



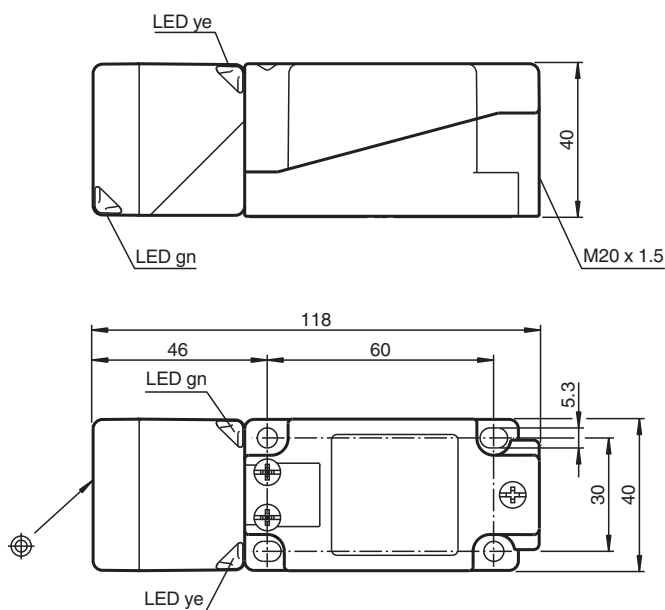
Inductive sensor

NBB20-U1K-E2-3G-3D

- Sensor head bidirectional and rotatable
- 20 mm flush
- 3-wire DC
- 4 LEDs indicator for 360° visibility
- ATEX-approval for zone 2 and zone 22



Dimensions



Technical Data

General specifications

Switching function		Normally open (NO)
Output type		PNP
Rated operating distance	s_n	20 mm
Installation		flush
Output polarity		DC
Assured operating distance	s_a	0 ... 16.2 mm
Actual operating distance	s_r	18 ... 22 mm typ. 20 mm
Reduction factor r_{AI}		0.33
Reduction factor r_{Cu}		0.31

Technical Data

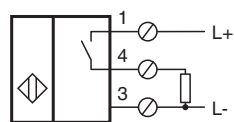
Reduction factor r_{304}		0.74
Reduction factor r_{Brass}		0.41
Output type		3-wire
Nominal ratings		
Operating voltage	U_B	10 ... 30 V DC
Switching frequency	f	0 ... 150 Hz
Hysteresis	H	typ. 5 %
Reverse polarity protection		reverse polarity protected
Short-circuit protection		pulsing
Voltage drop	U_d	≤ 2 V
Voltage drop at I_L		
Voltage drop $I_L = 1$ mA, switching element on	U_d	0.5 ... 2.3 V typ. 0.9 V
Voltage drop $I_L = 10$ mA, switching element on	U_d	0.8 ... 2.2 V typ. 1.4 V
Voltage drop $I_L = 20$ mA, switching element on	U_d	0.9 ... 2.3 V typ. 1.5 V
Voltage drop $I_L = 50$ mA, switching element on	U_d	0.9 ... 2.5 V typ. 1.6 V
Voltage drop $I_L = 100$ mA, switching element on	U_d	1 ... 2.6 V typ. 1.8 V
Voltage drop $I_L = 200$ mA, switching element on	U_d	1.2 ... 2.8 V typ. 2 V
Operating current	I_L	0 ... 200 mA
Off-state current	I_r	0 ... 0.5 mA typ. 0.01 mA
Off-state current $T_U = 40$ °C, switching element off		≤ 100 μ A
No-load supply current	I_0	≤ 20 mA
Time delay before availability	t_v	80 ms
Operating voltage indicator		LED, green
Switching state indicator		LED, yellow
Functional safety related parameters		
MTTF _d		1510 a
Mission Time (T_M)		20 a
Diagnostic Coverage (DC)		0 %
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		
FM approval		hazardous (classified) location Non-incendive
UL approval		cULus Listed, General Purpose
CCC approval		CCC approval / marking not required for products rated ≤ 36 V
Ambient conditions		
Ambient temperature		-25 ... 85 °C (-13 ... 185 °F)
Mechanical specifications		
Connection type		screw terminals
Information for connection		A maximum of two conductors with the same core cross section may be mounted on one terminal connection! tightening torque 1.2 Nm + 10 %
Core cross-section		up to 2.5 mm ² , stripped insulation length: 7 mm
Minimum core cross-section		min. 0.5 mm ² (incl. wire-end ferrules when using flexible conductors)
Maximum core cross-section		max. 2.5 mm ² (incl. wire-end ferrules when using flexible conductors)
Connection (system side)		screw terminals, M20 x 1.5 cable gland, usable thread length 9.1 mm, screw-in depth max. 9.1 mm

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Technical Data

Housing material	PA
Sensing face	PA
Degree of protection	IP68 / IP69K
Mass	225 g
Note	Tightening torque: 1.8 Nm (housing)
General information	
Use in the hazardous area	see instruction manuals

Connection



Accessories

	MHW 01	Modular mounting bracket
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