



Model Number

NBB20-U1-E1

Features

- Sensor head bidirectional and rotatable
- 4 LEDs indicator for 360° visibility
- 20 mm flush

Accessories

MHW 01

Modular mounting bracket

V1-M20-80

Receptacles, M12/M20; plastic version

V1-G

Female connector, M12, 4-pin, field attachable

V1-W

Female connector, M12, 4-pin, field attachable

Technical Data

General specifications

Switching function	Normally closed (NC)
Output type	NPN
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_{Al}	0.33
Reduction factor r_{Cu}	0.31
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
Switching frequency	f 0 ... 440 Hz
Hysteresis	H typ. 5 %
Reverse polarity protection	reverse polarity protected
Short-circuit protection	pulsing
Voltage drop	U_d ≤ 2 V
Design data	
Operating current	I_L 0 ... 200 mA
Off-state current	I_r 0 ... 0.5 mA typ. 0.1 μ A at 25 °C
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	1460 a
Mission Time (T_M)	20 a
Diagnostic Coverage (DC)	0 %

Ambient conditions

Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
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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
Minimum core cross-section	without wire end ferrule 0.5 mm ² , with connector sleeves 0.34 mm ²
Maximum core cross-section	without wire end ferrule 2.5 mm ² , with connector sleeves 1.5 mm ²
Housing material	PA/metal with epoxy powder coating
Sensing face	PA
Housing base	plastic
Degree of protection	IP68 / IP69K
Mass	225 g
Note	Tightening torque: 1.8 Nm (housing)

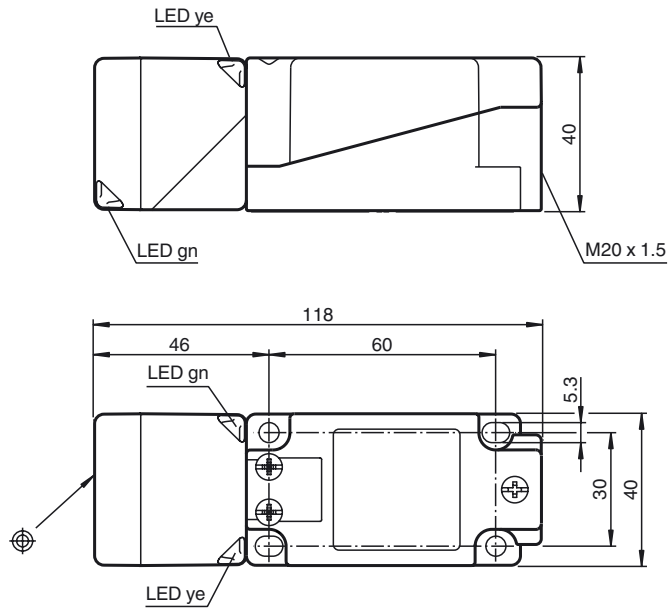
Compliance with standards and directives

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
CCC approval	CCC approval / marking not required for products rated ≤ 36 V

Dimensions



Electrical Connection

