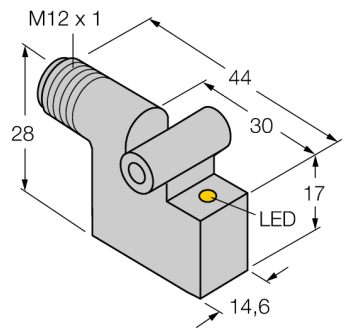
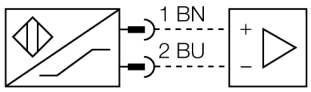
Magnetic field sensor for pneumatic cylinders BIM-IKT-Y1X-H1141

Industrial Automation



- **ATEX category II 2 G, Ex zone 1**
- **ATEX category II 1 D, Ex zone 20**
- **SIL2 as per IEC 61508**
- **Rectangular, height 28 mm**
- **Metal, GD-Zn**
- **Magnetic-inductive sensor**
- **DC 2-wire, nom. 8.2 VDC**
- **Output acc. to DIN EN 60947-5-6 (NAMUR)**
- **Male connector M12 x 1**

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 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.

Type code	BIM-IKT-Y1X-H1141
Ident no.	10562
Pass speed	≤ 10 m/s
Repeatability	≥ ± 0.1 mm
Temperature drift	≤ 0.1 mm
Hysteresis	≤ 1 mm
Ambient temperature	-25…+70 °C
Output function	2-wire, NAMUR
Switching frequency	1 kHz
Voltage	Nom. 8.2 VDC
Non-actuated current consumption	≤ 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 designation	Ⓔx II 2 G Ex ia IIC T6 Gb / II 1 D Ex ia IIIC T115 °C Da (max. U_i = 20 V, I_i = 20 mA, P_i = 200 mW)
Design	rectangular, IKT
Dimensions	30 x 14.6 x 28 mm
Housing material	metal, GD-Zn
Material active area	Plastic, PA
Connection	male, M12 x 1
Vibration resistance	55 Hz (1 mm)
Shock resistance	30 g (11 ms)
Protection class	IP67
MTTF	6198 years acc. to SN 29500 (Ed. 99) 40 °C
Mounting on the following profiles	.
Cylindrical design	○ □ ⬡
Switching state	LED yellow

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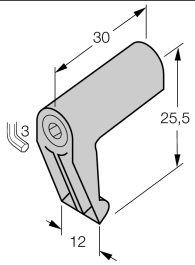
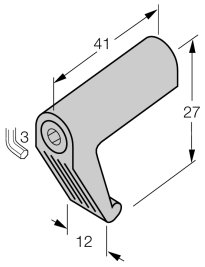
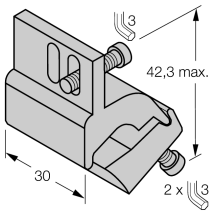
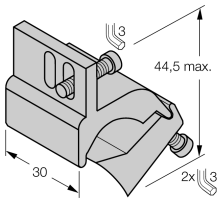
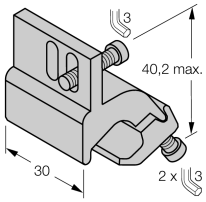
Accessories

Type code	Ident no.	Description	Dimension drawing
KLI 1 KLEMMSTÜCK	69710	Mounting on ◯ tie-rod cylinders; cylinder diameter 32…100 mm; material: Die-cast zinc	
KLI 3 KLEMMSTÜCK	69712	Mounting on ◯ tie-rod cylinders; cylinder diameter 63…160 mm; material: Die-cast zinc	
KLI 5Z KLEMMSTÜCK	6971803	Mounting on ◯ tie-rod cylinders; cylinder diameter 32…63 mm; material: Aluminum	
KLI 6Z KLEMMSTÜCK	6971806	Mounting on ◯ tie-rod cylinders; cylinder diameter 50…125 mm; material: Aluminum	
KLI 5 KLEMMSTÜCK	6971802	Mounting on ⬚ profile cylinder; cylinder diameter 32…50 mm; material: Aluminium	

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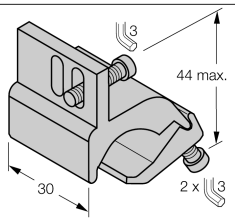
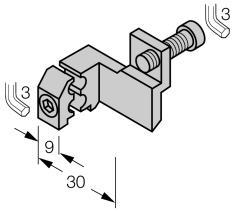
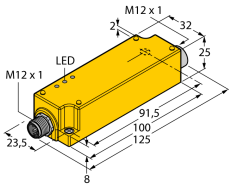
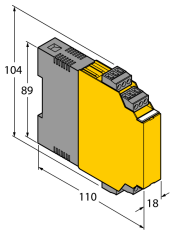
Accessories

Type code	Ident no.	Description	Dimension drawing
KLI 6 KLEMMSTÜCK	6971805	Mounting on profile cylinder; cylinder diameter 50…100 mm; material: Aluminium	
KLI 7 KLEMMSTÜCK	6971810	Mounting on profile cylinder with external dovetail grooves; diameter 32…200 mm; material: Aluminium	
IMC-Di-22Ex-PNO/24VDC	7560003	Zweikanaliger Trennschaltverstärker mit M12-Steckverbinder, dezentral einsetzbar, IP67, Zone 2/22 installierbar, Eingangskreise II(1) Ex ia, PNP-Transistorausgang NO	
IM1-22EX-R	7541231	Isolating switching amplifier, dual-channel; 2 relay outputs NO; input NAMUR signal; selectable ON/OFF mode for wire-break and short-circuit monitoring; adjustable signal flow (NO/ NC mode); removable terminal blocks; 18 mm width; universal voltage supply unit	

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Operating manual

Intended use

This device fulfills the directive 94/9/EC and is suited for use in explosion hazardous areas according to EN60079-0:2012, -11:2012, -26:2007.
Further it is suited for use in safety-related systems, including SIL2 as per IEC 61508.
In order to ensure correct operation to the intended purpose it is required to observe the national regulations and directives.

For use in explosion hazardous areas conform to classification

II 2 G and II 1 D (Group II, Category 2 G, electrical equipment for gaseous atmospheres and category 1 D, electrical equipment for dust atmospheres).

Marking (see device or technical data sheet)

Ⓔx II 2 G and Ex ia IIC T6 Gb acc. to EN60079-0 and -26 und Ⓔx II 1 D Ex ia IIIC T115°C Da acc. to EN60079-0

Local admissible ambient temperature

-25…+70 °C

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 compliant to EN60079-0 and -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).
When employed in safety systems to IEC 51408 it is required to assess the failure probability (PFD) of the complete circuitry.

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.

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