



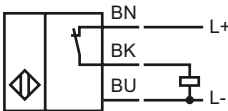
## Model Number

NBB15-30GM50-E3-M

## Features

- Basic series
- 15 mm embeddable
- Increased operating distance
- Extended temperature range -40 ... +85 °C
- e1-Type approval
- Increased interference rejection 100 V/m

## Connection



## Accessories

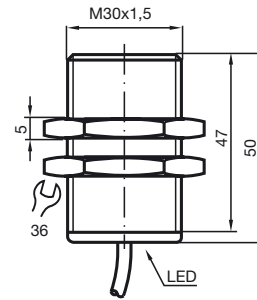
### BF 30

Mounting flange, 30 mm

### EXG-30

Quick mounting bracket with dead stop

## Dimensions



## Technical Data

### General specifications

|                            |       |                |    |
|----------------------------|-------|----------------|----|
| Switching element function |       | PNP            | NC |
| Rated operating distance   | $s_n$ | 15 mm          |    |
| Installation               |       | embeddable     |    |
| Output polarity            |       | DC             |    |
| Assured operating distance | $s_a$ | 0 ... 12.15 mm |    |
| Reduction factor $r_{Al}$  |       | 0.45           |    |
| Reduction factor $r_{Cu}$  |       | 0.4            |    |
| Reduction factor $r_{V2A}$ |       | 0.7            |    |

### Nominal ratings

|                                   |       |                                        |
|-----------------------------------|-------|----------------------------------------|
| Operating voltage                 | $U_B$ | 5 ... 60 V                             |
| Switching frequency               | $f$   | 0 ... 200 Hz                           |
| Hysteresis                        | $H$   | typ. 5 %                               |
| Reverse polarity protected        |       | reverse polarity protected             |
| Short-circuit protection          |       | pulsing                                |
| Voltage drop                      | $U_d$ | $\leq 2.5$ V                           |
| Operating current                 | $I_L$ | 0 ... 200 mA                           |
| Off-state current                 | $I_r$ | 0 ... 0.5 mA typ. 0.1 $\mu$ A at 25 °C |
| No-load supply current            | $I_0$ | $\leq 10$ mA                           |
| Indication of the switching state |       | all direction LED, yellow              |

### Functional safety related parameters

|                                |        |
|--------------------------------|--------|
| MTTF <sub>d</sub>              | 1260 a |
| Mission Time (T <sub>M</sub> ) | 20 a   |
| Diagnostic Coverage (DC)       | 0 %    |

### Ambient conditions

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

### Mechanical specifications

|                    |                      |
|--------------------|----------------------|
| Connection type    | cable PUR, 2 m       |
| Core cross-section | 0.75 mm <sup>2</sup> |
| Housing material   | brass, nickel-plated |
| Sensing face       | PBT                  |
| Protection degree  | IP68 / IP69K         |

### 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     | Certified by China Compulsory Certification (CCC) |
| e1 Type approval | 2006/28/EG                                        |

**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                |

Release date: 2010-11-22 14:03 Date of issue: 2010-11-22 189365\_ENG.xml