

# Proximity Inductive Sensors Increased Operating Distance, Nickel-Plated Brass Housing - Types ICB, M30

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- Sensing distance: 22 to 40 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

**ICB30S35F22NOM1**

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	22 mm <sup>1)</sup>	ICB30S35F22NO	ICB30S35F22PO	ICB30S35F22NC	ICB30S35F22PC
Cable	Short	40 mm <sup>2)</sup>	ICB30S35N40NO	ICB30S35N40PO	ICB30S35N40NC	ICB30S35N40PC
Plug	Short	22 mm <sup>1)</sup>	ICB30S35F22NOM1	ICB30S35F22POM1	ICB30S35F22NCM1	ICB30S35F22PCM1
Plug	Short	40 mm <sup>2)</sup>	ICB30S35N40NOM1	ICB30S35N40POM1	ICB30S35N40NCM1	ICB30S35N40PCM1
Cable	Long	22 mm <sup>1)</sup>	ICB30L50F22NO	ICB30L50F22PO	ICB30L50F22NC	ICB30L50F22PC
Cable	Long	40 mm <sup>2)</sup>	ICB30L50N40NO	ICB30L50N40PO	ICB30L50N40NC	ICB30L50N40PC
Plug	Long	22 mm <sup>1)</sup>	ICB30L50F22NOM1	ICB30L50F22POM1	ICB30L50F22NCM1	ICB30L50F22PCM1
Plug	Long	40mm <sup>2)</sup>	ICB30L50N40NOM1	ICB30L50N40POM1	ICB30L50N40NCM1	ICB30L50N40PCM1

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

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

## Specifications

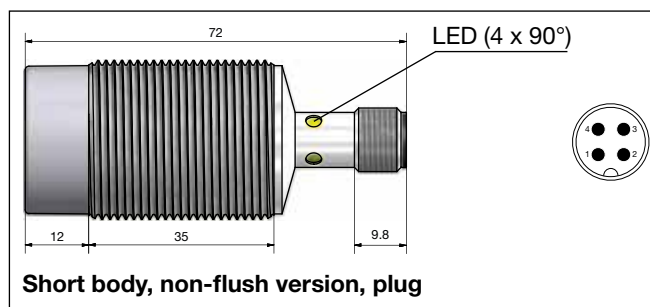
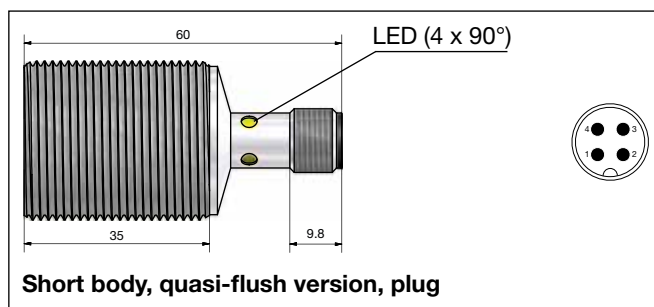
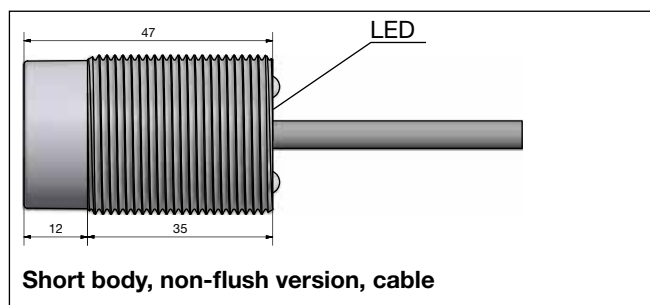
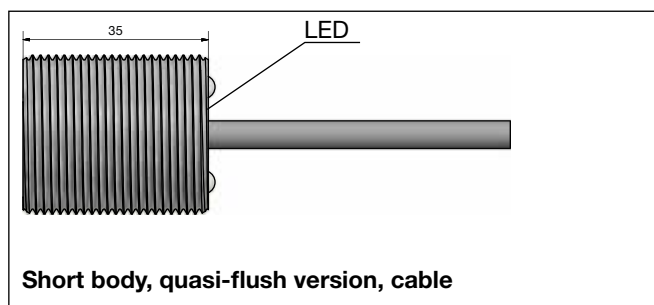
Rated operational voltage ( $U_b$ )	10 to 36 VDC (ripple incl.)	Indication for output ON	Activated LED, yellow Target present
Ripple	≤ 10%	NO version	Target present
Output current ( $I_a$ )	≤ 200 mA @ 50°C (≤ 150 mA @ 50-70°C)	NC version	Target not present
OFF-state current ( $I_r$ )	≤ 50 μA	Indication for short circuit/ overload	LED blinking (f = 2 Hz)
No load supply current ( $I_s$ )	≤ 15 mA	Assured operating sensing distance ( $S_a$ )	$0 \leq S_a \leq 0.81 \times S_n$
Voltage drop ( $U_d$ )	Max. 2.5 VDC @ 200 mA	Effective operating distance ( $S_r$ )	$0.9 \times S_n \leq S_r \leq 1.1 \times S_n$
Protection	Reverse polarity, short-circuit, transients	Usable operating distance ( $S_u$ )	$0.9 \times S_r \leq S_u \leq 1.1 \times S_r$
Voltage transient	1 kV/0.5 J	Repeat accuracy (R)	≤ 10%
Power ON delay ( $t_v$ )	≤ 20 ms	Differential travel (H)	1 to 20% of sensing dist.
Operating frequency (f)	≤ 100 Hz	(Hysteresis)	

