## P1NH601





- Condition monitoring
- IO-Link 1.1
- Large detection range
- Reliably detect objects against any background

The reflex sensor with background suppression works with red light according to the angle measurement principle and is suitable for the detection of objects against any background. The sensor always has the same switching distance, regardless of the color, shape and surface of the objects. Minimal height differences can be detected with the sensors and, for example, various parts can be reliably differentiated from each other. The IO-Link interface can be used to configure the reflex sensors (PNP/NPN, NC/NO), as well as for reading out switching statuses.



Range	Optical Data		
Switching Hysteresis < 10 %  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 1030 V DC  Supply Voltage with IO-Link 1830 V DC  Current Consumption (Ub = 24 V) 30 mA  Switching Frequency 500 Hz  Switching Frequency (interference-free mode) 250 Hz  Response Time 1 ms  Response time (interference-free mode) 2 ms  Temperature Drift 10 %  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 Interface IO-Link V1.1  Protection Class III  Mechanical Data  Setting Method Single-turn  Housing Material Plastic  Degree of Protection IP67/IP68  Connection M12 × 1; 4-pin  Optic Cover PMMA  Safety-relevant Data  MTTFd (EN ISO 13849-1) 2028,3 a  PNP NO/NC antivalent  IO-Link  Connection Diagram No. 215  Control Panel No. 316000000000000000000000000000000000000	Range	1200 mm	
Switching Hysteresis < 10 %  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 1030 V DC  Supply Voltage with IO-Link 1830 V DC  Current Consumption (Ub = 24 V) 30 mA  Switching Frequency 500 Hz  Switching Frequency (interference-free mode) 250 Hz  Response Time 1 ms  Response time (interference-free mode) 2 ms  Temperature Drift	Adjustable Range	1001200 mm	
Service Life (T = +25 °C)         100000 h           Max. Ambient Light         10000 Lux           Light Spot Diameter         see Table 1           Electrical Data         1030 V DC           Supply Voltage with IO-Link         1830 V DC           Current Consumption (Ub = 24 V)         < 30 mA	Switching Hysteresis	< 10 %	
Max. Ambient Light Light Spot Diameter See Table 1  Electrical Data  Supply Voltage Supply Voltage with IO-Link 1830 V DC  Current Consumption (Ub = 24 V) Switching Frequency 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 Ves Reverse Polarity Protection Verload Protection Interface Int	Light Source	Red Light	
Light Spot Diameter  Electrical Data  Supply Voltage  Supply Voltage with IO-Link  Current Consumption (Ub = 24 V)  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  Protection Class  III  Mechanical Data  Setting Method  Sonnection  Poptic Cover  Safety-relevant Data  MTTFd (EN ISO 13849-1)  Connection Diagram No.  Control Panel No.  Suitable Connection Equipment No.	Service Life (T = +25 °C)	100000 h	
Electrical Data  Supply Voltage 1030 V DC  Supply Voltage with IO-Link 1830 V DC  Current Consumption (Ub = 24 V) < 30 mA  Switching Frequency 500 Hz  Switching Frequency (interference-free mode) 250 Hz  Response Time 1 ms  Response time (interference-free mode) 2 ms  Temperature Drift < 10 %  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   III    Mechanical Data  Setting Method   Single-turn    Housing Material   Plastic    Degree of Protection   IP67/IP68    Connection   Optic Cover   PMMA  Safety-relevant Data  MTTFd (EN ISO 13849-1) 2028,3 a    PNP NO/NC antivalent   IO-Link    Connection Diagram No.   215    Control Panel No.   A28    Suitable Connection Equipment No.   215    Control Panel No.   Suitable Connection Equipment No.    Single Control Panel No.   A28    Suitable Connection Equipment No.   22    Control Panel No.   A28    Suitable Connection Equipment No.   22    Control Panel No.   A28    Suitable Connection Equipment No.   20    Control Panel No.   Cantrol Pa	Max. Ambient Light	10000 Lux	
