



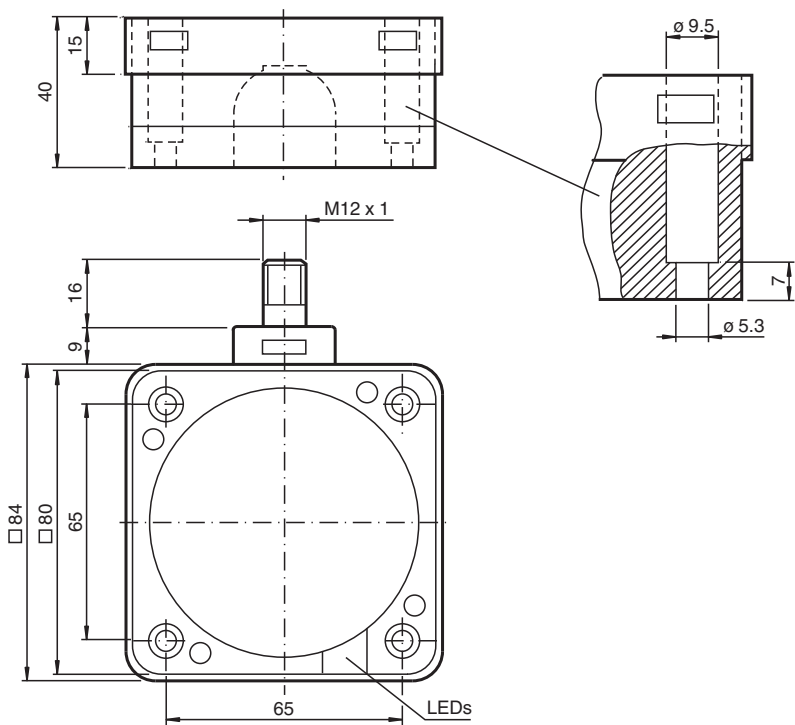
Inductive sensor

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

- 50 mm flush
- 3-wire DC



Dimensions



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

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

Pepperl+Fuchs Group
www.pepperl-fuchs.com

USA: +1 330 486 0001
fa-info@us.pepperl-fuchs.com

Germany: +49 621 776 1111
fa-info@de.pepperl-fuchs.com

Singapore: +65 6779 9091
fa-info@sg.pepperl-fuchs.com

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Technical Data

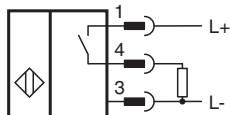
Hysteresis	H	typ. 3 %
Reverse polarity protection		reverse polarity protected
Voltage drop	U_d	$\leq 3 \text{ V}$
Operating current	I_L	0 ... 200 mA
Off-state current	I_r	0 ... 0.5 mA
No-load supply current	I_0	$\leq 20 \text{ mA}$
Time delay before availability	t_v	$\leq 30 \text{ ms}$
Operating voltage 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 %
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)
Ambient conditions		
Ambient temperature		-25 ... 70 °C (-13 ... 158 °F)
Mechanical specifications		
Connection type		Connector plug M12 x 1 , 4-pin
Housing material		PBT
Sensing face		PBT
Housing base		PBT
Degree of protection		IP67
Equipment protection level Gc (nA)		
CE marking		[*PD-Z02586A*]
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_{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 $U_{Bmax}=60 \text{ V}$, $I_L=200 \text{ mA}$		44 °C (111.2 °F)
at $U_{Bmax}=60 \text{ V}$, $I_L=100 \text{ mA}$		45 °C (113 °F)
at $U_{Bmax}=60 \text{ V}$, $I_L=25 \text{ mA}$		47 °C (116.6 °F)
at $U_{Bmax}=30 \text{ V}$, $I_L=200 \text{ mA}$		50 °C (122 °F)
at $U_{Bmax}=30 \text{ V}$, $I_L=100 \text{ mA}$		53 °C (127.4 °F)
at $U_{Bmax}=30 \text{ V}$, $I_L=50 \text{ mA}$		56 °C (132.8 °F)
Equipment protection level Dc		
CE marking		[*PD-Z02586A*]
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		

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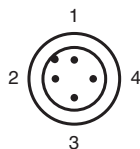
Technical Data

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 (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 $U_{Bmax}=60\text{ V}$, $I_L=200\text{ mA}$		44 °C (111.2 °F)
at $U_{Bmax}=60\text{ V}$, $I_L=100\text{ mA}$		45 °C (113 °F)
at $U_{Bmax}=60\text{ V}$, $I_L=25\text{ mA}$		47 °C (116.6 °F)
at $U_{Bmax}=30\text{ V}$, $I_L=200\text{ mA}$		50 °C (122 °F)
at $U_{Bmax}=30\text{ V}$, $I_L=100\text{ mA}$		53 °C (127.4 °F)
at $U_{Bmax}=30\text{ V}$, $I_L=50\text{ mA}$		56 °C (132.8 °F)
General information		
Use in the hazardous area		see instruction manuals
Category		3G; 3D

Connection



Connection Assignment



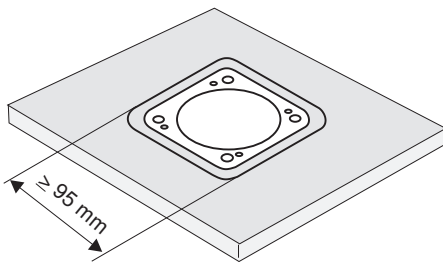
Wire colors in accordance with EN 60947-5-2

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

Mounting

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.