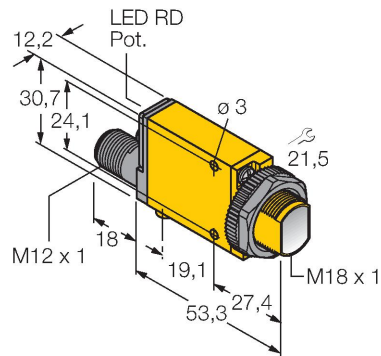


# SM312CMHSQD

## Photoelectric Sensor – Diffuse Mode Sensor



### Features

- Male M12 × 1, 4-pin
- Protection class IP67
- Sensitivity adjustable via potentiometer
- Alignment indicator
- Operating voltage: 10...30 VDC
- Switching output, bipolar
- Light/dark operation

### Wiring diagram



### Technical data

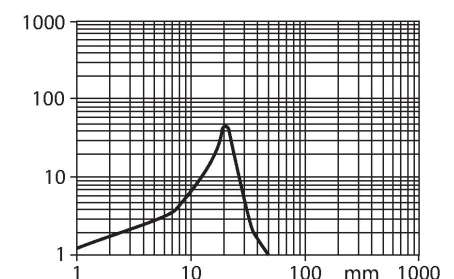
|                              |                                         |
|------------------------------|-----------------------------------------|
| Type                         | SM312CMHSQD                             |
| ID                           | 3032959                                 |
| <b>Optical data</b>          |                                         |
| Function                     | Proximity switch                        |
| Operating mode               | Convergent                              |
| Light type                   | IR                                      |
| Wavelength                   | 880 nm                                  |
| Focal distance               | 16 mm                                   |
| Range                        | 16 mm                                   |
| <b>Electrical data</b>       |                                         |
| Operating voltage            | 10...30 VDC                             |
| Residual ripple              | < 10 % U <sub>ss</sub>                  |
| DC rated operational current | ≤ 150 mA                                |
| No-load current              | ≤ 25 mA                                 |
| Output function              | NO contact, PNP/NPN                     |
| Switching frequency          | ≤ 500 Hz                                |
| Readiness delay              | ≤ 100 ms                                |
| Response time typical        | < 0.3 ms                                |
| Overcurrent release          | > 220 mA                                |
| Setting option               | Potentiometer                           |
| <b>Mechanical data</b>       |                                         |
| Design                       | Rectangular with thread, Mini Beam      |
| Dimensions                   | Ø 18 x 71.3 x 12.3 x 30.7 mm            |
| Housing material             | Plastic, Thermoplastic material, Yellow |
| Lens                         | plastic, Acrylic                        |
| Electrical connection        | Connector, M12 × 1, PVC                 |
| Number of cores              | 4                                       |

### Functional principle

Convergent mode sensors are equipped with a lens in front of the emitter diode that produces a small and intense focal point at a defined distance from the sensor. Similar to diffuse mode sensors, the light reflected by the target is evaluated. Convergent mode sensors are ideal for detection of small targets or colour marks and edge guiding or positioning control of transparent materials. The targets must always be within the focal depth of the sensors. The focal depth is defined as the area in front of or behind the focal point within which the object can be detected. Based on the intense light concentration in the focal point, convergent mode sensors are capable of detecting targets with a low reflectivity.

Excess gain curve  
Excess gain in relation to the distance

### Excess Gain Curve

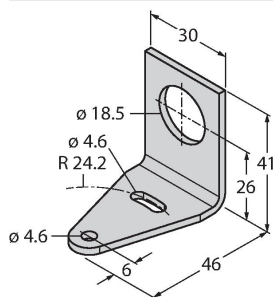


## Technical data

|                        |                    |
|------------------------|--------------------|
| Ambient temperature    | -20...+70 °C       |
| Protection class       | IP67               |
| Switching state        | LED, Red           |
| Excess gain indication | LED, red, flashing |
| Tests/approvals        |                    |
| Approvals              | CE, cURus, CSA     |

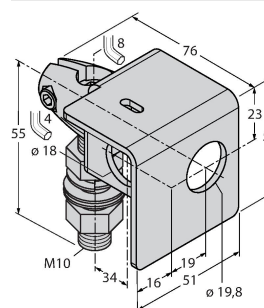
## Accessories

**SMB18A** 3033200



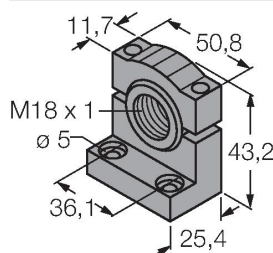
Mounting bracket, rectangular, stainless steel, for sensors with 18 mm thread

**SMB18AFAM10** 3012558



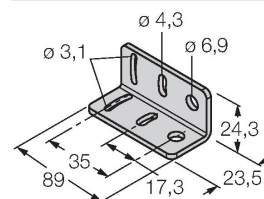
Mounting bracket, material VA 1.4401, for M10 x 1.5 thread, thread length 18 mm

**SMB18SF** 3052519



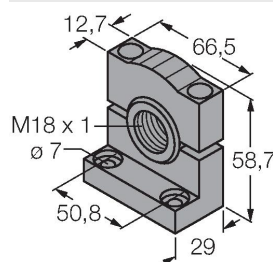
Mounting bracket, PBT black, for sensors with 18 mm thread, rotatable

**SMB312B** 3025519



Mounting bracket, stainless steel, for MINI-BEAM NAMUR

**SMB3018SC** 3053952



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