

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



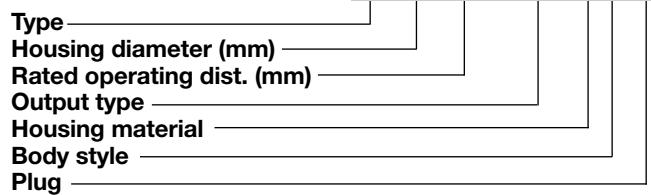
- Stainless steel housing, cylindrical
- Diameter: M12, M18, M30
- Short or long versions
- Sensing distance: 2 to 15 mm
- Power supply: 10 to 40 VDC
- Output: Transistor NPN/PNP, make or break switching
- Protection: Short-circuit and reverse polarity
- LED-indication for output ON
- 2 m cable or plug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

Housing diameter	Body style	Connec-tion	Rated operating dist. (S <sub>a</sub> )	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 <sup>1)</sup>	EI 1202 NPOSS	EI 1202 NPCSS	EI 1202 PPOSS	EI 1202 PPCSS
M12	Short	Plug	2 mm <sup>1)</sup>	EI 1202 NPOSS-1	EI 1202 NPCSS-1	EI 1202 PPOSS-1	EI 1202 PPCSS-1
M12	Long	Cable	2 mm <sup>1)</sup>	EI 1202 NPOSL	EI 1202 NPCSL	EI 1202 PPOSL	EI 1202 PPCSL
M12	Long	Plug	2 mm <sup>1)</sup>	EI 1202 NPOSL-1	EI 1202 NPCSL-1	EI 1202 PPOSL-1	EI 1202 PPCSL-1
M12	Short	Cable	4 mm <sup>2)</sup>	EI 1204 NPOSS	EI 1204 NPCSS	EI 1204 PPOSS	EI 1204 PPCSS
M12	Short	Plug	4 mm <sup>2)</sup>	EI 1204 NPOSS-1	EI 1204 NPCSS-1	EI 1204 PPOSS-1	EI 1204 PPCSS-1
M12	Long	Cable	4 mm <sup>2)</sup>	EI 1204 NPOSL	EI 1204 NPCSL	EI 1204 PPOSL	EI 1204 PPCSL
M12	Long	Plug	4 mm <sup>2)</sup>	EI 1204 NPOSL-1	EI 1204 NPCSL-1	EI 1204 PPOSL-1	EI 1204 PPCSL-1
M18	Short	Cable	5 mm <sup>1)</sup>	EI 1805 NPOSS	EI 1805 NPCSS	EI 1805 PPOSS	EI 1805 PPCSS
M18	Short	Plug	5 mm <sup>1)</sup>	EI 1805 NPOSS-1	EI 1805 NPCSS-1	EI 1805 PPOSS-1	EI 1805 PPCSS-1
M18	Long	Cable	5 mm <sup>1)</sup>	EI 1805 NPOSL	EI 1805 NPCSL	EI 1805 PPOSL	EI 1805 PPCSL
M18	Long	Plug	5 mm <sup>1)</sup>	EI 1805 NPOSL-1	EI 1805 NPCSL-1	EI 1805 PPOSL-1	EI 1805 PPCSL-1
M18	Short	Cable	8 mm <sup>2)</sup>	EI 1808 NPOSS	EI 1808 NPCSS	EI 1808 PPOSS	EI 1808 PPCSS
M18	Short	Plug	8 mm <sup>2)</sup>	EI 1808 NPOSS-1	EI 1808 NPCSS-1	EI 1808 PPOSS-1	EI 1808 PPCSS-1
M18	Long	Cable	8 mm <sup>2)</sup>	EI 1808 NPOSL	EI 1808 NPCSL	EI 1808 PPOSL	EI 1808 PPCSL
M18	Long	Plug	8 mm <sup>2)</sup>	EI 1808 NPOSL-1	EI 1808 NPCSL-1	EI 1808 PPOSL-1	EI 1808 PPCSL-1
M30	Short	Cable	10 mm <sup>1)</sup>	EI 3010 NPOSS	EI 3010 NPCSS	EI 3010 PPOSS	EI 3010 PPCSS
M30	Short	Plug	10 mm <sup>1)</sup>	EI 3010 NPOSS-1	EI 3010 NPCSS-1	EI 3010 PPOSS-1	EI 3010 PPCSS-1
M30	Long	Cable	10 mm <sup>1)</sup>	EI 3010 NPOSL	EI 3010 NPCSL	EI 3010 PPOSL	EI 3010 PPCSL
M30	Long	Plug	10 mm <sup>1)</sup>	EI 3010 NPOSL-1	EI 3010 NPCSL-1	EI 3010 PPOSL-1	EI 3010 PPCSL-1
M30	Short	Cable	15 mm <sup>2)</sup>	EI 3015 NPOSS	EI 3015 NPCSS	EI 3015 PPOSS	EI 3015 PPCSS
M30	Short	Plug	15 mm <sup>2)</sup>	EI 3015 NPOSS-1	EI 3015 NPCSS-1	EI 3015 PPOSS-1	EI 3015 PPCSS-1
M30	Long	Cable	15 mm <sup>2)</sup>	EI 3015 NPOSL	EI 3015 NPCSL	EI 3015 PPOSL	EI 3015 PPCSL
M30	Long	Plug	15 mm <sup>2)</sup>	EI 3015 NPOSL-1	EI 3015 NPCSL-1	EI 3015 PPOSL-1	EI 3015 PPCSL-1

