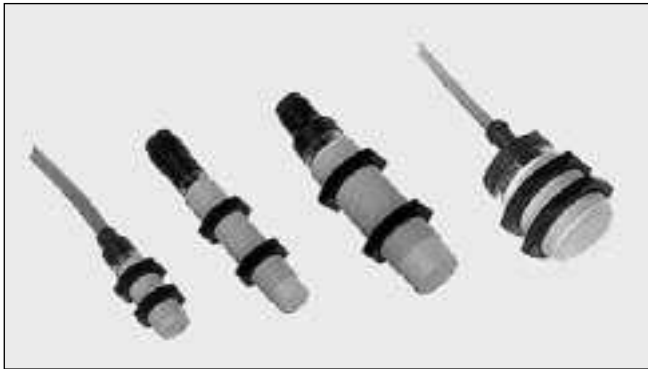


Proximity Sensors Inductive Thermoplastic Polyester Housing Types EI, DC, M12, M18, M30



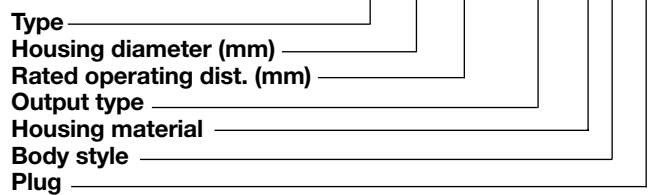
- Euronorm thermoplastic polyester housing, cylindrical
- Diameter: M12, M18, M30.
- Sensing distance: 2 to 15 mm
- Power supply: 10 to 40 VDC
20 to 250 VAC
- Output: Transistor NPN/PNP, make or break switching
SPDT relay, make & break switching
- Protection: Short-circuit, reverse polarity and overload
- LED-indication for output ON
- 2 m cable or M12 plug

Product Description

Proximity switch in M12, M18 and M30 polyester housings. Made in accordance with euronorms EN 50 008 and EN 50 036. For metal versions refer to type. EI ...S.

