

# Laser Distance Sensor

## Time of Flight

**P1PY101** **LASER**

Part Number

der wintec.



- 2 mutually independent switching outputs
- Intuitive operating concept
- No interactive influence
- Wide working range and precise detection thanks to DS technology

The sensors function in accordance with the principle of transit time measurement with laser class 1. The wintec with Dynamic Sensitivity technology (DS) enables previously unattainable reception sensitivity even with very weak signals. As a result, the sensors have a large working range of up to 10 m and can reliably detect dark or shiny objects even at extreme angles. The wintec also works very reliably in adverse ambient conditions, e.g., caused by ambient light or dirt. Extensive condition monitoring functions additionally enable predictive maintenance and trouble-free operation.



### Technical Data

#### Optical Data

|                           |               |
|---------------------------|---------------|
| Working Range             | 0...10000 mm  |
| Setting Range             | 50...10000 mm |
| Reproducibility maximum   | 3 mm*         |
| Linearity Deviation       | 10 mm*        |
| Switching Hysteresis      | < 15 mm       |
| Light Source              | Laser (red)   |
| Wavelength                | 660 nm        |
| Service Life (T = +25 °C) | 100000 h      |
| Laser Class (EN 60825-1)  | 1             |
| Beam Divergence           | < 2 mrad      |
| Max. Ambient Light        | 100000 Lux    |
| Light Spot Diameter       | see Table 1   |

#### Electrical Data

|                                             |              |
|---------------------------------------------|--------------|
| Supply Voltage                              | 18...30 V DC |
| Current Consumption (U <sub>b</sub> = 24 V) | < 35 mA      |
| Switching Frequency                         | 50 Hz*       |
| Switching Frequency (max.)                  | 250 Hz*      |
| Response Time                               | 15 ms *      |
| Response Time (min.)                        | 4,7 ms *     |
| Temperature Drift                           | < 0,4 mm/K   |
| Temperature Range                           | -40...50 °C  |
| Number of Switching Outputs                 | 2            |
| Switching Output Voltage Drop               | < 2,5 V      |
| Switching Output/Switching Current          | 100 mA       |
| Reverse Polarity and Overload Protection    | yes          |
| Short Circuit Protection                    | yes          |
| Interface                                   | IO-Link V1.1 |
| Baud Rate                                   | COM3         |
| Protection Class                            | III          |
| FDA Accession Number                        | 2110079-001  |

#### Mechanical Data

|                      |                  |
|----------------------|------------------|
| Setting Method       | Teach-In         |
| Housing Material     | Plastic          |
| Optic Cover          | PMMA             |
| Degree of Protection | IP67/IP68        |
| Connection           | M12 × 1; 4/5-pin |

#### Safety-relevant Data

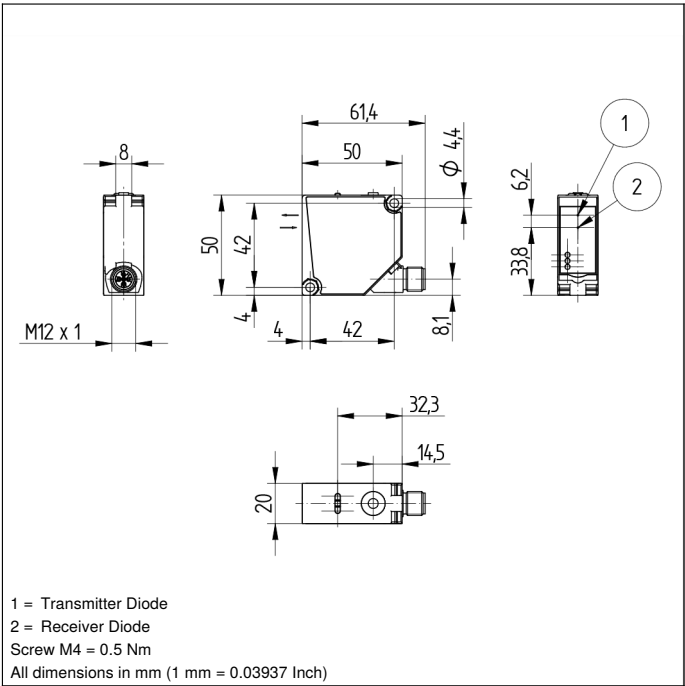
|                        |          |
|------------------------|----------|
| MTTFd (EN ISO 13849-1) | 547,59 a |
|------------------------|----------|

|                                   |        |
|-----------------------------------|--------|
| PNP NO                            | ●      |
| IO-Link                           | ●      |
| Connection Diagram No.            | 243    |
| Control Panel No.                 | A43    |
| Suitable Connection Equipment No. | 2   35 |
| Suitable Mounting Technology No.  | 380    |

\* Depends on mode, see table 2

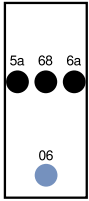
### Complementary Products

|                |
|----------------|
| IO-Link Master |
| Software       |

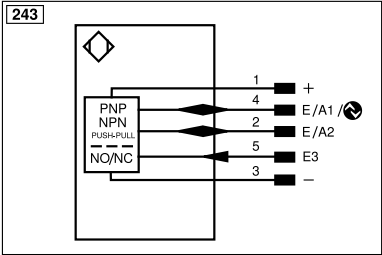


### Ctrl. Panel

A 43



06 = Teach Button  
5a = Switching Status Display, O1  
68 = supply voltage indicator  
6a = Switching Status Display, O2



- = supply voltage 0 V  
+ = supply voltage +  
E/A1 = programmable input/output / IO-Link  
E/A2 = programmable input/output  
E3 = input

| Mode                | White working range | Gray working range | Black working range | Switching frequency | Response time | Maximum reproducibility | Linearity deviation | Low signal detection |
|---------------------|---------------------|--------------------|---------------------|---------------------|---------------|-------------------------|---------------------|----------------------|
| Speed               | 0...10000 mm        | 0...9000 mm        | 0...7000 mm         | 250 Hz              | 4.7 ms        | 5 mm                    | 15 mm               | +                    |
| Precision (default) | 0...10000 mm        | 0...10000 mm       | 0...8000 mm         | 50 Hz               | 15 ms         | 3 mm                    | 10 mm               | ++                   |
| Precision Plus      | 0...10000 mm        | 0...10000 mm       | 0...8000 mm         | 25 Hz               | 28.7 ms       | 3 mm                    | 10 mm               | +++                  |

Table 2

Table 1

| Working Distance    | 0 m  | 5 m   | 10 m  |
|---------------------|------|-------|-------|
| Light Spot Diameter | 5 mm | 10 mm | 15 mm |

### Switching Distance Deviation

Typical characteristic curve based on white, 90 % remission

