



## Inductive sensor NBB20-L2-B3-V1

- Sensor head bidirectional and rotatable
- Basic series
- NO/NC selectable
- 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
Reduction factor $r_{Al}$		0.33
Reduction factor $r_{Cu}$		0.31
Reduction factor $r_{304}$		0.74
Reduction factor $r_{Brass}$		0.41

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

Pepperl+Fuchs Group  
www.pepperl-fuchs.com

USA: +1 330 486 0001  
fa-info@us.pepperl-fuchs.com

Germany: +49 621 776 1111  
fa-info@de.pepperl-fuchs.com

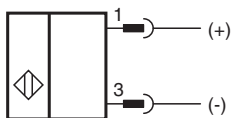
Singapore: +65 6779 9091  
fa-info@sg.pepperl-fuchs.com

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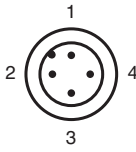
## Technical Data

Node type		Standard node
AS-Interface specification		V2.1
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	$H$	typ. 5 %
Reverse polarity protection		reverse polarity protected
No-load supply current	$I_0$	≤ 40 mA
Time delay before availability	$t_v$	≤ 1000 ms
Operating voltage indicator		LED, green
Switching state indicator		dual-LED, yellow
Error indicator		dual-LED, red
<b>Functional safety related parameters</b>		
MTTF <sub>d</sub>		1330 a
Mission Time ( $T_M$ )		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
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		Connector plug M12 x 1 , 4-pin
Housing material		PA
Sensing face		PA
Degree of protection		IP69K
Mass		130 g

## Connection



## Connection Assignment



## Additional Information

### Programming Instructions

Address 00 preset, alterable via Busmaster or programming units

IO-Code 1

ID-Code 1

ID1-Code F

ID2-Code F

### 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 funktion (P1 = 1; preset),

with NC funktion (P1 = 0) reversed characteristics

<sup>2)</sup> Default setting: NO

## 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).