

# High-Performance Distance Sensor

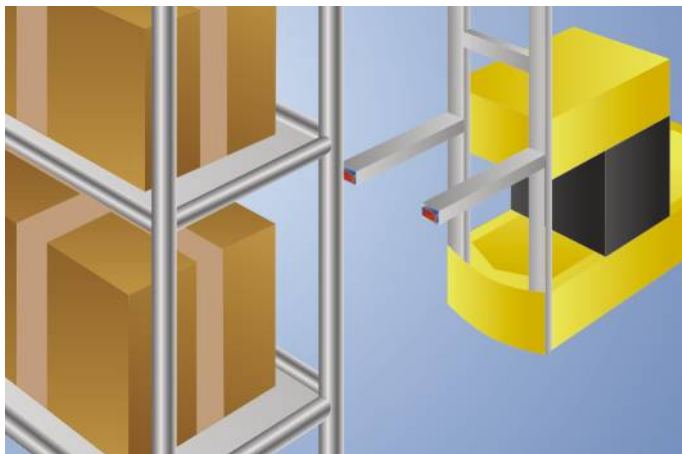
## P1KY103 LASER

Part Number



- 2 mutually independent switching outputs
- IO-Link interface
- Large working range
- Miniature design

The high-performance distance sensor with compact format accurately determines distance between the sensor and the object on the basis of transit time measurement. Two mutually independent switching outputs and the intelligent IO-Link interface permit multifunctional use for precisely ascertaining distance to an object, or for detecting the object at any two switching points. A large working range of 0 to 1500 mm ensures top performance with a miniature format and flexibility where range is concerned. Thanks to laser class 1, the sensor's laser beam is harmless for the human eye.



### Technical Data

Optical Data	
Working Range	0...1500 mm
Adjustable Range	50...1500 mm
Switching Hysteresis	< 30 mm
Light Source	Laser (infrared)
Wavelength	940 nm
Service Life (T = +25 °C)	100000 h
Laser Class (EN 60825-1)	1
Max. Ambient Light	10000 Lux
Light Spot Diameter	see Table 1

Electrical Data	
Supply Voltage	10...30 V DC
Supply Voltage with IO-Link	18...30 V DC
Current Consumption (U <sub>b</sub> = 24 V)	< 15 mA
Switching Frequency	10 Hz
Response Time	< 36 ms
Temperature Drift	< 2,5 %
Temperature Range	-30...50 °C
Number of Switching Outputs	2
Switching Output Voltage Drop	< 2,5 V
Switching Output/Switching Current	100 mA
Residual Current Switching Output	< 50 μA
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Overload Protection	yes
Lockable	yes
Interface	IO-Link V1.1
Protection Class	III
FDA Accession Number	1720547-001

Mechanical Data	
Setting Method	Teach-In
Housing Material	Plastic
Optic Cover	PMMA
Degree of Protection	IP67/IP68
Connection	M8 × 1; 4-pin

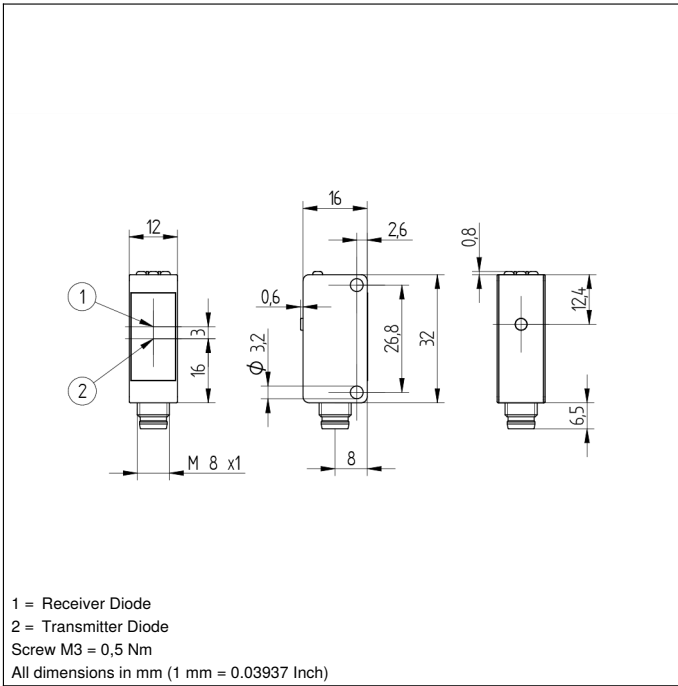
Safety-relevant Data	
MTTFd (EN ISO 13849-1)	2266,52 a

