

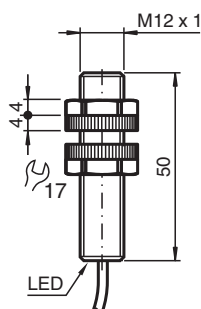


## Inductive sensor NBB4-12GK50-E0-M

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



### Dimensions



### Technical Data

#### General specifications

|                              |       |                                                                             |
|------------------------------|-------|-----------------------------------------------------------------------------|
| Switching function           |       | Normally open (NO)                                                          |
| Output type                  |       | NPN                                                                         |
| Rated operating distance     | $s_n$ | 4 mm                                                                        |
| Installation                 |       | flush                                                                       |
| Output polarity              |       | DC                                                                          |
| Assured operating distance   | $s_a$ | 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 $r_{Al}$    |       | 0.35                                                                        |
| Reduction factor $r_{Cu}$    |       | 0.25                                                                        |
| Reduction factor $r_{304}$   |       | 0.7                                                                         |
| Reduction factor $r_{Brass}$ |       | 0.4                                                                         |
| Output type                  |       | 3-wire                                                                      |

#### Nominal ratings

|                                  |       |                            |
|----------------------------------|-------|----------------------------|
| Operating voltage                | $U_B$ | 5 ... 60 V                 |
| Switching frequency              | $f$   | 0 ... 2500 Hz              |
| Hysteresis                       | $H$   | typ. 5 %                   |
| Reverse polarity protection      |       | reverse polarity protected |
| Short-circuit protection         |       | pulsing                    |
| Inductive overvoltage protection |       | yes                        |
| Surge suppression                |       | yes                        |

Release date: 2025-06-05 Date of issue: 2025-06-05 Filename: 248857\_eng.pdf

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

Pepperl+Fuchs Group  
www.pepperl-fuchs.com

USA: +1 330 486 0001  
fa-info@us.pepperl-fuchs.com

Germany: +49 621 776 1111  
fa-info@de.pepperl-fuchs.com

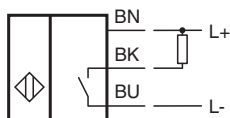
Singapore: +65 6779 9091  
fa-info@sg.pepperl-fuchs.com

**PEPPERL+FUCHS**

## Technical Data

|                                                 |           |                                                   |
|-------------------------------------------------|-----------|---------------------------------------------------|
| 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>                               |           | 1183 a                                            |
| Mission Time ( $T_M$ )                          |           | 20 a                                              |
| Diagnostic Coverage (DC)                        |           | 0 %                                               |
| <b>Compliance with standards and directives</b> |           |                                                   |
| Standard conformity                             |           |                                                   |
| Standards                                       |           | EN IEC 60947-5-2                                  |
| <b>Approvals and certificates</b>               |           |                                                   |
| UL approval                                     |           | cULus Listed, General Purpose                     |
| CSA approval                                    |           | cCSAus Listed, General Purpose                    |
| 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                                             |
| Housing material                                |           | PBT                                               |
| Sensing face                                    |           | PBT                                               |
| Degree of protection                            |           | IP68 / IP69K                                      |
| Cable                                           |           |                                                   |
| Wire end ferrules                               |           | yes                                               |
| Cable diameter                                  |           | 6 mm $\pm$ 0.2 mm                                 |
| Bending radius                                  |           | > 6 x cable diameter                              |
| Material                                        |           | PUR                                               |
| Color                                           |           | black                                             |
| Number of cores                                 |           | 3                                                 |
| Core cross section                              |           | 0.75 mm <sup>2</sup>                              |
| Length                                          | L         | 2 m                                               |
| Mass                                            |           | 110 g                                             |
| Dimensions                                      |           |                                                   |
| Length                                          |           | 50 mm                                             |
| Diameter                                        |           | 12 mm                                             |

## Connection



Technical Features

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                |

Release date: 2025-06-05 Date of issue: 2025-06-05 Filename: 248857\_eng.pdf