



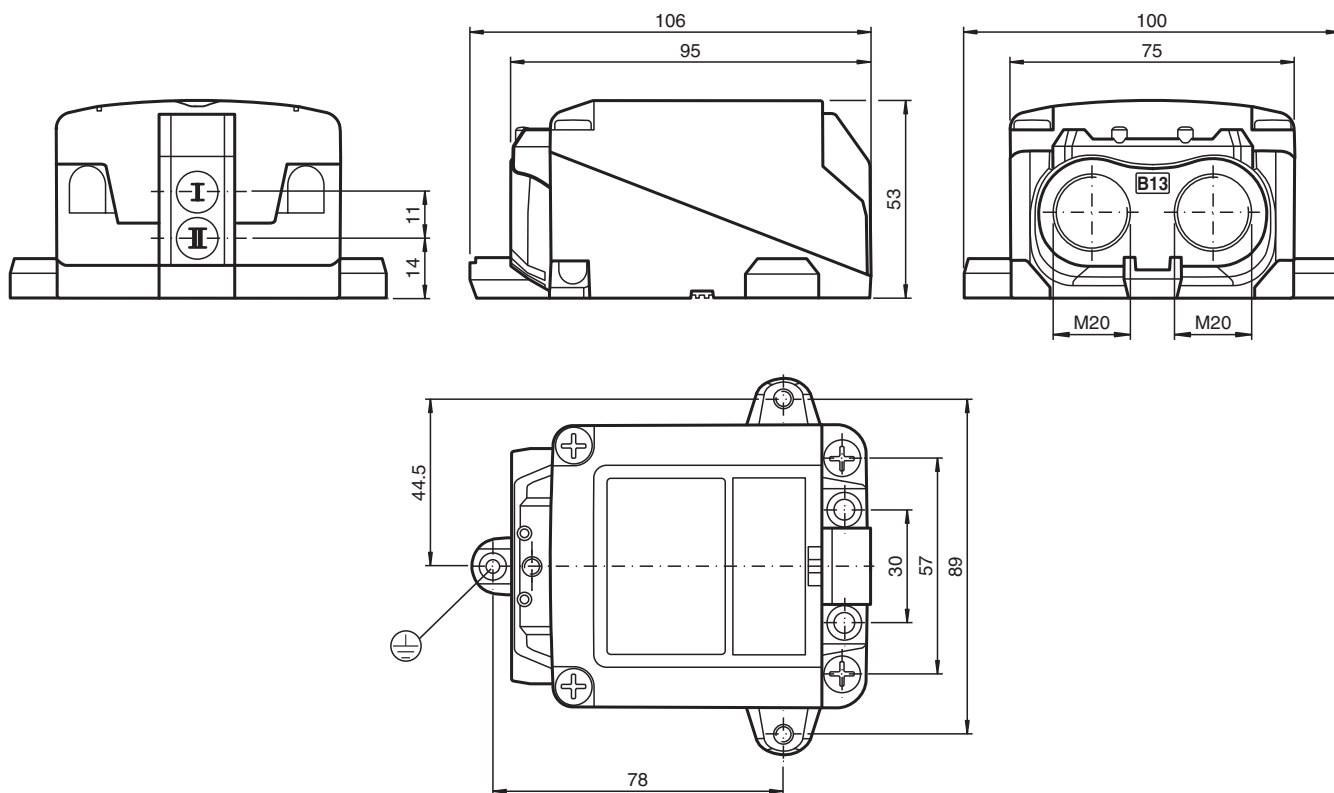
## Inductive sensor

### NBN3-F31K2M-E8-B13-S-3G-3D

- Direct mounting on standard actuators
- ATEX-approval for zone 2 and zone 22
- Rugged metal base
- Weatherproof housing for outdoor applications
- Plug-in terminals



## Dimensions



## Technical Data

### General specifications

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

## Technical Data

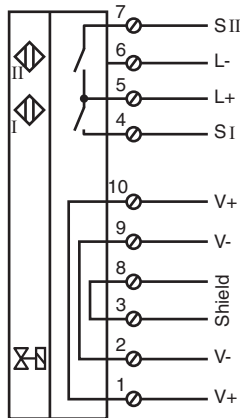
Rated operating distance	$s_n$	2.5 mm
Installation		for non-flush mounting
Output polarity		DC
Assured operating distance	$s_a$	0 ... 1.5 mm
Output type		4-wire
<b>Nominal ratings</b>		
Operating voltage	$U_B$	10 ... 30 V
Switching frequency	$f$	0 ... 100 Hz
Hysteresis	$H$	typ. 5 %
Reverse polarity protection		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
<b>Functional safety related parameters</b>		
MTTF <sub>d</sub>		490 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 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>Ambient conditions</b>		
Ambient temperature		-40 ... 75 °C (-40 ... 167 °F) , restriction for use in hazardous area, see instruction manual
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)
<b>Mechanical specifications</b>		
Connection type		screw terminals
Connection (system side)		screw terminals , M20 x 1.5 cable gland , usable thread length 13.5 mm , screw-in depth max. 13.5 mm ground connection with earthing screw only for wire cross-section 4 mm <sup>2</sup> , use solid wire or stranded wire with wire end ferrule
Connection (valve side)		screw terminal , Cable gland M20 x 1.5
Housing material		rugged polycarbonate (PC) + GF 10% , optimised for outdoor use
Housing base		powder coated aluminum
Degree of protection		IP67 ; additional degree of protection IP66/IP69 with BT65-F31K2-RG-EN-01 and SH-F31K2-B13
Terminal assembly		
Number		10
Connection type		For connection of copper wires with 7 mm dismantle length Tightening torque 0.5 ... 0.6 Nm
Type		Screw terminal block, pluggable
Terminal capacity		Conductor cross-section 0,25 ... 2,5 mm <sup>2</sup> , flexible/rigid For Multiple-wire connection: two wires of equal cross-section per 0.25 ... 1 mm <sup>2</sup>
Tightening torque, fastening screws		2 Nm
Tightening torque, housing screws		1.5 Nm
Tightening torque, earthing screw		1.5 Nm

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Technical Data

Tightening torque, cable gland	M20 x 1.5 ; max. 11 Nm
Tightening torque, stopping plug	2 Nm
<b>General information</b>	
Use in the hazardous area	see instruction manuals




Connection



Matching system components

	<b>BT115A</b>	Activator for F31 series
	<b>BT115X</b>	Activator for F31 series

Accessories

	<b>BT65-F31K2-RG-EN-01</b>	Activator for F31K2 series including protective housing
	<b>SH-F31K2-B13</b>	Protective cap for mechanically protected mounting
	<b>SH-BT65-F31K2-01</b>	Protective housing for activator BT65-F31K2-RG-EN-01

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## Connection

### 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 2 Nm.