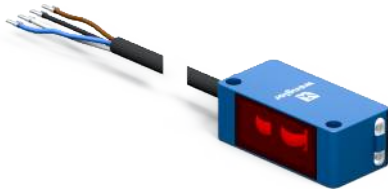


Retro-Reflex Sensor

Universal

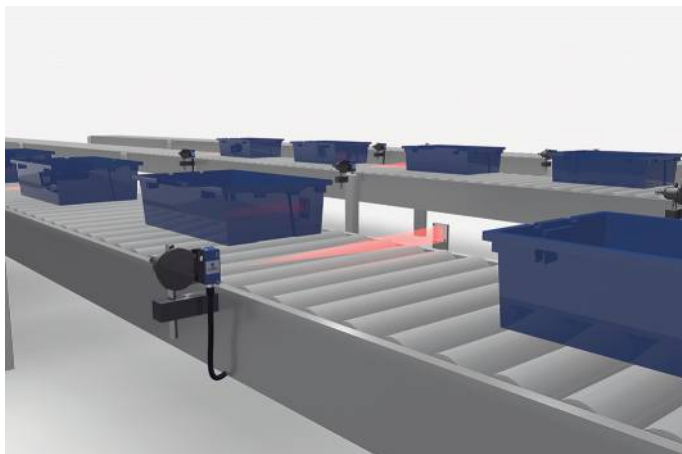
P1KL001

Part Number



- Also suitable for glossy and reflective objects
- Condition monitoring
- High switching frequency
- IO-Link 1.1

The retro-reflex sensor works with red light and a reflector. It also reliably detects objects with reflective or glossy surfaces at high speeds. Thanks to its great range, the sensor can, for example, be used to manage feed and presence controls as well as to detect objects on wide feed belts. The IO-Link interface can be used to configure retro-reflective barriers (PNP/NPN, NC/NO, switching distance), as well as for reading out switching statuses and signal values.



Technical Data

| Optical Data | |
|------------------------------------|-------------|
| Range | 5000 mm |
| Reference Reflector/Reflector Foil | RQ100BA |
| Smallest Recognizable Part | see Table 2 |
| Switching Hysteresis | < 10 % |
| Light Source | Red Light |
| Polarization Filter | yes |
| Service Life (T = +25 °C) | 100000 h |
| Max. Ambient Light | 10000 Lux |
| Light Spot Diameter | see Table 1 |
| Two-Lens Optic | yes |

| Electrical Data | |
|---|--------------|
| Supply Voltage | 10...30 V DC |
| Supply Voltage with IO-Link | 18...30 V DC |
| Current Consumption (U _b = 24 V) | < 20 mA |
| Switching Frequency | 2000 Hz |
| Switching frequency (speed mode) | 3500 Hz |
| Response Time | 0,25 ms |
| Response time (speed mode) | 0,14 ms |
| Temperature Drift | < 10 % |
| 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 |
| Lockable | yes |
| Interface | IO-Link V1.1 |
| Protection Class | III |

| Mechanical Data | |
|-----------------------|----------------------|
| Setting Method | Potentiometer |
| Housing Material | Plastic, ABS/PC |
| Degree of Protection | IP67 |
| Degree of Protection | IP68 |
| Connection | Cable; 4-wire |
| Cable length (L) | 2 m |
| Cable Jacket Material | PVC |
| Wire cross-section | 0,14 mm ² |
| Optic Cover | Plastic, PMMA |

| Safety-relevant Data | |
|------------------------|---|
| MTTFd (EN ISO 13849-1) | 2808,97 a |
| Scope of delivery | 1 × initial start-up instructions 1 × sensor |

