ICB, M18 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: 12 to 20 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

ICB18 □□□□□□□□

Enter the code entering the corresponding option instead of □

Code	Option	Description
ICB	-	Proximity inductive sensors, nickel-plated brass housing
18	-	Housing size
□	S	Housing length: short
	L	Housing length: long
□	30	Thread length: 30mm
	50	Thread length: 50mm
□	F	Detection principle: quasi-flush mounting
	N	Detection principle: non-flush mounting
□	12	Sensing distance: 12mm
	20	Sensing distance: 20mm
□	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	12 mm [1]	**ICB18S30F12NO**	**ICB18S30F12PO**	**ICB18S30F12NC**	**ICB18S30F12PC**
Cable	Short	20 mm [2]	**ICB18S30N20NO**	**ICB18S30N20PO**	**ICB18S30N20NC**	**ICB18S30N20PC**
Plug	Short	12 mm [1]	**ICB18S30F12NOM1**	**ICB18S30F12POM1**	**ICB18S30F12NCM1**	**ICB18S30F12PCM1**
Plug	Short	20 mm [2]	**ICB18S30N20NOM1**	**ICB18S30N20POM1**	**ICB18S30N20NCM1**	**ICB18S30N20PCM1**
Cable	Long	12 mm [1]	**ICB18L50F12NO**	**ICB18L50F12PO**	**ICB18L50F12NC**	**ICB18L50F12PC**
Cable	Long	20 mm [2]	**ICB18L50N20NO**	**ICB18L50N20PO**	**ICB18L50N20NC**	**ICB18L50N20PC**
Plug	Long	12 mm [1]	**ICB18L50F12NOM1**	**ICB18L50F12POM1**	**ICB18L50F12NCM1**	**ICB18L50F12PCM1**
Plug	Long	20 mm [2]	**ICB18L50N20NOM1**	**ICB18L50N20POM1**	**ICB18L50N20NCM1**	**ICB18L50N20PCM1**

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

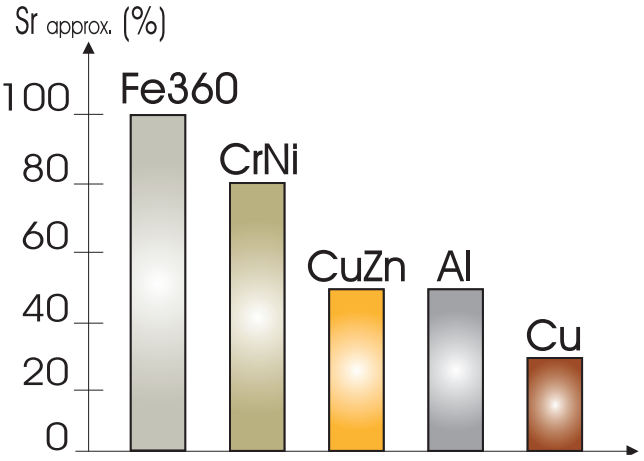
Sensing

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)	≤ 1500 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)

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** **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 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

$MTTF_d$	850 years @ 50°C (122°F)

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

Mechanical data

Weight (cable/nuts included) **Cable** **Plug**	 Max. 150 g Max. 80 g
Mounting	Quasi-flush or non-flush mountable
Material	Body: nickel-plated brass Front: grey thermoplastic polyester
Tightening torque	Distance from sensing face From 0 mm to 9 mm: 15 Nm > 9 mm: 25 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

