ICB, M12 short or long body versions

Proximity inductive sensors, extended range, nickel-plated brass housing

Benefits

- Sensing distance: 4 to 8 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

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.

References

Order code

ICB12 □□□□□□□□

Enter the code option instead of □

Code	Option	Description
ICB	-	Proximity inductive sensors, nickel-plated brass housing
12	-	Housing size
□	S	Housing length: short
	L	Housing length: long
□	30	Thread length: 30mm
	50	Thread length: 50mm
□	F	Detection principle: flush mounting
	N	Detection principle: non-flush mounting
□	04	Sensing distance: 4mm
	08	Sensing distance: 8mm
□	N	Output type: NPN
	P	Output type: PNP
□	O	Output configuration: normally open
	C	Output configuration: normally closed
□		Connection: cable
	M1	Connection: plug

Selection guide

Con-nec-tion	Body style	Rated operating distance Sn	Ordering no. NPN, Normally open	Ordering no. PNP, Normally open	Ordering no. NPN, Normally closed	Ordering no. PNP, Normally closed
Cable	Short	4 mm [1]	**ICB12S30F04NO**	**ICB12S30F04PO**	**ICB12S30F04NC**	**ICB12S30F04PC**
Cable	Short	8 mm [2]	**ICB12S30N08NO**	**ICB12S30N08PO**	**ICB12S30N08NC**	**ICB12S30N08PC**
Plug	Short	4 mm [1]	**ICB12S30F04NOM1**	**ICB12S30F04POM1**	**ICB12S30F04NCM1**	**ICB12S30F04PCM1**
Plug	Short	8 mm [2]	**ICB12S30N08NOM1**	**ICB12S30N08POM1**	**ICB12S30N08NCM1**	**ICB12S30N08PCM1**
Cable	Long	4 mm [1]	**ICB12L50F04NO**	**ICB12L50F04PO**	**ICB12L50F04NC**	**ICB12L50F04PC**
Cable	Long	8 mm [2]	**ICB12L50N08NO**	**ICB12L50N08PO**	**ICB12L50N08NC**	**ICB12L50N08PC**
Plug	Long	4 mm [1]	**ICB12L50F04NOM1**	**ICB12L50F04POM1**	**ICB12L50F04NCM1**	**ICB12L50F04PCM1**
Plug	Long	8 mm [2]	**ICB12L50N08NOM1**	**ICB12L50N08POM1**	**ICB12L50N08NCM1**	**ICB12L50N08PCM1**

[1] For flush mounting in metal
[2] For non-flush mounting in metal

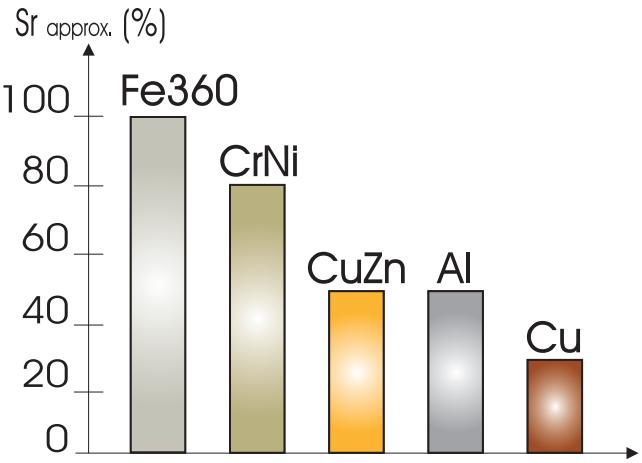
Sensing

Detection

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)	$0.9 \times S_r \le S_u \le 1.1 \times S_r$
Differential travel (H) (Hysteresis)	1 to 20% of sensing dist.

Correction factors

The specific operating distance S_n refers to defined measuring conditions. The following data have to be considered as general guidelines.



