

# Proximity Inductive Sensors Extended Range, Nickel-Plated Brass Housing Types ICB, M12



- Sensing distance: 4 to 8 mm
- Flush and non-flush types
- 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
- 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

**ICB12SF04NOM1**

Type \_\_\_\_\_  
Housing style \_\_\_\_\_  
Housing material \_\_\_\_\_  
Housing size \_\_\_\_\_  
Housing length \_\_\_\_\_  
Detection principle \_\_\_\_\_  
Sensing distance \_\_\_\_\_  
Output type \_\_\_\_\_  
Output configuration \_\_\_\_\_  
Connection \_\_\_\_\_

## 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	4 mm <sup>1)</sup>	ICB 12 SF 04 NO	ICB 12 SF 04 PO	ICB 12 SF 04 NC	ICB 12 SF 04 PC
Cable	Short	8 mm <sup>2)</sup>	ICB 12 SN 08 NO	ICB 12 SN 08 PO	ICB 12 SN 08 NC	ICB 12 SN 08 PC
Plug	Short	4 mm <sup>1)</sup>	ICB 12 SF 04 NOM1	ICB 12 SF 04 POM1	ICB 12 SF 04 NCM1	ICB 12 SF 04 PCM1
Plug	Short	8 mm <sup>2)</sup>	ICB 12 SN 08 NOM1	ICB 12 SN 08 POM1	ICB 12 SN 08 NCM1	ICB 12 SN 08 PCM1
Cable	Long	4 mm <sup>1)</sup>	ICB 12 LF 04 NO	ICB 12 LF 04 PO	ICB 12 LF 04 NC	ICB 12 LF 04 PC
Cable	Long	8 mm <sup>2)</sup>	ICB 12 LN 08 NO	ICB 12 LN 08 PO	ICB 12 LN 08 NC	ICB 12 LN 08 PC
Plug	Long	4 mm <sup>1)</sup>	ICB 12 LF 04 NOM1	ICB 12 LF 04 POM1	ICB 12 LF 04 NCM1	ICB 12 LF 04 PCM1
Plug	Long	8 mm <sup>2)</sup>	ICB 12 LN 08 NOM1	ICB 12 LN 08 POM1	ICB 12 LN 08 NCM1	ICB 12 LN 08 PCM1

