

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

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- Sensing distance: 2 to 4 mm
- Flush or non-flush types
- Short or long body versions
- Rated operational voltage ( $U_b$ ): 10 - 36 VDC
- Output: DC 200 mA, NPN or PNP
- Normally open or Normally closed
- LED indication for output ON
- Protection: reverse polarity, short circuit, transients
- Cable or M12 plug versions
- According to IEC 60947-5-2
- Laser engraved on front cap, permanently legible



## 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

**ICB12S30F02NOM1**

Type	_____
Housing style	_____
Housing material	_____
Housing size	_____
Housing length	_____
Thread 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	2 mm <sup>1)</sup>	ICB12S30F02NO	ICB12S30F02PO	ICB12S30F02NC	ICB12S30F02PC
Cable	Short	4 mm <sup>2)</sup>	ICB12S30N04NO	ICB12S30N04PO	ICB12S30N04NC	ICB12S30N04PC
Plug	Short	2 mm <sup>1)</sup>	ICB12S30F02NOM1	ICB12S30F02POM1	ICB12S30F02NCM1	ICB12S30F02PCM1
Plug	Short	4 mm <sup>2)</sup>	ICB12S30N04NOM1	ICB12S30N04POM1	ICB12S30N04NCM1	ICB12S30N04PCM1
Cable	Long	2 mm <sup>1)</sup>	ICB12L50F02NO	ICB12L50F02PO	ICB12L50F02NC	ICB12L50F02PC
Cable	Long	4 mm <sup>2)</sup>	ICB12L50N04NO	ICB12L50N04PO	ICB12L50N04NC	ICB12L50N04PC
Plug	Long	2 mm <sup>1)</sup>	ICB12L50F02NOM1	ICB12L50F02POM1	ICB12L50F02NCM1	ICB12L50F02PCM1
Plug	Long	4 mm <sup>2)</sup>	ICB12L50N04NOM1	ICB12L50N04POM1	ICB12L50N04NCM1	ICB12L50N04PCM1

