



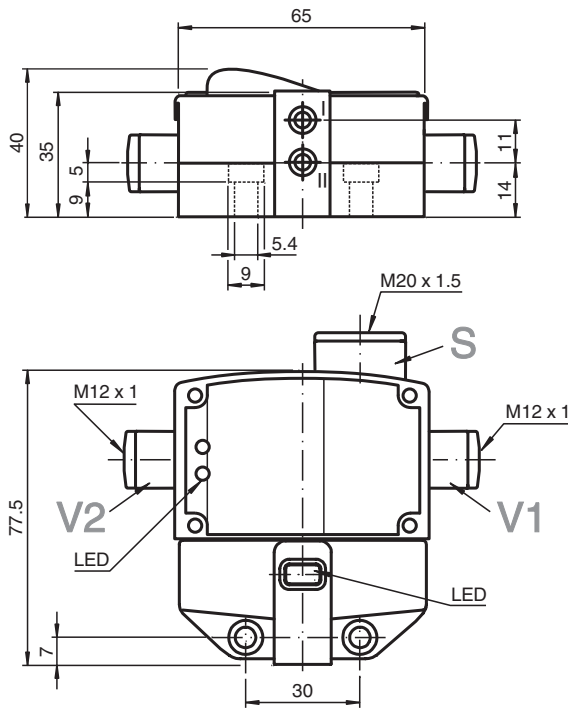
Inductive sensor

NBN3-F31K-E8-V1-V1

- Direct mounting on standard actuators
- Fixed setting
- LED for power on
- LEDs for switching state of sensor and solenoid valve



Dimensions



Technical Data

General specifications

Switching function		2 x normally open (NO)
Output type		PNP
Rated operating distance	s_n	3 mm
Installation		flush mountable
Output polarity		DC
Assured operating distance	s_a	0 ... 2.43 mm
Actual operating distance	s_r	2.7 ... 3.3 mm typ.
Reduction factor r_{AI}		0.5
Reduction factor r_{Cu}		0.4

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

Pepperl+Fuchs Group
www.pepperl-fuchs.com

USA: +1 330 486 0001
fa-info@us.pepperl-fuchs.com

Germany: +49 621 776 1111
fa-info@de.pepperl-fuchs.com

Singapore: +65 6779 9091
fa-info@sg.pepperl-fuchs.com

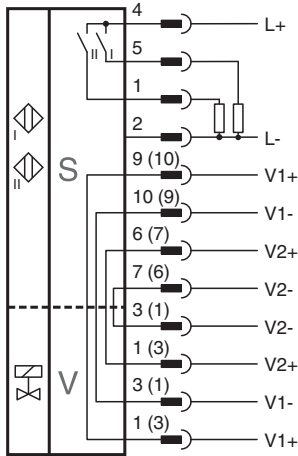
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Technical Data

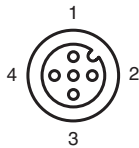
Reduction factor r_{304}		1
Reduction factor r_{S137}		1.2
Output type		4-wire
Nominal ratings		
Operating voltage	U_B	10 ... 30 V DC
Switching frequency	f	0 ... 500 Hz
Hysteresis	H	typ. 5 %
Reverse polarity protection		all connections
Short-circuit protection		pulsing
Voltage drop	U_d	≤ 3 V
Operating current	I_L	0 ... 100 mA
Off-state current	I_r	0 ... 0.5 mA typ. 0.1 μ A
No-load supply current	I_0	≤ 25 mA
Operating voltage indicator		LED, green
Switching state indicator		LED, yellow
Valve status indicator		LED, yellow
Functional safety related parameters		
MTTF _d		780 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, therefore more power for solenoid valve
Compliance with standards and directives		
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
Approvals and certificates		
UL approval		cULus Listed, General Purpose
CSA approval		cCSAus Listed, General Purpose
CCC approval		CCC approval / marking not required for products rated ≤ 36 V
Ambient conditions		
Ambient temperature		-25 ... 70 °C (-13 ... 158 °F)
Mechanical specifications		
Connection (system side)		Cage tension spring terminals
Core cross section (system side)		1.5/2.5 mm ² flexible/rigid
Connection (valve side)		4-pin, M12 x 1 socket
Housing material		PBT
Sensing face		PBT
Degree of protection		IP67
Tightening torque, fastening screws		4 Nm ... 5 Nm
Tightening torque, housing screws		1 Nm
Tightening torque, cable gland		M20 x 1.5 ; max. 7 Nm

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Connection



Connection Assignment



Wire colors in accordance with EN 60947-5-2

- 1 | BN (brown)
- 2 | WH (white)
- 3 | BU (blue)
- 4 | BK (black)
- 5 | GY (gray)

Matching System Components

	BT115A	Activator for F31 series
	BT115X	Activator for F31 series




Accessories

	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
	BT65B	Activator for F31 series

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Accessories

	BT115B	Activator for F31 series
	BT65A	Activator for F31 series
	BT65X	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.