<sup>1)</sup> For flush mounting in metal

<sup>2)</sup> For non-flush mounting in metal

## 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_o</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		

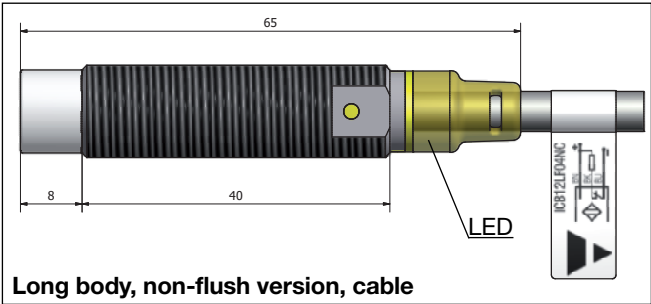
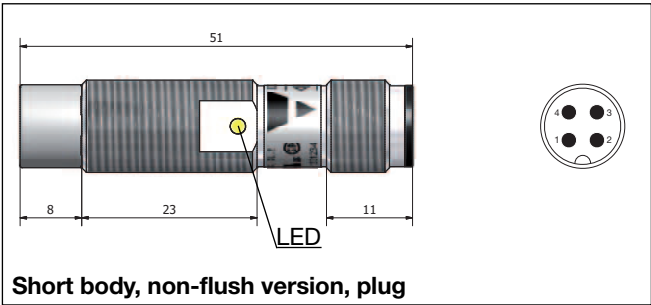
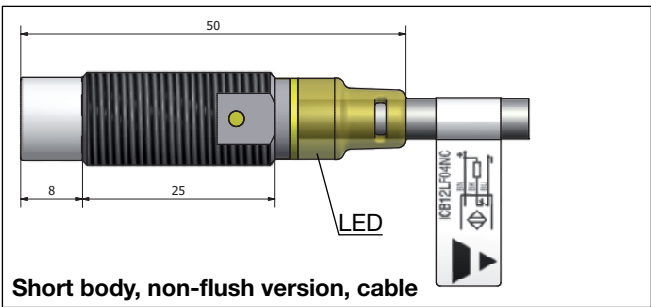
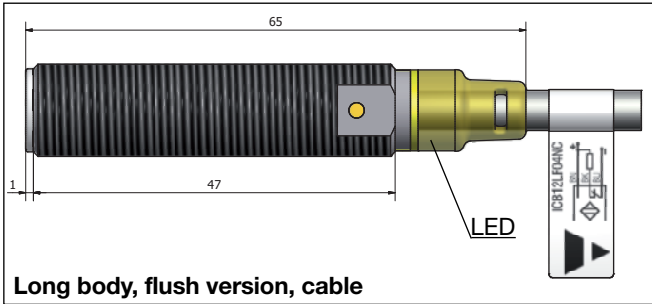
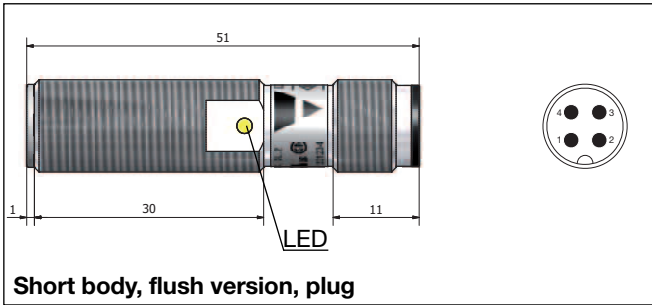
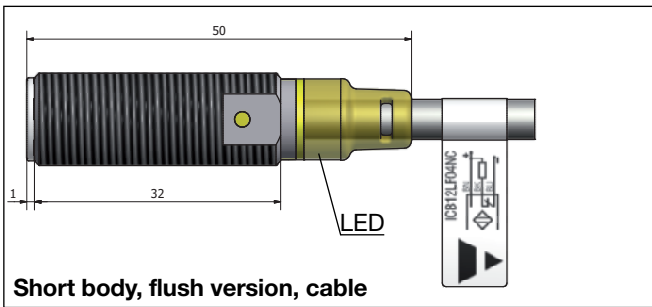


Specifications (cont.)

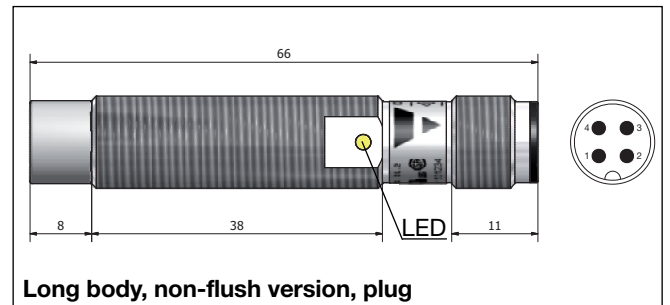
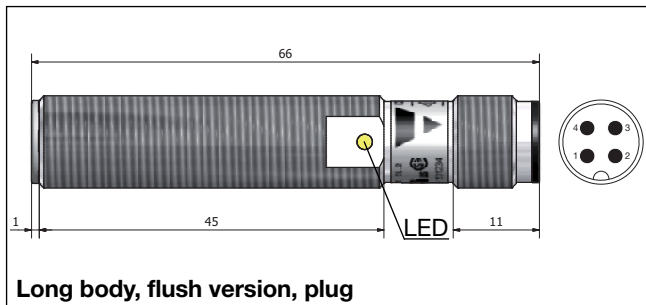
<b>Connection</b>	
Cable	2 m, 3 x 0.25 mm <sup>2</sup> , grey PVC, oil proof M12 x 1
Plug	
<b>Degree of protection</b>	IP 67
<b>Weight</b> (cable/nuts included)	
Cable	Max. 120 g
Plug	Max. 30 g
<b>Dimensions</b>	See diagrams below
<b>Tightening torque</b>	
Distance from sensing face from 2 mm to 5 mm	4 Nm
> 5 mm	10 Nm
<b>Approvals</b>	
UL (cRUus), CSA	As Industrial Control Equipment - Proximity Switches. Types 1, 4, 4X or 12. Max ambient temperature 40°C.

