



### Model Number

**NBB2-8GM50-E2-3G-3D**

### Features

- Basic series
- Increased operating distance

### Accessories

#### BF 8

Mounting flange, 8 mm

#### EXG-08

Quick mounting bracket with dead stop

## Technical Data

### General specifications

|                            |       |               |
|----------------------------|-------|---------------|
| Switching element function | PNP   | NO            |
| Rated operating distance   | $s_n$ | 2 mm          |
| Installation               |       | flush         |
| Output polarity            |       | DC            |
| Assured operating distance | $s_a$ | 0 ... 1.62 mm |
| Reduction factor $r_{Al}$  |       | 0.45          |
| Reduction factor $r_{Cu}$  |       | 0.35          |
| Reduction factor $r_{304}$ |       | 0.75          |

### Nominal ratings

|                                |       |                               |
|--------------------------------|-------|-------------------------------|
| Operating voltage              | $U_B$ | 10 ... 30 V                   |
| Switching frequency            | $f$   | 0 ... 1500 Hz                 |
| Hysteresis                     | $H$   | typ. 5 %                      |
| Reverse polarity protection    |       | reverse polarity protected    |
| Short-circuit protection       |       | pulsing                       |
| Voltage drop                   | $U_d$ | $\leq 3$ V                    |
| Operating current              | $I_L$ | 0 ... 100 mA                  |
| Off-state current              | $I_r$ | 0 ... 0.5 mA typ. 0.1 $\mu$ A |
| No-load supply current         | $I_0$ | $\leq 15$ mA                  |
| Time delay before availability | $t_v$ | $\leq 5$ ms                   |
| Switching state indicator      |       | LED, yellow                   |

### Ambient conditions

|                     |                                |
|---------------------|--------------------------------|
| Ambient temperature | -25 ... 70 °C (-13 ... 158 °F) |
|---------------------|--------------------------------|

### Mechanical specifications

|                      |                      |
|----------------------|----------------------|
| Connection type      | cable PVC , 2 m      |
| Core cross-section   | 0.14 mm <sup>2</sup> |
| Housing material     | brass, nickel-plated |
| Sensing face         | LCP                  |
| Degree of protection | IP67                 |

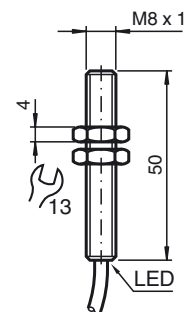
### General information

|                           |                         |
|---------------------------|-------------------------|
| Use in the hazardous area | see instruction manuals |
| Category                  | 3G; 3D                  |

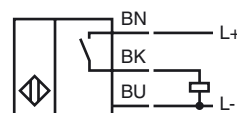
### Compliance with standards and directives

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

## Dimensions



## Electrical Connection



ATEX 3G (nA)

Instruction

Manual electrical apparatus for hazardous areas

Device category 3G (nA)  
CE marking

for use in hazardous areas with gas, vapour and mist  
CE

ATEX marking  
Directive conformity  
Standards

II 3G EEx nA IIC T6 X  
94/9/EG  
EN 60079-15:2003  
Ignition protection category "n"  
Use is restricted to the following stated conditions

General

The apparatus has to be operated according to the appropriate data in the data sheet and in this instruction manual.  
The data stated in the data sheet are restricted by this operating instruction! The special conditions must be observed!

Installation, Comissioning  
Maintenance

Laws and/or regulations and standards governing the use or intended usage goal must be observed.  
No changes can be made to apparatus, which are operated in hazardous areas.  
Repairs to these apparatus are not possible.

Specific conditions

Maximum operating current  $I_L$

The maximum permissible load current must be restricted to the values given in the following list. High load currents and load short-circuits are not permitted.

Maximum operating voltage  $U_{Bmax}$

The maximum permissible operating voltage  $U_{Bmax}$  is restricted to the values in the following list. Tolerances are not permissible.

Maximum permissible ambient temperature  $T_{Umax}$

dependant of the load current  $I_L$  and the max. operating voltage  $U_{Bmax}$ .  
Information can be taken from the following list.

at  $U_{Bmax}=30\text{ V}$ ,  $I_L=100\text{ mA}$

43 °C (109.4 °F)

at  $U_{Bmax}=30\text{ V}$ ,  $I_L=50\text{ mA}$

46 °C (114.8 °F)

Protection from mechanical danger

The sensor must not be exposed to **ANY FORM** of mechanical danger.

Protection from UV light

The sensor and the connection cable must be protected from damaging UV-radiation. This can be achieved when the sensor is used in internal areas.

Protection of the connection cable

The connection cable must be prevented from being subjected to tension and torsional loading.

Electrostatic charging

Electrostatic charges must be avoided on the mechanical housing components. Dangerous electrostatic charges on the mechanical housing components can be avoided by incorporating these in the equipotential bonding.

**ATEX 3D**

Instruction

**Manual electrical apparatus for hazardous areas****Device category 3D**

for use in hazardous areas with non-conducting combustible dust

CE marking



ATEX marking

II 3D IP67 T 97 °C (206.6 °F) X

Directive conformity

94/9/EG

Standards

EN 50281-1-1

Protection via housing

Use is restricted to the following stated conditions

General

The apparatus has to be operated according to the appropriate data in the data sheet and in this instruction manual.

The data stated in the data sheet are restricted by this operating instruction! The special conditions must be adhered to!

Installation, Commissioning

Laws and/or regulations and standards governing the use or intended usage goal must be observed.

Maintenance

No changes can be made to apparatus, which are operated in hazardous areas.

Repairs to these apparatus are not possible.

**Specific conditions**Maximum operating current  $I_L$ 

The maximum permissible load current must be restricted to the values given in the following list.

High load currents and load short-circuits are not permitted.

Maximum operating voltage  $U_{Bmax}$ The maximum permissible operating voltage  $U_{Bmax}$  must be restricted to the values given in the following list. Tolerances are not permitted.

Maximum heating (Temperature rise)

dependant of the load current  $I_L$  and the max. operating voltage  $U_{Bmax}$ .

Information can be taken from the following list. The maximum surface temperature at maximum ambient temperature is given in the Ex identification of the apparatus.

at  $U_{Bmax}=30\text{ V}$ ,  $I_L=100\text{ mA}$ 

27 K

at  $U_{Bmax}=30\text{ V}$ ,  $I_L=50\text{ mA}$ 

24 K

Protection from mechanical danger

The sensor must not be mechanically damaged.

Protection of the connection cable

The connection cable must be prevented from being subjected to tension and torsional loading.

Electrostatic charging

Electrostatic charges must be avoided on the mechanical housing components. Dangerous electrostatic charges on the mechanical housing components can be avoided by incorporating these in the equipotential bonding.