



Model Number

NSB15-L2M-2E2-V1-S2D2

Features

- No unusable area
- 15 mm flush
- Use of standard metallic actuating surfaces
- Applications up to Cat. 2, PLd/SIL 2 possible (can be used redundantly up to Cat. 3, PLe/SIL 3)
- LED for switching state and fault indication
- Safety outputs OSSD
- Sensor head bidirectional and rotatable
- TÜV certified

Description

The inductive safety sensors are TÜV-certified in accordance with the EU Machinery Directive, Performance Level PLd, Category 2, and SIL2. They are used to safeguard machines and plant components, as well as for reliable position detection in this environment. With their OSSD interface for reliable, redundant shutdown of electronic outputs, they enable easy connection to a safety PLC or fail-safe control interfaces.

They can also be operated as standard sensors. The sensors reliably detect standard metal objects in front of the sensor face without coding or similar; there is no blind zone. High characteristic safety values allow longer testing intervals than comparable solutions with a microcontroller. 2 sensors can be connected with 2-channel redundancy and allow PLe as a Category 3 solution.

Accessories

MHW 01

Modular mounting bracket

MH 02-L

Mounting aid

V1-G-S-BK2M-PUR-A-V1-G

Connection cable, M12 to M12, PUR cable, 4-pin

V1-W-S-BK2M-PUR-A-V1-G

Connection cable, M12 to M12, PUR cable, 4-pin

Technical Data

General specifications

Switching function		2 x normally open (NO)
Output type		PNP
Rated operating distance	s_n	15 mm
Installation		flush
Output polarity		DC
Assured operating distance	s_a	0 ... 12.15 mm
Actuating element		Reference target according EN IEC 60947-5-2 (FE360 - ST37K) 45 mm x 45 mm x 1 mm
Reduction factor r_{Al}		0.4
Reduction factor r_{Cu}		0.35
Reduction factor r_{304}		0.9
Reduction factor r_{Brass}		0.45
Output type		4-wire

Nominal ratings

Operating voltage	U_B	18 ... 30 V
Rated operating voltage	U_e	24 V
Switching frequency	f	0 ... 10 Hz
Hysteresis	H	typ. 5%
Reverse polarity protection		reverse polarity protected
Short-circuit protection		pulsing
Overload resistance		yes
Voltage drop	U_d	≤ 3 V
Rated insulation voltage	U_{BIS}	30 V
Operating current	I_L	1 ... 30 mA per output
Off-state current	I_r	0 ... 0.5 mA
No-load supply current	I_0	≤ 15 mA
Time delay before availability	t_v	≤ 300 ms
Switching state indicator		LED, yellow
Error indicator		LED, red

Functional safety related parameters

Safety Integrity Level (SIL)	SIL 2
Performance level (PL)	PL d
Category	Cat. 2
MTTF _d	> 7500 a
Mission Time (T_M)	20 a
Diagnostic Coverage (DC)	≥ 60 %
Assured release distance of a PDDB S_{ar}	22.5 mm

Ambient conditions

Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Storage temperature	-40 ... 85 °C (-40 ... 185 °F)
Altitude	≤ 2000 m above MSL

Mechanical specifications

Connection type	Connector plug M12 x 1, 4-pin
Housing material	PA-GF35 metal base Xylan coated metal mounting flange Xylan coated.
Sensing face	PA-GF35
Degree of protection	IP68 / IP69
Mass	192 g

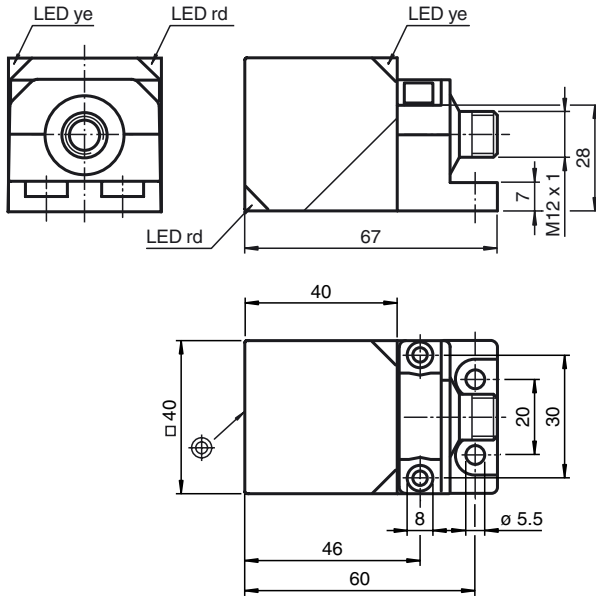
Compliance with standards and directives

Standard conformity	
Standards	EN IEC 60947-5-2:2007 EN IEC 60947-5-3:2013 EN ISO 13849-1:2015 EN IEC 61508:2010 EN 62061:2005+AC:2010+A1:2013+A2:2015 EN ISO 61131-2:2007 type 1, 2, 3

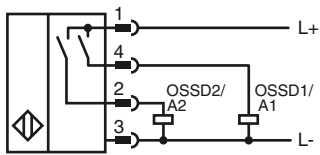
Approvals and certificates

UL approval	cULus Listed, General Purpose, Class 2 Power Source
CCC approval	CCC approval / marking not required for products rated ≤ 36 V

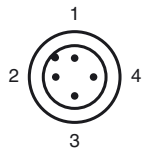
Dimensions



Electrical Connection



Pinout



Wire colors in accordance with EN 60947-5-2

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