

# Laser Distance Sensor

## Time of Flight

# P1PY104 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
Cable Length	500 mm

### Safety-relevant Data

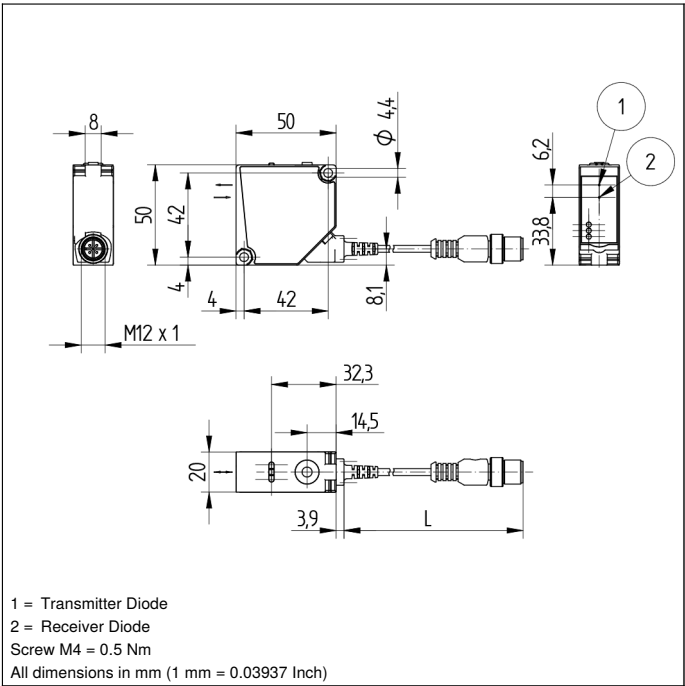
MTTFd (EN ISO 13849-1)	547,59 a
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NPN NO	●
IO-Link	●
Connection Diagram No.	243
Control Panel No.	A43
Suitable Connection Equipment No.	2   35
Suitable Mounting Technology No.	380

\* Depends on mode, see table 2 \*\* Temperature range with permanently installed cable, bending radius: > 40 mm

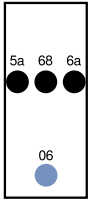
## Complementary Products

IO-Link Master
Software

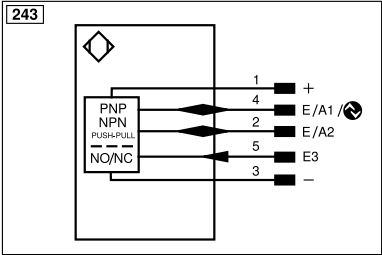


### Ctrl. Panel

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	+++

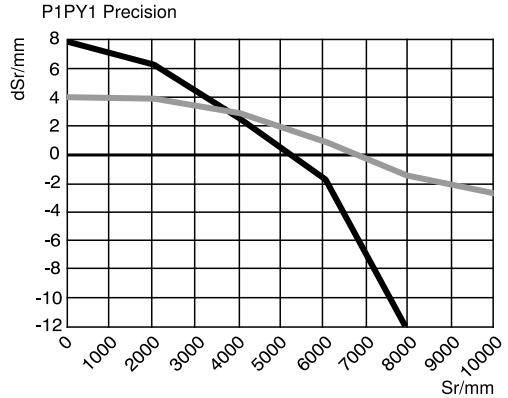
Table 2

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



Sr = Switching Distance  
dSr = Switching Distance Change

— black 6 % remission  
— grey 18 % remission

