



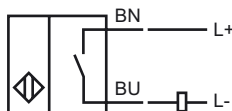
### Model Number

NBB3-V3-Z4-3G-3D

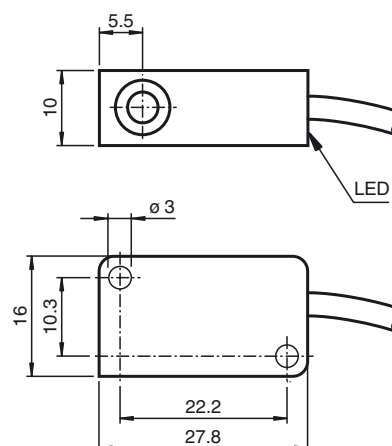
### Features

- 3 mm embeddable
- 2-wire DC
- 60 V DC output
- ATEX approval for zone 2 and zone 22

### Connection



### Dimensions



### Technical Data

#### General specifications

Switching element function	DC	NO
Rated operating distance	$s_n$	3 mm
Installation		embeddable
Output polarity		DC
Assured operating distance	$s_a$	0 ... 2.4 mm
Reduction factor $r_{Al}$		0.4
Reduction factor $r_{Cu}$		0.3
Reduction factor $r_{303}$		0.8

#### Nominal ratings

Operating voltage	$U_B$	5 ... 60 V DC
Switching frequency	$f$	0 ... 2000 Hz
Hysteresis	$H$	typ. 0.2 mm
Reverse polarity protected		reverse polarity protected
Voltage drop	$U_d$	$\leq 5$ V
Operating current	$I_L$	4 ... 100 mA
Lowest operating current	$I_m$	4 mA
Off-state current	$I_r$	0 ... 1 mA typ. 0.7 mA
Indication of the switching state		LED, yellow

#### Limit data

Tightening torque, fastening screws	0.4 Nm
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#### Ambient conditions

Ambient temperature	-25 ... 85 °C (-13 ... 185 °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
Protection degree	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 IEC 60947-5-2:2007

#### Approvals and certificates

UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	Products with a maximum operating voltage of $\leq 36$ V do not bear a CCC marking because they do not require approval.

**ATEX 3G (nA)**

Instruction

**Manual electrical apparatus for hazardous areas****Device category 3G (nA)**

Directive conformity

Standard conformity

for use in hazardous areas with gas, vapour and mist

94/9/EG

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


Ignition protection category "n"

Use is restricted to the following stated conditions

CE symbol



Ex-identification

 II 3G Ex nA IIC T6 X

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, 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 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  $U_B$  max 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  $U_{Bmax}=60$  V,  $I_L=100$  mA

38 °C (100.4 °F)

at  $U_{Bmax}=60$  V,  $I_L=50$  mA

52 °C (125.6 °F)

at  $U_{Bmax}=60$  V,  $I_L=25$  mA

57 °C (134.6 °F)

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

36 °C (96.8 °F)

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

50 °C (122 °F)

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

57 °C (134.6 °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.

**ATEX 3D (tD)**

Instruction	<b>Manual electrical apparatus for hazardous areas</b>
<b>Device category 3D</b>	for use in hazardous areas with combustible dust
Directive conformity	94/9/EG
Standard conformity	EN 61241-0:2006, EN 61241-1:2004
CE symbol	Protection via housing "tD" Use is restricted to the following stated conditions <b>CE</b>
Ex-identification	<b>Ex</b> II 3D Ex tD A22 IP67 T80°C X
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.
<b>Special conditions</b>	
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 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 $U_{Bmax}=60$ V, $I_L=100$ mA	38 °C (100.4 °F)
at $U_{Bmax}=60$ V, $I_L=50$ mA	52 °C (125.6 °F)
at $U_{Bmax}=60$ V, $I_L=25$ mA	57 °C (134.6 °F)
at $U_{Bmax}=30$ V, $I_L=100$ mA	36 °C (96.8 °F)
at $U_{Bmax}=30$ V, $I_L=50$ mA	50 °C (122 °F)
at $U_{Bmax}=30$ V, $I_L=25$ mA	57 °C (134.6 °F)
Protection from mechanical danger	The sensor must not be exposed to <b>ANY FORM</b> 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.
Electrostatic charging	Sliding contact discharges must be avoided.
Protection of the connection cable	The connection cable must be prevented from being subjected to tension and torsional loading.