Supply Voltage Supply Voltage with IO-Link Supply Voltage with IO-Link Current Consumption (Ub = 24 V) Switching Frequency Switching Frequency (interference-free mode) Switching Current Switching Output Voltage Drop Switching Output Voltage Drop Switching Output Voltage Drop Switching Output/Switching Current Short Circuit Protection Severse Polarity Protection Syes Overload Protection Interface IO-Link V1.1 III  Mechanical Data Setting Method Single-turn 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.	Light Spot Diameter	see Table 1	
Supply Voltage with IO-Link  Current Consumption (Ub = 24 V)  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  Reverse Polarity Protection  Ves  Interface  Io-Link V1.1  Protection Class  III  Mechanical Data  Setting Method  Housing Material  Degree of Protection  Single-turn  Phastic  Degree of Protection  Optic Cover  PMMA  Safety-relevant Data  MTTFd (EN ISO 13849-1)  PO-Link  Connection Diagram No.  Control Panel No.  Suitable Connection Equipment No.	Electrical Data		
Current Consumption (Ub = 24 V) < 30 mA  Switching Frequency 500 Hz  Response Time 1 ms  Response time (interference-free mode) 2 ms  Temperature Drift < 10 %  Temperature Range -4060 °C  Switching Output Voltage Drop < 2 V  Switching Output/Switching Current 100 mA  Short Circuit Protection yes  Reverse Polarity Protection yes  Interface IO-Link V1.1  Protection Class III  Mechanical Data  Setting Method Single-turn  Housing Material Plastic  Degree of Protection IP67/IP68  Connection M12 × 1; 4-pin  Optic Cover PMMA  Safety-relevant Data  MTTFd (EN ISO 13849-1) 2028,3 a  PNP NO/NC antivalent IO-Link  Connection Diagram No. 215  Control Panel No. A28  Suitable Connection Equipment No. 2	Supply Voltage	1030 V DC	
Switching Frequency Switching Frequency (interference-free mode) Response Time Response time (interference-free mode) Temperature Drift Temperature Bange Switching Output Voltage Drop Switching Output/Switching Current Short Circuit Protection Reverse Polarity Protection Yes Verload Protection Interface IO-Link V1.1 Protection Class III  Mechanical Data Setting Method Single-turn Housing Material Degree of Protection Spendard Safety-relevant Data MTTFd (EN ISO 13849-1) 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  Housing Material  Degree of Protection  Optic Cover  PMMA  Safety-relevant Data  MTTFd (EN ISO 13849-1)  PONONC antivalent  IO-Link  Connection Diagram No.  Control Panel No.  Suitable Connection Equipment No.  2 ms  1 ms  1 ms  2 ms  1 ms  1 ms  2 ms  1 ms  2 ms  1 ms  1 ms  2 ms  1 ms  2 ms  1 ms  1 ms  1 ms  2 ms  1 ms  1 ms  2 ms  1 ms  1 ms  1 ms  2 ms  1 ms  1 ms  1 ms  2 ms  1	Current Consumption (Ub = 24 V)	< 30 mA	
Response Time	Switching Frequency	500 Hz	
Response time (interference-free mode)  Temperature Drift  Temperature Range  -4060 °C  Switching Output Voltage Drop  Switching Output/Switching Current  100 mA  Short Circuit Protection  Reverse Polarity Protection  yes  Overload Protection  Interface  IO-Link V1.1  Protection Class  III  Mechanical Data  Setting Method  Single-turn  Housing Material  Degree of Protection  IP67/IP68  Connection  Optic Cover  PMMA  Safety-relevant Data  MTTFd (EN ISO 13849-1)  PO-Link  Connection Diagram No.  Control Panel No.  Suitable Connection Equipment No.  2 W  Switching Current  100 mA  10	Switching Frequency (interference-free mode)	250 Hz	
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  Single-turn  Housing Material  Degree of Protection  Optic Cover  PMMA  Safety-relevant Data  MTTFd (EN ISO 13849-1)  PO-Link  Connection Diagram No.  Control Panel No.  Suitable Connection Equipment No.  2 V  4060 °C  4060 °C  42 V  4060 °C  42 V  50 C  50 C  42 V  50 C  50 C  42 V  50 C  5	Response Time	1 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 Single-turn  Housing Material Plastic  Degree of Protection IP67/IP68  Connection M12 × 1; 4-pin  Optic Cover PMMA  Safety-relevant Data  MTTFd (EN ISO 13849-1) 2028,3 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)	2 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  Single-turn  Housing Material  Degree of Protection  IP67/IP68  Connection  Optic Cover  PMMA  Safety-relevant Data  MTTFd (EN ISO 13849-1)  PO-Link  Connection Diagram No.  Control Panel No.  Suitable Connection Equipment No.  2 V  100 mA  101 ma  102 Link  103 Link  104 Link  105 Link  106 Link  107 Link  108 Link  109 Link  100 mA  100 m	Temperature Drift	< 10 %	
