



Model Number

NCB50-FP-A2-P1-3G-3D

Features

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

Technical Data

General specifications

Switching function		complementary
Output type		PNP
Rated operating distance	s_n	50 mm
Installation		flush
Output polarity		DC
Assured operating distance	s_a	0 ... 40.5 mm
Reduction factor r_{AI}		0.38
Reduction factor r_{CU}		0.35
Reduction factor r_{304}		0.83
Output type		4-wire

Nominal ratings

Operating voltage	U_B	10 ... 60 V DC
Switching frequency	f	0 ... 80 Hz
Hysteresis	H	typ. 3 %
Reverse polarity protection		reverse polarity protected
Voltage drop	U_d	≤ 3 V
Operating current	I_L	0 ... 200 mA
Off-state current	I_r	0 ... 0.5 mA
No-load supply current	I_0	≤ 20 mA
Time delay before availability	t_v	≤ 300 ms
Operating voltage indicator		LED, green
Switching state indicator		LED, yellow

Functional safety related parameters

MTTF _d	670 a
Mission Time (T_M)	20 a
Diagnostic Coverage (DC)	0 %

Ambient conditions

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

Connection type	screw terminals
Information for connection	A maximum of two conductors with the same core cross section may be mounted on one terminal connection! tightening torque 1.2 Nm + 10 %
Core cross-section	up to 2.5 mm ²
Minimum core cross-section	without wire end ferrule 0.5 mm ² , with connector sleeves 0.34 mm ²
Maximum core cross-section	without wire end ferrule 2.5 mm ² , with connector sleeves 1.5 mm ²
Housing material	PBT
Sensing face	PBT
Housing base	PBT
Degree of protection	IP67

General information

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

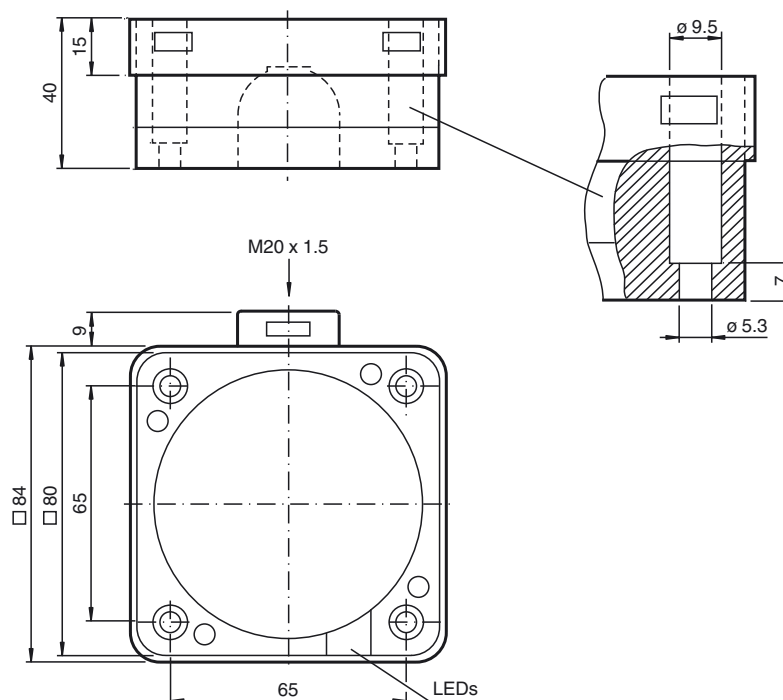
Compliance with standards and directives

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

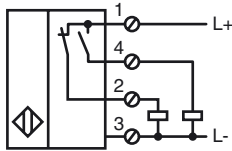
Approvals and certificates

UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	Certified by China Compulsory Certification (CCC)

Dimensions



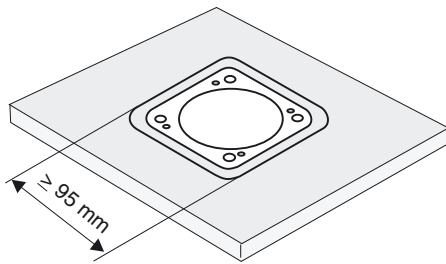
Electrical Connection



Installation Hint

These sensors are especially designed for embeddable mounting in conveyor floors. Due to its precise location in metal base plates the sensor is afforded a high degree of mechanical protection. No clearance is required between the sensor and the base plate, avoiding the need for protective guarding to prevent possible foot injury.

The large sensing range ensures positive detection, and thus provides consistent control and monitoring of the conveyor.



Warning!
Once the metal screening has been removed, the sensor can no longer be embeddable mounted.

Equipment protection level Gc (nA)

Certificate	PF 15CERT3754 X
CE marking	CE
ATEX marking	Ex 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_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, $I_L=200$ mA	44 °C (111.2 °F)
at $U_{Bmax}=60$ V, $I_L=100$ mA	45 °C (113 °F)
at $U_{Bmax}=60$ V, $I_L=25$ mA	47 °C (116.6 °F)
at $U_{Bmax}=30$ V, $I_L=200$ mA	50 °C (122 °F)
at $U_{Bmax}=30$ V, $I_L=100$ mA	53 °C (127.4 °F)
at $U_{Bmax}=30$ V, $I_L=50$ mA	56 °C (132.8 °F)

Equipment protection level Dc

CE marking	CE
ATEX marking	Ex II 3D IP67 T 95 °C (203 °F) X

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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

Standards	EN 50281-1-1 Protection via housing Use is restricted to the following stated conditions
Special conditions	
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 $U_{Bmax}=60\text{ V}$, $I_L=200\text{ mA}$	25 K
at $U_{Bmax}=60\text{ V}$, $I_L=100\text{ mA}$	24 K
at $U_{Bmax}=60\text{ V}$, $I_L=25\text{ mA}$	22 K
at $U_{Bmax}=30\text{ V}$, $I_L=200\text{ mA}$	19 K
at $U_{Bmax}=30\text{ V}$, $I_L=100\text{ mA}$	16 K
at $U_{Bmax}=30\text{ V}$, $I_L=50\text{ mA}$	14 K
Equipment protection level Dc (tc)	
CE marking	
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.
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