Fe360: steel
CrNi: chrome-nickel
CuZn: brass
Al: aluminium
Cu: copper
Sr: effective operating distance

Fig. 1 *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 the figure.*

Accuracy

Repeat accuracy (R)	≤ 10%

Features

Power Supply

Rated operational voltage (U_b)	10 to 36 VDC (ripple incl.)
Ripple (U_{rpp})	≤ 10%
No load supply current (I_o)	≤ 15 mA
Power ON delay (t_v)	≤ 20 ms

Outputs

Output current (I_e)	≤ 200 mA @ 50°C (≤ 150 mA @ 50-70°C)
OFF-state current (I_r)	≤ 50 µA
Voltage drop (U_d)	Max. 2.5 VDC @ 200 mA
Protection	Reverse polarity, short-circuit, transients
Voltage transient	1 kV/0.5 J

Response times

Max. operating frequency (f)	≤ 2000 Hz

Indication

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)

Environmental

Ambient temperature	Operating: -25° to +70°C (-13° to +158°F) Storage: -30° to +80°C (-22° to +176°F)
Ambient humidity	Operating: ≤ 95% Storage: ≤ 95%
Shock and vibration	IEC 60947-5-2/7.4
Degree of protection	IP67

Compatibility and conformity

EMC protection - According to IEC 60947-5-2	
Electrostatic discharge (ESD)	IEC 61000-4-2 8 kV air discharge, 4 kV contact discharge
Radiated radio frequency	IEC 61000-4-3 3 V/m
Burst immunity	IEC 61000-4-4 2 kV
Conducted radio frequency	IEC 61000-4-6 3 V
Power frequency magnetic fields	IEC 61000-4-8 30 A/m

$MTTF_d$	750 years @ 50°C (122°F)

Approvals	CE cULus LISTED C SA US
	CCC is not required for products rated ≤ 36 V

Mechanical data

Weight (cable/nuts included) **Cable** **Plug**	 Max. 120 g Max. 30 g
Mounting	Flush or non flush mountable
Material	Body: nickel-plated brass Front: grey thermoplastic polyester
Tightening torque	10 Nm

Electrical connection

Cable	Ø 4.1 x 2 m, 3 x 0.25 mm2, grey PVC, oil proof
Plug	M12 x 1

Connection Diagrams

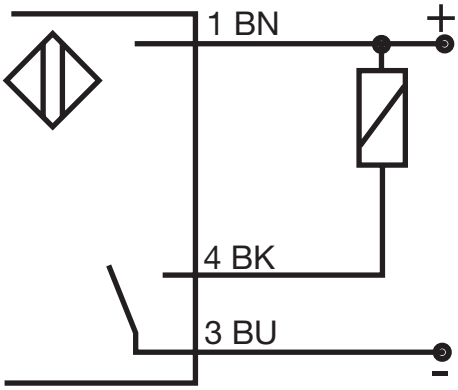


Fig. 2 *NPN - Normally open*

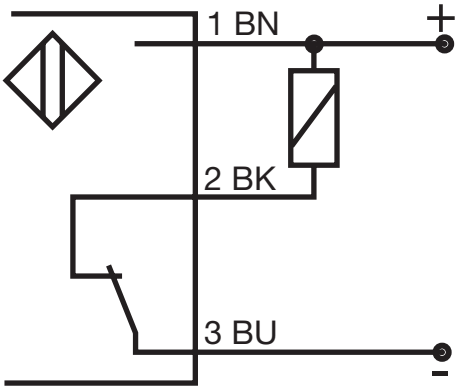


Fig. 3 *NPN - Normally closed*

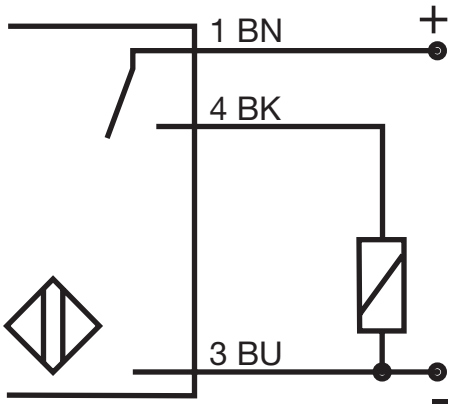


Fig. 4 *PNP - Normally open*

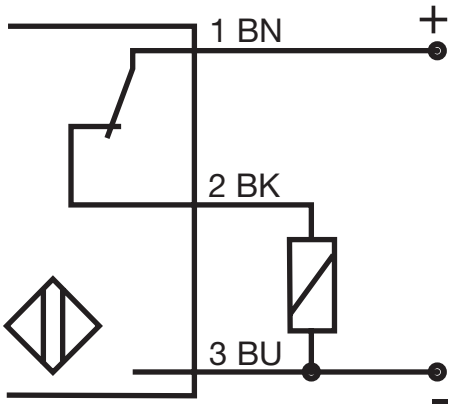


Fig. 5 *PNP - Normally closed*

Colour code		
BN: brown	**BK:** black	**BU:** blue

Dimensions [mm]

