

# 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-<br>tion | Body<br>style | Rated<br>operating<br>distance $S_n$ | Ordering no.<br>NPN,<br>Normally open | Ordering no.<br>PNP,<br>Normally open | Ordering no.<br>NPN,<br>Normally closed | Ordering no.<br>PNP,<br>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<br>Target present       |
| Ripple                              | ≤ 10%  | NO version                                      | Target present                                |
| Output current ( $I_a$ )            | ≤ 200 mA @ 50°C<br>(≤ 150 mA @ 50-70°C)        | NC version                                      | Target not present                            |
| OFF-state current ( $I_r$ )         | ≤ 50 μA  | Indication for short circuit/<br>overload       | LED blinking (f = 2 Hz)                       |
| No load supply current ( $I_s$ )    | ≤ 15 mA  | Assured operating<br>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<br>distance ( $S_r$ )       | $0.9 \times S_n \leq S_r \leq 1.1 \times S_n$ |
| Protection                          | Reverse polarity,<br>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                                    |

### Approvals

cULus

(UL508)

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  $\leq 36$  V

Note: The terminal connector (version ...M1) was not evaluated. The suitability of the terminal connector should be determined in the end-use application.

### 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

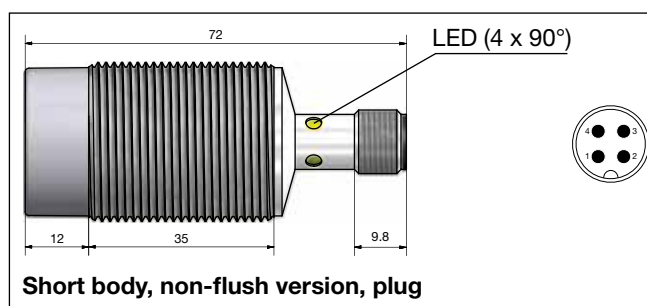
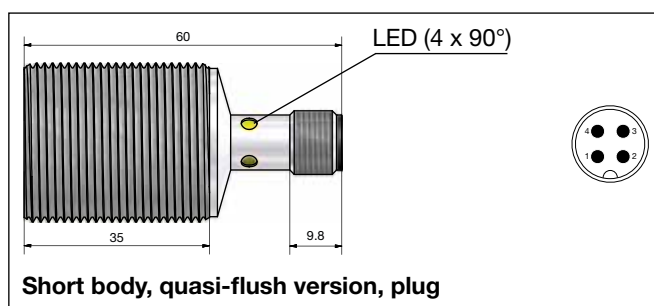
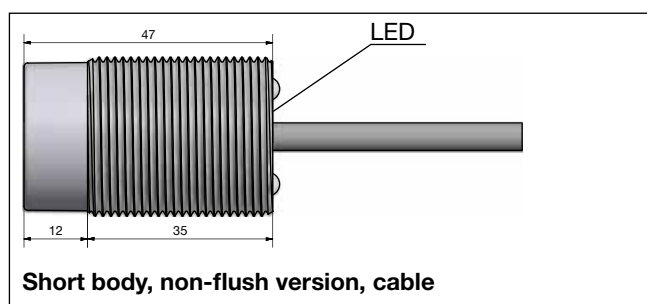
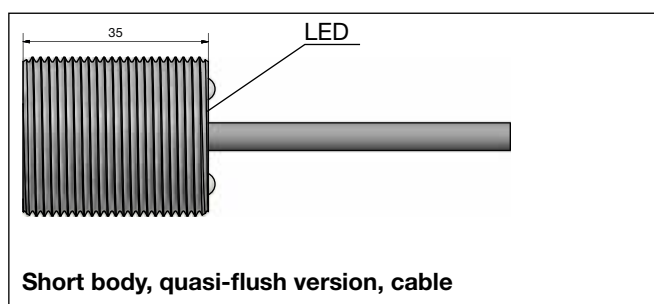
IEC 61000-4-6

