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





- · Sensing distance: 10 to 22 mm
- · Flush or non-flush mountable
- Short or long body versions
- Rated operational voltage (U<sub>b</sub>): 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°C...+85°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.

#### Type Housing style

ICS30LF10NOM1-FB

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 <sub>n</sub>	Ordering no. NPN, Normally open	Ordering no. PNP, Normally open	Ordering no. NPN, Normally closed	Ordering no. PNP, Normally closed
Standard	l range					
Plug	Short	10 mm 1)	ICS30SF10N0M1-FB	ICS30SF10P0M1-FB	ICS30SF10NCM1-FB	ICS30SF10PCM1-FB
Plug	Short	15 mm <sup>2)</sup>	ICS30SN15N0M1-FB	ICS30SN15P0M1-FB	ICS30SN15NCM1-FB	ICS30SN15PCM1-FB
Plug	Long	10 mm 1)	ICS30LF10N0M1-FB	ICS30LF10P0M1-FB	ICS30LF10NCM1-FB	ICS30LF10PCM1-FB
Plug	Long	15 mm <sup>2)</sup>	ICS30LN15NOM1-FB	ICS30LN15P0M1-FB	ICS30LN15NCM1-FB	ICS30LN15PCM1-FB
Extended range						
Plug	Short	15 mm 1)	ICS30SF15N0M1-FB	ICS30SF15P0M1-FB	ICS30SF15NCM1-FB	ICS30SF15PCM1-FB
Plug	Short	22 mm <sup>2)</sup>	ICS30SN22N0M1-FB	ICS30SN22P0M1-FB	ICS30SN22NCM1-FB	ICS30SN22PCM1-FB
Plug	Long	15 mm 1)	ICS30LF15N0M1-FB	ICS30LF15P0M1-FB	ICS30LF15NCM1-FB	ICS30LF15PCM1-FB
Plug	Long	22 mm <sup>2)</sup>	ICS30LN22N0M1-FB	ICS30LN22P0M1-FB	ICS30LN22NCM1-FB	ICS30LN22PCM1-FB

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

## **Specifications**

Rated operational voltage (U <sub>b</sub> )	10 to 36 VDC (ripple incl.)
Ripple	≤ 10%
Output current (I <sub>e</sub> )	≤ 200 mA @ 50°C (≤ 150 mA @ 50-80°C) (≤ 100 mA @ 80-85°C)
OFF-state current (I <sub>r</sub> )	≤ 10 µA
No load supply current (I <sub>o</sub> )	≤ 15 mA
Voltage drop (U <sub>d</sub> )	Max. 2 VDC @ 200 mA
Protection	Reverse polarity, short-circuit, transients

Voltage transient	1 kV/0.5 J	
Power ON delay (t <sub>v</sub> )	≤ 20 ms	
Operating frequency (f)	≤ 1000 Hz	
Indication for output ON NO version NC version	Activated LED, yellow Target present Target not present	
Indication for short circuit/ overload	LED blinking (f = 2 Hz)	
Assured operating sensing distance (S <sub>a</sub> )	$0 \leq S_a \leq 0.81 \times S_n$	

