P1NH304

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.



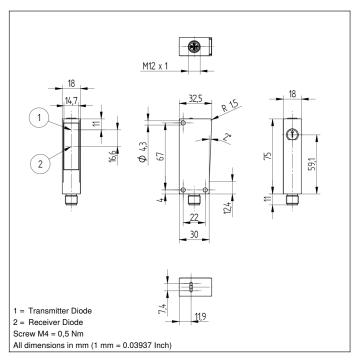
Technical Data

Range 500 mm Adjustable Range 60500 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 1530 V DC Supply Voltage with IO-Link 1830 V DC Current Consumption (Ub = 24 V) < 25 mA 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 -4060 °C Switching Output Voltage Drop < 2 V Switching Output Voltage Drop < 2 V Switching Output Voltage Drop yes Switching Output Voltage Drop yes Reverse Polarity Protection yes Reverse Polarity Protection yes Interface IO-Link V1.1 Protection Class IIII Mechanical Data Setting Method Potentiometer Housing Material Plastic Degree of Protection IP67/IP68 Connection M12 x 1; 4-pin PMMA Safety-relevant Data MTTFd (EN ISO 13849-1) 957,54 a PNP NO/NC antivalent IO-Link Connection Diagram No. Control Panel No. Suitable Connection Equipment No. 2 Suitable Connection Equipment No. 2 Suitable Mounting Technology No. 350	Optical Data			
Switching Hysteresis < 3 %	Range	500 mm		
Light Source	Adjustable Range	60500 mm		
Service Life (T = +25 °C) 100000 h Max. Ambient Light 10000 Lux Light Spot Diameter see Table 1 Electrical Data 1530 V DC Supply Voltage with IO-Link 1830 V DC Current Consumption (Ub = 24 V) < 25 mA	Switching Hysteresis	< 3 %		
Max. Ambient Light Light Spot Diameter See Table 1 Electrical Data Supply Voltage Supply Voltage with IO-Link Switching Frequency Switching Frequency (interference-free mode) Response Time Response time (interference-free mode) Temperature Drift Temperature Range Switching Output Voltage Drop Switching Output/Switching Current Short Circuit Protection Severse Polarity Protection Severse Polarity Protection Setting Method Potentiometer Housing Material Degree of Protection Spafety-relevant Data MTTFd (EN ISO 13849-1) PNP NO/NC antivalent Connection Equipment No. Suitable Connection Equipment No. Suitable Connection Equipment No. Suitable Connection Equipment No.	Light Source	Red Light		
Light Spot Diameter Flectrical Data Supply Voltage	Service Life (T = +25 °C)	100000 h		
Supply Voltage 1530 V DC Supply Voltage 1530 V DC Supply Voltage with IO-Link 1830 V DC Current Consumption (Ub = 24 V) < 25 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	Max. Ambient Light	10000 Lux		
Supply Voltage 1530 V DC Supply Voltage with IO-Link 1830 V DC Current Consumption (Ub = 24 V) < 25 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	Light Spot Diameter	see Table 1		
Supply Voltage with IO-Link Current Consumption (Ub = 24 V)	Electrical Data			
Current Consumption (Ub = 24 V) < 25 mA Switching Frequency	Supply Voltage	1530 V DC		
Switching Frequency Switching Frequency (interference-free mode) Response Time Response time (interference-free mode) Temperature Drift Temperature Drift Temperature Range Switching Output Voltage Drop Switching Output/Switching Current Short Circuit Protection Protection Severse Polarity Protection Setting Method Potentiometer Housing Material Degree of Protection Poptic Cover PMMA Safety-relevant Data MTTFd (EN ISO 13849-1) Poptic Connection Diagram No. Control Panel No. Suitable Connection Equipment No.	Supply Voltage with IO-Link	1830 V DC		
Switching Frequency (interference-free mode) Response Time Response time (interference-free mode) Temperature Drift Temperature Range -4060 °C Switching Output Voltage Drop Switching Output/Switching Current Short Circuit Protection Reverse Polarity Protection yes Overload Protection Interface IO-Link V1.1 Protection Class III Mechanical Data Setting Method Potentiometer Housing Material Degree of Protection Optic Cover PMMA Safety-relevant Data MTTFd (EN ISO 13849-1) PNP NO/NC antivalent IO-Link Connection Diagram No. Control Panel No. Suitable Connection Equipment No. 215	Current Consumption (Ub = 24 V)	< 25 mA		
Response Time Response time (interference-free mode) 1,5 ms Temperature Drift 7 mperature Range 1,4060 °C Switching Output Voltage Drop 2 V Switching Output/Switching Current 100 mA Short Circuit Protection Reverse Polarity Protection 9 yes Overload Protection 100-Link V1.1 Protection Class 111 Mechanical Data Setting Method Potentiometer Housing Material Degree of Protection Plastic Degree of Protection Physical Physical Setting Method Potentiometer Housing Material Plastic Degree of Protection Perf/IP68 Connection M12 × 1; 4-pin Optic Cover PMMA Safety-relevant Data MTTFd (EN ISO 13849-1) PNP NO/NC antivalent IO-Link Connection Diagram No. 215 Control Panel No. Suitable Connection Equipment No.	Switching Frequency	800 Hz		
