

# Reflex Sensor with Background Suppression

## YD24NA3 LASER

Part Number



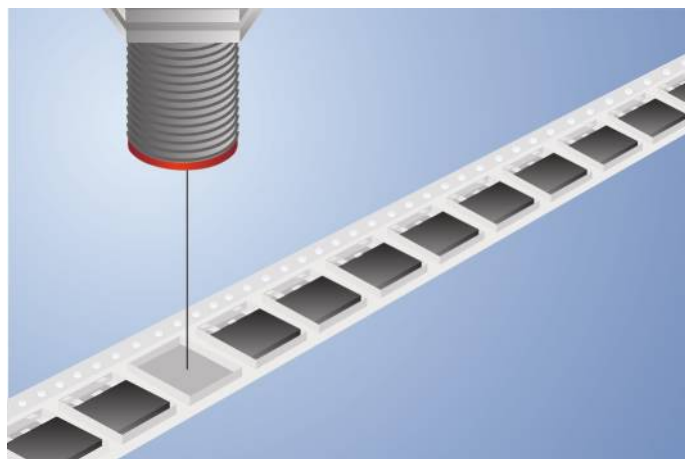
- Spot diameter: 0,5 mm
- Stainless steel housing
- Switching frequency: 1,3 kHz

### Technical Data

| Optical Data                                |                 |
|---------------------------------------------|-----------------|
| Range                                       | 150 mm          |
| Setting Range                               | 35...150 mm     |
| Switching Hysteresis                        | < 5 %           |
| 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       |
| Electrical Data                             |                 |
| Supply Voltage                              | 10...30 V DC    |
| Current Consumption (U <sub>b</sub> = 24 V) | < 25 mA         |
| Switching Frequency                         | 1300 Hz         |
| Response Time                               | 385 µs          |
| Temperature Drift                           | < 5 %           |
| Temperature Range                           | -25...60 °C     |
| Switching Output Voltage Drop               | < 2,5 V         |
| NPN Switching Output/Switching Current      | 100 mA          |
| Short Circuit Protection                    | yes             |
| Reverse Polarity Protection                 | yes             |
| Overload Protection                         | yes             |
| Protection Class                            | III             |
| FDA Accession Number                        | 0820356-001     |
| Mechanical Data                             |                 |
| Setting Method                              | Potentiometer   |
| Housing Material                            | Stainless Steel |
| Full Encapsulation                          | yes             |
| Degree of Protection                        | IP67            |
| Connection                                  | M12 × 1; 4-pin  |
| NPN NC, NPN NO                              |                 |
| Connection Diagram No.                      | 301             |
| Control Panel No.                           | D18             |
| Suitable Connection Equipment No.           | 2               |
| Suitable Mounting Technology No.            | 150             |

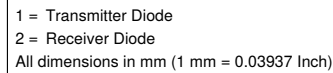
\* Valid for all sensors from revision F. The revision can be found in the production order number "xxxxx/F/xxxxxxx," which is indicated on the product label.

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.

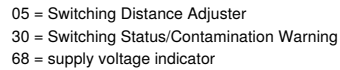


### Complementary Products

Dust Extraction Tube STAUBTUBUS-01



## D18



| Legend                                                                              |                                            |                     |                                |                                        |                     |
|-------------------------------------------------------------------------------------|--------------------------------------------|---------------------|--------------------------------|----------------------------------------|---------------------|
| +                                                                                   | Supply Voltage +                           | nc                  | Not connected                  | ENBR <sup>422</sup>                    | Encoder B/B̄ (TTL)  |
| –                                                                                   | Supply Voltage 0 V                         | U                   | Test Input                     | ENa                                    | Encoder A           |
| ~                                                                                   | Supply Voltage (AC Voltage)                | Ū                   | Test Input inverted            | ENb                                    | Encoder B           |
| A                                                                                   | Switching Output (NO)                      | W                   | Trigger Input                  | AMIN                                   | Digital output MIN  |
| Ā                                                                                   | 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   |
| Ṽ                                                                                   | 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 |                                        |                     |
| RDY                                                                                 | Ready                                      | E+                  | Receiver-Line                  | BK                                     | Black               |
| GND                                                                                 | Ground                                     | S+                  | Emitter-Line                   | BN                                     | Brown               |
| CL                                                                                  | Clock                                      | ⊕                   | Grounding                      | RD                                     | Red                 |
| E/A                                                                                 | Output/Input programmable                  | SnR                 | Switching Distance Reduction   | OG                                     | Orange              |
|  | IO-Link                                    | Rx+/-               | Ethernet Receive Path          | YE                                     | Yellow              |
| PoE                                                                                 | Power over Ethernet                        | Tx+/-               | Ethernet Send Path             | GN                                     | Green               |
| IN                                                                                  | Safety Input                               | Bus                 | Interfaces-Bus A(+)/B(-)       | BU                                     | Blue                |
| QSSD                                                                                | Safety Output                              | La                  | Emitted Light disengageable    | VT                                     | Violet              |
| Signal                                                                              | Signal Output                              | Mag                 | Magnet activation              | GY                                     | Grey                |
| BI_D+/-                                                                             | Ethernet Gigabit bidirect. data line (A-D) | RES                 | Input confirmation             | WH                                     | White               |
| ENo RS422                                                                           | Encoder 0-pulse 0/0̄ (TTL)                 | EDM                 | Contact or Monitoring          | PK                                     | Pink                |
| PT                                                                                  | Platinum measuring resistor                | ENAR <sup>422</sup> | Encoder A/Ā (TTL)              | GNYE                                   | Green/Yellow        |

|                     |        |          |        |
|---------------------|--------|----------|--------|
| Detection Range     | 50 mm  | 100 mm   | 150 mm |
| Light Spot Diameter | 1,2 mm | < 0,5 mm | 1,5 mm |

Typical characteristic curve based on white, 90 % remission

| Sr/mm | dSr/mm (Solid Black Curve) | dSr/mm (Dashed Grey Curve) |
|-------|----------------------------|----------------------------|
| 40    | 0                          | 0                          |
| 60    | -0.5                       | -0.5                       |
| 80    | -1.5                       | -1.0                       |
| 100   | -3.5                       | -2.0                       |
| 120   | -7.5                       | -4.0                       |
| 140   | -12.5                      | -6.5                       |
| 150   | -17.5                      | -8.0                       |

— black 6 % remission

grey 18 % remission

