

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



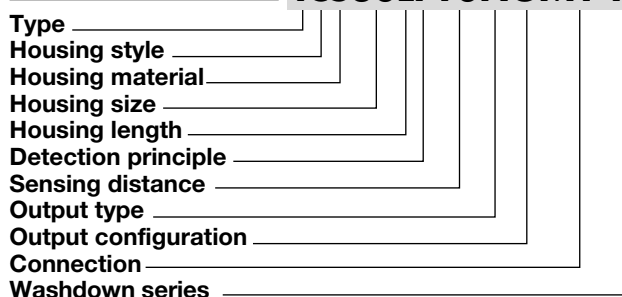
Product Description

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

¹⁾ For flush mounting in metal

²⁾ For non-flush mounting in metal

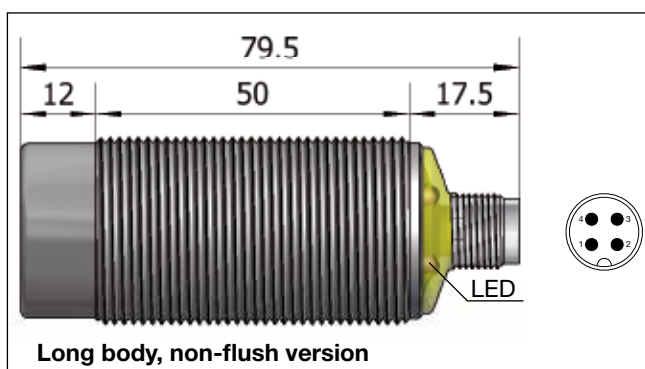
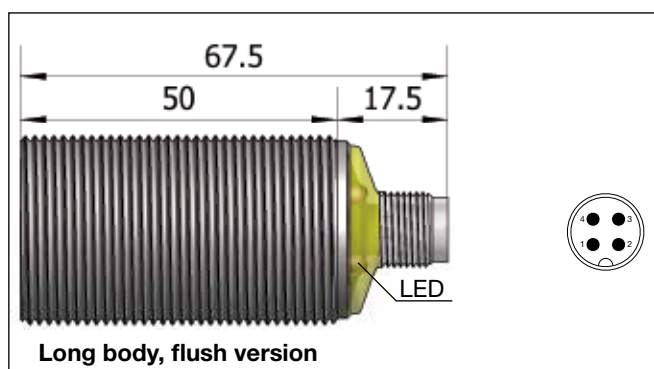
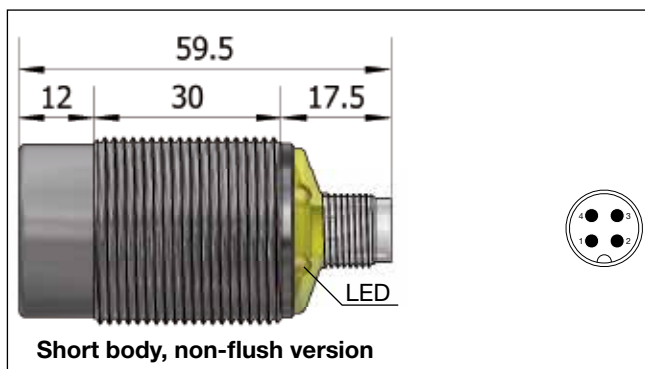
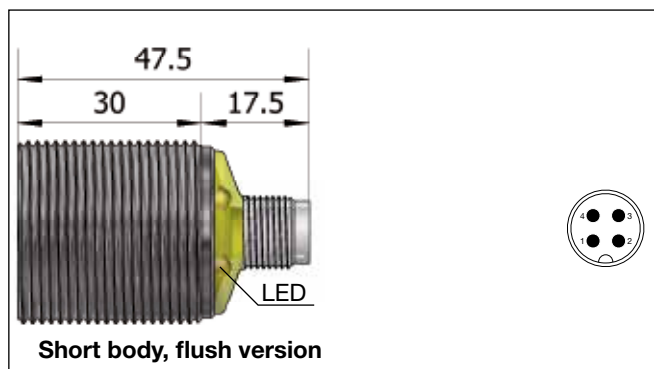
Specifications

Rated operational voltage (U_b)	10 to 36 VDC (ripple incl.)	Voltage transient	1 kV/0.5 J
Ripple	$\leq 10\%$	Power ON delay (t_v)	≤ 20 ms
Output current (I_a)	≤ 200 mA @ 50°C (≤ 150 mA @ $50-80^{\circ}\text{C}$) (≤ 100 mA @ $80-85^{\circ}\text{C}$)	Operating frequency (f)	≤ 1000 Hz
OFF-state current (I_r)	≤ 10 μA	Indication for output ON	Activated LED, yellow NO version Target present NC version Target not present
No load supply current (I_o)	≤ 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.)

