

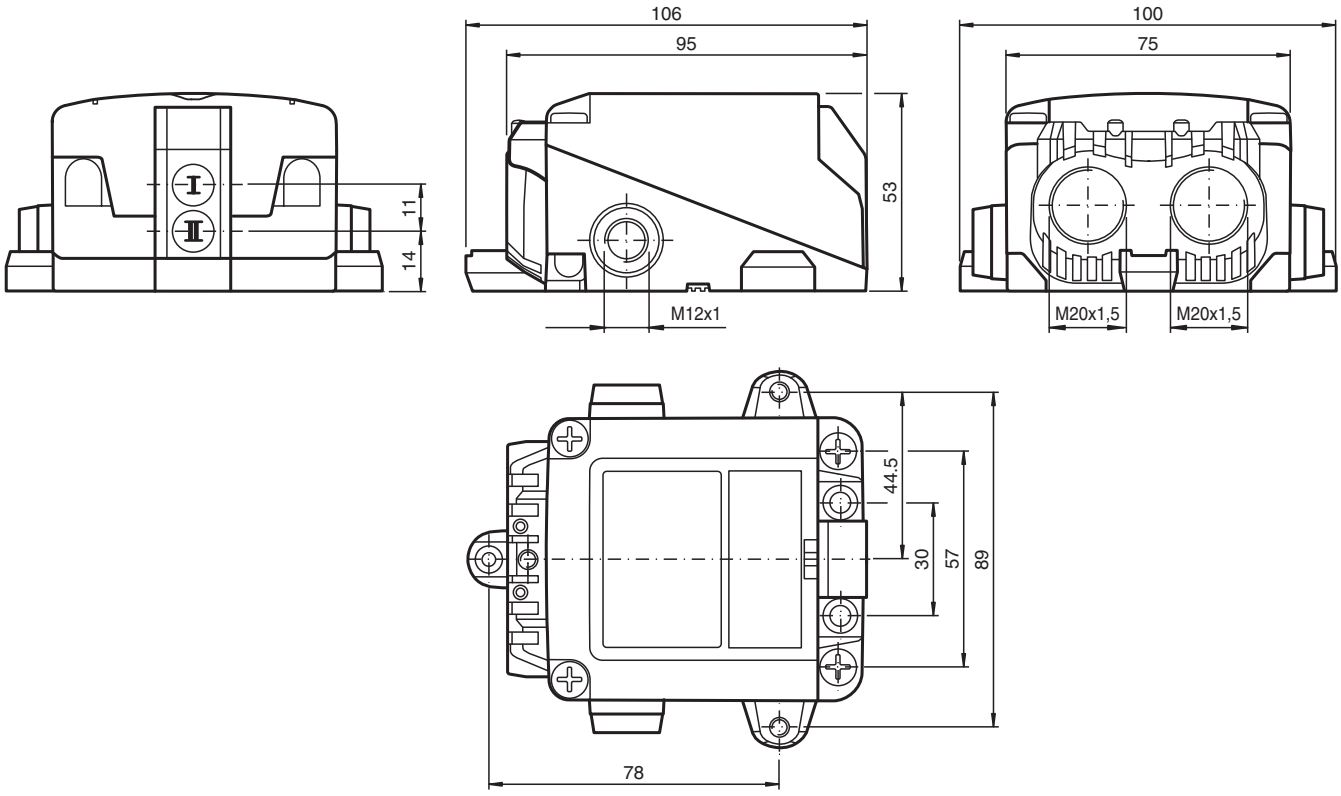
Inductive sensor

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

CE

Dimensions



Technical Data

General specifications	
Switching function	2 x normally closed (NC)
Output type	NAMUR

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Technical Data

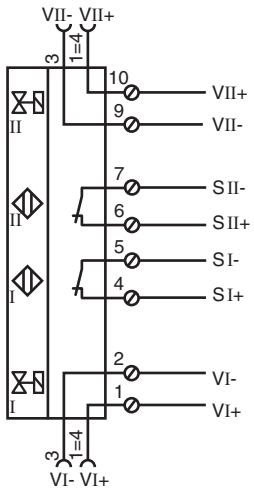
Rated operating distance	s_n	3 mm
Installation		flush mountable
Assured operating distance	s_a	0 ... 2.4 mm For assured operating distance s_{ar} see Manual Functional Safety.
Actual operating distance	s_r	2.7 ... 3.3 mm typ.
Actuating element		Stainless steel 1.4305 / AISI 303 8.5 mm x 8.5 mm x 0.5 mm
Reduction factor r_{Al}		0.4
Reduction factor r_{Cu}		0.4
Reduction factor r_{304}		0.7
Reduction factor r_{St37}		1
Reduction factor r_{Brass}		0.5
Output type		2-wire
Nominal ratings		
Nominal voltage	U_o	8 V
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		≥ 3 mA
Measuring plate detected		≤ 1 mA
Time delay before availability	t_v	≤ 1.1 ms
Switching state indicator		LED, yellow
Valve status indicator		LED, yellow
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 2
$MTTF_d$		1730 a
Mission Time (T_M)		20 a
Diagnostic Coverage (DC)		0 %
Valve circuit		
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, therfore more power for solenoid valve
Compliance with standards and directives		
Standard conformity		
NAMUR		EN 60947-5-6:2000 IEC 60947-5-6:1999
Electromagnetic compatibility		NE 21:2007
Standards		EN 60947-5-2:2007 EN 60947-5-2/A1:2012 IEC 60947-5-2:2007 IEC 60947-5-2 AMD 1:2012
Approvals and certificates		
UL approval		cULus Listed, General Purpose, Class 2 Power Source
Ordinary Location		E87056
Hazardous Location		E501628
Control drawing		116-0455
CCC approval		CCC approval / marking not required for products rated ≤36 V
Ambient conditions		
Ambient temperature		-40 ... 100 °C (-40 ... 212 °F)
Storage temperature		-40 ... 100 °C (-40 ... 212 °F)
Mechanical specifications		

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Technical Data

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 mm² flexible: 0.14 ... 1.5 mm² flexible with core-end sleeve: 0.25 ... 1.5 mm²
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, housing screws	≤ 2 Nm
Tightening torque, cable gland	M20 x 1.5 ; max. 7 Nm
Tightening torque, stopping plug	1 Nm
Note	LED switch-off
General information	
Use in the hazardous area	see instruction manuals

Connection



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.

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Matching system components

	**BT115A**	Activator for F31 series
	**BT115X**	Activator for F31 series

Accessories

	**BT65-F31K2-RG-EN**	Activator for F31K2 series
	**BT65A**	Activator for F31 series
	**BT65X**	Activator for F31 series
	**VMB-2+P/Z2-0,3M-PVC-V1-W-Y**	Valve connector, Form B on M12, 2+PE, LED, Z diode, PVC cable
	**VMBI-2+P/Z2-0,3M-PVC-V1-W-Y**	Valve connector, Form B (Ind) on M12, 2+PE, LED, Z diode, PVC cable
	**VMA-2+P/Z2-0,3M-PVC-V1-W-Y**	Valve connector, Form A on M12, 2+PE, LED, Z diode, PVC cable

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