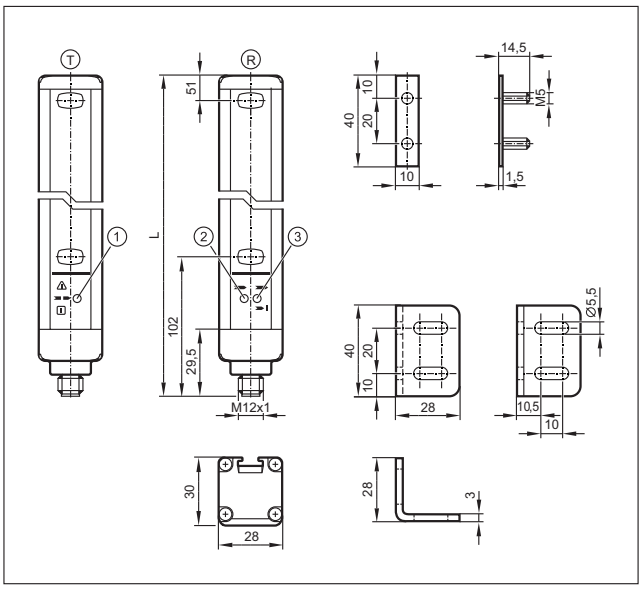
T: Transmitter, R: Receiver, 1: LED 3 colours (red/green/orange), 2: LED 2 colours (yellow/blue), 3: LED 2 colours (red/green)

2



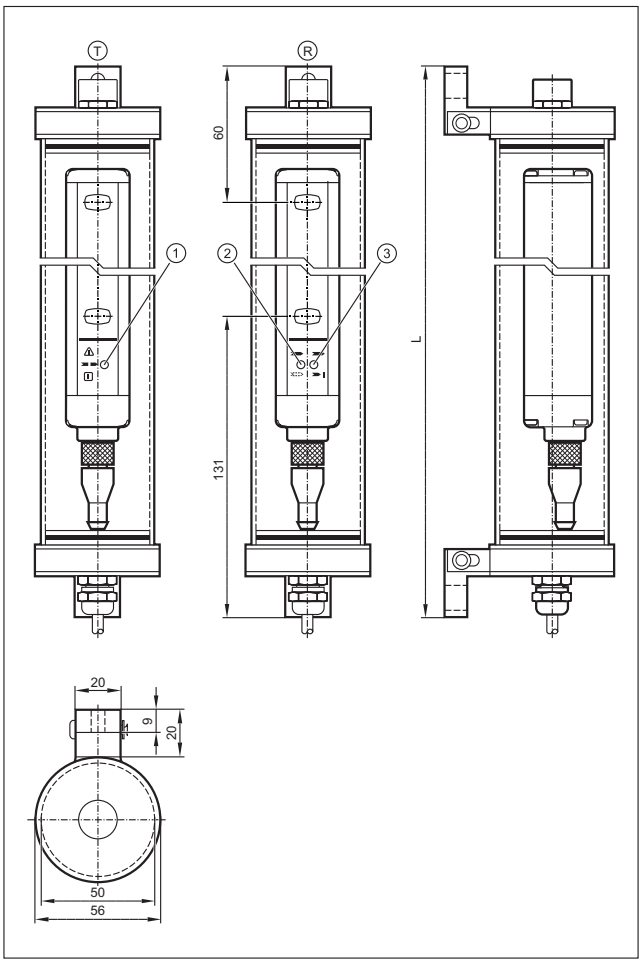
T: Transmitter, R: Receiver, 1: LED 3 colours (red/green/orange), 2: LED (yellow), 3: LED 2 colours (red/green)

3



T: Transmitter, R: Receiver, 1: LED 3 colours (red/green/orange), 2: LED 2 colours (yellow/blue), 3: LED 2 colours (red/green)

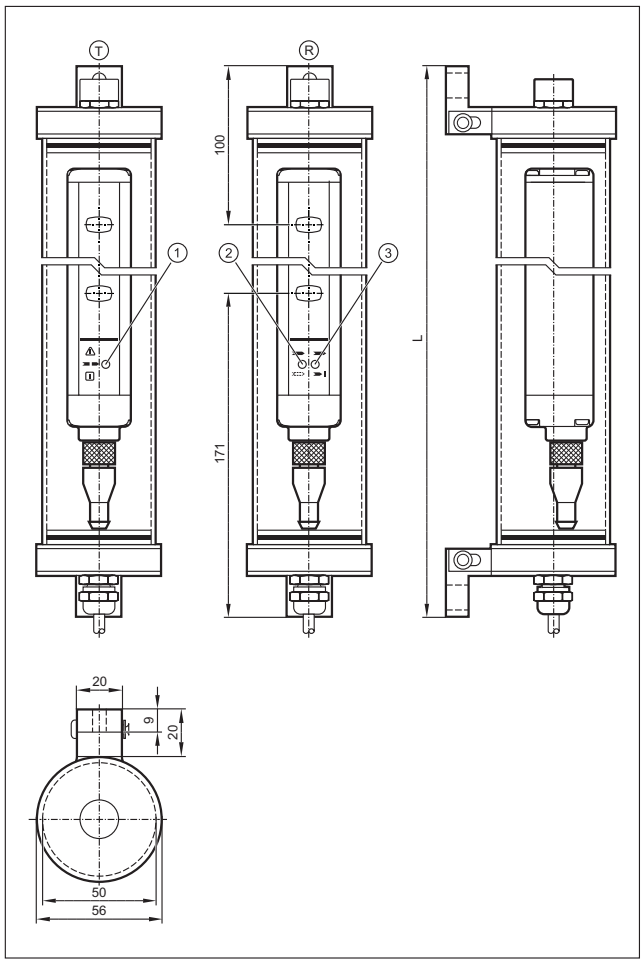
4



T: Transmitter, R: Receiver, 1: LED 3 colours (red/green/orange), 2: LED 2 colours (yellow/blue), 3: LED 2 colours (red/green)

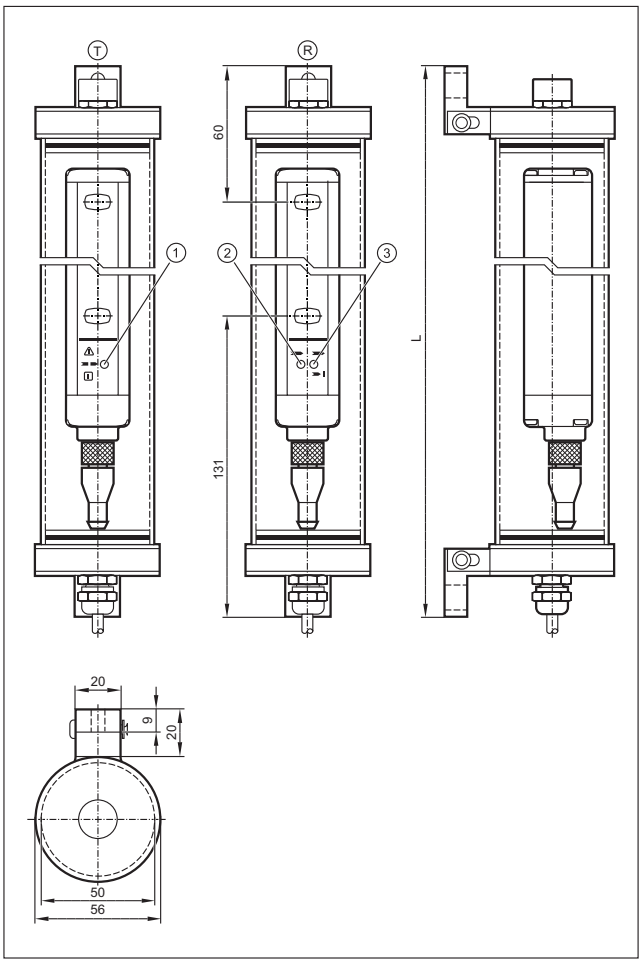
Scale drawings / drawing no. – CAD download: www.ifm.com

5



T: Transmitter, R: Receiver, 1: LED 3 colours (red/green/orange),
2: LED 2 colours (yellow/blue), 3: LED 2 colours (red/green)

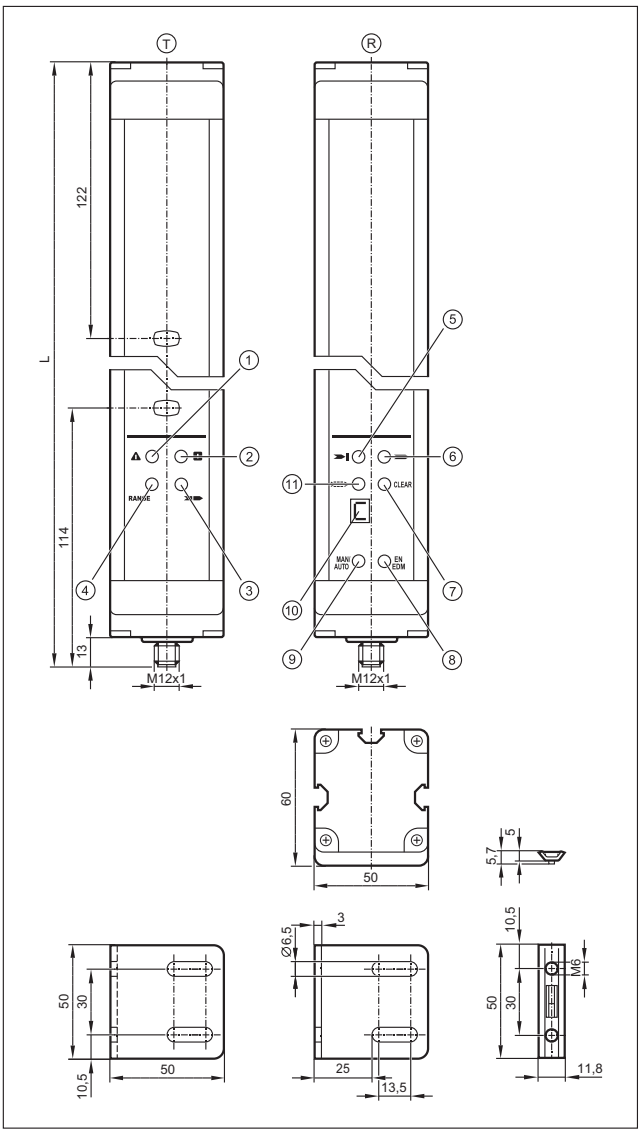
6



T: Transmitter, R: Receiver, 1: LED 3 colours (red/green/orange),
2: LED 2 colours (yellow/blue), 3: LED 2 colours (red/green)

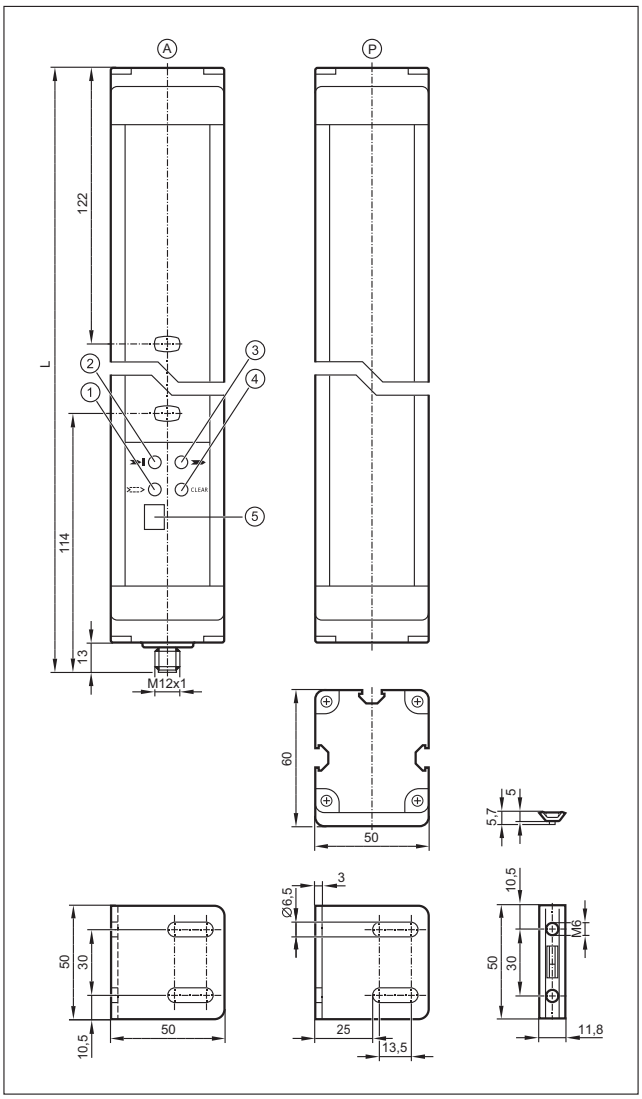
Scale drawings / drawing no. – CAD download: www.ifm.com

7



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)

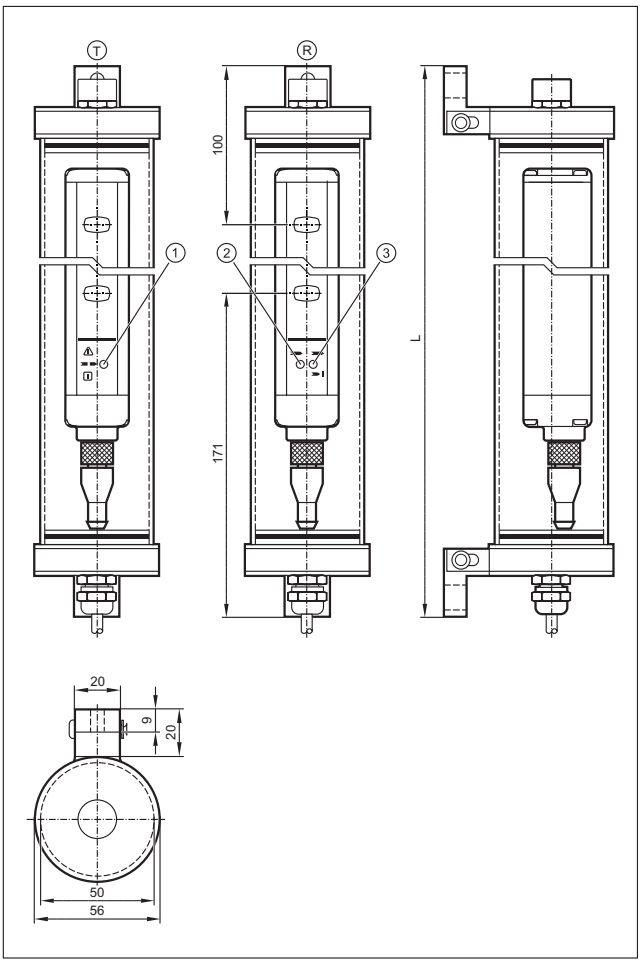
8



A: active element, P: passive element, 1: LED (orange), 2: LED (red), 3: LED (green), 4: LED (yellow), 5: display

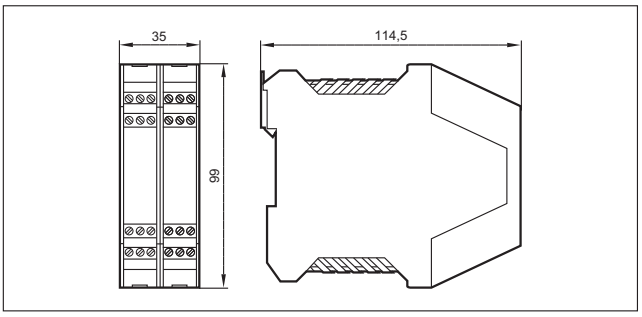
Scale drawings / drawing no. – CAD download: www.ifm.com

9



T: Transmitter, R: Receiver, 1: LED 3 colours (red/green/orange), 2: LED 2 colours (yellow/blue), 3: LED 2 colours (red/green)

10



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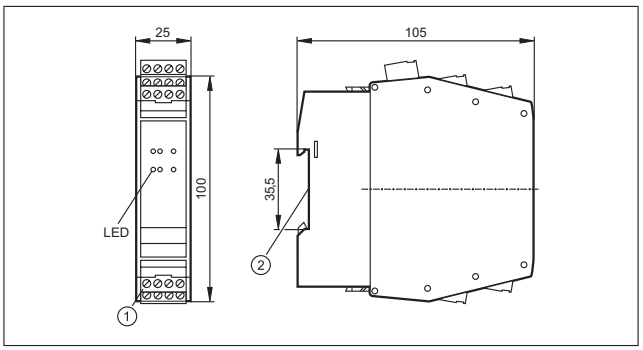
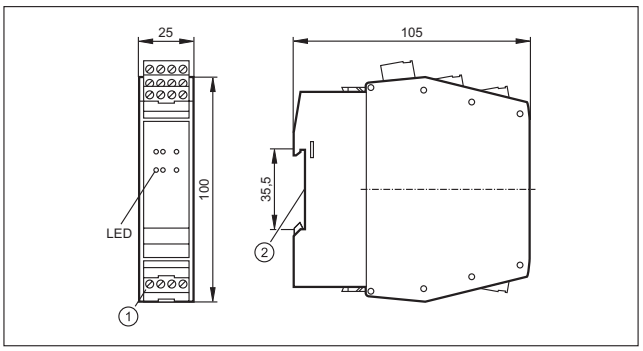


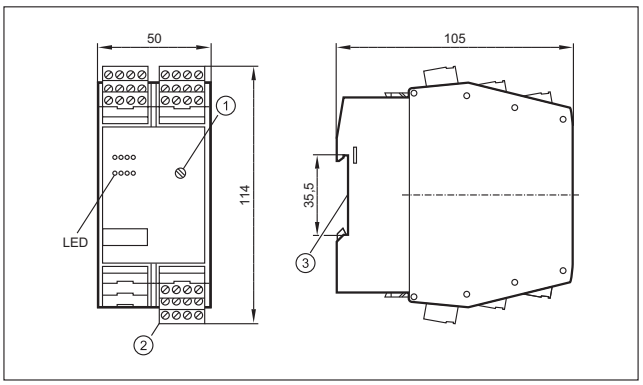
1: Combicon connector with screw terminals, 2: mounting on DIN rail

12



1: Combicon connector with screw terminals, 2: mounting on DIN rail

13



1: Rotary switch for switch-off delay, 2: Combicon connector with screw terminals, 3: mounting on DIN rail

- **2D vision sensor for object recognition.**
- **3D sensor for assessment of distance, level or volume.**
- **3D camera for spatial detection of scenes and objects.**
- **Illumination units with high luminous power.**
- **Tough, industrial housings.**

2D vision sensor for object recognition

In automation technology visions sensors are an integral part of assembly and manufacturing tasks as well as quality control and thus increase efficiency. They are cameras with application-specific evaluation, i.e. reliable electronic eyes at a low cost and a high degree of integration. In a robust, industrially compatible housing they combine lighting, lens, camera chip, evaluation and process connections for the integration in the higher-level controller.

The application possibilities of efector dualis range from presence, position and orientation monitoring, via sorting and counting tasks to quality control.

3D sensor for assessment of distance, level or volume

efector pmd 3d is the first industrial 3D sensor that can assess objects in three dimensions at a glance.

Special feature: The time-of-flight measurement and evaluation are integrated on one chip. 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.

This technology enables the detailed assessment of the object's or scene's conditions by means of volume, distance or level detection in three dimensions. Typical applications are completeness checks and level monitoring in the food industry as well as presence and dimension monitoring in conveying.

3D camera for detection in three dimensions of scenes and objects

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 integrators the possibility to freely program application-specific tasks by means of a software development kit. This results in low-cost application solutions in the areas of packaging, storage and materials handling, airport logistics, collision avoidance, robotics, monitoring of space and persons.

Set-up in just a few steps: The professional and easy menu guidance allows configuration of the efector dualis to your application in just six operating steps.

Object inspection sensors

Type	Operating principle	Max. field of view size [mm]	Resolution	Detection rate [Hz]	Type of light	Ambient temperature [°C]	Draw-ing no.	Order no.
Type O2 · M12 plug, 8 poles M12 socket, 4 poles · metal · DC · Connector groups 17, 18								
	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	1280 x 960	0.3	10	white light	-10...60	1	**O2V102**
	CMOS image sensor B/W, VGA resolution 640 x 480	400 x 300	0.08	10	white light	-10...60	2	**O2V104**

Sensors for object recognition with PNP output function

Type	Operating principle	Max. field of view size [mm]	Resolution	Detection rate [Hz]	Type of light	Ambient temperature [°C]	Draw-ing no.	Order no.
Type O2 · M12 plug, 8 poles M12 socket, 4 poles · metal · DC · Connector groups 17, 18								
	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	1280 x 960	0.3	10	infrared	-10...60	1	**O2D222**

Sensors for object recognition with NPN output function

Type	Operating principle	Max. field of view size [mm]	Resolution	Detection rate [Hz]	Type of light	Ambient temperature [°C]	Draw-ing no.	Order no.
Type O2 · M12 plug, 8 poles M12 socket, 4 poles · metal · DC · Connector groups 17, 18								
	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	1280 x 960	0.3	10	infrared	-10...60	1	**O2D229**

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.
PUR cable 2 m · metal · DC · Wiring diagram no. 1								
	66.5 x 33.4 x 9.2	red	25 x 25	50	25	External; 24 V PNP to IEC61131-1	3	**O2D900**
	66.5 x 33.4 x 9.2	infrared	25 x 25	50	25	External; 24 V PNP to IEC61131-1	3	**O2D901**
	103 x 81 x 9.2	red	50 x 50	200	100	External; 24 V PNP to IEC61131-1	4	**O2D902**
	103 x 81 x 9.2	infrared	50 x 50	200	100	External; 24 V PNP to IEC61131-1	4	**O2D903**
	156 x 133 x 9.2	red	100 x 100	450	250	External; 24 V PNP to IEC61131-1	5	**O2D904**
	156 x 133 x 9.2	infrared	100 x 100	450	250	External; 24 V PNP to IEC61131-1	5	**O2D905**
PUR cable 0.15 m · metal · DC · Wiring diagram no. 2 · Connector groups 9, 11, 107, 108, 135								
	66.5 x 33.4 x 9.2	red	25 x 25	50	25	External; 24 V PNP to IEC61131-1	3	**O2D910**
	66.5 x 33.4 x 9.2	infrared	25 x 25	50	25	External; 24 V PNP to IEC61131-1	3	**O2D906**
	103 x 81 x 9.2	red	50 x 50	200	100	External; 24 V PNP to IEC61131-1	4	**O2D911**
	103 x 81 x 9.2	infrared	50 x 50	200	100	External; 24 V PNP to IEC61131-1	4	**O2D907**
	156 x 133 x 9.2	red	100 x 100	450	250	External; 24 V PNP to IEC61131-1	5	**O2D912**
	156 x 133 x 9.2	infrared	100 x 100	450	250	External; 24 V PNP to IEC61131-1	5	**O2D908**

You can find wiring diagrams and scale drawings from page 329

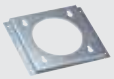
Illumination units, spotlight

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. 2 · Connector groups 9, 11, 107, 108, 135								
	42 x 42 x 31	red	–	180	90	External; 24 V PNP to IEC61131-1	6	**O2D909**

Software for 2D sensors

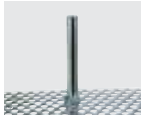
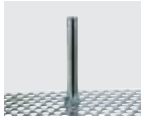
Type	Description	Order no.
	Operating software · O2D	**E2D200**

Panel PC for vision sensors

Type	Description	Order no.
	Touch Panel PC · AFL-12A-ATOM-N270/WT-R/1GB-R20 · 12.1„ colour display · Intel Atom CPU 1.6 GHz · 1 GByte RAM · Windows XP 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 2D sensors

Type	Description	Order no.
	Mounting set · O2D, O2M, O2I · Clamp mounting · rod mounting Ø 12 mm · Housing materials: fixture: stainless steel / clamp: stainless steel	**E2D110**
	Mounting set · O2D, O2M, O2I · 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**

Type	Description	Order no.
	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**
	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**

You can find wiring diagrams and scale drawings from page 329

Type	Description	Order no.
	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 2D 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	E21172

Sensors for 3D object recognition

Type	Operating principle	Resolution (pixels)	Angle of aperture (horizontal x vertical) [°]	Lighting	Max. sampling rate [Hz]	Ambient temperature [°C]	Draw-ing no.	Order no.
PMD 3D sensor · Type O3D · M12 connector · metal · DC · Connector groups 17, 18								
	PMD 3D sensor	64 x 48	30° x 40°	Infrared LED	20	-10...50	7	O3D200
PMD 3D camera · Type O3D · M12 connector · metal · DC · Connector groups 17, 18								
	PMD 3D camera	64 x 48	30° x 40°	Infrared LED	20	-10...50	7	O3D201

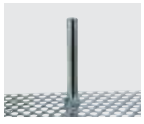
Software for 3D sensors

Type	Description	Order no.
	Operating software for PMD 3D sensor · O3D	**E3D200**
	Operating software for PMD 3D camera · O3D	**E3D201**

Panel PC for vision sensors

Type	Description	Order no.
	Touch Panel PC · AFL-12A-ATOM-N270/WT-R/1GB-R20 · 12.1„ colour display · Intel Atom CPU 1.6 GHz · 1 GByte RAM · Windows XP 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 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**

You can find wiring diagrams and scale drawings from page 329

Connection cables for 2D and 3D sensors

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 · 2 m · Housing materials: PUR	**E21135**
	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**
	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**

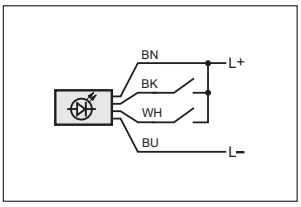
Type	Description	Order no.
	Adapter · angled · Connector	**E21140**
	Jumper · straight / straight · Ethernet · Cross-over patch cable · 2 m · Housing materials: PUR	**EC2080**
	Jumper · straight / straight · Ethernet · Cross-over patch cable · 5 m · Housing materials: PUR	**E30112**

Wiring diagrams

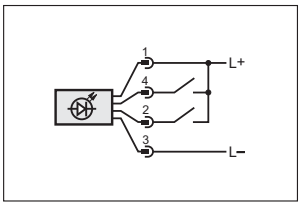
Core colours

BK	black
BN	brown
BU	blue
WH	white

1

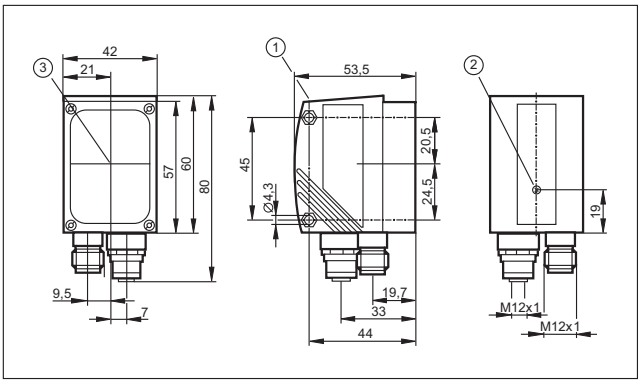


2



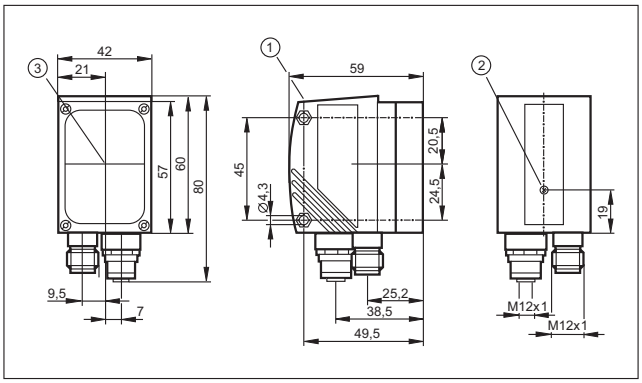
Scale drawings / drawing no. – CAD download: www.ifm.com

1



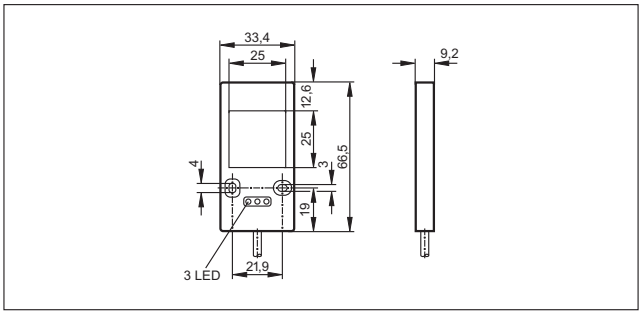
1: display, 2: Focus setting, 3: Centre of the lens axes

2



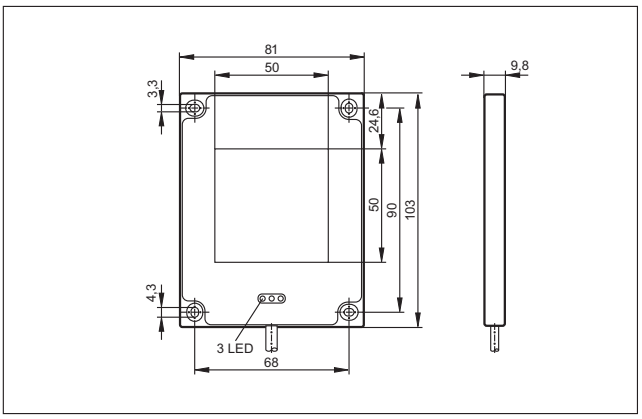
1: display, 2: Focus setting, 3: Centre of the lens axes

3

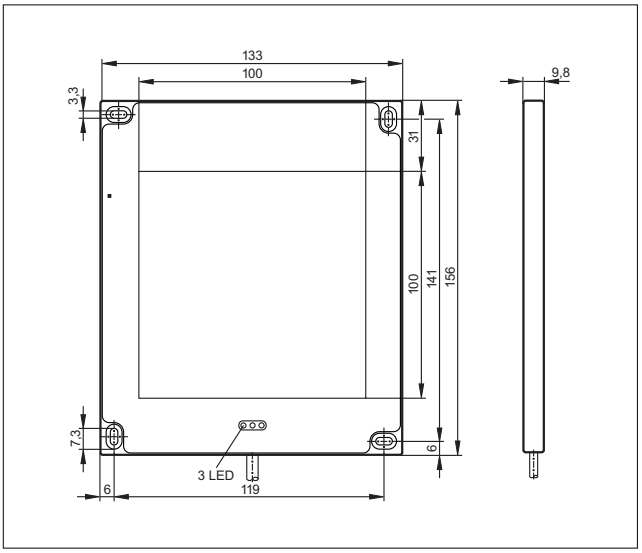


Scale drawings / drawing no. – CAD download: www.ifm.com

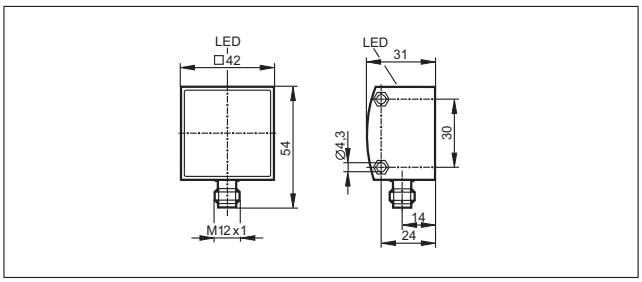
4



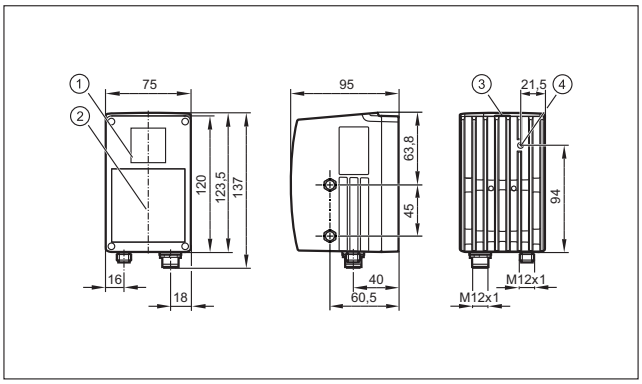
5



6



7



1: lens, 2: Illumination unit, 3: Display / buttons / LEDs,
4: Focus setting

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

- **Robust designs.**
- **Industrial standard housings.**
- **Cable entry for axial and radial use.**
- **Designs with integrated bus interface.**
- **Hollow shaft encoder for direct mounting on actuators.**

Encoders

In many manufacturing and production processes encoders are indispensable as reliable transducers to ensure precise positioning. They convert rotary movement into digital signals. Encoders use the wear-free photoelectric detection. A pulse disc firmly attached to the shaft ensures this detection.

Incremental encoders

Incremental encoders generate a precisely defined number of pulses per revolution. They are a measure of the angular or linear distance moved.

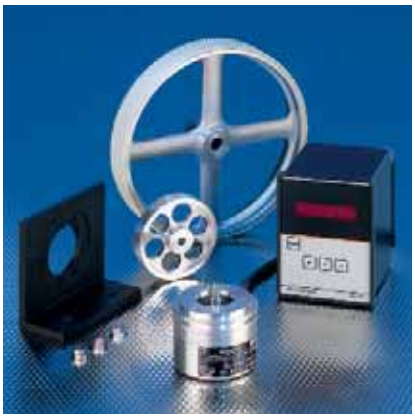
The coded disc is divided into separate segments which are alternately transparent or opaque. An LED emits a parallel-orientated light beam which illuminates all segments of the coded disc. Photo elements receive the modulated light and convert it into two sinusoidal signals. Digitalisation electronics 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 absolutely necessary in the case of a power failure.

Singleturn and multiturn

Singleturn 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.



Linear measurement by means of a counter: Rotary movement is converted into digital signals.

Hollow shaft encoder for direct mounting on the axis.

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.
Cable 2 m · Output function TTL output 20 mA									
	500	5	300	20	6	-30...100	radial / axially	1	**RB1015**
Cable 2 m · Output function HTL-output 50 mA, short-circuit protected < 1 min									
	5	10...30	160	50	6	-30...70	radial / axially	1	**RB6044**
	10	10...30	160	50	6	-30...70	radial / axially	1	**RB6001**
	20	10...30	160	50	6	-30...70	radial / axially	1	**RB6002**
	25	10...30	160	50	6	-30...70	radial / axially	1	**RB6003**
	30	10...30	160	50	6	-30...70	radial / axially	1	**RB6004**
	50	10...30	160	50	6	-30...70	radial / axially	1	**RB6005**
	60	10...30	160	50	6	-30...70	radial / axially	1	**RB6006**
	100	10...30	160	50	6	-30...70	radial / axially	1	**RB6007**
	125	10...30	160	50	6	-30...70	radial / axially	1	**RB6009**
	150	10...30	160	50	6	-30...70	radial / axially	1	**RB6010**
	200	10...30	160	50	6	-30...70	radial / axially	1	**RB6011**
	250	10...30	160	50	6	-30...70	radial / axially	1	**RB6012**
	360	10...30	160	50	6	-30...70	radial / axially	1	**RB6013**
	400	10...30	160	50	6	-30...70	radial / axially	1	**RB6014**

Type	Resolution	U_b [V]	f [kHz]	I_{load} [mA]	Shaft [mm]	Ambient temperature [°C]	Cable entry	Draw-ing no.	Order no.
Cable 2 m · Output function HTL-output 50 mA, short-circuit protected < 1 min									
	500	10...30	160	50	6	-30...70	radial / axially	1	**RB6015**
	600	10...30	160	50	6	-30...70	radial / axially	1	**RB6016**
	1000	10...30	160	50	6	-30...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**

You can find scale drawings from page 344

Type	Resolution	U_b [V]	f [kHz]	I_{load} [mA]	Shaft [mm]	Ambient temperature [°C]	Cable entry	Draw-ing no.	Order no.
Cable 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**
Cable 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**
Cable 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	Draw-ing no.	Order no.
Cable 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	Draw-ing no.	Order no.
Cable 2 m · Output function HTL-output 50 mA, short-circuit protected < 1 min									
	10	10...30	160	50	6 H7	-30...70	radial / axially	4	**RA6001**
	100	10...30	160	50	6 H7	-30...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	-30...70	radial / axially	4	**RA6013**

You can find scale drawings from page 344

Type	Resolution	U_b [V]	f [kHz]	I_{load} [mA]	Shaft [mm]	Ambient temperature [°C]	Cable entry	Draw-ing no.	Order no.
Cable 2 m · Output function HTL-output 50 mA, short-circuit protected < 1 min									
	500	10...30	160	50	6 H7	-30...70	radial / axially	4	**RA6015**
	1000	10...30	160	50	6 H7	-30...70	radial / axially	4	**RA6029**
Cable 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**

Absolut singleturn - encoders (SSI)

Type	Resolution	U_b [V]	f [kHz]	I_{load} [mA]	Shaft [mm]	Ambient temperature [°C]	Cable entry	Draw-ing no.	Order no.
Cable 1 m · Output function SSI data interface									
	8192	10...30	–	–	10	-40...85	radial / axially	6	**RN6055**

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.
Cable 1 m · Output function SSI data interface									
	8192	10...30	–	–	6	-40...85	radial / axially	2	**RM6101**
	8192	10...30	–	–	10	-40...85	radial / axially	7	**RM6104**

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.
Terminals · Output function Profibus data interface									
	25 bits	10...30	–	–	6	-40...70	–	8	**RM3001**
	25 bits	10...30	–	–	10	-40...70	–	9	**RM3005**

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.
Terminals · Output function CANopen interface									
	13 bits	9...36	–	–	6	-40...70	–	8	**RN7003**
	13 bits	9...36	–	–	10	-40...70	–	9	**RN7004**

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	9...36	–	–	6	-40...70	–	8	**RM7003**

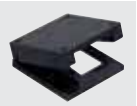
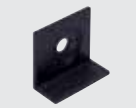
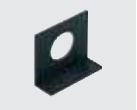
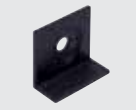
You can find scale drawings from page 344

Type	Resolution	U_b [V]	f [kHz]	I_{load} [mA]	Shaft [mm]	Ambient temperature [°C]	Cable entry	Draw-ing no.	Order no.
Terminals · Output function CANopen interface									
	25 bits	9...36	–	–	10	-40...70	–	9	**RM7004**

Absolute multiturn - encoders (CANopen) for mobile applications

Type	Resolution	U_b [V]	f [kHz]	I_{load} [mA]	Shaft [mm]	Ambient temperature [°C]	Cable entry	Draw-ing no.	Order no.
M12 connector · Output function CANopen interface · Connector group 137									
	24 bits	10...30	–	–	10	-40...85	axial	10	**RM9000**

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**
	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**
	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**

You can find scale drawings from page 344

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 159.15 mm / Ø 10 mm · rubber · Housing materials: wheel: aluminium / tread: NBR nitrile	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: Hytrel TPE-E	E60137
	Measuring wheel · Ø 63.66 ±0.1 mm / Ø 10 mm · grooved plastic · Housing materials: wheel: Hytrel TPE-E	E60138

Connectors for encoders

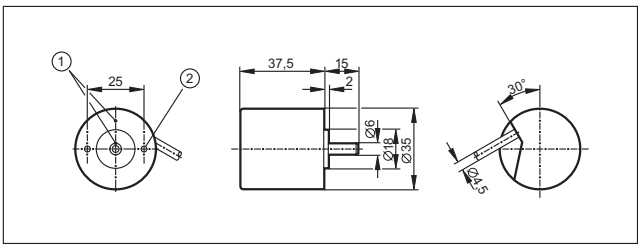
Type	Description	Order no.
	Socket · straight · wirable · M18 connector · Housing materials: brass nickel-plated	E60174
	Socket · angled · wirable · M18 connector · Housing materials: brass nickel-plated	E60175
	Socket · angled · wirable · M23 connector · Housing materials: brass nickel-plated	E10447

Type	Description	Order no.
	Socket · straight · wirable · M23 connector · Housing materials: brass nickel-plated	E10448
	Socket · straight · wirable · M23 connector · Housing materials: brass plastic coated / PA 6.6 black	E60124
	Socket · straight · wirable · M23 connector · Housing materials: brass plastic coated / PA 6.6 black	E60122
	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
	Plug · straight · wirable · M23 connector · Housing materials: brass plastic coated / PA 6.6 black	E60141
	Socket · straight · wirable · M23 connector · Housing materials: brass plastic coated / PA 6.6 black	E60157
	Socket · straight · wirable · M23 connector · Housing materials: brass plastic coated / PA 6.6 black	E60146
	Plug · straight · wirable · M23 connector · Housing materials: brass plastic coated / PA 6.6 black	E60123
	Plug · straight · wirable · M23 connector · Housing materials: brass plastic coated / PA 6.6 black	E60128

You can find scale drawings from page 344

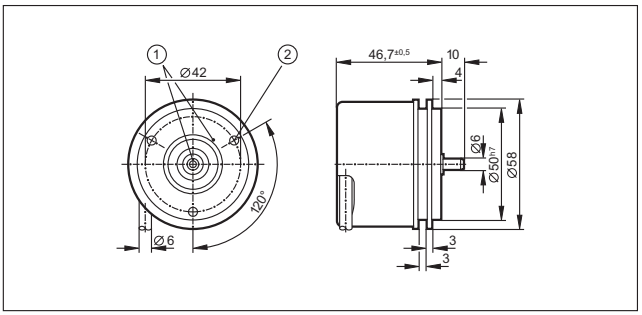
Scale drawings / drawing no. – CAD download: www.ifm.com

1



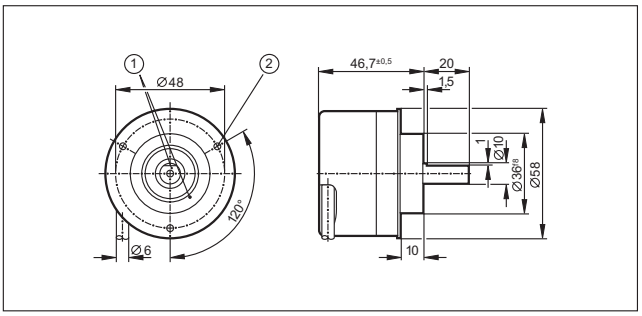
1: reference mark, 2: M3 5 mm deep

2



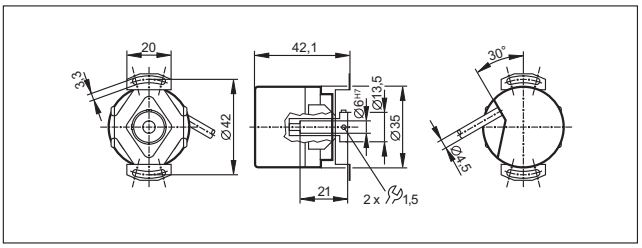
1: reference mark, 2: M4 5 mm deep

3

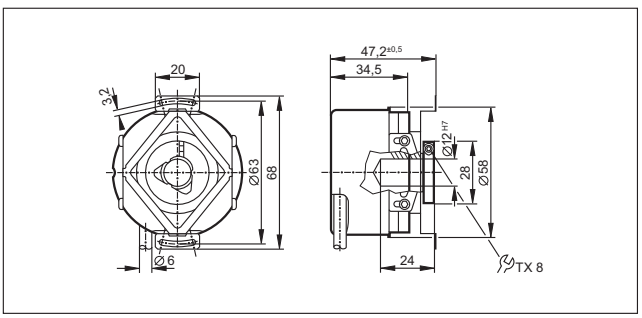


1: reference mark, 2: M3 5 mm deep

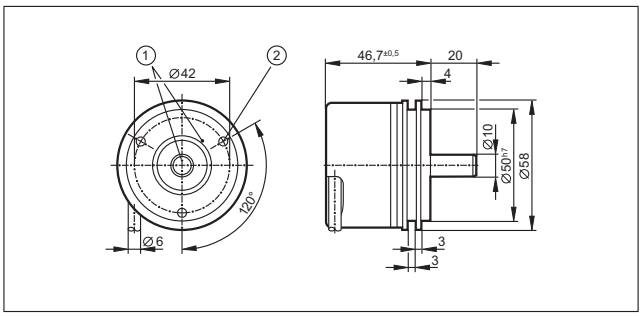
4



5

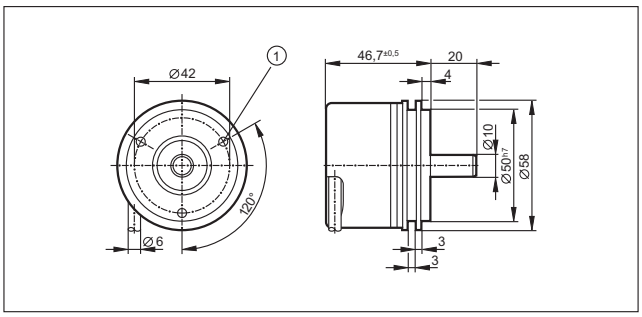


6



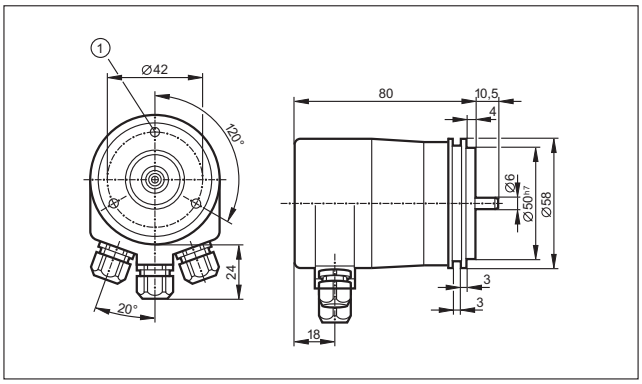
1: reference mark, 2: M4 5 mm deep

7



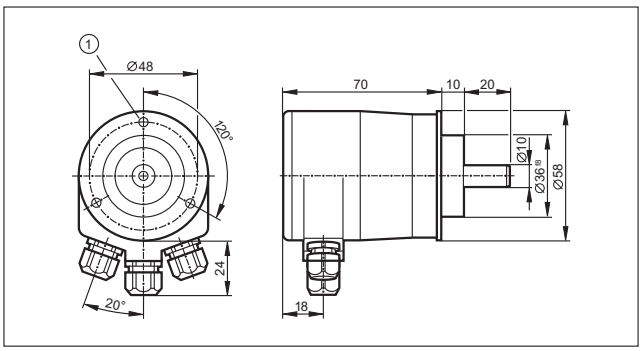
M4 5 mm deep

8



1: M4 5 mm deep

9

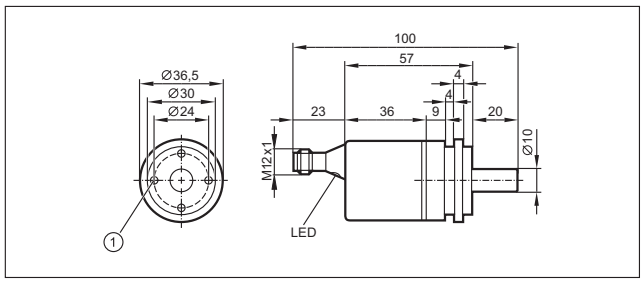


1: M4 5 mm deep

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

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

10



- **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.**

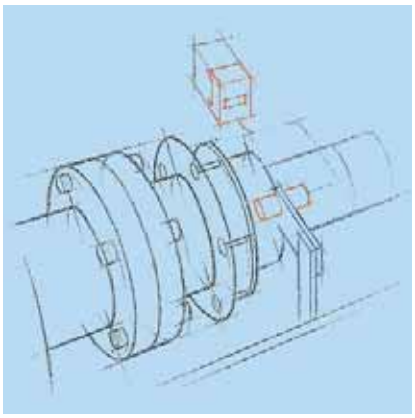
Evaluation systems

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 electronic offers a number of pulse evaluation systems in the product group "ecomat 200". The application area ranges from simple standstill monitoring or blockage protection of a conveyor belt, maximum speed monitoring in wind power stations, slip monitoring of couplings through to direction monitoring, e.g. twin pumps with non-return valves.

Different units for rail mounting and compact designs in M18 and M30 metal housings are available. They include microprocessor-controlled units for pane mounting to display analogue signals, RPM, speeds, processing times, quantities and electronic preset counters for the detection of quantities or linear measurement.

All units are distinguished by a high reliability and easy handling. Independent of the PLC they indicate operating states or signal faults. This helps to reduce down-times and production loss.

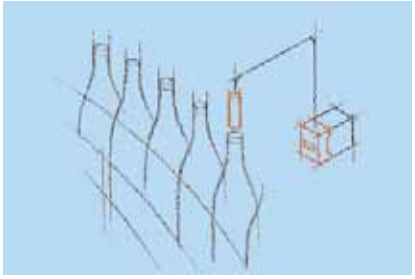


Pulse evaluation systems are used for decentralised monitoring of drives.

ifm electronic 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
- Switching amplifiers

Machine cycles must also be monitored in conveying.



Universal speed monitors

Type	U_b [V]	In-puts	Input function	Setting range [puls. / min.]	Setting range [Hz]	Out-puts analog	Out-puts relays	Out-puts transist.	Draw-ing no.	Order no.
FR-1 · 2 switch points for monitoring overspeed/underspeed and acceptable range										
	230 AC (50...60 Hz) / 24 DC	1	PNP / NPN / Namur	1...60000	0.1...1000	1	2	2	1	**DD2001**
	110...240 AC/DC (50...60 Hz) / 27 DC (typ. 24 DC)	1	PNP / NPN / Namur	1...60000	0.1...1000	1	2	2	1	**DD2003**
	23...60 AC/DC (50...60 Hz) / 27 DC (typ. 24 DC)	1	PNP / NPN / Namur	1...60000	0.1...1000	1	2	2	1	**DD2004**

Universal speed monitors with sensor wire monitoring

Type	U_b [V]	In-puts	Input function	Setting range [puls. / min.]	Setting range [Hz]	Out-puts analog	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/DC (50...60 Hz) / 27 DC (typ. 24 DC)	1	Namur 8.2 V	1...60000	0.1...1000	1	2	4	1	**DD2103**

Dual speed monitors

Type	U_b [V]	In-puts	Input function	Setting range [puls. / min.]	Setting range [Hz]	Out-puts analog	Out-puts relays	Out-puts transist.	Draw-ing no.	Order no.
FR-2 · 1 switch point each for monitoring overspeed/underspeed and acceptable range										
	230 AC (50...60 Hz) / 24 DC	2	PNP / NPN / Namur	1...60000	0.1...1000	–	2	2	1	**DD2002**
	110...240 AC/DC (50...60 Hz) / 27 DC (typ. 24 DC)	2	PNP / NPN / Namur	1...60000	0.1...1000	–	2	2	1	**DD2005**
	23...60 AC/DC (50...60 Hz) / 27 DC (typ. 24 DC)	2	PNP / NPN / Namur	1...60000	0.1...1000	–	2	2	1	**DD2006**

Dual speed monitors with sensor wire monitoring

Type	U_b [V]	In-puts	Input function	Setting range [puls. / min.]	Setting range [Hz]	Out-puts analog	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/DC (50...60 Hz) / 27 DC (typ. 24 DC)	2	Namur 8.2 V	1...60000	0.1...1000	–	2	4	1	**DD2105**

Slip monitors

Type	U_b [V]	In-puts	Input function	Setting range	Out-puts relays	Out-puts transist.	Draw-ing no.	Order no.
FS-1 · 1 switching output for slip monitoring; 1 switching output for overspeed/underspeed and acceptable range								
	230 AC (50...60 Hz) / 24 DC	1	PNP / NPN / Namur	slip: 0.1...99.9 % rotational speed (frequency): 1...60000 pulses/min (0.1...1000 Hz)	2	2	1	**DS2001**
	110...240 AC/DC (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 Hz)	2	2	1	**DS2003**

Slip 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.
FS-1N · 1 switching output for slip monitoring; 1 switching output for overspeed/underspeed and acceptable range								
	110...240 AC/DC (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 Hz)	2	2	1	**DS2103**

Slip / synchronous monitors

Type	U_b [V]	In-puts	Input function	Setting range	Out-puts relays	Out-puts transist.	Draw-ing no.	Order no.
FS-2 · 2 switch points for slip/synchronous monitoring								
	110...240 AC/DC (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	**DS2005**
FS-3 · 2 switch points for synchronous monitoring								
	110...240 AC/DC (50...60 Hz) / 27 DC (typ. 24 DC)	1	PNP / NPN / Namur	pulse differences: 1...999 hysteresis: 1...999	2	2	1	**DS2006**

You can find wiring diagrams and scale drawings from page 356

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.
FS-2N · 2 switch points for slip/synchronous monitoring								
	110...240 AC/DC (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	**DS2105**

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/DC (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 Hz)	2	2	1	**DR2003**
FD-2 · 2 switching outputs for separate indication of direction; adjustable reset times for standstill monitoring								
	110...240 AC/DC (50...60 Hz) / 27 DC (typ. 24 DC)	1	PNP / NPN / Namur	reset time: 0.0...1000 s	2	2	1	**DR2005**

Frequency-to-current converters

Type	U_b [V]	In-puts	Input function	Setting range [puls. / min.]	Setting range [Hz]	Out-puts analog	Out-puts relays	Out-puts transist.	Draw-ing no.	Order no.
FA-1 · Conversion of pulse sequences into analogue standard signals										
	27 DC (typ. 24 DC)	1	PNP / NPN / Namur	0...600000	0...10000	2	1	1	1	**DW2004**
	110...240 AC/DC (50...60 Hz) / 27 DC (typ. 24 DC)	1	PNP / NPN / Namur	0...600000	0...10000	2	1	1	1	**DW2003**

Standard speed monitors

Type	U_b [V]	In-puts	Input function	Setting range [puls. / min.]	Setting range [Hz]	Out-puts analog	Out-puts relays	Out-puts transist.	Draw-ing no.	Order no.
D100 · evaluation of pulse sequences with regard to overspeed and underspeed; rotational speed monitoring										
	230 AC (50...60 Hz) / 24 DC	1	PNP	5...5000	–	–	1	–	2	**DD0001**

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

Type	U_b [V]	In-puts	Input function	Setting range [puls. / min.]	Setting range [Hz]	Out-puts analog	Out-puts relays	Out-puts transist.	Draw-ing no.	Order no.
D100 · evaluation of pulse sequences with regard to overspeed and underspeed; rotational speed monitoring										
	230 AC (50...60 Hz) / 24 DC	1	PNP	10...10000	–	–	1	–	2	**DD0022**
	110...240 AC/DC (50...60 Hz) / 27 DC (typ. 24 DC)	1	PNP	5...5000	–	–	1	1	2	**DD0116**
	27...60 AC/DC (50...60 Hz) / 27 DC (typ. 24 DC)	1	PNP	5...5000	–	–	1	1	2	**DD0122**

Standstill monitors

Type	U_b [V]	In-puts	Input function	Setting range [puls. / min.]	Setting range [Hz]	Out-puts analog	Out-puts relays	Out-puts transist.	Draw-ing no.	Order no.
A300 · Evaluation of pulse sequences with regard to underspeed or missing pulse										
	230 AC (50...60 Hz) / 24 DC	1	PNP	5...25 / 20...100	–	–	1	–	3	**DA0001**
	110...240 AC/DC (50...60 Hz) / 27 DC (typ. 24 DC)	1	PNP	5...25 / 20...100	–	–	1	1	3	**DA0116**
	27...60 AC/DC (50...60 Hz) / 27 DC (typ. 24 DC)	1	PNP	5...25 / 20...100	–	–	1	1	3	**DA0122**

Safety standstill monitors, SIL 3, PL e

Type	U_b [V]	In-puts	Input function	Setting range [puls. / min.]	Setting range [Hz]	Out-puts analog	Out-puts relays	Out-puts transist.	Draw-ing no.	Order no.
· 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	4	**DA101S**

You can find wiring diagrams and scale drawings from page 356

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.
Output ⎍/⎍ · Wiring diagram no. 1 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	M18 / L = 68	12 nf	DC PNP	10...36 DC	3...6000	0...15	5	**DI6001**
Output ⎍ · Wiring diagram no. 2								
	M30 / L = 81	10 f	AC/DC	20...250 AC/DC	5...300	12	6	**DI0001***
	M30 / L = 81	10 f	AC/DC	20...250 AC/DC	50...3000	12	6	**DI0002***
	M30 / L = 81	10 f	AC/DC	20...250 AC/DC	5...300	< 0.5	6	**DI0004***
Output ⎍ · Wiring diagram no. 3								
	M30 / L = 81	10 f	DC PNP	10...36 DC	3...300	15	6	**DI5001**
	M30 / L = 81	10 f	DC PNP	10...36 DC	30...3000	15	6	**DI5003**
	M30 / L = 81	10 f	DC PNP	10...36 DC	30...3000	0	6	**DI5011**
Output ⎍ · Wiring diagram no. 4								
	M30 / L = 81	10 f	DC PNP	10...36 DC	3...300	15	6	**DI5005**
Output ⎍ · Wiring diagram no. 5								
	M30 / L = 81	10 f	DC PNP	10...36 DC	3...300	15	7	**DI5004**
	M30 / L = 81	10 f	DC PNP	10...36 DC	3...300	5	7	**DI5007**

Type	Dimensions [mm]	Sensing range [mm]	Electrical design	U_b [V]	Setting range [puls. / min.]	Start-up delay [s]	Draw-ing no.	Order no.
Output ⎍ · Wiring diagram no. 6 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	M30 / L = 82	10 f	DC PNP	10...36 DC	3...300	15	8	**DI5009**

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]	Draw-ing no.	Order no.
Output ⎍ · Wiring diagram no. 2								
	M30 / L = 81	10 f	AC/DC	20...250 AC/DC	5...300	12	6	**DI001A***
	M30 / L = 81	10 f	AC/DC	20...250 AC/DC	50...3000	12	6	**DI002A***
Output ⎍ · Wiring diagram no. 3								
	M30 / L = 81	10 f	DC PNP	10...36 DC	5...300	15	6	**DI501A**
Output ⎍ · Wiring diagram no. 6 · Connector groups 132, 134								
	M30 / L = 82	10 f	DC PNP	10...36 DC	5...300	15	8	**DI502A**
	M30 / L = 82	10 f	DC PNP	10...36 DC	5...300	5	8	**DI503A**
Output ⎍ / ⎍ · Wiring diagram no. 1								
	M18 / L = 68	12 nf	DC PNP	10...36 DC	3...6000	0...15	5	**DI601A**

f = flush / nf = non flush

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

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

You can find wiring diagrams and scale drawings from page 356

Multifunctional displays for digital signals / frequency input

Type	U_b [V]	In-puts	Input function	Setting range [puls. / min.]	Setting range [Hz]	Out-puts analog	Out-puts relays	Out-puts transist.	Draw-ing no.	Order no.
FX 360 · universal evaluation and display for all physical units which can be derived from pulse sequences										
	115/230	2	PNP / NPN	–	–	–	–	–	9	**DX2001**
	115/230	2	PNP / NPN	–	–	2	–	–	9	**DX2002**
	115/230	2	PNP / NPN	–	–	–	–	2	9	**DX2003**

Universal counters

Type	U_b [V]	In-puts	Input function	Setting range	Out-puts relays	Out-puts transist.	Draw-ing no.	Order no.
Preset counter with 2 presets								
	90...260 AC	1	PNP / NPN	–	2	–	10	**E89005**

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 analog	Out-puts relays	Out-puts transist.	Draw-ing no.	Order no.
AL-3 · 2-channel analogue threshold relay for analogue standard signals										
	110...240 AC/DC (50...60 Hz) / 27 DC (typ. 24 DC)	2	2 x 0/4...20 mA	–	–	1	1	1	11	**DL2003**

Multifunctional displays for analogue standard signals

Type	U_b [V]	In-puts	Input function	Setting range [puls. / min.]	Setting range [Hz]	Out-puts analog	Out-puts relays	Out-puts transist.	Draw-ing no.	Order no.
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	–	–	–	–	–	9	**DX2011**

Type	U_b [V]	In-puts	Input function	Setting range [puls. / min.]	Setting range [Hz]	Out-puts analog	Out-puts relays	Out-puts transist.	Draw-ing no.	Order no.
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	–	–	–	–	2	9	**DX2012**
· scaleable display for sensors with analogue output (e.g. pressure sensors, flow sensors)										
	–	1	4...20 mA	–	–	–	–	–	12	**E89150**

Accessories pulse divider / pulse stretcher

Type	Description	Draw-ing no.	Order no.
	Pulse divider · Ratio input/output pulse 10:1 · Housing for DIN rail mounting · plastics	13	**E80100**
	Pulse divider · Division 1...255	14	**E80102**
	Pulse stretcher · Pulse length · IN (min): > 0.2 ms / OUT: 25 ms · Housing for DIN rail mounting · plastics	13	**E80110**

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**

You can find wiring diagrams and scale drawings from page 356

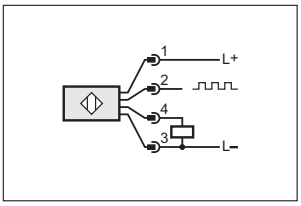
Type	Description	Order no.
	Mounting clamp · Ø 34 mm - Ø 30 mm · with reducing bush · for type M30 · Housing materials: PBT	E10077
	Target wheel · Plastic disk with 8 screws as „target„ · Centered drill holes	E89010
	Target for pulse pickups · Strap dimensions 7 x 220 mm	E89013

Wiring diagrams

Core colours

BN brown
BU blue
BK black

1



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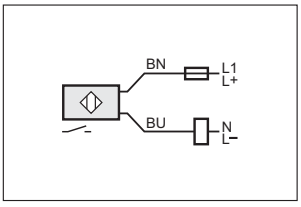

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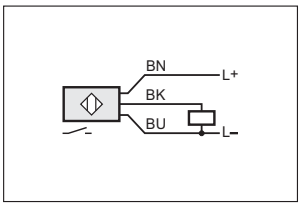

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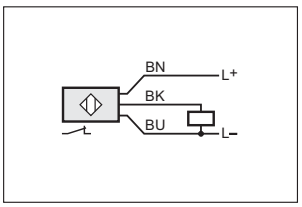

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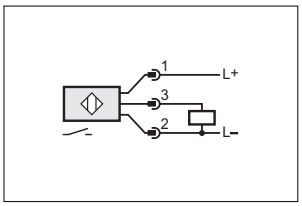

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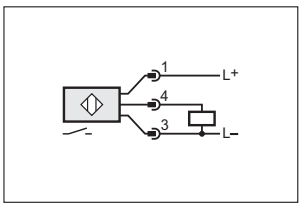
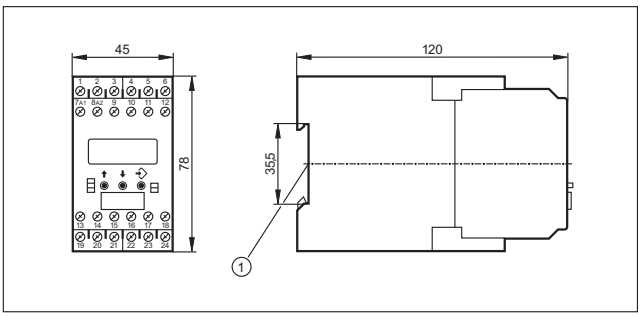


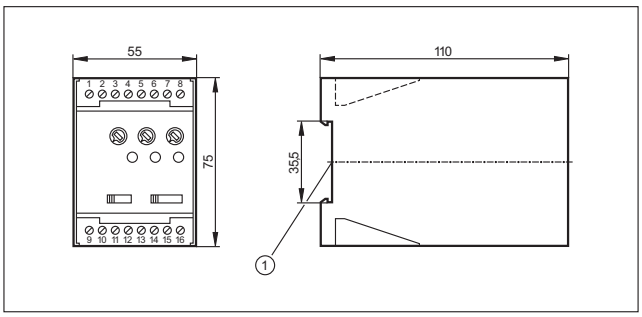
Scale drawings / drawing no. – CAD download: www.ifm.com

1



1: mounting on DIN rail

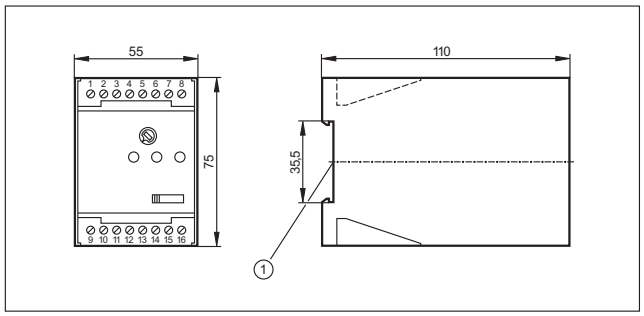
2



1: mounting on DIN rail

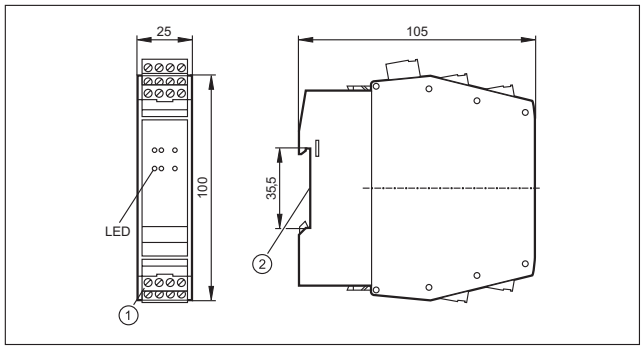
Scale drawings / drawing no. – CAD download: www.ifm.com

3



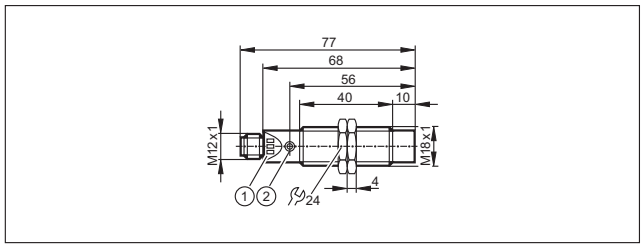
1: mounting on DIN rail

4



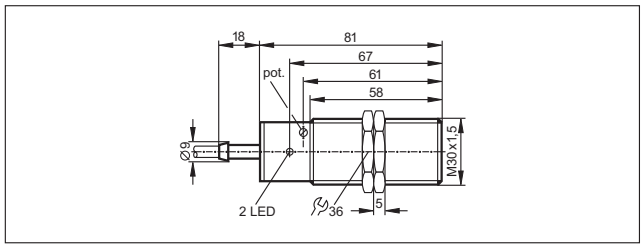
1: Combicon connector with screw terminals, 2: mounting on DIN rail

5



1: 3 LED, 2: setting pushbutton

6



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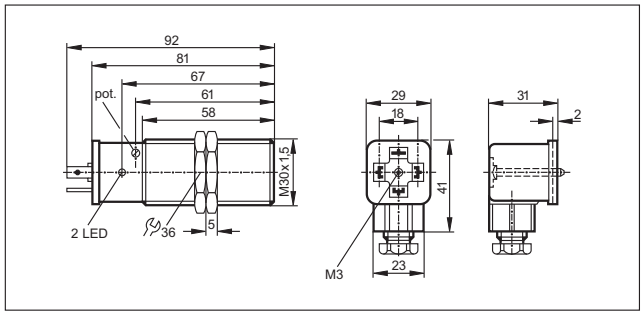

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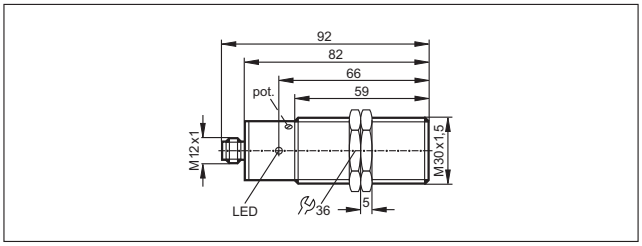

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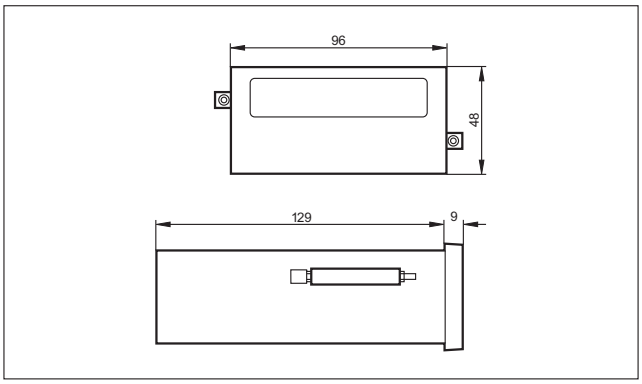

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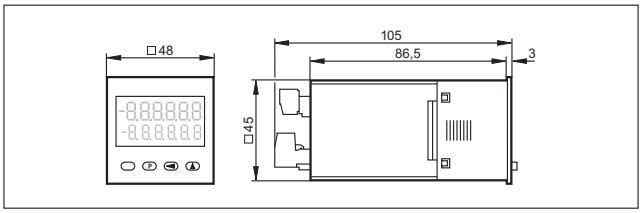

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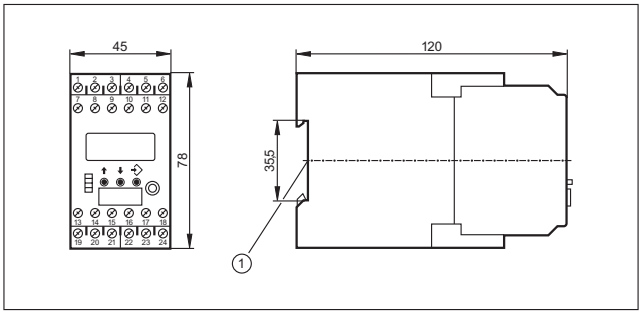
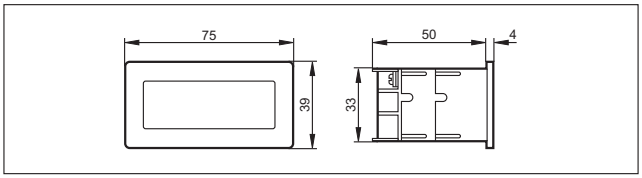


1: mounting on DIN rail

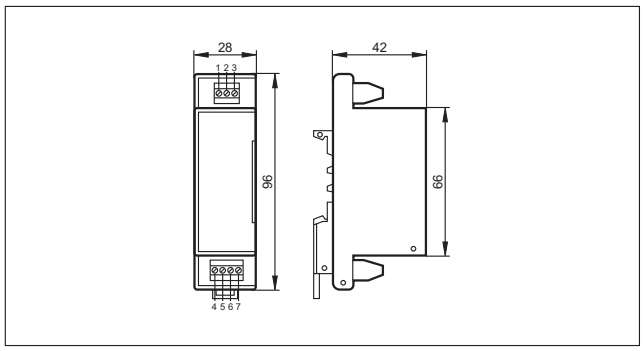
12



control panel cutout: 68 x 33 mm (according to DIN)

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

13



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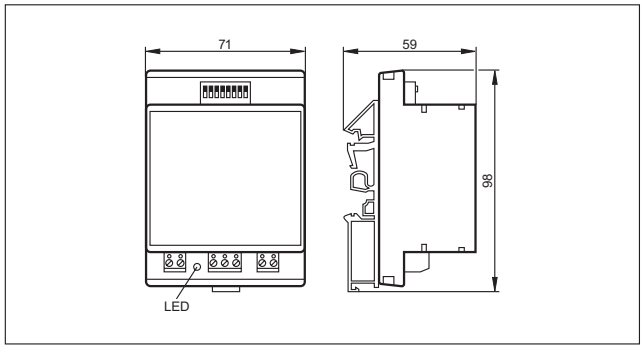


Safety

EX

- **Multifunctional with relay outputs or semiconductor outputs.**
- **Connection of electro-sensitive protective equipment.**
- **e-stop and possibility to connect mechanical safety relays.**
- **Two-hand control to EN 574 up to type IIIC, mechanical or electronic.**
- **Certified to IEC 61508, ISO 13849-1, EN 574.**

Safety relays for protection of operators and machinery

The EC machinery directive stipulates machinery should not present a risk (EN1050 and EN ISO 14121-1). Since there is no zero risk, the aim is to achieve an acceptable residual risk. If safety is dependent on control systems, these must be designed so as to minimise malfunction.

For this, ifm offers multifunctional safety relays. A major advantage of these units is their flexibility. They perform monitoring tasks in safety applications in conjunction with different electro-sensitive protective equipment (ESPE).

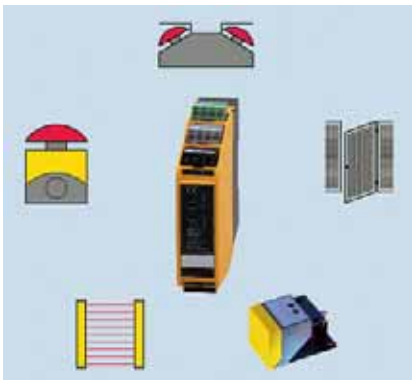
On the safe side.

The relays are certified according to IEC 61508 SIL3, ISO 13849-1 PL e and EN 574 up to type IIIC.

They have several multifunctional self-detecting and self-monitoring inputs as well as short-circuit proof outputs. Concerning the type of output the user can select between relay outputs and semiconductor outputs. Moreover, outputs with switch-off delay are available for specific applications.

It is possible to connect OSSD sensors, mechanical switches (e-stop) or implement two-hand applications with electronic or mechanical switches. When used as two-hand control devices, the requirements of type IIIB to EN574 can be met.

The units have a simultaneity monitoring of inputs. The offer the functions "automatic start" or "monitored start" and also allow monitoring of external relay contacts.



Mechanical as well as electronic safety sensors can be connected to the safety relays.

Safety relays monitor complete series of safety sensors.

Safety relays with relay outputs for fail-safe sensors

Type	U_b [V]	Electrical design	ISO 13849-1: Categorie / 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: Categorie / 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

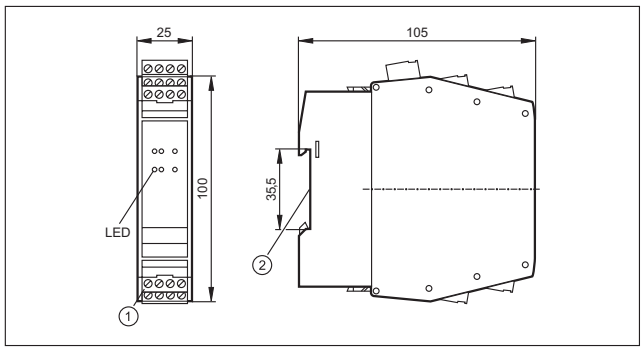
Type	U_b [V]	Electrical design	ISO 13849-1: Categorie / performance Level	IEC 61508: SIL	Draw-ing no.	Order no.
	24	relay	4 / e	3	4	**G2001S**

Accessories

Type	Description	Order no.
	Safety T-splitter · T-piece for the pseudo-serial connection of fail-safe sensors · Housing materials: PUR	**E11569**

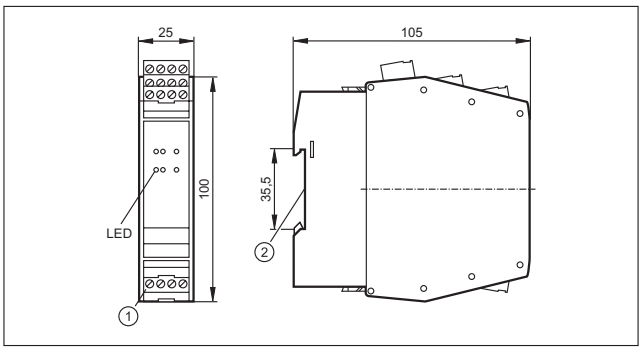
Scale drawings / drawing no. – CAD download: www.ifm.com

1



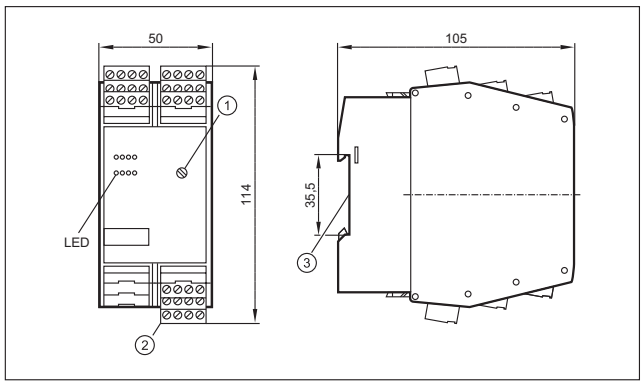
1: Combicon connector with screw terminals, 2: mounting on DIN rail

3



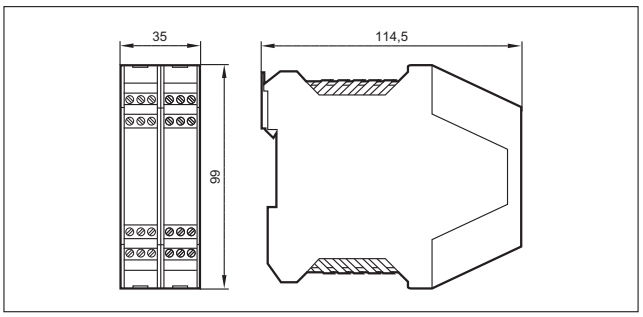
1: Combicon connector with screw terminals, 2: mounting on DIN rail

2



1: Rotary switch for switch-off delay, 2: Combicon connector with screw terminals, 3: mounting on DIN rail

4



- **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 1992/92/EC directives are also commonly called "ATEX directives".

You can find hazardous areas in many different industries. Examples are the food and feedstuffs industry, woodworking, disposal and recycling operations and the typical industries of chemistry, for example gas and oil-processing plants.

It is basically distinguished between "G" (gas, i.e. fog, steams) and "D" (dust). There are 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. Example: Electrical apparatus of the 1G category may be operated in zone 0.

NAMUR switching amplifiers for hazardous areas

The one or two-channel 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.

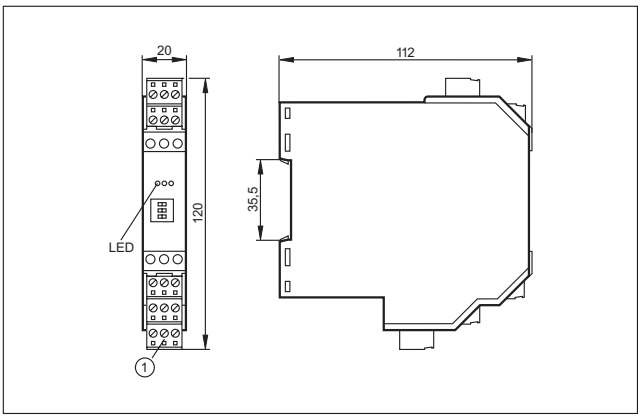
Examples for the hazardous dust areas are the food and feedstuffs industries, but also disposal and recycling operations.

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)

- **No movings parts means high reliability and long life.**
- **Guided wave radar, capacitive and hydrostatic level sensors.**
- **Outputs for continuous or point level measurement.**
- **Integrated LED display for local indication of the current level.**
- **Suitable for common industrial and process fluids.**

Level sensors

In industrial applications where fluids or bulk material are used, storage tanks or silos are used for processing or storing of media. Sensors are used to detect the levels. Even critical process conditions such as emptying a hydraulic tank or the unintentional overspill of a tank are monitored by level sensors.

Advantages of electronic sensors

Deposits and wear and tear often lead to failures in particular if mechanical switches are in contact with the medium. The electronic ifm sensors however can do without any mechanical components. This makes the sensors especially robust and reliable.

Another advantage of electronic sensors is the local indication of the level or the easy setting of the switching threshold simply by pressing a button.

Measurement technique

For continuous level measurement the level is detected continuously, converted into an electrical signal and indicated. Depending on the type the units have freely programmable switching outputs or an analogue output for further processing.

Continuous level sensors from ifm electronic use three different physical measuring principles:

For capacitive measurement the probe and the tank form an electrical capacitor. The capacity 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 material. Here the pressure change is a measure for the level.

The efector gwr level sensor operates on the principle of guided wave radar. Electromagnetic pulses are transmitted by the sensor head and guided along the probe. If the microwave pulse hits the medium to be detected, it is reflected and the time of flight is evaluated by the sensor.

Measurement in the medium: Probe sensors will be directly immersed in the medium to be monitored.

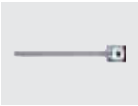
For special applications: Capacitive probe sensor for monitoring oils and coolants.

