

Reflex Sensor with Background Suppression

P1PH603

Part Number



- Condition monitoring
- IO-Link 1.1
- Low switching distance deviation for black/white
- Reliably detect objects against any background

The reflex sensor with background suppression works with red 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 sensor detects minimal height differences and, for example, differentiates reliably various parts from each other. The IO-Link interface can be used to configure the reflex sensors (PNP/NPN, NC/NO, switching distance), as well as for reading out switching statuses and distance values.



Technical Data

Optical Data

Range	1200 mm
Adjustable Range	100...1200 mm
Switching Hysteresis	< 5 %
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 (Ub = 24 V)	< 20 mA
Switching Frequency	600 Hz
Switching Frequency (interference-free mode)	400 Hz
Response Time	1,5 ms
Response time (interference-free mode)	2 ms
Temperature Drift	< 6 %
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
Interface	IO-Link V1.1
Protection Class	III

Mechanical Data

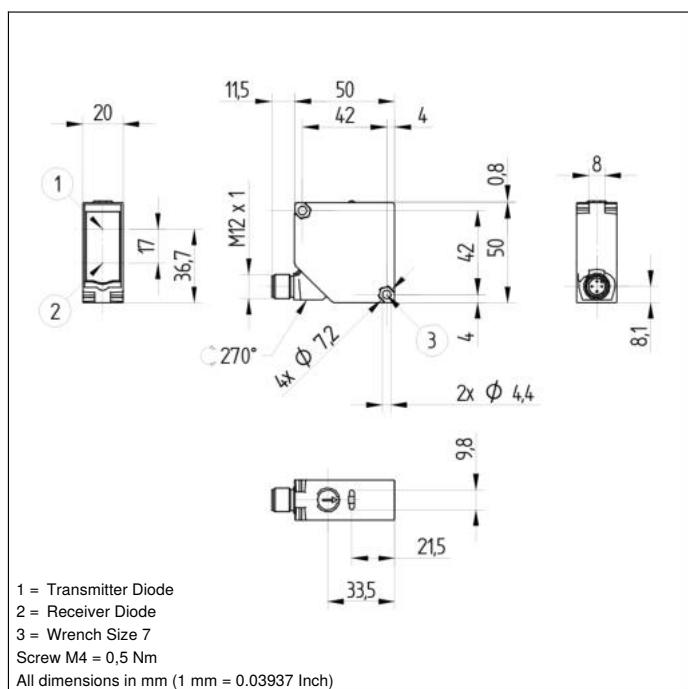
Setting Method	Potentiometer
Housing Material	Plastic
Degree of Protection	IP67/IP68
Connection	M12 x 1; 4-pin
Optic Cover	PMMA

Safety-relevant Data

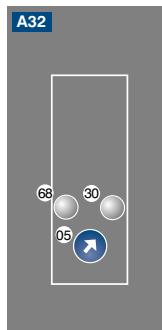
MTTFd (EN ISO 13849-1)	924,64 a
PNP NO/NC antivalent	● ●
IO-Link	
Connection Diagram No.	215
Control Panel No.	A32
Suitable Connection Equipment No.	2
Suitable Mounting Technology No.	380

Complementary Products

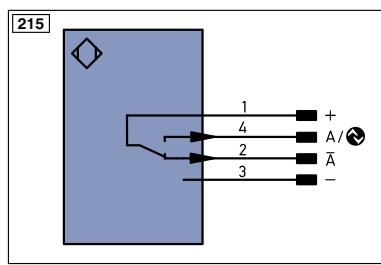
IO-Link Master
Software



Ctrl. Panel



05 = Switching Distance Adjuster
30 = Switching Status/Contamination Warning
68 = Supply Voltage Indicator



Legend

PT	Platinum measuring resistor
nc	not connected
U	Test Input
Ü	Test Input inverted
W	Trigger Input
W-	Ground for the Trigger Input
O	Analog Output
O-	Ground for the Analog Output
BZ	Block Discharge
AVW	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
RxD	Interface Receive Path
TxD	Interface Send Path
RDY	Ready
GND	Ground
CL	Clock
E/A	Output/Input programmable
IO-Link	IO-Link
PoE	Power over Ethernet
IN	Safety Input
OSD	Safety Output
Signal	Signal Output
BL-D	Ethernet Gigabit bidirec. data line (A-D)
ENoRS422	Encoder 0-pulse 0-0 (TTL)
Encoder A/Ā (TTL)	ENoRS422
Encoder B/Ā (TTL)	ENoRS422
Encoder A	ENA
Encoder B	ENB
Digital output MIN	AMIN
Digital output MAX	AMAX
Digital output OK	AOK
Synchronization In	SY IN
Synchronization OUT	SY OUT
Brightness output	OLT
Maintenance	M
reserved	rsv
Wire Colors according to IEC 60757	
BK	Black
BN	Brown
RD	Red
OG	Orange
YE	Yellow
GN	Green
BU	Blue
VT	Violet
GY	Grey
WH	White
PK	Pink
GN/YE	Green/Yellow

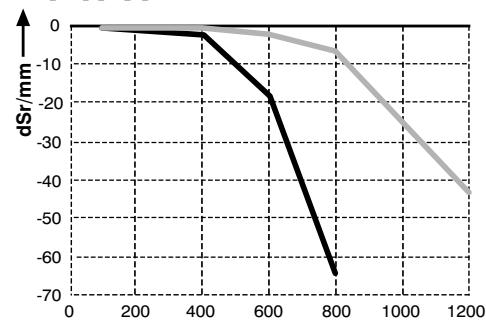
Table 1

Detection Range	100 mm	600 mm	1200 mm
Light Spot Diameter	14 mm	17 mm	24 mm

Switching Distance Deviation

Typical characteristic curve based on white, 90 % remission

P1PH



Sr = Switching Distance

dSr = Switching Distance Change

black 6 % remission
grey 18 % remission

