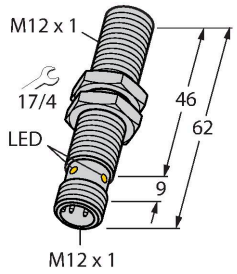
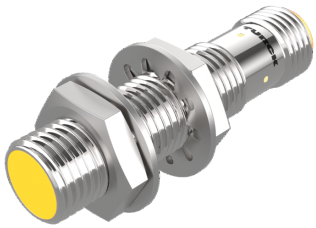
BIM-EM12E-Y1X-H1141/S100
Magnetic Field Sensor – with extended temperature range





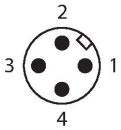
Technical data

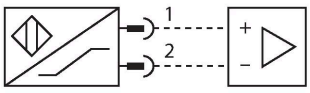
Type	BIM-EM12E-Y1X-H1141/S100
ID	1539932
Special version	S100 Corresponds to:Maximum ambient temperature = 100 °C
General data	
Rated switching distance	90 mm
Repeat accuracy	≤ 0.3 % of full scale
Temperature drift	≤ ±15 %
Hysteresis	1…10 %
Electrical data	
Output function	2-wire, NAMUR
Switching frequency	1 kHz
Voltage	Nom. 8.2 VDC
Current consumption non-actuated	≤ 1.2 mA
Actuated current consumption	≥ 2.1 mA
Approval acc. to	KEMA 02 ATEX 1090X
Internal capacitance (C_i)/inductance (L_i)	150 nF/150 µH
Device marking	EX II 1 G Ex ia IIC T6 Ga/II 1 D Ex ia IIIC T135 °C Da
	(max. U_i = 20 V, I_i = 20 mA, P_i = 200 mW)
Mechanical data	
Design	Threaded barrel, M12 x 1
Dimensions	62 mm
Housing material	Stainless steel, 1.4301 (AISI 304)
Active area material	Plastic, PBT-GF30
Max. tightening torque of housing nut	10 Nm
Electrical connection	Connector, M12 × 1

Features

- Threaded barrel, M12 x 1
- Stainless steel, 1.4301
- For temperatures up to +100°C
- Rated operating distance 90 mm with DMR31-15-5 magnet
- DC 2-wire, nom. 8.2 VDC
- Output acc. to DIN EN 60947-5-6 (NAMUR)
- Male connector M12 x 1
- ATEX category II 1 G, Ex Zone 0 at temperatures up to +80 °C
- ATEX category II 2 G. Ex Zone 1
- ATEX category II 1 D, Ex Zone 20 for temperatures up to +70°C
- SIL 2 (Low Demand Mode) acc. to IEC 61508, PL c acc. to ISO 13849-1 at HFT0
- SIL 3 (All Demand Mode) acc. to IEC 61508, PL e acc. to ISO 13849-1 with redundant configuration HTF1

Wiring diagram





Functional principle

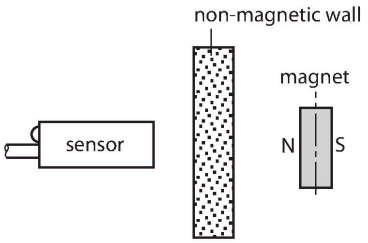
Magnetic field sensors are activated by magnetic fields and are especially suited for piston position detection in pneumatic cylinders. Based on the fact that magnetic

BIM-EM12E-Y1X-H1141/S100| 24-05-2024 12-07 | Technical modifications reserved

Technical data

Environmental conditions	
Ambient temperature	-25…+100 °C
	For explosion hazardous areas see instruction leaflet
Vibration resistance	55 Hz (1 mm)
Shock resistance	30 g (11 ms)
MTTF	2283 years acc. to SN 29500 (Ed. 99) 40 °C
Switching state	LED, Yellow

fields can permeate non-magnetizable metals, it is possible to detect a permanent magnet attached to the piston through the aluminium wall of the cylinder.

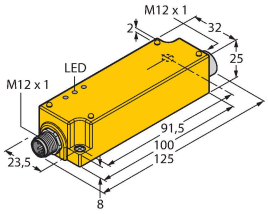


Mounting instructions

Mounting instructions/Description	
Diameter active area B	Ø 12 mm

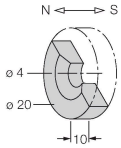
Accessories

IMC-DI-22EX-PNO/24VDC 7560003



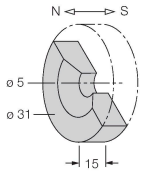
2-channel isolating switching amplifier with M12x1 males, for peripheral use, IP67, zones 2/22, input circuits II(1) Ex ia, PNP transistor output NO

DMR20-10-4 6900214



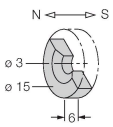
Actuation magnet; Ø 20 mm (Ø 4 mm), h: 10 mm; attainable switching distance 59 mm on BIM-(E)M12 magnetic field sensors or 50 mm on BIM-EG08 magnetic field sensors; for Q25L linear position sensors: recommended distance between the sensor and magnet: 3…4 mm

