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Proximity Sensors Inductive
Stainless Steel Housing
Types IA, M12, M18 and M30, NAMUR

CARLO GAVAZZI

- Stainless steel housing, cylindrical
- Diameter: M12, M18, M30
- Short or long versions
- Sensing distance: 2 to 15 mm
- Output: NAMUR EN 50 227
- Protection: Reverse polarity
- LED-indication
- 2 m cable or plug M12

Product Description

Proximity switch in M12, M18 and M30 stainless steel housing. Made in accordance with Euronorm EN 50 227 and EN 60 947-5-2. For thermoplastic housing refer to type IA 12C.... Amplifier relay SD.... is available.

Ordering Key

IA 12 ESF 02 UC M1

- **Type**
- **Housing size**
- **Housing type**
- **Sensing function**
- **Sensing distance**
- **Output type**
- **Plug**

Type Selection

Housing diameter	Body style	Connection	Rated operating distance (S_n)	Ordering no. Namur
M12	Short	Cable	2 mm [1]	**IA 12 ESF 02 UC**
M12	Short	Plug	2 mm [1]	**IA 12 ESF 02 UC M1**
M12	Long	Cable	2 mm [1]	**IA 12 ELF 02 UC**
M12	Long	Plug	2 mm [1]	**IA 12 ELF 02 UC M1**
M12	Short	Cable	4 mm [2]	**IA 12 ESN 04 UC**
M12	Short	Plug	4 mm [2]	**IA 12 ESN 04 UC M1**
M12	Long	Cable	4 mm [2]	**IA 12 ELN 04 UC**
M12	Long	Plug	4 mm [2]	**IA 12 ELN 04 UC M1**
M18	Short	Cable	5 mm [1]	**IA 18 ESF 05 UC**
M18	Short	Plug	5 mm [1]	**IA 18 ESF 05 UC M1**
M18	Long	Cable	5 mm [1]	**IA 18 ELF 05 UC**
M18	Long	Plug	5 mm [1]	**IA 18 ELF 05 UC M1**
M18	Short	Cable	8 mm [2]	**IA 18 ESN 08 UC**
M18	Short	Plug	8 mm [2]	**IA 18 ESN 08 UC M1**
M18	Long	Cable	8 mm [2]	**IA 18 ELN 08 UC**
M18	Long	Plug	8 mm [2]	**IA 18 ELN 08 UC M1**
M30	Short	Cable	10 mm [1]	**IA 30 ESF 10 UC**
M30	Short	Plug	10 mm [1]	**IA 30 ESF 10 UC M1**
M30	Long	Cable	10 mm [1]	**IA 30 ELF 10 UC**
M30	Long	Plug	10 mm [1]	**IA 30 ELF 10 UC M1**
M30	Short	Cable	15 mm [2]	**IA 30 ESN 15 UC**
M30	Short	Plug	15 mm [2]	**IA 30 ESN 15 UC M1**
M30	Long	Cable	15 mm [2]	**IA 30 ELN 15 UC**
M30	Long	Plug	15 mm [2]	**IA 30 ELN 15 UC M1**

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

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Specifications

Rated operational volt. (U_e) (U_B)	8.2 VDC 7 to 9 VDC (6 to 35 VDC, all specifications not observed in extended supply range)
Self-inductance	≤ 500µH
Self-capacitance	≤ 120 nF
No-load supply current (I_o)	Activated: ≤1 mA Not activated: ≥ 2.2 mA Max. 9.35 mA
Protection	Reverse polarity
Transient voltage	≤ 1 kV/0.5 J
EMC	Approved according to EN 50 080, EN 50 081
Power ON delay	< 10 ms
Frequency of operating cycles (f)	**IA12xxF02** 1.400 Hz **IA12xxN04** 1.200 Hz **IA18xxF05** 500 Hz **IA18xxN08** 200 Hz **IA30xxF10** 300 Hz **IA30xxF15** 100 Hz
Indication not activated	LED, yellow
Assured operating dist. (S_a)	$0 \le S_a \le 0.81\ S_n$
Repeat accuracy (R)	≤ 5%

Hysteresis (H) (Differential travel)	1 to 15% of sensing distance
Effective operating dist. (S_r)	$0.9 \times S_n \le S_r \le 1.1 \times S_n$
Usable operating dist. (S)	$0.9 \times S_r \le S_u \le 1.1 \times S_r$
Ambient temperature Operating Storage	 -25° to +70°C (-13° to +158°F) -30° to +80°C (-22° to +176°F)
Degree of protection	IP 67 (Nema 1, 3, 4, 6, 13)
Housing material Body Front Back	 Stainless Steel (1.4301) Grey thermoplastic polyester Black thermoplastic polyester
Connection Cable Plug Cables for plug (-1)	 2 m, 2 x 0.5 mm², grey PVC, oil proof M12 x 1 CONH1A series
Weight (cable excluded)	**IA 12xx** 20 g **IA 18xxF05** 26 g **IA 18xxN08** 30 g **IA 30xxF10** 75 g **IA 30xxN15** 80 g
Tightening torque	**IA 12** 7.5 Nm **IA 18** 27.5 Nm **IA 30** 100 Nm
Approvals	UL
CE-marking	Yes

