Proximity Sensors Inductive
Stainless Steel Housing
Types EI, DC, M12, M18, M30

CARLO GAVAZZI



- **Stainless steel housing, cylindrical**
- **Diameter: M12, M18, M30**
- **Short or long versions**
- **Sensing distance: 2 to 15 mm**
- **Power supply: 10 to 40 VDC**
- **Output: Transistor NPN/PNP, make or break switching**
- **Protection: Short-circuit and reverse polarity**
- **LED-indication for output ON**
- **2 m cable or plug M12**

Product Description

Proximity switch in housings ranging from M12 to M30. Short or long versions in standard stainless steel housing. Made after Euronorm EN 50 008.

Ordering Key

EI 1202 NPOSS-1

- **Type**
- **Housing diameter (mm)**
- **Rated operating dist. (mm)**
- **Output type**
- **Housing material**
- **Body style**
- **Plug**

Type Selection DC Types, Cable and M12 Plug

Housing diameter	Body style	Connection	Rated operating dist. (S_n)	Ordering no. Transistor NPN Make switching	Ordering no. Transistor NPN Break switching	Ordering no. Transistor PNP Make switching	Ordering no. Transistor PNP Break switching
M12	Short	Cable	2 mm [1]	**EI 1202 NPOSS**	**EI 1202 NPCSS**	**EI 1202 PPOSS**	**EI 1202 PPCSS**
M12	Short	Plug	2 mm [1]	**EI 1202 NPOSS-1**	**EI 1202 NPCSS-1**	**EI 1202 PPOSS-1**	**EI 1202 PPCSS-1**
M12	Long	Cable	2 mm [1]	**EI 1202 NPOSL**	**EI 1202 NPCSL**	**EI 1202 PPOSL**	**EI 1202 PPCSL**
M12	Long	Plug	2 mm [1]	**EI 1202 NPOSL-1**	**EI 1202 NPCSL-1**	**EI 1202 PPOSL-1**	**EI 1202 PPCSL-1**
M12	Short	Cable	4 mm [2]	**EI 1204 NPOSS**	**EI 1204 NPCSS**	**EI 1204 PPOSS**	**EI 1204 PPCSS**
M12	Short	Plug	4 mm [2]	**EI 1204 NPOSS-1**	**EI 1204 NPCSS-1**	**EI 1204 PPOSS-1**	**EI 1204 PPCSS-1**
M12	Long	Cable	4 mm [2]	**EI 1204 NPOSL**	**EI 1204 NPCSL**	**EI 1204 PPOSL**	**EI 1204 PPCSL**
M12	Long	Plug	4 mm [2]	**EI 1204 NPOSL-1**	**EI 1204 NPCSL-1**	**EI 1204 PPOSL-1**	**EI 1204 PPCSL-1**
M18	Short	Cable	5 mm [1]	**EI 1805 NPOSS**	**EI 1805 NPCSS**	**EI 1805 PPOSS**	**EI 1805 PPCSS**
M18	Short	Plug	5 mm [1]	**EI 1805 NPOSS-1**	**EI 1805 NPCSS-1**	**EI 1805 PPOSS-1**	**EI 1805 PPCSS-1**
M18	Long	Cable	5 mm [1]	**EI 1805 NPOSL**	**EI 1805 NPCSL**	**EI 1805 PPOSL**	**EI 1805 PPCSL**
M18	Long	Plug	5 mm [1]	**EI 1805 NPOSL-1**	**EI 1805 NPCSL-1**	**EI 1805 PPOSL-1**	**EI 1805 PPCSL-1**
M18	Short	Cable	8 mm [2]	**EI 1808 NPOSS**	**EI 1808 NPCSS**	**EI 1808 PPOSS**	**EI 1808 PPCSS**
M18	Short	Plug	8 mm [2]	**EI 1808 NPOSS-1**	**EI 1808 NPCSS-1**	**EI 1808 PPOSS-1**	**EI 1808 PPCSS-1**
M18	Long	Cable	8 mm [2]	**EI 1808 NPOSL**	**EI 1808 NPCSL**	**EI 1808 PPOSL**	**EI 1808 PPCSL**
M18	Long	Plug	8 mm [2]	**EI 1808 NPOSL-1**	**EI 1808 NPCSL-1**	**EI 1808 PPOSL-1**	**EI 1808 PPCSL-1**
M30	Short	Cable	10 mm [1]	**EI 3010 NPOSS**	**EI 3010 NPCSS**	**EI 3010 PPOSS**	**EI 3010 PPCSS**
M30	Short	Plug	10 mm [1]	**EI 3010 NPOSS-1**	**EI 3010 NPCSS-1**	**EI 3010 PPOSS-1**	**EI 3010 PPCSS-1**
M30	Long	Cable	10 mm [1]	**EI 3010 NPOSL**	**EI 3010 NPCSL**	**EI 3010 PPOSL**	**EI 3010 PPCSL**
M30	Long	Plug	10 mm [1]	**EI 3010 NPOSL-1**	**EI 3010 NPCSL-1**	**EI 3010 PPOSL-1**	**EI 3010 PPCSL-1**
M30	Short	Cable	15 mm [2]	**EI 3015 NPOSS**	**EI 3015 NPCSS**	**EI 3015 PPOSS**	**EI 3015 PPCSS**
M30	Short	Plug	15 mm [2]	**EI 3015 NPOSS-1**	**EI 3015 NPCSS-1**	**EI 3015 PPOSS-1**	**EI 3015 PPCSS-1**
M30	Long	Cable	15 mm [2]	**EI 3015 NPOSL**	**EI 3015 NPCSL**	**EI 3015 PPOSL**	**EI 3015 PPCSL**
M30	Long	Plug	15 mm [2]	**EI 3015 NPOSL-1**	**EI 3015 NPCSL-1**	**EI 3015 PPOSL-1**	**EI 3015 PPCSL-1**