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  Interface  I	Switching Output Voltage Drop	< 2 V	
Reverse Polarity Protection  Overload Protection  Interface  Interface  Protection Class  III  Mechanical Data  Setting Method  Housing Material  Degree of Protection  Connection  Optic Cover  PMMA  Safety-relevant Data  MTTFd (EN ISO 13849-1)  PO-Link  Connection Diagram No.  Control Panel No.  Suigle-turn  Plastic  Plastic  Plastic  Ple7/IP68  M12 × 1; 4-pin  PMMA  Safety-relevant Data  MTTFd (EN ISO 13849-1)  Connection Diagram No.  215  Control Panel No.  Suitable Connection Equipment No.	Switching Output/Switching Current	100 mA	
Overload Protection  Interface  Interface  Protection Class  III  Mechanical Data  Setting Method  Single-turn  Housing Material  Degree of Protection  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.  III  DeJunk  Single-turn  Plastic  Plastic  Plastic  Plastic  Plastic  Pof7/IP68  Connection  Degree of Protection  IP67/IP68  Single-turn  Plastic  Plastic  Pof7/IP68  Connection  Degree of Protection  IP67/IP68  Connection  Diagram No.  2028,3 a  PNP NO/NC antivalent  IO-Link  Control Panel No.  A28  Suitable Connection Equipment No.  2	Short Circuit Protection	yes	
Interface IO-Link V1.1 Protection Class III  Mechanical Data  Setting Method Single-turn  Housing Material Plastic  Degree of Protection IP67/IP68  Connection M12 × 1; 4-pin  Optic Cover PMMA  Safety-relevant Data  MTTFd (EN ISO 13849-1) 2028,3 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  Single-turn  Housing Material  Plastic  Degree of Protection  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.	Overload Protection	yes	
Mechanical Data  Setting Method  Single-turn  Housing Material  Degree of Protection  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.	Interface	IO-Link V1.1	
Setting Method  Housing Material  Degree of Protection  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.	Protection Class	III	
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.	Mechanical Data		
Degree of Protection IP67/IP68  Connection M12 × 1; 4-pin Optic Cover PMMA  Safety-relevant Data  MTTFd (EN ISO 13849-1) 2028,3 a  PNP NO/NC antivalent IO-Link  Connection Diagram No. 215  Control Panel No. A28 Suitable Connection Equipment No. 2	Setting Method	Single-turn	
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.  2  M12 × 1; 4-pin  PMMA  2028,3 a  PMP NO/NC antivalent  Control Panel No.  A28  Suitable Connection Equipment No.	Housing Material	Plastic	
Optic Cover PMMA  Safety-relevant Data  MTTFd (EN ISO 13849-1) 2028,3 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) 2028,3 a  PNP NO/NC antivalent IO-Link  Connection Diagram No. 215  Control Panel No. A28  Suitable Connection Equipment No. 2	Connection	M12 × 1; 4-pin	
MTTFd (EN ISO 13849-1)  PNP NO/NC antivalent IO-Link  Connection Diagram No.  Control Panel No.  Suitable Connection Equipment No.  2028,3 a  PNP NO/NC antivalent  A28  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.  Control Panel No.  Suitable Connection Equipment No.  215  A28  2	MTTFd (EN ISO 13849-1)	2028,3 a	
Connection Diagram No. 215 Control Panel No. A28 Suitable Connection Equipment No. 2	PNP NO/NC antivalent	•	
Control Panel No.  Suitable Connection Equipment No.  A28  2	IO-Link		
Suitable Connection Equipment No.	Connection Diagram No.	215	
	Control Panel No.	A28	
Suitable Mounting Technology No. 350	Suitable Connection Equipment No.	2	
	Suitable Mounting Technology No.	350	

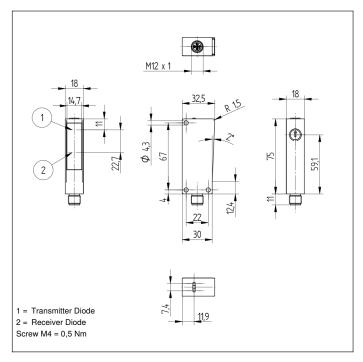
## **Complementary Products**

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

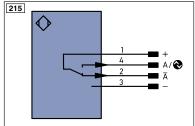
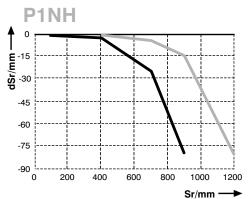


Table 1

<b>Detection Range</b>	100 mm	600 mm	1200 mm
Light Spot Diameter	14 mm	18 mm	30 mm

## **Switching Distance Deviation**

Typical characteristic curve based on white, 90 % remission





■ black 6 % remission

dSr = Switching Distance Change

grey 18 % remission











