



Model Number

NBB2-V3-E3-3G-3D

Features

- 2 mm flush
- 3-wire DC

Technical Data

General specifications

Switching element function		PNP	NC
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}		0.35	
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	≤ 3 V
Operating current	I_L	0 ... 100 mA
Off-state current	I_r	0 ... 0.5 mA typ. 0.1 μ A at 25 °C
No-load supply current	I_0	≤ 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	cabl PVC , 130 mm
Core cross-section	0.14 mm ²
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

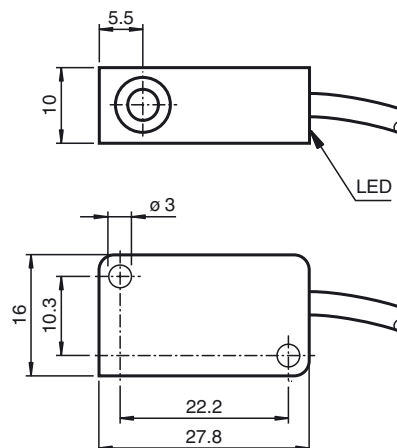
Compliance with standards and directives

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

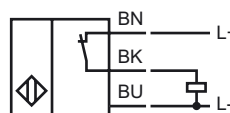
Approvals and certificates

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

Dimensions



Electrical Connection



ATEX 3G (nA)

Instruction

Device category 3G (nA)

CE marking

ATEX marking

Directive conformity

Standards

General

Installation, commissioning

Maintenance

Special conditionsMaximum 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

Manual electrical apparatus for hazardous areas

for use in hazardous areas with gas, vapour and mist

CE

Ⓔ II 3G Ex nA IIC T6 X

The Ex-significant identification is on the enclosed adhesive label 94/9/EG

EN 60079-0:2006, EN 60079-15:2005

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.

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.

30 °C (86 °F)

31 °C (87.8 °F)

33 °C (91.4 °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.

ATEX 3D (tD)

Instruction

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

for use in hazardous areas with combustible dust

CE marking



ATEX marking

II 3D Ex tD A22 IP67 T80°C X

Directive conformity

94/9/EG

Standards

EN 61241-0:2006, EN 61241-1:2004

Protection via housing "tD"

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 maximum surface temperature has been determined in accordance with method A without a dust layer on the equipment.
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.

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

30 °C (86 °F)

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

31 °C (87.8 °F)

at $U_{Bmax}=30\text{ V}$, $I_L=25\text{ mA}$

33 °C (91.4 °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.