

ICB, M12 short or long body versions



Proximity inductive sensors, increased operating distance, nickel-plated brass housing



Description

A family of inductive proximity switches in industrial standard nickel-plated brass housings. They are able to handle applications where very long operating distance is requested. Output is open collector NPN or PNP transistors. Less machine downtime thanks to lower risk of mechanical damage.

Benefits

- Sensing distance: 6 to 10 mm
- Quasi-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
- Cable or M12 plug versions
- According to IEC 60947-5-2
- Setup indicator
- Laser engraved on front cap, permanently legible
- CSA certified for Hazardous Locations

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: quasi-flush mounting
<input type="checkbox"/>	N	Detection principle: non-flush mounting
<input type="checkbox"/>	06	Sensing distance: 6mm
<input type="checkbox"/>	10	Sensing distance: 10mm
<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	6 mm ¹⁾	ICB12S30F06NO	ICB12S30F06PO	ICB12S30F06NC	ICB12S30F06PC
Cable	Short	10 mm ²⁾	ICB12S30N10NO	ICB12S30N10PO	ICB12S30N10NC	ICB12S30N10PC
Plug	Short	6 mm ¹⁾	ICB12S30F06NOM1	ICB12S30F06POM1	ICB12S30F06NCM1	ICB12S30F06PCM1
Plug	Short	10 mm ²⁾	ICB12S30N10NOM1	ICB12S30N10POM1	ICB12S30N10NCM1	ICB12S30N10PCM1
Cable	Long	6 mm ¹⁾	ICB12L50F06NO	ICB12L50F06PO	ICB12L50F06NC	ICB12L50F06PC
Cable	Long	10 mm ²⁾	ICB12L50N10NO	ICB12L50N10PO	ICB12L50N10NC	ICB12L50N10PC
Plug	Long	6 mm ¹⁾	ICB12L50F06NOM1	ICB12L50F06POM1	ICB12L50F06NCM1	ICB12L50F06PCM1
Plug	Long	10 mm ²⁾	ICB12L50N10NOM1	ICB12L50N10POM1	ICB12L50N10NCM1	ICB12L50N10PCM1

¹⁾ For quasi-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.

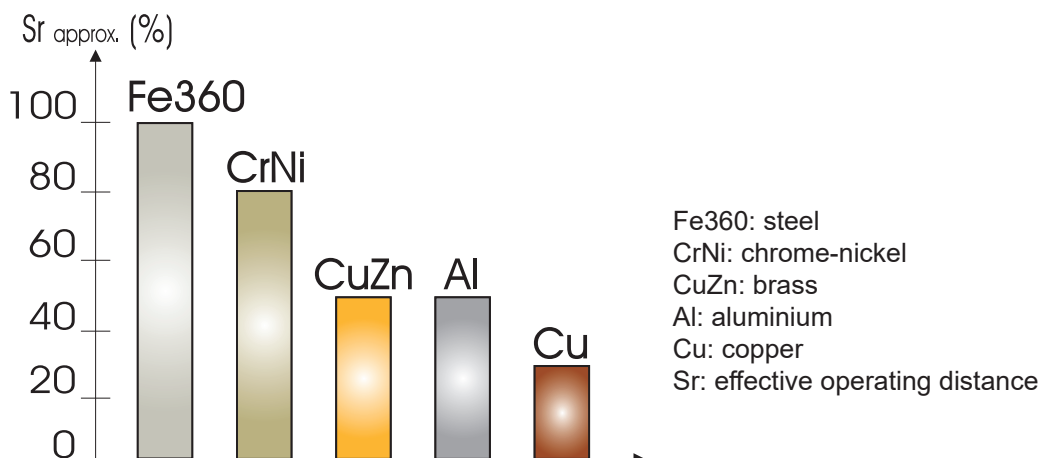


Fig. 1 The rated operating distance is reduced by the use of metals and alloys other than Fe360. The most important reduction factors for inductive proximity sensors are shown in the figure.

