

# Through-Beam Sensor

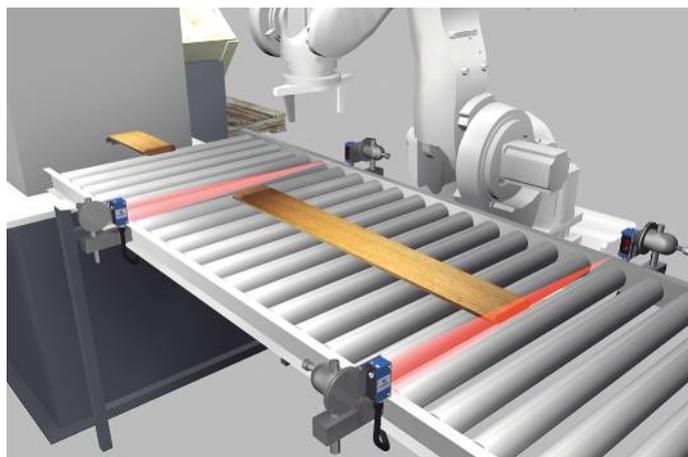
## P1KE008

Part Number



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

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.



### Technical Data

| Optical Data               |             |
|----------------------------|-------------|
| Range                      | 6000 mm     |
| Smallest Recognizable Part | see Table 1 |
| Switching Hysteresis       | < 10 %      |
| Light Source               | Red Light   |
| Service Life (T = +25 °C)  | 100000 h    |
| Max. Ambient Light         | 10000 Lux   |

| Electrical Data                              |              |
|--|--------------|
| Sensor Type                                  | Receiver     |
| Supply Voltage                               | 10...30 V DC |
| Supply Voltage with IO-Link                  | 18...30 V DC |
| Current Consumption (U <sub>b</sub> = 24 V)  | < 20 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                            | < 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           | Cable, 3-wire, 2 m |
| Optic Cover          | PMMA               |

| Safety-relevant Data   |           |
|------------------------|-----------|
| MTTFd (EN ISO 13849-1) | 2111,25 a |

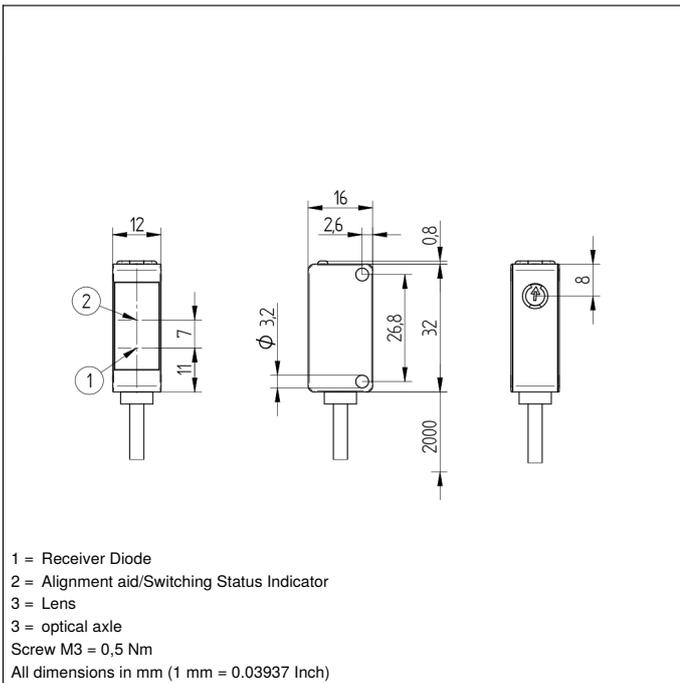
|                                  |     |
|----------------------------------|-----|
| NPN NC                           | ●   |
| IO-Link                          | ●   |
| Connection Diagram No.           | 198 |
| Control Panel No.                | 1K1 |
| Suitable Mounting Technology No. | 400 |

### Suitable Emitter

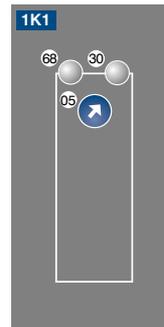
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| P1KS001 |
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### Complementary Products

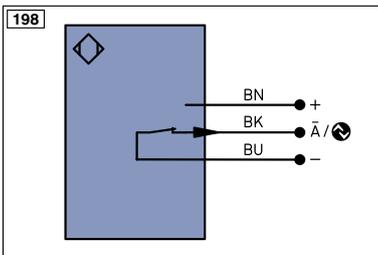
|                         |
|-------------------------|
| IO-Link Master Software |
|-------------------------|



### Ctrl. Panel



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



| Legend   |  |                                      |                                |
|----------|--|--------------------------------------|--------------------------------|
| +        | Supply Voltage +                           | PT                                   | Platinum measuring resistor    |
| -        | 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                |
| Z        | Time Delay (activation)                    | AMV                                  | Valve Output                   |
| S        | Shielding                                  | a                                    | Valve Control Output +         |
| RxD      | Interface Receive Path                     | b                                    | Valve Control Output 0 V       |
| TxD      | Interface Send Path                        | SY                                   | Synchronization                |
| RDY      | Ready                                      | SY-                                  | Ground for the Synchronization |
| GND      | Ground                                     | E+                                   | Receiver-Line                  |
| CL       | Clock                                      | S+                                   | Emitter-Line                   |
| E/A      | Output/Input programmable                  | ±                                    | Grounding                      |
|          | IO-Link                                    | SnR                                  | Switching Distance Reduction   |
| PoE      | Power over Ethernet                        | Rx+/-                                | Ethernet Receive Path          |
| IN       | Safety Input                               | Tx+/-                                | Ethernet Send Path             |
| OSSD     | Safety Output                              | Bus                                  | Interfaces-Bus A(+)/B(-)       |
| Signal   | Signal Output                              | La                                   | Emitted Light disengageable    |
| Bl_D+/-  | Ethernet Gigabit bidirect. data line (A-D) | Mag                                  | Magnet activation              |
| EN0RS42Z | Encoder 0-pulse 0-0 (TTL)                  | RES                                  | Input confirmation             |
|          |  | EDM                                  | Contacting Monitoring          |
|          |  | ENAR542Z                             | Encoder A/Ā (TTL)              |
|          |  | ENBR542Z                             | 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 757 |                                |
|          |  | BK                                   | Black                          |
|          |  | BN                                   | Brown                          |
|          |  | RD                                   | Red                            |
|          |  | OG                                   | Orange                         |
|          |  | YE                                   | Yellow                         |
|          |  | GN                                   | Green                          |
|          |  | BU                                   | Blue                           |
|          |  | VT                                   | Violet                         |
|          |  | GY                                   | Grey                           |
|          |  | WH                                   | White                          |
|          |  | PK                                   | Pink                           |
|          |  | GNVE                                 | Green/Yellow                   |

Table 1

| Distance transmitter/receiver | 1 m  | 2 m  | 6 m  |
|-------------------------------|------|------|------|
| Smallest Recognizable Part    | 4 mm | 1 mm | 1 mm |

