



Model Number

NBB4-12GM50-E2-V1-3D

Features

- Basic series
- Increased operating distance

Accessories

BF 12

Mounting flange, 12 mm

EXG-12

Quick mounting bracket with dead stop

Technical Data

General specifications

Switching element function		PNP	NO
Rated operating distance	s_n	4 mm	
Installation		flush	
Output polarity		DC	
Assured operating distance	s_a	0 ... 3.24 mm	
Reduction factor r_{Al}		0.45	
Reduction factor r_{Cu}		0.35	
Reduction factor r_{304}		0.7	

Nominal ratings

Operating voltage	U_B	10 ... 30 V
Switching frequency	f	0 ... 1000 Hz
Hysteresis	H	typ. 5 %
Reverse polarity protection		reverse polarity protected
Short-circuit protection		pulsing
Voltage drop	U_d	≤ 3 V
Operating current	I_L	0 ... 150 mA
Off-state current	I_r	0 ... 0.5 mA typ. 0.1 μ A at 25 °C
Off-state current $T_U=40$ °C, switching element off		
No-load supply current	I_0	≤ 15 mA
Time delay before availability	t_v	≤ 5 ms
Switching state indicator		Multihole-LED, yellow

Ambient conditions

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

Connection type	Connector M12 x 1, 4-pin
Cable version	PBT
Housing material	brass, nickel-plated
Sensing face	PBT
Degree of protection	IP67

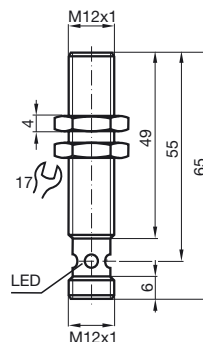
General information

Use in the hazardous area	see instruction manuals
Category	3D

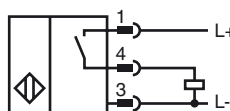
Compliance with standards and directives

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

Dimensions



Electrical Connection



Pinout



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

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

The Ex-significant identification is on the enclosed adhesive label

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. The adhesive label provided must be affixed in the immediate vicinity of the sensor! The surface to which the label is applied must be clean, flat and free from grease!

The affixed adhesive label must be readable and durable, taking account of the possibility of chemical corrosion!

Maintenance

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

Repairs to these apparatus are not possible.

Specific 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 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 $U_{Bmax}=30\text{ V}$, $I_L=150\text{ mA}$

22 K

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

19 K

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

16 K

Protection from mechanical danger

The sensor must not be mechanically damaged.

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.

Plug connector

The plug connector must not be disconnected under voltage. The proximity switch is marked as follows: "DO NOT DISCONNECT UNDER VOLTAGE!" When the plug connector is disconnected the ingress of dirt into the inner areas (i.e. the areas, which are not accessible in the plugged-in condition) must be prevented.

The plug connection can only be separated using a tool. This is achieved by using the locking protection V1-Clip (Mounting accessory from Pepperl + Fuchs).