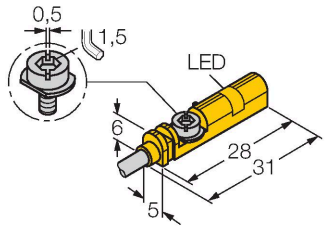
BIM-UNT-AY1X/S1139
Magnetic Field Sensor – For Pneumatic Cylinders



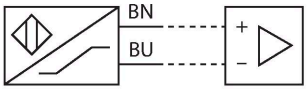
Technical data

Type	BIM-UNT-AY1X/S1139
ID	4685763
Special version	S1139 Corresponds to:Long overtravel
General data	
Pass speed	≤ 10 m/s
Repeatability	≤ ± 0.1 mm
Temperature drift	≤ 0.1 mm
Hysteresis	≤ 1 mm
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	KIWA 16 ATEX 0051 X
Internal capacitance (C_i)/inductance (L_i)	180 nF/350 µH
Device marking	EX II 1 G Ex ia IIC T6 Ga/II 1 D Ex ia IIIC T95 °C Da
	(max. U_i = 20 V, I_i = 60 mA, P_i = 80 mW)
Mechanical data	
Design	Rectangular, UNT
Dimensions	28 x 5 x 6 mm
Housing material	Plastic, PP
Active area material	Plastic, PP
Tightening torque fixing screw	0.4 Nm
Electrical connection	Cable
Cable quality	Ø 3 mm, Blue, Lif9YYW, PVC, 2 m

Features

- For T-groove cylinders without mounting accessories
- Optional accessories for mounting on other cylinder designs
- One-hand mounting possible
- Stable mounting
- Magneto-resistive sensor
- Long overtravel
- For large cylinders
- DC 2-wire, nom. 8.2 VDC
- Output acc. to EN 60947-5-6 (NAMUR)
- Output with binary signal
- Normally open contact NO
- Cable connection
- ATEX category II 1 G, Ex Zone 0
- ATEX category II 1 D, Ex Zone 20

Wiring diagram



Functional principle

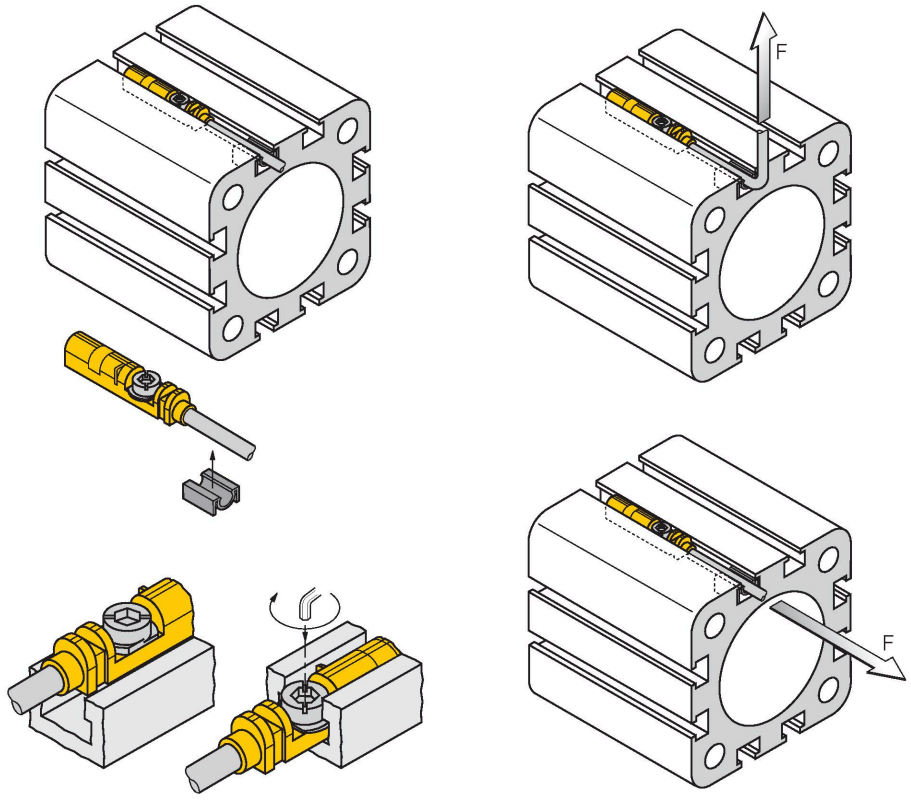
Magnetic field sensors are activated by magnetic fields and are especially suited for piston position detection in pneumatic cylinders. Based on the fact that magnetic fields can permeate non-magnetizable metals, it is possible to detect a permanent magnet attached to the piston through the aluminium wall of the cylinder.

Technical data

Core cross-section	2 x 0.14 mm²
Environmental conditions	
Ambient temperature	-25…+70 °C
Vibration resistance	55 Hz (1 mm)
Shock resistance	30 g (11 ms)
Protection class	IP68
MTTF	2283 years acc. to SN 29500 (Ed. 99) 40 °C
Mounting on the following profiles	
Cylindrical design	
Switching state	LED, Yellow
Included in delivery	cable clip

Mounting instructions

Mounting instructions/Description

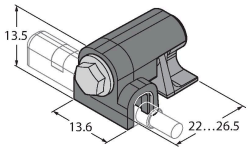


Thanks to the mounting lip, the sensor can be inserted into the groove from above with one hand. Mount the sensors as follows using the patented wing screw: The wing screw and the female thread feature a left-hand thread. Two small plastic lips keep the screw in position, ready-to-install. Turn the screw clockwise. The screw moves out of the thread and hits the upper grooves with the wings. The sensor is thus pressed down and locked in position. A few degrees up to approximately 1.5 turns of the screw with a slotted screwdriver (blade width 0.5 mm) or a 1.5 mm Allen key are sufficient to ensure vibration-proof fastening, depending on the shape of the slot. A tightening torque of 0.4 Nm is sufficient for safe mounting without damaging the cylinder. The sensor can now withstand an axial and radial tensile load of F=100N applied on the cable. A cable clip is included in the scope of delivery. It enables smooth cable routing in the groove and ensures that the cable is fastened as securely as possible. The corresponding accessories for mounting on other cylindrical housings must be ordered separately.

