

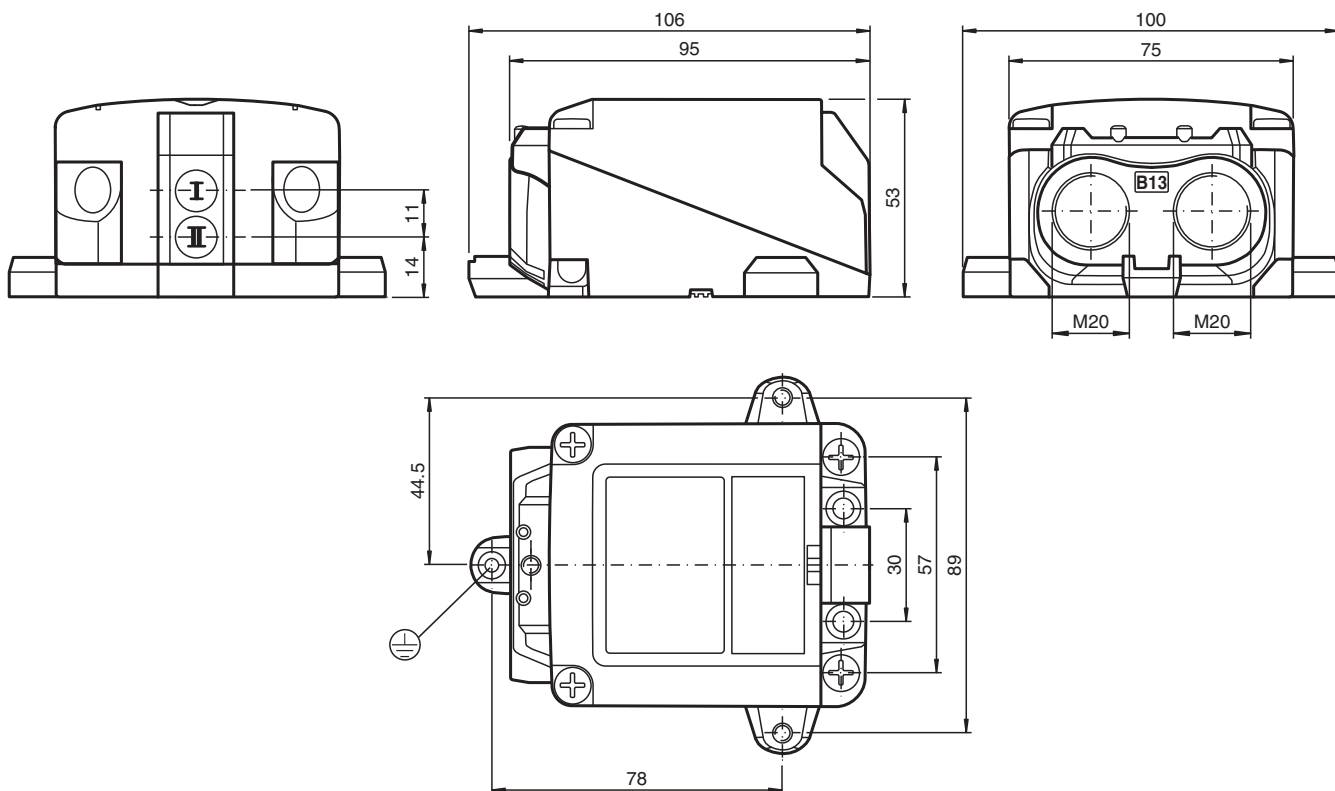
# Inductive sensor

## NCN3-F31K2M-N4-B13-S

- Direct mounting on standard actuators
- ATEX and IECEx approval
- Usable up to SIL 2 acc. to IEC 61508
- Weatherproof housing for outdoor applications
- Rugged metal base
- Plug-in terminals
- Temperature range  
-40 ... 100 °C (-40 ... 212 °F)



### Dimensions



### Technical Data

#### General specifications

Switching function		2 x normally closed (NC)
Output type		NAMUR
Rated operating distance	$s_n$	3 mm
Installation		flush mountable
Assured operating distance	$s_a$	0 ... 2.4 mm For assured operating distance $s_{ar}$ , see Manual Functional Safety.
Actual operating distance	$s_r$	2.7 ... 3.3 mm typ.