Ordering Key

EI 1202 NPOPS-1



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 NPOPS	EI 1202 NPCPS	EI 1202 PPOPS	EI 1202 PPCPS
M12	Short	Plug	2 mm ¹⁾	EI 1202 NPOPS-1	EI 1202 NPCPS-1	EI 1202 PPOPS-1	EI 1202 PPCPS-1
M12	Long	Cable	2 mm ¹⁾	EI 1202 NPOPL	EI 1202 NPCPL	EI 1202 PPOPL	EI 1202 PPCPL
M12	Long	Plug	2 mm ¹⁾	EI 1202 NPOPL-1	EI 1202 NPCPL-1	EI 1202 PPOPL-1	EI 1202 PPCPL-1
M12	Short	Cable	4 mm ²⁾	EI 1204 NPOPS	EI 1204 NPCPS	EI 1204 PPOPS	EI 1204 PPCPS
M12	Short	Plug	4 mm ²⁾	EI 1204 NPOPS-1	EI 1204 NPCPS-1	EI 1204 PPOPS-1	EI 1204 PPCPS-1
M12	Long	Cable	4 mm ²⁾	EI 1204 NPOPL	EI 1204 NPCPL	EI 1204 PPOPL	EI 1204 PPCPL
M12	Long	Plug	4 mm ²⁾	EI 1204 NPOPL-1	EI 1204 NPCPL-1	EI 1204 PPOPL-1	EI 1204 PPCPL-1
M18	Short	Cable	5 mm ¹⁾	EI 1805 NPOPS	EI 1805 NPCPS	EI 1805 PPOPS	EI 1805 PPCPS
M18	Short	Plug	5 mm ¹⁾	EI 1805 NPOPS-1	EI 1805 NPCPS-1	EI 1805 PPOPS-1	EI 1805 PPCPS-1
M18	Long	Cable	5 mm ¹⁾	EI 1805 NPOPL	EI 1805 NPCPL	EI 1805 PPOPL	EI 1805 PPCPL
M18	Long	Plug	5 mm ¹⁾	EI 1805 NPOPL-1	EI 1805 NPCPL-1	EI 1805 PPOPL-1	EI 1805 PPCPL-1
M18	Short	Cable	8 mm ²⁾	EI 1808 NPOPS	EI 1808 NPCPS	EI 1808 PPOPS	EI 1808 PPCPS
M18	Short	Plug	8 mm ²⁾	EI 1808 NPOPS-1	EI 1808 NPCPS-1	EI 1808 PPOPS-1	EI 1808 PPCPS-1
M18	Long	Cable	8 mm ²⁾	EI 1808 NPOPL	EI 1808 NPCPL	EI 1808 PPOPL	EI 1808 PPCPL
M18	Long	Plug	8 mm ²⁾	EI 1808 NPOPL-1	EI 1808 NPCPL-1	EI 1808 PPOPL-1	EI 1808 PPCPL-1
M30	Short	Cable	10 mm ¹⁾	EI 3010 NPOPS	EI 3010 NPCPS	EI 3010 PPOPS	EI 3010 PPCPS
M30	Short	Plug	10 mm ¹⁾	EI 3010 NPOPS-1	EI 3010 NPCPS-1	EI 3010 PPOPS-1	EI 3010 PPCPS-1
M30	Long	Cable	10 mm ¹⁾	EI 3010 NPOPL	EI 3010 NPCPL	EI 3010 PPOPL	EI 3010 PPCPL
M30	Long	Plug	10 mm ¹⁾	EI 3010 NPOPL-1	EI 3010 NPCPL-1	EI 3010 PPOPL-1	EI 3010 PPCPL-1
M30	Short	Cable	15 mm ²⁾	EI 3015 NPOPS	EI 3015 NPCPS	EI 3015 PPOPS	EI 3015 PPCPS
M30	Short	Plug	15 mm ²⁾	EI 3015 NPOPS-1	EI 3015 NPCPS-1	EI 3015 PPOPS-1	EI 3015 PPCPS-1
M30	Long	Cable	15 mm ²⁾	EI 3015 NPOPL	EI 3015 NPCPL	EI 3015 PPOPL	EI 3015 PPCPL
M30	Long	Plug	15 mm ²⁾	EI 3015 NPOPL-1	EI 3015 NPCPL-1	EI 3015 PPOPL-1	EI 3015 PPCPL-1

¹⁾ For flush mounting in metal

²⁾ For non-flush mounting in metal

Make switching = Normally Open (NO)

Break switching = Normally Closed (NC)

Type Selection Relay Output

Housing diameter	Rated operating dist. (S _n)	Ordering no. Make & break swit. 12 VAC/DC	Ordering no. Make & break swit. 24 VAC/DC	Ordering no. Make & break swit. 115 VAC	Ordering no. Make & break swit. 230 VAC
30 mm	10 mm ¹⁾	EI 3010 RNAP 912	EI 3010 RNAP 924	EI 3010 RNAP 115	EI 3010 RNAP 230
30 mm	15 mm ²⁾	EI 3015 RNAP 912	EI 3015 RNAP 924	EI 3015 RNAP 115	EI 3015 RNAP 230

¹⁾ For flush mounting in metal

²⁾ For non-flush mounting in metal

Make switching = Normally Open (NO)

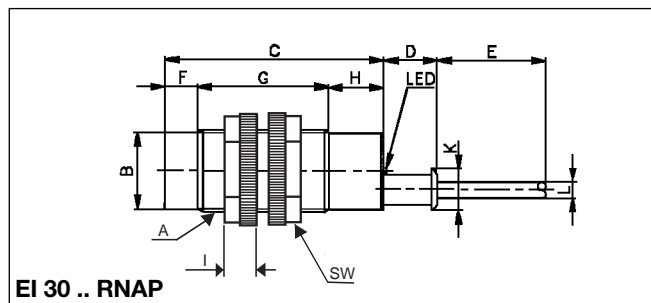
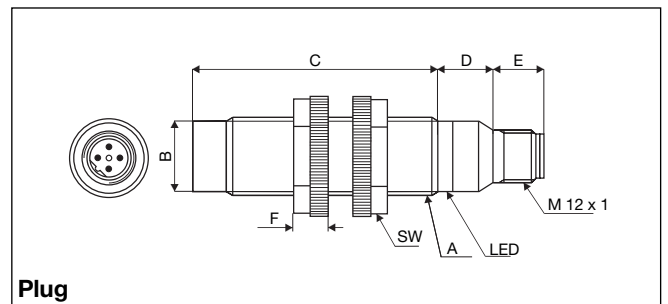
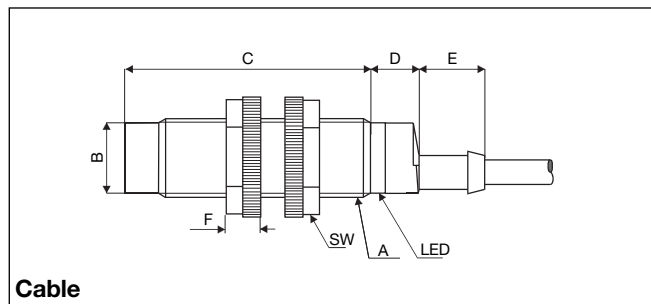
Break switching = Normally Closed (NC)

