

# Proximity Inductive Sensors Increased Operating Distance, Nickel-Plated Brass Housing - Types ICB, M12

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- Sensing distance: 6 to 10 mm
- Quasi-flush or non-flush mountable
- 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, short-circuit and overload
- Protection: reverse polarity, short circuit, transients
- Cable or M12 plug versions
- According to IEC 60947-5-2
- Setup indicator
- Laser engraved on front cap, permanently legible
- 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 very long operating distance is requested.

Output is open collector NPN or PNP transistors. Less machine downtime thanks to lower risk of mechanical damage.

## Ordering Key **ICB12S30F06NOM1**

Type	_____
Housing style	_____
Housing material	_____
Housing size	_____
Housing length	_____
Thread length	_____
Detection principle	_____
Sensing distance	_____
Output type	_____
Output configuration	_____
Connection	_____

## Type Selection

Connec- tion	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	6 mm <sup>1)</sup>	ICB12S30F06NO	ICB12S30F06PO	ICB12S30F06NC	ICB12S30F06PC
Cable	Short	10 mm <sup>2)</sup>	ICB12S30N10NO	ICB12S30N10PO	ICB12S30N10NC	ICB12S30N10PC
Plug	Short	6 mm <sup>1)</sup>	ICB12S30F06NOM1	ICB12S30F06POM1	ICB12S30F06NCM1	ICB12S30F06PCM1
Plug	Short	10 mm <sup>2)</sup>	ICB12S30N10NOM1	ICB12S30N10POM1	ICB12S30N10NCM1	ICB12S30N10PCM1
Cable	Long	6 mm <sup>1)</sup>	ICB12L50F06NO	ICB12L50F06PO	ICB12L50F06NC	ICB12L50F06PC
Cable	Long	10 mm <sup>2)</sup>	ICB12L50N10NO	ICB12L50N10PO	ICB12L50N10NC	ICB12L50N10PC
Plug	Long	6 mm <sup>1)</sup>	ICB12L50F06NOM1	ICB12L50F06POM1	ICB12L50F06NCM1	ICB12L50F06PCM1
Plug	Long	10 mm <sup>2)</sup>	ICB12L50N10NOM1	ICB12L50N10POM1	ICB12L50N10NCM1	ICB12L50N10PCM1

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

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

## Specifications

Rated operational voltage ( $U_b$ )	10 to 36 VDC (ripple incl.)	Indication for output ON	Activated LED, yellow NO version Target present NC version Target not present
Ripple	≤ 10%	Indication for short circuit/ overload	LED blinking (f = 2 Hz)
Output current ( $I_a$ )	≤ 200 mA @ 50°C (≤ 150 mA @ 50-70°C)	Assured operating sensing distance ( $S_a$ )	$0 \leq S_a \leq 0.81 \times S_n$
OFF-state current ( $I_o$ )	≤ 50 μA	Effective operating distance ( $S_r$ )	$0.9 \times S_n \leq S_r \leq 1.1 \times S_n$
No load supply current ( $I_o$ )	≤ 15 mA	Usable operating distance ( $S_u$ )	$0.9 \times S_r \leq S_u \leq 1.1 \times S_r$
Voltage drop ( $U_d$ )	Max. 2.5 VDC @ 200 mA	Repeat accuracy (R)	≤ 10%
Protection	Reverse polarity, short-circuit, transients	Differential travel (H) (Hysteresis)	1 to 20% of sensing dist.
Voltage transient	1 kV/0.5 J		
Power ON delay ( $t_r$ )	≤ 20 ms		
Operating frequency (f)	≤ 2000 Hz		

