

# Proximity Inductive Sensors - Ecolab certified Standard and Extended Range, Stainless Steel Housing Types ICS, IP69K, M30

CARLO GAVAZZI



- Sensing distance: 10 to 22 mm
- 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 and transients
- M12 plug version
- According to IEC 60947-5-2
- High-pressure washdown resistant
- Ecolab certified, FDA-certified plastic
- Laser engraved on the housing, permanently legible
- Extended temperature range:  $-40^{\circ}\text{C} \dots +85^{\circ}\text{C}$
- CSA certified for Hazardous Locations



## Product Description

A family of inductive proximity switches in stainless steel (AISI 316L) ideal for food and beverage applications where sensors are exposed to high pressure and high temperature cleaning processes.

They are fully sealed and resistant to all common acid and alkaline cleaning agents and disinfectants (Ecolab certified). IP68 and IP69K-rated products. Output is open collector NPN or PNP transistors.

## Ordering Key

**ICS30LF10NOM1-FB**

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

## 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
<b>Standard range</b>						
Plug	Short	10 mm <sup>1)</sup>	ICS30SF10NOM1-FB	ICS30SF10POM1-FB	ICS30SF10NCM1-FB	ICS30SF10PCM1-FB
Plug	Short	15 mm <sup>2)</sup>	ICS30SN15NOM1-FB	ICS30SN15POM1-FB	ICS30SN15NCM1-FB	ICS30SN15PCM1-FB
Plug	Long	10 mm <sup>1)</sup>	ICS30LF10NOM1-FB	ICS30LF10POM1-FB	ICS30LF10NCM1-FB	ICS30LF10PCM1-FB
Plug	Long	15 mm <sup>2)</sup>	ICS30LN15NOM1-FB	ICS30LN15POM1-FB	ICS30LN15NCM1-FB	ICS30LN15PCM1-FB
<b>Extended range</b>						
Plug	Short	15 mm <sup>1)</sup>	ICS30SF15NOM1-FB	ICS30SF15POM1-FB	ICS30SF15NCM1-FB	ICS30SF15PCM1-FB
Plug	Short	22 mm <sup>2)</sup>	ICS30SN22NOM1-FB	ICS30SN22POM1-FB	ICS30SN22NCM1-FB	ICS30SN22PCM1-FB
Plug	Long	15 mm <sup>1)</sup>	ICS30LF15NOM1-FB	ICS30LF15POM1-FB	ICS30LF15NCM1-FB	ICS30LF15PCM1-FB
Plug	Long	22 mm <sup>2)</sup>	ICS30LN22NOM1-FB	ICS30LN22POM1-FB	ICS30LN22NCM1-FB	ICS30LN22PCM1-FB

