



### Model Number

NBB2-V3-E2-3G-3D

### Features

- 2 mm flush
- 3-wire DC
- ATEX-approval for zone 2 and zone 22

## Technical Data

### General specifications

Switching function	Normally open (NO)
Output type	PNP
Rated operating distance	$s_n$ 2 mm
Installation	flush
Output polarity	DC
Assured operating distance	$s_a$ 0 ... 1.62 mm
Reduction factor $r_{AI}$	0.35
Reduction factor $r_{CU}$	0.2
Reduction factor $r_{304}$	0.7

### Nominal ratings

Operating voltage	$U_B$ 10 ... 30 V DC
Switching frequency	$f$ 0 ... 1000 Hz
Reverse polarity protection	yes
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 at 25 °C
No-load supply current	$I_0$ $\leq$ 15 mA
Switching state indicator	LED, yellow

### Ambient conditions

Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
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### Mechanical specifications

Connection type	cable PVC , 130 mm
Core cross-section	0.14 mm <sup>2</sup>
Housing material	PBT
Sensing face	PBT
Degree of protection	IP67
Cable	

Bending radius > 10 x cable diameter

### General information

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

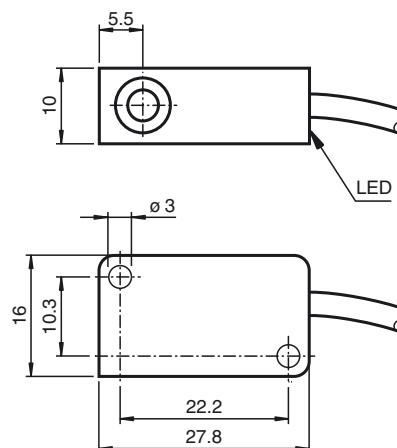
### Compliance with standards and directives

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

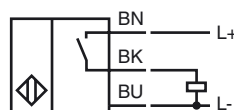
### Approvals and certificates

UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	CCC approval / marking not required for products rated $\leq$ 36 V

## Dimensions



## Electrical Connection



**Equipment protection level Gc (nA)**

Instruction

**Device category 3G (nA)**

Certificate of Compliance

CE marking

ATEX marking

Standards

General

Installation, commissioning

Maintenance

**Special conditions**Maximum operating current  $I_L$ Maximum operating voltage  $U_{Bmax}$ Maximum permissible ambient temperature  $T_{Umax}$ at  $U_{Bmax}=30$  V,  $I_L=100$  mAat  $U_{Bmax}=30$  V,  $I_L=50$  mAat  $U_{Bmax}=30$  V,  $I_L=25$  mA

Protection from mechanical danger

Protection from UV light

Protection of the connection cable

Protection against transients

Material selection accessories

**Manual electrical apparatus for hazardous areas**

for use in hazardous areas with gas, vapour and mist

PF 15CERT3754 X

CE

Ⓔ II 3G Ex nA IIC T6 Gc

The Ex-related marking can also be printed on the enclosed label.

EN 60079-0:2012+A11:2013, EN 60079-15:2010

Ignition protection category "n"

Use is restricted to the following stated conditions

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!

Laws and/or regulations and standards governing the use or intended usage goal must be observed. If the Ex-related marking is printed only on the supplied label, then this must be attached in the immediate vicinity of the sensor. The sticking surface for the label must be clean and free from grease. The attached label must be legible and indelible, including in the event of possible chemical corrosion.

No changes can be made to apparatus, which are operated in hazardous areas. Repairs to these apparatus are not possible.

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.

The maximum permissible operating voltage  $U_{Bmax}$  is restricted to the values in the following list. Tolerances are not permissible.dependant of the load current  $I_L$  and the max. operating voltage  $U_{Bmax}$ . Information can be taken from the following list.

41 °C (105.8 °F)

42 °C (107.6 °F)

44 °C (111.2 °F)

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

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.

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

Ensure transient protection is provided and that the maximum value of the transient protection (140% of 85 V) is not exceeded.

When selecting accessories, ensure that the material allows the temperature of the enclosure to rise to up to 70 °C.

**Equipment protection level Dc (tc)**

Instruction

**Device category 3D**Certificate of Compliance  
CE marking

ATEX marking

Standards

General

Installation, commissioning

Maintenance

**Special conditions**Maximum operating current  $I_L$ Maximum operating voltage  $U_{Bmax}$ Maximum permissible ambient temperature  $T_{Umax}$ at  $U_{Bmax}=30\text{ V}$ ,  $I_L=100\text{ mA}$ at  $U_{Bmax}=30\text{ V}$ ,  $I_L=50\text{ mA}$ at  $U_{Bmax}=30\text{ V}$ ,  $I_L=25\text{ mA}$ 

Protection from mechanical danger

Protection from UV light

Protection of the connection cable

Electrostatic charge

**Manual electrical apparatus for hazardous areas**

for use in hazardous areas with combustible dust

PF 15CERT3774 X



II 3D Ex tc IIIC T80°C Dc

The Ex-related marking can also be printed on the enclosed label.

EN 60079-0:2012+A11:2013, EN 60079-31:2014

Protection by enclosure "tc". Some of the information in this instruction manual is more specific than the information provided in the datasheet.

The corresponding datasheets, declarations of conformity, EC-type examination certificates, certifications, and control drawings, where applicable (see datasheets), form an integral part of this document. These documents can be found at [www.pepperl-fuchs.com](http://www.pepperl-fuchs.com). The maximum surface temperature of the device was determined without a layer of dust on the apparatus. Some of the information in this instruction manual is more specific than the information provided in the datasheet.

Laws and/or regulations and standards governing the use or intended usage goal must be observed. If the Ex-relevant identification is printed exclusively on the adhesive label provided, this label must be affixed in the immediate vicinity of the sensor! The background surface to which the adhesive label is to be applied must be clean and free from grease! The applied label must be durable and remain legible, with due consideration of the possibility of chemical corrosion!

No changes can be made to apparatus, which are operated in hazardous areas. Repairs to these apparatus are not possible.

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.

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

Information can be taken from the following list.

41 °C (105.8 °F)

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

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.

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

Do not attach the nameplate provided in areas where electrostatic charge can build up.