

# Reflex Sensor with Background Suppression

## HN22NA3

Part Number



- Contamination output
- High precision background suppression
- Red light
- Stainless steel plug (V2A)

### Technical Data

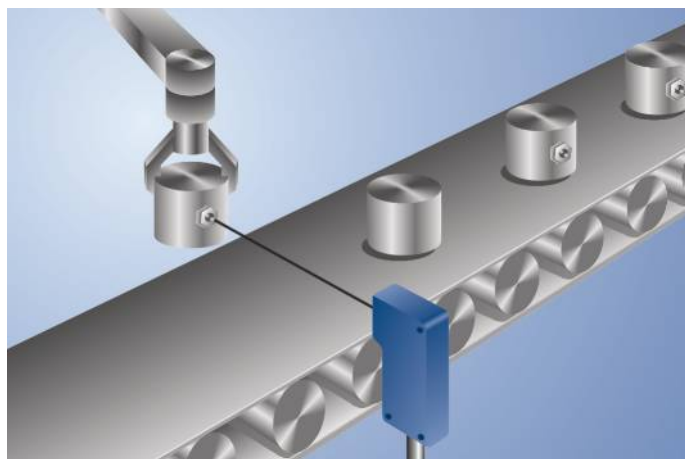
| Optical Data              |             |
|---------------------------|-------------|
| Range                     | 200 mm      |
| Adjustable Range          | 60...200 mm |
| Switching Hysteresis      | < 5 %       |
| Light Source              | Red Light   |
| Service Life (T = +25 °C) | 100000 h    |
| 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) | 30 mA        |
| Switching Frequency                         | 1 kHz        |
| Response Time                               | 500 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          |

| Mechanical Data      |                |
|----------------------|----------------|
| Setting Method       | Potentiometer  |
| Housing Material     | Plastic        |
| Degree of Protection | IP67           |
| Connection           | M12 × 1; 4-pin |

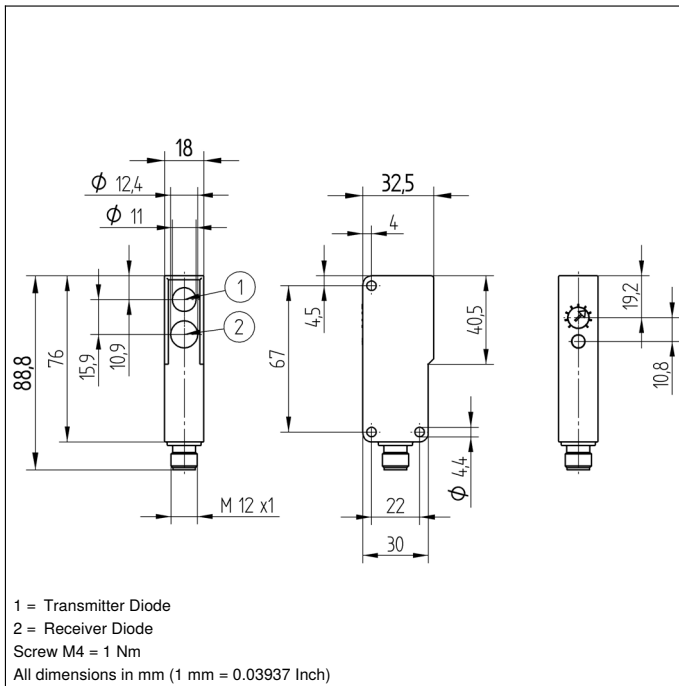
| Safety-relevant Data              |            |
|-----------------------------------|------------|
| MTTFd (EN ISO 13849-1)            | 2255,61 a  |
| NPN NO/NC antivalent              | ●          |
| Connection Diagram No.            | <b>301</b> |
| Control Panel No.                 | <b>N3</b>  |
| Suitable Connection Equipment No. | <b>2</b>   |
| Suitable Mounting Technology No.  | <b>350</b> |

