Reflex Sensor
with Background Suppression

P1KH055
Part Number

PNG smart

- **Dynamic adjustment of the emitted light brightness**
- **IO-Link 1.1**
- **Low switching distance deviation for black/white**
- **Object detection over long distances**

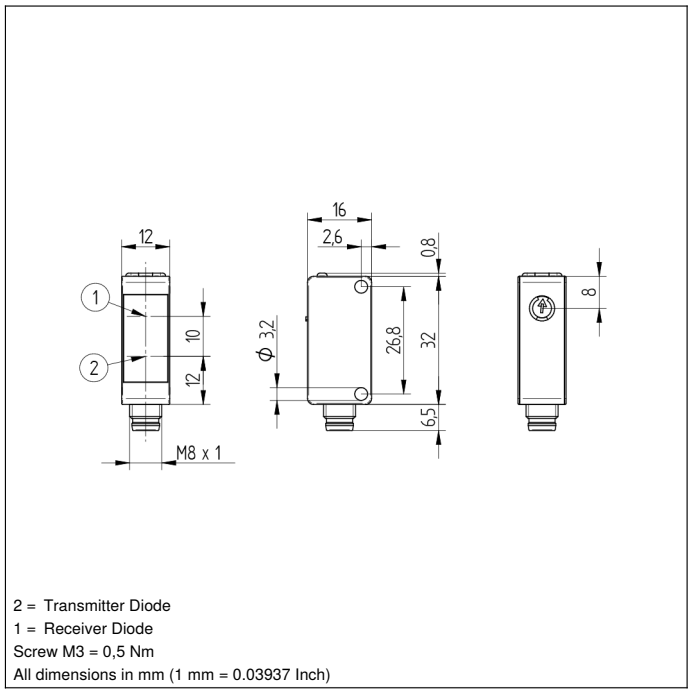
The reflex sensor with background suppression works with red light according to the time-of-flight measurement principle and is suitable for detecting objects against any background. The sensor always has the same switching distance, regardless of the color, shape or surface of the objects. The dynamic adjustment of the transmitted light brightness enables reliable switching with varying object and background properties. The sensor is suitable for presence checks with a large detection range, even under adverse ambient conditions, such as in the presence of ambient light or contamination. The IO-Link interface can be used to configure the reflex sensors (NC/NO, switching distance), as well as to output switching statuses.

Technical Data

Optical Data	
Range	1300 mm
Setting Range	100...1300 mm
Switching Hysteresis	< 7 %
Light Source	Red Light
Service Life (T = +25 °C)	100000 h
Max. Ambient Light	40000 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 (Ub = 24 V)	< 25 mA
Switching Frequency	200 Hz
Switching Frequency (interference-free mode)	40 Hz
Response time (interference-free mode)	13 ms
Response Time	2,5 ms
Temperature Drift	< 10 %
Temperature Range	-40...60 °C
Switching Output Voltage Drop	< 2 V
Switching Output/Switching Current	100 mA
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Overload Protection	yes
Lockable	yes
Interface	IO-Link V1.1
Protection Class	III
Mechanical Data	
Setting Method	Potentiometer
Housing Material	Plastic, ABS/PC
Degree of Protection	IP67
Degree of Protection	IP68
Connection	M8 × 1; 4-pin
Optic Cover	Plastic, PMMA
Safety-relevant Data	
MTTFd (EN ISO 13849-1)	1073,57 a
Scope of delivery	1 × initial start-up instructions
	1 × sensor
PNP NC, PNP NO	●
IO-Link	●
Suitable Connection Equipment No.	7
Suitable Mounting Technology No.	400

Complementary Products

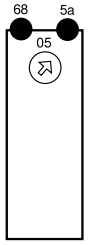
IO-Link Master
Software



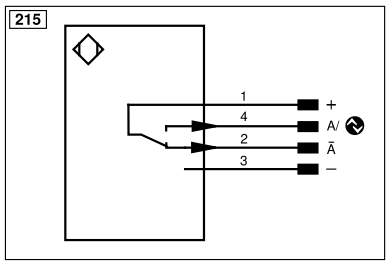
2 = Transmitter Diode
1 = Receiver Diode
Screw M3 = 0,5 Nm
All dimensions in mm (1 mm = 0.03937 Inch)

Ctrl. Panel

1K4



05 = Switching Distance Adjuster
5a = Switching Status Indicator, O1
68 = Power LED



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 0/0̄ (TTL)	EDM	Contactor Monitoring	GNYE	Green/Yellow

Table 1

Detection Range	100 mm	600 mm	1300 mm
Light Spot Diameter	10 mm	25 mm	50 mm

Detection ranges

Related to remission value. Typical maximum switching distance deviation dSr = ± 0.06 m

white (90 %)	1,3 m	black (6 %)	0,6 m
grey (18 %)	1 m		