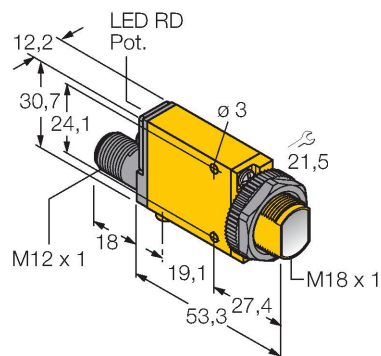


# SM31EMQD

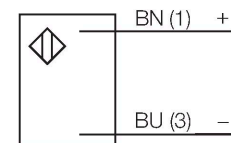
## Photoelectric Sensor – Opposed Mode Sensor (Emitter)



### Features

- Male M12 × 1, 4-pin
- Protection class IP67
- Operating voltage: 10...30 VDC

### Wiring diagram



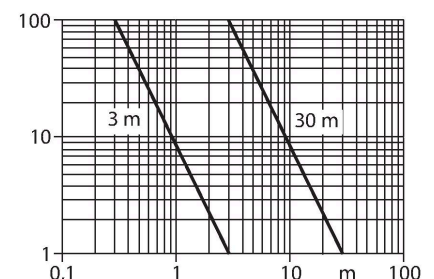
### Technical data

|                        |                                         |
|------------------------|-----------------------------------------|
| Type                   | SM31EMQD                                |
| ID                     | 3031577                                 |
| <b>Optical data</b>    |                                         |
| Function               | Opposed mode sensor                     |
| Operating mode         | Emitter                                 |
| Light type             | IR                                      |
| Wavelength             | 880 nm                                  |
| Range                  | 0...3000 mm                             |
| <b>Electrical data</b> |                                         |
| Operating voltage      | 10...30 VDC                             |
| Residual ripple        | < 10 % U <sub>ss</sub>                  |
| No-load current        | ≤ 25 mA                                 |
| Readiness delay        | ≤ 100 ms                                |
| Response time typical  | < 1 ms                                  |
| 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                                       |
| Ambient temperature    | -20...+70 °C                            |
| Protection class       | IP67                                    |
| Special features       | Encapsulated                            |
| Excess gain indication | LED                                     |

### 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.

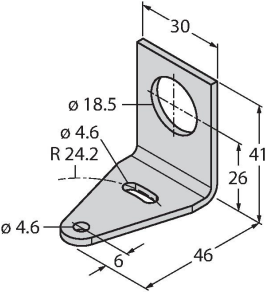
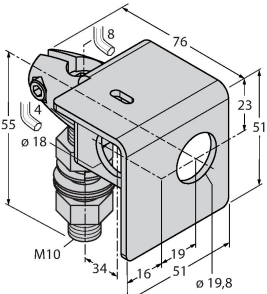
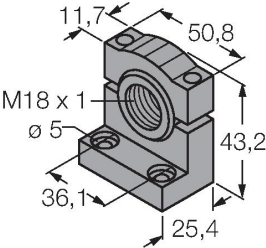
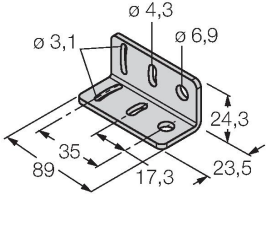
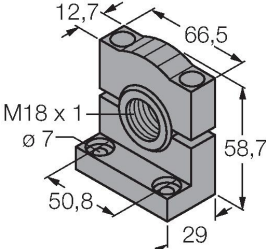
Excess gain curve  
Excess gain in relation to the distance



Technical data

| Tests/approvals |                                           |
|-----------------|-------------------------------------------|
| MTTF            | 853 years acc. to SN 29500 (Ed. 99) 40 °C |
| Approvals       | CE, cURus, CSA                            |

Accessories

|                                                                                     |                |                                                                                 |
|-------------------------------------------------------------------------------------|----------------|---------------------------------------------------------------------------------|
| <b>SMB18A</b>                                                                       | <b>3033200</b> | Mounting bracket, rectangular, stainless steel, for sensors with 18 mm thread   |
|    |                |                                                                                 |
| <b>SMB18AFAM10</b>                                                                  | <b>3012558</b> | Mounting bracket, material VA 1.4401, for M10 x 1.5 thread, thread length 18 mm |
|   |                |                                                                                 |
| <b>SMB18SF</b>                                                                      | <b>3052519</b> | Mounting bracket, PBT black, for sensors with 18 mm thread, rotatable           |
|   |                |                                                                                 |
| <b>SMB312B</b>                                                                      | <b>3025519</b> | Mounting bracket, stainless steel, for MINI-BEAM NAMUR                          |
|  |                |                                                                                 |
| <b>SMB3018SC</b>                                                                    | <b>3053952</b> | Mounting bracket, PTB black, for sensors with 18 mm thread                      |
|  |                |                                                                                 |