

# Proximity Inductive Sensors Standard range, Nickel-Plated Brass Housing Types ICB, M12



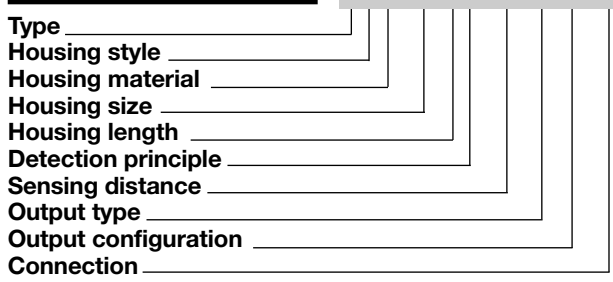
- Sensing distance: 2 mm
- Flush type
- Short and long body versions
- Rated operational voltage ( $U_b$ ): 10 - 36 VDC
- Output: DC 200 mA, NPN or PNP
- Normally open, Normally closed
- LED indication for output ON
- Protection: reverse polarity, short circuit, transients
- Cable and M12 plug versions
- According to IEC 60947-5-2
- Higher resistance to magnetic field
- CSA certified for Hazardous Locations

## Product Description

A family of inductive proximity switches in industrial standard nickel-plated brass housings. They are able to handle applications where high sensing range is requested. Output is open collector NPN or PNP transistors.

## Ordering Key

**ICB12SF02NOM1**



## Type Selection

Conne- ction	Body style	Rated operating distance $S_n$	Ordering no. NPN Normally open	Ordering no. PNP Normally open	Ordering no. NPN Normally closed	Ordering no. PNP Normally closed
Cable	Short	2 mm	ICB 12 SF 02 NO	ICB 12 SF 02 PO	ICB 12 SF 02 NC	ICB 12 SF 02 PC
Plug	Short	2 mm	ICB 12 SF 02 NOM1	ICB 12 SF 02 POM1	ICB 12 SF 02 NCM1	ICB 12 SF 02 PCM1
Cable	Long	2 mm	ICB 12 LF 02 NO	ICB 12 LF 02 PO	ICB 12 LF 02 NC	ICB 12 LF 02 PC
Plug	Long	2 mm	ICB 12 LF 02 NOM1	ICB 12 LF 02 POM1	ICB 12 LF 02 NCM1	ICB 12 LF 02 PCM1

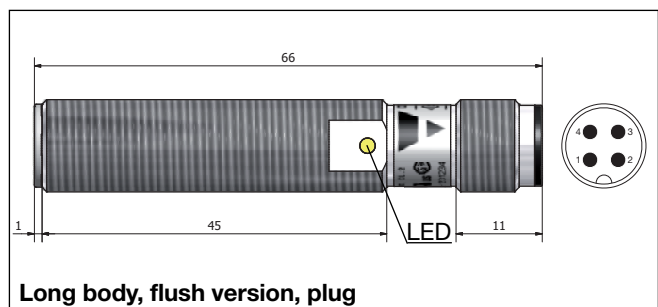
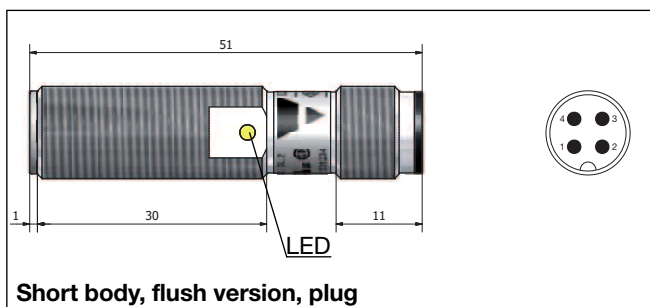
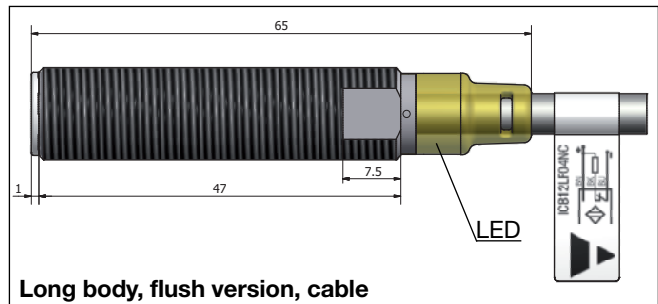
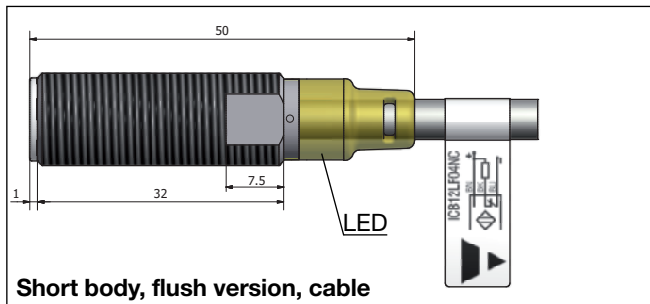
## Specifications