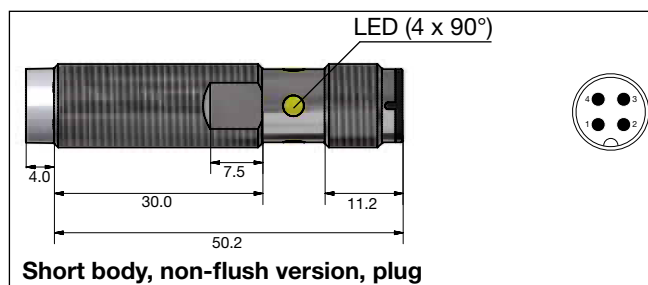
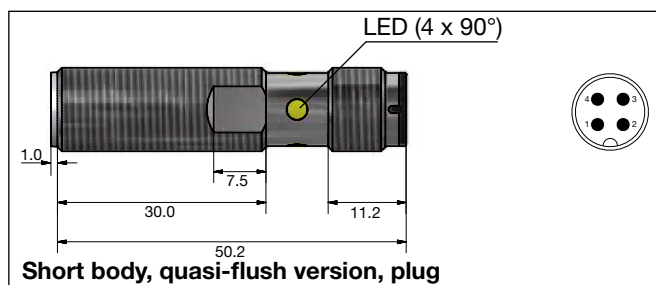
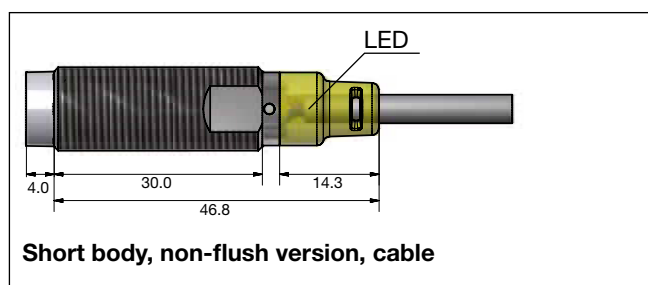
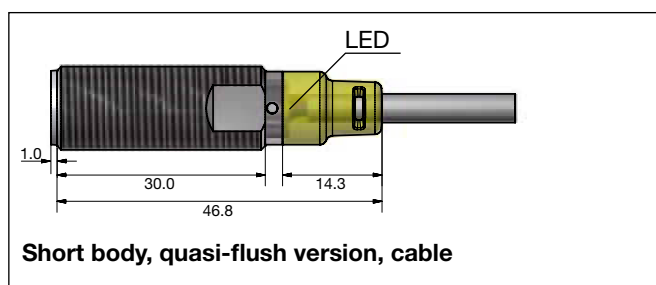


## Specifications (cont.)

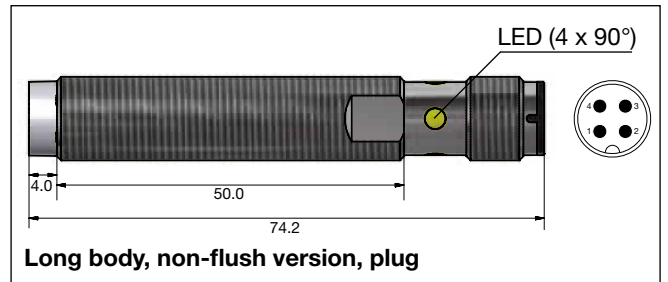
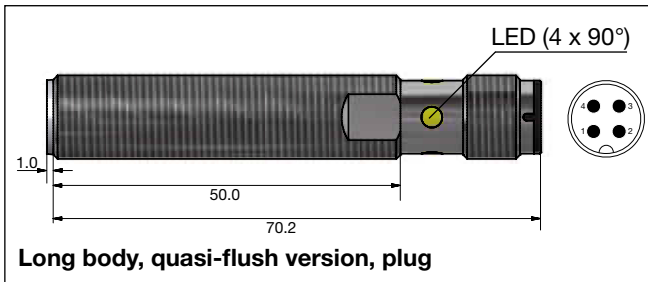
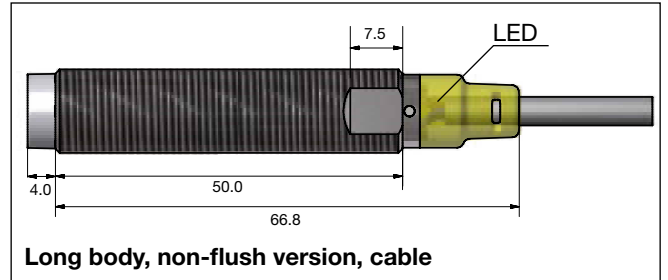
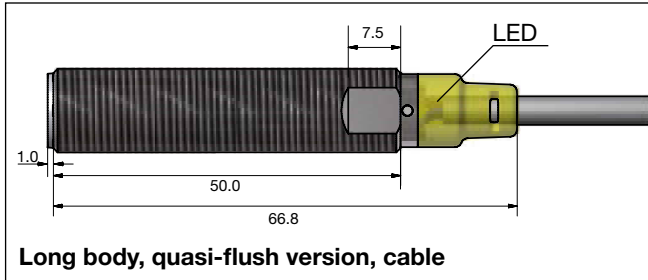
<b>Ambient temperature</b>	
Operating	-25° to +70°C (-13° to +158°F)
Storage	-30° to +80°C (-22° to +176°F)
<b>Shock and vibration</b>	IEC 60947-5-2/7.4
<b>Housing material</b>	
Body	Nickel-plated brass
Front	Grey thermoplastic polyester
<b>Connection</b>	
Cable	Ø4.1 x 2 m, 3 x 0.25 mm <sup>2</sup> , grey PVC, oil proof
Plug	M12 x 1
<b>Degree of protection</b>	IP 67
<b>Weight (cable/nuts included)</b>	
Cable	Max. 85 g
Plug	Max. 45 g
<b>Dimensions</b>	See diagrams below
<b>Tightening torque</b>	
Distance from sensing face from 2 mm to 7 mm	4 Nm
> 7 mm	10 Nm
<b>Setup function</b>	
NO version	
LED flashing (f=0.67 Hz)	0.8 S <sub>n</sub> < S <sub>r</sub> ≤ S <sub>n</sub>
LED lights continuously	0 ≤ S <sub>r</sub> ≤ 0.8 S <sub>n</sub> (*)
NC version	
LED flashing (f=0.67 Hz)	0.8 S <sub>n</sub> < S <sub>r</sub> ≤ S <sub>n</sub>
LED OFF	0 ≤ S <sub>r</sub> ≤ 0.8 S <sub>n</sub> (*)
	(*): safer installation