## Specifications (cont.)

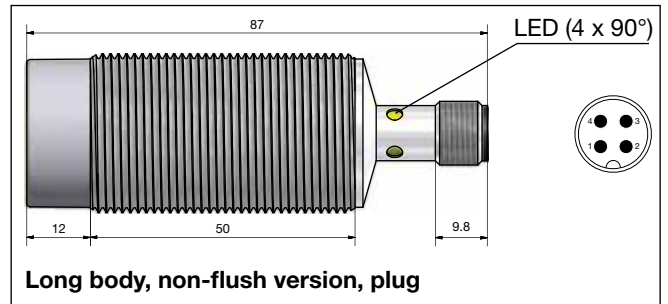
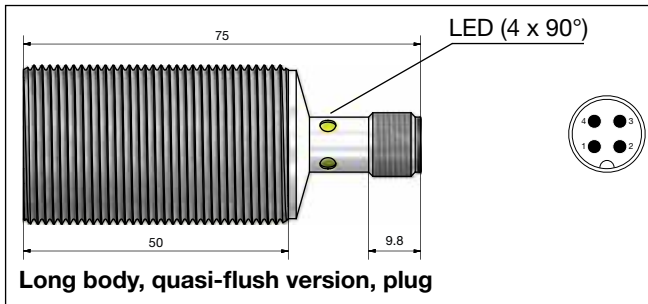
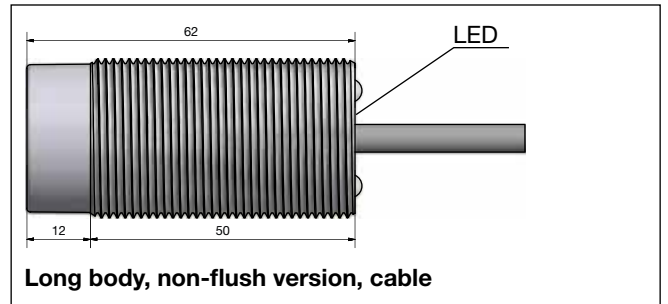
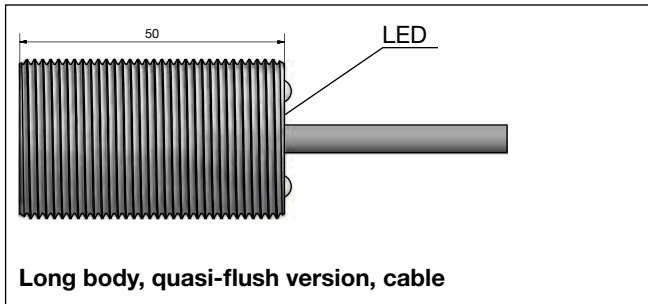
<b>Ambient temperature</b>	
Operating	-25° to +70°C (-13° to +158°F)
Storage	-30° to +80°C (-22° to +176°F)
<b>Shock and vibration</b>	IEC 60947-5-2/7.4
<b>Housing material</b>	
Body	Nickel-plated brass
Front	Grey thermoplastic polyester
<b>Connection</b>	
Cable	Ø5.2 x 2 m, 3 x 0.34 mm <sup>2</sup> , grey PVC, oil proof
Plug	M12 x 1
<b>Degree of protection</b>	IP 67
<b>Weight (cable/nuts included)</b>	
Cable	Max. 220 g
Plug	Max. 160 g
<b>Dimensions</b>	See diagrams below
<b>Tightening torque</b>	25 Nm
<b>Setup function</b>	
NO version	
LED flashing (f=0.67 Hz)	$0.8 S_n < S_r \leq S_n$
LED lights continuously	$0 \leq S_r \leq 0.8 S_n$ (*)
NC version	
LED flashing (f=0.67 Hz)	$0.8 S_n < S_r \leq S_n$
LED OFF	$0 \leq S_r \leq 0.8 S_n$ (*)
	(*): safer installation