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.
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 9, 11, 12, 107, 108, 109, 135, 136									
	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.
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 9, 10, 11, 107, 108, 110, 135									
	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 9, 11, 12, 107, 108, 109, 135, 136									
	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 programmabl (OUT-OP) · DC PNP · Wiring diagram no. 4 · Connector groups 17, 18									
	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**

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.
M12 connector (according to EN 61076-2-101) · Output function 3 x normally open / closed programmable (OUT1...OUT3); 1 x normally open / closed programmabl (OUT-OP) · DC PNP · Wiring diagram no. 4 · Connector groups 17, 18									
	728	585	102 / 40	18...30	0...35 (LK8124 + E43102: 0...55)	0...70	200	3	**LK8124**

Point level sensors for hygienic areas

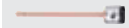
Type	Process connection	Process pressure max. [bar]	Application	Protection	Drawing no.	Order no.
M12 connector · Output function normally open / closed complementary · DC PNP · Wiring diagram no. 5 · Connector groups 9, 11, 12, 107, 108, 109, 135, 136						
	G½	-1...16	water, water-based medium	IP 68 / IP 69K	4	**LMT100**
	G½	-1...16	oils, grease	IP 68 / IP 69K	4	**LMT110**

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.
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. 6 · Connector groups 9, 10, 11, 107, 108, 110, 135									
	G¾ A	100...1600	HIGH: L - 40; LOW: L - 60	HIGH: 30 / 10; LOW: 30 / 30	18...30	0...80	200	5	**LR3000**
	¾" NPT	150...1600	L - 50	40/10	18...30	0...80	200	6	**LR3300**
M12 connector (according to EN 61076-2-101) · Output function 2 x normally open / closed programmable · DC PNP · Wiring diagram no. 3 · Connector groups 9, 11, 12, 107, 108, 109, 135, 136									
	G¾ A	100...1600	HIGH: L - 40; LOW: L - 60	HIGH: 30 / 10; LOW: 30 / 30	18...30	0...80	200	5	**LR7000**
	¾„ NPT	150...1600	L - 50	40/10	18...30	0...80	200	6	**LR7300**
M12 connector (according to EN 61076-2-101) · Output function 4 x normally open / closed programmable · DC PNP · Wiring diagram no. 7 · Connector groups 17, 18									
	G¾ A	100...1600	HIGH: L - 40; LOW: L - 60	HIGH: 30 / 10; LOW: 30 / 30	18...30	0...80	200	7	**LR8000**
	¾„ NPT	150...1600	L - 50	–	18...30	0...80	200	8	**LR8300**

You can find wiring diagrams and scale drawings from page 383

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.
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. 8 · Connector groups 17, 18									
	264	195	53 / 15	18...30	–	0...70	200	9	**LT8022**
	472	390	53 / 30	18...30	–	0...70	200	9	**LT8023**
	728	585	102 / 40	18...30	–	0...70	200	9	**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.
M12 connector (according to EN 61076-2-101) · Output function 4 x normally open / closed programmable · DC PNP · Wiring diagram no. 9 · Connector groups 17, 18									
	264	195	53 / 15	18...30	0...35 (LL8022 + E43100: 0...65)	0...70	200	9	**LL8022**
	472	390	53 / 30	18...30	0...35 (LL8023 + E43101: 0...60)	0...70	200	9	**LL8023**
	728	585	102 / 40	18...30	0...35 (LL8024 + E43102: 0...55)	0...70	200	9	**LL8024**

Sensors for hydrostatic level monitoring

Type	Process connection	Display LED	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Drawing no.	Order no.
Output 4...20 mA analogue · Wiring diagram no. 10								
	–	–	0...0.25	2	2.4	10...30	10	**PS3208**
	–	–	0...0.6	4	4.8	10...30	10	**PS3407**
	–	–	0...1	5	6	10...30	10	**PS3417**

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.
Output 4...20 mA analogue · Wiring diagram no. 11 · Connector groups 9, 11, 107, 108, 135								
	G¼ I	–	0...0.25	10	30	9.6...32	11	**PA3028**

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.
Output 4...20 mA analogue · Wiring diagram no. 12							
	0...0.25	5 m FEP cable	2	2.4	10...30	12	**PS308A**
	0...0.6	10 m FEP cable	4	4.8	10...30	12	**PS307A**
	0...1	15 m FEP cable	5	6	10...30	12	**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.
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. 14 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	Aseptoflex Vario	Display unit	-0.005...0.1	4	30	20...32	13	**PI2789**
	Aseptoflex Vario	Display unit	-0.0124...0.25	10	30	20...32	13	**PI2798**
	Aseptoflex Vario	Display unit	-1...1	10	30	20...32	13	**PI2799**
	Aseptoflex Vario	Display unit	-0.05...1	10	30	20...32	13	**PI2797**
	Aseptoflex Vario	Display unit	-0.124...2.5	20	50	20...32	13	**PI2796**
	G1 A	Display unit	-0.005...0.1	4	30	20...32	14	**PI2889**
	G1 A	Display unit	-0.124...2.5	20	50	20...32	14	**PI2896**

You can find wiring diagrams and scale drawings from page 383

Type	Process connection	Display LED	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Drawing 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. 14 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	G1 A	Display unit	-0.05...1	10	30	20...32	14	**PI2897**
	G1 A	Display unit	-0.0124...0.25	10	30	20...32	14	**PI2898**
	G1 A	Display unit	-1...1	10	30	20...32	14	**PI2899**
M12 connector · Output function 1 x normally open / closed programmable + 1 x analogue (4...20 / 20...4 mA, scalable) · Wiring diagram no. 15 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	Aseptoflex Vario	Display unit	-0.005...0.1	4	30	18...32	15	**PG2789**
	Aseptoflex Vario	Display unit	-0.0124...0.25	10	30	18...32	15	**PG2798**
	Aseptoflex Vario	Display unit	-1...1	10	30	18...32	15	**PG2799**
	Aseptoflex Vario	Display unit	-0.05...1	10	30	18...32	15	**PG2797**
	Aseptoflex Vario	Display unit	-0.124...2.5	20	50	18...32	15	**PG2796**
	G1 A	Display unit	-0.124...2.5	20	50	18...32	16	**PG2896**
	G1 A	Display unit	-0.05...1	10	30	18...32	16	**PG2897**
	G1 A	Display unit	-0.0124...0.25	10	30	18...32	16	**PG2898**
	G1 A	Display unit	-1...1	10	30	18...32	16	**PG2899**
	G1 A	Display unit	-0.005...0.1	4	30	18...32	16	**PG2889**

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]	Drawing no.	Order no.
M12 connector · Output function ⌐ · DC PNP · Wiring diagram no. 13 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	132	normally closed	10...36	0...35	0...65	200	17	**LI2141**
	273	normally closed	10...36	0...35	0...65	200	17	**LI2142**
	481	normally closed	10...36	0...35	0...65	200	17	**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]	Drawing no.	Order no.
M12 connector · Output function ⌐ / ⌐ · DC PNP · Wiring diagram no. 13 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	132	normally open / closed programmable	10...36	0...35 (LI5141 + E43103: 0...65)	0...65	200	17	**LI5141**
	273	normally open / closed programmable	10...36	0...35 (LI5142 + E43100: 0...65)	0...65	200	17	**LI5142**
	481	normally open / closed programmable	10...36	0...35 (LI5143 + E43101: 0...60)	0...65	200	17	**LI5143**
	737	normally open / closed programmable	10...36	0...35 (LI5144 + E43102: 0...55)	0...65	200	17	**LI5144**

You can find wiring diagrams and scale drawings from page 383

Oil moisture 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. 16 · Connector groups 16, 17, 18							
	G¾	10	IP 67	-20...100	-20...85	18	**LDH100**

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: Viton	**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**
	Mounting adapter · ¾" 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**

Type	Description	Order no.
	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**

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: 240 mm · for level sensors LR · Housing materials: stainless steel	**E43203**

You can find wiring diagrams and scale drawings from page 383

Type	Description	Order no.
	Probe · Probe length: 450 mm · for level sensors LR · Housing materials: stainless steel	E43204
	Probe · Probe length: 700 mm · for level sensors LR · Housing materials: stainless steel	E43205
	Probe · Probe length: 1000 mm · for level sensors LR · Housing materials: stainless steel	E43207
	Probe · Probe length: 1200 mm · for level sensors LR · Housing materials: stainless steel	E43208
	Probe · Probe length: 1400 mm · for level sensors LR · Housing materials: stainless steel	E43209
	Probe · Probe length: 1600 mm · for level sensors LR · Housing materials: stainless steel	E43210
	Coaxial pipe · Length: 240 mm · G¾ · for level sensors LR · Housing materials: stainless steel / sealing: Tesnit / centring piece: PP / fixing bracket: stainless steel	E43211
	Coaxial pipe · Length: 450 mm · G¾ · for level sensors LR · Housing materials: stainless steel / sealing: Tesnit / centring piece: PP / fixing bracket: stainless steel	E43212
	Coaxial pipe · Length: 700 mm · G¾ · for level sensors LR · Housing materials: stainless steel / sealing: Tesnit / centring piece: PP / fixing bracket: stainless steel	E43213
	Coaxial pipe · Length: 1000 mm · G¾ · for level sensors LR · Housing materials: stainless steel / sealing: Tesnit / centring piece: PP / fixing bracket: stainless steel	E43214
	Coaxial pipe · Length: 1200 mm · G¾ · for level sensors LR · Housing materials: stainless steel / sealing: Tesnit / centring piece: PP / fixing bracket: stainless steel	E43215
	Coaxial pipe · Length: 1400 mm · G¾ · for level sensors LR · Housing materials: stainless steel / sealing: Tesnit / centring piece: PP / fixing bracket: stainless steel	E43216
	Coaxial pipe · Length: 1600 mm · G¾ · for level sensors LR · Housing materials: stainless steel / sealing: Tesnit / centring piece: PP / fixing bracket: stainless steel	E43217
	Coaxial pipe · Length: 450 mm · ¾" NPT · for level sensors LR · Housing materials: stainless steel / centring piece: PP / fixing bracket: stainless steel	E43218
	Coaxial pipe · Length: 700 mm · ¾" 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: 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
	Aseptoflex Vario adapter · 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
	Aseptoflex Vario adapter · pipe fitting · DN50 (2") · DIN 11851 · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	E33213
	Aseptoflex Vario adapter · 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
	Aseptoflex Vario adapter · pipe fitting · DN50 (2") · DIN 11851 · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	E33713

You can find wiring diagrams and scale drawings from page 383

Type	Description	Order no.
	Aseptoflex Vario 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
	Aseptoflex Vario 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

Accessories for level sensors LM

Type	Description	Order no.
	Welding adapter · G ½ - Ø 29 mm · for pipes · Housing materials: stainless steel 316L / 1.4435	E43301
	Welding adapter · G ½ - Ø 29 mm · for pipes · with leakage port · Housing materials: stainless steel 316L / 1.4435	E43310
	Welding adapter · G ½ - Ø 30 mm · for tanks · Housing materials: stainless steel 316L / 1.4435	E43300
	Welding adapter · G ½ - Ø 30 mm · for tanks · with leakage port · Housing materials: stainless steel 316L / 1.4435	E43309
	Welding adapter · G ½ - Ø 35 mm · ball · Housing materials: stainless steel 316L / 1.4404	E30055
	Welding adapter · G ½ - Ø 45 mm · collar · Housing materials: stainless steel 316L / 1.4404	E30056
	Tuning fork adapter · G ¾ · Housing materials: stainless steel 316L / 1.4435	E43302
	Tuning fork adapter · G 1 · Housing materials: stainless steel 316L / 1.4435	E43303
	Adapter · G ½ · pipe fitting · DN25 (1") · DIN 11851 · Housing materials: stainless steel 316L / 1.4435	E43304
	Adapter · G ½ · pipe fitting · DN40 (1.5") · DIN 11851 · Housing materials: stainless steel 316L / 1.4435	E43305
	Adapter · G ½ · Varivent type F · DN25 (1"), D = 50 · Housing materials: stainless steel 316L / 1.4435	E43306

Type	Description	Order no.
	Adapter · G ½ · Varivent type N · DN40 (1.5"), D = 68 · Housing materials: stainless steel 316L / 1.4435	**E43307**
	Adapter · G ½ · Clamp · 1-1.5" · ISO 2852 / DIN 32676 · with leakage port · Housing materials: stainless steel 316L / 1.4435	**E43311**
	Adapter · G ½ · Clamp · 2" · ISO 2852 / DIN 32676 · with leakage port · Housing materials: stainless steel 316L / 1.4435	**E43312**
	G ½ adapter · Clamp · 1-1.5" · ISO 2852 / DIN 32676 · for units with G ½ adaptation · Housing materials: stainless steel 316L / 1.4404	**E33401**
	G ½ adapter · Clamp · 2" · ISO 2852 / DIN 32676 · for units with G ½ adaptation · Housing materials: stainless steel 316L / 1.4404	**E33402**
	G ½ adapter · DN25 · SMS · for units with G ½ adaptation · Housing materials: stainless steel 316L / 1.4404	**E33430**
	sealing plug · G ½ · for G ½ adapter · Housing materials: stainless steel 316L / 1.4435	**E43308**

Wiring diagrams

Core colours

BN	brown
GY	grey
WH	white
BU	blue
GN	green

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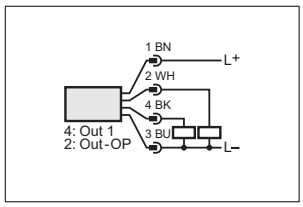

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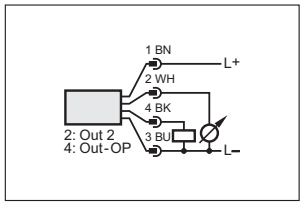

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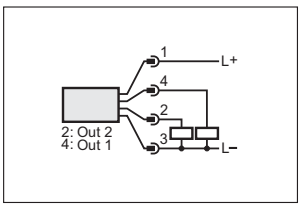

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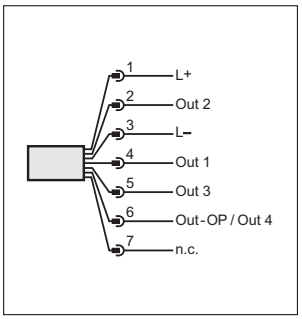

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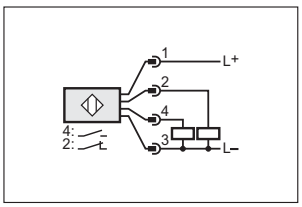

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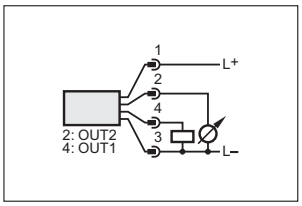

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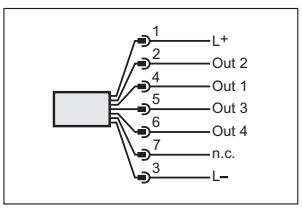

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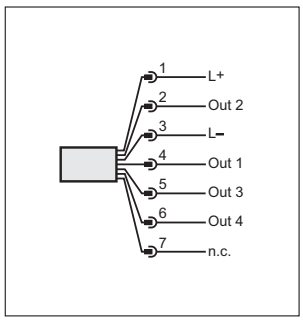

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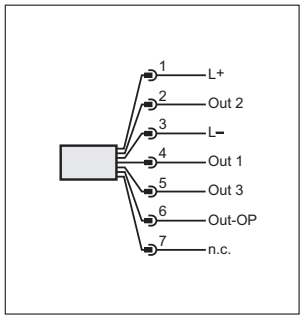
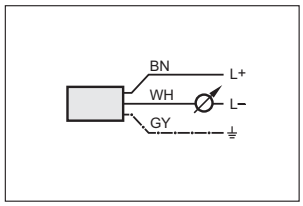
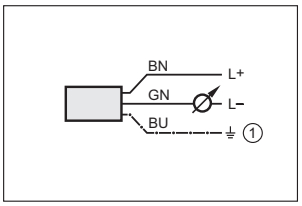


Wiring diagrams

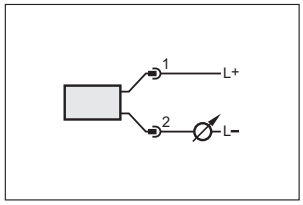
10



12



11



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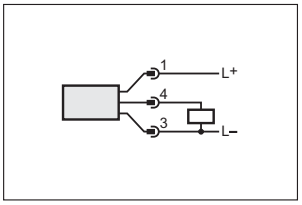
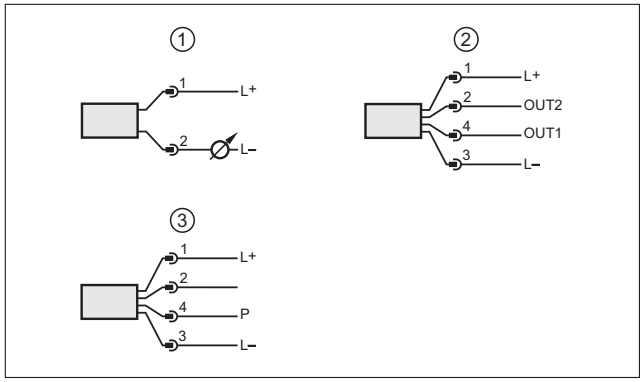
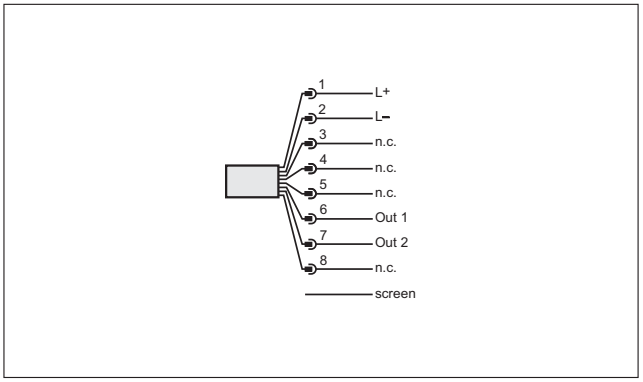


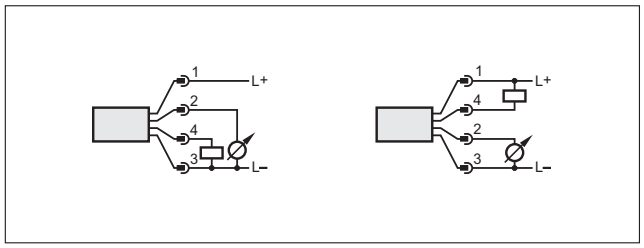
14



16

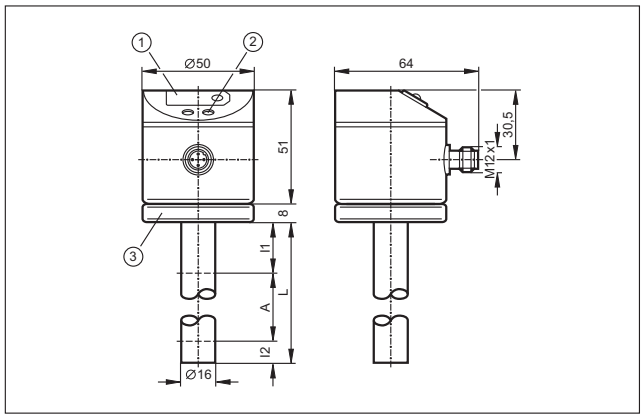


15



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

1

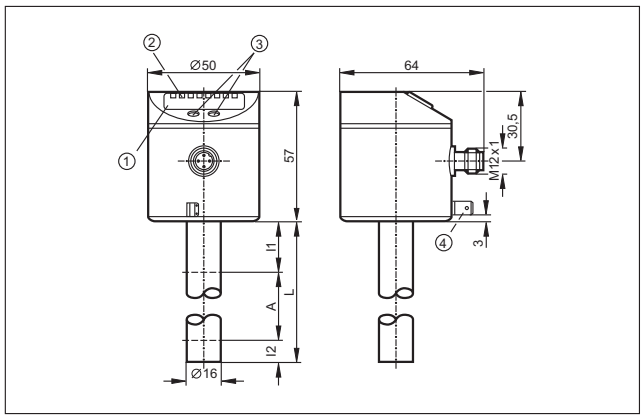


1: 7-segment LED display, 2: Programming buttons, 3: Housing connection with cable lug for cable 1.5 - 2.5 mm²

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

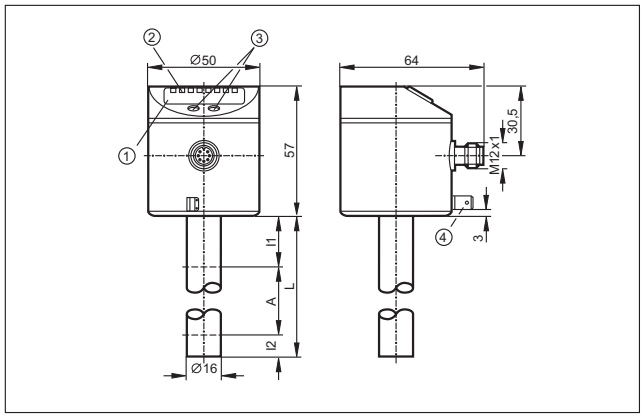
Scale drawings / drawing no. – CAD download: www.ifm.com

2



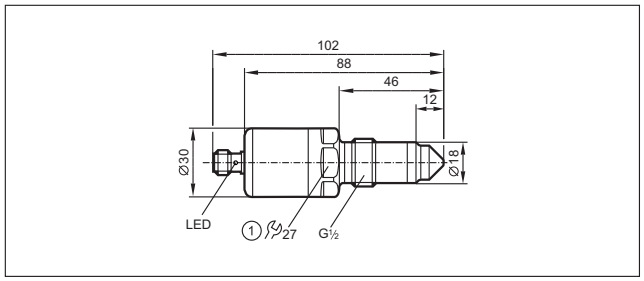
1: 4-digit alphanumeric display, 2: LEDs, 3: Programming buttons, 4: Housing connection (flat-pin connector 6.3 mm following DIN 46244)

3



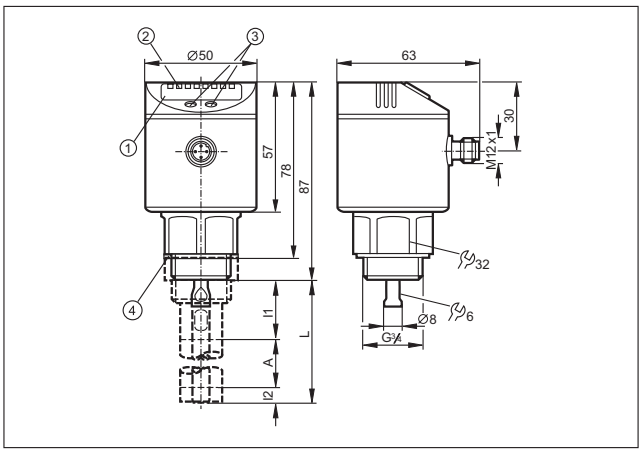
1: 4-digit alphanumeric display, 2: LEDs, 3: Programming buttons, 4: Housing connection (flat-pin connector 6.3 mm following DIN 46244)

4



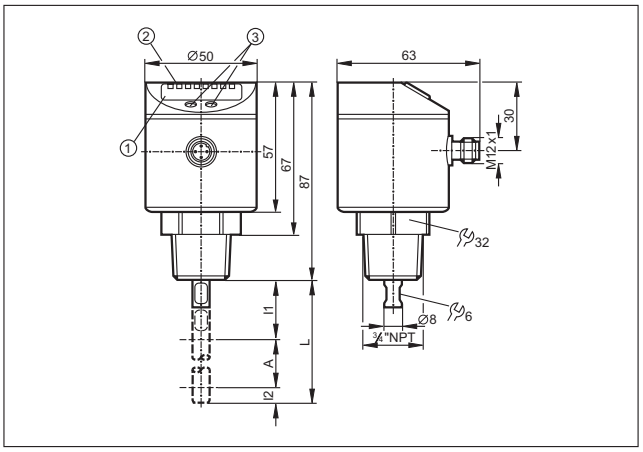
1: tightening torque 20...25 Nm

5



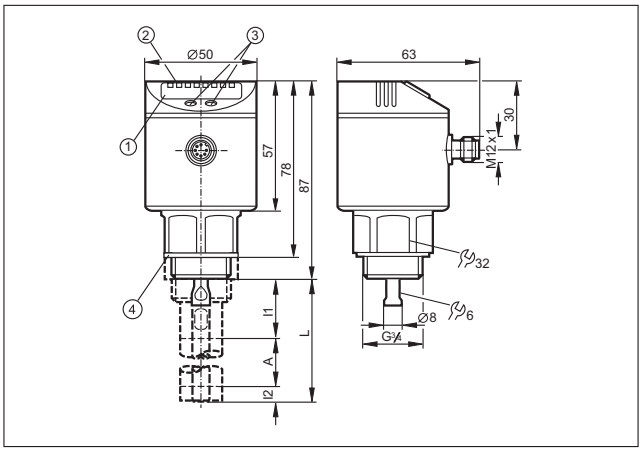
1: 4-digit alphanumeric display, 2: LEDs (display unit / switching status), 3: Programming buttons, 4: sealing

6



1: 4-digit alphanumeric display, 2: LEDs (display unit / switching status), 3: Programming buttons

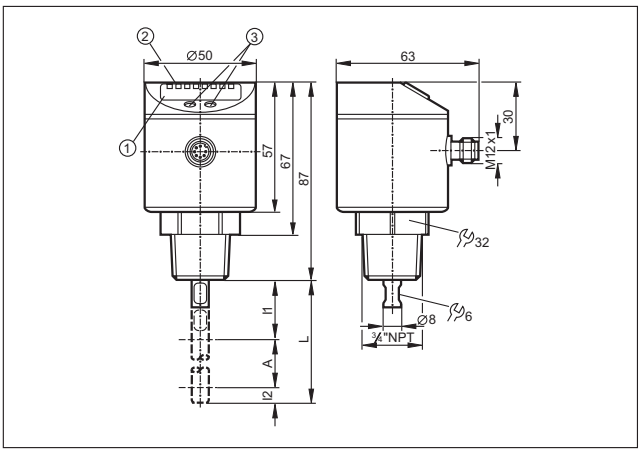
7



1: 4-digit alphanumeric display, 2: LEDs (display unit / switching status), 3: Programming buttons, 4: sealing

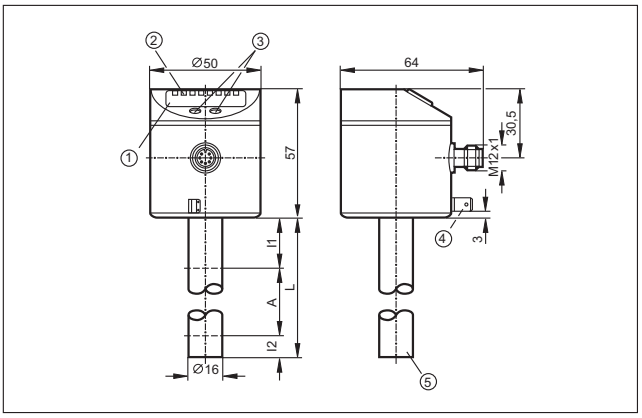
Scale drawings / drawing no. – CAD download: www.ifm.com

8



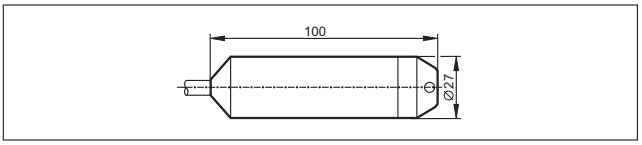
1: 4-digit alphanumeric display, 2: LEDs (display unit / switching status), 3: Programming buttons

9



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

10



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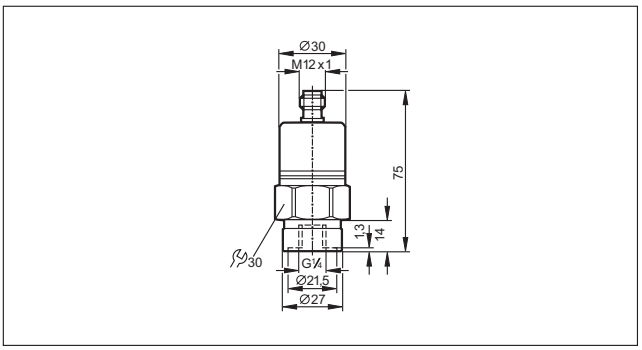

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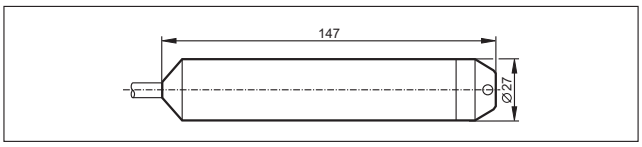
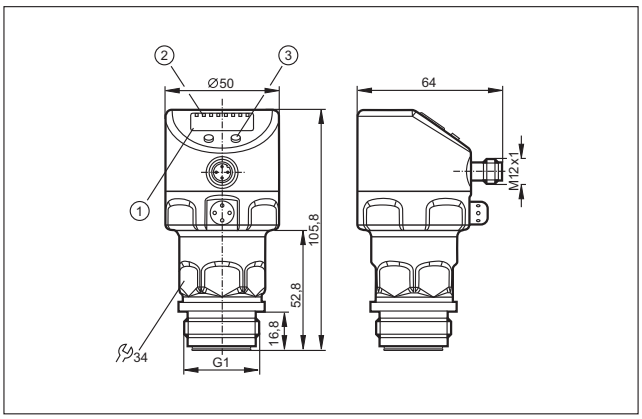
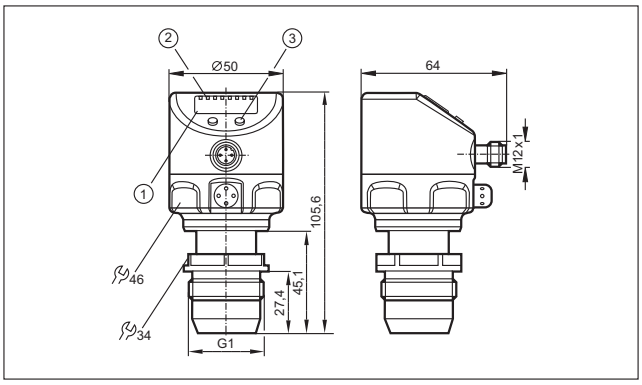


13



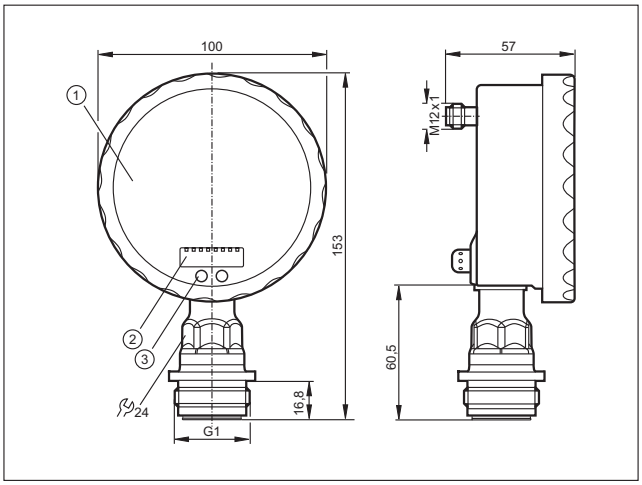
1: 4-digit alphanumeric display, 2: LEDs, 3: Programming button

14



1: 4-digit alphanumeric display, 2: LEDs, 3: Programming button

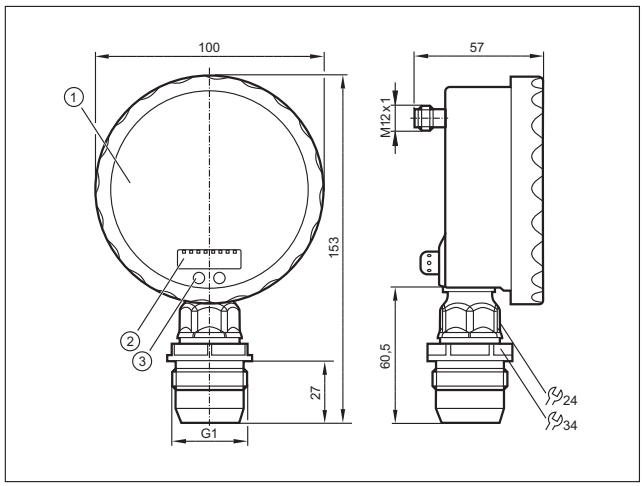
15



1: Analogue display, 2: 4-digit alphanumeric display, 3: Programming button

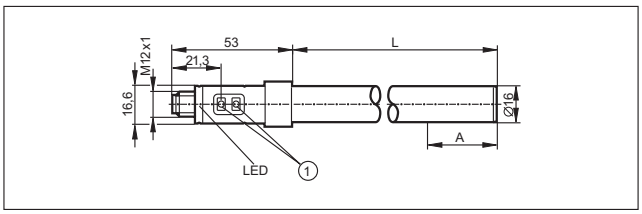
Scale drawings / drawing no. – CAD download: www.ifm.com

16



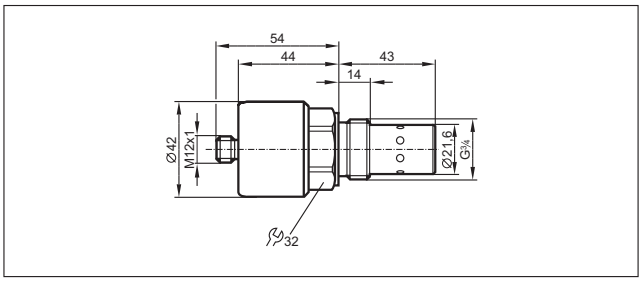
1: Analogue display, 2: 4-digit alphanumeric display, 3: Touch button (programming button)

17



1: Programming buttons

18



- **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 electronic 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.

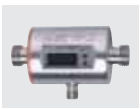
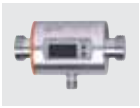
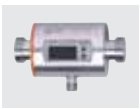
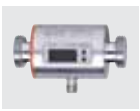
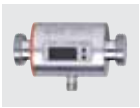
Analogue, binary and pulse outputs offer various possibilities to process the measured data. Due to the flexible programming by means of pushbuttons the flow sensors can be adapted to different conditions. The sensors are mounted via adapters.

Monitoring very small flow rates: Flow monitor with flow adapter.

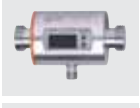
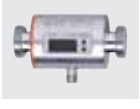
Optimised consumption of compressed air.

System overview	Page
Scale drawings / drawing no. – CAD download: www.ifm.com	408 - 415

Magnetic-inductive flow sensors with integrated temperature measurement (sealing material FKM)

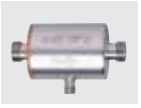
Type	Process connection	Measuring range [l/min]	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U_b [V]	Drawing no.	Order no.
Output OUT1: normally open / closed programmable or pulse OUT2: normally open / closed programmable or analogue (4...20 mA / 0...10 V, scaleable) · Wiring diagram no. 1 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	G½	0.25...25.00	-10...70	16	< 0.150	19...30	1	**SM6000**
Output 2 x analogue (4...20 mA scalable) · Wiring diagram no. 2 · Connector groups 9, 11, 107, 108, 135								
	G½	0.1...25.00	-10...70	16	< 0.150	20...30	1	**SM6004**
Output 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 9, 10, 11, 107, 108, 110, 135								
	G¾	0.5...50.0	-10...70	16	< 0.150	19...30	2	**SM7000**
Output 2 x analogue (4...20 mA scalable) · Wiring diagram no. 2 · Connector groups 9, 11, 107, 108, 135								
	G¾	0.2...50.0	-10...70	16	< 0.150	20...30	2	**SM7004**
Output 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 9, 10, 11, 107, 108, 110, 135								
	G1	0.7...100.0	-10...70	16	< 0.150	19...30	3	**SM8000**
Output 2 x analogue (4...20 mA scalable) · Wiring diagram no. 2 · Connector groups 9, 11, 107, 108, 135								
	G1	0.2...100.0	-10...70	16	< 0.150	20...30	3	**SM8004**

Magnetic-inductive flow sensors with integrated temperature measurement (sealing material EPDM)

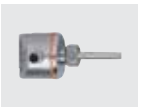
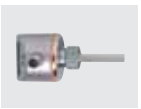
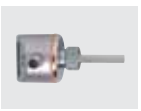
Type	Process connection	Measuring range [l/min]	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U_b [V]	Drawing no.	Order no.
Output OUT1: normally open / closed programmable or pulse OUT2: normally open / closed programmable or analogue (4...20 mA / 0...10 V, scaleable) · Wiring diagram no. 1 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	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**

You can find wiring diagrams and scale drawings from page 407

Magnetic-inductive flow sensors (sealing material FKM)

Type	Process connection	Measuring range [l/min]	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U_b [V]	Draw-ing no.	Order no.
M12 connector · Output function 4...20 mA analogue · DC · Wiring diagram no. 3 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	G½	0...25	-10...70	16	< 0.150	19...30	4	**SM6050**
	G¾	0...50	-10...70	16	< 0.150	19...30	5	**SM7050**
	G1	0...100	-10...70	16	< 0.150	19...30	6	**SM8050**

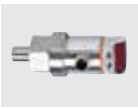
Compact housings for adapters for flow monitoring

Type	Setting range liquids / gases [cm/s]	Greatest sensitivity [cm/s]	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U_b [V]	Draw-ing no.	Order no.
M12 connector · Wiring diagram no. 4 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	3...300 / 200...3000	3...100 / 200...800	-25...80	30	1...10	19...36	7	**SI5000**
M12 connector · Wiring diagram no. 5 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	3...300 / 200...3000	3...100 / 200...800	-25...80	300	1...10	19...36	8	**SI5002**
1/2" UNF-Connector · Wiring diagram no. 6 · Connector group 27								
	3...300 / 200...3000	3...100 / 200...800	-25...80	300	1...10	85...265	9	**SI5006***
M12 connector · Wiring diagram no. 3 · Connector groups 9, 11, 107, 108, 135								
	3...300 / -	3...100	-25...80 / -	300	1...10	19...36	8	**SI5004**
M12 connector · Wiring diagram no. 7 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	3...300 / 200...3000	3...100 / 200...800	-25...80	300	1...2 / 1...10	19...36	8	**SI5010**

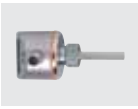
*** Note for AC and AC/DC units**

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

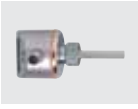
Compact housings can be configured for T-pieces for flow monitoring

Type	Setting range liquids / gases [cm/s]	Greatest sensitivity [cm/s]	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U_b [V]	Drawing no.	Order no.
M12 connector · Wiring diagram no. 18 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	0.1...12.0 (NW15) 0.2...24.0 (NW19) 0.4...48.0 (NW24)	–	0...80	30	5	20...28	10	**SA3010**

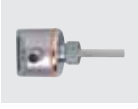
Compact housings for adapters for flow monitoring, Hastelloy sensor tip

Type	Setting range liquids / gases [cm/s]	Greatest sensitivity [cm/s]	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U_b [V]	Drawing no.	Order no.
M12 connector · Wiring diagram no. 7 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	3...300 / 200...3000	3...100 / 200...800	-25...80	300	1...2 / 1...10	19...36	8	**SI0553**

Compact housings for adapters for flow monitoring, titanium sensor tip

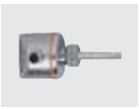
Type	Setting range liquids / gases [cm/s]	Greatest sensitivity [cm/s]	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U_b [V]	Drawing no.	Order no.
M12 connector · Wiring diagram no. 7 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	3...300 / 200...3000	3...100 / 200...800	-25...80	300	1...2 / 1...10	19...36	8	**SI5100**

Compact designs for adapter with flow and temperature monitoring

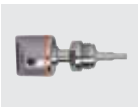
Type	Setting range liquids / gases [cm/s]	Greatest sensitivity [cm/s]	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U_b [V]	Drawing no.	Order no.
M12 connector · Wiring diagram no. 5 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	3...300 / 200...3000	3...100 / 200...800	-25...80	300	1...10	19...36	8	**SI5007**

You can find wiring diagrams and scale drawings from page 407

Compact housings for adapters with ATEX approval group II, category 3D / 3G

Type	Setting range liquids / gases [cm/s]	Greatest sensitivity [cm/s]	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U_b [V]	Drawing no.	Order no.
M12 connector · Wiring diagram no. 4 · Connector groups 132, 134								
	3...300 / 200...3000	3...100 / 200...800	-25...80	30	1...10	19...36	7	**SI500A**

Compact housings for adapters for hygienic and wet areas

Type	Setting range liquids / gases [cm/s]	Greatest sensitivity [cm/s]	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	Probe length [mm]	Drawing no.	Order no.
M12 connector · Wiring diagram no. 4 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	3...300 / 200...3000	3...100 / 200...800	-25...95	30	1...10	20	11	**SI6600**
	3...300 / 200...3000	3...100 / 200...800	-25...95	30	1...10	38	12	**SI6700**
	3...300 / 200...3000	3...100 / 200...800	-25...95	30	1...10	55	13	**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]	Drawing no.	Order no.
M12 connector · Output function ⎍ · DC PNP · Wiring diagram no. 8 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	G½	0.3...25	0...60	200	< 0.01	24	14	**SBU323**
	G½	0.3...50	0...60	200	< 0.01	24	14	**SBU324**
	G½	0.3...75	0...60	200	< 0.01	24	14	**SBU325**
M12 connector · Output function analogue · DC · Wiring diagram no. 9 · Connector groups 9, 11, 107, 108, 135								
	G½	0.3...25	0...60	200	< 0.01	24	15	**SBU623**
	G½	0.3...50	0...60	200	< 0.01	24	15	**SBU624**

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]	Draw-ing no.	Order no.
M12 connector · Output function analogue · DC · Wiring diagram no. 9 · Connector groups 9, 11, 107, 108, 135								
	G½	0.3...75	0...60	200	< 0.01	24	15	**SBU625**

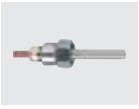
Mechatronic flow sensors for liquids

Type	Process connection	Measuring range [l/min]	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U_b [V]	Draw-ing no.	Order no.
M12 connector · Output function ⎍ · DC PNP · Wiring diagram no. 8 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	Rp ¾	1...15	0...85	25	< 0.01	24	16	**SBY332**
	Rp ½	2...20	0...85	25	< 0.01	24	17	**SBY323**
	Rp ¾	1...25	0...85	25	< 0.01	24	16	**SBY333**
	Rp ¾	2...50	0...85	25	< 0.01	24	16	**SBY334**
	Rp 1	5...100	0...85	25	< 0.01	24	18	**SBY346**
	Rp 1½	20...200	0...85	25	< 0.01	24	19	**SBY357**

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.
M12 connector · Wiring diagram no. 10 · Connector groups 13, 14, 113, 115, 137								
	3...300 / 200...3000	3...60 / 200...800	-25...80	1...10	30	30	20	**SF6200**
	3...300 / 200...3000	3...60 / 200...800	-25...80	1...10	30	30	21	**SF6201**

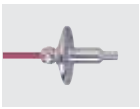
You can find wiring diagrams and scale drawings from page 407

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. 10 · Connector groups 113, 115, 137								
	3...300 / 200...3000	3...60 / 200...800	-25...80	1...10	300	300	22	**SF5200**
	3...300 / 200...3000	3...60 / 200...800	-25...80	1...10	300	30	23	**SF5201**
Cable 6 m · Wiring diagram no. 11								
	3...300 / 200...3000	3...60 / 200...800	-25...80	1...10	300	300	24	**SF5350**
	3...300 / 200...3000	3...60 / 200...800	0...120 / 0...100	1...10	300	300	24	**SF5300**

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.
Cable 6 m · Wiring diagram no. 11								
	3...300 / 200...3000	3...60 / 200...800	0...120 / 0...100	1...10	300	300	24	**SF5800**
M12 connector · Wiring diagram no. 10 · Connector groups 113, 115, 137								
	3...300 / 200...3000	3...60 / 200...800	-25...80	1...10	300	300	22	**SF5700**
	3...300 / 200...3000	3...60 / 200...800	-25...80	1...10	300	300	25	**SF5701**
	3...300 / 200...3000	3...60 / 200...800	-25...80	1...10	300	300	26	**SF5702**
	3...300 / 200...3000	3...60 / 200...800	-25...80	1...10	300	300	27	**SF5703**
	3...300 / 200...3000	3...60 / 200...800	-25...80	1...10	300	300	28	**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]	Drawing no.	Order no.
Cable 6 m · Wiring diagram no. 11								
	3...300 / 200...2000	3...60 / 200...800	0...120 / 0...100	1...10	15	30	–	**SF0516**

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.
M12 connector · Wiring diagram no. 10 · Connector groups 13, 14, 113, 115, 137								
	3...60 / -	3...40 / -	5...70 / -	2...20	7	30	29	**SF2405**
	3...60 / -	3...40 / -	5...70 / -	2...20	7	30	30	**SF3405**
Cable 6 m · Wiring diagram no. 11								
	3...60 / -	3...40 / -	5...70 / -	2...20	7	30	31	**SF2410**
	3...60 / -	3...40 / -	5...70 / -	2...20	7	30	32	**SF3410**
Cable 16 m · Wiring diagram no. 11								
	3...60 / 200...1500	3...40 / 200...800	5...70 / -10...80	2...20	7	30	31	**SF0540**

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. 19									
	90...240 AC / -5 /+10	–	4	10...80	relay energised	relay energised	relay de-energised	33	**SN0150***

You can find wiring diagrams and scale drawings from page 407

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.
Combicon connector · Wiring diagram no. 20									
	90...240 AC / -5 /+10	–	4	10...80	relay energised	–	relay de-energised	33	**SN0151***
Combicon connector · Wiring diagram no. 21									
	24 DC / +10 / -20	90	–	10...80	relay energised	relay energised	relay de-energised	33	**SR0150***
Combicon connector · Wiring diagram no. 22									
	24 DC / +10 / -10	90	–	10...80	relay energised	–	relay de-energised	33	**SR0153***
M12 connector · Wiring diagram no. 4 · Connector groups 9, 10, 11, 107, 108, 110, 135									
	19...36 DC	70	–	10	no / nc programmable	–	–	34	**SR5900**
1/2" UNF-Connector · Wiring diagram no. 6 · Connector group 27									
	85...265 AC / -5 / +10	–	< 3.5	10	no / nc programmable	–	–	35	**SR5906***

*** 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.

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]	Draw-ing no.	Order no.
Cable 6 m · Wiring diagram no. 12								
	3...300 / 200...2000	3...60 / 200...800	-20...60	1...10	15	300	36	**SF111A**
	3...300 / 200...2000	3...60 / 200...800	-20...60	1...10	15	300	37	**SF211A**
	3...300 / 200...2000	3...60 / 200...800	-20...60	1...10	15	300	38	**SF311A**
	3...300 / 200...2000	3...60 / 200...800	-20...70	1...10	15	30	39	**SF121A**

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. 12								
	3...300 / 200...2000	3...60 / 200...800	-20...70	1...10	15	30	40	**SF221A**
	3...300 / 200...2000	3...60 / 200...800	-20...70	1...10	15	30	41	**SF321A**
M12 connector · Wiring diagram no. 13 · Connector group 133								
	3...300 / 200...2000	3...60 / 200...800	-20...70	1...10	15	30	42	**SF120A**
	3...300 / 200...2000	3...60 / 200...800	-20...70	1...10	15	30	43	**SF220A**
	3...300 / 200...2000	3...60 / 200...800	-20...70	1...10	15	30	44	**SF320A**
	3...300 / 200...3000	3...60 / 200...800	-20...70	1...10	15	30	20	**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. 12								
	3...60 / -	3...40 / -	5...70 / -	2...20	7	30	31	**SF223A**
	3...60 / -	3...40 / -	5...70 / -	2...20	7	30	32	**SF323A**

You can find wiring diagrams and scale drawings from page 407

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	45	**SN2301***
	110 AC / ± 10	–	5	30	relay energised	–	relay de-energised	45	**SN2302***
	24 DC / ± 10	125	–	30	relay energised	–	relay de-energised	45	**SR2301***

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

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

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.
Cable 2 m · Wiring diagram no. 14							
	100...1000	100...400	-10...50	3...60	80...250 AC/DC	46	**SL0101***
Cable 2 m · Wiring diagram no. 15							
	100...1000	100...400	-10...50	3...60	24 AC	46	**SL0201***
Cable 2 m · Wiring diagram no. 16							
	100...1000	100...400	-10...50	3...60	24 DC ± 25 %	46	**SL5101**

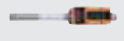
*** Note for AC and AC/DC units**

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 [Nm³/h]	Accuracy within measuring range	Pressure rating [bar]	Response time [s]	U_b [V]	Drawing no.	Order no.
Output OUT1: normally open / closed programmable or pulse OUT2: normally open / closed programmable or analogue (4...20 mA scaleable) · Wiring diagram no. 23 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	G¼ (DN8)	0.14...15.00	A): ± (3% MW + 0.3% MEW) / B): ± (6% MW + 0.6% MEW) *	16	< 0.1	19...30	47	**SD5000**
	R½ (DN15)	0.7...75.0	A): ± (3% MW + 0.3% MEW) / B): ± (6% MW + 0.6% MEW) *	16	< 0.1	19...30	48	**SD6000**
	G½ (DN15)	0.7...75.0	± (15% MW + 1.5% MEW) *	16	< 0.1	19...30	49	**SD6050**
	R1 (DN25)	2.0...225.0	A): ± (3% MW + 0.3% MEW) / B): ± (6% MW + 0.6% MEW) *	16	< 0.1	19...30	50	**SD8000**
	R1½ (DN40)	3.5...410.0	A): ± (3% MW + 0.3% MEW) / B): ± (6% MW + 0.6% MEW) *	16	< 0.1	19...30	51	**SD9000**
	R2 (DN50)	6...700	A): ± (3% MW + 0.3% MEW) / B): ± (6% MW + 0.6% MEW) *	16	< 0.1	19...30	52	**SD2000**

Compressed air meter for special gases

Type	Process connection	Setting range [Nm³/h]	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U_b [V]	Drawing no.	Order no.
Output OUT1: normally open / closed programmable or pulse OUT2: normally open / closed programmable or analogue (4...20 mA scaleable) · Wiring diagram no. 23 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	G¼ (DN8)	Ar: 0.08...24.54 / CO2: 0.047 (0.04)...14.38 / N2: 0.05 (0.06)...14.94	0...60	16	< 0.1	19...30	47	**SD5100**
	R½ (DN15)	Ar: 0.39 (0.4)...118.2 / CO2: 0.24 (0.2)...71.7 / N2: 0.24 (0.2)...73.0	0...60	16	< 0.1	19...30	53	**SD6100**

Inline sensor for small dosing quantities of water and aqueous solutions

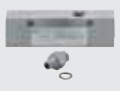
Type	Process connection	Measuring range [ml/min]	Display range [ml/min]	Pressure rating [bar]	Medium temp. [°C]	Drawing no.	Order no.
M12 connector · Wiring diagram no. 23 · Connector groups 9, 10, 11, 107, 108, 110, 135							
	G1/8	1...200	0...240	10	0...60	54	**SQ0500**

You can find wiring diagrams and scale drawings from page 407

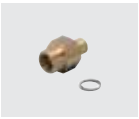
Ultrasonic flow rate sensors for liquids (water, glycol solutions, oils)

Type	Process connection	Measuring range [l/min]	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U_b [V]	Draw-ing no.	Order no.
Output 2 x normally open / closed programmable · Wiring diagram no. 17 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	G¾	0.1...50.0	-10...80	16	< 0.250	19...30	55	**SU7200**
	G1	0.2...100.0	-10...80	16	< 0.250	19...30	56	**SU8200**
Output 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 9, 10, 11, 107, 108, 110, 135								
	G¾	0.1...50.0	-10...80	16	< 0.250	19...30	55	**SU7000**
	G1	0.2...100.0	-10...80	16	< 0.250	19...30	56	**SU8000**
	G1¼	0.4...200.0	-10...80	16	< 0.250	19...30	57	**SU9000**
Output 2 x analogue (4...20 mA scalable) · Wiring diagram no. 2 · Connector groups 9, 11, 107, 108, 135								
	G1¼	0.0...200.0	-10...80	16	< 0.250	19...30	57	**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 flow rate · 0.2...2 l/min (SI1xxx) 0.2...3 l/min (SI5xxx) · Housing materials: stainless steel 316L / 1.4404	**E40161**

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

Type	Description	Order no.
	Adapter block · D15 / G ½ · for flow sensors type SID, SF5 · Optimised for flow rate · 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: FPM 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**
	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 - ¼" 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 ¼ · 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 ¼ · Insertion depth of the probe of SID, SFD, TN: · 13.5 mm · Housing materials: brass	**E40098**
	Adapter · M18 x 1.5 - G ½ · 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 ½ · 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**
	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**

You can find wiring diagrams and scale drawings from page 407

Type	Description	Order no.
	Combicon connector · with cage clamps 4 poles · Housing materials: current carrying parts: copper alloy tin-plated · Pack quantity: 5	E40171
	Protective cover · for flow sensors type SI5xxx, SI6xxx, SR59xx · Housing materials: PP uncoloured	E40203

Flange adapters for flow sensors

Type	Description	Order no.
	Aseptoflex Vario 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
	Aseptoflex Vario 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 · Clamp · 1-1.5" · ISO 2852 · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	E33701
	Aseptoflex Vario adapter · Clamp · 2" · ISO 2852 · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	E33702
	Aseptoflex Vario adapter · 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
	Aseptoflex Vario adapter · 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
	Aseptoflex Vario adapter · pipe fitting · DN50 (2") · DIN 11851 · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	E33213
	Aseptoflex Vario adapter · 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
	Aseptoflex Vario adapter · 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
	Aseptoflex Vario adapter · pipe fitting · DN50 (2") · DIN 11851 · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	E33713
	Aseptoflex Vario 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

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

Type	Description	Order no.
	Aseptoflex Vario adapter · 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	**E33222**
	Aseptoflex Vario 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**
	Aseptoflex Vario adapter · Varivent type N · DN40 (1.5"), D = 68 · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	**E33722**
	Aseptoflex Vario adapter · pipe fitting · DN40 (1.5") · SMS · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	**E33731**
	Aseptoflex Vario adapter · pipe fitting · DN50 (2") · SMS · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	**E33732**
	Aseptoflex Vario 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 volumetric flow sensors

Type	Description	Order no.
	Adapter · G ½ - R ½ · R ½ · for flow monitor type SM6 · flat seal · Housing materials: stainless steel 316Ti / 1.4571 · Pack quantity: 2	**E40199**
	Adapter · G ½ - G ¾ · G ½ · for flow monitor type SM6 · flat seal · Housing materials: high-grade stainless steel	**E40189**
	Adapter · G ¾ - R ½ · for flow monitor type SM7 / SU7 · Housing materials: high-grade stainless steel · Pack quantity: 2	**E40178**

You can find wiring diagrams and scale drawings from page 407

Type	Description	Order no.
	Adapter · G 1 - R ½ · for flow monitor type SM8 / SU8 · Housing materials: high-grade stainless steel · Pack quantity: 2	**E40179**
	Adapter · G 1 - R ¾ · for flow monitor type SM8 / SU8 · Housing materials: high-grade stainless steel · Pack quantity: 2	**E40180**
	Adapter · G ¾ I - R½ · for flow monitor type SM7 / SU7 · Housing materials: brass · Pack quantity: 2	**E40151**
	Adapter · G 1 - R¾ · for flow monitor type SM8 / SU8 · Housing materials: brass · Pack quantity: 2	**E40153**
	Adapter · G 1¼ - R 1 · for flow monitor type SU9 · Housing materials: high-grade stainless steel · Pack quantity: 2	**E40205**
	Adapter · G ½ - G ½ · for flow monitor type SM6 · Housing materials: stainless steel 316L / 1.4404 · Pack quantity: 2	**E40213**
	Adapter · G ¾ - G ½ · for flow monitor type SM7 / SU7 · Housing materials: stainless steel 316L / 1.4404 · Pack quantity: 2	**E40214**
	Adapter · G 1 - G ¾ · for flow monitor type SM8 / SU8 · Housing materials: stainless steel 316L / 1.4404 · Pack quantity: 2	**E40215**
	Adapter · G ¾ - G ¾ · for flow monitor type SM7 / SU7 · Housing materials: stainless steel 316L / 1.4404 · Pack quantity: 2	**E40216**
	Adapter · G 1 - G 1 · for flow monitor type SM8 / SU8 · Housing materials: stainless steel 316L / 1.4404 · Pack quantity: 2	**E40217**

Grounding clamps for magnetic-inductive volumetric flow sensors

Type	Description	Order no.
	Grounding clamp G½ · for flow monitor type SM6 · Housing materials: stainless steel	**E40196**
	Grounding clamp G ¾ · for flow monitor type SM7 · Housing materials: stainless steel	**E40197**
	Grounding clamp G 1 · for flow monitor type SM8 · Housing materials: stainless steel	**E40198**

Wiring diagrams

Core colours

BN	brown
BU	blue
BK	black
WH	white
GY	grey

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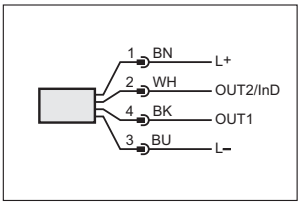

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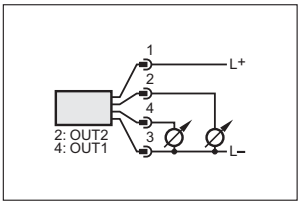

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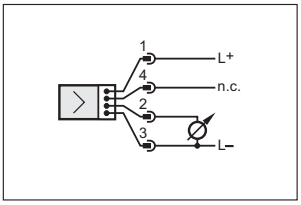

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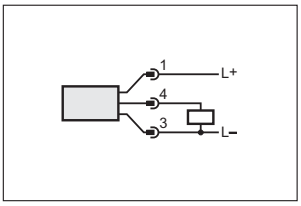

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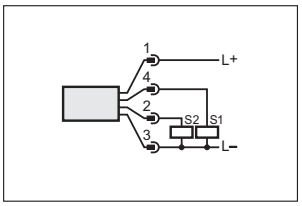

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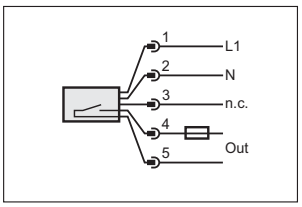

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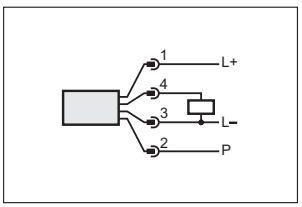

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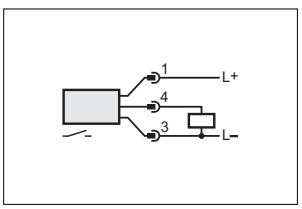

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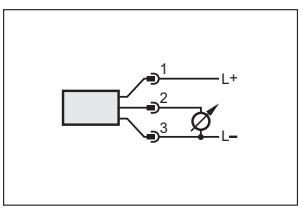

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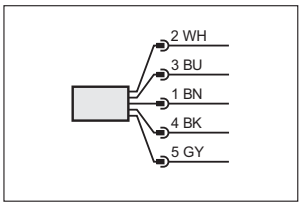

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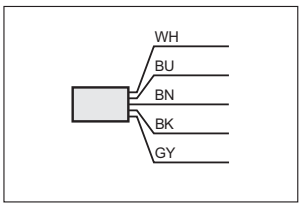

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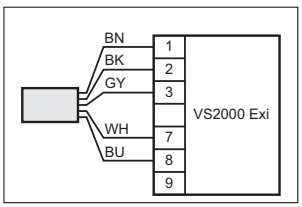

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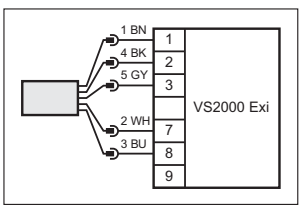

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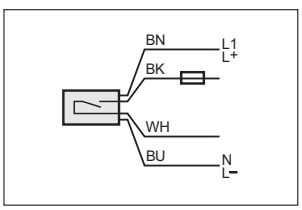

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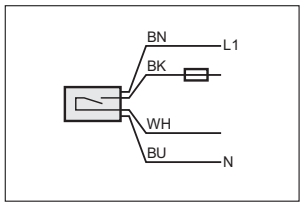

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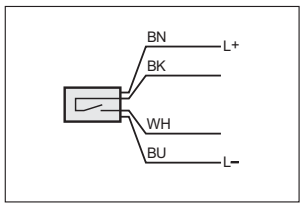

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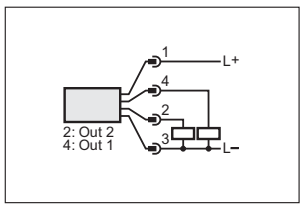

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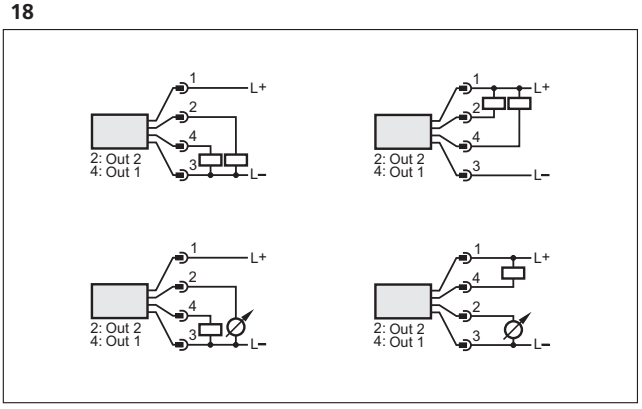

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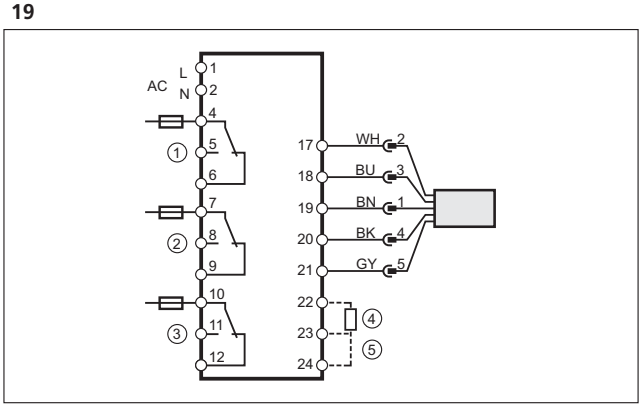

Wiring diagrams

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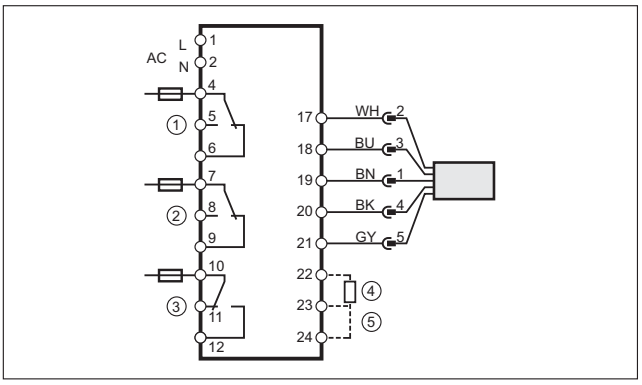

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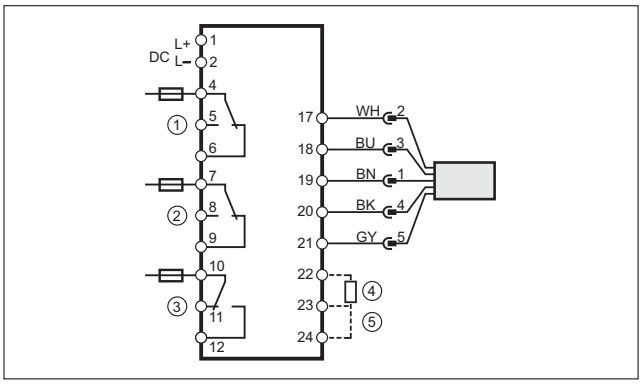

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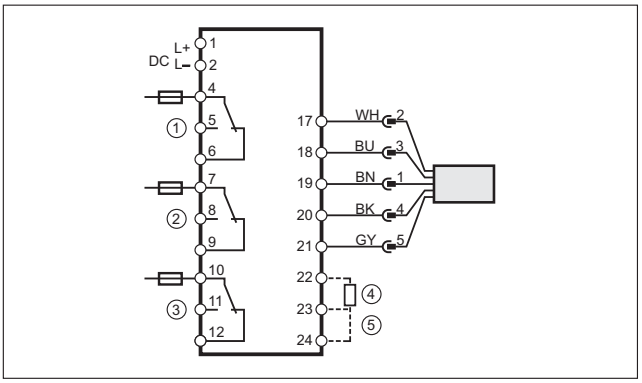

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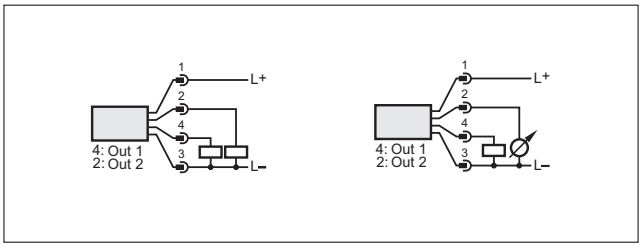

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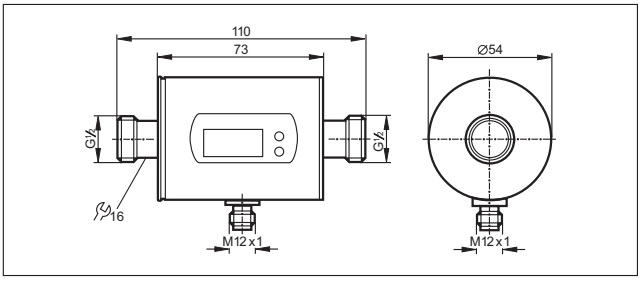

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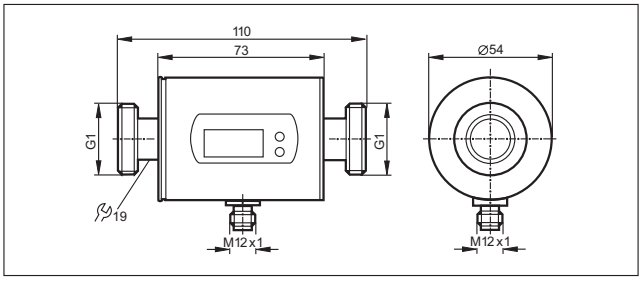

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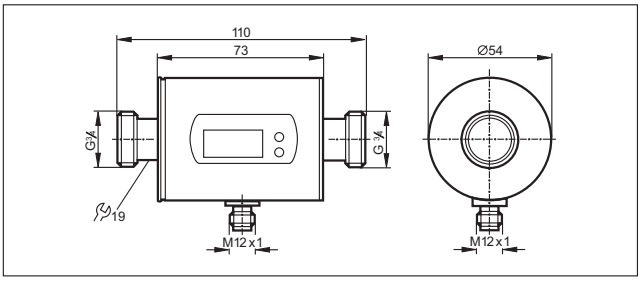

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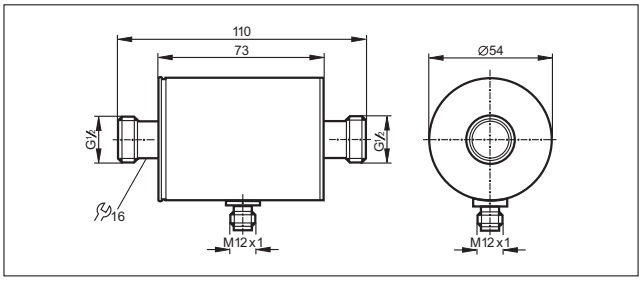

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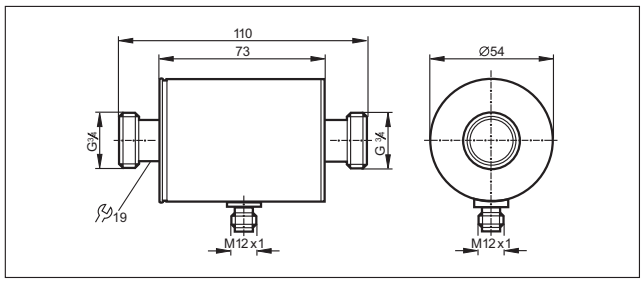

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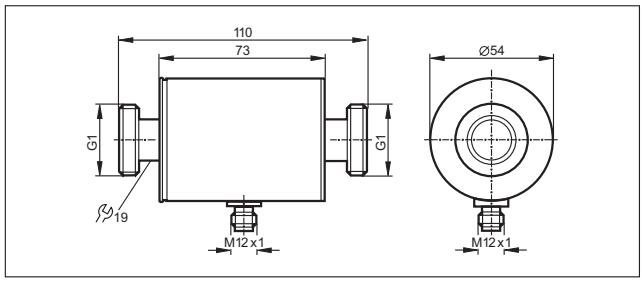

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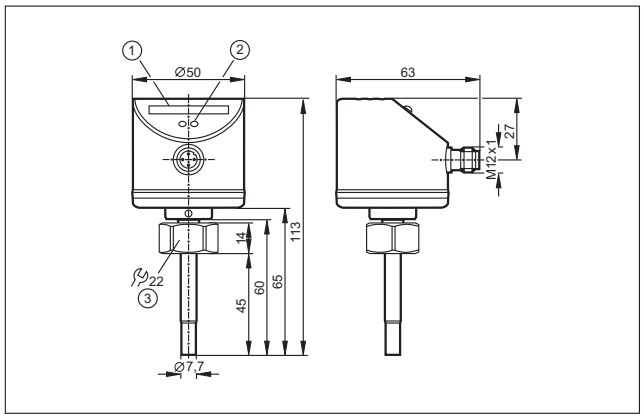

1: LED display, 2: setting pushbutton, 3: tightening torque 25 Nm

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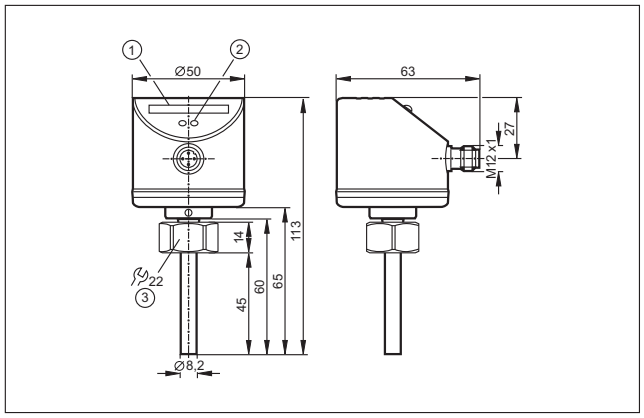

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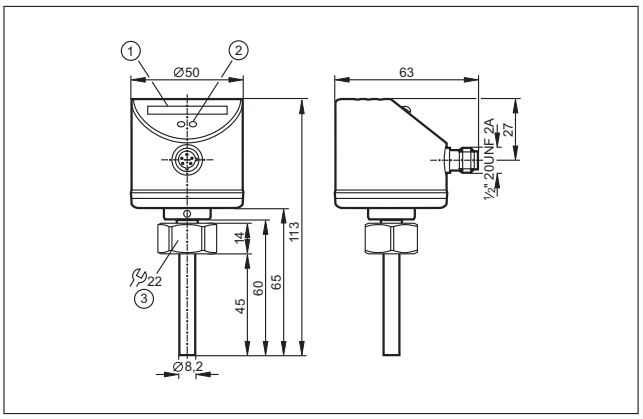

1: LED display, 2: setting pushbutton, 3: tightening torque 25 Nm

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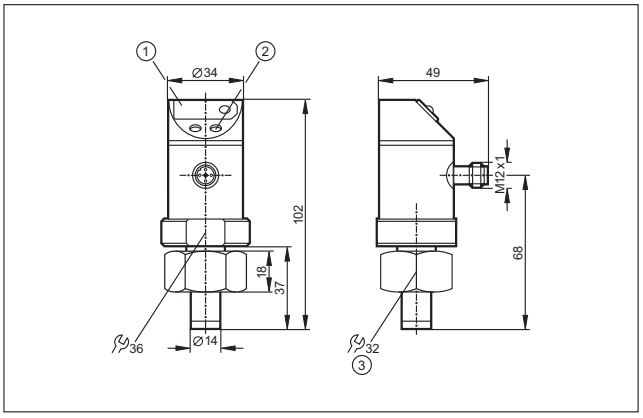

1: 7-segment LED display, 2: Programming buttons, 3: internal thread M26 x 1.5

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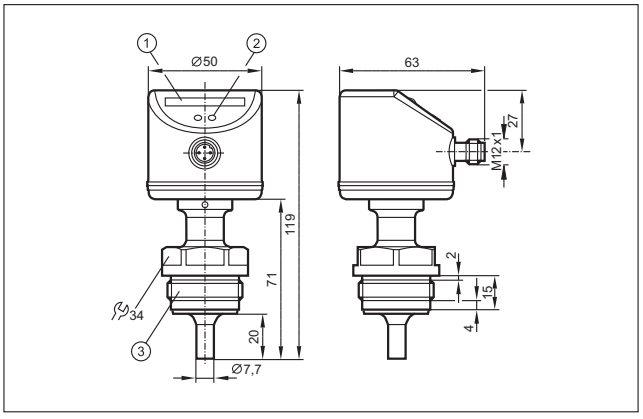

1: LED display, 2: setting pushbutton, 3: G1/Aseptoflex Vario thread

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

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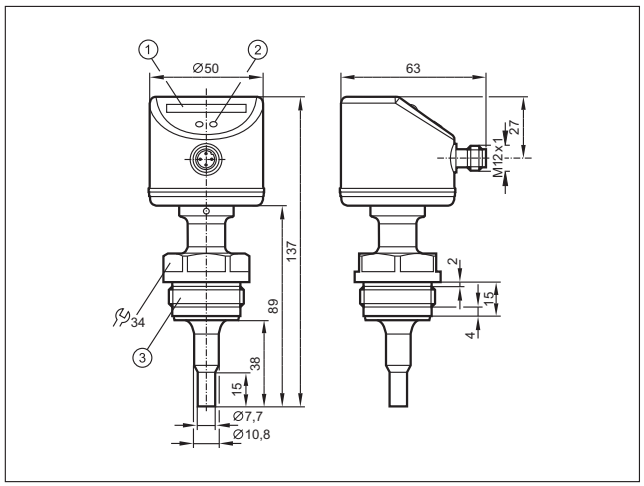

1: LED display, 2: setting pushbutton, 3: G1/Aseptoflex Vario thread

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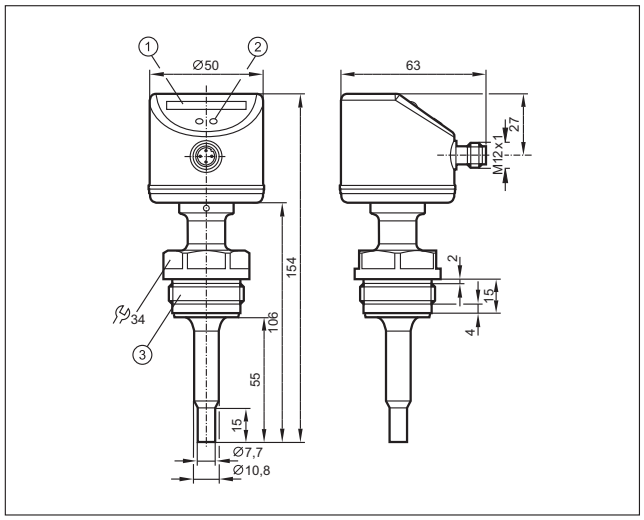

1: LED display, 2: setting pushbutton, 3: G1/Aseptoflex Vario thread

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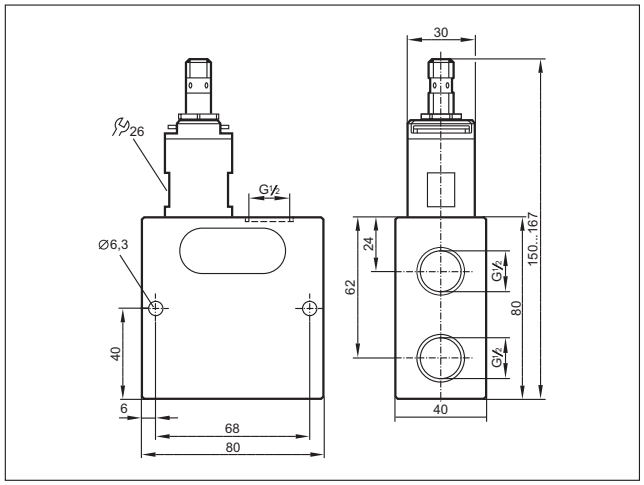

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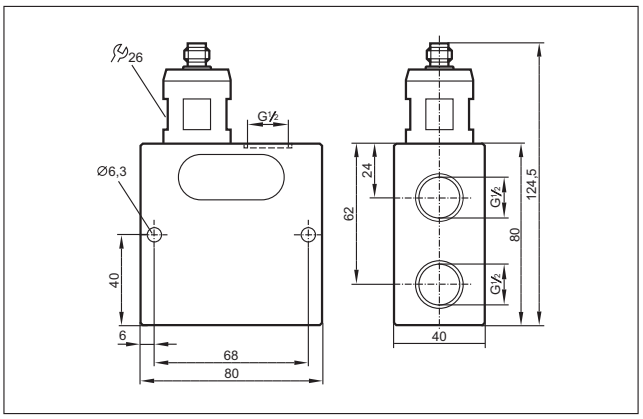

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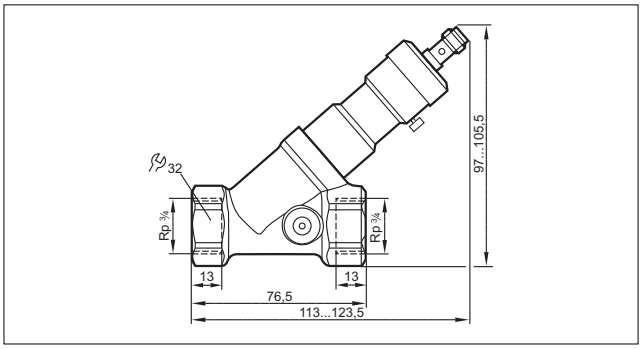

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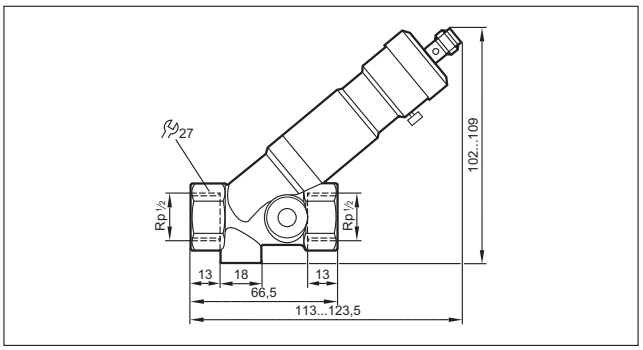

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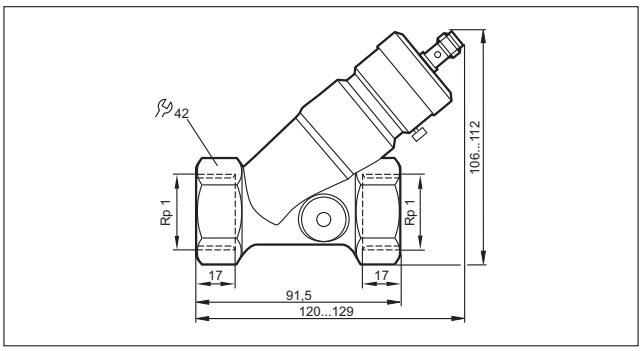

Scale drawings / drawing no. – CAD download: www.ifm.com

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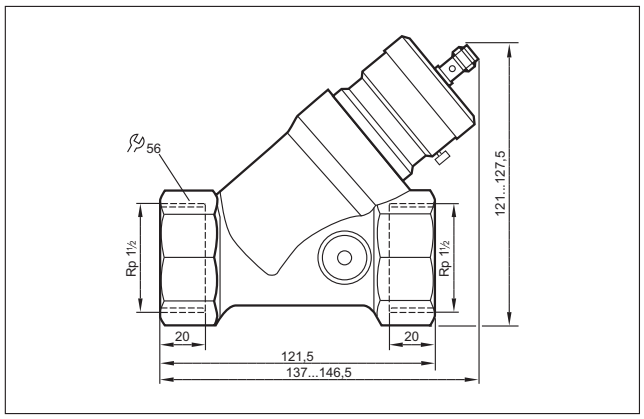

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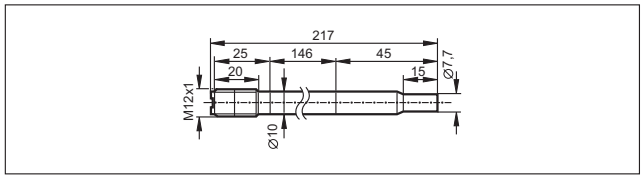

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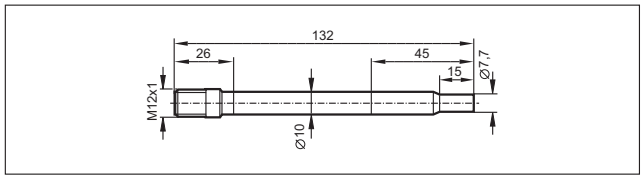

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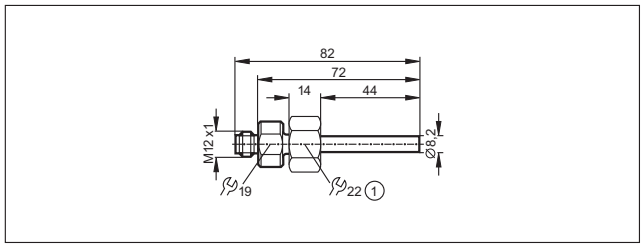
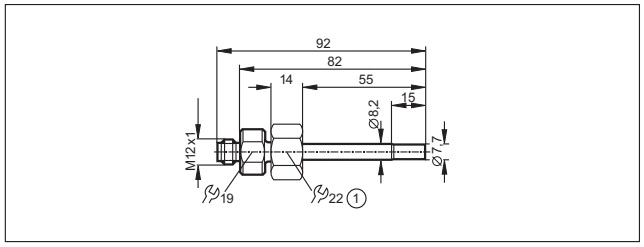


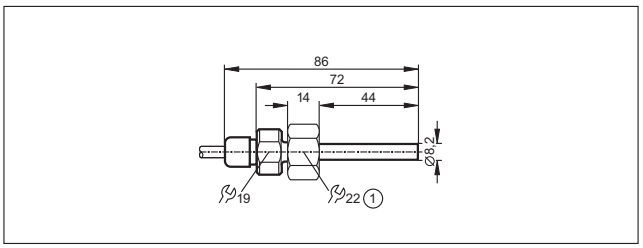
1: internal thread M18 x 1.5

23



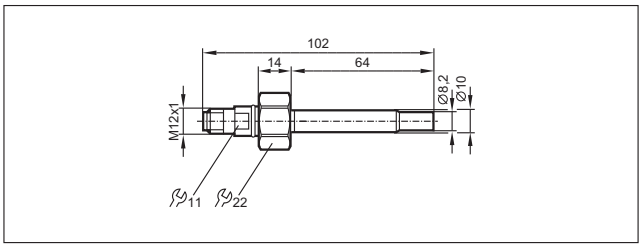
internal thread M18 x 1.5

24



1: internal thread M18 x 1.5

25



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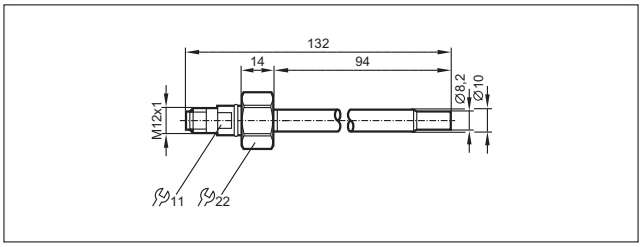

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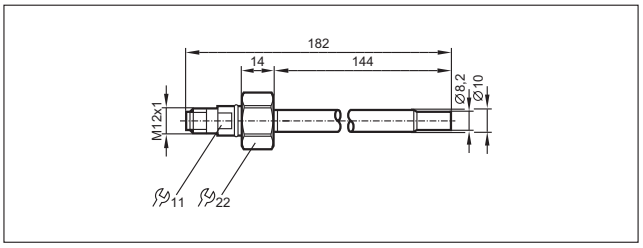

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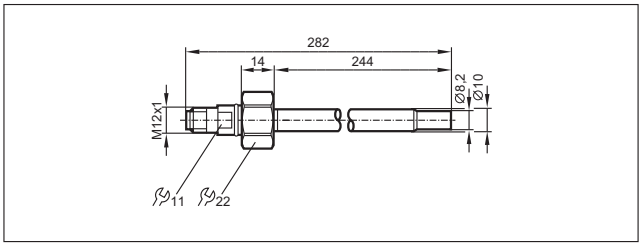

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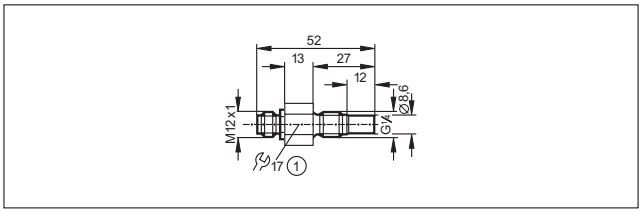

1: tightening torque max. 8 Nm

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

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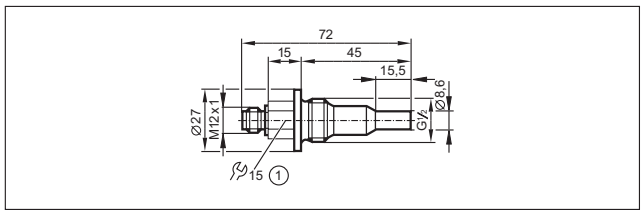
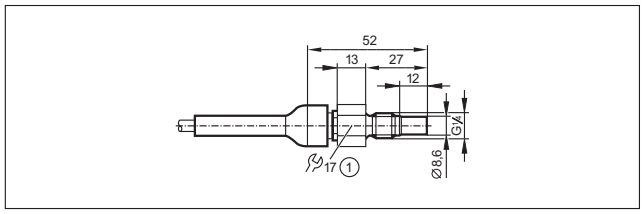


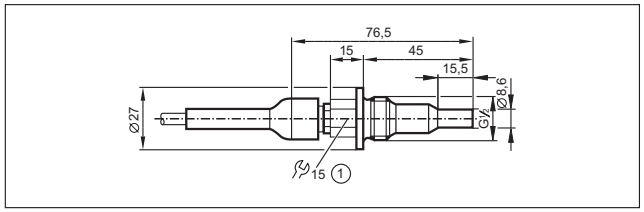
1: tightening torque max. 30 Nm

31



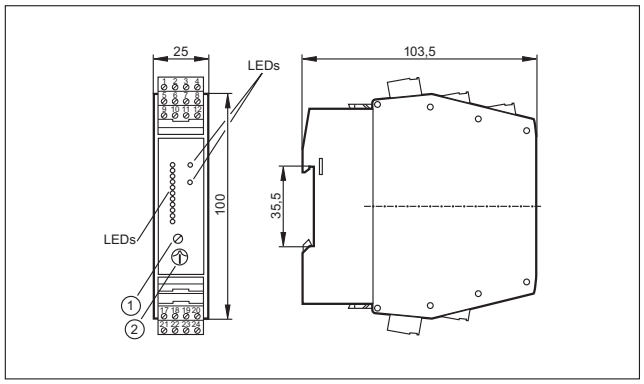
1: tightening torque max. 8 Nm

32



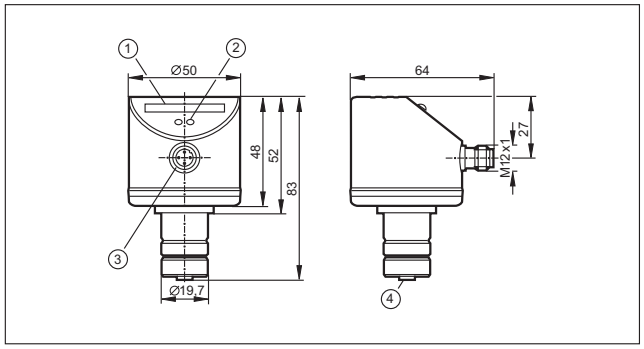
1: tightening torque max. 30 Nm

33



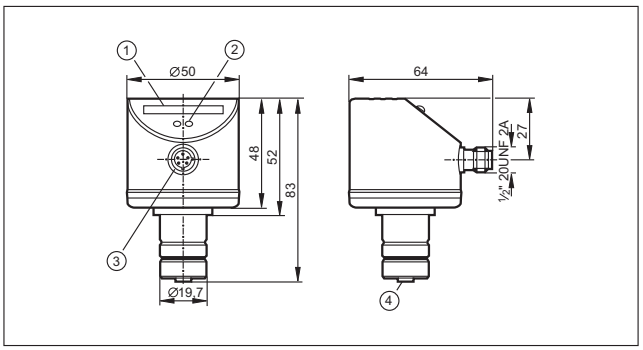
1: Potentiometer (switch point flow), 2: Potentiometer (switch point temperature)

34



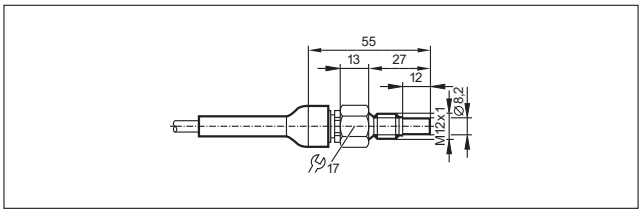
1: LED display, 2: setting pushbutton, 3: connection for voltage supply and output signals, 4: connection for flow sensor

35



1: LED display, 2: setting pushbutton, 3: connection for voltage supply and output signals, 4: connection for flow sensor

36



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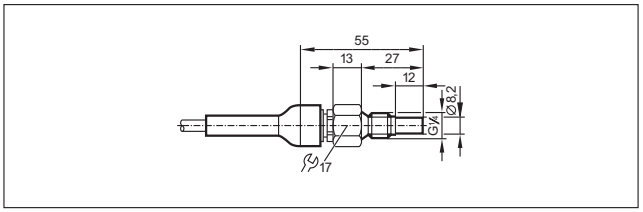

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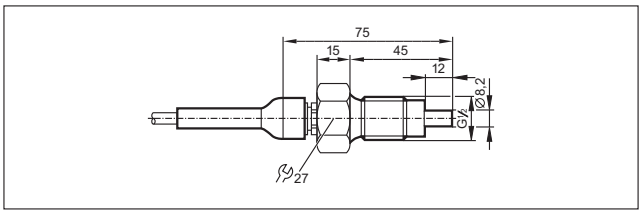

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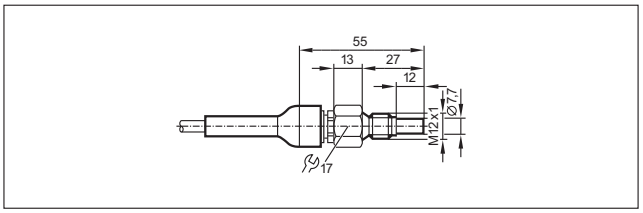

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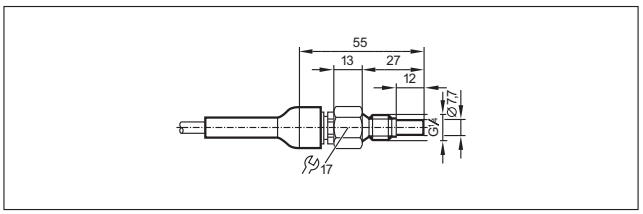

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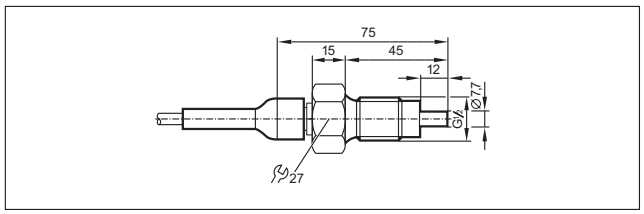

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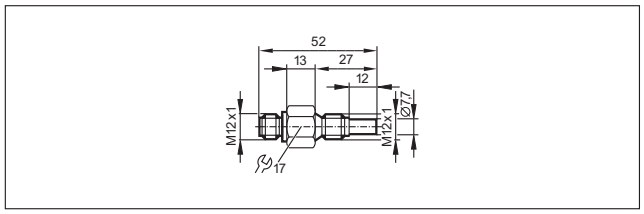

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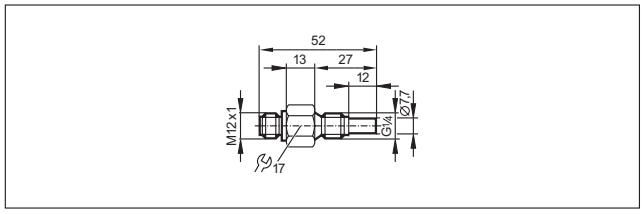

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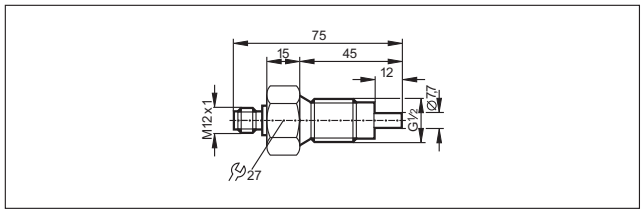

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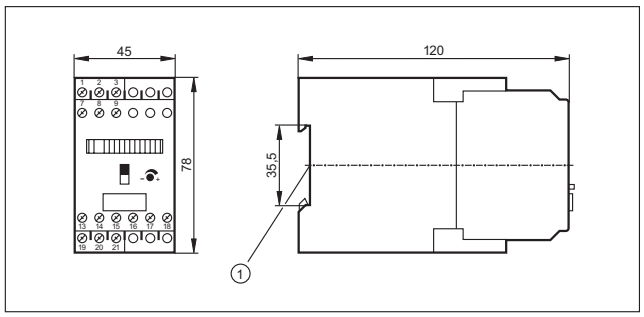
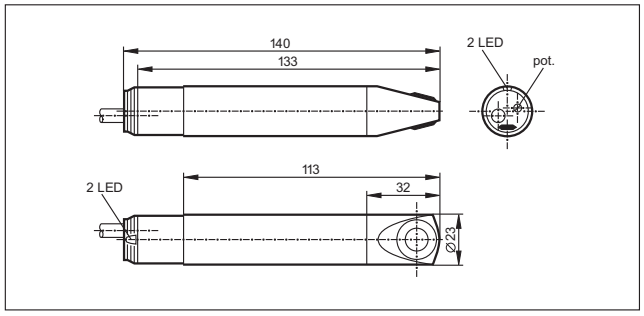


1: mounting on DIN rail

46



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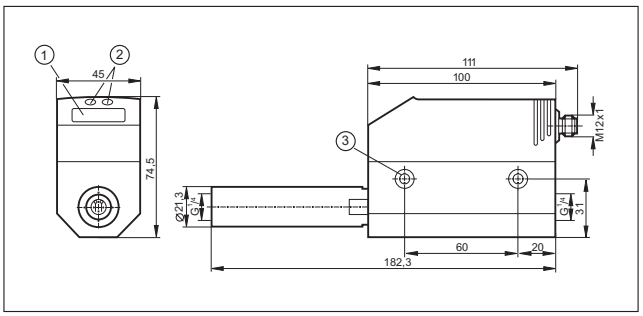
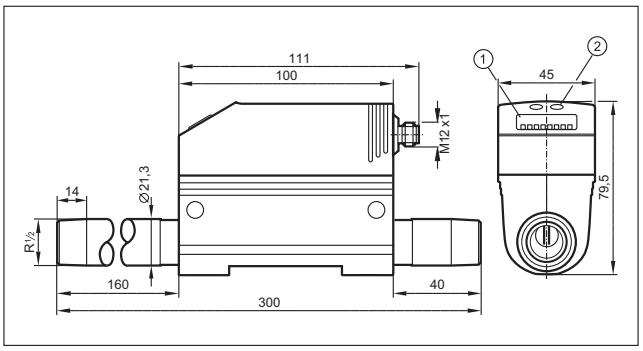


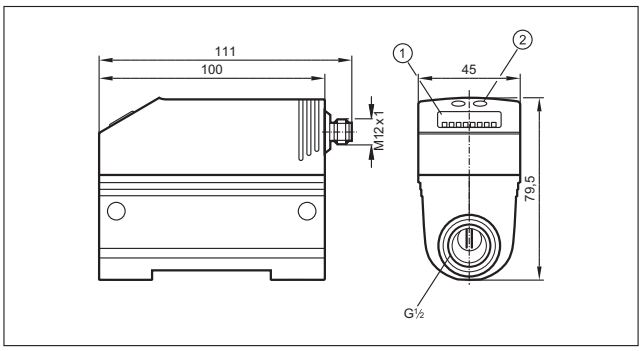
1: 4-digit alphanumeric display, 2: Programming buttons, 3: hole for M5 fixing screw

48



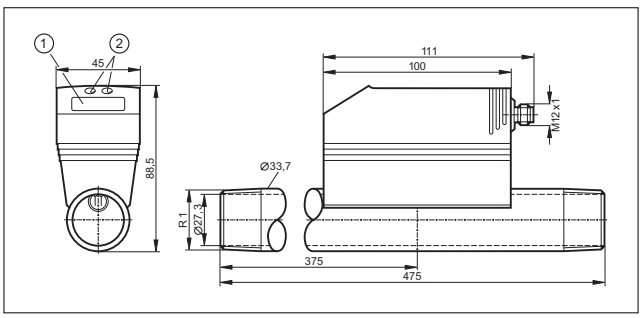
1: 4-digit alphanumeric display, 2: Programming buttons

49



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

50



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

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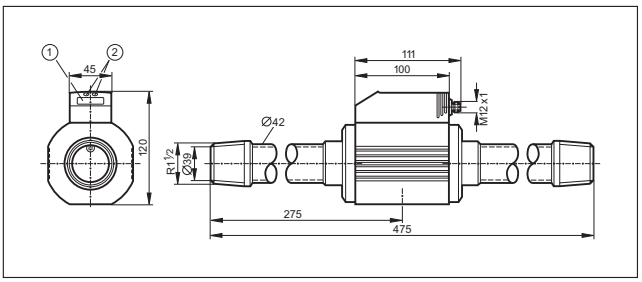
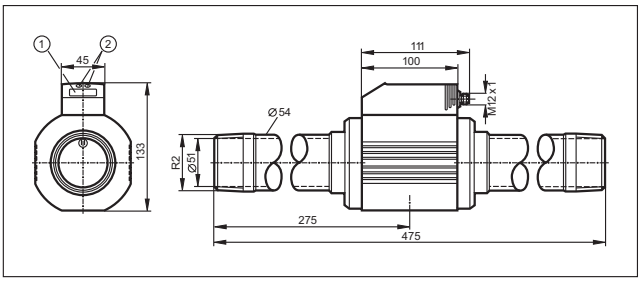


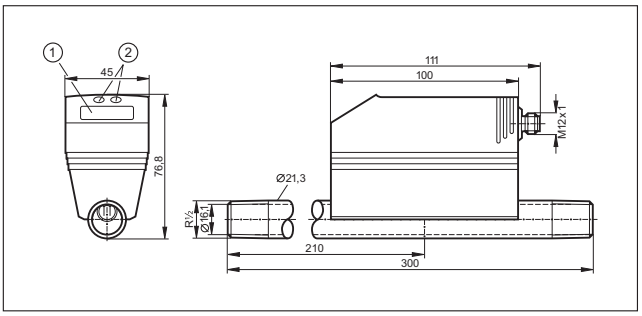
1: 4-digit alphanumeric display, 2: Programming buttons

52



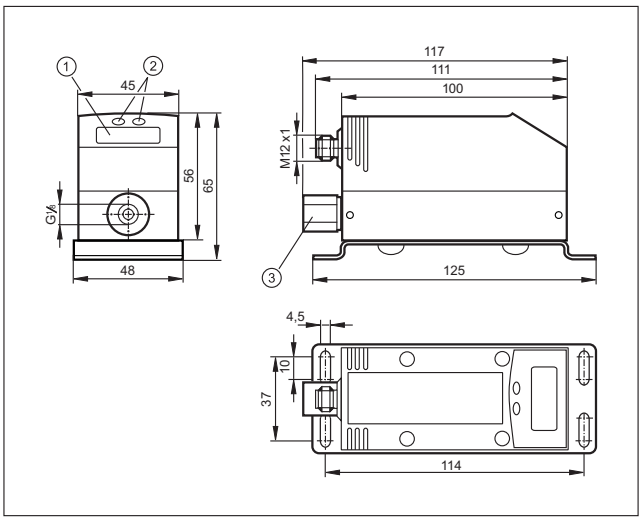
1: 4-digit alphanumeric display, 2: Programming buttons

53



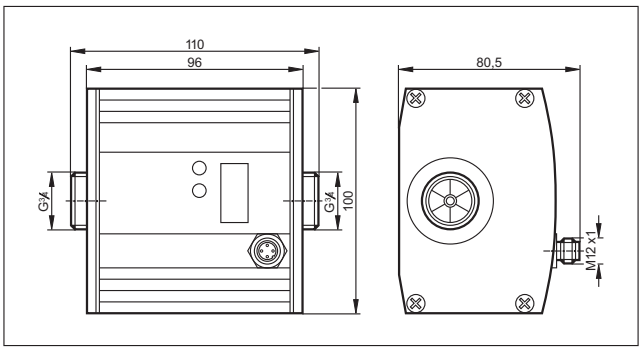
1: 4-digit alphanumeric display, 2: Programming buttons

54



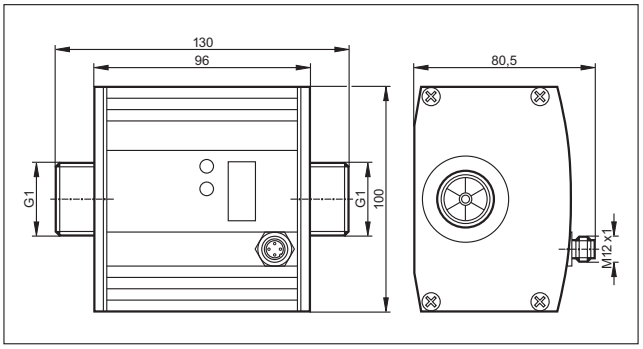
1: 4-digit alphanumeric display, 2: Programming buttons, 3: flow conditioner

55



installation length with pipe adapter E40151 / E40154: 185 mm

56



installation length with pipe adapter E40152 / E40155: 205 mm,
installation length with pipe adapter E40153 / E40156: 215 mm

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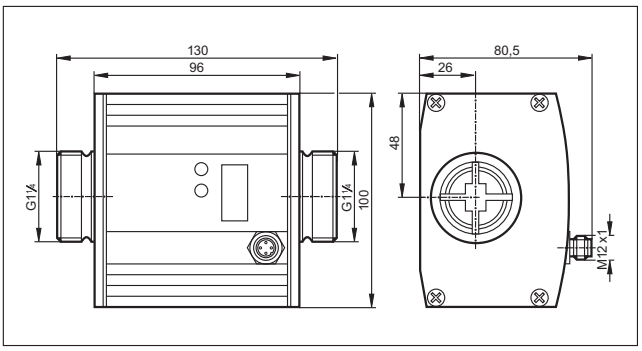


- **Transmitters or sensors with integrated control monitor.**
- **Units with special design for hygienic applications.**
- **Measuring principles with overload protection and a good long-term stability.**
- **Measuring range from -1…600 bar.**
- **Variable process connection and sealing technology via 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 a million times, is complemented by a stainless steel measuring cell with 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 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 400 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.

Separate display / programming unit PP2001.

