



Model Number

NBB5-18GM50-E3-V1-M

Features

- 5 mm flush
- E1-Type approval
- Extended temperature range
- Extended operating voltage range
- Waterproof, degree of protection IP68

Accessories

EXG-18

Quick mounting bracket with dead stop

BF 18

Mounting flange, 18 mm

V1-W

Female connector, M12, 4-pin, field attachable

V1-G

Female connector, M12, 4-pin, field attachable

Technical Data

General specifications

| | | |
|------------------------------|-------|---|
| Switching element function | PNP | NC |
| Rated operating distance | s_n | 5 mm |
| Installation | | flush |
| Output polarity | | DC |
| Assured operating distance | s_a | 0 ... 4.05 mm |
| Actuating element | | mild steel, e. g. 1.0037, SR235JR (formerly St37-2) 18 mm x 18 mm x 1 mm |
| Reduction factor r_{Al} | | 0.4 |
| Reduction factor r_{Cu} | | 0.3 |
| Reduction factor r_{304} | | 0.7 |
| Reduction factor r_{Brass} | | 0.4 |

Nominal ratings

| | | |
|----------------------------------|-------|----------------------------|
| Installation conditions | | |
| A | | 0 mm |
| B | | 2 mm |
| C | | 10 mm |
| F | | 30 mm |
| Operating voltage | U_B | 10 ... 65 V |
| Switching frequency | f | 0 ... 3500 Hz |
| Hysteresis | H | 0.04 ... 1.15 mm |
| Reverse polarity protection | | reverse polarity protected |
| Short-circuit protection | | pulsing |
| Overload resistance | | yes |
| Wire breakage protection | | yes |
| Inductive overvoltage protection | | yes |
| Surge suppression | | yes |
| Ripple | | 10 % |
| Voltage drop | U_d | ≤ 2.5 V |
| Repeat accuracy | | 0.15 mm |
| Operating current | I_L | 0 ... 300 mA |
| Off-state current | I_r | ≤ 0.01 mA |
| No-load supply current | I_0 | ≤ 10 mA |
| Time delay before availability | t_v | ≤ 40 ms |
| Switching state indicator | | Multihole-LED, yellow |

Functional safety related parameters

| | |
|--------------------------------|--------|
| MTTF _d | 1050 a |
| Mission Time (T _M) | 20 a |
| Diagnostic Coverage (DC) | 0 % |

Ambient conditions

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

Mechanical specifications

| | |
|----------------------|--------------------------|
| Connection type | 4-pin, M12 x 1 connector |
| Housing material | brass, nickel-plated |
| Sensing face | PPS |
| Degree of protection | IP68 |
| Mass | 50 g |

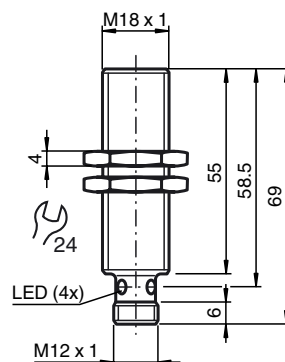
Compliance with standards and directives

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

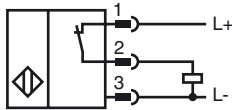
Approvals and certificates

| | |
|------------------|--------|
| E1 Type approval | 10R-04 |
|------------------|--------|

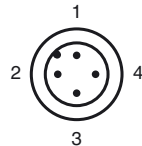
Dimensions



Electrical Connection



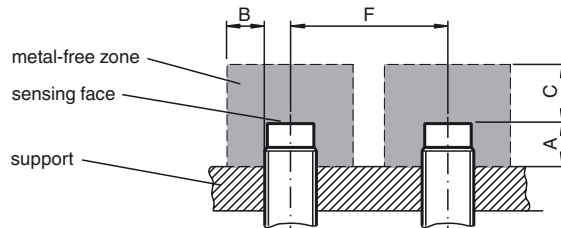
Pinout



Wire colors in accordance with EN 60947-5-2

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

Installation Conditions



Installation Hint

Interference emission and immunity according to Motor Vehicle Directive 10R-04 (E1 type approval)
 Immunity according to DIN ISO 11452-2: 30 V/m
 Frequency band of 20 MHz to 2 GHz

Conducted interference according to ISO 7637-2:

| | | | | | | |
|-------------------|-----|-----|-----|-----|-----|-----|
| Pulse | 1 | 2a | 2b | 3a | 3b | 4 |
| Severity | III | III | III | III | III | III |
| Failure criterion | C | A | C | A | A | A |

EN 61000-4-2 was measured according to the requirements in IEC
 EN 60947-5-2 (4 kV for metal, 8 kV for plastic)
 EN 61000-4-3: 30 V/m (80 - 2500 MHz)
 Severity IV
 EN 61000-4-4: 2 kV
 Severity III
 EN 61000-4-6: 10 V (0.01- 80 MHz)
 Severity III
 EN 55011: Class A

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