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

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

## Specifications

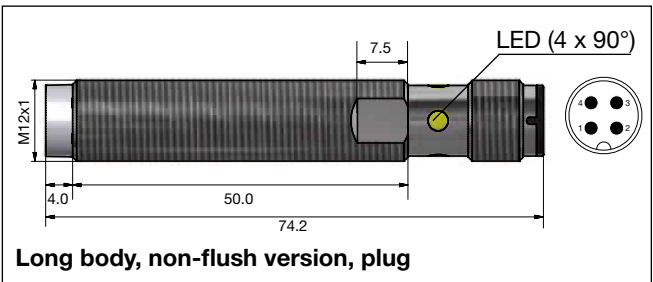
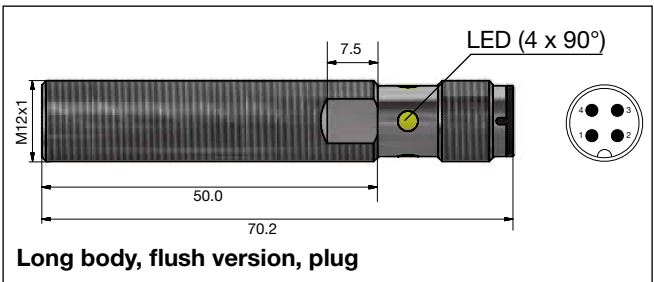
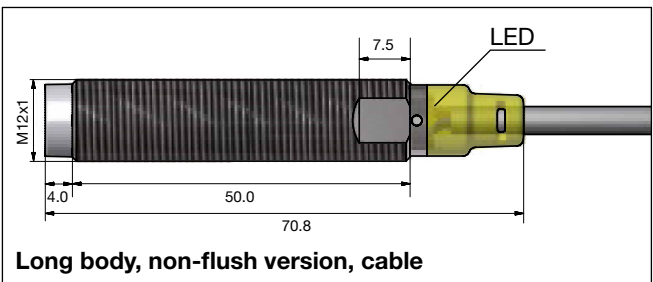
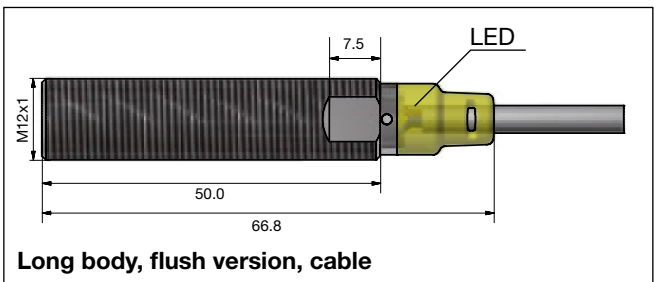
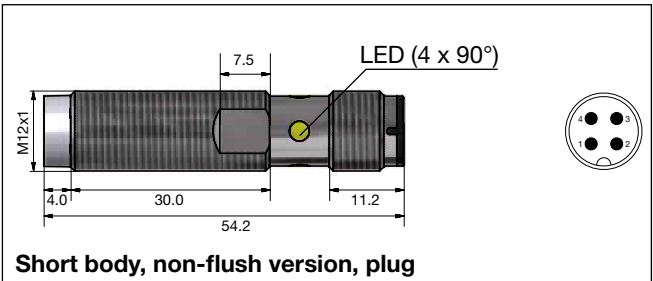
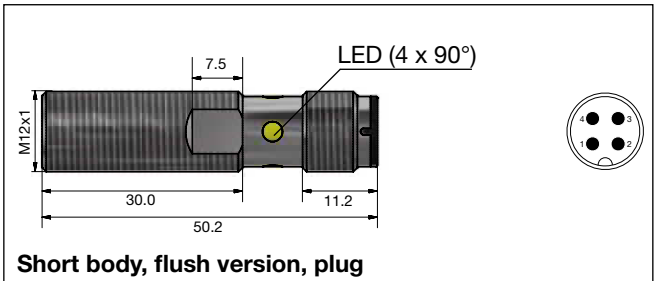
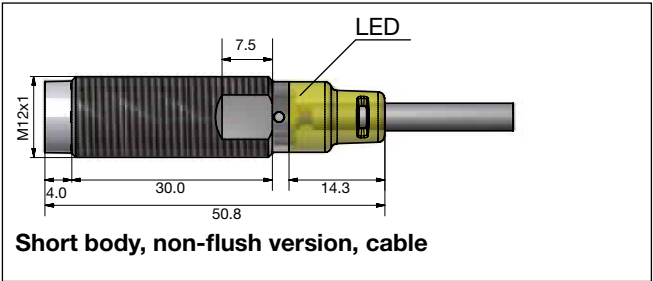
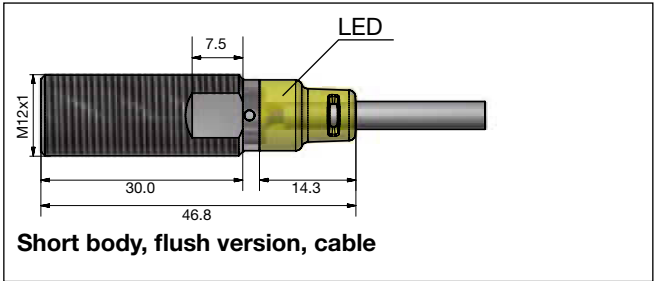
<b>Rated operational voltage (<math>U_b</math>)</b>	10 to 36 VDC (ripple incl.)	<b>Indication for short circuit/ overload</b>	LED blinking (f = 2 Hz)
<b>Ripple</b>	≤ 10%	<b>Assured operating sensing distance (<math>S_a</math>)</b>	$0 \leq S_a \leq 0.81 \times S_n$
<b>Output current (<math>I_o</math>)</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_i</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 Storage
<b>Voltage transient</b>	1 kV/0.5 J		-25° to +70°C (-13° to +158°F) -30° to +80°C (-22° to +176°F)
<b>Power ON delay (<math>t_o</math>)</b>	≤ 20 ms	<b>Shock and vibration</b>	IEC 60947-5-2/7.4
<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.)