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.
M12 connector · Output function 1 x normally open / closed programmable + 1 x analogue (I / U, scaleable 1:4) · Wiring diagram no. 14 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	G¼ I	Display unit	-0.25...0.25	10	30	18...32	1	**PY2068**
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. 15 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	G¼ I	Display unit	0...400	600	1000	20...30	2	**PN2020**
	G¼ I	Display unit	0...250	400	850	20...30	3	**PN2021**
	G¼ I	Display unit	0...100	300	650	20...30	3	**PN2022**
	G¼ I	Display unit	-1...25	100	350	20...30	3	**PN2023**
	G¼ I	Display unit	-1...10	75	150	18...32	3	**PN2024**
	G¼ I	Display unit	-0.1253...2.5	20	50	18...32	3	**PN2026**
	G¼ I	Display unit	-0.05...1	10	30	18...32	3	**PN2027**
	G¼ I	Display unit	-1...1	20	50	20...30	3	**PN2009**
	G¼ I	Display unit	-0.0125...0.25	10	30	18...32	3	**PN2028**
	¼" NPT	Display unit	-1...1	20	50	20...30	4	**PN2209**
	¼" NPT	Display unit	0...400	600	1000	20...30	5	**PN2220**
	¼" NPT	Display unit	0...250	400	850	20...30	4	**PN2221**
	¼" NPT	Display unit	0...100	300	650	20...30	4	**PN2222**
	¼" NPT	Display unit	-1...25	100	350	20...30	4	**PN2223**

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

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 analogue (4...20 mA / 0...10 V; scaleable 1:4) · Wiring diagram no. 15 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	¼" NPT	Display unit	-1...10	75	150	18...32	4	**PN2224**
	¼" NPT	Display unit	-0.125...2.5	20	50	20...30	4	**PN2226**
	¼" NPT	Display unit	-0.0125...0.25	10	30	18...32	4	**PN2228**
M12 connector · Output function normally open / closed programmable; 4...20 mA or 0...10 V · Wiring diagram no. 1 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	G¼ I	Display unit	0...600	800	1200	18...36	6	**PN3060**
	G¼ I	Display unit	0...400	600	1000	18...36	6	**PN3000**
	G¼ I	Display unit	0...250	400	850	18...36	1	**PN3001**
	G¼ I	Display unit	0...100	300	650	18...36	1	**PN3002**
	G¼ I	Display unit	0...25	150	350	18...36	1	**PN3003**
	G¼ I	Display unit	-1...10	75	150	18...36	1	**PN3004**
	G¼ I	Display unit	0...2.5	20	50	18...36	1	**PN3006**
	G¼ I	Display unit	0...1	10	30	18...36	1	**PN3007**
	G¼ I	Display unit	-1...0	10	30	18...36	1	**PN3029**

Sensors with switching 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.
M12 connector · Output function ⎍/⎍ · DC PNP · Wiring diagram no. 2 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	G¼ I	Display unit	0...400	600	1000	18...36	6	**PN5000**

You can find wiring diagrams and scale drawings from page 443

Type	Process connection	Display LED	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Drawing no.	Order no.
M12 connector · Output function ⎍ / ⎍ · DC PNP · Wiring diagram no. 2 · Connector groups 9, 10, 11, 12, 107, 108, 109, 110, 135, 136								
	G¼ I	Display unit	0...250	400	850	18...36	1	**PN5001**
	G¼ I	Display unit	0...100	300	650	18...36	1	**PN5002**
	G¼ I	Display unit	0...25	150	350	18...36	1	**PN5003**
	G¼ I	Display unit	-1...10	75	150	18...36	1	**PN5004**
	G¼ I	Display unit	0...2.5	20	50	18...36	1	**PN5006**
	G¼ I	Display unit	0...1	10	30	18...36	1	**PN5007**
M12 connector · Output function ⎍ / ⎍ · DC PNP · Wiring diagram no. 2 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	¼" NPT	Display unit	0...400	600	1000	18...36	7	**PN5200**
	¼" NPT	Display unit	0...100	300	650	18...36	8	**PN5202**
	¼" NPT	Display unit	-1...10	75	150	18...36	8	**PN5204**
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. 16 · Connector groups 9, 11, 12, 107, 108, 109, 135, 136								
	G¼ I	Display unit	0...600	800	1200	18...36	6	**PN7060**
	G¼ I	Display unit	0...400	600	1000	18...36	6	**PN7000**
	G¼ I	Display unit	0...250	400	850	18...36	1	**PN7001**
	G¼ I	Display unit	0...100	300	650	18...36	1	**PN7002**
	G¼ I	Display unit	0...25	150	350	18...36	1	**PN7003**
	G¼ I	Display unit	-1...10	75	150	18...36	1	**PN7004**

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. 16 · Connector groups 9, 11, 12, 107, 108, 109, 135, 136								
	G¼ I	Display unit	0...2.5	20	50	18...36	1	**PN7006**
	G¼ I	Display unit	0...1	10	30	18...36	1	**PN7007**
	G¼ I	Display unit	-1...1	20	50	18...36	1	**PN7009**
	¼" NPT	Display unit	0...400	600	1000	18...36	7	**PN7200**
	¼" NPT	Display unit	0...250	400	850	18...36	8	**PN7201**
	¼" NPT	Display unit	0...100	300	650	18...36	8	**PN7202**
	¼" NPT	Display unit	0...25	150	350	18...36	8	**PN7203**
	¼" NPT	Display unit	-1...10	75	150	18...36	8	**PN7204**
	¼" NPT	Display unit	0...2.5	20	50	18...36	8	**PN7206**
	¼" NPT	Display unit	-1...1	20	50	18...36	8	**PN7209**

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.
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. 14 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	G½	Display unit	0...400	800	1200	18...32	9	**PG2450**
	G½	Display unit	0...250	600	1000	18...32	9	**PG2451**
	G½	Display unit	0...100	300	700	18...32	9	**PG2452**

You can find wiring diagrams and scale drawings from page 443

Type	Process connection	Display LED	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Drawing 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. 14 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	G½	Display unit	-1...25	100	300	18...32	9	**PG2453**
	G½	Display unit	-1...10	50	150	18...32	9	**PG2454**
	G½	Display unit	-1...4	30	100	18...32	9	**PG2455**
	G½	Display unit	-0.125...2.5	20	50	18...32	9	**PG2456**
	G½	Display unit	-0.05...1	10	30	18...32	9	**PG2457**
	G½	Display unit	-0.0125...0.25	10	30	18...32	9	**PG2458**
	G½	Display unit	-0.005...0.1	4	30	18...32	9	**PG2489**
	G½	Display unit	-1...1	10	30	18...32	9	**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.
M12 connector · Output function ⎍ · DC PNP · Wiring diagram no. 2 · Connector groups 9, 11, 12, 107, 108, 109, 135, 136								
	G¼ A / M5 I	Operation	0...400	600	1600	9.6...32	10	**PK5520**
	G¼ A / M5 I	Operation	0...250	400	1000	9.6...32	10	**PK5521**
	G¼ A / M5 I	Operation	0...100	200	1000	9.6...32	10	**PK5522**
	G¼ A / M5 I	Operation	0...25	60	500	9.6...32	10	**PK5523**
	G¼ A / M5 I	Operation	0...10	25	300	9.6...32	10	**PK5524**

Type	Process connection	Display LED	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Drawing no.	Order no.
M12 connector · Output function normally open / closed complementary · DC PNP · Wiring diagram no. 3 · Connector groups 9, 11, 12, 107, 108, 109, 135, 136								
	G¼ A / M5 I	Operation	0...400	600	1600	9.6...32	10	**PK6520**
	G¼ A / M5 I	Operation	0...250	400	1000	9.6...32	10	**PK6521**
	G¼ A / M5 I	Operation	0...100	200	1000	9.6...32	10	**PK6522**
	G¼ A / M5 I	Operation	0...25	60	500	9.6...32	10	**PK6523**
	G¼ A / M5 I	Operation	0...10	25	300	9.6...32	10	**PK6524**
M12 connector · Output function ⎍ / ⎍ · DC PNP · Wiring diagram no. 4 · Connector groups 9, 11, 12, 107, 108, 109, 135, 136								
	G¼ A / M5 I	Switching status	0...400	600	1600	9.6...32	10	**PK7520**
	G¼ A / M5 I	Switching status	0...250	400	1000	9.6...32	10	**PK7521**
	G¼ A / M5 I	Switching status	0...100	200	1000	9.6...32	10	**PK7522**
	G¼ A / M5 I	Switching status	0...10	25	300	9.6...32	10	**PK7524**
M12 connector · Output function normally open / closed complementary · DC PNP · Wiring diagram no. 3 · Connector groups 9, 11, 12, 107, 108, 109, 135, 136								
	R¼ A / M5 I	Operation	0...100	200	1000	9.6...32	11	**PK6732**
	R¼ A / M5 I	Operation	0...10	25	300	9.6...32	11	**PK6734**
M12 connector · Output function normally open / closed complementary · DC NPN · Wiring diagram no. 5 · Connector groups 9, 11, 12, 107, 108, 109, 135, 136								
	R¼ A / M5 I	Operation	0...400	600	1600	9.6...32	11	**PK8730**
	R¼ A / M5 I	Operation	0...100	200	1000	9.6...32	11	**PK8732**
	R¼ A / M5 I	Operation	0...10	25	300	9.6...32	11	**PK8734**

You can find wiring diagrams and scale drawings from page 443

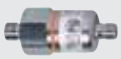
Type	Process connection	Display LED	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Drawing no.	Order no.
M12 connector · Output function normally open / closed complementary · DC PNP · Wiring diagram no. 3 · Connector groups 9, 11, 12, 107, 108, 109, 135, 136								
	¼" NPT A / M5 I	Operation	0...400	600	1600	9.6...32	12	**PK6220**
	¼" NPT A / M5 I	Operation	0...100	200	1000	9.6...32	12	**PK6222**
	¼" NPT A / M5 I	Operation	0...10	25	300	9.6...32	12	**PK6224**

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]	Drawing no.	Order no.
M12 connector · Output function 4...20 mA analogue · DC · Wiring diagram no. 6 · Connector groups 9, 11, 107, 108, 135								
	G¼ A	–	0...400	600	1600	8.5...36	13	**PT3540**
	G¼ A	–	0...250	400	1000	8.5...36	13	**PT3541**
	G¼ A	–	0...100	200	1000	8.5...36	13	**PT3542**
	G¼ A	–	0...25	60	600	8.5...36	13	**PT3543**
	G¼ A	–	0...10	25	300	8.5...36	13	**PT3544**
M12 connector · Output function 0...10 V analogue · DC · Wiring diagram no. 7 · Connector groups 9, 11, 107, 108, 135								
	G¼ A	–	0...400	600	1600	16...36	13	**PT9540**
	G¼ A	–	0...250	400	1000	16...36	13	**PT9541**
	G¼ A	–	0...100	200	1000	16...36	13	**PT9542**
	G¼ A	–	0...25	60	600	16...36	13	**PT9543**
	G¼ A	–	0...10	25	300	16...36	13	**PT9544**

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

PP sensors for mobile 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.
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. 8 · Connector groups 9, 11, 12, 107, 108, 109, 135, 136								
	G¼ A / M5 I	Operation	0...400	600	1000	9.6...36	14	**PP7550**
	G¼ A / M5 I	Operation	0...250	400	850	9.6...36	14	**PP7551**
	G¼ A / M5 I	Operation	0...100	300	650	9.6...36	15	**PP7552**
	G¼ A / M5 I	Operation	0...25	150	350	9.6...36	16	**PP7553**
	G¼ A / M5 I	Operation	-1...10	75	150	9.6...36	16	**PP7554**
	G¼ A / M5 I	Operation	0...2.5	20	50	9.6...36	16	**PP7556**
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. 8 · Connector groups 9, 11, 12, 107, 108, 109, 135, 136								
	G¼ A / M5 I	Operation	0...400	600	1000	9.6...36	14	**PP0520**
	G¼ A / M5 I	Operation	0...250	400	850	9.6...36	14	**PP0521**
	G¼ A / M5 I	Operation	0...100	300	650	9.6...36	15	**PP0522**
	G¼ A / M5 I	Operation	0...25	150	350	9.6...36	16	**PP0523**
	G¼ A / M5 I	Operation	-1...10	75	150	9.6...36	16	**PP0524**

PT 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. 6 · Connector group 135								
	G¼ A	–	0...400	600	1600	8.5...36	13	**PT3550**

You can find wiring diagrams and scale drawings from page 443

Type	Process connection	Display LED	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Drawing no.	Order no.
M12 connector · Output function 4...20 mA analogue · DC · Wiring diagram no. 6 · Connector group 135								
	G¼ A	–	0...250	400	1000	8.5...36	13	**PT3551**
	G¼ A	–	0...100	200	1000	8.5...36	13	**PT3552**
	G¼ A	–	0...25	60	600	8.5...36	13	**PT3553**
	G¼ A	–	0...10	25	300	8.5...36	13	**PT3554**
M12 connector · Output function 0...10 V analogue · DC · Wiring diagram no. 7 · Connector group 135								
	G¼ A	–	0...400	600	1600	16...36	13	**PT9550**
	G¼ A	–	0...250	400	1000	16...36	13	**PT9551**
	G¼ A	–	0...100	200	1000	16...36	13	**PT9552**
	G¼ A	–	0...25	60	600	16...36	13	**PT9553**
	G¼ A	–	0...10	25	300	16...36	13	**PT9554**

PA / PPA sensors for industrial applications with analogue outputs / AS-i

Type	Process connection	Display LED	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Drawing no.	Order no.
M12 connector · Output function 4...20 mA analogue · DC · Wiring diagram no. 6 · Connector groups 9, 11, 107, 108, 135								
	G¼ I	–	0...600	800	1200	9.6...32	17	**PA3060**
	G¼ I	–	0...400	600	1000	9.6...32	18	**PA3020**
	G¼ I	–	0...250	400	850	9.6...32	18	**PA3021**
	G¼ I	–	0...100	300	650	9.6...32	19	**PA3022**

Type	Process connection	Display LED	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Drawing no.	Order no.
M12 connector · Output function 4...20 mA analogue · DC · Wiring diagram no. 6 · Connector groups 9, 11, 107, 108, 135								
	G¼ I	–	0...25	150	350	9.6...32	19	**PA3023**
	G¼ I	–	0...10	75	150	9.6...32	19	**PA3024**
	G¼ I	–	0...2.5	20	50	9.6...32	19	**PA3026**
	G¼ I	–	0...1	10	30	9.6...32	19	**PA3027**
	G¼ I	–	0...0.25	10	30	9.6...32	19	**PA3028**
	G¼ I	–	-1...0	10	30	9.6...32	19	**PA3029**
	G¼ A / M5 I	–	0...250	400	850	9.6...32	20	**PA3521**
	G¼ A / M5 I	–	0...25	150	350	9.6...32	20	**PA3523**
	G¼ A / M5 I	–	0...10	75	150	9.6...32	20	**PA3524**
	G¼ A / M5 I	–	0...2.5	20	50	9.6...32	20	**PA3526**
	G¼ A / M5 I	–	0...0.25	10	30	9.6...32	20	**PA3528**
M12 connector · Output function 0...10 V analogue · DC · Wiring diagram no. 7 · Connector groups 9, 11, 107, 108, 135								
	G¼ I	–	0...600	800	1200	16...32	21	**PA9060**
	G¼ I	–	0...400	600	1000	16...32	21	**PA9020**
	G¼ I	–	0...250	400	850	16...32	19	**PA9021**
	G¼ I	–	0...100	300	650	16...32	19	**PA9022**

You can find wiring diagrams and scale drawings from page 443

Type	Process connection	Display LED	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Drawing no.	Order no.
M12 connector · Output function 0...10 V analogue · DC · Wiring diagram no. 7 · Connector groups 9, 11, 107, 108, 135								
	G¼ I	–	0...25	150	350	16...32	19	**PA9023**
	G¼ I	–	0...10	75	150	16...32	19	**PA9024**
	G¼ I	–	0...2.5	20	50	16...32	19	**PA9026**
	G¼ I	–	0...1	10	30	16...32	19	**PA9027**
	G¼ I	–	0...0.25	10	30	16...32	19	**PA9028**
	G¼ I	–	-1...0	10	30	16...32	19	**PA9029**
M12 connector · AS-i · Wiring diagram no. 9 · Connector groups 9, 11, 107, 108, 135								
	G¼ I	-	0...400	600	1000	18...31.6	22	**PPA020**

Part seat monitoring

Type	Description	Order no.
	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**

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.
Output 4...20 mA analogue · Wiring diagram no. 10							
	0...0.25	5 m PUR cable	2	2.4	10...30	23	**PS3208**
	0...0.6	10 m PUR cable	4	4.8	10...30	23	**PS3407**
	0...1	15 m PUR cable	5	6	10...30	23	**PS3417**

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

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]	Drawing no.	Order no.
Output 4...20 mA analogue · Wiring diagram no. 11							
	0...0.25	5 m FEP cable	2	2.4	10...30	24	**PS308A**
	0...0.6	10 m FEP cable	4	4.8	10...30	24	**PS307A**
	0...1	15 m FEP cable	5	6	10...30	24	**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]	Drawing no.	Order no.
M12 connector · Output function 2 x normally open / closed programmable · DC PNP/NPN · Wiring diagram no. 12 · Connector groups 16, 17, 18								
	G¼ 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]	Drawing no.	Order no.
M12 connector · Output function normally open / closed programmable; 4...20 mA or 0...10 V · DC PNP · Wiring diagram no. 1 · Connector groups 132, 134								
	G¼ I	Display unit	0...2.5	20	50	18...36	25	**PN006A**
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. 16 · Connector groups 132, 134								
	G¼ I	Display unit	0...2.5	20	50	18...36	25	**PN016A**

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]	Drawing no.	Order no.
M12 connector · Output function 1 x normally open / closed programmable + 1 x analogue (I / U, scaleable 1:4) · DC PNP/NPN · Wiring diagram no. 14 · Connector groups 132, 134								
	G1 A	Display unit	-1...25	100	350	18...32	26	**PI003A**

You can find wiring diagrams and scale drawings from page 443

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 (I / U, scaleable 1:4) · DC PNP/NPN · Wiring diagram no. 14 · Connector groups 132, 134								
	G1 A	Display unit	-0.0124...0.25	10	30	18...32	26	**PI008A**

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. 16 · Connector groups 9, 11, 12, 107, 108, 109, 135, 136								
	G 1/8 I	Display unit	-1...1	20	30	18...36	27	**PN7809**
	G 1/8 I	Display unit	-1...10	20	30	18...36	27	**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, 70								
	G 1/8 I	Display unit	-1...1	20	30	18...32	28	**PQ7809**
	G 1/8 I	Display unit	-1...10	20	30	18...32	28	**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. 13 · Connector groups 4, 5, 70								
	G 1/8 I	Display unit	-1...1	20	30	18...32	28	**PQ0809**
	G 1/8 I	Display unit	-1...10	20	30	18...32	28	**PQ0834**

PI sensors for hygienic and wet areas with 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.
M12 connector · Output function 1 x normally open / closed programmable + 1 x analogue (I / U, scaleable 1:4) · DC PNP/NPN · Wiring diagram no. 14 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	G ¾ A	Display unit	-1...10	50	150	18...32	29	**PI2994**

PI sensors with 2 switching outputs for hygienic and wet areas

Type	Process connection	Display LED	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Drawing 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. 16 · Connector groups 9, 11, 12, 107, 108, 109, 135, 136								
	G ¾ A	Display unit	-1...25	100	350	18...32	29	**PI7993**

Full metal sensors 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]	Drawing 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. 17 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	Aseptoflex Vario	Display unit	-1...25	100	350	20...32	30	**PI2793**
	Aseptoflex Vario	Display unit	-1...10	50	150	20...32	30	**PI2794**
	Aseptoflex Vario	Display unit	-1...4	30	100	20...32	30	**PI2795**
	Aseptoflex Vario	Display unit	-0.124...2.5	20	50	20...32	30	**PI2796**
	Aseptoflex Vario	Display unit	-0.05...1	10	30	20...32	30	**PI2797**
	Aseptoflex Vario	Display unit	-0.0124...0.25	10	30	20...32	30	**PI2798**
	Aseptoflex Vario	Display unit	-1...1	10	30	20...32	30	**PI2799**
	Aseptoflex Vario	Display unit	-0.005...0.1	4	30	20...32	30	**PI2789**
	G1 A	Display unit	-1...25	100	350	20...32	31	**PI2893**
	G1 A	Display unit	-1...10	50	150	20...32	31	**PI2894**
	G1 A	Display unit	-1...4	30	100	20...32	31	**PI2895**
	G1 A	Display unit	-0.124...2.5	20	50	20...32	31	**PI2896**

You can find wiring diagrams and scale drawings from page 443

Type	Process connection	Display LED	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Drawing 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. 17 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	G1 A	Display unit	-0.05...1	10	30	20...32	31	**PI2897**
	G1 A	Display unit	-0.0124...0.25	10	30	20...32	31	**PI2898**
	G1 A	Display unit	-1...1	10	30	20...32	31	**PI2899**
	G1 A	Display unit	-0.005...0.1	4	30	20...32	31	**PI2889**

Electronic contact manometers for hygienic and wet areas 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]	Drawing 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. 14 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	Aseptoflex Vario	Display unit	-1...25	100	350	18...32	32	**PG2793**
	Aseptoflex Vario	Display unit	-1...10	50	150	18...32	32	**PG2794**
	Aseptoflex Vario	Display unit	-1...4	30	100	18...32	32	**PG2795**
	Aseptoflex Vario	Display unit	-0.124...2.5	20	50	18...32	32	**PG2796**
	Aseptoflex Vario	Display unit	-0.05...1	10	30	18...32	32	**PG2797**
	Aseptoflex Vario	Display unit	-0.0124...0.25	10	30	18...32	32	**PG2798**
	Aseptoflex Vario	Display unit	-1...1	10	30	18...32	32	**PG2799**
	Aseptoflex Vario	Display unit	-0.005...0.1	4	30	18...32	32	**PG2789**
	G1 A	Display unit	-1...25	100	350	18...32	33	**PG2893**

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. 14 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	G1 A	Display unit	-1...10	50	150	18...32	33	**PG2894**
	G1 A	Display unit	-1...4	30	100	18...32	33	**PG2895**
	G1 A	Display unit	-0.124...2.5	20	50	18...32	33	**PG2896**
	G1 A	Display unit	-0.05...1	10	30	18...32	33	**PG2897**
	G1 A	Display unit	-0.0124...0.25	10	30	18...32	33	**PG2898**
	G1 A	Display unit	-1...1	10	30	18...32	33	**PG2899**
	G1 A	Display unit	-0.005...0.1	4	30	18...32	33	**PG2889**

PF sensors for hygienic and wet areas with 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.
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. 15 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	Aseptoflex	Switching status	-1...25	100	350	20...30	34	**PF2053**
	Aseptoflex	Switching status	-0.5...10	50	150	20...30	34	**PF2054**
	Aseptoflex	Switching status	-0.13...2.5	20	50	20...30	34	**PF2056**
	Aseptoflex	Switching status	-0.05...1	10	30	20...30	34	**PF2057**
	Aseptoflex	Switching status	-0.013...0.25	10	30	20...30	34	**PF2058**
	G1 A	Switching status	-1...100	200	650	20...30	35	**PF2652**

You can find wiring diagrams and scale drawings from page 443

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 analogue (4...20 mA / 0...10 V; scaleable 1:4) · Wiring diagram no. 15 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	G1 A	Switching status	-1...25	100	350	20...30	36	**PF2653**
	G1 A	Switching status	-0.5...10	50	150	20...30	36	**PF2654**
	G1 A	Switching status	-0.13...2.5	20	50	20...30	36	**PF2656**
	G1 A	Switching status	-0.05...1	10	30	20...30	36	**PF2657**
	G1 A	Switching status	-0.013...0.25	10	30	20...30	36	**PF2658**
	G1 A	Switching status	-0.99...1	20	50	20...30	36	**PF2609**
	G ¾ A	Switching status	-1...25	100	200	20...30	37	**PF2953**
	G ¾ A	Switching status	-0.5...10	50	150	20...30	37	**PF2954**
	G ¾ A	Switching status	-0.13...2.5	20	50	20...30	37	**PF2956**
	G ¾ A	Switching status	-0.05...1	10	30	20...30	37	**PF2957**

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.
M12 connector · Output function 4...20 mA analogue · 3-wire DC; 2-wire DC · Wiring diagram no. 18 · Connector groups 9, 11, 107, 108, 135								
	Aseptoflex	–	-1...25	100	350	14...30	38	**PL2053**
	Aseptoflex	–	-0.5...10	50	150	14...30	38	**PL2054**
	Aseptoflex	–	-0.13...2.5	20	50	14...30	38	**PL2056**
	Aseptoflex	–	-0.05...1	10	30	14...30	38	**PL2057**

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

Type	Process connection	Display LED	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Drawing no.	Order no.
M12 connector · Output function 4...20 mA analogue · 3-wire DC; 2-wire DC · Wiring diagram no. 18 · Connector groups 9, 11, 107, 108, 135								
	Aseptoflex	–	-0.0125...0.25	10	30	14...30	38	**PL2058**
	G1 A	–	-1...100	200	650	14...30	39	**PL2652**
	G1 A	–	-1...25	100	350	14...30	40	**PL2653**
	G1 A	–	-0.5...10	50	150	14...30	40	**PL2654**
	G1 A	–	-0.13...2.5	20	50	14...30	40	**PL2656**
	G1 A	–	-0.05...1	10	30	14...30	40	**PL2657**
	G1 A	–	-0.0125...0.25	10	30	14...30	40	**PL2658**
M12 connector · Output function 4...20 mA analogue · DC · Wiring diagram no. 18 · Connector groups 9, 11, 107, 108, 135								
	Aseptoflex	–	-1...25	100	350	14...30	41	**PM2053**
	Aseptoflex	–	-0.5...10	50	150	14...30	41	**PM2054**
	Aseptoflex	–	-0.99...4	30	100	14...30	41	**PM2055**
	Aseptoflex	–	-0.13...2.5	20	50	14...30	41	**PM2056**
	Aseptoflex	–	-0.05...1	10	30	14...30	41	**PM2057**
	Aseptoflex	–	-0.0125...0.25	10	30	14...30	41	**PM2058**
M12 connector · Output function 4...20 mA analogue · 3-wire DC; 2-wire DC · Wiring diagram no. 18 · Connector groups 9, 11, 107, 108, 135								
	G1 A	–	-1...25	100	350	14...30	42	**PM2653**
	G1 A	–	-0.5...10	50	150	14...30	42	**PM2654**

You can find wiring diagrams and scale drawings from page 443

Type	Process connection	Display LED	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Drawing no.	Order no.
M12 connector · Output function 4...20 mA analogue · 3-wire DC; 2-wire DC · Wiring diagram no. 18 · Connector groups 9, 11, 107, 108, 135								
	G1 A	–	-0.99...4	30	100	14...30	42	**PM2655**
	G1 A	–	-0.13...2.5	20	50	14...30	42	**PM2656**
	G1 A	–	-0.05...1	10	30	14...30	42	**PM2657**
	G1 A	–	-0.0125...0.25	10	30	14...30	42	**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]	Drawing 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. 16 · Connector groups 9, 11, 12, 107, 108, 109, 135, 136								
	G¼ I	Display unit	-1...1	20	50	18...36	1	**PE7009**
	G¼ I	Display unit	0...2.5	20	50	18...36	1	**PE7006**
	G¼ I	Display unit	-1...10	75	150	18...36	1	**PE7004**
	G¼ I	Display unit	0...25	150	350	18...36	1	**PE7003**
	G¼ I	Display unit	0...100	300	650	18...36	1	**PE7002**
M12 connector · Output function normally open / closed programmable; 4...20 mA or 0...10 V · DC PNP · Wiring diagram no. 1 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	G¼ I	Display unit	0...400	600	1000	18...36	6	**PE3000**
	G¼ I	Display unit	0...250	400	850	18...36	1	**PE3001**
	G¼ I	Display unit	0...100	300	650	18...36	1	**PE3002**
	G¼ I	Display unit	0...25	150	350	18...36	1	**PE3003**

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 · DC PNP · Wiring diagram no. 1 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	G¼ I	Display unit	-1...10	75	150	18...36	1	**PE3004**
	G¼ I	Display unit	0...2.5	20	50	18...36	1	**PE3006**
	G¼ I	Display unit	-1...0	10	30	18...36	1	**PE3029**
	G¼ I	Display unit	-1...1	20	50	18...36	1	**PE3009**

Fixing components for pressure sensors

Type	Description	Order no.
	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 connector M12 · Housing materials: polyurethane	**E30006**
	Protective cover · for fluid sensors · stainless steel with transparent Teflon window · Housing materials: stainless steel 316Ti / 1.4571 / PFA / Viton / ventilation strip: Teflon film 0.32 mm / O-ring: Viton	**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**

You can find wiring diagrams and scale drawings from page 443

Type	Description	Order no.
	Memory plug · Parameter memory for IO-Link sensors · 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 monitor VK · Housing materials: PP transparent	**E30094**
	IO-Link interface · for parameter setting and analysis of units with DTM specification · Supported communication protocols: IO-Link (4800 and 38400 bits/s) EPS protocol (19200 bits/s) · contains ifm Container software (E30110)	**E30396**
	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**
	Push-in air fitting · QS-G 1/8-6 · with hexagonal socket 4 mm a/f · for tube with Ø 6 mm · Housing materials: steel / PBT / brass / aluminium · Pack quantity: 4	**E30076**
	Push-in air fitting · QS-G 1/8-8 · with hexagonal socket 5 mm a/f · for tube with Ø 8 mm · Housing materials: steel / PBT / brass / aluminium · Pack quantity: 4	**E30077**

Adapters and accessories for adapters

Type	Description	Order no.
	Adapter · R1/8 - R1/8 · rotatable · Housing materials: brass nickel-plated	**E37350**

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

Type	Description	Order no.
	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 - G ¼ · Housing materials: stainless steel / FPM	**E30007**
	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**
	Damping screw · for pressure sensors with M5 internal thread	**E30057**
	O-ring · 24 x 2 · Housing materials: FKM FDA compliant · Pack quantity: 1	**E30123**
	Sealing ring · for Aseptoflex Vario adapter · Housing materials: PEEK FDA compliant · Pack quantity: 1	**E30124**

You can find wiring diagrams and scale drawings from page 443

Flange adapters

Type	Description	Order no.
	Aseptoflex Vario 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
	Aseptoflex Vario 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 · 1-1.5" · ISO 2852 · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	E33208
	Aseptoflex Vario adapter · with leakage port · Clamp · 2" · ISO 2852 · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	E33209
	Aseptoflex Vario 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
	Aseptoflex Vario adapter · Clamp · 2" · ISO 2852 · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	E33702
	Aseptoflex Vario adapter · 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
	Aseptoflex Vario adapter · 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
	Aseptoflex Vario adapter · pipe fitting · DN50 (2") · DIN 11851 · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	E33213
	Aseptoflex Vario adapter · 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
	Aseptoflex Vario adapter · 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
	Aseptoflex Vario adapter · pipe fitting · DN50 (2") · DIN 11851 · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	E33713
	Aseptoflex Vario 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
	Aseptoflex Vario adapter · 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	E33222

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

Type	Description	Order no.
	Aseptoflex Vario 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**
	Aseptoflex Vario 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**
	Aseptoflex Vario 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**
	Aseptoflex Vario adapter · Varivent type N · DN40 (1.5"), D = 68 · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	**E33722**
	Aseptoflex Vario adapter · pipe fitting · DN40 (1.5") · SMS · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	**E33731**
	Aseptoflex Vario adapter · pipe fitting · DN50 (2") · SMS · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	**E33732**
	Aseptoflex Vario adapter · flange · DRD · D = 65 · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	**E33242**
	Universal process adapter · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	**E33340**
	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**
	Adapter plug · for Aseptoflex Vario adapter · Housing materials: high-grade stainless steel	**E30128**
	Aseptoflex adapter · Clamp · 1-1.5" · ISO 2852 · for units with Aseptoflex adapter · Housing materials: stainless steel 316L / 1.4404	**E33001**
	Aseptoflex adapter · Clamp · 2" · ISO 2852 · for units with Aseptoflex adapter · Housing materials: stainless steel 316L / 1.4404	**E33002**
	Aseptoflex adapter · pipe fitting · DN40 (1.5") · DIN 11851 · for units with Aseptoflex adapter · Housing materials: stainless steel 316L / 1.4404	**E33012**

You can find wiring diagrams and scale drawings from page 443

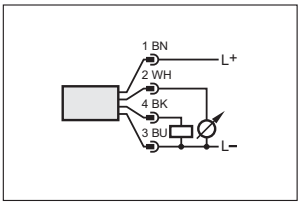
Type	Description	Order no.
	Aseptoflex adapter · pipe fitting · DN50 (2") · DIN 11851 · for units with Aseptoflex adapter · Housing materials: stainless steel 316L / 1.4404	E33013
	Aseptoflex adapter · Varivent type N · DN40 (1.5"), D = 68 · for units with Aseptoflex adapter · Housing materials: stainless steel 316L / 1.4404	E33022
	Aseptoflex adapter · pipe fitting · DN40 (1.5") · SMS · for units with Aseptoflex adapter · Housing materials: stainless steel 316L / 1.4404	E33031
	Aseptoflex adapter · NEUMO BioConnect flange form V · 4 holes · DN40 · pipe connection to DIN 11866 line A DIN 11850 · Housing materials: stainless steel 316L / 1.4435	E33131
	Welding adapter · Ø 50 mm · with Aseptoflex thread · Housing materials: stainless steel 316L / 1.4404 / O-ring: FPM FDA compliant	E30052
	Adapter plug for welding adapter with Aseptoflex thread · Housing materials: high-grade stainless steel	E30064
	G 1 adapter · Clamp · 1-1.5" · ISO 2852 · for units with G 1 adaptation · Housing materials: stainless steel 316L / 1.4435	E33601
	G 1 adapter · pipe fitting · DN40 (1.5") · DIN 11851 · for units with G 1 adaptation · Housing materials: stainless steel 316L / 1.4435	E33612
	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: Viton / O-ring: EPDM	E30072
	Adapter plug · G 1 · Housing materials: high-grade stainless steel	E30070
	Welding adapter · G ¾ - Ø 50 mm · Housing materials: stainless steel 316L / 1.4404	E30009
	Adapter plug · G ¾ · Housing materials: high-grade stainless steel	E30071

Wiring diagrams

Core colours

BN	brown
GY	grey
WH	white
BU	blue
GN	green

1



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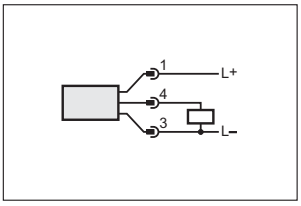

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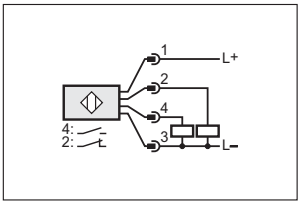

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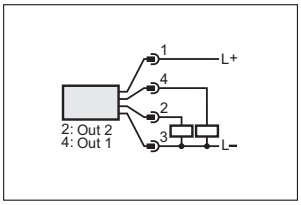

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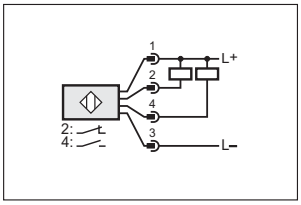

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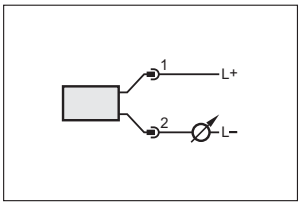

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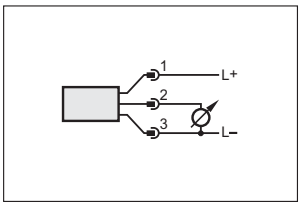

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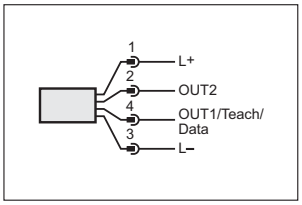

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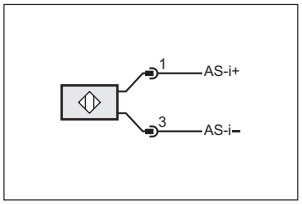

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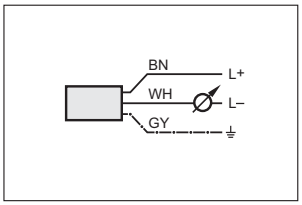

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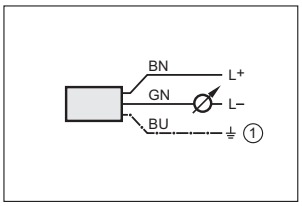

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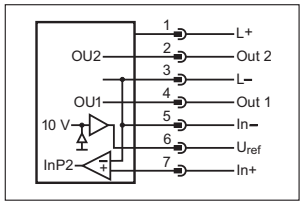

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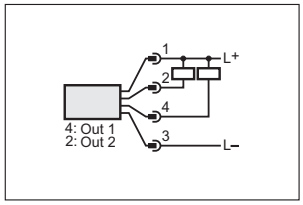

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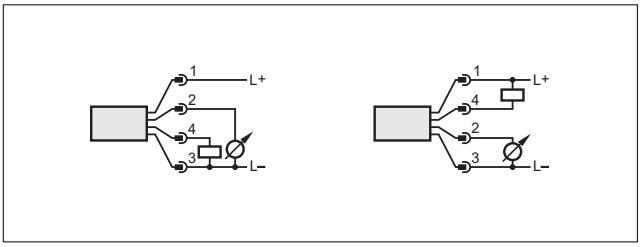

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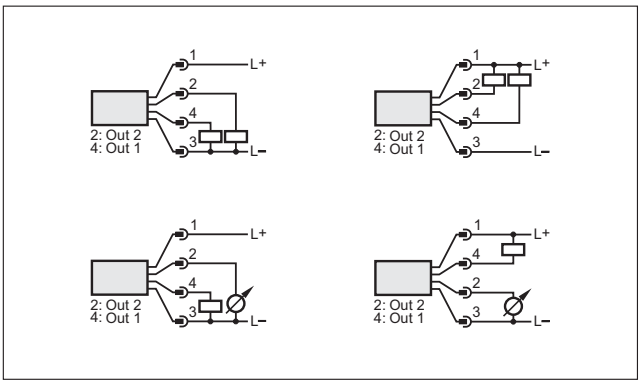

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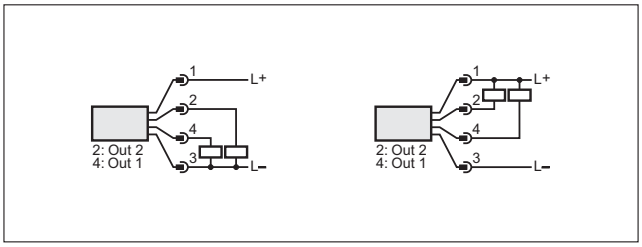

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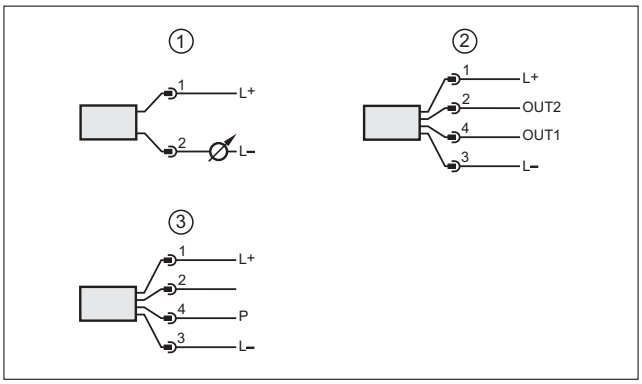
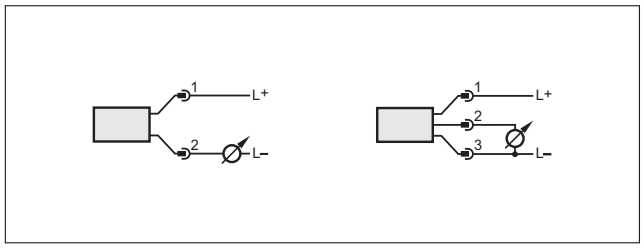


Wiring diagrams

18



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

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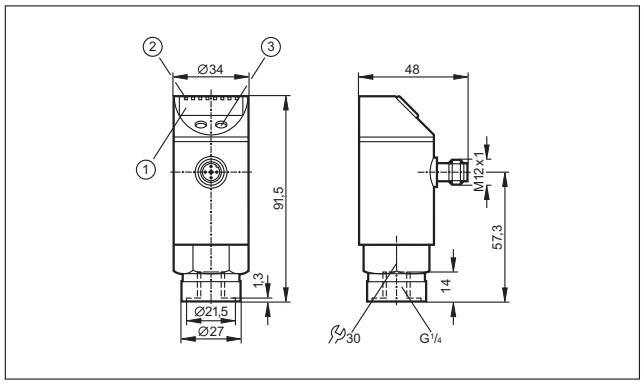
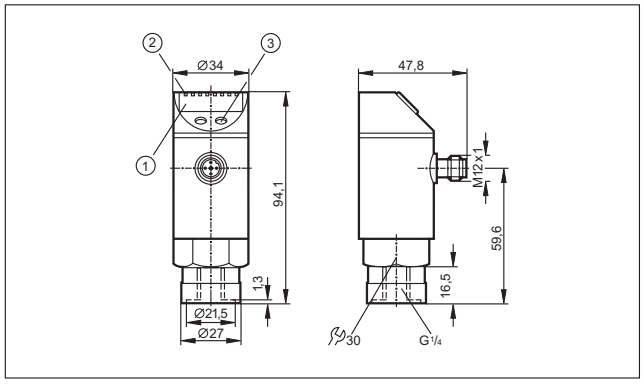


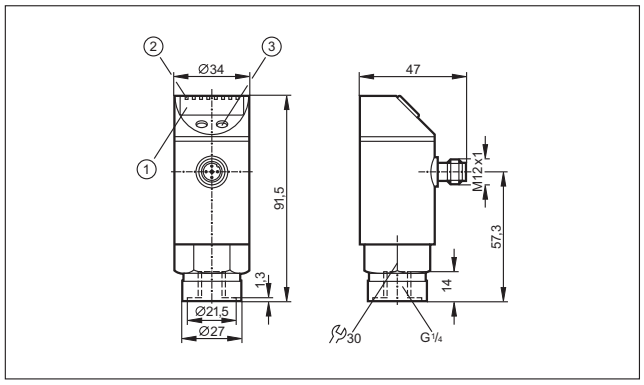
1: 4-digit alphanumeric display, 2: LEDs (display unit / switching status), 3: Programming button

2



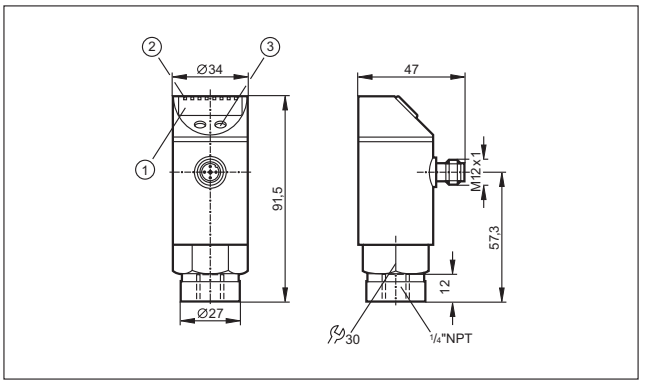
1: 4-digit alphanumeric display, 2: LEDs (display unit / switching status), 3: Programming button

3



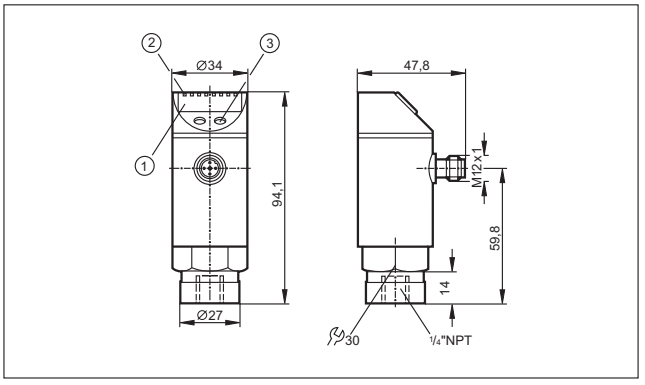
1: 4-digit alphanumeric display, 2: LEDs (display unit / switching status), 3: Programming button

4



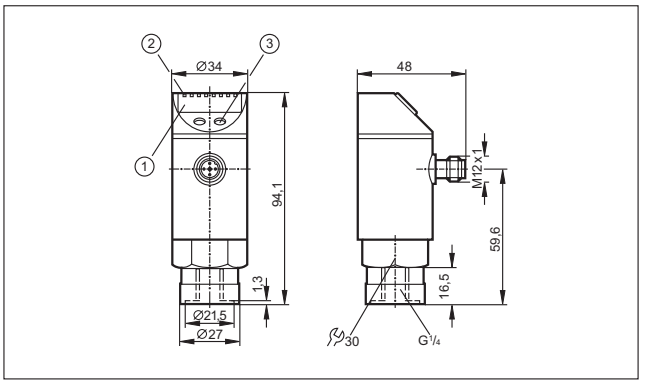
1: 4-digit alphanumeric display, 2: LEDs (display unit / switching status), 3: Programming button

5



1: 4-digit alphanumeric display, 2: LEDs (display unit / switching status), 3: Programming button

6

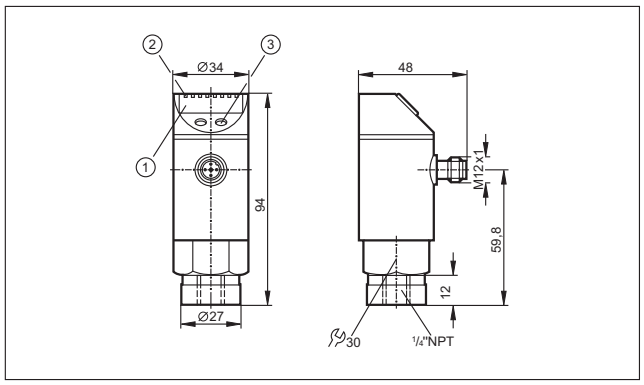


1: 4-digit alphanumeric display, 2: LEDs (display unit / switching status), 3: Programming button

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

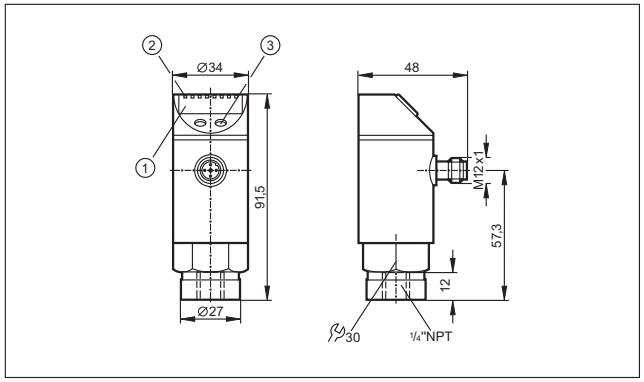
Scale drawings / drawing no. – CAD download: www.ifm.com

7



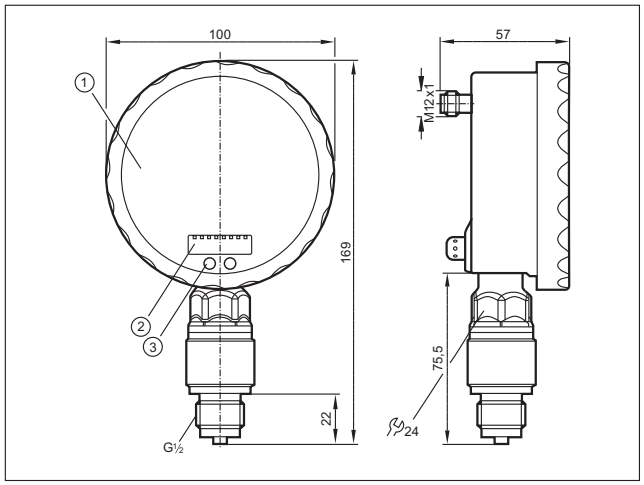
1: 4-digit alphanumeric display, 2: LEDs (display unit / switching status), 3: Programming button

8



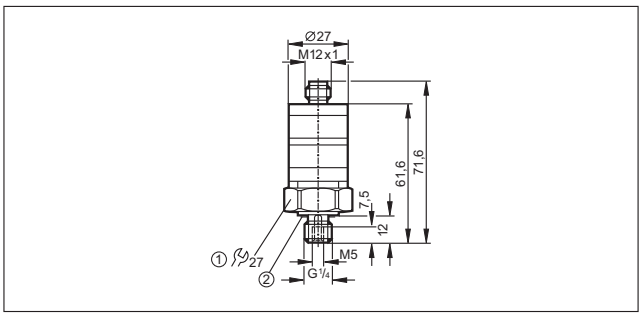
1: 4-digit alphanumeric display, 2: LEDs (display unit / switching status), 3: Programming button

9



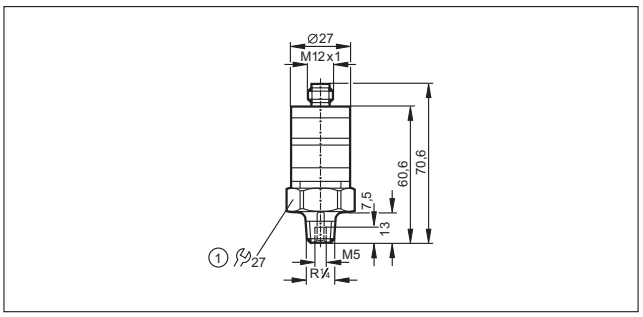
1: Analogue display, 2: 4-digit alphanumeric display, 3: Touch button (programming button)

10



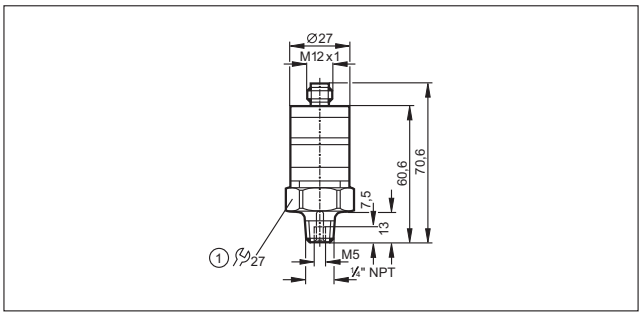
1: tightening torque 25 Nm, 2: sealing FPM / DIN 3869-14

11



1: tightening torque 25 Nm

12



1: tightening torque 25 Nm

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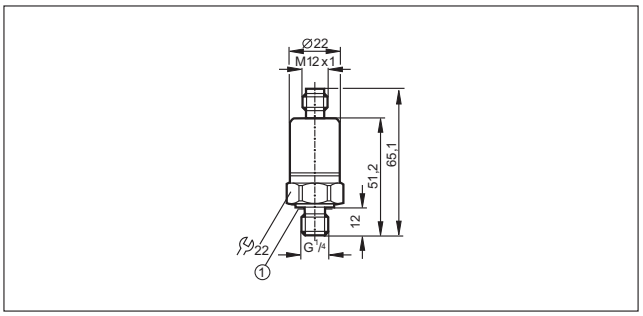
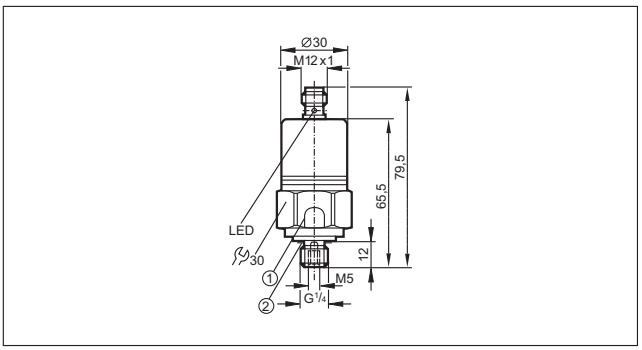


1: sealing FPM / DIN 3869-14, tightening torque 25 Nm

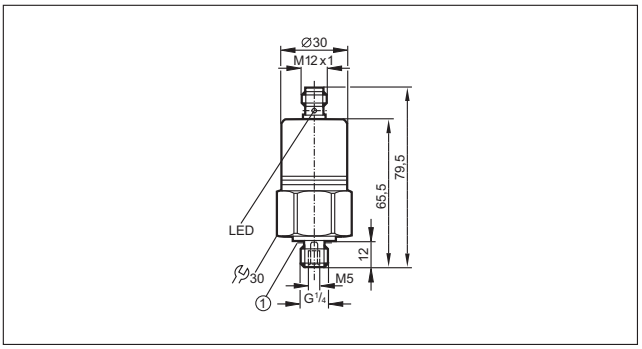
Scale drawings / drawing no. – CAD download: www.ifm.com

14



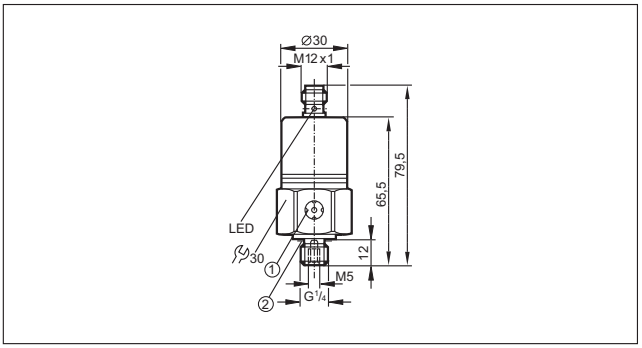
1: Pressure relief mechanism, No mechanical force must be exerted on the pressure relief mechanism., 2: sealing FPM / DIN 3869-14

15



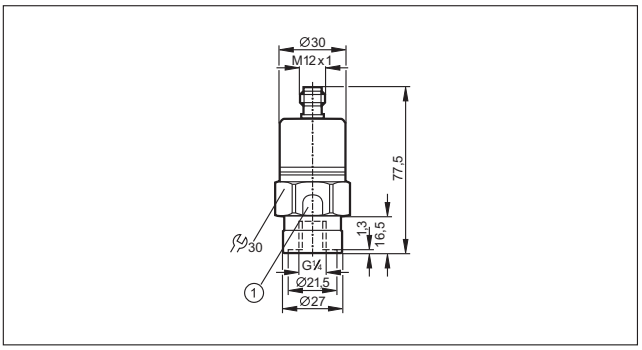
1: sealing FPM / DIN 3869-14

16



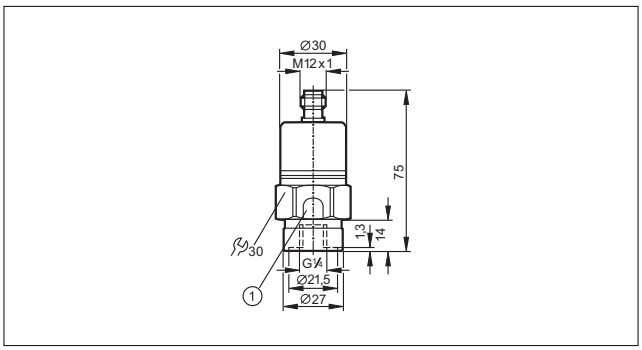
1: ventilation, 2: sealing FPM / DIN 3869-14

17



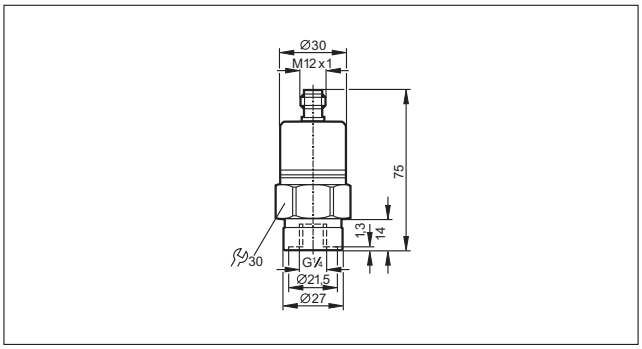
1: Pressure relief mechanism, No mechanical force must be exerted on the pressure relief mechanism.

18



1: Pressure relief mechanism, No mechanical force must be exerted on the pressure relief mechanism.

19



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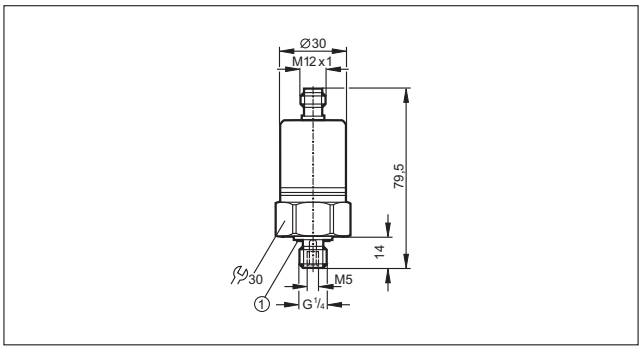
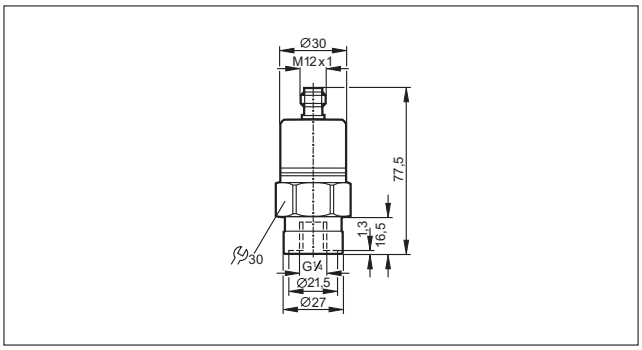


1: sealing FPM / DIN 3869-14

21



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

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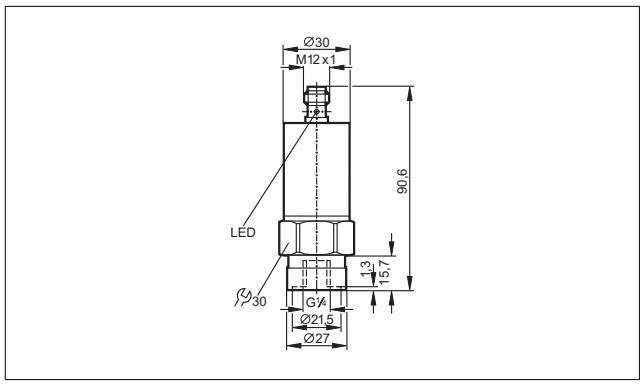

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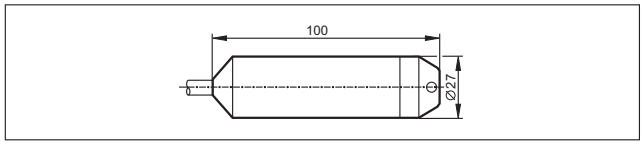

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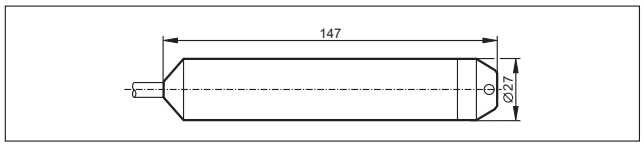

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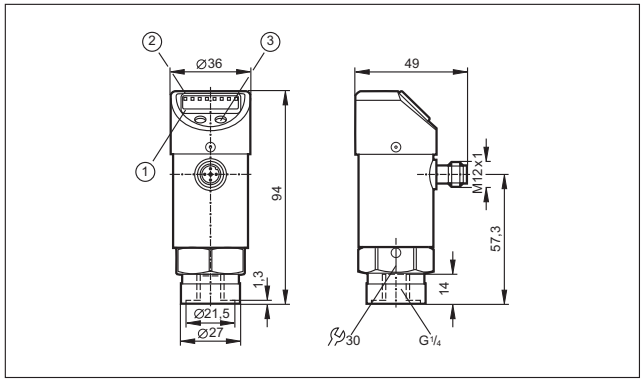
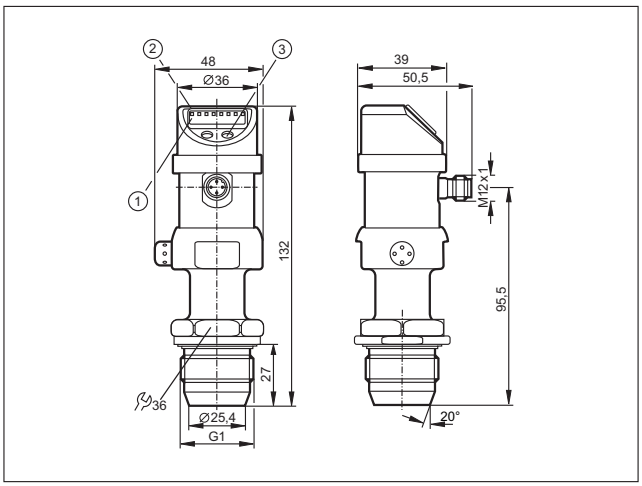


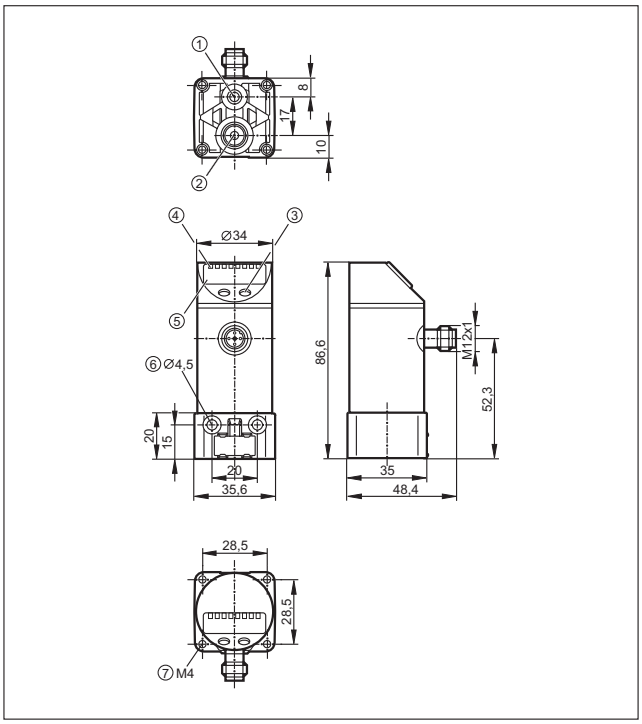
1: 4-digit alphanumeric display, 2: LEDs (display unit / switching status), 3: Programming button

26



1: 4-digit alphanumeric display, 2: LEDs, 3: Programming button

27



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

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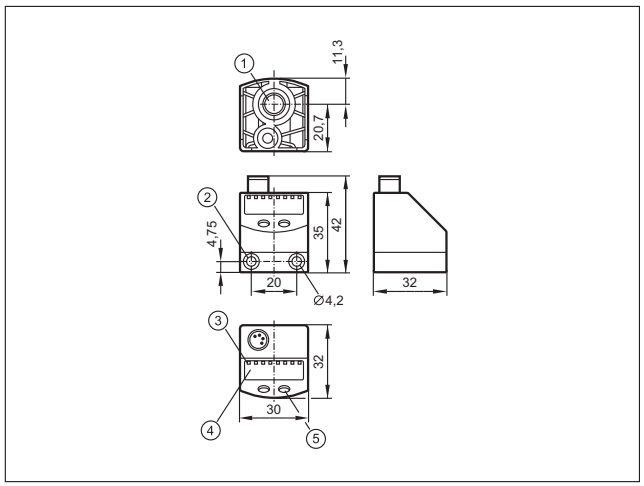
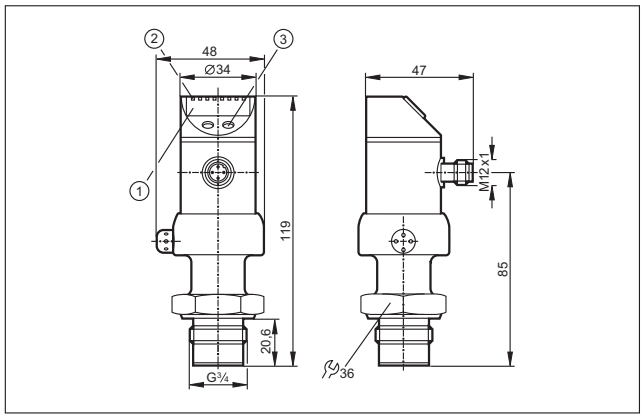


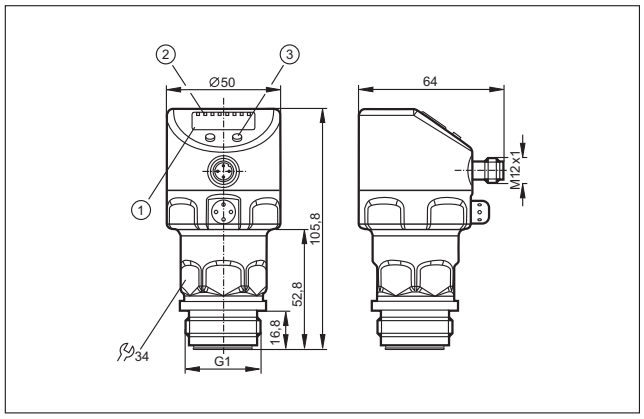
1: main pressure connection G 1/8; tightening torque max. 8 Nm, thread length max: 7.5 mm, 2: for mounting screw M4; max. tightening torque 2.5 Nm, 3: LEDs (display unit / switching status), 4: 4-digit alphanumeric display, 5: Programming button

29



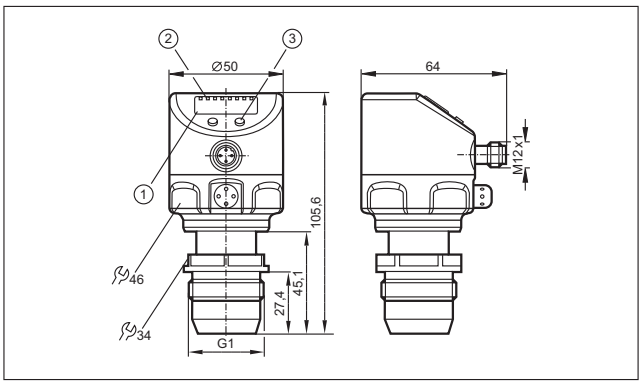
1: 4-digit alphanumeric display, 2: LEDs (display unit / switching status), 3: Programming button

30



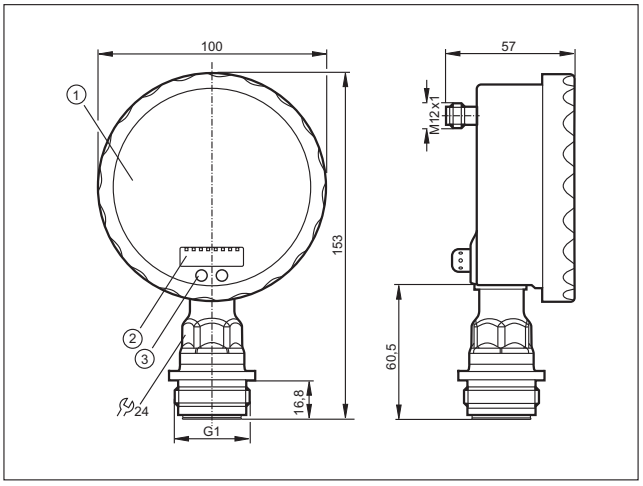
1: 4-digit alphanumeric display, 2: LEDs, 3: Programming button

31



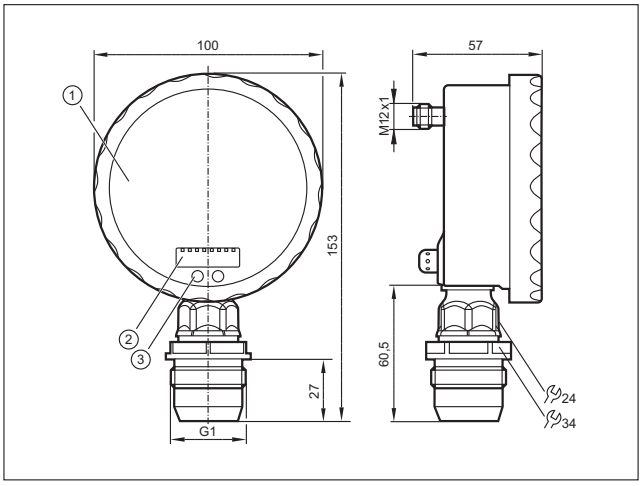
1: 4-digit alphanumeric display, 2: LEDs, 3: Programming button

32



1: Analogue display, 2: 4-digit alphanumeric display, 3: Programming button

33



1: Analogue display, 2: 4-digit alphanumeric display, 3: Touch button (programming button)

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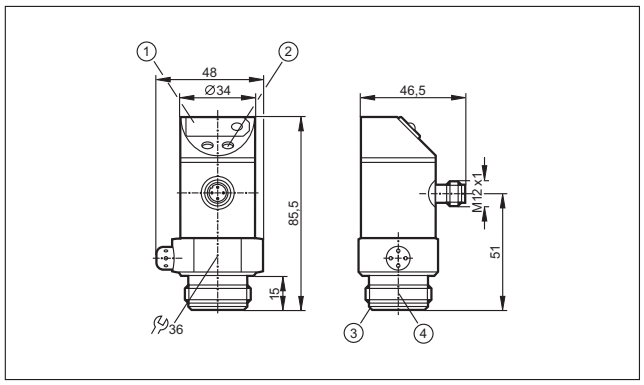
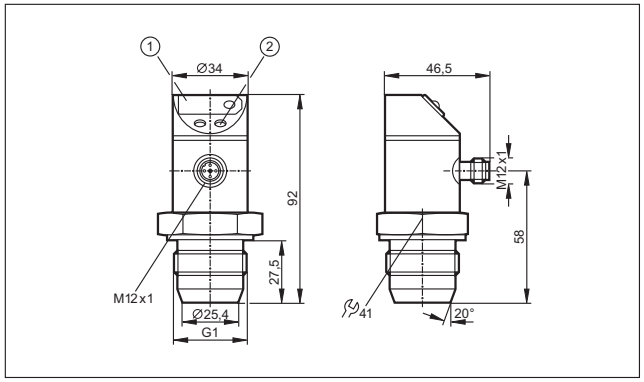


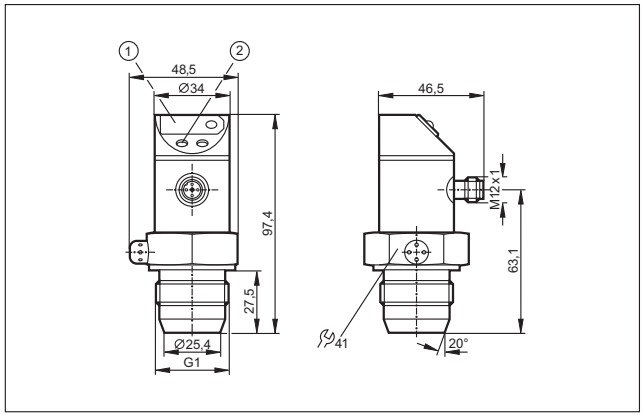
1: 7-segment LED display, 2: Programming button, 3: Aseptoflex sealing edge, 4: Aseptoflex thread

35



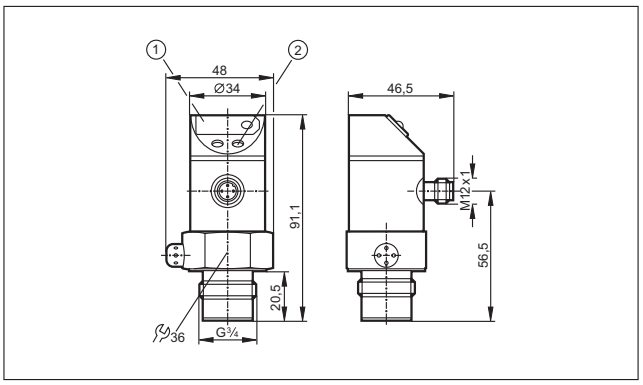
1: 7-segment LED display, 2: Programming button

36



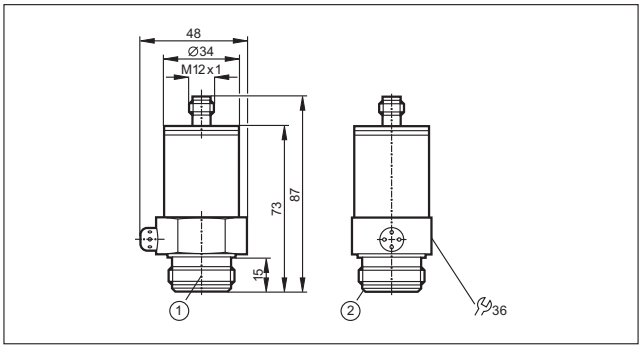
1: 7-segment LED display, 2: Programming button

37



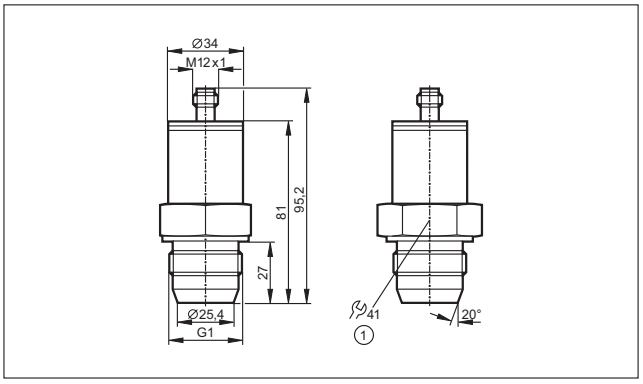
1: 7-segment LED display, 2: Programming button

38



1: Aseptoflex thread, 2: Aseptoflex sealing edge

39



1: tightening torque 20 Nm

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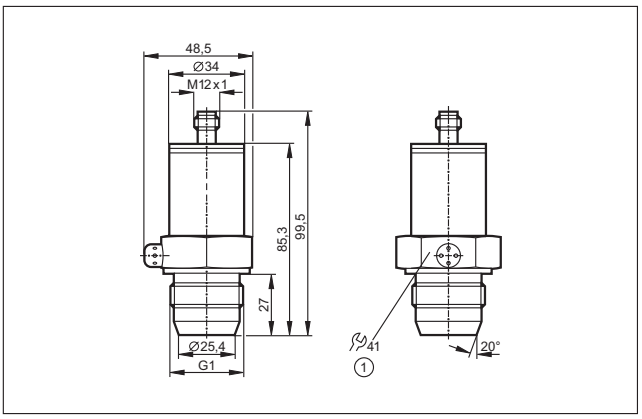
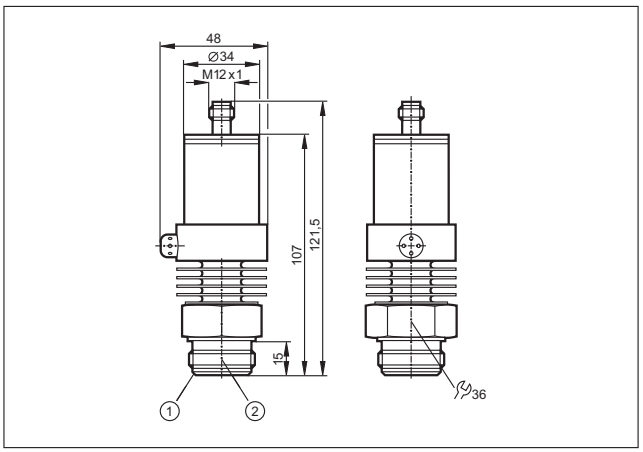


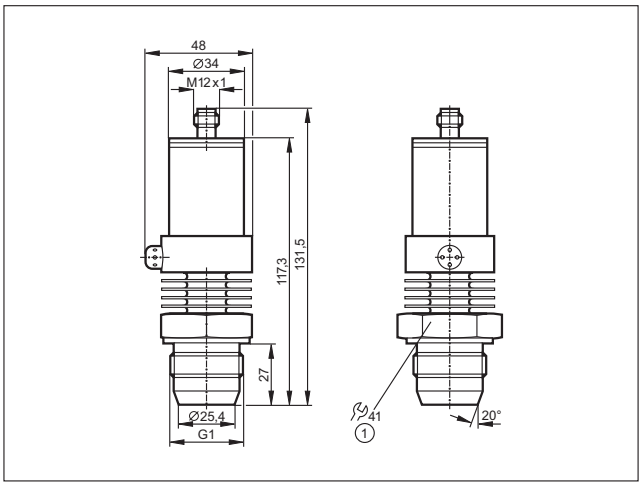
1: tightening torque 20 Nm

41



1: Aseptoflex sealing edge, 2: Aseptoflex thread

42



1: tightening torque 20 Nm

- **Increased process safety due to self-monitoring.**
- **Integrated or separate control monitors selectable.**
- **Modular concept – tailor-made for every application.**
- **Optional fittings for variable connection.**
- **Robust construction for high resistance to shock and vibration.**

Temperature sensors

The temperature sensors of ifm electronic are based on a PT100 or PT1000 resistor. The measured temperature value corresponds to a change in resistance and is converted into an electrical analogue signal. A microprocessor controls the evaluation of the electrical signal. The current system temperature is indicated by LEDs directly on the control monitor.

The microprocessor and the display make process adjustment much easier. The user can set the values for the switch points, hysteresis and measuring range by means of programming buttons even without the system temperature being applied. This enables installation and setup of the system within a few minutes. The values are safely stored in an EEPROM independent of the supply voltage.

Film technology is used for the electronic circuitry. A flexible, temperature-resistant and extremely resistant polyimide film is used as carrier of the SMD components. Together with a special potting method an extreme shock and vibration resistance is achieved.

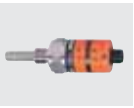
From sensor to system

A complete temperature measurement system usually consists of several components. The temperature in a medium is detected by a sensor and is converted into an electrical measured signal. The mechanical design and the dimensions of the sensors must vary to enable use for different media and measuring points. Depending on the application ifm electronic offers a selection of robust probe sensors or types with connection cables. To indicate and process the measured value the sensor is connected to a separate control monitor. It indicates the measured value on its integrated display. To complete the modular systems ifm electronic offers compact temperature sensors with integrated control monitors. If a local temperature display is not required, temperature transmitters are frequently used. ifm electronic provides units with excellent response time (TA series) that either have standard output signals or an integrated AS-i interface. In hygienic applications the self-monitoring, calibration-free temperature transmitter TAD is an excellent choice.

Local display of the current temperature.

Imperative: temperature monitoring in air conditioning.

Compact temperature sensors

Type	Measuring range [°C]	Process connection	Probe 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 9, 11, 12, 107, 108, 109, 135, 136							
	-25...140	G¼ A	39	9.6...32	1 / 3	1	**TK6130**
	-25...140	¼" NPT	39	9.6...32	1 / 3	2	**TK6330**
M12 connector · Output function ⎍ / ⎍ · DC PNP · Wiring diagram no. 2 · Connector groups 9, 11, 12, 107, 108, 109, 135, 136							
	-25...140	G¼ A	39	9.6...32	1 / 3	1	**TK7130**
	-25...140	¼" NPT	39	9.6...32	1 / 3	2	**TK7330**
M12 connector · Output function 1 x normally open / 1 x normally closed · DC PNP · Wiring diagram no. 2 · Connector groups 9, 11, 12, 107, 108, 109, 135, 136							
	-25...140	G½ A	267	9.6...32	1 / 3	3	**TK7480**

Compact temperature sensors with display, IO-Link

Type	Measuring range [°C]	Process connection	Probe 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. 4 · Connector groups 9, 10, 11, 107, 108, 110, 135							
	-40...150	M18 x 1.5	45	18...32	1 / 3	4	**TN2531**
M12 connector · Output function 2 x normally open / closed programmable · DC PNP/NPN · Wiring diagram no. 5 · Connector groups 9, 11, 12, 107, 108, 109, 135, 136							
	-40...150	M18 x 1.5	45	18...32	1 / 3	4	**TN7531**

Control monitors for temperature sensors

Type	Measuring range [°C]	Process connection	Display LED	U_b [V]	Current consump. [mA]	I_{load} [mA]	Drawing no.	Order no.
M12 connector · Output function 4 x normally open / closed programmable · DC PNP · Wiring diagram no. 6 · Connector groups 17, 18								
	-40...150	G½ A	Display unit	18...28	90	< 500	5	**TR8430**

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

Control monitors for temperature sensors, IO-Link

Type	Measuring range [°C]	Process connection	Display LED	U_b [V]	Current consump. [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. 7 · Connector groups 9, 10, 11, 107, 108, 110, 135								
	-40...300	G½ A	Display unit	18...32	50	250	6	**TR2432**
M12 connector · Output function 2 x normally open / closed programmable · DC PNP/NPN · Wiring diagram no. 8 · Connector groups 107, 108, 135								
	-40...300	G½ A	Display unit	18...32	50	250	6	**TR7432**

Modular temperature transmitters

Type	Measuring range [°C]	Process connection	U_b [V]	Ambient temperature [°C]	Measuring element	Drawing no.	Order no.
M12 connector · Output function 4...20 mA analogue · DC · Wiring diagram no. 9 · Connector groups 9, 11, 107, 108, 135							
	-50...300	M12	20...32	-25...70	for Pt100 and Pt1000 measuring elements	7	**TP3232**
	0...100	M12	20...32	-25...70	for Pt100 and Pt1000 measuring elements	7	**TP3237**
	-50...150	M12	20...32	-25...70	for Pt100 and Pt1000 measuring elements	7	**TP3231**
	-18...148.9	M12	20...32	-25...70	for Pt100 and Pt1000 measuring elements	7	**TP3233**
M12 connector · Output function 0...10 V analogue · DC · Wiring diagram no. 10 · Connector groups 9, 11, 107, 108, 135							
	0...100	M12	18...32	-25...70	for Pt100 and Pt1000 measuring elements	7	**TP9237**

Pt1000 probe sensors for standard applications

Type	Measuring range [°C]	Diameter [mm]	Probe 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	160	1 x Pt 1000	1 / 3	8	**TT1050**

You can find wiring diagrams and scale drawings from page 468

Type	Measuring range [°C]	Diameter [mm]	Probe 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	260	1 x Pt 1000	1 / 3	8	**TT2050**
	-40...150	10	360	1 x Pt 1000	1 / 3	8	**TT3050**
	-40...150	10	560	1 x Pt 1000	1 / 3	8	**TT5050**

Pt100 probe sensors for standard applications

Type	Measuring range [°C]	Diameter [mm]	Probe length [mm]	Sensor element	Dynamic response T05 / T09 [s]	Drawing no.	Order no.
M12 connector · high-grade stainless steel · Connector groups 9, 11, 107, 108, 135							
	-40...150	6	100	1 x Pt 100	1 / 3	9	**TT0281**
	-40...150	6	150	1 x Pt 100	1 / 3	9	**TT1281**
	-40...150	6	250	1 x Pt 100	1 / 3	9	**TT2281**
	-40...150	6	350	1 x Pt 100	1 / 3	9	**TT3281**
	-40...150	6	50	1 x Pt 100	1 / 3	9	**TT9281**
	-40...150	10	160	1 x Pt 100	1 / 3	8	**TT1081**
	-40...150	10	260	1 x Pt 100	1 / 3	8	**TT2081**
	-40...150	10	360	1 x Pt 100	1 / 3	8	**TT3081**
	-40...150	10	560	1 x Pt 100	1 / 3	8	**TT5081**
	-40...125	8.2	44	1 x Pt 100	1 / 3	10	**TM9950**

Type	Measuring range [°C]	Diameter [mm]	Probe length [mm]	Sensor element	Dynamic response T05 / T09 [s]	Drawing no.	Order no.
M12 connector · metal · Connector groups 9, 11, 107, 108, 135							
	-40...125	8.2	44	1 x Pt 100	1 / 3	10	**TM9900**

Pt100 probe sensors for standard applications

Type	Measuring range [°C]	Process connection	Probe length [mm]	Sensor element	Dynamic response T05 / T09 [s]	Drawing no.	Order no.
M12 connector · high-grade stainless steel · Connector groups 9, 11, 107, 108, 135							
	-40...150	½" NPT	50	1 x Pt 100	1 / 3	11	**TM4311**
	-40...150	½" NPT	100	1 x Pt 100	1 / 3	11	**TM4331**
	-40...150	½" NPT	150	1 x Pt 100	1 / 3	11	**TM4341**
	-40...150	½" NPT	250	1 x Pt 100	1 / 3	11	**TM4361**
	-40...150	G ¼	25	1 x Pt 100	1 / 3	12	**TM4101**
	-40...150	G½	50	1 x Pt 100	1 / 3	13	**TM4411**
	-40...150	G ½	100	1 x Pt 100	1 / 3	13	**TM4431**
	-40...150	G ½	150	1 x Pt 100	1 / 3	13	**TM4441**
	-40...150	G ½	250	1 x Pt 100	1 / 3	13	**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 / L = 25.7	silicone cable	1 x Pt 100	3 / 8	14	**TS4759**

You can find wiring diagrams and scale drawings from page 468

Type	Measuring range [°C]	Diameter [mm]	Cable material	Sensor element	Dynamic response T05 / T09 [s]	Drawing no.	Order no.
Cable with connector 2 m · high-grade stainless steel · Connector groups 9, 11, 107, 108, 135							
	-40...150	Ø 6 / L = 45	FPM (Viton) cable	1 x Pt 1000	3 / 10	15	**TS2251**
	-40...150	Ø 10 / L = 45	FPM (Viton) cable	1 x Pt 1000	6 / 25	16	**TS2051**
	-50...250	Ø 6 / L = 50	PTFE cable	1 x Pt 100	11 / 37	17	**TS2256**
	-50...250	Ø 10 / L = 50	PTFE cable	1 x Pt 100	12 / 39	18	**TS2056**
	-30...90	M5	PUR cable	1 x Pt 100	3 / 8	19	**TS2789**
	-30...180	–	silicone cable	1 x Pt 100	3 / 8	20	**TS2759**
	-30...180	M6 / L = 25.7	silicone cable	1 x Pt 100	3 / 8	21	**TS2659**
Cable with connector 2.5 m · high-grade stainless steel · Connector groups 9, 11, 107, 108, 135							
	-40...150	Ø 6 / L = 45	FPM (Viton) cable	1 x Pt 100	3 / 10	22	**TS9281**
Cable with connector 5 m · high-grade stainless steel · Connector groups 9, 11, 107, 108, 135							
	-40...150	Ø 10 / L = 45	FPM (Viton) cable	1 x Pt 1000	6 / 25	16	**TS5051**
Cable with connector 10 m · high-grade stainless steel · Connector groups 9, 11, 107, 108, 135							
	-30...180	–	silicone cable	1 x Pt 100	3 / 8	20	**TS0759**

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.
Cable with connector 2 m · stainless steel · Connector groups 9, 11, 107, 108, 135							
	-25...90	M6 / 12 x 51	PUR cable	1 x Pt 100	9 / 15	23	**TS2229**

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.
Cable 3 m · high-grade stainless steel							
	-20...80	Ø 5/6 / L = 40	silicone cable	1 x Pt 100	4 / 10	24	**TS325A**

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.
Cable 5 m · high-grade stainless steel							
	-20...80	M6 / 10 x 42	silicone cable	1 x Pt 100	13 / 39	25	**TS522A**
	-20...80	10	silicone cable	1 x Pt 1000	18 / 42	26	**TS502A**

Temperature transmitters for standard applications

Type	Measuring range [°C]	Process connection	Probe length [mm]	U_b [V]	Dynamic response T05 / T09 [s]	Drawing no.	Order no.
M12 connector · high-grade stainless steel · DC · Connector groups 9, 11, 107, 108, 135							
	-50...150	G¼ A	60	10...30	1 / 3	27	**TA3131**
	0...140	G¼ A	60	10...30	1 / 3	27	**TA3130**
	-50...150	G¼ A	200	10...30	1 / 3	28	**TA3171**
	-17.8...148.9	¼" NPT	60	10...30	1 / 3	29	**TA3333**
	0...100	¼" NPT	60	10...30	1 / 3	29	**TA3337**

You can find wiring diagrams and scale drawings from page 468

AS-i temperature transmitters for standard applications

Type	Measuring range [°C]	Process connection	Probe length [mm]	U_b [V]	Dynamic response T05 / T09 [s]	Drawing no.	Order no.
M12 connector · high-grade stainless steel · DC · Connector groups 9, 11, 107, 108, 135							
	-10...150	G¼ A	60	18...31.6	1 / 3	30	**TAA131**

Probe sensors for hygienic and wet areas

Type	Measuring range [°C]	Diameter [mm]	Probe length [mm]	Sensor element	Dynamic response T05 / T09 [s]	Drawing no.	Order no.
M12 connector · high-grade stainless steel · Connector groups 9, 11, 107, 108, 135							
	-40...150	6	100	1 x Pt 100	1 / 3	9	**TT0291**
	-40...150	6	150	1 x Pt 100	1 / 3	9	**TT1291**
	-40...150	6	250	1 x Pt 100	1 / 3	9	**TT2291**
	-40...150	6	350	1 x Pt 100	1 / 3	9	**TT3291**
	-40...150	6	50	1 x Pt 100	1 / 3	9	**TT9291**

Sensors with process connection for hygienic and wet areas

Type	Measuring range [°C]	Process connection	Probe length [mm]	Sensor element	Dynamic response T05 / T09 [s]	Drawing no.	Order no.
M12 connector · high-grade stainless steel · Connector groups 9, 11, 107, 108, 135							
	-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**

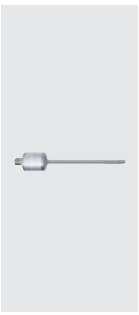
Type	Measuring range [°C]	Process connection	Probe length [mm]	Sensor element	Dynamic response T05 / T09 [s]	Drawing no.	Order no.
M12 connector · high-grade stainless steel · Connector groups 9, 11, 107, 108, 135							
	-40...150	Clamp 2"	30	1 x Pt 100	1 / 3	32	**TM4901**
	-40...150	Clamp 2"	50	1 x 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 s ealing cone	20	1 x Pt 100	1 / 3	33	**TM4591**
	-40...150	G½ with s ealing cone	30	1 x Pt 100	1 / 3	33	**TM4501**
	-40...150	G½ with s ealing 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**

Cable sensors for hygienic and wet areas

Type	Measuring range [°C]	Diameter [mm]	Cable material	Sensor element	Dynamic response T05 / T09 [s]	Drawing no.	Order no.
Cable with connector 2 m · high-grade stainless steel · Connector groups 9, 11, 107, 108, 135							
	-40...150	Ø 10 / L = 45	FPM (Viton) cable	1 x Pt 1000	6 / 25	16	**TS2051**
Cable with connector 5 m · high-grade stainless steel · Connector groups 9, 11, 107, 108, 135							
	-40...150	Ø 10 / L = 45	FPM (Viton) cable	1 x Pt 1000	6 / 25	16	**TS5051**
Cable with connector 2 m · high-grade stainless steel · Connector groups 9, 11, 107, 108, 135							
	-50...250	Ø 10 / L = 50	PTFE cable	1 x Pt 100	12 / 39	18	**TS2056**

You can find wiring diagrams and scale drawings from page 468

Temperature transmitters for hygienic and wet areas

Type	Measuring range [°C]	Process connection	Probe length [mm]	U_b [V]	Dynamic response T05 / T09 [s]	Drawing no.	Order no.
M12 connector · high-grade stainless steel · DC · Connector groups 9, 11, 107, 108, 135							
	0...100	G½ A	87.5	10...30	1 / 3	34	**TA3437**
	0...140	G½ A	87.5	10...30	1 / 3	34	**TA3430**
	-10...150	G½ A	87.5	10...30	1 / 3	34	**TA3431**
	0...100	Ø 6 mm	123	10...30	1 / 3	35	**TA3237**
	-17.8...148.9	Ø 6 mm	123	10...30	1 / 3	35	**TA3233**
	-10...150	Ø 6 mm	123	10...30	1.2 / 3.5	35	**TA3231**

AS-i temperature transmitters for hygienic and wet areas

Type	Measuring range [°C]	Process connection	Probe length [mm]	U_b [V]	Dynamic response T05 / T09 [s]	Drawing no.	Order no.
M12 connector · high-grade stainless steel · DC · Connector groups 9, 11, 107, 108, 135							
	-10...150	G½ A	87.5	18...31.6	1 / 3	36	**TAA431**

Self-monitoring temperature transmitters for hygienic and wet areas, IO-Link

Type	Measuring range [°C]	Process connection	Probe 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. 11 · Connector groups 9, 10, 11, 107, 108, 110, 135							
	0...150	Aseptoflex Vario	87.5	18...32	3 / 6	37	**TAD181**
	0...150	Aseptoflex Vario	33	18...32	3 / 6	38	**TAD981**
	0...150	G½ A	87.5	18...32	3 / 6	39	**TAD191**

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

Type	Measuring range [°C]	Process connection	Probe 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. 11 · Connector groups 9, 10, 11, 107, 108, 110, 135							
	0...150	G½ A	33	18...32	3 / 6	40	**TAD991**

Accessories for temperature sensors TN / TR

Type	Description	Order no.
	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**
	Protective cover · for fluid sensors with connector M12 · Housing materials: polyurethane	**E30006**

Accessories and software

Type	Description	Order no.
	IO-Link interface · for parameter setting and analysis of units with DTM specification · Supported communication protocols: IO-Link (4800 and 38400 bits/s) EPS protocol (19200 bits/s) · contains ifm Container software (E30110)	**E30396**
	Memory plug · Parameter memory for IO-Link sensors · 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**

