

Inductive sensor

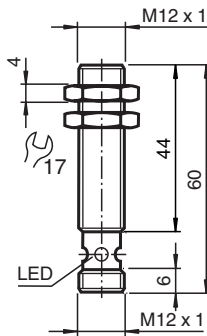
NBB4-12GM45-E3-V1-M



- Basic series
- Increased operating distance
- Extended temperature range
-40 ... +85 °C
- E1-Type approval
- Increased noise immunity 100 V/m



Dimensions



Technical Data

General specifications

| | | |
|----------------------------|-------|----------------------|
| Switching function | | Normally closed (NC) |
| Output type | | PNP |
| Rated operating distance | s_n | 4 mm |
| Installation | | flush |
| Output polarity | | DC |
| Assured operating distance | s_a | 0 ... 3.24 mm |
| Reduction factor r_{Al} | | 0.45 |
| Reduction factor r_{Cu} | | 0.35 |
| Reduction factor r_{304} | | 0.7 |
| Output type | | 3-wire |

Nominal ratings

| | | |
|-----------------------------|-------|----------------------------|
| Operating voltage | U_B | 10 ... 60 V |
| Switching frequency | f | 0 ... 800 Hz |
| Hysteresis | H | typ. 5 % |
| Reverse polarity protection | | reverse polarity protected |
| Short-circuit protection | | pulsing |

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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

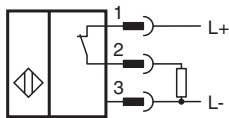
Singapore: +65 6779 9091
fa-info@sg.pepperl-fuchs.com

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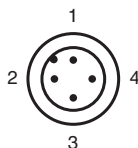
Technical Data

| | | |
|---|---|-------------------------------|
| Voltage drop | U_d | ≤ 2.5 V |
| Rated insulation voltage | U_{BIS} | 60 V |
| Operating current | I_L | 0 ... 200 mA |
| Off-state current | I_r | 0 ... 0.5 mA typ. 0.1 μ A |
| No-load supply current | I_0 | ≤ 14 mA |
| Time delay before availability | t_v | ≤ 5 ms |
| Switching state indicator | Multihole-LED, yellow | |
| Functional safety related parameters | | |
| MTTF _d | 1560 a | |
| Mission Time (T _M) | 20 a | |
| Diagnostic Coverage (DC) | 0 % | |
| Compliance with standards and directives | | |
| Standard conformity | | |
| Standards | EN 60947-5-2:2007 IEC 60947-5-2:2007 | |
| Approvals and certificates | | |
| Protection class | II | |
| Rated insulation voltage | U_i | 60 V |
| Rated impulse withstand voltage | U_{imp} | 800 V |
| 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 | |
| Ambient conditions | | |
| Ambient temperature | -40 ... 85 °C (-40 ... 185 °F) | |
| Mechanical specifications | | |
| Connection type | 4-pin, M12 x 1 connector | |
| Housing material | brass, nickel-plated | |
| Sensing face | PBT | |
| Degree of protection | IP68 / IP69K | |
| Mass | 120 g | |

Connection



Connection Assignment



Wire colors in accordance with EN 60947-5-2

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

Safety Information

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 | 3 a | 3b | 4 |
| Severity level | III | III | III | III | III | III |
| Failure criterion | C | A | C | A | A | A |

EN 61000-4-2: CD: 4 kV / AD: 8 kV
 Severity level II III


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

Accessories

| | | |
|---|---------------|---------------------------------------|
|  | EXG-12 | Quick mounting bracket with dead stop |
|---|---------------|---------------------------------------|

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