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

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

Make switching = Normally Open (NO)

Break switching = Normally Closed (NC)



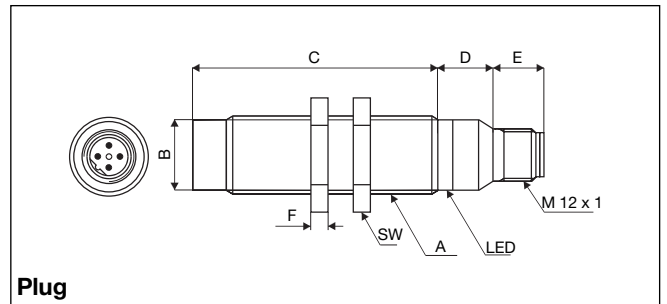
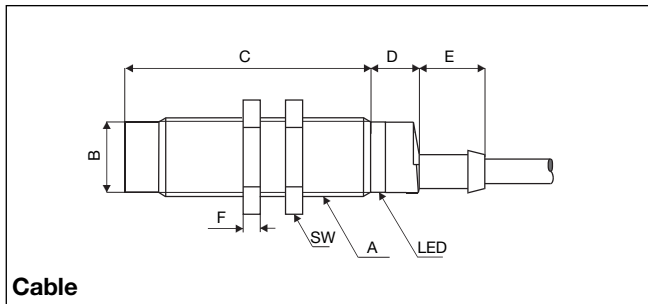
## Specifications

