

Reflex Sensor with Background Suppression

P1PH604

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.

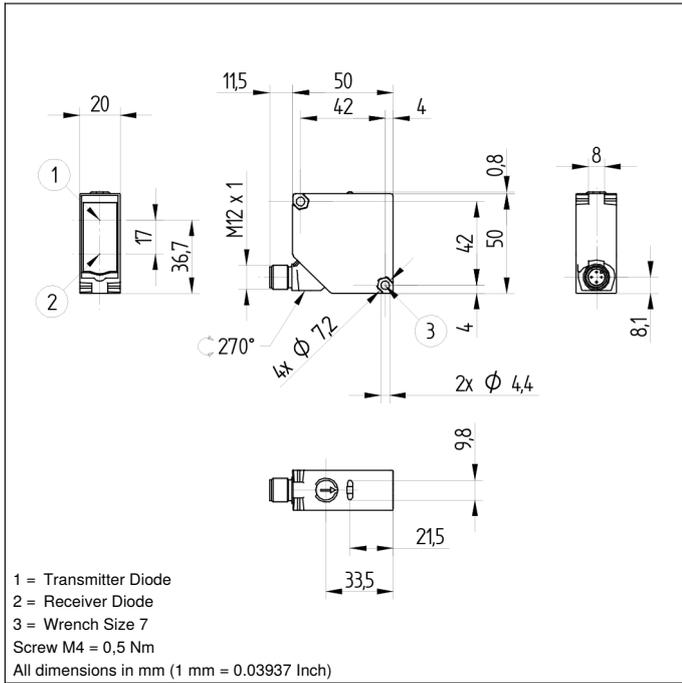


Technical Data

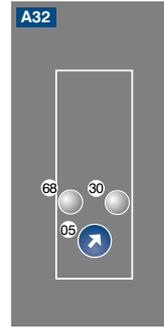
| Optical Data | |
|--|----------------|
| Range | 1200 mm |
| Adjustable Range | 100...1200 mm |
| Switching Hysteresis | < 5 % |
| Light Source | Red Light |
| Service Life (T = +25 °C) | 100000 h |
| Max. Ambient Light | 10000 Lux |
| Light Spot Diameter | see Table 1 |
| Electrical Data | |
| Supply Voltage | 15...30 V DC |
| Supply Voltage with IO-Link | 18...30 V DC |
| Current Consumption (U _b = 24 V) | < 20 mA |
| Switching Frequency | 600 Hz |
| Switching Frequency (interference-free mode) | 400 Hz |
| Response Time | 1,5 ms |
| Response time (interference-free mode) | 2 ms |
| Temperature Drift | < 6 % |
| 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 |
| 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

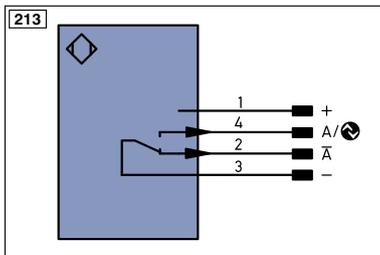
IO-Link Master
Software



Ctrl. Panel



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



| Legend | | | | | |
|-----------------------|--|------------------|--------------------------------|------------------------------------|---------------------|
| + | Supply Voltage + | PT | Platinum measuring resistor | EN ^{A/BS42Z} | Encoder A/Ā (TTL) |
| - | Supply Voltage 0 V | nc | not connected | EN ^{B/RS42Z} | 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 | SY ^{In} | Synchronization In |
| T | Teach Input | BZ | Block Discharge | SY ^{OUT} | Synchronization OUT |
| Z | Time Delay (activation) | A ^W | Valve Output | OL ^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 | SY | Synchronization | Wire Colors according to IEC 60757 | |
| RDY | Ready | SY- | 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 |
| EN ^{0/RS42Z} | Encoder 0-pulse 0-0̄ (TTL) | RES | Input confirmation | PK | Pink |
| | | EDM | Contactur Monitoring | GN ^{YE} | Green/Yellow |

Table 1

| Detection Range | 100 mm | 600 mm | 1200 mm |
|---------------------|--------|--------|---------|
| Light Spot Diameter | 14 mm | 17 mm | 24 mm |

Switching Distance Deviation

Typical characteristic curve based on white, 90 % remission

