



## Model Number

NBB20-L2-B3-V1

## Features

- Sensor head bidirectional and rotatable
- Basic series
- 20 mm flush
- NO/NC selectable
- Oscillator monitoring
- On/Off delay (disconnectable)

## Accessories

### V1-G

Female connector, M12, 4-pin, field attachable

### V1-W

Female connector, M12, 4-pin, field attachable

### V1-W-2M-PUR

Female cordset, M12, 4-pin, PUR cable

### V1-G-2M-PUR

Female cordset, M12, 4-pin, PUR cable

### MHW 01

Modular mounting bracket

### MH 02-L

Mounting aid

## Technical Data

### General specifications

Switching element function		NO/NC programmable
Rated operating distance	$s_n$	20 mm
Installation		flush
Output polarity		AS-Interface
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

### Nominal ratings

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	$I_0$	$\leq$ 40 mA
Time delay before availability	$t_v$	$\leq$ 1000 ms
Operating voltage display		LED, green
Switching state indication		dual-LED, yellow
Fault indication		dual-LED, red

### Functional safety related parameters

MTTF <sub>d</sub>		1330 a
Mission Time ( $T_M$ )		20 a
Diagnostic Coverage (DC)		0 %

### Ambient conditions

Ambient temperature		-25 ... 70 °C (-13 ... 158 °F)
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)

### Mechanical specifications

Connection type		Connector M12 x 1, 4-pin
Housing material		PA
Sensing face		PA
Protection degree		IP69K
Mass		130 g

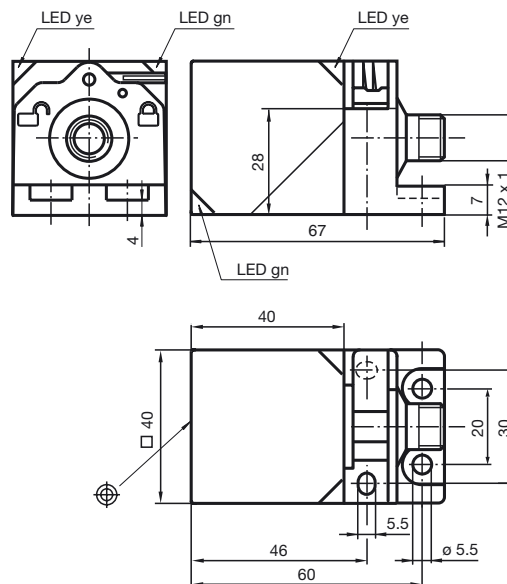
### Compliance with standards and directives

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

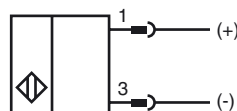
### Approvals and certificates

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

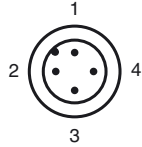
## Dimensions



## Electrical Connection



## Pinout

**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

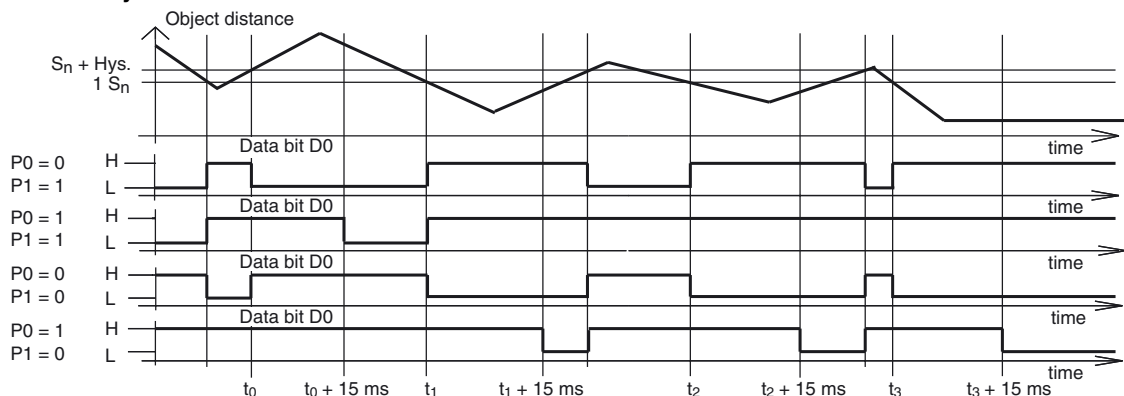
<sup>1)</sup> Applies to NO funktion (P1 = 1; preset),  
with NC funktion (P1 = 0) reversed characteristics

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

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).