

# Proximity Inductive Sensors

## Standard range, Nickel-Plated Brass Housing

### Types ICB, M18

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- Sensing distance: 5 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
- 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

**ICB18SF05NOM1**

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	5 mm <sup>1)</sup>	ICB 18 SF 05 NO	ICB 18 SF 05 PO	ICB 18 SF 05 NC	ICB 18 SF 05 PC
Cable	Short	8 mm <sup>2)</sup>	ICB 18 SN 08 NO	ICB 18 SN 08 PO	ICB 18 SN 08 NC	ICB 18 SN 08 PC
Plug	Short	5 mm <sup>1)</sup>	ICB 18 SF 05 NOM1	ICB 18 SF 05 POM1	ICB 18 SF 05 NCM1	ICB 18 SF 05 PCM1
Plug	Short	8 mm <sup>2)</sup>	ICB 18 SN 08 NOM1	ICB 18 SN 08 POM1	ICB 18 SN 08 NCM1	ICB 18 SN 08 PCM1
Cable	Long	5 mm <sup>1)</sup>	ICB 18 LF 05 NO	ICB 18 LF 05 PO	ICB 18 LF 05 NC	ICB 18 LF 05 PC
Cable	Long	8 mm <sup>2)</sup>	ICB 18 LN 08 NO	ICB 18 LN 08 PO	ICB 18 LN 08 NC	ICB 18 LN 08 PC
Plug	Long	5 mm <sup>1)</sup>	ICB 18 LF 05 NOM1	ICB 18 LF 05 POM1	ICB 18 LF 05 NCM1	ICB 18 LF 05 PCM1
Plug	Long	8 mm <sup>2)</sup>	ICB 18 LN 08 NOM1	ICB 18 LN 08 POM1	ICB 18 LN 08 NCM1	ICB 18 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>Dielectric impulse voltage withstand</b>	1 kV/0.5 J	<b>Shock and vibration</b>	IEC 60947-5-2/7.4
<b>Power ON delay (<math>t_r</math>)</b>	300 ms	<b>Housing material</b>	Body Nickel-plated brass Front Grey thermoplastic polyester
<b>Operating frequency (f)</b>	≤ 1500 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
Plug	M12 x 1
<b>Degree of protection</b>	IP 67
<b>Weight</b> (cable/nuts included)	
Cable	Max. 150 g
Plug	Max. 70 g
<b>Dimensions</b>	See diagrams below
<b>Tightening torque</b>	
Non-flush version	25 Nm
Flush version	
From 1 to 3 mm	15 Nm
> 3 mm	25 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.

