



## Inductive sensor

### NBN3-F31K2M-Z8L-B33-S

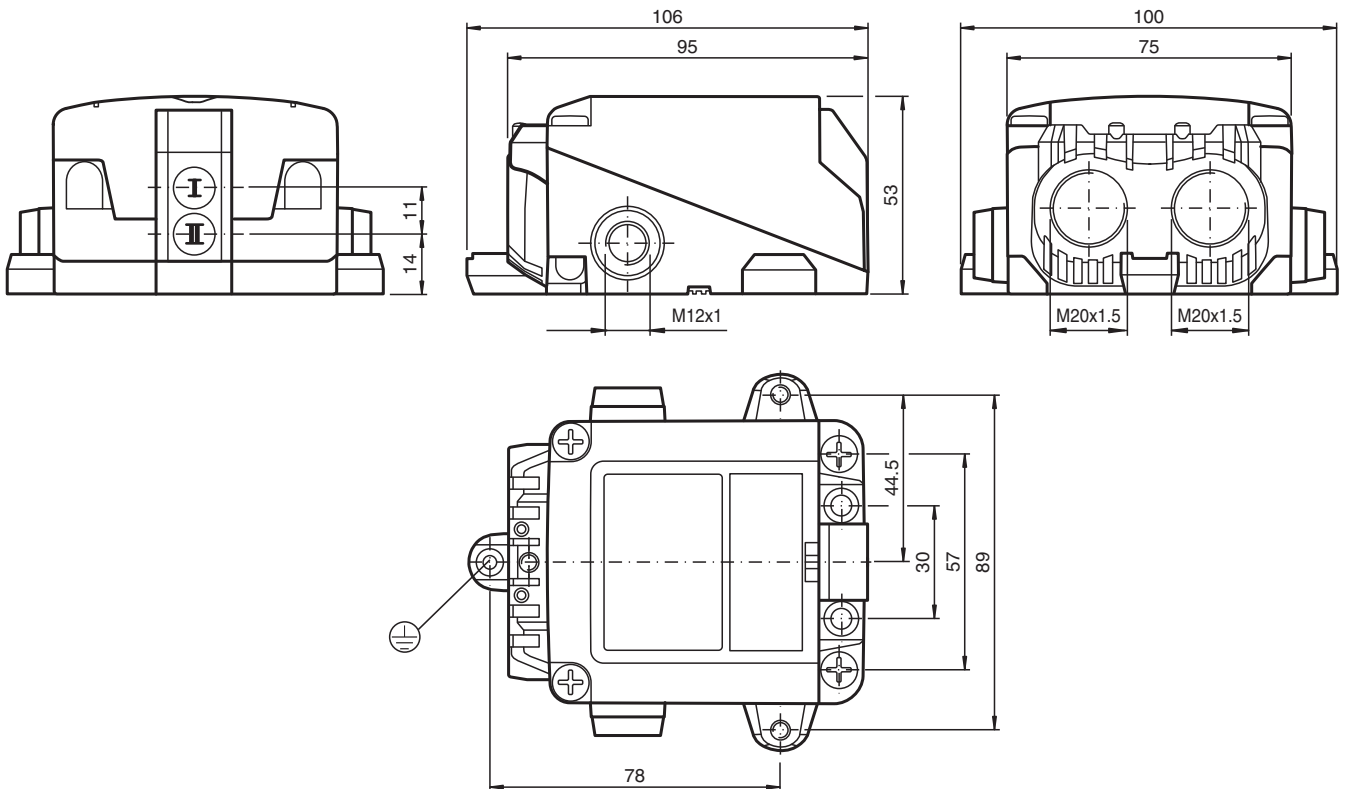
- Direct mounting on standard actuators
- Compatible with all process control systems
- 2 solenoid valves can be connected
- Weatherproof housing for outdoor applications
- Rugged metal base
- Temperature range -40 ... 167 °F (-40°C to 75°C)
- 2-wire DC sensor with minimum off-state current
- LEDs for switching state of sensor and solenoid valve
- Plug-in terminals



## 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

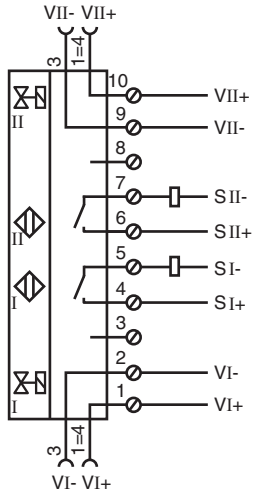
### General specifications

Switching function	2 x normally open (NO)
Output type	Two-wire with minimum off-state current
Rated operating distance	$s_n$ 2.5 mm

## Technical Data

Installation		for non-flush mounting
Output polarity		DC
Assured operating distance	$s_a$	0 ... 2.05 mm
Output type		2x 2-wire
<b>Nominal ratings</b>		
Operating voltage	$U_B$	6 ... 30 V
Switching frequency	$f$	0 ... 100 Hz
Hysteresis	$H$	typ. 0.5 mm
Reverse polarity protection		reverse polarity tolerant
Short-circuit protection		no
Voltage drop	$U_d$	$\leq 6$ V
Operating current	$I_L$	4 ... 100 mA
Off-state current	$I_r$	100 ... 200 $\mu$ A typ. 160 $\mu$ A
Switching state indicator		LED, yellow
Valve status indicator		LED, yellow
<b>Functional safety related parameters</b>		
MTTF <sub>d</sub>		684 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		
Standards		EN IEC 60947-5-2
<b>Approvals and certificates</b>		
UL approval		cULus Listed Load Type: General Purpose Circuitry: Class 2 Power Source Enclosure Type Rating: Type 1 Supply/Switching Voltage: 30 V DC Output Switching Current: 100 mA
<b>Ambient conditions</b>		
Ambient temperature		-40 ... 75 °C (-40 ... 167 °F)
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)
<b>Mechanical specifications</b>		
Connection (system side)		screw terminal , M20 x 1.5 cable gland
Core cross section (system side)		1.5/2.5 mm <sup>2</sup> flexible/rigid
Connection (valve side)		4-pin, M12 x 1 socket
Housing material		rugged, translucent polycarbonate (PC) optimised for outdoor use
Housing base		powder coated aluminum
Degree of protection		IP66 / IP67 / IP69
Tightening torque, fastening screws		$\leq 5$ 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 M12 x 1 max. 3 Nm
Tightening torque, stopping plug		2 Nm
Dimensions		
Height		53 mm
Width		100 mm
Length		106 mm
Tightening torque		plug , $\leq 1$ Nm

# Connection Assignment



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