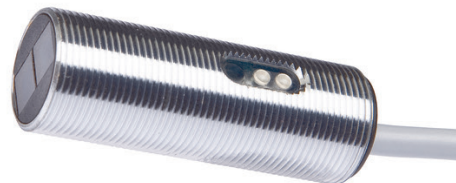


## OR180106

### OPTICAL SENSORS • RETRO-REFLECTIVE SENSORS

Optical sensors function contactlessly. They detect objects independent of their characteristics (e.g., shape, color, surface structure, material). The basic operating principle is based on the transmission and reception of light. There are three different versions: 1. The through-beam sensor consists of two separate devices, a transmitter and a receiver that are aligned with one another. If the light beam between the two devices is interrupted, the switching output integrated in the receiver changes its status. 2. With the retro-reflective sensor, the transmitter and receiver are located in one device. The emitted light beam is reflected back to the receiver by a reflector that is to be mounted opposite the device. As soon as the light beam is interrupted, the switching output integrated in the device changes its status. 3. With the diffuse reflection sensor, the transmitter and receiver are in one device. The emitted light beam is reflected by the object that is to be detected. As soon as the receiver detects the reflected light, the switching output integrated in the device changes its status.



#### MECHANICAL DATA

|   |                        |
|---|------------------------|
| Ambient temperature (MAX)                   | 55 °C                  |
| Ambient temperature (MIN)                   | -25 °C                 |
| Cable length                                | 2 m                    |
| Degree of protection (IP)                   | IP67                   |
| Housing coating                             | Chromium-plated        |
| Housing design                              | Cylinder, screw-thread |
| Housing material                            | Brass                  |
| Material of cable sheath                    | PVC                    |
| Material of optical surface                 | Glass                  |
| Max. tightening torque                      | 20 Nm                  |
| Number of wires                             | 3                      |
| Reflector included in the scope of delivery | No                     |
| Sensor diameter                             | 18 mm                  |
| Sensor length                               | 50 mm                  |
| Thread length                               | 50 mm                  |
| Thread pitch                                | 1 mm                   |
| Thread size, metric                         | 18                     |

#### ELECTRICAL DATA

|                                    |         |
|------------------------------------|---------|
| Clock frequency of the transmitter | 15 kHz  |
| Decay time                         | 0.5 ms  |
| Max. output current                | 200 mA  |
| Max. switching distance            | 2000 mm |
| No-load current                    | 15 mA   |
| Operating voltage (MAX)            | 30 V    |
| Operating voltage (MIN)            | 10 V    |
| Rated switching distance           | 2000 mm |

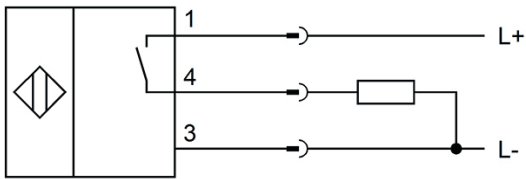
## ELECTRICAL DATA

|                               |                            |
|-------------------------------|----------------------------|
| Readiness delay               | 20 ms                      |
| Response time                 | 0.5 ms                     |
| Reverse polarity protection   | Yes                        |
| Scanning function             | Dark switching             |
| Short-circuit-proof           | Yes                        |
| Switching frequency           | 1000 Hz                    |
| Type of electrical connection | Cable                      |
| Type of switching function    | Normally open contact (NO) |
| Type of switching output      | PNP                        |
| Voltage drop                  | 2 V                        |
| Voltage type                  | DC                         |
| With LED display              | Yes                        |
| With polarizing filter        | Yes                        |
| With time function            | No                         |

## OPTICAL DATA

|                          |                     |
|--------------------------|---------------------|
| Light beam form          | Point               |
| Light source             | Polarized red light |
| Wavelength of the sensor | 660 nm              |

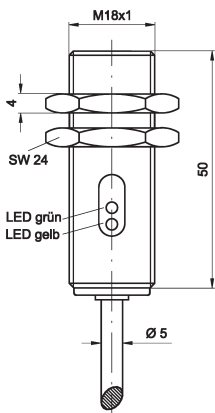
## CONNECTION



**Colors:** 1 = BN (brown), 3 = BU (blue), 4 = BK (black)

**Functions:** 1 = L+, 3 = L-, 4 = PNP NO

## DIMENSIONAL DRAWING



## INSTALLATION

## DISPOSAL



Mounting / Installation may only be carried out by a qualified electrician!



## SAFETY WARNINGS

Before initial operation, please make sure to follow all safety instructions that may be provided in the product information!

Never use these devices in applications where the safety of a person depends on their functionality.