Response time (interference-free mode) Temperature Drift Temperature Range -4060 °C Switching Output Voltage Drop Switching Output/Switching Current Short Circuit Protection Reverse Polarity Protection Overload Protection Interface IO-Link V1.1 Protection Class III Mechanical Data Setting Method Potentiometer Housing Material Degree of Protection Optic Cover PMMA Safety-relevant Data MTTFd (EN ISO 13849-1) PNP NO/NC antivalent IO-Link Connection Diagram No. Control Panel No. Suitable Connection Equipment No. 1,5 ms -45. % 10.5 ms -4060 °C -4060	Switching Frequency (interference-free mode)	500 Hz		
Temperature Drift Connection Diagram No. Control Panel No.	Response Time	1,25 ms		
Temperature Range -4060 °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) 957,54 a PNP NO/NC antivalent IO-Link Connection Diagram No. 215 Control Panel No. A28 Suitable Connection Equipment No. 2	Response time (interference-free mode)	1,5 ms		
Switching Output Voltage Drop Switching Output/Switching Current Short Circuit Protection Reverse Polarity Protection Overload Protection Interface IO-Link V1.1 Protection Class III Mechanical Data Setting Method Potentiometer Housing Material Degree of Protection Optic Cover PMMA Safety-relevant Data MTTFd (EN ISO 13849-1) PNP NO/NC antivalent IO-Link Connection Diagram No. Control Panel No. Suitable Connection Equipment No.	Temperature Drift	< 5 %		
Switching Output/Switching Current Short Circuit Protection Reverse Polarity Protection Overload Protection Interface Interface	Temperature Range	-4060 °C		
Short Circuit Protection Reverse Polarity Protection Overload Protection Jes Interface IO-Link V1.1 Protection Class III Mechanical Data Setting Method Potentiometer Housing Material Degree of Protection IP67/IP68 Connection Optic Cover PMMA Safety-relevant Data MTTFd (EN ISO 13849-1) PNP NO/NC antivalent IO-Link Connection Diagram No. Control Panel No. Suitable Connection Equipment No.	Switching Output Voltage Drop	< 2 V		
Reverse Polarity Protection Overload Protection Interface Inter	Switching Output/Switching Current	100 mA		
Overload Protection Interface I	Short Circuit 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) 957,54 a PNP NO/NC antivalent IO-Link Connection Diagram No. Control Panel No. Suitable Connection Equipment No. 2	Reverse Polarity Protection	yes		
Protection Class 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) 957,54 a PNP NO/NC antivalent IO-Link Connection Diagram No. Control Panel No. Suitable Connection Equipment No. 2	Overload Protection	yes		
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) 957,54 a PNP NO/NC antivalent IO-Link Connection Diagram No. 215 Control Panel No. A28 Suitable Connection Equipment No. 2	Interface	IO-Link V1.1		
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) 957,54 a PNP NO/NC antivalent IO-Link Connection Diagram No. 215 Control Panel No. A28 Suitable Connection Equipment No. 2	Protection Class	III		
Housing Material Plastic Degree of Protection IP67/IP68 Connection M12 × 1; 4-pin Optic Cover PMMA Safety-relevant Data MTTFd (EN ISO 13849-1) 957,54 a PNP NO/NC antivalent IO-Link Connection Diagram No. 215 Control Panel No. A28 Suitable Connection Equipment No. 2	Mechanical Data			
Degree of Protection IP67/IP68 Connection M12 × 1; 4-pin Optic Cover PMMA Safety-relevant Data MTTFd (EN ISO 13849-1) PNP NO/NC antivalent IO-Link Connection Diagram No. 215 Control Panel No. A28 Suitable Connection Equipment No. 2	Setting Method	Potentiometer		
Connection M12 × 1; 4-pin Optic Cover PMMA Safety-relevant Data MTTFd (EN ISO 13849-1) 957,54 a PNP NO/NC antivalent IO-Link Connection Diagram No. 215 Control Panel No. A28 Suitable Connection Equipment No. 2	Housing Material	Plastic		
Optic Cover PMMA Safety-relevant Data PMMA MTTFd (EN ISO 13849-1) 957,54 a PNP NO/NC antivalent IO-Link Connection Diagram No. 215 Control Panel No. A28 Suitable Connection Equipment No. 2	Degree of Protection	IP67/IP68		
Safety-relevant Data MTTFd (EN ISO 13849-1) PNP NO/NC antivalent IO-Link Connection Diagram No. Control Panel No. Suitable Connection Equipment No. 2 2	Connection	M12 × 1; 4-pin		
MTTFd (EN ISO 13849-1) 957,54 a PNP NO/NC antivalent IO-Link Connection Diagram No. 215 Control Panel No. A28 Suitable Connection Equipment No. 2	Optic Cover	PMMA		
PNP NO/NC antivalent IO-Link Connection Diagram No. Control Panel No. Suitable Connection Equipment No. 215 A28 2	Safety-relevant Data			
IO-Link Connection Diagram No. 215 Control Panel No. Suitable Connection Equipment No. 2	MTTFd (EN ISO 13849-1)	957,54 a		
Connection Diagram No. Control Panel No. Suitable Connection Equipment No. 215 A28 Suitable Connection Equipment No. 2	PNP NO/NC antivalent	•		
Control Panel No. A28 Suitable Connection Equipment No. 2	IO-Link	Ŏ		
Control Panel No. A28 Suitable Connection Equipment No. 2	Connection Diagram No.	215		
	Control Panel No.			
	Suitable Connection Equipment No.	2		
		350		

