Through-Beam Sensor

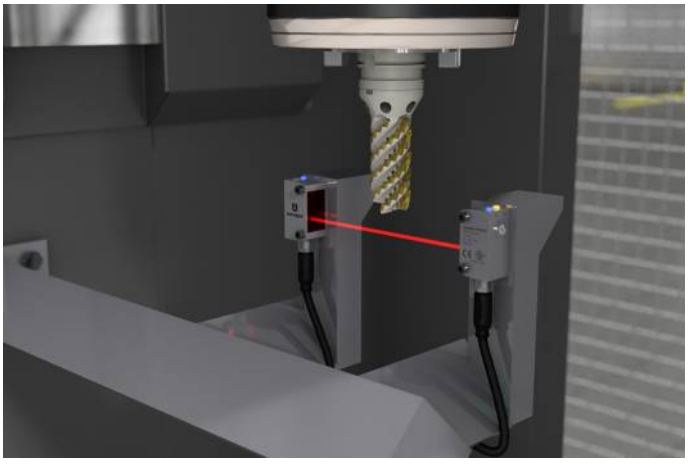
P2KE007 LASER

Part Number

PNG smart

- **Detect extremely small parts starting at 1 mm**
- **IO-Link 1.1**
- **Robust stainless steel housing with IP69K**
- **Test input for high operational reliability**
- **Very high switching frequency**

The through-beam sensor works with a fine laser beam as well as an emitter and receiver. The collimated laser beam of laser class 1 detects objects, for example, when performing installation, feed, or presence checks, starting at a size of just 1.0 millimeters. The emitter can be deactivated using test input in order to test the functionality of the through-beam sensor. The IO-Link interface can be used to configure the sensor (PNP/NPN, NC/NO, switching distance), as well as to read out switching statuses and signal values. The robust V4A stainless steel housing (1.4404/316L) is resistant to oils, coolants and cleaning agents.



Technical Data

Optical Data	
Range	10000 mm
Smallest Recognizable Part	see Table 1
Switching Hysteresis	< 10 %
Light Source	Laser (red)
Service Life (T = +25 °C)	100000 h
Laser Class (EN 60825-1)	1
Max. Ambient Light	10000 Lux
Electrical Data	
Sensor Type	Receiver
Supply Voltage	10...30 V DC
Supply Voltage with IO-Link	18...30 V DC
Current Consumption (Ub = 24 V)	< 15 mA
Switching Frequency	4500 Hz
Switching Frequency (interference-free mode)	2000 Hz
Response Time	0,11 ms
Response time (interference-free mode)	0,25 ms
Temperature Drift (-10 °C < Tu < 40 °C)	10 % *
Temperature Range	-40...50 °C
Switching Output Voltage Drop	< 2 V
Switching Output/Switching Current	100 mA
Residual Current Switching Output	< 50 µA
Short Circuit and Overload Protection	yes
Reverse Polarity Protection	yes
Interface	IO-Link V1.1
Protection Class	III
Mechanical Data	
Setting Method	Potentiometer
Housing Material	Stainless steel 316L
Degree of Protection	IP68/IP69K
Connection	M8 × 1; 3-pin
Optic Cover	PMMA
Ecolab	yes
Safety-relevant Data	
MTTFd (EN ISO 13849-1)	1913,81 a
PNP NC	●
IO-Link	●
Connection Diagram No.	217
Control Panel No.	1K1
Suitable Connection Equipment No.	8
Suitable Mounting Technology No.	400

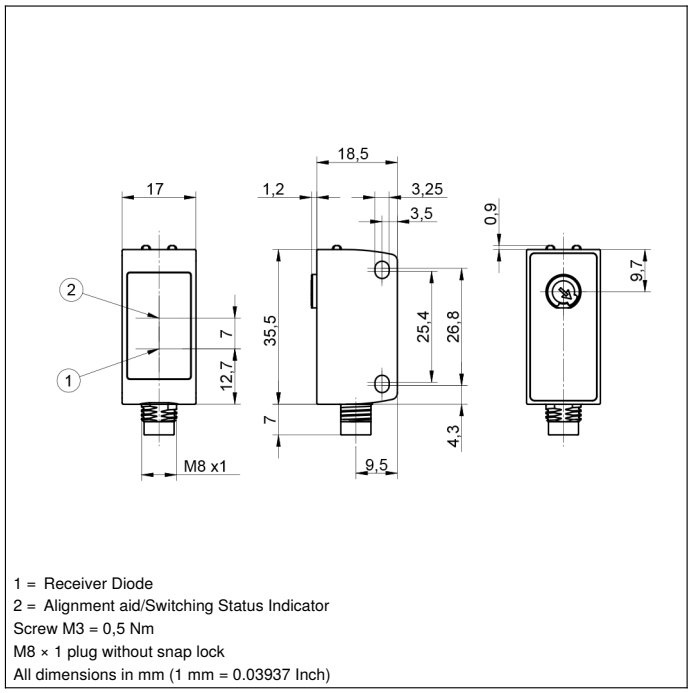
Suitable Emitter

P2KS003

* See operating instructions for further information

Complementary Products

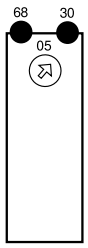
IO-Link Master
Software



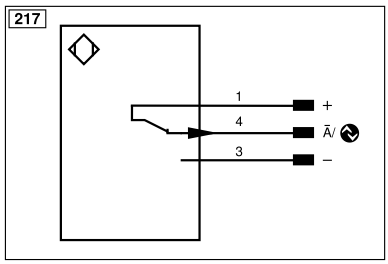
1 = Receiver Diode
2 = Alignment aid/Switching Status Indicator
Screw M3 = 0,5 Nm
M8 × 1 plug without snap lock
All dimensions in mm (1 mm = 0.03937 Inch)

Ctrl. Panel

1K1



05 = Switching Distance Adjuster
30 = Switching Status/Contamination Warning
68 = supply voltage indicator



Legend					
+	Supply Voltage +	nc	Not connected	ENBRS422	Encoder B/B̄ (TTL)
–	Supply Voltage 0 V	U	Test Input	ENA	Encoder A
~	Supply Voltage (AC Voltage)	Ū	Test Input inverted	ENB	Encoder B
A	Switching Output (NO)	W	Trigger Input	AMIN	Digital output MIN
Ā	Switching Output (NC)	W–	Ground for the Trigger Input	AMAX	Digital output MAX
V	Contamination/Error Output (NO)	O	Analog Output	AOK	Digital output OK
V̄	Contamination/Error Output (NC)	O–	Ground for the Analog Output	SY In	Synchronization In
E	Input (analog or digital)	BZ	Block Discharge	SY OUT	Synchronization OUT
T	Teach 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 0/0̄ (TTL)	EDM	Contactor Monitoring	GNYE	Green/Yellow
PT	Platinum measuring resistor	ENARS422	Encoder A/Ā (TTL)		

Table 1

Distance transmitter/receiver	1 m	6 m	10 m
Smallest Recognizable Part	2,5 mm	1,0 mm	1,5 mm