



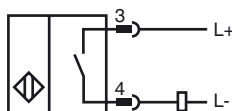
## Model Number

NBB2-12GM40-Z0-V1

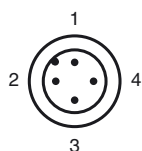
## Features

- 2 mm flush
- Extended temperature range
- 2-wire DC

## Connection



## Pinout



Wire colors in accordance with EN 60947-5-2

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

## Accessories

### BF 12

Mounting flange, 12 mm

### EXG-12

Quick mounting bracket with dead stop

### V1-G

4-pin, M12 female field-attachable connector

### V1-W

4-pin, M12 female field-attachable connector

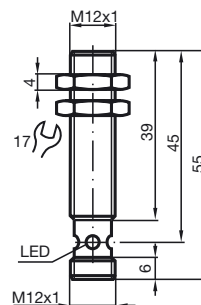
### V1-G-2M-PUR

Cable socket, M12, 4-pin, PUR cable

### V1-W-2M-PUR

Cable socket, M12, 4-pin, PUR cable

## Dimensions



## Technical Data

### General specifications

|                            |       |   |
|----------------------------|-------|---|
| Switching element function | DC    | NO  |
| Rated operating distance   | $s_n$ | 2 mm  |
| Installation               | flush |   |
| Output polarity            | DC    |   |
| Assured operating distance | $s_a$ | 0 ... 1.62 mm (-25 ... 70 °C (-13 ... 158 °F))<br>0 ... 1.52 mm (-40 ... -25 °C (-40 ... -13 °F)) |
| Reduction factor $r_{AI}$  | 0.18  |   |
| Reduction factor $r_{Cu}$  | 0.12  |   |
| Reduction factor $r_{304}$ | 0.67  |   |

### Nominal ratings

|                                   |                       |                   |
|-----------------------------------|-----------------------|-------------------|
| Operating voltage                 | $U_B$                 | 5 ... 60 V        |
| Switching frequency               | $f$                   | 0 ... 1000 Hz     |
| Hysteresis                        | $H$                   | 1 ... 10 typ. 5 % |
| Reverse polarity protected        | tolerant              |                   |
| Short-circuit protection          | pulsing               |                   |
| Voltage drop                      | $U_d$                 | $\leq 5$ V        |
| Operating current                 | $I_L$                 | 2 ... 100 mA      |
| Lowest operating current          | $I_m$                 | 2 mA              |
| Off-state current                 | $I_r$                 | 0 ... 0.5 mA typ. |
| Indication of the switching state | Multihole-LED, yellow |                   |

### Functional safety related parameters

|                          |        |
|--------------------------|--------|
| MTTF <sub>d</sub>        | 2250 a |
| Mission Time ( $T_M$ )   | 20 a   |
| Diagnostic Coverage (DC) | 0 %    |

### Ambient conditions

|                     |                                |
|---------------------|--------------------------------|
| Ambient temperature | -40 ... 70 °C (-40 ... 158 °F) |
|---------------------|--------------------------------|

### Mechanical specifications

|                   |                                 |
|-------------------|---------------------------------|
| Connection type   | Device connector M12 x 1, 4-pin |
| Housing material  | brass, nickel-plated            |
| Sensing face      | PBT                             |
| Protection degree | IP67                            |

### Compliance with standards and directives

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

### Approvals and certificates

|              |   |
|--------------|---|
| UL approval  | cULus Listed, General Purpose                     |
| CSA approval | cCSAus Listed, General Purpose                    |
| CCC approval | Certified by China Compulsory Certification (CCC) |