

# Proximity Inductive Sensors DC Metal Face Types IA, M8, M12, M18 and M30

CARLO GAVAZZI



- Sensing distance: 1 to 15 mm
- Flush and non-flush types
- Long and short housing
- Rated operational voltage: 10 - 30 VDC
- Output: DC 100 mA, NPN or PNP
- Normally open, Normally closed
- Output indication: by yellow LED
- Protection: reverse polarity, short circuit, transients
- Cable and plug versions

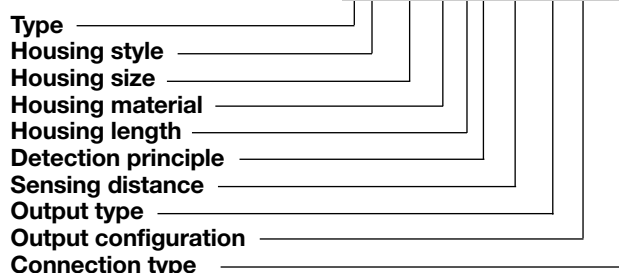
## Product Description

A family of metal face inductive proximity switches in industrial standard stainless steel housings (M8, M12, M18 and M30 types). Output indication: by yellow LED. Outputs are open collector NPN or PNP transistors. Available with cable and M8 or M12 plug. These sensors stand up to

abrasion and impact caused by flying metal chips, grit and misaligned or vibrating targets. In addition, the stainless steel body resists against corrosion and chemical attack, by offering a higher level of protection for more reliable operation and longer life in harsh environments.

## Ordering Key

**IA08FLF01NOM5**



## Type Selection M8, M12 and M18

Housing diameter	Connection	Housing 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
M8	Cable	Short	1 mm <sup>1)</sup>	IA 08 FSF 01 NO	IA 08 FSF 01 PO	IA 08 FSF 01 NC	IA 08 FSF 01 PC
M8	Plug	Short	1 mm <sup>1)</sup>	IA 08 FSF 01 NOM5	IA 08 FSF 01 POM5	IA 08 FSF 01 NCM5	IA 08 FSF 01 PCM5
M8	Cable	Long	1 mm <sup>1)</sup>	IA 08 FLF 01 NO	IA 08 FLF 01 PO	IA 08 FLF 01 NC	IA 08 FLF 01 PC
M8	Plug	Long	1 mm <sup>1)</sup>	IA 08 FLF 01 NOM5	IA 08 FLF 01 POM5	IA 08 FLF 01 NCM5	IA 08 FLF 01 PCM5
M8	Cable	Short	2 mm <sup>2)</sup>	IA 08 FSN 02 NO	IA 08 FSN 02 PO	IA 08 FSN 02 NC	IA 08 FSN 02 PC
M8	Plug	Short	2 mm <sup>2)</sup>	IA 08 FSN 02 NOM5	IA 08 FSN 02 POM5	IA 08 FSN 02 NCM5	IA 08 FSN 02 PCM5
M8	Cable	Long	2 mm <sup>2)</sup>	IA 08 FLN 02 NO	IA 08 FLN 02 PO	IA 08 FLN 02 NC	IA 08 FLN 02 PC
M8	Plug	Long	2 mm <sup>2)</sup>	IA 08 FLN 02 NOM5	IA 08 FLN 02 POM5	IA 08 FLN 02 NCM5	IA 08 FLN 02 PCM5
M12	Cable	Short	2 mm <sup>1)</sup>	IA 12 FSF 02 NO	IA 12 FSF 02 PO	IA 12 FSF 02 NC	IA 12 FSF 02 PC
M12	Plug	Short	2 mm <sup>1)</sup>	IA 12 FSF 02 NOM1	IA 12 FSF 02 POM1	IA 12 FSF 02 NCM1	IA 12 FSF 02 PCM1
M12	Cable	Long	2 mm <sup>1)</sup>	IA 12 FLF 02 NO	IA 12 FLF 02 PO	IA 12 FLF 02 NC	IA 12 FLF 02 PC
M12	Plug	Long	2 mm <sup>1)</sup>	IA 12 FLF 02 NOM1	IA 12 FLF 02 POM1	IA 12 FLF 02 NCM1	IA 12 FLF 02 PCM1
M12	Cable	Short	4 mm <sup>2)</sup>	IA 12 FSN 04 NO	IA 12 FSN 04 PO	IA 12 FSN 04 NC	IA 12 FSN 04 PC
M12	Plug	Short	4 mm <sup>2)</sup>	IA 12 FSN 04 NOM1	IA 12 FSN 04 POM1	IA 12 FSN 04 NCM1	IA 12 FSN 04 PCM1
M12	Cable	Long	4 mm <sup>2)</sup>	IA 12 FLN 04 NO	IA 12 FLN 04 PO	IA 12 FLN 04 NC	IA 12 FLN 04 PC
M12	Plug	Long	4 mm <sup>2)</sup>	IA 12 FLN 04 NOM1	IA 12 FLN 04 POM1	IA 12 FLN 04 NCM1	IA 12 FLN 04 PCM1
M18	Cable	Short	5 mm <sup>1)</sup>	IA 18 FSF 05 NO	IA 18 FSF 05 PO	IA 18 FSF 05 NC	IA 18 FSF 05 PC
M18	Plug	Short	5 mm <sup>1)</sup>	IA 18 FSF 05 NOM1	IA 18 FSF 05 POM1	IA 18 FSF 05 NCM1	IA 18 FSF 05 PCM1
M18	Cable	Long	5 mm <sup>1)</sup>	IA 18 FLF 05 NO	IA 18 FLF 05 PO	IA 18 FLF 05 NC	IA 18 FLF 05 PC
M18	Plug	Long	5 mm <sup>1)</sup>	IA 18 FLF 05 NOM1	IA 18 FLF 05 POM1	IA 18 FLF 05 NCM1	IA 18 FLF 05 PCM1
M18	Cable	Short	8 mm <sup>2)</sup>	IA 18 FSN 08 NO	IA 18 FSN 08 PO	IA 18 FSN 08 NC	IA 18 FSN 08 PC
M18	Plug	Short	8 mm <sup>2)</sup>	IA 18 FSN 08 NOM1	IA 18 FSN 08 POM1	IA 18 FSN 08 NCM1	IA 18 FSN 08 PCM1
M18	Cable	Long	8 mm <sup>2)</sup>	IA 18 FLN 08 NO	IA 18 FLN 08 PO	IA 18 FLN 08 NC	IA 18 FLN 08 PC
M18	Plug	Long	8 mm <sup>2)</sup>	IA 18 FLN 08 NOM1	IA 18 FLN 08 POM1	IA 18 FLN 08 NCM1	IA 18 FLN 08 PCM1

