



Model Number

NBB20-U1-B3B

Features

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

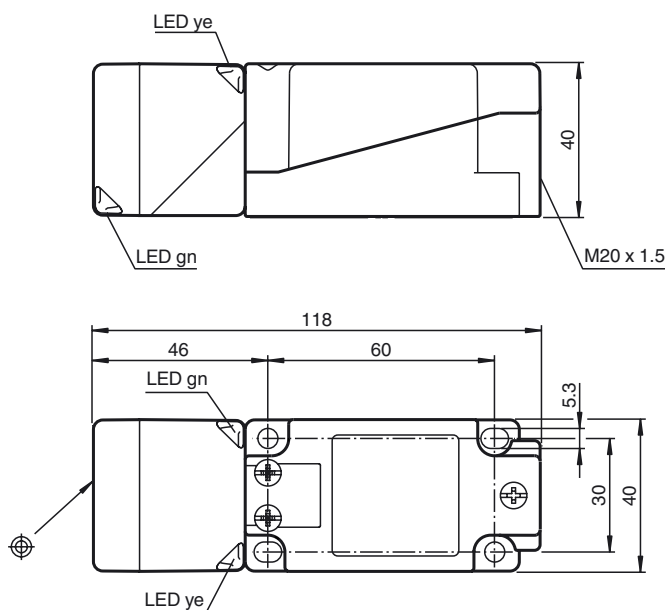
Accessories

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

Technical Data

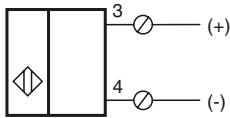
General specifications	
Switching function	Normally open/closed (NO/NC) programmable
Output type	AS-Interface
Rated operating distance	s_n 20 mm
Installation	flush
Assured operating distance	s_a 0 ... 16.2 mm
Actual operating distance	s_r 18 ... 22 mm typ. 20 mm
Reduction factor r_{AI}	0.4
Reduction factor r_{CU}	0.35
Reduction factor r_{304}	0.85
Slave type	A/B slave
AS-Interface specification	V3.0
Required master specification	\geq V2.1
Output type	2-wire
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 protection	reverse polarity protected
No-load supply current	I_0 \leq 25 mA
Time delay before availability	t_v \leq 1000 ms
Operating voltage indicator	LED, green
Switching state indicator	LED, yellow
Error indicator	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
Information for connection	A maximum of two conductors with the same core cross section may be mounted on one terminal connection! tightening torque 1.2 Nm + 10 % up to 2.5 mm ²
Core cross-section	
Minimum core cross-section	without wire end ferrule 0.5 mm ² , with connector sleeves 0.34 mm ²
Maximum core cross-section	without wire end ferrule 2.5 mm ² , with connector sleeves 1.5 mm ²
Housing material	PA/metal with epoxy powder coating
Sensing face	PBT
Housing base	plastic
Degree of protection	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	CCC approval / marking not required for products rated \leq 36 V

Dimensions



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Electrical Connection



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

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).