Proximity Inductive Sensors
Standard Range, Nickel-Plated Brass Housing
Types ICB, M12

CARLO GAVAZZI

- **Sensing distance: 2 to 4 mm**
- **Flush or non-flush types**
- **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**
- **Protection: reverse polarity, short circuit, transients**
- **Cable or M12 plug versions**
- **According to IEC 60947-5-2**
- **Laser engraved on front cap, permanently legible**
- **CSA certified for Hazardous Locations**

Product Description

A family of inductive proximity switches in industrial standard nickel-plated brass housings. They are able to handle applications where high sensing range is requested.

Output is open collector NPN or PNP transistors.

Ordering Key

ICB12S30F02NOM1

- **Type**
- **Housing style**
- **Housing material**
- **Housing size**
- **Housing length**
- **Thread length**
- **Detection principle**
- **Sensing distance**
- **Output type**
- **Output configuration**
- **Connection**

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
Cable	Short	2 mm [1]	**ICB12S30F02NO**	**ICB12S30F02PO**	**ICB12S30F02NC**	**ICB12S30F02PC**
Cable	Short	4 mm [2]	**ICB12S30N04NO**	**ICB12S30N04PO**	**ICB12S30N04NC**	**ICB12S30N04PC**
Plug	Short	2 mm [1]	**ICB12S30F02NOM1**	**ICB12S30F02POM1**	**ICB12S30F02NCM1**	**ICB12S30F02PCM1**
Plug	Short	4 mm [2]	**ICB12S30N04NOM1**	**ICB12S30N04POM1**	**ICB12S30N04NCM1**	**ICB12S30N04PCM1**
Cable	Long	2 mm [1]	**ICB12L50F02NO**	**ICB12L50F02PO**	**ICB12L50F02NC**	**ICB12L50F02PC**
Cable	Long	4 mm [2]	**ICB12L50N04NO**	**ICB12L50N04PO**	**ICB12L50N04NC**	**ICB12L50N04PC**
Plug	Long	2 mm [1]	**ICB12L50F02NOM1**	**ICB12L50F02POM1**	**ICB12L50F02NCM1**	**ICB12L50F02PCM1**
Plug	Long	4 mm [2]	**ICB12L50N04NOM1**	**ICB12L50N04POM1**	**ICB12L50N04NCM1**	**ICB12L50N04PCM1**

[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)	≤ 50 µA
No load supply current (I_o)	≤ 15 mA
Voltage drop (U_d)	Max. 2.5 VDC @ 200 mA
Protection	Reverse polarity, short-circuit, transients
Voltage transient	1 kV/0.5 J
Power ON delay (t_v)	≤ 20 ms
Operating frequency (f)	≤ 2000 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)	$0 \le S_a \le 0.81 \times S_n$
Effective operating distance (S_r)	$0.9 \times S_n \le S_r \le 1.1 \times S_n$
Usable operating distance (S_u)	$0.9 \times S_r \le S_u \le 1.1 \times S_r$
Repeat accuracy (R)	≤ 10%
Differential travel (H) (Hysteresis)	1 to 20% of sensing dist.
Ambient temperature Operating Storage	 -25° to +70°C (-13° to +158°F) -30° to +80°C (-22° to +176°F)
Shock and vibration	IEC 60947-5-2/7.4

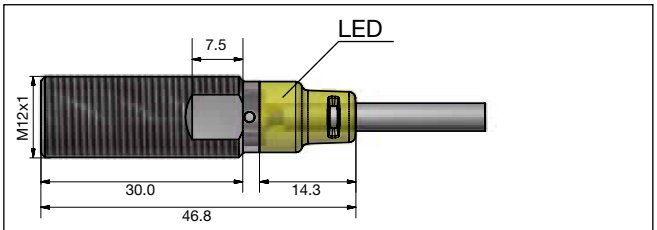
Specifications (cont.)