| | |
|----------------|---|
| IO-Link | ● |
| PNP NC, PNP NO | ● |

Connection Diagram No. **214**

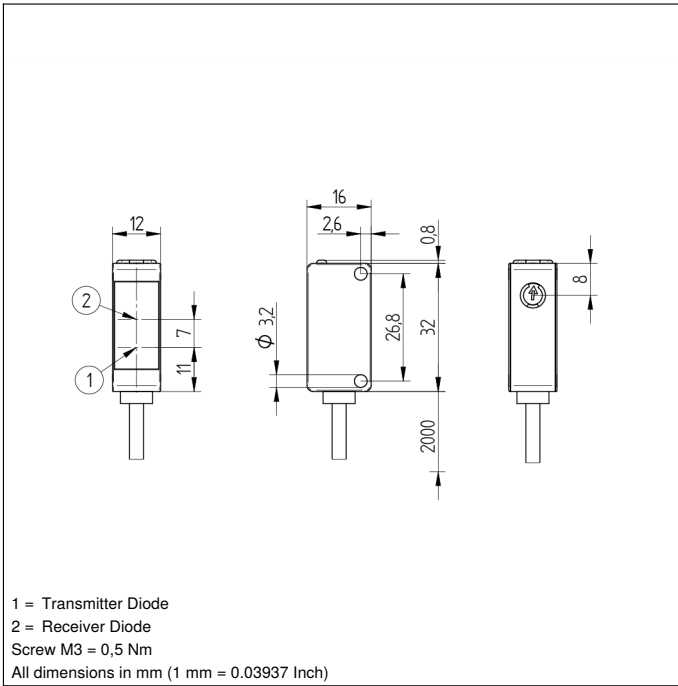
Control Panel No. **1K1**

Suitable Mounting Technology No. **400**

* Temperature range with permanently installed cable, bending radius: > 40 mm

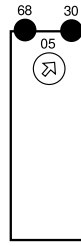
Complementary Products

| | |
|---------------------------|--|
| IO-Link Master | |
| Reflector, Reflector Foil | |
| Software | |

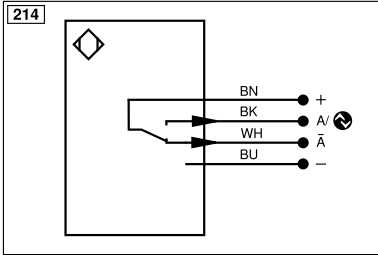


Ctrl. Panel

1K1



05 = Switching Distance Adjuster
 30 = Switching Status/Contamination Warning
 68 = Power LED



| 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) | Ū | Test Input inverted |
| Ā | Switching Output (NC) | W | Trigger Input |
| V | Contamination/Error Output (NO) | W- | Ground for the Trigger Input |
| Ṽ | Contamination/Error Output (NC) | O | Analog Output |
| E | Input (analog or digital) | O- | Ground for the Analog Output |
| T | Teach Input | BZ | Block Discharge |
| R | Reset input | Amv | Valve Output |
| Z | Time Delay (activation) | a | Valve Control Output + |
| S | Shielding | 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(-) |
| QSSD | Safety Output | La | Emitted Light disengageable |
| Signal | Signal Output | Mag | Magnet activation |
| Bl_D+/- | Ethernet Gigabit bidirect. data line (A-D) | RES | Input confirmation |
| ENo RS422 | Encoder 0-pulse 0/0 (TTL) | EDM | Contactor Monitoring |
| | | ENARs422 | Encoder A/Ā (TTL) |
| | | ENBRs422 | Encoder B/B̄ (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 DIN 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

| Working Distance | 0,2 m | 2 m | 5 m |
|---------------------|-------|--------|--------|
| Light Spot Diameter | 30 mm | 180 mm | 400 mm |

Table 2

| Distance, Sensor to Reflector | 1 m | 2,5 m | 5 m |
|-------------------------------|-------|-------|-------|
| Smallest Recognizable Part | 10 mm | 20 mm | 30 mm |

Feasible reflector distance

Reflector type, mounting distance

| | | | |
|-----------|--------------|-----------|---------------|
| RQ100BA | 0,01...5 m | RR21_M | 0,01...1,1 m |
| RE18040BA | 0,01...4,5 m | Z90R004 | 0,15...1,65 m |
| RQ84BA | 0,01...4,5 m | Z90R005 | 0,15...2,3 m |
| RR84BA | 0,01...4,5 m | ZRAE02B01 | 0,01...2 m |
| RE9538BA | 0,01...2 m | ZRME01B01 | 0,01...0,9 m |
| RE6151BM | 0,01...3,5 m | ZRME03B01 | 0,01...1,6 m |
| RR50_A | 0,01...3 m | ZRMR02K01 | 0,01...1 m |
| RE6040BA | 0,01...3,5 m | ZRMS02_01 | 0,01...1 m |
| RE8222BA | 0,01...2,5 m | Z90R001 | 0...1,65 m |
| RR34_M | 0,01...1,6 m | RF505 | 0,02...1,9 m |
| RE3220BM | 0,01...1,5 m | RF508 | 0,02...1,7 m |
| RE6210BM | 0,01...1,5 m | RF258 | 0,02...1,4 m |
| RR25_M | 0,01...1,3 m | ZRDF03K01 | 0,03...3 m |
| RR25KP | 0,01...0,8 m | ZRDF10K01 | 0,03...3,5 m |