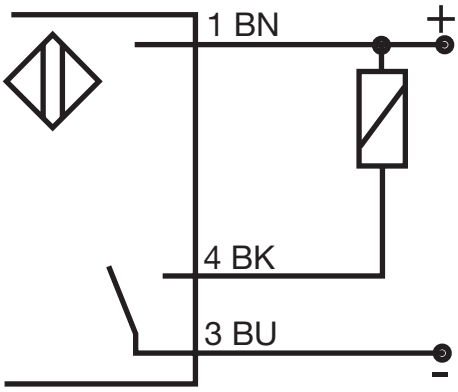


Fig. 2 *NPN - Normally open*

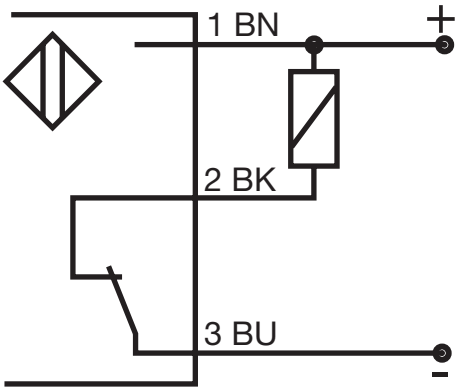


Fig. 3 *NPN - Normally closed*

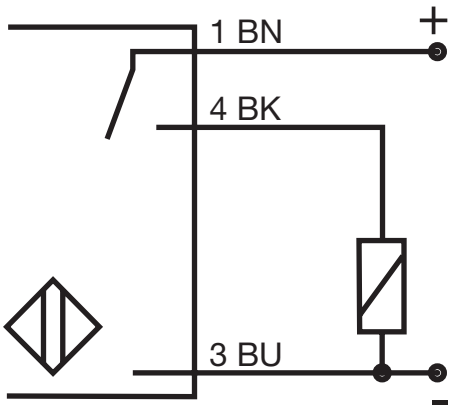


Fig. 4 *PNP - Normally open*

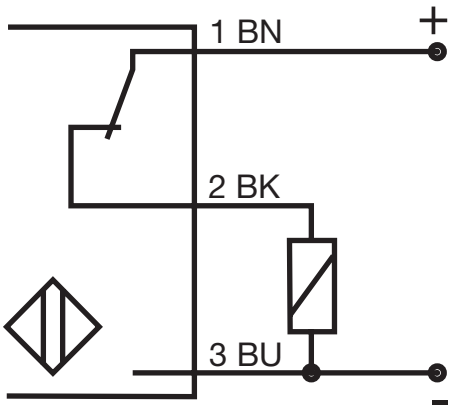


Fig. 5 *PNP - Normally closed*

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

Dimensions [mm]