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

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

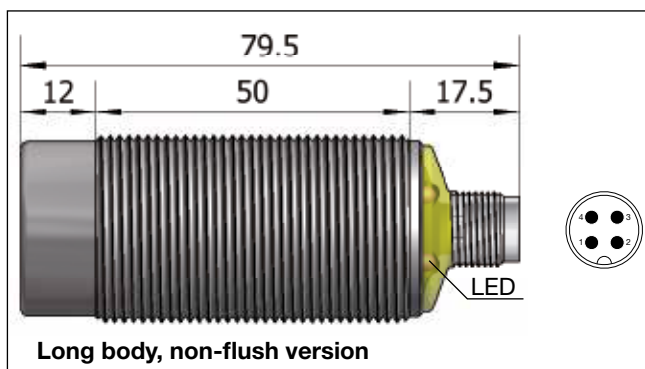
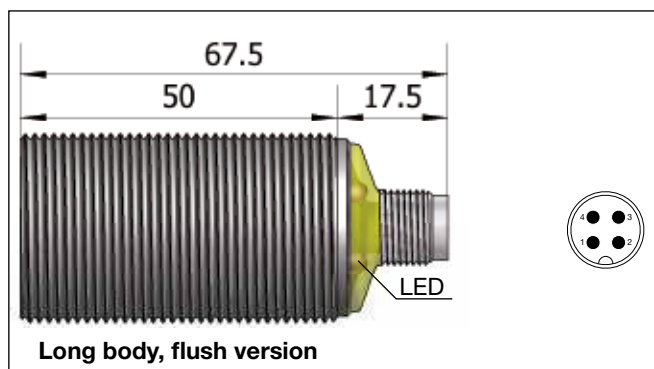
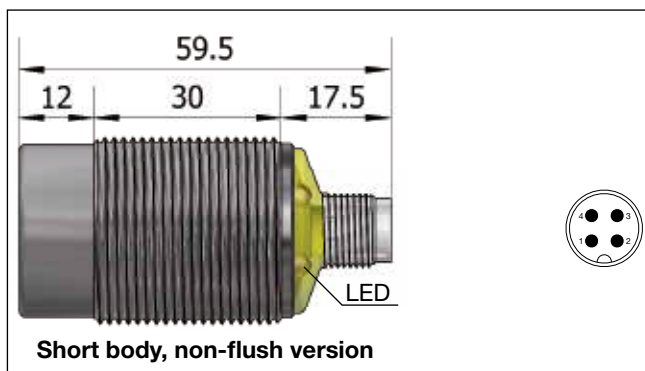
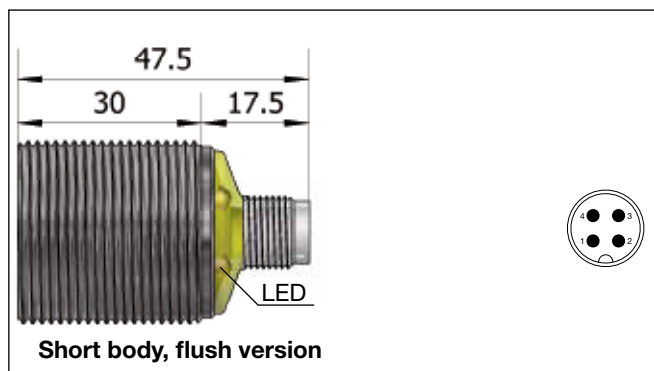
## Specifications

Rated operational voltage ( $U_b$ )	10 to 36 VDC (ripple incl.)	Voltage transient	1 kV/0.5 J
Ripple	$\leq 10\%$	Power ON delay ( $t_r$ )	$\leq 20$ ms
Output current ( $I_a$ )	$\leq 200$ mA @ $50^{\circ}\text{C}$ ( $\leq 150$ mA @ $50-80^{\circ}\text{C}$ ) ( $\leq 100$ mA @ $80-85^{\circ}\text{C}$ )	Operating frequency (f)	$\leq 1000$ Hz
OFF-state current ( $I_r$ )	$\leq 10$ $\mu\text{A}$	Indication for output ON	Activated LED, yellow NO version Target present NC version Target not present
No load supply current ( $I_o$ )	$\leq 15$ mA	Indication for short circuit/ overload	LED blinking (f = 2 Hz)
Voltage drop ( $U_d$ )	Max. 2 VDC @ 200 mA	Assured operating sensing distance ( $S_a$ )	$0 \leq S_a \leq 0.81 \times S_n$
Protection	Reverse polarity, short-circuit, transients		

