

# Proximity Inductive Sensors - Ecolab certified Standard and Extended Range, Stainless Steel Housing Types ICS, IP69K, M18



- Sensing distance: 5 to 12 mm
- Flush or non-flush mountable
- Long body version
- Rated operational voltage ( $U_b$ ): 10 - 36 VDC
- Output: DC 200 mA, NPN or PNP
- Normally open or normally closed
- 4 x 90° LED indication for output ON, short-circuit and overload
- Protection: reverse polarity, short circuit, 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...+80°C
- CSA certified for Hazardous Locations

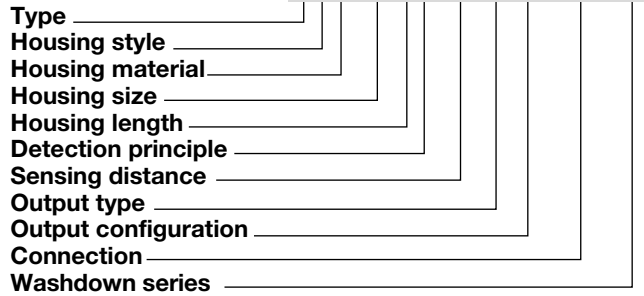


## Product Description

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 **ICS18LF05NOM1-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
<b>Standard range</b>						
Plug	Long	5 mm <sup>1)</sup>	<b>ICS18LF05NOM1-FB</b>	<b>ICS18LF05POM1-FB</b>	<b>ICS18LF05NCM1-FB</b>	<b>ICS18LF05PCM1-FB</b>
Plug	Long	8 mm <sup>2)</sup>	<b>ICS18LN08NOM1-FB</b>	<b>ICS18LN08POM1-FB</b>	<b>ICS18LN08NCM1-FB</b>	<b>ICS18LN08PCM1-FB</b>
<b>Extended range</b>						
Plug	Long	8 mm <sup>1)</sup>	<b>ICS18LF08NOM1-FB</b>	<b>ICS18LF08POM1-FB</b>	<b>ICS18LF08NCM1-FB</b>	<b>ICS18LF08PCM1-FB</b>
Plug	Long	12 mm <sup>2)</sup>	<b>ICS18LN12NOM1-FB</b>	<b>ICS18LN12POM1-FB</b>	<b>ICS18LN12NCM1-FB</b>	<b>ICS18LN12PCM1-FB</b>

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

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

## Specifications

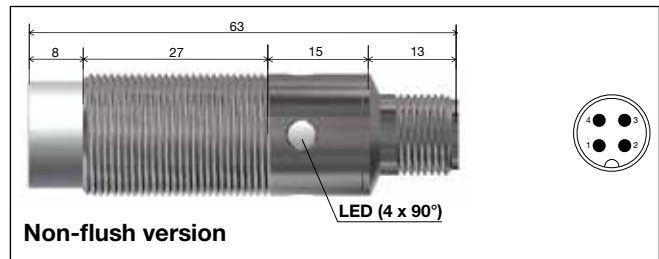
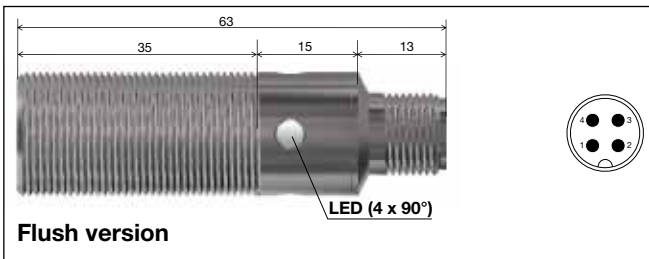
<b>Rated operational voltage (<math>U_b</math>)</b>	10 to 36 VDC (ripple incl.)	<b>Indication for output ON</b>	NO version NC version	Activated LED, yellow (4x90°) Target present Target not present
<b>Ripple</b>	≤ 10%	<b>Indication for short circuit/ overload</b>		LED blinking (f = 2 Hz)
<b>Output current (<math>I_a</math>)</b>	≤ 200 mA @ 50°C (≤ 150 mA @ 50-80°C)	<b>Assured operating sensing distance (<math>S_a</math>)</b>		$0 \leq S_a \leq 0.81 \times S_n$
<b>OFF-state current (<math>I_r</math>)</b>	≤ 10 μA	<b>Effective operating distance (<math>S_r</math>)</b>		$0.9 \times S_n \leq S_r \leq 1.1 \times S_n$
<b>No load supply current (<math>I_o</math>)</b>	≤ 15 mA	<b>Usable operating distance (<math>S_u</math>)</b>		$0.9 \times S_r \leq S_u \leq 1.1 \times S_r$
<b>Voltage drop (<math>U_d</math>)</b>	Max. 2 VDC @ 200 mA	<b>Repeat accuracy (R)</b>		≤ 5%
<b>Protection</b>	Reverse polarity, short-circuit, transients	<b>Differential travel (H)</b>	(Hysteresis)	1 to 20% of sensing dist.
<b>Voltage transient</b>	1 kV/0.5 J			
<b>Power ON delay (<math>t_v</math>)</b>	≤ 20 ms			
<b>Operating frequency (f)</b>	≤ 1500 Hz			

## Specifications (cont.)

<b>Ambient temperature</b> Operating	-40° to +80°C (-40° to +176°F) short exposure (15') to 100°C during cleaning process
Storage	-40° to +80°C (-40° to +176°F)
<b>Shock and vibration</b>	IEC 60947-5-2/7.4
<b>Housing material</b> Body Front	Stainless steel (AISI 316L) Grey PPS - FDA-certified
<b>Connection</b> Plug	M12 x 1
<b>Degree of protection</b>	IP67, IP68 (1 m, 7 days), IP69K
<b>Weight</b> (cable/nuts included)	Max. 70 g
<b>Dimensions</b>	See diagrams below
<b>Tightening torque</b>	25 Nm

