

# Proximity Sensors Inductive Nickel-Plated Brass Housing Types IA, M12, M18 and M30

5 years warranty

CARLO GAVAZZI



- Sensing distance: 2 to 15 mm
- Flush and non-flush types
- Long and short body
- Rated operational voltage: 10 - 40 VDC
- Output: DC 200 mA, NPN or PNP
- Make and break switching function
- LED-indication
- Protection: reverse polarity, short circuit, transients
- Cable and plug versions

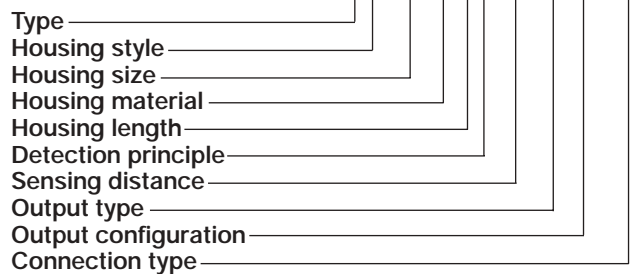
## Product Description

A family of inexpensive general purpose inductive proximity switches in industrial standard nickel-plated brass housings. M12, M18 and M30 types. They are able to handle simple applications

where a basic sensor provides adequate sensing performance. Output are open collector NPN or PNP transistors. Available with cable and M12 plug.

## Ordering Key

IA12ASF02NOM1



## Type Selection

Housing diameter	Connec- tion	Body style	Rated operating distance S <sub>n</sub>	Ordering no. NPN Make switching	Ordering no. PNP Make switching	Ordering no. NPN Break switching	Ordering no. PNP Break switching
M12	Cable	Short	2 mm <sup>1)</sup>	IA 12 DSF 02 NO	IA 12 DSF 02 PO		
M12	Plug	Short	2 mm <sup>1)</sup>	IA 12 ASF 02 NOM1	IA 12 ASF 02 POM1		
M12	Cable	Long	2 mm <sup>1)</sup>	IA 12 DLF 02 NO	IA 12 DLF 02 PO		
M12	Plug	Long	2 mm <sup>1)</sup>	IA 12 ALF 02 NOM1	IA 12 ALF 02 POM1		
M12	Cable	Short	4 mm <sup>2)</sup>	IA 12 DSN 04 NO	IA 12 DSN 04 PO	IA 12 DSN 04 NC	IA 12 DSN 04 PC
M12	Plug	Short	4 mm <sup>2)</sup>	IA 12 ASN 04 NOM1	IA 12 ASN 04 POM1	IA 12 ASN 04 NCM1	IA 12 ASN 04 PCM1
M18	Cable	Short	5 mm <sup>1)</sup>	IA 18 DSF 05 NO	IA 18 DSF 05 PO		
M18	Plug	Short	5 mm <sup>1)</sup>	IA 18 ASF 05 NOM1	IA 18 ASF 05 POM1		
M18	Cable	Long	5 mm <sup>1)</sup>		IA 18 DLF 05 PO		IA 18 DLF 05 PC
M18	Plug	Long	5 mm <sup>1)</sup>		IA 18 ALF 05 POM1		IA 18 ALF 05 PCM1
M18	Cable	Short	8 mm <sup>2)</sup>	IA 18 DSN 08 NO	IA 18 DSN 08 PO	IA 18 DSN 08 NC	IA 18 DSN 08 PC
M18	Plug	Short	8 mm <sup>2)</sup>	IA 18 ASN 08 NOM1	IA 18 ASN 08 POM1	IA 18 ASN 08 NCM1	IA 18 ASN 08 PCM1
M30	Cable	Short	10 mm <sup>1)</sup>	IA 30 DSF 10 NO	IA 30 DSF 10 PO		
M30	Plug	Short	10 mm <sup>1)</sup>	IA 30 ASF 10 NOM1	IA 30 ASF 10 POM1		
M30	Cable	Long	10 mm <sup>1)</sup>		IA 30 DLF 10 PO		IA 30 DLF 10 PC
M30	Plug	Long	10 mm <sup>1)</sup>		IA 30 ALF 10 POM1		
M30	Cable	Short	15 mm <sup>2)</sup>	IA 30 DSN 15 NO	IA 30 DSN 15 PO		
M30	Plug	Short	15 mm <sup>2)</sup>	IA 30 ASN 15 NOM1	IA 30 ASN 15 POM1		

