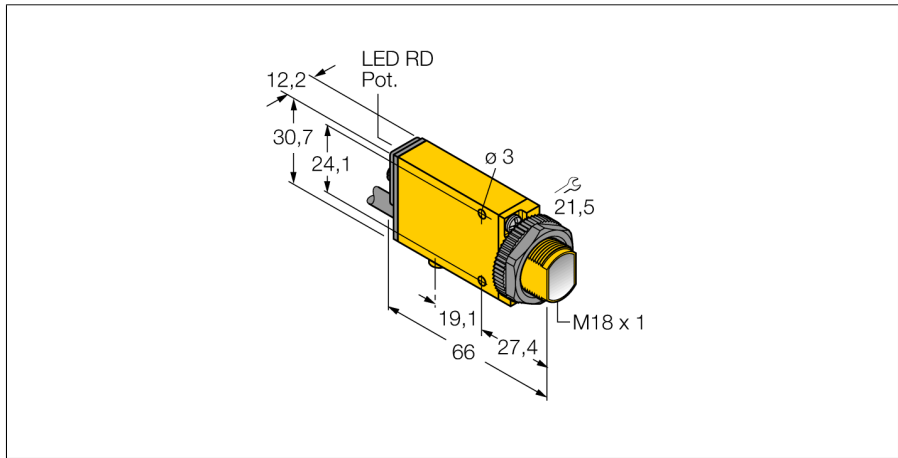
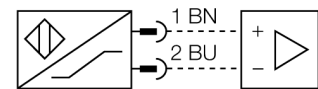


**Photoelectric sensor  
opposed mode sensor (emitter)  
MI9E**



- ATEX II 1 G approval
- Acc. to EN 60947-5-6 (NAMUR)
- Cable, PVC, 2 m
- Protection class IP67
- Protection class IP67
- Operating voltage 5...15 VDC
- Operating voltage: 5...15 VDC (NAMUR)

**Wiring diagram**



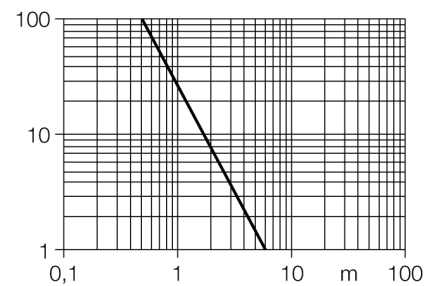
<b>Type code</b>	MI9E
Ident no.	3040141
<b>Operating mode</b>	opposed mode sensor (emitter)
Light type	IR
Wavelength	880 nm
Range	0...6000 mm
Ambient temperature	-40...+70 °C
<b>Voltage</b>	Nom. 8.2 VDC
No-load current I <sub>0</sub>	≤ 2.1 mA
Output function	(emitter), NAMUR
<b>Device designation</b>	Ex II 1 G Ex ia IIC T5
<b>Design</b>	rectangular, Mini Beam
Dimensions	66 x 12.3 x 30.7 mm
Housing material	plastic, PBT, yellow
Lens	plastic, acrylic
Connection	cable
Cable length	2 m
Cable cross section	2 x 0.5 mm <sup>2</sup>
Protection class	IP67
MTTF	853 years acc. to SN 29500 (Ed. 99) 40 °C
Protection type	Ex ia IIC T5 Ga
Ex approval acc. to conformity certificate	FM12ATEX0094X

**Functional principle**

Opposed mode sensors consist of an emitter and receiver. They are installed opposite each other so that the light from the emitter is aimed directly at the receiver. When an object interrupts or weakens the light beam, the sensor switches. Opposed mode sensors are the most reliable photoelectric sensors for detection of opaque targets. An excellent contrast between light and dark conditions and an extremely high excess gain are typical of this sensing mode, thus allowing operation over larger distances and under difficult conditions.