<b>Approvals</b>	<b>cULus</b> (UL508)
	<b>cCSAus</b>
	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
	CCC is not required for products with a maximum operating voltage of ≤ 36 V
<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
<b>MTTF<sub>d</sub></b>	750 years @ 50°C (122°F)

## Dimensions (mm)

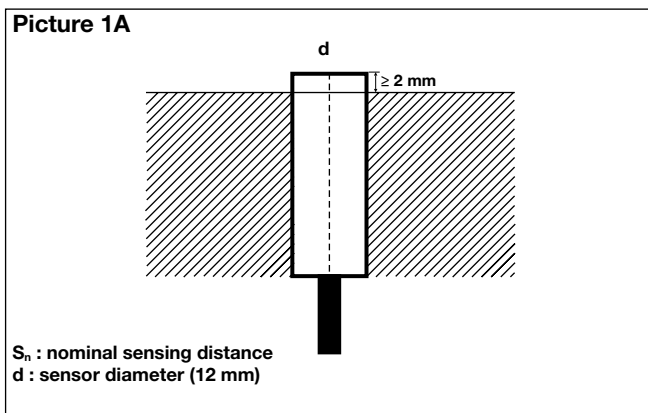


## Dimensions (mm) (cont.)

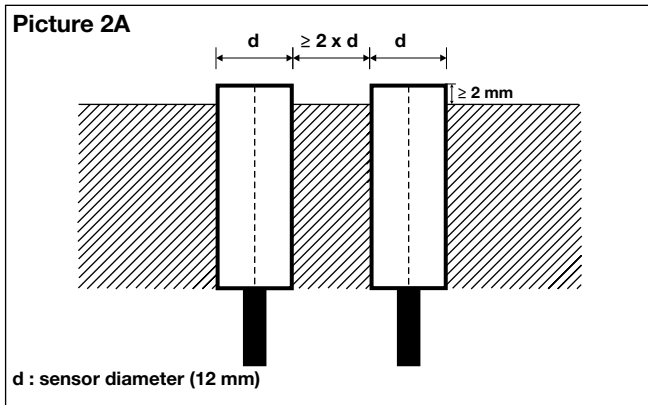


## Installation

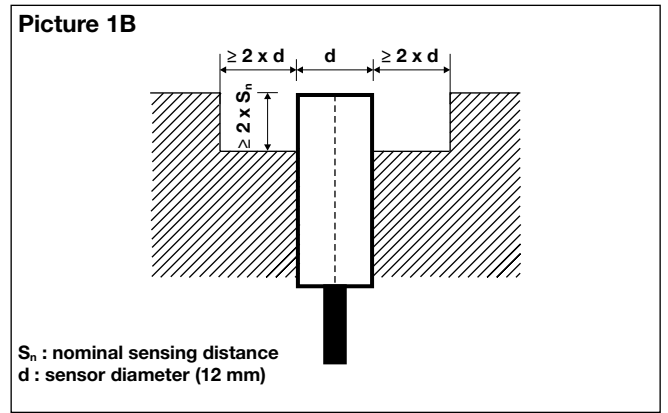
Quasi-flush mountable proximity switches, when installed in damping material, must be according to Picture 1A.



