

Reflex Sensor with Background Suppression

P1PH306

Part Number



- Blue light for dark, shiny objects
- Condition monitoring
- IO-Link 1.1
- Reliably detect objects against any background

The reflex sensor with background suppression works with blue 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 reflex sensor with blue light is specially designed for applications with dark shiny objects, such as when manufacturing solar wafers. 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	400 mm
Adjustable Range	50...400 mm
Switching Hysteresis	< 3 %
Light Source	Blue Light
Service Life (T = +25 °C)	100000 h
Risk Group (EN 62471)	1
Max. Ambient Light	10000 Lux
Light Spot Diameter	see Table 1

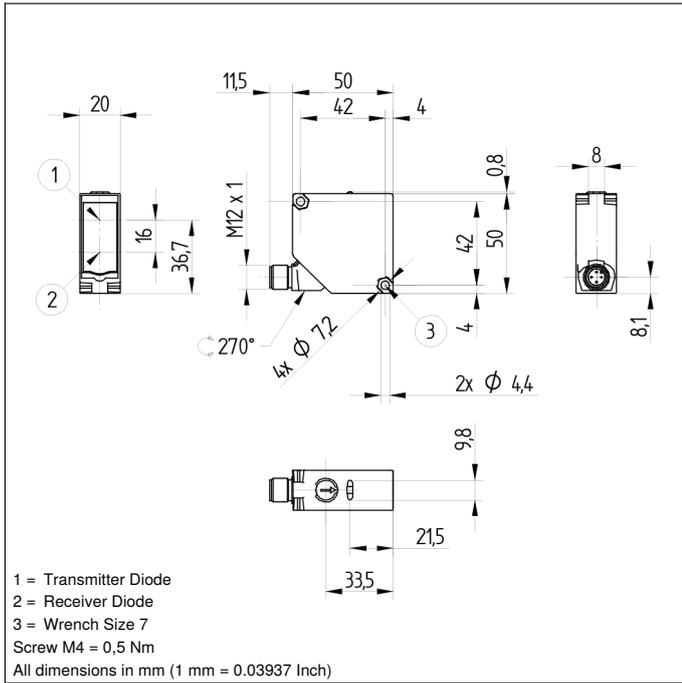
Electrical Data	
Supply Voltage	15...30 V DC
Supply Voltage with IO-Link	18...30 V DC
Current Consumption (U _b = 24 V)	< 20 mA
Switching Frequency	800 Hz
Switching Frequency (interference-free mode)	500 Hz
Response Time	1,25 ms
Response time (interference-free mode)	1,5 ms
Temperature Drift	< 5 %
Temperature 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
Degree of Protection	IP67/IP68
Connection	M12 × 1; 4-pin
Optic Cover	PMMA

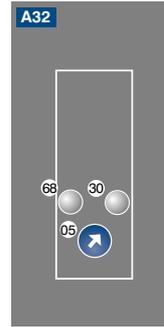
Safety-relevant Data	
MTTFd (EN ISO 13849-1)	917,7 a
NPN NO/NC antivalent	●
IO-Link	●
Connection Diagram No.	213
Control Panel No.	A32
Suitable Connection Equipment No.	2
Suitable Mounting Technology No.	380

Complementary Products

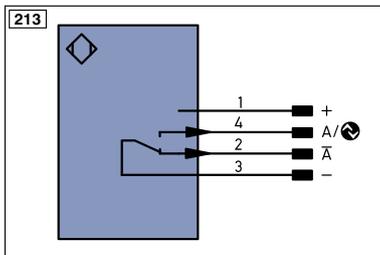
IO-Link Master	
Set Protective Housing Z1PS001	
Software	



Ctrl. Panel



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



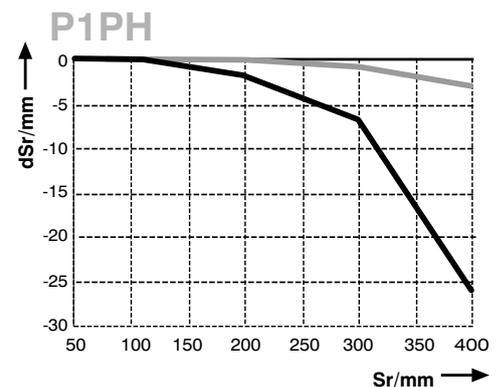
Legend					
+	Supply Voltage +	PT	Platinum measuring resistor	EN _A ES42z	Encoder A/Ā (TTL)
-	Supply Voltage 0 V	nc	not connected	EN _B ES42z	Encoder B/B̄ (TTL)
~	Supply Voltage (AC Voltage)	U	Test Input	EN _A	Encoder A
A	Switching Output (NO)	Ū	Test Input inverted	EN _B	Encoder B
Ā	Switching Output (NC)	W	Trigger Input	A _{MIN}	Digital output MIN
V	Contamination/Error Output (NO)	W-	Ground for the Trigger Input	A _{MAX}	Digital output MAX
V̄	Contamination/Error Output (NC)	O	Analog Output	A _{OK}	Digital output OK
E	Input (analog or digital)	O-	Ground for the Analog Output	S _Y In	Synchronization In
T	Teach Input	BZ	Block Discharge	S _Y OUT	Synchronization OUT
Z	Time Delay (activation)	A _W	Valve Output	O _L T	Brightness output
S	Shielding	a	Valve Control Output +	M	Maintenance
RxD	Interface Receive Path	b	Valve Control Output 0 V	rsv	reserved
TxD	Interface Send Path	S _Y	Synchronization	Wire Colors according to IEC 60757	
RDY	Ready	S _Y -	Ground for the Synchronization	BK	Black
GND	Ground	E+	Receiver-Line	BN	Brown
CL	Clock	S+	Emitter-Line	RD	Red
E/A	Output/Input programmable	⊕	Grounding	OG	Orange
	IO-Link	S _n R	Switching Distance Reduction	YE	Yellow
PoE	Power over Ethernet	Rx+/-	Ethernet Receive Path	GN	Green
IN	Safety Input	Tx+/-	Ethernet Send Path	BU	Blue
OSSD	Safety Output	Bus	Interfaces-Bus A(+)/B(-)	VT	Violet
Signal	Signal Output	L _a	Emitted Light disengageable	GY	Grey
Bl_D+/-	Ethernet Gigabit bidirect. data line (A-D)	Mag	Magnet activation	WH	White
EN0 _{ES42z}	Encoder 0-pulse 0-0̄ (TTL)	RES	Input confirmation	PK	Pink
		EDM	Contactur Monitoring	GNYE	Green/Yellow

Table 1

Detection Range	50 mm	200 mm	400 mm
Light Spot Diameter	11 mm	13 mm	14 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

