

# Inductive sensor

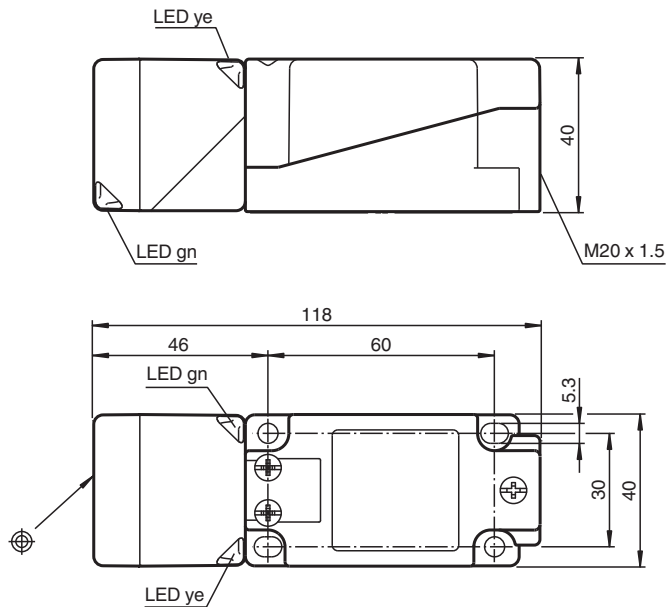
## NBB20-U1K-E2-3G-3D



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



### 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 $r_{Al}$		0.33
Reduction factor $r_{Cu}$		0.31
Reduction factor $r_{304}$		0.74
Reduction factor $r_{Brass}$		0.41
Output type		3-wire

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## Technical Data

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	$U_d$	$\leq 2$ 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		$\leq 100$ $\mu$ A
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 ( $T_M$ )		20 a
Diagnostic Coverage (DC)		0 %
Compliance with standards and directives		
Standard conformity		
Standards		EN IEC 60947-5-2
Approvals and certificates		
IECEx approval		
Equipment protection level Gc (ec)		IECEx TUR 21.0019X
Equipment protection level Dc (tc)		IECEx TUR 21.0020X
ATEX approval		
Equipment protection level Gc (ec)		TÜV 20 ATEX 8525 X
Equipment protection level Dc (tc)		TÜV 20 ATEX 8526 X
UL approval		cULus Listed, General Purpose
CCC approval		
Hazardous Location		2024322315005962 2024322315005982
Marine approval		DNVGL TAA0000160
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 <sup>2</sup> , stripped insulation length: 7 mm
Minimum core cross-section		min. 0.5 mm <sup>2</sup> (incl. wire-end ferrules when using flexible conductors)

## Technical Data

Maximum core cross-section	max. 2.5 mm <sup>2</sup> (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
Housing material	PA
Sensing face	PA
Degree of protection	IP68 / IP69K
Mass	225 g
Dimensions	
Height	40 mm
Width	40 mm
Length	118 mm
Note	Tightening torque: 1.8 Nm (housing)
<b>General information</b>	
Use in the hazardous area	see instruction manuals

## Connection Assignment

