

Reflex Sensor with Background Suppression

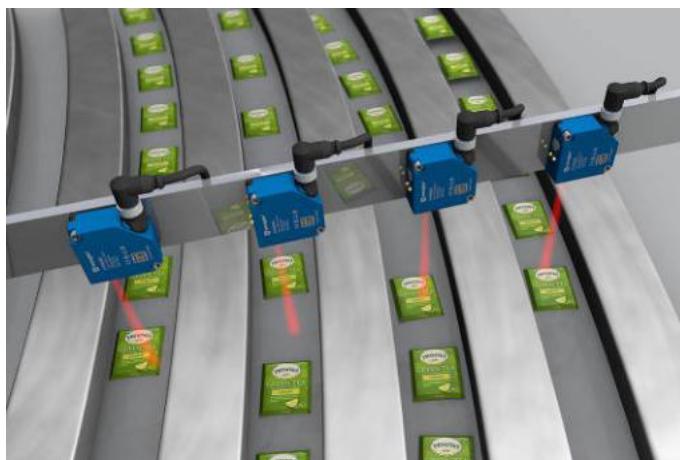
P1PH102

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	200 mm
Adjustable Range	50...200 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

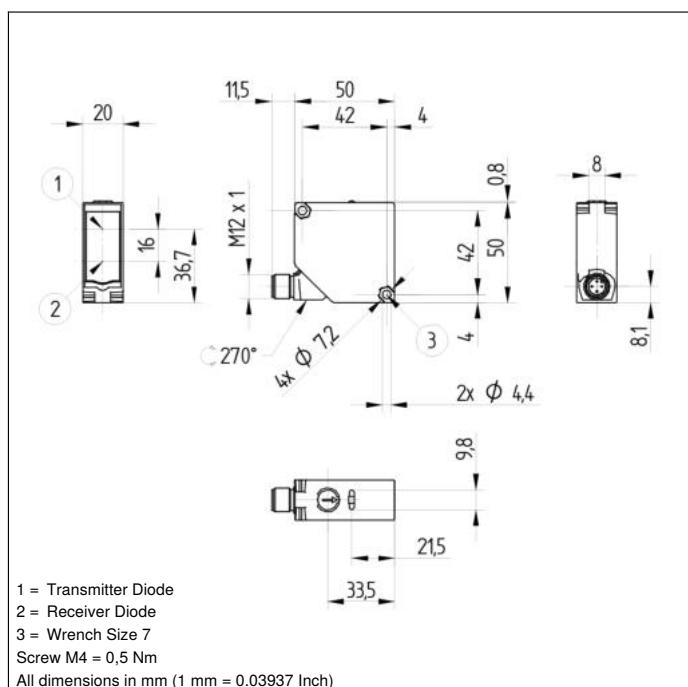
Supply Voltage	15...30 V DC
Supply Voltage with IO-Link	18...30 V DC
Current Consumption (Ub = 24 V)	< 20 mA
Switching Frequency	800 Hz
Switching Frequency (interference-free mode)	500 Hz
Response Time	1,25 ms
Response time (interference-free mode)	2 ms
Temperature Drift	< 5 %
Temperature Range	-40...60 °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

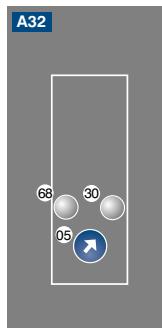
Setting Method	Potentiometer
Housing Material	Plastic
Full Encapsulation	yes
Degree of Protection	IP67/IP68
Connection	M12 x 1; 4-pin
Optic Cover	PMMA
NPN NO/NC antivalent	●
IO-Link	●
Connection Diagram No.	213
Control Panel No.	A32
Suitable Connection Equipment No.	2
Suitable Mounting Technology No.	380

Complementary Products

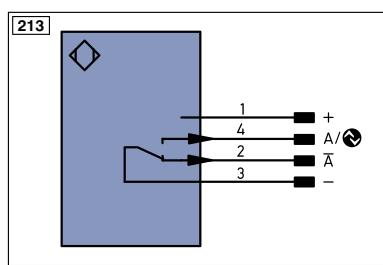
IO-Link Master
Set Protective Housing Z1PS001
Software



Ctrl. Panel



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



Legend

PT	Platinum measuring resistor	EN _{ARS422}	Encoder A/Ā (TTL)
nc	not connected	EN _{BRS422}	Encoder B/Ā (TTL)
U	Test Input	EN _A	Encoder A
Ü	Test Input inverted	EN _B	Encoder B
W	Trigger Input	AMIN	Digital output MIN
W-	Ground for the Trigger Input	AMAX	Digital output MAX
O	Analog Output	AOK	Digital output OK
O-	Ground for the Analog Output	SY IN	Synchronization IN
BZ	Block Discharge	SY OUT	Synchronization OUT
AVV	Valve Output	OLT	Brightness output
a	Valve Control Output +	M	Maintenance
b	Valve Control Output 0 V	rsv	reserved
SY	Synchronization	Wire Colors according to IEC 60757	
SY-	Ground for the Synchronization	BK	Black
E+	Receiver-Line	BN	Brown
S+	Emitter-Line	RD	Red
±	Grounding	OG	Orange
SnR	Switching Distance Reduction	YE	Yellow
RxD	Interface Receive Path	GN	Green
TXD	Interface Send Path	BU	Blue
RDY	Ready	VT	Violet
GND	Ground	GY	Grey
CL	Clock	WH	White
E/A	Output/Input programmable	PK	Pink
IO-Link	IO-Link	GN/YE	Green/Yellow
PoE	Power over Ethernet		
IN	Safety Input		
DSO	Safety Output		
Signal	Signal Output		
BLD	Ethernet Gigabit bidirec. data line (A-D)		
EN _{0RS422}	Encoder 0-pulse 0-0 (TTL)		

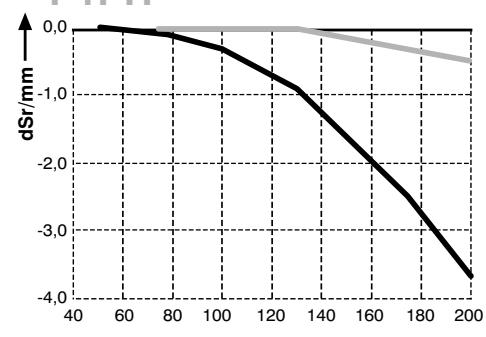
Table 1

Detection Range	50 mm	100 mm	200 mm
Light Spot Diameter	7 mm	7 mm	5 mm

Switching Distance Deviation

Typical characteristic curve based on white, 90 % remission

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Sr = Switching Distance

dSr = Switching Distance Change

black 6 % remission
grey 18 % remission

