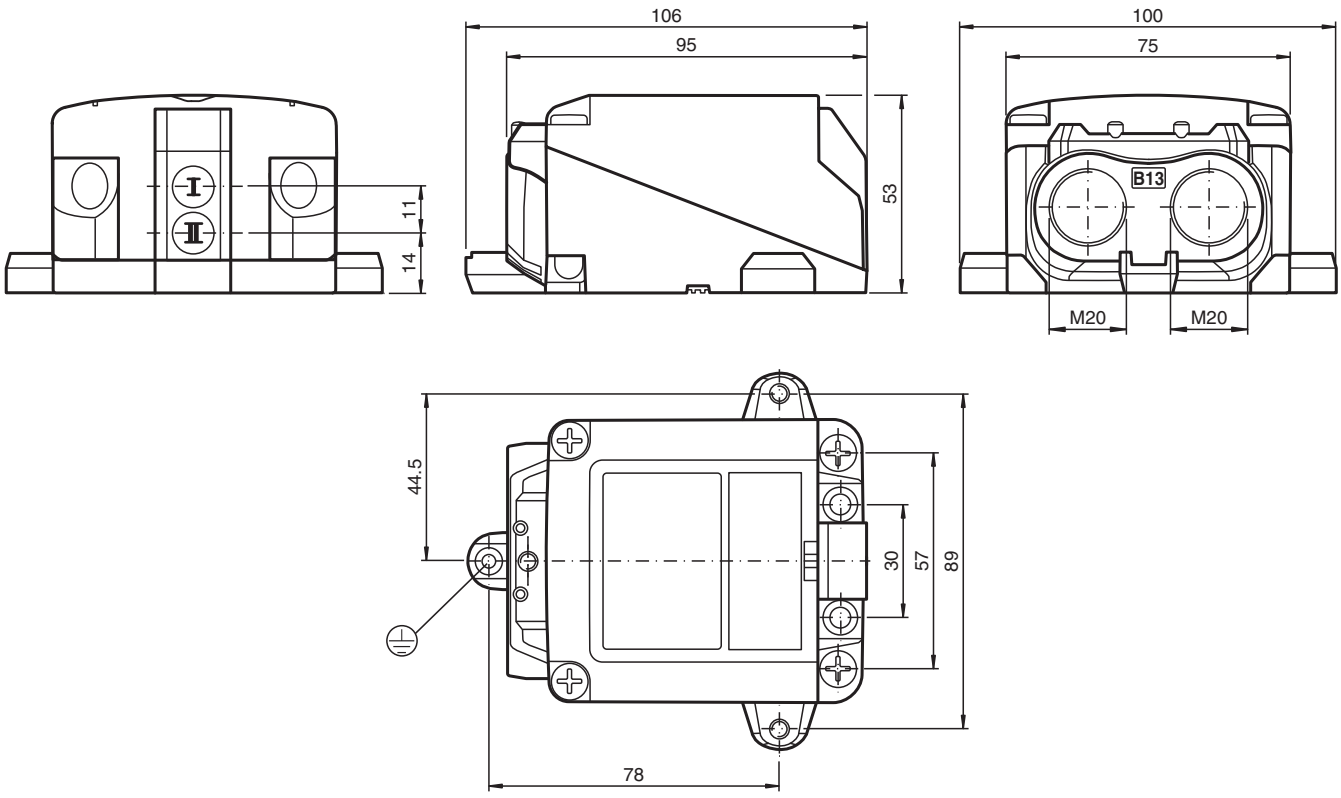
Inductive sensor

NBN3-F31K2M-Z8L-B13-S-3G-3D

- Direct mounting on standard actuators
- ATEX/IECEx Zone 2/22
- Compatible with all process control systems
- 2-wire DC sensor with minimum off-state current
- 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		Two-wire with minimum off-state current
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		2x 2-wire

Release date: 2026-03-17 Date of issue: 2026-03-17 Filename: 70131295-0003_eng.pdf

Technical Data

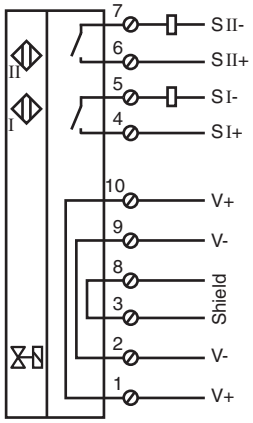
Nominal ratings		
Operating voltage	U_B	6 ... 30 V
Switching frequency	f	0 ... 100 Hz
Hysteresis	H	typ. 0.5 mm
Reverse polarity protection		reverse polarity tolerant
Short-circuit protection		no
Voltage drop	U_d	≤ 6 V
Operating current	I_L	4 ... 100 mA
Off-state current	I_r	100 ... 200 µA typ. 160 µA
Safety-relevant product characteristics		
$MTTF_d$		684 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		
Standards		EN IEC 60947-5-2
Approvals and certificates		
IECEx approval		
Equipment protection level Gc		IECEx TUR 20.0062X
Equipment protection level Dc		IECEx TUR 20.0068X
ATEX approval		
Equipment protection level Gc		TÜV 20 ATEX 8592 X
Equipment protection level Dc		TÜV 20 ATEX 8598 X
CCC approval		
Hazardous Location		2024322315005979 2024322315005980
Ambient conditions		
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)
Mechanical specifications		
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^2, use solid wire or stranded wire with wire end ferrule
Connection (valve side)		screw terminal , Cable gland M20 x 1.5
Housing material		PC (glass-fiber-reinforced Makrolon)
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^2 , flexible/rigid For Multiple-wire connection: two wires of equal cross-section per 0.25 ... 1 mm^2
Tightening torque, fastening screws		≤ 5 Nm
Tightening torque, housing screws		1.5 Nm

Release date: 2026-03-17 Date of issue: 2026-03-17 Filename: 70131295-0003_eng.pdf

Technical Data

Tightening torque, earthing screw	1.5 Nm
Tightening torque, cable gland	M20 x 1.5 ; max. 11 Nm
Tightening torque, stopping plug	2 Nm
Dimensions	
Height	53 mm
Width	100 mm
Length	106 mm
General information	
Use in the hazardous area	see instruction manuals

Connection Assignment



Release date: 2026-03-17 Date of issue: 2026-03-17 Filename: 70131295-0003_eng.pdf

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.

Release date: 2026-03-17 Date of issue: 2026-03-17 Filename: 70131295-0003_eng.pdf