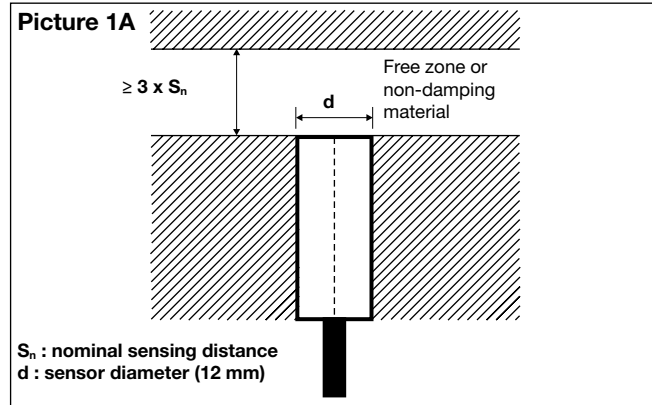
<b>Housing material</b> Body Front	Nickel-plated brass Grey thermoplastic polyester	<b>Tightening torque</b>	10 Nm
<b>Connection</b> Cable	Ø4.1 x 2 m, 3 x 0.25 mm <sup>2</sup> , grey PVC, oil proof M12 x 1	<b>Approvals</b>	cULus (UL508)  CCC is not required for products with a maximum operating voltage of ≤ 36 V
Plug		<b>EMC protection</b> IEC 61000-4-2 (ESD)	According to IEC 60947-5-2 8 kV air discharge, 4 kV contact discharge
<b>Degree of protection</b>	IP 67	IEC 61000-4-3	3 V/m
<b>Weight</b> (cable/nuts included)		IEC 61000-4-4	2 kV
Cable	Max. 120 g	IEC 61000-4-6	3 V
Plug	Max. 30 g	IEC 61000-4-8	30 A/m
<b>Dimensions</b>	See diagrams below	<b>MTTF<sub>d</sub></b>	750 years @ 50°C (122°F)

Dimensions (mm)

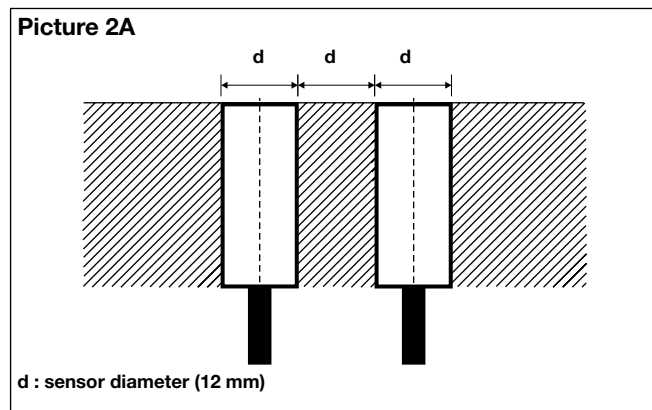


## Installation

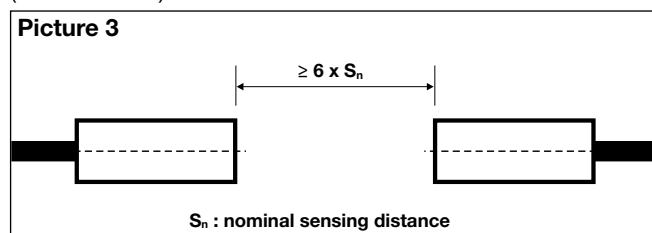
Flush sensor, when installed in damping material, must be according to Picture 1A.



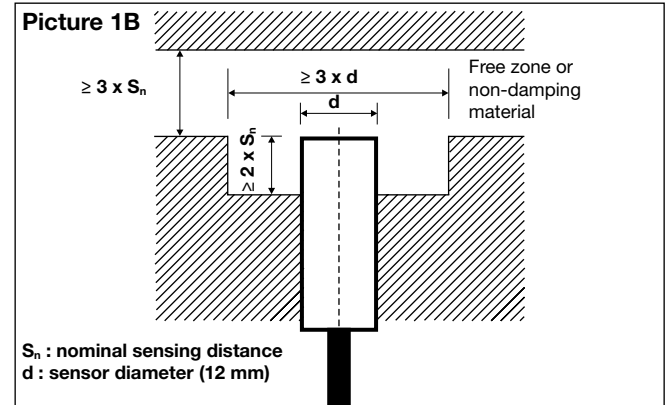
Flush sensors, when installed together in damping material, must be according to Picture 2A.



