

ICB, M12 short or long body versions



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



Benefits

- 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

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 entering the corresponding option instead of

Code	Option	Description
ICB	-	Proximity inductive sensors, nickel-plated brass housing
12	-	Housing size
<input type="checkbox"/>	S	Housing length: short
<input type="checkbox"/>	L	Housing length: long
<input type="checkbox"/>	30	Thread length: 30mm
<input type="checkbox"/>	50	Thread length: 50mm
<input type="checkbox"/>	F	Detection principle: flush mounting
<input type="checkbox"/>	N	Detection principle: non-flush mounting
<input type="checkbox"/>	02	Sensing distance: 2mm
<input type="checkbox"/>	04	Sensing distance: 4mm
<input type="checkbox"/>	N	Output type: NPN
<input type="checkbox"/>	P	Output type: PNP
<input type="checkbox"/>	O	Output configuration: normally open
<input type="checkbox"/>	C	Output configuration: normally closed
<input type="checkbox"/>		Connection: cable
<input type="checkbox"/>	M1	Connection: plug

Selection guide

Con- nec- 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
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

Sensing

Detection

Assured operating sensing distance (S_a)	$0 \leq S_a \leq 0.81 \times S_n$
Effective operating distance (S_r)	$0.9 \times S_n \leq S_r \leq 1.1 \times S_n$
Usable operating distance (S_u)	$0.9 \times S_r \leq S_u \leq 1.1 \times S_r$
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.

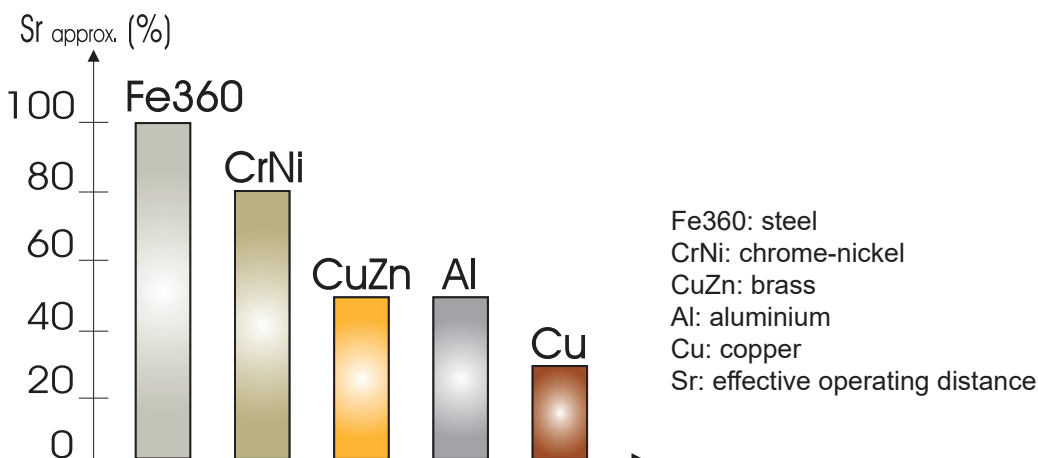


Fig. 1 The rated operating distance is reduced by the use of metals and alloys other than Fe360. The most important reduction factors for inductive proximity sensors are shown in the figure.

Accuracy

Repeat accuracy (R)	≤ 10%
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Features

Power Supply

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

Outputs

Output current (I_o)	≤ 200 mA @ 50°C (≤ 150 mA @ 50-70°C)
OFF-state current (I_o)	≤ 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
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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 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
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
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	  
	CCC is not required for products rated ≤ 36 V

Mechanical data

Weight (cable/nuts included)	
Cable	Max. 120 g
Plug	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 mm ² , grey PVC, oil proof
Plug	M12 x 1