<sup>1)</sup> For flush mounting in metal

<sup>2)</sup> For non-flush mounting in metal



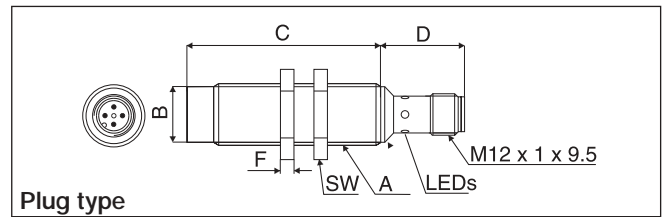
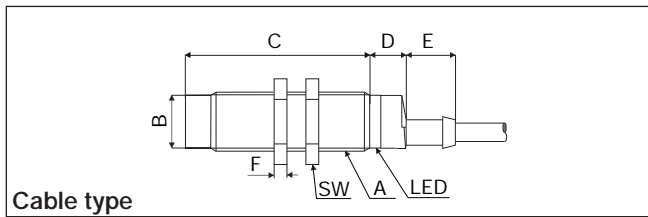
## Specifications

Rated operational voltage ( $U_B$ )	10 to 40 VDC (ripple incl.)	<b>Ambient temperature</b>	
Ripple	≤ 10%	Operating	-25° to +70°C (-13° to +158°F)
Output current ( $I_o$ )	≤ 200 mA @ 50°C (≤ 150 mA @ 50-70°C)	Storage	-30° to +80°C (-22° to +176°F)
No load supply current ( $I_o$ )	<b>IA 12</b> ≤ 10 mA <b>IA 18</b> ≤ 10 mA <b>IA 30</b> ≤ 10 mA	<b>Housing material</b>	
Voltage drop ( $U_d$ )	Max. 2.5 VDC @ 200 mA	Body	Nickel-plated brass
Protection	Reverse polarity, short-circuit, transients	Front	Grey thermoplastic polyester
Transient voltage	1 kV/0.5 J	Backpart	
Power ON delay ( $t_v$ )	50 ms	Plug	NPB
Operating frequency (f)	<b>IA12 ..F 02</b> ≤ 2000 Hz <b>IA12 DSN 04</b> ≤ 2000 Hz <b>IA18 ..F 05</b> ≤ 1500 Hz <b>IA18 DSN 08</b> ≤ 1500 Hz <b>IA30 ..F 10</b> ≤ 700 Hz <b>IA30 DSN 15</b> ≤ 700 Hz	Cable	PBTP (black polyester)
Indication for output ON	LED, yellow	Nuts	NPB
Assured operating sensing distance ( $S_a$ )	$0 \leq S_a \leq 0.81 \times S_n$	<b>Connection</b>	
Effective operating distance ( $S_r$ )	$0.9 \times S_n \leq S_r \leq 1.1 \times S_n$	Cable	2 m, 3 x 0.3 mm <sup>2</sup> , grey PVC, oil proof M12 x 1
Usable operating distance ( $S_u$ )	$0.9 \times S_r \leq S_u \leq 1.1 \times S_r$	Plug	M12 x 1
Repeat accuracy (R)	≤ 5%	Cables for plug (-1)	CONH1A/CONH1O series
Differential travel (H) (Hysteresis)	1 to 15% of sensing dist.	<b>Degree of protection</b>	IP 67
		<b>Weight</b> (cable/nuts included)	<b>IA 12 .S.</b> 100 g <b>IA 12 .L.</b> 105 g <b>IA 18 .S.</b> 120 g <b>IA 18 .L.</b> 130 g <b>IA 30 .S.</b> 185 g <b>IA 30 .L.</b> 195 g
		<b>Tightening torque</b>	<b>IA 12</b> 7.0 Nm (x) 15.0 Nm (y) <b>IA 18</b> 27.5 Nm <b>IA 30</b> 50.0 Nm
		<b>Approvals</b>	UL, CSA
		<b>CE-marking</b>	Yes

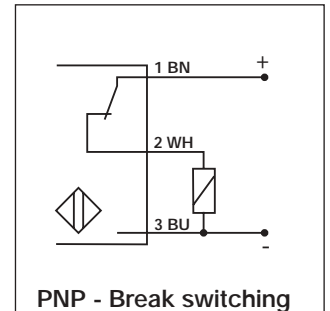
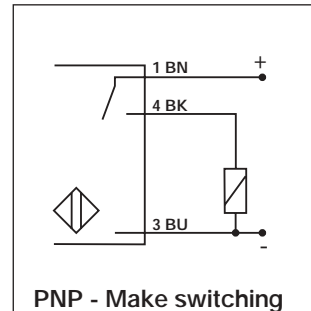
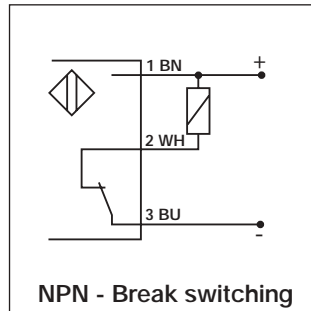
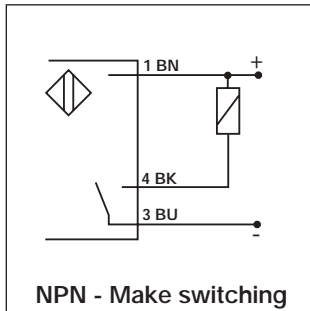
## Dimensions

