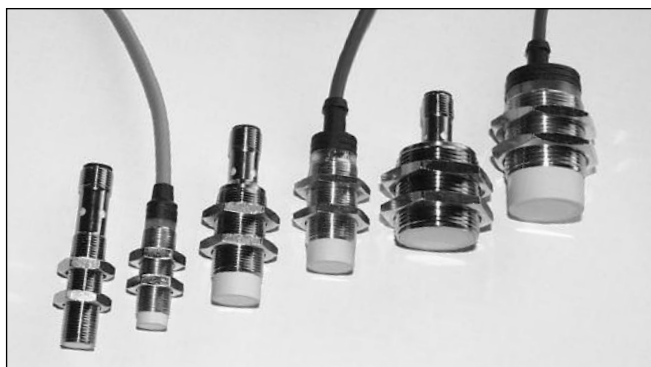


# Proximity Sensors Inductive Extended Range, Nickel Plated Brass Housing Types IA, DC, M12, M18 and M30, 2-wire

CARLO GAVAZZI



- Sensing distance: 4 to 22 mm
- Flush and non-flush types
- Power supply: 10 to 40 VDC
- Output: Transistor
- Make or break switching
- Protection: Reverse polarity, short-circuit and transients
- 2 m cable or plug M12
- Diameter: M12, M18, M30

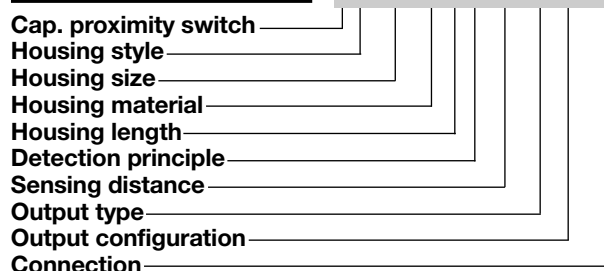


## Product Description

Proximity switch M12, M18 and M30 in nickel-plated brass housings. Made in accordance with Euronorm EN 60 947-5-2.

## Ordering Key

**IA12ASF04DOM1**



## Type Selection

| Housing diameter | Body style | Connection | Rated operating dist. (S <sub>n</sub> ) | Ordering no.<br>2 wire DC<br>Normally open | Ordering no.<br>2 wire DC<br>Normally closed |
|------------------|------------|------------|---|--|--|
| M12              | Short      | Cable      | 4 mm <sup>1)</sup>                      | IA 12 DSF 04 DO                            | IA 12 DSF 04 DC                              |
| M12              | Short      | Plug       | 4 mm <sup>1)</sup>                      | IA 12 ASF 04 DO M1                         | IA 12 ASF 04 DC M1                           |
| M12              | Short      | Cable      | 8 mm <sup>2)</sup>                      | IA 12 DSN 08 DO                            | IA 12 DSN 08 DC                              |
| M12              | Short      | Plug       | 8 mm <sup>2)</sup>                      | IA 12 ASN 08 DO M1                         | IA 12 ASN 08 DC M1                           |
| M18              | Short      | Cable      | 8 mm <sup>1)</sup>                      | IA 18 DSF 08 DO                            | IA 18 DSF 08 DC                              |
| M18              | Short      | Plug       | 8 mm <sup>1)</sup>                      | IA 18 ASF 08 DO M1                         | IA 18 ASF 08 DC M1                           |
| M18              | Short      | Cable      | 14 mm <sup>2)</sup>                     | IA 18 DSN 14 DO                            | IA 18 DSN 14 DC                              |
| M18              | Short      | Plug       | 14 mm <sup>2)</sup>                     | IA 18 ASN 14 DO M1                         | IA 18 ASN 14 DC M1                           |
| M30              | Short      | Cable      | 15 mm <sup>1)</sup>                     | IA 30 DSF 15 DO                            | IA 30 DSF 15 DC                              |
| M30              | Short      | Plug       | 15 mm <sup>1)</sup>                     | IA 30 ASF 15 DO M1                         | IA 30 ASF 15 DC M1                           |
| M30              | Short      | Cable      | 22 mm <sup>2)</sup>                     | IA 30 DSN 22 DO                            | IA 30 DSN 22 DC                              |
| M30              | Short      | Plug       | 22 mm <sup>2)</sup>                     | IA 30 ASN 22 DO M1                         | IA 30 ASN 22 DC M1                           |

