

# Reflex Sensor with Background Suppression

## HD11PA3

Part Number



- Adjustable switching distance
- Electronic background suppression
- Red light
- Stainless steel housing

### Technical Data

#### Optical Data

|                           |             |
|---------------------------|-------------|
| Range                     | 120 mm      |
| Setting Range             | 35...120 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   |

#### Electrical Data

|                                             |              |
|---------------------------------------------|--------------|
| Supply Voltage                              | 10...30 V DC |
| Current Consumption (U <sub>b</sub> = 24 V) | < 30 mA      |
| Switching Frequency                         | 600 Hz       |
| Response Time                               | 833 µs       |
| Temperature Drift                           | < 5 %        |
| Temperature Range                           | -25...60 °C  |
| Switching Output Voltage Drop               | < 2,5 V      |
| PNP Switching Output/Switching Current      | 200 mA       |
| Short Circuit Protection                    | yes          |
| Reverse Polarity Protection                 | yes          |
| Overload Protection                         | yes          |
| Protection Class                            | III          |

#### Mechanical Data

|                      |                 |
|----------------------|-----------------|
| Setting Method       | Potentiometer   |
| Housing Material     | Stainless Steel |
| Full Encapsulation   | yes             |
| Degree of Protection | IP67            |
| Connection           | M12 × 1; 4-pin  |

PNP NC, PNP NO



Connection Diagram No.

101

Control Panel No.

D18

Suitable Connection Equipment No.

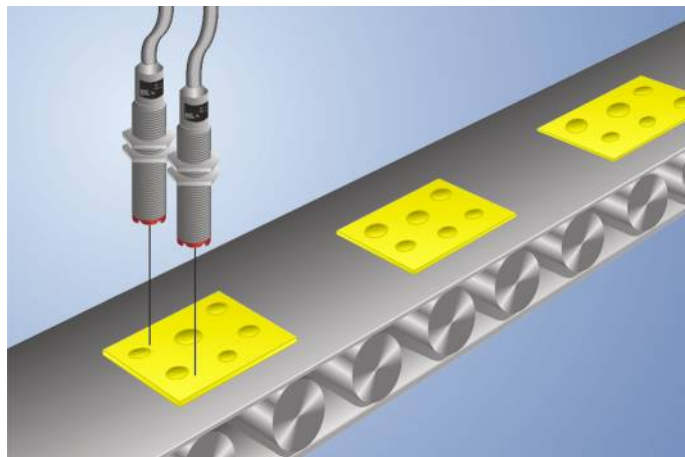
2

Suitable Mounting Technology No.

150

\* Valid for all sensors from revision G. The revision can be found in the production order number "xxxxx/G/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.



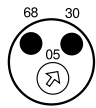
### Complementary Products

Dust Extraction Tube STAUBTUBUS-01

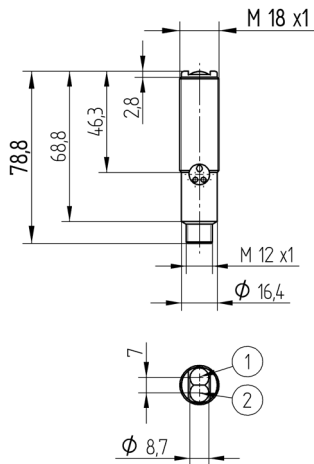
PNP-NPN Converter BG2V1P-N-2M

## Ctrl. Panel

D18



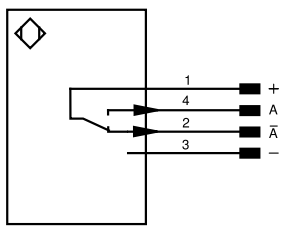
05 = Switching Distance Adjuster  
30 = Switching Status/Contamination Warning  
68 = supply voltage indicator



1 = Transmitter Diode  
2 = Receiver Diode  
All dimensions in mm (1 mm = 0.03937 Inch)



101



### 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)                | Ů         | 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                  | ACK                                    | Digital output OK   |
| Ȳ         | 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               |
| BI_D+/-   | Ethernet Gigabit bidirect. data line (A-D) | RES       | Input confirmation             | PK                                     | Pink                |
| ENo RS422 | Encoder 0-pulse 0/0 (TTL)                  | EDM       | Contact Monitoring             | GNYE                                   | Green/Yellow        |
| PT        | Platinum measuring resistor                | ENARIS422 | Encoder A/A (TTL)              |                                        |                     |

Table 1

| Detection Range     | 60 mm  | 120 mm |
|---------------------|--------|--------|
| Light Spot Diameter | 2,5 mm | 5 mm   |

## Switching Distance Deviation

Typical characteristic curve based on white, 90 % remission

