

## Model Number

**NBB20-U1-E0**

## Features

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

## Accessories

**V1-M20-80**
Receptacles, M12/M20; plastic version

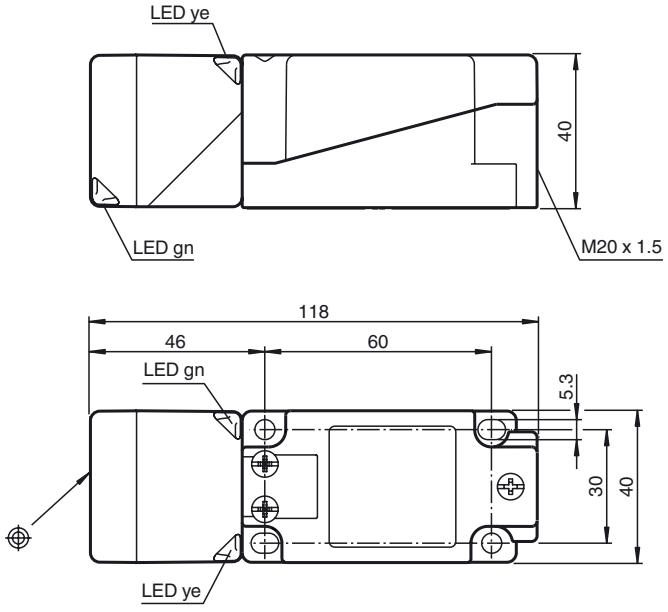
**MHW 01**
Modular mounting bracket

**MH 04-2681F**
Mounting aid for VariKont, +U1+ and +U9*

## Technical Data

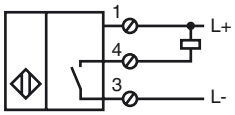
| | | |
|---|---|---|
| **General specifications** | | |
| Switching element function | | NPN NO |
| Rated operating distance | $s_n$ | 20 mm |
| Installation | | flush |
| Output polarity | | DC |
| Assured operating distance | $s_a$ | 0 ... 16.2 mm |
| Reduction factor $r_{Al}$ | | 0.33 |
| Reduction factor $r_{Cu}$ | | 0.31 |
| Reduction factor $r_{304}$ | | 0.74 |
| Reduction factor $r_{Brass}$ | | 0.41 |
| **Nominal ratings** | | |
| Operating voltage | $U_B$ | 10 ... 30 V DC |
| Switching frequency | f | 0 ... 150 Hz |
| Hysteresis | H | typ. 5 % |
| Reverse polarity protection | | reverse polarity protected |
| Short-circuit protection | | pulsing |
| Voltage drop | $U_d$ | ≤ 2 V |
| Operating current | $I_L$ | 0 ... 200 mA |
| Off-state current | $I_r$ | 0 ... 0.5 mA typ. 0.1 µA at 25 °C |
| No-load supply current | $I_0$ | ≤ 20 mA |
| Time delay before availability | $t_v$ | 80 ms |
| Operating voltage display | | LED, green |
| Switching state indication | | LED, yellow |
| **Functional safety related parameters** | | |
| $MTTF_d$ | | 1510 a |
| Mission Time ($T_M$) | | 20 a |
| Diagnostic Coverage (DC) | | 0 % |
| **Ambient conditions** | | |
| Ambient temperature | | -25 ... 85 °C (-13 ... 185 °F) |
| **Mechanical specifications** | | |
| Connection type | | screw terminals |
| Core cross-section | | up to 2.5 $mm^2$ |
| Housing material | | PA/metal with epoxy powder coating |
| Sensing face | | PA |
| Housing base | | plastic |
| Protection degree | | IP68 / IP69K |
| Mass | | 225 g |
| Note | | Tightening torque: 1.8 Nm (housing)<br>Tightening torque: 1.0 Nm (Screw terminal) |
| **Compliance with standards and directives** | | |
| Standard conformity | | |
| Standards | | EN 60947-5-2:2007<br>IEC 60947-5-2:2007 |
| **Approvals and certificates** | | |
| UL approval | | cULus Listed, General Purpose |
| CSA approval | | cCSAus Listed, General Purpose |
| CCC approval | | CCC approval / marking not required for products rated ≤36 V |

## Dimensions




Release date: 2013-07-10 11:45 Date of issue: 2013-07-10 194769_eng.xml

## Electrical Connection




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Refer to “General Notes Relating to Pepperl+Fuchs Product Information”.
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