<b>Rated operational voltage (<math>U_b</math>)</b>	10 to 36 VDC (ripple incl.)	<b>Indication for short circuit/ overload</b>	LED blinking
<b>Ripple</b>	≤ 10%	<b>Assured operating sensing distance (<math>S_a</math>)</b>	$0 \leq S_a \leq 0.81 \times S_n$
<b>Output current (<math>I_a</math>)</b>	≤ 200 mA @ 50°C (≤ 150 mA @ 50-70°C)	<b>Effective operating distance (<math>S_r</math>)</b>	$0.9 \times S_n \leq S_r \leq 1.1 \times S_n$
<b>OFF-state current (<math>I_r</math>)</b>	≤ 50 μA	<b>Usable operating distance (<math>S_u</math>)</b>	$0.9 \times S_r \leq S_u \leq 1.1 \times S_r$
<b>No load supply current (<math>I_o</math>)</b>	≤ 15 mA	<b>Repeat accuracy (R)</b>	≤ 10%
<b>Voltage drop (<math>U_d</math>)</b>	Max. 2.5 VDC @ 200 mA	<b>Differential travel (H) (Hysteresis)</b>	1 to 20% of sensing dist.
<b>Protection</b>	Reverse polarity, short-circuit, transients	<b>Ambient temperature</b>	Operating: -25° to +70°C (-13° to +158°F) Storage: -30° to +80°C (-22° to +176°F)
<b>Voltage transient</b>	1 kV/0.5 J	<b>Shock and vibration</b>	IEC 60947-5-2/7.4
<b>Power ON delay (<math>t_v</math>)</b>	300 ms	<b>Housing material</b>	Body: Nickel-plated brass Front: Grey thermoplastic polyester
<b>Operating frequency (f)</b>	≤ 2000 Hz		
<b>Indication for output ON</b>	Activated LED, yellow		
NO version	Target present		
NC version	Target not present		

## Specifications (cont.)

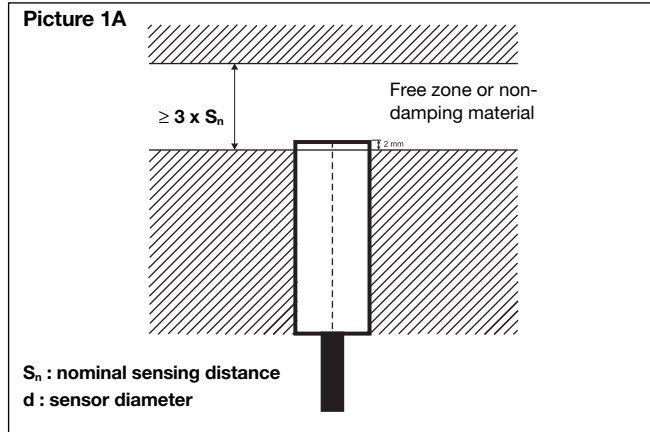
<b>Connection</b>		<b>Approvals (cont.)</b>	
Cable	2 m, 3 x 0.25 mm <sup>2</sup> , grey PVC, oil proof M12 x 1	<b>cCSAus</b>	As Process Control Equipment for Hazardous Locations.
Plug		<b>Note:</b>	The terminal connector (version ...M1) was not evaluated. The suitability of the terminal connector should be determined in the end-use application.
<b>Degree of protection</b>	IP 67		
<b>Weight</b> (cable/nuts included)			
Cable	Max. 120 g		
Plug	Max. 30 g		
<b>Dimensions</b>	See diagrams below		
<b>Tightening torque</b>			
Distance from sensing face from 2 mm to 5 mm	4 Nm		
> 5 mm	10 Nm		
<b>Approvals</b>			
<b>UL (cULus), CSA</b>	As Industrial Control Equipment - Proximity Switches. Types 1, 4, 4X or 12. Max ambient temperature 40°C.	<b>CE-marking</b>	Yes
		<b>EMC protection</b>	According to IEC 60947-5-2
		IEC 61000-4-2 (ESD)	8 kV air discharge, 4 kV contact discharge
		IEC 61000-4-3	3 V/m
		IEC 61000-4-4	2 kV
		IEC 61000-4-6	3 V
		IEC 61000-4-8	30 A/m