<sup>1)</sup> For flush mounting in metal <sup>2)</sup> For non-flush mounting in metal

## Type Selection M30

Housing diameter	Connection	Housing 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
M30	Cable	Short	10 mm <sup>1)</sup>	IA 30 FSF 10 NO	IA 30 FSF 10 PO	IA 30 FSF 10 NC	IA 30 FSF 10 PC
M30	Plug	Short	10 mm <sup>1)</sup>	IA 30 FSF 10 NOM1	IA 30 FSF 10 POM1	IA 30 FSF 10 NCM1	IA 30 FSF 10 PCM1
M30	Cable	Long	10 mm <sup>1)</sup>	IA 30 FLF 10 NO	IA 30 FLF 10 PO	IA 30 FLF 10 NC	IA 30 FLF 10 PC
M30	Plug	Long	10 mm <sup>1)</sup>	IA 30 FLF 10 NOM1	IA 30 FLF 10 POM1	IA 30 FLF 10 NCM1	IA 30 FLF 10 PCM1
M30	Cable	Short	15 mm <sup>2)</sup>	IA 30 FSN 15 NO	IA 30 FSN 15 PO	IA 30 FSN 15 NC	IA 30 FSN 15 PC
M30	Plug	Short	15 mm <sup>2)</sup>	IA 30 FSN 15 NOM1	IA 30 FSN 15 POM1	IA 30 FSN 15 NCM1	IA 30 FSN 15 PCM1
M30	Cable	Long	15 mm <sup>2)</sup>	IA 30 FLN 15 NO	IA 30 FLN 15 PO	IA 30 FLN 15 NC	IA 30 FLN 15 PC
M30	Plug	Long	15 mm <sup>2)</sup>	IA 30 FLN 15 NOM1	IA 30 FLN 15 POM1	IA 30 FLN 15 NCM1	IA 30 FLN 15 PCM1

