

Reflex Sensor with Background Suppression

P1KH016

Part Number



- Data storage
- High-end
- IO-Link 1.1
- Teach-in
- Two independent switching outputs

The reflex sensor with background suppression works with red light according to the angle measurement principle. It has a IO-Link interface with a data storage function as well as additional configuration and diagnostic options. The interface can also be used to configure the sensors (PNP/NPN, NC/NO, switching distance, error output), as well as for reading out switching statuses and distance values. The teach-in function also provides another configuration option. Two independent switching outputs can be used, for instance, to monitor minimum and maximum values of distances or fill levels and stack heights.



Technical Data

Optical Data	
Range	200 mm
Setting Range	30...200 mm
Switching Hysteresis	< 10 %
Light Source	Red Light
Service Life (T = +25 °C)	100000 h
Max. Ambient Light	10000 Lux
Light Spot Diameter	see Table 1

Electrical Data	
Supply Voltage	15...30 V DC
Supply Voltage with IO-Link	18...30 V DC
Current Consumption (U _b = 24 V)	< 20 mA
Switching Frequency	100 Hz
Switching Frequency (1 Switching Output)	1000 Hz
Response Time	5 ms
Response time (1 switching output)	0,5 ms
Temperature Drift	< 5 %
Temperature Range	-40...60 °C
Number of Switching Outputs	2
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
Data Storage	yes
Protection Class	III

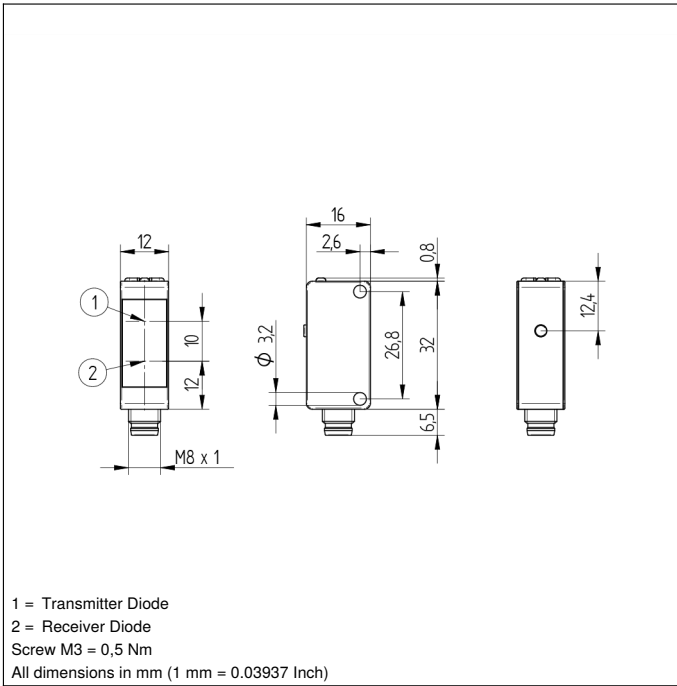
Mechanical Data	
Setting Method	Teach-In
Housing Material	Plastic
Degree of Protection	IP67/IP68
Connection	M8 × 1; 4-pin
Optic Cover	PMMA

Safety-relevant Data	
MTTFd (EN ISO 13849-1)	1511,45 a

PNP NO	●
IO-Link	●
Connection Diagram No.	221
Control Panel No.	A23
Suitable Connection Equipment No.	7
Suitable Mounting Technology No.	400

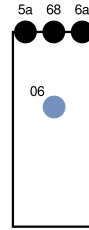
Complementary Products

IO-Link Master Software	
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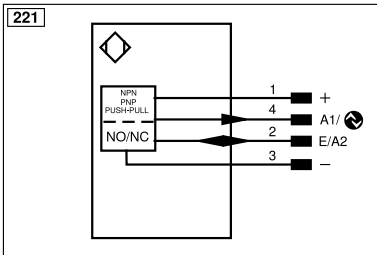


Ctrl. Panel

A 23



- 06 = Teach Button
- 5a = Switching Status Display, O1
- 68 = supply voltage indicator
- 6a = Switching Status Display, O2



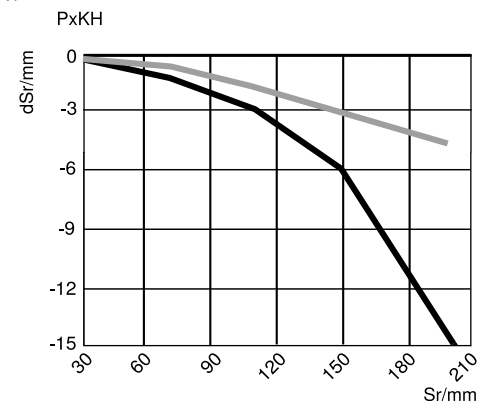
Legend	
+	Supply Voltage +
-	Supply Voltage 0 V
~	Supply Voltage (AC Voltage)
A	Switching Output (NO)
Ā	Switching Output (NC)
V	Contamination/Error Output (NO)
ȳ	Contamination/Error Output (NC)
E	Input (analog or digital)
T	Teach Input
Z	Time Delay (activation)
S	Shielding
RxD	Interface Receive Path
TxD	Interface Send Path
RDY	Ready
GND	Ground
CL	Clock
E/A	Output/Input programmable
	IO-Link
PoE	power over Ethernet
IN	Safety Input
OSSD	Safety Output
Signal	Signal Output
Bl_D+/-	Ethernet Gigabit bidirect. data line (A-D)
ENo RS422	Encoder 0-pulse 0/0 (TTL)
PT	Platinum measuring resistor
nc	Not connected
U	Test Input
Ū	Test Input inverted
W	Trigger Input
W-	Ground for the Trigger Input
O	Analog Output
O-	Ground for the Analog Output
BZ	Block Discharge
Amv	Valve Output
a	Valve Control Output +
b	Valve Control Output 0 V
SY	Synchronization
SY-	Ground for the Synchronization
E+	Receiver-Line
S+	Emitter-Line
±	Grounding
SnR	Switching Distance Reduction
Rx+/-	Ethernet Receive Path
Tx+/-	Ethernet Send Path
Bus	Interfaces-Bus A(+)/B(-)
La	Emitted Light disengageable
Mag	Magnet activation
RES	Input confirmation
EDM	Contactor Monitoring
EN _{RS422}	Encoder A/Ā (TTL)
EN _{BNS422}	Encoder B/B̄ (TTL)
ENA	Encoder A
ENb	Encoder B
AMIN	Digital output MIN
AMAX	Digital output MAX
Aok	Digital output OK
SY In	Synchronization In
SY OUT	Synchronization OUT
OLT	Brightness output
M	Maintenance
rsv	Reserved
Wire Colors according to DIN IEC 60757	
BK	Black
BN	Brown
RD	Red
OG	Orange
YE	Yellow
GN	Green
BU	Blue
VT	Violet
GY	Grey
WH	White
PK	Pink
GNYE	Green/Yellow

Table 1

Detection Range	30 mm	120 mm	200 mm
Light Spot Diameter	9 mm	7 mm	13 mm

Switching Distance Deviation

Typical characteristic curve based on white, 90 % remission



Sr = Switching Distance
 dSr = Switching Distance Change

— black 6 % remission
 — grey 18 % remission