<b>Approvals</b>	<b>cULus</b> <b>cCSAus</b>	(UL508) 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
Note: The terminal connector (version ...M1) was not evaluated. The suitability of the terminal connector should be determined in the end-use application.		
<b>EMC protection</b>	IEC 61000-4-2 (ESD)  IEC 61000-4-3 IEC 61000-4-4 IEC 61000-4-6 IEC 61000-4-8	According to IEC 60947-5-2 8 KV air discharge, 4 KV contact discharge 3 V/m 2 kV 3 V 30 A/m
<b>MTTF<sub>d</sub></b>		700 years @ 50°C (122°F)

## Dimensions (mm)



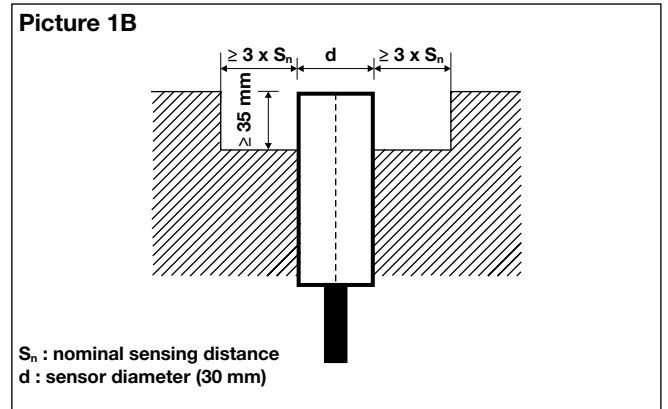
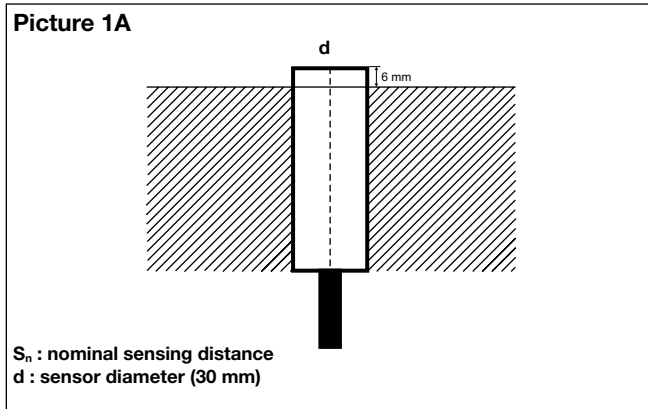
## Dimensions (mm) (cont.)