Dimensions

Type	A	B Ø mm	C mm	D mm	E mm	F mm	SW mm
IA 12 ESF 02 UC	M12 x 1 x 30	10.7	30	11	5.0	4	17
IA 12 ELF 02 UC	M12 x 1 x 50	10.7	50	11	5.0	4	17
IA 12 ESF 02 UC M1	M12 x 1 x 30	10.7	30	12.6	11.9	4	17
IA 12 ELF 02 UC M1	M12 x 1 x 50	10.7	50	12.6	11.9	4	17
IA 12 ESN 04 UC	M12 x 1 x 30	10.7	34	11	5.0	4	17
IA 12 ELN 04 UC	M12 x 1 x 50	10.7	54	11	5.0	4	17
IA 12 ESN 04 UC M1	M12 x 1 x 30	10.7	34	12.6	11.9	4	17
IA 12 ELN 04 UC M1	M12 x 1 x 50	10.7	54	12.6	11.9	4	17
IA 18 ESF 05 UC	M18 x 1 x 30	16.7	30	11.6	15.4	4	24
IA 18 ELF 05 UC	M18 x 1 x 50	16.7	50	11.6	15.4	4	24
IA 18 ESF 05 UC M1	M18 x 1 x 30	16.7	30	13.1	11.9	4	24
IA 18 ELF 05 UC M1	M18 x 1 x 50	16.7	50	13.1	11.9	4	24
IA 18 ESN 08 UC	M18 x 1 x 30	16.7	38	11.6	15.4	4	24
IA 18 ELN 08 UC	M18 x 1 x 50	16.7	58	11.6	15.4	4	24
IA 18 ESN 08 UC M1	M18 x 1 x 30	16.7	38	13.1	11.9	4	24
IA 18 ELN 08 UC M1	M18 x 1 x 50	16.7	58	13.1	11.9	4	24
IA 30 ESF 10 UC	M30 x 1.5 x 30	28	30	13.6	15.4	5	36
IA 30 ELF 10 UC	M30 x 1.5 x 50	28	50	13.6	15.4	5	36
IA 30 ESF 10 UC M1	M30 x 1.5 x 30	28	30	13.6	11.9	5	36
IA 30 ELF 10 UC M1	M30 x 1.5 x 50	28	50	13.6	11.9	5	36
IA 30 ESN 15 UC	M30 x 1.5 x 30	28	42	13.6	15.4	5	36
IA 30 ELN 15 UC	M30 x 1.5 x 50	28	62	13.6	15.4	5	36
IA 30 ESN 15 UC M1	M30 x 1.5 x 30	28	42	13.6	11.9	5	36
IA 30 ELN 15 UC M1	M30 x 1.5 x 50	28	62	13.6	11.9	5	36

Specifications are subject to change without notice (19.05.05)

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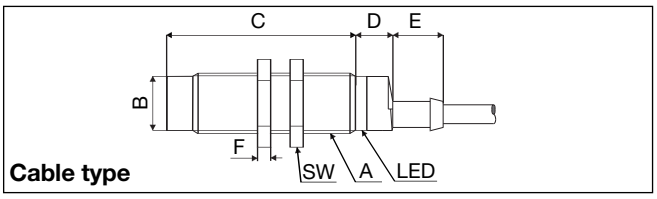
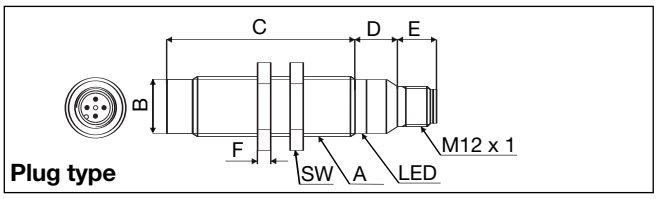
Dimensions (cont.)



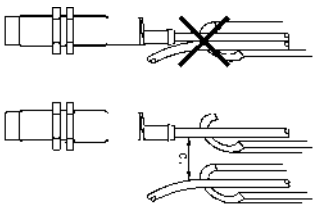
Cable type



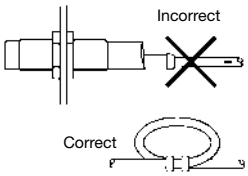
Plug type

Installation Hints

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

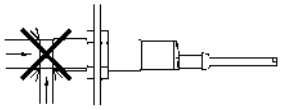


Relief of cable strain



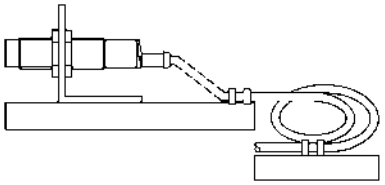
The cable should not be pulled

Protection of the sensing face



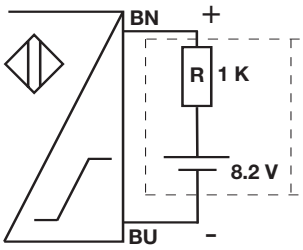
A proximity switch should not serve as mechanical stop

Switch mounted on mobile carrier



Any repetitive flexing of the cable should be avoided

Wiring Diagram



Power Supplies

> SD 110/210
> SD 170/270

Refer to Technical information.

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Product	Code	Reference	Product link
Selected parameters MOUNTING Non Flush HOUSING M30 SENSING RANGE >10 to 15 mm OUTPUT Namur CONNECTION Cable WIRE 2-wire MATERIAL Metal SYSTEM Proximity Sensor Others HOUSING M30 x 62 mm MATERIAL Stainless steel SENSING RANGE 15 mm	IA30ELN15UC		Buy on EAN