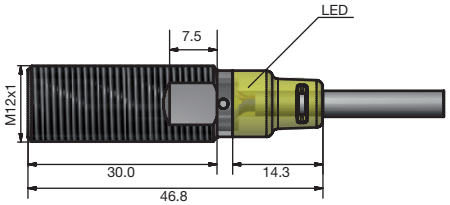


Fig. 6 *Short body, flush version, cable*

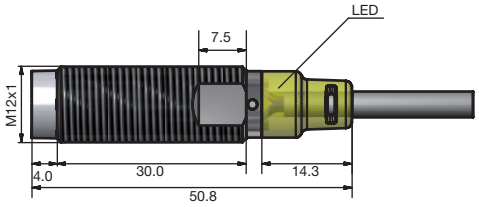


Fig. 7 *Short body, non-flush version, cable*

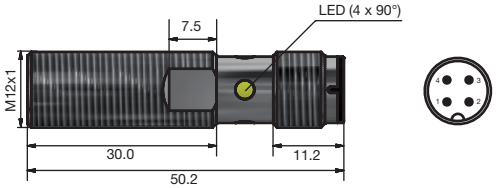


Fig. 8 *Short body, flush version, plug*

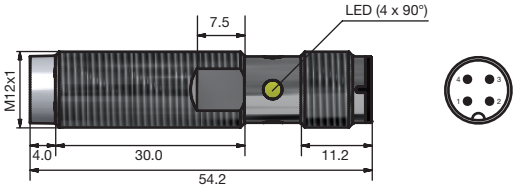


Fig. 9 *Short body, non-flush version, plug*

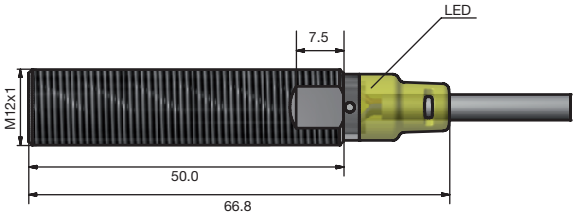


Fig. 10 *Long body, flush version, cable*

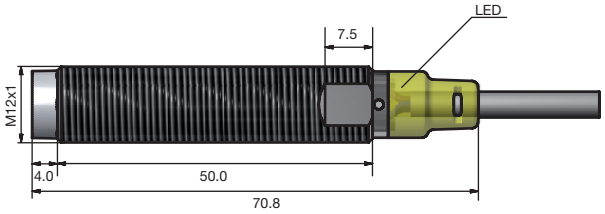


Fig. 11 *Long body, non-flush version, cable*

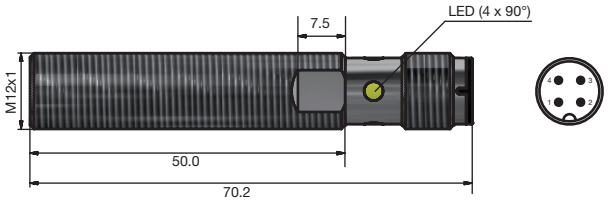


Fig. 12 *Long body, flush version, plug*

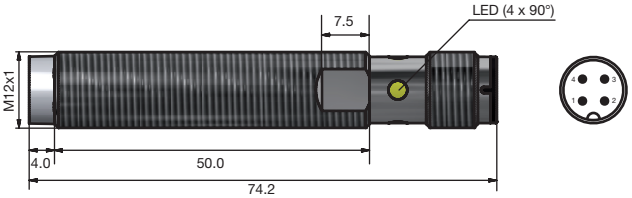


Fig. 13 *Long body, non-flush version, plug*

Installation

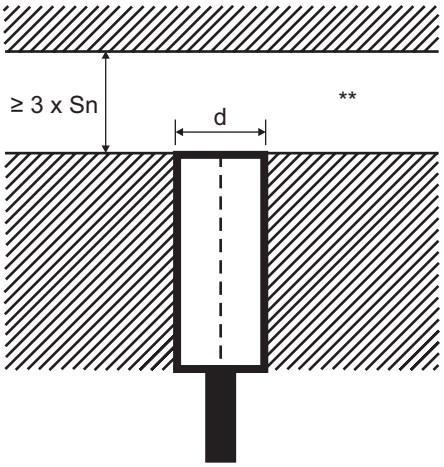


Fig. 14 *Flush sensor, when installed in damping material*

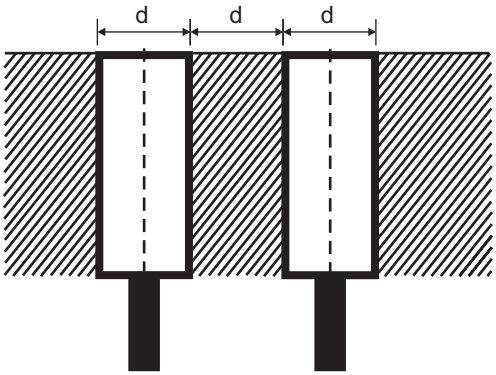


Fig. 15 *Flush sensors, when installed together in damping material*