You can find wiring diagrams and scale drawings from page 468

Thermowells for temperature sensors

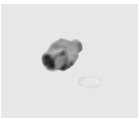
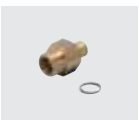
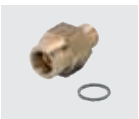
Type	Description	Order no.
	Welding thermowell · Ø 10 mm · Probe length: 173 mm · Housing materials: stainless steel 316Ti / 1.4571	**E35220**
	Welding thermowell · Ø 35 mm · Probe length: 126.5 mm · for type TA343x, TAA431, TAD191 · Housing materials: stainless steel 316L / 1.4404	**E30403**
	Thermowell 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**
	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 10 mm - ½„ NPT · Probe length: 72 mm · Housing materials: stainless steel 316Ti / 1.4571	**E35110**
	Thermowell for temperature sensors · Ø 6 mm - G ½ · Probe length: 82 mm · Housing materials: stainless steel 316Ti / 1.4571	**E37010**
	Thermowell for temperature sensors · Ø 6 mm - G ½ · Probe length: 182 mm · Housing materials: stainless steel 316Ti / 1.4571	**E37020**
	Thermowell for temperature sensors · Ø 6 mm - G ½ · Probe length: 282 mm · Housing materials: stainless steel 316Ti / 1.4571	**E37030**

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**

Type	Description	Order no.
	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 TS / TT · Housing materials: stainless steel / FPM	**E30018**
	Clamp fitting · Ø 6/8/10 mm - ½" NPT · for temperature sensors TS / TT · 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 · G ¼ - G ¼ · Housing materials: stainless steel 316L / 1.4404	**E30107**
	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**

You can find wiring diagrams and scale drawings from page 468

Type	Description	Order no.
	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: FPM 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**
	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 ¼ · 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 ¼ · Insertion depth of the probe of SID, SFD, TN: · 13.5 mm · Housing materials: brass	**E40098**
	Adapter · M18 x 1.5 - G ½ · 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 ½ · Insertion depth of the probe of SID, SFD, TN: · 21 mm · Housing materials: brass	**E40097**
	Adapter · M18 x 1.5 - ½" 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 ½ · 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 monitor VK · Housing materials: PP transparent	**E30094**

Hygienic adapters

Type	Description	Order no.
	Aseptoflex Vario 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**

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Type	Description	Order no.
	Aseptoflex Vario 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 · Clamp · 1-1.5" · ISO 2852 · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	**E33701**
	Aseptoflex Vario adapter · Clamp · 2" · ISO 2852 · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	**E33702**
	Aseptoflex Vario adapter · 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**
	Aseptoflex Vario adapter · pipe fitting · DN50 (2") · DIN 11851 · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	**E33213**
	Aseptoflex Vario adapter · 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**
	Aseptoflex Vario adapter · pipe fitting · DN50 (2") · DIN 11851 · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	**E33713**
	Aseptoflex Vario adapter · 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	**E33222**
	Aseptoflex Vario adapter · Varivent type N · DN40 (1.5"), D = 68 · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	**E33722**
	Aseptoflex Vario adapter · pipe fitting · DN40 (1.5") · SMS · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	**E33731**
	Aseptoflex Vario adapter · 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 · Ø 50 mm · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	**E30122**
	Adapter plug · for Aseptoflex Vario adapter · Housing materials: high-grade stainless steel	**E30128**
	G ½ adapter · Clamp · 1-1.5" · ISO 2852 / DIN 32676 · for units with G ½ adaptation · Housing materials: stainless steel 316L / 1.4404	**E33401**

You can find wiring diagrams and scale drawings from page 468

Type	Description	Order no.
	G ½ adapter · Clamp · 2" · ISO 2852 / DIN 32676 · for units with G ½ adaptation · Housing materials: stainless steel 316L / 1.4404	**E33402**
	G ½ adapter · DN25 · SMS · for units with G ½ adaptation · Housing materials: stainless steel 316L / 1.4404	**E33430**
	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**
	Adapter · G ½ · pipe fitting · DN25 (1") · DIN 11851 · Housing materials: stainless steel 316L / 1.4435	**E43304**
	Adapter · G ½ · pipe fitting · DN40 (1.5") · DIN 11851 · Housing materials: stainless steel 316L / 1.4435	**E43305**
	Adapter · G ½ · Varivent type F · DN25 (1"), D = 50 · Housing materials: stainless steel 316L / 1.4435	**E43306**
	Adapter · G ½ · Varivent type N · DN40 (1.5"), D = 68 · Housing materials: stainless steel 316L / 1.4435	**E43307**
	sealing plug · G ½ · for G ½ adapter · Housing materials: stainless steel 316L / 1.4435	**E43308**
	Welding adapter · G ½ - Ø 35 mm · ball · Housing materials: stainless steel 316L / 1.4404	**E30055**
	Welding adapter · G ½ - Ø 45 mm · collar · Housing materials: stainless steel 316L / 1.4404	**E30056**

Wiring diagrams

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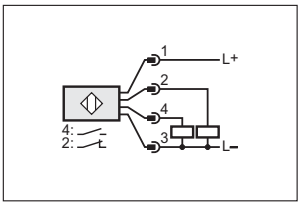

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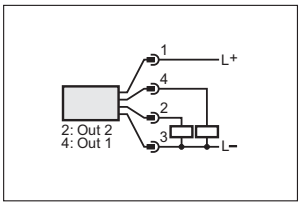

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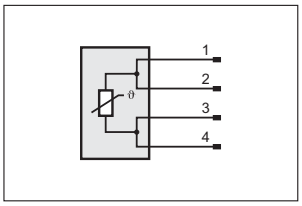

Wiring diagrams

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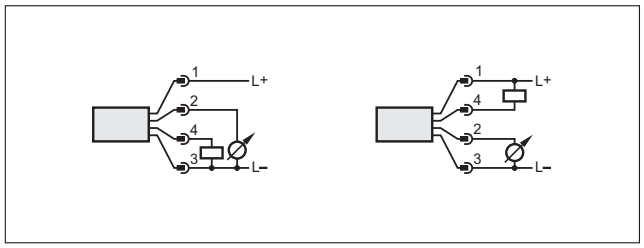

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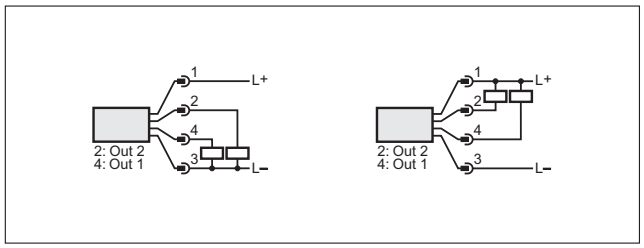

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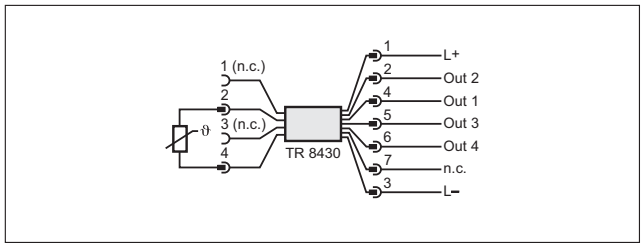

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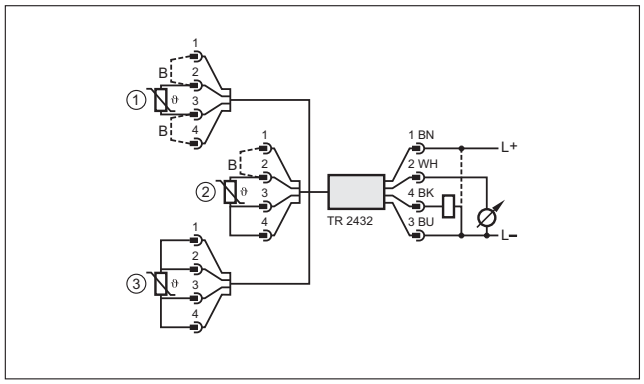

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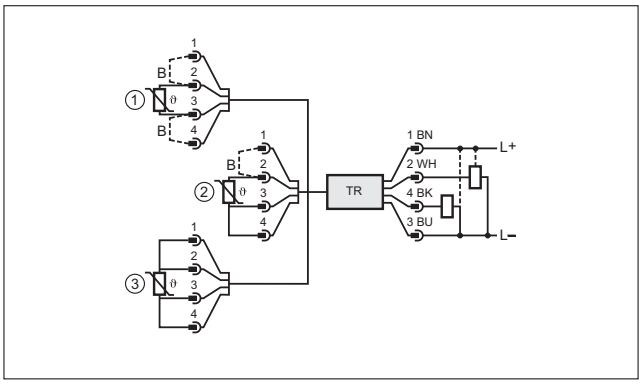

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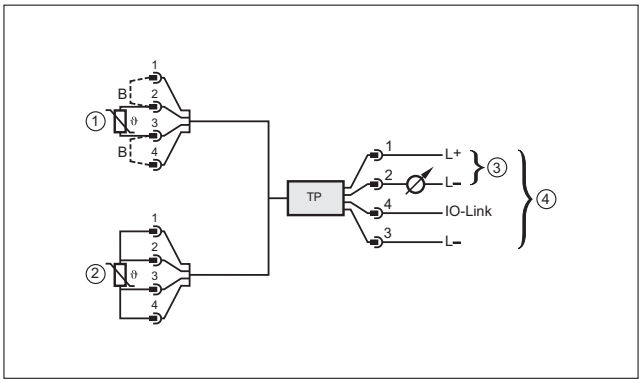

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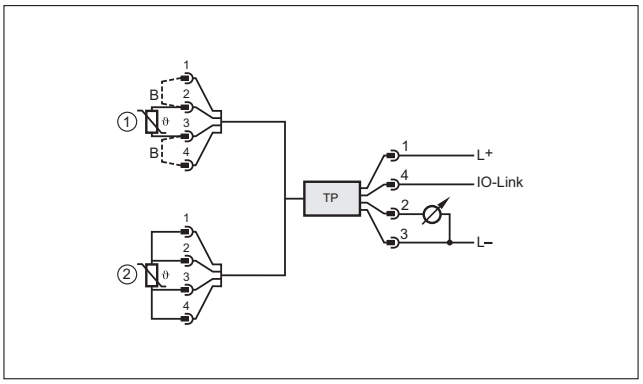

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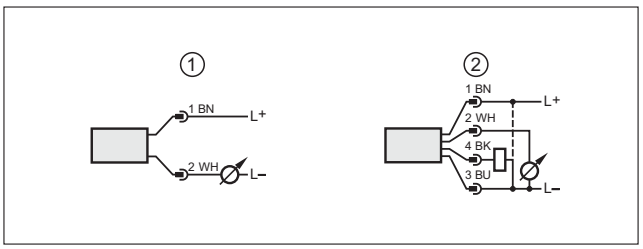

Scale drawings / drawing no. – CAD download: www.ifm.com

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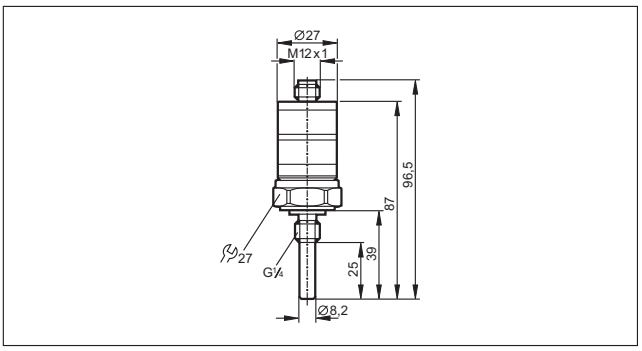

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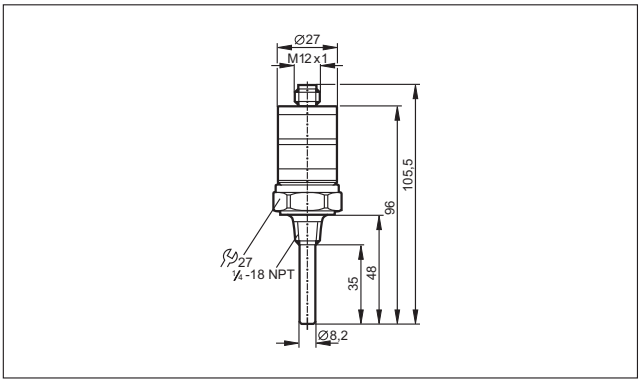

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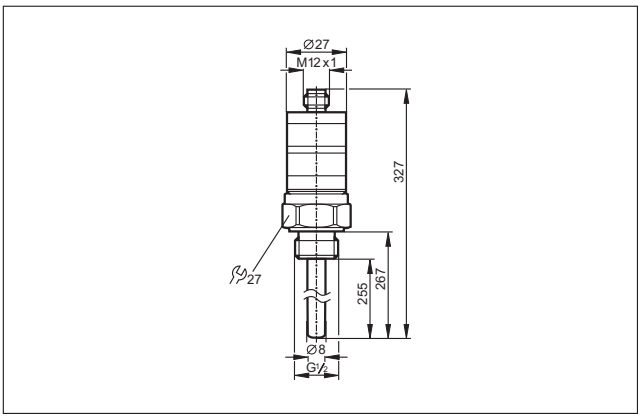

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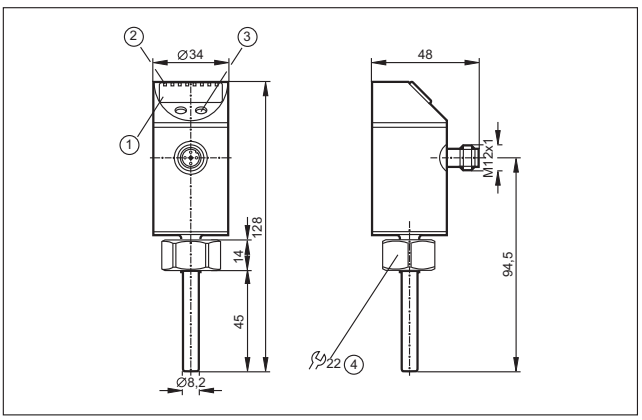
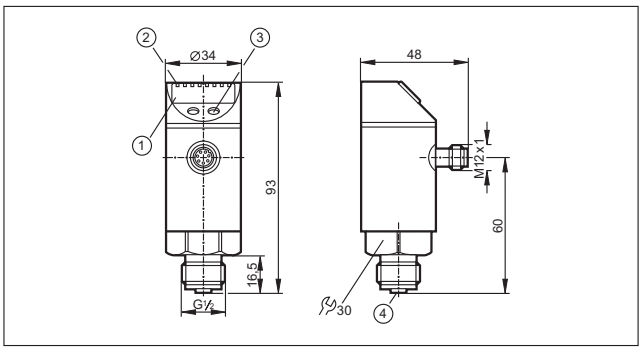


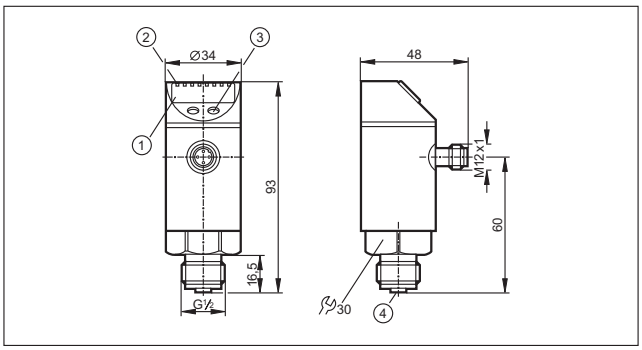
1: 4-digit alphanumeric display, 2: LEDs, 3: Programming button,
4: internal thread M18 x 1.5

5



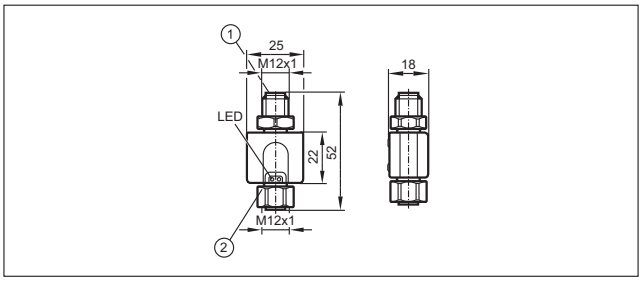
1: 4-digit alphanumeric display, 2: LEDs, 3: Programming button,
4: connection for temperature sensor

6



1: 4-digit alphanumeric display, 2: LEDs, 3: Programming button,
4: connection for temperature sensor

7



1: connection for voltage supply and output signals, 2: connection for temperature sensor

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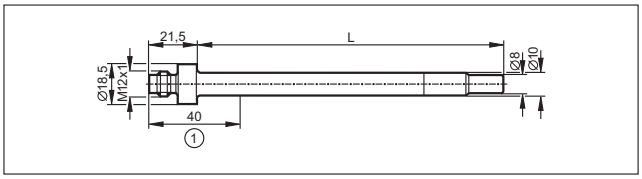

1: plug area

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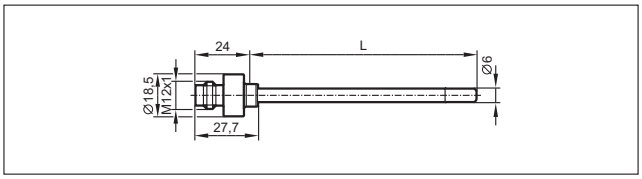

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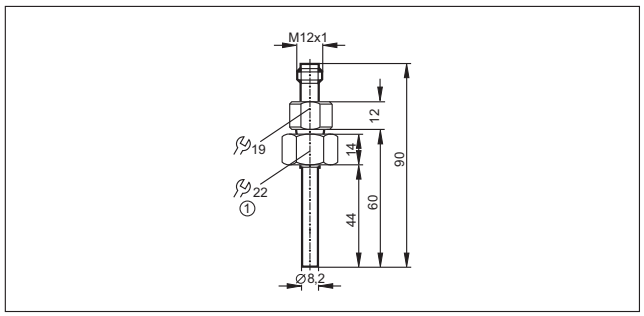

1: internal thread M18 x 1.5

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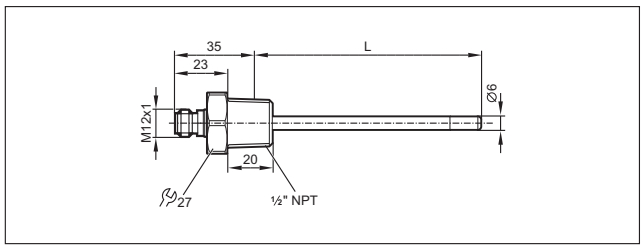

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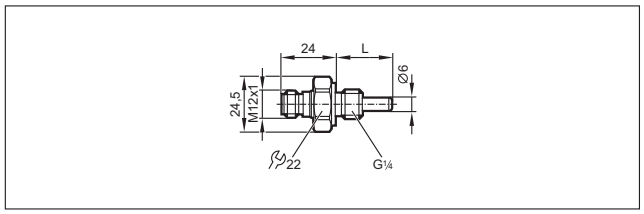

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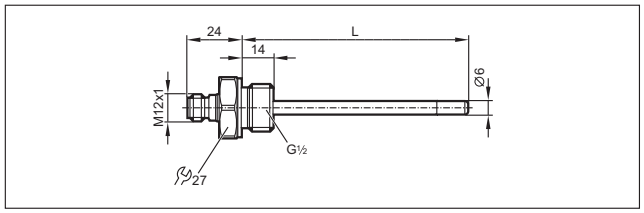

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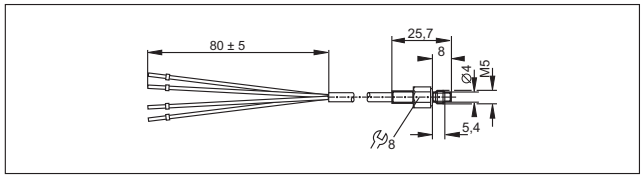

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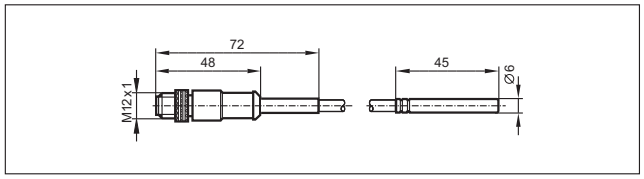

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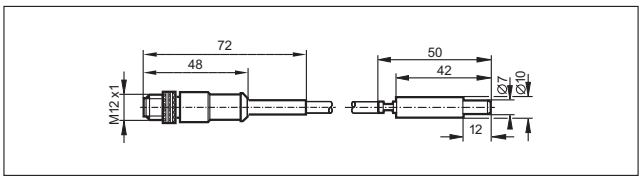

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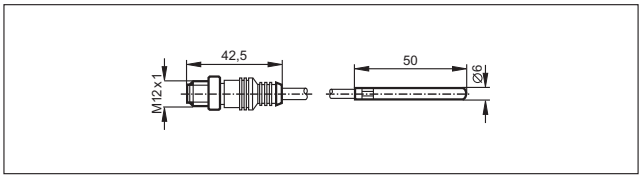

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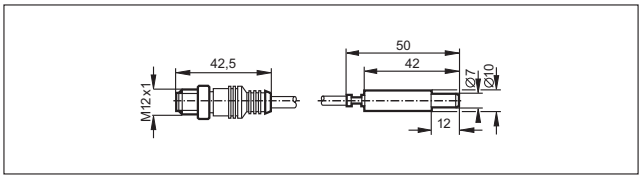

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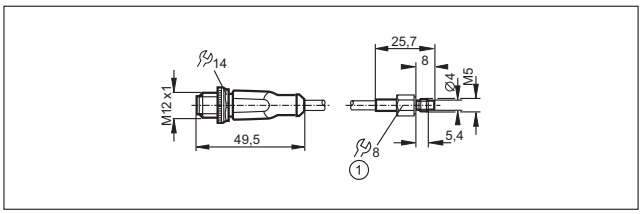

1: tightening torque 1.5 Nm

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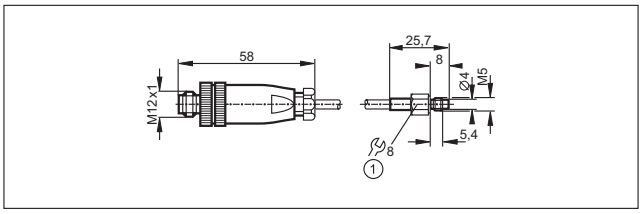

1: tightening torque 1.5 Nm

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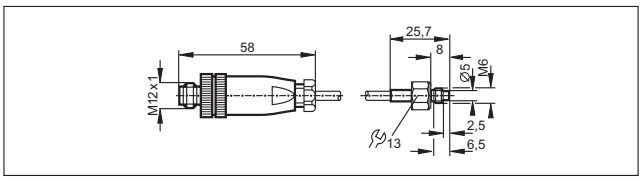

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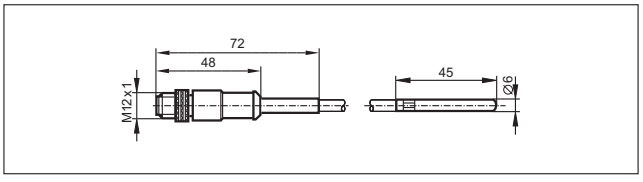

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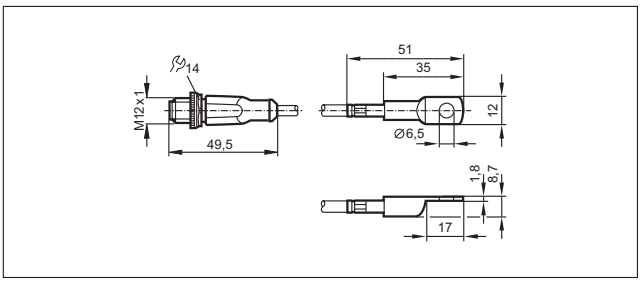

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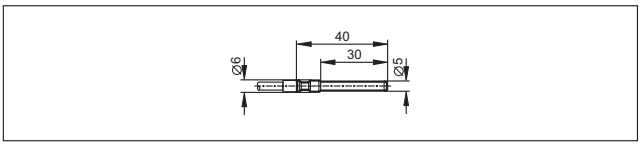

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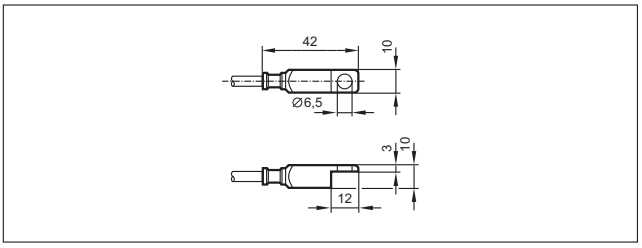

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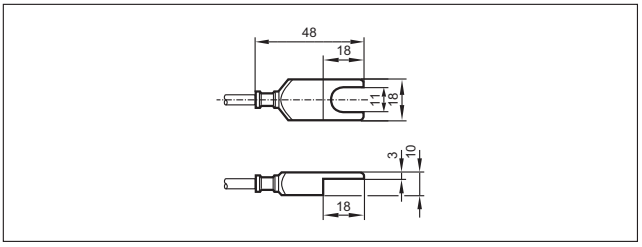

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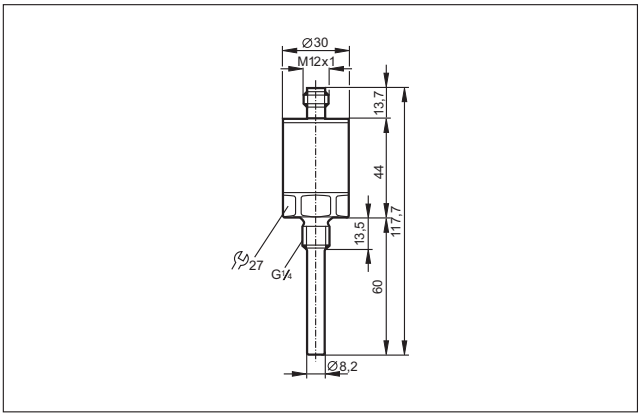

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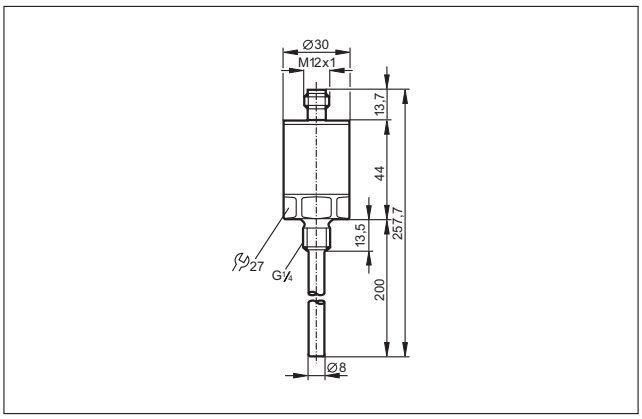

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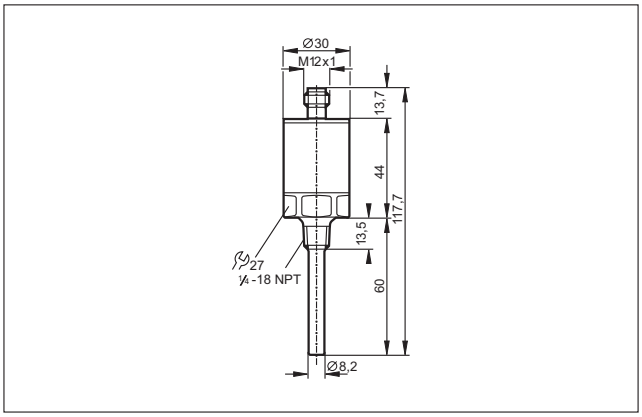

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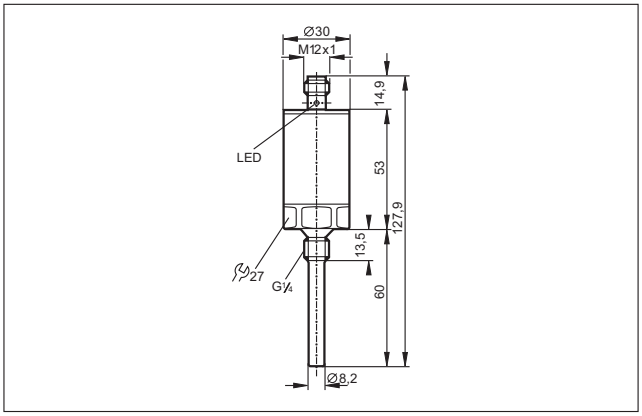

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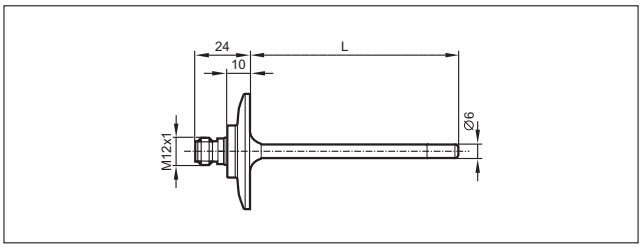

Scale drawings / drawing no. – CAD download: www.ifm.com

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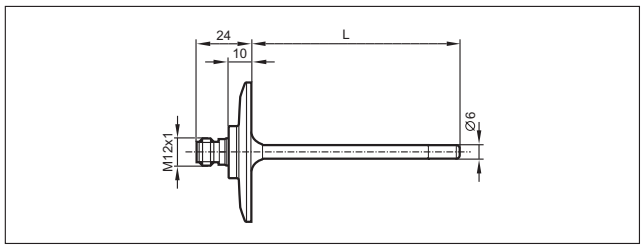

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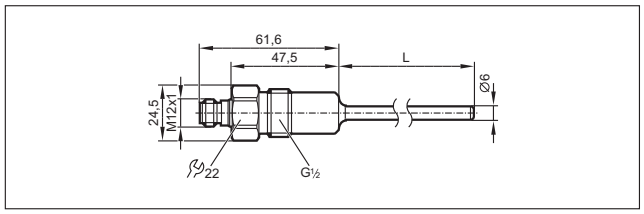

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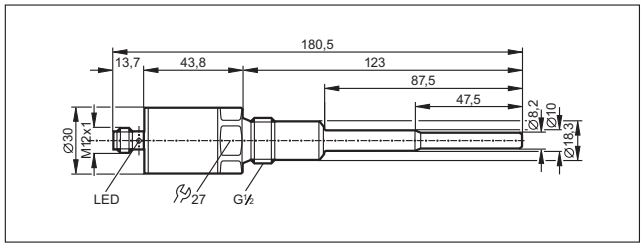

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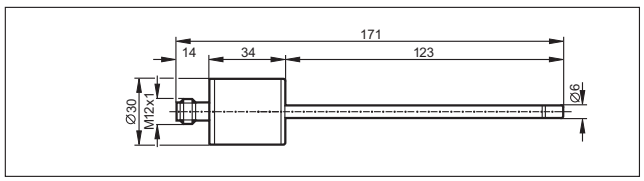

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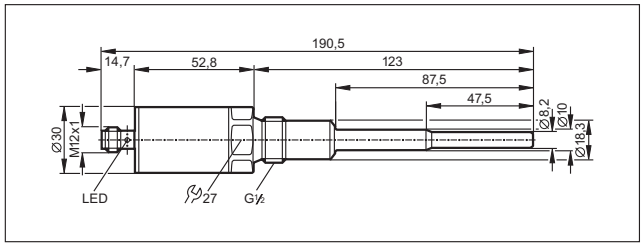

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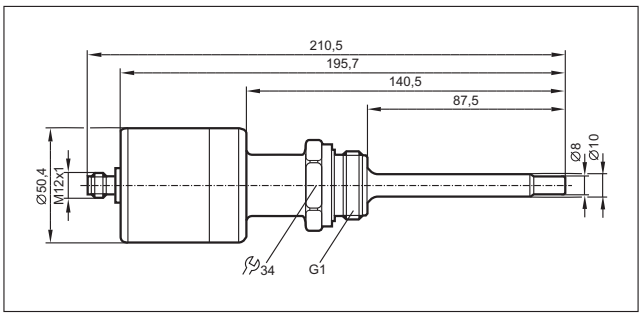

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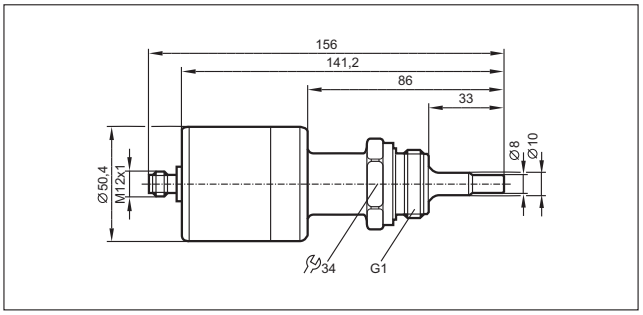

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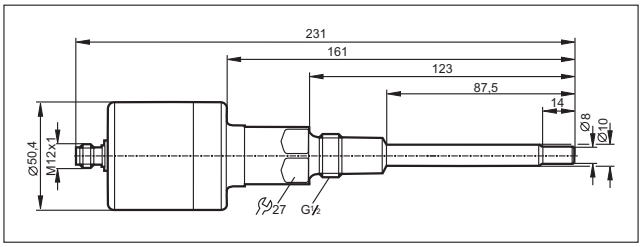

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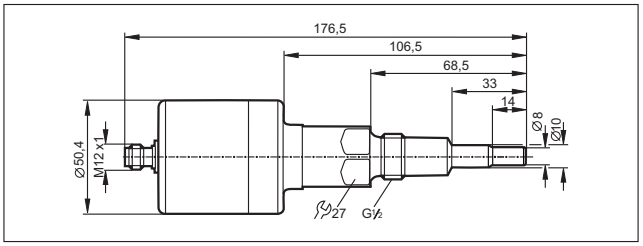


- **Online vibration diagnosis – optimum price / performance ratio.**
- **Decentralised monitoring of plant and equipment integrated into the machine.**
- **Compact field units and modular control cabinet units.**
- **Digital and analogue alarm outputs.**
- **Standard data interface (OPC).**

Diagnostic systems

efector octavis is a vibration monitor which not only detects vibration data, but also carries out signal analysis and machine diagnosis directly on the machine. The machine condition is determined and is forwarded to the PLC or to SCADA software. It fulfils the main requirements for modern machine monitoring: compatibility, modularity and transferable configuration.

Compatible and modular

The compatibility with data structures such as the OPC interface makes it possible to integrate condition data into a higher-level system. With the requirement for modularity the user can define the extent of condition monitoring to be implemented – this means the complete range of diagnosis is possible right from the "first unit". Transferable configuration is attained with application-related parameter sets. A wizard function in the software guides the user through creating, managing and archiving the monitoring parameters.

Trend memory

All units of the octavis family type VE / VSE feature an internal trend memory which ensures detailed analysis and optimisation of the application even without external data recording. The storage intervals are freely selectable. This means that the storage length of the non volatile ring buffer is adjusted to the requirements.

The suitable system for your application:

– Standard vibration characteristic values / permanent machine protection: VSE, VE, VK, VT
– Internal trend memory / root cause analysis: VSE, VE
– Online diagnosis / early damage detection: VSE (VE partly)
– Network capability of the system: VSE (VE partly*)
– Load meter: VSE

*Profibus DP gateway

Internal trend memory (type VE / VSE) of all monitored diagnosis factors can be evaluated via PC software.

Easy vibration monitoring: Type VK provides a combination of switching output and transmitter function in conjunction with the tried and tested easy-turn concept.

Compact vibration diagnostic units with g-monitor to ISO 10816 type VB/VE

Type	Description	Drawing no.	Order no.
	Vibration monitoring of up to 2 diagnosis values and 2 g-monitors, RMS; peak; method of analysis FFT/H-FFT; integrated history function; speed source connectable; integrated LED-diagnosis; RS232 serial interface; PC-software required; IP67; 2 switching outputs; measurement range +/-25g; frequency resolution 1.25Hz; speed range 500... 6000 rpm; connection M12x1 and M8x1 plug connection	1	**VB1001**
	Vibration monitoring of up to 5 diagnosis values and 2 g-monitors; RMS; peak: method of analysis FFT/H-FFT; integrated history function; speed source connectable; integrated LED-diagnosis; RS232 serial interface; PC-software required; IP67; 2 switching outputs; measuring range +/-25g; frequency resolution adjustable 1.25Hz or 0.125Hz; speed range 12... 12 000 rpm; Connection M12x1 and M8x1 plug connection	1	**VE1001**
	Vibration monitoring of up to 5 diagnosis values and 2 g-monitors; RMS; peak; method of analysis FFT/H-FFT; integrated history function; speed source connectable; RS485 serial interface; PC-software required; IP 69k; 2 switching outputs; measuring range +/-25g; frequency resolution adjustable 1.25Hz or. 0.125Hz; speed range 12... 12 000 rpm; connection M12x1 and M8x1 plug connection	2	**VE1101**
	Vibration monitoring of up to 5 diagnosis values and 2 g-monitors; method of analysis FFT; integrated history function; speed source connectable; RS232 serial interface; PC-software required; IP 69k; 2 switching outputs; measuring range +/-25g; frequency resolution 15.625Hz; speed range 1500... 96000 rpm; connection M12x1 und M8x1 plug connection	3	**VE1103**
	Compact unit for ATEX approval group II; category 2D/2G; vibration monitoring of up to 5 diagnosis values and 2 g-monitors; method of analysis FFT/H-FFT; integrated history function; speed source connectable; RS485 serial interface; PC-software required; IP 69k; 1 switching output; measuring range +/-25g; frequency resolution 1.25 Hz; frequency range 3...6000 Hz; speed range 120..12000 rpm; connection cable 5m	4	**VE113A**

Software VB / VE

Type	Description	Drawing no.	Order no.
	Expert software for efector octavis · Types VB and VE	–	**VES001**

Accessories VB / VE

Type	Description	Order no.
	Parameter setting cable for efector octavis · straight / straight · 3 m · Housing materials: PUR	**E11572**
	USB/RS485 adapter cable · straight / straight	**E30098**
	USB/RS485 adapter cable · straight / straight · For efector octavis VE113A	**E30117**
	Power supply · 2 m · Housing materials: PPE	**E30080**
	Y connection cable · 2 way · Free from halogen · 0.25 m · Housing materials: TPU	**E11664**

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

Vibration monitors for vibration monitoring of machines and plants to ISO 10816 type VK

Type	Description	Drawing no.	Order no.
	IP67; 1 switching output and response delay (1...60s) adjustable via setting rings; 1 analogue output (4mA = 0 mm/s, 20 mA=25 mm/s); M12 connector; measuring range RMS 0...25 mm/s; frequency range 10...1000 Hz; accuracy / deviation (in % of span): switchpoint accuracy < +/-4, repeatability <1; M12 connector	5	**VKV021**
	IP67; 1 switching output and response delay (1...60s) adjustable via setting rings; 1 analogue output (4mA = 0 mm/s, 20 mA=50 mm/s); M12 connector; measuring range RMS 0...50 mm/s; frequency range 10...1000 Hz; accuracy / deviation (in % of span): switchpoint accuracy < +/-4, repeatability <1; M12 connector	5	**VKV022**

Vibration transmitters for vibration monitoring of machines and plants to ISO 10816 type VT

Type	Description	Drawing no.	Order no.
	Vibration transmitter · Connection via M12 connector · Vibration transmitter to ISO 10816 · Measuring range veff: 0...25 mm/s · Analogue output 4...20 mA · stainless steel 316L / 1.4404	6	**VTV122**

Accessories VK

Type	Description	Order no.
	Protective cover · with lead seal option · for pressure sensors type PK · for temperature sensors type TK · for vibration monitor VK · Housing materials: PP transparent	**E30094**

Diagnostic electronics - control cabinet modules for vibration diagnosis type VSE

Type	Description	Drawing no.	Order no.
	Frequency-selective machine monitoring of up to 4 measurement points and 2 other process quantities; Ethernet interface TCP/IP; PC-software required; RMS, a-peak, a_RMS; integrated history function with real-time clock; 2 switching outputs or 1 switching and 1 analogue output; 12 freely configurable counters operating hours, events, load)	7	**VSE002**
	Frequency-selective machine monitoring of up to 4 measurement points and 2 other process quantities; Ethernet interface TCP/IP; PC-software required; RMS a-peak, a_RMS; integrated history function with real-time clock; 2 switching outputs or 1 switching and 1 analolgue output; up to 8 freely configurable I/O; 12 freely configurable counters (operating hours, events, load)	8	**VSE100**

Accessories VSE

Type	Description	Number of connections	Order no.
	Parameter setting software for VSExxx	–	**VES003**
	octavis OPC server · Software · German/English	25	**VOS001**

You can find wiring diagrams and scale drawings from page 479

Type	Description	Number of connections	Order no.
	octavis OPC server · Software · German/English	50	VOS002
	octavis OPC server · Software · German/English	75	VOS003
	octavis OPC server · Software · German/English	100	VOS004

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

Type	Description	Drawing no.	Order no.
	Vibration sensors based on MEMs technology; measuring range +/- 25g; IP 68 /IP 69k; frequency range 0...6000 Hz; linearity 0.2%; overload protection 500g; ambient temperature -30...125°C; M12 connector; recommended cable length 30m	9	VSA001
	Vibration sensors based on MEMs technology; measuring range +/- 25g; IP 67; frequency range 0...6000 Hz; linearity 0.2%; overload protection 500g; ambient temperature -30...85°C; connection cable PUR with cable plug M12 / 0.6m	10	VSA002
	Vibration sensors based on MEMs technology; extremely small design; measuring range +/- 25g; IP 67; frequency range 0...10000 Hz; linearity 0.2%; overload protection 500g; ambient temperature -30...100°C (contact temperature - 20...80°C); connection cable PUR 3m	11	VSA004
	Vibration sensors based on MEMs technology; extremely small design; measuring range +/- 25g; IP 67; frequency range 0...10000 Hz; linearity 0.2%; overload protection 500g; ambient temperature -30...100°C (contact temperature - 20...80°C); connection cable PUR 10m	11	VSA005

Accessories VSA

Type	Description	Order no.
	conical washer · Ø 8.4 / 15 mm · for efector octavis · Housing materials: stainless steel 316Ti / 1.4571	E30115

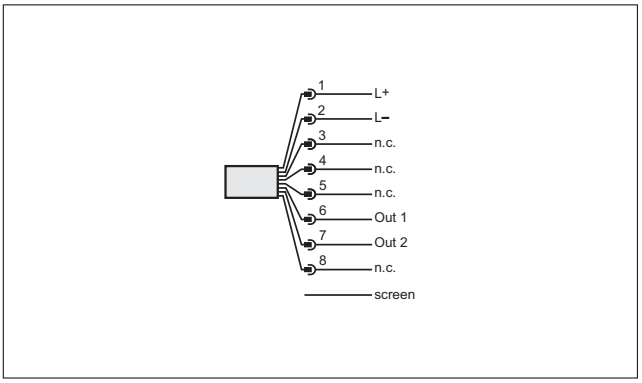
Type	Description	Order no.
	Adapter · M8-M8 · for the VSA001 vibration sensor · Electrical isolation · Housing materials: PEEK	**E30132**

Oil moisture sensor

Type	Process connection	Pressure rating [bar]	Protection	Medium temperature oil [°C]	Ambient temperature [°C]	Draw-ing no.	Order no.
M12 connector · Output function 4...20 mA analogue · Wiring diagram no. 1 · Connector groups 16, 17, 18							
	G¾	10	IP 67	-20...100	-20...85	12	**LDH100**

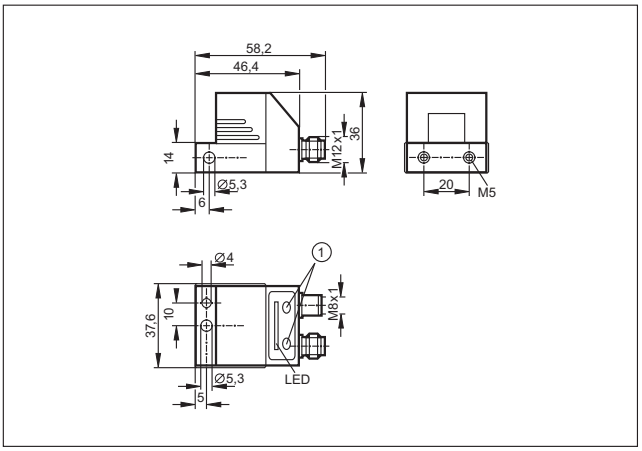
Wiring diagrams

1



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

1



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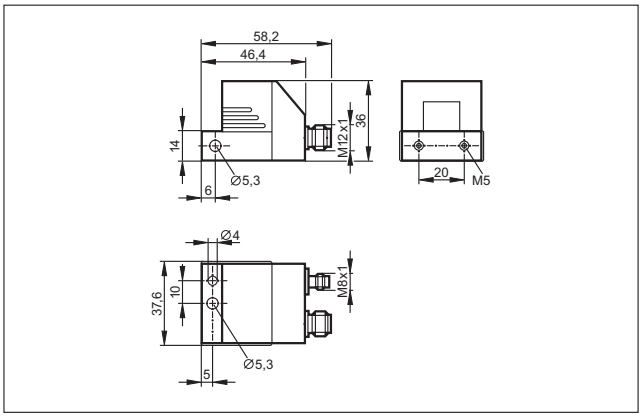
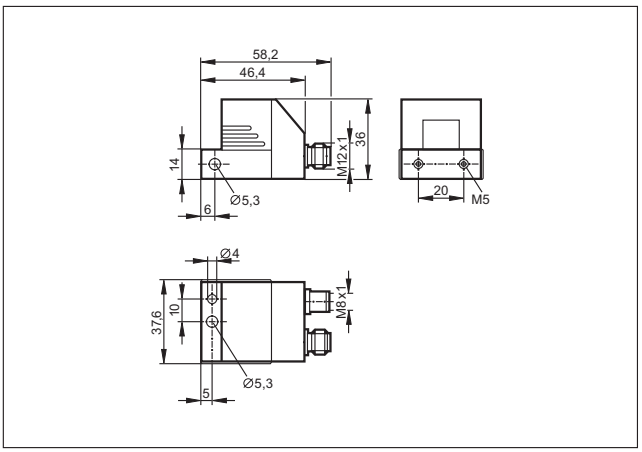


1: Programming buttons

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

3



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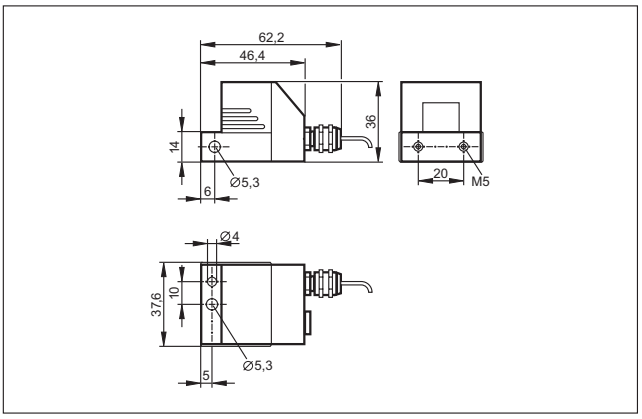

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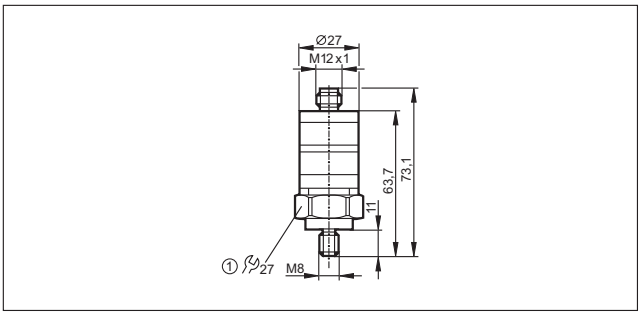
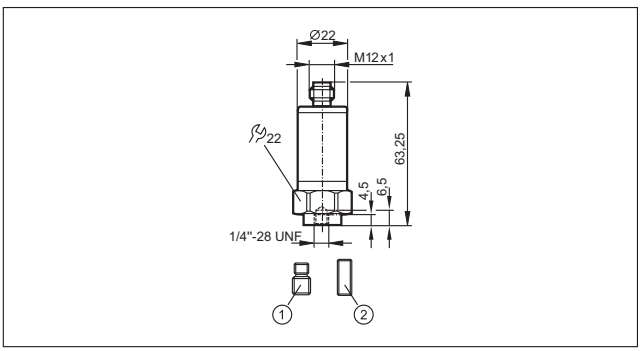


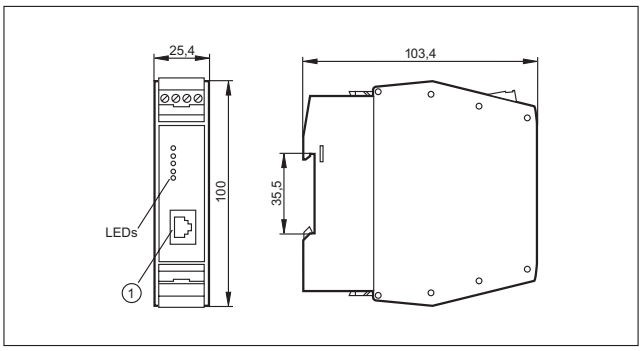
1: tightening torque 15 Nm

6



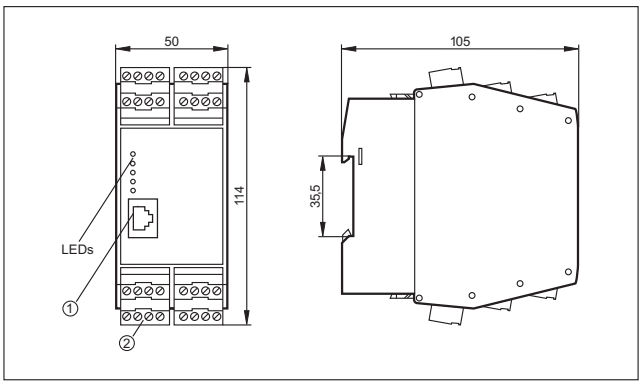
1: Threaded adapter 1/4"-28 UNF / M8, 2: Threaded adapter 1/4"-28 UNF, tightening torque 8 Nm

7



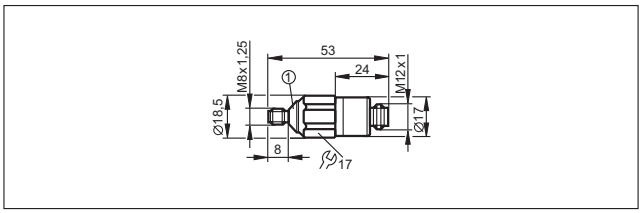
1: Ethernet interface

8



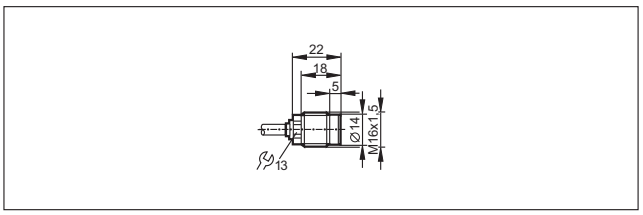
1: Ethernet interface, 2: Combicon plug with screw terminals (optional)

9



1: conical angle = 90°

10



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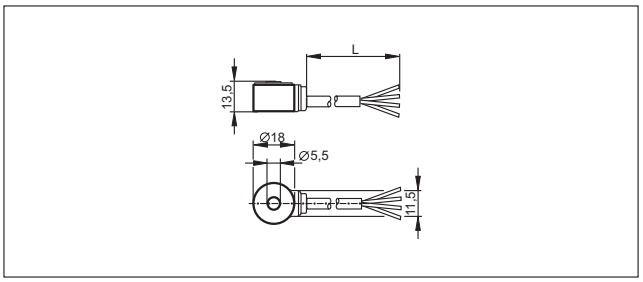
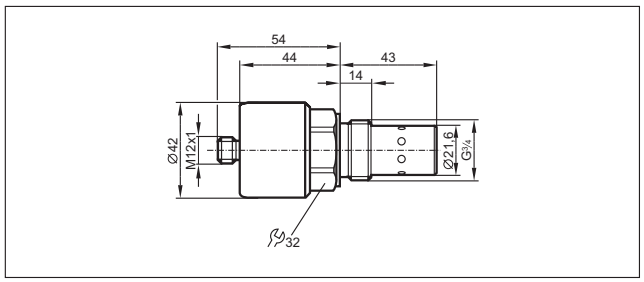


Product selectors and further information can be found at: www.ifm.com

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

12



- **Manufacturer-independent standard.**
- **Worldwide acceptance as a wiring system.**
- **Communication from the sensor to the controller.**
- **“Safety at Work” for safety-related applications.**
- **Intelligent system solutions for special tasks.**

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 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 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.

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.

With “Safety at Work” AS-i also solves safety-related tasks.

Reduced cost: reduced wiring complexity for faster installation and fewer error sources.

Controllers, gateways and software

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	1	**AC1375**
	2	AS-i DP gateway · Full master functions · Graphic display · Profibus DP interface · Housing materials: aluminium / steel sheet galvanised	2	**AC1376**
	1	AS-i DP controller E · AS-i PLC with Profibus-DP interface · Full master functions · Graphic display · Housing materials: aluminium / steel sheet galvanised	2	**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	2	**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	2	**AC1355**
	2	AS-i controller E · AS-i controller freely programmable · Profibus DP interface · Ethernet programming interface · Full master functions · Graphic display · Housing for DIN rail mounting · Housing materials: aluminium / steel sheet galvanised	2	**AC1356**
	1	AS-i Ethernet / IP Controller E · Full master functions · Graphic display · Housing materials: aluminium / steel sheet galvanised	3	**AC1327**
	2	AS-i Ethernet / IP Controller E · Full master functions · Graphic display · Housing materials: aluminium / steel sheet galvanised	3	**AC1337**
	1	AS-i DeviceNet controller E · AS-i controller with DeviceNet interface · Full master functions · Graphic display · Housing materials: aluminium / steel sheet galvanised	4	**AC1318**
	2	AS-i DeviceNet controller E · AS-i controller with DeviceNet interface · Full master functions · Graphic display · Housing materials: aluminium / steel sheet galvanised	4	**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**
	2	AS-i CANopen Controller E · AS-i controller with CANopen interface · Full master functions · Graphic display · Housing materials: aluminium / steel sheet galvanised	4	**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	5	**AC1353**
	2	AS-i controller E · AS-i controller freely programmable · Full master functions · Graphic display · Ethernet programming interface · Housing materials: aluminium / steel sheet galvanised	5	**AC1354**
	1	AS-i Profinet gateway · AS-i master · Ethernet configuration interface · 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	6	**AC1401**
	2	AS-i Profinet gateway · AS-i master · Ethernet configuration interface · 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	6	**AC1402**

Type	Number of AS-i masters	Description	Drawing no.	Order no.
	–	AS-i data decoupling module · Combicon connection · Housing materials: Makrolon	7	**AC1250**
	–	CodeSys for Automation Alliance · Software CD for Controller E German/English version 2.3 · Single user licence · For all Windows operating systems	–	**AC0340**

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	8	**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	9	**AC1146**

AS-i power supplies

Type	Output current AS-i [A]	Description	Drawing no.	Order no.
	2.8	Power supply · AS-i power supply 115/230 V AC · Integrated data decoupling · Jumper to deactivate the AS-i communication · NEC Class II Power Source · 85 watts · aluminium / steel sheet galvanised	10	**AC1216**
	2.8	Power supply · AS-i power supply 115/230 V AC · Integrated data decoupling · Jumper to deactivate the AS-i communication · NEC Class II Power Source · cage clamps · 85 watts · aluminium / steel sheet galvanised	11	**AC1226**
	2.8	Power supply · Integrated data decoupling · AS-i combined power supply 115/230 V AC for 26 V and AS-i · aluminium	12	**AC1209**
	2.8	Power supply · DC convertor 24 V DC for AS-i system voltage · Integrated data decoupling · aluminium	13	**AC1207**
	4	Power supply · AS-i power supply 115/230 V AC · Integrated data decoupling · Jumper to deactivate the AS-i communication · Earth fault monitor integrated · 120 Watt · aluminium / steel sheet galvanised	14	**AC1224**
	2 x 4	Power supply · AS-i dual power supply 115/230 V AC 2 x AS-i · Integrated data decoupling · aluminium	15	**AC1212**
	8	Power supply · AS-i power supply 115/230 V AC · Integrated data decoupling · Jumper to deactivate the AS-i communication · 240 watts · aluminium / steel sheet galvanised	16	**AC1218**

You can find scale drawings from page 502

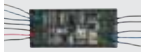
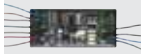
Type	Output current AS-i [A]	Description	Draw-ing no.	Order no.
	8	Power supply · Three-phase AS-i power supply 400...500 V AC · Integrated data decoupling · Jumper to deactivate the AS-i communication · 240 watts · aluminium / steel sheet galvanised	17	**AC1223**

Insulation monitors

Type	Description	Draw-ing no.	Order no.
	AS-i insulation monitor · Detection of asymmetric insulation faults · Screw terminal	18	**AC2211**
	AS-i insulation monitor · Detection of symmetric and asymmetric insulation faults · Screw terminal	18	**AC2212**

I/O modules for control cabinets

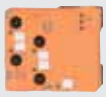
Type	Inputs / outputs	Description	Draw-ing no.	Order no.
	4 inputs	Active AS-i module · String mounting possible · Addressing socket · Version 2.1 with extended addressing mode · Digital inputs · Combicon connection · PA	19	**AC2250**
	4 inputs	Active AS-i module · String mounting possible · Addressing socket · Input supply from external PELV voltage source · Version 2.1 with extended addressing mode · Digital inputs · Combicon connection · PA	19	**AC2254**
	4 outputs	Active AS-i module · String mounting possible · Addressing socket · Version 2.1 · Digital outputs · Combicon connection · PA	19	**AC2252**
	4 inputs / 2 outputs	Active AS-i module · String mounting possible · Addressing socket · Version 2.1 with extended addressing mode · Digital inputs · Combicon connection · PA	19	**AC2256**
	4 inputs / 2 outputs	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	19	**AC2255**
	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	19	**AC2264**
	4 inputs / 4 outputs	Active AS-i module · String mounting possible · Addressing socket · Version 2.1 · Digital inputs and outputs · Combicon connection · PA	19	**AC2251**
	4 inputs / 4 outputs; bidirectional	Active AS-i module · String mounting possible · Addressing socket · External sensor supply PELV · Version 2.1 · Digital inputs and outputs · Combicon connection · PA	19	**AC2257**
	4 inputs / 4 outputs; bidirectional	Active AS-i module · String mounting possible · Addressing socket · External sensor supply PELV · Version 3.0 with extended addressing mode · Digital inputs and outputs · Combicon connection · PA	20	**AC2267**
	4 inputs / 4 outputs	Active AS-i module · String mounting possible · Addressing socket · Version 2.1 · Combicon connection · PA 6.6	21	**AC2258**

Type	Inputs / outputs	Description	Draw-ing no.	Order no.
	4 inputs / 4 outputs	Active AS-i module · String mounting possible · Addressing socket · Input supply from external PELV voltage source · Version 2.1 · Combicon connection · PA 6.6	21	**AC2259**
	4 inputs 4...20 mA	Active AS-i module · AS-i profile S-7.3 · 4 analogue inputs 4...20 mA · For the connection of 2-wire, 3-wire or 4-wire sensors · Combicon connector for sensor connection · PA 6.6	19	**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	19	**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	19	**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	19	**AC2219**
	4 inputs Pt100	Active AS-i module · 4 analogue inputs temperature Pt100 · AS-i profile S-7.3 · Combicon connection · PBT	19	**AC2220**
	4 inputs / 4 outputs; bidirectional	Active AS-i module · PCB size 105 x 45 x 17 mm · Digital inputs and outputs	22	**AC2709**
	4 inputs / 3 outputs; bidirectional	Active AS-i module · AS-i slave with extended addressing mode · PCB size 105 x 45 x 17 mm · Digital inputs and outputs	22	**AC2739**
	2 inputs / 1 LED output	Active AS-i module · Only suited for mechanical contacts	23	**AC2729**
	3 inputs / 3 outputs	Active AS-i module · AS-i version 2.1 with extended addressing mode	24	**AC2731**

Field modules IP 67

Type	Inputs / outputs	Description	Draw-ing 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	25	**AC5200**
	4 inputs	Active ClassicLine module · Addressing socket · Three orientations of the flat c able are possible · Digital inputs · Sockets M12 x 1 · PA	25	**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	25	**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	25	**AC5203**
	4 outputs	Active ClassicLine module · Addressing socket · Three orientations of the flat cable are possible · Digital outputs · Sockets M12 x 1 · PA	25	**AC5208**

You can find scale drawings from page 502

Type	Inputs / outputs	Description	Drawing no.	Order no.
	4 outputs	Active ClassicLine module · Addressing socket · Three orientations of the flat cable are possible · Digital outputs · Sockets M12 x 1 · PA	25	**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	25	**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	25	**AC5211**
	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	26	**AC5210**
	4 inputs / 4 outputs; bidirectional	Active ClassicLine module · Addressing socket · Three orientations of the flat cable are possible · Digital inputs and outputs · Sockets M12 x 1 · PA	26	**AC5209**
	4 inputs / 4 outputs; bidirectional	Active ClassicLine module · Addressing socket · Three orientations of the flat cable are possible · Digital inputs and outputs (2 A) · Sockets M12 x 1 · PA	26	**AC5212**
	4 inputs / 3 outputs; bidirectional	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	26	**AC5204**
	4 inputs / 4 outputs; bidirectional	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	26	**AC5235**
	4 inputs / 4 outputs; bidirectional	Active ClassicLine module · Addressing socket · Three orientations of the flat cable are possible · Version 3.0 with extended addressing mode · Digital inputs and outputs (2 A) · Sockets M12 x 1 · PA	26	**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	27	**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 · Illuminated pushbutton colour and cover upper parts selectable · Version 2.1 with extended addressing mode · PBT	27	**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	28	**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	28	**AC2517**
	4 outputs 0...20 mA	Active ClassicLine module · AS-i profile S-7.3 · IR addressing possible · 4 analogue outputs 0...20 mA · For the connection of 2-wire actuators · Sockets M12 x 1 · PBT	28	**AC2518**
	4 outputs 0...10 V	Active ClassicLine module · AS-i profile S-7.3 · 4 analogue outputs 0...10 V · IR addressing possible · For the connection of 2-wire actuators · Sockets M12 x 1 · PBT	28	**AC2519**
	4 inputs Pt100	Active ClassicLine module · 4 analogue inputs temperature Pt100 · AS-i profile S-7.3 · IR addressing possible · Sockets M12 x 1 · PBT	28	**AC2520**

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

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	25	**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	25	**AC5223**
	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	25	**AC5224**
	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	25	**AC5245**
	4 inputs / 3 outputs; bidirectional	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	26	**AC5274**
	4 inputs / 4 outputs; bidirectional	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	26	**AC5275**
	4 inputs / 3 outputs; bidirectional	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	26	**AC5292**
	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 · PA	25	**AC5225**
	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 · Digital inputs · Sockets M12 x 1 · PA	25	**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 · Digital inputs · Sockets M12 x 1 · PA	25	**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 · Digital outputs · Sockets M12 x 1 · PA	25	**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	25	**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 · Digital outputs and inputs · Sockets M12 x 1 · PA	25	**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	25	**AC522A**
	2 inputs	Active AS-i module	25	**AC5230**
	4 inputs / 4 outputs; bidirectional	Active ClassicLine module · Only for operation with AS-i masters with the profile M4 · Addressing socket · Version 3.0 with extended addressing mode · ATEX approval · Group II, category 3D · Only in conjunction with impact protection housing E7000A or equivalent protection · Digital inputs and outputs · Sockets M12 x 1 · PA	26	**AC535A**
	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	29	**AC2413**

You can find scale drawings from page 502

Type	Inputs / outputs	Description	Drawing no.	Order no.
	4 inputs	Active CompactLine module · 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	30	**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	30	**AC2457**
	4 inputs	Active CompactLine module · IR addressing possible · high-grade 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 in the lower part: stainless steel	30	**AC2451**
	4 inputs	Active CompactLine module · Digital inputs · Sockets M12 x 1 · PA / socket: brass nickel-plated / threaded inserts in the lower part: brass nickel-plated / O-Ring : Viton	31	**AC2464**
	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	32	**AC2417**
	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	32	**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	32	**AC2458**
	4 inputs / 4 outputs; bidirectional	Active CompactLine module · 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	33	**AC2465**
	4 inputs / 4 outputs; bidirectional	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	34	**AC2412**
	4 inputs / 4 outputs; bidirectional	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	34	**AC2459**
	4 inputs / 4 outputs; bidirectional	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	34	**AC2466**
	4 inputs / 4 outputs; bidirectional	Active CompactLine module · IR addressing possible · 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 in the lower part: stainless steel	34	**AC2452**
	4 inputs	Active AS-i module · Version 2.1 with extended addressing mode · Digital inputs · Sockets M8 x 1 · PA / O-ring: FPM	35	**AC2480**

Universal modules

Type	Inputs / outputs	Description	Drawing no.	Order no.
	4 inputs	Active module upper part AS-universal module · Digital inputs · Connection via cage clamps · PBT / stainless steel	36	**AC2032**
	4 inputs / 4 outputs; bidirectional	Active module upper part AS-universal module · Digital inputs and outputs · Connection via cage clamps · PBT / stainless steel	37	**AC2035**

Type	Inputs / outputs	Description	Drawing no.	Order no.
	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	38	**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	38	**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	38	**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	38	**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	37	**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	39	**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	40	**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	41	**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	42	**AC2916**
	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	43	**AC5000**

You can find scale drawings from page 502

Type	Inputs / outputs	Description	Drawing no.	Order no.
	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	43	**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	44	**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	44	**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	43	**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	43	**AC5015**
	SC coupling module	Module lower part screw connection · AS-i interface to module upper part · Screw terminal · PBT	45	**AC5031**

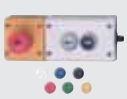
Pneumatic and actuator solutions

Type	Inputs / outputs	Description	Drawing 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 · Three orientations of the flat cable are possible · AS-i flat cable connection · Addressing socket · AS-i profile S-3.F.F · PA / POM	46	**AC5227**
	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 · PA / POM	46	**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 · 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	46	**AC5243**
	4 inputs / 1 output ; AirBox supply via AS-i	AS-i AirBox · 5/2-way 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	47	**AC5246**
	4 inputs / 1 output; AirBox supply via external voltage 24 V DC	AS-i AirBox · 5/2-way 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	47	**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	46	**AC5251**
	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	46	**AC5253**
	4 inputs / 2 outputs; AirBox supply via AS-i	AS-i AirBox · 5/3-way 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	46	**AC5270**
	4 inputs / 2 outputs; AirBox supply via external 24 V DC	AS-i AirBox · 5/3-way slide valve free from overlapping · 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	46	**AC5271**

Type	Inputs / outputs	Description	Drawing 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 · 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	46	**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	46	**AC528A**
	4 inputs / 1 output ; AirBox supply via AS-i	AS-i AirBox · 5/2-way 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	47	**AC546A**
	2 inputs / 1 output; AirBox supply via AS-i	AS-i AirBox · 5/2-way slide valve free from overlapping · 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	46	**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	46	**AC551A**
	4 inputs / 2 outputs; AirBox supply via AS-i	AS-i AirBox · 5/3-way 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	46	**AC570A**
	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	48	**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	49	**AC2057**
	2 inputs / 1 output	Dual sensor for actuator feedback · Sensing range 4 mm · 2 inductive position sensors integrated · Version 2.1 · Connector · PBT / PC / plug / socket stainless steel	50	**AC2310**
	1 x 2 inputs	Dual sensor · Sensing range 4 mm · 2 inductive position sensors integrated · Version 2.1 with extended addressing mode · Connector · PBT / connector housing: stainless steel	51	**AC2315**
	2 inputs / 1 output	Dual sensor for actuator feedback · Sensing range 4 mm · 2 inductive position sensors integrated · Version 2.1 with extended addressing mode · Connector · PBT / PC / plug / socket stainless steel	50	**AC2316**
	2 inputs / 2 outputs	Dual sensor for actuator feedback · Sensing range 4 mm · 2 inductive position sensors integrated · Version 2.1 with extended addressing mode · Connector · PBT / PC / plug / socket stainless steel	50	**AC2317**
	1 x 2 inputs	Dual sensor · Sensing range 4 mm · 2 inductive position sensors integrated · Version 2.1 with extended addressing mode · ATEX approval · Group II, category 3D · Connector · PBT / connector housing: stainless steel	51	**AC315A**
	2 inputs / 1 output	Dual sensor for actuator feedback · Sensing range 4 mm · 2 inductive position sensors integrated · Version 2.1 with extended addressing mode · ATEX approval · Group II, category 3D · Connector · PBT / PC / plug / socket stainless steel	50	**AC316A**
	2 inputs / 2 outputs	Dual sensor for actuator feedback · Sensing range 4 mm · 2 inductive position sensors integrated · Version 2.1 with extended addressing mode · ATEX approval · Group II, category 3D · Connector · PBT / PC / plug / socket stainless steel	50	**AC317A**
	3 inputs / 4 outputs	MOVIMOT module for SEW drives · Digital inputs and outputs	52	**AC1151**
	2 inputs / 1 serial interface	MOVIMOT module for SEW drives · Easy selection of preset frequencies · RS-485 interface · Digital inputs and outputs · Sockets M12 x 1 · PBT	53	**AC1150**

You can find scale drawings from page 502

Safety at Work

Type	Description	Drawing no.	Order no.
	AS-i safety monitor · Basic version · 1-channel · Control category 4 to EN954-1, IEC 61508 / SIL 3 and EN ISO 13849 - 1 PL e · Configuration and setup by configuration software ASIMON · Screw terminal · polyamide black	54	**AC001S**
	AS-i safety monitor · Basic version · 2-channel · Control category 4 to EN954-1, IEC 61508 / SIL 3 and EN ISO 13849 - 1 PL e · Configuration and setup by configuration software ASIMON · Screw terminal · polyamide black	54	**AC002S**
	AS-i safety monitor · Extended functionality · 1-channel · Control category 4 to EN954-1, IEC 61508 / SIL 3 and EN ISO 13849 - 1 PL e · Configuration and setup by configuration software ASIMON · Screw terminal	54	**AC003S**
	AS-i safety monitor · Extended functionality · 2-channel · Control category 4 to EN954-1, IEC 61508 / SIL 3 and EN ISO 13849 - 1 PL e · Configuration and setup by configuration software ASIMON · Screw terminal	54	**AC004S**
	AS-i safety monitor · Extended functionality and integrated safe slave for triggering a safe AS-i output · 1-channel · Control category 4 to EN954-1, IEC 61508 / SIL 3 and EN ISO 13849 - 1 PL e · Configuration and setup by configuration software ASIMON V3.0 · Screw terminal · polyamide black	55	**AC031S**
	AS-i safety monitor · Extended functionality and integrated safe slave for triggering a safe AS-i output · 2-channel · Control category 4 to EN954-1, IEC 61508 / SIL 3 and EN ISO 13849 - 1 PL e · Configuration and setup by configuration software ASIMON V3.0 · Screw terminal	55	**AC032S**
	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	56	**AC009S**
	Safe active AS-i output module · Control category 4 to EN954-1, IEC 61508 / SIL 3 and EN ISO 13849 - 1 PL e · for the safe triggering of actuators · Combicon connection	20	**AC030S**
	Safe active AS-i module · Connection via M12x1 sockets or cage clamps · Control category 4 according to EN954-1 and IEC 61508 / SIL 3 · Version 2.1 · For connection of an electro-sensitive protective equipment (ESPE) type 4 to EN 61496-1 · AS-i interface to FC-E lower parts	57	**AC007S**
	Safe AS-i input module · IR addressing possible · AS-i version 2.1 · Performance Level e to EN ISO 13849-1 for the connection of mechanical contacts · Sockets M12 x 1 · PBT	58	**AC005S**
	Safe active AS-i ClassicLine module · IR addressing possible · AS-i version 2.1 · Category 4 to EN954-1 and IEC 61508 / SIL 3 for connection of mechanical contacts · Sockets M12 x 1	59	**AC006S**
	Illuminated E-STOP · front mounting · reset by turning · 2 NC contacts / 1 red LED · fool-proof E-STOP to EN ISO 13850 / EN 418	–	**E7007S**
	Illuminated 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 / EN 418 · Pull to reset	60	**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 / EN 418 · Reset by key operation	61	**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 / EN 418 · Pull to reset · interchangeable button inserts	62	**AC012S**

Type	Description	Drawing no.	Order no.
	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	–	AC016S
	AS-i safety PCB · Connection of mechanical contact and LED components · Certification according to EN 954-1 / category 4 and IEC 61508 / SIL 3	23	AC015S
	Fail-safe inductive sensor · GIMC-4030-US · M12 connector · PPE / diecast zinc · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3	63	GM504S
	Fail-safe inductive sensor · GIMC-4035-US · M12 connector · PPE / diecast zinc · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3	63	GM505S
	Fail-safe inductive sensor · GIGA-4015-US/V4A · M18 x 1 · M12 connector · high-grade stainless steel / PBT · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3	64	GG505S
	Fail-safe inductive sensor · GIIA-4030-US/V4A · M30 x 1.5 · M12 connector · 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	65	GI505S

AS-i sensors

Type	Description	Drawing no.	Order no.
	Inductive sensor · IFK2004BASI/M/US · M12 x 1 · Sensing range 4 mm · gold-plated contacts · Connector · V4A / active face: LCP uncoloured	66	IFC247
	Inductive sensor · IGK2008BASI/M/US · M18 x 1 · Sensing range 8 mm · gold-plated contacts · Connector · threaded sleeve: V4A / active face: LCP uncoloured / lock nuts: brass	67	IGC234
	Inductive sensor · IGK2012-ASI/M/US · M18 x 1 · Sensing range 12 mm · gold-plated contacts · Connector · threaded sleeve: V4A / active face: LCP uncoloured / lock nuts: brass	68	IGC235
	Inductive sensor · IIK2014BASI/M/US · M30 x 1.5 · Sensing range 14 mm · gold-plated contacts · Connector · V4A / active face: LCP uncoloured	69	IIC220
	Inductive sensor · IIK2022-ASI/M/US · M30 x 1.5 · Sensing range 22 mm · gold-plated contacts · Connector · V4A / active face: LCP uncoloured	70	IIC221
	Inductive sensor · IMC2015-ASI/US · Sensing range 15 mm · Sensing face in 5 positions selectable · Connector · PBT / PPE	71	IM5118
	Electronic pressure sensor · Analogue value (16 bit value incl. sign) · AS-i profile S-7.3 · Measuring range 0...400 bar · Connector · stainless steel / PA	72	PPA020
	Electronic pressure sensor · Analogue value (16 bit value incl. sign) · AS-i profile S-7.3 · Measuring range 0...10 bar · Connector · stainless steel / PA	73	PPA024

You can find scale drawings from page 502

Type	Description	Drawing no.	Order no.
	Read/write head · DTSLF AARWASUS01 · with integrated AS-i slave profile 7.4 · M12 connector · PA	74	**DTA100**
	Read head · DTSLF AAROASUS01 · with integrated AS-i slave profile 7.3 · M12 connector · PA	74	**DTA101**
	Read/write head · DTSLF MCRWASUS01 · with integrated AS-i slave profile 7.4 · M12 connector · Sensing face in 5 positions selectable · PA	71	**DTA200**
	Read head · DTSLF MCROASUS01 · with integrated AS-i slave profile 7.3 · M12 connector · Sensing face in 5 positions selectable · PA	71	**DTA201**
	Read/write head · DTSLF DCRWASUS01 · with integrated AS-i slave profile 7.4 · M12 connector · housing: PPE / Metal parts: diecast zinc / brass nickel-plated	75	**DTA300**

Combicon connectors

Type	Description	Order no.
	Combicon connector · with screw terminals 4-pole · Housing materials: current carrying parts: copper alloy tin-plated · Pack quantity: 6	**E70230**
	Combicon connector · with screw terminals 4-pole · Housing materials: current carrying parts: copper alloy tin-plated · Pack quantity: 100	**E70231**
	Combicon connector · with cage clamps 4 poles · Housing materials: current carrying parts: copper alloy tin-plated · Pack quantity: 6	**E70232**
	Combicon connector · with cage clamps 4 poles · Housing materials: current carrying parts: copper alloy tin-plated · Pack quantity: 100	**E70233**
	Combicon connector · QIC · with insulation displacement terminals 4-pole (0.75...1 mm²) · Housing materials: current carrying parts: copper alloy tin-plated · Pack quantity: 6	**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 : Viton	**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**

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

Type	Description	Order no.
	FC splitter · Distribution of the AS-i voltage or the external 24 V supply · Housing materials: PA 6 GF35 Grivory	**E70381**
	FC splitter · AS-i voltage via M12 socket · Housing materials: Metal parts: stainless steel 316L / 1.4404 / O-ring: EPDM / socket: PP GF30 / blade seal: TPE	**E70454**
	FC splitter · 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	**E70354**
	FC splitter · Housing materials: Metal parts: stainless steel 316L / 1.4404 / Blanks: FPM / O-ring: EPDM	**E70377**
	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: brass gold-plated	**E70271**
	FC insulation displacement connector · Socket M12 - AS-i flat cable · Housing materials: PA	**E70096**
	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 · Transition from flat cable to round cable · Cable length 2 m · 2 m · Housing materials: PA 6 GF35 Grivory / round cable: PUR / outer sheath 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 / outer sheath insulation: PVC	**E70499**
	Flat cable insulation displacement connector	**E79995**
	FC insulation displacement connector · straight / angled	**E79998**

You can find scale drawings from page 502

Type	Description	Order no.
	Splitter box · 8 way · Cable · 25 m · Housing materials: high-grade stainless steel	E11847
	T splitter · 2 way · Free from halogen · Free from silicone · gold-plated contacts · Housing materials: PUR	E10802
	T splitter · 2 way · Free from halogen · Free from silicone · gold-plated contacts · Housing materials: PUR	E10803
	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 Safety at Work

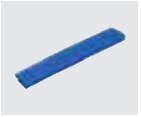
Type	Description	Order no.
	AS-i Safety at Work · ASIMON programming software · Version 3.0 · Configuration, set-up and diagnostics of the AS-i safety monitor	E7040S
	Connection cable PC / AS-i safety monitor · Parameter setting cable PC / AS-i safety monitor · Western connector RJ 45 8 poles / D-Sub 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 · 50 x 50 mm	E7003S
	EMERGENCY STOP protective collar · EMERGENCY STOP protective collar for safe E-STOP AC010S / AC011S	E7004S
	bridging plug for safe safety modules · Housing materials: PUR	E7005S
	Adapter plug · straight · M20 - M12 · M12 connector · 0.07 m · Housing materials: polyamide	E7006S

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

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	**E70211**
	Programming cable for controller E · Western connector RJ11 6 poles / D-Sub socket 9 poles · 1.55 m	**E70320**
	Module lower part screw connection · Screw terminal · Housing materials: PBT	**AC5031**
	Screw terminal insert for AC5101/AC5031 for additional 24 V supply	**AC5007**
	impact protection housing · for ATEX ClassicLine modules and ATEX AirBoxes · Housing materials: 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 · 100 m · for use in isolation displacement connector technology for FC lower parts and compact modules	**AC4001**
	AS-i flat cable · reverse polarity protection due to special shape · 100 m · for use in isolation displacement connector technology for FC lower parts and compact modules	**AC4006**
	AS-i flat cable · reverse polarity protection due to special shape · for use in isolation displacement connector technology for FC lower parts and compact modules	**AC4000**
	AS-i flat cable · reverse polarity protection due to special shape · for use in isolation displacement connector technology for FC lower parts and compact modules	**AC4002**
	AS-i flat cable · reverse polarity protection due to special shape · for use in isolation displacement connector technology for FC lower parts and compact modules	**AC4003**

You can find scale drawings from page 502

Type	Description	Order no.
	AS-i flat cable · reverse polarity protection due to special shape · for use in isolation displacement connector technology for FC lower parts and compact modules	AC4004
	AS-i flat cable · for the food industry · reverse polarity protection due to special shape · 100 m	AC4007
	AS-i flat cable · for the food industry · reverse polarity protection due to special shape · 100 m	AC4008
	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 · Pack quantity: 10	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 · Pack quantity: 10	E70399
	Heat-shrink cap · for sealing the flat cable ends · Housing materials: plastics · Pack quantity: 10	E70113
	Flat cable seal · Housing materials: ULTRAMID / sealing: NBR · Pack quantity: 10	E70413
	Cable clip for fixing the AS-i flat cable · Housing materials: PA 6.6 · Pack quantity: 100	E70067

Accessories pneumatic components

Type	Description	Order no.
	Silencer · Housing materials: connection piece: PP / filter: PE · Pack quantity: 10	E75232
	Push-in T-fitting · Housing materials: housing: PBT / release ring: polyoxymethylene / tooth lock washer: stainless steel / form ring: acrylonitrile butadiene caoutchouc · Pack quantity: 10	E75227
	Push-in L-fitting · Housing materials: housing: PBT / release ring: polyoxymethylene / tooth lock washer: stainless steel / form ring: acrylonitrile butadiene caoutchouc · Pack quantity: 10	E75228

Accessories RFID

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**
	Angle bracket · Housing materials: stainless steel	**E80304**
	ID tag · ID-TAG/M18x1/01 · M18 x 1 mm · 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/ISO-Card/01 · 54 x 86 x 1 mm · Housing materials: PVC white	**E80320**
	RFID Handheld Reader USB · suitable for use in PCs or notebooks · 125 kHz · 1.8 m · Housing materials: PS	**E80321**
	ID tag · ID-TAG/D26x4/01 · Ø 26 x 4 mm · Housing materials: PA High Temperature	**E80322**
	RFID Handheld Reader CF Card · suitable for use in handheld PCs, pocket PCs or PDAs with CompactFlash interface · 125 kHz	**E80323**
	Mounting bracket · with integrated snap-on rail · for type IDC · Housing materials: stainless steel	**E10730**

You can find scale drawings from page 502

AS-i manuals

Type	Description	Order no.
	ecolog asi system · AS-Interface Manual (German)	**AC0115**
	ecolog asi system · AS-Interface Manual (English)	**AC0116**
	Manual · AS-interface Safety at Work (German) Introduction and application examples	**AC115S**
	Manual · AS-interface Safety at Work (English) Introduction and application examples	**AC116S**

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

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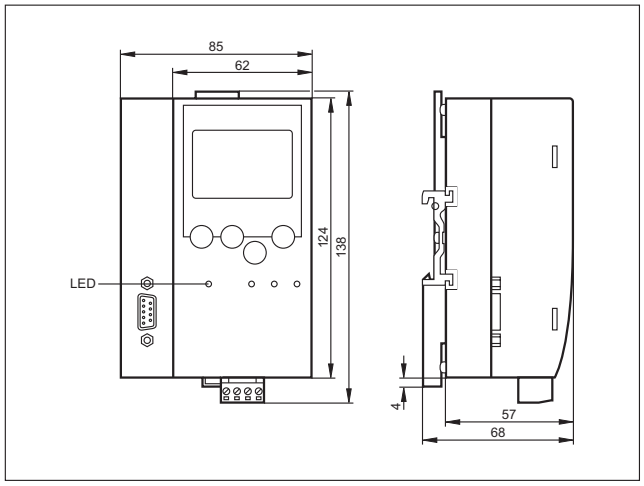

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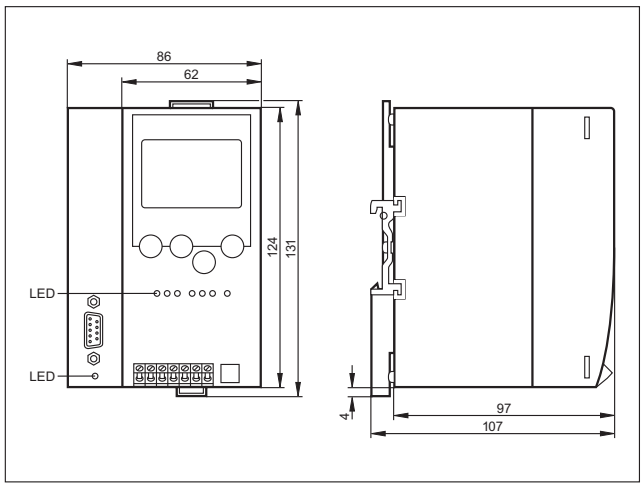

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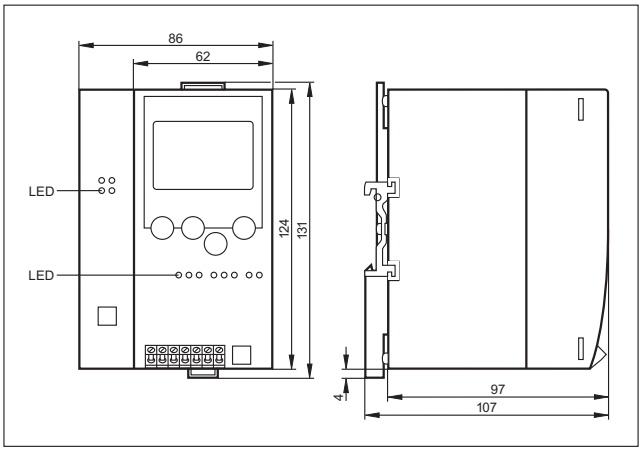

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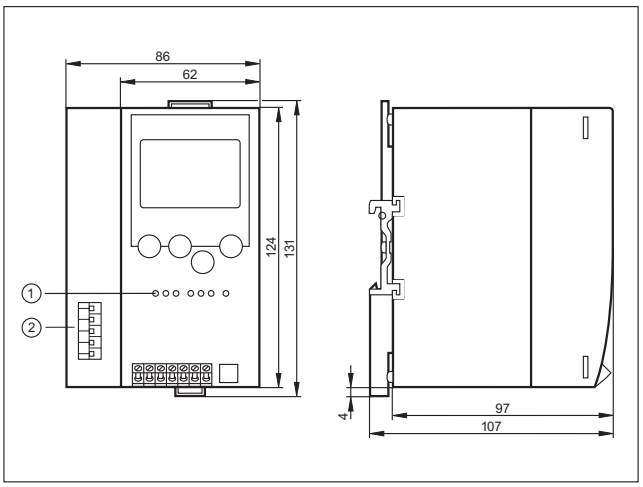

1: LED, 2: DeviceNet interface

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

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

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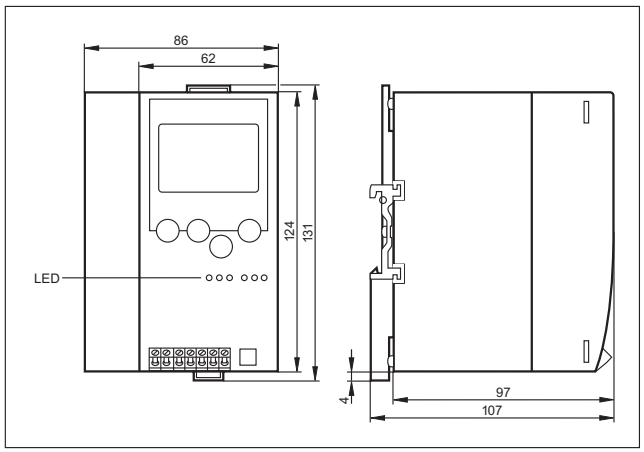

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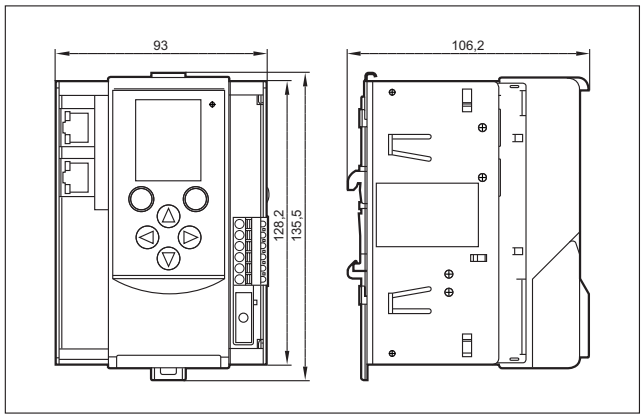

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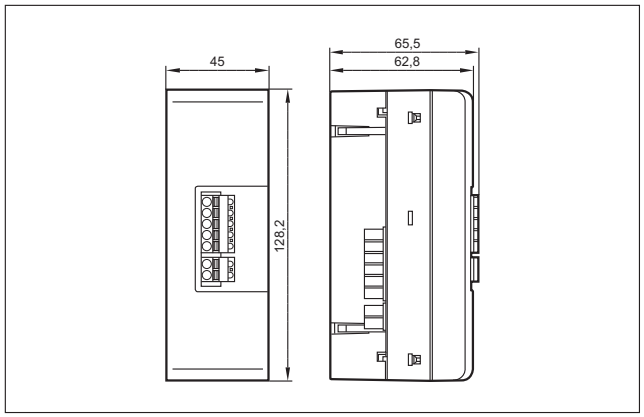

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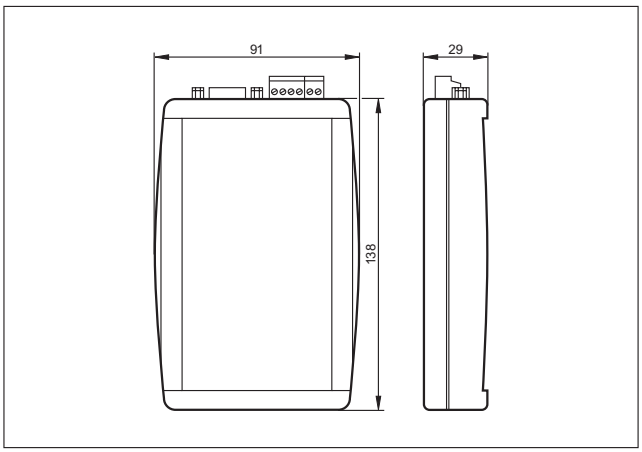

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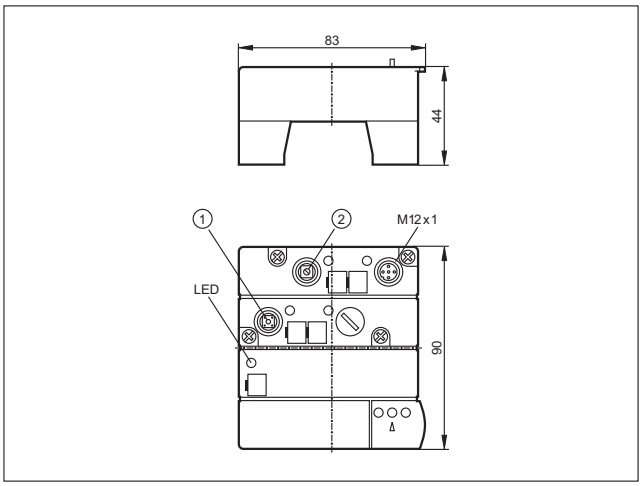
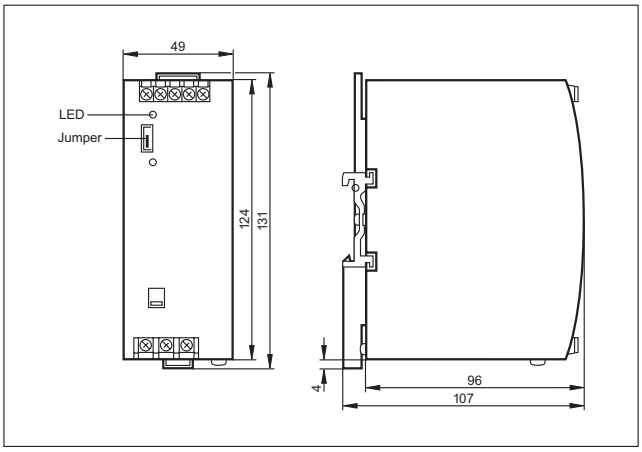


1: tune button, 2: mode selector

10



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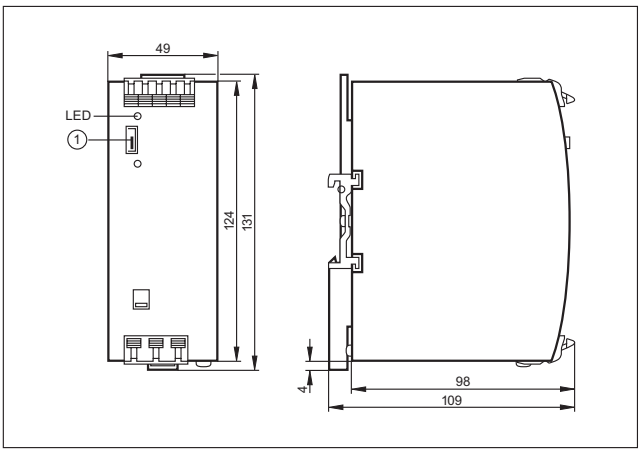