Accuracy

Repeat accuracy (R)	$\leq 10\%$
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Features

Power Supply

Rated operational voltage (U_b)	10 to 36 VDC (ripple incl.)
Ripple (U_{rip})	$\leq 10\%$
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 @ $50-70^\circ\text{C}$)
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
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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)

Setup function

NO version	
LED flashing (f=0.67 Hz)	$0.8 S_n < S_r \leq S_n$
LED lights continuously	$0 \leq S_r \leq 0.8 S_n$ (safer installation)
NC version	
LED flashing (f=0.67 Hz)	$0.8 S_n < S_r \leq S_n$
LED OFF	$0 \leq S_r \leq 0.8 S_n$ (safer installation)

Environmental

Ambient temperature	
Operating	-25° to +70°C (-13° to +158°F)
Storage	-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 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)
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Approvals	  
	CCC is not required for products rated ≤ 36 V

Mechanical data

Weight (cable/nuts included)	
Cable	Max. 85 g
Plug	Max. 45 g
Mounting	Quasi-flush or non-flush mountable
Material	Body: nickel-plated brass Front: grey thermoplastic polyester
Tightening torque	Distance from sensing face From 2 mm to 7 mm: 4 Nm > 7 mm: 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

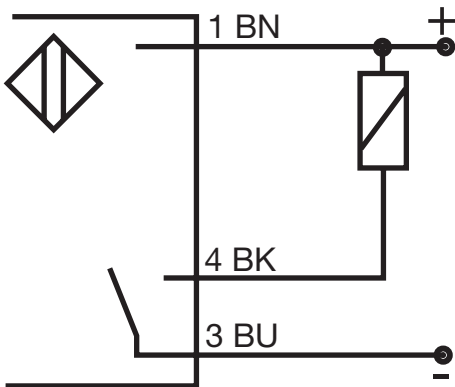


Fig. 2 NPN - Normally open

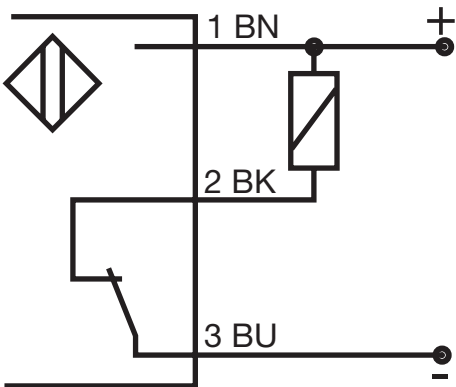


Fig. 3 NPN - Normally closed

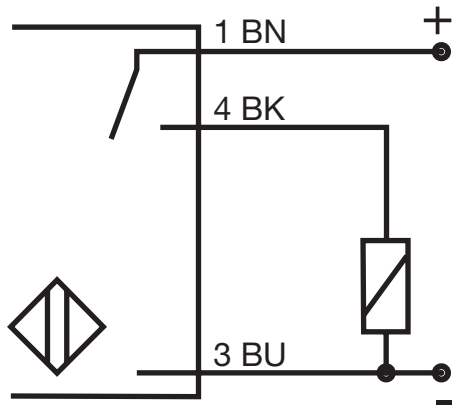


Fig. 4 PNP - Normally open

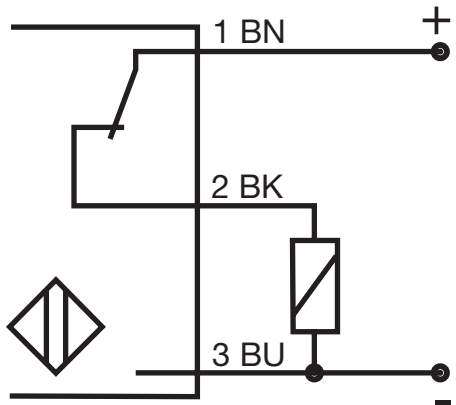


Fig. 5 PNP - Normally closed

Colour code		
BN: brown	BK: black	BU: blue

Dimensions [mm]