1) For flush mounting in metal 2) For non-flush mounting in metal

## Specifications

<b>Rated operational voltage (<math>U_B</math>)</b>	10 to 30 VDC	<b>Housing material</b>	Body, Front	Stainless steel AISI 304
<b>Ripple</b>	< 10%	Backpart	Plug	PA-66
<b>Output current (<math>I_a</math>)</b>	$\leq 100$ mA @ 50°C	Cable	Nuts	PVC
<b>No load supply current (<math>I_o</math>)</b>	IA08, IA12Fx, IA18Fx, IA30Fx < 10 mA IA12FxN, IA18FxN, IA30FxN < 20 mA	<b>Connection</b>	Cable	Stainless steel
<b>Voltage drop (<math>U_d</math>)</b>	IA08 < 1.5 V IA12, IA18, IA30 < 2.0 V	IA08	IA08	2 m, 3 x 0.15 mm <sup>2</sup> , Ø 3 mm, Grey PVC
<b>Protection</b>	Reverse polarity, short-circuit, transients	IA12, IA18	IA12, IA18	2 m, 3 x 0.15 mm <sup>2</sup> , Ø 4 mm, Grey PVC
<b>Voltage transient</b>	1 kV	IA30	IA30	2 m, 3 x 0.50 mm <sup>2</sup> , Ø 5.8 mm, Grey PVC
<b>Power ON delay (<math>t_v</math>)</b>	< 10 ms	Plug	IA08	M8 x 1
<b>Operating frequency (f)</b>	IA08Fx 500 Hz IA12Fx 2000 Hz IA12FxF 1000 Hz IA18Fx 2000 Hz IA18FxF 1000 Hz IA18FxFxM1 1000 Hz IA18FxFxM1 500 Hz IA30FSF 2000 Hz IA30FSN 1000 Hz IA30FLF 300 Hz IA30FLN 150 Hz IA30FxFxM1 2000 Hz IA30FxFxM1 1000 Hz	IA12, IA18, IA30	IA12, IA18, IA30	M12 x 1
<b>Indication for output ON</b>	LED, yellow	Cables for plug (-1)	Cables for plug (-1)	CONH1A/CONH1O series
<b>Operating sensing distance (<math>S_a</math>)</b>	$0 \leq S_a \leq 0.81 \times S_n$	<b>Degree of protection</b>	Degree of protection	IP 67
<b>Effective operating distance (<math>S_r</math>)</b>	$0.9 \times S_n \leq S_r \leq 1.1 \times S_n$	<b>Weight</b>	IA08FSFxx	33 g
<b>Usable operating distance (<math>S_u</math>)</b>	$0.9 \times S_r \leq S_u \leq 1.1 \times S_r$	IA08FSFxxM5	IA08FSFxxM5	33 g
<b>Repeated accuracy (R)</b>	$\leq 5\%$	IA08FLFxx	IA08FLFxx	33 g
<b>Differential travel (H) (Hysteresis)</b>	1 to 20% of sensing dist.	IA08FLFxxM5	IA08FLFxxM5	18 g
<b>Ambient temperature</b>		IA08FSNxx	IA08FSNxx	32 g
Operating	-25° to +70°C (-13° to +158°F)	IA08FSNxxM5	IA08FSNxxM5	32 g
Storage	-25° to +70°C (-13° to +158°F)	IA08FLNxx	IA08FLNxx	32 g
Humidity (non-condensing)	35 to 95% RH	IA08FLNxxM5	IA08FLNxxM5	17 g
		IA12FSFxx	IA12FSFxx	31 g
		IA12FSFxxM1	IA12FSFxxM1	40 g
		IA12FLFxx	IA12FLFxx	67 g
		IA12FLFxxM1	IA12FLFxxM1	67 g
		IA12FLNxx	IA12FLNxx	153 g
		IA12FLNxxM1	IA12FLNxxM1	30 g
		IA18FSFxx	IA18FSFxx	38 g
		IA18FSFxxM1	IA18FSFxxM1	38 g
		IA18FLFxx	IA18FLFxx	65 g
		IA18FLFxxM1	IA18FLFxxM1	65 g
		IA18FSNxx	IA18FSNxx	144 g
		IA18FSNxxM1	IA18FSNxxM1	144 g
		IA18FLNxx	IA18FLNxx	110 g
		IA18FLNxxM1	IA18FLNxxM1	110 g
		IA18FLNxxM5	IA18FLNxxM5	74 g
		IA18FLNxxM5	IA18FLNxxM5	74 g
		IA18FLNxxM5	IA18FLNxxM5	153 g
		IA18FLNxxM5	IA18FLNxxM5	94 g
		IA18FLNxxM5	IA18FLNxxM5	92 g
		IA18FLNxxM5	IA18FLNxxM5	70 g
		IA18FLNxxM5	IA18FLNxxM5	144 g
		IA18FLNxxM5	IA18FLNxxM5	91 g