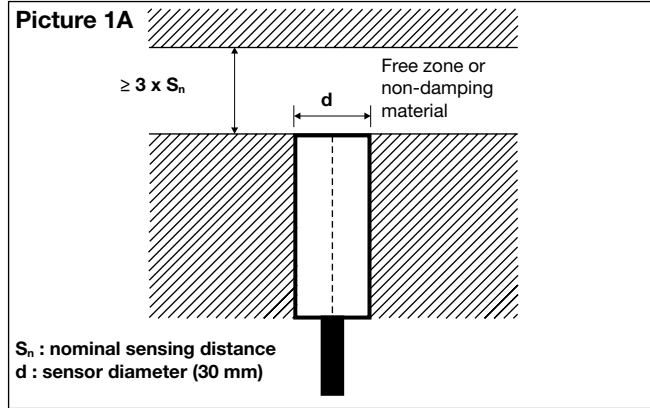
Effective operating distance (S_r)	$0.9 \times S_n \leq S_r \leq 1.1 \times S_n$	Dimensions	See diagrams below
Usable operating distance (S_u)	$0.85 \times S_r \leq S_u \leq 1.15 \times S_r$	Tightening torque	75 Nm
Repeat accuracy (R)	$\leq 5\%$	Approvals	cULus (UL508) cCSAus As Process Control Equipment for Hazardous Locations. - Class I, Division 2, Groups A, B, C and D. - T5, Enclosure Type 4. Ambient temperature T_a : -25° to $+60^\circ\text{C}$ CCC is not required for products with a maximum operating voltage of $\leq 36\text{ V}$
Differential travel (H) (Hysteresis)	1 to 20% of sensing dist.	Note: The terminal connector (version ...M1) was not evaluated. The suitability of the terminal connector should be determined in the end-use application.	
Ambient temperature			
Operating	-40° to $+85^\circ\text{C}$ (-40° to $+185^\circ\text{F}$) short exposure (15') to 100°C during cleaning process		
Storage	-40° to $+85^\circ\text{C}$ (-40° to $+185^\circ\text{F}$)		
Shock and vibration	IEC 60947-5-2/7.4		
Housing material		EMC protection	According to IEC 60947-5-2
Body	Stainless steel (AISI 316L)	IEC 61000-4-2 (ESD)	8 kV air discharge, 4 kV contact discharge
Plug	Plastic	IEC 61000-4-3	3 V/m
Front	Grey PPS - FDA-certified	IEC 61000-4-4	2 kV
Back part	Grilamid	IEC 61000-4-6	3 V
Connection		IEC 61000-4-8	30 A/m
Plug	M12 x 1	MTTF_a	750 years @ 50°C (122°F)
Degree of protection	IIP67, IP68 (1 m, 7 days), IP69K		
Weight (cable/nuts included)	Max. 130 g		

Dimensions (mm)

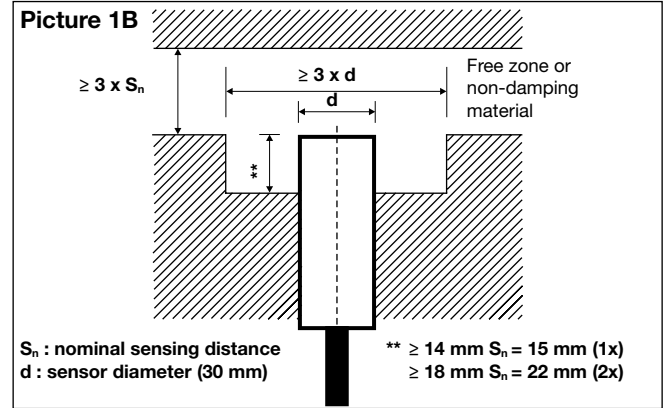


Installation

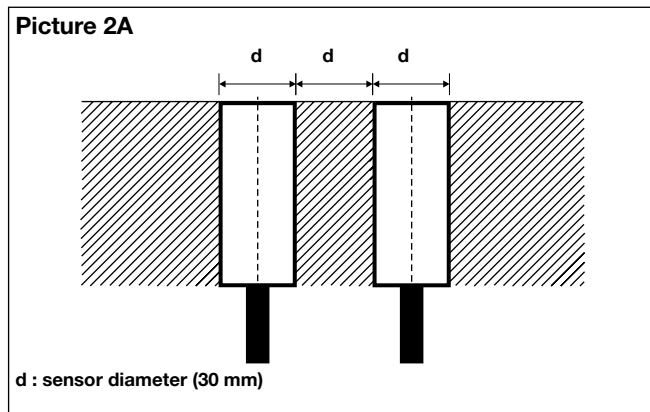
Flush mountable proximity switches, when installed in damping material, must be according to Picture 1A.