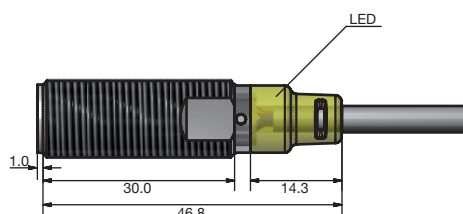


Fig. 6 Short body, quasi-flush version, cable

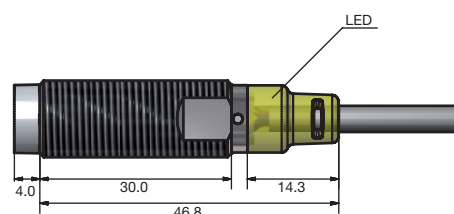


Fig. 7 Short body, non-flush version, cable

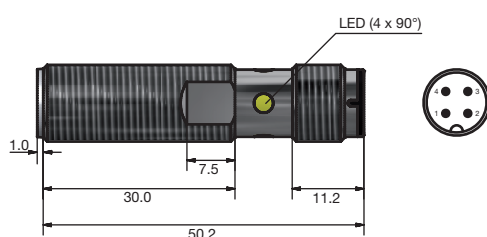


Fig. 8 Short body, quasi-flush version, plug

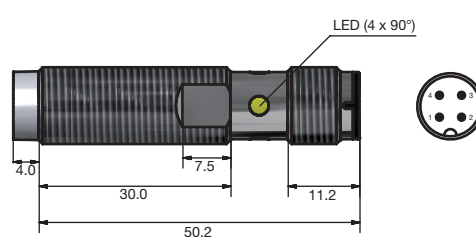


Fig. 9 Short body, non-flush version, plug

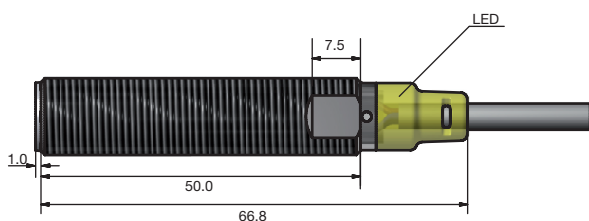


Fig. 10 Long body, quasi-flush version, cable

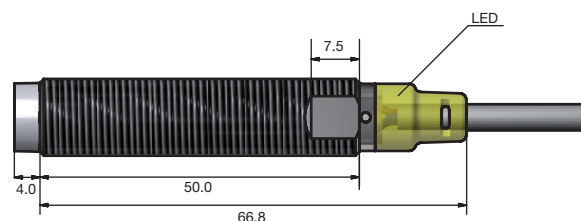


Fig. 11 Long body, non-flush version, cable

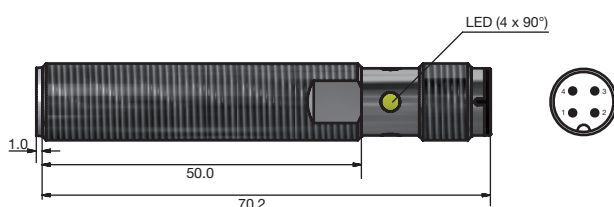


Fig. 12 Long body, quasi-flush version, plug

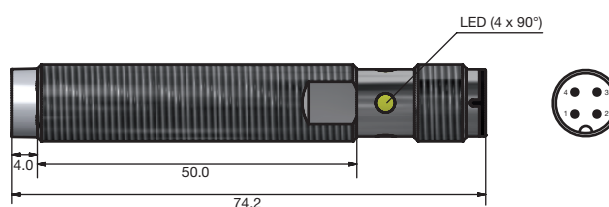


Fig. 13 Long body, non-flush version, plug

Installation

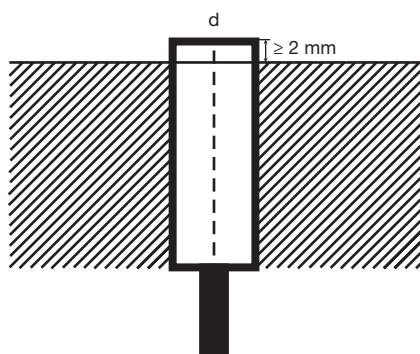


Fig. 14 Quasi-flush sensor, when installed in damping material

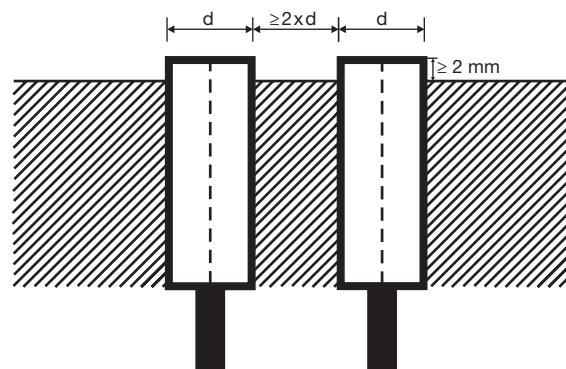