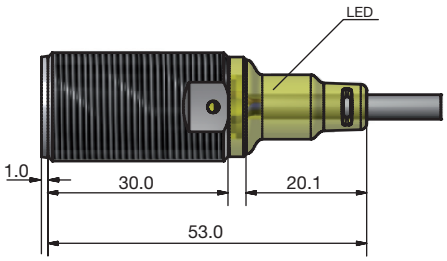


Fig. 6 *Short body, quasi-flush version, cable*

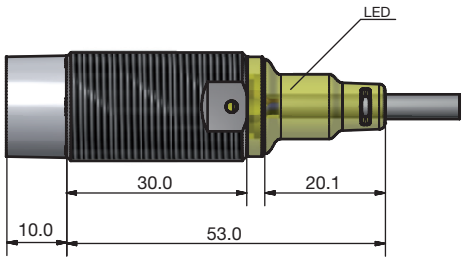


Fig. 7 *Short body, non-flush version, cable*

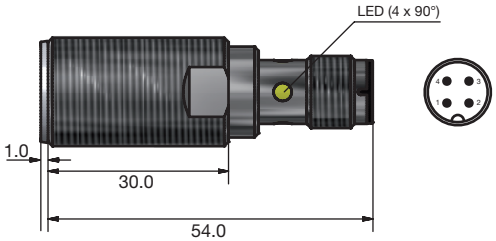


Fig. 8 *Short body, quasi-flush version, plug*

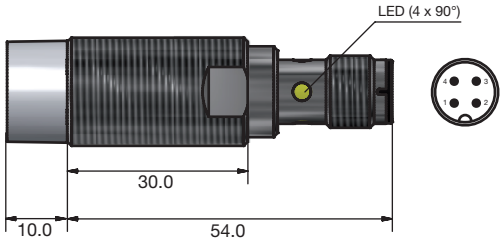


Fig. 9 *Short body, non-flush version, plug*

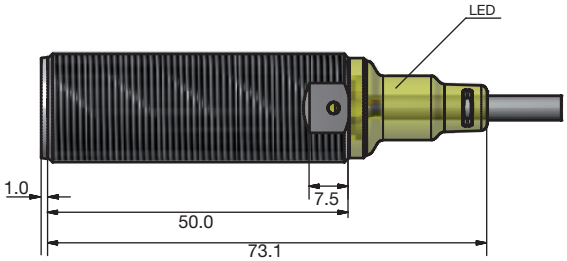


Fig. 10 *Long body, quasi-flush version, cable*

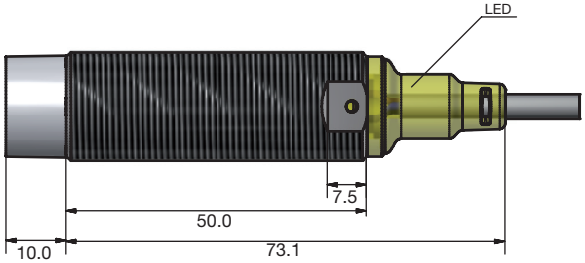


Fig. 11 *Long body, non-flush version, cable*

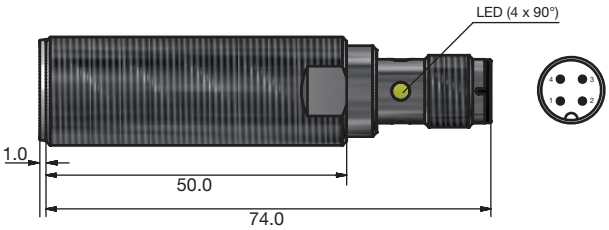


Fig. 12 *Long body, quasi-flush version, plug*

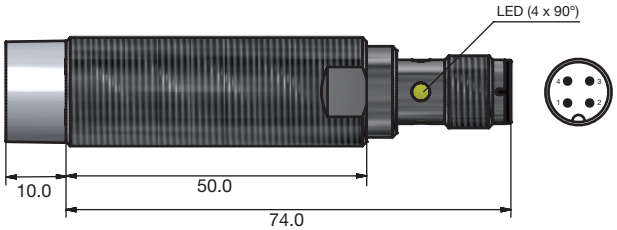


Fig. 13 *Long body, non-flush version, plug*

Installation

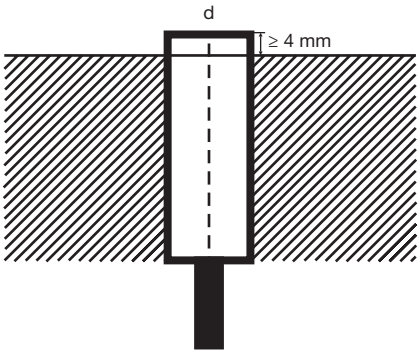


Fig. 14 *Quasi-flush sensor, when installed in damping material*

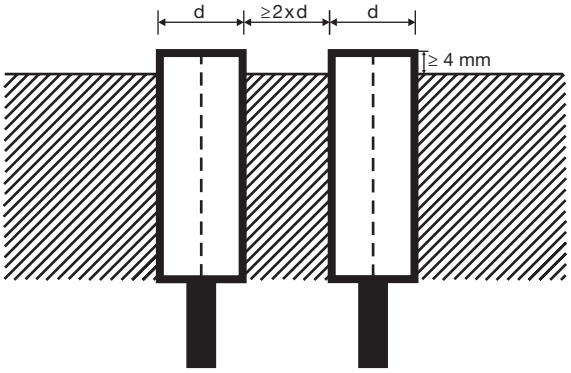


Fig. 15 *Quasi-flush sensors, when installed together in damping material*

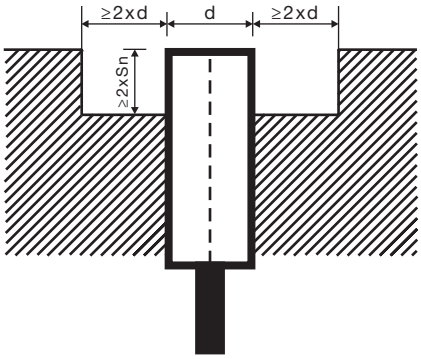


Fig. 16 *Non-flush sensor, when installed in damping material*

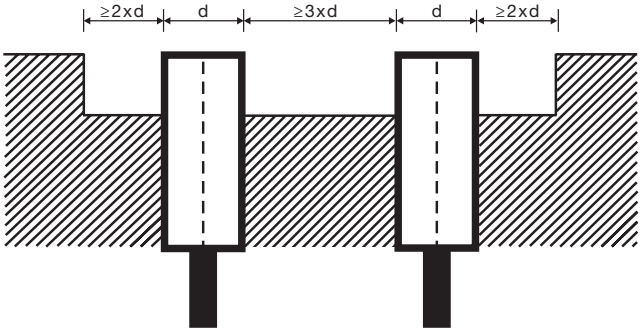


Fig. 17 *Non-flush sensors, when installed together in damping material*

S_n: nominal sensing distance
d: sensor diameter: 18 mm

Sensors installed opposite each other

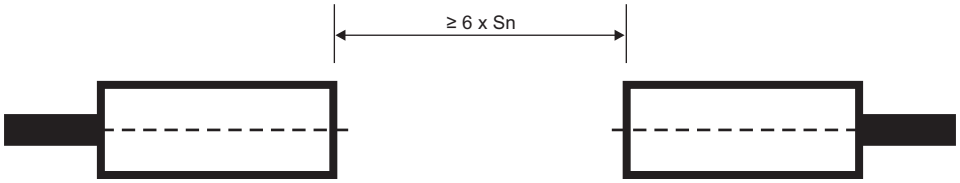


Fig. 18 *For sensors installed opposite each other, a minimum space of 6 x Sn (the nominal sensing distance) must be observed*

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.