Connection Diagrams

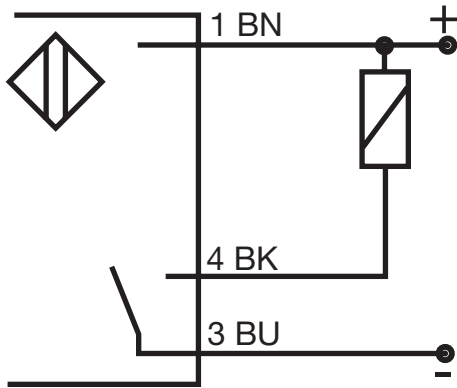


Fig. 2 NPN - Normally open

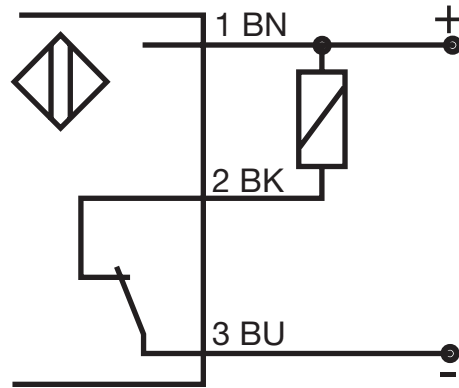


Fig. 3 NPN - Normally closed

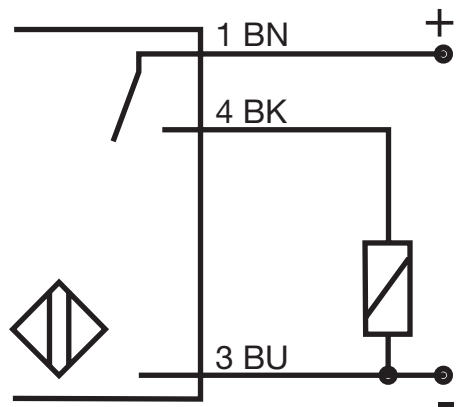


Fig. 4 PNP - Normally open

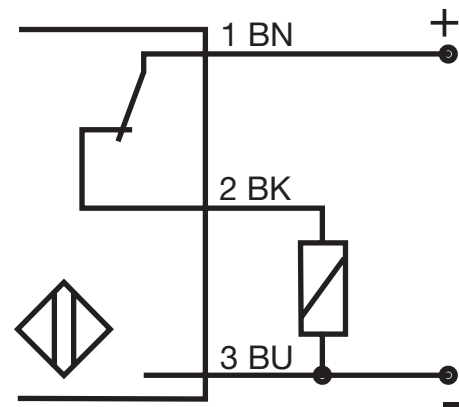


Fig. 5 PNP - Normally closed

Colour code		
BN: brown	BK: black	BU: blue

Dimensions [mm]

