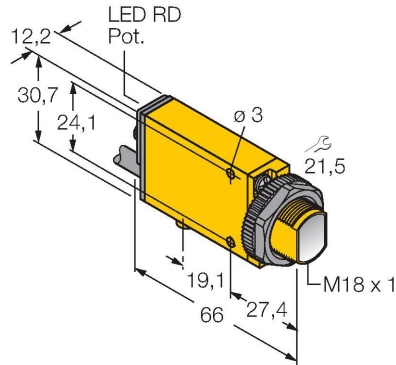


# MIAD9D

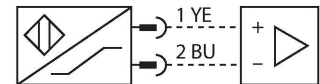
## Photoelectric Sensor – Diffuse Mode Sensor



### Features

- Cable, PVC, 2 m
- Protection class IP67
- Sensitivity adjustable via potentiometer
- Alignment indicator
- Operating voltage: 5...15 VDC (NAMUR)
- NAMUR output in accordance with DIN 19234 (IEC/EN 60947-5-6)
- ATEX category II 1 G, Ex zone 0

### Wiring diagram



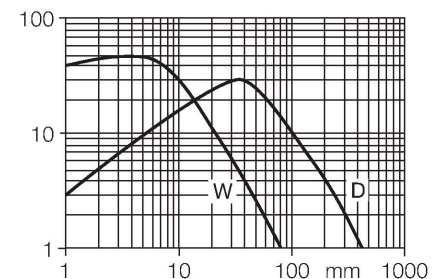
### Technical data

|                                  |                                         |
|----------------------------------|-----------------------------------------|
| Type                             | MIAD9D                                  |
| ID no.                           | 3037714                                 |
| <b>Optical data</b>              |                                         |
| Function                         | Proximity switch                        |
| Operating mode                   | Diffuse                                 |
| Light type                       | IR                                      |
| Wavelength                       | 880 nm                                  |
| Range                            | 0...380 mm                              |
| <b>Electrical data</b>           |                                         |
| Operating voltage                | 5...15 VDC                              |
| Voltage                          | Nom. 8.2 VDC                            |
| Current consumption non-actuated | ≤ 1.2 mA                                |
| Actuated current consumption     | ≥ 2.1 mA                                |
| Output function                  | Light operation, NAMUR                  |
| Switching frequency              | ≤ 100 Hz                                |
| Readiness delay                  | ≤ 0 ms                                  |
| Response time typical            | < 5 ms                                  |
| Setting option                   | Potentiometer                           |
| <b>Mechanical data</b>           |                                         |
| Design                           | Rectangular with thread, Mini Beam      |
| Dimensions                       | Ø 18 x 66 x 12.3 x 30.7 mm              |
| Housing material                 | Plastic, Thermoplastic material, Yellow |
| Lens                             | plastic, Acrylic                        |
| Electrical connection            | Cable, 2 m, PVC                         |
| Number of cores                  | 2                                       |
| Core cross-section               | 0.5 mm <sup>2</sup>                     |
| Ambient temperature              | -40...+70 °C                            |

### Functional principle

Diffuse mode sensors incorporate the emitter and receiver in a single housing. However, diffuse mode sensors do not detect the interruption of the light beam like opposed mode sensors, but the reflection of the target. A target is detected if it reflects a sufficient amount of light back to the receiver. The switching distance of diffuse mode sensors thus largely depends on the reflectivity of the target.

Excess gain curve  
Excess gain in relation to the distance



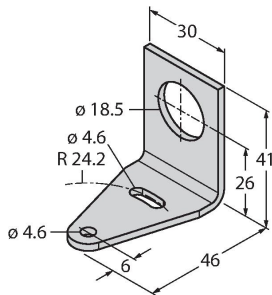
## Technical data

|                                            |                                        |
|--------------------------------------------|----------------------------------------|
| Protection class                           | IP67                                   |
| Special features                           | Encapsulated                           |
| Switching state                            | LED, Red                               |
| Excess gain indication                     | LED, red, flashing                     |
| <b>Tests/approvals</b>                     |                                        |
| Approvals                                  | CE, FM, CSA                            |
| Approvals                                  | ATEX II 1G<br>ATEX II 2G<br>ATEX II 3G |
| Device marking                             | Ex II 1 G Ex ia IIC T5                 |
| Ignition protection category               | Ex ia IIC T5 Ga                        |
| Ex approval acc. to conformity certificate | FM12ATEX0094X                          |

## Accessories

SMB18A

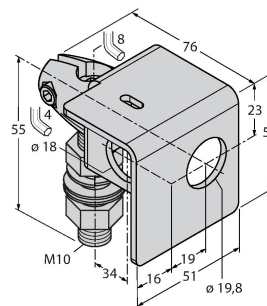
3033200



Mounting bracket, rectangular,  
stainless steel, for sensors with 18  
mm thread

SMB18AFAM10

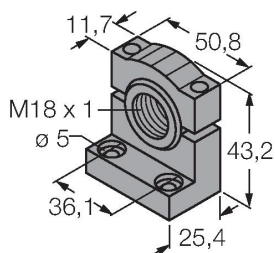
3012558



Mounting bracket, material VA  
1.4401, for M10 x 1.5 thread, thread  
length 18 mm

SMB18SF

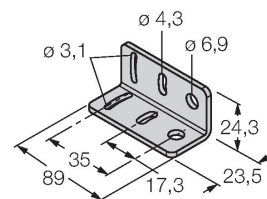
3052519



Mounting bracket, PBT black, for  
sensors with 18 mm thread, rotatable

SMB312B

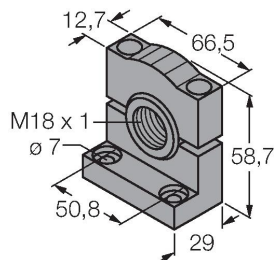
3025519



Mounting bracket, stainless steel, for  
MINI-BEAM NAMUR

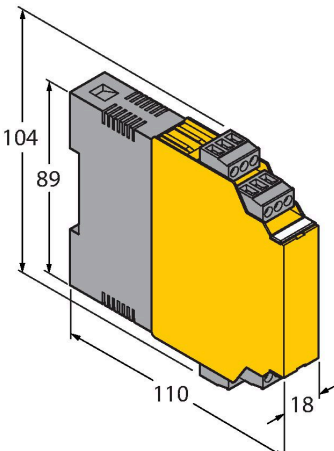
SMB3018SC

3053952



Mounting bracket, PTB black, for  
sensors with 18 mm thread

Accessories

| Dimension drawing                                                                 | Type       | ID no.  |                                                                                                                                                                                                                                                               |
|-----------------------------------------------------------------------------------|------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | IM1-22EX-R | 7541231 | Isolating switching amplifier, 2-channel; 2 relay outputs; input NAMUR signal; selectable ON/OFF mode for wire-break and short-circuit monitoring; adjustable output mode (NO / NC mode); removable terminal blocks; width 18 mm; universal power supply unit |

## Operating Instructions

|                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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 Ga 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 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |