



Model Number

NCB50-FP-E2-P1-V1-3G-3D

Features

- 50 mm flush
- 3-wire DC

Technical Data

General specifications

Switching function		Normally open (NO)
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		3-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	≤ 30 ms
Operating voltage indicator		LED, green
Switching state indicator		LED, yellow

Functional safety related parameters

MTTF _d	960 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	Connector plug M12 x 1, 4-pin
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

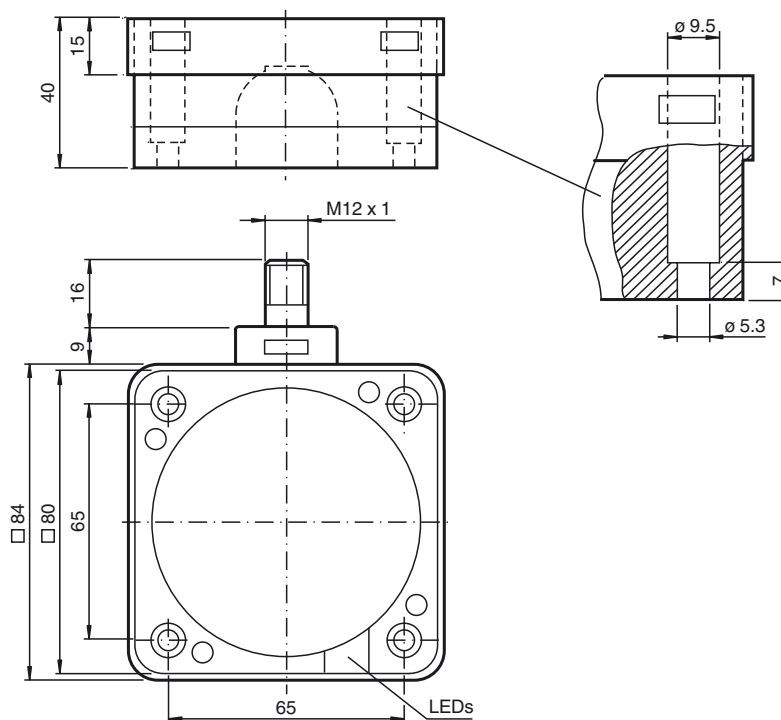
Compliance with standards and directives

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

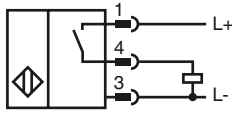
Approvals and certificates

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

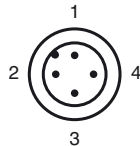
Dimensions



Electrical Connection



Pinout



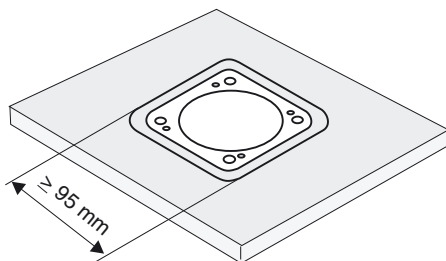
Wire colors in accordance with EN 60947-5-2

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

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)

CE marking



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ATEX marking	⊕ II 3G Ex nA IIC T6 X
Standards	EN 60079-0:2006, EN 60079-15:2005 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	⊕ II 3D IP67 T 95 °C (203 °F) X
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 $U_{Bmax}=60$ V, $I_L=200$ mA	25 K
at $U_{Bmax}=60$ V, $I_L=100$ mA	24 K
at $U_{Bmax}=60$ V, $I_L=25$ mA	22 K
at $U_{Bmax}=30$ V, $I_L=200$ mA	19 K
at $U_{Bmax}=30$ V, $I_L=100$ mA	16 K
at $U_{Bmax}=30$ V, $I_L=50$ mA	14 K
Equipment protection level Dc (tD)	
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!
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 $U_{Bmax}=60$ V, $I_L=200$ mA	44 °C (111.2 °F)
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