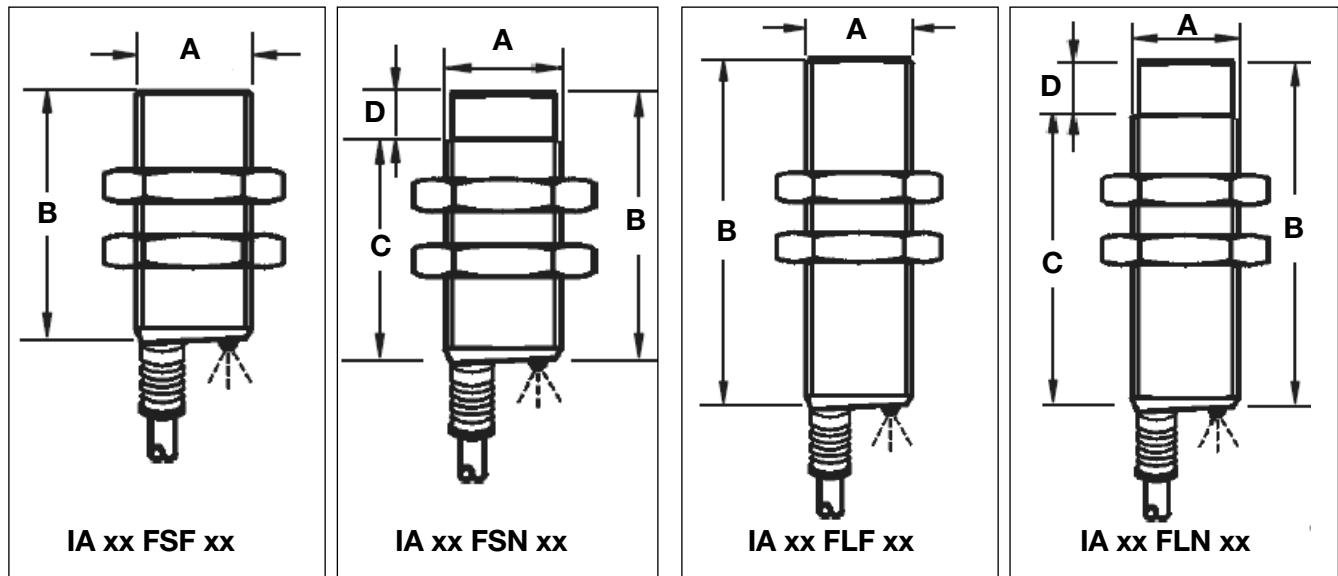
## Specifications (cont.)

<b>Weight (cont.)</b>		<b>Tightening torque</b>	
IA30FSFxx	146 g	IA08	4.5 Nm
IA30FSFxxM1	200 g	IA12	25.0 Nm
IA30FLFxx	217 g	IA18	60.0 Nm
IA30FLFxxM1	187 g	IA30	230.0 Nm
IA30FSNxx	138 g	<b>CE-marking</b>	Yes
IA30FSNxxM1	200 g		
IA30FLNxx	207 g		
IA30FLNxxM1	179 g		