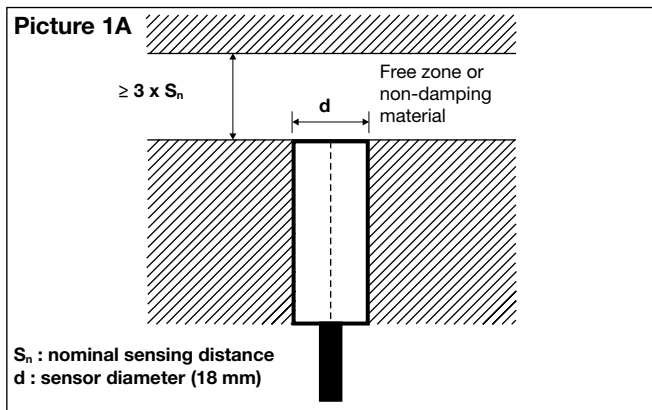
<b>Approvals</b>	<b>cULus</b> (UL508) <b>cCSAus</b> As Process Control Equipment for Hazardous Locations. - Class I, Division 2, Groups A, B, C and D. - T5, Enclosure Type 4. Ambient temperature Ta: -25° to +60°C CCC is not required for products with a maximum operating voltage of ≤ 36 V
Note: The terminal connector (version ...M1) was not evaluated. The suitability of the terminal connector should be determined in the end-use application.	
<b>EMC protection</b>	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	
<b>MTTF<sub>d</sub></b>	850 years @ 50°C (122°F)

## Dimensions (mm)

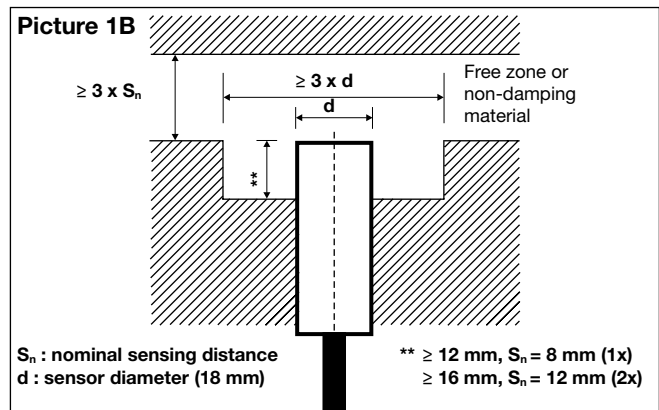


## Installation

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

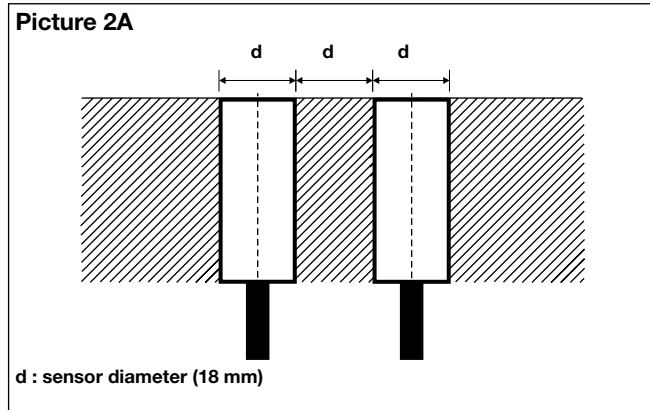


Non-flush mountable proximity switches, when installed in damping material, must be according to Picture 1B.

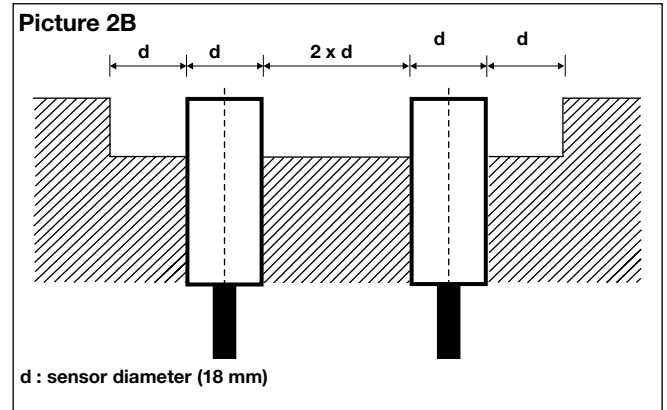


## Installation (cont.)

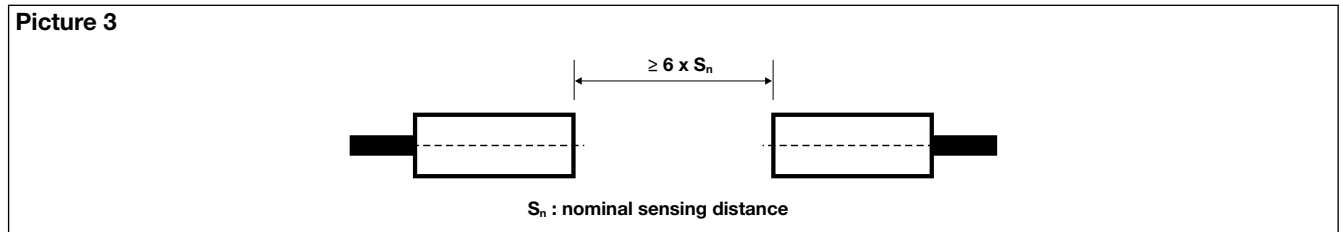
Flush mountable proximity switches, when installed together in damping material, must be according to Picture 2A.



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

