



Model Number

NBB3-V3-Z4-3G-3D

Features

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

Technical Data

General specifications

Switching function	Normally open (NO)
Output type	Two-wire
Rated operating distance	s_n 3 mm
Installation	flush
Output polarity	DC
Assured operating distance	s_a 0 ... 2.4 mm
Actual operating distance	s_r 2.7 ... 3.3 mm typ.
Reduction factor r_{Al}	0.45
Reduction factor r_{Cu}	0.35
Reduction factor r_{304}	0.8
Reduction factor r_{Brass}	0.5
Output type	2-wire

Nominal ratings

Operating voltage	U_B 5 ... 60 V DC
Switching frequency	f 0 ... 2000 Hz
Hysteresis	H typ. 0.2 mm
Reverse polarity protection	reverse polarity protected
Short-circuit protection	no
Inductive overvoltage protection	yes
Voltage drop	U_d ≤ 4 V
Voltage drop at I_L	
Voltage drop $I_L = 10$ mA, switching element on U_d	3.4 ... 3.9 V typ. 3.6 V
Operating current	I_L 4 ... 100 mA
Lowest operating current	I_m 4 mA
Off-state current	I_r 0.4 ... 0.55 mA typ. 0.46 mA
Time delay before availability	t_v ≤ 1 ms
Switching state indicator	LED, yellow

Limit data

Tightening torque, fastening screws	0.4 Nm
-------------------------------------	--------

Functional safety related parameters

MTTF _d	1552 a
Mission Time (T_M)	20 a
Diagnostic Coverage (DC)	0 %

Standard conformity

EMC in accordance with	EN 60947-5-2:2007 EN 60947-5-2/A1:2012 IEC 60947-5-2:2007 IEC 60947-5-2 AMD 1:2012
------------------------	---

Ambient conditions

Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
---------------------	--------------------------------

Mechanical specifications

Connection type	cable 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
----------------	-----------------------

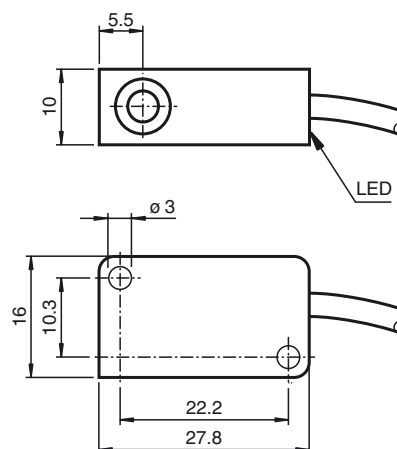
General information

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

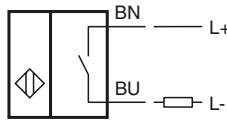
Approvals and certificates

UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose

Dimensions



Electrical Connection



Equipment protection level Gc (nA)

Certificate	PF 15CERT3754 X
CE marking	CE
ATEX marking	II 3G Ex nA IIC T6 Gc The Ex-related marking can also be printed on the enclosed label.
Standards	EN 60079-0:2012+A11:2013, EN 60079-15:2010 Ignition protection category "n" Use is restricted to the following stated conditions
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_{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 $U_{Bmax}=60\text{ V}$, $I_L=100\text{ mA}$	38 °C (100.4 °F)
at $U_{Bmax}=60\text{ V}$, $I_L=50\text{ mA}$	52 °C (125.6 °F)
at $U_{Bmax}=60\text{ V}$, $I_L=25\text{ mA}$	57 °C (134.6 °F)
at $U_{Bmax}=30\text{ V}$, $I_L=100\text{ mA}$	36 °C (96.8 °F)
at $U_{Bmax}=30\text{ V}$, $I_L=50\text{ mA}$	50 °C (122 °F)
at $U_{Bmax}=30\text{ V}$, $I_L=25\text{ mA}$	57 °C (134.6 °F)

Equipment protection level Dc (tc)

CE marking	CE
ATEX marking	II 3D Ex tc IIIC T80°C Dc The Ex-related marking can also be printed on the enclosed label.
Standards	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.
General	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 . 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.
Special conditions	
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 $U_{Bmax}=60\text{ V}$, $I_L=100\text{ mA}$	38 °C (100.4 °F)
at $U_{Bmax}=60\text{ V}$, $I_L=50\text{ mA}$	52 °C (125.6 °F)
at $U_{Bmax}=60\text{ V}$, $I_L=25\text{ mA}$	57 °C (134.6 °F)
at $U_{Bmax}=30\text{ V}$, $I_L=100\text{ mA}$	36 °C (96.8 °F)
at $U_{Bmax}=30\text{ V}$, $I_L=50\text{ mA}$	50 °C (122 °F)
at $U_{Bmax}=30\text{ V}$, $I_L=25\text{ mA}$	57 °C (134.6 °F)