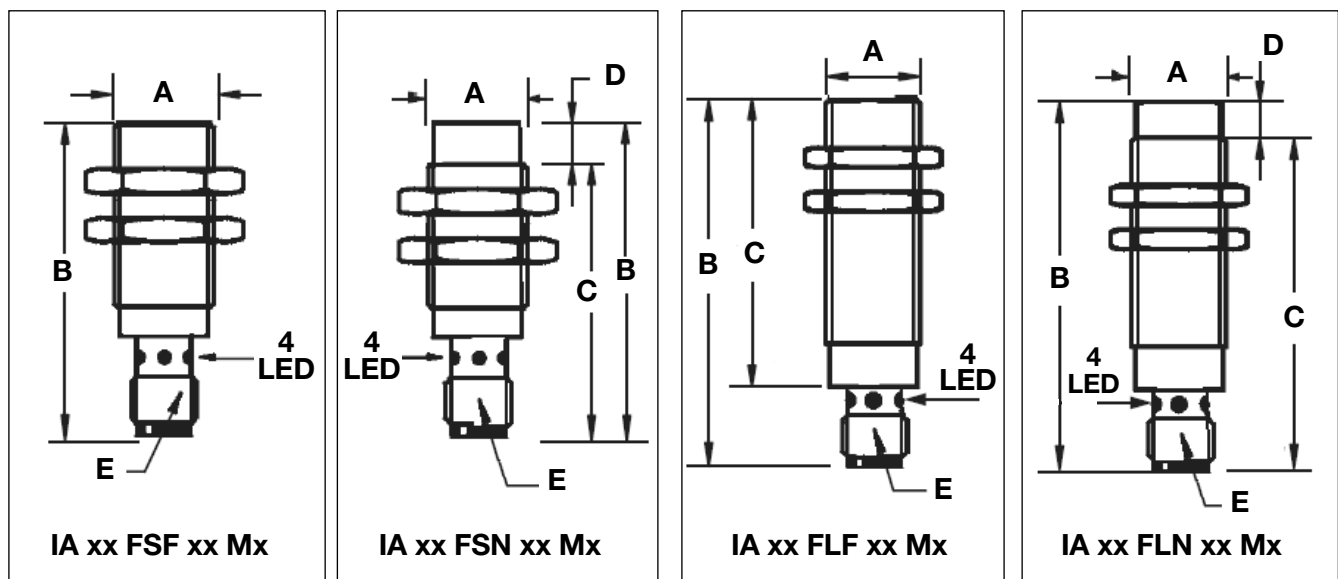
## Dimensions

Type	Description	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)
IA 08 FSF 01 xx	M8 x 1 x 30	M8 x 1	30	-	-	-
IA 08 FSF 01 xx M5	M8 x 1 x 45	M8 x 1	45	-	-	M8 x 1
IA 08 FLF 01 xx	M8 x 1 x 45	M8 x 1	45	-	-	-
IA 08 FLF 01 xx M5	M8 x 1 x 60	M8 x 1	60	40	-	M8 x 1
IA 08 FSN 02 xx	M8 x 1 x 30	M8 x 1	30	26	4	-
IA 08 FSN 02 xx M5	M8 x 1 x 45	M8 x 1	45	41	4	M8 x 1
IA 08 FLN 02 xx	M8 x 1 x 45	M8 x 1	45	41	4	-
IA 08 FLN 02 xx M5	M8 x 1 x 60	M8 x 1	60	56	4	M8 x 1
IA 12 FSF 02 xx	M12 x 1 x 30	M12 x 1	30	-	-	-
IA 12 FSF 02 xx M1	M12 x 1 x 50	M12 x 1	50	-	-	M12 x 1
IA 12 FLF 02 xx	M12 x 1 x 50	M12 x 1	50	-	-	-
IA 12 FLF 02 xx M1	M12 x 1 x 68	M12 x 1	68	42	-	M12 x 1
IA 12 FSN 04 xx	M12 x 1 x 30	M12 x 1	30	22	8	-
IA 12 FSN 04 xx M1	M12 x 1 x 50	M12 x 1	50	42	8	M12 x 1
IA 12 FLN 04 xx	M12 x 1 x 50	M12 x 1	50	42	8	-
IA 12 FLN 04 xx M1	M12 x 1 x 68	M12 x 1	68	60	8	M12 x 1
IA 18 FSF 05 xx	M18 x 1 x 35	M18 x 1	35	-	-	-
IA 18 FSF 05 xx M1	M18 x 1 x 48	M18 x 1	48	-	-	M12 x 1
IA 18 FLF 05 xx	M18 x 1 x 55	M18 x 1	55	-	-	-
IA 18 FLF 05 xx M1	M18 x 1 x 79	M18 x 1	79	65	-	M12 x 1
IA 18 FSN 08 xx	M18 x 1 x 35	M18 x 1	35	23	12	-
IA 18 FSN 08 xx M1	M18 x 1 x 48	M18 x 1	48	36	12	M12 x 1
IA 18 FLN 08 xx	M18 x 1 x 55	M18 x 1	55	43	12	-
IA 18 FLN 08 xx M1	M18 x 1 x 79	M18 x 1	79	67	12	M12 x 1
IA 30 FSF 10 xx	M30 x 1.5 x 35	M30 x 1.5	35	-	-	-
IA 30 FSF 10 xx M1	M30 x 1.5 x 48	M30 x 1.5	48	-	-	M12 x 1
IA 30 FLF 10 xx	M30 x 1.5 x 55	M30 x 1.5	55	-	-	-
IA 30 FLF 10 xx M1	M30 x 1.5 x 78	M30 x 1.5	78	-	-	M12 x 1
IA 30 FSN 15 xx	M30 x 1.5 x 35	M30 x 1.5	35	25	10	-
IA 30 FSN 15 xx M1	M30 x 1.5 x 48	M30 x 1.5	48	38	10	M12 x 1
IA 30 FLN 15 xx	M30 x 1.5 x 55	M30 x 1.5	55	45	10	-
IA 30 FLN 15 xx M1	M30 x 1.5 x 78	M30 x 1.5	78	68	10	M12 x 1

### Dimensions: cable type



### Dimensions: plug type



### Wiring Diagrams

