

# Reflex Sensor with Background Suppression

## HW11PCV3

Part Number

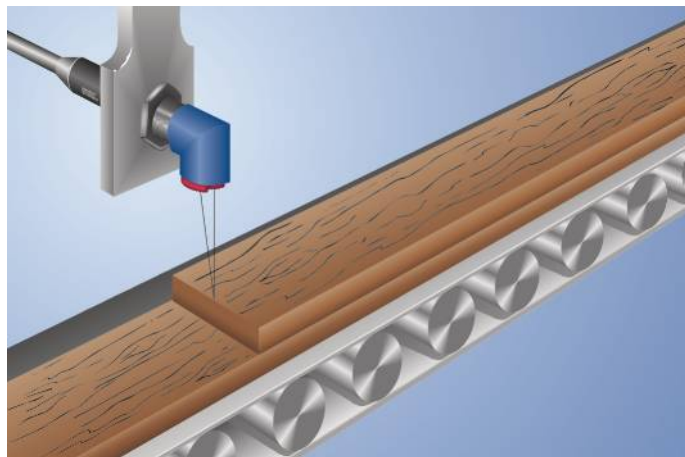


- Adjustable switching distance
- Electronic background suppression
- Red light
- Stainless steel housing

### Technical Data

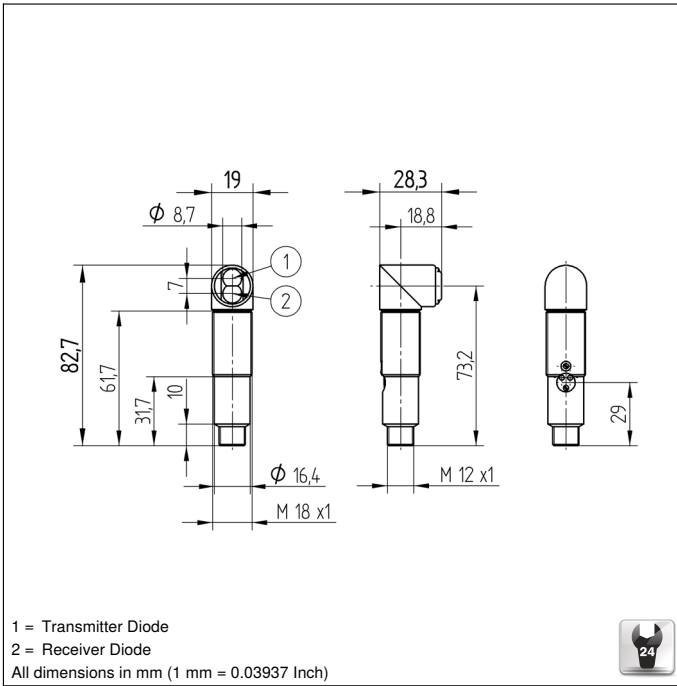
| Optical Data                                |                 |
|---|-----------------|
| Range                                       | 120 mm          |
| Adjustable Range                            | 35...120 mm     |
| Switching Hysteresis                        | < 5 %           |
| Light Source                                | Red Light       |
| Service Life (T = +25 °C)                   | 100000 h        |
| Max. Ambient Light                          | 10000 Lux       |
| Light Spot Diameter                         | see Table 1     |
| 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          |
| PNP Contamination Output/Switching Current  | 50 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  |
| Contamination Output                        | ●               |
| PNP NO/NC switchable                        | ●               |
| Connection Diagram No.                      | <b>105</b>      |
| Control Panel No.                           | <b>D5</b>       |
| Suitable Connection Equipment No.           | <b>2</b>        |
| Suitable Mounting Technology No.            | <b>150</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.

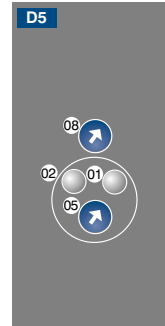


### Complementary Products

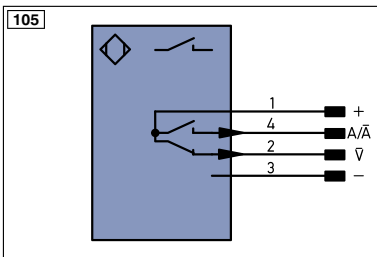
PNP-NPN Converter BG2V1P-N-2M



### Ctrl. Panel



- 01 = Switching Status Indicator
- 02 = Contamination Warning
- 05 = Switching Distance Adjuster
- 08 = NO/NC Switch



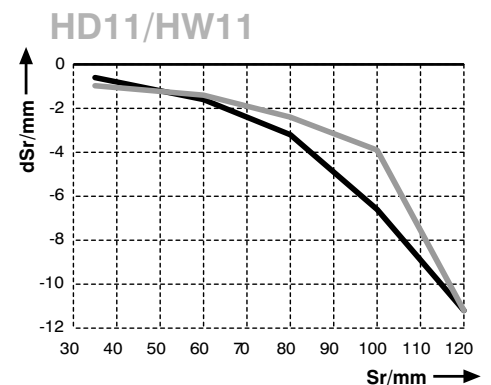
| Legend                |  | Legend          |                                | Legend                               |                     |
|-----------------------|--|-----------------|--------------------------------|--------------------------------------|---------------------|
| +                     | Supply Voltage +                           | PT              | Platinum measuring resistor    | EN <sup>A/RS422</sup>                | Encoder A/Ā (TTL)   |
| -                     | Supply Voltage 0 V                         | nc              | not connected                  | EN <sup>B/RS422</sup>                | Encoder B/B̄ (TTL)  |
| ~                     | Supply Voltage (AC Voltage)                | U               | Test Input                     | EN <sup>A</sup>                      | Encoder A           |
| A                     | Switching Output (NO)                      | Ū               | Test Input inverted            | EN <sup>B</sup>                      | Encoder B           |
| Ā                     | 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  |
| Ṽ                     | 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                  | ±               | 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 0-0̄ (TTL)                 | RES             | Input confirmation             | PK                                   | Pink                |
|                       |  | EDM             | Contacting Monitoring          | GNYE                                 | Green/Yellow        |

**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



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

