

# Fork Sensor

**P1HJ002**

**LASER**

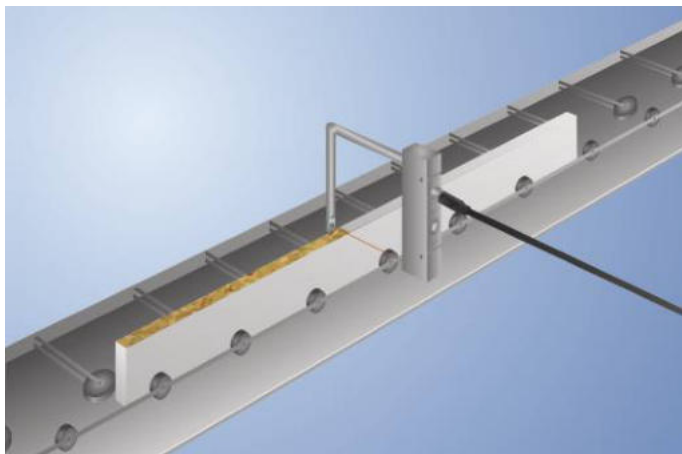
Part Number

InoxSens



- Collimated laser beam (Ø 0.35 mm diameter over the entire fork width)
- Recognition of transparent objects
- Rugged, corrosion-free V4A stainless steel housing in hygienic design
- Teach-in key and external teach-in

Fork sensors have a collimated laser beam with a very small diameter of 0.35 mm over the entire fork width. As a result, they're capable of detecting extremely small parts down to a size of just 40 µm and even transparent objects at high speeds of up to 10 kHz. The innovative layout of the fork sensors in hygienic design permits various fork widths within a range of 50 to 220 mm, and allows contamination and cleaning agents to flow off of the surface in an ideal manner.



## Technical Data

### Optical Data

|                            |             |
|----------------------------|-------------|
| Fork Width                 | 220 mm      |
| Smallest Recognizable Part | 40 µm       |
| Smallest Detectable Gap    | 50 µm       |
| Switching Hysteresis       | < 10 %      |
| Light Source               | Laser (red) |
| Service Life (T = +25 °C)  | 100000 h    |
| Laser Class (EN 60825-1)   | 1           |
| Max. Ambient Light         | 10000 Lux   |
| Light Spot Diameter        | 0,35 mm     |
| Repeat Accuracy            | < 5 µm      |

### Electrical Data

|                                        |              |
|----------------------------------------|--------------|
| Supply Voltage                         | 10...30 V DC |
| Current Consumption (Ub = 24 V)        | < 20 mA      |
| Switching Frequency                    | 10 kHz       |
| Response Time                          | 50 µs        |
| Off-Delay                              | 0...100 ms   |
| Temperature Range                      | -25...60 °C  |
| Switching Output Voltage Drop          | < 2,5 V      |
| PNP Switching Output/Switching Current | 100 mA       |
| Short Circuit Protection               | yes          |
| Reverse Polarity Protection            | yes          |
| Overload Protection                    | yes          |
| Teach Mode                             | NT, MT       |
| Protection Class                       | III          |

### Mechanical Data

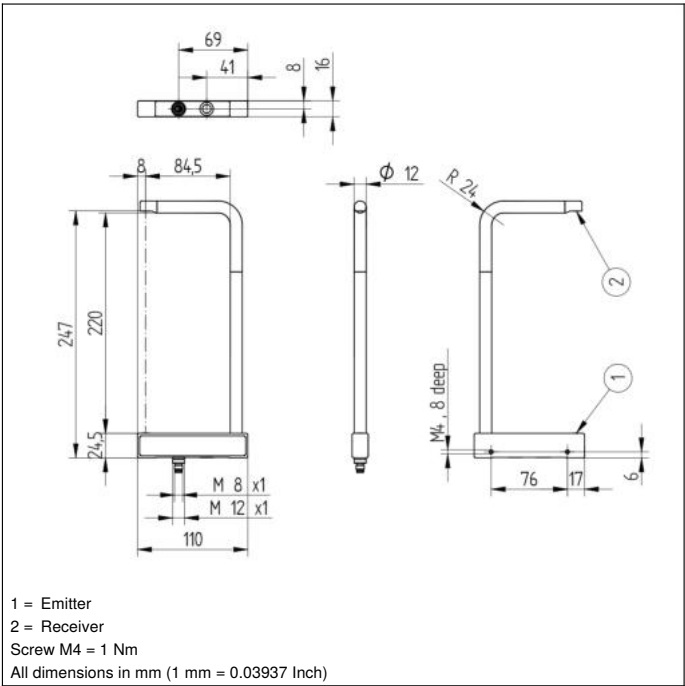
|                      |                      |
|----------------------|----------------------|
| Setting Method       | Teach-In             |
| Housing Material     | Stainless steel 316L |
| Optic Cover          | Glass                |
| Degree of Protection | IP69K                |
| Connection           | M8 × 1; 4-pin        |
| Ecolab               | yes                  |

### Safety-relevant Data

|                        |           |
|------------------------|-----------|
| MTTFd (EN ISO 13849-1) | 1615,89 a |
|------------------------|-----------|

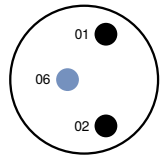
PNP NO/NC switchable

|                                   |     |
|-----------------------------------|-----|
| Connection Diagram No.            | 152 |
| Control Panel No.                 | 115 |
| Suitable Connection Equipment No. | 7   |
| Suitable Mounting Technology No.  | 570 |

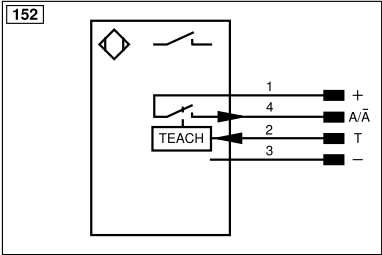


1 = Emitter  
2 = Receiver  
Screw M4 = 1 Nm  
All dimensions in mm (1 mm = 0.03937 Inch)

**Ctrl. Panel**  
**5**



01 = Switching Status Indicator  
02 = Contamination Warning  
20 = Enter key  
36 = Mode 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   |
| Ÿ         | 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                | ENARIS422 | Encoder A/Ä (TTL)              |                                        |                     |