<b>Approvals (cont.)</b>	
cCSAus	As Process Control Equipment for Hazardous Locations. - Class I, Division 2, Groups A, B, C and D. - T5, Enclosure Type 4. Ambient temperature Ta: -25° to +60°C.
<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>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

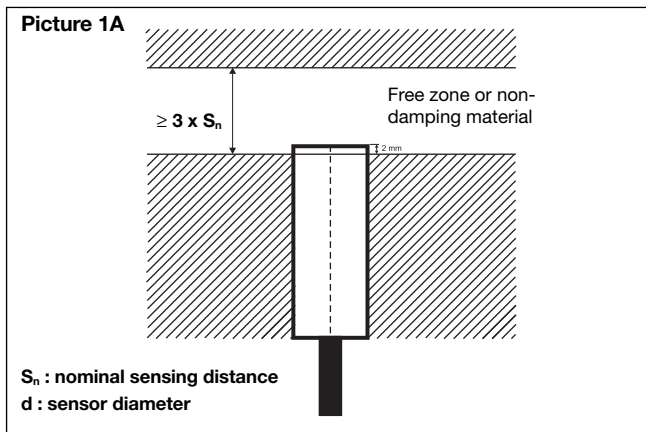


## Dimensions (cont.)

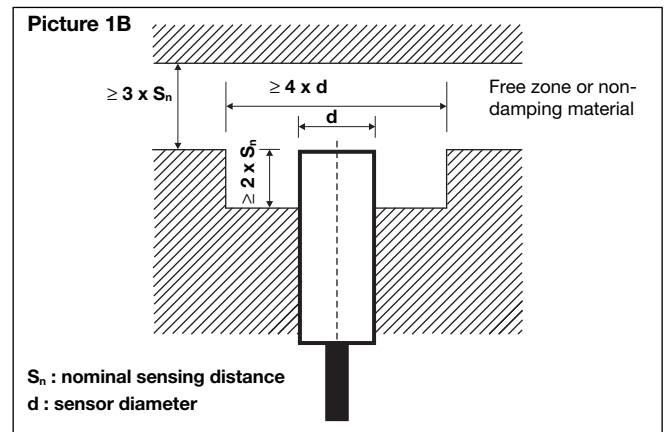


## Installation

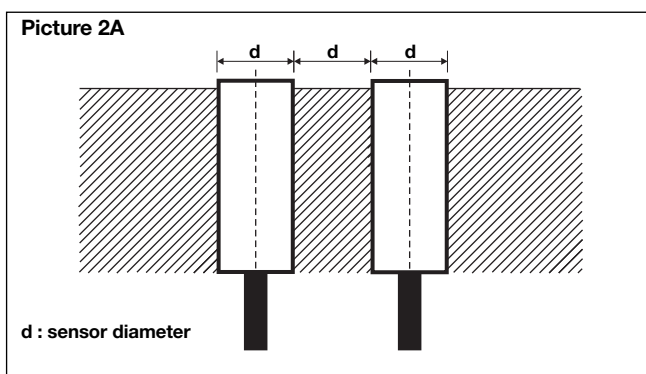
Flush sensor, when installed in damping material, must be according to Picture 1A.



