



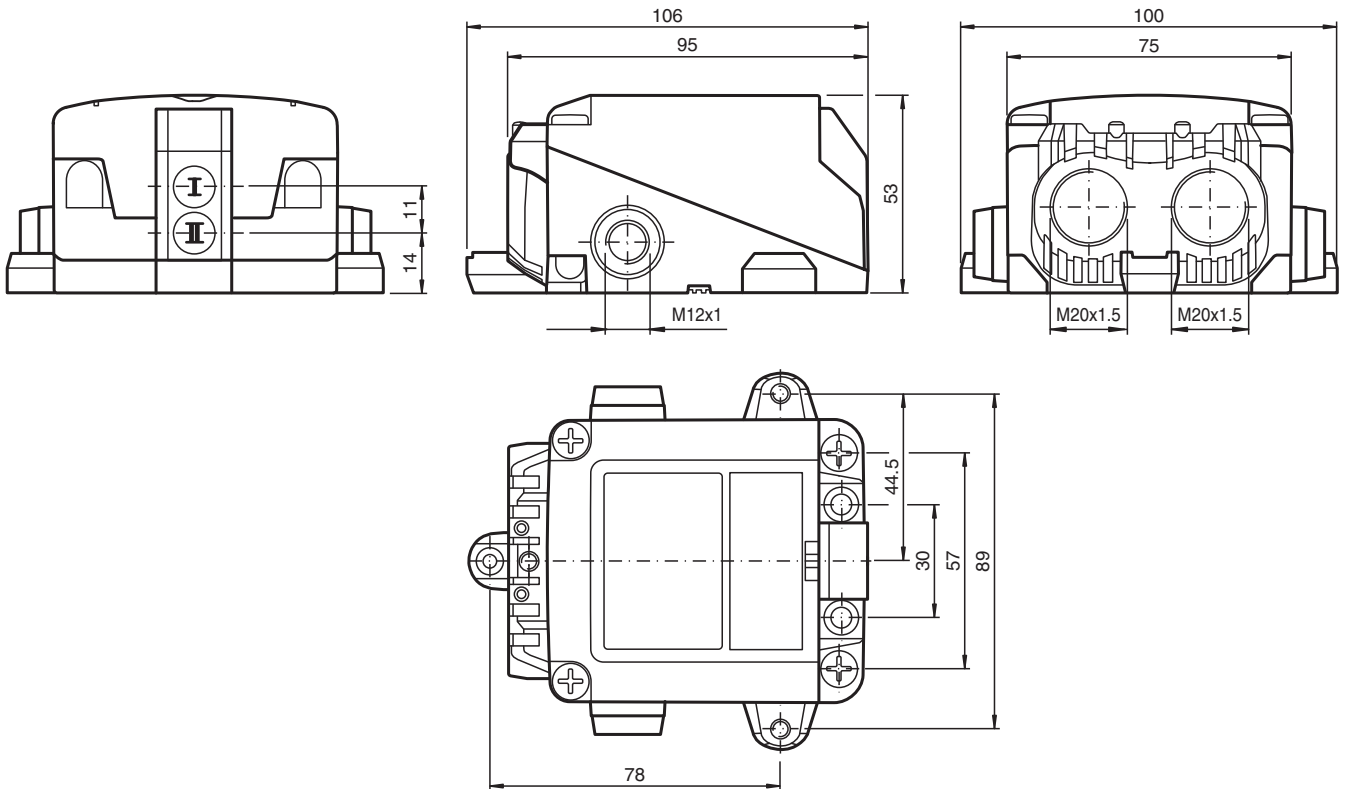
# Inductive sensor

## NCN3-F31K2-N4-B33-S

- Direct mounting on standard actuators
- ATEX & IECEx certifications
- Usable up to SIL 2 acc. to IEC 61508
- Weatherproof housing for outdoor applications
- LEDs for switching state of sensor and solenoid valve
- Plug-in terminals
- Temperature range  
-40 ... 100 °C (-40 ... 212 °F)
- 2 solenoid valves can be connected



### 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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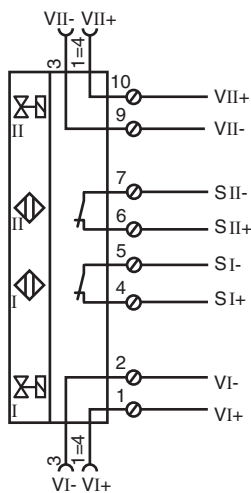
## Technical Data

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	$t_v$	$\leq 1.1$ ms
Switching state indicator	LED, yellow	
Valve status indicator	LED, yellow	
<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 Mb	IECEX TUR 17.0055X	
ATEX approval		
Equipment protection level Ga	TÜV 17 ATEX 8125 X	
Equipment protection level Gb	TÜV 17 ATEX 8125 X	
Equipment protection level Gc (ic)	PF13CERT2895 X	
UL approval		
	cULus Listed Load Type: General Purpose Circuitry: Class 2 Power Source Enclosure Type Rating: Type 1 Supply/Switching Voltage: 30 V DC	
Ordinary Location	E87056	
Hazardous Location	E501628	
Control drawing	116-0455	
CCC approval		

## Technical Data

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)	4-pin, M12 x 1 socket
Core cross section (valve side)	like core cross section (system side)
Housing material	rugged, translucent polycarbonate (PC) optimised for outdoor use
Housing base	PC
Degree of protection	IP66 / IP67 / IP69
Tightening torque, fastening screws	≤ 5 Nm
Tightening torque, housing screws	1.5 Nm
Tightening torque, cable gland	M20 x 1.5 ; max. 7 Nm
Tightening torque, stopping plug	1 Nm
<b>Dimensions</b>	
Height	53 mm
Width	100 mm
Length	106 mm
Note	LED switch-off
<b>General information</b>	
Use in the hazardous area	see instruction manuals

## Connection Assignment



## 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.