Complementary Products

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	Dust Extraction Tube STAUBTUBUS-03
I	O-Link Master
5	Set Protective Housing Z1NS001
-	Coffeee

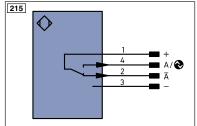




Ctrl. Panel



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



Legen	nd		PT	Platinum measuring resistor	ENARS422	Encoder A/Ā (TTL)
+	Supply Voltage +		nc	not connected	ENBRS422	Encoder B/B (TTL)
-	Supply Voltage 0 V		U	Test Input	ENA	Encoder A
~	Supply Voltage (AC Voltage)		Ū	Test Input inverted	ENB	Encoder B
Α		VO)	W	Trigger Input	Amin	Digital output MIN
Ā	Switching Output (I	VC)	W -	Ground for the Trigger Input	Амах	Digital output MAX
V	Contamination/Error Output (I	VO)	0	Analog Output	Аок	Digital output OK
V		NC)	0-	Ground for the Analog Output	SY In	Synchronization In
E	Input (analog or digital)		BZ	Block Discharge	SY OUT	Synchronization OUT
Т	Teach Input		Awv	Valve Output	OLT	Brightness output
Z	Time Delay (activation)		а	Valve Control Output +	М	Maintenance
S	Shielding		b	Valve Control Output 0 V	rsv	reserved
RxD	Interface Receive Path		SY	Synchronization	Wire Co	olors according to 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	Power 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
	Ethernet Gigabit bidirect. data li	ne (A-D)	RES	Input confirmation	PK	Pink
	Encoder 0-pulse 0-0 (TTL)	,	EDM	Contactor Monitoring	GNYE	Green/Yellow

Table 1

Detection Range	100 mm	250 mm	500 mm
Light Spot Diameter	11 mm	13 mm	15 mm

Switching Distance Deviation

Typical characteristic curve based on white, 90 % remission

