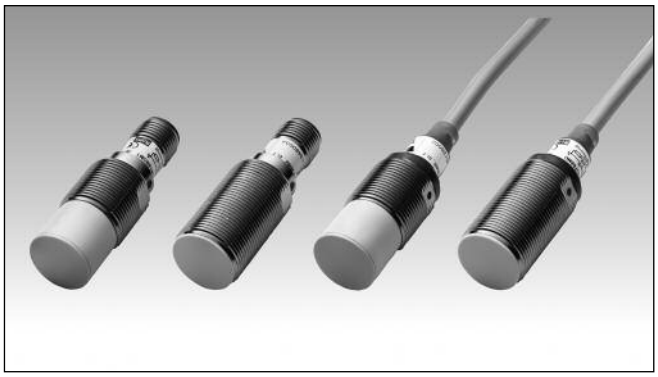
# Proximity Inductive Sensors Extended Range, Nickel-Plated Brass Housing Types ICB, M18



- Sensing distance: 8 to 14 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

**ICB18SF08NOM1**

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

## Type Selection

| Connection | 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 | 8 mm 1) | ICB 18 SF 08 NO | ICB 18 SF 08 PO | ICB 18 SF 08 NC | ICB 18 SF 08 PC |
| Cable | Short | 14 mm 2) | ICB 18 SN 14 NO | ICB 18 SN 14 PO | ICB 18 SN 14 NC | ICB 18 SN 14 PC |
| Plug | Short | 8 mm 1) | ICB 18 SF 08 NOM1 | ICB 18 SF 08 POM1 | ICB 18 SF 08 NCM1 | ICB 18 SF 08 PCM1 |
| Plug | Short | 14 mm 2) | ICB 18 SN 14 NOM1 | ICB 18 SN 14 POM1 | ICB 18 SN 14 NCM1 | ICB 18 SN 14 PCM1 |
| Cable | Long | 8 mm 1) | ICB 18 LF 08 NO | ICB 18 LF 08 PO | ICB 18 LF 08 NC | ICB 18 LF 08 PC |
| Cable | Long | 14 mm 2) | ICB 18 LN 14 NO | ICB 18 LN 14 PO | ICB 18 LN 14 NC | ICB 18 LN 14 PC |
| Plug | Long | 8 mm 1) | ICB 18 LF 08 NOM1 | ICB 18 LF 08 POM1 | ICB 18 LF 08 NCM1 | ICB 18 LF 08 PCM1 |
| Plug | Long | 14 mm 2) | ICB 18 LN 14 NOM1 | ICB 18 LN 14 POM1 | ICB 18 LN 14 NCM1 | ICB 18 LN 14 PCM1 |

1) For flush mounting in metal

2) For non-flush mounting in metal

## Specifications

| | |
|---|---|
| **Rated operational voltage** ($U_b$) | 10 to 36 VDC (ripple incl.) |
| **Ripple** | ≤ 10% |
| **Output current** ($I_e$) | ≤ 200 mA @ 50°C<br>(≤ 150 mA @ 50-70°C) |
| **OFF-state current** ($I_r$) | ≤ 50 µA |
| **No load supply current** ($I_O$) | ≤ 15 mA |
| **Voltage drop** ($U_d$) | Max. 2.5 VDC @ 200 mA |
| **Protection** | Reverse polarity,<br>short-circuit, transients |
| **Dielectric impulse voltage withstand** | 1 kV/0.5 J |
| **Power ON delay** ($t_v$) | 300 ms |
| **Operating frequency** (f) | ≤ 1500 Hz |
| **Indication for output ON**<br>NO version<br>NC version | Activated LED, yellow<br>Target present<br>Target not present |

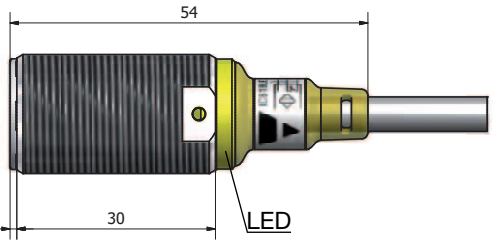
| | |
|---|---|
| **Indication for short circuit/ overload** | LED blinking |
| **Assured operating sensing distance** ($S_a$) | $0 \le S_a \le 0.81 \times S_n$ |
| **Effective operating distance** ($S_r$) | $0.9 \times S_n \le S_r \le 1.1 \times S_n$ |
| **Usable operating distance** ($S_u$) | $0.9 \times S_r \le S_u \le 1.1 \times S_r$ |
| **Repeat accuracy** (R) | ≤ 10% |
| **Differential travel** (H)<br>(Hysteresis) | 1 to 20% of sensing dist. |
| **Shock and vibration** | IEC 60947-5-2/7.4 |
| **Ambient temperature**<br>Operating<br>Storage | <br>-25° to +70°C (-13° to +158°F)<br>-30° to +80°C (-22° to +176°F) |
| **Housing material**<br>Body<br>Front | <br>Nickel-plated brass<br>Grey thermoplastic polyester |