1: Jumper

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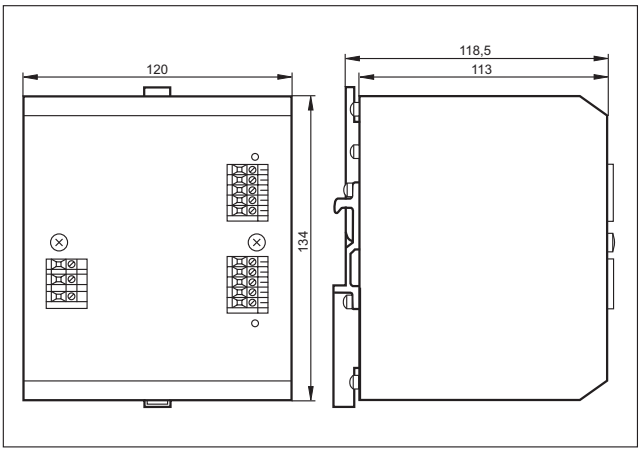

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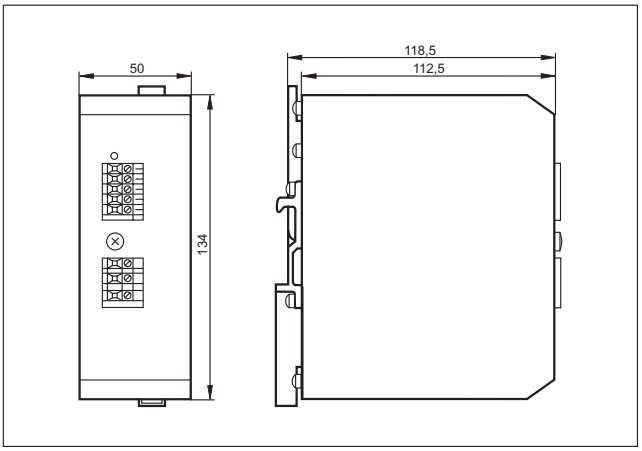

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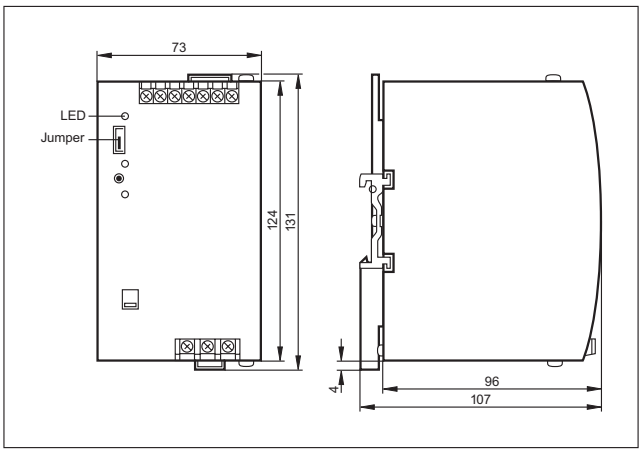

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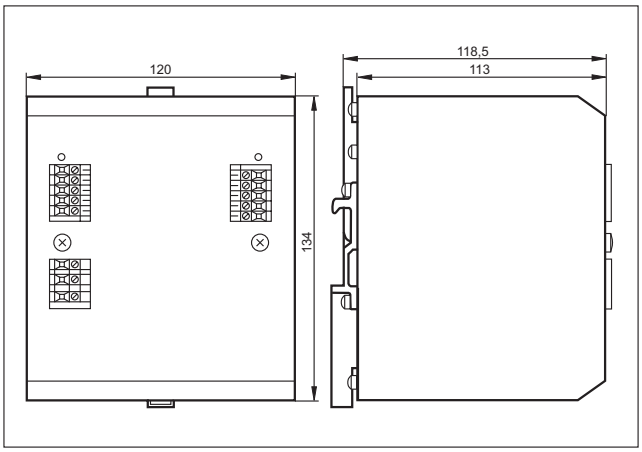

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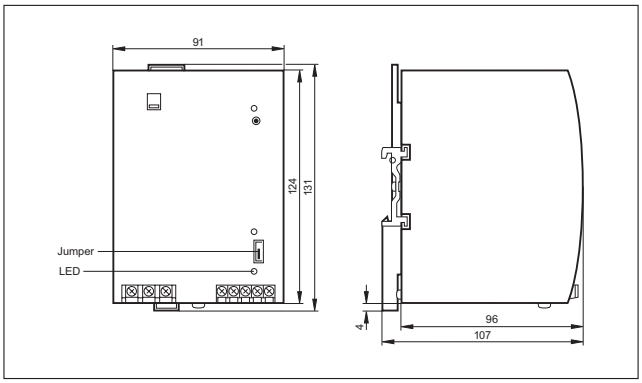

Scale drawings / drawing no. – CAD download: www.ifm.com

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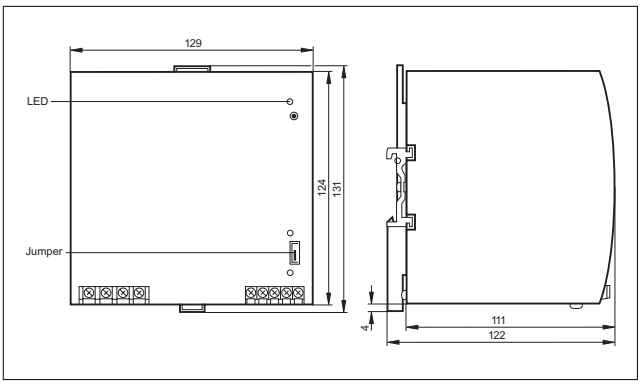

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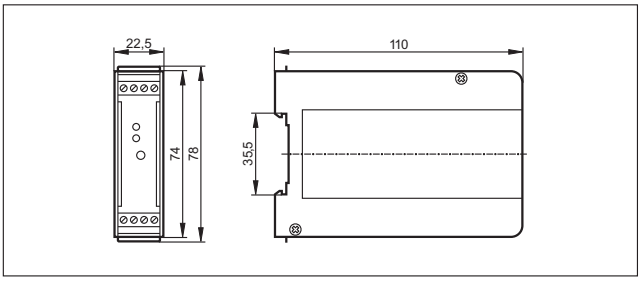

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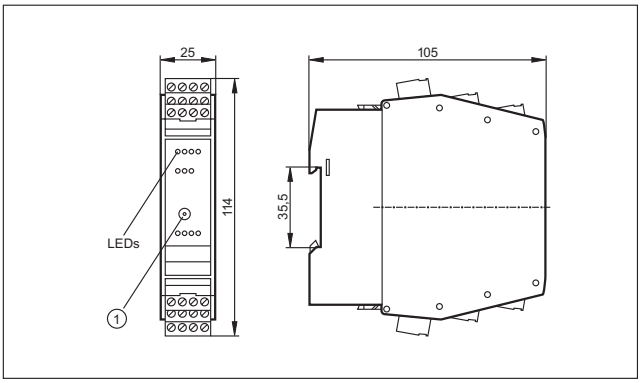
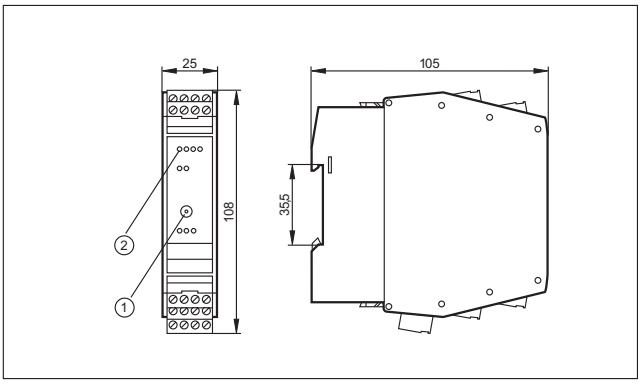


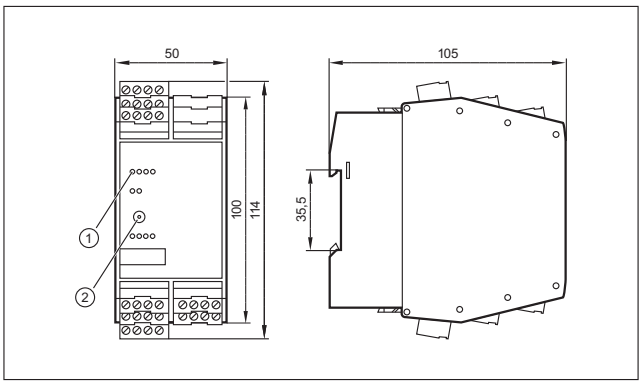
1: Addressing socket

20



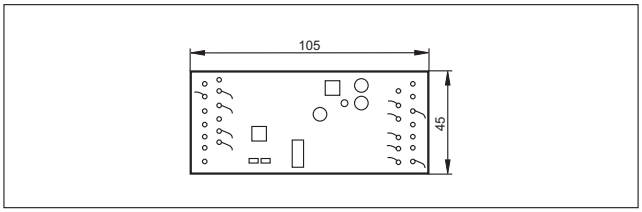
1: Addressing socket, 2: LED

21



1: LED, 2: Addressing socket

22



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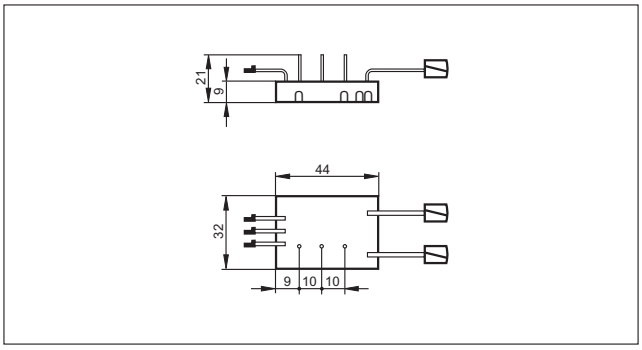

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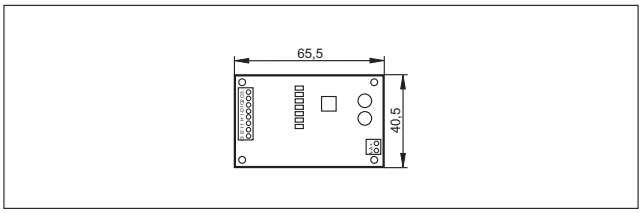

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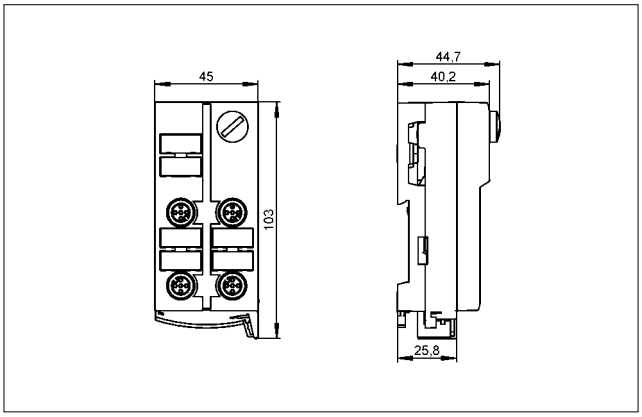

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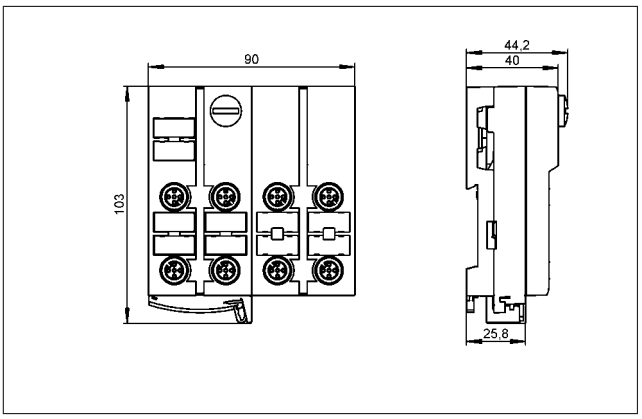
26



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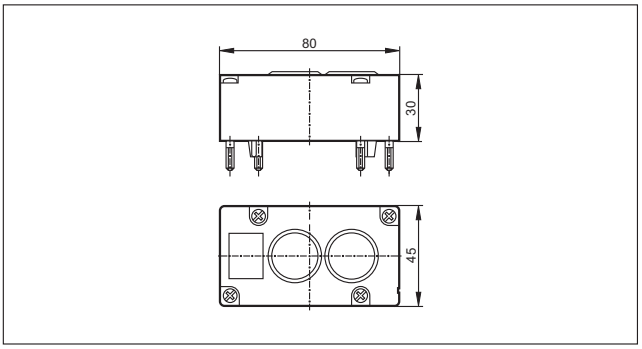

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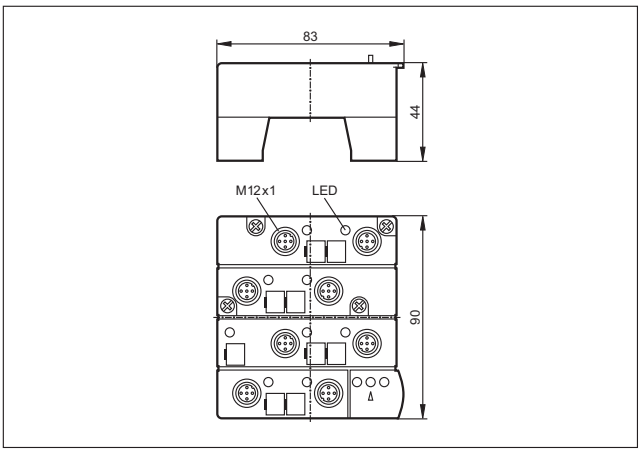

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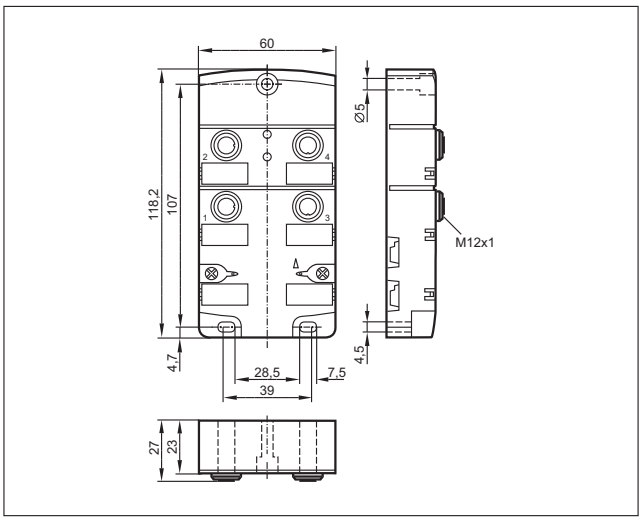

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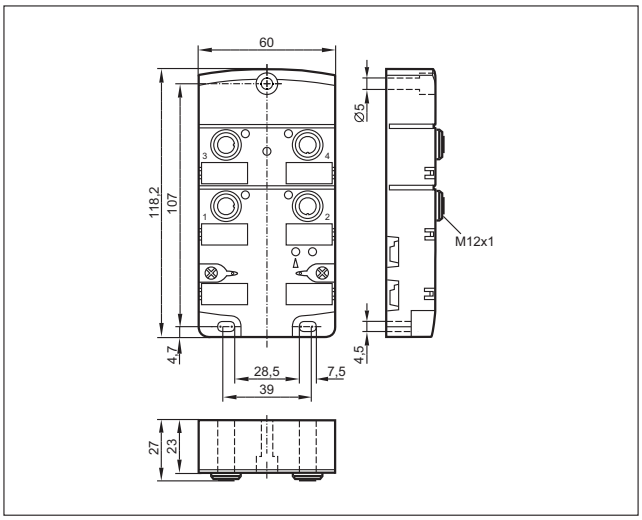

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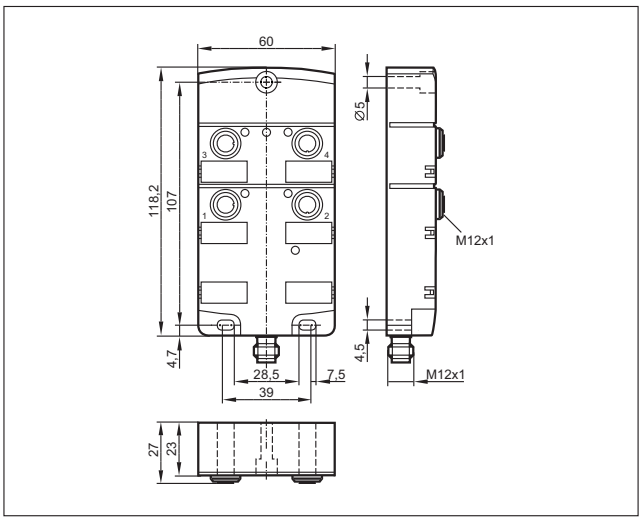

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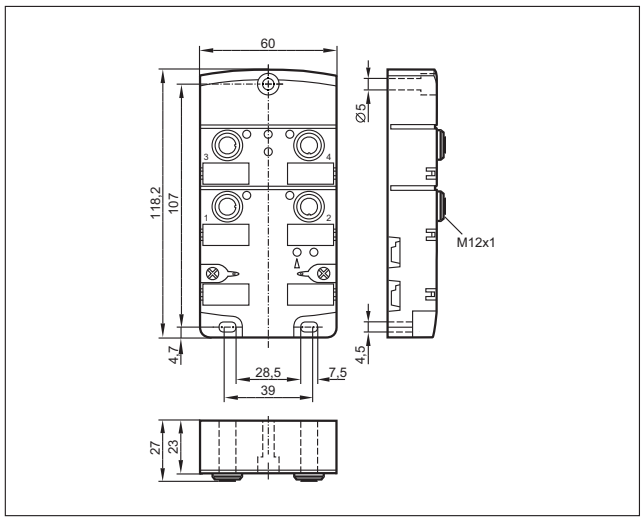

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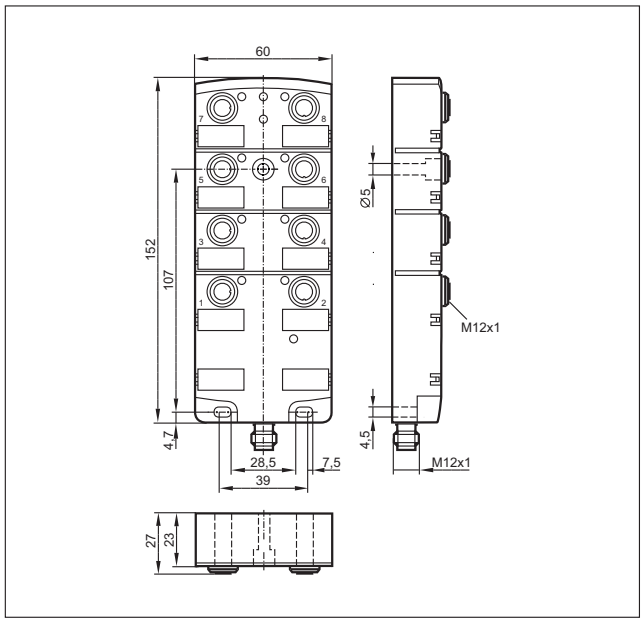

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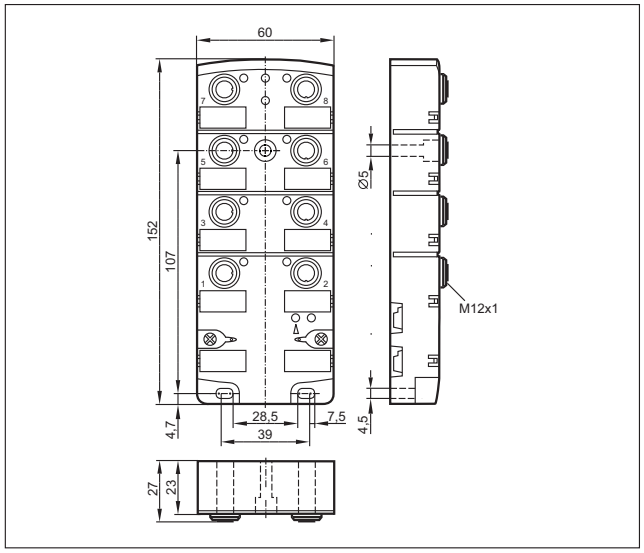

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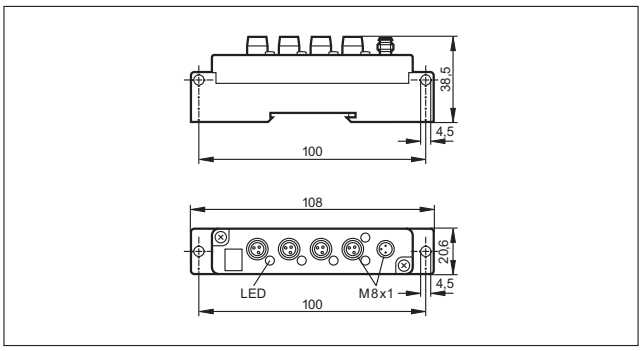

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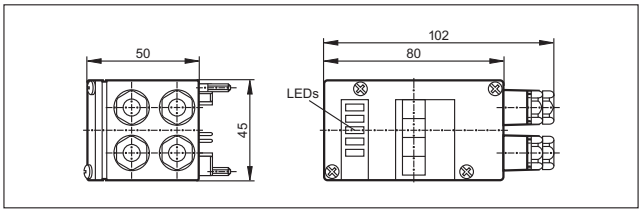

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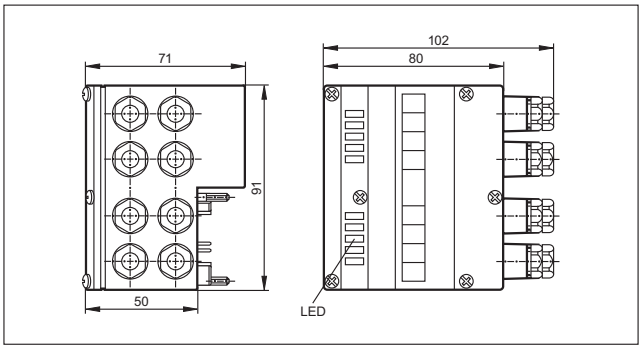

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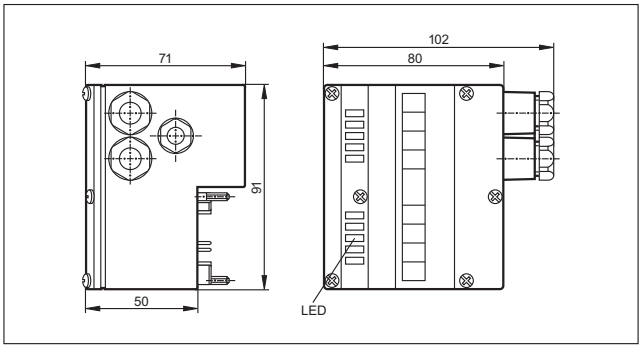

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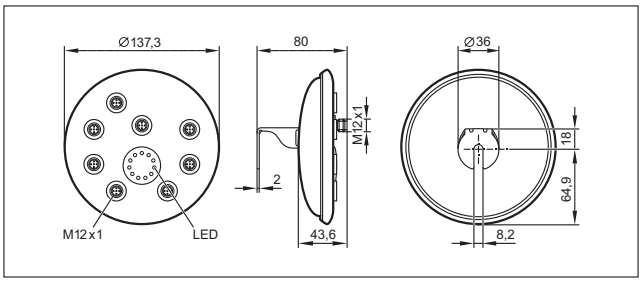

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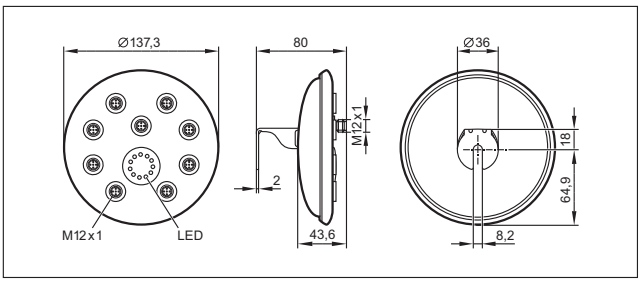

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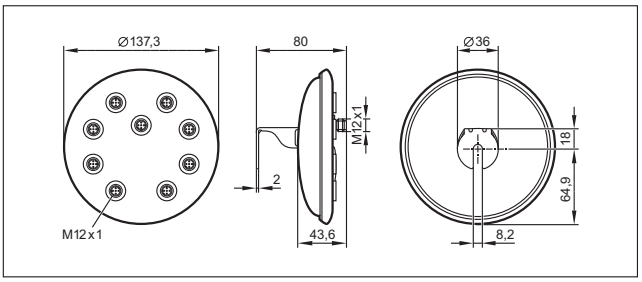

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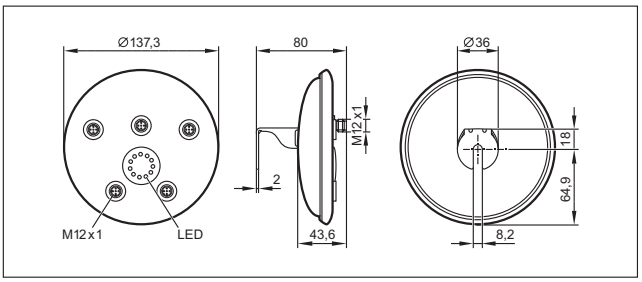

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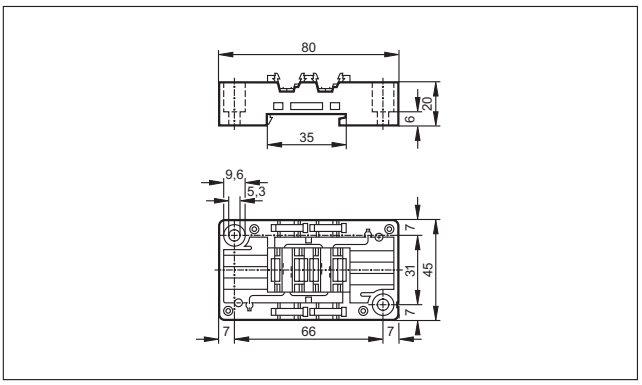

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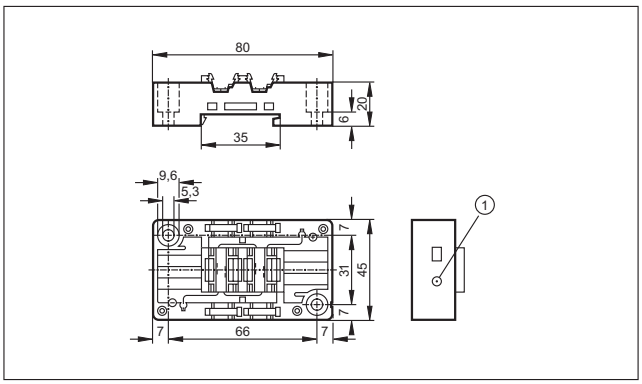
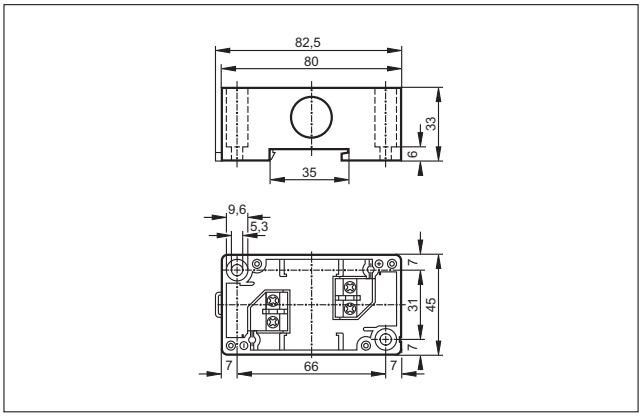


1: Addressing socket

45



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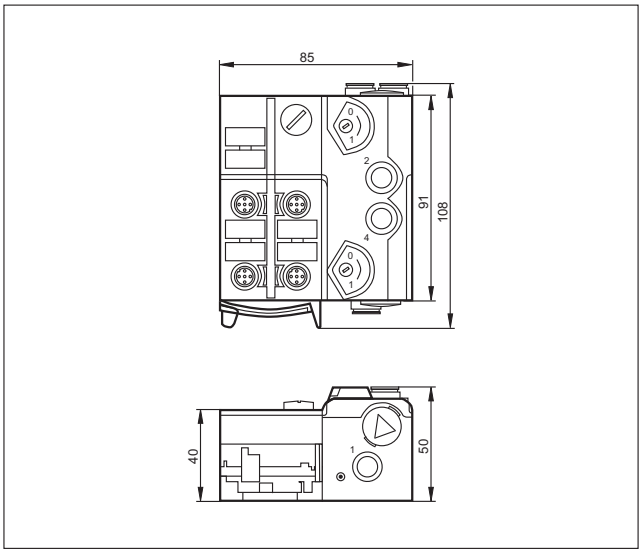

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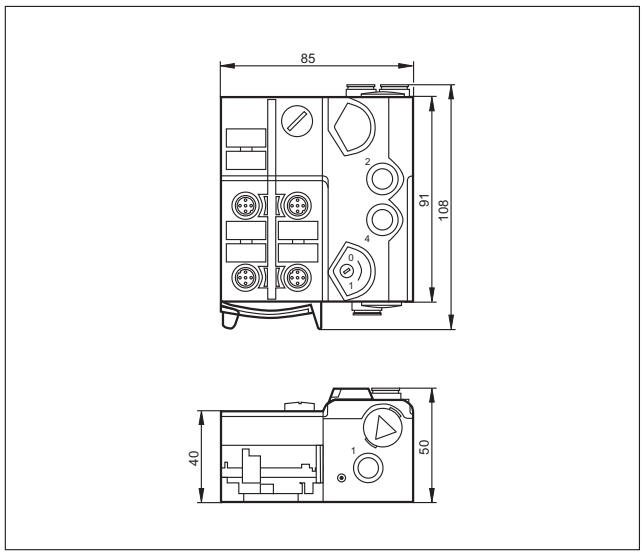

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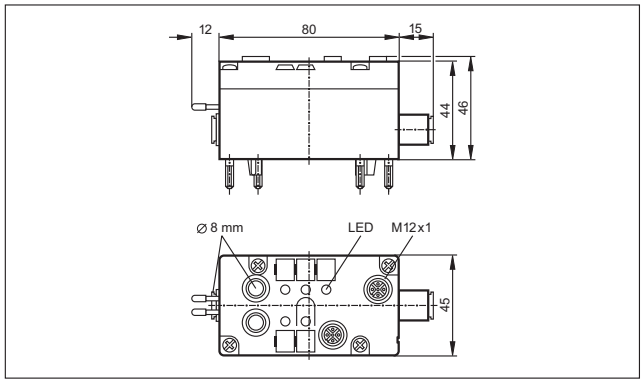

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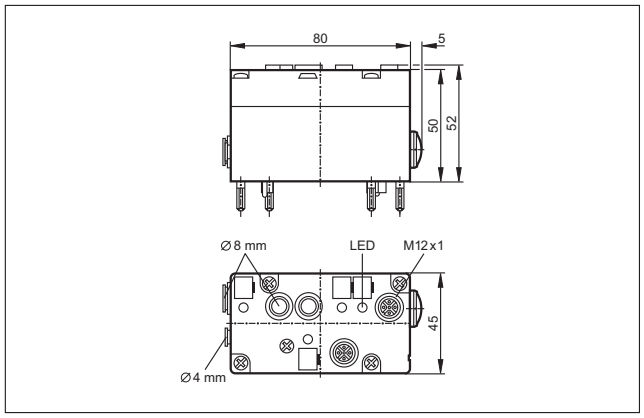

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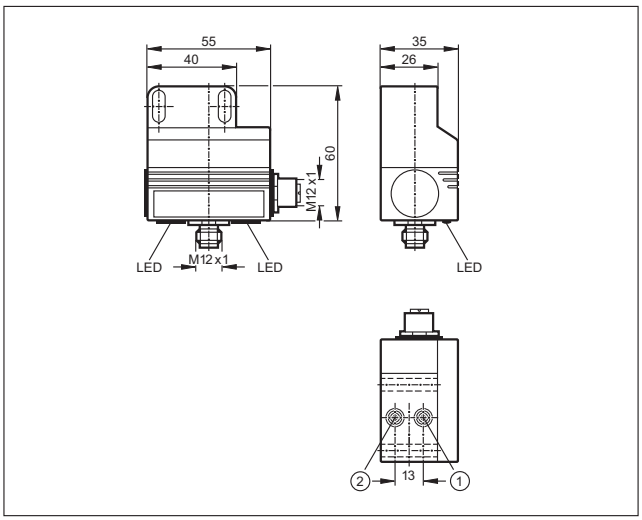
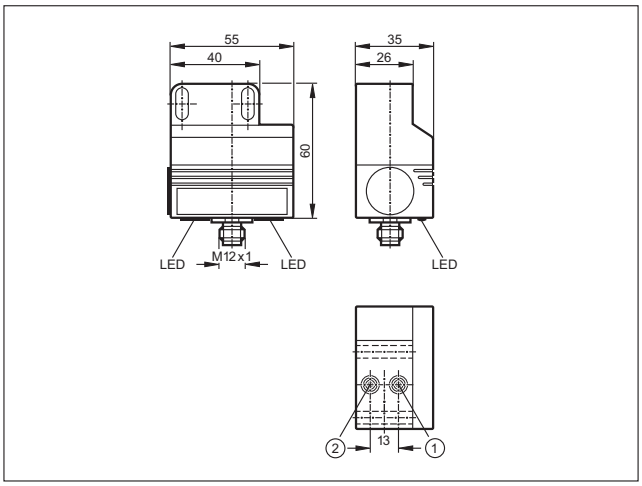


1: sensor 1, 2: sensor 2

51



1: sensor 1, 2: sensor 2

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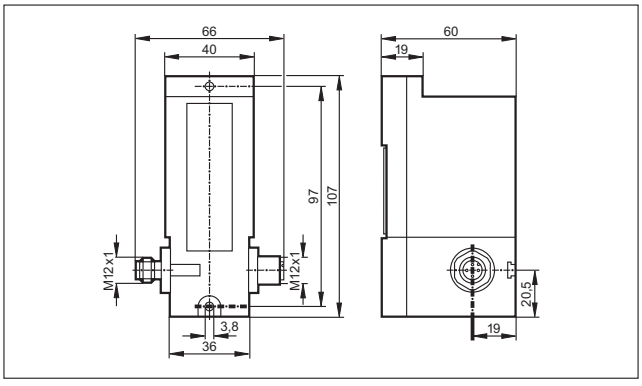

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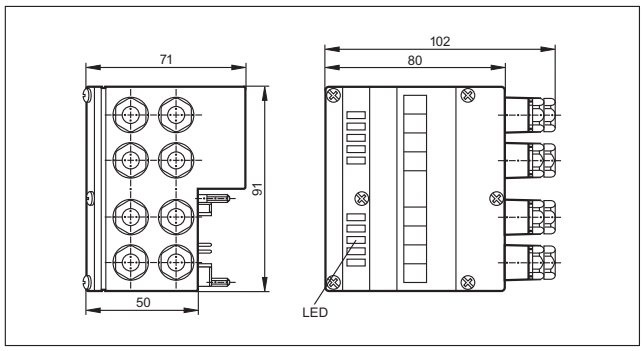

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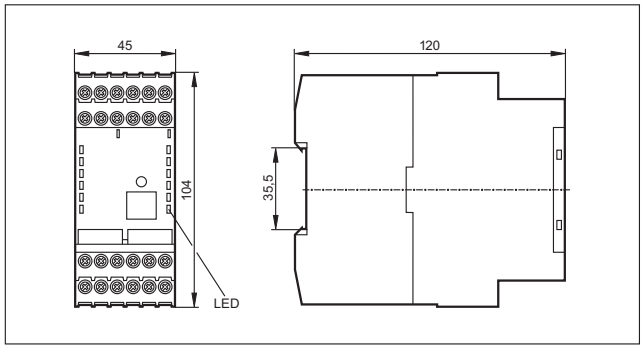

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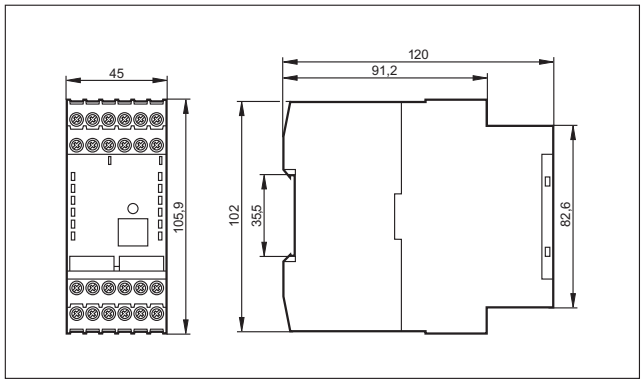

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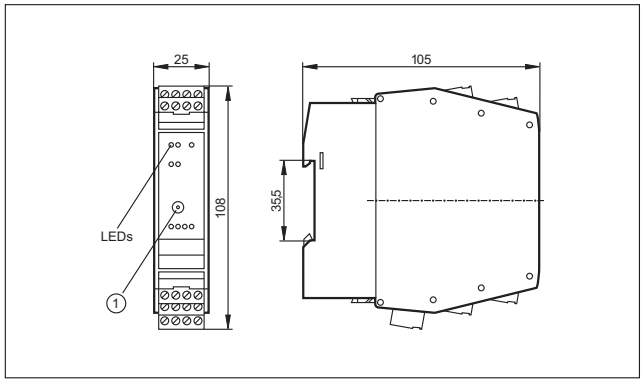
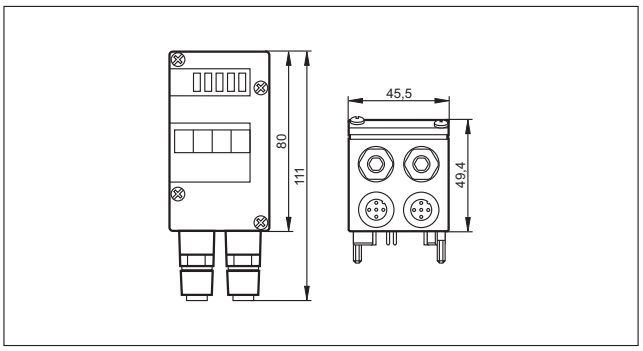


1: Addressing socket

57



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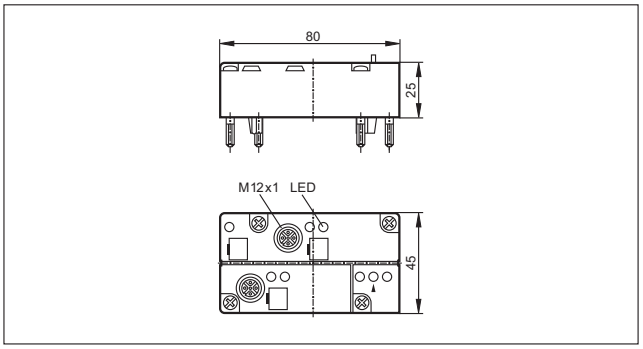

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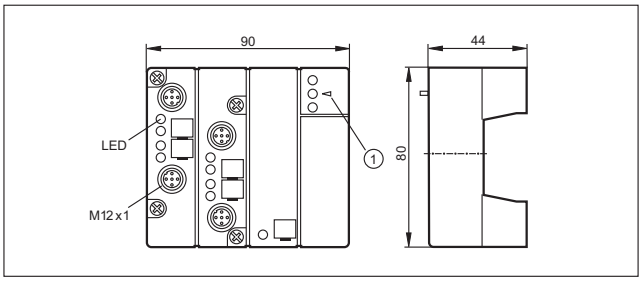

1: fixture infrared adapter

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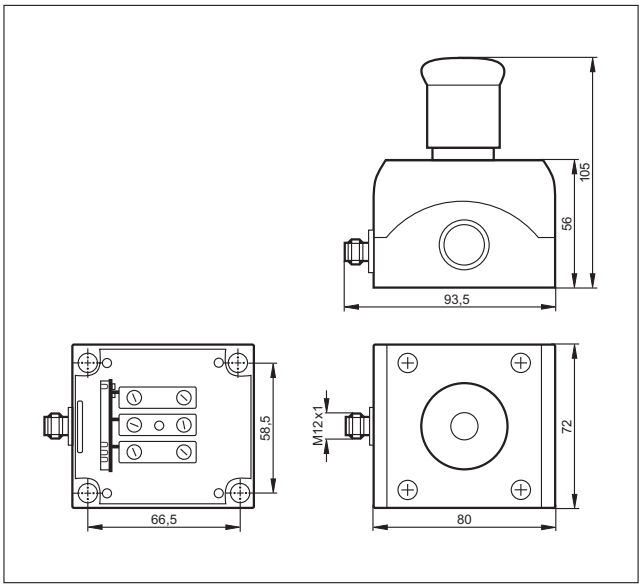

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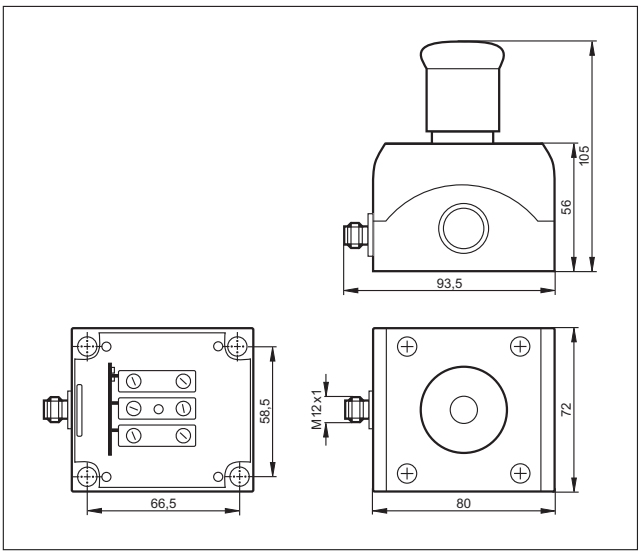

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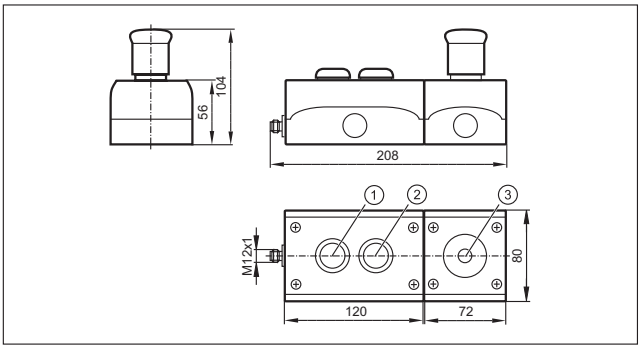

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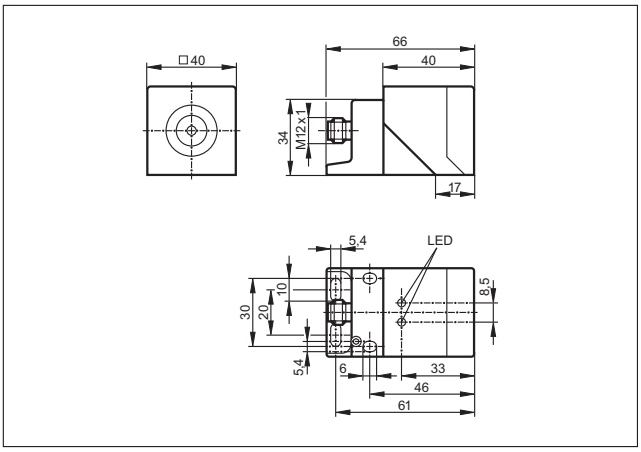

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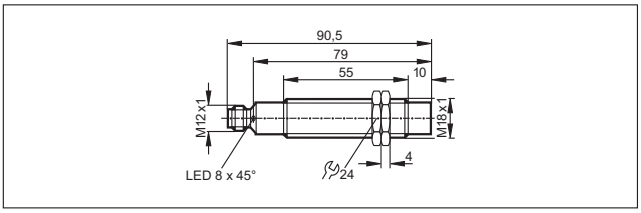

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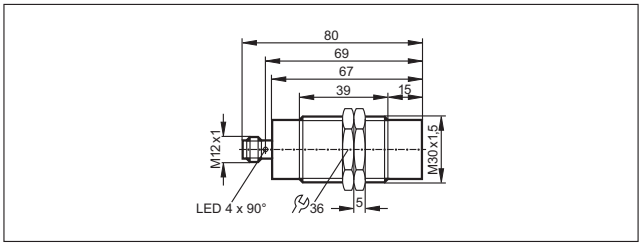

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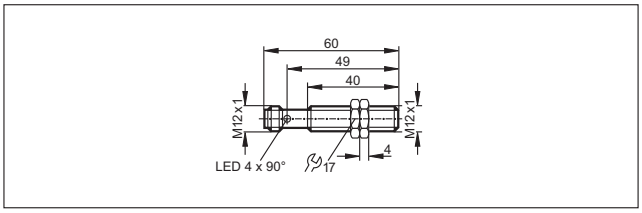

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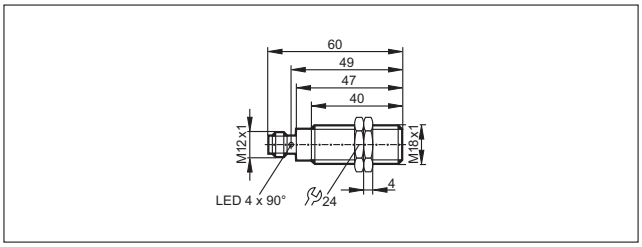

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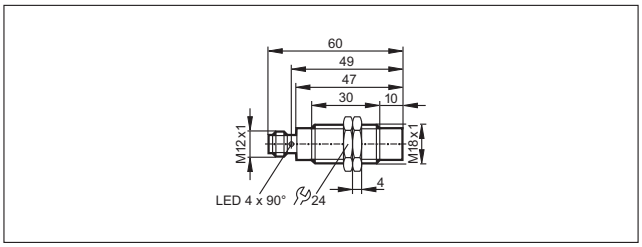

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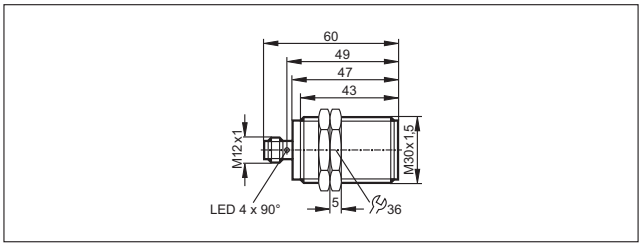

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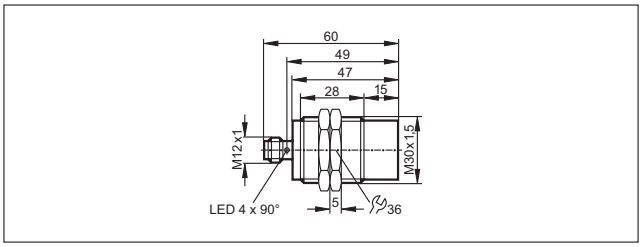

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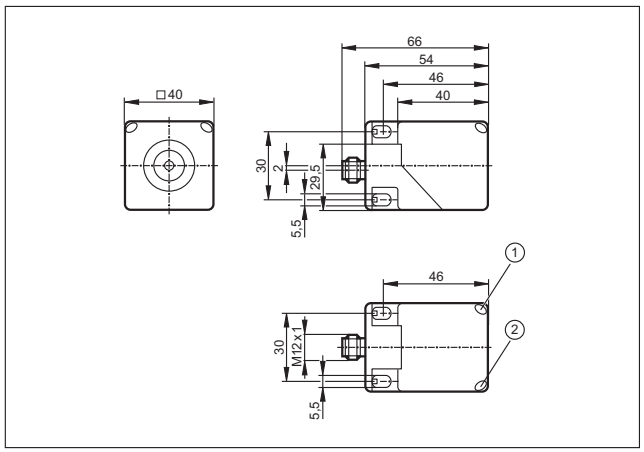
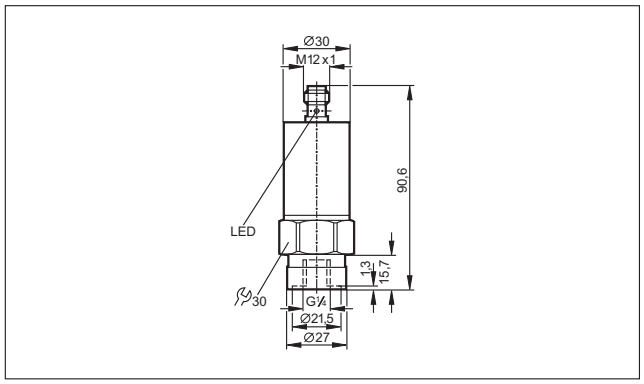


1: LED yellow, 2: LED green

72



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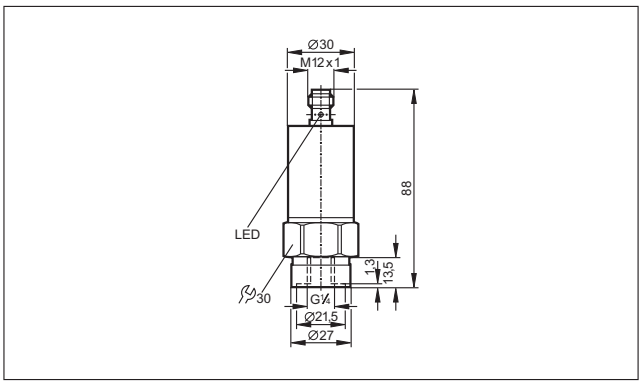

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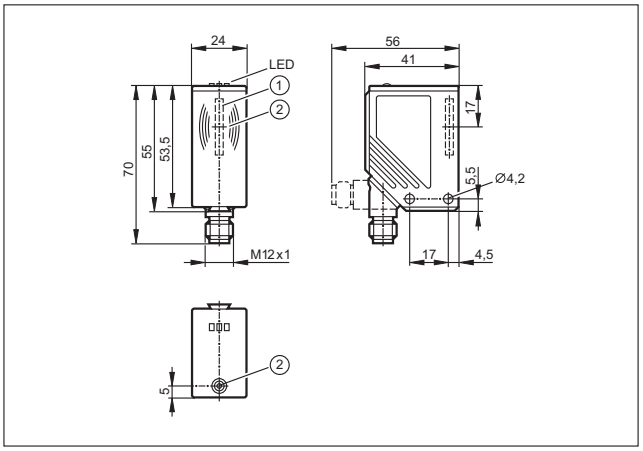
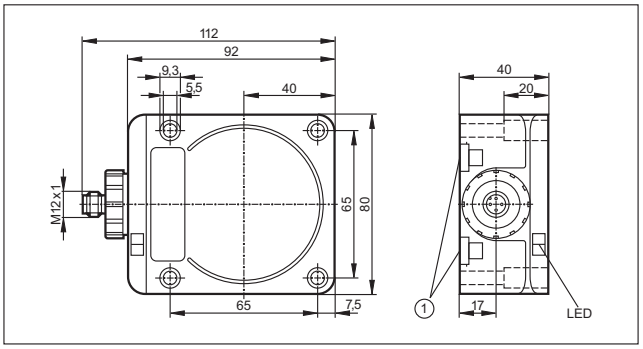


1: integrated antenna , 2: tag positioning mark (middle of the antenna)

75



1: mounting on DIN rail

Multicode reading systems

RF-identification systems

- **Orientation-independent identification of 1D and 2D codes.**
- **Very small housing for flexible use.**
- **Simple, menu-guided parameter setting.**
- **Integrated lighting.**
- **High reading reliability even with soiled / damaged codes.**

Multicode reader

The ECC200 Data Matrix code is becoming more and more popular throughout industry alongside familiar barcodes. In this code lots of information can be stored in a very small space and read using the compact multicode reader. The industrially compatible mounting and wiring technology as well as the standardised process interfaces RS-232, Ethernet TCP/IP and EtherNet/IP enable easy and quick integration into the industrial control technology. Applications can be found in many different industrial areas: from the product tracking and production control to product identification.

Orientation-independent reading

Independent of the orientation and the number of codes, the high-performance algorithms automatically decode 1D or 2D codes. The optimisation parameters of the codes and functions of the multicode reader undergo continuous development and are made available as upgrades.

Code comparison in the sensor

Complex application programming is no longer necessary due to adjustable, selective code identification and comparison in the sensor. This allows a defined number of characters within a code to be checked and signalled via the switching output if they match.

Reliable identification of 1D and 2D codes

In addition to the automatic exposure setting, manual adjustment is also possible. So optimum results are achieved even with highly reflective metal surfaces. For evaluation of the code quality parameter, ISO / IEC 15415 or 16022 can be used.

The Data Matrix code

The Data Matrix code is a two-dimensional code containing much more information with the same structure size than codes such as bar codes or stacked codes. Several thousand characters can be stored in one code.

An important feature of the Data Matrix code is the high reading reliability. If the code is soiled or damaged, the intelligent system can completely recompose the information from different segments again. The Data Matrix code can be structured differently and is variable in shape and size. The size can cover 1 x 1 mm to 100 x 100 mm.

Lose no time: The multicode reader can be configured in a few minutes and is then ready for use. Only five guided steps are necessary for the multicode reader to be ready for operation.

Whether printed on paper, graved by laser or dot-peened on metal: Reliable detection of the code, independent of the sensor orientation.

Multicode reader

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.
M12 plug, 8 poles M12 socket, 4 poles · Connector groups 17, 18							
	60 x 42 x 53.5	68 x 50	red light	3 / 5	Ethernet TCP/IP, EtherNet/IP, RS-232	1	**O2I100**
	60 x 42 x 53.5	140 x 100	red light	3 / 5	Ethernet TCP/IP, EtherNet/IP, RS-232	1	**O2I102**
	60 x 42 x 59	400 x 300	red light	3 / 5	Ethernet TCP/IP, EtherNet/IP, RS-232	2	**O2I104**
	60 x 42 x 53.5	68 x 50	infrared	3 / 5	Ethernet TCP/IP, EtherNet/IP, RS-232	1	**O2I101**
	60 x 42 x 53.5	140 x 100	infrared	3 / 5	Ethernet TCP/IP, EtherNet/IP, RS-232	1	**O2I103**
	60 x 42 x 59	400 x 300	infrared	3 / 5	Ethernet TCP/IP, EtherNet/IP, RS-232	2	**O2I105**

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.
M12 connector · metal · DC · Wiring diagram no. 1 · Connector groups 9, 11, 107, 108, 135								
	42 x 42 x 31	red	–	180	90	External; 24 V PNP to IEC61131-1	3	**O2D909**

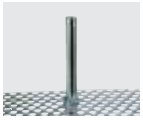
Software

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**

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

Type	Description	Number of connections	Order no.
	Multicode reader OPC server · Software · German/English	75	**E2I212**
	Multicode reader OPC server · Software · German/English	100	**E2I213**

Fixing components

Type	Description	Order no.
	Mounting set · O2D, O2M, O2I · Clamp mounting · rod mounting Ø 12 mm · Housing materials: fixture: stainless steel / clamp: stainless steel	**E2D110**
	Mounting set · O2D, O2M, O2I · Clamp mounting · rod mounting Ø 14 mm · Housing materials: fixture: stainless steel / clamp: stainless steel	**E2D112**
	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**
	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**

You can find wiring diagrams and scale drawings from page 521

Type	Description	Order no.
	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

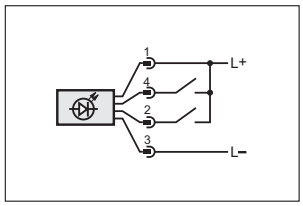
Type	Description	Order no.
	Plastic diffuser · O2D / O2I · Housing materials: housing: diecast zinc black / lens: PMMA	**E21165**
	Plastic protective pane for the food industry · O2D / O2I · Housing materials: housing: diecast zinc black / lens: PMMA	**E21166**
	Glass protective pane · O2D / O2I · Housing 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**
	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**

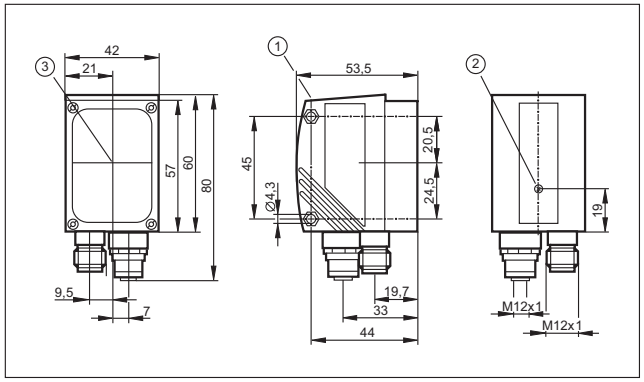
Wiring diagrams

1



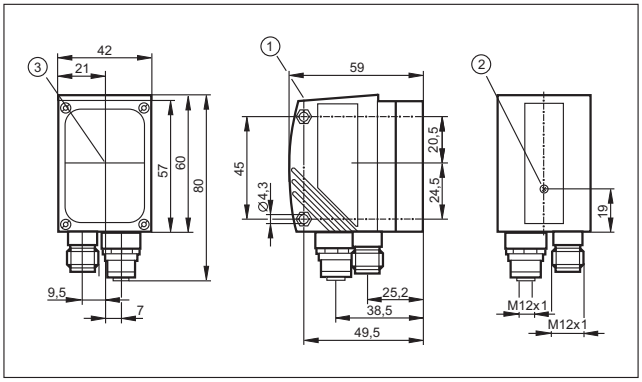
Scale drawings / drawing no. – CAD download: www.ifm.com

1



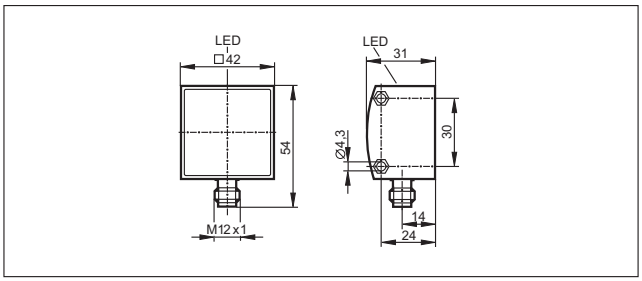
1: display, 2: Focus setting, 3: Centre of the lens axes

2



1: display, 2: Focus setting, 3: Centre of the lens axes

3



- **Industrially compatible RFID solutions in 125 kHz or UHF technology.**
- **Connection via AS-Interface (125 kHz) or Ethernet (UHF).**
- **All components integrated into industrially compatible housings.**
- **High reading reliability even under difficult operating conditions.**
- **Easy to mount and set up.**

RF-identification systems

The constant increase of the degree of automation in modern production plants is increasingly supported by identification systems. Their tasks include, for example, the control or release of production steps or the assignment of information about each product in logistics.

Operating principle

The RFID system generates an electromagnetic field for reading and writing data. The electromagnetic field emitted by the antenna induces voltage in the passive ID tag. The activated ID tag (transponder) transmits the code to the fieldbus interface via the evaluation electronics.

125 kHz system with AS-Interface

ifm electronic supplies the first RFID system for AS-Interface (AS-i) worldwide. It allows reading and writing of code carriers (ID tags), benefiting from the advantages of AS-i.

Up to 31 read / write heads can be connected to one AS-i master. Antenna, electronics and AS-i interface are integrated in a compact housing. Voltage is supplied via AS-i. No additional operating voltage required.

The typical ranges of the 125 kHz system are some centimetres.

UHF system with Ethernet

As components of the UHF system platform, the read / write units DTE800 for Europe and DTE900 for the USA are compliant with 865-870 MHz and 902-928 MHz respectively. The data transmission and parameter setting are carried out via Ethernet. The ultra-low and low-range antennas are distinguished by the near field. In order to achieve a high selectivity, the smallest possible designs are used as they manage short reading ranges.

Due to its smaller dimensions 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 have been developed for applications in the far field where reading ranges of up to 7 m are required.

The ID tag provides flexibility for different types of installation.

The ID tag is mounted to tanks or workpiece carriers – in the tag fixture or alternatively by direct mounting using an M5 grub screw.

RFID systems

Type	Dimensions [mm]	Travel speed read / write [m/s]	Process interface	Drawing no.	Order no.
M12 connector · Connector groups 9, 11, 107, 108, 135					
	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**
	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

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/TRIANGEL 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 mm · 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**

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

Type	Description	Order no.
	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

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

You can find scale drawings from page 527

RFID systems

Type	Dimensions [mm]	Operating frequency [MHz]	Trans-mission power [mW ERP]	Number of antenna inputs	Process interface	Output	Draw-ing no.	Order no.
M12 connector · Connector groups 9, 11, 107, 108, 135								
	233.5 x 270 x 68	865-868 (ETSI)	2000	4	Ethernet TCP/IP	2 external digital inputs and 2 outputs through M12 connector	4	**DTE800**
	233.5 x 270 x 68	902...928 (FCC)	2000	4	Ethernet TCP/IP	2 external digital inputs and 2 outputs through M12 connector	4	**DTE900**

RFID systems

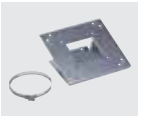
Type	Dimensions [mm]	Operating frequency [MHz]	Antenna gain [cBic]	Max. input power [mW]	Protection	Draw-ing no.	Order no.
TNC socket							
	63 x 28 x 90	865...928	-30	1000	IP 67	5	**ANT805**
	63 x 28 x 90	865...870	-15	500	IP 67	5	**ANT810**
	126 x 37 x 156	865...870	4	–	IP 67	6	**ANT820**
	271 x 270 x 42	865...870	8.5	–	IP 67	7	**ANT830**
	63 x 28 x 90	902...928 (FCC)	-15	500	IP 67	5	**ANT910**
	271 x 270 x 42	902...928	8.5	–	IP 67	7	**ANT930**

ID tags

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**

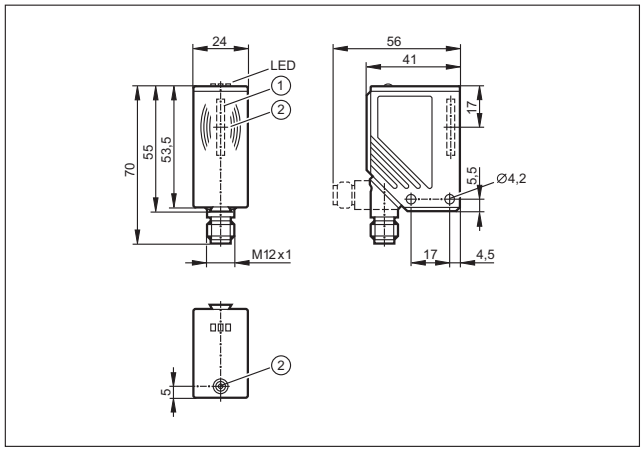
Product selectors and further information can be found at: www.ifm.com

RFID systems

Type	Description	Order no.
	Jumper · straight / straight · For RFID antenna · 3 m	**E80330**
	Jumper · straight / straight · For RFID antenna · 6 m	**E80331**
	Clamp · For RFID antenna · Housing materials: fixture: steel sheet galvanised / screws: stainless steel / Fixing strap: stainless steel	**E80340**

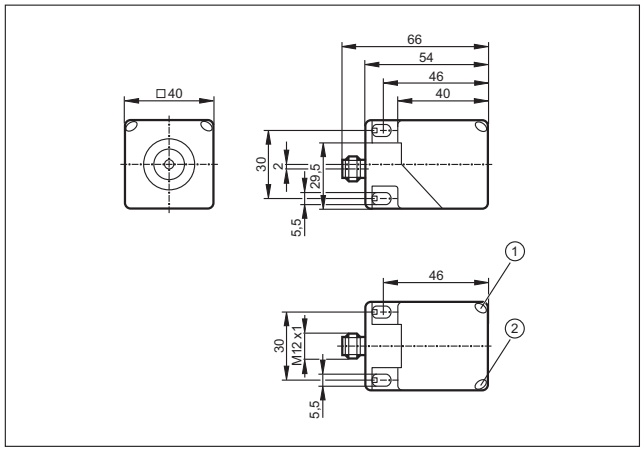
Scale drawings / drawing no. – CAD download: www.ifm.com

1



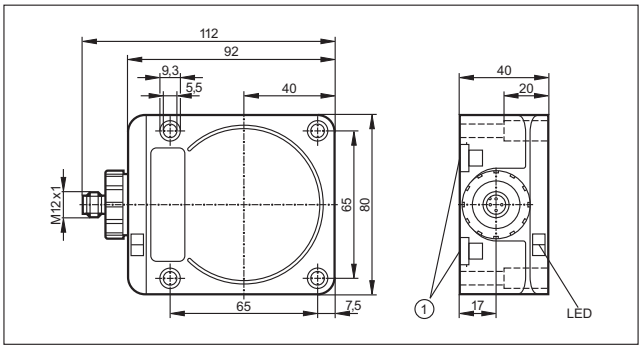
1: integrated antenna , 2: tag positioning mark (middle of the antenna)

2



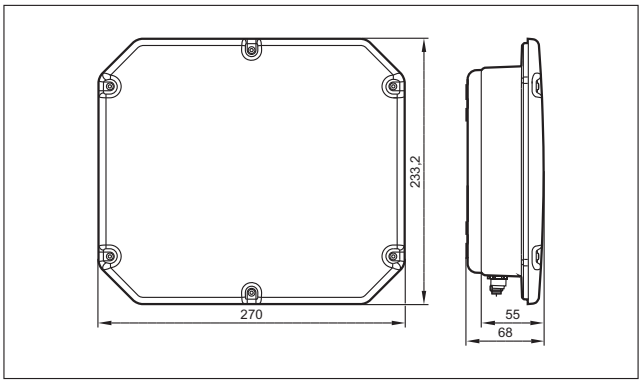
1: LED yellow, 2: LED green

3

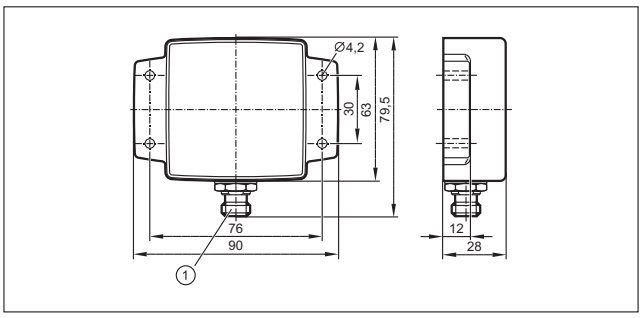


1: mounting on DIN rail

4



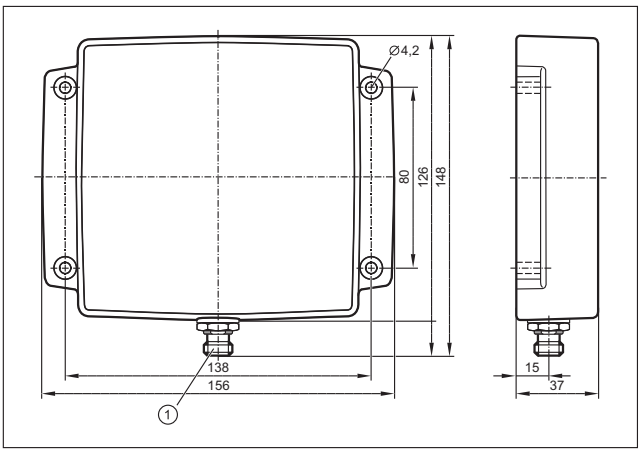
5



1: TNC socket

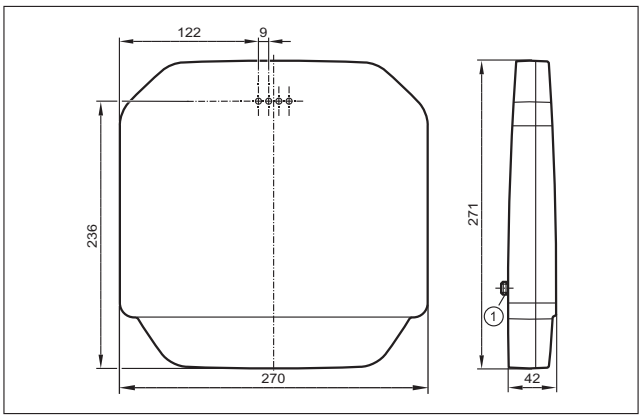
Scale drawings / drawing no. – CAD download: www.ifm.com

6



1: TNC socket

7



1: TNC socket

- **Controllers, I/O modules, displays and sensors for mobile applications.**
- **Compact and extremely robust design.**
- **Extensive range of accessories for installation and diagnostics.**
- **CAN interface with CANopen protocol.**
- **e1 type approval of the German Federal Office for Motor Traffic.**

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.

Extreme shock and vibration: Reliable function of the sensitive electronics must be guaranteed under harsh operating conditions as well.

Especially when several machine parts are interconnected CAN offers decisive advantages.

BasicController

Type	Inputs / outputs	Description	Draw-ing no.	Order no.
	20	BasicController · 12 inputs / 8 outputs · 2 CAN interfaces · Configurable input / output functions · Programming according to IEC 61131-3 · 8...32 V DC	1	**CR0401**
	24	BasicController · 12 inputs / 12 outputs · 2 CAN interfaces · Configurable input / output functions · Programming according to IEC 61131-3 · 8...32 V DC	2	**CR0403**

Starter set ecomatmobile Basic

Type	Description	Order no.
	Starter set ecomatmobile Basic	**EC0400**

Accessories for BasicController

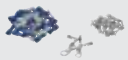
Type	Description	Order no.
	Cover · for BasicController CR040x and BasicRelay CR042x · incl. cable seal	**EC0401**
	Cover · for BasicController CR040x · Built-in display recess for BasicDisplay CR0451 · incl. cable seal	**EC0402**
	Jumper · wired · for 2 BasicControllers CR040x · CAN interface · Power supply · 0.5 m	**EC0451**
	Jumper · wired · for 1 BasicController CR040x and 1 BasicDisplay CR0451 · CAN interface · Power supply · M12 connector · 0.1 m	**EC0452**
	Jumper · wired · for 2 BasicControllers CR040x and 1 BasicDisplay CR0451 · CAN interface · Power supply · M12 connector · 0.5 m	**EC0453**
	Plug set · for BasicController CR040x · wirable · Complete set of contacts / contact housings utilising all connections to a BasicController	**EC0456**
	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**

You can find wiring diagrams and scale drawings from page 551

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	3	**CR0421**

Accessories for BasicRelay

Type	Description	Order no.
	Set of contacts · for BasicRelay CR0421 · wirable · utilising all connections to a BasicRelay	**EC0457**
	Cover · for BasicController CR040x and BasicRelay CR042x · incl. cable seal	**EC0401**

BasicDisplay

Type	Inputs / outputs	Description	Drawing no.	Order no.
	–	BasicDisplay · 2.8" colour display · 5 freely programmable backlit function keys · Rocker switch for cursor function · CAN interface · Programming according to IEC 61131-3 · 8...32 V DC	4	**CR0451**

Accesssories for BasicDisplay

Type	Description	Order no.
	Mounting frame · for BasicDisplay CR0451 · panel · Housing materials: steel sheet	**EC0403**

16-bit ClassicController

Type	Inputs / outputs	Description	Drawing no.	Order no.
	24	ClassicController · Programmable mobile controller type R 360 · 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	5	**CR0505**
	40	ClassicController · Programmable mobile controller type R 360 · 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	5	**CR0020**

32-bit ClassicController

Type	Inputs / outputs	Description	Drawing no.	Order no.
	32	ClassicController · 32 Bit · Programmable mobile controller type R 360 · 32-bit processor · 16 inputs / 16 outputs · 4 CAN interfaces · Configurable input / output functions · Programming according to IEC 61131-3 · CoDeSys 2.3 · 10...32 V DC	5	**CR0032**

16-bit ExtendedController

Type	Inputs / outputs	Description	Drawing no.	Order no.
	80	ExtendedController · 16 Bit · Programmable mobile controller type R 360 · Configurable input / output functions · Programming according to IEC 61131-3 · 2 control units · 80 inputs/outputs · 10...32 V DC	6	**CR0200**

32-bit ExtendedController

Type	Inputs / outputs	Description	Drawing no.	Order no.
	80	ExtendedController · 32 Bit · Programmable mobile controller type R 360 · 32-bit processor · Configurable input / output functions · Programming according to IEC 61131-3 · 80 inputs/outputs · 10...32 V DC	6	**CR0232**

16-bit SafetyController

Type	Inputs / outputs	Description	Drawing no.	Order no.
	24	SafetyController · 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	5	**CR7506**
	40	SafetyController · 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	5	**CR7021**
	80	SafetyController · 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	6	**CR7201**

16-bit SmartController

Type	Inputs / outputs	Description	Drawing no.	Order no.
	12	SmartController · Programmable mobile controller type R 360 · 2 nd CAN interface for gateway function according to SAE J 1939 · Configurable input / output functions · Programming according to IEC 61131-3 · 8 inputs / 4 outputs · 10...32 V DC	7	**CR2500**

You can find wiring diagrams and scale drawings from page 551

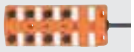
CabinetController for use in control cabinets

Type	Inputs / outputs	Description	Drawing no.	Order no.
	42	CabinetController · Programmable mobile controller type R 360 · Configurable input / output functions · Programming according to IEC 61131-3 · 24 inputs / 18 outputs · 10...32 V DC	8	**CR0301**
	36	CabinetController · Programmable mobile controller type R 360 · Configurable input / output functions · Programming according to IEC 61131-3 · 24 inputs / 12 outputs · 10...32 V DC	9	**CR0302**
	42	CabinetController · Programmable mobile controller type R 360 · 2 nd CAN interface for gateway function according to SAE J 1939 · Configurable input / output functions · Programming according to IEC 61131-3 · 24 inputs / 18 outputs · 10...32 V DC	10	**CR0303**

Accessories and software

Type	Description	Drawing no.	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**

CompactModules

Type	Inputs / outputs	Description	Drawing no.	Order no.
	8	CompactModule · Output module digital and analogue for R 360 systems · CAN interface · Configurable input / output functions · 8 outputs · Connector M12 x 1 · 10...32 V DC	11	**CR2011**
	8	CompactModule · I/O module digital and analogue for R 360 systems · CAN interface · Configurable input / output functions · 8 inputs / 4 outputs · Connector M12 x 1 · Programming according to IEC 61131-3 · 10...32 V DC	11	**CR2013**

CompactModules metal

Type	Inputs / outputs	Description	Drawing no.	Order no.
	8	CompactModule Metal · Output module digital and analogue for R 360 systems · CAN interface · CAN parameters adjustable via coding switch · Configurable input / output functions · 8 outputs · Connector M12 x 1 · Surface electrostatically coated (cathodic immersion) · 10...32 V DC	12	**CR2031**
	16	CompactModule Metal · I/O module digital and analogue for R 360 systems · CAN interface · CAN parameters adjustable via coding switch · Configurable input / output functions · 8 inputs / 8 outputs · Connector M12 x 1 · Surface electrostatically coated (cathodic immersion) · 10...32 V DC	13	**CR2032**

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

Type	Inputs / outputs	Description	Drawing no.	Order no.
	12	CompactModule Metal · I/O module digital and analogue for R 360 systems · CAN interface · CAN parameters adjustable via coding switch · Configurable input / output functions · 8 inputs / 4 outputs · Connector M12 x 1 · Surface electrostatically coated (cathodic immersion) · 10...32 V DC	14	**CR2033**

SmartModules

Type	Inputs / outputs	Description	Drawing no.	Order no.
	12	SmartModule · I/O module digital and analogue for R 360 systems · CAN interface · 4 inputs / 8 outputs · Configurable input / output functions · 10...32 V DC	7	**CR2512**
	12	SmartModule · I/O module digital and analogue for R 360 systems · CAN interface · 8 inputs / 4 outputs · Configurable input / output functions · 10...32 V DC	7	**CR2513**

CabinetModules

Type	Inputs / outputs	Description	Drawing no.	Order no.
	16	CabinetModule · I/O module digital and analogue for R 360 systems · CAN interface · 16 inputs/outputs · Configurable input / output functions · 10...32 V DC	15	**CR2012**
	16	CabinetModule · I/O module digital and analogue for R 360 systems · CAN interface · 16 inputs/outputs · CAN parameters adjustable via coding switch · Configurable input / output functions · 10...32 V DC	16	**CR2014**
	32	CabinetModule · I/O module digital and analogue for R 360 systems · CAN interface · 16 inputs / 16 outputs · CAN parameters adjustable via coding switch · Configurable input / output functions · 10...32 V DC	17	**CR2016**

KeypadModules

Type	Description	Drawing no.	Order no.
	KeypadModule · CAN interface · Mounting in control cabinets and on walls · Programming according to IEC 61131-3 · 10...30 V DC	18	**CR1500**

PDM360 smart with 2.5" monochrome display

Type	Display resolution (pixels)	Display type	Display illumination	Description	Drawing no.	Order no.
	128 x 64	COG monochr.	LED	Process and dialogue module PDM360 smart · 2.5" monochrome display · 12 freely programmable backlit function keys · Programming according to IEC 61131-3 · 10...32 V DC	19	**CR1070**
	128 x 64	COG monochr.	LED	Process and dialogue module PDM360 smart · 2.5" monochrome display · 12 freely programmable backlit function keys · 4 inputs / 4 outputs · Programming according to IEC 61131-3 · 10...32 V DC	19	**CR1071**

You can find wiring diagrams and scale drawings from page 551

PDM360 compact with 3.8" monochrome display

Type	Display resolution (pixels)	Display type	Display illumination	Description	Drawing no.	Order no.
	240 x 320	FSTN monochr.	LED	Process and dialogue module PDM360 compact · 3.8" monochrome display · 3 freely programmable backlit function keys · Encoder with pushbutton · Ethernet · Programming according to IEC 61131-3 · 10...32 V DC	20	**CR1052**
	240 x 320	FSTN monochr.	LED	Process and dialogue module PDM360 compact · 3.8" monochrome display · 3 freely programmable backlit function keys · Encoder with pushbutton · 2 inputs / 2 outputs · Real-time clock · Ethernet · Programming according to IEC 61131-3 · 10...32 V DC	20	**CR1053**
	320 x 240	FSTN monochr.	LED	Process and dialogue module PDM360 compact · 3.8" monochrome display · 3 freely programmable backlit function keys · Encoder with pushbutton · Ethernet · Programming according to IEC 61131-3 · 10...32 V DC	21	**CR1055**
	320 x 240	FSTN monochr.	LED	Process and dialogue module PDM360 compact · 3.8" monochrome display · 3 freely programmable backlit function keys · Encoder with pushbutton · 2 inputs / 2 outputs · Real-time clock · Ethernet · Programming according to IEC 61131-3 · 10...32 V DC	21	**CR1056**

PDM360 with 5.7" display

Type	Display resolution (pixels)	Display type	Display illumination	Description	Drawing no.	Order no.
	320 x 240	FSTN monochr.	LED	Process and dialogue module PDM360 · 5.7" monochrome display · 6 freely programmable backlit function keys · Encoder with pushbutton · Real-time clock · Buzzer · Programming according to IEC 61131-3 · 10...32 V DC	22	**CR1050**
	320 x 240	TFT colour	LED	Process and dialogue module PDM360 · 5.7" colour display · 6 freely programmable backlit function keys · Encoder with pushbutton · Real-time clock · Buzzer · Programming according to IEC 61131-3 · 10...32 V DC	22	**CR1051**

PDM360 NG with 7" display

Type	Display resolution (pixels)	Display type	Display illumination	Description	Drawing no.	Order no.
	800 x 480	TFT colour	LED	7" colour display · 9 freely programmable backlit function keys · Encoder with pushbutton · 1 input / 1 output · Real-time clock · Buzzer · Programming according to IEC 61131-3 · 10...32 V DC	23	**CR1080**
	800 x 480	TFT colour	LED	7" colour display · 9 freely programmable backlit function keys · Rocker switch with pushbutton · 1 input / 1 output · Real-time clock · Buzzer · Programming according to IEC 61131-3 · 10...32 V DC	24	**CR1081**

Camera systems for PDM360 color

Type	Image resolution (pixels)	Description	Drawing no.	Order no.
	320 x 240	Ethernet camera · O2M · camera system for mobile vehicles · selectable image mirror function · lens heating · programming and parameter setting interface for CoDeSys 2.3 · angle of aperture 75°	25	**O2M110**
	320 x 240	Ethernet camera · O2M · camera system for mobile vehicles · selectable image mirror function · lens heating · programming and parameter setting interface for CoDeSys 2.3 · angle of aperture 115°	25	**O2M113**

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

Remote maintenance and data storage

Type	Description	Drawing no.	Order no.
	CAN GSM quad-band radio modem · GSM modem quad-band · for the transfer of SMS messages and data packets · 10...30 V DC	26	**CR3105**
	CAN GSM/GPS quad-band radio modem · GSM modem quad-band · for the transfer of SMS messages and data packets · with GPS receiver for location tracking · 10...30 V DC	27	**CR3106**
	CANmem · Data memory and logger for CANopen systems · Use of SD/MMC memory cards and PC cards to the PCMCIA standard · Parameter setting to IEC 61131 · 10...30 V DC	28	**CR3101**

Interface and diagnosis

Type	Description	Drawing no.	Order no.
	CAN analyser · Hand-held terminal to monitor and enter data messages in CAN systems	–	**EC2036**

Inclination sensors

Type	Description	Drawing no.	Order no.
	Inclination sensor · CAN interface · ± 15° · 2 axes · Configurable output functions · 10...32 V DC	29	**CR2101**
	Inclination sensor · CAN interface · Analogue outputs · 4...20 mA · ± 45° · 2 axes · Configurable output functions · 10...32 V DC	30	**CR2102**
	Inclination sensor · ± 90° · 15...30 V DC · Output 0...10 V · Cable	31	**EC2019**
	Inclination sensor · ± 90° · Input 8...30 V DC · Output 0.5...4.5 V · Cable	31	**EC2045**
	Inclination sensor · ± 20° · Analogue output · 4...20 mA	31	**EC2060**
	Inclination sensor · ± 90° · Analogue output · 4...20 mA	31	**EC2082**
	Tilt sensor · free from mercury · semi-conductor output · 10...30 V DC · Cable	32	**EC2061**

You can find wiring diagrams and scale drawings from page 551

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 6 m · Output function ⎍ · DC PNP · Wiring diagram no. 1									
	M12 / L = 79	4 f	stainless steel	10...60	IP 67 / IP 69K	400	200	33	**IFM209**
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	33	**IFM207**
Cable 6 m · Output function ⎍ · DC PNP · Wiring diagram no. 1									
	M12 / L = 79	7 nf	high-grade st. steel	10...60	IP 67 / IP 69K	300	200	34	**IFM210**
Cable 6 m · Output function ⎍ · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 8									
	M12 / L = 79	7 nf	stainless steel	10...36	IP 67 / IP 69K	300	100	34	**IFM208**
M12 connector · Output function ⎍ · DC PNP · Wiring diagram no. 2 · Connector groups 135, 136									
	M12 / L = 70	4 f	high-grade st. steel	10...60	IP 67 / IP 69K	400	200	35	**IFM205**
M12 connector · Output function ⎍ · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 9 · Connector groups 135, 136									
	M12 / L = 70	4 f	high-grade st. steel	10...36	IP 67 / IP 69K	400	100	35	**IFM203**
M12 connector · Output function ⎍ · DC PNP · Wiring diagram no. 2 · Connector groups 135, 136									
	M12 / L = 70	7 nf	stainless steel	10...60	IP 67 / IP 69K	300	200	36	**IFM206**
M12 connector · Output function ⎍ · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 9 · Connector groups 135, 136									
	M12 / L = 70	7 nf	high-grade st. steel	10...36	IP 67 / IP 69K	300	100	36	**IFM204**
Cable 6 m · Output function ⎍ · DC PNP · Wiring diagram no. 1									
	M18 / L = 81	8 f	stainless steel	10...60	IP 67 / IP 69K	200	200	37	**IGM206**

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Drawing no.	Order no.
Cable 6 m · Output function ⎍ · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 8									
	M18 / L = 81	8 f	stainless steel	10...36	IP 67 / IP 69K	200	100	37	**IGM202**
Cable 6 m · Output function ⎍ · DC PNP · Wiring diagram no. 1									
	M18 / L = 81	12 nf	stainless steel	10...60	IP 67 / IP 69K	200	200	38	**IGM207**
Cable 6 m · Output function ⎍ · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 8									
	M18 / L = 81	12 nf	stainless steel	10...36	IP 67 / IP 69K	200	100	38	**IGM203**
M12 connector · Output function ⎍ · DC PNP · Wiring diagram no. 2 · Connector groups 135, 136									
	M18 / L = 70	8 f	stainless steel	10...60	IP 67 / IP 69K	200	200	39	**IGM204**
M12 connector · Output function ⎍ · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 9 · Connector groups 135, 136									
	M18 / L = 70	8 f	stainless steel	10...36	IP 67 / IP 69K	200	100	39	**IGM200**
M12 connector · Output function ⎍ · DC PNP · Wiring diagram no. 2 · Connector groups 135, 136									
	M18 / L = 70	12 nf	stainless steel	10...60	IP 67 / IP 69K	200	200	40	**IGM205**
M12 connector · Output function ⎍ · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 9 · Connector groups 135, 136									
	M18 / L = 70	12 nf	stainless steel	10...36	IP 67 / IP 69K	200	100	40	**IGM201**
Cable 6 m · Output function ⎍ · DC PNP · Wiring diagram no. 1									
	M30 / L = 81	12 f	stainless steel	10...60	IP 67 / IP 69K	100	200	41	**IIM210**
Cable 6 m · Output function ⎍ · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 8									
	M30 / L = 81	12 f	stainless steel	10...36	IP 67 / IP 69K	100	100	41	**IIM202**
Cable 6 m · Output function ⎍ · DC PNP · Wiring diagram no. 1									
	M30 / L = 81	22 nf	stainless steel	10...60	IP 67 / IP 69K	100	200	42	**IIM211**

You can find wiring diagrams and scale drawings from page 551

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Drawing no.	Order no.
Cable 6 m · Output function ⎍ · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 8									
	M30 / L = 81	22 nf	stainless steel	10...36	IP 67 / IP 69K	100	100	42	**IIM203**
M12 connector · Output function ⎍ · DC PNP · Wiring diagram no. 2 · Connector groups 135, 136									
	M30 / L = 70	12 f	stainless steel	10...60	IP 67 / IP 69K	100	200	43	**IIM208**
M12 connector · Output function ⎍ · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 9 · Connector groups 135, 136									
	M30 / L = 70	12 f	stainless steel	10...36	IP 67 / IP 69K	100	100	43	**IIM200**
M12 connector · Output function ⎍ · DC PNP · Wiring diagram no. 2 · Connector groups 135, 136									
	M30 / L = 70	22 nf	stainless steel	10...60	IP 67 / IP 69K	100	200	44	**IIM209**
M12 connector · Output function ⎍ · 3-wire DC PNP; 2-wire DC PNP/NPN · Wiring diagram no. 9 · Connector groups 135, 136									
	M30 / L = 70	22 nf	stainless steel	10...36	IP 67 / IP 69K	100	100	44	**IIM201**
Cable 3 m · Output function ⎍ · DC PNP · Wiring diagram no. 3									
	40 x 12 x 26	4 nf	PBT	10...36	IP 67	70	–	45	**IN5281**
Cable 3 m · Output function ⎍ · DC PNP · Wiring diagram no. 4									
	40 x 12 x 26	4 nf	PBT	10...36	IP 67	70	–	45	**IN5282**

f = flush / nf = non flush

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 137									
	24 bits	10...30	–	–	10	-40...85	axial	46	**RM9000**

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]	Drawing 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 9, 11, 12, 107, 108, 109, 135, 136								
	G¼ A / M5 I	Operation	0...400	600	1000	9.6...36	47	**PP7550**
	G¼ A / M5 I	Operation	0...250	400	850	9.6...36	47	**PP7551**
	G¼ A / M5 I	Operation	0...100	300	650	9.6...36	48	**PP7552**
	G¼ A / M5 I	Operation	0...25	150	350	9.6...36	49	**PP7553**
	G¼ A / M5 I	Operation	-1...10	75	150	9.6...36	49	**PP7554**
M12 connector · Output function 4...20 mA analogue · Wiring diagram no. 6 · Connector groups 9, 11, 107, 108, 135								
	G¼ I	–	0...400	600	1000	9.6...32	50	**PA3020**
	G¼ I	–	0...250	400	850	9.6...32	50	**PA3021**
	G¼ I	–	0...100	300	650	9.6...32	51	**PA3022**
	G¼ I	–	0...25	150	350	9.6...32	51	**PA3023**
	G¼ I	–	0...10	75	150	9.6...32	51	**PA3024**
	G¼ I	–	0...600	800	1200	9.6...32	52	**PA3060**
M12 connector · Output function 0...10 V analogue · Wiring diagram no. 7 · Connector groups 9, 11, 107, 108, 135								
	G¼ I	–	0...400	600	1000	16...32	53	**PA9020**
	G¼ I	–	0...250	400	850	16...32	51	**PA9021**
	G¼ I	–	0...100	300	650	16...32	51	**PA9022**

You can find wiring diagrams and scale drawings from page 551

Type	Process connection	Display LED	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Drawing no.	Order no.
M12 connector · Output function 0...10 V analogue · Wiring diagram no. 7 · Connector groups 9, 11, 107, 108, 135								
	G¼ I	–	0...25	150	350	16...32	51	**PA9023**
	G¼ I	–	0...10	75	150	16...32	51	**PA9024**
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 135, 136								
	G¼ A / M5 I	Operation	0...400	600	1000	9.6...36	47	**PP000E**
	G¼ A / M5 I	Operation	0...250	400	850	9.6...36	47	**PP001E**
	G¼ A / M5 I	Operation	0...100	300	650	9.6...36	48	**PP002E**
	G¼ A / M5 I	Operation	0...25	150	350	9.6...36	49	**PP003E**
	G¼ A / M5 I	Operation	-1...10	75	150	9.6...36	49	**PP004E**
M12 connector · Output function 4...20 mA analogue · Wiring diagram no. 6 · Connector group 135								
	G¼ A	–	0...400	600	1600	8.5...36	54	**PT3550**
	G¼ A	–	0...250	400	1000	8.5...36	54	**PT3551**
	G¼ A	–	0...100	200	1000	8.5...36	54	**PT3552**
	G¼ A	–	0...25	60	600	8.5...36	54	**PT3553**
	G¼ A	–	0...10	25	300	8.5...36	54	**PT3554**
M12 connector · Output function 0...10 V analogue · Wiring diagram no. 7 · Connector group 135								
	G¼ A	–	0...400	600	1600	16...36	54	**PT9550**
	G¼ A	–	0...250	400	1000	16...36	54	**PT9551**

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 · Wiring diagram no. 7 · Connector group 135								
	G¼ A	–	0...100	200	1000	16...36	54	**PT9552**
	G¼ A	–	0...25	60	600	16...36	54	**PT9553**
	G¼ A	–	0...10	25	300	16...36	54	**PT9554**

Converters and PWM modules

Type	Description	Draw-ing no.	Order no.
	PWM / analogue module	55	**CR3001**
	PWM / analogue module	55	**CR3002**
	PWM / analogue module	56	**CR3003**
	PWM / analogue module	56	**CR3004**
	DC/DC converter · Input 18...36 V DC · Output 10 V DC	57	**EC2025**
	Module for current measurement with ecomat R 360 controller	58	**EC2049**

Connection technology for control systems

Type	Description	Order no.
	Cable with connector · for process and dialogue modules PDM360 · 19-pole · push-pull locking · Cable length 2 m · suitable for panel mounting or control cabinet mounting	**EC2077**
	Cable with connector · for process and dialogue modules PDM360 · 19-pole · Cable length 2 m · suitable for panel mounting, control cabinet mounting and mounting base	**EC2081**
	programming cable · e.g. for ClassicController CR0032 or ExtendedController CR0232 · wired	**EC2096**

You can find wiring diagrams and scale drawings from page 551

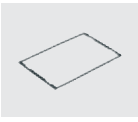
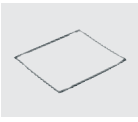
Type	Description	Order no.
	Jumper · straight / straight · Ethernet · Cross-over patch cable · 2 m · Housing materials: PUR	**EC2080**
	Jumper · straight / straight · Ethernet · Cross-over patch cable · 2 m · Housing materials: PUR / PC	**E11898**
	Cable with connector · AMP 55-pole · wired · Cable length 1.2 m · Cores sealed individually · Core cross-section 1 mm²	**EC2084**
	Cable with connector · AMP 55-pole · wired · Cable length 1.2 m · Core cross-section 1 mm²	**EC2086**
	Cable with connector · AMP 55-pole · wired · Cable length 2.5 m · Cores sealed individually · Core cross-section 1 mm²	**EC2097**
	Cable with connector · AMP 55-pole · wired · Cable length 2.5 m · Core cross-section 1 mm²	**EC2046**
	Connector AMP 55-pole · wirable · with contacts (AMP Junior Timer)	**EC2013**
	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**
	Cable with connector · AMP 6-pole · wired · fully wired · Cable length 1.2 m · Core cross-section 1 mm²	**EC1520**
	Cable with connector · AMP 10-pole · wired · fully wired · Cable length 1.2 m · Core cross-section 1 mm²	**EC1521**
	Cable with connector · AMP 14-pole · wired · fully wired · Cable length 1.2 m · Core cross-section 1 mm²	**EC1522**

