

# Reflex Sensor with Background Suppression

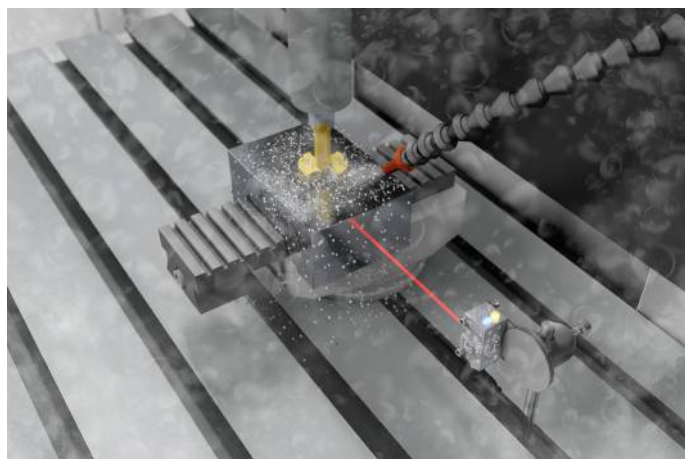
## P2KH029 LASER

Part Number



- Condition monitoring
- Detect extremely small parts starting at 0.1 mm
- Laser class 1
- Robust stainless steel housing with IP69K

The reflex sensor with background suppression works with laser light according to the angle measurement principle and is designed to detect objects against any background. The sensor always has the same switching distance, regardless of the color, shape, and surface of the objects. The fine laser beam means that even the smallest parts, starting at 0.1 mm in size, can be reliably detected. The IO-Link interface can be used to configure reflex sensors (PNP/NPN, NC/NO, switching distance), as well as to output switching statuses and distance values. The robust V4A (1.4404/316L) stainless steel housing is resistant to oils and coolants, as well as cleaning agent.



### Technical Data

#### Optical Data

Range	120 mm
Setting Range	30...120 mm
Switching Hysteresis	< 10 %
Light Source	Laser (red)
Wavelength	680 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	1000 Hz
Switching Frequency (interference-free mode)	500 Hz
Response Time	0,5 ms
Response time (interference-free mode)	1 ms
Temperature Drift	< 5 %
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
Lockable	yes
Interface	IO-Link V1.1
Protection Class	III
FDA Accession Number	1710976-002

#### 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

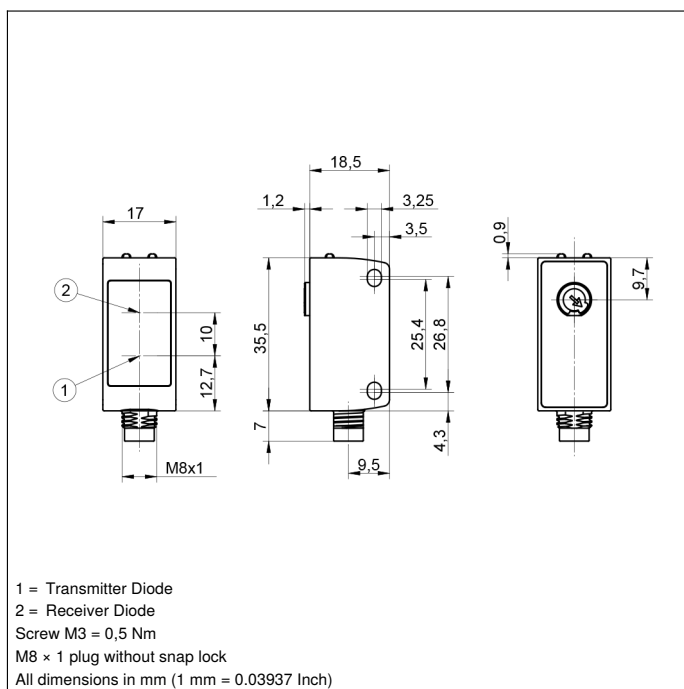
#### Safety-relevant Data

MTTFd (EN ISO 13849-1)	1629,22 a
------------------------	-----------

NPN NO	●
IO-Link	●
Connection Diagram No.	171
Control Panel No.	1K1
Suitable Connection Equipment No.	8
Suitable Mounting Technology No.	400

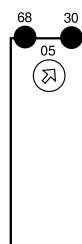
### Complementary Products

IO-Link Master
Software

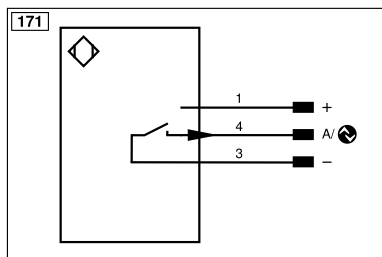


## Ctrl. Panel

1K1



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



Legend			
+	Supply Voltage +	nc	Not connected
-	Supply Voltage 0 V	U	Test Input
~	Supply Voltage (AC Voltage)	Ů	Test Input inverted
A	Switching Output (NO)	W	Trigger Input
Ā	Switching Output (NC)	W-	Ground for the Trigger Input
V	Contamination/Error Output (NO)	O	Analog Output
Ȳ	Contamination/Error Output (NC)	O-	Ground for the Analog Output
E	Input (analog or digital)	BZ	Block Discharge
T	Teach Input	Amv	Valve Output
Z	Time Delay (activation)	a	Valve Control Output +
S	Shielding	b	Valve Control Output 0 V
RxD	Interface Receive Path	SY	Synchronization
TxD	Interface Send Path	SY-	Ground for the Synchronization
RDY	Ready	E+	Receiver-Line
GND	Ground	S+	Emitter-Line
CL	Clock	±	Grounding
E/A	Output/Input programmable	SnR	Switching Distance Reduction
IO-Link		Rx+/-	Ethernet Receive Path
PoE	Power over Ethernet	Tx+/-	Ethernet Send Path
IN	Safety Input	Bus	Interfaces-Bus A(+)/B(-)
OSSD	Safety Output	La	Emitted Light disengageable
Signal	Signal Output	Mag	Magnet activation
BI_D+/-	Ethernet Gigabit bidirect. data line (A-D)	RES	Input confirmation
ENo RS422	Encoder 0-pulse 0/0 (TTL)	EDM	Contact Monitoring
PT	Platinum measuring resistor	ENARIS422	Encoder A/Ā (TTL)

Table 1

Detection Range	40 mm	80 mm	120 mm
Light Spot Diameter	2,5 mm	1,5 mm	1 mm

## Switching Distance Deviation

Typical characteristic curve based on white, 90 % remission