NPN NO	●
IO-Link	●
Connection Diagram No.	<b>239</b>
Control Panel No.	<b>A23</b>
Suitable Connection Equipment No.	<b>7</b>
Suitable Mounting Technology No.	<b>400</b>

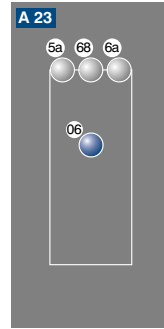
NPN output function for O1 only

### Complementary Products

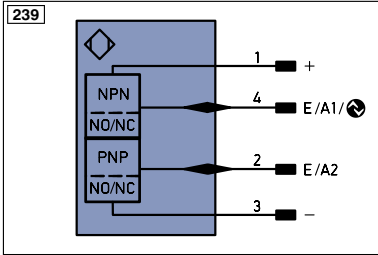
IO-Link Master Software
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### Ctrl. Panel



06 = Teach Button  
 5a = Switching Status Display, O1  
 68 = Supply Voltage Indicator  
 6a = Switching Status Display, O2



Legend					
+	Supply Voltage +	PT	Platinum measuring resistor	EN <sup>A</sup> RS422	Encoder A/Ā (TTL)
-	Supply Voltage 0 V	nc	not connected	EN <sup>B</sup> RS422	Encoder B/B̄ (TTL)
~	Supply Voltage (AC Voltage)	U	Test Input	EN <sup>A</sup>	Encoder A
A	Switching Output (NO)	Ū	Test Input inverted	EN <sup>B</sup>	Encoder B
Ā	Switching Output (NC)	W	Trigger Input	A <sub>MIN</sub>	Digital output MIN
V	Contamination/Error Output (NO)	W-	Ground for the Trigger Input	A <sub>MAX</sub>	Digital output MAX
Ṽ	Contamination/Error Output (NC)	O	Analog Output	A <sub>OK</sub>	Digital output OK
E	Input (analog or digital)	O-	Ground for the Analog Output	SY <sub>in</sub>	Synchronization In
T	Teach Input	BZ	Block Discharge	SY <sub>OUT</sub>	Synchronization OUT
Z	Time Delay (activation)	A <sub>WV</sub>	Valve Output	OL <sub>T</sub>	Brightness output
S	Shielding	a	Valve Control Output +	M	Maintenance
RxD	Interface Receive Path	b	Valve Control Output 0 V	rsv	reserved
TxD	Interface Send Path	SY	Synchronization	Wire Colors according to DIN IEC 757	
RDY	Ready	SY-	Ground for the Synchronization	BK	Black
GND	Ground	E+	Receiver-Line	BN	Brown
CL	Clock	S+	Emitter-Line	RD	Red
E/A	Output/Input programmable	±	Grounding	OG	Orange
	IO-Link	S <sub>nR</sub>	Switching Distance Reduction	YE	Yellow
PoE	Power over Ethernet	Rx+/-	Ethernet Receive Path	GN	Green
IN	Safety Input	Tx+/-	Ethernet Send Path	BU	Blue
OSSD	Safety Output	Bus	Interfaces-Bus A(+)/B(-)	VT	Violet
Signal	Signal Output	L <sub>a</sub>	Emitted Light disengageable	GY	Grey
Bl_D+/-	Ethernet Gigabit bidirect. data line (A-D)	Mag	Magnet activation	WH	White
EN <sup>0</sup> RS422	Encoder 0-pulse 0-0̄ (TTL)	RES	Input confirmation	PK	Pink
		EDM	Contactur Monitoring	GNYE	Green/Yellow

Table 1

Working Distance	350 mm	700 mm	1500 mm
Light Spot Diameter	14 mm	25 mm	42 mm

### Switching Distance Deviation

Typical characteristic curve based on white, 90 % remission