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

Make switching = Normally Open (NO)
Break switching = Normally Closed (NC)

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Specifications

Rated operational volt. (U_e) (U_B)	12 to 36 VDC 10 to 40 VDC (ripple included)
Ripple	≤ 10%
Rated operational current (I_e) Continuous	≤ 200 mA
No-load supply current (I_o)	Output ON: < 6.5 mA Output OFF: < 2.7 mA
Voltage drop (U_d)	≤ 2 VDC at max. load
Protection	Reverse polarity, short-circuit, transients
Transient voltage	≤ 700 V/0.5 J
EMC	Approved according to EN 50 080, EN 50 081
Power ON delay	< 10 ms
Frequency of operating cycles (f)	**EI 1202** 800 Hz **EI 1204** 500 Hz **EI 1805** 500 Hz **EI 1808** 400 Hz **EI 3010** 300 Hz **EI 3015** 100 Hz
Indication for output ON	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

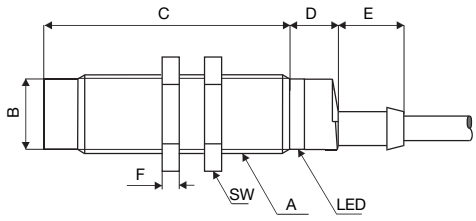
Effective operating dist. (S_r)	$0.9 \times S_n \le S_r \le 1.1 \times S_n$
Usable operating dist. (S)	$0.9 \times S_r \le S_u \le 1.1 \times S_r$
Ambient temperature	
Operating	-25° to +70°C (-13° to +158°F)
Storage	-30° to +80°C (-22° to +176°F)
Degree of protection	IP 67 (Nema 1, 3, 4, 6, 13)
Housing material	
Body	Stainless steel (1.4301)
Front	Grey thermoplastic polyester
Back	Black polyester
Connection	
Cable	2 m, 3 x 0.3 mm², grey PVC,oil proof
Plug	M12 x 1
Cables for plug (-1)	CONH1A serie
Weight (cable excluded)	**EI 12** 10 g **EI 1805** 18 g **EI 1808** 20 g **EI 3010** 50 g **EI 3015** 70 g
Tightening torque	**EI 12** 7.5 Nm (x) 17.5 Nm (y) **EI 18** 27.5 Nm **EI 30** 100.0 Nm
Approvals	UL, CSA
CE-marking	Yes

