



Model Number

NBB15-U1-A2-M

Features

- Sensor head bidirectional and rotatable
- 15 mm flush
- 4 LEDs indicator for 360° visibility
- E1-Type approval
- Extended temperature range -40 ... +85 °C

Accessories

MHW 01

Modular mounting bracket

V1-M20-80

Receptacles, M12/M20; plastic version

V1-G

Female connector, M12, 4-pin, field attachable

V1-W

Female connector, M12, 4-pin, field attachable

Technical Data

General specifications

| | | |
|------------------------------|-------|----------------|
| Switching element function | PNP | NO/NC |
| Rated operating distance | s_n | 15 mm |
| Installation | | flush |
| Output polarity | | DC |
| Assured operating distance | s_a | 0 ... 12.15 mm |
| Reduction factor r_{Al} | | 0.34 |
| Reduction factor r_{Cu} | | 0.32 |
| Reduction factor r_{304} | | 0.77 |
| Reduction factor r_{Brass} | | 0.43 |

Nominal ratings

| | | |
|-----------------------------|-------|----------------------------|
| Operating voltage | U_B | 10 ... 60 V |
| Switching frequency | f | 0 ... 200 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 |
| No-load supply current | I_0 | ≤ 20 mA |
| Operating voltage indicator | | LED, green |
| Switching state indicator | | LED, yellow |

Ambient conditions

| | |
|---------------------|--------------------------------|
| Ambient temperature | -40 ... 85 °C (-40 ... 185 °F) |
|---------------------|--------------------------------|

Mechanical specifications

| | |
|----------------------|---|
| Connection type | screw terminals |
| Core cross-section | ≤ 2.5 mm ² |
| Housing material | PA/metal with epoxy powder coating |
| Sensing face | PA-GF35 |
| Housing base | plastic |
| Degree of protection | IP68 / IP69K |
| Mass | 225 g |
| Note | Tightening torque: 1.8 Nm (housing) Tightening torque: 1.0 Nm (Screw terminal) |

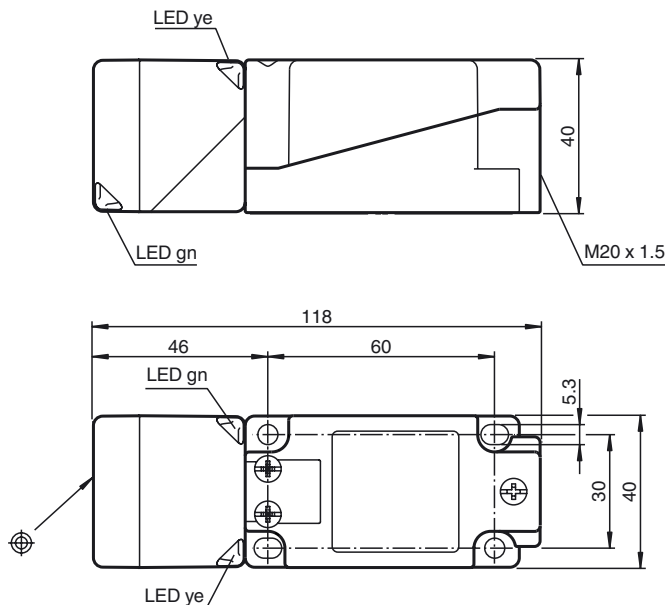
Compliance with standards and directives

| | |
|---------------------|---|
| Standard conformity | |
| Standards | EN 60947-5-2:2007 IEC 60947-5-2:2007 |

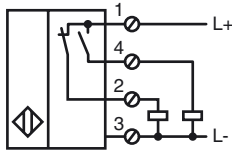
Approvals and certificates

| | |
|------------------|---|
| UL approval | cULus Listed, General Purpose |
| CSA approval | cCSAus Listed, General Purpose |
| CCC approval | Certified by China Compulsory Certification (CCC) |
| E1 Type approval | 10R-04 |

Dimensions



Electrical Connection



Installation Hint

Emitted interference and interference immunity in accordance with motor vehicle directive 2006/28/EG (e1 Type approval)
 Interference immunity in accordance with DIN ISO 11452-2: 100 V/m
 Frequency band 20 MHz up to 2 GHz

Mains-borne interference in accordance with ISO 7637-2: Pulse

| | | | | | | | |
|-------------------|-----|-----|-----|-----|-----|-----|----|
| | 1 | 2a | 2b | 3a | 3b | 4 | 5 |
| Severity level | III | III | III | III | III | III | IV |
| Failure criterion | C | A | C | A | A | A | C |

| | |
|----------------|------------------------|
| EN 61000-4-2: | CD: 8 kV / AD: 15 kV |
| Severity level | IV IV |
| EN 61000-4-3: | 30 V/m (80...2500 MHz) |
| Severity level | IV |
| EN 61000-4-4: | 2 kV |
| Severity level | III |
| EN 61000-4-6: | 10 V (0.01...80 MHz) |
| Severity level | III |
| EN 55011: | Class A |