

# Fork Sensor

## YH03NCT8

## LASER

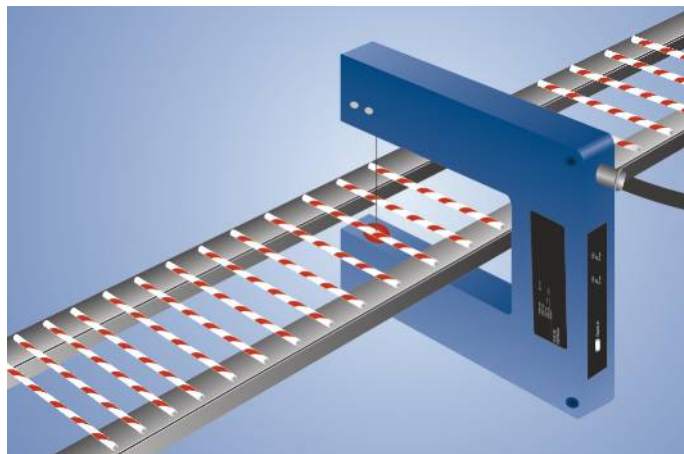
Part Number



- Fine light beam (0,6 mm) over entire width of fork
- Recognition of transparent objects
- Repetition accuracy: 5  $\mu\text{m}$
- Teach-in

The transmitter and the receiver are integrated into a single housing as a light barrier. If the active light beam between the transmitter and the receiver is interrupted, the output is switched accordingly.

Thanks to the use of visible laser light, the sensor is very easy to align to the object. The use of a fine light beam ensures a small diameter spot over the entire width of the fork. This allows for the recognition of extremely small parts, holes, slots and notches.



### Technical Data

#### Optical Data

|                            |                    |
|----------------------------|--------------------|
| Fork Width                 | 30 mm              |
| Smallest Recognizable Part | 40 $\mu\text{m}$   |
| Smallest Detectable Gap    | 50 $\mu\text{m}$   |
| Switching Hysteresis       | < 20 $\mu\text{m}$ |
| Light Source               | Laser (red)        |
| Wave Length                | 655 nm             |
| Service Life (T = +25 °C)  | 100000 h           |
| Laser Class (EN 60825-1)   | 2                  |
| Max. Ambient Light         | 10000 Lux          |
| Spot Diameter              | 0,6 mm             |
| Repeat Accuracy            | < 5 $\mu\text{m}$  |

#### Electrical Data

|                                             |                  |
|---------------------------------------------|------------------|
| Supply Voltage                              | 10...30 V DC     |
| Current Consumption (U <sub>b</sub> = 24 V) | < 50 mA          |
| Switching Frequency                         | 10 kHz           |
| Response Time                               | 50 $\mu\text{s}$ |
| Off-Delay                                   | 0...100 ms       |
| Temperature Range                           | -25...60 °C      |
| Switching Output Voltage Drop               | < 1,5 V          |
| NPN Switching Output/Switching Current      | 200 mA           |
| internal Load Switching Output              | 5100 Ohm         |
| Short Circuit Protection                    | yes              |
| Reverse Polarity Protection                 | yes              |
| Overload Protection                         | yes              |
| Teach Mode                                  | NT, MT           |
| Protection Class                            | III              |
| FDA Accession Number                        | 0820591-000      |

#### Mechanical Data

|                      |                               |
|----------------------|-------------------------------|
| Setting Method       | Teach-In                      |
| Housing Material     | Plastic; Steel, nickel-plated |
| Full Encapsulation   | yes                           |
| Degree of Protection | IP67                          |
| Connection           | M8 × 1; 3-pin                 |

#### Safety-relevant Data

|                        |          |
|------------------------|----------|
| MTTFd (EN ISO 13849-1) | 1436,4 a |
|------------------------|----------|

NPN NO/NC switchable

Connection Diagram No.