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

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

## Specifications

|   |  |  |   |
|---|--|--|---|
| <b>Rated operational volt.</b> (U <sub>e</sub> )<br>(U <sub>B</sub> ) | 12 to 36 VDC<br>10 to 40 VDC (ripple included) | <b>Transient voltage</b>                     | ≤ 1 kV/0.5 J  |
| <b>Ripple</b>   | ≤ 10%  | <b>EMC</b>                                   | Approved according to<br>EN 50 080, EN 50 081   |
| <b>Rated operational current</b> (I <sub>e</sub> )<br>Continuous      | ≤ 5-100 mA                                     | <b>Power ON delay</b>                        | < 50 ms   |
| <b>No-load supply current</b> (I)                                     | ≤ 0.8 mA                                       | <b>Frequency of operating<br/>cycles</b> (f) | <b>IA12xSF</b> 1000 Hz<br><b>IA12xSN</b> 800 Hz<br><b>IA18xSF</b> 500 Hz<br><b>IA18xSN</b> 400 Hz<br><b>IA30xSF</b> 400 Hz<br><b>IA30xSN</b> 200 Hz |
| <b>Voltage drop</b> (U <sub>d</sub> )                                 | ≤ 3 VDC at max. load                           |  |   |
| <b>Protection</b>   | Reverse polarity,<br>short-circuit, transients |  |   |

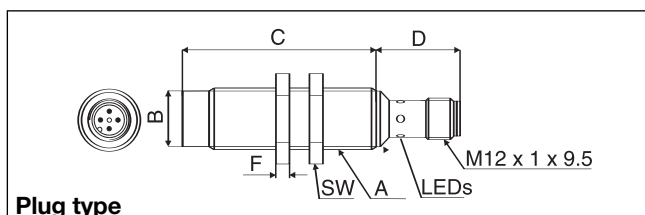
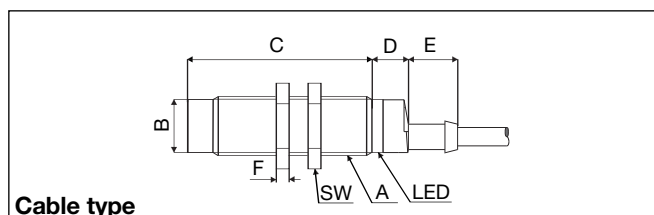


## Specifications (cont.)

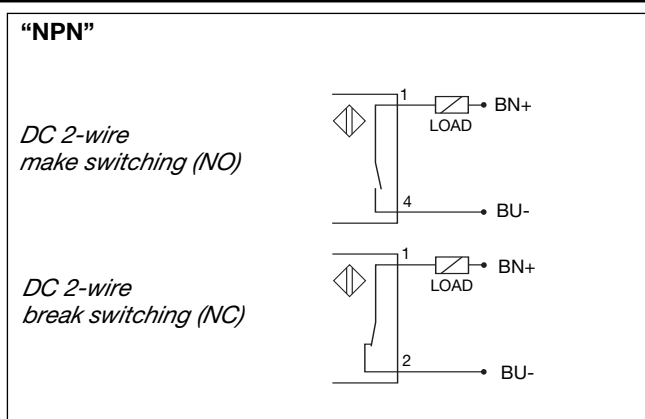
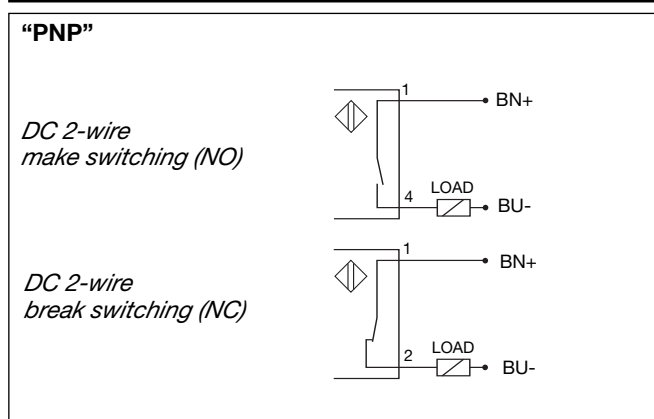
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| <b>Indication</b>                                | LED, yellow  | <b>Connection</b>              |  |
| <b>Repeat accuracy (R)</b>                       | ≤ 10%  | Cable                          | 2 m, 2 x 0.5 mm <sup>2</sup> , grey PVC, oil proof |
| <b>Hysteresis (H) (Differential travel)</b>      | 1 to 20% of sensing distance                                   | Plug                           | M12 x 1  |
| <b>Assured operating dist. (S<sub>a</sub>)</b>   | 0 ≤ S <sub>a</sub> ≤ 0.77 S <sub>n</sub>                       | Cables for plug (-1)           | CONH1A serie                                       |
| <b>Effective operating dist. (S<sub>r</sub>)</b> | 0.9 x S <sub>n</sub> ≤ S <sub>r</sub> ≤ 1.1 x S <sub>n</sub>   | <b>Weight</b> (cable excluded) | <b>IA 12xxx</b> 20 g                               |
| <b>Usable operating dist. (S)</b>                | 0.85 x S <sub>r</sub> ≤ S <sub>u</sub> ≤ 1.15 x S <sub>r</sub> |                                | <b>IA 18xxF</b> 26 g                               |
| <b>Ambient temperature</b>                       |  |                                | <b>IA 18xxN</b> 30 g                               |
| Operating  | -25° to +70°C (-13° to +158°F)                                 |                                | <b>IA 30xxF</b> 50 g                               |
| Storage  | -30° to +80°C (-22° to +176°F)                                 |                                | <b>IA 30xxN</b> 80 g                               |
| <b>Degree of protection</b>                      | IP 67 (Nema 1, 3, 4, 6, 13)                                    | <b>Tightening torque</b>       | <b>IA 12 (x)</b> 7 Nm                              |
| <b>Housing material</b>                          |  |                                | 15 Nm  |
| Body   | In nickel-plated brass   |                                | <b>IA 18</b> 27.5 Nm                               |
| Front  | Grey thermoplastic polyester                                   |                                | <b>IA 30</b> 50 Nm                                 |
| Back   | Black polyester (cable)  | <b>Approvals</b>               | CSA, UL  |
|  | In nickel-plated brass (plug)                                  | <b>CE-marking</b>              | Yes  |

