

# Through-Beam Sensor

## P1KE009

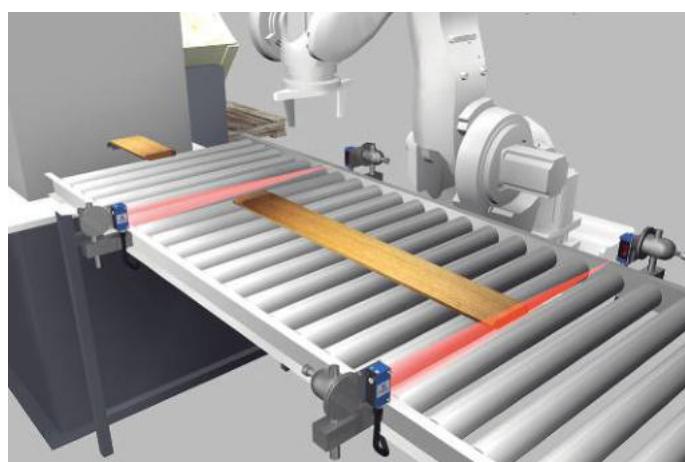
Part Number

PNG//smart



- Condition monitoring
- High light intensity with large switching reserve
- IO-Link 1.1
- Test input for high operational reliability

The through-beam sensor works with red light as well as a transmitter and a receiver. Thanks to their high light intensity, the sensor provides a high degree of operational reliability even with interferences like steam, fog or dust. The transmitter 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 for reading out switching statuses and signal values.



### Technical Data

#### Optical Data

Range	6000 mm
Smallest Recognizable Part	see Table 1
Switching Hysteresis	< 10 %
Light Source	Red Light
Service Life (T = +25 °C)	100000 h
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)	< 20 mA
Switching Frequency	1000 Hz
Switching Frequency (interference-free mode)	500 Hz
Response Time	0,5 ms
Response time (interference-free mode)	1 ms
Temperature Drift	< 10 %
Temperature Range	-40...60 °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
Lockable	yes
Interface	IO-Link V1.1
Protection Class	III

#### Mechanical Data

Setting Method	Potentiometer
Housing Material	Plastic
Degree of Protection	IP67/IP68
Connection	M8 x 1; 3-pin
Optic Cover	PMMA

#### Safety-relevant Data

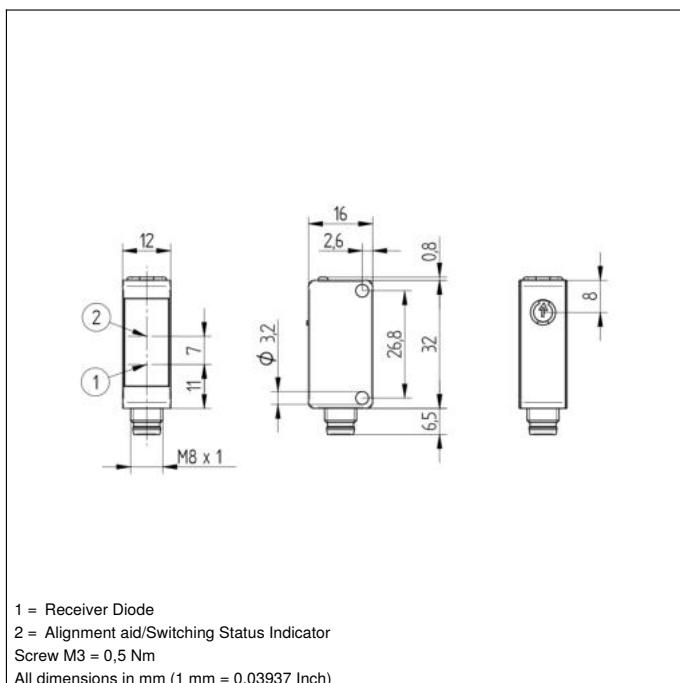
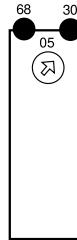
MTTFd (EN ISO 13849-1)	2111,25 a
NPN NC	
IO-Link	
Connection Diagram No.	218
Control Panel No.	1K1
Suitable Connection Equipment No.	8
Suitable Mounting Technology No.	400

#### Suitable Emitter

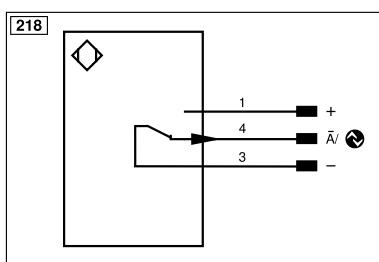
P1KS002

#### Complementary Products

IO-Link Master  
Software


**Ctrl. Panel**
**1K1**


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


**Legend**

+	Supply Voltage +	nc	Not connected	EN <sub>RS422</sub>	Encoder B/Ā (TTL)
-	Supply Voltage 0 V	U	Test Input	EN <sub>A</sub>	Encoder A
~	Supply Voltage (AC Voltage)	Ū	Test Input inverted	EN <sub>B</sub>	Encoder B
A	Switching Output (NO)	W	Trigger Input	AMIN	Digital output MIN
Ā	Switching Output (NC)	W-	Ground for the Trigger Input	A <sub>MAX</sub>	Digital output MAX
V	Contamination/Error Output (NO)	O	Analog Output	Aok	Digital output OK
Ā	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	Ol <sub>r</sub>	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	Power 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
EN <sub>RS422</sub>	Encoder 0-pulse 0/Ā (TTL)	EDM	Contactor Monitoring	GNYE	Green/Yellow
PT	Platinum measuring resistor	EN <sub>RS422</sub>	Encoder A/Ā (TTL)		

**Table 1**

Distance transmitter/receiver	1 m	2 m	6 m
Smallest Recognizable Part	4 mm	1 mm	1 mm