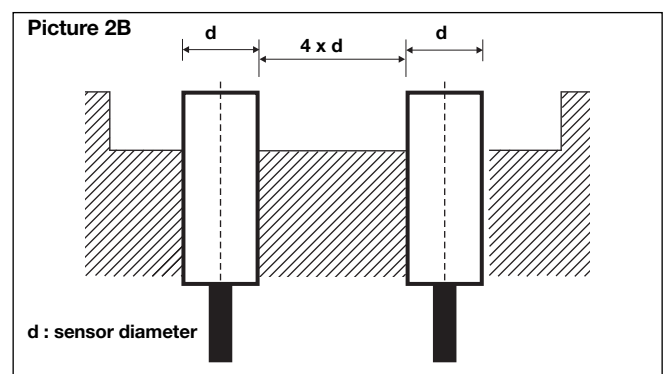
Non-flush sensor, when installed in damping material, must be according to Picture 1B.



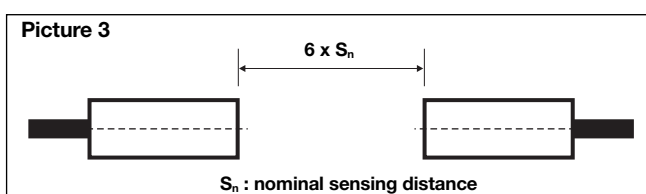
Flush sensors, when installed together in damping material, must be according to Picture 2A.



Non-flush sensors, when installed together in damping material, must be according to Picture 2B.

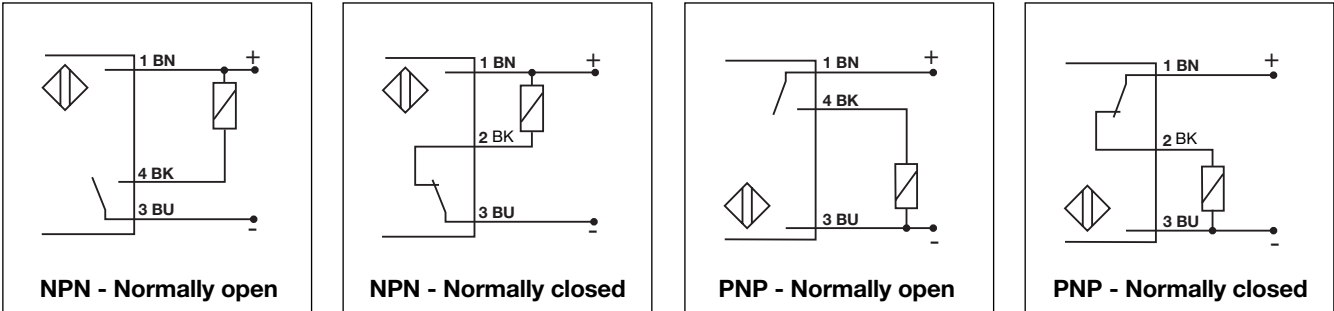


For sensors installed opposite each other, a minimum space of  $6 \times S_n$  (the nominal sensing distance) must be observed (See Picture 3).





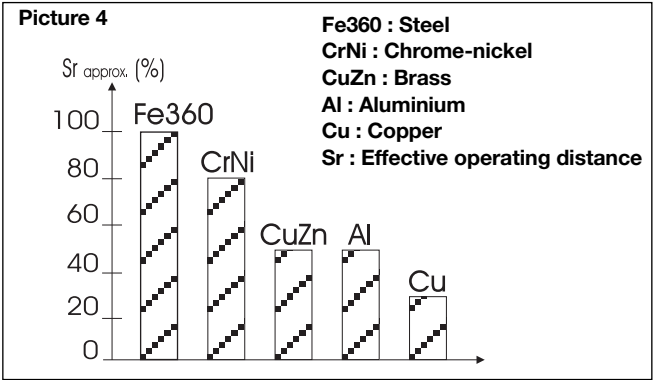
Wiring Diagrams



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.



Accessories for Plug Versions

3-wire angled connector, 2 m cable	CONM13NF-A2
3-wire angled connector, 5 m cable	CONM13NF-A5
3-wire angled connector, 10 m cable	CONM13NF-A10
3-wire stright connector, 2m cable	CONM13NF-S2
3-wire stright connector, 5m cable	CONM13NF-S5

For any additional information or different options, please refer to the “General Accessories” datasheets.

Delivery Contents

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