

# Reflex Sensor with Background Suppression

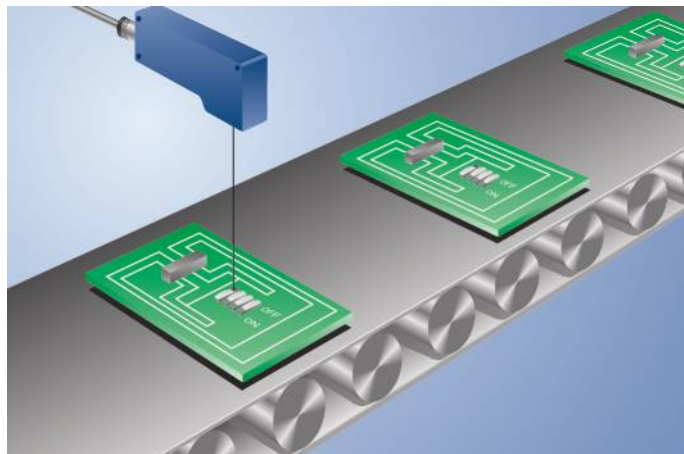
## YN33PBV3 LASER

Part Number



- High precision background suppression up to 300 mm
- Stainless steel plug (V2A)
- Switching frequency: 1 kHz

These sensors detect distance by measuring angles. They are particularly good at recognizing objects in front of any background. The color, shape and surface characteristics of the object have practically no influence on sensor switching performance.

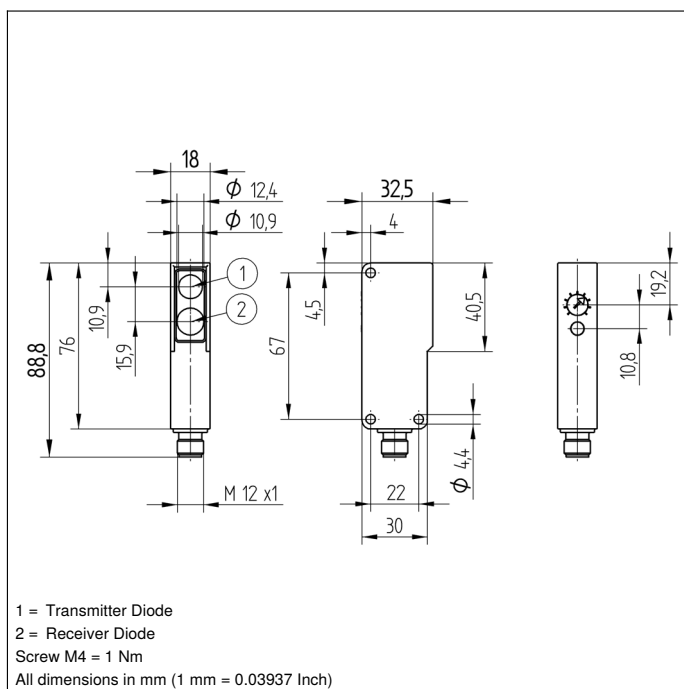


### Technical Data

| Optical Data                                |                |
|---------------------------------------------|----------------|
| Range                                       | 300 mm         |
| Adjustable Range                            | 65...300 mm    |
| Switching Hysteresis                        | < 1 %          |
| Light Source                                | Laser (red)    |
| Wavelength                                  | 655 nm         |
| Service Life (T = +25 °C)                   | 100000 h       |
| Laser Class (EN 60825-1)                    | 2              |
| Max. Ambient Light                          | 10000 Lux      |
| Light Spot Diameter                         | see Table 1    |
| Electrical Data                             |                |
| Supply Voltage                              | 10...30 V DC   |
| Current Consumption (U <sub>b</sub> = 24 V) | < 20 mA        |
| Switching Frequency                         | 1 kHz          |
| Response Time                               | 500 µs         |
| Temperature Drift                           | < 2 %          |
| Temperature Range                           | -25...60 °C    |
| Switching Output Voltage Drop               | < 2,5 V        |
| PNP Switching Output/Switching Current      | 200 mA         |
| Contamination Output Voltage Drop           | < 2,5 V        |
| PNP Contamination Output/Switching Current  | 50 mA          |
| Short Circuit Protection                    | yes            |
| Reverse Polarity Protection                 | yes            |
| Overload Protection                         | yes            |
| Protection Class                            | III            |
| FDA Accession Number                        | 0820373-000    |
| Mechanical Data                             |                |
| Setting Method                              | Potentiometer  |
| Housing Material                            | Plastic        |
| Degree of Protection                        | IP67           |
| Connection                                  | M12 × 1; 4-pin |
| Safety-relevant Data                        |                |
| MTTFd (EN ISO 13849-1)                      | 1930,46 a      |
| Contamination Output                        | ●              |
| PNP NO                                      | ●              |
| Connection Diagram No.                      | 103            |
| Control Panel No.                           | N3             |
| Suitable Connection Equipment No.           | 2              |
| Suitable Mounting Technology No.            | 350            |