<b>Rated operational volt.</b> ( $U_e$ ) ( $U_B$ )	12 to 36 VDC 10 to 40 VDC (ripple included)	<b>Effective operating dist.</b> ( $S_r$ )	$0.9 \times S_n \leq S_r \leq 1.1 \times S_n$
<b>Ripple</b>	$\leq 10\%$	<b>Usable operating dist.</b> (S)	$0.9 \times S_r \leq S_u \leq 1.1 \times S_r$
<b>Rated operational current</b> ( $I_a$ ) Continuous	$\leq 200$ mA	<b>Ambient temperature</b> Operating	-25° to +70°C (-13° to +158°F)
<b>No-load supply current</b> ( $I_o$ )	Output ON: < 6.5 mA Output OFF: < 2.7 mA	Storage	-30° to +80°C (-22° to +176°F)
<b>Voltage drop</b> ( $U_d$ )	$\leq 2$ VDC at max. load	<b>Degree of protection</b>	IP 67 (Nema 1, 3, 4, 6, 13)
<b>Protection</b>	Reverse polarity, short-circuit, transients	<b>Housing material</b> Body	Stainless steel (1.4301)
<b>Transient voltage</b>	$\leq 700$ V/0.5 J	Front	Grey thermoplastic polyester
<b>EMC</b>	Approved according to EN 50 080, EN 50 081	Back	Black polyester
<b>Power ON delay</b>	< 10 ms	<b>Connection</b> Cable	2 m, 3 x 0.3 mm <sup>2</sup> , grey PVC, oil proof
<b>Frequency of operating cycles</b> (f)	<b>EI 1202</b> 800 Hz <b>EI 1204</b> 500 Hz <b>EI 1805</b> 500 Hz <b>EI 1808</b> 400 Hz <b>EI 3010</b> 300 Hz <b>EI 3015</b> 100 Hz	Plug	M12 x 1
<b>Indication for output ON</b>	LED, yellow	Cables for plug (-1)	CONH1A serie
<b>Assured operating dist.</b> ( $S_a$ )	$0 \leq S_a \leq 0.81 S_n$	<b>Weight</b> (cable excluded)	<b>EI 12</b> 10 g <b>EI 1805</b> 18 g <b>EI 1808</b> 20 g <b>EI 3010</b> 50 g <b>EI 3015</b> 70 g
<b>Repeat accuracy</b> (R)	$\leq 5\%$	<b>Tightening torque</b>	<b>EI 12</b> 7.5 Nm (x) 17.5 Nm (y) <b>EI 18</b> 27.5 Nm <b>EI 30</b> 100.0 Nm
<b>Hysteresis</b> (H) (Differential travel)	1 to 15% of sensing distance	<b>Approvals</b>	UL, CSA
		<b>CE-marking</b>	Yes

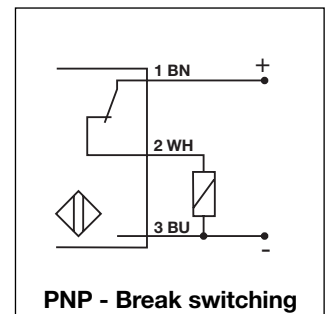
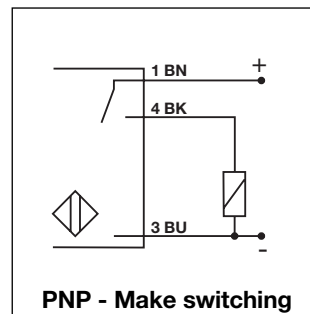
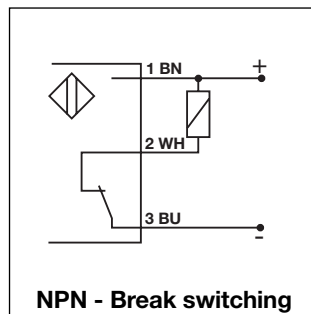
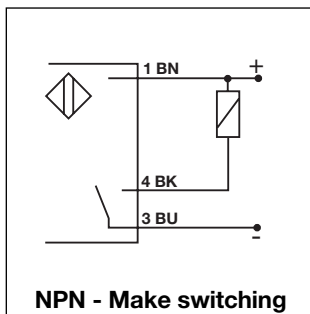
## Dimensions

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		

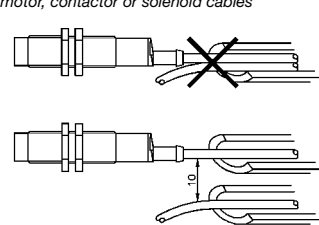
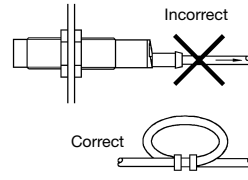
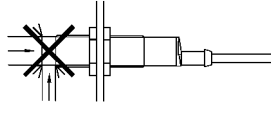
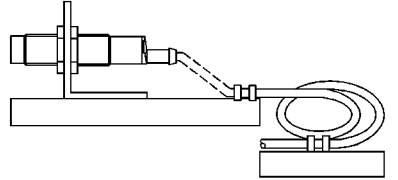
## Dimensions (cont.)



## Wiring Diagrams



## 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>
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## Power Supplies

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