



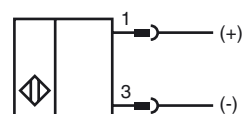
Model Number

NBB20-L2-B3-V1

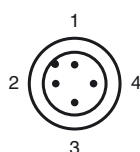
Features

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

Connection



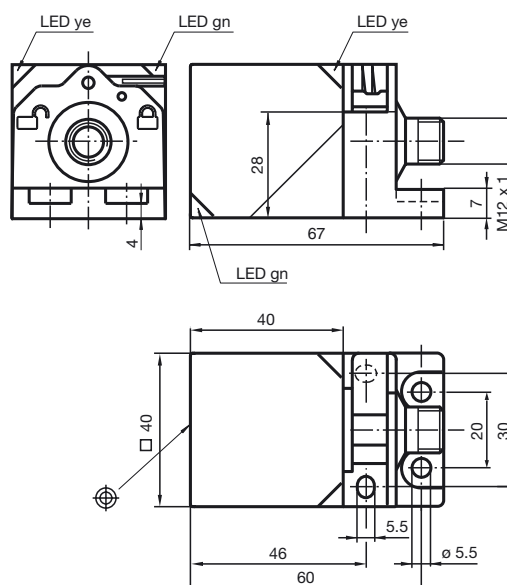
Pinout



Accessories

- V1-G**
Field attachable female cordset
- V1-W**
Field attachable female cordset
- V1-W-2M-PUR**
Cable socket, M12, 4-pin, PUR cable
- V1-G-2M-PUR**
Cable socket, M12, 4-pin, PUR cable
- MHW 01**
Modular mounting bracket
- MH 02-L**
Mounting aid

Dimensions



Technical Data

General specifications		
Switching element function		NO/NC programmable
Rated operating distance	s_n	20 mm
Installation		embeddable
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_{303}		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 protected		reverse polarity protected
No-load supply current	I_0	\leq 40 mA
Operating voltage display		LED, green
Indication of the switching state		dual-LED, yellow
Fault indication		dual-LED, red
Functional safety related parameters		
MTTF _d		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		Device 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		Products with a maximum operating voltage of \leq 36 V do not bear a CCC marking because they do not require approval.

Release date: 2011-04-26 13:28 Date of issue: 2011-04-26 22:6317_ENG.xml

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 state¹⁾
(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 function²⁾
(0 = NC; 1 = NO)
P2 not used
P3 not used

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

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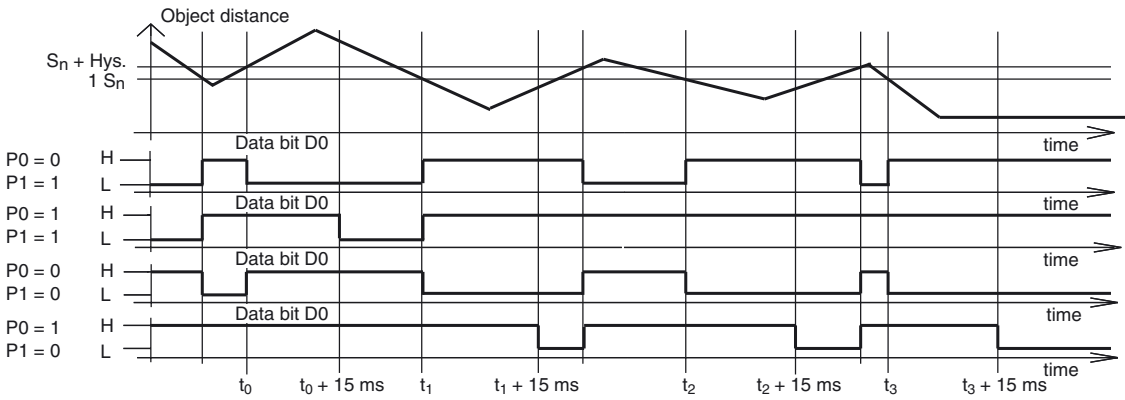
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Indication depending on the operation mode

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).