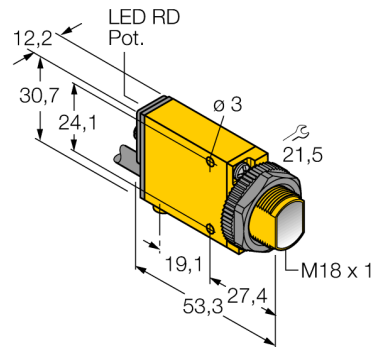


# Photoelectric Sensor

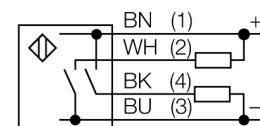
## Diffuse Mode Sensor

### SM312WMHSQDP



- Cable with male end M12 × 1, 4-pin, PVC, 150 mm
- Protection class IP67
- Sensitivity adjustable via potentiometer
- Alignment indicator
- Operating voltage: 10...30 VDC
- Switching output, bipolar
- Light/dark operation

#### Wiring Diagram

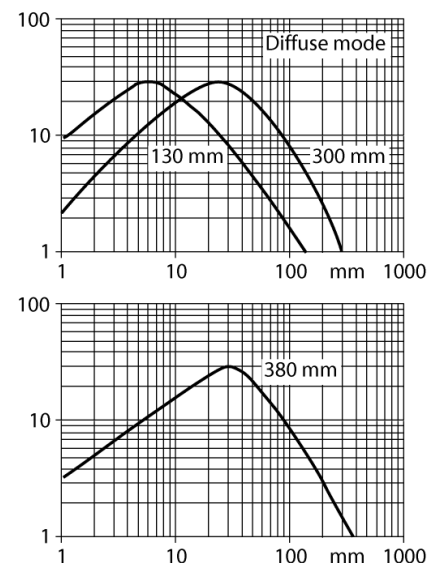


#### Functional principle

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.

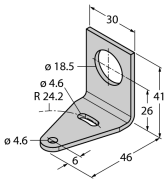
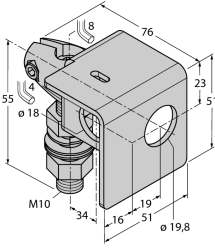
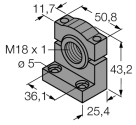
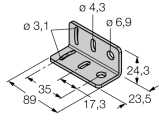
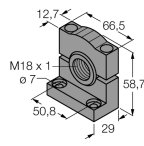
#### Excess gain curve

Excess gain in relation to the distance



|                                  |                                            |
|----------------------------------|--------------------------------------------|
| Type                             | SM312WMHSQDP                               |
| ID                               | 3035720                                    |
| <b>Optical data</b>              |                                            |
| Function                         | Proximity switch                           |
| Operating mode                   | Divergent                                  |
| Light type                       | IR                                         |
| Wavelength                       | 880 nm                                     |
| Range                            | 0...130 mm                                 |
| <b>Electrical data</b>           |                                            |
| Operating voltage $U_s$          | 10...30 VDC                                |
| Residual ripple                  | < 10 % $U_s$                               |
| DC rated operating current $I_s$ | ≤ 150 mA                                   |
| No-load current $I_0$            | ≤ 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, Mini Beam                     |
| Housing material                 | Plastic, Thermoplastic material, Yellow    |
| Lens                             | plastic, Acrylic                           |
| Electrical connection            | Cable with connector, M12 × 1, 0.15 m, PVC |
| Number of cores                  | 4                                          |
| Ambient temperature              | -20...+70 °C                               |
| Protection class                 | IP67                                       |
| <b>Special features</b>          |                                            |
| Switching state                  | LED, Red                                   |
| Excess gain indication           | LED, red, flashing                         |
| <b>Tests/approvals</b>           |                                            |
| Approvals                        | CE, cURus, CSA                             |

## Accessories

| Type code   | Ident no. |                                                                                 | Dimension drawing                                                                     |
|-------------|-----------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 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                      |  |