

# Reflex Sensor with Background Suppression

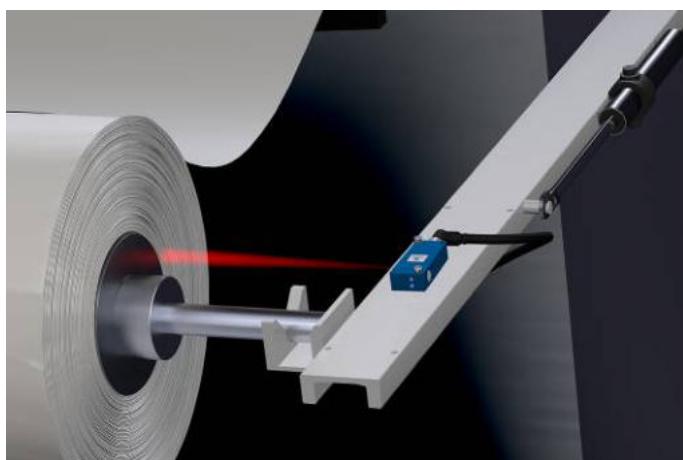
## P1NH503

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	800 mm
Adjustable Range	80...800 mm
Switching Hysteresis	< 3 %
Light Source	Red Light
Service Life (T = +25 °C)	100000 h
Max. Ambient Light	10000 Lux
Light Spot Diameter	see Table 1

#### Electrical Data

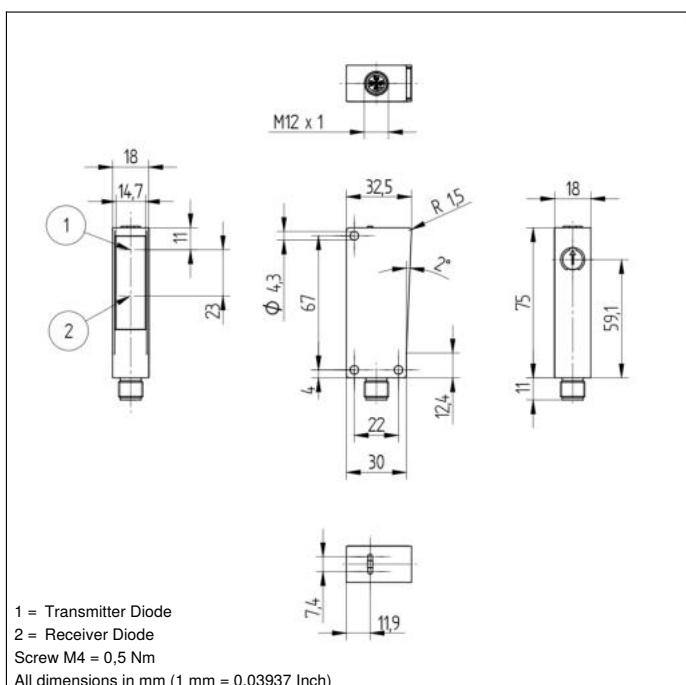
Supply Voltage	15...30 V DC
Supply Voltage with IO-Link	18...30 V DC
Current Consumption (Ub = 24 V)	< 25 mA
Switching Frequency	500 Hz
Switching Frequency (interference-free mode)	350 Hz
Response Time	1,5 ms
Response time (interference-free mode)	2,2 ms
Temperature Drift	< 5 %
Temperature Range	-40...60 °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

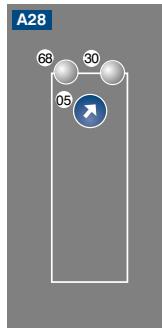
Setting Method	Potentiometer
Housing Material	Plastic
Degree of Protection	IP67/IP68
Connection	M12 x 1; 4-pin
Optic Cover	PMMA
NPN NO/NC antivalent	
IO-Link	
Connection Diagram No.	213
Control Panel No.	A28
Suitable Connection Equipment No.	2
Suitable Mounting Technology No.	350

### Complementary Products

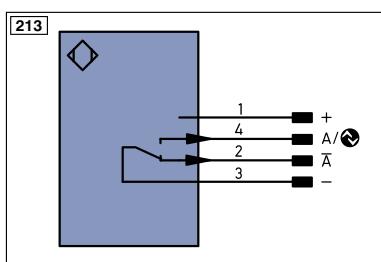
Dust Extraction Tube STAUBTUBUS-03
IO-Link Master
Set Protective Housing Z1NS001
Software



### Ctrl. Panel



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



#### Legend

+	Supply Voltage +	PT	Platinum measuring resistor
-	Supply Voltage 0 V	nc	not connected
~	Supply Voltage (AC Voltage)	U	Test Input
A	Switching Output (NO)	Ü	Test Input inverted
Ā	Switching Output (NC)	W	Trigger Input
V	Contamination/Error Output (NO)	W-	Ground for the Trigger Input
Ā	Contamination/Error Output (NC)	O	Analog Output
E	Input (analog or digital)	O-	Ground for the Analog Output
T	Teach Input	BZ	Block Discharge
Z	Time Delay (activation)	Awv	Valve Output
S	Shielding	a	Valve Control Output +
		b	Valve Control Output 0 V
RxD	Interface Receive Path	SY	Synchronization
TXD	Interface Send Path	SY-	Ground for the Synchronization
RDY	Ready	E+	Receiver-Line
GND	Ground	S+	Emitter-Line
CL	Clock	±	Grounding
E/A	Output/Input programmable	SnR	Switching Distance Reduction
IO-Link		Rx+/-	Ethernet Receive Path
PoE	Power over Ethernet	Tx+/-	Ethernet Send Path
IN	Safety Input	Bus	Interfaces-Bus A(+)/B(-)
DSO	Safety Output	La	Emitted Light disengageable
Signal	Signal Output	Mag	Magnet activation
BLD	Ethernet Gigabit bidirect. data line (A-D)	RES	Input confirmation
ENoRS422	Encoder 0-pulse 0-0 (TTL)	EDM	Contactor Monitoring

ENoRS422 Encoder A/Ā (TTL)

ENoRS422 Encoder B/Ā (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 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

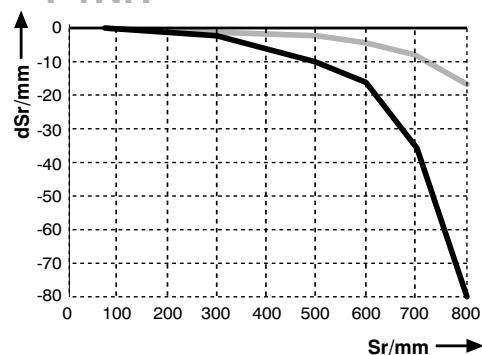
Table 1

Detection Range	160 mm	400 mm	800 mm
Light Spot Diameter	16 mm	20 mm	23 mm

### Switching Distance Deviation

Typical characteristic curve based on white, 90 % remission

### P1NH



Sr = Switching Distance

dSr = Switching Distance Change

black 6 % remission

grey 18 % remission