**Excess gain curve**

Excess gain in relation to the distance

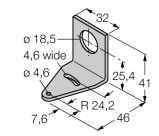
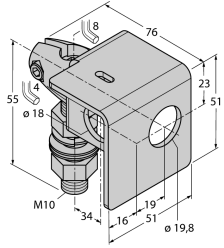
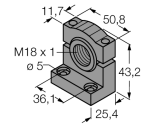
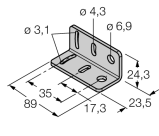
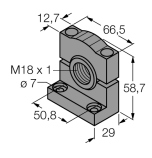


Photoelectric sensor  
opposed mode sensor (emitter)  
MI9E

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**Accessories**

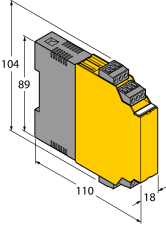
Type code	Ident no.	Description	Dimension drawing
SMB18A	3033200	Mounting bracket, stainless steel, for sensors with 18 mm thread	 <p>Technical drawing of the SMB18A mounting bracket. Dimensions include: top width 32, hole diameter <math>\phi 18.5</math>, hole offset 4.6, hole diameter <math>\phi 4.6</math>, hole offset 25.4, hole diameter <math>\phi 4.6</math>, hole offset 7.6, radius R 24.2, and total width 46.</p>
SMB18AFAM10	3012558	Mounting bracket, material VA 1.4401, for M10 x 1.5 thread, thread length 18 mm	 <p>Technical drawing of the SMB18AFAM10 mounting bracket. Dimensions include: top width 76, hole diameter <math>\phi 18</math>, hole offset 55, hole diameter <math>\phi 18</math>, hole offset 4, hole diameter <math>\phi 18</math>, hole offset 8, hole diameter <math>\phi 18</math>, hole offset 51, hole diameter <math>\phi 18</math>, hole offset 19, hole diameter <math>\phi 18</math>, hole offset 16, hole diameter <math>\phi 18</math>, hole offset 51, hole diameter <math>\phi 18</math>, hole offset 19.8, and thread M10.</p>
SMB18SF	3052519	Mounting bracket, PTB black steel, for sensors with 18 mm thread	 <p>Technical drawing of the SMB18SF mounting bracket. Dimensions include: top width 50.8, hole diameter <math>\phi 18</math>, hole offset 11.7, hole diameter <math>\phi 18</math>, hole offset 43.2, hole diameter <math>\phi 18</math>, hole offset 36.1, hole diameter <math>\phi 18</math>, hole offset 25.4, and thread M18 x 1.</p>
SMB312B	3025519	Mounting bracket, stainless steel, for MINI-BEAM NAMUR	 <p>Technical drawing of the SMB312B mounting bracket. Dimensions include: top width 89, hole diameter <math>\phi 3.1</math>, hole offset 35, hole diameter <math>\phi 4.3</math>, hole offset 17.3, hole diameter <math>\phi 6.9</math>, hole offset 24.3, hole diameter <math>\phi 6.9</math>, hole offset 23.5, and thread M18 x 1.</p>
SMB3018SC	3053952	Mounting bracket, PTB black, for sensors with 18 mm thread	 <p>Technical drawing of the SMB3018SC mounting bracket. Dimensions include: top width 66.5, hole diameter <math>\phi 18</math>, hole offset 12.7, hole diameter <math>\phi 18</math>, hole offset 58.7, hole diameter <math>\phi 18</math>, hole offset 50.8, hole diameter <math>\phi 18</math>, hole offset 29, and thread M18 x 1.</p>

**Photoelectric sensor  
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MI9E**

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**Function accessories**

Type code	Ident no.	Description	Dimension drawing
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	

# Photoelectric sensor opposed mode sensor (emitter) MI9E

**TURCK**

Industrial  
Automation

## Operating manual

### Intended use

This device fulfills the directive 94/9/EC and is suited for use in explosion hazardous areas according to EN60079-0:2009, -11:2012, -26:2007. 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 1 G (Group II, Category 1 G, electrical equipment for gaseous atmospheres).

### Marking (see device or technical data sheet)

Ex II 1 G and Ex ia IIC T5 acc. to EN60079-0, -11 and -26

### 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).

### 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.