

# Reflex Sensor with Background Suppression

## HB03PBT7

Part Number

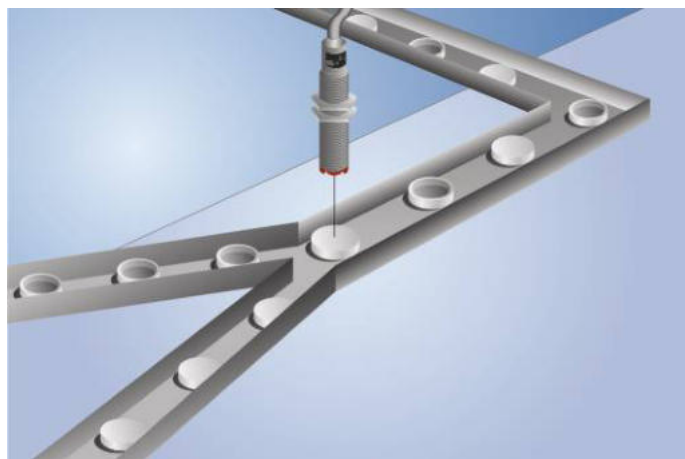


- Adjustable switching distance
- Electronic background suppression
- Enclosed in M8 housing
- Red light

### Technical Data

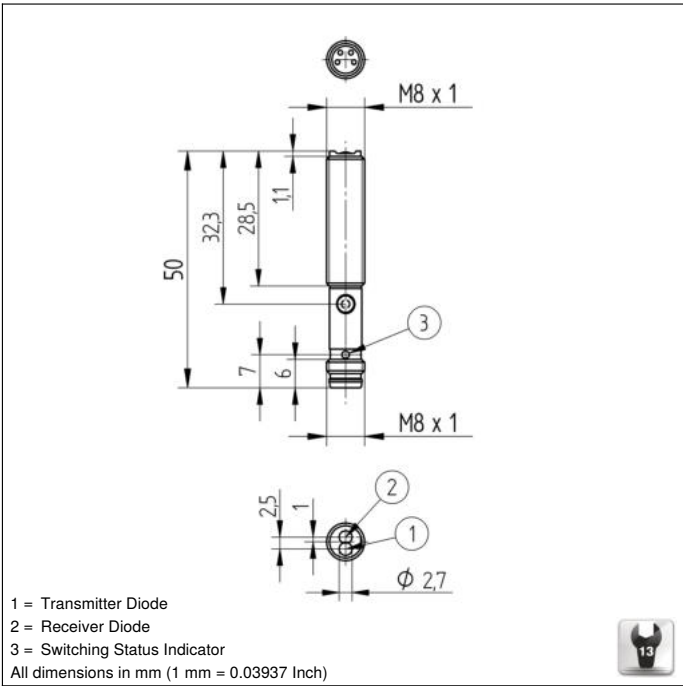
| Optical Data                                |                 |
|---|-----------------|
| Range                                       | 30 mm           |
| Adjustable Range                            | 10...30 mm      |
| Switching Hysteresis                        | < 10 %          |
| Light Source                                | Red Light       |
| Service Life (T = +25 °C)                   | 100000 h        |
| Max. Ambient Light                          | 10000 Lux       |
| Light Spot Diameter                         | 2 mm            |
| Electrical Data                             |                 |
| Supply Voltage                              | 10...30 V DC    |
| Current Consumption (U <sub>b</sub> = 24 V) | < 25 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      | 100 mA          |
| Short Circuit Protection                    | yes             |
| Reverse Polarity Protection                 | yes             |
| Overload Protection                         | yes             |
| Protection Class                            | III             |
| Mechanical Data                             |                 |
| Setting Method                              | Teach-In        |
| Housing Material                            | Stainless Steel |
| Full Encapsulation                          | yes             |
| Degree of Protection                        | IP67            |
| Connection                                  | M8 × 1; 4-pin   |
| PNP NO                                      | ●               |
| Connection Diagram No.                      | 1021            |
| Control Panel No.                           | B1              |
| Suitable Connection Equipment No.           | 7               |
| Suitable Mounting Technology No.            | 200             |

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.