Type	Description	Order no.
	Cable with connector · AMP 18-pole · wired · fully wired · Cable length 1.2 m · Core cross-section 1 mm²	**EC1523**
	Adapter cable for CAN analyser and spring terminal box · 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**
	Plug for Danfoss PWM valves	**EC2056**
	Plug for Danfoss PWM valves · M12 connector	**EC2088**
	CAN communication cable · cable length 2 m interface 9-pole D-SUB (female) · cable ends with lugs	**EC2034**
	Spring terminal box · Accessory for simulator and 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	**EC2063**
	USB connection cable · type A to type Mini B · for PC communication, configuration and uploads of firmware updates · cable length 1.8 m	**EC2058**
	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**
	Jumper · straight / straight · Ethernet · gold-plated contacts · 10 m · Housing materials: TPU	**E21137**
	Jumper · straight / straight · Ethernet · gold-plated contacts · 2 m · Housing materials: TPU	**E21138**

You can find wiring diagrams and scale drawings from page 551

Type	Description	Order no.
	Jumper · straight / straight · Ethernet · gold-plated contacts · 5 m · Housing materials: TPU	**E21139**
	Socket · straight · Free from halogen · gold-plated contacts · M12 connector · 2 m · Housing materials: PUR	**E11596**
	Socket · straight · Free from halogen · gold-plated contacts · M12 connector · 5 m · Housing materials: PUR	**E11597**
	Terminating resistor socket · straight · gold-plated contacts · M12 connector · Housing materials: TPU	**E11589**
	Plug · straight · Free from halogen · gold-plated contacts · M12 connector · 2 m · Housing materials: PUR	**E11598**
	Plug · straight · Free from halogen · gold-plated contacts · M12 connector · 5 m · Housing materials: PUR	**E11599**
	Jumper · straight / straight · Free from halogen · gold-plated contacts · 0.3 m · Housing materials: PUR	**E11591**
	Jumper · straight / straight · Free from halogen · gold-plated contacts · 1 m · Housing materials: PUR	**E11592**
	Jumper · straight / straight · Free from halogen · gold-plated contacts · 2 m · Housing materials: PUR	**E11593**
	Jumper · straight / straight · Free from halogen · gold-plated contacts · 5 m · Housing materials: PUR	**E11594**
	Plug · straight · Free from halogen · gold-plated contacts · M12 connector · 5 m · Housing materials: PUR	**E11599**
	Cable with connector · AMP 18-pole · wired · partially wired · for input signals · Cable length 1.2 m · Core cross-section 1 mm^2	**EC1524**
	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**
	Jumper · for process and dialogue modules PDM360 NG · USB socket for installation in control panel or dashboard · 1.5 m	**EC2099**

Accessories

Type	Description	Order no.
	Protective cap · M12 · for M12 sockets of CompactModule Metal · Housing materials: PA black	**EC2098**
	Snap in set · e.g. for process and dialogue monitors PDM360, PDM360 compact or PDM360 smart · for panel mounting · consisting of: · 4 plastic springs	**EC1452**
	Fixing set · e.g. for process and dialogue monitors PDM360, PDM360 compact or PDM360 smart · for control cabinet mounting · consisting of: · 4 mounting brackets, 4 cylinder screws	**EC1453**
	Mounting base · for process and dialogue modules PDM360 · for use as a desktop unit	**EC2083**
	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**
	Seal and vibration absorber · for process and dialogue modules PDM360	**EC1451**
	Ethernet switch · 5 ports · Autosensing · Autocrossing · 10/100Base-TX · Redundant voltage supply · 10...30 V DC	**EC2095**
	Seal and vibration absorber · for process and dialogue modules PDM360 NG · panel · Housing materials: TPE black · Pack quantity: 5	**EC2115**
	Mounting frame and vibration absorber · for process and dialogue modules PDM360 NG · panel · Housing materials: steel sheet	**EC2110**
	label tag · 20 x 9 mm · Housing materials: plastics white · Pack quantity: 10	**E70424**

You can find wiring diagrams and scale drawings from page 551

Type	Description	Order no.
	Protective cap · M12 · for M12 sockets of ClassicLine modules, CompactLine modules and AirBoxes · Housing materials: PA black	**E73004**

Connection technology with signal converter

Type	Description	Order no.
	plug-in power supply · with interchangeable mains plugs (EU/UK/USA/AUS) · Output 24 V DC / 1000 mA	**EC2059**
	CANremote GSM planar aerial · GSM 850/900/1800/1900 · Cable length 3 m · SMA aerial connector · 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**
	SD memory card · 2 GByte · for mobile applications	**EC1021**

Load-dump modules

Type	Description	Order no.
	Load-Dump-Module · 12 V DC	**EC2015**
	Load-Dump-Module · 24 V DC	**EC2016**

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**

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

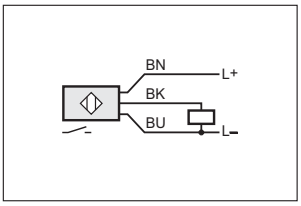
Type	Description	Order no.
	Mounting clamp · Ø 30 mm · with end stop · for type M30 · Housing materials: PC	**E11049**
	Angle bracket · for type M12 · Housing materials: stainless steel	**E10735**
	Angle bracket · for type M18 · Housing materials: stainless steel	**E10736**
	Angle bracket · for type M30 · Housing materials: stainless steel	**E10737**

Wiring diagrams

Core colours

BK	black
BN	brown
BU	blue

1



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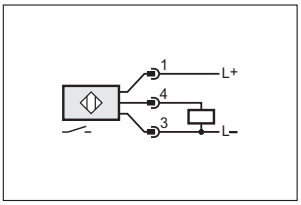

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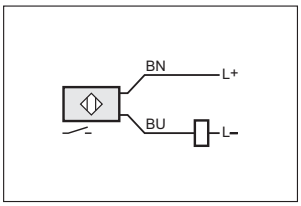

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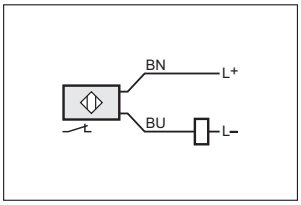

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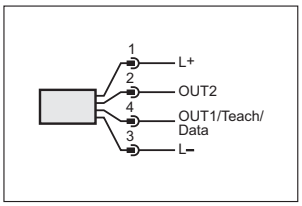

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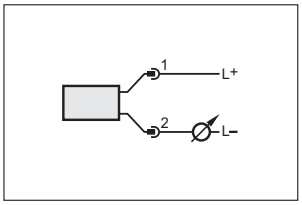

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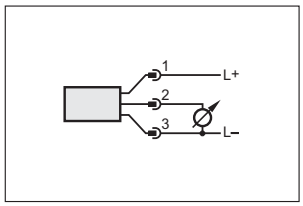

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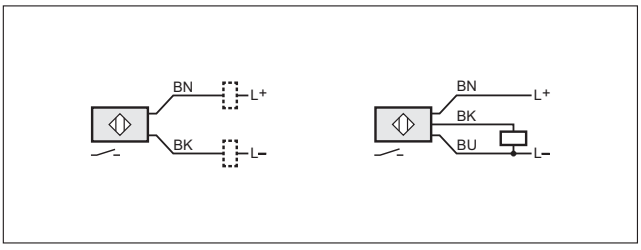

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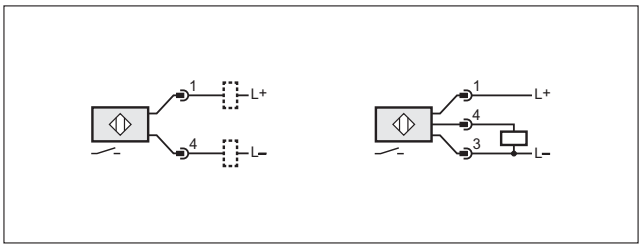

Scale drawings / drawing no. – CAD download: www.ifm.com

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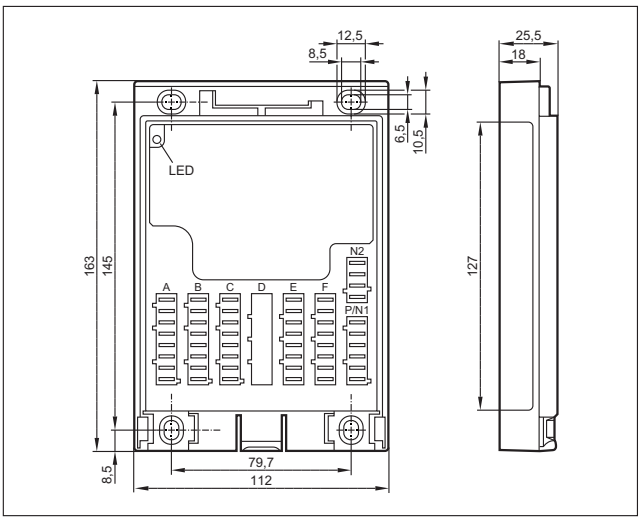

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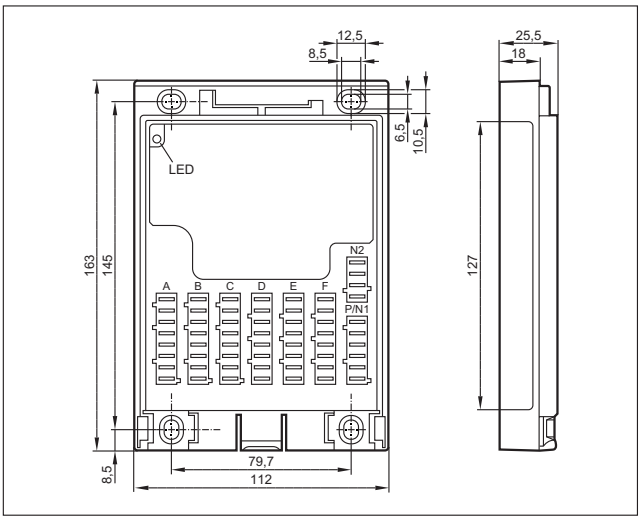

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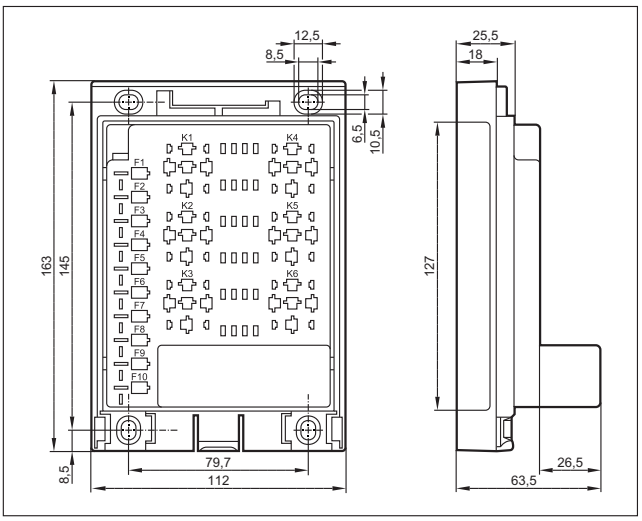

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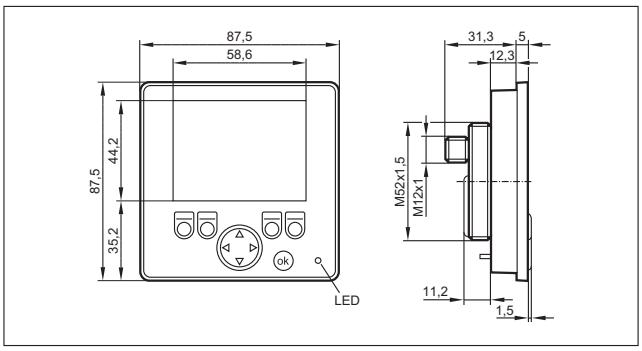

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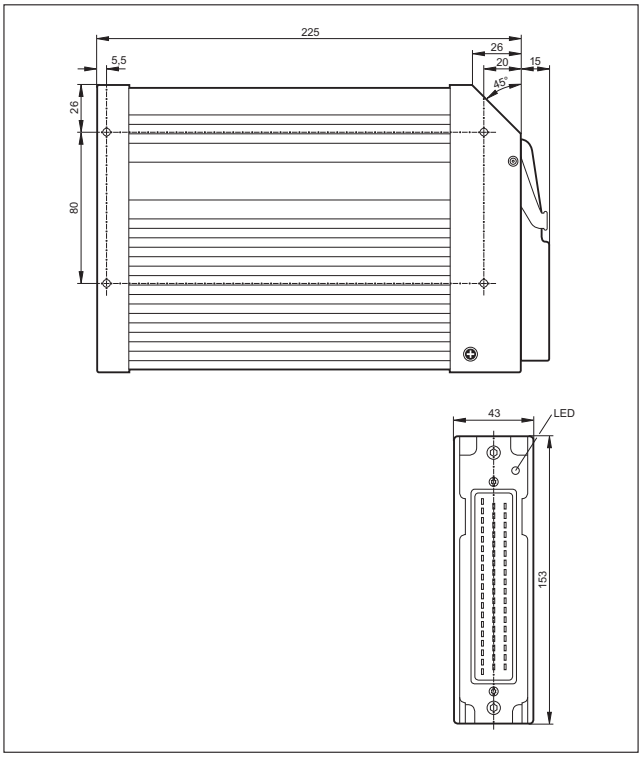

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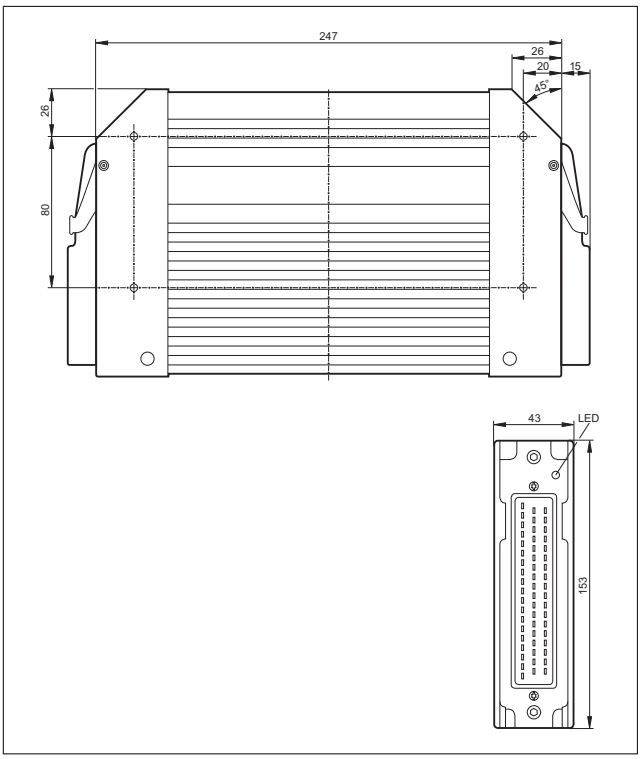

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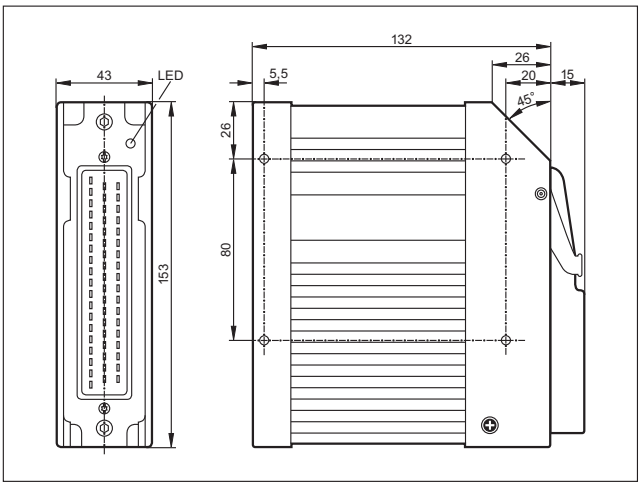

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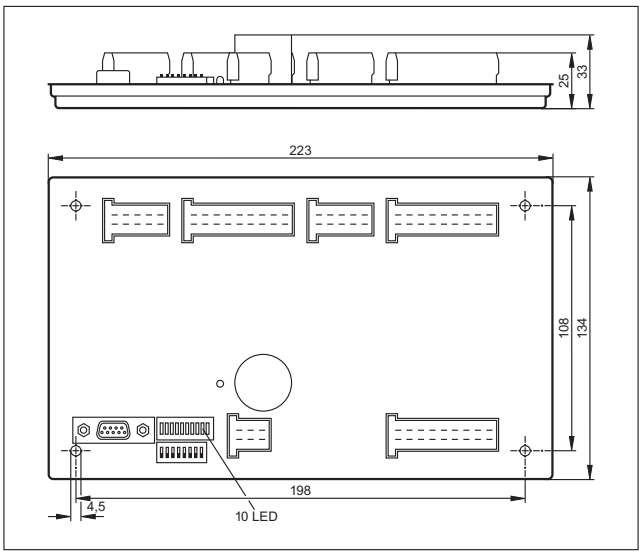

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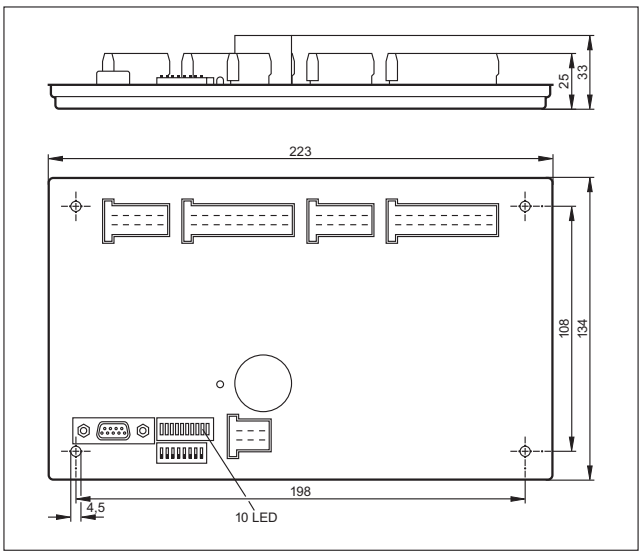

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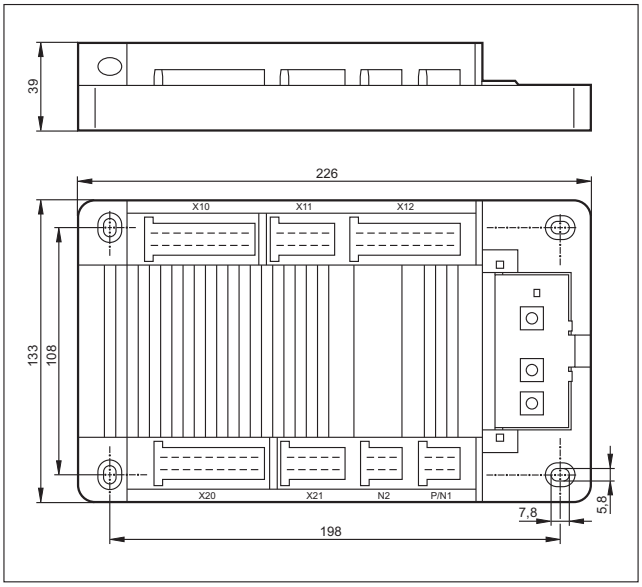

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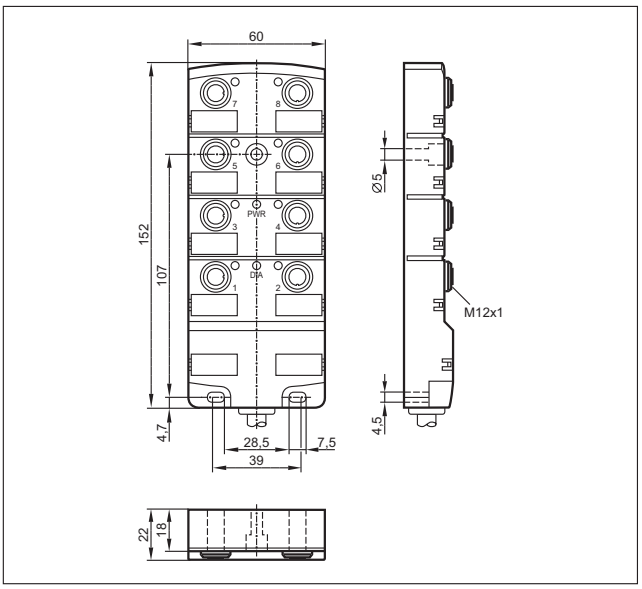

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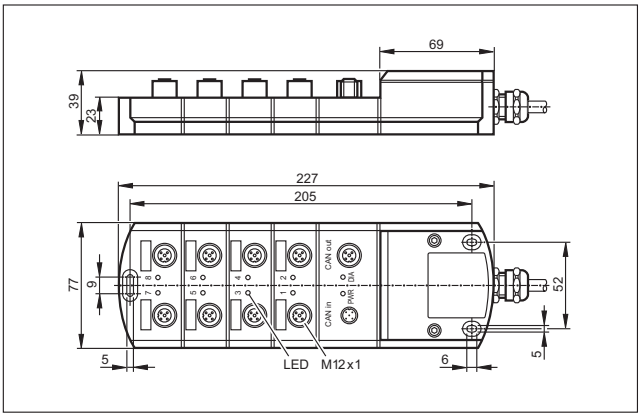

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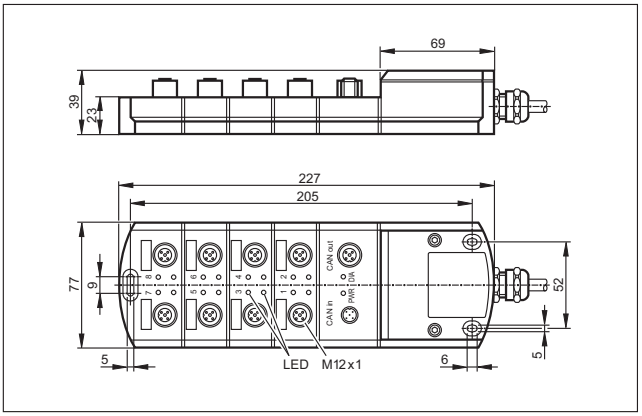

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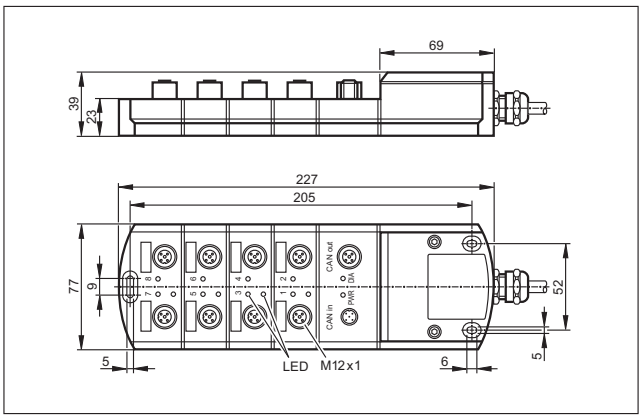

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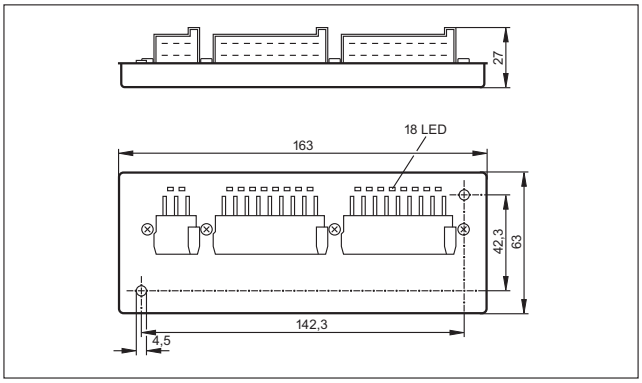

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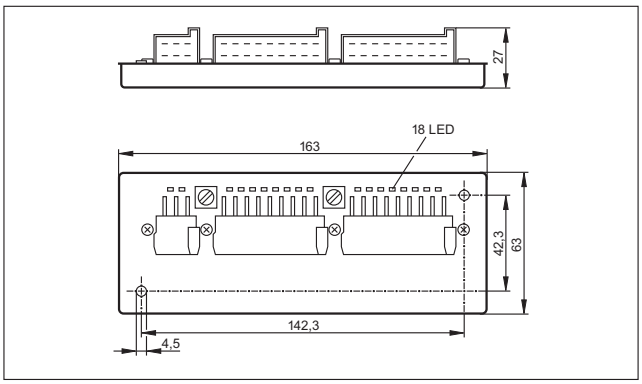

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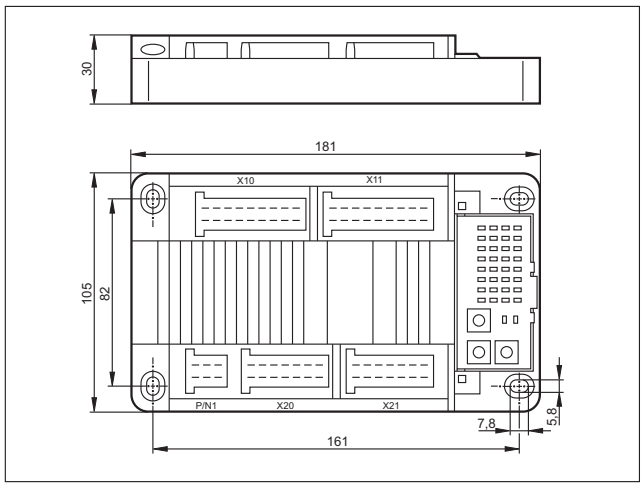

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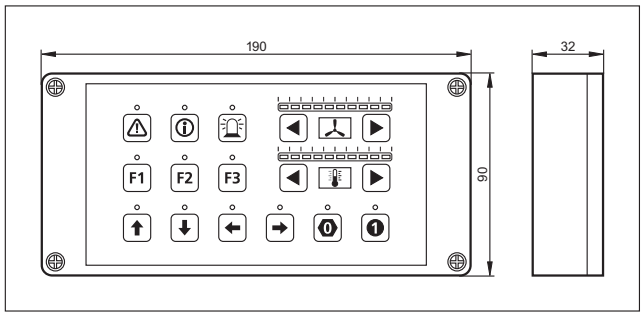

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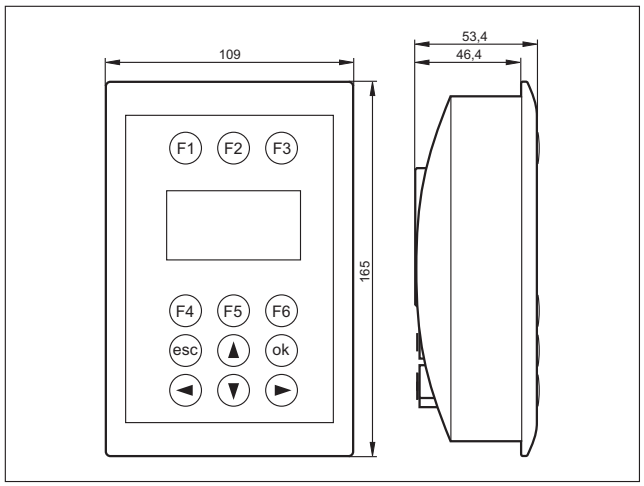

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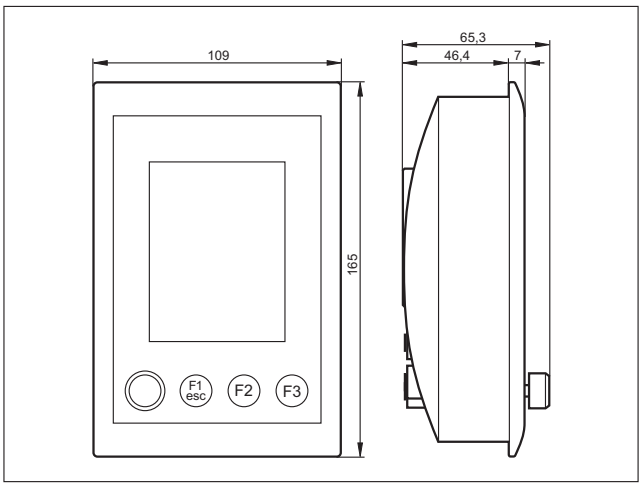

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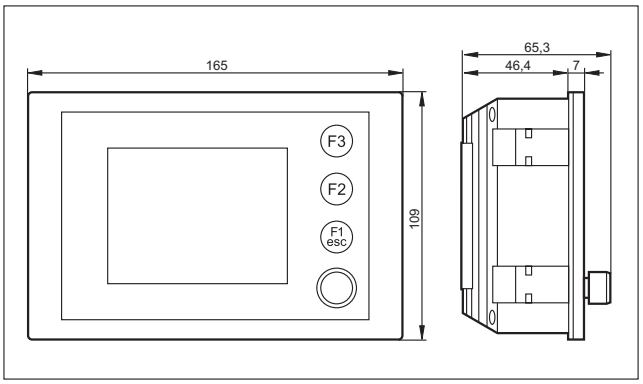

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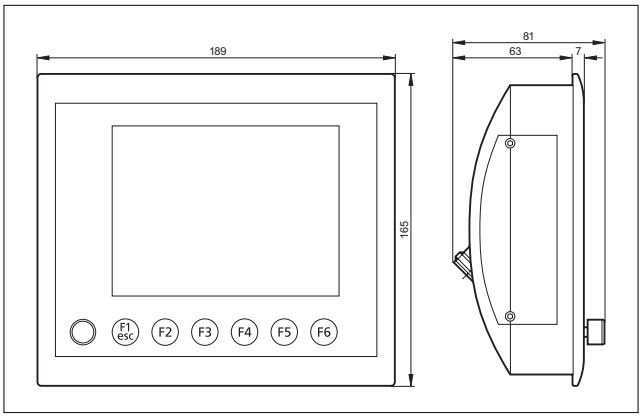

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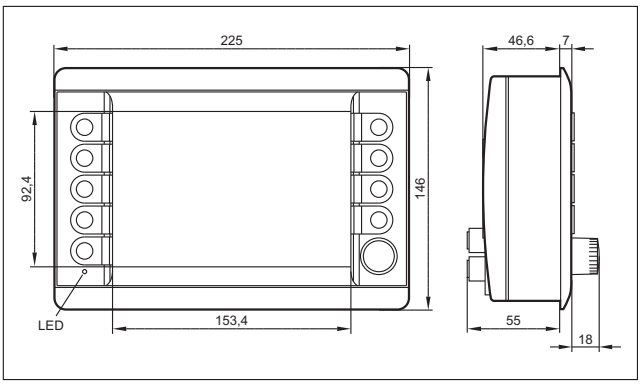

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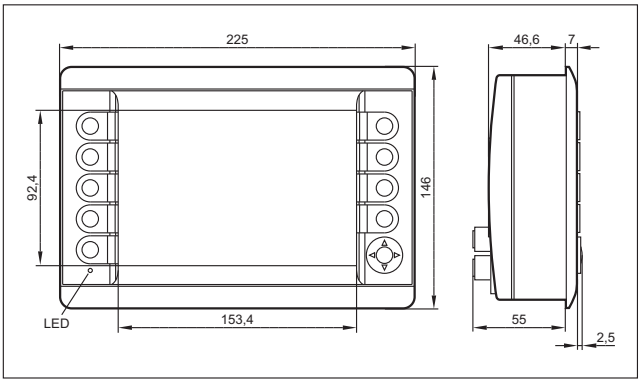

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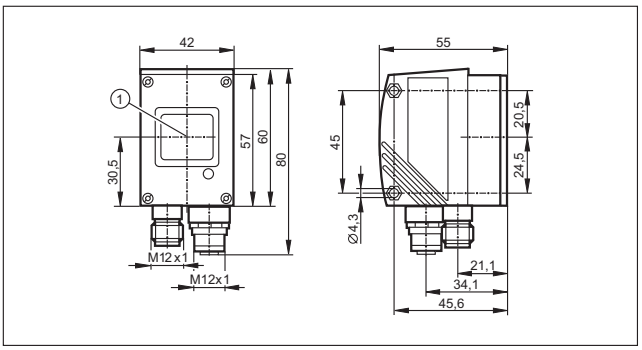

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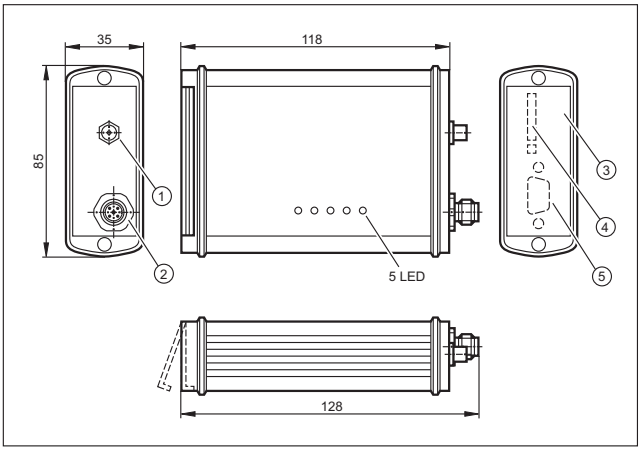
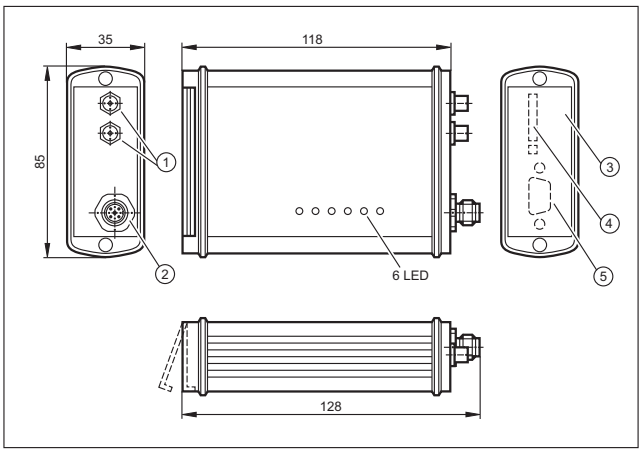


1: SMA aerial connector, 2: CANopen interface, 3: protective cover, 4: SIM card, 5: RS-232 interface

27



1: SMA aerial connector, 2: CANopen interface, 3: protective cover, 4: SIM card, 5: RS-232 interface

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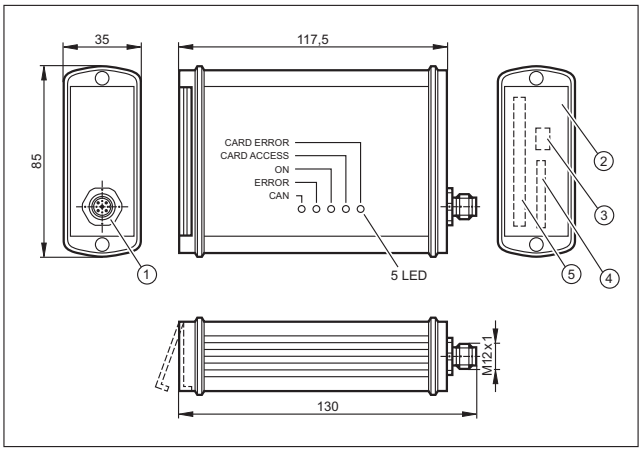
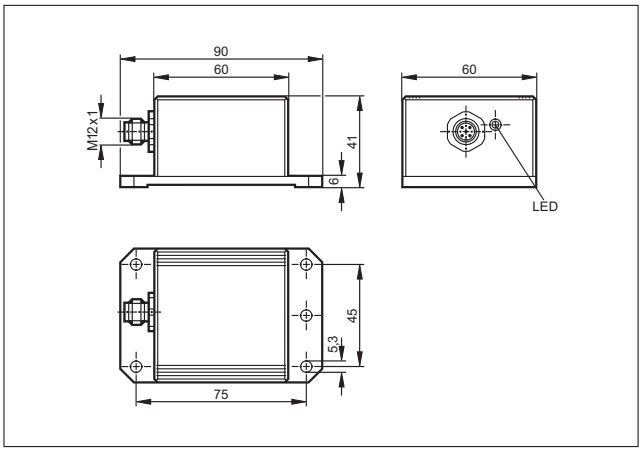


1: CANopen interface, 2: protective cover, 3: USB, type Mini-B (socket), 4: SD/MMC slot, 5: PCMCIA slot

29



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

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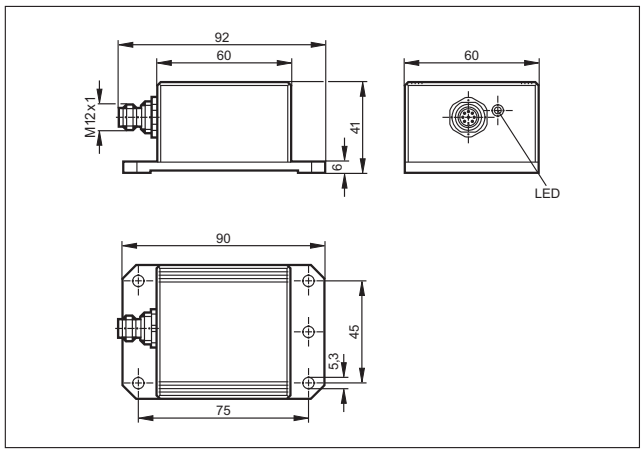

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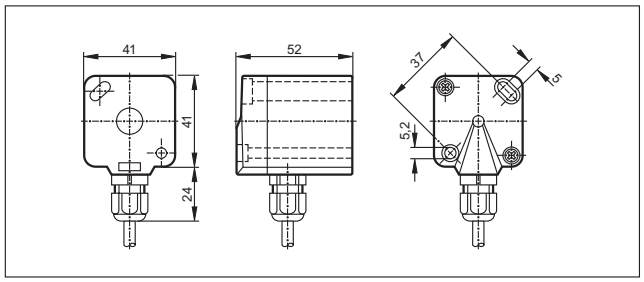

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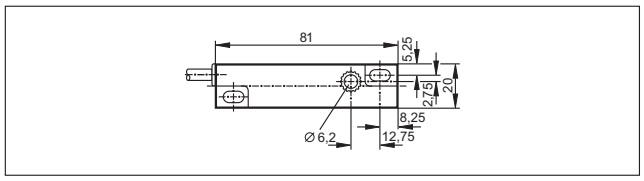

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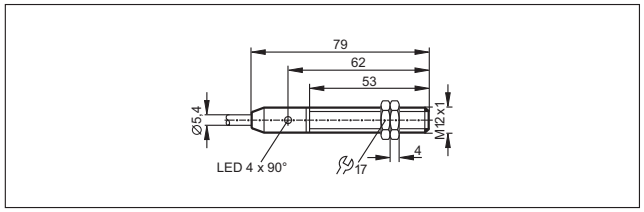

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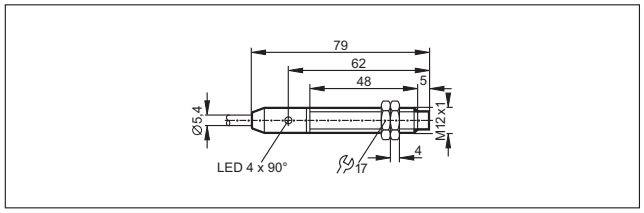

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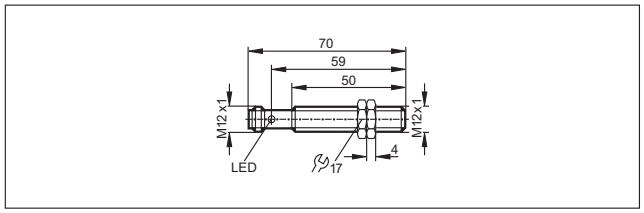

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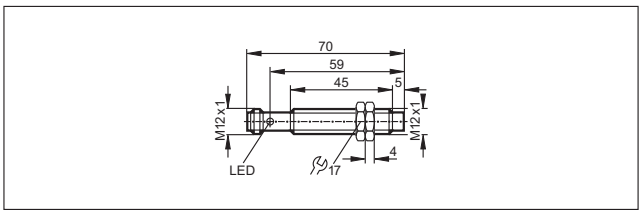

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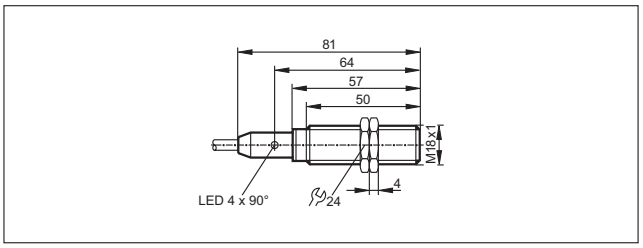

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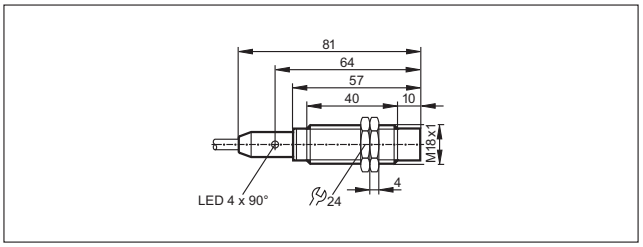

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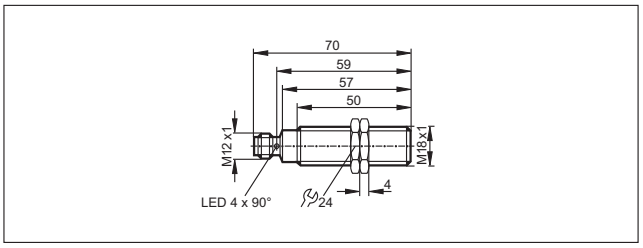

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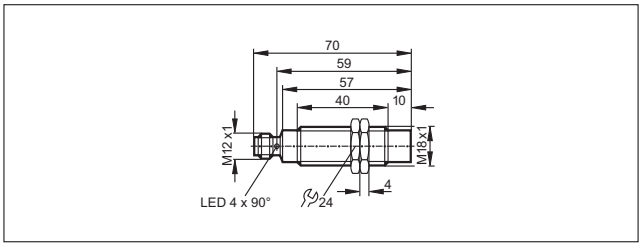

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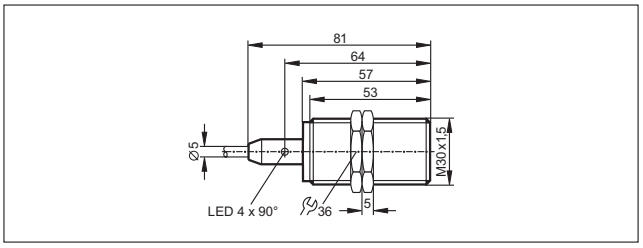
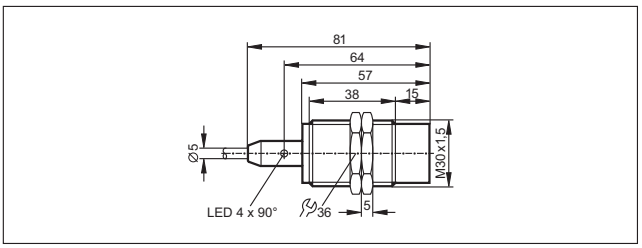


Scale drawings / drawing no. – CAD download: www.ifm.com

42



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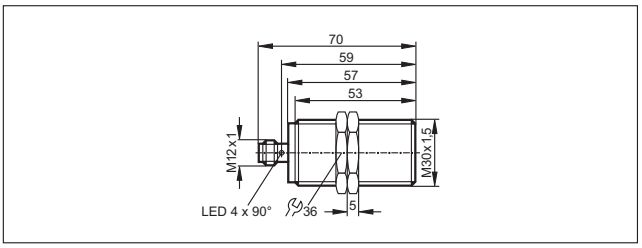

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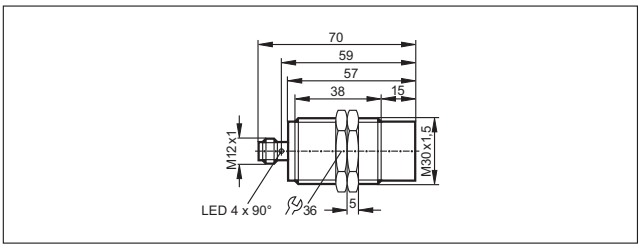

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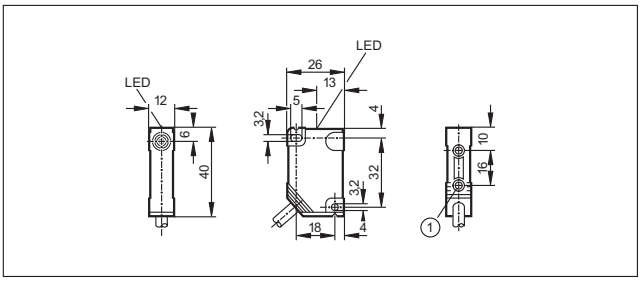
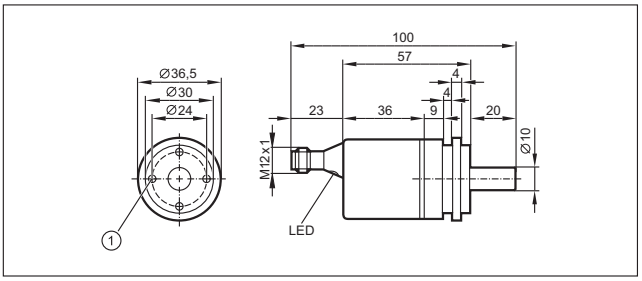


1: threaded insert M3, depth 5.8 mm, max. tightening torque 1.2 Nm (screw fixing class 8.8) when brass insert in contact with counterpart.

46



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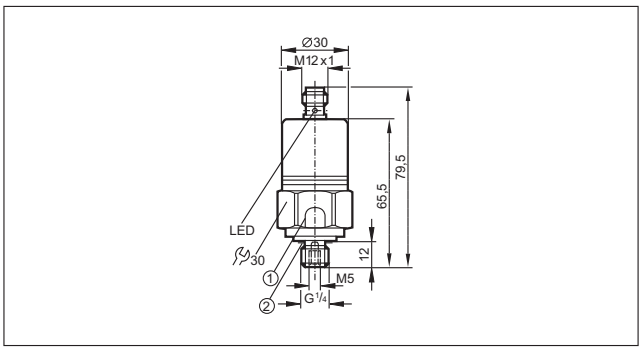
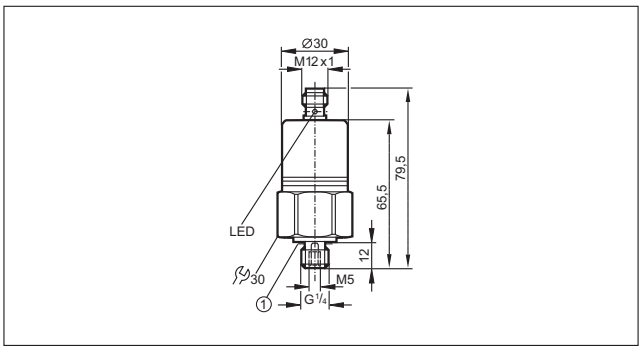


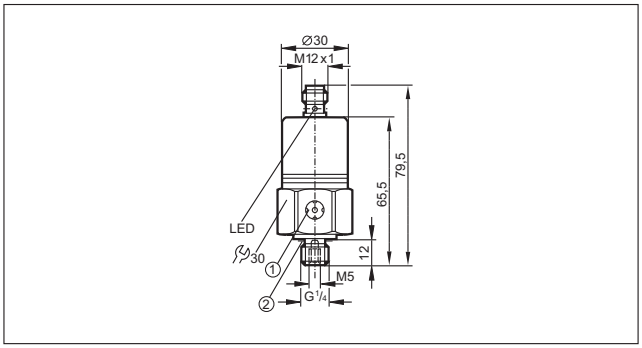
1: Pressure relief mechanism, No mechanical force must be exerted on the pressure relief mechanism., 2: sealing FPM / DIN 3869-14

48



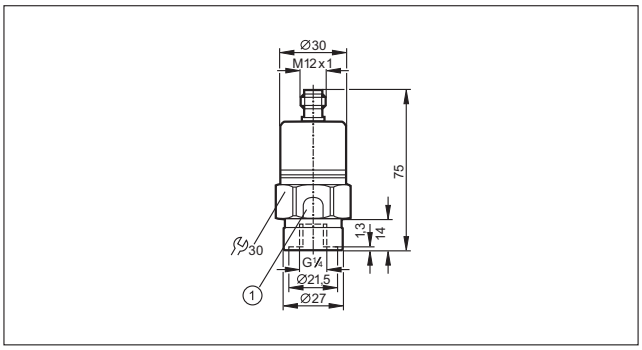
1: sealing FPM / DIN 3869-14

49



1: ventilation, 2: sealing FPM / DIN 3869-14

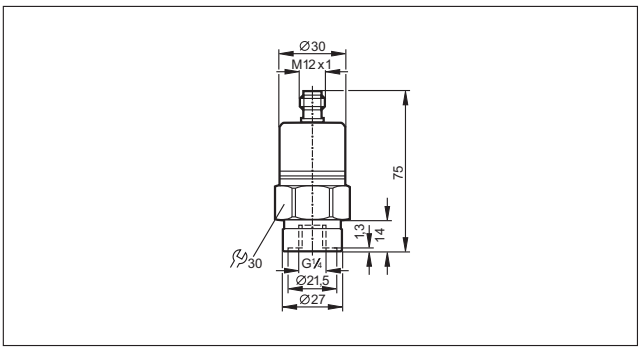
50



1: Pressure relief mechanism, No mechanical force must be exerted on the pressure relief mechanism.

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

51



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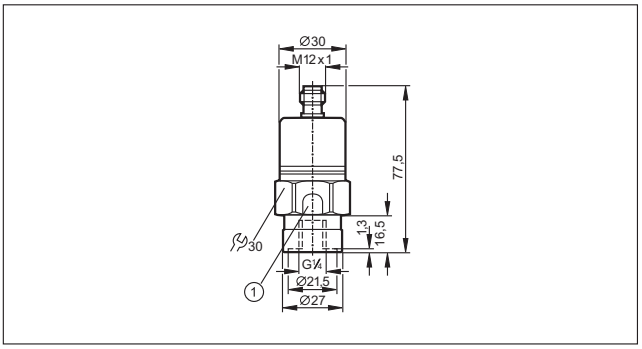
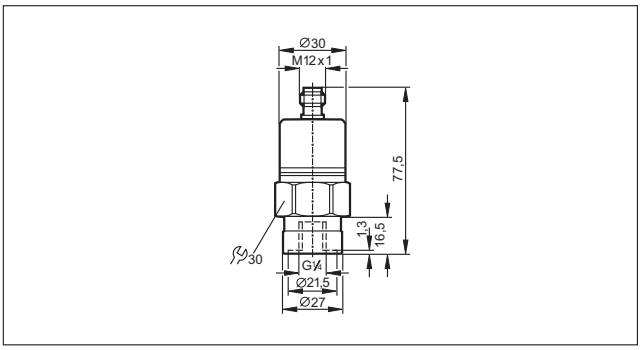


1: Pressure relief mechanism, No mechanical force must be exerted on the pressure relief mechanism.

53



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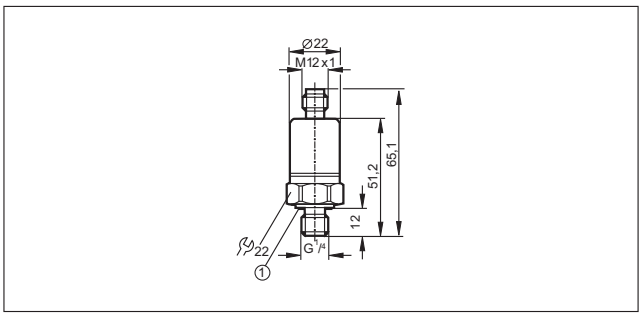
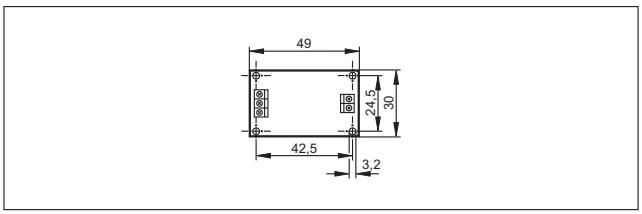


1: sealing FPM / DIN 3869-14, tightening torque 25 Nm

55



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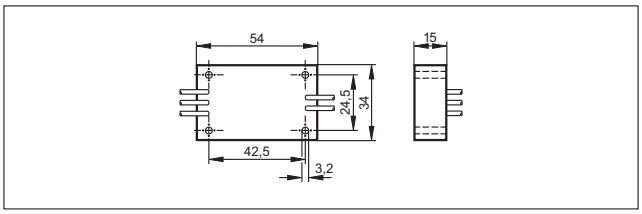

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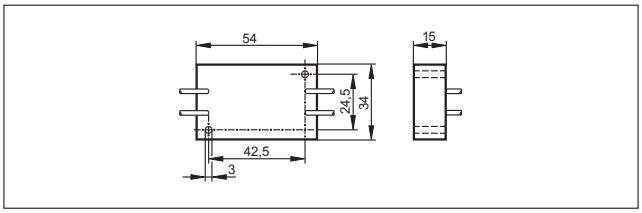

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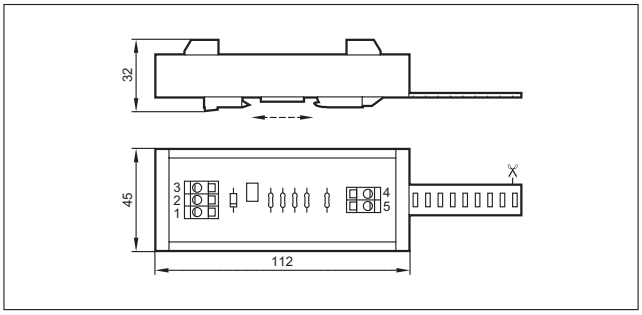


- **International approval package and wide-range input for worldwide use.**
- **Partly adjustable output voltage.**
- **Power reserves to cover temporary overload or supply failure.**
- **Output short-circuit, overload, and no-load protected.**
- **State signalled via DC-ok output.**

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 (± 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 92 %. 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. 340 to 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 ± 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

Mains fluctuations up to ± 15 % and mains interference are compensated for. Even mains voltage dips of a few milliseconds are compensated for, the output voltage is completely maintained. An active inrush
current limitation reduces the inrush current via a fixed resistor which is bridged after start up.

The outputs are protected against short circuits and overload.

Suitable for the application: ifm provides power supplies in different power classes.

Power supplies / switching amplifiers with one output

Type	Current [mA]	Output voltage [V]	Nominal voltage [V]	Output	Drawing no.	Order no.
	max. 100	24 DC ±5%	230 AC (47...63 Hz)	relay (1 changeover contact)	1	**DN0001**
	max. 100	24 DC ±5%	110 AC (47...63 Hz)	relay (1 changeover contact)	1	**DN0012**
	max. 40	24 DC ±5%	230 AC (50...60 Hz) / 24 DC	relay (1 changeover contact)	1	**DT0001**

Power supplies / switching amplifiers with 2 inputs and 2 outputs

Type	Current [mA]	Output voltage [V]	Nominal voltage [V]	Output	Drawing no.	Order no.
	max. 300	24 V DC ± 3 %	110...240 AC / -15 / +10	2 relays (1 changeover contact per channel)	2	**DN0200**

Switched-mode power supplies, new BasicLine design in a robust metal housing

Type	Current [A]	Output voltage [V]	Nominal voltage [V]	Mains buffering time [ms]	Efficiency typ. [%]	Drawing no.	Order no.
	2.5	24...28	100...240 AC	450 (230 V AC; 24 V DC; 2.5 A)	87.1	3	**DN3011**
	5	24...28	100...240 AC	205 (230 V AC; 24 V DC; 5 A)	88.9	3	**DN3012**

Switched-mode power supplies, single phase, new BasicLine design in a 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	100...240 AC	120 (230 V AC; 24 V DC; 1.25 A)	84	4	**DN1030**
	2.5	24...28	100...240 AC	90 (230 V AC; 24 V DC; 2.5 A)	88	4	**DN1031**

Standard switched-mode power supplies, single phase

Type	Current [A]	Output voltage [V]	Nominal voltage [V]	Mains buffering time [ms]	Efficiency typ. [%]	Drawing no.	Order no.
	3	12...15 DC (±2%)	115 / 230 AC	> 20	87	5	**DN2021**
	4	24 DC (+5% / -1%)	115 / 230 AC	> 37	90	6	**DN2112**
	4.1	24...28 DC (±2%)	115 / 230 AC	> 40 (230 V AC; 24 V DC / 4.1 A)	90	7	**DN1022**
	10	24...28 DC (±2%)	115 / 230 AC	> 20	90	8	**DN2013**
	20	24...28 DC (±2%)	230 AC	> 20	91	9	**DN2014**
	20	24...28 DC, ±2%	115 / 230 AC	15 / 30	90	9	**DN2114**

Standard switched-mode power supplies, three phases

Type	Current [A]	Output voltage [V]	Nominal voltage [V]	Mains buffering time [ms]	Efficiency typ. [%]	Drawing no.	Order no.
	5	24...28 DC (±2%)	3 x 400...500 AC	> 16	89	10	**DN2032**
	10	24...28 DC (±2%)	3 x 400...500 AC	> 24	90	11	**DN2033**
	20	24...28 DC (±2%)	3 x 400 AC	> 11	92	12	**DN2034**
	20	24...28 DC (±2%)	3 x 400...500 AC; ±15%	> 11	92	13	**DN2134**
	40	24...28 DC (±2%)	3 x 400...500 AC	> 15	92.5	14	**DN2035**
	30	24...28 DC (±2%)	3 x 400...500 AC	> 10	93	15	**DN2036**

You can find scale drawings from page 565

AS-i switched-mode power supplies, single phase, new ClassicLine design in a robust metal housing

Type	Current [A]	Output voltage [V]	Nominal voltage [V]	Mains buffering time [ms]	Efficiency typ. [%]	Drawing no.	Order no.
	2.8	29.5...31.6 DC	100...240 AC	330 (230 V AC)	88	16	**AC1236**
	4	29.5...31.6 DC	100...240 AC	195 (230 V AC / 24 V DC)	88	16	**AC1244**

AS-i switched-mode power supplies, single phase, new BasicLine design in a 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	120 (230 V AC)	86	17	**AC1220**
	1.9	29.5...31.6 DC	100...240 AC	90 (230 V AC)	88	17	**AC1221**

AS-i switched-mode power supplies, single phase, discontinued types

Type	Current [A]	Output voltage [V]	Nominal voltage [V]	Mains buffering time [ms]	Efficiency typ. [%]	Drawing no.	Order no.
	2.8	29.5...31.6 DC	115 / 230 AC	> 10	88	18	**AC1216**
	4	29.5...31.6 DC	115 / 230 AC	> 10	90	19	**AC1224**

AS-i switched-mode power supplies, single phase, SilverLine

Type	Current [A]	Output voltage [V]	Nominal voltage [V]	Mains buffering time [ms]	Efficiency typ. [%]	Drawing no.	Order no.
	2.8	29.5...31.6 DC	115 / 230 AC	> 10	88	20	**AC1226**
	2.8	29.5...31.6 DC	115 / 230 AC	> 10	88	21	**AC1209**
	2.8	29.5...31.6 DC	24 DC	> 10	87	22	**AC1207**

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

Type	Current [A]	Output voltage [V]	Nominal voltage [V]	Mains buffering time [ms]	Efficiency typ. [%]	Draw-ing no.	Order no.
	8	29.5...31.6 DC	115 / 230 AC	> 10	92	23	**AC1218**

AS-i dual switched-mode power supplies, single phase, SilverLine

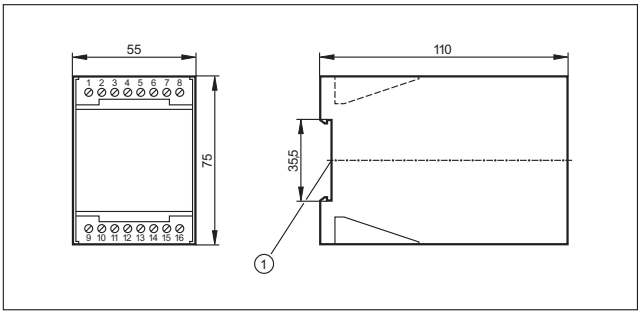
Type	Current [A]	Output voltage [V]	Nominal voltage [V]	Mains buffering time [ms]	Efficiency typ. [%]	Draw-ing no.	Order no.
	2 x 4	2 x 29.5...31.6 DC	115 / 230 AC	> 10	87	24	**AC1212**

AS-i switched-mode power supplies, three phases, SilverLine

Type	Current [A]	Output voltage [V]	Nominal voltage [V]	Mains buffering time [ms]	Efficiency typ. [%]	Draw-ing no.	Order no.
	8	29.5...31.6 DC	3 x 400...500 AC	22 (400V)	91.5	25	**AC1223**

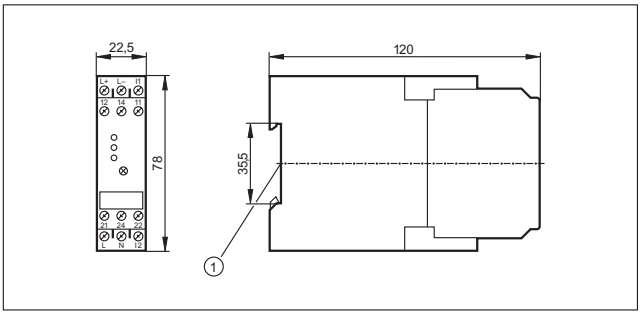
Scale drawings / drawing no. – CAD download: www.ifm.com

1



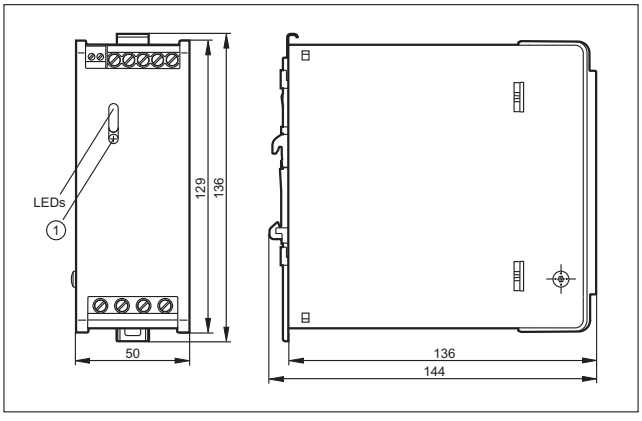
1: mounting on DIN rail

2



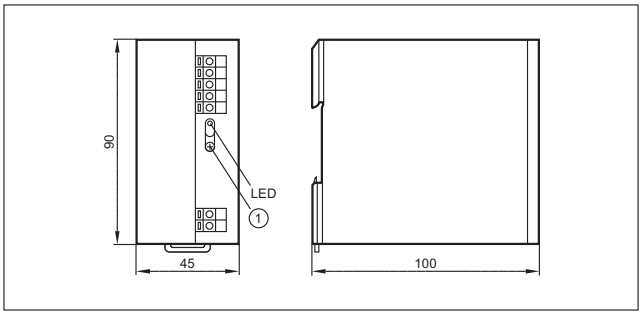
1: mounting on DIN rail

3



1: with pot.

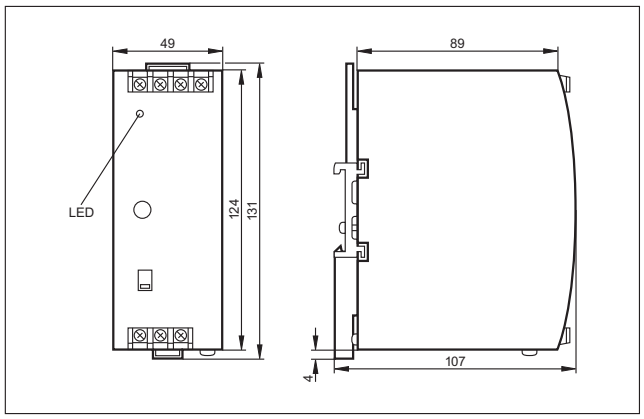
4



1: with pot.

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

5



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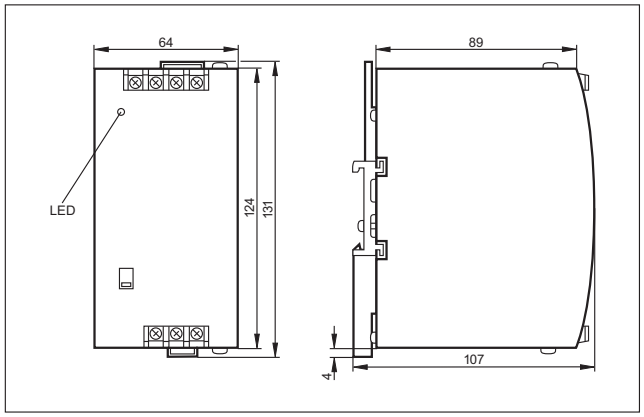

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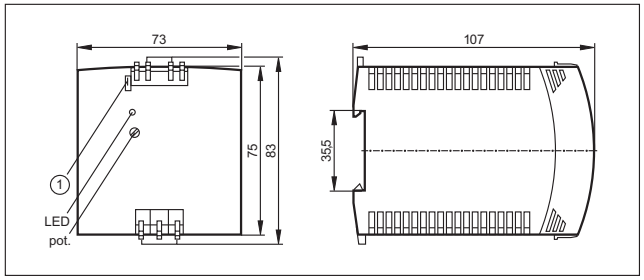
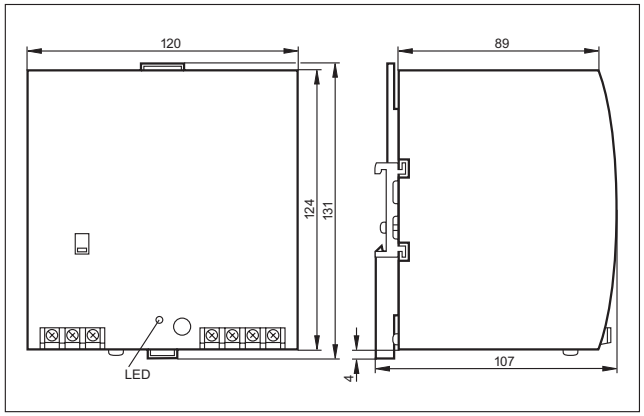


1: jumper „single/parallel operation“

8



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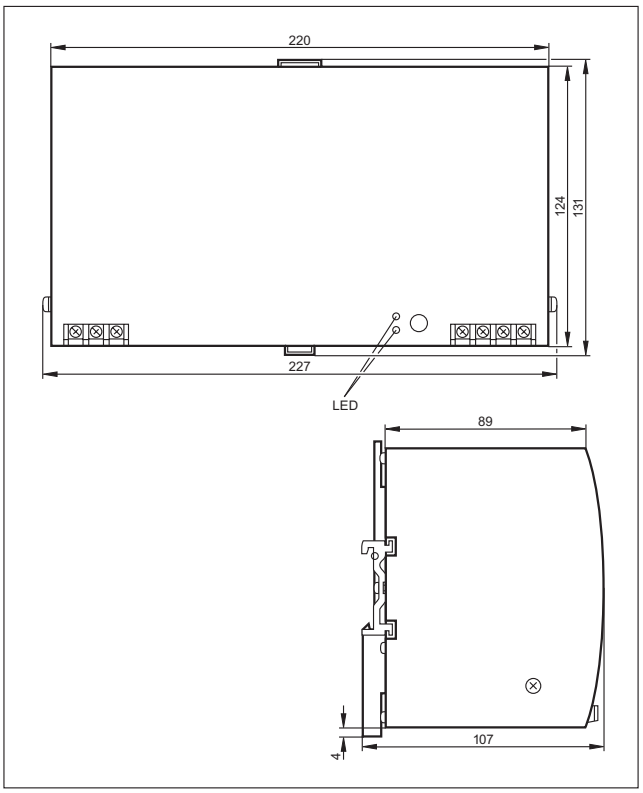

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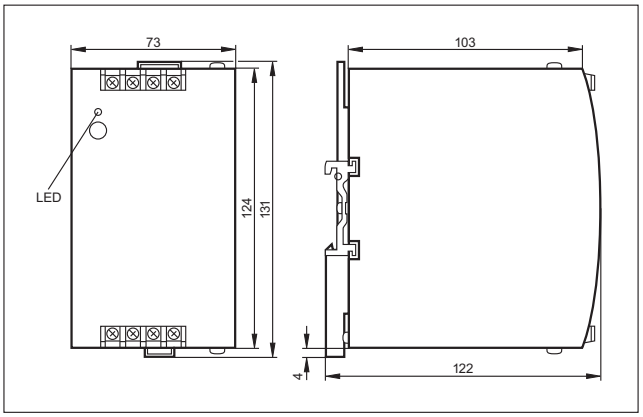

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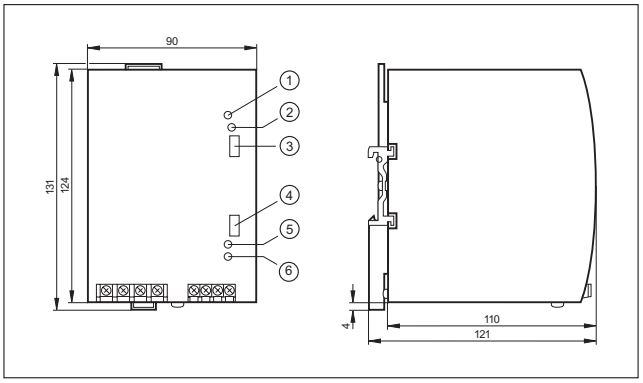
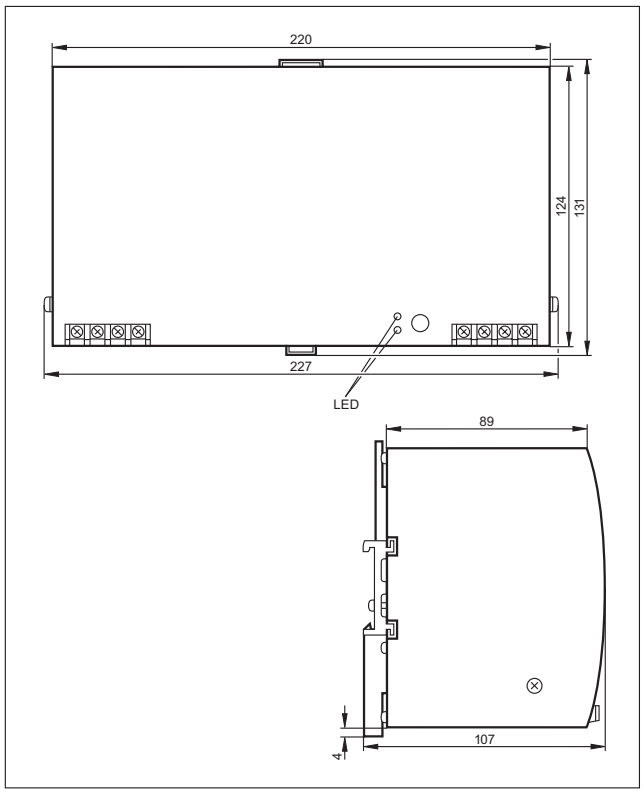


1: LED red, 2: reset push button, 3: jumper “overload performance“,
4: jumper “single/parallel operation“, 5: with pot., 6: LED green

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

12



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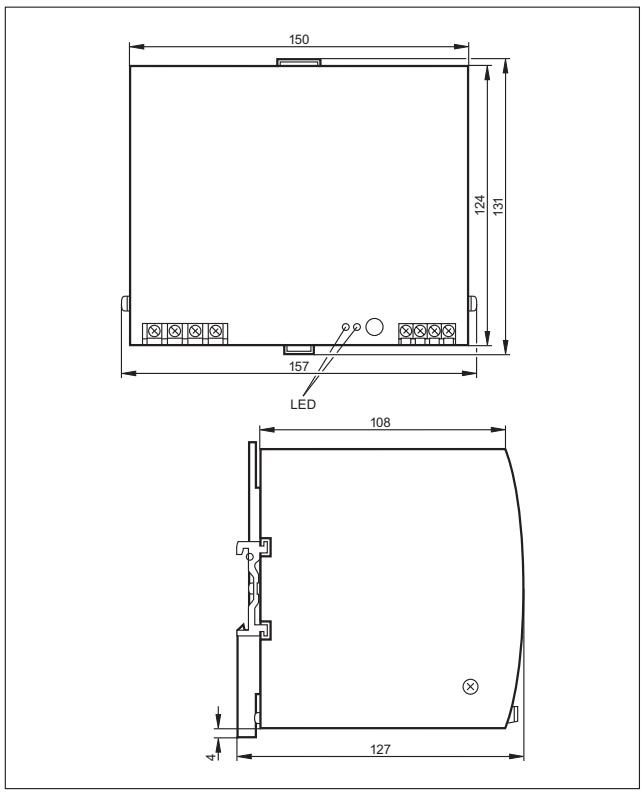

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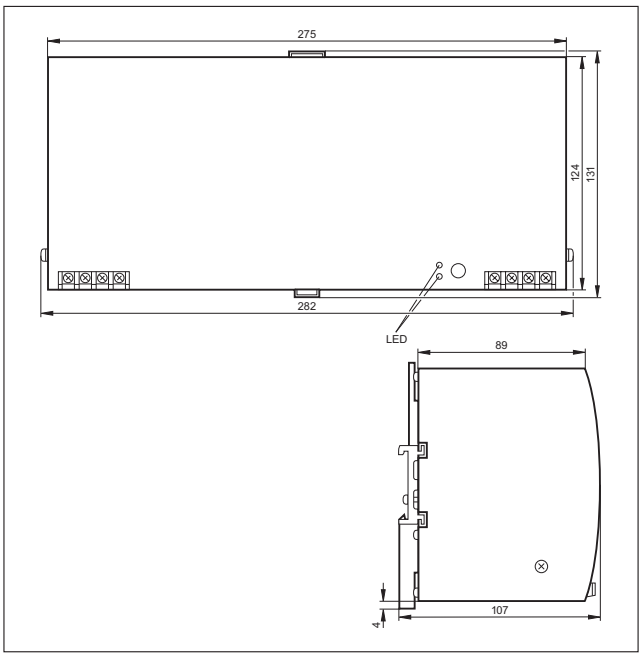

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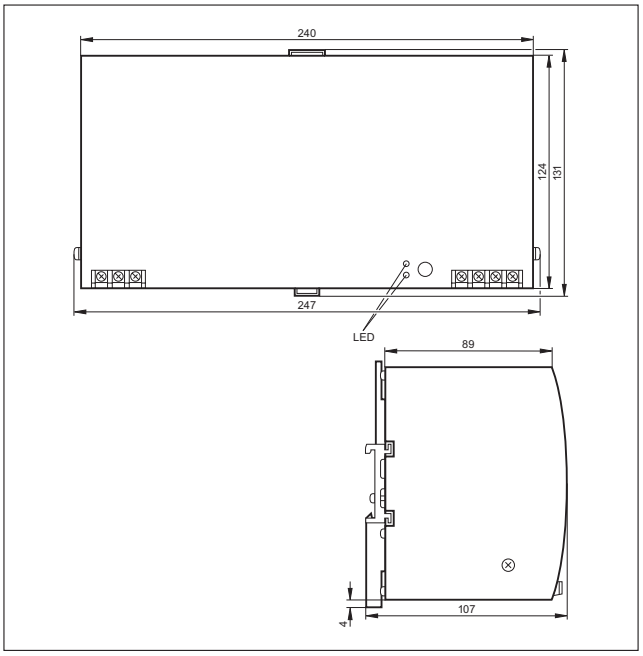
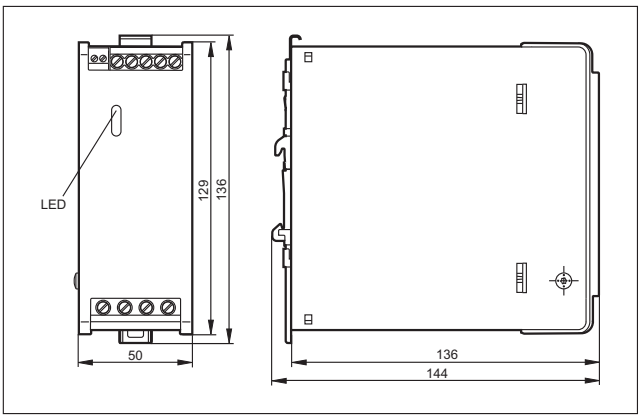


Scale drawings / drawing no. – CAD download: www.ifm.com

16



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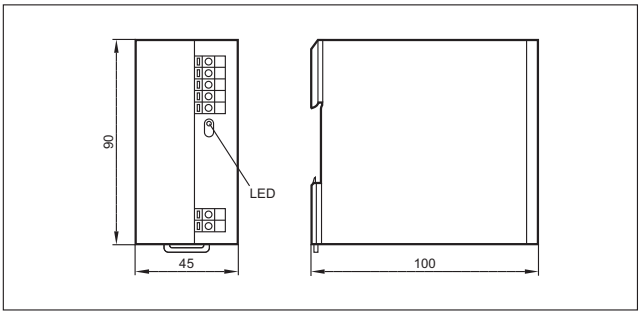

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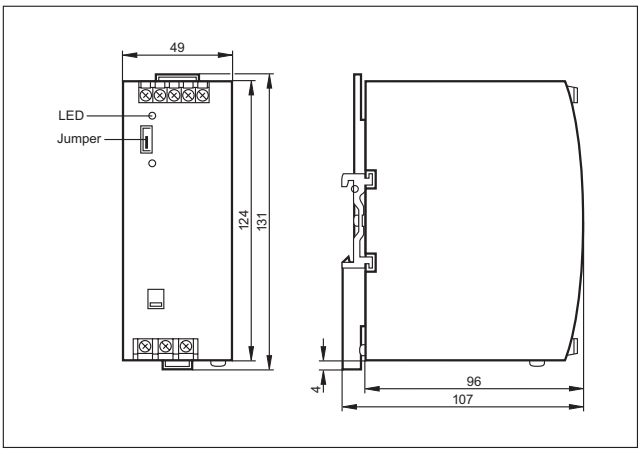

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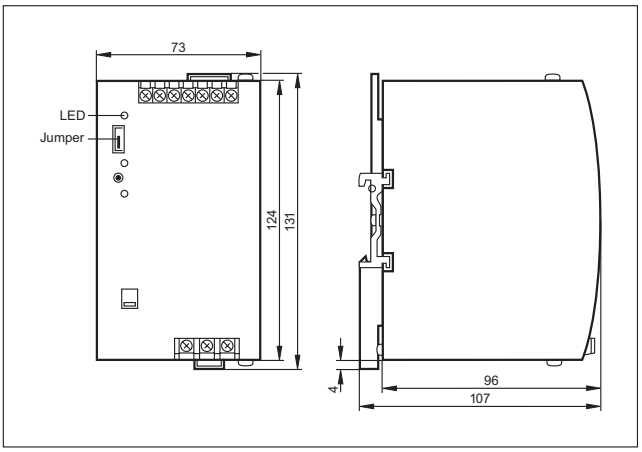

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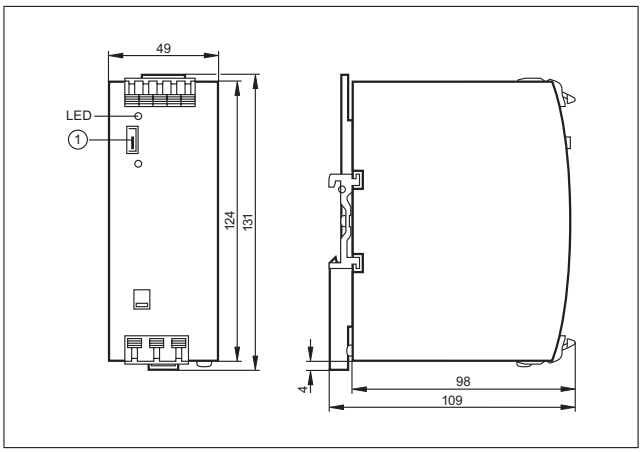
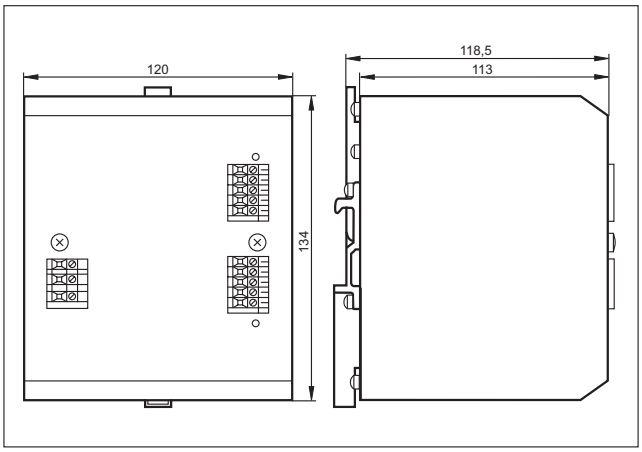
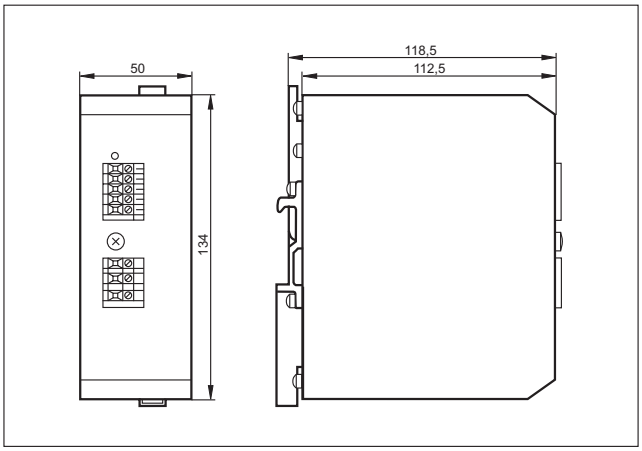


1: Jumper

21



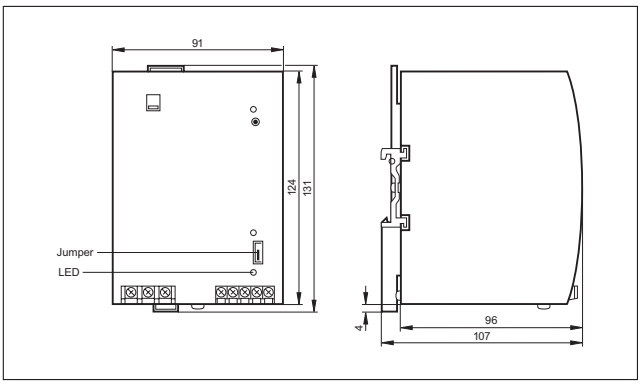
22



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

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

23



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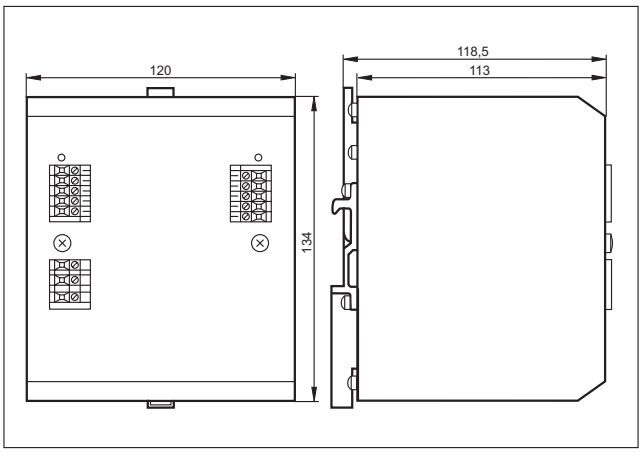

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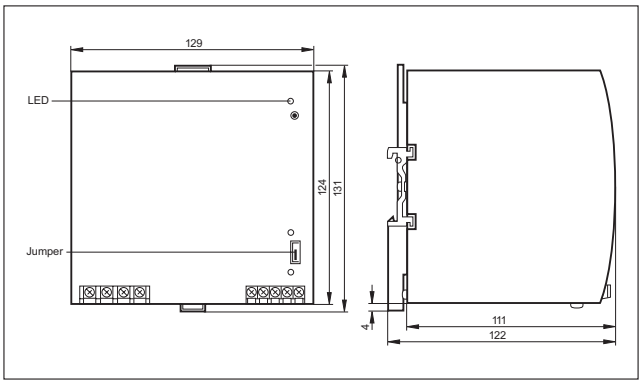


- **Complete product range: sockets, plugs, jumper cables, splitter boxes.**
- **Various cable materials for different applications.**
- **High-quality materials for maximum reliability.**
- **"ecolink" series with innovative quality features.**
- **Integrated LEDs for easy diagnosis.**

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

Due to the special installation of a mechanical end stop 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. Novel design and a transparent black housing ensure that even in bright lighting conditions the LEDs are more clearly visible than with the clear transparent versions.

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 2D, 3D and 3G. With the EC type examination certificate for components from DEKRA EXAM the connection technology meets the strictest requirements.

For welding applications

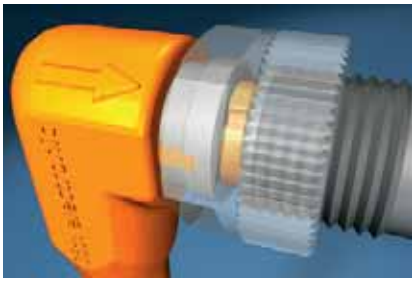
Halogen-free PUR cables prevent burning-in of weld spatter; teflon-coated coupling nuts prevent weld spatter sticking. The cables are also suited for drag chains and torsional movements.

For sensors in robust applications:

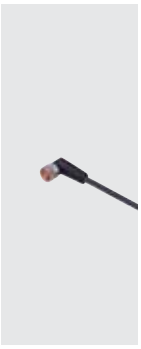
The saw tooth contoured vibration protection secures against strong shocks and vibrations. The high protection rating, wide temperature range and high-quality housing materials (high-grade stainless steel, TPU) ensure permanent safe connection in harsh environments.

Black, transparent housing for optimum LED visibility.

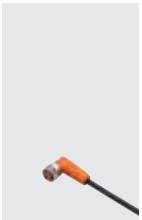
Maximum operational reliability due to the new vibration protection with end stop.