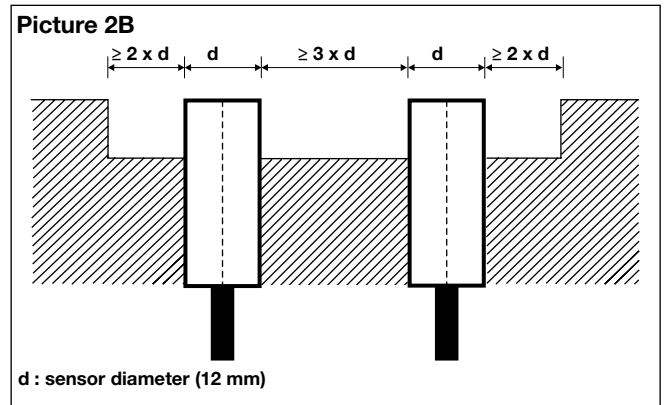
Quasi-flush mountable proximity switches, when installed together in damping material, must be according to Picture 2A.



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



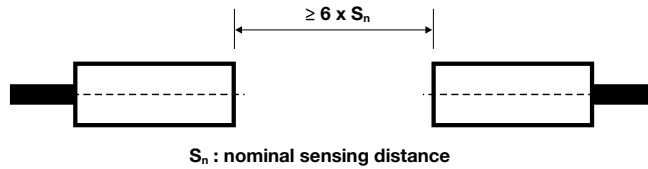
Non-flush mountable proximity switches, when installed together in damping material, must be according to Picture 2B.



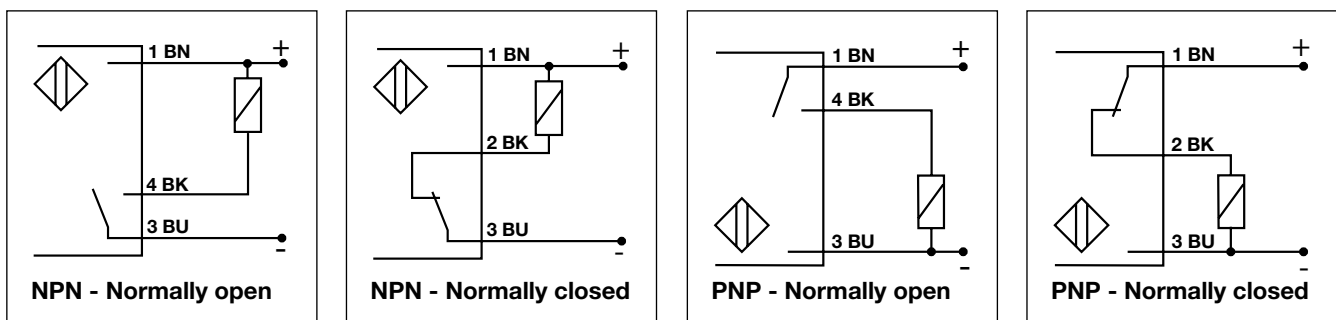
## Installation (cont.)

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

Picture 3



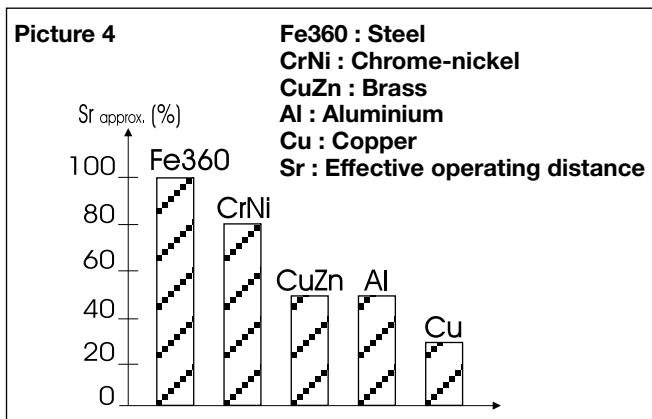
## Wiring Diagram



## 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
- 2 washers
- 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, 2 m cable	CONB13NF-S2	CONB13NF-S2P
3-wire straight connector, 5 m cable	CONB13NF-S5	CONB13NF-S5P
3-wire straight connector, 10 m cable	CONB13NF-S10	CONB13NF-S10P
3-wire straight connector, 15 m cable	CONB13NF-S15	CONB13NF-S15P

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