Dimensions

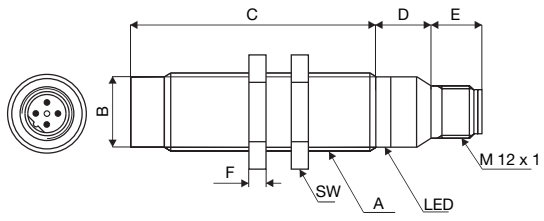
Type	A	B Ø mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	SW mm	K Ø mm	L Ø mm
EI 1202 XPXSS	M12 x 1 x 30	10.7	30	11	5.0	4				17		
EI 1202 XPXSL	M12 x 1 x 50	10.7	50	11	5.0	4				17		
EI 1202 XPXSS-1	M12 x 1 x 30	10.7	30	12.6	11.9	4				17		
EI 1202 XPXSL-1	M12 x 1 x 50	10.7	50	12.6	11.9	4				17		
EI 1204 XPXSS	M12 x 1 x 30	10.7	34	11	5.0	4				17		
EI 1204 XPXSL	M12 x 1 x 50	10.7	54	11	5.0	4				17		
EI 1204 XPXSS-1	M12 x 1 x 30	10.7	34	12.6	11.9	4				17		
EI 1204 XPXSL-1	M12 x 1 x 50	10.7	54	12.6	11.9	4				17		
EI 1805 XPXSS	M18 x 1 x 30	16.7	30	11.6	15.4	4				24		
EI 1805 XPXSL	M18 x 1 x 50	16.7	50	11.6	15.4	4				24		
EI 1805 XPXSS-1	M18 x 1 x 30	16.7	30	13.1	11.9	4				24		
EI 1805 XPXSL-1	M18 x 1 x 50	16.7	50	13.1	11.9	4				24		
EI 1808 XPXSS	M18 x 1 x 30	16.7	38	11.6	15.4	4				24		
EI 1808 XPXSL	M18 x 1 x 50	16.7	58	11.6	15.4	4				24		
EI 1808 XPXSS-1	M18 x 1 x 30	16.7	38	13.1	11.9	4				24		
EI 1808 XPXSL-1	M18 x 1 x 50	16.7	58	13.1	11.9	4				24		
EI 3010 XPXSS	M30 x 1.5 x 30	28	30	13.6	15.4	5				36		
EI 3010 XPXSL	M30 x 1.5 x 50	28	50	13.6	15.4	5				36		
EI 3010 XPXSS-1	M30 x 1.5 x 30	28	30	13.6	11.9	5				36		
EI 3010 XPXSL-1	M30 x 1.5 x 50	28	50	13.6	11.9	5				36		
EI 3015 XPXSS	M30 x 1.5 x 30	28	42	13.6	15.4	5				36		
EI 3015 XPXSL	M30 x 1.5 x 50	28	62	13.6	15.4	5				36		
EI 3015 XPXSS-1	M30 x 1.5 x 30	28	42	13.6	11.9	5				36		
EI 3015 XPXSL-1	M30 x 1.5 x 50	28	62	13.6	11.9	5				36		

Specifications are subject to change without notice (20.08.01)

Dimensions (cont.)

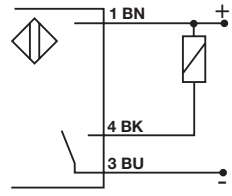


Cable

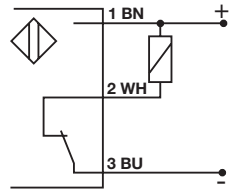


Plug

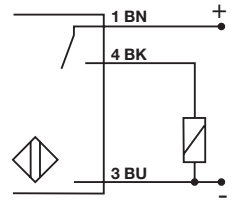
Wiring Diagrams



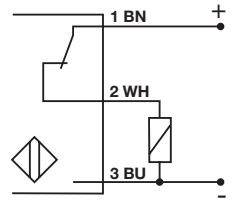
NPN - Make switching



NPN - Break switching



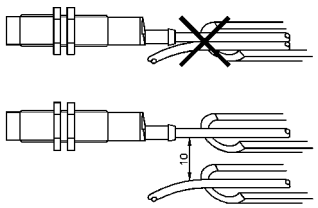
PNP - Make switching



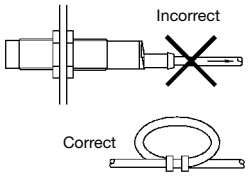
PNP - Break switching

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

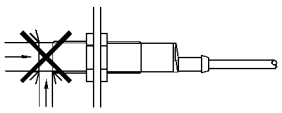


Relief of cable strain



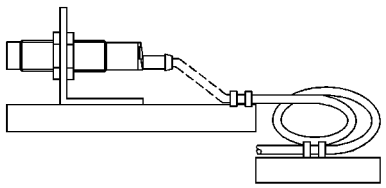
The cable should not be pulled

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

Power Supplies

Power supplies VDC: > SS 130/140.
Power supplies with amplifier relays: > SV 190.