## Specifications (cont.)

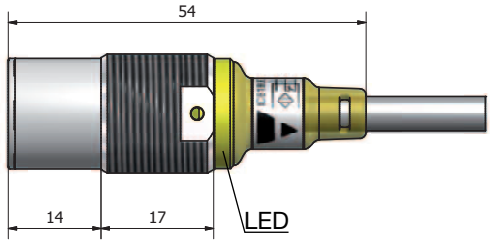
| | |
|---|---|
| **Connection** | |
| Cable | 2 m, 3 x 0.25 mm², grey PVC, oil proof |
| Plug | M12 x 1 |
| **Degree of protection** | IP 67 |
| **Weight** (cable/nuts included) | |
| Cable | Max. 150 g |
| Plug | Max. 70 g |
| **Dimensions** | See diagrams below |
| **Tightening torque** | |
| Non-flush version | 25 Nm |
| Flush version | |
| From 1 to 3 mm | 15 Nm |
| > 3 mm | 25 Nm |
| **Approvals** | |
| **UL (cRUus), CSA** | 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. |
| **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** | 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 |

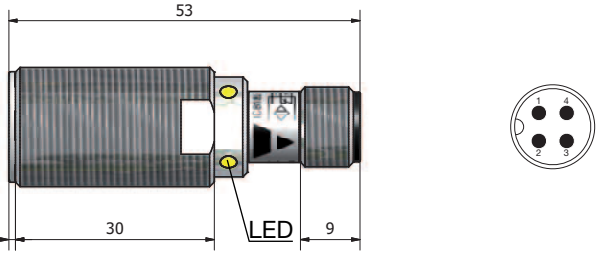
## Dimensions



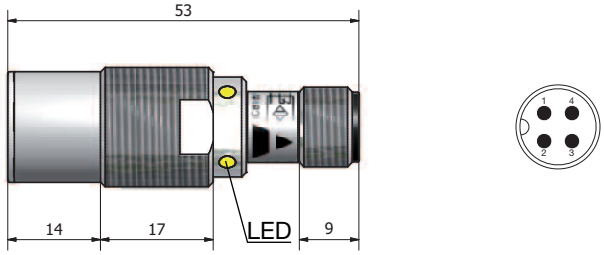

**Short body, flush version, cable**



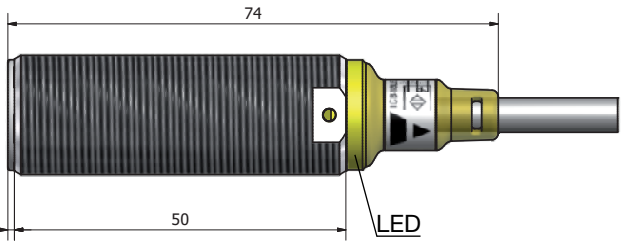

**Short body, non-flush version, cable**



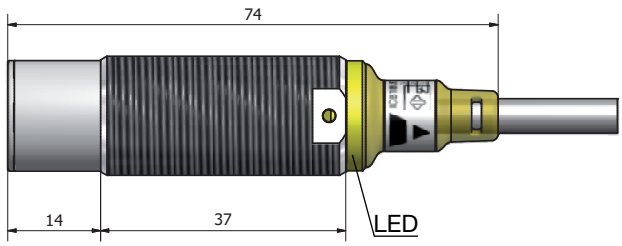

**Short body, flush version, plug**




**Short body, non-flush version, plug**

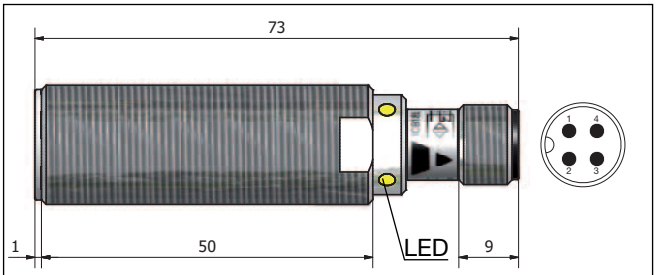



**Long body, flush version, cable**

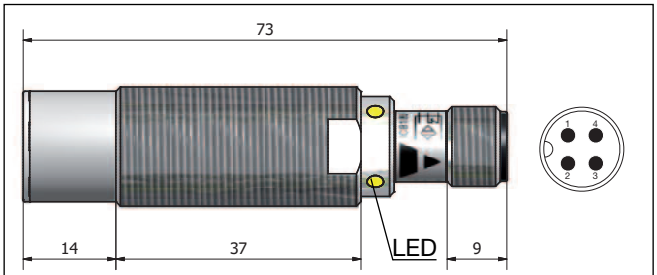



**Long body, non-flush version, cable**

## Dimensions (cont.)




**Long body, flush version, plug**

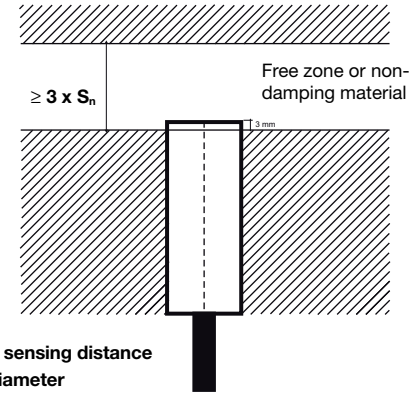



**Long body, non-flush version, plug**

## Installation

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

