



# Inductive sensor

## NCN3-F31K-N4-V1-V1

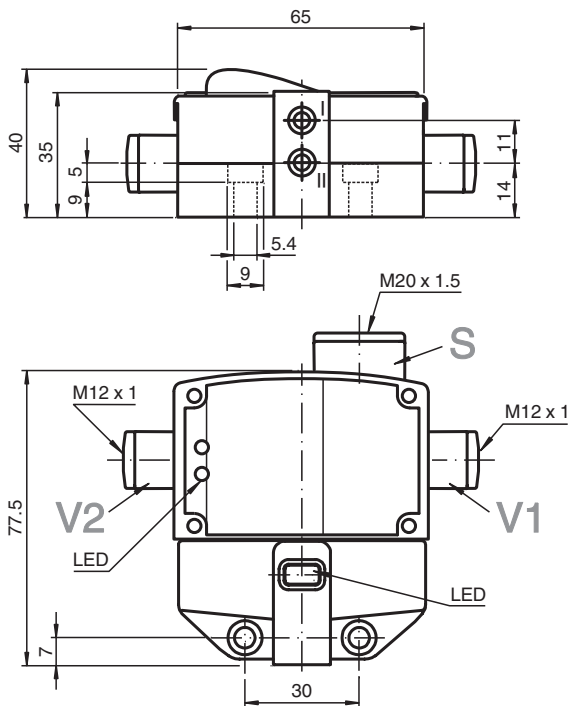
- Direct mounting on standard actuators
- Fixed setting
- Usable up to SIL 2 acc. to IEC 61508
- LEDs for switching state of sensor and solenoid valve
- Valve LEDs disconnectable
- ATEX & IECEX certifications



### Installation

The connections to this sensor are sealed with stopping plugs to protect against dirt and moisture. If not all of the connections are used in your application, then seal the remaining stopping plugs on the sensor permanently or check during initial installation and when performing regular maintenance work that the stopping plugs are secure and impermeable. If necessary, tighten the stopping plugs to a torque of 1 Nm.

### 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

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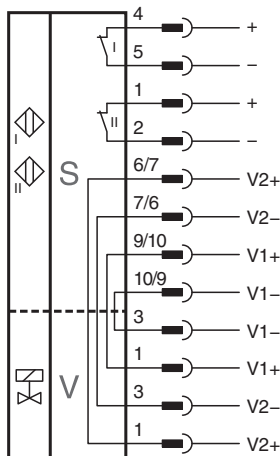
## Technical Data

Actual operating distance	$s_r$	2.7 ... 3.3 mm typ.
Actuating element		Stainless steel 1.4305 / AISI 303 8.5 mm x 8.5 mm x 0.5 mm
Reduction factor $r_{Al}$		0.5
Reduction factor $r_{Cu}$		0.4
Reduction factor $r_{304}$		1
Reduction factor $r_{St37}$		1.3
Reduction factor $r_{Brass}$		0.6
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>		1470 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 TUN 17.0021X
Equipment protection level Gb		IECEX TUN 17.0021X
Equipment protection level Mb		IECEX TUN 17.0021X
ATEX approval		
Equipment protection level Ga		TÜV 99 ATEX 1479 X
Equipment protection level Gb		TÜV 99 ATEX 1479 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: 8.2 V DC
Ordinary Location		E87056
Hazardous Location		E501628
Control drawing		116-0456

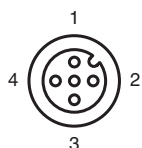
**Technical Data**

CCC approval	
Hazardous Location	2020322315002262
NEPSI approval	
NEPSI certificate	GYJ19.1410X
<b>Ambient conditions</b>	
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Storage temperature	-40 ... 100 °C (-40 ... 212 °F)
<b>Mechanical specifications</b>	
Connection (system side)	Cage tension spring terminals Stripped length 7 mm M20 x 1.5 cable gland usable thread length 11.5 mm screw-in depth max. 11.5 mm
Core cross section (system side)	Flexible: 0.2 ... 1.5 mm <sup>2</sup> rigid: 0.2 ... 2.5 mm <sup>2</sup>
Connection (valve side)	4-pin, M12 x 1 socket
Housing material	PBT
Sensing face	PBT
Degree of protection	IP67
Tightening torque, fastening screws	≤ 5 Nm
Tightening torque, housing screws	1 Nm
Tightening torque, cable gland	M20 x 1.5 ; max. 7 Nm
Dimensions	
Height	35.5 mm
Width	65 mm
Length	77.5 mm
Note	LED switch-off
<b>General information</b>	
Use in the hazardous area	see instruction manuals

**Connection Assignment**



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## Connection Assignment

Wire colors in accordance with EN 60947-5-2

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