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

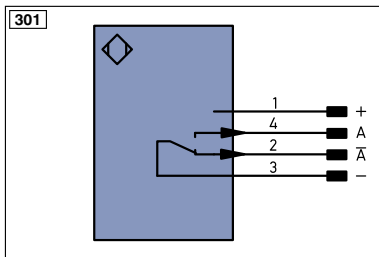
Dust Extraction Tube STAUBTUBUS-03  
Set Protective Housing ZSN-NN-02



### Ctrl. Panel



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



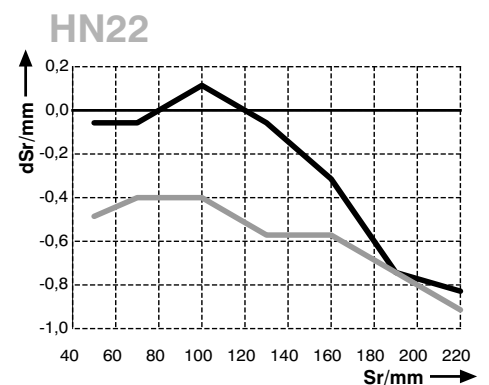
| Legend                |  |                 |                                |                                      |                            |
|-----------------------|--|-----------------|--------------------------------|--------------------------------------|----------------------------|
| +                     | Supply Voltage +                           | PT              | Platinum measuring resistor    | EN <sup>A/RS422</sup>                | Encoder A/ $\bar{A}$ (TTL) |
| -                     | Supply Voltage 0 V                         | nc              | not connected                  | EN <sup>B/RS422</sup>                | Encoder B/ $\bar{B}$ (TTL) |
| ~                     | Supply Voltage (AC Voltage)                | U               | Test Input                     | EN <sub>A</sub>                      | Encoder A                  |
| A                     | Switching Output (NO)                      | $\bar{U}$       | Test Input inverted            | EN <sub>B</sub>                      | Encoder B                  |
| $\bar{A}$             | Switching Output (NC)                      | W               | Trigger Input                  | A <sub>MIN</sub>                     | Digital output MIN         |
| V                     | Contamination/Error Output (NO)            | W-              | Ground for the Trigger Input   | A <sub>MAX</sub>                     | Digital output MAX         |
| $\bar{V}$             | Contamination/Error Output (NC)            | O               | Analog Output                  | A <sub>OK</sub>                      | Digital output OK          |
| E                     | Input (analog or digital)                  | O-              | Ground for the Analog Output   | SY <sub>in</sub>                     | Synchronization In         |
| T                     | Teach Input                                | BZ              | Block Discharge                | SY <sub>OUT</sub>                    | Synchronization OUT        |
| Z                     | Time Delay (activation)                    | A <sub>WV</sub> | Valve Output                   | OL <sub>T</sub>                      | 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                  | $\pm$           | Grounding                      | OG                                   | Orange                     |
|                       | IO-Link                                    | S <sub>nR</sub> | 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                              | L <sub>a</sub>  | Emitted Light disengageable    | GY                                   | Grey                       |
| Bl_D+/-               | Ethernet Gigabit bidirect. data line (A-D) | Mag             | Magnet activation              | WH                                   | White                      |
| EN <sup>0/RS422</sup> | Encoder 0-pulse 0-0 (TTL)                  | RES             | Input confirmation             | PK                                   | Pink                       |
|                       |  | EDM             | Contactor Monitoring           | GNVE                                 | Green/Yellow               |

Table 1

| Detection Range     | 60 mm | 150 mm | 200 mm |
|---------------------|-------|--------|--------|
| Light Spot Diameter | 8 mm  | 15 mm  | 20 mm  |

### Switching Distance Deviation

Typical characteristic curve based on white, 90 % remission



Sr = Switching Distance  
 dSr = Switching Distance Change  
 — black 6 % remission  
 — grey 18 % remission