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

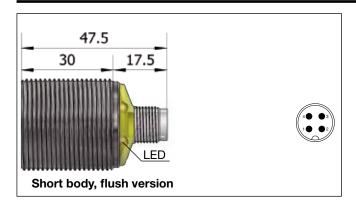


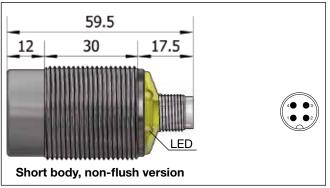
# **Specifications (cont.)**

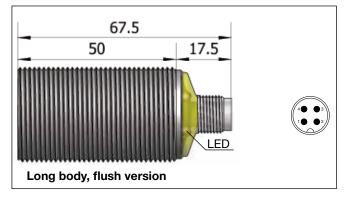
Effective operating	
distance (S <sub>r</sub> )	$0.9 \times S_n \le S_r \le 1.1 \times S_n$
Usable operating distance (S <sub>u</sub> )	$0.85 \; x \; S_r \leq S_u \leq 1.15 \; x \; S_r$
Repeat accuracy (R)	≤ 5%
Differential travel (H)	
(Hysteresis)	1 to 20% of sensing dist.
Ambient temperature	
Operating	-40° to +85°C (-40° to +185°F)
	short exposure (15') to
	100°C during cleaning
	process
Storage	-40° to +85°C (-40° to +185°F)
Shock and vibration	IEC 60947-5-2/7.4
Housing material	
Body	Stainless steel (AISI 316L)
Plug	Plastic
Front	Grey PPS - FDA-certified
Back part	Grilamid
Connection	
Plug	M12 x 1
Degree of protection	IIP67, IP68 (1 m, 7 days), IP69K
Weight (cable/nuts included)	Max. 130 g

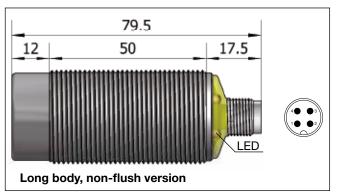
Dimensions		See diagrams below	
Tightening torque	)	75 Nm	
Approvals	c <b>UL</b> us	(UL508)	
Note: The terminal (versionM1) was evaluated. The suit the terminal conne be determined in the application.	s not tability of ector should	As Process Control Equipment for Hazardous Locations Class I, Division 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	
EMC protection IEC 61000-4-2 (E	SD)	According to IEC 60947-5-2 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	
MTTF <sub>d</sub>		750 years @ 50°C (122°F)	

## **Dimensions (mm)**





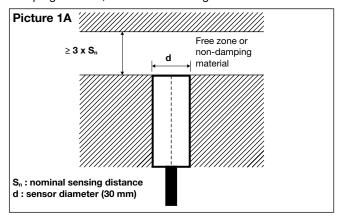






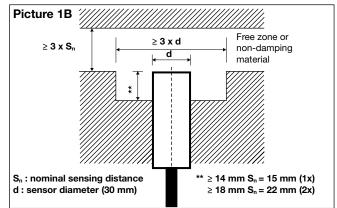
#### Installation

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

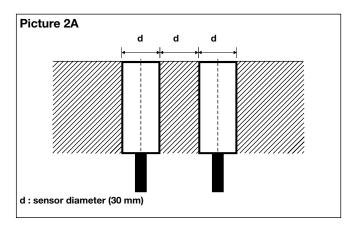


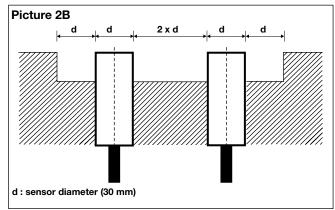
Flush mountable proximity switches, when installed together in damping material, must be according to Picture 2A.

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

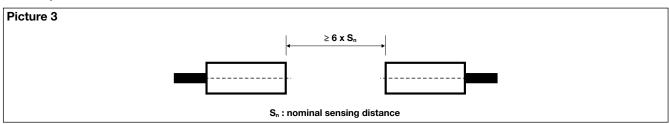


Non-flush mountable proximity switches, when installed together in damping material, must be according to Picture 2B.

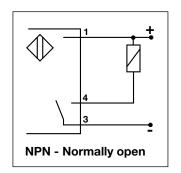


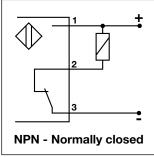


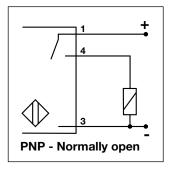
For sensors installed opposite each other, a minimum space of  $6 \times S_n$  (the nominal sensing distance) must be observed (See Picture 3).

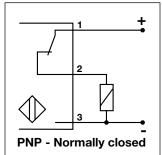


## **Wiring Diagram**







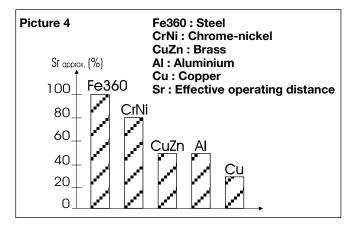




### **Reduction Factors**

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