### Approvals (cont.)

#### 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.  
 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.

### CE-marking

Yes

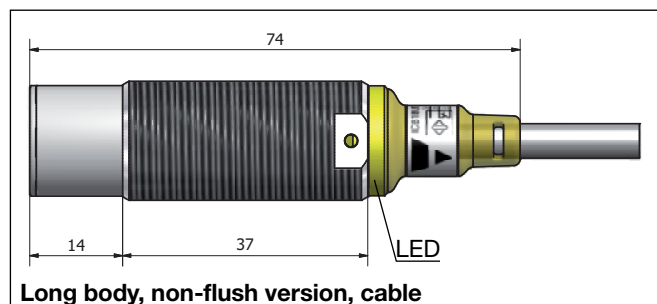
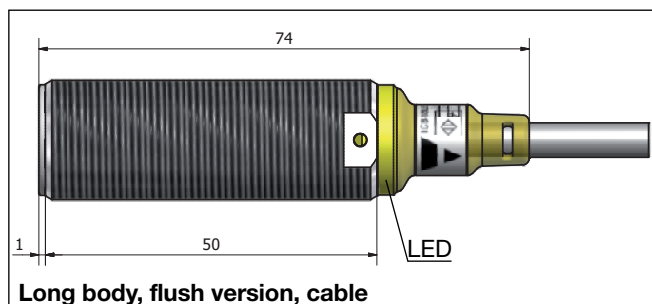
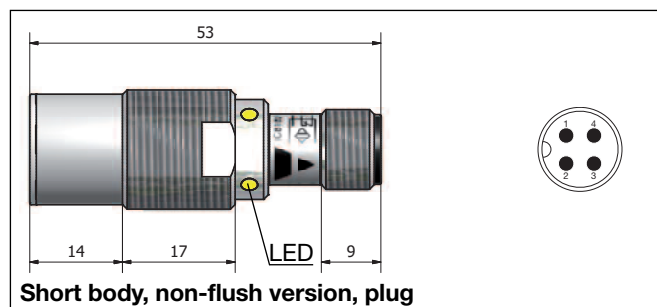
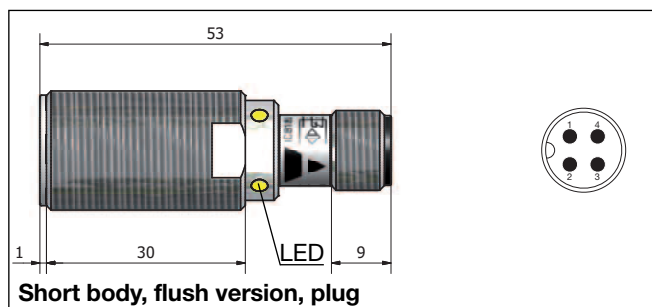
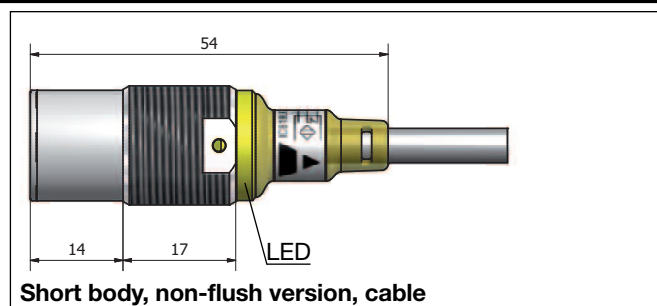
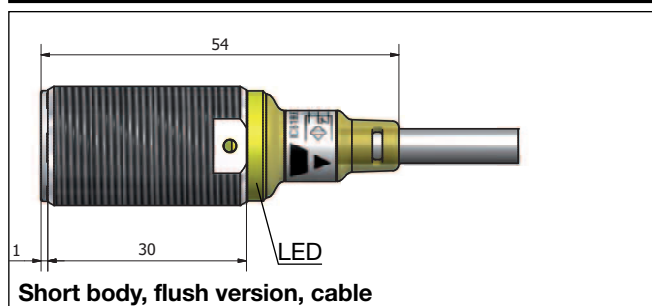
### EMC protection

IEC 61000-4-2 (ESD)

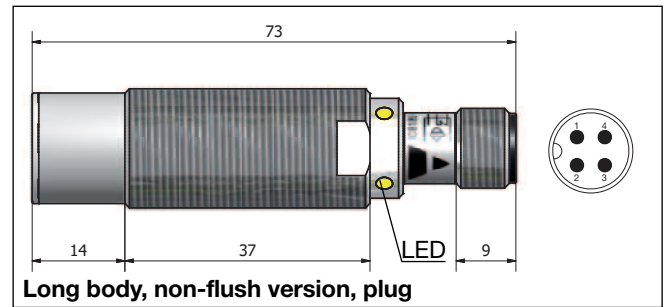
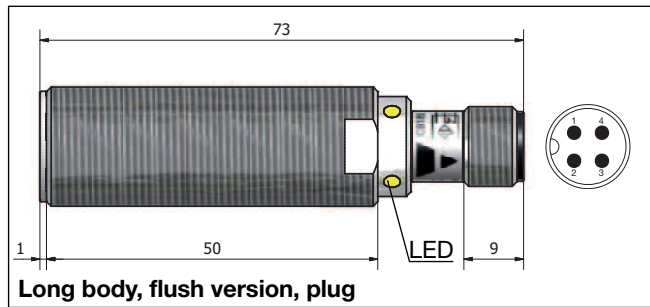
According to IEC 60947-5-2  
 8 KV air discharge,  
 4 KV contact discharge  
 3 V/m  
 2 kV  
 3 V  
 30 A/m

