



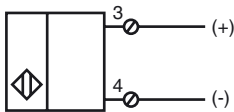
Model Number

NBB20-U1-B3B

Features

- 20 mm embeddable
- A/B slave with extended addressing possibility for up to 62 slaves
- Adjustable sensor head
- NO/NC programmable
- Oscillator monitoring
- On/Off delay (disconnectable)

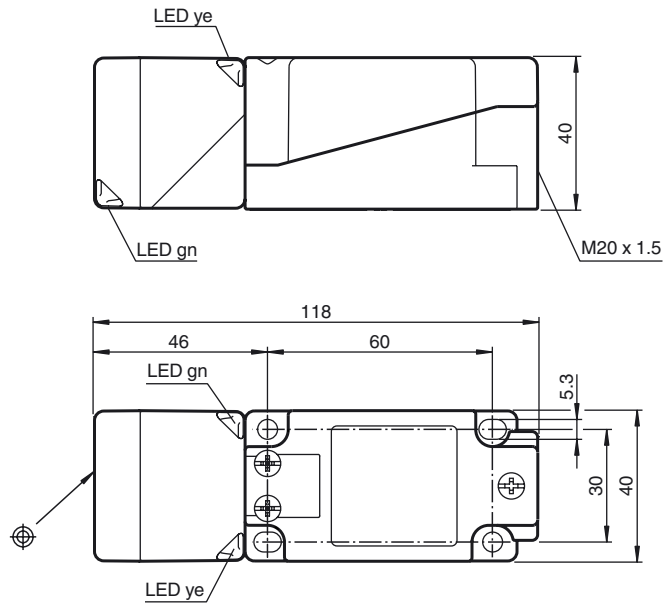
Connection



Accessories

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

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_{AI}		0.4
Reduction factor r_{CU}		0.35
Reduction factor r_{303}		0.85
Slave type		A/B slave
AS-Interface specification		V3.0
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	1 ... 15 typ. 5 %
Reverse polarity protected		reverse polarity protected
No-load supply current	I_0	\leq 25 mA
Operating voltage display		LED, green
Indication of the switching state		LED, yellow
Fault indication		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		screw terminals
Core cross-section		\leq 2.5 mm ²
Housing material		PA/metal with epoxy powder coating
Sensing face		PBT
Housing base		plastic
Protection degree		IP68 / IP69K

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: 2011-08-16 14:39 Date of issue: 2011-08-16 226315_eng.xml

Programming Instructions

Adress 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 ¹⁾ (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 ²⁾ (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

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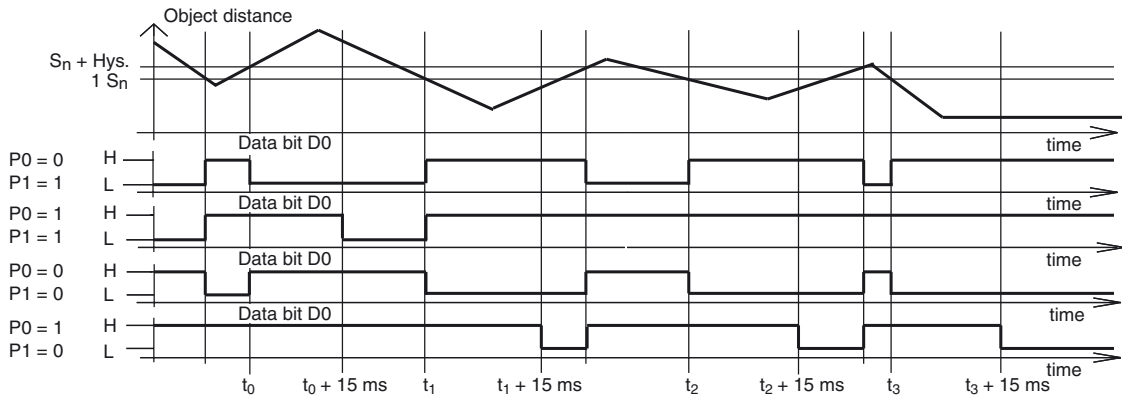
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Indication depending on the operation mode

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).