M8 sockets for industrial applications

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 1 · Socket M8, 3-pole, 3-wire · Wiring diagram no. 1									
	2 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	1	**EVC141**
	5 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	1	**EVC142**
	10 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	1	**EVC143**
	2 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	2	**EVC144**
	5 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	2	**EVC145**
	10 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	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 mm², Ø 3.7 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / yellow	3	**EVC147**
	5 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / yellow	3	**EVC148**
	10 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / yellow	3	**EVC149**
Group 3 · 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 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	4	**EVC150**
	5 m black PUR cable	4 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	4	**EVC151**

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

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 4 · Socket M8, 4-pole, 4-wire · Wiring diagram no. 4									
	10 m black PUR cable	4 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	4	**EVC152**
	2 m black PUR cable	4 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	5	**EVC153**
	5 m black PUR cable	4 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	5	**EVC154**
	10 m black PUR cable	4 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	5	**EVC155**
Group 5 · Socket M8, 4-pole · Wiring diagram no. 5									
	wirable	–	PA / brass	60 AC 75 DC	-25...90	IP 68	–	–	**E11553**

M12 sockets for industrial applications

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 6 · Socket M12, 2-pole, 4-wire · Wiring diagram no. 6									
	2 m black PUR cable	2 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	6	**EVC164**
	5 m black PUR cable	2 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	6	**EVC165**
	10 m black PUR cable	2 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	6	**EVC166**
Group 7 · Socket M12, 2-pole, 2-wire · Wiring diagram no. 6									
	2 m black PUR cable	2 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	7	**EVC161**
	5 m black PUR cable	2 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	7	**EVC162**
	10 m black PUR cable	2 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	7	**EVC163**

You can find wiring diagrams and scale drawings from page 623

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 8 · socket M12, 2-pole + PE, 3-wire · Wiring diagram no. 7									
	2 m orange PVC cable	3 x AWG 22 (3 x 0.34 mm²), 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 mm²), 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 mm²), 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 mm²), Ø 5 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67	–	9	**E10868**
Group 9 · Socket M12, 4-pole · Wiring diagram no. 5									
	wirable	...0.75 mm² (Ø 4...6 mm)	PA / brass	250 AC/DC	-25...85	IP 68	–	10	**E11509**
	wirable	...0.75 mm² (Ø 4...6 mm)	PA / brass	250 AC/DC	-25...85	IP 68	–	11	**E11508**
Group 10 · Socket M12, 4-pole, LED, PNP · Wiring diagram no. 8									
	wirable	...0.75 mm² (Ø 4...6 mm)	PA / brass	10...30 DC	-25...85	IP 68	green / yellow	12	**E11510**
	wirable	...0.75 mm² (Ø 4...6 mm)	PA	10...30 DC	-40...85	IP 67	green / yellow	11	**E10136**
Group 11 · Socket M12, 5/4-pole, 4-wire · Wiring diagram no. 4									
	2 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	13	**EVC004**
	5 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	13	**EVC005**
	10 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	13	**EVC006**
	2 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	14	**EVC001**

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 11 · Socket M12, 5/4-pole, 4-wire · Wiring diagram no. 4									
	5 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	14	**EVC002**
	10 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	14	**EVC003**
Group 12 · Socket M12, 5/4-pole, 4-wire, LED, PNP · Wiring diagram no. 9									
	2 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / 2 x yellow	15	**EVC007**
	5 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / 2 x yellow	15	**EVC008**
	10 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / 2 x yellow	15	**EVC009**
Group 13 · Socket M12, 5-pole · Wiring diagram no. 10									
	wirable	...0.75 mm² (Ø 4...6 mm)	PA / brass	125 AC/DC	-25...85	IP 68	–	16	**E11512**
	wirable	...0.75 mm² (Ø 4...6 mm)	PA / brass	125 AC/DC	-25...85	IP 68	–	17	**E11511**
Group 14 · Socket M12, 5-pole, 5-wire · Wiring diagram no. 11									
	2 m black PUR cable	5 x 0.34 mm², Ø 4.9 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	13	**EVC073**
	5 m black PUR cable	5 x 0.34 mm², Ø 4.9 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	13	**EVC074**
	10 m black PUR cable	5 x 0.34 mm², Ø 4.9 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	13	**EVC075**
	2 m black PUR cable	5 x 0.34 mm², Ø 4.9 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	14	**EVC070**
	5 m black PUR cable	5 x 0.34 mm², Ø 4.9 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	14	**EVC071**
	10 m black PUR cable	5 x 0.34 mm², Ø 4.9 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	14	**EVC072**

You can find wiring diagrams and scale drawings from page 623

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 15 · Socket M12, 8-pole, 6-wire · Wiring diagram no. 12									
	5 m black PUR cable	6 x 0.34 mm², Ø 6 mm	TPU / diecast zinc	60 AC/DC	-25...85	IP 68	–	18	**E10976**
	10 m black PUR cable	6 x 0.34 mm², Ø 6 mm	TPU / diecast zinc	60 AC/DC	-25...85	IP 68	–	18	**E10977**
Group 16 · socket M12, 8-pole, 7-wire + screen · Wiring diagram no. 13									
	2 m black PUR cable	7 x 0.25 mm² + screen	TPU / diecast zinc	60 AC/DC	-25...85	IP 67	–	18	**E20738**
	5 m black PUR cable	7 x 0.25 mm² + screen	TPU / diecast zinc	60 AC/DC	-25...85	IP 67	–	19	**E20838**
Group 17 · socket M12, 8-pole, 8-wire, for temperature sensors TR 8... · Wiring diagram no. 14									
	2 m black PUR cable	8 x 0.25 mm², Ø 6.2 mm	PUR / brass	30 AC 36 DC	-25...80	IP 67	–	20	**E11231**
	5 m black PUR cable	8 x 0.25 mm², Ø 6.2 mm	PUR / brass	30 AC 36 DC	-25...80	IP 67	–	20	**E11232**
	2 m black PUR cable	8 x 0.25 mm², Ø 6.2 mm	PUR / brass	30 AC 36 DC	-25...80	IP 68	–	21	**E11950**
	5 m black PUR cable	8 x 0.25 mm², Ø 6.2 mm	PUR / brass	30 AC 36 DC	-25...80	IP 68	–	21	**E11807**
	10 m black PUR cable	8 x 0.25 mm², Ø 6.2 mm	PUR / brass	30 AC 36 DC	-25...80	IP 68	–	21	**E11311**
Group 18 · Socket M12, 8/7-pole, 8-wire · Wiring diagram no. 15									
	5 m black PUR cable	8 x 0.25 mm²	TPU / brass	30 AC 36 DC	-40...80	IP 68	–	20	**E12168**
	10 m black PUR cable	8 x 0.25 mm²	TPU / brass	30 AC 36 DC	-40...80	IP 68	–	20	**E12169**
	5 m black PUR cable	8 x 0.25 mm²	TPU / brass	30 AC 36 DC	-40...80	IP 67	–	21	**E12166**
	10 m black PUR cable	8 x 0.25 mm²	TPU / brass	30 AC 36 DC	-40...80	IP 67	–	21	**E12167**

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

M16 sockets for industrial applications

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 19 · socket M16, 14-pole, 10-wire · Wiring diagram no. 16									
	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	–	22	**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	–	22	**E11227**
Group 20 · Socket M16, 14-pole, 12-wire · Wiring diagram no. 17									
	2 m black PUR cable	10 x 0.25 mm^2 + 2 x 0.34 mm^2, Ø 7.5 mm	PUR / brass	30 DC	-25...90	IP 67	–	23	**E11645**
	5 m black PUR cable	10 x 0.25 mm^2 + 2 x 0.34 mm^2, Ø 7.5 mm	PUR / brass	30 DC	-25...90	IP 67	–	23	**E11697**

M18 sockets for industrial applications

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 21 · 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	–	24	**E10013**
	wirable	...0.75 mm^2 (Ø 6...8 mm)	PA / ULTRAMID	20...250 AC/DC	-40...85	IP 65	–	25	**E10137**

M23 sockets for industrial applications

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 22 · Socket M23, 12-pole · Wiring diagram no. 18									
	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	–	26	**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	–	26	**E11740**

You can find wiring diagrams and scale drawings from page 623

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 22 · Socket M23, 12-pole · Wiring diagram no. 18									
	15 m black PUR cable	8 x 0.5 mm² + 3 x 1.0 mm², Ø 9.3 mm	PUR / brass	63 AC/DC	-25...80	IP 67	–	26	**E11741**
	5 m black PUR cable	8 x 0.5 mm² + 3 x 1.0 mm², Ø 9.3 mm	PUR / brass	63 AC/DC	-25...80	IP 67	–	27	**E11736**
	10 m black PUR cable	8 x 0.5 mm² + 3 x 1.0 mm², Ø 9.3 mm	PUR / brass	63 AC/DC	-25...80	IP 67	–	27	**E11737**
	15 m black PUR cable	8 x 0.5 mm² + 3 x 1.0 mm², Ø 9.3 mm	PUR / brass	63 AC/DC	-25...80	IP 67	–	27	**E11738**
Group 23 · socket M23, 12-pole, numbering anticlockwise									
	wirable	...1 mm² (Ø 10...14 mm)	brass	10...30 DC	-25...90	IP 65	–	28	**E10448**
	wirable	...1 mm² (Ø 10...14 mm)	brass	10...30 DC	-25...90	IP 65	–	29	**E10447**
Group 24 · Socket M23, 19-pole · Wiring diagram no. 50									
	5 m black PUR cable	16 x 0.5 mm² + 3 x 1.0 mm², Ø 11.6 mm	PUR / brass	63 AC/DC	-25...80	IP 67	–	30	**E11745**
	10 m black PUR cable	16 x 0.5 mm² + 3 x 1.0 mm², Ø 11.6 mm	PUR / brass	63 AC/DC	-25...80	IP 67	–	30	**E11746**
	15 m black PUR cable	16 x 0.5 mm² + 3 x 1.0 mm², Ø 11.6 mm	PUR / brass	63 AC/DC	-25...80	IP 67	–	30	**E11747**
	5 m black PUR cable	16 x 0.5 mm² + 3 x 1.0 mm², Ø 11.6 mm	PUR / brass	63 AC/DC	-25...80	IP 67	–	31	**E11742**
	10 m black PUR cable	16 x 0.5 mm² + 3 x 1.0 mm², Ø 11.6 mm	PUR / brass	63 AC/DC	-25...80	IP 67	–	31	**E11743**
	15 m black PUR cable	16 x 0.5 mm² + 3 x 1.0 mm², Ø 11.6 mm	PUR / brass	63 AC/DC	-25...80	IP 67	–	31	**E11744**
Group 25 · Socket M23, 19-pole									
	wirable	...1 mm² (Ø 10...14 mm)	brass	10...30 DC	-25...90	IP 65	–	–	**E10887**

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

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 25 · Socket M23, 19-pole									
	wirable	...1 mm² (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]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 26 · socket 1/2", 2-pole + PE, 3-wire · Wiring diagram no. 19									
	2 m yellow PVC cable	3 x AWG22, Ø 5.2 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67	–	32	**E10190**
	5 m yellow PVC cable	3 x AWG22, Ø 5.2 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67	–	33	**E10200**
	2 m yellow PVC cable	3 x AWG22, Ø 5.2 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67	–	34	**E10189**
	5 m yellow PVC cable	3 x AWG22, Ø 5.2 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67	–	35	**E10191**
	10 m yellow PVC cable	3 x AWG22, Ø 5.2 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67	–	33	**E10261**
Group 27 · socket 1/2", 5-pole, 4-wire · Wiring diagram no. 20									
	5 m black PUR cable	4 x 0.34 mm², Ø 4.7 mm	TPU / brass	300 AC	-25...90	IP 67	–	36	**E11248**
	10 m black PUR cable	4 x 0.34 mm², Ø 4.7 mm	TPU / brass	300 AC	-25...90	IP 67	–	36	**E11249**
	5 m black PUR cable	4 x 0.34 mm², Ø 4.7 mm	TPU / brass	300 AC	-25...90	IP 67	–	37	**E11250**
	10 m black PUR cable	4 x 0.34 mm², Ø 4.7 mm	TPU / brass	300 AC	-25...90	IP 67	–	37	**E11251**

You can find wiring diagrams and scale drawings from page 623

7/8" sockets for industrial applications

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 28 · socket 7/8", 2-pole + PE, 3-wire · Wiring diagram no. 21									
	2 m black PVC cable	3 x 0.75 mm², Ø 5.2 mm	TPU / diecast zinc	250 AC	-40...80	IP 68	–	38	**E20428**
Group 29 · socket 7/8", 3-pole, 3-wire · Wiring diagram no. 22									
	2 m black PVC cable	3 x 0.5 mm², Ø 5.4 mm	TPU	10...30 DC	-40...80	IP 68	–	38	**E20430**

DIN sockets for industrial applications

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 30 · socket DIN A (DIN EN 175301-803) · Wiring diagram no. 23									
	wirable	...1.5 mm² (Ø 6...8 mm)	PA	... 250 AC ...300 DC	-40...125	IP 65	–	39	**E10058**

RD24 sockets for industrial applications

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 31 · socket Rd24, 6-pole + PE · Wiring diagram no. 24									
	wirable	...2.5 mm² (Ø 10...12 mm)	PBT	250 AC 300 DC	-40...100	IP 67	–	40	**E70142**
	wirable	...2.5 mm² (Ø 6...8 mm)	PBT / PA	250 AC 300 DC	-40...100	IP 67	–	41	**E11043**

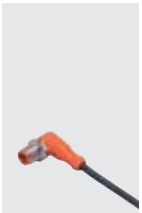
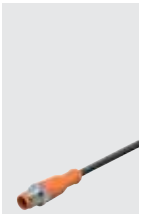
M8 cable plugs for industrial applications

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 32 · Plug M8, 3-pole · Wiring diagram no. 25									
	wirable	–	PA / brass	60 AC 75 DC	-25...90	IP 68	–	–	**E11550**

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

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 33 · Plug M8, 4-pole · Wiring diagram no. 26									
	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]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 34 · Plug M12, 4-pole, 4-wire · Wiring diagram no. 27									
	2 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	42	**EVC079**
	5 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	42	**EVC080**
	10 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	42	**EVC081**
	2 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	43	**EVC076**
	5 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	43	**EVC077**
	10 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	43	**EVC078**
Group 35 · Plug M12, 4-pole · Wiring diagram no. 26									
	wirable	...0.75 mm² (Ø 4...6 mm)	PA / brass	250 AC/DC	-25...85	IP 68	–	44	**E11505**
	wirable	...0.75 mm² (Ø 4...6 mm)	PA / brass	250 AC/DC	-25...85	IP 68	–	45	**E11504**
Group 36 · Plug M12, 5-pole, 5-wire · Wiring diagram no. 28									
	2 m black PUR cable	5 x 0.34 mm², Ø 4.9 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	46	**EVC095**

You can find wiring diagrams and scale drawings from page 623

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 37 · Plug M12, 5-pole, 5-wire · Wiring diagram no. 29									
	2 m black PUR cable	5 x 0.34 mm², Ø 4.9 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	47	**EVC094**
Group 38 · Plug M12, 5-pole · Wiring diagram no. 30									
	wirable	...0.75 mm² (Ø 4...6 mm)	PA / brass	125 AC/DC	-25...85	IP 68	–	48	**E11507**
	wirable	...0.75 mm² (Ø 4...6 mm)	PA / brass	125 AC/DC	-25...85	IP 68	–	49	**E11506**

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 39 · Jumper , plug: M8, 3-pole, socket: M8, 3-pole, 3-wire · Wiring diagram no. 31									
	0.3 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	50	**EVC275**
	0.6 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	50	**EVC276**
	1 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	50	**EVC277**
	2 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	50	**EVC278**
	5 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	50	**EVC279**
	0.3 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	51	**EVC265**
	0.6 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	51	**EVC266**
	1 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	51	**EVC267**

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 39 · Jumper , plug: M8, 3-pole, socket: M8, 3-pole, 3-wire · Wiring diagram no. 31									
	2 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	51	**EVC268**
	5 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	51	**EVC269**
Group 40 · Jumper , plug: M8, 3-pole, socket: M8, 3-pole, 3-wire, LED · Wiring diagram no. 32									
	0.3 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / yellow	50	**EVC280**
	0.6 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / yellow	50	**EVC281**
	1 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / yellow	50	**EVC282**
	2 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / yellow	50	**EVC283**
	5 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / yellow	50	**EVC284**
Group 41 · Jumper , plug: M8, 4-pole, socket: M8, 3-pole, 3-wire · Wiring diagram no. 31									
	0.3 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	52	**EVC305**
	0.6 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	52	**EVC306**
	1 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	52	**EVC307**
	2 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	52	**EVC308**
	5 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	52	**EVC309**
	0.3 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	53	**EVC315**

You can find wiring diagrams and scale drawings from page 623

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, 4-pole, socket: M8, 3-pole, 3-wire · Wiring diagram no. 31									
	0.6 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	53	**EVC316**
	1 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	53	**EVC317**
	2 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	53	**EVC318**
	5 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	53	**EVC319**
Group 42 · Jumper , plug: M8, 3-pole, socket: M8, 4-pole, 3-wire · Wiring diagram no. 31									
	0.3 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	54	**EVC260**
	0.6 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	54	**EVC261**
	1 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	54	**EVC262**
	2 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	54	**EVC263**
	5 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	54	**EVC264**
	0.3 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	55	**EVC270**
	0.6 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	55	**EVC271**
	1 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	55	**EVC272**
	2 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	55	**EVC273**
	5 m black PUR cable	3 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	55	**EVC274**

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 43 · Jumper , plug: M8, 4-pole, socket: M8, 4-pole, 4-wire · Wiring diagram no. 33									
	0.3 m black PUR cable	4 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	56	**EVC300**
	0.6 m black PUR cable	4 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	56	**EVC301**
	1 m black PUR cable	4 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	56	**EVC302**
	2 m black PUR cable	4 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	56	**EVC303**
	5 m black PUR cable	4 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	56	**EVC304**
Group 44 · Jumper , plug: M8, 4-pole, socket: M8, 4-pole, 3-wire · Wiring diagram no. 33									
	0.3 m black PUR cable	4 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	57	**EVC310**
	0.6 m black PUR cable	4 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	57	**EVC311**
	1 m black PUR cable	4 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	57	**EVC312**
	2 m black PUR cable	4 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	57	**EVC313**
	5 m black PUR cable	4 x 0.25 mm², Ø 3.7 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	57	**EVC314**

M8 socket - M12 plug 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 45 · Jumper , plug: M12, 3-pole, socket: M8, 3-pole, 3-wire · Wiring diagram no. 31									
	0.3 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	58	**EVC230**
	0.6 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	58	**EVC231**

You can find wiring diagrams and scale drawings from page 623

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 45 · Jumper , plug: M12, 3-pole, socket: M8, 3-pole, 3-wire · Wiring diagram no. 31									
	1 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	58	**EVC232**
	2 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	58	**EVC233**
	5 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	58	**EVC234**
	0.3 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	59	**EVC215**
	0.6 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	59	**EVC216**
	1 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	59	**EVC217**
	2 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	59	**EVC218**
	5 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	59	**EVC219**
Group 46 · Jumper , plug: M12, 3-pole, socket: M8, 3-pole, 3-wire, LED · Wiring diagram no. 32									
	0.3 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / yellow	60	**EVC225**
	0.6 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / yellow	60	**EVC226**
	1 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / yellow	60	**EVC227**
	2 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / yellow	60	**EVC228**
	5 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / yellow	60	**EVC229**

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 47 · Jumper , plug: M12, 3-pole, socket: M8, 4-pole, 3-wire · Wiring diagram no. 31									
	0.3 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	61	**EVC210**
	0.6 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	61	**EVC211**
	1 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	61	**EVC212**
	2 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	61	**EVC213**
	5 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	61	**EVC214**
	0.3 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	62	**EVC220**
	0.6 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	62	**EVC221**
	1 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	62	**EVC222**
	2 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	62	**EVC223**
	5 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	62	**EVC224**
Group 48 · Jumper , plug: M12, 4-pole, socket: M8, 4-pole, 3-wire · Wiring diagram no. 33									
	0.3 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	63	**EVC235**
	0.6 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	63	**EVC236**
	1 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	63	**EVC237**
	2 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	63	**EVC238**

You can find wiring diagrams and scale drawings from page 623

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 48 · Jumper , plug: M12, 4-pole, socket: M8, 4-pole, 3-wire · Wiring diagram no. 33									
	5 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	63	**EVC239**
	0.3 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	64	**EVC240**
	0.6 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	64	**EVC241**
	1 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	64	**EVC242**
	2 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	64	**EVC243**
	5 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	64	**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 49 · Jumper , plug: M8, 3-pole, socket: M12, 5/4-pole, 3-wire · Wiring diagram no. 31									
	0.3 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	65	**EVC245**
	0.6 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	65	**EVC246**
	1 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	65	**EVC247**
	2 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	65	**EVC248**
	5 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	65	**EVC249**
Group 50 · Jumper , plug: M8, 3-pole, socket: M12, 5-pole, 3-wire · Wiring diagram no. 31									
	0.3 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	66	**EVC255**

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

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-pole, 3-wire · Wiring diagram no. 31									
	0.6 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	66	**EVC256**
	1 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	66	**EVC257**
	2 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	66	**EVC258**
	5 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	66	**EVC259**
Group 51 · Jumper , plug: M8, 3-pole, socket: M12, 5-pole, 3-wire, LED · Wiring diagram no. 32									
	0.3 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / yellow	67	**EVC250**
	0.6 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / yellow	67	**EVC251**
	1 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / yellow	67	**EVC252**
	2 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / yellow	67	**EVC253**
	5 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / yellow	67	**EVC254**
Group 52 · Jumper , plug: M8, 4-pole, socket: M12, 5-pole, 3-wire · Wiring diagram no. 33									
	0.3 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	68	**EVC285**
	0.6 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	68	**EVC286**
	1 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	68	**EVC287**
	2 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	68	**EVC288**

You can find wiring diagrams and scale drawings from page 623

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 52 · Jumper , plug: M8, 4-pole, socket: M12, 5-pole, 3-wire · Wiring diagram no. 33									
	5 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	68	**EVC289**
Group 53 · Jumper , plug: M8, 4-pole, socket: M12, 5/4-pole, 3-wire · Wiring diagram no. 33									
	0.3 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	69	**EVC295**
	0.6 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	69	**EVC296**
	1 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	69	**EVC297**
	2 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	69	**EVC298**
	5 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	50 AC 60 DC	-25...90	IP 67 / IP 68 / IP 69K	–	69	**EVC299**
Group 54 · Jumper , plug: M8, 4-pole, socket: M12, 5-pole, 3-wire, LED · Wiring diagram no. 34									
	0.3 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / 2 x yellow	70	**EVC290**
	0.6 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / 2 x yellow	70	**EVC291**
	1 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / 2 x yellow	70	**EVC292**
	2 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / 2 x yellow	70	**EVC293**
	5 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / 2 x yellow	70	**EVC294**

M12 - M12 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 55 · Jumper , plug: M12, 3-pole, socket: M12, 5-pole, 3-wire · Wiring diagram no. 31									
	0.3 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	71	**EVC045**
	0.6 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	71	**EVC046**
	1 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	71	**EVC047**
	2 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	71	**EVC048**
	5 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	71	**EVC049**
	0.3 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	72	**EVC040**
	0.6 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	72	**EVC041**
	1 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	72	**EVC042**
	2 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	72	**EVC043**
	5 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	72	**EVC044**
Group 56 · Jumper , plug: M12, 3-pole, socket: M12, 5-pole, 3-wire, LED · Wiring diagram no. 32									
	0.3 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / yellow	73	**EVC050**
	0.6 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / yellow	73	**EVC051**
	1 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / yellow	73	**EVC052**

You can find wiring diagrams and scale drawings from page 623

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 56 · Jumper , plug: M12, 3-pole, socket: M12, 5-pole, 3-wire, LED · Wiring diagram no. 32									
	2 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / yellow	73	**EVC053**
	5 m black PUR cable	3 x 0.34 mm², Ø 4.9 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / yellow	73	**EVC054**
Group 57 · Jumper , plug: M12, 4-pole, socket: M12, 5-pole, 4-wire · Wiring diagram no. 33									
	0.3 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	74	**EVC015**
	0.6 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	74	**EVC016**
	1 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	74	**EVC017**
	2 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	74	**EVC018**
	5 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	74	**EVC019**
	0.3 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	75	**EVC010**
	0.6 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	75	**EVC011**
	1 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	75	**EVC012**
	2 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	75	**EVC013**
	5 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	75	**EVC014**
Group 58 · Jumper , plug: M12, 4-pole, socket: M12, 5-pole, 4-wire, LED · Wiring diagram no. 34									
	0.3 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / 2 x yellow	76	**EVC020**

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 58 · Jumper , plug: M12, 4-pole, socket: M12, 5-pole, 4-wire, LED · Wiring diagram no. 34									
	0.6 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / 2 x yellow	76	**EVC021**
	1 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / 2 x yellow	76	**EVC022**
	2 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / 2 x yellow	76	**EVC023**
	5 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / 2 x yellow	76	**EVC024**
Group 59 · Jumper , plug: M12, 4-pole, socket: M12, 5-pole, 4-wire · Wiring diagram no. 33									
	0.3 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	77	**EVC025**
	0.6 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	77	**EVC026**
	1 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	77	**EVC027**
	2 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	77	**EVC028**
	5 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	77	**EVC029**
	0.3 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	78	**EVC030**
	0.6 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	78	**EVC031**
	1 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	78	**EVC032**
	2 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	78	**EVC033**
	5 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	78	**EVC034**

You can find wiring diagrams and scale drawings from page 623

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 60 · Jumper , plug: M12, 4-pole, socket: M12, 5-pole, 4-wire, LED · Wiring diagram no. 34									
	0.3 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / 2 x yellow	79	**EVC035**
	0.6 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / 2 x yellow	79	**EVC036**
	1 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / 2 x yellow	79	**EVC037**
	2 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / 2 x yellow	79	**EVC038**
	5 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / 2 x yellow	79	**EVC039**
Group 61 · Jumper , plug: M12, 5-pole, socket: M12, 5-pole, 5-wire · Wiring diagram no. 35									
	0.3 m black PUR cable	5 x 0.34 mm², Ø 4.9 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	80	**EVC060**
	0.6 m black PUR cable	5 x 0.34 mm², Ø 4.9 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	80	**EVC061**
	1 m black PUR cable	5 x 0.34 mm², Ø 4.9 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	80	**EVC062**
	2 m black PUR cable	5 x 0.34 mm², Ø 4.9 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	80	**EVC063**
	5 m black PUR cable	5 x 0.34 mm², Ø 4.9 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	80	**EVC064**
	0.3 m black PUR cable	5 x 0.34 mm², Ø 4.9 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	81	**EVC055**
	0.6 m black PUR cable	5 x 0.34 mm², Ø 4.9 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	81	**EVC056**
	1 m black PUR cable	5 x 0.34 mm², Ø 4.9 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	81	**EVC057**
	2 m black PUR cable	5 x 0.34 mm², Ø 4.9 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	81	**EVC058**

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 61 · Jumper , plug: M12, 5-pole, socket: M12, 5-pole, 5-wire · Wiring diagram no. 35									
	5 m black PUR cable	5 x 0.34 mm², Ø 4.9 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	81	**EVC059**
	0.3 m black PUR cable	5 x 0.34 mm², Ø 4.9 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	82	**EVC065**
	0.6 m black PUR cable	5 x 0.34 mm², Ø 4.9 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	82	**EVC066**
	1 m black PUR cable	5 x 0.34 mm², Ø 4.9 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	82	**EVC067**
	2 m black PUR cable	5 x 0.34 mm², Ø 4.9 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	82	**EVC068**
	5 m black PUR cable	5 x 0.34 mm², Ø 4.9 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	82	**EVC069**

Valve - plug 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 62 · Jumper , plug: M12, 3-pole, valve plug: Housing A, 4-pole, 3-wire, LED · Wiring diagram no. 36									
	0.3 m black PUR cable	3 x 0.5 mm², Ø 5 mm	PUR / brass	24 AC/DC	-25...80	IP 67	yellow	83	**E11416**
	0.6 m black PUR cable	3 x 0.5 mm², Ø 5 mm	PUR / brass	24 AC/DC	-25...80	IP 67	yellow	83	**E11417**
	1 m black PUR cable	3 x 0.5 mm², Ø 5 mm	PUR / brass	24 AC/DC	-25...80	IP 67	yellow	83	**E11418**
	2 m black PUR cable	3 x 0.5 mm², Ø 5 mm	PUR / brass	24 AC/DC	-25...80	IP 67	yellow	83	**E11419**
	5 m black PUR cable	3 x 0.5 mm², Ø 5 mm	PUR / brass	24 AC/DC	-25...80	IP 67	yellow	83	**E11420**
Group 63 · Jumper , plug: M12, 3-pole, valve plug: Housing B, 3-pole, 3-wire, LED · Wiring diagram no. 37									
	0.3 m black PUR cable	3 x 0.5 mm², Ø 5 mm	PUR / brass	24 AC/DC	-25...80	IP 67	yellow	84	**E11421**

You can find wiring diagrams and scale drawings from page 623

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 63 · Jumper , plug: M12, 3-pole, valve plug: Housing B, 3-pole, 3-wire, LED · Wiring diagram no. 37									
	0.6 m black PUR cable	3 x 0.5 mm², Ø 5 mm	PUR / brass	24 AC/DC	-25...80	IP 67	yellow	84	**E11422**
	1 m black PUR cable	3 x 0.5 mm², Ø 5 mm	PUR / brass	24 AC/DC	-25...80	IP 67	yellow	84	**E11423**
	2 m black PUR cable	3 x 0.5 mm², Ø 5 mm	PUR / brass	24 AC/DC	-25...80	IP 67	yellow	84	**E11424**
	5 m black PUR cable	3 x 0.5 mm², Ø 5 mm	PUR / brass	24 AC/DC	-25...80	IP 67	yellow	84	**E11425**
Group 64 · Jumper , plug: M12, 3-pole, valve plug: Housing B, 3-pole, 3-wire, LED · Wiring diagram no. 37									
	0.3 m black PUR cable	3 x 0.5 mm², Ø 5 mm	PUR / brass	24 AC/DC	-25...80	IP 67	yellow	85	**E11431**
	0.6 m black PUR cable	3 x 0.5 mm², Ø 5 mm	PUR / brass	24 AC/DC	-25...80	IP 67	yellow	85	**E11432**
	1 m black PUR cable	3 x 0.5 mm², Ø 5 mm	PUR / brass	24 AC/DC	-25...80	IP 67	yellow	85	**E11433**
	2 m black PUR cable	3 x 0.5 mm², Ø 5 mm	PUR / brass	24 AC/DC	-25...80	IP 67	yellow	85	**E11434**
	5 m black PUR cable	3 x 0.5 mm², Ø 5 mm	PUR / brass	24 AC/DC	-25...80	IP 67	yellow	85	**E11435**
Group 65 · Jumper , plug: M12, 3-pole, valve plug: Housing C, 4-pole, 3-wire, LED · Wiring diagram no. 36									
	0.3 m black PUR cable	3 x 0.5 mm², Ø 5 mm	PUR / brass	24 AC/DC	-25...80	IP 65	yellow	86	**E11426**
	0.6 m black PUR cable	3 x 0.5 mm², Ø 5 mm	PUR / brass	24 AC/DC	-25...80	IP 65	yellow	86	**E11427**
	1 m black PUR cable	3 x 0.5 mm², Ø 5 mm	PUR / brass	24 AC/DC	-25...80	IP 65	yellow	86	**E11428**
	2 m black PUR cable	3 x 0.5 mm², Ø 5 mm	PUR / brass	24 AC/DC	-25...80	IP 65	yellow	86	**E11429**

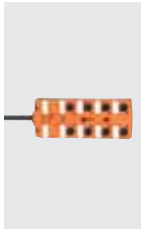
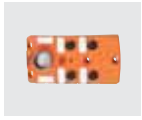
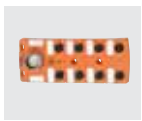
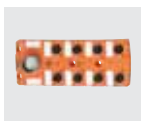
Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 65 · Jumper , plug: M12, 3-pole, valve plug: Housing C, 4-pole, 3-wire, LED · Wiring diagram no. 36									
	5 m black PUR cable	3 x 0.5 mm², Ø 5 mm	PUR / brass	24 AC/DC	-25...80	IP 65	yellow	86	**E11430**
Group 66 · Jumper , plug: M12, 3-pole, valve plug: Housing C, 4-pole, 3-wire, LED · Wiring diagram no. 36									
	0.3 m black PUR cable	3 x 0.5 mm², Ø 5 mm	PUR / brass	24 AC/DC	-25...80	IP 67	yellow	87	**E11436**
	0.6 m black PUR cable	3 x 0.5 mm², Ø 5 mm	PUR / brass	24 AC/DC	-25...80	IP 67	yellow	87	**E11437**
	1 m black PUR cable	3 x 0.5 mm², Ø 5 mm	PUR / brass	24 AC/DC	-25...80	IP 67	yellow	87	**E11438**
	2 m black PUR cable	3 x 0.5 mm², Ø 5 mm	PUR / brass	24 AC/DC	-25...80	IP 67	yellow	87	**E11439**
	5 m black PUR cable	3 x 0.5 mm², Ø 5 mm	PUR / brass	24 AC/DC	-25...80	IP 67	yellow	87	**E11440**

Splitter boxes for industrial applications

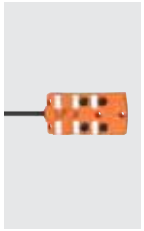
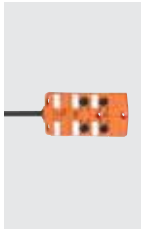
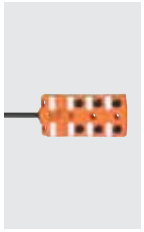
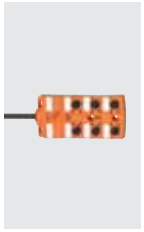
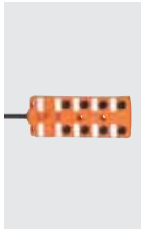
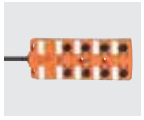
Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 67 · splitter box M8, 3-pole · Wiring diagram no. 51									
	5 m black PUR cable	8 x 0.34 mm² + 2 x 0.75 mm², Ø 9.1 mm	PBT-GF 20	10...30 DC	-25...90	IP 68	green / 8 x yellow	88	**E11214**
	10 m black PUR cable	8 x 0.34 mm² + 2 x 0.75 mm², Ø 9.1 mm	PBT-GF 20	10...30 DC	-25...90	IP 68	green / 8 x yellow	88	**E11215**
Group 68 · splitter box M8, 3-pole · Wiring diagram no. 52									
	M12 connector	–	PBT-GF 20	10...30 DC	-25...90	IP 68	green / 4 x yellow	89	**E11216**
Group 69 · splitter box M8, 4-pole · Wiring diagram no. 53									
	5 m black PUR cable	16 x 0.34 mm² + 2 x 0.75 mm², Ø 11.4 mm	PBT-GF 20	10...30 DC	-20...80	IP 67	green / 16 x yellow	90	**E11217**

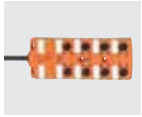
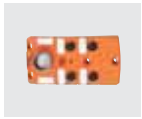
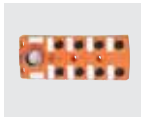
You can find wiring diagrams and scale drawings from page 623

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 69 · splitter box M8, 4-pole · Wiring diagram no. 53									
	10 m black PUR cable	16 x 0.34 mm² + 2 x 0.75 mm², Ø 9.1 mm	PBT-GF 20	10...30 DC	-20...80	IP 67	green / 16 x yellow	90	**E11218**
Group 70 · splitter box M8, 4-pole · Wiring diagram no. 54									
	M16 connector	–	PBT-GF 20	10...30 DC	-25...90	IP 68	green / 8 x yellow	91	**E11219**
Group 71 · M12 splitter box for 1 signal · Wiring diagram no. 38									
	5 m black PUR cable	4 x 0.25 mm², Ø 5 mm	TPU / brass	10...55 DC	-25...80	IP 67	–	92	**E10437**
Group 72 · M12 splitter box for 1 signal · Wiring diagram no. 39									
	5 m black PUR cable	4 x 0.34 mm² + 3 x 1 mm², Ø 7.5 mm	PA	60 AC 75 DC	-25...80	IP 67	–	93	**EBC013**
	10 m black PUR cable	4 x 0.34 mm² + 3 x 1 mm², Ø 7.5 mm	PA	60 AC 75 DC	-25...80	IP 67	–	93	**EBC025**
Group 73 · M12 splitter box for 1 signal									
	5 m black PUR cable	4 x 0.34 mm² + 3 x 1 mm², Ø 7.5 mm	PA	10...30 DC	-25...80	IP 67	green / 4 x yellow	94	**EBC015**
	10 m black PUR cable	4 x 0.34 mm² + 3 x 1 mm², Ø 7.5 mm	PA	10...30 DC	-25...80	IP 67	green / 4 x yellow	94	**EBC027**
Group 74 · M12 splitter box for 1 signal · Wiring diagram no. 40									
	5 m black PUR cable	6 x 0.34 mm² + 3 x 1 mm², Ø 7.8 mm	PA	60 AC 75 DC	-25...80	IP 67	–	95	**EBC017**
	10 m black PUR cable	6 x 0.34 mm² + 3 x 1 mm², Ø 7.8 mm	PA	60 AC 75 DC	-25...80	IP 67	–	95	**EBC029**
Group 75 · M12 splitter box for 1 signal · Wiring diagram no. 55									
	5 m black PUR cable	6 x 0.34 mm² + 3 x 1 mm², Ø 7.8 mm	PA	10...30 DC	-25...80	IP 67	green / 6 x yellow	96	**EBC019**
	10 m black PUR cable	6 x 0.34 mm² + 3 x 1 mm², Ø 7.8 mm	PA	10...30 DC	-25...80	IP 67	green / 6 x yellow	96	**EBC031**

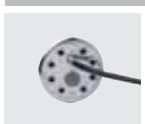
Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 76 · M12 splitter box for 1 signal · Wiring diagram no. 41									
	5 m black PUR cable	8 x 0.34 mm² + 3 x 0.75 mm², Ø 8.2 mm	PA	60 AC 75 DC	-25...80	IP 67	–	97	**EBC021**
	10 m black PUR cable	8 x 0.34 mm² + 3 x 0.75 mm², Ø 8.2 mm	PA	60 AC 75 DC	-25...80	IP 67	–	97	**EBC033**
Group 77 · M12 splitter box for 1 signal · Wiring diagram no. 56									
	5 m black PUR cable	8 x 0.34 mm² + 3 x 0.75 mm², Ø 8.2 mm	PA	10...30 DC	-25...80	IP 67	green / 8 x yellow	98	**EBC023**
	10 m black PUR cable	8 x 0.34 mm² + 3 x 0.75 mm², Ø 8.2 mm	PA	10...30 DC	-25...80	IP 67	green / 8 x yellow	98	**EBC035**
Group 78 · M12 splitter box for 1 signal · Wiring diagram no. 42									
	M23 connector	–	PA	60 AC 75 DC	-25...80	IP 67	–	99	**EBC001**
Group 79 · M12 splitter box for 2 signals · Wiring diagram no. 57									
	M23 connector	–	PA	60 AC 75 DC	-25...80	IP 67	–	100	**EBC002**
Group 80 · M12 splitter box for 1 signal · Wiring diagram no. 43									
	M23 connector	–	PA	60 AC 75 DC	-25...80	IP 67	–	101	**EBC005**
Group 81 · M12 splitter box for 1 signal · Wiring diagram no. 58									
	M23 connector	–	PA	10...30 DC	-25...80	IP 67	green / 6 x yellow	102	**EBC006**
Group 82 · M12 splitter box for 1 signal · Wiring diagram no. 44									
	M23 connector	–	PA	60 AC 75 DC	-25...80	IP 67	–	103	**EBC009**
Group 83 · M12 splitter box for 1 signal · Wiring diagram no. 59									
	M23 connector	–	PA	10...30 DC	-25...80	IP 67	green / 8 x yellow	104	**EBC010**

You can find wiring diagrams and scale drawings from page 623

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 84 · M12 splitter box for 2 signals · Wiring diagram no. 45									
	5 m black PUR cable	8 x 0.34 mm² + 3 x 1.0 mm², Ø 8.2 mm	PA	60 AC 75 DC	-25...80	IP 67	–	93	**EBC014**
	10 m black PUR cable	8 x 0.34 mm² + 3 x 1.0 mm², Ø 8.2 mm	PA	60 AC 75 DC	-25...80	IP 67	–	93	**EBC026**
Group 85 · M12 splitter box for 2 signals · Wiring diagram no. 60									
	5 m black PUR cable	8 x 0.34 mm² + 3 x 1.0 mm², Ø 8.2 mm	PA	10...30 DC	-25...80	IP 67	green / 8 x yellow	105	**EBC016**
	10 m black PUR cable	8 x 0.34 mm² + 3 x 1.0 mm², Ø 8.2 mm	PA	10...30 DC	-25...80	IP 67	green / 8 x yellow	105	**EBC028**
Group 86 · M12 splitter box for 2 signals · Wiring diagram no. 61									
	5 m black PUR cable	12 x 0.34 mm² + 3 x 1.0 mm², Ø 8.8 mm	PA	60 AC 75 DC	-25...80	IP 67	–	95	**EBC018**
	10 m black PUR cable	12 x 0.34 mm² + 3 x 1.0 mm², Ø 8.8 mm	PA	60 AC 75 DC	-25...80	IP 67	–	95	**EBC030**
Group 87 · M12 splitter box for 2 signals · Wiring diagram no. 62									
	5 m black PUR cable	12 x 0.34 mm² + 3 x 1.0 mm², Ø 8.8 mm	PA	10...30 DC	-25...80	IP 67	green / 12 x yellow	106	**EBC020**
	10 m black PUR cable	12 x 0.34 mm² + 3 x 1.0 mm², Ø 8.8 mm	PA	10...30 DC	-25...80	IP 67	green / 12 x yellow	106	**EBC032**
Group 88 · M12 splitter box for 1 signal · Wiring diagram no. 63									
	5 m black PUR cable	16 x 0.34 mm² + 3 x 0.75 mm², Ø 9.7 mm	PA	60 AC 75 DC	-25...80	IP 67	–	97	**EBC022**
	10 m black PUR cable	16 x 0.34 mm² + 3 x 0.75 mm², Ø 9.7 mm	PA	60 AC 75 DC	-25...80	IP 67	–	97	**EBC034**
Group 89 · M12 splitter box for 2 signals · Wiring diagram no. 64									
	5 m black PUR cable	16 x 0.34 mm² + 3 x 1.0 mm², Ø 9.7 mm	PA	10...30 DC	-25...80	IP 67	green / 16 x yellow	107	**EBC024**

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 89 · M12 splitter box for 2 signals · Wiring diagram no. 64									
	10 m black PUR cable	16 x 0.34 mm² + 3 x 1.0 mm², Ø 9.7 mm	PA	10...30 DC	-25...80	IP 67	green / 16 x yellow	107	**EBC036**
Group 90 · M12 splitter box for 2 signals · Wiring diagram no. 46									
	M23 connector	–	PA	60 AC 75 DC	-25...80	IP 67	–	108	**EBC003**
Group 91 · M12 splitter box for 2 signals · Wiring diagram no. 65									
	M23 connector	–	PA	10...30 DC	-25...80	IP 67	green / 8 x yellow	109	**EBC004**
Group 92 · M12 splitter box for 1 signal · Wiring diagram no. 47									
	M23 connector	–	PA	60 AC 75 DC	-25...80	IP 67	–	110	**EBC007**
Group 93 · M12 splitter box for 2 signals · Wiring diagram no. 66									
	M23 connector	–	PA	10...30 DC	-25...80	IP 67	green / 12 x yellow	111	**EBC008**
Group 94 · M12 splitter box for 2 signals · Wiring diagram no. 48									
	M23 connector	–	PA	60 AC 75 DC	-25...80	IP 67	–	112	**EBC011**
Group 95 · M12 splitter box for 2 signals · Wiring diagram no. 67									
	M23 connector	–	PA	10...30 DC	-25...80	IP 67	green / 16 x yellow	113	**EBC012**

Splitter boxes for hygienic and wet areas

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 96 · splitter box M12 · Wiring diagram no. 64									
	10 m black PUR / PVC cable	3 x 0.75 mm² + 16 x 0.34 mm², Ø 11 mm	high-grade stainless steel	10...36 DC	-5...70	IP 69K	green / 16 x yellow	114	**E11775**

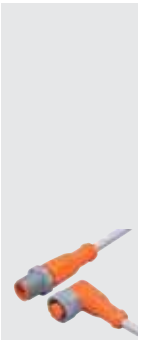
You can find wiring diagrams and scale drawings from page 623

Connectors weld slag resistant

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 97 · Socket M12, 5/4-pole, 4-wire · Wiring diagram no. 4									
	2 m grey PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	13	**EVW004**
	5 m grey PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	13	**EVW005**
	10 m grey PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	13	**EVW006**
	2 m grey PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	14	**EVW001**
	5 m grey PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	14	**EVW002**
	10 m grey PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	14	**EVW003**
Group 98 · Socket M12, 5/4-pole, 4-wire, LED, PNP · Wiring diagram no. 9									
	2 m grey PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / 2 x yellow	15	**EVW007**
	5 m grey PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / 2 x yellow	15	**EVW008**
	10 m grey PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	10...36 DC	-25...90	IP 67 / IP 68 / IP 69K	green / 2 x yellow	15	**EVW009**
Group 99 · Socket M12, 5/4-pole, 5-wire · Wiring diagram no. 11									
	2 m grey PUR cable	5 x 0.34 mm², Ø 5.1 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	13	**EVW013**
	5 m grey PUR cable	5 x 0.34 mm², Ø 5.1 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	13	**EVW014**
	10 m grey PUR cable	5 x 0.34 mm², Ø 5.1 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	13	**EVW015**

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 100 · Socket M12, 5/4-pole, 5-wire · Wiring diagram no. 11									
	2 m grey PUR cable	5 x 0.34 mm², Ø 5.1 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	14	**EVW010**
	5 m grey PUR cable	5 x 0.34 mm², Ø 5.1 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	14	**EVW011**
	10 m grey PUR cable	5 x 0.34 mm², Ø 5.1 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	14	**EVW012**

Jumpers weld slag resistant

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 101 · Jumper , plug: M12, 4-pole, socket: M12, 5-pole, 4-wire · Wiring diagram no. 33									
	0.3 m grey PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	74	**EVW036**
	0.5 m grey PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	74	**EVW022**
	1 m grey PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	74	**EVW030**
	2 m grey PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	74	**EVW031**
	5 m grey PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	74	**EVW034**
Group 102 · Jumper , plug: M12, 4-pole, socket: M12, 5-pole, 4-wire · Wiring diagram no. 33									
	0.3 m grey PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	75	**EVW037**
	0.5 m grey PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	75	**EVW023**
	1 m grey PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	75	**EVW024**
	2 m grey PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	75	**EVW025**

You can find wiring diagrams and scale drawings from page 623

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 102 · Jumper , plug: M12, 4-pole, socket: M12, 5-pole, 4-wire · Wiring diagram no. 33									
	5 m grey PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	250 AC 300 DC	-25...90	IP 67 / IP 68 / IP 69K	–	75	**EVW028**
Group 103 · Jumper , plug: M12, 5-pole, socket: M12, 5-pole, 4-wire · Wiring diagram no. 35									
	0.3 m grey PUR cable	5 x 0.34 mm², Ø 5.1 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	80	**EVW054**
	0.6 m grey PUR cable	5 x 0.34 mm², Ø 5.1 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	80	**EVW055**
	1 m grey PUR cable	5 x 0.34 mm², Ø 5.1 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	80	**EVW056**
	2 m grey PUR cable	5 x 0.34 mm², Ø 5.1 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	80	**EVW057**
	5 m grey PUR cable	5 x 0.34 mm², Ø 5.1 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	80	**EVW058**
	10 m grey PUR cable	5 x 0.34 mm², Ø 5.1 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	80	**EVW059**
	0.3 m grey PUR cable	5 x 0.34 mm², Ø 5.1 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	81	**EVW048**
	0.6 m grey PUR cable	5 x 0.34 mm², Ø 5.1 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	81	**EVW049**
	1 m grey PUR cable	5 x 0.34 mm², Ø 5.1 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	81	**EVW050**
	2 m grey PUR cable	5 x 0.34 mm², Ø 5.1 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	81	**EVW051**
	5 m grey PUR cable	5 x 0.34 mm², Ø 5.1 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	81	**EVW052**
	10 m grey PUR cable	5 x 0.34 mm², Ø 5.1 mm	TPU / brass	30 AC 36 DC	-25...90	IP 67 / IP 68 / IP 69K	–	81	**EVW053**

Connectors for hygienic and wet areas

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 104 · Socket M8, 3-pole, 3-wire · Wiring diagram no. 1									
	2 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	115	**EVT122**
	5 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	115	**EVT123**
	10 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	115	**EVT124**
	25 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	115	**EVT125**
	2 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	116	**EVT126**
	5 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	116	**EVT127**
	10 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	116	**EVT128**
	25 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	116	**EVT129**
Group 105 · Socket M8, 3-pole, 3-wire, LED, PNP · Wiring diagram no. 2									
	2 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...80	IP 67 / IP 68 / IP 69K	green / yellow	117	**EVT130**
	5 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...80	IP 67 / IP 68 / IP 69K	green / yellow	117	**EVT131**
	10 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...80	IP 67 / IP 68 / IP 69K	green / yellow	117	**EVT132**
	25 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...80	IP 67 / IP 68 / IP 69K	green / yellow	117	**EVT133**
Group 106 · Socket M8, 4-pole, 4-wire · Wiring diagram no. 4									
	2 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	118	**EVT134**

You can find wiring diagrams and scale drawings from page 623

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 106 · Socket M8, 4-pole, 4-wire · Wiring diagram no. 4									
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	118	**EVT135**
	10 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	118	**EVT136**
	25 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	118	**EVT137**
	2 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	119	**EVT138**
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	119	**EVT139**
	10 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	119	**EVT140**
	25 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	119	**EVT141**
Group 107 · Socket M12, 5/4-pole, 4-wire · Wiring diagram no. 4									
	2 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 67 / IP 68 / IP 69K	–	120	**EVT067**
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 67 / IP 68 / IP 69K	–	120	**EVT004**
	10 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 67 / IP 68 / IP 69K	–	120	**EVT005**
	25 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 67 / IP 68 / IP 69K	–	120	**EVT006**
	2 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 67 / IP 68 / IP 69K	–	121	**EVT064**
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 67 / IP 68 / IP 69K	–	121	**EVT001**
	10 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 67 / IP 68 / IP 69K	–	121	**EVT002**

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 107 · Socket M12, 5/4-pole, 4-wire · Wiring diagram no. 4									
	25 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 67 / IP 68 / IP 69K	–	121	**EVT003**
Group 108 · Socket M12, 4-pole · Wiring diagram no. 5									
	wirable	...0.75 mm² (Ø 4...6 mm)	PA / high-grade st. steel	240 AC/DC	-25...85	IP 67	–	122	**E11862**
	wirable	...0.75 mm² (Ø 4...6 mm)	PA / high-grade st. steel	240 AC/DC	-25...90	IP 67	–	123	**E11861**
Group 109 · Socket M12, 5/4-pole, 4-wire, LED, PNP · Wiring diagram no. 9									
	2 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 67 / IP 68 / IP 69K	green / 2 x yellow	124	**EVT069**
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 67 / IP 68 / IP 69K	green / 2 x yellow	124	**EVT007**
	10 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 67 / IP 68 / IP 69K	green / 2 x yellow	124	**EVT008**
	25 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 67 / IP 68 / IP 69K	green / 2 x yellow	124	**EVT009**
Group 110 · Socket M12, 5/4-pole, LED, PNP · Wiring diagram no. 49									
	wirable	...0.75 mm² (Ø 4...6 mm)	PBT / high-grade st. steel	10...30 DC	-25...85	IP 67 / IP 69K	green / yellow	125	**E11863**
Group 111 · Plug M12, 4-pole · Wiring diagram no. 26									
	wirable	...0.75 mm² (Ø 4...6 mm)	PA / high-grade st. steel	240 AC/DC	-25...85	IP 67	–	126	**E11858**
	wirable	...0.75 mm² (Ø 4...6 mm)	PA / high-grade st. steel	250 AC/DC	-25...85	IP 67	–	127	**E11857**
Group 112 · Plug M12, 4-pole, 4-wire · Wiring diagram no. 27									
	2 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 67 / IP 68 / IP 69K	–	128	**EVT071**

You can find wiring diagrams and scale drawings from page 623

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 112 · Plug M12, 4-pole, 4-wire · Wiring diagram no. 27									
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 67 / IP 68 / IP 69K	–	128	**EVT072**
	10 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 67 / IP 68 / IP 69K	–	128	**EVT073**
Group 113 · Socket M12, 5-pole, 5-wire · Wiring diagram no. 11									
	5 m orange PVC cable	5 x 0.34 mm², Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	30 AC 36 DC	-25...100	IP 67 / IP 68 / IP 69K	–	120	**EVT013**
	10 m orange PVC cable	5 x 0.34 mm², Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	30 AC 36 DC	-25...100	IP 67 / IP 68 / IP 69K	–	120	**EVT014**
	25 m orange PVC cable	5 x 0.34 mm², Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	30 AC 36 DC	-25...100	IP 67 / IP 68 / IP 69K	–	120	**EVT015**
	5 m orange PVC cable	5 x 0.34 mm², Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	30 AC 36 DC	-25...100	IP 67 / IP 68 / IP 69K	–	121	**EVT010**
	10 m orange PVC cable	5 x 0.34 mm², Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	30 AC 36 DC	-25...100	IP 67 / IP 68 / IP 69K	–	121	**EVT011**
	25 m orange PVC cable	5 x 0.34 mm², Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	30 AC 36 DC	-25...100	IP 67 / IP 68 / IP 69K	–	121	**EVT012**
Group 114 · Plug M12, 5-pole, 5-wire · Wiring diagram no. 29									
	2 m orange PVC cable	5 x 0.34 mm², Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	30 AC 36 DC	-25...100	IP 67 / IP 68 / IP 69K	–	129	**EVT074**
Group 115 · Socket M12, 5-pole · Wiring diagram no. 10									
	wirable	...0.75 mm² (Ø 4...6 mm)	PA / high-grade st. steel	60 AC/DC	-25...85	IP 67	–	130	**E11865**
	wirable	...0.75 mm² (Ø 4...6 mm)	PA / high-grade st. steel	60 AC/DC	-25...90	IP 67	–	131	**E11864**
Group 116 · Plug M12, 5-pole · Wiring diagram no. 30									
	wirable	...0.75 mm² (Ø 4...6 mm)	PA / high-grade st. steel	60 AC/DC	-25...85	IP 67	–	132	**E11860**

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 116 · Plug M12, 5-pole · Wiring diagram no. 30									
	wirable	...0.75 mm² (Ø 4...6 mm)	PA / high-grade st. steel	125 AC/DC	-25...85	IP 67	–	133	**E11859**

Jumpers for hygienic and wet areas

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 117 · Jumper , plug: M8, 3-pole, socket: M8, 3-pole, 3-wire · Wiring diagram no. 31									
	0.3 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	134	**EVT142**
	0.6 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	134	**EVT143**
	1 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	134	**EVT144**
	2 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	134	**EVT145**
	5 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	134	**EVT146**
	10 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	134	**EVT147**
	0.3 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	135	**EVT148**
	0.6 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	135	**EVT149**
	1 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	135	**EVT150**
	2 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	135	**EVT151**
	5 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	135	**EVT152**

You can find wiring diagrams and scale drawings from page 623

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 117 · Jumper , plug: M8, 3-pole, socket: M8, 3-pole, 3-wire · Wiring diagram no. 31									
	10 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	135	**EVT153**
Group 118 · Jumper , plug: M8, 3-pole, socket: M8, 3-pole, 3-wire, LED · Wiring diagram no. 32									
	0.3 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...80	IP 67 / IP 68 / IP 69K	green / yellow	136	**EVT154**
	0.6 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...80	IP 67 / IP 68 / IP 69K	green / yellow	136	**EVT155**
	1 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...80	IP 67 / IP 68 / IP 69K	green / yellow	136	**EVT156**
	2 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...80	IP 67 / IP 68 / IP 69K	green / yellow	136	**EVT157**
	5 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...80	IP 67 / IP 68 / IP 69K	green / yellow	136	**EVT158**
	10 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...80	IP 67 / IP 68 / IP 69K	green / yellow	136	**EVT159**
Group 119 · Jumper , plug: M8, 3-pole, socket: M8, 3-pole, 3-wire · Wiring diagram no. 31									
	0.3 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	137	**EVT160**
	0.6 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	137	**EVT161**
	1 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	137	**EVT162**
	2 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	137	**EVT163**
	5 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	137	**EVT164**
	10 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	137	**EVT165**

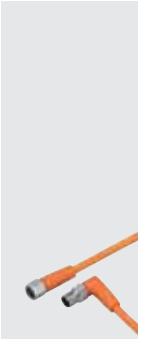
Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 119 · Jumper , plug: M8, 3-pole, socket: M8, 3-pole, 3-wire · Wiring diagram no. 31									
	0.3 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	138	**EVT166**
	0.6 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	138	**EVT167**
	1 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	138	**EVT168**
	2 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	138	**EVT169**
	5 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	138	**EVT170**
	10 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	138	**EVT171**
Group 120 · Jumper , plug: M8, 3-pole, socket: M8, 3-pole, 3-wire, LED · Wiring diagram no. 32									
	0.3 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...80	IP 67 / IP 68 / IP 69K	green / yellow	139	**EVT172**
	0.6 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...80	IP 67 / IP 68 / IP 69K	green / yellow	139	**EVT173**
	1 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...80	IP 67 / IP 68 / IP 69K	green / yellow	139	**EVT174**
	2 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...80	IP 67 / IP 68 / IP 69K	green / yellow	139	**EVT175**
	5 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...80	IP 67 / IP 68 / IP 69K	green / yellow	139	**EVT176**
	10 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...80	IP 67 / IP 68 / IP 69K	green / yellow	139	**EVT177**
Group 121 · Jumper , plug: M8, 3-pole, socket: M8, 4-pole, 3-wire · Wiring diagram no. 31									
	0.3 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	140	**EVT279**

You can find wiring diagrams and scale drawings from page 623

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 121 · Jumper , plug: M8, 3-pole, socket: M8, 4-pole, 3-wire · Wiring diagram no. 31									
	0.6 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	140	**EVT280**
	1 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	140	**EVT281**
	0.3 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	141	**EVT283**
	0.6 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	141	**EVT284**
	1 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	141	**EVT285**
	5 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	141	**EVT286**
Group 122 · Jumper , plug: M8, 3-pole, socket: M12, 5-pole, 3-wire · Wiring diagram no. 31									
	0.3 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	142	**EVT260**
	0.6 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	142	**EVT261**
	1 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	142	**EVT262**
	2 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	142	**EVT263**
	0.3 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	143	**EVT265**
	0.6 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	143	**EVT266**
	1 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	143	**EVT267**
	2 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	143	**EVT268**

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 122 · Jumper , plug: M8, 3-pole, socket: M12, 5-pole, 3-wire · Wiring diagram no. 31									
	5 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	143	**EVT269**
Group 123 · Jumper , plug: M8, 4-pole, socket: M8, 4-pole, 4-wire · Wiring diagram no. 33									
	0.3 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	144	**EVT178**
	0.6 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	144	**EVT179**
	1 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	144	**EVT180**
	2 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	144	**EVT181**
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	144	**EVT182**
	10 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	144	**EVT183**
	0.3 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	145	**EVT184**
	0.6 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	145	**EVT185**
	1 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	145	**EVT186**
	2 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	145	**EVT187**
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	145	**EVT188**
	10 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	145	**EVT189**
	0.3 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	146	**EVT190**

You can find wiring diagrams and scale drawings from page 623

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 123 · Jumper , plug: M8, 4-pole, socket: M8, 4-pole, 4-wire · Wiring diagram no. 33									
	0.6 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	146	**EVT191**
	1 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	146	**EVT192**
	2 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	146	**EVT193**
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	146	**EVT194**
	10 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	146	**EVT195**
	0.3 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	147	**EVT196**
	0.6 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	147	**EVT197**
	1 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	147	**EVT198**
	2 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	147	**EVT199**
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	147	**EVT200**
	10 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	147	**EVT201**

Jumpers for hygienic and wet areas

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 124 · Jumper , plug: M12, 3-pole, socket: M8, 3-pole, 3-wire · Wiring diagram no. 31									
	0.3 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	148	**EVT236**
	0.6 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	148	**EVT237**
	1 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	148	**EVT238**
	2 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	148	**EVT239**
	5 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	148	**EVT240**
	0.3 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	149	**EVT242**
	0.6 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	149	**EVT243**
	1 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	149	**EVT244**
	2 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	149	**EVT245**
	5 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	149	**EVT246**
Group 125 · Jumper , plug: M12, 3-pole, socket: M12, 5/4/3-pole, 3-wire · Wiring diagram no. 31									
	0.3 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 67 / IP 68 / IP 69K	–	150	**EVT028**
	0.6 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 67 / IP 68 / IP 69K	–	150	**EVT029**
	1 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 67 / IP 68 / IP 69K	–	150	**EVT030**

You can find wiring diagrams and scale drawings from page 623

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 125 · Jumper , plug: M12, 3-pole, socket: M12, 5/4/3-pole, 3-wire · Wiring diagram no. 31									
	2 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 67 / IP 68 / IP 69K	–	150	**EVT031**
	5 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 67 / IP 68 / IP 69K	–	150	**EVT032**
	10 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 67 / IP 68 / IP 69K	–	150	**EVT033**
	0.3 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 67 / IP 68 / IP 69K	–	151	**EVT022**
	0.6 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 67 / IP 68 / IP 69K	–	151	**EVT023**
	1 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 67 / IP 68 / IP 69K	–	151	**EVT024**
	2 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 67 / IP 68 / IP 69K	–	151	**EVT025**
	5 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 67 / IP 68 / IP 69K	–	151	**EVT026**
	10 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 67 / IP 68 / IP 69K	–	151	**EVT027**
Group 126 · Jumper , plug: M12, 3-pole, socket: M12, 5/4/3-pole, 3-wire, LED · Wiring diagram no. 32									
	0.3 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 67 / IP 68 / IP 69K	green / yellow	152	**EVT034**
	0.6 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 67 / IP 68 / IP 69K	green / yellow	152	**EVT035**
	1 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 67 / IP 68 / IP 69K	green / yellow	152	**EVT036**
	2 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 67 / IP 68 / IP 69K	green / yellow	152	**EVT037**
	5 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 67 / IP 68 / IP 69K	green / yellow	152	**EVT038**

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 126 · Jumper , plug: M12, 3-pole, socket: M12, 5/4/3-pole, 3-wire, LED · Wiring diagram no. 32									
	10 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 67 / IP 68 / IP 69K	green / yellow	152	**EVT039**
Group 127 · Jumper , plug: M12, 4-pole, socket: M8, 4-pole, 4-wire · Wiring diagram no. 33									
	0.3 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	153	**EVT248**
	0.6 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	153	**EVT249**
	1 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	153	**EVT250**
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	153	**EVT251**
	0.3 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	154	**EVT253**
	0.6 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	154	**EVT254**
	1 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	154	**EVT255**
	2 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	154	**EVT256**
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 67 / IP 68 / IP 69K	–	154	**EVT257**
Group 128 · Jumper , plug: M12, 4-pole, socket: M12, 5/4-pole, 4-wire · Wiring diagram no. 33									
	0.3 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 67 / IP 68 / IP 69K	–	155	**EVT046**
	0.6 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 67 / IP 68 / IP 69K	–	155	**EVT047**
	1 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 67 / IP 68 / IP 69K	–	155	**EVT048**

You can find wiring diagrams and scale drawings from page 623

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 128 · Jumper , plug: M12, 4-pole, socket: M12, 5/4-pole, 4-wire · Wiring diagram no. 33									
	2 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 67 / IP 68 / IP 69K	–	155	**EVT049**
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 67 / IP 68 / IP 69K	–	155	**EVT050**
	10 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 67 / IP 68 / IP 69K	–	155	**EVT051**
	0.3 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 67 / IP 68 / IP 69K	–	156	**EVT040**
	0.6 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 67 / IP 68 / IP 69K	–	156	**EVT041**
	1 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 67 / IP 68 / IP 69K	–	156	**EVT042**
	2 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 67 / IP 68 / IP 69K	–	156	**EVT043**
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 67 / IP 68 / IP 69K	–	156	**EVT044**
	10 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 67 / IP 68 / IP 69K	–	156	**EVT045**
Group 129 · Jumper , plug: M12, 4-pole, socket: M12, 5/4-pole, 4-wire, LED · Wiring diagram no. 34									
	0.3 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 67 / IP 68 / IP 69K	green / 2 x yellow	157	**EVT052**
	0.6 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 67 / IP 68 / IP 69K	green / 2 x yellow	157	**EVT053**
	1 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 67 / IP 68 / IP 69K	green / 2 x yellow	157	**EVT054**
	2 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 67 / IP 68 / IP 69K	green / 2 x yellow	157	**EVT055**
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 67 / IP 68 / IP 69K	green / 2 x yellow	157	**EVT056**

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 129 · Jumper , plug: M12, 4-pole, socket: M12, 5/4-pole, 4-wire, LED · Wiring diagram no. 34									
	10 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 67 / IP 68 / IP 69K	green / 2 x yellow	157	**EVT057**
Group 130 · Jumper , plug: M12, 5-pole, socket: M12, 5-pole, 5-wire · Wiring diagram no. 35									
	0.3 m orange PVC cable	5 x 0.34 mm², Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	30 AC 36 DC	-25...100	IP 67 / IP 68 / IP 69K	–	158	**EVT058**
	0.6 m orange PVC cable	5 x 0.34 mm², Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	30 AC 36 DC	-25...100	IP 67 / IP 68 / IP 69K	–	158	**EVT059**
	1 m orange PVC cable	5 x 0.34 mm², Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	30 AC 36 DC	-25...100	IP 67 / IP 68 / IP 69K	–	158	**EVT060**
	2 m orange PVC cable	5 x 0.34 mm², Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	30 AC 36 DC	-25...100	IP 67 / IP 68 / IP 69K	–	158	**EVT061**
	5 m orange PVC cable	5 x 0.34 mm², Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	30 AC 36 DC	-25...100	IP 67 / IP 68 / IP 69K	–	158	**EVT062**
	10 m orange PVC cable	5 x 0.34 mm², Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	30 AC 36 DC	-25...100	IP 67 / IP 68 / IP 69K	–	158	**EVT063**

Connectors for hazardous areas

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 131 · Socket M12, 5/4-pole, 4-wire · Wiring diagram no. 4									
	2 m blue PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	...30 DC	-25...90	IP 67	–	13	**ENC04A**
	5 m blue PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	...30 DC	-25...90	IP 67	–	13	**ENC05A**
	10 m blue PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	...30 DC	-25...90	IP 67	–	13	**ENC06A**
	2 m blue PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	...30 DC	-25...90	IP 67	–	14	**ENC01A**
	5 m blue PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	...30 DC	-25...90	IP 67	–	14	**ENC02A**

You can find wiring diagrams and scale drawings from page 623

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 131 · Socket M12, 5/4-pole, 4-wire · Wiring diagram no. 4									
	10 m blue PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / brass	...30 DC	-25...90	IP 67	–	14	**ENC03A**
Group 132 · Socket M12, 5/4-pole, 4-wire · Wiring diagram no. 4									
	2 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	60 AC 60 DC	-20...60	IP 67	–	159	**EVC04A**
	5 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	60 AC 60 DC	-20...60	IP 67	–	159	**EVC05A**
	10 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	60 AC 60 DC	-20...60	IP 67	–	159	**EVC06A**
Group 133 · Socket M12, 5-pole, 5-wire · Wiring diagram no. 11									
	2 m blue PUR cable	5 x 0.34 mm², Ø 4.9 mm	TPU / brass	...30 DC	-25...90	IP 67	–	13	**ENC10A**
	5 m blue PUR cable	5 x 0.34 mm², Ø 4.9 mm	TPU / brass	...30 DC	-25...90	IP 67	–	13	**ENC11A**
	10 m blue PUR cable	5 x 0.34 mm², Ø 4.9 mm	TPU / brass	...30 DC	-25...90	IP 67	–	13	**ENC12A**
	25 m blue PUR cable	5 x 0.34 mm², Ø 4.9 mm	TPU / brass	...30 DC	-25...90	IP 67	–	13	**ENC13A**
	50 m blue PUR cable	5 x 0.34 mm², Ø 4.9 mm	TPU / brass	...30 DC	-25...90	IP 67	–	13	**ENC14A**
	2 m blue PUR cable	5 x 0.34 mm², Ø 4.9 mm	TPU / brass	...30 DC	-25...90	IP 67	–	14	**ENC07A**
	5 m blue PUR cable	5 x 0.34 mm², Ø 4.9 mm	TPU / brass	...30 DC	-25...90	IP 67	–	14	**ENC08A**
	10 m blue PUR cable	5 x 0.34 mm², Ø 4.9 mm	TPU / brass	...30 DC	-25...90	IP 67	–	14	**ENC09A**

Jumpers for hazardous areas

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 134 · Jumper , plug: M12, 4-pole, socket: M12, 5/4-pole, 4-wire · Wiring diagram no. 33									
	2 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	60 AC 60 DC	-20...60	IP 67	–	160	**EVC07A**
	0.3 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	60 AC 60 DC	-20...60	IP 67	–	160	**EVC09A**
	0.6 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	60 AC 60 DC	-20...60	IP 67	–	160	**EVC10A**
	1 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	60 AC 60 DC	-20...60	IP 67	–	160	**EVC11A**
	5 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	60 AC 60 DC	-20...60	IP 67	–	160	**EVC12A**
	10 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	60 AC 60 DC	-20...60	IP 67	–	160	**EVC13A**

Connectors for robust applications

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 135 · Socket M12, 5/4-pole, 4-wire · Wiring diagram no. 4									
	2 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	250 AC 300 DC	-40...90	IP 67 / IP 68 / IP 69K	–	159	**EVM004**
	5 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	250 AC 300 DC	-40...90	IP 67 / IP 68 / IP 69K	–	159	**EVM005**
	10 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	250 AC 300 DC	-40...90	IP 67 / IP 68 / IP 69K	–	159	**EVM006**
	25 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	250 AC 300 DC	-40...90	IP 67 / IP 68 / IP 69K	–	159	**EVM012**
	50 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	250 AC 300 DC	-40...90	IP 67 / IP 68 / IP 69K	–	159	**EVM010**

You can find wiring diagrams and scale drawings from page 623

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 135 · Socket M12, 5/4-pole, 4-wire · Wiring diagram no. 4									
	2 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	250 AC 300 DC	-40...90	IP 67 / IP 68 / IP 69K	–	161	**EVM001**
	5 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	250 AC 300 DC	-40...90	IP 67 / IP 68 / IP 69K	–	161	**EVM002**
	10 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	250 AC 300 DC	-40...90	IP 67 / IP 68 / IP 69K	–	161	**EVM003**
Group 136 · Socket M12, 5/4-pole, 4-wire, LED, PNP · Wiring diagram no. 9									
	2 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	10...36 DC	-40...90	IP 67 / IP 68 / IP 69K	green / 2 x yellow	162	**EVM007**
	5 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	10...36 DC	-40...90	IP 67 / IP 68 / IP 69K	green / 2 x yellow	162	**EVM008**
	10 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	10...36 DC	-40...90	IP 67 / IP 68 / IP 69K	green / 2 x yellow	162	**EVM009**
Group 137 · Socket M12, 5-pole, 5-wire · Wiring diagram no. 11									
	2 m black PUR cable	5 x 0.34 mm², Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	30 AC 36 DC	-40...90	IP 67 / IP 68 / IP 69K	–	159	**EVM039**
	5 m black PUR cable	5 x 0.34 mm², Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	30 AC 36 DC	-40...90	IP 67 / IP 68 / IP 69K	–	159	**EVM040**
	10 m black PUR cable	5 x 0.34 mm², Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	30 AC 36 DC	-40...90	IP 67 / IP 68 / IP 69K	–	159	**EVM041**
	2 m black PUR cable	5 x 0.34 mm², Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	30 AC 36 DC	-40...90	IP 67 / IP 68 / IP 69K	–	161	**EVM036**
	5 m black PUR cable	5 x 0.34 mm², Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	30 AC 36 DC	-40...90	IP 67 / IP 68 / IP 69K	–	161	**EVM037**
	10 m black PUR cable	5 x 0.34 mm², Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	30 AC 36 DC	-40...90	IP 67 / IP 68 / IP 69K	–	161	**EVM038**
	2 m black PUR cable	5 x 0.34 mm², Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	30 AC 36 DC	-40...90	IP 67 / IP 68 / IP 69K	–	159	**EVM039**

Type	Cable	Wire specification	Material housing/ nut	U [V]	T_a [°C]	Pro-tection	LEDs	Draw-ing no.	Order no.
Group 137 · Socket M12, 5-pole, 5-wire · Wiring diagram no. 11									
	5 m black PUR cable	5 x 0.34 mm², Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	30 AC 36 DC	-40...90	IP 67 / IP 68 / IP 69K	–	159	**EVM040**
	10 m black PUR cable	5 x 0.34 mm², Ø 4.9 mm	TPU / stainless steel 316L / 1.4404	30 AC 36 DC	-40...90	IP 67 / IP 68 / IP 69K	–	159	**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

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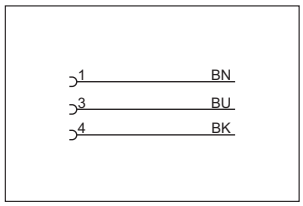

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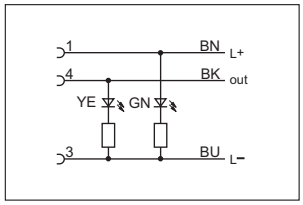

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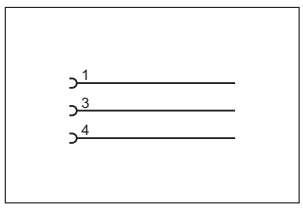

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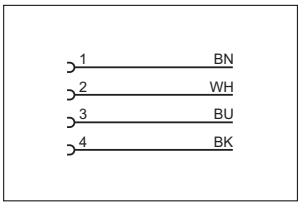

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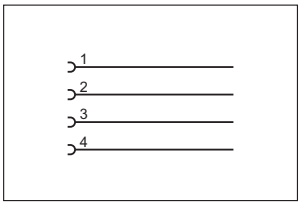

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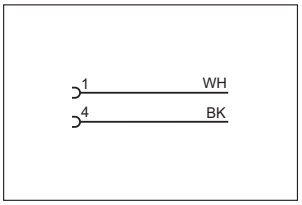

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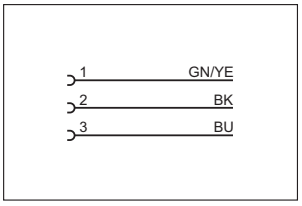

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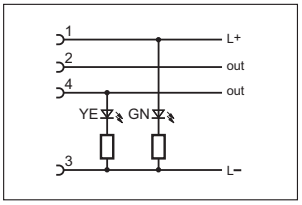

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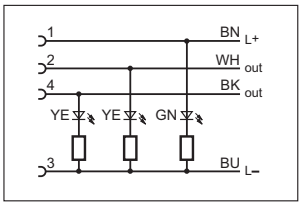

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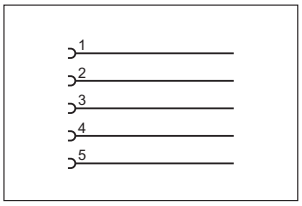

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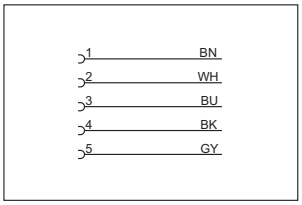

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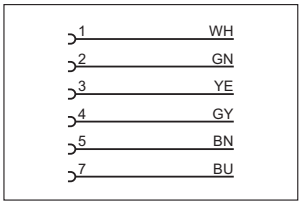

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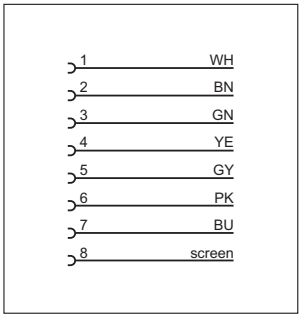

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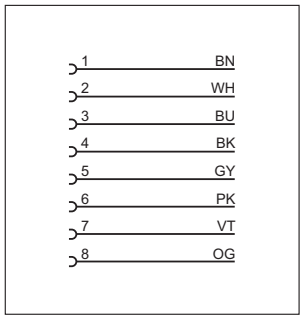

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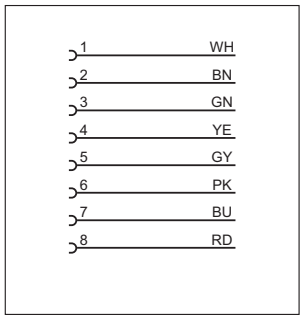

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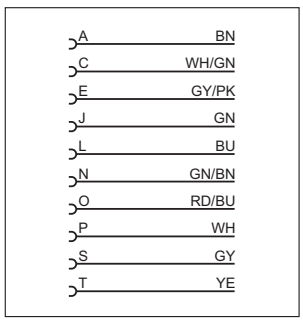

Wiring diagrams

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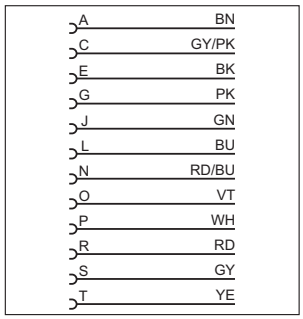

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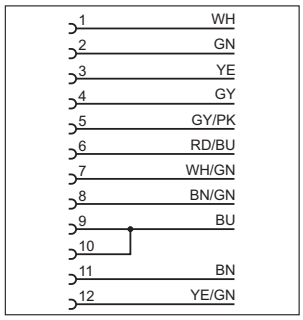

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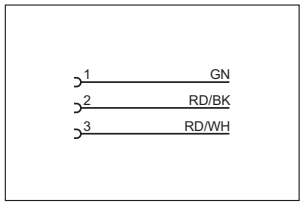

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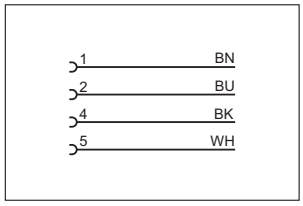

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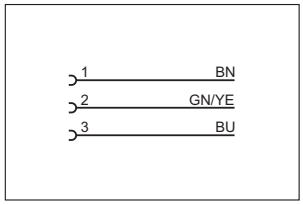

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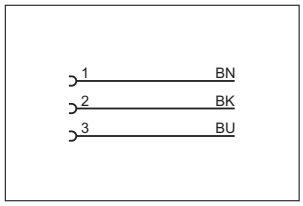

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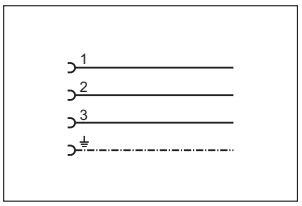

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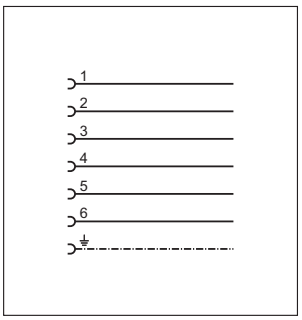

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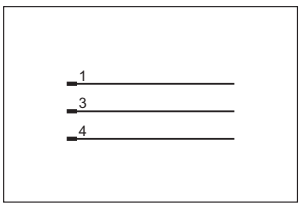

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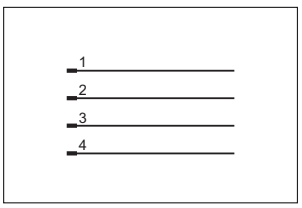

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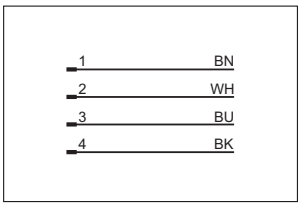

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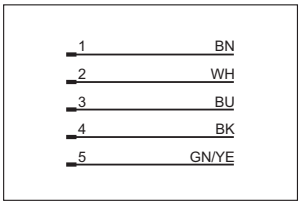

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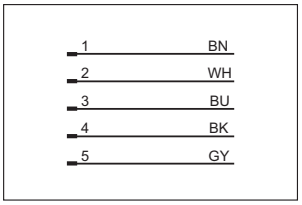

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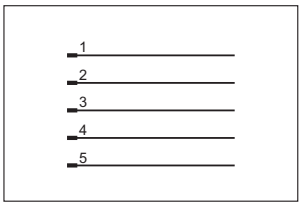

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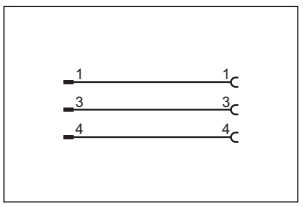

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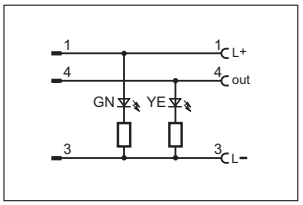

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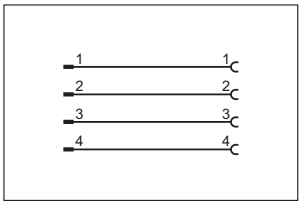

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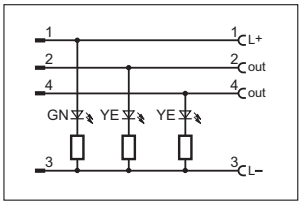

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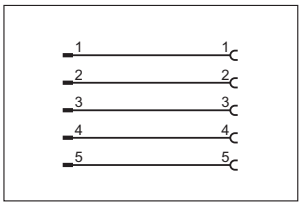

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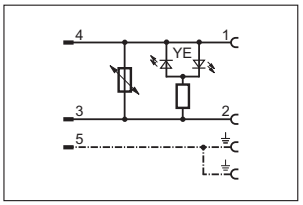

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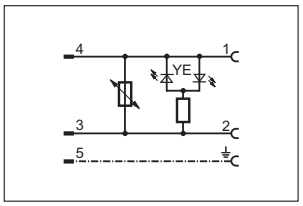

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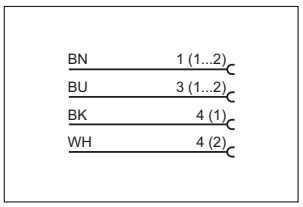

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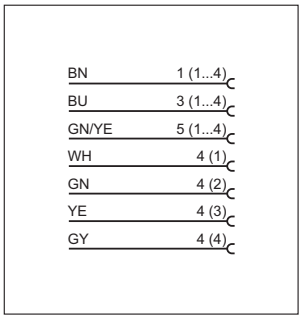

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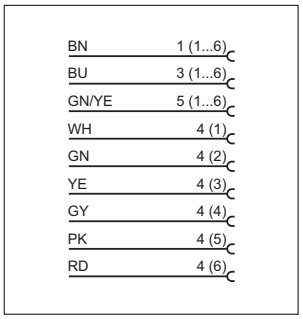

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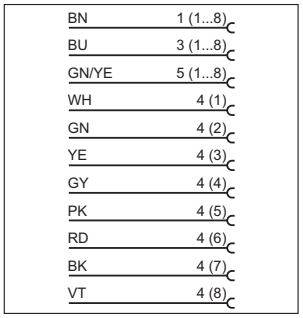
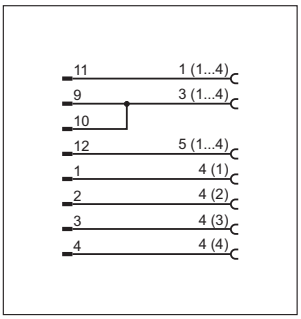


Wiring diagrams

42



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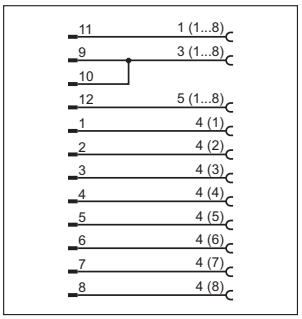

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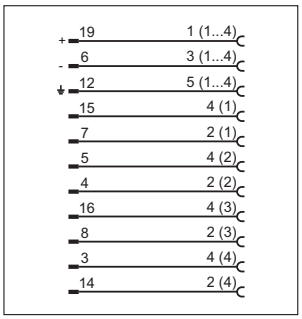

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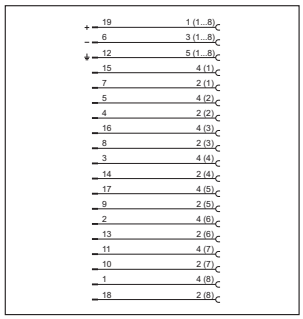

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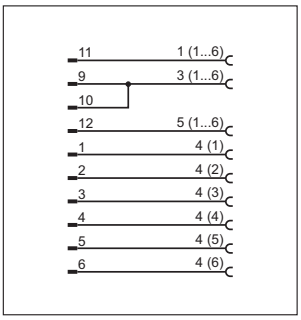

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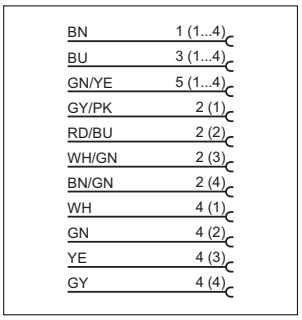

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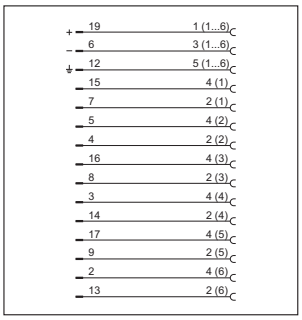

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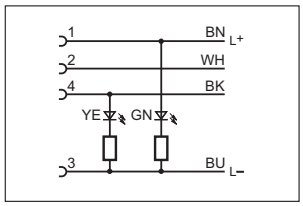

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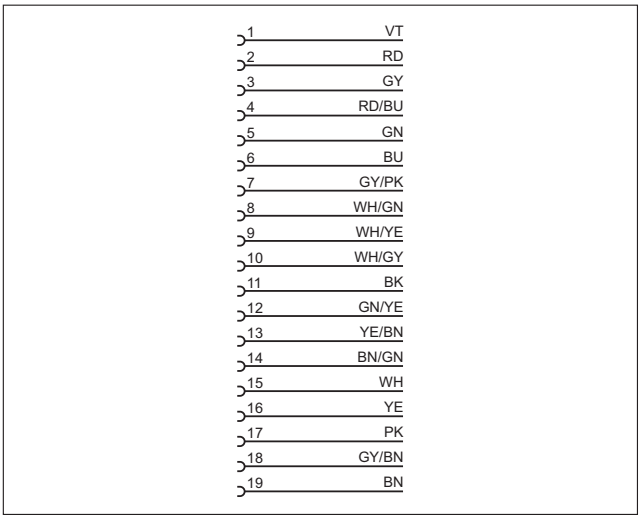

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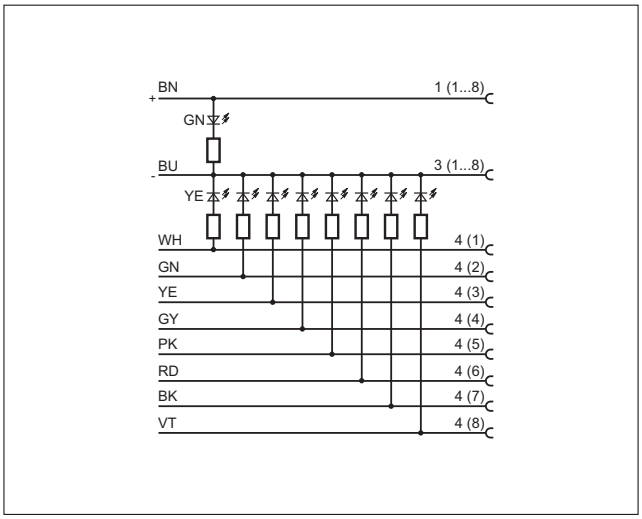

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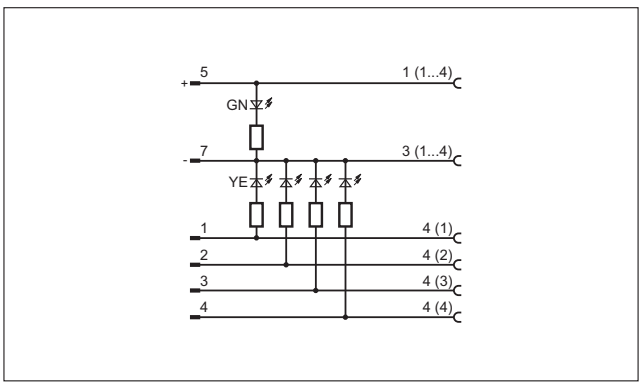

Wiring diagrams

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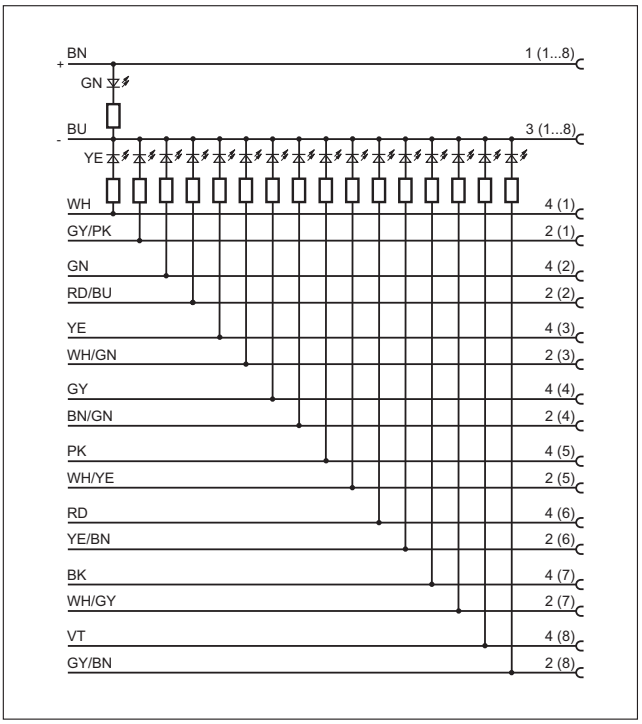

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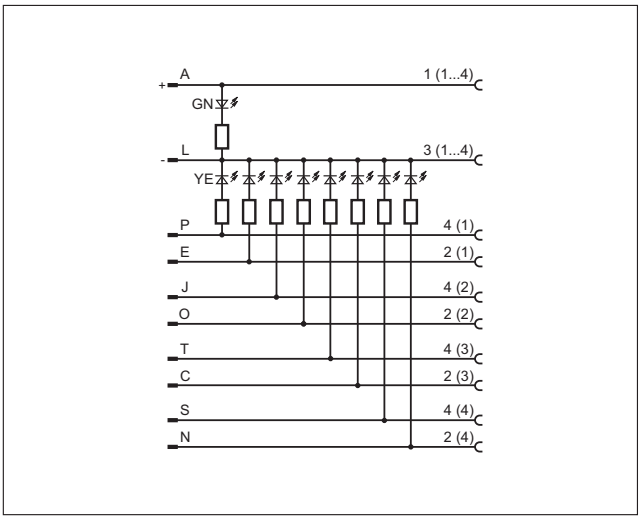

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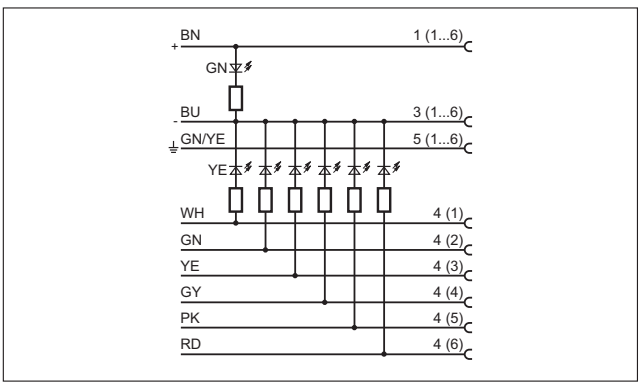

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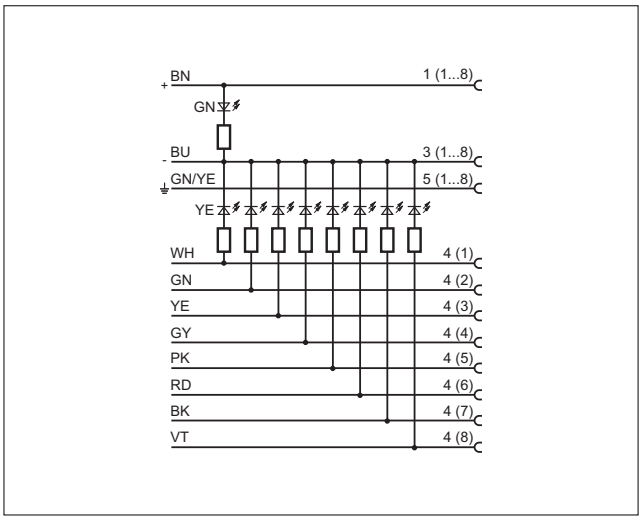

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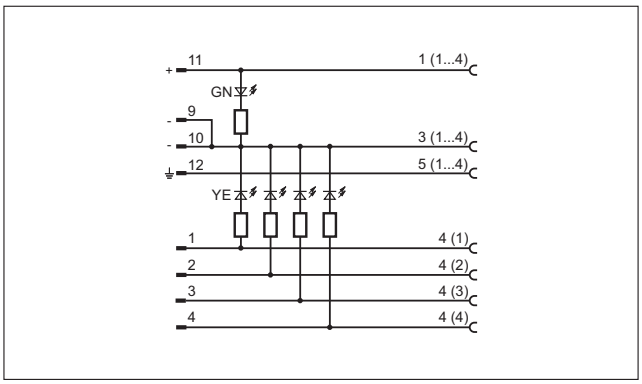

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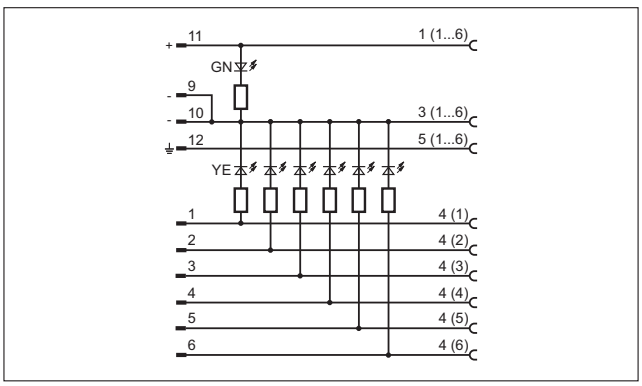

Wiring diagrams

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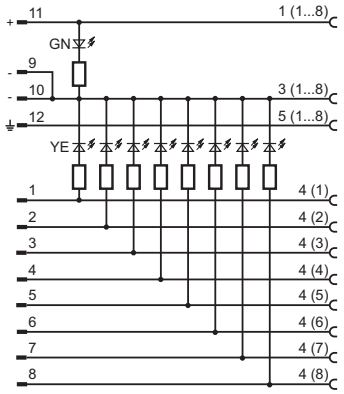

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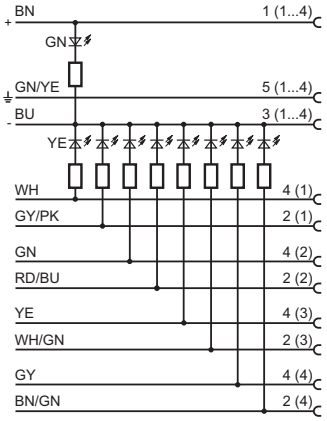

61

BN	1 (1...6)
BU	3 (1...6)
GN/YE	5 (1...6)
GY/PK	2 (1)
RD/BU	2 (2)
WH/GN	2 (3)
BN/GN	2 (4)
WH/YE	2 (5)
YE/BN	2 (6)
WH	4 (1)
GN	4 (2)
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GY	4 (4)
PK	4 (5)
RD	4 (6)

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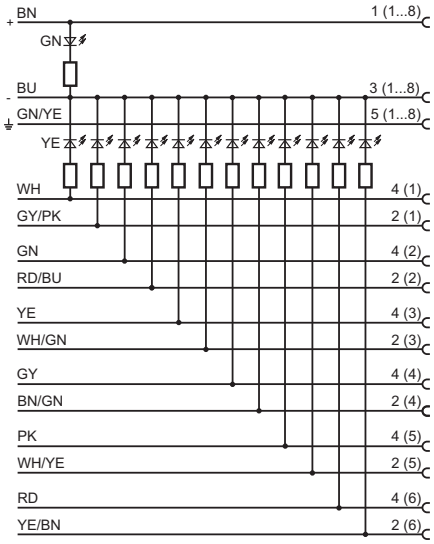

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BN	1 (1...8)
BU	3 (1...8)
GN/YE	5 (1...8)
GY/PK	2 (1)
RD/BU	2 (2)
WH/GN	2 (3)
BN/GN	2 (4)
WH/YE	2 (5)
YE/BN	2 (6)
WH/GY	2 (7)
GY/BN	2 (8)
WH	4 (1)
GN	4 (2)
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PK	4 (5)
RD	4 (6)
BK	4 (7)
VT	4 (8)

