Model Number

NCB40-FP-A2-P1-3G-3D

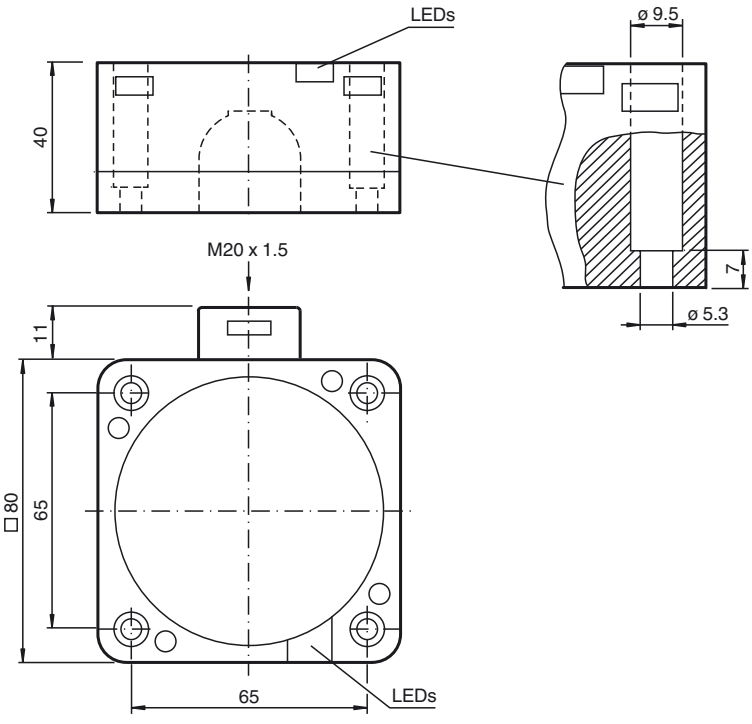
Features

- **40 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	40 mm
Installation		flush
Output polarity		DC
Assured operating distance	s_a	0 ... 32.4 mm
Reduction factor r_{Al}		0.25
Reduction factor r_{Cu}		0.23
Reduction factor r_{304}		0.85
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		
$MTTF_d$		630 a
Mission Time (T_M)		20 a
Diagnostic Coverage (DC)		0 %
Ambient conditions		
Ambient temperature		-25 ... 70 °C (-13 ... 158 °F)
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 mm²
Minimum core cross-section		without wire end ferrule 0.5 mm² , with connector sleeves 0.34 mm²
Maximum core cross-section		without wire end ferrule 2.5 mm² , with connector sleeves 1.5 mm²
Housing material		PBT
Sensing face		PBT
Housing base		PBT
Degree of protection		IP68
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



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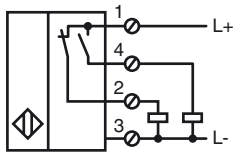
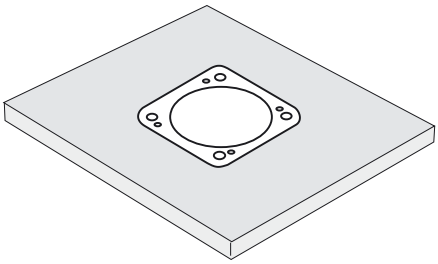
Electrical Connection



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.



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 UB 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=50 mA	48 °C (118.4 °F)
at U_{Bmax}=60 V, I_L=25 mA	48 °C (118.4 °F)
at U_{Bmax}=30 V, I_L=200 mA	51 °C (123.8 °F)
at U_{Bmax}=30 V, I_L=100 mA	55 °C (131 °F)
at U_{Bmax}=30 V, I_L=50 mA	56 °C (132.8 °F)
at U_{Bmax}=30 V, I_L=25 mA	57 °C (134.6 °F)
Equipment protection level Dc	
CE marking	CE
ATEX marking	Ex II 3D IP67 T 96 °C (204.8 °F) X
Standards	EN 50281-1-1 Protection via housing Use is restricted to the following stated conditions
Special conditions	

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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	26 K
at U_{Bmax}=60 V, I_L=100 mA	25 K
at U_{Bmax}=60 V, I_L=50 mA	22 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	15 K
at U_{Bmax}=30 V, I_L=50 mA	13 K
Equipment protection level Dc (tc)	
CE marking	CE
ATEX marking	Ex 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 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=50 mA	48 °C (118.4 °F)
at U_{Bmax}=60 V, I_L=25 mA	48 °C (118.4 °F)
at U_{Bmax}=30 V, I_L=200 mA	51 °C (123.8 °F)
at U_{Bmax}=30 V, I_L=100 mA	55 °C (131 °F)
at U_{Bmax}=30 V, I_L=50 mA	56 °C (132.8 °F)

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