

**PT140400**

**LASER SENSORS • DIFFUSE REFLECTION SENSORS WITH BACKGROUND SUPPRESSION**

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                         | -10 °C ... 50 °C     |
| Cable length                                | 2 m                  |
| Degree of protection (IP)                   | IP67                 |
| Housing design                              | Cuboid               |
| Housing material                            | Plastic ASA          |
| Material of cable sheath                    | PUR (Polyurethane)   |
| Material of optical surface                 | PMMA                 |
| Max. tightening torque                      | 1 Nm                 |
| Number of wires                             | 4                    |
| Reflector included in the scope of delivery | No                   |
| Sensor height                               | 27 mm                |
| Sensor length                               | 16.3 mm              |
| Sensor width                                | 12 mm                |
| Wire cross section                          | 0.34 mm <sup>2</sup> |

**ELECTRICAL DATA**

|                                 |                  |
|---------------------------------|------------------|
| Adjustment range                | 22 mm ... 130 mm |
| Analogue output 0 mA ... 20 mA  | No               |
| Analogue output 0 V ... 10 V    | No               |
| Analogue output -10 V ... +10 V | No               |
| Analogue output 4 mA ... 20 mA  | No               |
| Function test                   | Yes              |
| IO-Link compatible              | No               |
| Laser power                     | 1 mW             |
| Max. output current             | 100 mA           |
| Max. switching distance         | 130 mm           |
| No-load current                 | 30 mA            |

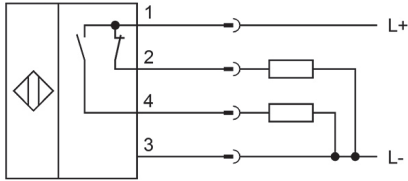
**ELECTRICAL DATA**

|                               |   |
|-------------------------------|---|
| Number of switching outputs   | 2   |
| Operating voltage             | 11 V ... 30 V                                 |
| Rated switching distance      | 130 mm  |
| Relative repeat accuracy      | 0.2 mm  |
| Reverse polarity protection   | Yes   |
| Scanning function             | Light-/dark-on mode                           |
| Sensing range                 | 22 mm ... 130 mm                              |
| Setting procedure             | Manual adjustment                             |
| Short-circuit-proof           | Yes   |
| Switching frequency           | 2000 Hz                                       |
| Type of electrical connection | Cable   |
| Type of switching function    | Normally closed contact/normally open contact |
| Type of switching output      | PNP   |
| Voltage drop                  | 1.8 V   |
| Voltage type                  | DC  |
| With LED display              | Yes   |
| With LED display (operation)  | Yes   |
| With LED display (signal)     | Yes   |
| With other analog output      | No  |

**OPTICAL DATA**

|                          |                        |
|--------------------------|------------------------|
| Aperture                 | 2.5 mm                 |
| Background suppression   | Yes                    |
| Laser class              | 2                      |
| Laser focus distance     | 40 mm                  |
| Light beam form          | Point                  |
| Light source             | Laser diode, red light |
| Light spot               | 0.03 mm <sup>2</sup>   |
| Resolution               | 0.2 mm                 |
| Triangulation            | Background suppression |
| Wavelength of the sensor | 650 nm                 |

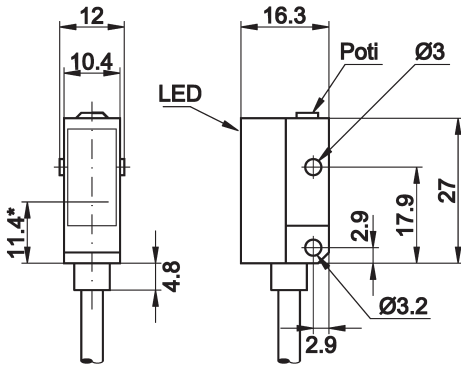
## CONNECTION



**Colors:** 1 = BN (brown), 2 = WH (white), 3 = BU (blue), 4 = BK (black)

**Functions:** 1 = L+, 2 = pnp/nc, 3 = L-, 4 = PNP NO

## DIMENSIONAL DRAWING



\* Senderachse

## 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!