DMR31-15-5 6900215



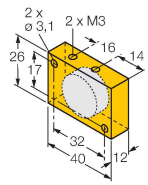
Actuation magnet, Ø 31 mm (Ø 5 mm), h: 15 mm; attainable switching distance 90 mm on BIM-(E)M12 magnetic field sensors or 78 mm on BIM-EG08 magnetic field sensors; for Q25L linear position sensors: recommended distance between the sensor and magnet: 3…5 mm

DMR15-6-3 6900216



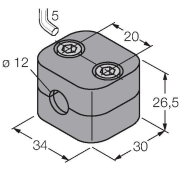
Actuation magnet, Ø 15 mm (Ø 3 mm), h: 6 mm; attainable switching distance 36 mm on BIM-(E)M12 magnetic field sensors or 32 mm on BIM-EG08 magnetic field sensors; for Q25L linear position sensors: recommended distance between the sensor and magnet: 3…4 mm

DM-Q12 6900367



Actuator, rectangular, plastic, attainable switching distance 58 mm on BIM-(E)M12 magnetic field sensors or 49 mm on BIM-EG08 magnetic field sensors; for Q25L linear position sensors: recommended distance between the sensor and magnet: 3…5 mm

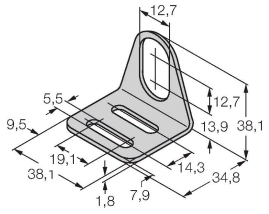
BSS-12 6901321



Mounting clamp for smooth and threaded barrel sensors; material: Polypropylene

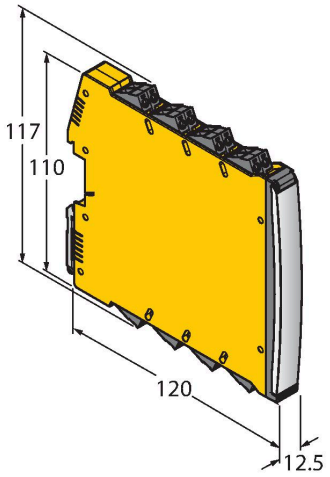
BIM-EM12E-Y1X-H1141/S100| 24-05-2024 12-07 | Technical modifications reserved

MW12	6945003



Mounting bracket for threaded barrel sensors; material: Stainless steel A2 1.4301 (AISI 304)

Accessories

Dimension drawing	Type	ID	
	IMX12-DI01-2S-2T-0/24VDC	7580020	Isolating switching amplifier, 2-channel; SIL2 acc. to IEC 61508; Ex-proof version; 2 transistor outputs; input Namur signal; ON/OFF switchable monitoring of wire-break and short-circuit; toggle between NO/NC mode; signal doubling; removable screw terminals; 12.5 mm wide; 24 VDC power supply

BIM-EM12E-Y1X-H1141/S100| 24-05-2024 12-07 | Technical modifications reserved

Instructions for use

Intended use	This device fulfills Directive 2014/34/EC and is suited for use in explosion-hazardous areas according to EN 60079-0:2018 and EN 60079-11:2012.It is also suitable for use in safety-related systems, including SIL2 (IEC 61508) and PL c (ISO 13849-1) with HFT0 and SIL3 (IEC 61508) and PL e (ISO 13849-1) with redundant configuration HFT1In order to ensure that the device is operated as intended, the national regulations and directives must be observed.
For use in explosion hazardous areas conform to classification	II 1 G and II 1 D (Group II, Category 1 G, electrical equipment for gaseous atmospheres and category 1 D, electrical equipment for dust atmospheres).
Marking (see device or technical data sheet)	Ex II 1 G and Ex ia IIC T6 Ga and Ex II 1 D Ex ia IIIC T135 °C Da acc. to EN 60079-0, -11
Local admissible ambient temperature	ATEX category II 2 G electrical equipment -25…+100 °C, category II 1 G -25…+70 °C and category II 1 D -25…+70 °C. The corresponding temperature classes are provided in the ATEX type-examination certificate.
Installation/Commissioning	These devices may only be installed, connected and operated by trained and qualified staff. Qualified staff must have knowledge of protection classes, directives and regulations concerning electrical equipment designed for use in explosion hazardous areas.Please verify that the classification and the marking on the device comply with the actual application conditions.
	This device is only suited for connection to approved Exi circuits according to EN 60079-0 and EN 60079-11. Please observe the maximum admissible electrical values.After connection to other circuits the sensor may no longer be used in Exi installations. When interconnected to (associated) electrical equipment, it is required to perform the "Proof of intrinsic safety" (EN60079-14).Attention! When used in safety systems, all content of the security manual must be observed.
Installation and mounting instructions	Avoid static charging of cables and plastic devices. Please only clean the device with a damp cloth. Do not install the device in a dust flow and avoid build-up of dust deposits on the device.If the devices and the cable could be subject to mechanical damage, they must be protected accordingly. They must also be shielded against strong electro-magnetic fields.The pin configuration and the electrical specifications can be taken from the device marking or the technical data sheet.In order to avoid contamination of the device, please remove possible blanking plugs of the cable glands or connectors only shortly before inserting the cable or opening the cable socket.
Service/Maintenance	Repairs are not possible. The approval expires if the device is repaired or modified by a person other than the manufacturer. The most important data from the approval are listed.

BIM-EM12E-Y1X-H1141/S100| 24-05-2024 12-07 | Technical modifications reserved