

# Inductive sensor

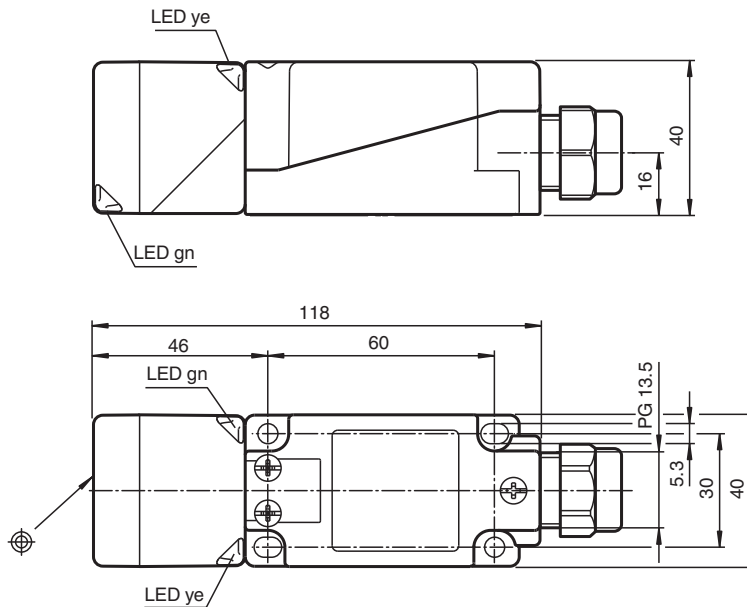
## NBB20-U10-E2



- Sensor head bidirectional and rotatable
- 20 mm flush
- 3-wire DC
- 4 LEDs indicator for 360° visibility
- With cable gland for cable diameters from 7 to 10.5 mm (extendable with different gasket)



### Dimensions



### Technical Data

#### General specifications

|                              |       |                         |
|------------------------------|-------|-------------------------|
| Switching function           |       | Normally open (NO)      |
| Output type                  |       | PNP                     |
| Rated operating distance     | $s_n$ | 20 mm                   |
| Installation                 |       | flush                   |
| Output polarity              |       | DC                      |
| Assured operating distance   | $s_a$ | 0 ... 16.2 mm           |
| Actual operating distance    | $s_r$ | 18 ... 22 mm typ. 20 mm |
| Reduction factor $r_{Al}$    |       | 0.33                    |
| Reduction factor $r_{Cu}$    |       | 0.31                    |
| Reduction factor $r_{304}$   |       | 0.74                    |
| Reduction factor $r_{Brass}$ |       | 0.41                    |
| Output type                  |       | 3-wire                  |

Release date: 2024-05-27 Date of issue: 2024-05-30 Filename: 203038\_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

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## Technical Data

### Nominal ratings

|                                |       |                            |
|--------------------------------|-------|----------------------------|
| Operating voltage              | $U_B$ | 10 ... 30 V DC             |
| Switching frequency            | $f$   | 0 ... 440 Hz               |
| Hysteresis                     | $H$   | typ. 5 %                   |
| Reverse polarity protection    |       | reverse polarity protected |
| Short-circuit protection       |       | pulsing                    |
| Voltage drop                   | $U_d$ | $\leq 2$ V                 |
| Operating current              | $I_L$ | 0 ... 200 mA               |
| Off-state current              | $I_r$ | 0 ... 0.5 mA typ. 0.01 mA  |
| No-load supply current         | $I_0$ | $\leq 20$ mA               |
| Time delay before availability | $t_v$ | 80 ms                      |
| Operating voltage indicator    |       | LED, green                 |
| Switching state indicator      |       | LED, yellow                |

### Functional safety related parameters

|                          |  |        |
|--------------------------|--|--------|
| MTTF <sub>d</sub>        |  | 1289 a |
| Mission Time ( $T_M$ )   |  | 20 a   |
| Diagnostic Coverage (DC) |  | 0 %    |

### Compliance with standards and directives

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

### Approvals and certificates

|              |  |  |
|--------------|--|--|
| UL approval  |  | cULus Listed, General Purpose                                      |
| CCC approval |  | CCC approval / marking not required for products rated $\leq 36$ V |

### Ambient conditions

|                     |  |                                |
|---------------------|--|--------------------------------|
| Ambient temperature |  | -25 ... 85 °C (-13 ... 185 °F) |
|---------------------|--|--------------------------------|

### Mechanical specifications

|                            |  |  |
|----------------------------|--|--|
| Connection type            |  | screw terminals  |
| Information for connection |  | A maximum of two conductors with the same core cross section may be mounted on one terminal connection!<br>tightening torque 1.2 Nm + 10 % |
| Core cross section         |  | up to 2.5 mm <sup>2</sup>  |
| Minimum core cross-section |  | without wire end ferrules 0.5 mm <sup>2</sup> , with connector sleeves 0.34 mm <sup>2</sup>  |
| Maximum core cross-section |  | without wire end ferrules 2.5 mm <sup>2</sup> , with connector sleeves 1.5 mm <sup>2</sup>   |
| Housing material           |  | PA/metal with epoxy powder coating   |
| Sensing face               |  | PA   |
| Housing base               |  | plastic  |
| Degree of protection       |  | IP68 / IP69K   |
| Mass                       |  | 225 g  |
| Dimensions                 |  |  |
| Height                     |  | 40 mm  |
| Width                      |  | 40 mm  |
| Length                     |  | 118 mm   |
| Note                       |  | Tightening torque: 1.8 Nm (housing)  |

## Connection