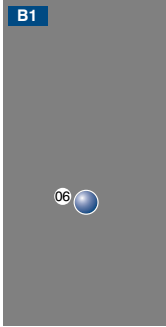


### Complementary Products

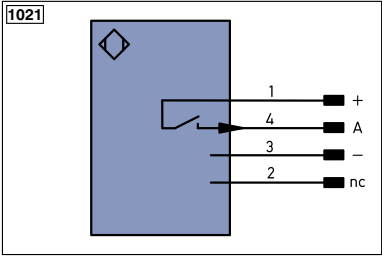
PNP-NPN Converter BG7V1P-N-2M



### Ctrl. Panel



06 = Teach Button



### Legend

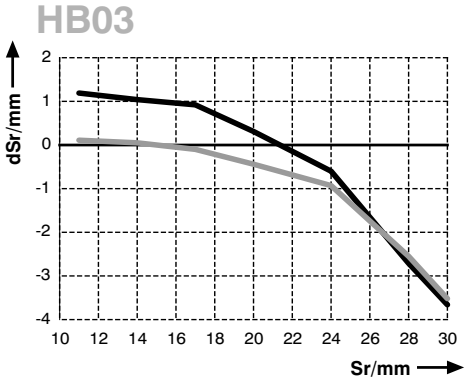
|           |  |
|-----------|--|
| +         | Supply Voltage +                           |
| -         | Supply Voltage 0 V                         |
| ~         | Supply Voltage (AC Voltage)                |
| A         | Switching Output (NO)                      |
| $\bar{A}$ | Switching Output (NC)                      |
| V         | Contamination/Error Output (NO)            |
| $\bar{V}$ | Contamination/Error Output (NC)            |
| E         | Input (analog or digital)                  |
| T         | Teach Input                                |
| Z         | Time Delay (activation)                    |
| S         | Shielding                                  |
| RxD       | Interface Receive Path                     |
| TxD       | Interface Send Path                        |
| RDY       | Ready                                      |
| GND       | Ground                                     |
| CL        | Clock                                      |
| E/A       | Output/Input programmable                  |
|           | IO-Link                                    |
| PoE       | Power over Ethernet                        |
| IN        | Safety Input                               |
| OSSD      | Safety Output                              |
| Signal    | Signal Output                              |
| BL-D+/-   | Ethernet Gigabit bidirect. data line (A-D) |
| EN0.05422 | Encoder 0-pulse 0-0 (TTL)                  |

|           |                                |
|-----------|--------------------------------|
| PT        | Platinum measuring resistor    |
| nc        | not connected                  |
| U         | Test Input                     |
| $\bar{U}$ | Test Input inverted            |
| W         | Trigger Input                  |
| W-        | Ground for the Trigger Input   |
| O         | Analog Output                  |
| O-        | Ground for the Analog Output   |
| BZ        | Block Discharge                |
| AWV       | Valve Output                   |
| a         | Valve Control Output +         |
| b         | Valve Control Output 0 V       |
| SY        | Synchronization                |
| SY-       | Ground for the Synchronization |
| E+        | Receiver-Line                  |
| S+        | Emitter-Line                   |
| $\pm$     | Grounding                      |
| SnR       | Switching Distance Reduction   |
| Rx+/-     | Ethernet Receive Path          |
| Tx+/-     | Ethernet Send Path             |
| Bus       | Interfaces-Bus A(+)/B(-)       |
| La        | Emitted Light disengageable    |
| Mag       | Magnet activation              |
| RES       | Input confirmation             |
| EDM       | Contactur Monitoring           |

|                                      |                            |
|--------------------------------------|----------------------------|
| ENAR5422                             | Encoder A/ $\bar{A}$ (TTL) |
| ENBR5422                             | Encoder B/ $\bar{B}$ (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                |
| rsv                                  | reserved                   |
| 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               |

### Switching Distance Deviation

Typical characteristic curve based on white, 90 % remission



Sr = Switching Distance  
dSr = Switching Distance Change

black 6 % remission  
grey 18 % remission

