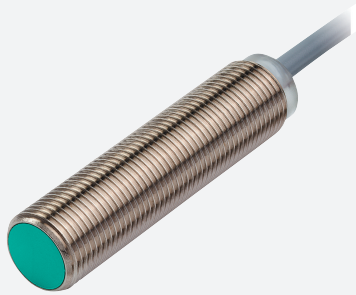


# Inductive sensor

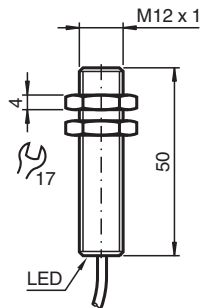
## NBB4-12GM50-E3-M



- 4 mm flush
- Extended temperature range  
-40 ... +85 °C
- E1-Type approval
- Increased noise immunity 100 V/m
- With increased sealing, protection class  
IP68 / IP69K
- Highly shock and vibration resistant



### Dimensions



### Technical Data

| General specifications              |                |                                                                             |
|-------------------------------------|----------------|-----------------------------------------------------------------------------|
| Switching function                  |                | Normally closed (NC)                                                        |
| Output type                         |                | PNP                                                                         |
| Rated operating distance            | s <sub>n</sub> | 4 mm                                                                        |
| Installation                        |                | flush                                                                       |
| Output polarity                     |                | DC                                                                          |
| Assured operating distance          | s <sub>a</sub> | 0 ... 3.24 mm                                                               |
| Actuating element                   |                | mild steel, e. g. 1.0037, SR235JR (formerly St37-2)<br>12 mm x 12 mm x 1 mm |
| Reduction factor r <sub>Al</sub>    |                | 0.45                                                                        |
| Reduction factor r <sub>Cu</sub>    |                | 0.35                                                                        |
| Reduction factor r <sub>304</sub>   |                | 0.75                                                                        |
| Reduction factor r <sub>Brass</sub> |                | 0.45                                                                        |
| Output type                         |                | 3-wire                                                                      |
| Nominal ratings                     |                |                                                                             |
| Operating voltage                   | U <sub>B</sub> | 5 ... 60 V                                                                  |
| Switching frequency                 | f              | 0 ... 2500 Hz                                                               |

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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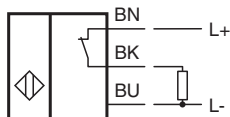
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## Technical Data

|                                                 |           |                                                      |
|-------------------------------------------------|-----------|------------------------------------------------------|
| Hysteresis                                      | H         | typ. 5 %                                             |
| Reverse polarity protection                     |           | reverse polarity protected                           |
| Short-circuit protection                        |           | pulsing                                              |
| Inductive overvoltage protection                |           | yes                                                  |
| Surge suppression                               |           | yes                                                  |
| Voltage drop                                    | $U_d$     | $\leq 2 \text{ V}$                                   |
| Rated insulation voltage                        | $U_{BIS}$ | 60 V                                                 |
| Operating current                               | $I_L$     | 0 ... 200 mA                                         |
| Off-state current                               | $I_r$     | 0 ... 0.5 mA typ. 0.1 $\mu\text{A}$ at 25 °C         |
| No-load supply current                          | $I_0$     | $\leq 7 \text{ mA}$                                  |
| Time delay before availability                  | $t_v$     | $\leq 200 \text{ ms}$                                |
| Switching state indicator                       |           | LED, yellow                                          |
| <b>Functional safety related parameters</b>     |           |                                                      |
| MTTF <sub>d</sub>                               |           | 1000.5 a                                             |
| Mission Time ( $T_M$ )                          |           | 20 a                                                 |
| Diagnostic Coverage (DC)                        |           | 0 %                                                  |
| <b>Compliance with standards and directives</b> |           |                                                      |
| Standard conformity                             |           |                                                      |
| Standards                                       |           | EN 60947-5-2:2007<br>IEC 60947-5-2:2007              |
| <b>Approvals and certificates</b>               |           |                                                      |
| UL approval                                     |           | cULus Listed, General Purpose, Class 2 Power Source  |
| CSA approval                                    |           | cCSAus Listed, General Purpose, Class 2 Power Source |
| CCC approval                                    |           | Certified by China Compulsory Certification (CCC)    |
| E1 Type approval                                |           | 10R-04                                               |
| <b>Ambient conditions</b>                       |           |                                                      |
| Ambient temperature                             |           | -40 ... 85 °C (-40 ... 185 °F)                       |
| Storage temperature                             |           | -40 ... 85 °C (-40 ... 185 °F)                       |
| <b>Mechanical specifications</b>                |           |                                                      |
| Connection type                                 |           | cable PUR , 2 m                                      |
| Core cross-section                              |           | 3 x 0.75 mm <sup>2</sup>                             |
| Housing material                                |           | brass, nickel-plated                                 |
| Sensing face                                    |           | PBT                                                  |
| Degree of protection                            |           | IP68 / IP69K                                         |
| Mass                                            |           | 120 g                                                |

## Connection Assignment



Mounting

Interference immunity in accordance with  
DIN ISO 11452-2: 100 V/m  
Frequency band 20 MHz up to 2 GHz

Mains-borne interference in accordance with ISO  
7637-2: Pulse     1   2a   2b   3 a   3b   4   5  
Severity level     III   III   III   III   III   III   III  
Failure criterion   C   A   C   A   A   A   B

EN 61000-4-2:     CD: 8 kV /   AD: 15 kV  
                         Severity level     IV                           IV  
EN 61000-4-3:     30 V/m (80...2500 MHz)  
                         Severity level     IV  
EN 61000-4-4:     2 kV  
                         Severity level     III  
EN 61000-4-6:     10 V (0.01...80 MHz)  
                         Severity level     III  
EN 55011:           Class A

Accessories

|                                                                                   |               |                                       |
|-----------------------------------------------------------------------------------|---------------|---------------------------------------|
|  | <b>BF 12</b>  | Mounting flange, 12 mm                |
|  | <b>EXG-12</b> | Quick mounting bracket with dead stop |

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