Type	A	B Ø mm	C mm	D mm	E mm	F mm	SW mm
IA 12 DSF 02 .O	M12 x 1 x 30	10.7	30	11	5.0	4	17
IA 12 ASF 02 .O M1	M12 x 1 x 30	10.7	30	25.2		4	17
IA 12 DLF 02 .O	M12 x 1 x 50	10.7	50	11	5.0	4	17
IA 12 ALF 02 .O M1	M12 x 1 x 50	10.7	50	25.2		4	17
IA 12 DSN 04 .O	M12 x 1 x 30	10.7	34	11	5.0	4	17
IA 12 ASN 04 .O M1	M12 x 1 x 30	10.7	34	25.2		4	17
IA 18 DSF 05 .O	M18 x 1 x 30	16.7	30	11.6	15.4	4	24
IA 18 ASF 05 .O M1	M18 x 1 x 30	16.7	30	25.0		4	24
IA 18 DLF 05 ..	M18 x 1 x 50	16.7	50	11.6	15.4	4	24
IA 18 ALF 05 .O M1	M18 x 1 x 50	16.7	50	25.0		4	24
IA 18 DSN 08 .O	M18 x 1 x 30	16.7	38	11.6	15.4	4	24
IA 18 ASN 08 .O M1	M18 x 1 x 30	16.7	38	25.0		4	24
IA 30 DSF 10 .O	M30 x 1.5 x 30	28	30	13.6	15.4	5	36
IA 30 ASF 10 .O M1	M30 x 1.5 x 30	28	30	25.0		5	36
IA 30 DLF 10 ..	M30 x 1.5 x 50	28	50	13.6	15.4	5	36
IA 30 ALF 10 .O M1	M30 x 1.5 x 50	28	50	25.0		5	36
IA 30 DSN 15 .O	M30 x 1.5 x 30	28	42	13.6	15.4	5	36
IA 30 ASN 15 .O M1	M30 x 1.5 x 30	28	42	25.0		5	36

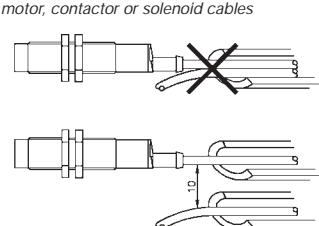
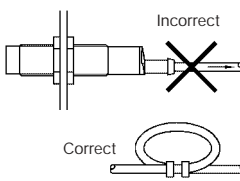
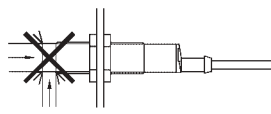
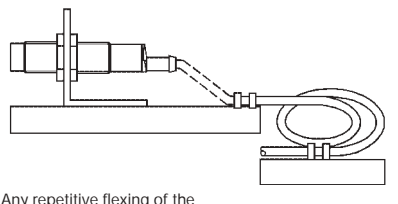
## Dimensions (cont.)



## Wiring Diagrams



## Installation Hints

<p>To avoid interference from inductive voltage/current peaks, separate the prox. switch power cables from any other power cables, e.g. motor, contactor or solenoid cables</p> 	<p>Relief of cable strain</p>  <p>The cable should not be pulled</p>	<p>Protection of the sensing face</p>  <p>A proximity switch should not serve as mechanical stop</p>	<p>Switch mounted on mobile carrier</p>  <p>Any repetitive flexing of the cable should be avoided</p>
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## Delivery Contents

- Inductive proximity switch IA..
- 2 nuts NPB
- Packaging: plastic bag

## Accessories

- M12 connector**
- |           |                       |
|-----------|-----------------------|
| CONH10-A2 | (90°, 2 m cable)      |
| CONH10-A5 | (90°, 5 m cable)      |
| CONH10-S2 | (straight, 2 m cable) |
| CONH10-S5 | (straight, 5 m cable) |



## Detection Diagrams