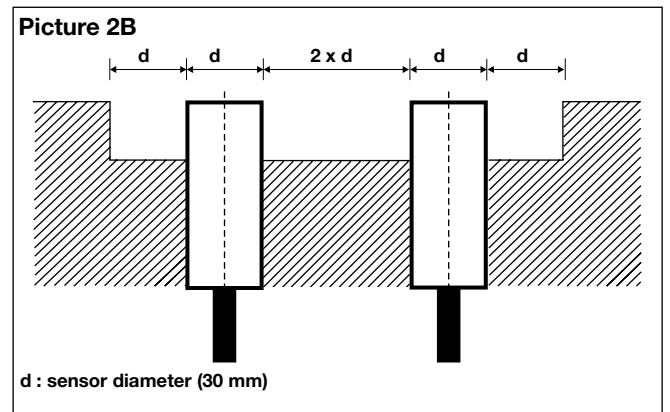
Non-flush mountable proximity switches, when installed in damping material, must be according to Picture 1B.



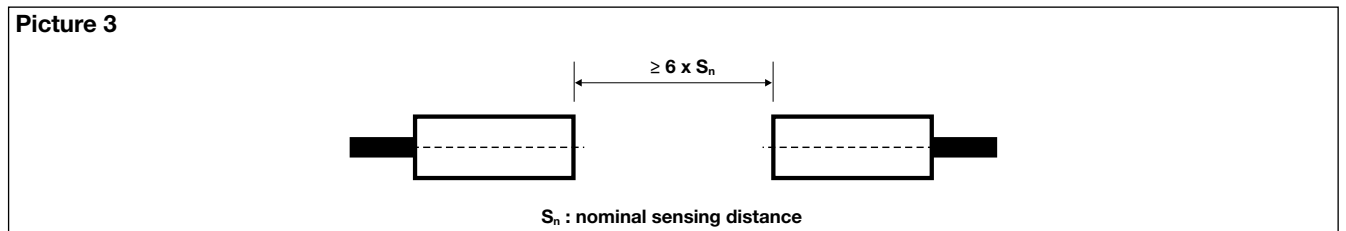
Flush mountable proximity switches, when installed together in damping material, must be according to Picture 2A.



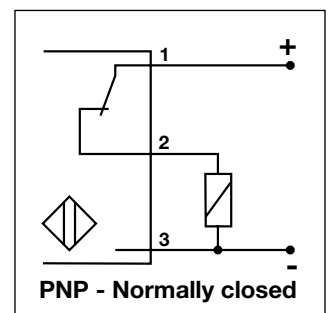
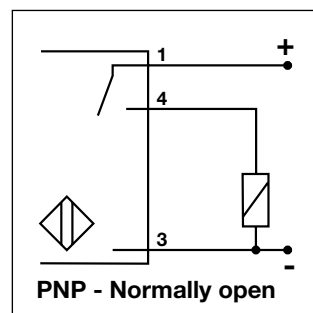
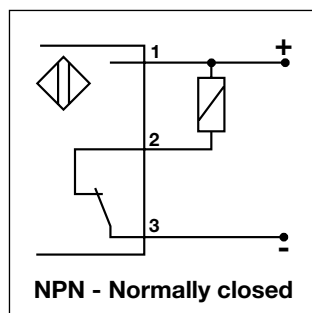
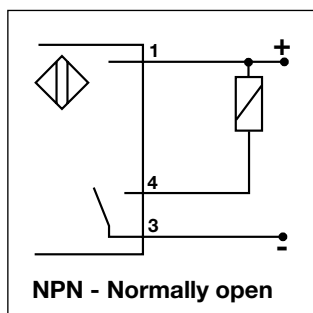
Non-flush mountable proximity switches, when installed together in damping material, must be according to Picture 2B.



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

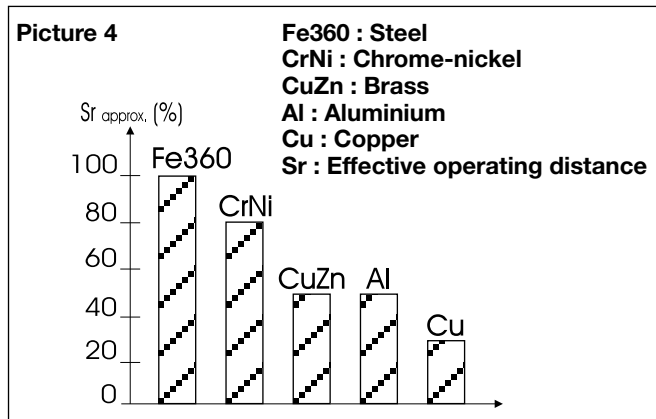




Reduction Factors

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

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

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