Wiring diagrams

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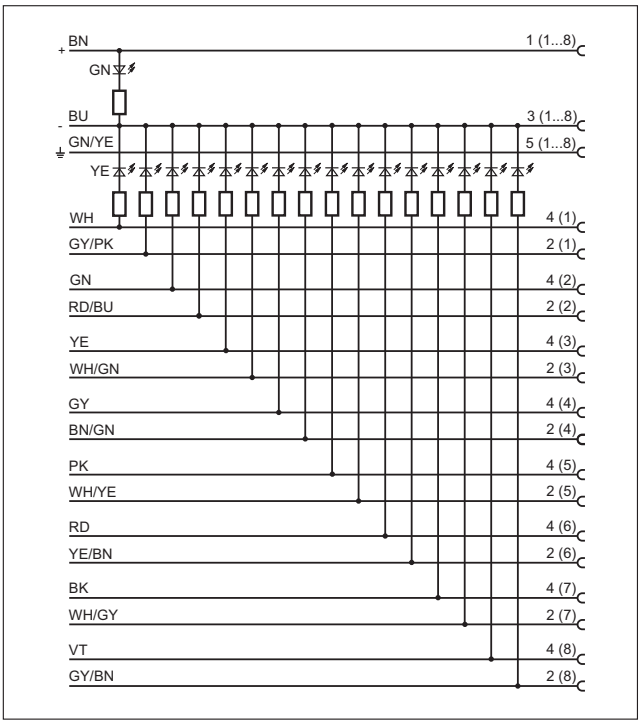

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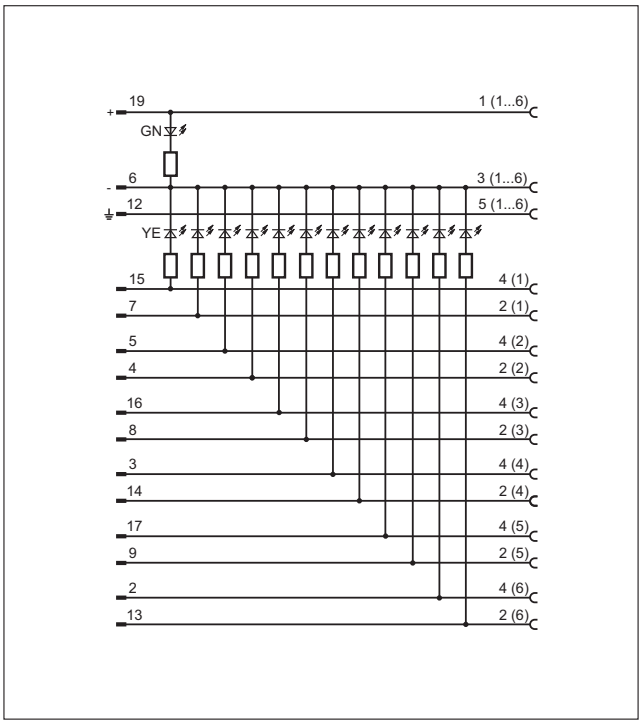

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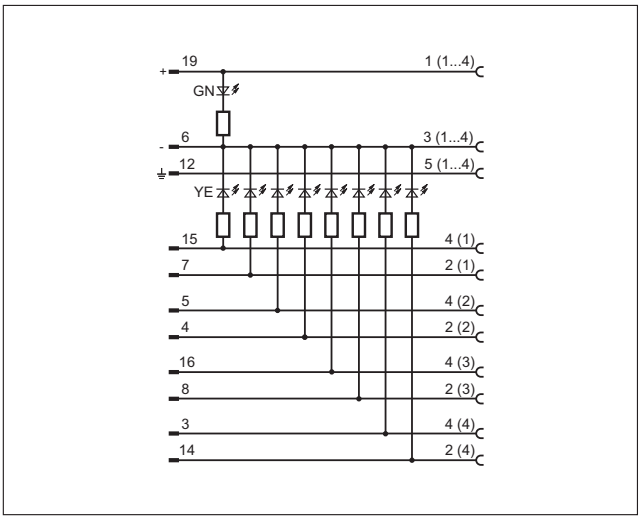

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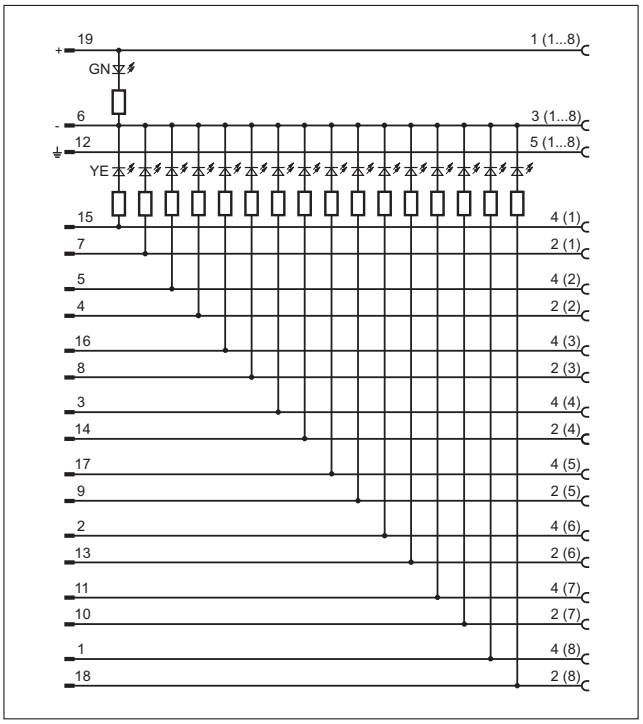

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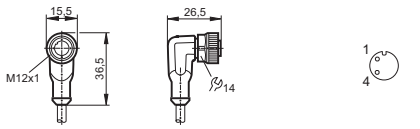

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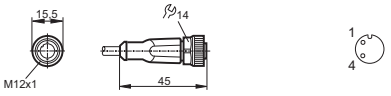

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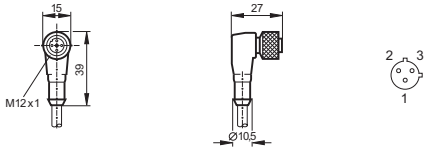

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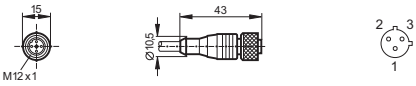

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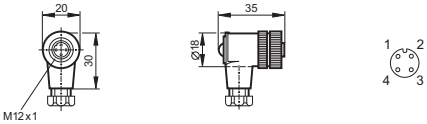

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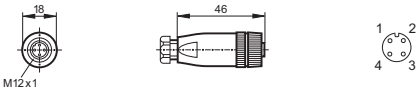

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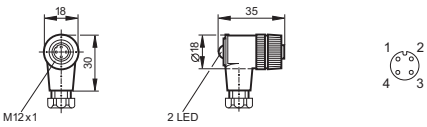

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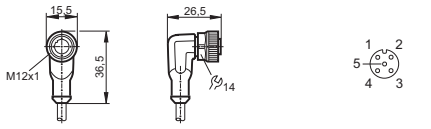

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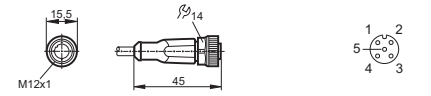

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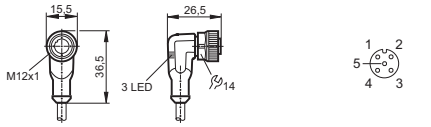

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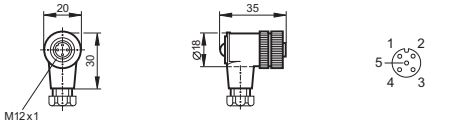

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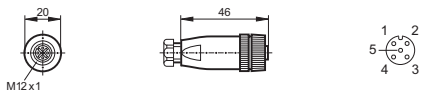

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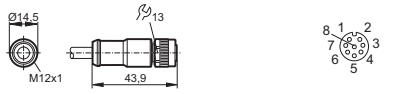

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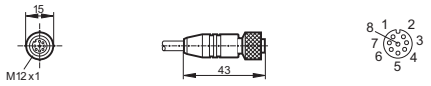

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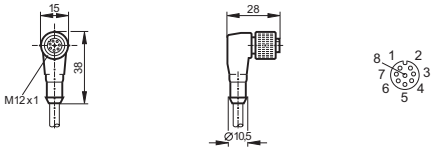

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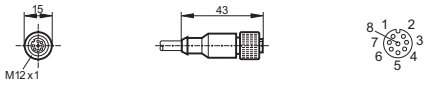

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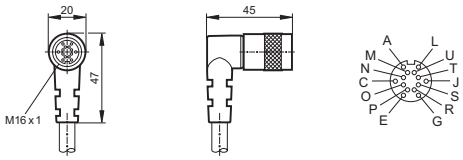

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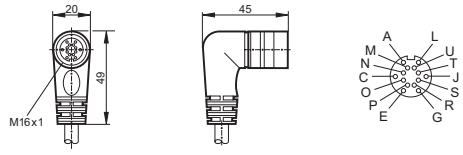

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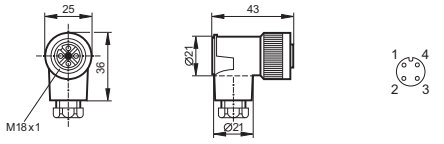

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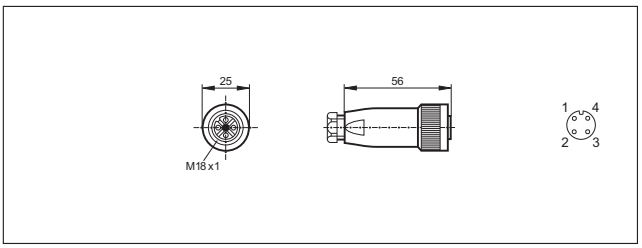

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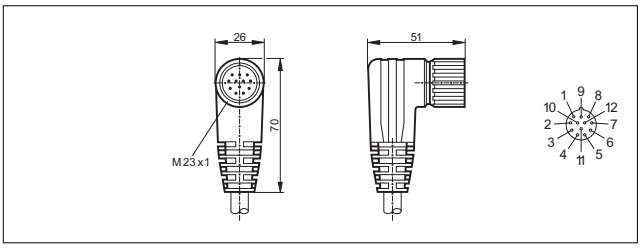

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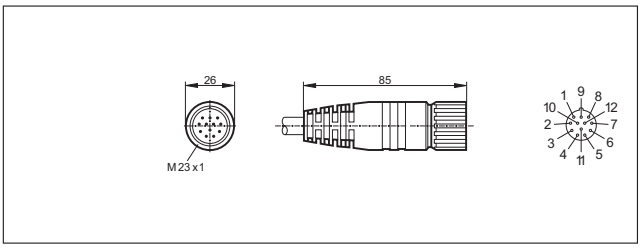

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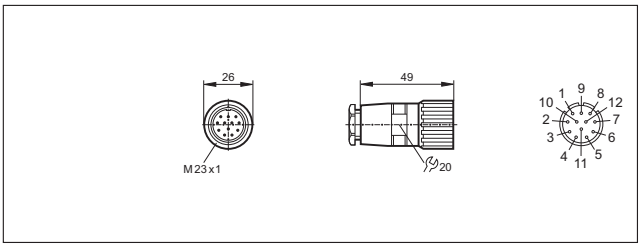

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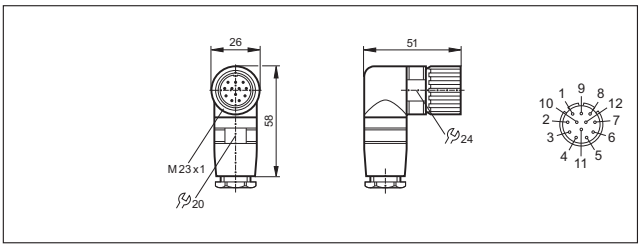

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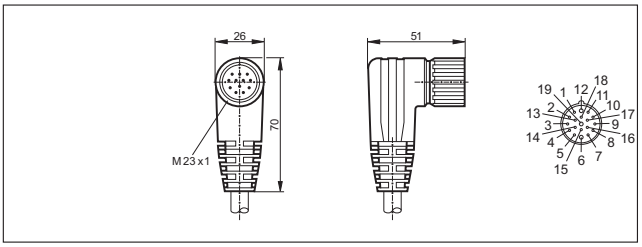

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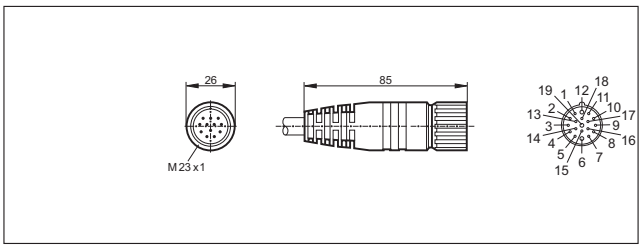

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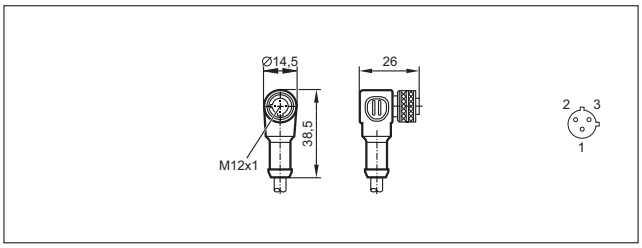

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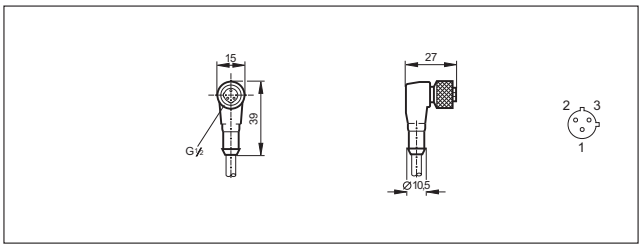

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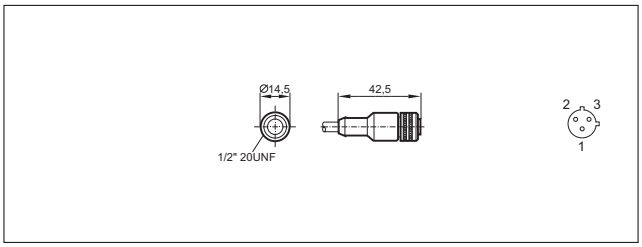

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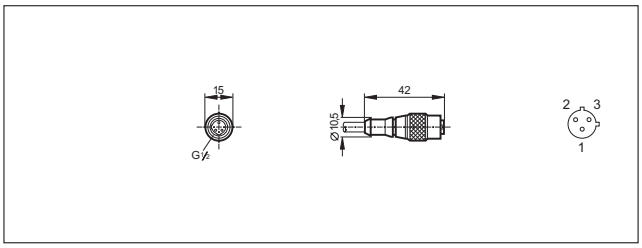

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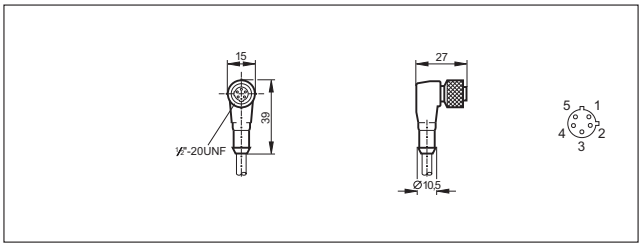

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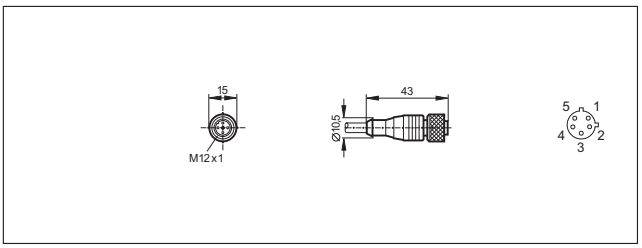

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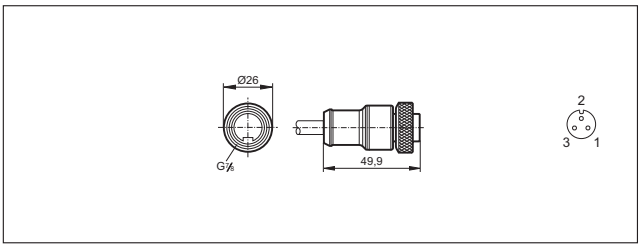

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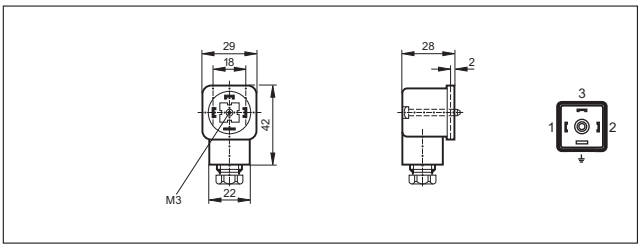

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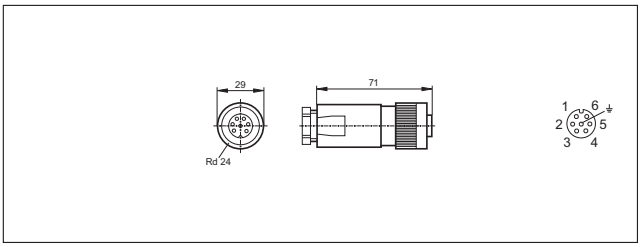

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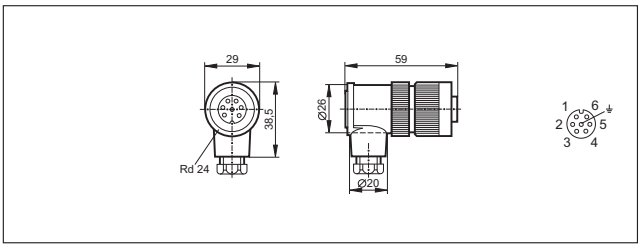

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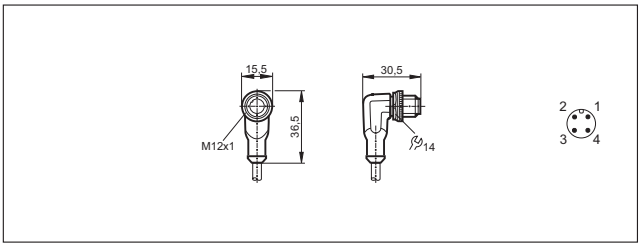

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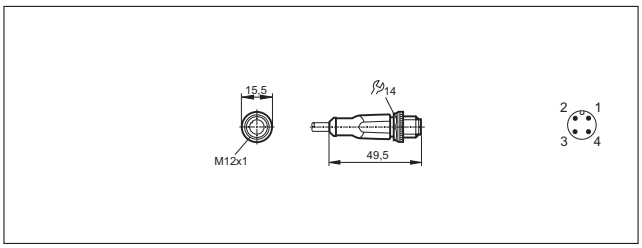

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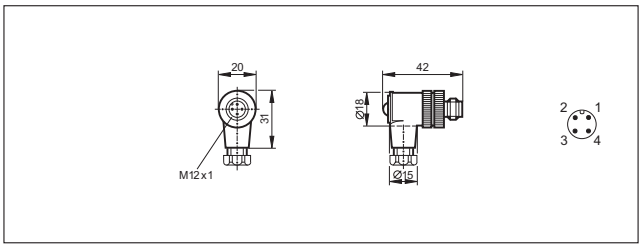

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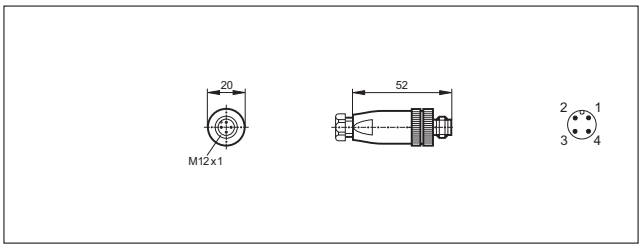

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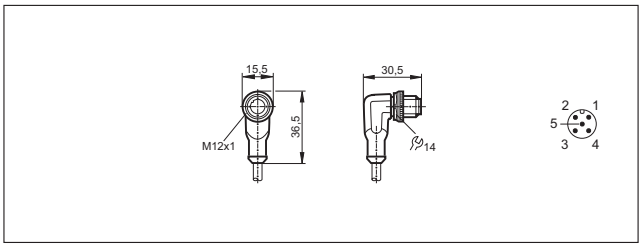

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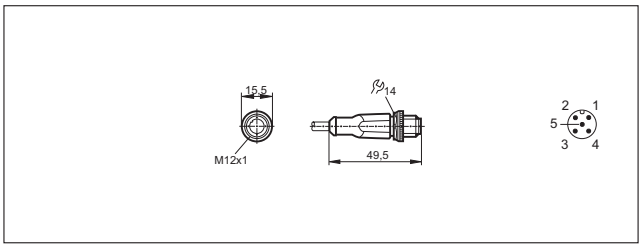

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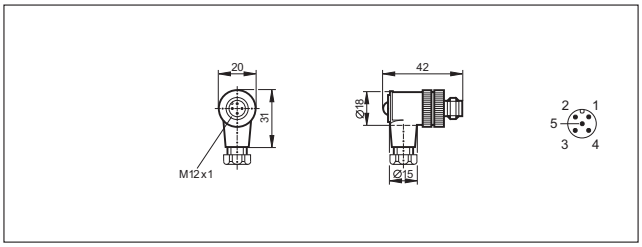

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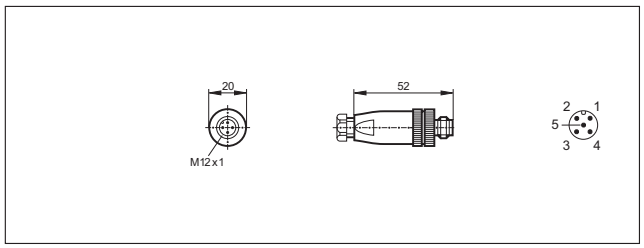

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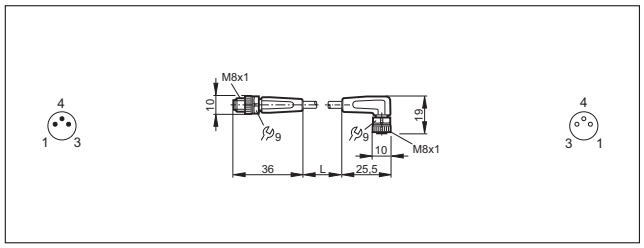

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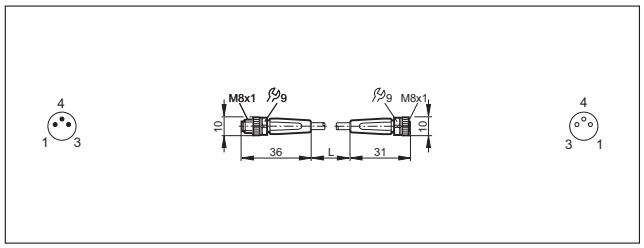

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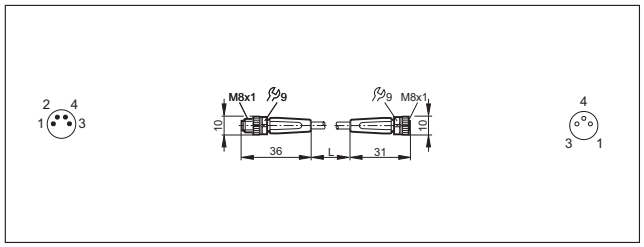

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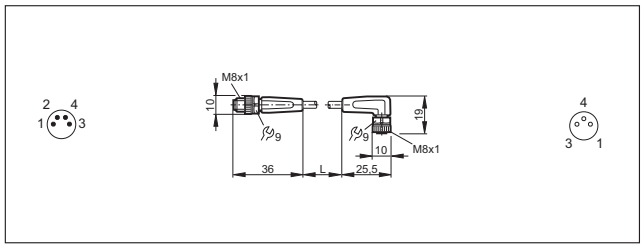

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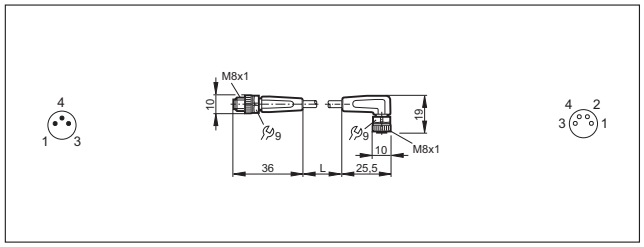

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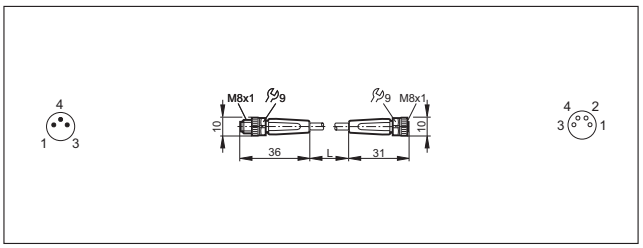

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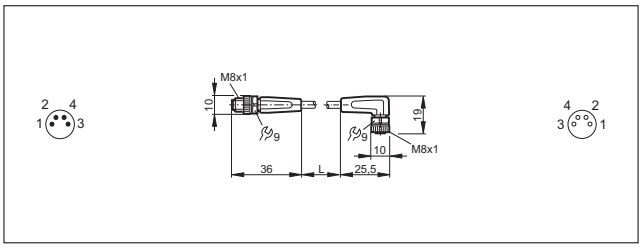

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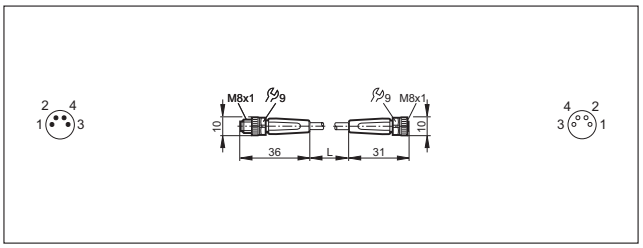

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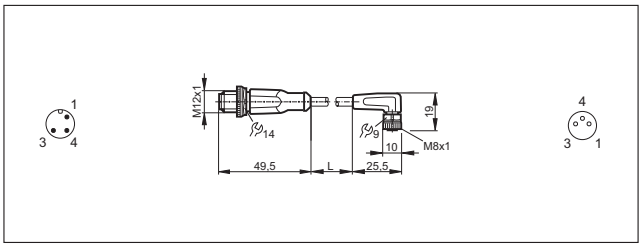

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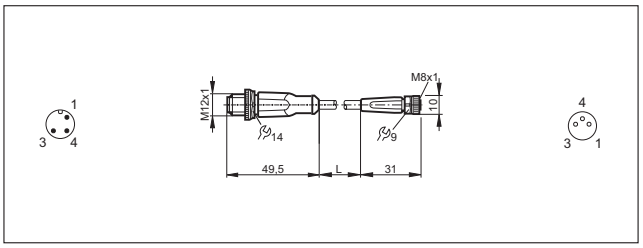

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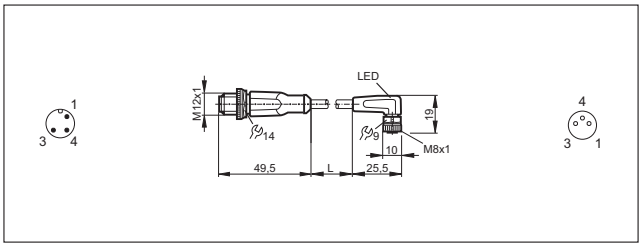

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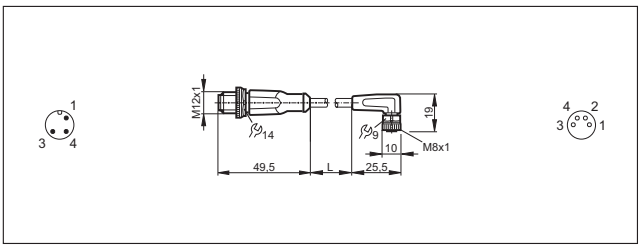

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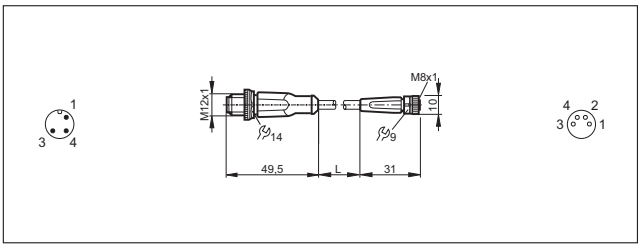

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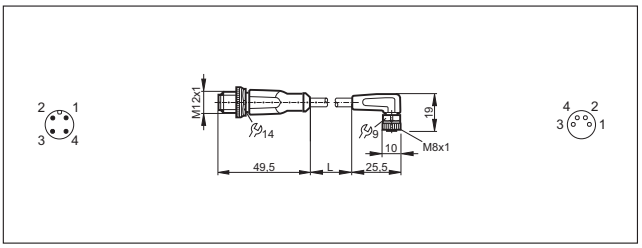

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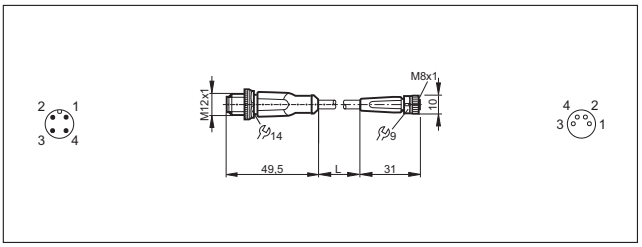

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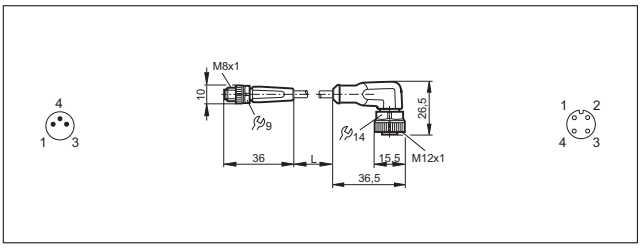

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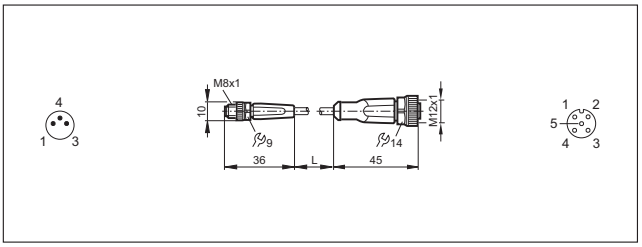

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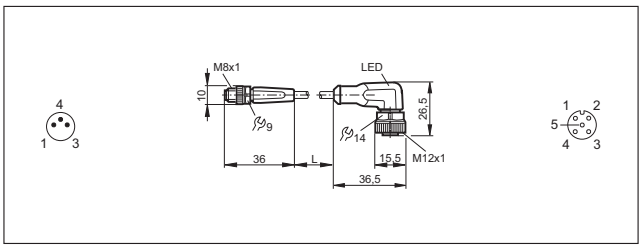

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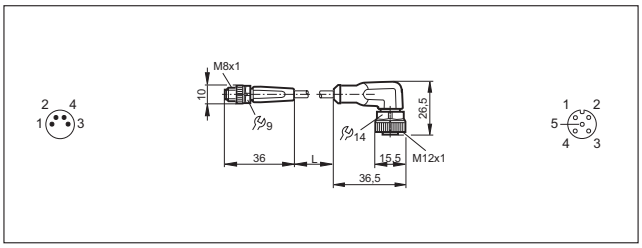

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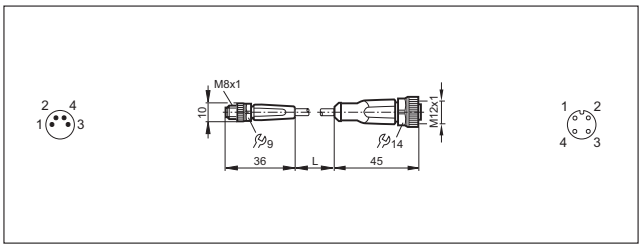

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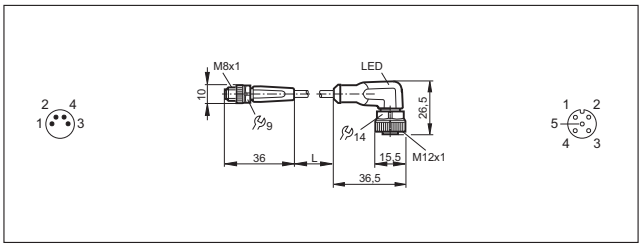

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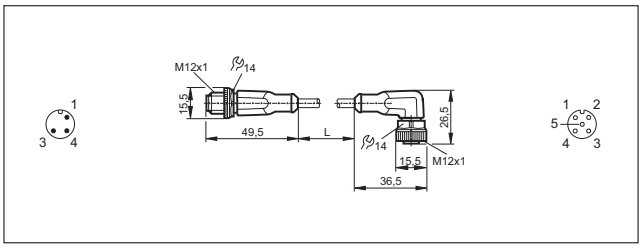

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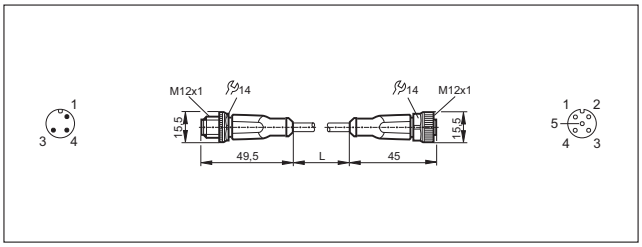

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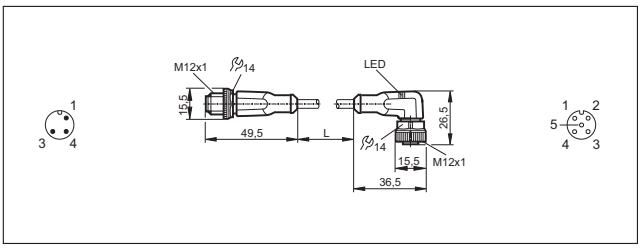

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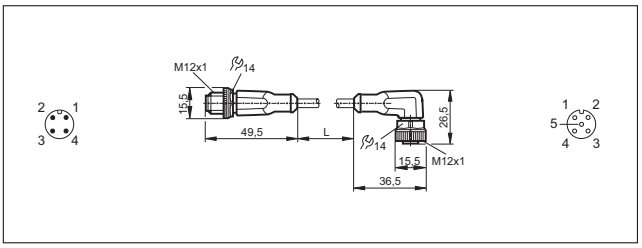

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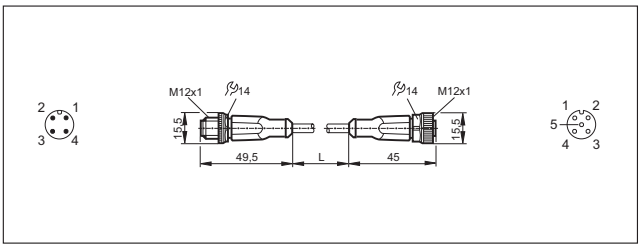

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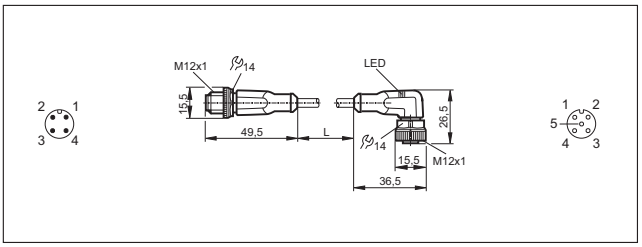

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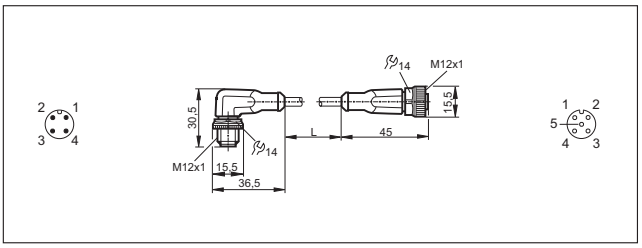

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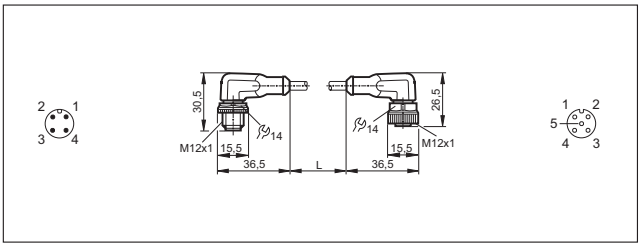

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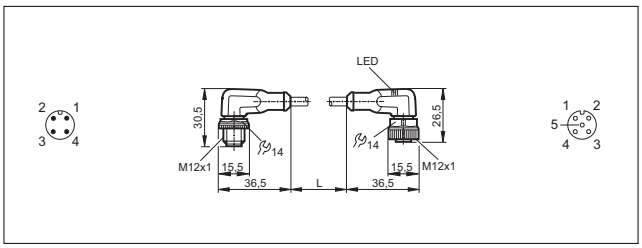

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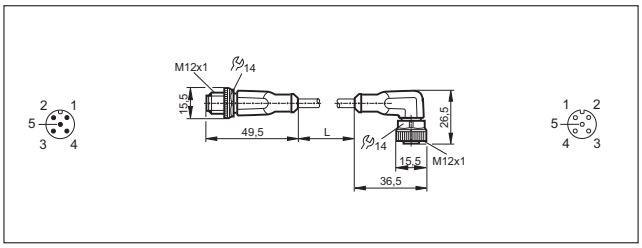

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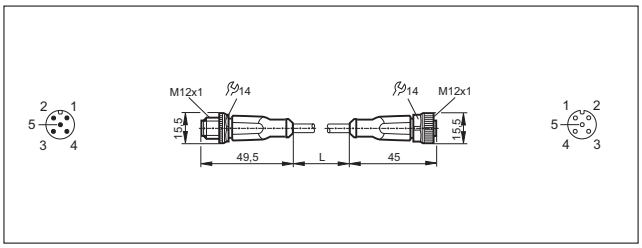

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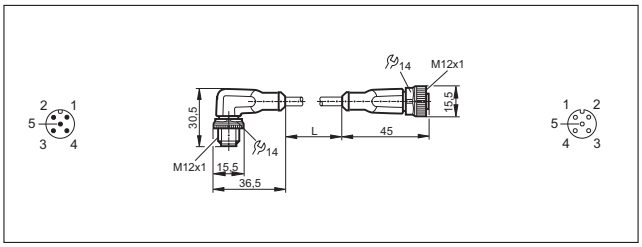

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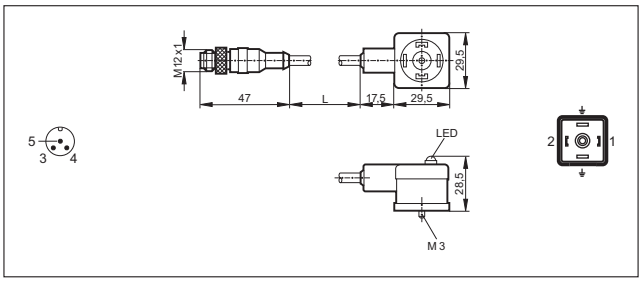

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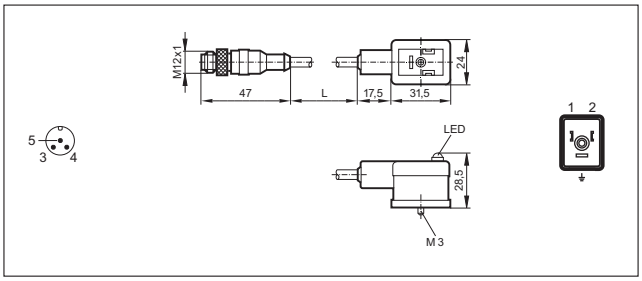

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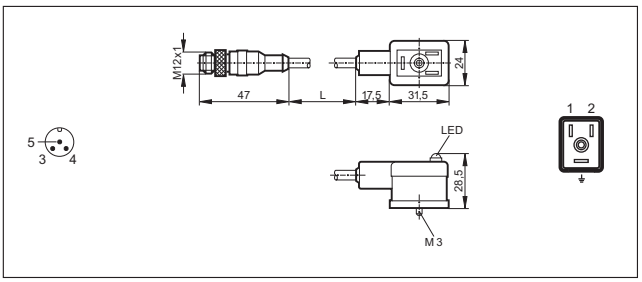

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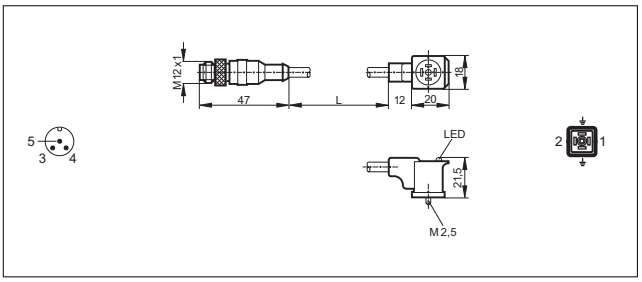

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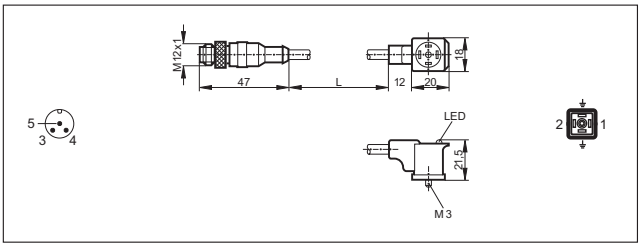

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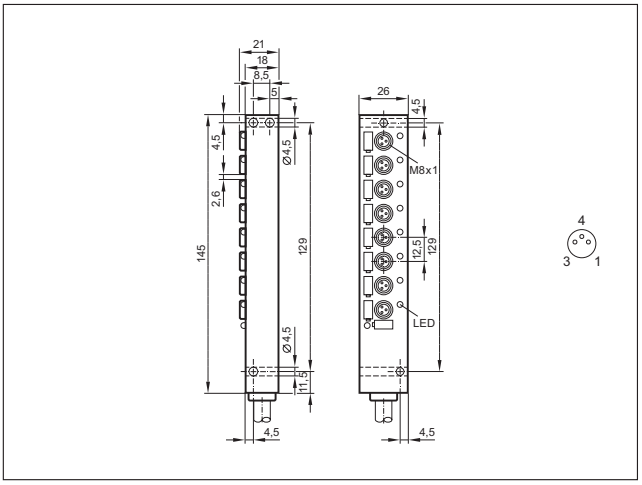

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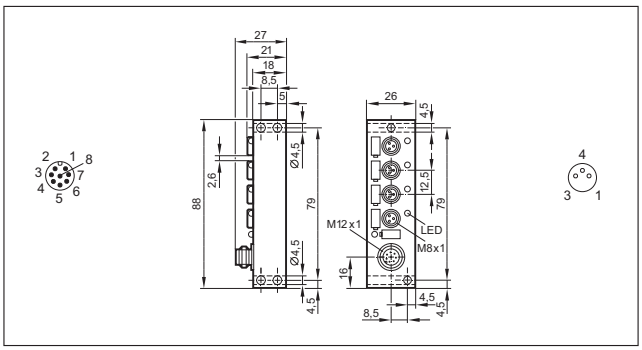

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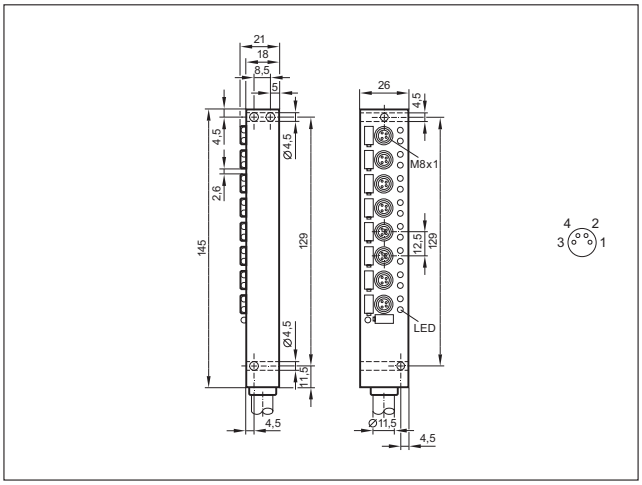

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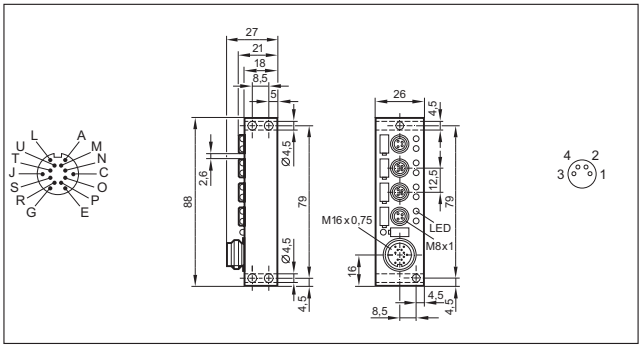

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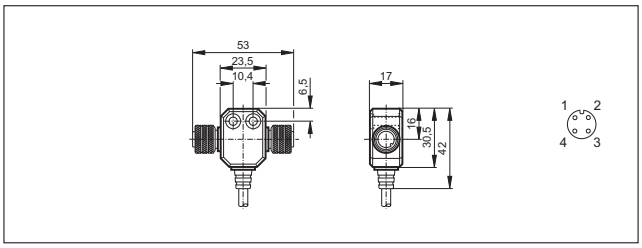

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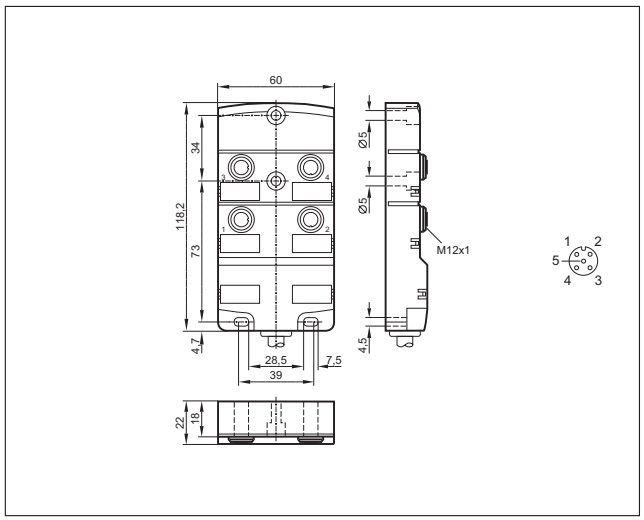

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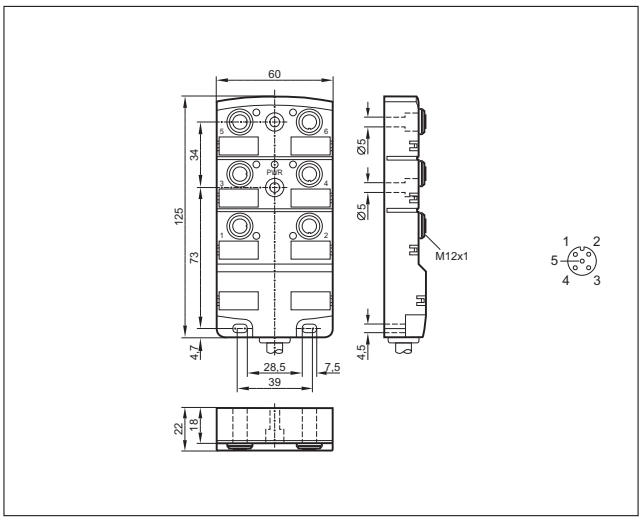

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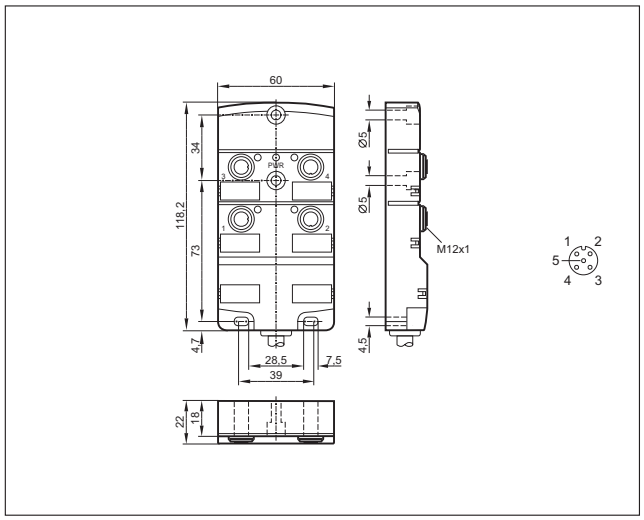

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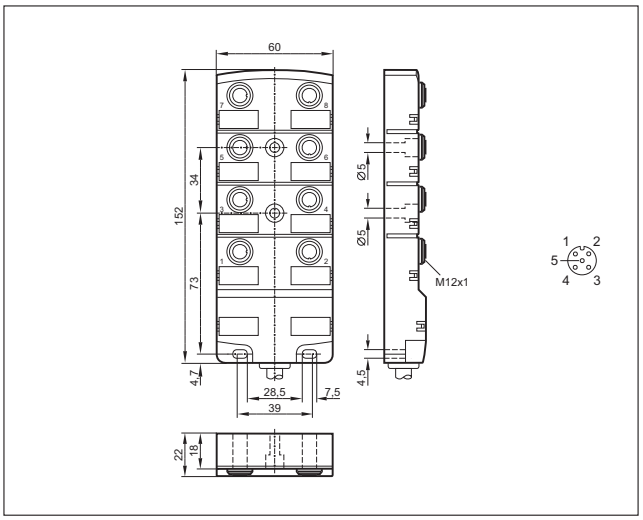

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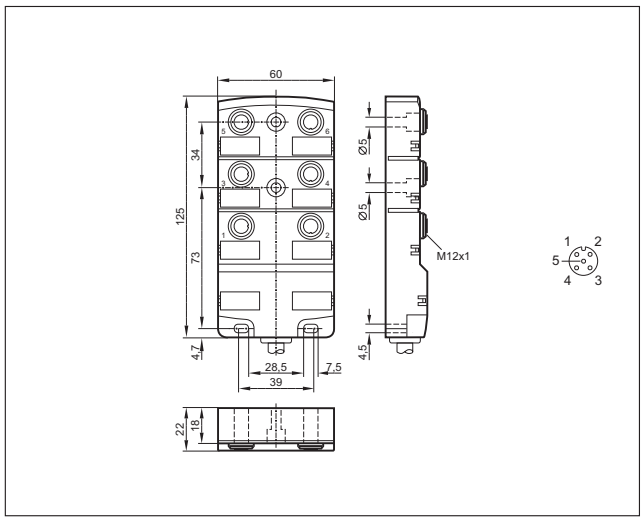

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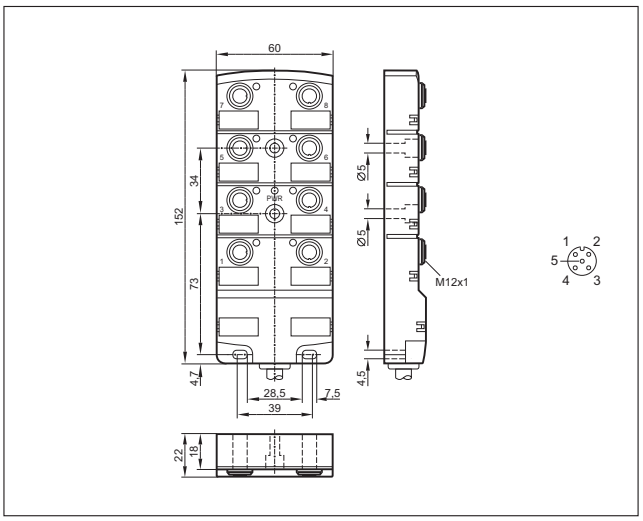

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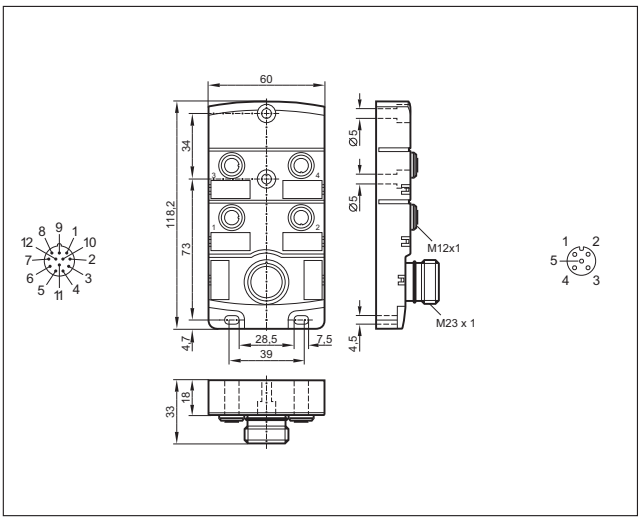

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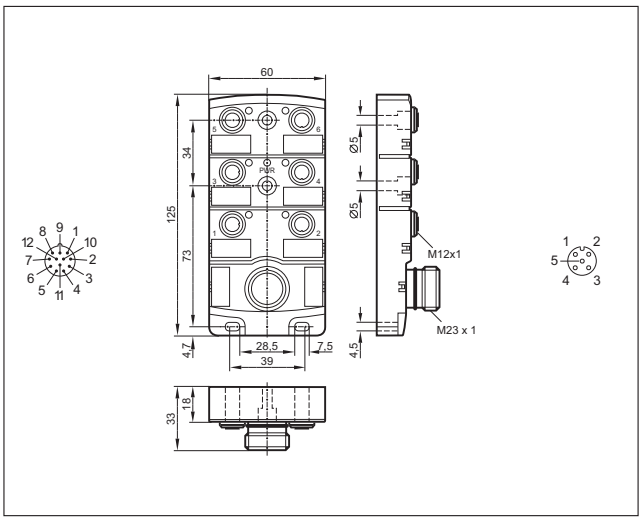

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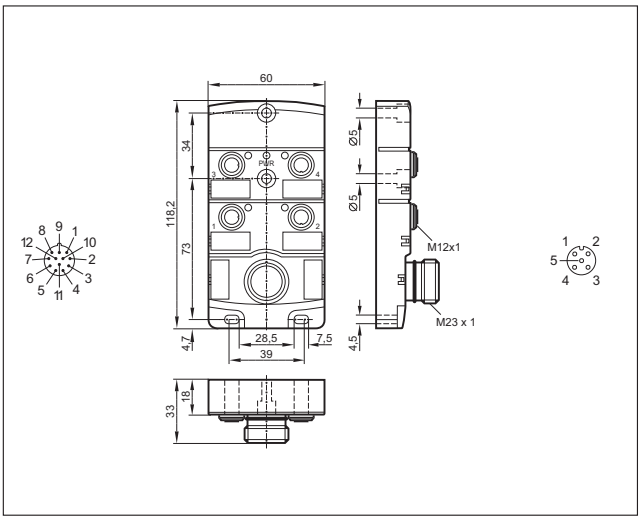

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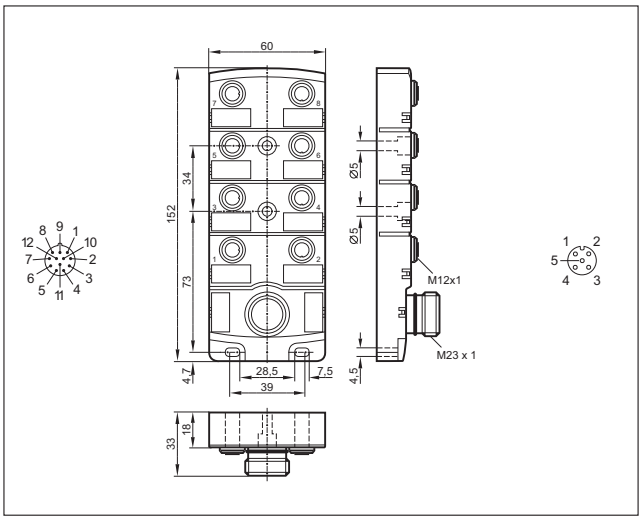

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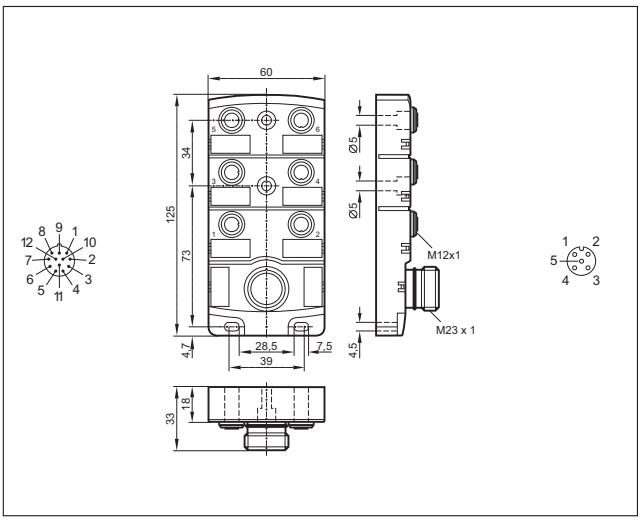

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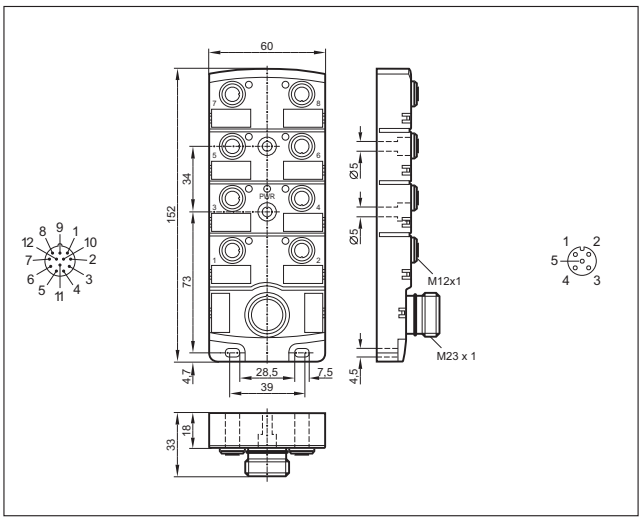

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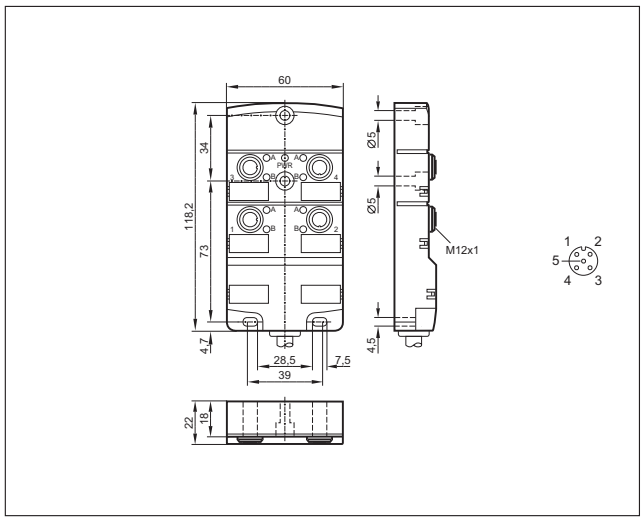

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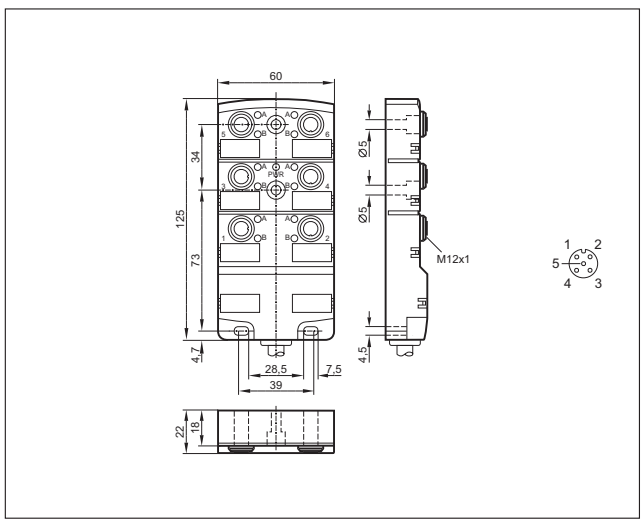

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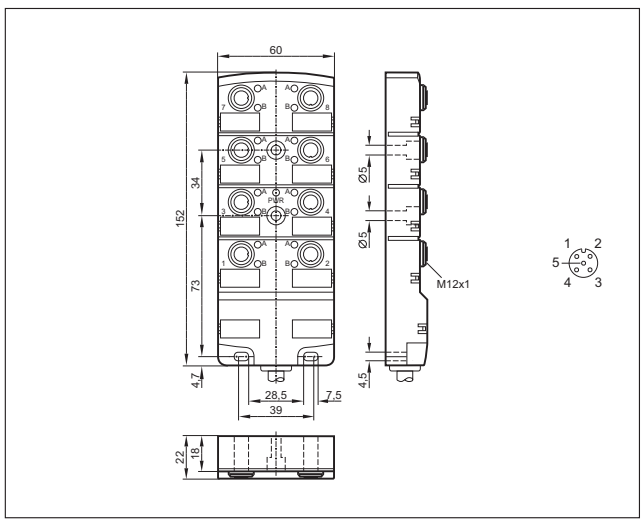

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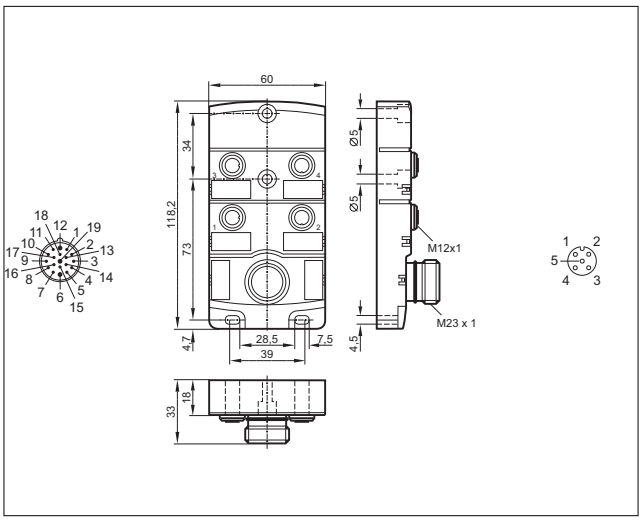

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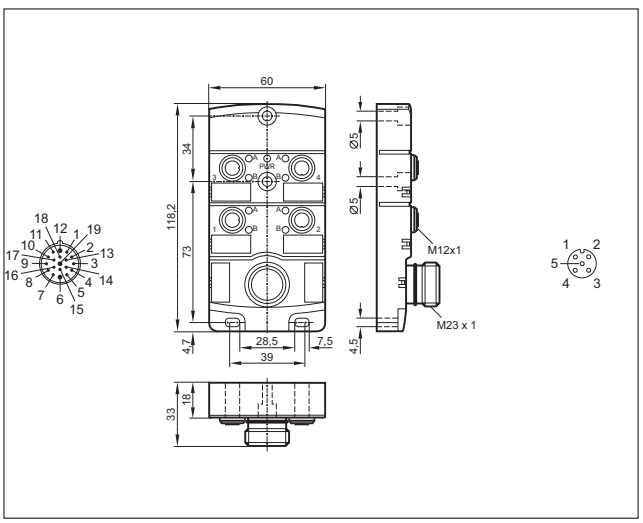

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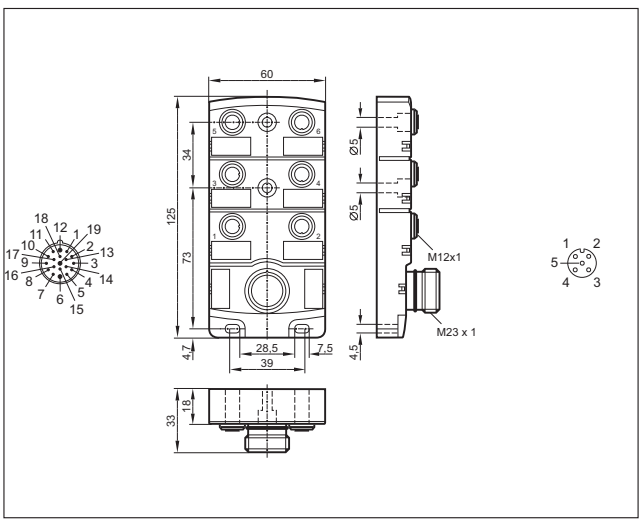

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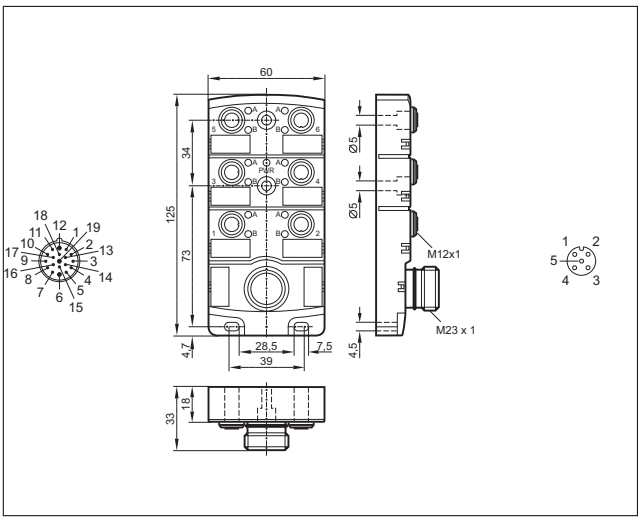

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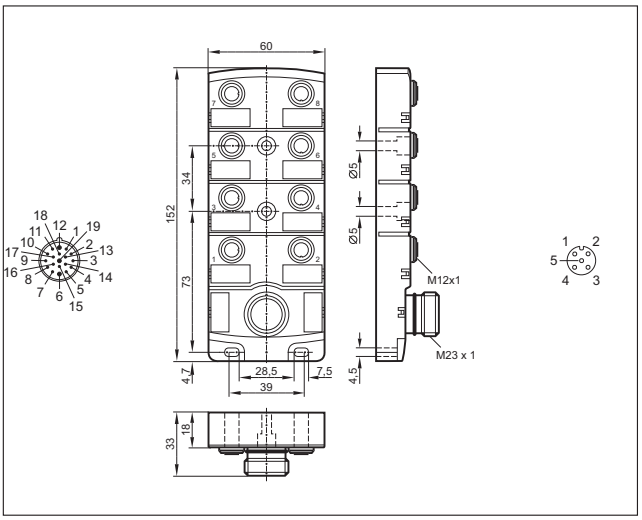

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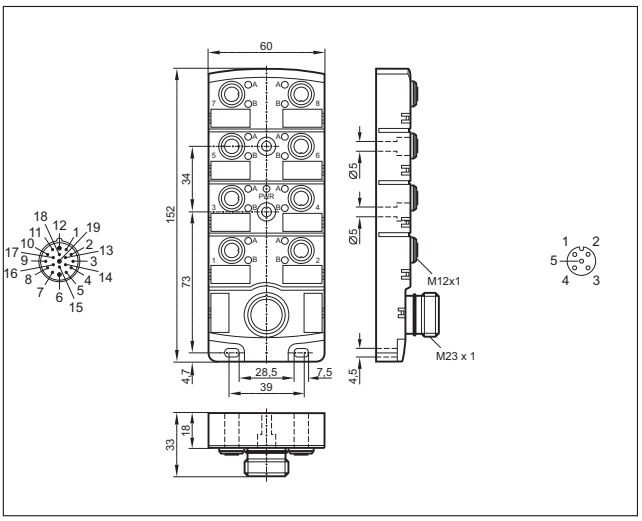

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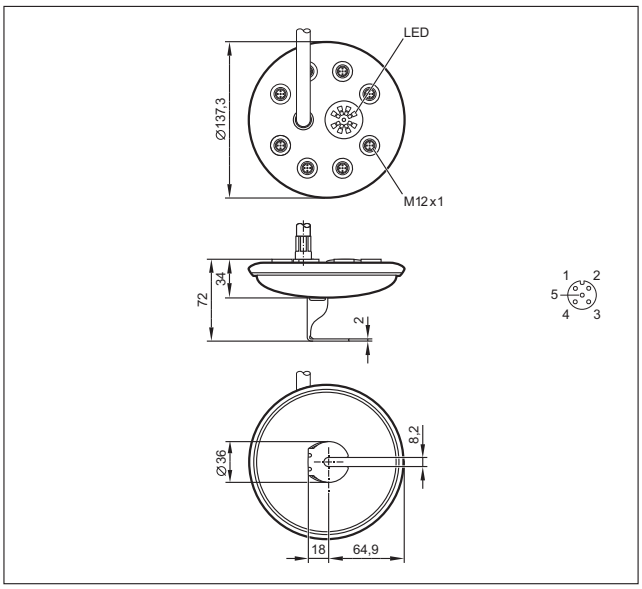

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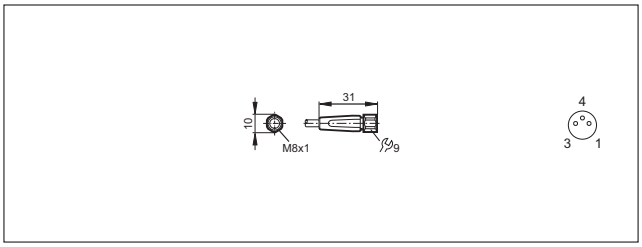

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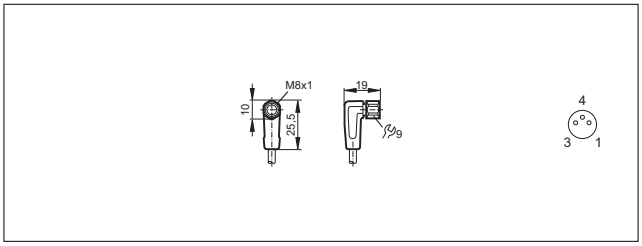

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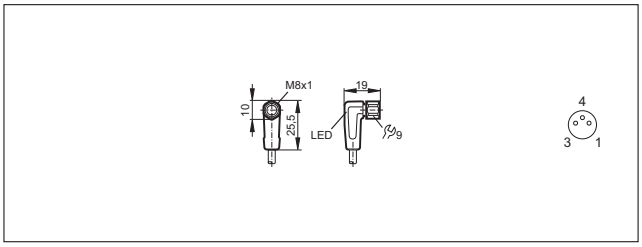

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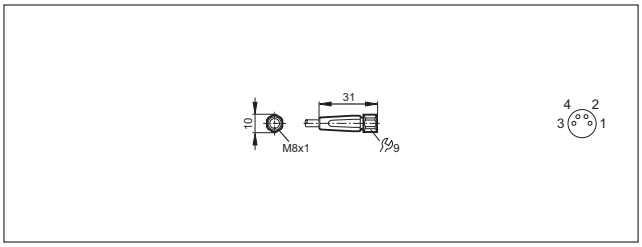

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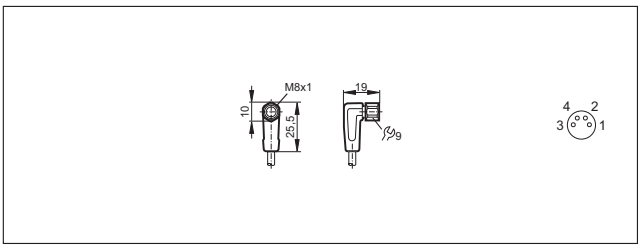

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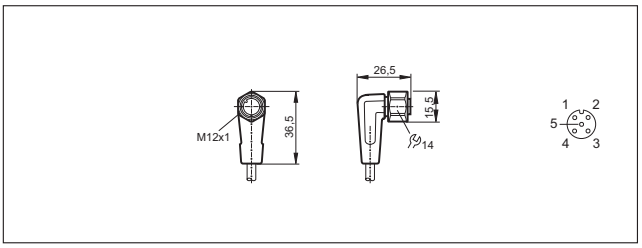

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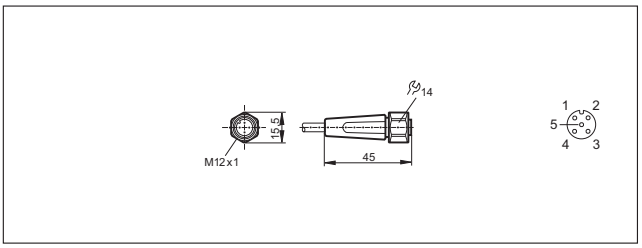

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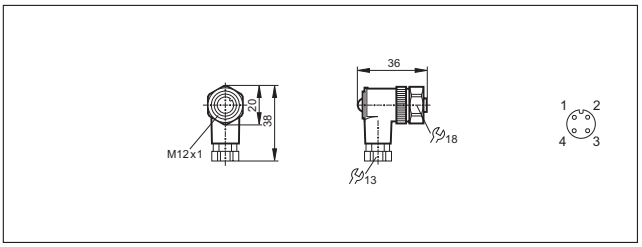

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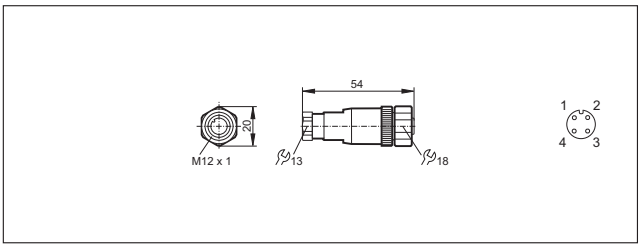

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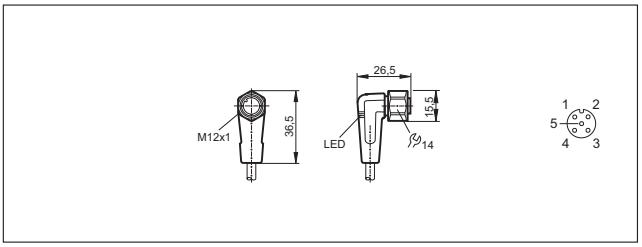

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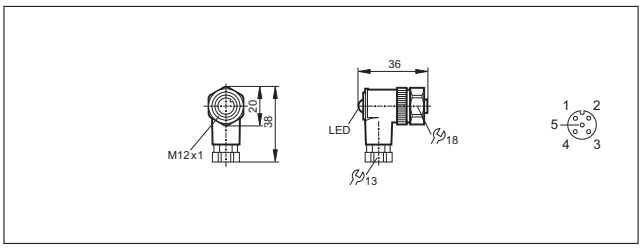

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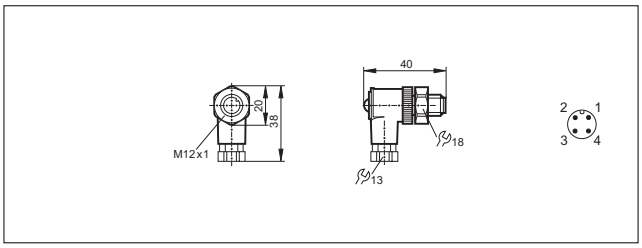

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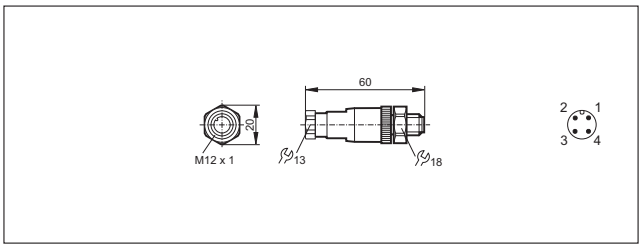

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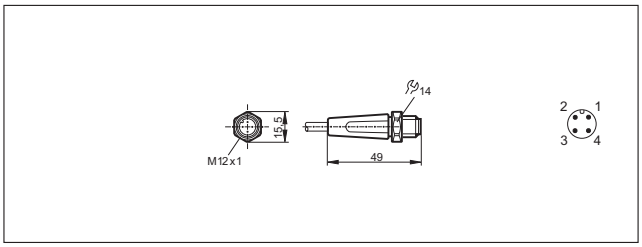

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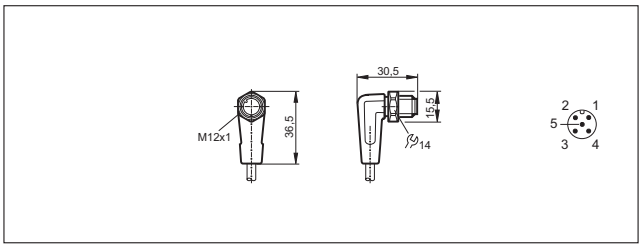

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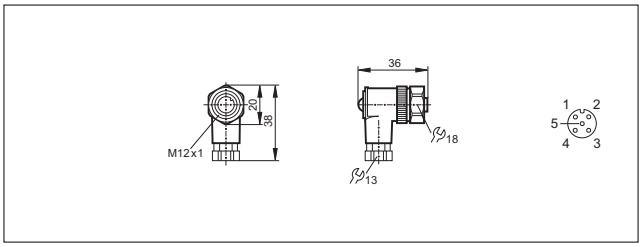

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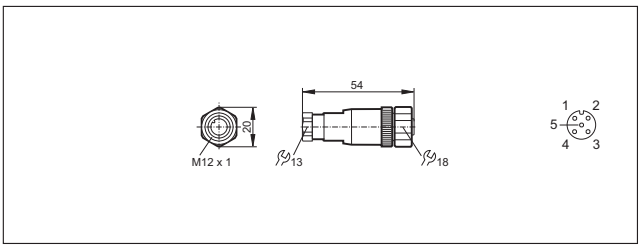

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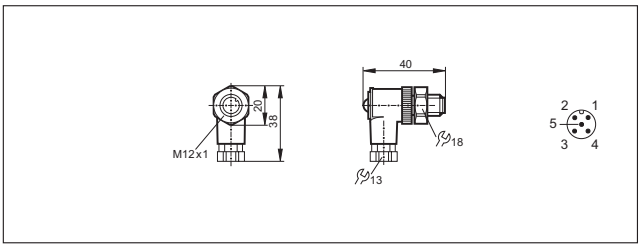

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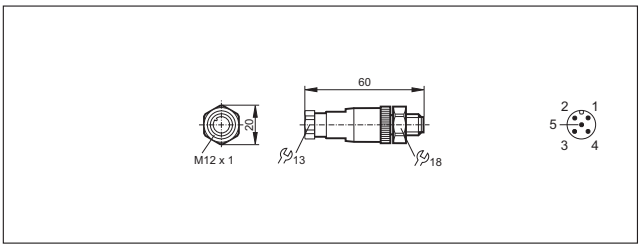

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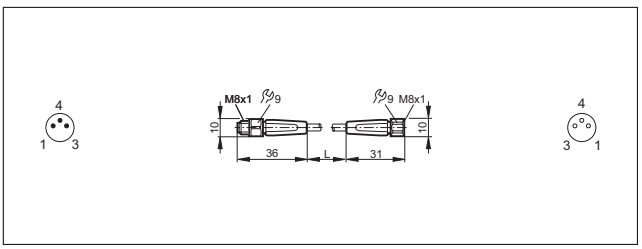

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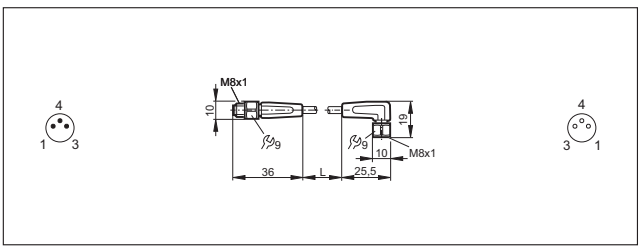

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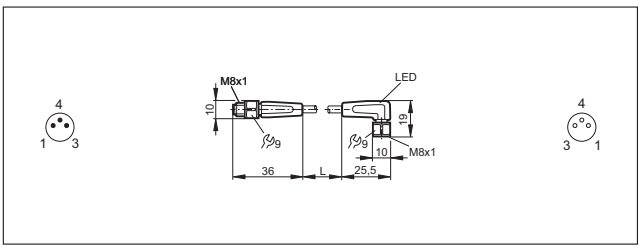

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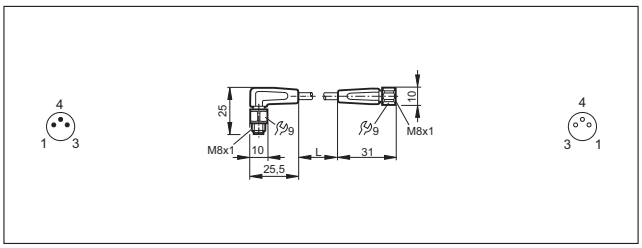

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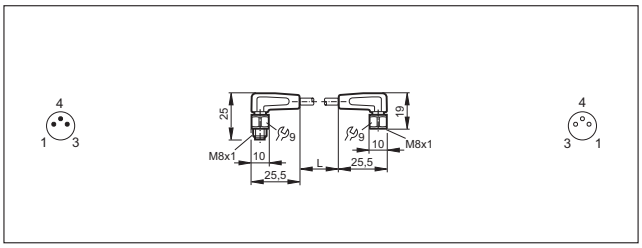

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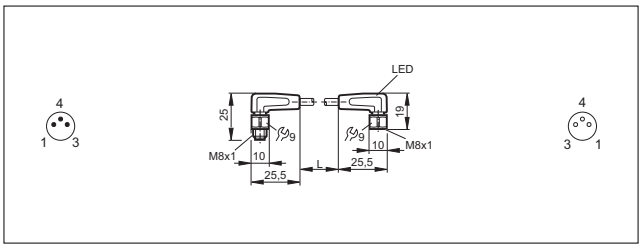

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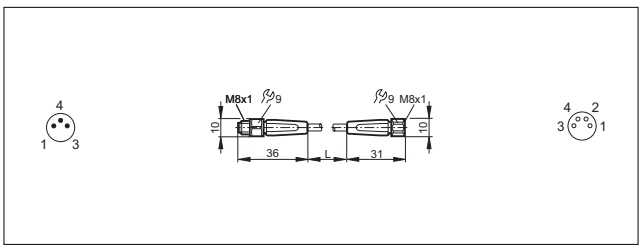

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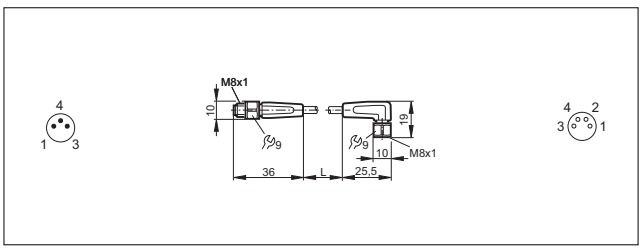

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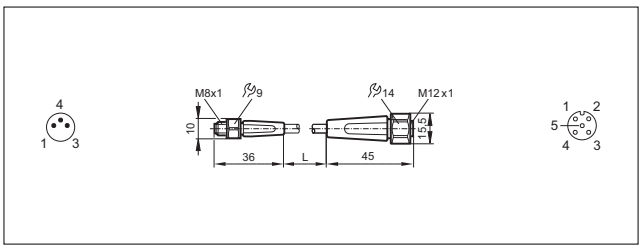

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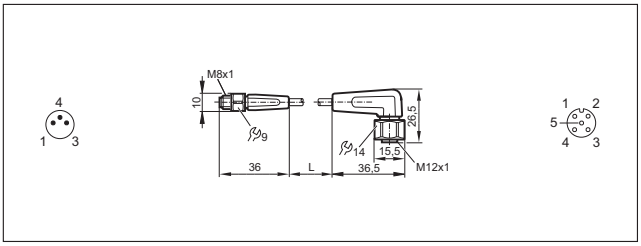

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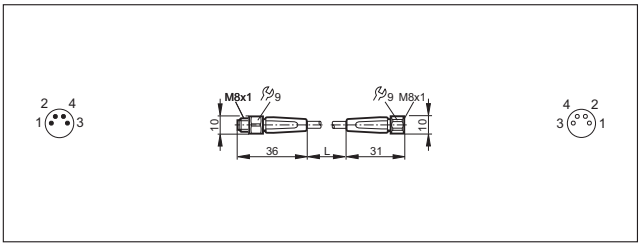

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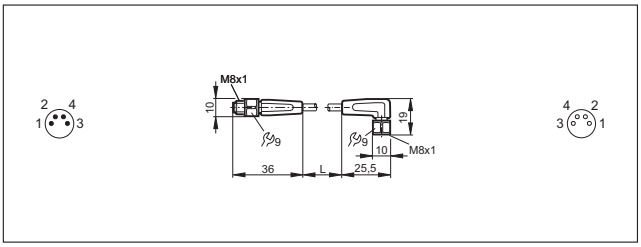

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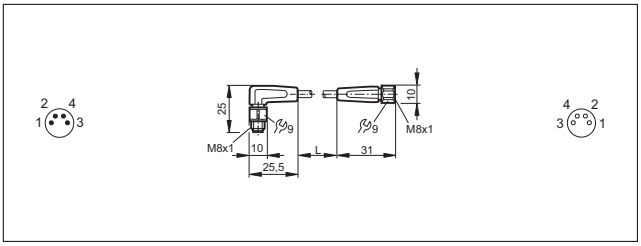

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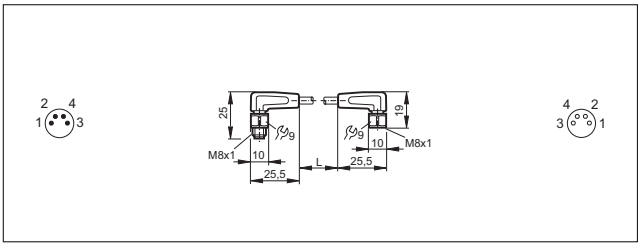

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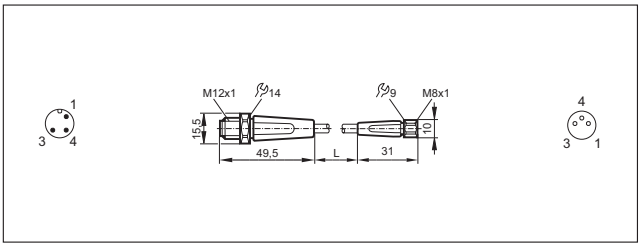

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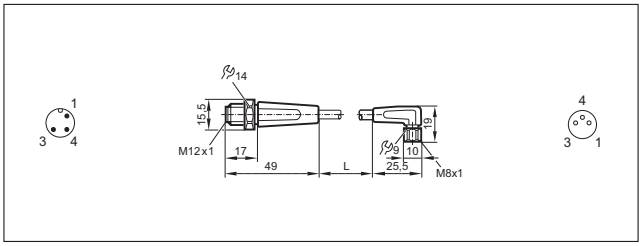

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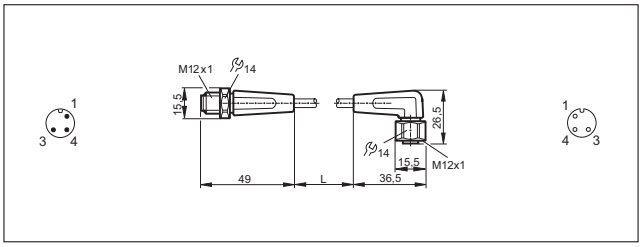

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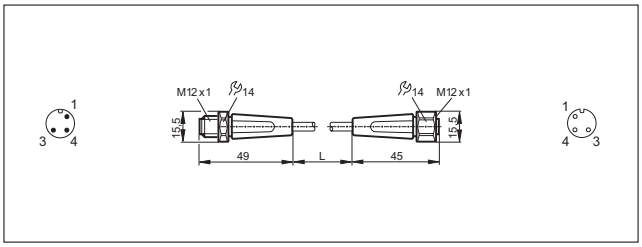

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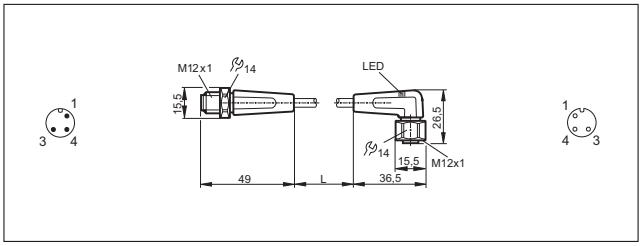

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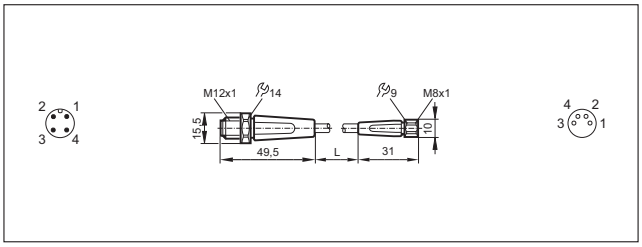

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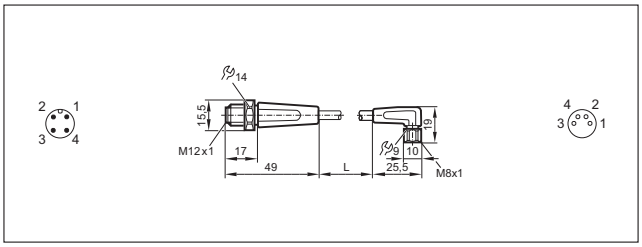

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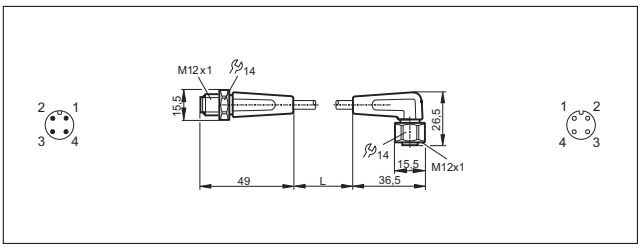

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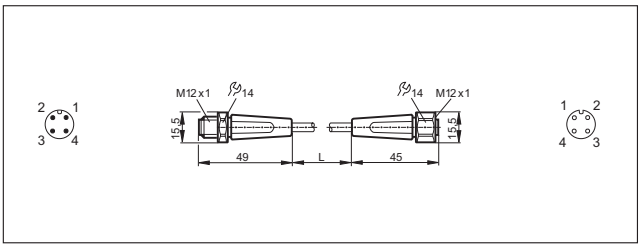

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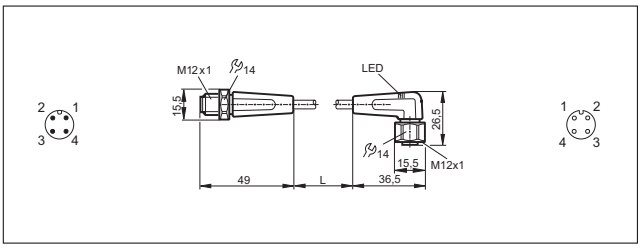

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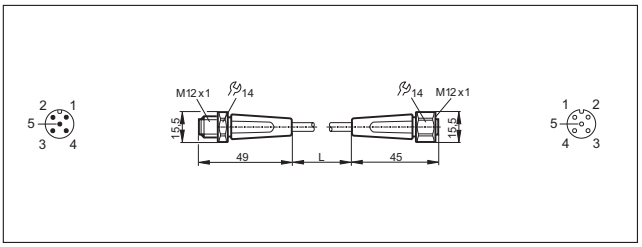

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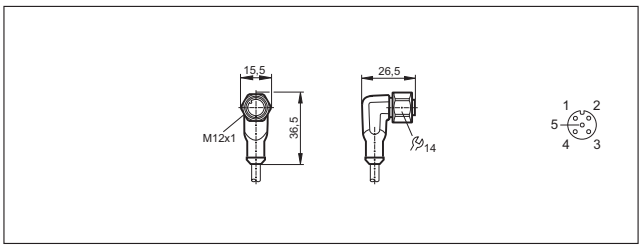

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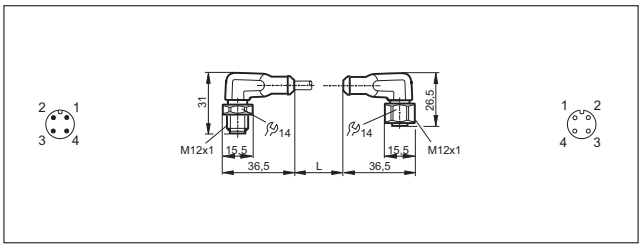

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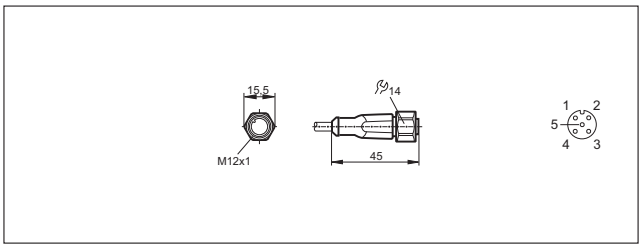

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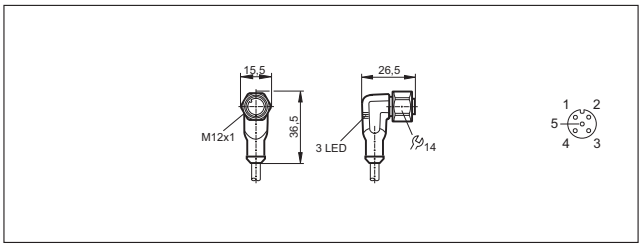

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