



**Model Number**

**NBB20-U2-E0-V1**

**Features**

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

**Accessories**

**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

**MHW 01**

Modular mounting bracket

**Technical Data**

**General specifications**

Switching element function		NPN	NO
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	

**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	$U_d$	$\leq 2$ V	
Operating current	$I_L$	0 ... 200 mA	
Off-state current	$I_r$	0 ... 0.5 mA typ. 0.1 $\mu$ A at 25 °C	
No-load supply current	$I_0$	$\leq 20$ mA	
Time delay before availability	$t_v$	80 ms	
Operating voltage indicator		LED, green	
Switching state indicator		LED, yellow	

**Functional safety related parameters**

MTTF <sub>d</sub>	1510 a
Mission Time (T <sub>M</sub> )	20 a
Diagnostic Coverage (DC)	0 %

**Ambient conditions**

Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
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**Mechanical specifications**

Connection type	Connector M12 x 1, 4-pin
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)

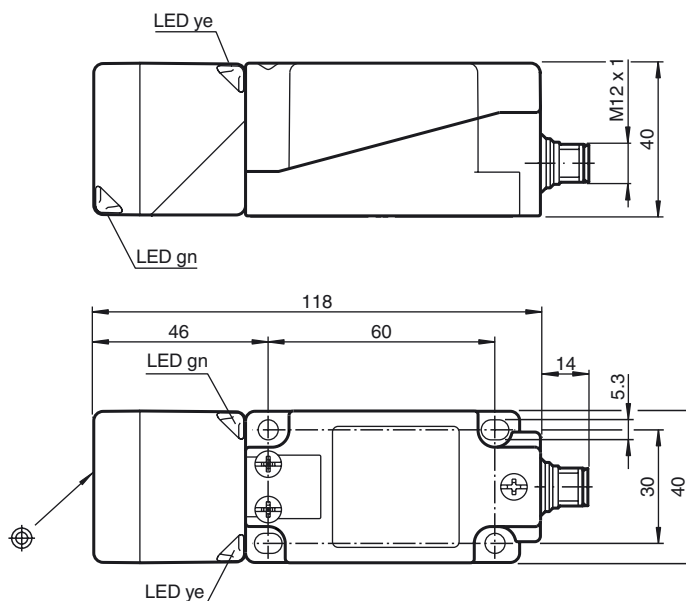
**Compliance with standards and directives**

Standard conformity	
Standards	EN 60947-5-2:2007 IEC 60947-5-2:2007

**Approvals and certificates**

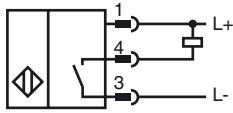
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	CCC approval / marking not required for products rated $\leq 36$ V

**Dimensions**



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**Electrical Connection**



**Pinout**



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)