



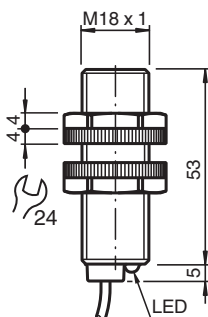
# Inductive sensor

## NBN12-18GK50-E1-M

- 12 mm non-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                         |                | NPN                  |
| Rated operating distance            | s <sub>n</sub> | 12 mm                |
| Installation                        |                | non-flush            |
| Output polarity                     |                | DC                   |
| Assured operating distance          | s <sub>a</sub> | 0 ... 9.72 mm        |
| Reduction factor r <sub>Al</sub>    |                | 0.5                  |
| Reduction factor r <sub>Cu</sub>    |                | 0.45                 |
| Reduction factor r <sub>304</sub>   |                | 0.7                  |
| Reduction factor r <sub>Brass</sub> |                | 0.5                  |
| Output type                         |                | 3-wire               |
| Nominal ratings                     |                |                      |
| Operating voltage                   | U <sub>B</sub> | 5 ... 60 V           |
| Switching frequency                 | f              | 0 ... 1500 Hz        |
| Hysteresis                          | H              | type 5 %             |

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

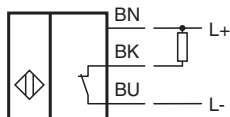
Singapore: +65 6779 9091  
fa-info@sg.pepperl-fuchs.com

**PEPPERL+FUCHS**

## Technical Data

|                                                 |           |                                                      |
|-------------------------------------------------|-----------|------------------------------------------------------|
| 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. 6 $\mu\text{A}$ at 25 °C           |
| No-load supply current                          | $I_0$     | $\leq 7 \text{ mA}$                                  |
| Time delay before availability                  | $t_v$     | $\leq 220 \text{ ms}$                                |
| Switching state indicator                       |           | LED, yellow                                          |
| <b>Functional safety related parameters</b>     |           |                                                      |
| MTTF <sub>d</sub>                               |           | 846 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                                 |           | cabl PUR , 2 m                                       |
| Core cross-section                              |           | 3 x 0.75 mm <sup>2</sup>                             |
| Housing material                                |           | PBT                                                  |
| Sensing face                                    |           | PBT                                                  |
| Degree of protection                            |           | IP68 / IP69K                                         |
| Mass                                            |           | 120 g                                                |

## Connection



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 18</b> | Mounting flange, 18 mm |
|-----------------------------------------------------------------------------------|--------------|------------------------|

Release date: 2020-03-24 Date of issue: 2020-03-30 Filename: 248871\_eng.pdf