# Reflex Sensor
## Energetic

# P1KT003
Part Number

- ● **Condition monitoring**
- ● **High switching frequency**
- ● **IO-Link 1.1**
- ● **Large detection range**

The reflex sensor works with red light according to the principle of energy and is designed to detect objects without a background. The switching distance is set for a given object. Note that: Bright objects reflect transmitted light better than dark objects. Dark (matte) objects can also be differentiated from bright (glossy) objects. This means that presence or stack height checks can be conducted or counting tasks carried out. 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.
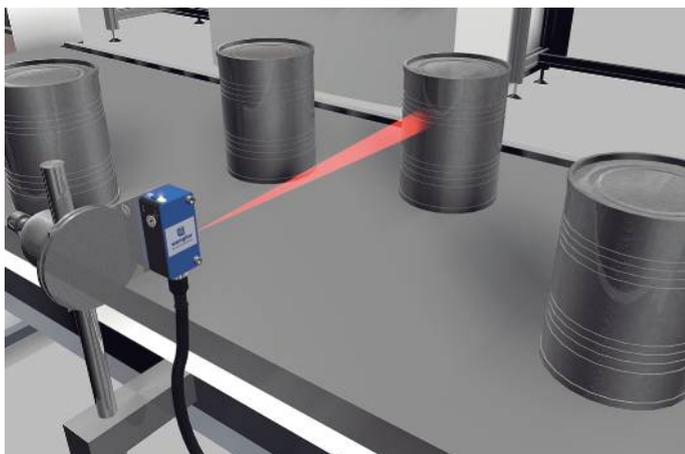
## Technical Data

| Optical Data | |
|---|---|
| Range | 700 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 |
| **Electrical Data** | |
| Supply Voltage | 10...30 V DC |
| Supply Voltage with IO-Link | 18...30 V DC |
| Current Consumption (Ub = 24 V) | < 20 mA |
| Switching Frequency | 500 Hz |
| Switching frequency (speed mode) | 1000 Hz |
| Response Time | 1 ms |
| Response time (speed mode) | 0,5 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 and Overload Protection | yes |
| Reverse Polarity Protection | yes |
| Lockable | yes |
| Interface | IO-Link V1.1 |
| Protection Class | III |
| **Mechanical Data** | |
| Setting Method | Potentiometer |
| Housing Material | Plastic |
| Degree of Protection | IP67/IP68 |
| Connection | M8 × 1; 4-pin |
| Optic Cover | PMMA |
| **Safety-relevant Data** | |
| MTTFd (EN ISO 13849-1) | 2630,72 a |
| IO-Link | ● |
| NPN NO/NC antivalent | ● |
| Connection Diagram No. | 213 |
| Control Panel No. | 1K1 |
| Suitable Connection Equipment No. | 7 |
| Suitable Mounting Technology No. | 400 |

## Complementary Products

| | |
|---|---|
| IO-Link Master | |
| Software | |

1 = Transmitter Diode
2 = Receiver Diode
Screw M3 = 0,5 Nm
All dimensions in mm (1 mm = 0.03937 Inch)

## Ctrl. Panel

**K**
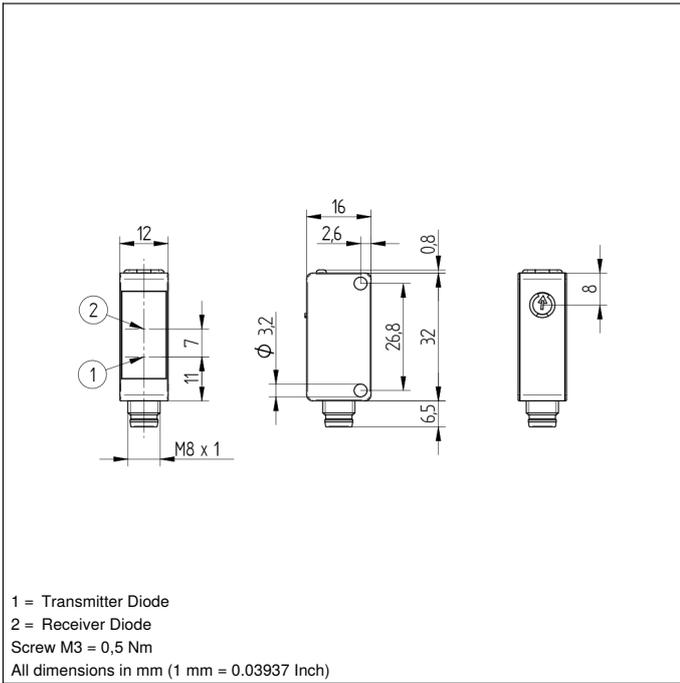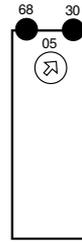
05 = Switching Distance Adjuster
30 = Switching Status/Contamination Warning
68 = supply voltage indicator

213
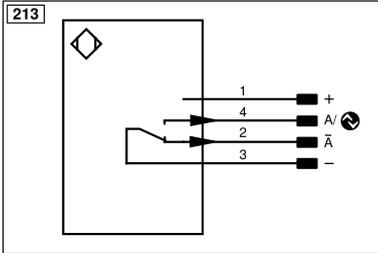


| Legend | | | | | |
|--------|--|--|--|--|--|
| + | Supply Voltage + | nc | Not connected | EN_BRS422 | Encoder B/B̄ (TTL) |
| − | Supply Voltage 0 V | U | Test Input | EN_A | Encoder A |
| ~ | Supply Voltage (AC Voltage) | Ū | Test Input inverted | EN_B | Encoder B |
| A | Switching Output (NO) | W | Trigger Input | A_MIN | Digital output MIN |
| Ā | Switching Output (NC) | W− | Ground for the Trigger Input | A_MAX | Digital output MAX |
| V | Contamination/Error Output (NO) | O | Analog Output | A_OK | Digital output OK |
| V̄ | Contamination/Error Output (NC) | O− | Ground for the Analog Output | SY In | Synchronization In |
| E | Input (analog or digital) | BZ | Block Discharge | SY OUT | Synchronization OUT |
| T | Teach Input | A_MV | Valve Output | O_LT | Brightness output |
| Z | Time Delay (activation) | a | Valve Control Output + | M | Maintenance |
| S | Shielding | b | Valve Control Output 0 V | rsv | Reserved |
| RxD | Interface Receive Path | SY | Synchronization | Wire Colors according to DIN 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 | ower 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 |
| BI_D+/− | Ethernet Gigabit bidirect. data line (A-D) | RES | Input confirmation | PK | Pink |
| EN_0 RS422 | Encoder 0-pulse 0/0̄ (TTL) | EDM | Contactor Monitoring | GNYE | Green/Yellow |
| PT | Platinum measuring resistor | EN_ARS422 | Encoder A/Ā (TTL) | | |

## Table 1

| Detection Range | 100 mm | 300 mm | 700 mm |
|-----------------|--------|--------|--------|
| **Light Spot Diameter** | 20 mm | 40 mm | 80 mm |