## Dimensions

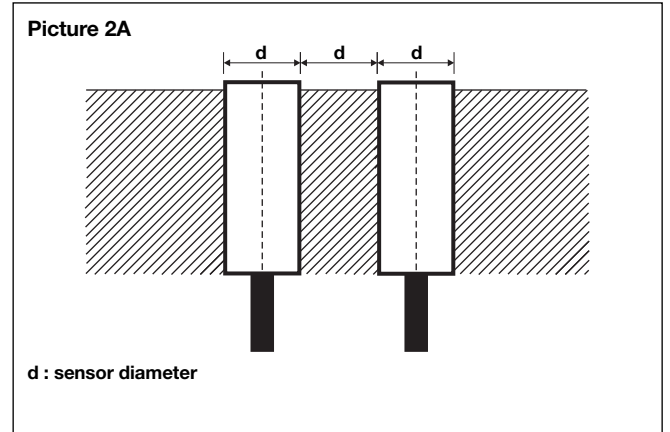


## Installation

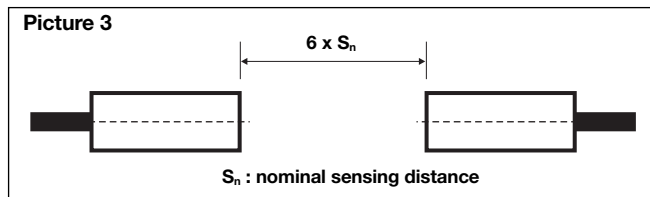
Flush sensor, when installed in damping material, must be according to Picture 1A.



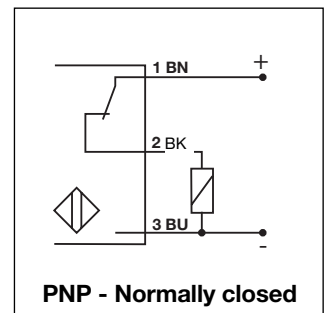
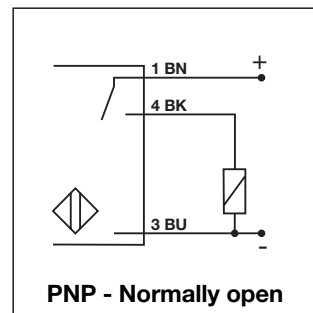
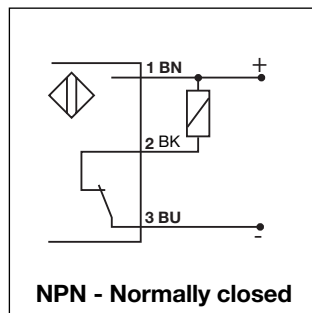
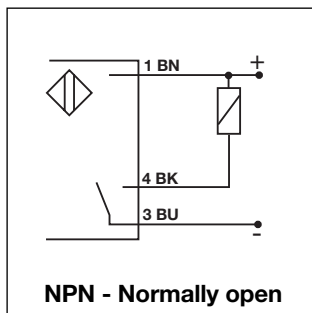
Flush sensors, when installed together in damping material, must be according to Picture 2A.



For sensors installed opposite each other, a minimum space of  $6 \times S_n$  (the nominal sensing distance) must be observed (See Picture 3).



## Wiring Diagrams

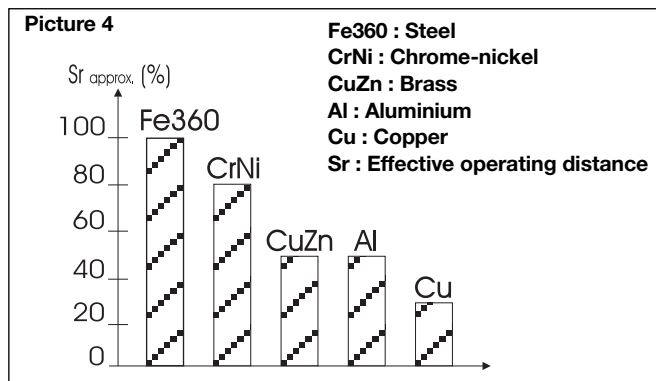




## Reduction factors

The rated operating distance is reduced by the use of metals and alloys other than Fe360.

The most important reduction factors for inductive proximity sensors are shown in Picture 4.



## Delivery Contents

- Inductive proximity switch ICB.
- 2 nuts NPB
- Packaging: plastic bag

## Accessories for Plug Versions

	PVC	PUR
3-wire angled connector, 2 m cable	CONB13NF-A2	CONB13NF-A2P
3-wire angled connector, 5 m cable	CONB13NF-A5	CONB13NF-A5P
3-wire angled connector, 10 m cable	CONB13NF-A10	CONB13NF-A10P
3-wire angled connector, 15 m cable	CONB13NF-A15	CONB13NF-A15P
3-wire straight connector, 2m cable	CONB13NF-S2	CONB13NF-S2P
3-wire straight connector, 5m cable	CONB13NF-S5	CONB13NF-S5P
3-wire straight connector, 10m cable	CONB13NF-S10	CONB13NF-S10P
3-wire straight connector, 15m cable	CONB13NF-S15	CONB13NF-S15P

For any additional information or different options, please refer to the "General Accessories - Connector Cables -Type CONB1..." datasheets.

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