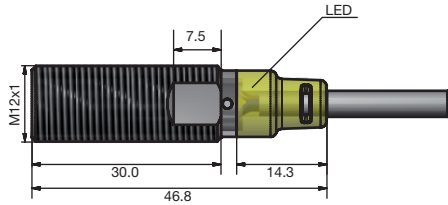


Fig. 6 Short body, flush version, cable

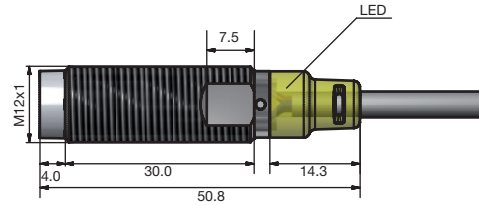


Fig. 7 Short body, non-flush version, cable

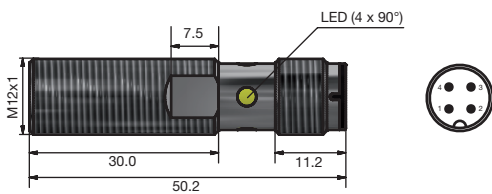


Fig. 8 Short body, flush version, plug

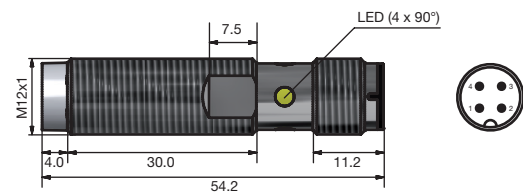


Fig. 9 Short body, non-flush version, plug

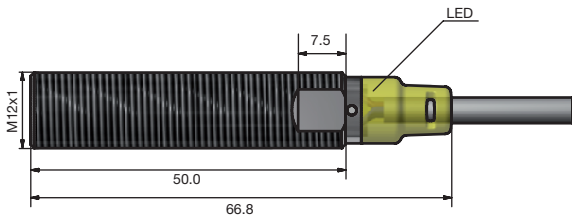


Fig. 10 Long body, flush version, cable

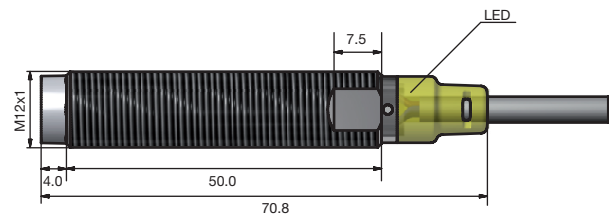


Fig. 11 Long body, non-flush version, cable

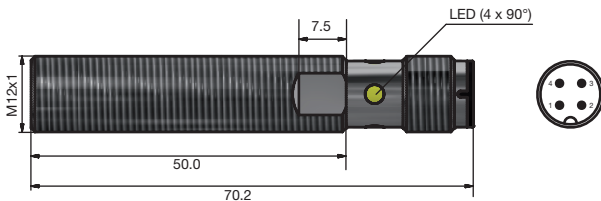


Fig. 12 Long body, flush version, plug

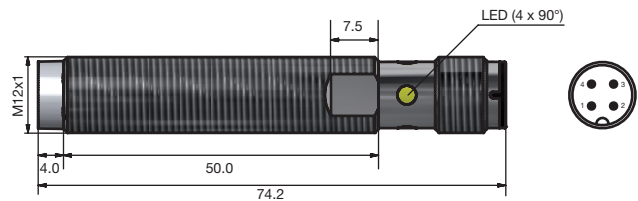


Fig. 13 Long body, non-flush version, plug

Installation

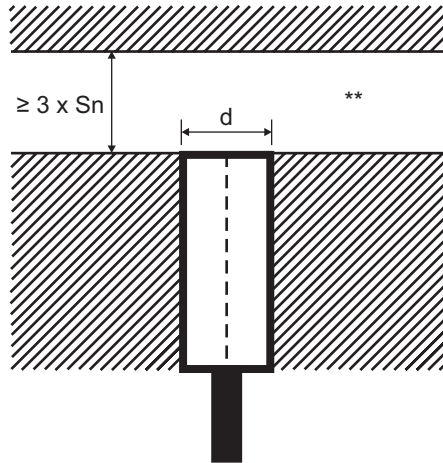


Fig. 14 Flush sensor, when installed in damping material

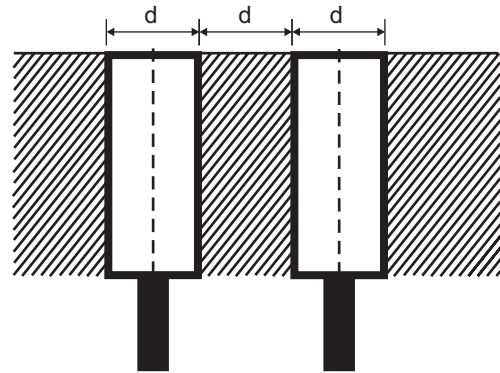


Fig. 15 Flush sensors, when installed together in damping material

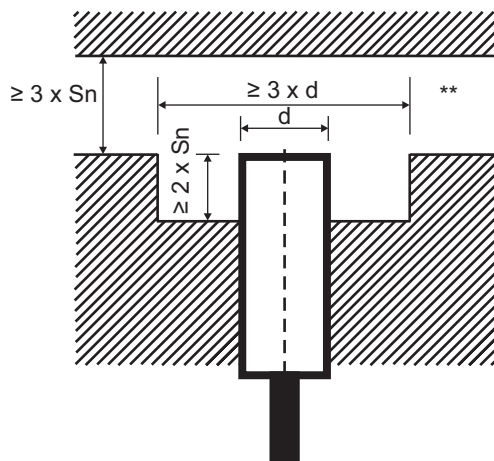


Fig. 16 Non-flush sensor, when installed in damping material

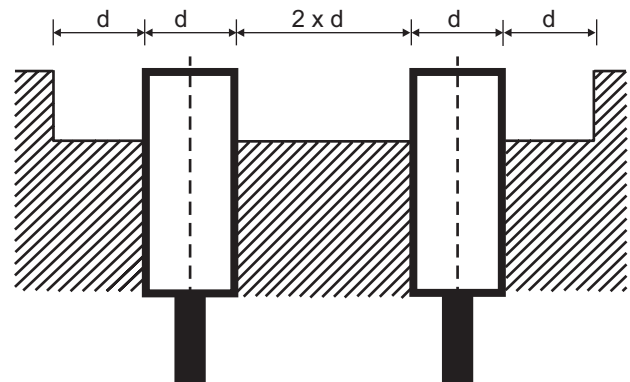


Fig. 17 Non-flush sensors, when installed together in damping material

** Free zone or non-damping material

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

Sensors installed opposite each other

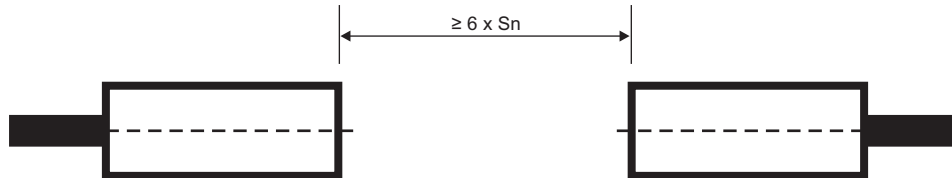


Fig. 18 For sensors installed opposite each other, a minimum space of $6 \times S_n$ (the nominal sensing distance) must be observed

Delivery contents and compatible components

Delivery contents

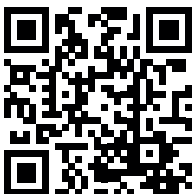
- Inductive proximity switch
- 2 nuts
- Packaging: plastic bag

CARLO GAVAZZI compatible components

Accessories for plug versions

	PVC	PUR
3-wire angled connector, 2 m cable	CONB13NF-A2	CONB13NF-A2P
3-wire angled connector, 5 m cable	CONB13NF-A5	CONB13NF-A5P
3-wire angled connector, 10 m cable	CONB13NF-A10	CONB13NF-A10P
3-wire angled connector, 15 m cable	CONB13NF-A15	CONB13NF-A15P
3-wire straight connector, 2 m cable	CONB13NF-S2	CONB13NF-S2P
3-wire straight connector, 5 m cable	CONB13NF-S5	CONB13NF-S5P
3-wire straight connector, 10 m cable	CONB13NF-S10	CONB13NF-S10P
3-wire straight connector, 15 m cable	CONB13NF-S15	CONB13NF-S15P

For any additional information or different options, please refer to the “General Accessories - Connector Cables -Type CONB1...” datasheets.



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