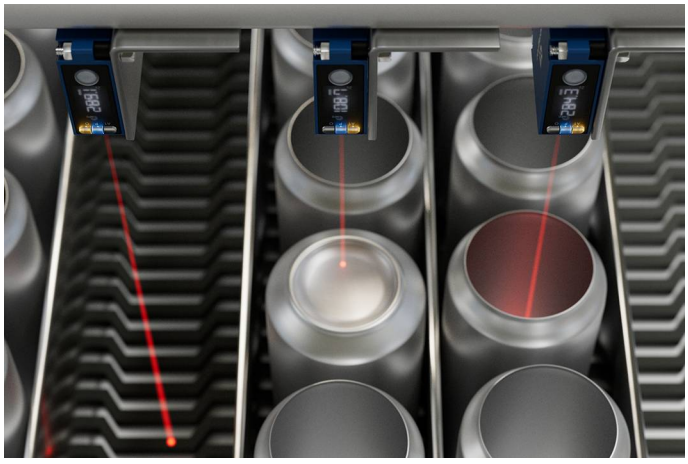
Laser Distance Sensor
Triangulation

P1PC221
Part Number



- **2 mutually independent switching outputs**
- **Integrated jump detection**
- **Intuitive operating concept**
- **Switching point independent of material, color and brightness**
- **Wireless settings via NFC**

These laser distance sensors work with a fine red light beam and a high-resolution CMOS line. They determine the distance between the sensor and the object by means of the triangulation principle. They are designed to fulfill applications in a wide range of industries intuitively, reliably and economically. Innovative functions simplify initial start-up and make the sensors versatile all-rounders. Extensive condition monitoring functions also enable predictive maintenance and trouble-free operation. The display shows the current measured values, which allows the sensor to be set up quickly and intuitively. Settings are entered via IO-Link or conveniently using the weCon app via NFC.

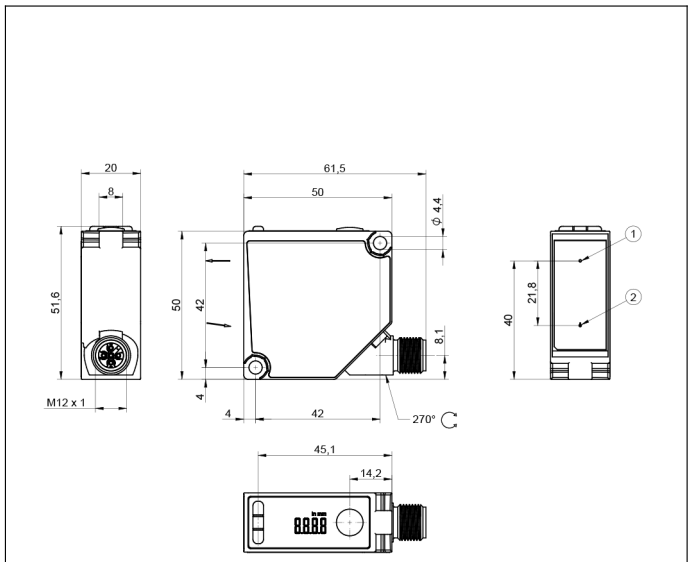


Technical Data

Optical Data	
Working Range	50...350 mm
Setting Range	50...350 mm
Reproducibility maximum	300 µm
Reproducibility: 1 Sigma	30 µm
Linearity Deviation	600 µm
Switching Hysteresis	< 0,5 %
Light Source	Laser (red)
Wavelength	655 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	18...30 V DC
Current Consumption (Ub = 24 V)	< 35 mA
Switching Frequency	650 Hz
Response Time	< 0,77 ms
Temperature Drift	< 60 µm/K
Temperature Range	-25...50 °C
Number of Switching Outputs	2
Switching Output Voltage Drop	< 1,5 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	2512215-000
Mechanical Data	
Setting Method	NFC
Setting Method	Teach-In
Housing Material	Plastic, ABS
Degree of Protection	IP67
Degree of Protection	IP68
Connection	M12 × 1; 5-pin
Optic Cover	Plastic, PMMA
Scope of delivery	1 × initial start-up instructions 1 × sensor 1 × Z1PE002 mounting set
PNP NO	●
IO-Link	●
NFC interface	●
Connection Diagram No.	243
Control Panel No.	X13
Suitable Connection Equipment No.	2 35
Suitable Mounting Technology No.	380

Complementary Products

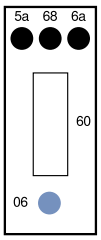
Dust extraction tube
IO-Link Master
Protective housing
Protective Screen
Software



1 = Transmitter Diode
2 = Receiver Diode
Screw M4 = 0.5 Nm
All dimensions in mm (1 mm = 0.03937 Inch)

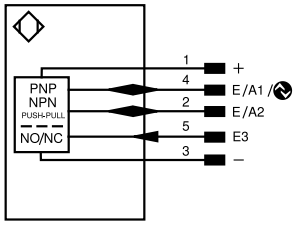
Ctrl. Panel

X13



06 = Teach Button
5a = Switching Status Indicator, O1
60 = display
68 = Power LED
6a = Switching Status Indicator, O2

243



Legend					
+	Supply Voltage +	PT	Platinum measuring resistor	ENARS422	Encoder A/Ā (TTL)
–	Supply Voltage 0 V	nc	Not connected	ENBRS422	Encoder B/B̄ (TTL)
~	Supply Voltage (AC Voltage)	U	Test Input	ENA	Encoder A
A	Switching Output (NO)	Ū	Test Input inverted	ENB	Encoder B
Ā	Switching Output (NC)	W	Trigger Input	AMIN	Digital output MIN
V	Contamination/Error Output (NO)	W–	Ground for the Trigger Input	AMAX	Digital output MAX
V̄	Contamination/Error Output (NC)	O	Analog Output	AOK	Digital output OK
E	Input (analog or digital)	O–	Ground for the Analog Output	SY In	Synchronization In
T	Teach Input	BZ	Block Discharge	SY OUT	Synchronization OUT
R	Reset input	AMV	Valve Output	OLT	Brightness output
Z	Time Delay (activation)	a	Valve Control Output +	M	Maintenance
S	Shielding	b	Valve Control Output 0 V	rsv	Reserved
RxD	Interface Receive Path	SY	Synchronization	Wire Colors according to DIN IEC 60757	
TxD	Interface Send Path	SY–	Ground for the Synchronization	BK	Black
RDY	Ready	E+	Receiver-Line	BN	Brown
GND	Ground	S+	Emitter-Line	RD	Red
CL	Clock	⏚	Grounding	OG	Orange
E/A	Output/Input programmable	SnR	Switching Distance Reduction	YE	Yellow
	IO-Link	Rx+/–	Ethernet Receive Path	GN	Green
PoE	ower over Ethernet	Tx+/–	Ethernet Send Path	BU	Blue
IN	Safety Input	Bus	Interfaces-Bus A(+)/B(–)	VT	Violet
OSSD	Safety Output	La	Emitted Light disengageable	GY	Grey
Signal	Signal Output	Mag	Magnet activation	WH	White
BI_D+/–	Ethernet Gigabit bidirect. data line (A-D)	RES	Input confirmation	PK	Pink
EN0 RS422	Encoder 0-pulse 0/Ō (TTL)	EDM	Contactor Monitoring	GNYE	Green/Yellow

Table 1

Working Distance	50 mm	200 mm	350 mm
Spot Size	1,3 × 3,1 mm	0,8 × 3,1 mm	0,4 × 3,1 mm

Specifications are subject to change without notice V0-24.03.2026