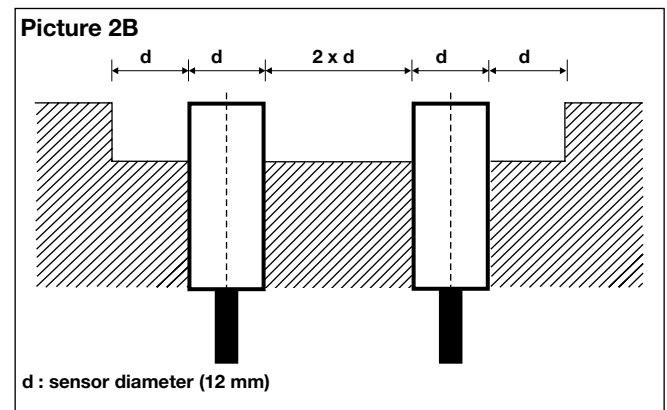
For sensors installed opposite each other, a minimum space of  $6 \times S_n$  (the nominal sensing distance) must be observed (See Picture 3).



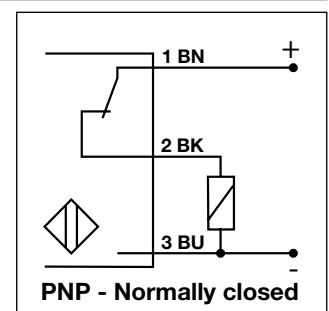
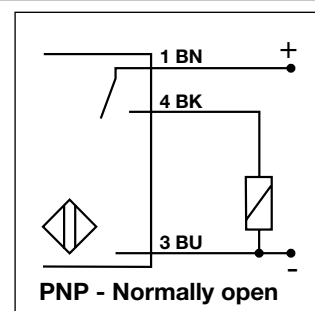
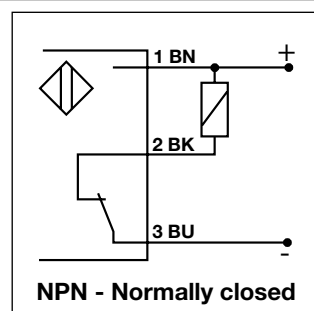
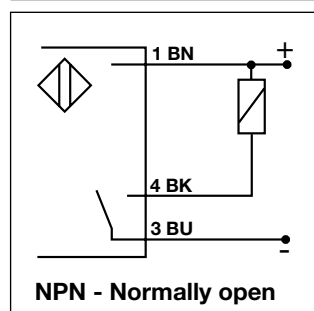
Non-flush sensor, when installed in damping material, must be according to Picture 1B.



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



## Wiring Diagram

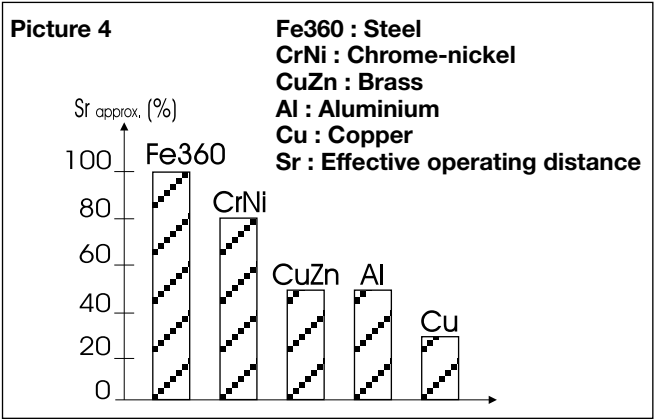




Reduction Factors

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

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 straight connector, 2 m cable	CONM13NF-S2
3-wire straight connector, 5 m cable	CONM13NF-S5
For any additional information or different options, please refer to the “General Accessories” datasheets.	