## Installation

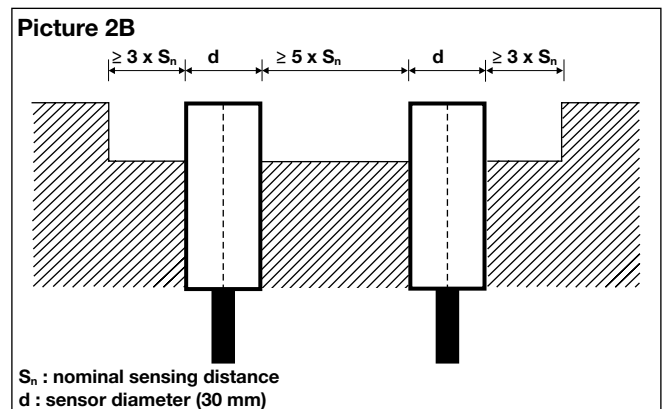
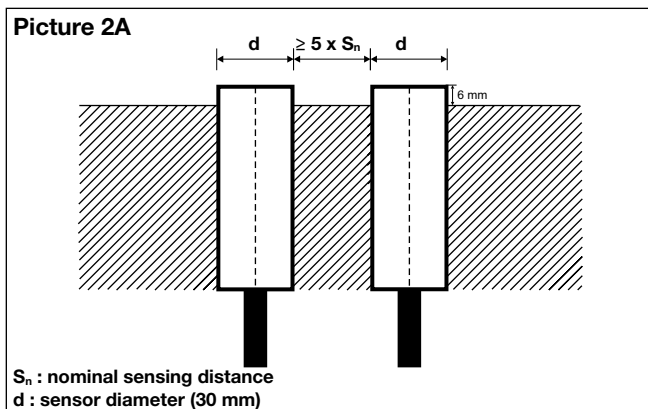
Quasi-flush mountable proximity switches, when installed in damping material, must be according to Picture 1A.

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



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

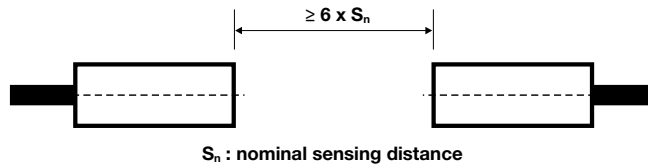
Non-flush mountable proximity switches, when installed together in damping material, must be according to Picture 2B.



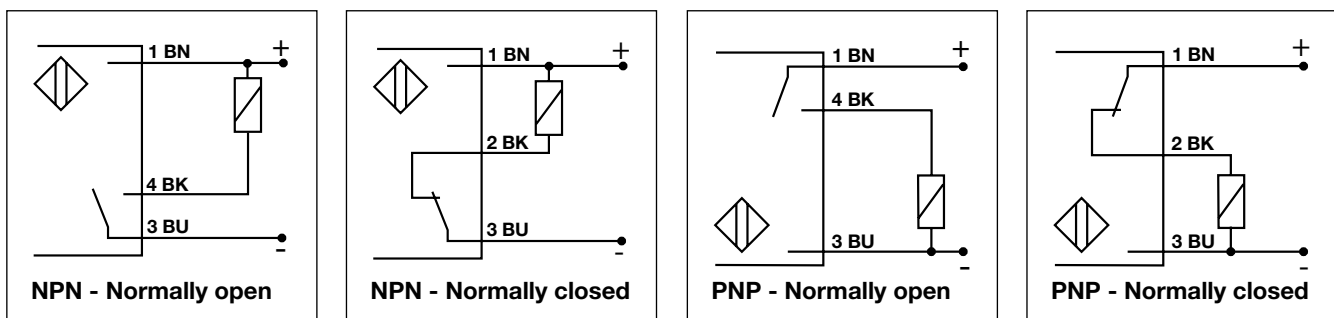
## Installation (cont.)

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



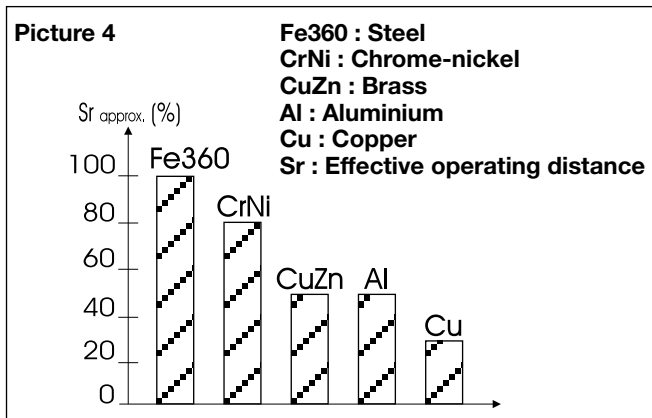
## Wiring Diagram



## 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.



## 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.

## Delivery Contents

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