



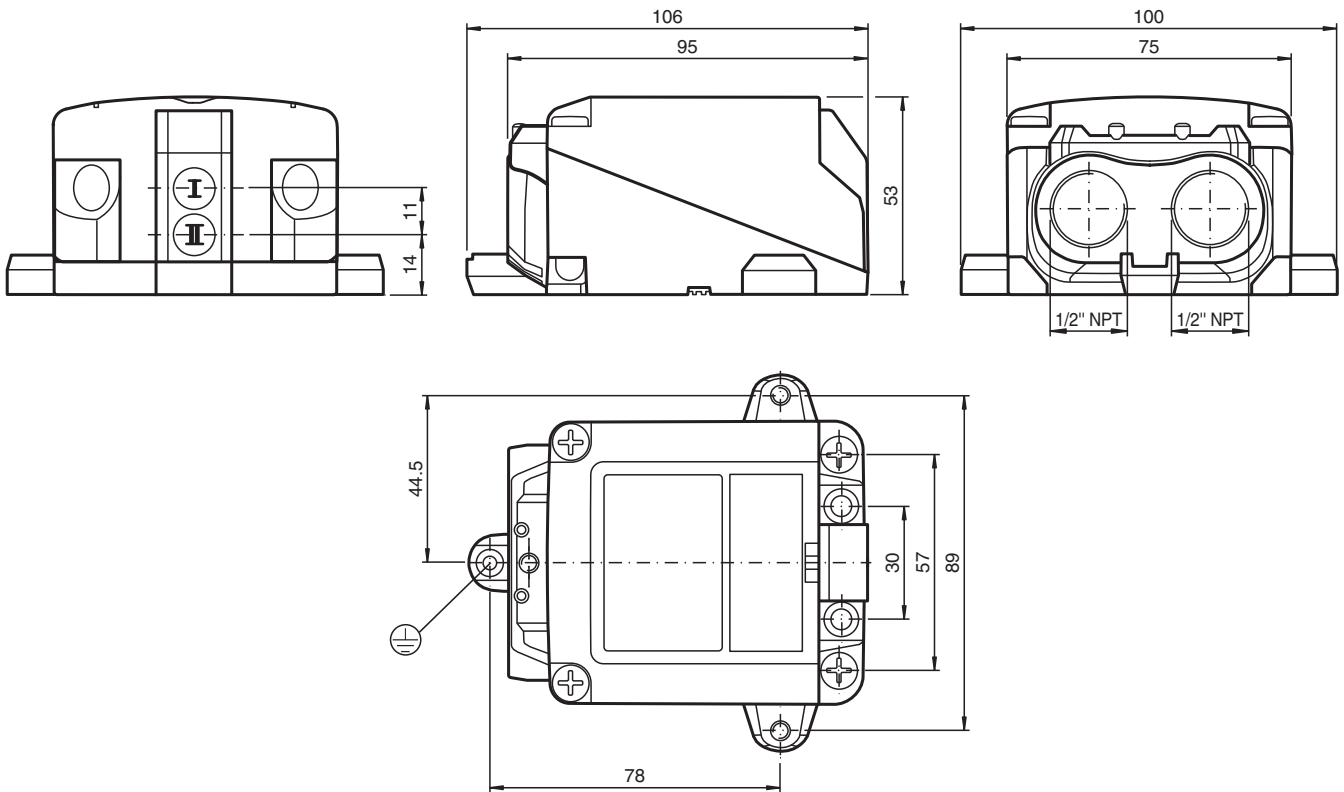
# Inductive sensor

## NBN3-F31K2M-E8-B23-S

- Direct mounting on standard actuators
- Rugged metal base
- Weatherproof housing for outdoor applications
- Temperature range -40 ... 167 °F (-40°C to 75°C)
- LED for power on
- LEDs for switching state of sensor and solenoid valve
- Plug-in terminals



### Dimensions



### Technical Data

#### General specifications

Switching function	2 x normally open (NO)
Output type	PNP

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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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## Technical Data

Rated operating distance	$s_n$	2.5 mm
Installation		for non-flush mounting
Output polarity		DC
Assured operating distance	$s_a$	0 ... 2.05 mm
Output type		4-wire
<b>Nominal ratings</b>		
Operating voltage	$U_B$	10 ... 30 V
Switching frequency	$f$	0 ... 100 Hz
Hysteresis	$H$	typ. 5 %
Reverse polarity protection		all connections
Short-circuit protection		pulsing
Voltage drop	$U_d$	$\leq 3$ V
Operating current	$I_L$	0 ... 100 mA
Off-state current	$I_r$	0 ... 0.5 mA typ. 0.1 $\mu$ A
No-load supply current	$I_0$	$\leq 25$ mA
Operating voltage indicator		LED, green
Switching state indicator		LED, yellow
Valve status indicator		LED, yellow
<b>Functional safety related parameters</b>		
MTTF <sub>d</sub>		490 a
Mission Time (T <sub>M</sub> )		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 60947-5-2:2007 EN 60947-5-2/A1:2012 IEC 60947-5-2:2007 IEC 60947-5-2 AMD 1:2012 VDI / VDE 3845
<b>Approvals and certificates</b>		
EAC conformity		TR CU 020/2011
UL approval		cULus Listed, General Purpose, Class 2 Power Source
<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 , 1/2" NPT cable gland
Core cross section (system side)		1.5/2.5 mm <sup>2</sup> flexible/rigid
Connection (valve side)		screw terminal , 1/2" NPT cable gland
Housing material		rugged, translucent polycarbonate (PC) optimised for outdoor use
Housing base		powder coated aluminum
Degree of protection		IP66 / IP68 / IP69
Tightening torque, fastening screws		4 Nm ... 5 Nm
Tightening torque, housing screws		$\leq 2$ Nm
Tightening torque of cover screws		1.5 Nm
Tightening torque, earthing screw		1.5 Nm
Tightening torque, cable gland		Refer to NEC (National Electrical Code), hand-tight then wrench tightened (max. 3 turns)
Tightening torque, stopping plug		1 Nm

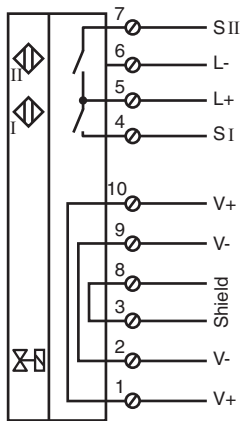
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## Connection



## Accessories

	<b>BT65-F31K2-RG-EN</b>	Activator for F31K2 series
	<b>BT65A</b>	Activator for F31 series
	<b>BT65X</b>	Activator for F31 series
	<b>BT115A</b>	Activator for F31 series
	<b>BT115X</b>	Activator for F31 series

## Installation

### Note

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.