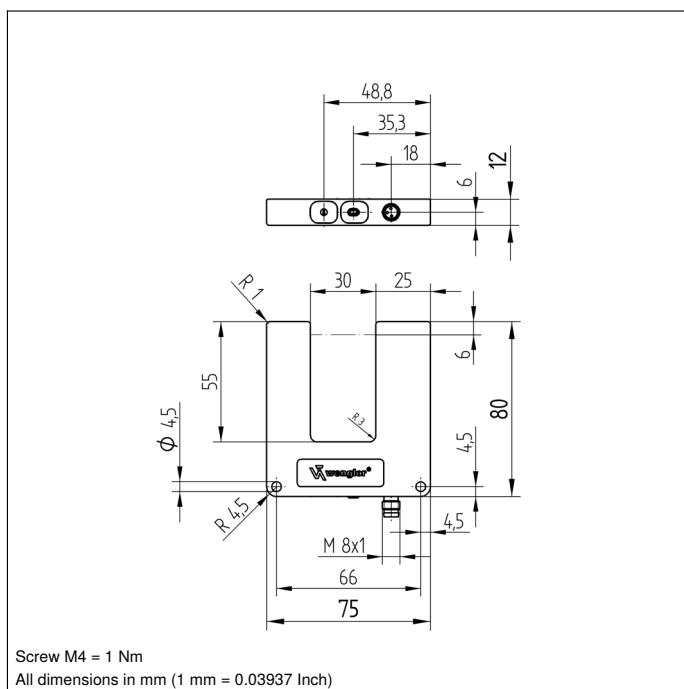
Control Panel No.

Suitable Connection Technology No.

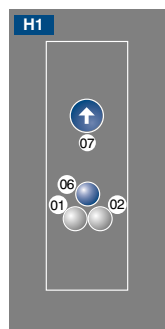
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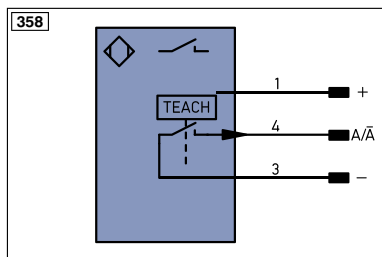
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## Ctrl. Panel



- 01 = Switching Status Indicator  
02 = Contamination Warning  
06 = Teach Button  
07 = Selector Switch



## 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)                      | U        | Test Input inverted          |
| Ä         | Switching Output (NC)                      | W        | Trigger Input                |
| V         | Contamination/Error Output (NO)            | O        | Analog Output                |
| V         | Contamination/Error Output (NC)            | O-       | Ground for the Analog Output |
| E         | Input (analog or digital)                  | BZ       | Block Discharge              |
| T         | Teach Input                                | AWV      | 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                        | E+       | Receiver-Line                |
| RDY       | Ready                                      | S+       | Emitter-Line                 |
| GND       | Ground                                     | ±        | Grounding                    |
| CL        | Clock                                      | SnR      | Switching Distance Reduction |
| E/A       | Output/Input programmable                  | Rx+/-    | Ethernet Receive Path        |
| IO-Link   | IO-Link                                    | Tx+/-    | Ethernet Send Path           |
| PoE       | Power over Ethernet                        | Bus      | Interfaces-Bus A(+)/B(-)     |
| IN        | Safety Input                               | La       | Emitted Light disengageable  |
| OSSD      | Safety Output                              | Mag      | Magnet activation            |
| Signal    | Signal Output                              | RES      | Input confirmation           |
| BL-D+/-   | Ethernet Gigabit bidirect. data line (A-D) | EDM      | Contact Monitoring           |
| EN0-PS422 | Encoder 0-pulse 0-0 (TTL)                  | ENAR5422 | Encoder A/Ä (TTL)            |
|           |                                            | ENBR5422 | Encoder B/B (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         |

## 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         |
| GNYE | Green/Yellow |