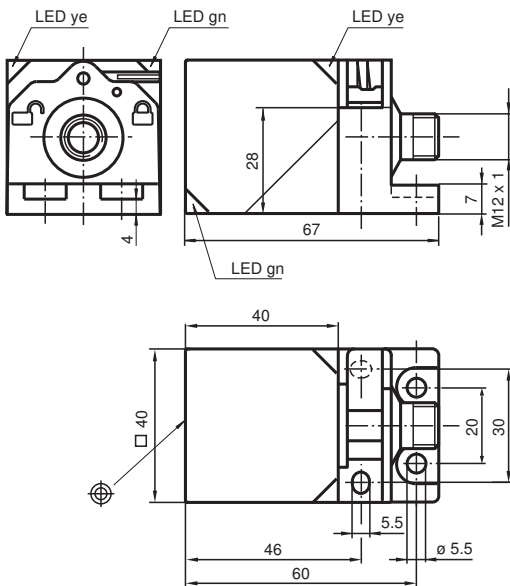


## Inductive sensor NBB20-L2-B3-V1

- 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
Slave type		Standard slave
AS-Interface specification		V2.1
Required master specification		$\geq$ V2.1

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

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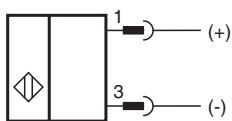
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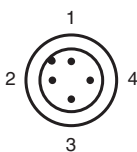
## Technical Data

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 <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		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

- 1) Applies to NO funktion (P1 = 1; preset),  
with NC funktion (P1 = 0) reversed characteristics  
2) Default setting: NO

## Accessories

	<b>V1-W-2M-PUR</b>	Female cordset, M12, 4-pin, PUR cable
	<b>V1-G-2M-PUR</b>	Female cordset, M12, 4-pin, PUR cable
	<b>MHW 01</b>	Modular mounting bracket
	<b>MH 02-L</b>	Mounting aid

## 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).