Housing material	
Body	Nickel-plated brass
Front	Grey thermoplastic polyester
Connection	
Cable	Ø4.1 x 2 m, 3 x 0.25 mm², grey PVC, oil proof
Plug	M12 x 1
Degree of protection	IP 67
Weight (cable/nuts included)	
Cable	Max. 120 g
Plug	Max. 30 g
Dimensions	See diagrams below
Tightening torque	10 Nm
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 Ta: -25° to +60°C

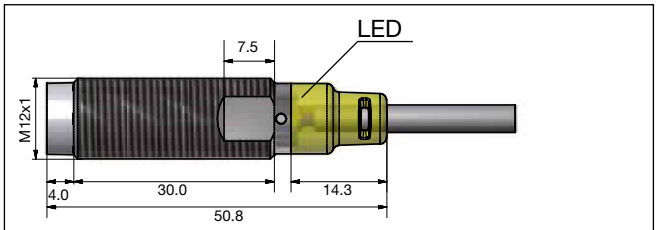
Note: The terminal connector (version ...M1) was not evaluated. The suitability of the terminal connector should be determined in the end-use application.

Approvals (cont.)	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)

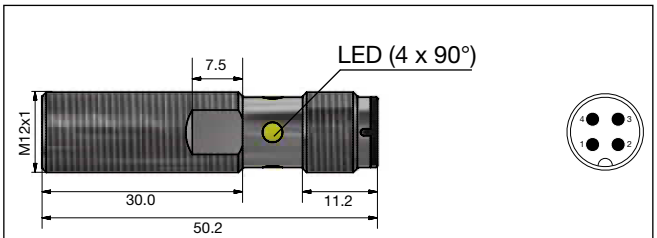
Dimensions (mm)



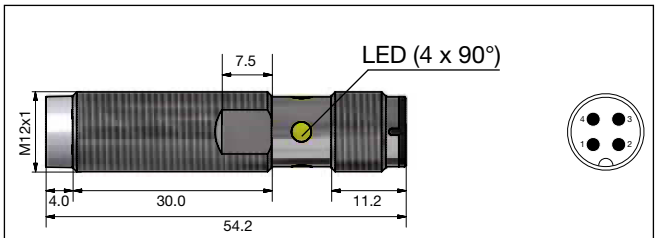
Short body, flush version, cable



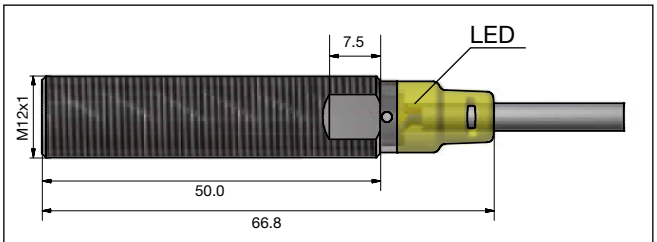
Short body, non-flush version, cable



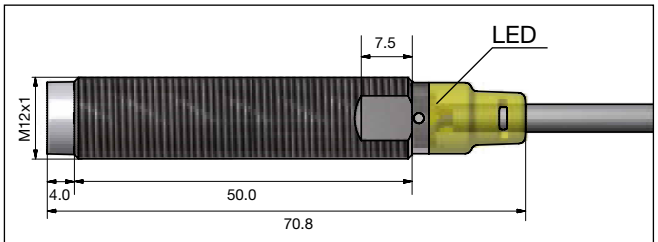
Short body, flush version, plug



Short body, non-flush version, plug

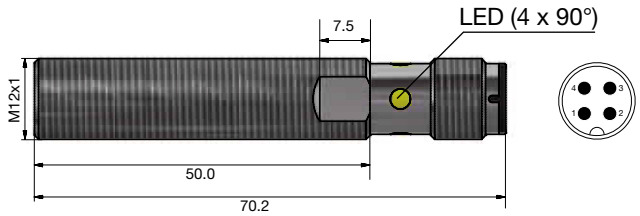


Long body, flush version, cable

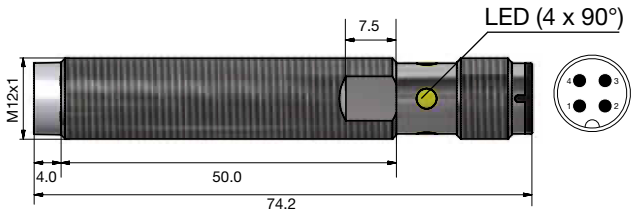


Long body, non-flush version, cable

Dimensions (mm) (cont.)