IEC 61000-4-3  
 IEC 61000-4-4  
 IEC 61000-4-6  
 IEC 61000-4-8

## Dimensions

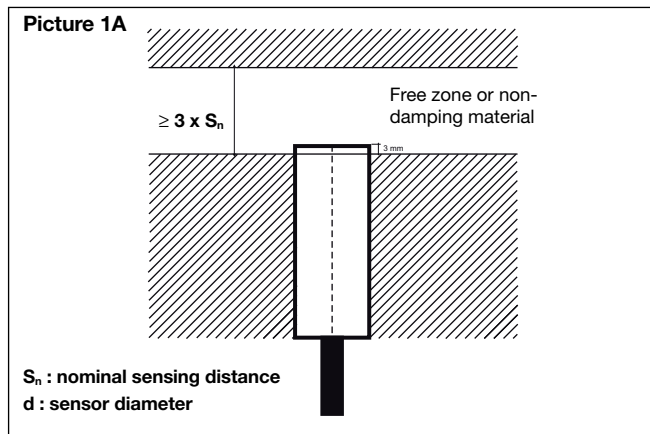


## Dimensions (cont.)

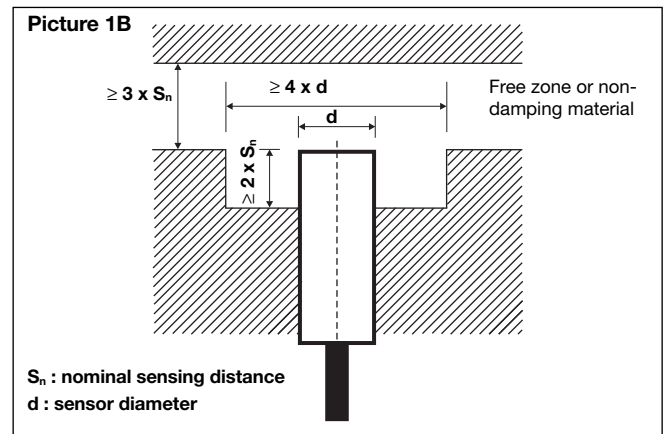


## Installation

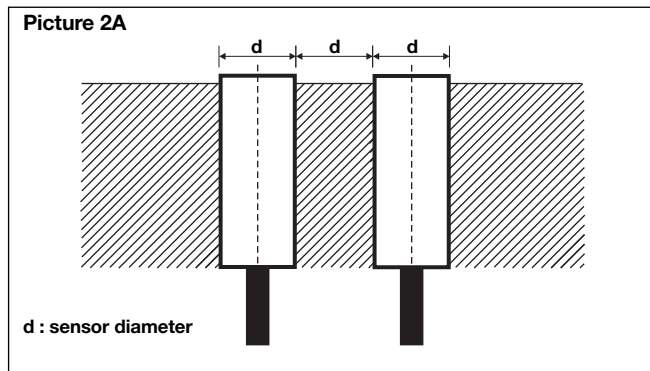
Flush sensor, when installed in damping material, must be according to Picture 1A.