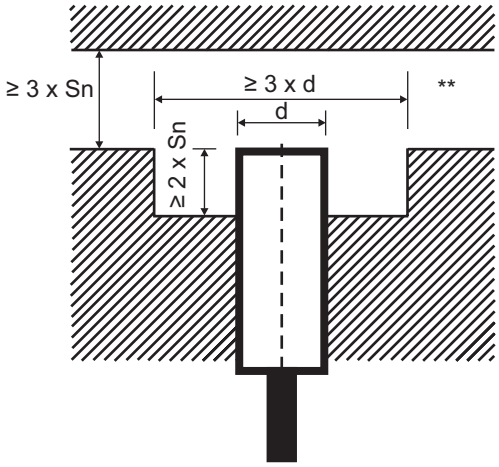


Fig. 16 *Non-flush sensor, when installed in damping material*

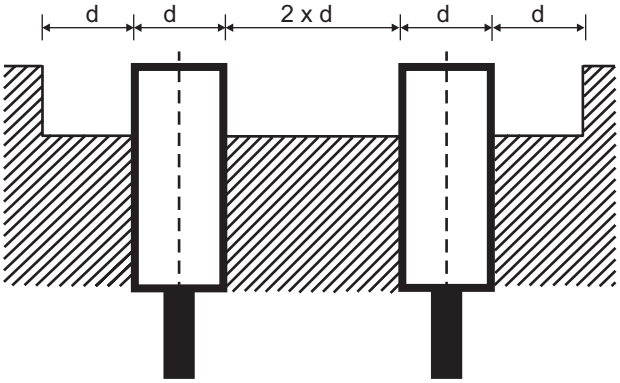


Fig. 17 *Non-flush sensors, when installed together in damping material*

** Free zone or non-damping material

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

Sensors installed opposite each other

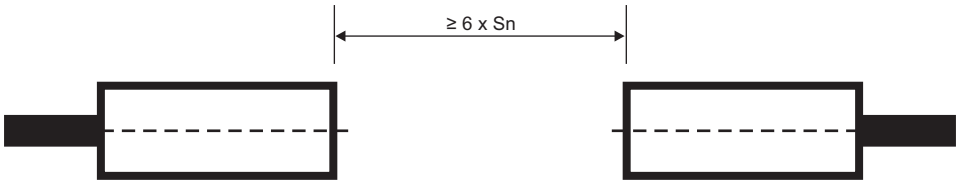
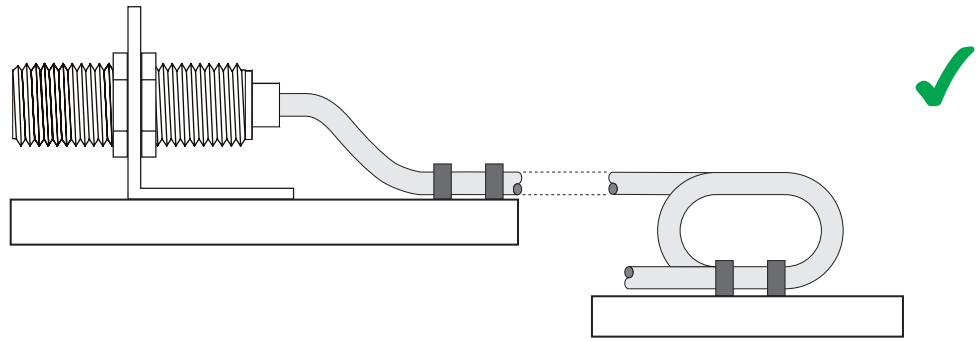


Fig. 18 *For sensors installed opposite each other, a minimum space of 6 x Sn (the nominal sensing distance) must be observed*

Cable version



Delivery contents and compatible components

Delivery contents

- Inductive proximity switch
- 2 nuts
- Packaging: plastic bag

CARLO GAVAZZI compatible components

- Mounting bracket AMB... to be purchased separately
- Connector type: CONx... series to be purchased separately

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