



## Inductive sensor

### NBB20-U1-B3B

- Sensor head bidirectional and rotatable
- 20 mm flush
- A/B node with extended addressing possibility for up to 62 nodes
- Adjustable sensor head
- NO/NC programmable
- Oscillator monitoring
- On/Off delay (disconnectable)



## Dimensions



## Technical Data

### General specifications

Switching function		Normally open/closed (NO/NC) programmable
Output type		AS-Interface
Rated operating distance	$s_n$	20 mm
Installation		flush
Assured operating distance	$s_a$	0 ... 16.2 mm
Actual operating distance	$s_r$	18 ... 22 mm typ. 20 mm
Reduction factor $r_{AI}$		0.4
Reduction factor $r_{Cu}$		0.35
Reduction factor $r_{304}$		0.85

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

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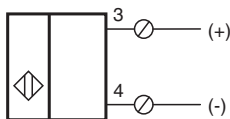
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## Technical Data

Node type		A/B node
AS-Interface specification		V3.0
Required gateway specification		≥ V2.1
Output type		2-wire
<b>Nominal ratings</b>		
Operating voltage	$U_B$	26.5 ... 31.9 V via AS-i bus system
Switching frequency	$f$	0 ... 150 Hz
Hysteresis	$H$	1 ... 15 typ. 5 %
Reverse polarity protection		reverse polarity protected
No-load supply current	$I_0$	≤ 25 mA
Time delay before availability	$t_v$	≤ 1000 ms
Operating voltage indicator		LED, green
Switching state indicator		LED, yellow
Error indicator		LED, red
<b>Functional safety related parameters</b>		
MTTF <sub>d</sub>		1330 a
Mission Time (T <sub>M</sub> )		20 a
Diagnostic Coverage (DC)		0 %
<b>Compliance with standards and directives</b>		
Standard conformity		
Standards		EN 60947-5-2:2007 IEC 60947-5-2:2007
<b>Approvals and certificates</b>		
UL approval		cULus Listed, General Purpose
CSA approval		cCSAus Listed, General Purpose
CCC approval		CCC approval / marking not required for products rated ≤36 V
<b>Ambient conditions</b>		
Ambient temperature		-25 ... 70 °C (-13 ... 158 °F)
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)
<b>Mechanical specifications</b>		
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>
Minimum core cross-section		without wire end ferrule 0.5 mm <sup>2</sup> , with connector sleeves 0.34 mm <sup>2</sup>
Maximum core cross-section		without wire end ferrule 2.5 mm <sup>2</sup> , with connector sleeves 1.5 mm <sup>2</sup>
Housing material		PA/metal with epoxy powder coating
Sensing face		PBT
Housing base		plastic
Degree of protection		IP68 / IP69K

## Connection



## Additional Information

### Programming Instructions

Address 00 preset, alterable  
via Busmaster  
or programming units

IO-Code 0  
ID-Code A  
ID1-Code 7  
ID2-Code E

### Data bit

#### Bit Function

D0 switching state<sup>1)</sup>  
(0 = damped; 1 = undamped)

D1 not used

D2 oscillator monitoring  
(0= oscillator defective,  
1=normal operation)

D3 not used

### Parameter bit

#### Bit Function

P0 ON / Off delay  
activated\* / deactivated



P1 switching element function<sup>2)</sup>  
(0 = NC; 1 = NO)

P2 not used

P3 not used

- <sup>1)</sup> Applies to NO function (P1 = 1; preset),  
with NC function (P1 = 0) reversed characteristics
- <sup>2)</sup> Default setting: NO

## Accessories

	<b>V1-M20-80</b>	Receptacles, M12/M20; plastic version
	<b>MHW 01</b>	Modular mounting bracket

## Operation

### Indication depending on the operation mode

Symptoms	green LED (POWER)	red LED (FAULT)	Data bit D2
normal operation	on	off	1
Oscillator defect	flashing	flashing	0
no communication	off	on	1

### On/off delay:

The on/off delay is preset and switched on (P0=1). On delay approx. 15 ms, when P0=1 and NO function (P1=1). Off delay approx. 15 ms, when P0=1 and NC function (P1=0).