

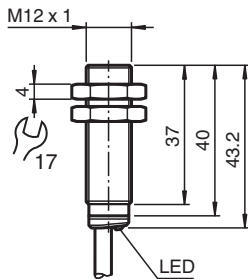
# Inductive sensor

## 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  |
| <b>Nominal ratings</b>         |       |   |
| 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         | $I_o$ | $\leq 10$ mA  |
| Time delay before availability | $t_v$ | $\leq 10$ ms  |
| Switching state indicator      |       | LED, yellow   |

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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                        |                  | ≤ 10 Nm  |
| General information                      |                  |  |
| Scope of delivery                        |                  | 2 self locking nuts in scope of delivery                     |

## Connection