Fig. 15 Quasi-flush sensors, when installed together in damping material

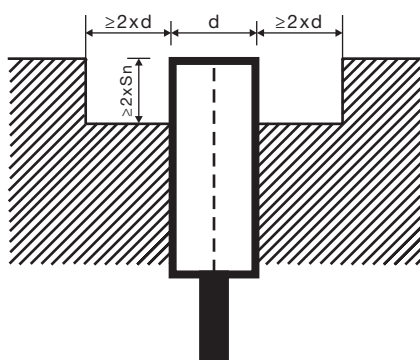


Fig. 16 Non-flush sensor, when installed in damping material

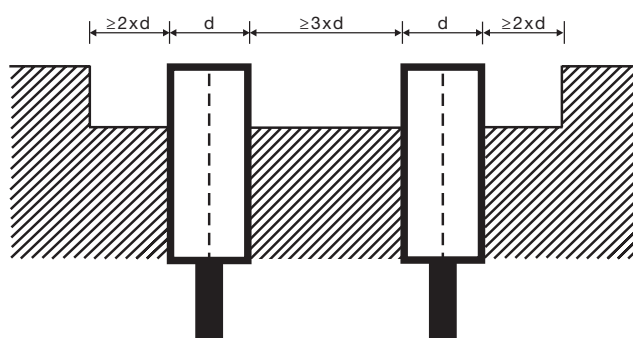


Fig. 17 Non-flush sensors, when installed together in damping material

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

Sensors installed opposite each other

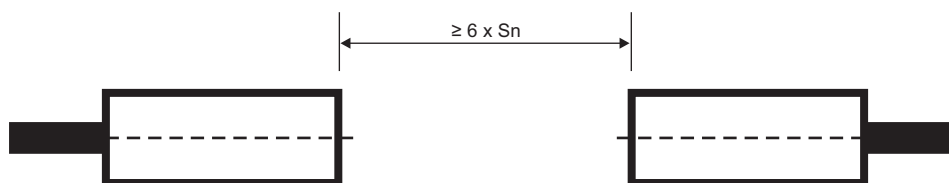


Fig. 18 For sensors installed opposite each other, a minimum space of $6 \times S_n$ (the nominal sensing distance) must be observed

Delivery contents and compatible components

Delivery contents

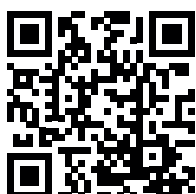
- Inductive proximity switch
- 2 nuts
- 2 washers
- Packaging: plastic bag

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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