## Dimensions

| Type               | A               | B<br>Ø mm | C<br>mm | D<br>mm | E<br>mm | F<br>mm | SW<br>mm |
|--------------------|-----------------|-----------|---------|---------|---------|---------|----------|
| IA 12 DSF 04 D.    | M 12 x 1 x 38   | 10.7      | 38      | 11      | 5.0     | 4       | 17       |
| IA 12 ASF 04 D. M1 | M 12 x 1 x 38   | 10.7      | 38      | 25.2    |         | 4       | 17       |
| IA 12 DSN 08 D.    | M 12 x 1 x 38   | 10.7      | 42      | 11      | 5.0     | 4       | 17       |
| IA 12 ASN 08 D. M1 | M 12 x 1 x 38   | 10.7      | 42      | 25.2    |         | 4       | 17       |
| IA 18 DSF 08 D.    | M 18 x 1 x 30   | 16.7      | 30      | 11.6    | 15.4    | 4       | 24       |
| IA 18 ASF 08 D. M1 | M 18 x 1 x 30   | 16.7      | 30      | 25.0    |         | 4       | 24       |
| IA 18 DSN 14 D.    | M 18 x 1 x 30   | 16.7      | 38      | 11.6    | 15.4    | 4       | 24       |
| IA 18 ASN 14 D. M1 | M 18 x 1 x 30   | 16.7      | 38      | 25.0    |         | 4       | 24       |
| IA 30 DSF 15 D.    | M 30 x 1.5 x 30 | 28        | 30      | 13.6    | 15.4    | 5       | 36       |
| IA 30 ASF 15 D. M1 | M 30 x 1.5 x 30 | 28        | 30      | 25.0    |         | 5       | 36       |
| IA 30 DSN 22 D.    | M 30 x 1.5 x 30 | 28        | 42      | 13.6    | 15.4    | 5       | 36       |
| IA 30 ASN 22 D. M1 | M 30 x 1.5 x 30 | 28        | 42      | 25.0    |         | 5       | 36       |



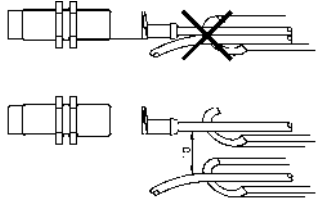
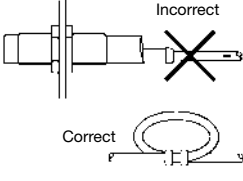
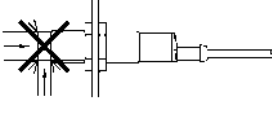
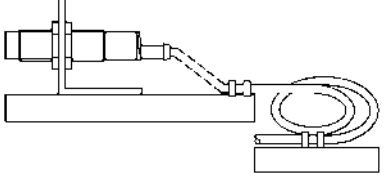
## Wiring Diagrams



## Power Supplies

Power supplies VDC: > SS 130/140.

## Installation Hints

|  |  |   |   |
|--|--|---|---|
| <p><i>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</i></p>  | <p><i>Relief of cable strain</i></p>  <p>The cable should not be pulled</p> | <p><i>Protection of the sensing face</i></p>  <p>A proximity switch should not serve as mechanical stop</p> | <p><i>Switch mounted on mobile carrier</i></p>  <p>Any repetitive flexing of the cable should be avoided</p> |
|--|--|---|---|