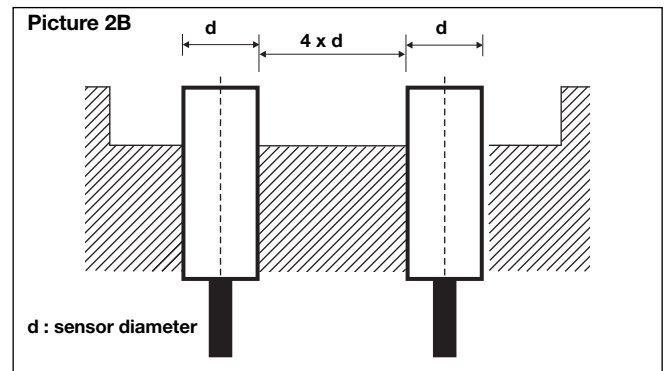
Non-flush sensor, when installed in damping material, must be according to Picture 1B.



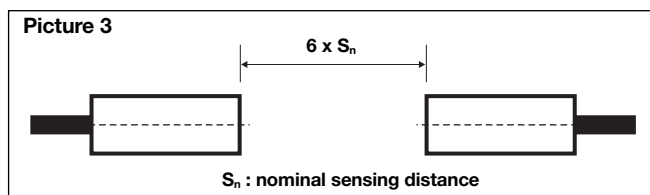
Flush sensors, when installed together in damping material, must be according to Picture 2A.



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

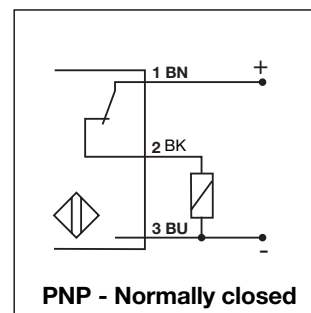
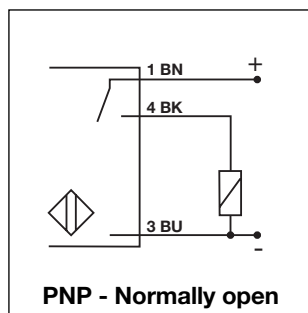
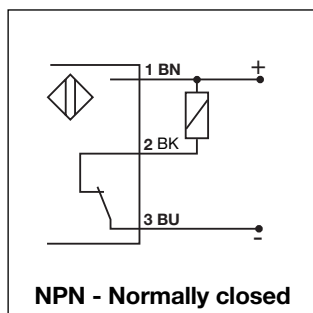
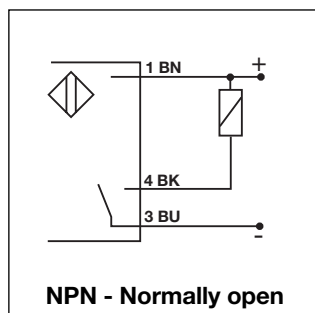


For sensors installed opposite each other, a minimum space of  $6 \times S_n$  (the nominal sensing distance) must be observed (See Picture 3).





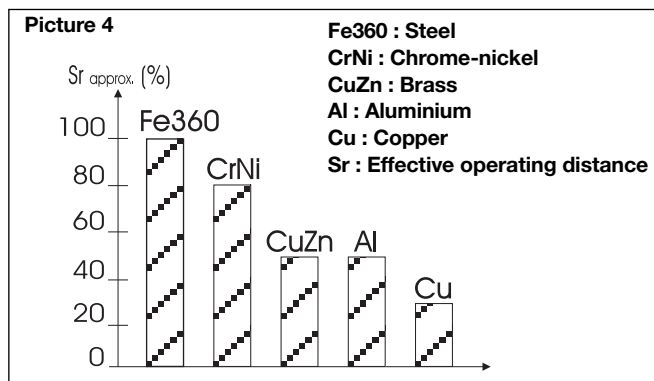
## Wiring Diagrams



## 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	<b>CONM13NF-A2</b>
3-wire angled connector, 5 m cable	<b>CONM13NF-A5</b>
3-wire angled connector, 10 m cable	<b>CONM13NF-A10</b>
3-wire straight connector, 2m cable	<b>CONM13NF-S2</b>
3-wire straight connector, 5m cable	<b>CONM13NF-S5</b>

**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