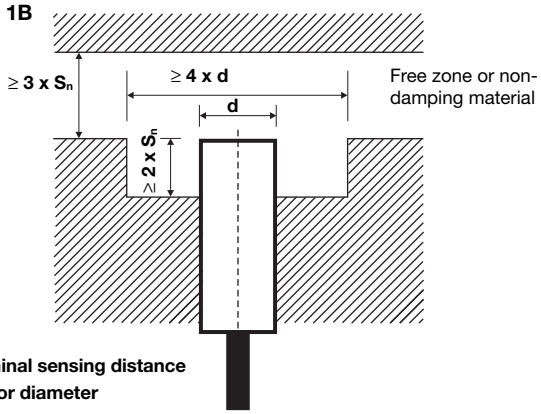
**Picture 1A**




**$S_n$ : nominal sensing distance**
**d : sensor diameter**

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

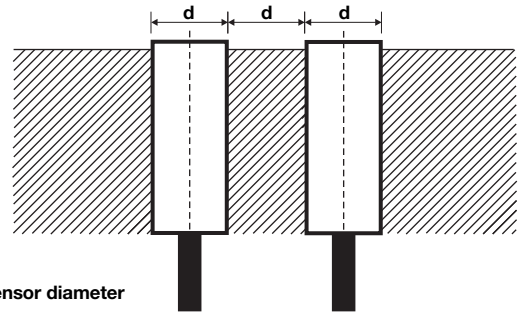
**Picture 1B**




**$S_n$ : nominal sensing distance**
**d : sensor diameter**

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

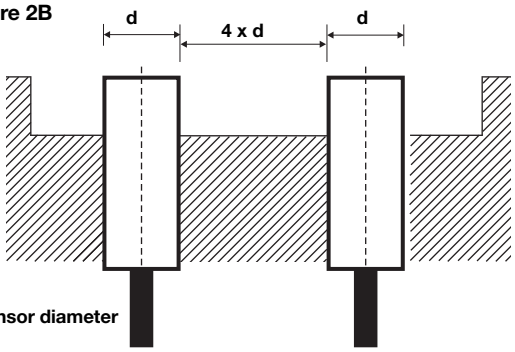
**Picture 2A**




**d : sensor diameter**

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

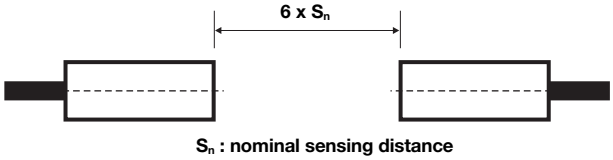
**Picture 2B**




**d : sensor diameter**

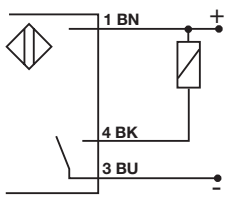
For sensors installed opposite each other, a minimum space of 6 x Sn (the nominal sensing distance) must be observed (See Picture 3).

**Picture 3**

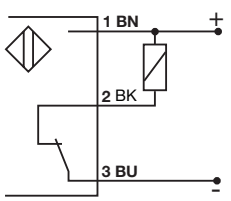



**$S_n$ : nominal sensing distance**

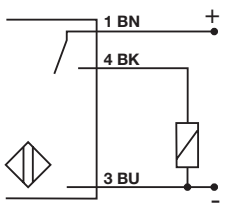
## Wiring Diagrams



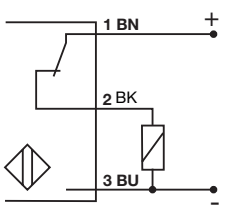

**NPN - Normally open**




**NPN - Normally closed**




**PNP - Normally open**



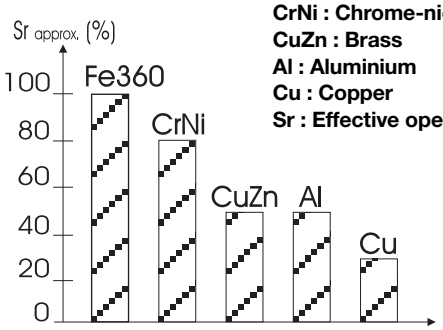

**PNP - Normally closed**

## 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.

**Picture 4**




**Fe360 : Steel**
**CrNi : Chrome-nickel**
**CuZn : Brass**
**Al : Aluminium**
**Cu : Copper**
**Sr : Effective operating distance**

## 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