

# Reflex Sensor with Background Suppression

## P1NH306



- 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 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.



### Optical Data

|                           |             |
|---------------------------|-------------|
| Range                     | 500 mm      |
| Adjustable Range          | 60...500 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                               | 10...30 V DC |
| Supply Voltage with IO-Link                  | 18...30 V DC |
| Current Consumption (U <sub>b</sub> = 24 V)  | < 25 mA      |
| Switching Frequency                          | 1000 Hz      |
| Switching Frequency (interference-free mode) | 500 Hz       |
| Response Time                                | 0,5 ms       |
| Response time (interference-free mode)       | 1 ms         |
| Temperature Drift                            | < 5 %        |
| Temperature Range                            | -40...60 °C  |
| Switching Output Voltage Drop                | < 2 V        |
| Switching Output/Switching Current           | 100 mA       |
| Residual Current Switching Output            | < 50 µA      |
| 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           |

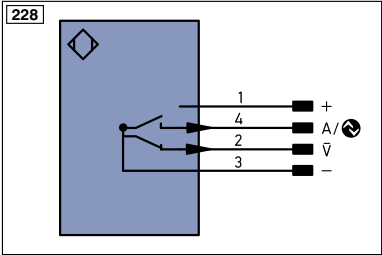
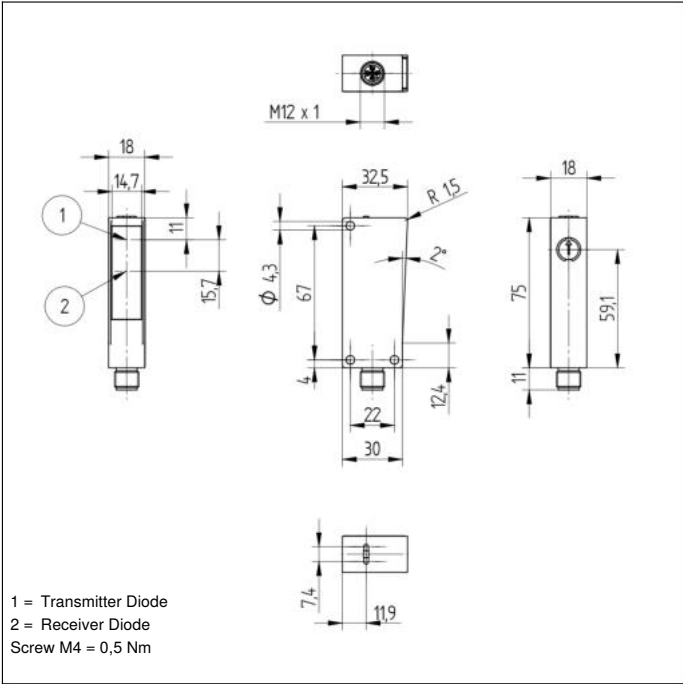
### Safety-relevant Data

|                        |          |
|------------------------|----------|
| MTTFd (EN ISO 13849-1) | 2069,6 a |
|------------------------|----------|

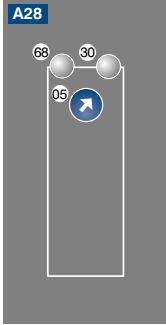
|                                   |     |
|-----------------------------------|-----|
| Contamination Output              | ●   |
| NPN NO                            | ●   |
| IO-Link                           | ●   |
| Connection Diagram No.            | 228 |
| Control Panel No.                 | 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



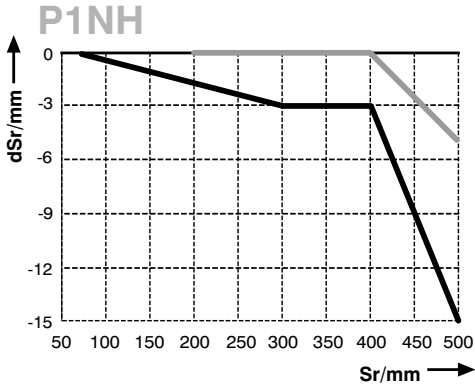
05 = Switching Distance Adjuster  
30 = Switching Status/Contamination Warning  
68 = Supply Voltage Indicator

**Table 1**

| Detection Range     | 60 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



Sr = Switching Distance  
dSr = Switching Distance Change

black 6 % remission  
grey 18 % remission