## Specifications (cont.)

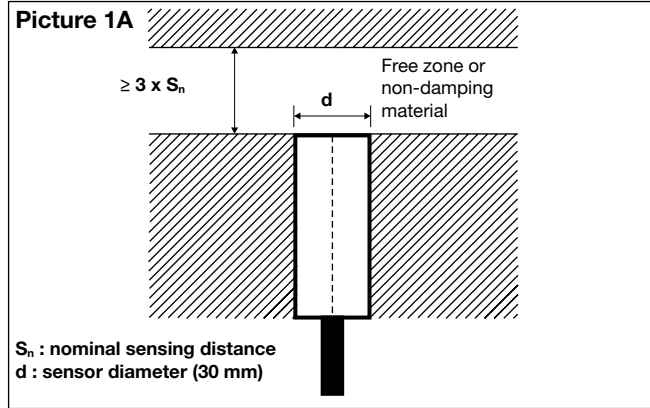
<b>Effective operating distance (<math>S_r</math>)</b>	$0.9 \times S_n \leq S_r \leq 1.1 \times S_n$	<b>Dimensions</b>	See diagrams below
<b>Usable operating distance (<math>S_u</math>)</b>	$0.85 \times S_r \leq S_u \leq 1.15 \times S_r$	<b>Tightening torque</b>	75 Nm
<b>Repeat accuracy (R)</b>	$\leq 5\%$	<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 $T_a$ : $-25^\circ$ to $+60^\circ\text{C}$ CCC is not required for products with a maximum operating voltage of $\leq 36\text{ V}$
<b>Differential travel (H) (Hysteresis)</b>	1 to 20% of sensing dist.	<b>Note:</b> 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
<b>Ambient temperature</b> Operating	$-40^\circ$ to $+85^\circ\text{C}$ ( $-40^\circ$ to $+185^\circ\text{F}$ ) short exposure (15') to $100^\circ\text{C}$ during cleaning process		
Storage	$-40^\circ$ to $+85^\circ\text{C}$ ( $-40^\circ$ to $+185^\circ\text{F}$ )	<b>MTTF<sub>a</sub></b>	750 years @ $50^\circ\text{C}$ ( $122^\circ\text{F}$ )
<b>Shock and vibration</b>	IEC 60947-5-2/7.4		
<b>Housing material</b> Body Plug Front Back part	Stainless steel (AISI 316L) Plastic Grey PPS - FDA-certified Grilamid		
<b>Connection</b> Plug	M12 x 1		
<b>Degree of protection</b>	IIP67, IP68 (1 m, 7 days), IP69K		
<b>Weight</b> (cable/nuts included)	Max. 130 g		

## Dimensions (mm)

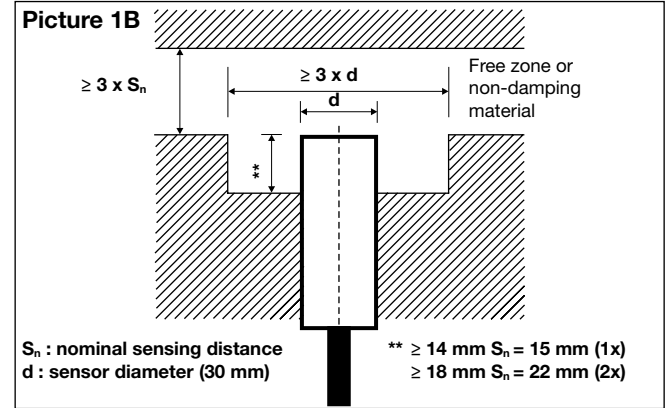


## Installation

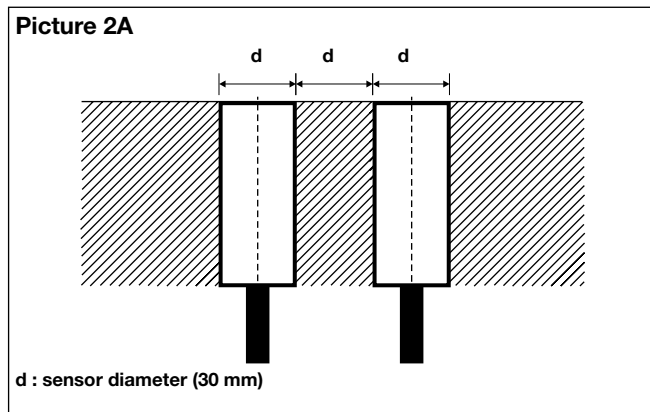
Flush mountable proximity switches, when installed in damping material, must be according to Picture 1A.



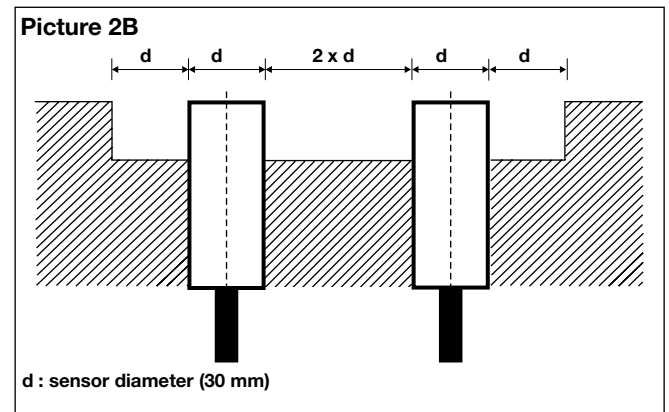
Non-flush mountable proximity switches, when installed in damping material, must be according to Picture 1B.