Long body, flush version, plug

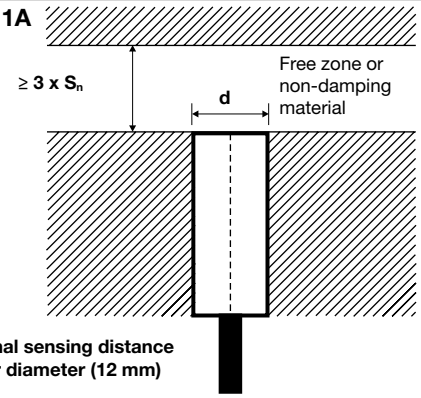


Long body, non-flush version, plug

Installation

Flush sensor, when installed in damping material, must be according to Picture 1A.

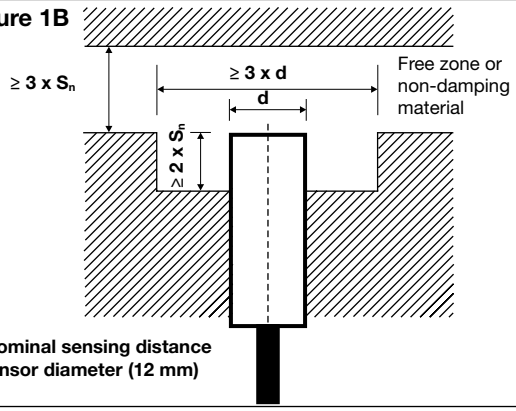
Picture 1A



S_n : nominal sensing distance
d : sensor diameter (12 mm)

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

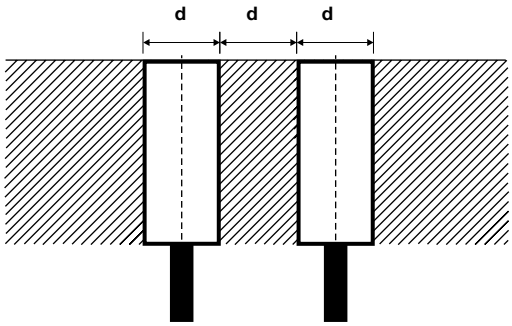
Picture 1B



S_n : nominal sensing distance
d : sensor diameter (12 mm)

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

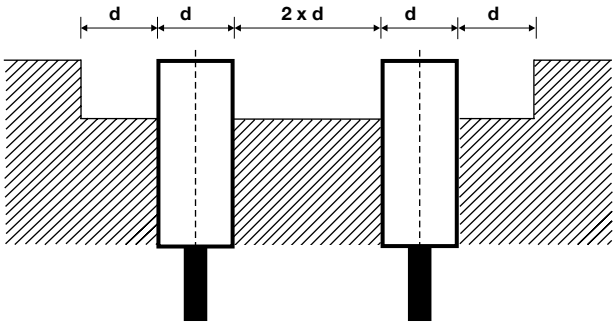
Picture 2A



d : sensor diameter (12 mm)

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

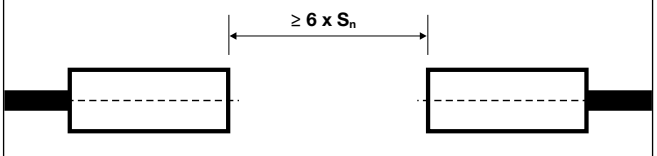
Picture 2B



d : sensor diameter (12 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



S_n : nominal sensing distance