BIM-UNT-AY1X/S1139| 21-02-2025 15-20 | Technical modifications reserved

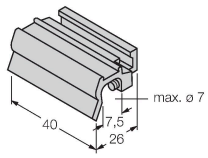
Accessories

KLZCD2-UNT	6970418



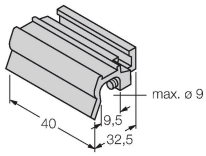
Mounting bracket for mounting magnetic field sensors for T-grooves on a CleanDesign cylinder with mounting rail

KLZ1-INT	6970410



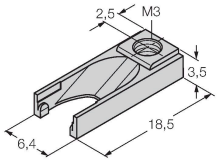
Accessories for mounting the sensors BIM-INT and BIM-UNT on tie-rod cylinders; cylinder diameter: 32… 40 mm; material: Aluminum; further mounting accessories for other cylinder diameters on request

KLZ2-INT	6970411



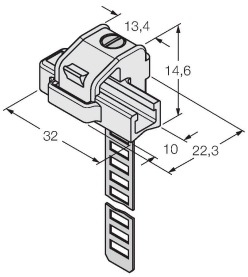
Accessories for mounting the sensors BIM-INT and BIM-UNT on tie-rod cylinders; Cylinder diameter: 50… 63 mm; material: Aluminium; Further mounting accessories for other cylinder diameters on request

UNT-STOPPER	4685751



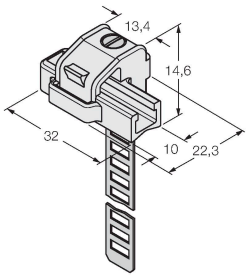
Accessories for finetuning the switchpoint on T-groove cylinders; snap-locked in the BIM-UNT fixture; suited for multiple use; material: plastic

KLRC-UNT1	6970626



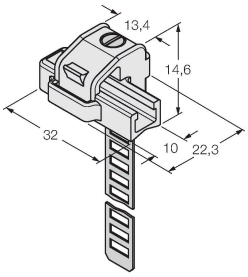
Mounting bracket for mounting magnetic field sensors on round cylinders; cylinder diameter: 8…25 mm; material: PA 6I/6T / nickel silver; fire-hazard classification acc. to UL94 - V2

KLRC-UNT2	6970627



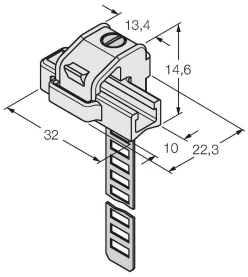
Mounting bracket for mounting magnetic field sensors on round cylinders; cylinder diameter: 25…63 mm; material: PA 6I/6T / nickel silver; fire-hazard classification acc. to UL94 - V2

KLRC-UNT3	6970628



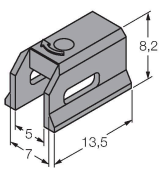
Mounting bracket for mounting magnetic field sensors on round cylinders; cylinder diameter: 63…130 mm; material: PA 6I/6T / nickel silver; fire-hazard classification acc. to UL94 - V2

KLRC-UNT4	6970629



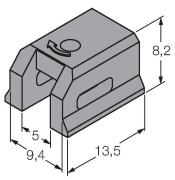
Mounting bracket for mounting magnetic field sensors on round cylinders; cylinder diameter: 130… 250 mm; material: PA 6I/6T / nickel silver; fire-hazard classification acc. to UL94 - V2

KLDT-UNT2	6913351



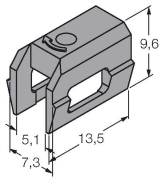
Mounting bracket for mounting magnetic field sensors on dovetail groove cylinders; groove width: 7 mm; material: PPS

KLDT-UNT3	6913352



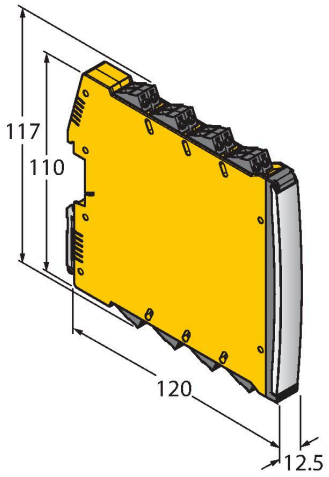
Mounting bracket for mounting magnetic field sensors on dovetail groove cylinders; groove width: 9.4 mm; material: PPS

KLDT-UNT6	6913355



Mounting bracket for mounting magnetic field sensors on dovetail groove cylinders; groove width: 7.35 mm; material: PPS

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

Instructions for use

Intended use	This device fulfills the directive 2014/34/EC and is suited for use in potentially explosive areas according to EN60079-0:2012, +A11:2013, -11:2012.In 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)	Ⓔx II 1 G and Ex ia IIC T6 Ga and Ⓔx II 1 D Ex ia IIIC T95 °C Da acc. to EN60079-0, +A11 and -11
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 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).
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.