



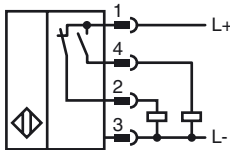
**Model Number**

NBB20-L2-A2-C-V1

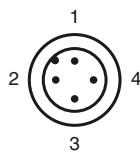
**Features**

- 20 mm embeddable
- 4-wire DC
- Weld Immune
- Quick mounting bracket
- 4-way LED indicator

**Connection**



**Pinout**



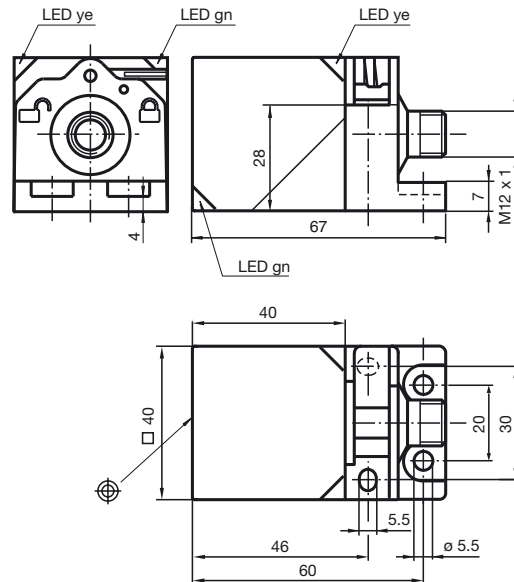
Wire colors in accordance with EN 60947-5-2

- |   |    |         |
|---|----|---------|
| 1 | BN | (brown) |
| 2 | WH | (white) |
| 3 | BU | (blue)  |
| 4 | BK | (black) |

**Accessories**

- V1-G**  
4-pin, M12 female field-attachable connector
- V1-W**  
4-pin, M12 female field-attachable connector
- V1-G-2M-PUR**  
Cable socket, M12, 4-pin, PUR cable
- V1-W-2M-PUR**  
Cable socket, M12, 4-pin, PUR cable
- MHW 01**  
Modular mounting bracket
- MH 02-L**

**Dimensions**



**Technical Data**

**General specifications**

|                              |            |               |
|------------------------------|------------|---------------|
| Switching element function   | PNP        | NO/NC         |
| Rated operating distance     | $s_n$      | 20 mm         |
| Installation                 | embeddable |               |
| Output polarity              | DC         |               |
| Assured operating distance   | $s_a$      | 0 ... 16.2 mm |
| Reduction factor $r_{Al}$    | 0.33       |               |
| Reduction factor $r_{Cu}$    | 0.31       |               |
| Reduction factor $r_{303}$   | 0.74       |               |
| Reduction factor $r_{Brass}$ | 0.41       |               |

**Nominal ratings**

|                                   |                            |                |
|-----------------------------------|----------------------------|----------------|
| Operating voltage                 | $U_B$                      | 10 ... 30 V DC |
| Switching frequency               | $f$                        | 0 ... 10 Hz    |
| Hysteresis                        | $H$                        | typ. 5 %       |
| Reverse polarity protected        | reverse polarity protected |                |
| Short-circuit protection          | pulsing                    |                |
| Voltage drop                      | $U_d$                      | $\leq 2$ V     |
| Operating current                 | $I_L$                      | 0 ... 200 mA   |
| Off-state current                 | $I_r$                      | 0 ... 0.5 mA   |
| No-load supply current            | $I_0$                      | $\leq 20$ mA   |
| Operating voltage display         | LED, green                 |                |
| Indication of the switching state | LED, yellow                |                |

**Functional safety related parameters**

|                                |        |
|--------------------------------|--------|
| MTTF <sub>d</sub>              | 1170 a |
| Mission Time (T <sub>M</sub> ) | 20 a   |
| Diagnostic Coverage (DC)       | 0 %    |

**Ambient conditions**

|                     |                                |
|---------------------|--------------------------------|
| Ambient temperature | -25 ... 85 °C (-13 ... 185 °F) |
| Storage temperature | -25 ... 85 °C (-13 ... 185 °F) |

**Mechanical specifications**

|                   |                                  |
|-------------------|----------------------------------|
| Connection type   | Device connector M12 x 1 , 4-pin |
| Housing material  | PA                               |
| Sensing face      | PA                               |
| Protection degree | IP69K                            |
| Mass              | 130 g                            |

**Compliance with standards and directives**

|                     |   |
|---------------------|---|
| Standard conformity |   |
| Standards           | EN 60947-5-2:2007<br>IEC 60947-5-2:2007 |

**Approvals and certificates**

|                                  |  |
|----------------------------------|--|
| Protection class                 | II   |
| Rated insulation voltage         | $U_i$ 253 V  |
| Design-impulse-voltage withstand | $U_{imp}$ 4000 V   |
| UL approval                      | cULus Listed, General Purpose  |
| CSA approval                     | cCSAus Listed, General Purpose   |
| CCC approval                     | Products with a maximum operating voltage of $\leq 36$ V do not bear a CCC marking because they do not require approval. |

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