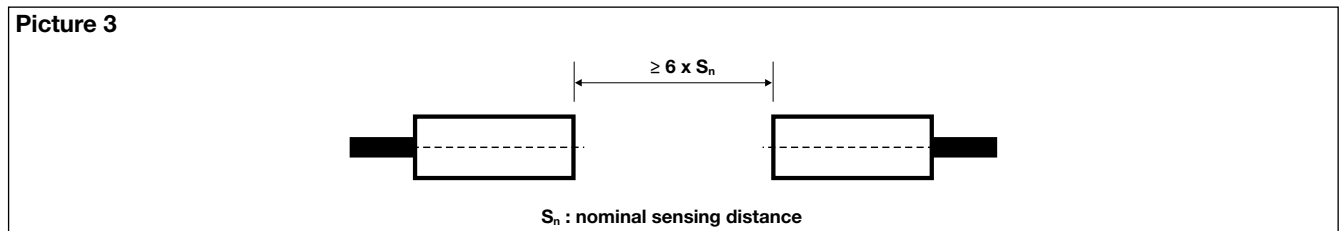
Flush mountable proximity switches, when installed together in damping material, must be according to Picture 2A.



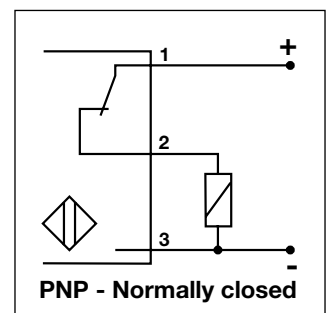
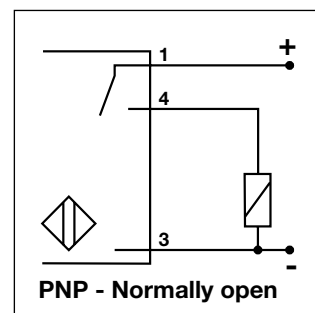
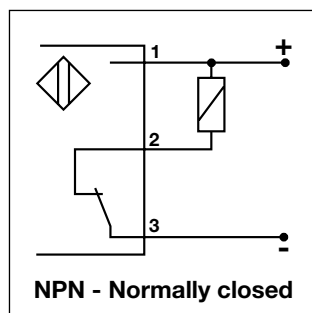
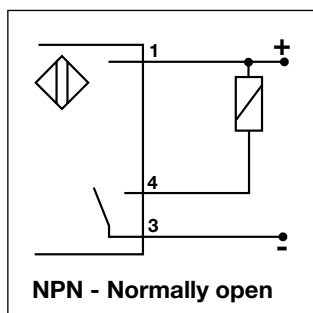
Non-flush mountable proximity switches, when installed together in damping material, must be according to Picture 2B.



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 Diagram

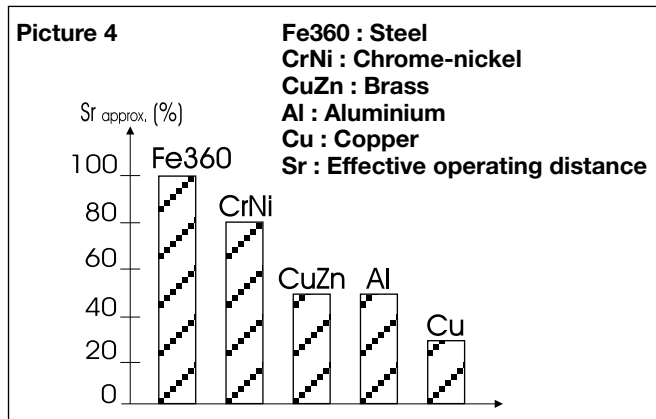




## Reduction Factors

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.



## IP69K Connector Cables

4-wire angled connector, 2 m cable	<b>CONB14NF-A2W</b>
4-wire angled connector, 5 m cable	<b>CONB14NF-A5W</b>
4-wire straight connector, 2 m cable	<b>CONB14NF-S2W</b>
4-wire straight connector, 5 m cable	<b>CONB14NF-S5W</b>

For any additional information or different options, please refer to the "General Accessories" datasheets.

## Delivery Contents

- Inductive proximity switch ICS.
- 2 nuts stainless steel
- Packaging: plastic bag