

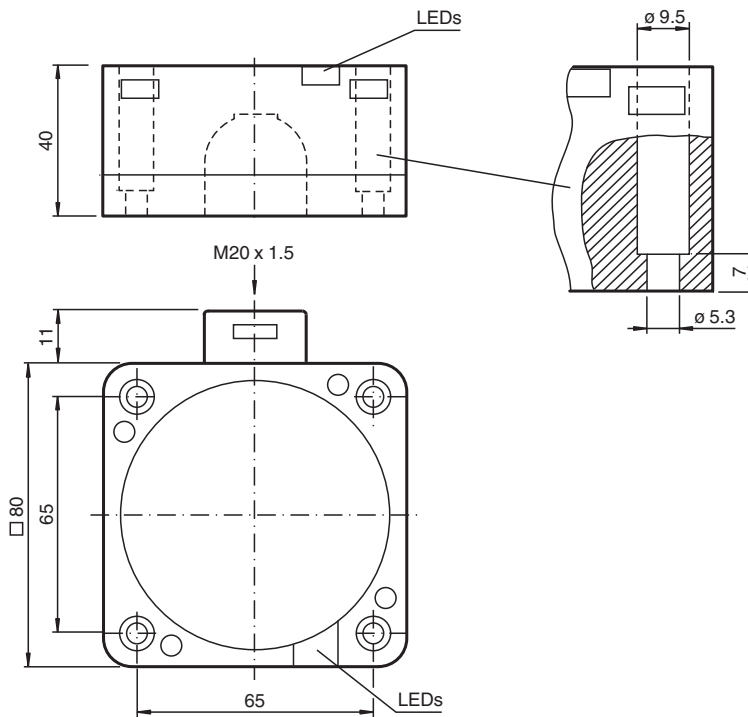


## Inductive sensor NCN50-FP-A2-P1-3G-3D

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



### Dimensions



### Technical Data

#### General specifications

Switching function		complementary
Output type		PNP
Rated operating distance	$s_n$	50 mm
Installation		non-flush
Output polarity		DC
Assured operating distance	$s_a$	0 ... 40.5 mm
Reduction factor $r_{Al}$		0.4
Reduction factor $r_{Cu}$		0.3

Release date: 2020-03-25 Date of issue: 2020-03-30 Filename: 129434\_eng.pdf

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

**PF** PEPPERL+FUCHS

## Technical Data

Reduction factor $r_{304}$		0.85
Output type		4-wire
<b>Nominal ratings</b>		
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	$U_d$	$\leq 3$ V
Operating current	$I_L$	0 ... 200 mA
Off-state current	$I_r$	0 ... 0.5 mA
No-load supply current	$I_0$	$\leq 20$ mA
Time delay before availability	$t_v$	$\leq 300$ ms
Operating voltage indicator		LED, green
Switching state indicator		LED, yellow
<b>Functional safety related parameters</b>		
MTTF <sub>d</sub>		671 a
Mission Time ( $T_M$ )		20 a
Diagnostic Coverage (DC)		0 %
<b>Compliance with standards and directives</b>		
Standard conformity		
Standards		EN 60947-5-2:2007 EN 60947-5-2/A1:2012 IEC 60947-5-2:2007 IEC 60947-5-2 AMD 1:2012
<b>Approvals and certificates</b>		
UL approval		cULus Listed, General Purpose
CSA approval		cCSAus Listed, General Purpose
CCC approval		Certified by China Compulsory Certification (CCC)
<b>Ambient conditions</b>		
Ambient temperature		-25 ... 70 °C (-13 ... 158 °F)
<b>Mechanical specifications</b>		
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 <sup>2</sup>
Minimum core cross-section		without wire end ferrule 0.5 mm <sup>2</sup> , with connector sleeves 0.34 mm <sup>2</sup>
Maximum core cross-section		without wire end ferrule 2.5 mm <sup>2</sup> , with connector sleeves 1.5 mm <sup>2</sup>
Housing material		PBT
Sensing face		PBT
Housing base		PBT
Degree of protection		IP67
<b>Equipment protection level Gc (nA)</b>		
Certificate		PF 15CERT3754 X
CE marking		[*PD-Z02586A*]
ATEX marking		Ⓔ 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
<b>Special conditions</b>		
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.

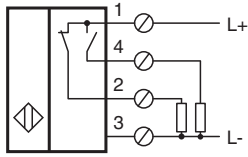
Release date: 2020-03-25 Date of issue: 2020-03-30 Filename: 129434\_eng.pdf

## Technical Data

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 $U_{Bmax}=60\text{ V}$ , $I_L=50\text{ mA}$	48 °C (118.4 °F)
at $U_{Bmax}=60\text{ V}$ , $I_L=25\text{ mA}$	48 °C (118.4 °F)
at $U_{Bmax}=30\text{ V}$ , $I_L=200\text{ mA}$	51 °C (123.8 °F)
at $U_{Bmax}=30\text{ V}$ , $I_L=100\text{ mA}$	55 °C (131 °F)
at $U_{Bmax}=30\text{ V}$ , $I_L=50\text{ mA}$	56 °C (132.8 °F)
at $U_{Bmax}=30\text{ V}$ , $I_L=25\text{ mA}$	57 °C (134.6 °F)
<b>Equipment protection level Dc</b>	
CE marking	[*PD-Z02586A*]
ATEX marking	Ⓔ 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
<b>Special conditions</b>	
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 $U_{Bmax}=60\text{ V}$ , $I_L=200\text{ mA}$	26 K
at $U_{Bmax}=60\text{ V}$ , $I_L=100\text{ mA}$	25 K
at $U_{Bmax}=60\text{ V}$ , $I_L=50\text{ mA}$	22 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 $U_{Bmax}=30\text{ V}$ , $I_L=100\text{ mA}$	15 K
at $U_{Bmax}=30\text{ V}$ , $I_L=50\text{ mA}$	13 K
<b>Equipment protection level Dc (tc)</b>	
CE marking	[*PD-Z02586A*]
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 <a href="http://www.pepperl-fuchs.com">www.pepperl-fuchs.com</a> . 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.
<b>Special conditions</b>	
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 $U_{Bmax}=60\text{ V}$ , $I_L=50\text{ mA}$	48 °C (118.4 °F)
at $U_{Bmax}=60\text{ V}$ , $I_L=25\text{ mA}$	48 °C (118.4 °F)
at $U_{Bmax}=30\text{ V}$ , $I_L=200\text{ mA}$	51 °C (123.8 °F)
at $U_{Bmax}=30\text{ V}$ , $I_L=100\text{ mA}$	55 °C (131 °F)
at $U_{Bmax}=30\text{ V}$ , $I_L=50\text{ mA}$	56 °C (132.8 °F)
<b>General information</b>	
Use in the hazardous area	see instruction manuals
Category	3G; 3D

Release date: 2020-03-25 Date of issue: 2020-03-30 Filename: 129434\_eng.pdf

## Connection



Release date: 2020-03-25 Date of issue: 2020-03-30 Filename: 129434\_eng.pdf

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