

# Through-Beam Sensor

## P1KS002

Part Number



- Condition monitoring
- High light intensity with large switching reserve
- IO-Link 1.1
- Test input for high operational reliability

### Technical Data

#### Optical Data

|                           |             |
|---------------------------|-------------|
| Range                     | 6000 mm     |
| Light Source              | Red Light   |
| Service Life (T = +25 °C) | 100000 h    |
| Light Spot Diameter       | see Table 1 |

#### Electrical Data

|                                             |              |
|---------------------------------------------|--------------|
| Sensor Type                                 | Emitter      |
| Supply Voltage                              | 10...30 V DC |
| Current Consumption (U <sub>b</sub> = 24 V) | < 20 mA      |
| Temperature Drift                           | < 10 %       |
| Temperature Range                           | -40...60 °C  |
| Reverse Polarity Protection                 | yes          |
| Lockable                                    | yes          |
| Test input                                  | yes          |
| Protection Class                            | III          |

#### Mechanical Data

|                      |               |
|----------------------|---------------|
| Housing Material     | Plastic       |
| Degree of Protection | IP67/IP68     |
| Connection           | M8 × 1; 3-pin |
| Optic Cover          | PMMA          |

#### Safety-relevant Data

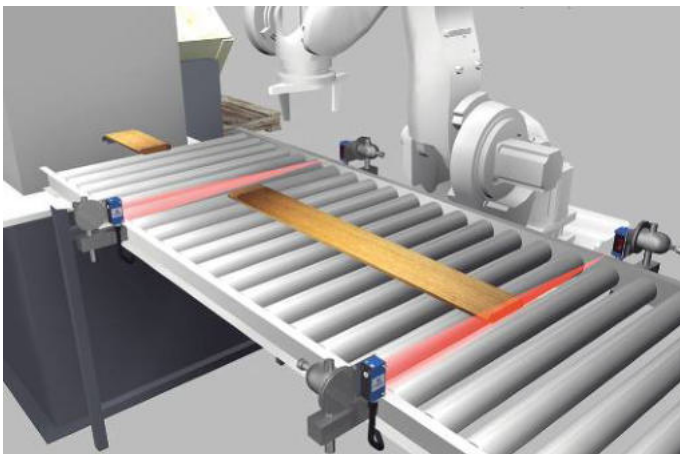
|                        |           |
|------------------------|-----------|
| MTTFd (EN ISO 13849-1) | 3063,75 a |
|------------------------|-----------|

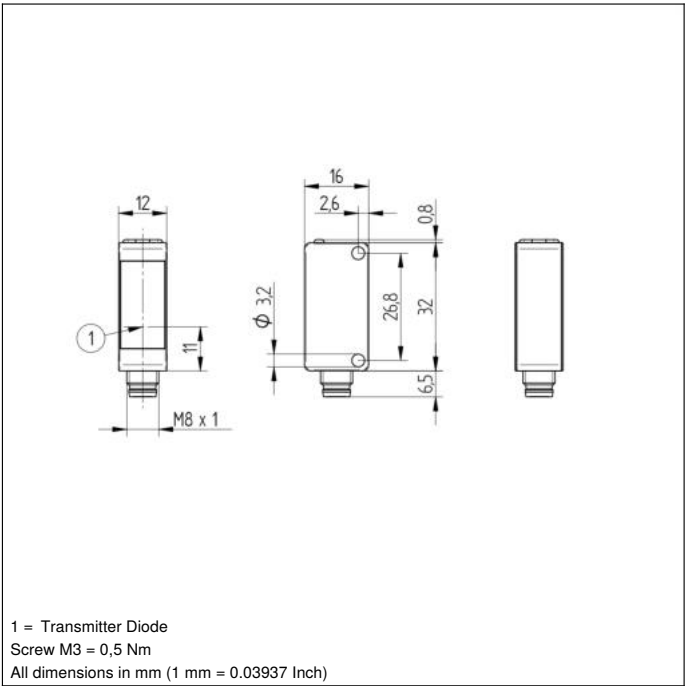
|                                   |     |
|-----------------------------------|-----|
| Connection Diagram No.            | 703 |
| Control Panel No.                 | 1K2 |
| Suitable Connection Equipment No. | 8   |
| Suitable Mounting Technology No.  | 400 |

### Suitable Receiver

P1KE002  
P1KE004

The through-beam sensor works with red light as well as a transmitter and a receiver. Thanks to their high light intensity, the sensor provides a high degree of operational reliability even with interferences like steam, fog or dust. The transmitter can be deactivated using test input in order to test the functionality of the through-beam sensor. The IO-Link interface can be used to configure the sensor (PNP/NPN, NC/NO, switching distance), as well as for reading out switching statuses and signal values.



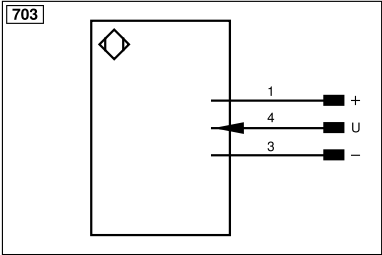


## Ctrl. Panel

1K2



04 = Function Indicator  
68 = supply voltage indicator



| Legend    |                                            |         |                                |                                        |                     |
|-----------|--------------------------------------------|---------|--------------------------------|----------------------------------------|---------------------|
| +         | Supply Voltage +                           | nc      | Not connected                  | ENBRS422                               | Encoder B/B (TTL)   |
| -         | Supply Voltage 0 V                         | U       | Test Input                     | ENA                                    | Encoder A           |
| ~         | Supply Voltage (AC Voltage)                | Ü       | Test Input inverted            | ENb                                    | Encoder B           |
| A         | Switching Output (NO)                      | W       | Trigger Input                  | AMIN                                   | Digital output MIN  |
| Ä         | Switching Output (NC)                      | W-      | Ground for the Trigger Input   | AMAX                                   | Digital output MAX  |
| V         | Contamination/Error Output (NO)            | O       | Analog Output                  | AOK                                    | Digital output OK   |
| Ȳ         | 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                                | Amv     | Valve Output                   | OLT                                    | 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   | IO-Link                                    | Rx+/-   | Ethernet Receive Path          | GN                                     | Green               |
| PoE       | Power 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               |
| BL_D+/-   | Ethernet Gigabit bidirect. data line (A-D) | RES     | Input confirmation             | PK                                     | Pink                |
| ENo RS422 | Encoder 0-pulse 0/Ü (TTL)                  | EDM     | Contact Monitoring             | GNYE                                   | Green/Yellow        |
| PT        | Platinum measuring resistor                | ENAR422 | Encoder A/A (TTL)              |                                        |                     |

Table 1

| Working Distance    | 1 m   | 2 m    | 6 m    |
|---------------------|-------|--------|--------|
| Light Spot Diameter | 70 mm | 140 mm | 500 mm |