IEC 61000-4-8

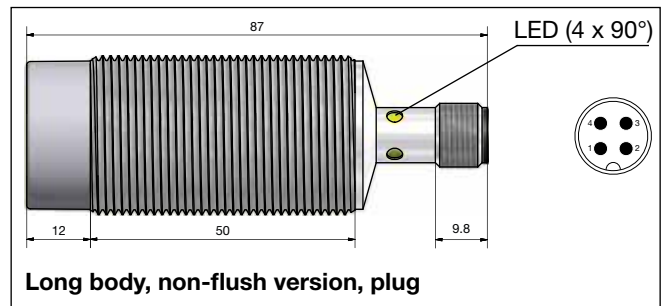
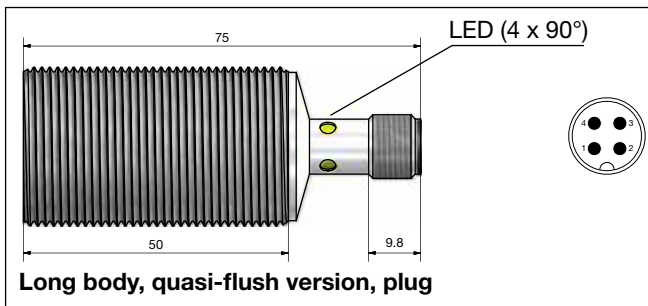
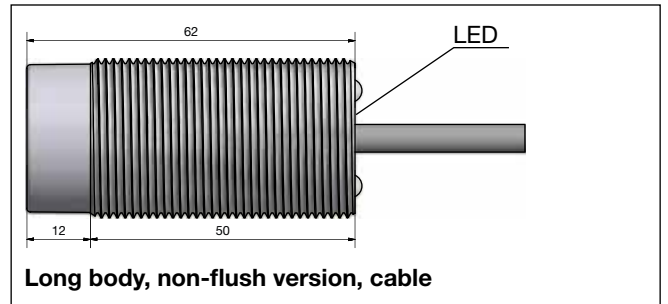
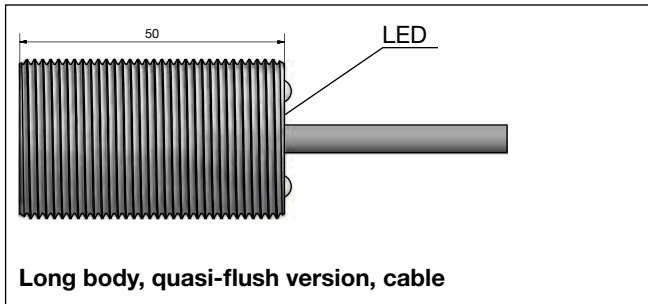
### MTTF<sub>d</sub>

700 years @ 50°C (122°F)

## Dimensions (mm)



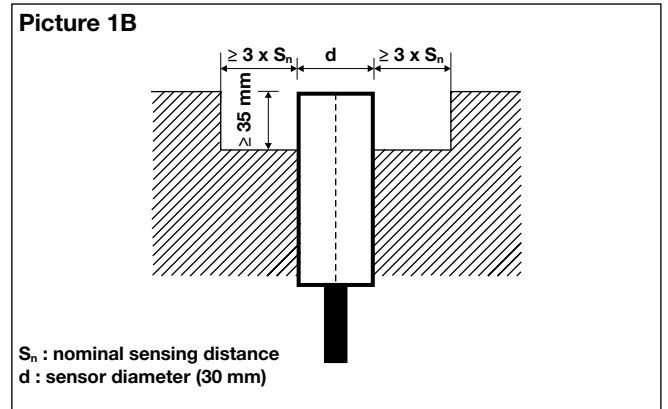
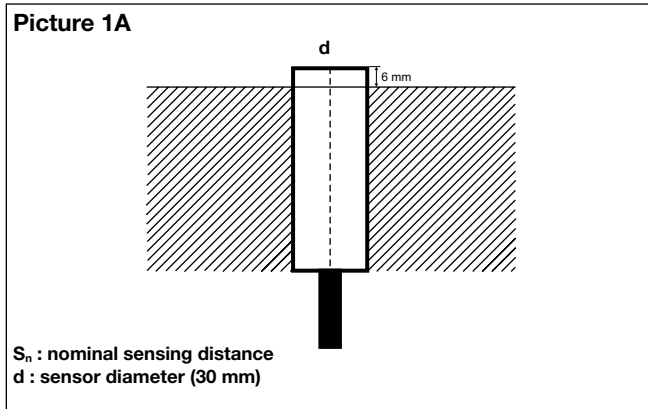
## Dimensions (mm) (cont.)



## 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.

