wenglor
the innovative family

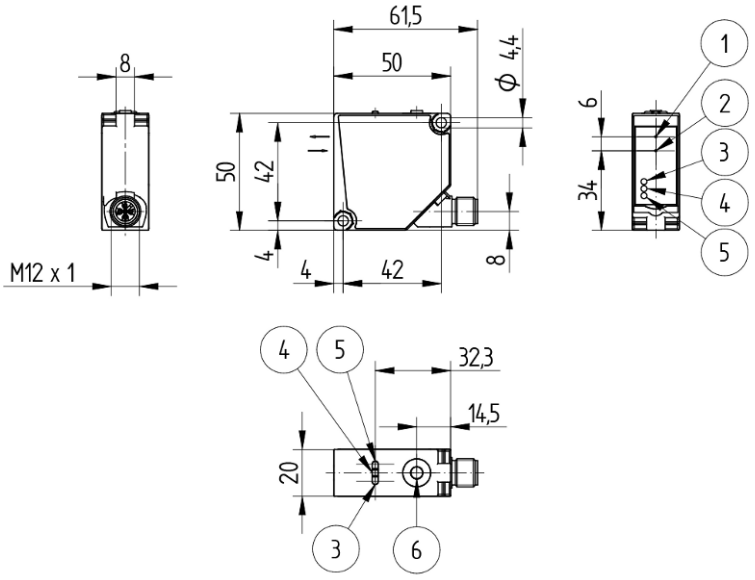
Technical Data

P1PY103

Laser Distance Sensor

Time of Flight





Symbol	Key
1	Emitter diode
2	Receiver diode
3	Switching status indicator O1
4	Power LED
5	Switching status indicator O2
6	Teach-in button

EN

Dimensions in mm
Subject to change without notice
Version 2
www.wenglor.com

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
Reflector required	no

Electrical Data	
Supply Voltage	18...30 V DC
Current Consumption (Ub = 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
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Overload Protection	yes
Interface	IO-Link V1.1
IO-Link transmission speed	COM3
Protection Class	III
FDA Accession Number	2110079-001

Mechanical Data	
Setting Method	Teach-In
Housing Material	Plastic, ABS
Optic Cover	Plastic, PMMA
Degree of Protection	IP67 IP68
Connection Type	Plug variant
Connection	M12 × 1; 5-pin

Safety-relevant Data	
MTTFd (EN ISO 13849-1)	547.59 a

General Data	
Scope of delivery	1 × Z1PE002 mounting set 1 × initial start-up instructions 1 × sensor

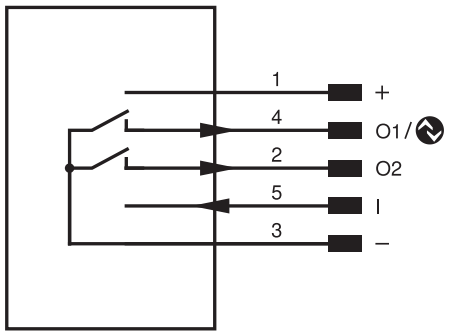
Adjustable parameters	
Output	Error Output Push-pull NPN PNP Warning output
Circuit	NC NC/NO NC+NO NO
Other parameters	Off-delay On-delay Sensitivity Filter Unit of measure Measuring mode Emitted light Sensor localization Key illumination Teach mode

All other parameters can be found in the product documentation.

* Depends on mode, see table 2

BMECat data	
eCl@ss 5.1.4	27-27-08-01 Optical distance sensor
eCl@ss 6.x	27-27-08-01 Optical distance sensor
eCl@ss 7.0	27-27-08-01 Optical distance sensor
eCl@ss 7.1	27-27-08-01 Optical distance sensor
eCl@ss 8.x	27-27-08-01 Optical distance sensor
eCl@ss 10.0.1	27-27-08-01 Optical distance sensor

Technical illustrations



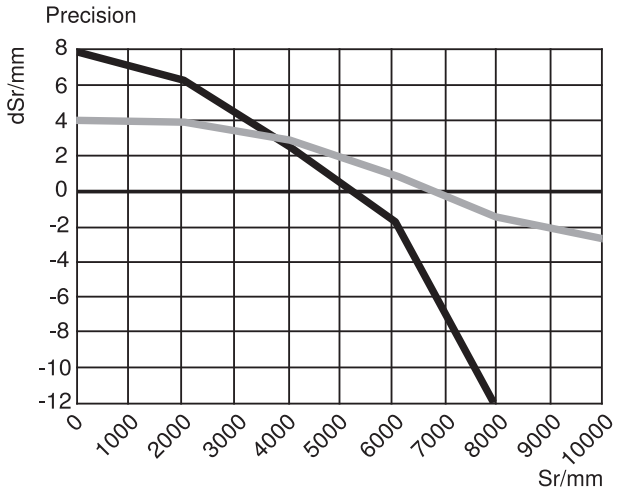
Pin	Pin function	Polarity	Circuit
1	Supply Voltage +		
2	Switching Output 2	NPN	NO
3	Supply voltage 0 V		
4	Switching Output 1 IO-Link	NPN	NO
5	Switchable emitted light	High active	

Table 1			
Working Distance	0 m	5 m	10 m
Light Spot Diameter	5 mm	10 mm	15 mm

Illustration 1: Table 2

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	+ + +

Illustration 2: Switching Distance Deviation



Typical characteristic curve based on white, 90 % remission

Sr = Switching Distance

dSr = Switching Distance Change

black 6 % remission

grey 18 % remission