



Model Number

NBB20-L2-A2-V1-3G-3D

Features

- Sensor head bidirectional and rotatable
- 20 mm flush
- 4-wire DC
- Quick mounting bracket
- 4-way LED indicator
- ATEX-approval for zone 2 and zone 22

Accessories

MHW 01

Modular mounting bracket

MH 02-L

Mounting aid

V1-G

Female connector, M12, 4-pin, field attachable

MH 04-2681F

Mounting aid for VariKont, +U1+ and +U9*

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

Technical Data

General specifications

Switching function		complementary
Output type		PNP
Rated operating distance	s_n	20 mm
Installation		flush
Output polarity		DC
Assured operating distance	s_a	0 ... 16.2 mm
Actual operating distance	s_r	18 ... 22 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
Output type		4-wire

Nominal ratings

Operating voltage	U_B	10 ... 30 V DC
Switching frequency	f	0 ... 440 Hz
Hysteresis	H	typ. 5 %
Reverse polarity protection		reverse polarity protected
Short-circuit protection		pulsing
Voltage drop	U_d	≤ 2 V
Design data		
Operating current	I_L	0 ... 200 mA
Off-state current	I_r	0 ... 0.5 mA
No-load supply current	I_0	≤ 20 mA
Time delay before availability	t_v	80 ms
Operating voltage indicator		LED, green
Switching state indicator		LED, yellow

Functional safety related parameters

MTTF _d	1289 a
Mission Time (T_M)	20 a
Diagnostic Coverage (DC)	0 %

Ambient conditions

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

Mechanical specifications

Connection type	Connector plug M12 x 1, 4-pin
Housing material	PA
Sensing face	PA
Degree of protection	IP69K
Mass	130 g

General information

Use in the hazardous area	see instruction manuals
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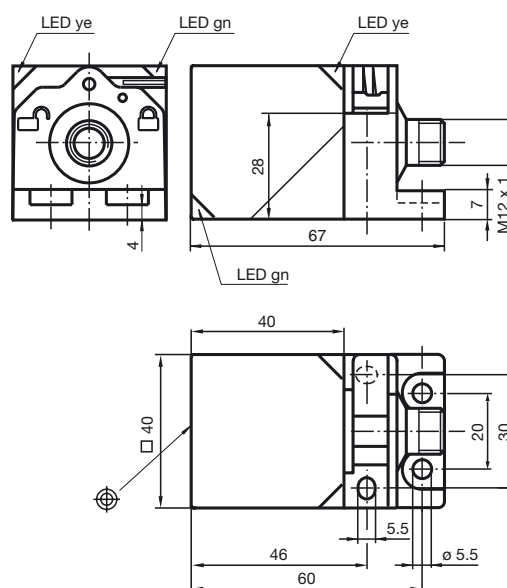
Compliance with standards and directives

Standard conformity	
Standards	EN 60947-5-2:2007 EN 60947-5-2/A1:2012 IEC 60947-5-2:2007 IEC 60947-5-2 AMD 1:2012

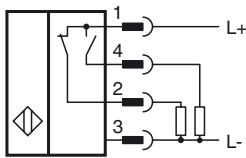
Approvals and certificates

Protection class	II
Rated insulation voltage	U_i 253 V
Rated impulse withstand voltage	U_{imp} 4000 V
UL approval	cULus Listed, General Purpose
CCC approval	CCC approval / marking not required for products rated ≤ 36 V

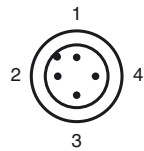
Dimensions



Electrical Connection



Pinout



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Data for application in connection with hazardous areas

Equipment protection level	Gc (nA) , Dc
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Equipment protection level Gc (nA)

Type of protection	"n"
CE marking	

Certificates

ATEX certificate	PF15CERT3754X
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ATEX marking	 II 3G Ex nA IIC T6 Gc
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Standards	EN 60079-0:2012+A11:2013 , EN 60079-15:2010
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Possible characteristics	maximum operating voltage U_{Bmax} , maximum load current I_{Lmax} , minimum series resistance R_V , maximum analog output voltage U_{Amax} , maximum analog output current I_{Amax}
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Maximum permissible ambient temperature T_{amb}	Also observe the maximum permissible ambient temperature stated in the general technical data. Keep to the lower of the two values. at $U_{Bmax} = 30\text{ V}$, $I_L = 200\text{ mA}$: 48 °C (118.4 °F) at $U_{Bmax} = 30\text{ V}$, $I_L = 100\text{ mA}$: 50 °C (122 °F) at $U_{Bmax} = 30\text{ V}$, $I_L = 50\text{ mA}$: 51 °C (123.8 °F) at $U_{Bmax} = 30\text{ V}$, $I_L = 25\text{ mA}$: 52 °C (125.6 °F)
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Equipment protection level Dc

Type of protection	Protection by enclosure "tc"
CE marking	

Certificates

ATEX certificate	PF15CERT3774X
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ATEX marking	 II 3D Ex tc IIIC T80°C Dc
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Standards	EN 60079-0:2012+A11:2013 , EN 60079-31:2014
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Maximum permissible ambient temperature T_{amb}	Also observe the maximum permissible ambient temperature stated in the general technical data. Keep to the lower of the two values. at $U_{Bmax} = 30\text{ V}$, $I_L = 200\text{ mA}$: 48 °C (118.4 °F) at $U_{Bmax} = 30\text{ V}$, $I_L = 100\text{ mA}$: 50 °C (122 °F) at $U_{Bmax} = 30\text{ V}$, $I_L = 50\text{ mA}$: 51 °C (123.8 °F) at $U_{Bmax} = 30\text{ V}$, $I_L = 25\text{ mA}$: 52 °C (125.6 °F)
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