### Complementary Products

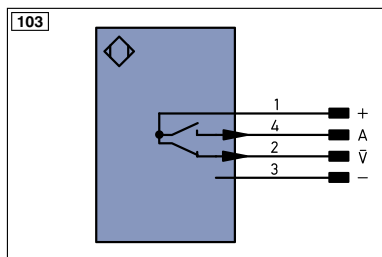
|                                    |
|------------------------------------|
| Dust Extraction Tube STAUBTUBUS-03 |
| PNP-NPN Converter BG2V1P-N-2M      |
| Set Protective Housing ZSN-NN-02   |



## Ctrl. Panel



05 = Switching Distance Adjuster  
30 = Switching Status/Contamination Warning



## Legend

|         |                                            |       |                                |                                      |                     |
|---------|--------------------------------------------|-------|--------------------------------|--------------------------------------|---------------------|
| +       | Supply Voltage +                           | PT    | Platinum measuring resistor    | ENAR5422                             | Encoder A/Ä (TTL)   |
| -       | Supply Voltage 0 V                         | nc    | not connected                  | ENB5422                              | Encoder B/B (TTL)   |
| ~       | Supply Voltage (AC Voltage)                | U     | Test Input                     | ENA                                  | Encoder A           |
| A       | Switching Output (NO)                      | Ü     | Test Input inverted            | ENB                                  | Encoder B           |
| Ä       | Switching Output (NC)                      | W     | Trigger Input                  | AMIN                                 | Digital output MIN  |
| V       | Contamination/Error Output (NO)            | W-    | Ground for the Trigger Input   | AMAX                                 | Digital output MAX  |
| Ů       | Contamination/Error Output (NC)            | O     | Analog Output                  | AOK                                  | Digital output OK   |
| E       | Input (analog or digital)                  | O-    | Ground for the Analog Output   | SY in                                | Synchronization In  |
| T       | Teach Input                                | BZ    | Block Discharge                | SY OUT                               | Synchronization OUT |
| Z       | Time Delay (activation)                    | AMV   | Valve Output                   | OLT                                  | Brightness output   |
| S       | Shielding                                  | a     | Valve Control Output +         | M                                    | Maintenance         |
| RxD     | Interface Receive Path                     | b     | Valve Control Output 0 V       | rsv                                  | reserved            |
| TxD     | Interface Send Path                        | SY    | Synchronization                | Wire Colors according to DIN IEC 757 |                     |
| RDY     | Ready                                      | SY-   | Ground for the Synchronization | BK                                   | Black               |
| GND     | Ground                                     | E+    | Receiver-Line                  | BN                                   | Brown               |
| CL      | Clock                                      | S+    | Emitter-Line                   | RD                                   | Red                 |
| E/A     | Output/Input programmable                  | ±     | Grounding                      | OG                                   | Orange              |
| IO-Link | IO-Link                                    | SrR   | Switching Distance Reduction   | YE                                   | Yellow              |
| PoE     | Power over Ethernet                        | Rx+/- | Ethernet Receive Path          | GN                                   | Green               |
| IN      | Safety Input                               | Tx+/- | Ethernet Send Path             | BU                                   | Blue                |
| OSSD    | Safety Output                              | Bus   | Interfaces-Bus A(+)/B(-)       | VT                                   | Violet              |
| Signal  | Signal Output                              | La    | Emitted Light disengageable    | GY                                   | Grey                |
| BLD+/-  | Ethernet Gigabit bidirect. data line (A-D) | Mag   | Magnet activation              | WH                                   | White               |
| EN05422 | Encoder 0-pulse 0-0 (TTL)                  | RES   | Input confirmation             | PK                                   | Pink                |
|         |                                            | EDM   | Contactur Monitoring           | GNYE                                 | Green/Yellow        |

Table 1

| Detection Range     | 60 mm | 150 mm | 300 mm |
|---------------------|-------|--------|--------|
| Light Spot Diameter | 3 mm  | 2 mm   | 3 mm   |

## Switching Distance Deviation

Typical characteristic curve based on white, 90 % remission

