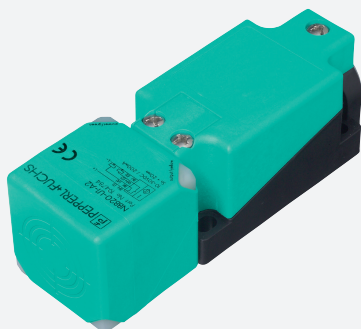


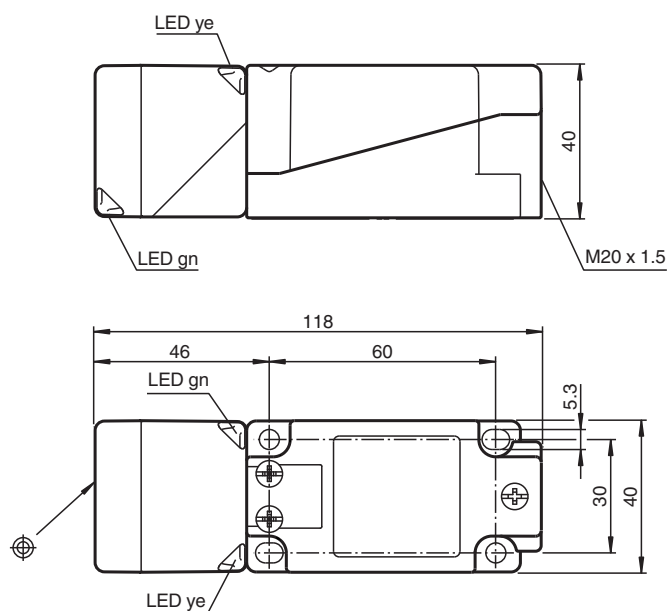


## Inductive sensor NBB20-U1-A0

- Sensor head bidirectional and rotatable
- 20 mm flush
- 4-wire DC
- 4 LEDs indicator for 360° visibility



### Dimensions



### Technical Data

#### General specifications

|                            |       |               |
|----------------------------|-------|---------------|
| Switching function         |       | complementary |
| Output type                |       | NPN           |
| Rated operating distance   | $s_n$ | 20 mm         |
| Installation               |       | flush         |
| Output polarity            |       | DC            |
| Assured operating distance | $s_a$ | 0 ... 16.2 mm |
| Reduction factor $r_{AI}$  |       | 0.33          |
| Reduction factor $r_{Cu}$  |       | 0.31          |

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

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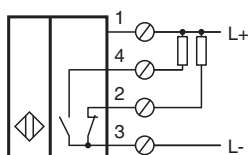
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**PEPPERL+FUCHS**

## Technical Data

|                                                 |       |                                                                                                                                            |
|-------------------------------------------------|-------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Reduction factor $r_{304}$                      |       | 0.74                                                                                                                                       |
| Reduction factor $r_{Brass}$                    |       | 0.41                                                                                                                                       |
| Output type                                     |       | 4-wire                                                                                                                                     |
| <b>Nominal ratings</b>                          |       |                                                                                                                                            |
| 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                                                                                                                               |
| 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                                                                                                                                |
| <b>Functional safety related parameters</b>     |       |                                                                                                                                            |
| MTTF <sub>d</sub>                               |       | 1304 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>EN 60947-5-2/A1:2012<br>IEC 60947-5-2:2007<br>IEC 60947-5-2 AMD 1:2012                                                |
| <b>Approvals and certificates</b>               |       |                                                                                                                                            |
| UL approval                                     |       | cULus Listed, General Purpose                                                                                                              |
| CCC approval                                    |       | CCC approval / marking not required for products rated $\leq 36$ V                                                                         |
| <b>Ambient conditions</b>                       |       |                                                                                                                                            |
| Ambient temperature                             |       | -25 ... 85 °C (-13 ... 185 °F)                                                                                                             |
| <b>Mechanical specifications</b>                |       |                                                                                                                                            |
| 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 ferrule 0.5 mm <sup>2</sup> , with connector sleeves 0.34 mm <sup>2</sup>                                                 |
| Maximum core cross-section                      |       | without wire end ferrule 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                                                                                                                                      |
| Note                                            |       | Tightening torque: 1.8 Nm (housing)                                                                                                        |

## Connection



## Accessories

|                                                                                   |                    |                                          |
|-----------------------------------------------------------------------------------|--------------------|------------------------------------------|
|  | <b>V1-M20-80</b>   | Receptacles, M12/M20; plastic version    |
|  | <b>MHW 01</b>      | Modular mounting bracket                 |
|  | <b>MH 04-2681F</b> | Mounting aid for VariKont, +U1+ and +U9* |