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_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 and wire breakage**
- **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**

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

Connection	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.)
Ripple	≤ 10%
Output current (I_e)	≤ 200 mA @ 50°C (≤ 150 mA @ 50-70°C)
OFF-state current (I_r)	≤ 10 µA
No load supply current (I_o)	≤ 15 mA
Voltage drop (U_d)	Max. 2 VDC @ 200 mA
Protection	Reverse polarity, short-circuit, transients, rupture de câble

Voltage transient	1 kV/0.5 J
Power ON delay (t_v)	50 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_a)	$0 \le S_a \le 0.81 \times S_n$

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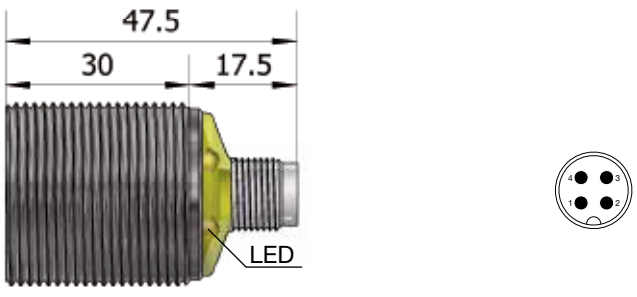
Specifications (cont.)

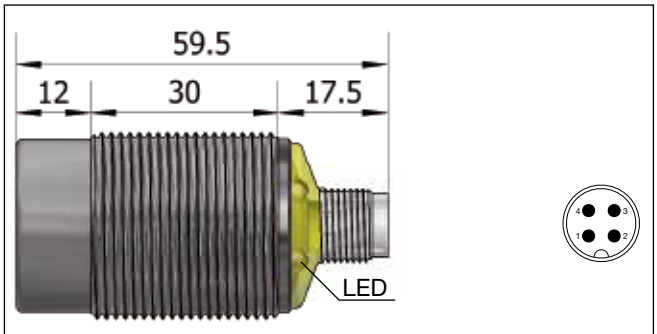
Effective operating distance (S_r)	0.9 x S_n ≤ S_r ≤ 1.1 x S_n
Usable operating distance (S_u)	0.85 x S_r ≤ S_u ≤ 1.15 x S_r
Repeat accuracy (R)	≤ 5%
Differential travel (H) (Hysteresis)	1 to 20% of sensing dist.
Ambient temperature	
Operating	-40° to +85°C (-40° to +185°F) short exposure (15') to 100°C 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	cULus (UL508) CCC is not required for products with a maximum operating voltage of ≤ 36 V
EMC protection	According to IEC 60947-5-2
IEC 61000-4-2 (ESD)	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
$MTTF_d$	750 years @ 50°C (122°F)

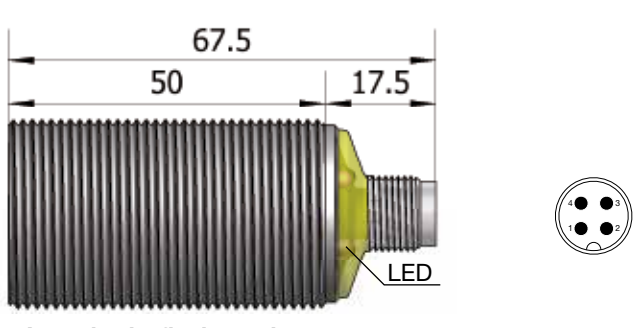
Dimensions (mm)



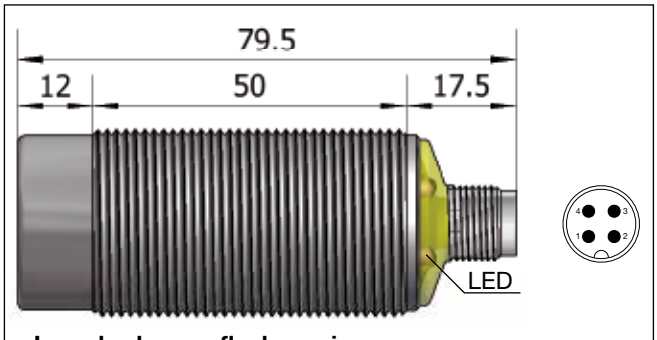
Short body, flush version



Short body, non-flush version



Long body, flush version



Long body, non-flush version

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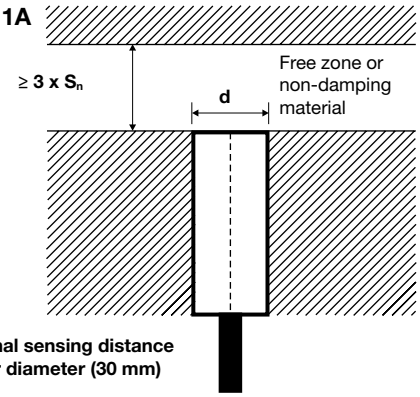
Installation

