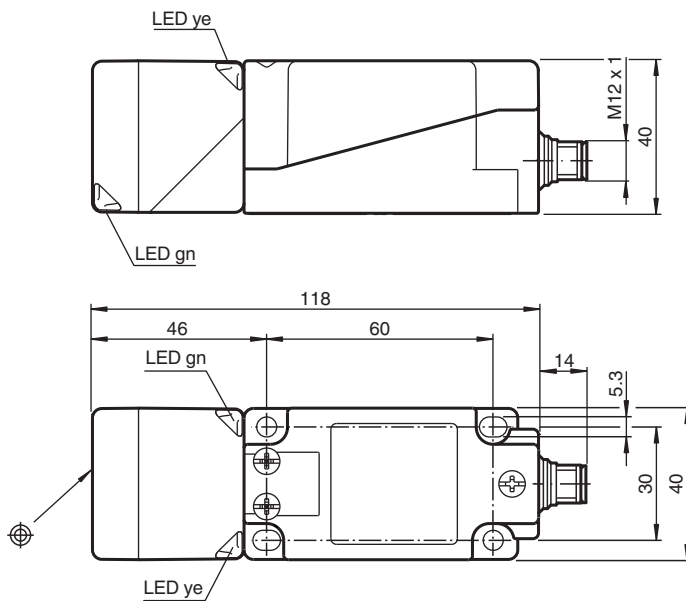


## Inductive sensor NBB20-U1-E2-T-V1

- Sensor head bidirectional and rotatable
- 20 mm flush
- 3-wire DC
- 4 LEDs indicator for 360° visibility
- Temperature range  
-25 ... 100 °C (-13 ... 212 °F)



### Dimensions



### Technical Data

#### General specifications

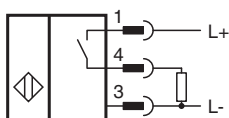
|                              |       |               |
|------------------------------|-------|---------------|
| Rated operating distance     | $s_n$ | 20 mm         |
| Installation                 |       | flush         |
| Output polarity              |       | switched high |
| Assured operating distance   | $s_a$ | 0 ... 16.2 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        |

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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>                        |       | 1460 a   |
| Mission Time (T <sub>M</sub> )           |       | 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 ... 100 °C (-13 ... 212 °F)                                    |
| Mechanical specifications                |       |  |
| Connection type                          |       | Connector plug   |
| Housing material                         |       | PA/metal with epoxy powder coating                                 |
| Sensing face                             |       | PA   |
| Housing base                             |       | plastic  |
| Degree of protection                     |       | IP68 / IP69K   |
| Connector                                |       |  |
| Threading                                |       | M12 x 1  |
| Number of pins                           |       | 4  |
| Mass                                     |       | 225 g  |
| Dimensions                               |       |  |
| Height                                   |       | 40 mm  |
| Width                                    |       | 40 mm  |
| Length                                   |       | 118 mm   |
| Note                                     |       | Tightening torque: 1.8 Nm (housing)                                |

## Connection



## Connection Assignment



Wire colors in accordance with EN 60947-5-2

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