

## OTR49174

### OPTICAL SENSORS • DIFFUSE REFLECTION SENSORS WITH INTENSITY DIFFERENCIATION

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)                   | 65 °C                |
| Ambient temperature (MIN)                   | -25 °C               |
| Cable length                                | 0.3 m                |
| Degree of protection (IP)                   | IP67                 |
| Housing design                              | Cylinder plain       |
| Housing material                            | Stainless steel V2A  |
| Material of cable sheath                    | PUR (Polyurethane)   |
| Material of optical surface                 | PMMA                 |
| Max. tightening torque                      | 1 Nm                 |
| Number of wires                             | 3                    |
| Reflector included in the scope of delivery | No                   |
| Sensor diameter                             | 4 mm                 |
| Sensor length                               | 36 mm                |
| Wire cross section                          | 0.14 mm <sup>2</sup> |
| With interchangeable lens                   | No                   |

#### ELECTRICAL DATA

|                            |                    |
|----------------------------|--------------------|
| Alarm output               | No                 |
| Decay time                 | 0.5 ms             |
| Equipment protection class | Protection class 3 |
| High repeat accuracy       | No                 |
| Interference suppression   | No                 |
| IO-Link compatible         | Yes                |
| Max. output current        | 100 mA             |
| Max. switching distance    | 12 mm              |
| No-load current            | 12 mA              |
| Number of pins             | 3                  |

**ELECTRICAL DATA**

|  |                            |
|--|----------------------------|
| Number of switching outputs                    | 1                          |
| Operating voltage (MAX)                        | 30 V                       |
| Operating voltage (MIN)                        | 10 V                       |
| Pre-failure message                            | No                         |
| Readiness delay                                | 20 ms                      |
| Residual ripple                                | 10 %                       |
| Response time                                  | 0.5 ms                     |
| Reverse polarity protection                    | Yes                        |
| Scanning function                              | Light switching            |
| Sensing range (MAX)                            | 10 mm                      |
| Sensing range (MIN)                            | 10 mm                      |
| Short-circuit-proof                            | Yes                        |
| Suitable for safety functions                  | No                         |
| Switching frequency                            | 1000 Hz                    |
| Type of electrical connection                  | Cable connector M8         |
| Type of switching function                     | Normally open contact (NO) |
| Type of switching output                       | PNP                        |
| Voltage drop                                   | 2 V                        |
| Voltage type                                   | DC                         |
| With communication interface, RS-232           | No                         |
| With LED display                               | Yes                        |
| With monitoring function of downstream devices | No                         |
| With other analog output                       | No                         |
| With restart lock                              | No                         |
| With time function                             | No                         |

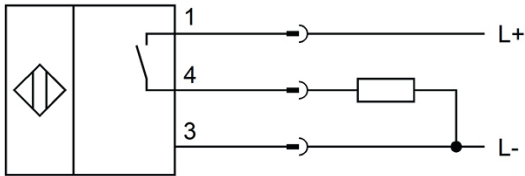
**OPTICAL DATA**

|                           |                         |
|---------------------------|-------------------------|
| Light beam form           | Point                   |
| Light exit                | Axial                   |
| Light source              | Polarity free red light |
| Line scanner              | No                      |
| Small light beam diameter | No                      |
| Wavelength of the sensor  | 630 nm                  |

**OTHER DATA**

|                     |     |
|---------------------|-----|
| Feeding technology  | Yes |
| For gloss queries   | No  |
| Is line scan camera | No  |

## CONNECTION



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

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

## DIMENSIONAL DRAWING

### INSTALLATION



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

### DISPOSAL



### 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.