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

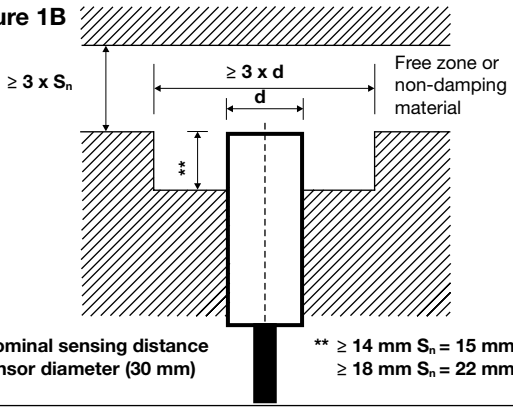
Picture 1A



Sn : nominal sensing distance
d : sensor diameter (30 mm)

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

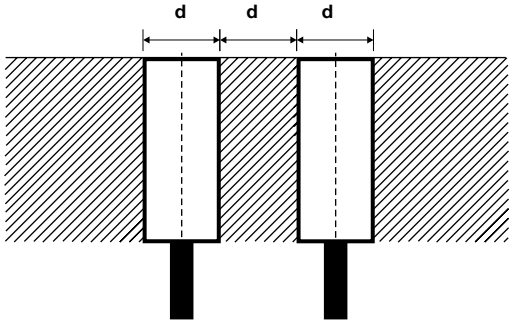
Picture 1B



Sn : nominal sensing distance
d : sensor diameter (30 mm)
** ≥ 14 mm Sn = 15 mm (1x)
≥ 18 mm Sn = 22 mm (2x)

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

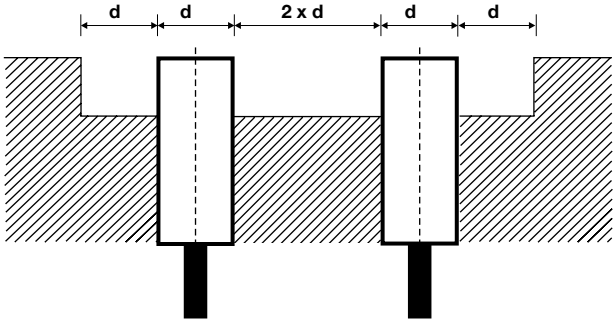
Picture 2A



d : sensor diameter (30 mm)

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

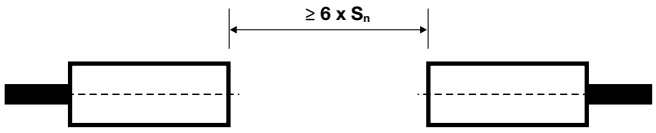
Picture 2B



d : sensor diameter (30 mm)

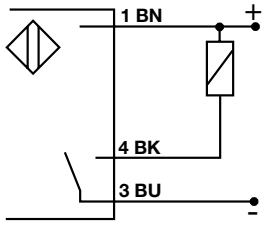
For sensors installed opposite each other, a minimum space of 6 x S_n (the nominal sensing distance) must be observed (See Picture 3).

Picture 3

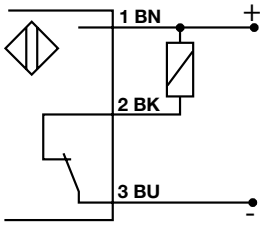


Sn : nominal sensing distance

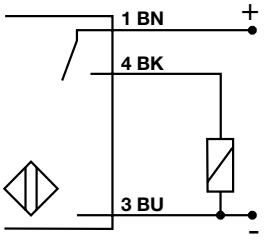
Wiring Diagram



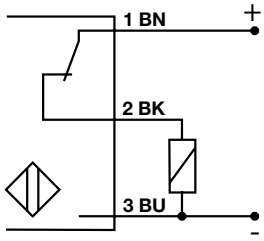
NPN - Normally open



NPN - Normally closed



PNP - Normally open



PNP - Normally closed

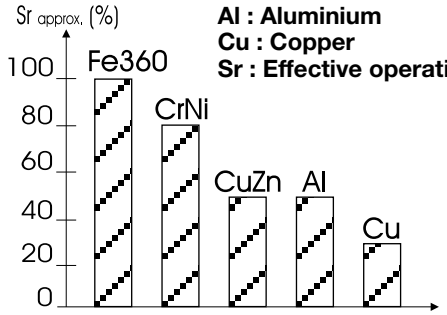
Reduction Factors

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.

Picture 4

Fe360 : Steel
CrNi : Chrome-nickel
CuZn : Brass
Al : Aluminium
Cu : Copper
Sr : Effective operating distance



IP69K Connector Cables

4-wire angled connector, 2 m cable	**CONB14NF-AP2W**
4-wire angled connector, 5 m cable	**CONB14NF-AP5W**
4-wire straight connector, 2 m cable	**CONB14NF-SP2W**
4-wire straight connector, 5 m cable	**CONB14NF-SP5W**

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