



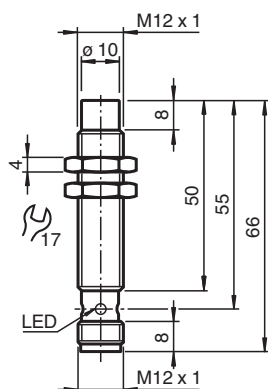
## Inductive sensor

### NBN8-12GM50-E3-V1-M1

- 8 mm non-flush
- Increased operating distance
- Extended temperature range  
-40 ... +85 °C
- With increased sealing, protection class  
IP68 / IP69K
- E1-Type approval



## Dimensions



## Technical Data

### General specifications

|                              |       |                                                                             |
|------------------------------|-------|-----------------------------------------------------------------------------|
| Switching function           |       | Normally closed (NC)                                                        |
| Output type                  |       | PNP                                                                         |
| Rated operating distance     | $s_n$ | 8 mm                                                                        |
| Installation                 |       | non-flush                                                                   |
| Output polarity              |       | DC                                                                          |
| Assured operating distance   | $s_a$ | 0 ... 6.48 mm                                                               |
| Actuating element            |       | mild steel, e. g. 1.0037, SR235JR (formerly St37-2)<br>24 mm x 24 mm x 1 mm |
| Reduction factor $r_{Al}$    |       | 0.5                                                                         |
| Reduction factor $r_{Cu}$    |       | 0.45                                                                        |
| Reduction factor $r_{304}$   |       | 0.7                                                                         |
| Reduction factor $r_{Brass}$ |       | 0.5                                                                         |
| Output type                  |       | 3-wire                                                                      |

### Nominal ratings

|                     |       |               |
|---------------------|-------|---------------|
| Operating voltage   | $U_B$ | 7 ... 30 V    |
| Switching frequency | $f$   | 0 ... 1200 Hz |

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

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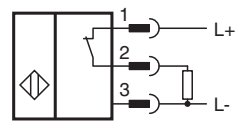
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**PEPPERL+FUCHS**

Technical Data

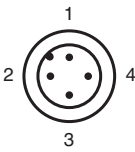
|                                                 |       |                                                                           |
|-------------------------------------------------|-------|---------------------------------------------------------------------------|
| Hysteresis                                      | H     | typ. 5%                                                                   |
| Reverse polarity protection                     |       | reverse polarity protected                                                |
| Short-circuit protection                        |       | pulsing                                                                   |
| Voltage drop                                    | $U_d$ | $\leq 2\text{ V}$                                                         |
| Operating current                               | $I_L$ | 0 ... 200 mA                                                              |
| Off-state current                               | $I_r$ | 0 ... 0.5 mA typ. 4 $\mu\text{A}$ at 25 °C                                |
| No-load supply current                          | $I_0$ | $\leq 10\text{ mA}$                                                       |
| Time delay before availability                  | $t_v$ | $\leq 100\text{ ms}$                                                      |
| Switching state indicator                       |       | Multihole-LED, yellow                                                     |
| <b>Functional safety related parameters</b>     |       |                                                                           |
| MTTF <sub>d</sub>                               |       | 1484 a                                                                    |
| Mission Time (T <sub>M</sub> )                  |       | 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, Class 2 Power Source                       |
| CCC approval                                    |       | CCC approval / marking not required for products rated $\leq 36\text{ V}$ |
| 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                                 |       | Connector plug M12 x 1 , 3-pin                                            |
| Housing material                                |       | brass, nickel-plated                                                      |
| Sensing face                                    |       | PBT                                                                       |
| Degree of protection                            |       | IP68 / IP69K                                                              |
| Mass                                            |       | 18 g                                                                      |
| <b>Dimensions</b>                               |       |                                                                           |
| Length                                          |       | 66 mm                                                                     |
| Diameter                                        |       | 12 mm                                                                     |
| <b>General information</b>                      |       |                                                                           |
| Scope of delivery                               |       | 2 self locking nuts in scope of delivery                                  |

Connection



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Connection Assignment



Wire colors in accordance with EN 60947-5-2

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

Technical Features

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

|                |                        |
|----------------|------------------------|
| EN 61000-4-2:  | CD: 8 kV / AD: 15 kV   |
| Severity level | IV IV                  |
| EN 61000-4-3:  | 36 V/m (80...2500 MHz) |
| Severity level | IV                     |
| EN 61000-4-4:  | 2 kV                   |
| Severity level | III                    |
| EN 61000-4-6:  | 30 V (0.01...80 MHz)   |
| Severity level | III                    |
| EN 55011:      | Class A                |

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