

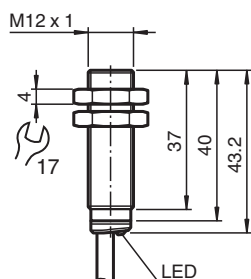
# Inductive sensor

## NBB2-12GM40-E0-5M

- 2 mm flush
- Extended temperature range  
-40 ... +85 °C
- Extended operating voltage range
- Flexible use with versatile mounting opportunities



## Dimensions



## Technical Data

### General specifications

|                              |       |                                                                             |
|------------------------------|-------|-----------------------------------------------------------------------------|
| Switching function           |       | Normally open (NO)                                                          |
| Output type                  |       | NPN                                                                         |
| Rated operating distance     | $S_n$ | 2 mm                                                                        |
| Installation                 |       | flush                                                                       |
| Output polarity              |       | DC                                                                          |
| Assured operating distance   | $S_a$ | 0 ... 1.62 mm                                                               |
| Actuating element            |       | mild steel, e. g. 1.0037, SR235JR (formerly St37-2)<br>12 mm x 12 mm x 1 mm |
| Reduction factor $r_{Al}$    |       | 0.29                                                                        |
| Reduction factor $r_{Cu}$    |       | 0.23                                                                        |
| Reduction factor $r_{304}$   |       | 0.78                                                                        |
| Reduction factor $r_{Brass}$ |       | 0.42                                                                        |
| Output type                  |       | 3-wire                                                                      |

### Nominal ratings

|                                |       |                            |
|--------------------------------|-------|----------------------------|
| Operating voltage              | $U_B$ | 5 ... 36 V                 |
| Switching frequency            | $f$   | 0 ... 3500 Hz              |
| Hysteresis                     | $H$   | typ. 5 %                   |
| Reverse polarity protection    |       | reverse polarity protected |
| Short-circuit protection       |       | pulsing                    |
| Voltage drop                   | $U_d$ | $\leq 1$ V                 |
| Operating current              | $I_L$ | 0 ... 200 mA               |
| Off-state current              | $I_r$ | max. 20 $\mu$ A            |
| No-load supply current         | $I_0$ | $\leq 10$ mA               |
| Time delay before availability | $t_v$ | $\leq 10$ ms               |
| Switching state indicator      |       | LED, yellow                |

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

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## Technical Data

### Functional safety related parameters

|                                |  |        |
|--------------------------------|--|--------|
| MTTF <sub>d</sub>              |  | 1721 a |
| Mission Time (T <sub>M</sub> ) |  | 20 a   |
| Diagnostic Coverage (DC)       |  | 0 %    |

### Conformity

|                 |  |                        |
|-----------------|--|------------------------|
| PWIS conformity |  | VDMA 24364-C1/T100°C-W |
|-----------------|--|------------------------|

### Compliance with standards and directives

|                     |  |                  |
|---------------------|--|------------------|
| Standard conformity |  |                  |
| Standards           |  | EN IEC 60947-5-2 |

### Approvals and certificates

|                                 |                  |                                                              |
|---------------------------------|------------------|--------------------------------------------------------------|
| Protection class                |                  | II                                                           |
| Rated insulation voltage        | U <sub>i</sub>   | 36 V                                                         |
| Rated impulse withstand voltage | U <sub>imp</sub> | 500 V                                                        |
| UL approval                     |                  | cULus Listed, General Purpose, Class 2 Power Source          |
| CCC approval                    |                  | CCC approval / marking not required for products rated ≤36 V |
| Marine approval                 |                  | DNVGL TAA00003AK                                             |

### Ambient conditions

|                     |  |                                |
|---------------------|--|--------------------------------|
| Ambient temperature |  | -40 ... 85 °C (-40 ... 185 °F) |
| Storage temperature |  | -40 ... 85 °C (-40 ... 185 °F) |

### Mechanical specifications

|                      |  |                             |
|----------------------|--|-----------------------------|
| Connection type      |  | cable                       |
| Housing material     |  | brass , white bronze coated |
| Sensing face         |  | PBT , green                 |
| Degree of protection |  | IP65 / IP66 / IP67 / IP68   |

#### Cable

|                    |   |                       |
|--------------------|---|-----------------------|
| Wire end ferrules  |   | yes                   |
| Cable diameter     |   | 4.3 mm ± 0.15 mm      |
| Bending radius     |   | > 10 x cable diameter |
| Material           |   | PVC                   |
| Color              |   | black                 |
| Number of cores    |   | 3                     |
| Core cross section |   | 0.34 mm <sup>2</sup>  |
| Length             | L | 5 m                   |
| Mass               |   | 164 g                 |

#### Dimensions

|                   |  |                |
|-------------------|--|----------------|
| Length            |  | 43 mm          |
| Diameter          |  | 12 mm          |
| Mounting          |  | with nuts, M12 |
| Tightening torque |  | 0 ... 10 Nm    |

### General information

|                   |  |                                          |
|-------------------|--|------------------------------------------|
| Scope of delivery |  | 2 self locking nuts in scope of delivery |
|-------------------|--|------------------------------------------|

## Connection