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## Technical Data

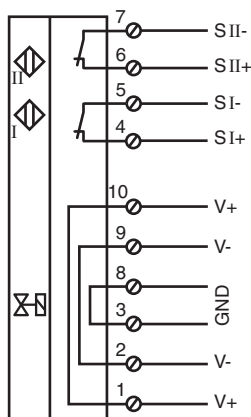
Actuating element	Stainless steel 1.4305 / AISI 303 8.5 mm x 8.5 mm x 0.5 mm	
Reduction factor $r_{Al}$		0.4
Reduction factor $r_{Cu}$		0.4
Reduction factor $r_{304}$		0.7
Reduction factor $r_{St17}$		1
Reduction factor $r_{Brass}$		0.5
Output type	2-wire	
<b>Nominal ratings</b>		
Nominal voltage	$U_o$	8.2 V ( $R_i$ approx. 1 k $\Omega$ )
Switching frequency	f	0 ... 3 kHz
Hysteresis	H	typ. 5 %
Reverse polarity protection	reverse polarity protected	
Short-circuit protection	yes	
Suitable for 2:1 technology	yes , Reverse polarity protection diode not required	
Current consumption		
Measuring plate not detected		$\geq 3$ mA
Measuring plate detected		$\leq 1$ mA
Time delay before availability	$t_v$	$\leq 1$ ms
<b>Functional safety related parameters</b>		
Safety Integrity Level (SIL)		SIL 2
MTTF <sub>d</sub>		1730 a
Mission Time ( $T_M$ )		20 a
Diagnostic Coverage (DC)		0 %
<b>Valve circuit</b>		
Voltage		max. 32 V DC
Current		max. 240 mA
Short-circuit protection	no	
Reverse polarity protection	yes, with reversed output LED is out of function, therefore more power for solenoid valve	
<b>Compliance with standards and directives</b>		
Standard conformity		
NAMUR		EN 60947-5-6:2000 IEC 60947-5-6:1999
Electromagnetic compatibility		NE 21:2007
Standards		EN IEC 60947-5-2
<b>Approvals and certificates</b>		
IECEX approval		
Equipment protection level Ga		IECEX TUR 17.0055X
Equipment protection level Gb		IECEX TUR 17.0055X
Equipment protection level Gc		IECEX TUR 20.0062X
Equipment protection level Da		IECEX TUR 17.0055X
Equipment protection level Dc		IECEX TUR 20.0068X
ATEX approval		
Equipment protection level Ga		TÜV 17 ATEX 8125 X
Equipment protection level Gb		TÜV 17 ATEX 8125 X
Equipment protection level Gc		TÜV 20 ATEX 8592 X
Equipment protection level Da		TÜV 17 ATEX 8125 X
Equipment protection level Dc		TÜV 20 ATEX 8598 X
UL approval		
		cULus Listed Load Type: General Purpose Circuitry: Class 2 Power Source Enclosure Type Rating: Type 1 Supply/Switching Voltage: 8.2 V DC
Ordinary Location		E87056
Hazardous Location		E501628

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Control drawing	116-0455
CCC approval	
Hazardous Location	2020322315002305
KCC approval	
Hazardous Location	23-AV4BO-0113X
<b>Ambient conditions</b>	
Ambient temperature	-40 ... 100 °C (-40 ... 212 °F)
Storage temperature	-40 ... 100 °C (-40 ... 212 °F)
<b>Mechanical specifications</b>	
Connection type	screw terminals
Connection (system side)	Screw terminals, tightening torque min. 0.5 Nm Stripped length 7 mm , M20 x 1.5 cable gland , usable thread length 13.5 mm , screw-in depth max. 13.5 mm
Core cross section (system side)	rigid: 0.14 ... 2.5 mm <sup>2</sup> flexible: 0.14 ... 1.5 mm <sup>2</sup> flexible with core-end sleeve: 0.25 ... 1.5 mm <sup>2</sup>
Connection (valve side)	like connection (system side)
Core cross section (valve side)	like core cross section (system side)
Housing material	PC (glass-fiber-reinforced Makrolon)
Housing base	powder coated aluminum
Degree of protection	IP66 / IP68 / IP69
Tightening torque, fastening screws	≤ 5 Nm
Tightening torque, housing screws	1.5 Nm
Tightening torque, earthing screw	1.5 Nm
Tightening torque, cable gland	M20 x 1.5 ; max. 11 Nm
Tightening torque, stopping plug	2 Nm
<b>Dimensions</b>	
Height	53 mm
Width	100 mm
Length	106 mm
<b>General information</b>	
Use in the hazardous area	see instruction manuals

## Connection Assignment



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## Additional Information

### Interruption of LED:

In the case of a polarity reversal of the valve circuit connection/s, the valve status display does not function, i.e. such that low power valves can (also) be connected.