Specifications

	Transistor NPN/PNP	SPDT relay
Rated operational volt. (U _e) (U _B)	12 to 36 VDC 10 to 40 VDC (ripple incl.)	912: 10.8 to 13.2 VAC/DC, 50 to 60 Hz 924: 21.6 to 26.2 VAC/DC, 50 to 60 Hz 115: 97 to 135 VAC, 50 to 60 Hz 230: 207 to 250 VAC, 50 to 60 Hz
Ripple	≤ 10%	-
Rated operational current (I _a) Continuous Short-time	≤ 200 mA	≤ 2 A ≤ 10 A, max. 25 ms
Max. power	-	AC: 760 VA DC: 150 W
No-load supply current (I _o)	Output ON: < 6.5 mA Output OFF: < 2.7 mA	12 VAC/DC: 65/35 mA 24 VAC/DC: 34/13 mA 115 VAC: 16 mA 230 VAC: 16 mA
Voltage drop (U _d)	≤ 2 VDC at max. load	-
Protection	Reverse polarity, short-circuit, transients	None
Transient voltage	≤ 700 V/0.5 J	≤ 1 kV/0.5 J (prepared)
EMC	Approved acc. to EN 50 080, EN 50 081	-
Power ON delay	< 10 ms	≤ 60 ms
Frequency of operating cycles (f)	EI 1202 800 Hz EI 1808 400 Hz EI 1204 500 Hz EI 3010 300 Hz EI 1805 500 Hz EI 3015 100 Hz	10 Hz
Indication for output ON	LED, yellow	LED, yellow
Assured operating dist. (S _a)	0 ≤ S _a ≤ 0.81 S _n	0 ≤ S _a ≤ 0.81 S _n
Repeat accuracy (R)	≤ 5%	≤ 5%
Hysteresis (H) (Differential travel)	1 to 15% of sensing distance	3 to 20% of sensing distance
Effective operating dist. (S _r)	0.9 × S _n ≤ S _r ≤ 1.1 × S _n	0.9 × S _n ≤ S _r ≤ 1.1 × S _n
Usable operating dist. (S)	0.9 × S _r ≤ S _u ≤ 1.1 × S _r	0.9 × S _r ≤ S _u ≤ 1.1 × S _r
Ambient temperature Operating Storage	-25° to +70°C (-13° to +158°F) -30° to +80°C (-22° to +176°F)	-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)	IP 67 (Nema 1, 3, 4, 6, 13)
Housing material Body Back	Grey thermoplastic polyester Black polyester	Blue thermoplastic polyester Blue thermoplastic polyester
Connection Cable Plug Cables for plug (-1)	2 m, 3 x 0.3 mm ² , grey PVC, oil proof M 12 x 1 CONH1A serie	2 m, 5 x 0.50 mm ² , grey PVC, oil proof
Weight (cable excluded)	EI 12 10 g EI 3010 50 g EI 1805 18 g EI 3015 70 g EI 1808 20 g	180 g
Tightening torque	EI 12 1.8 Nm EI 30 7.5 Nm EI 18 2.6 Nm	7.5 Nm
Approvals	UL, CSA	UL, CSA
CE-marking	Yes	Yes

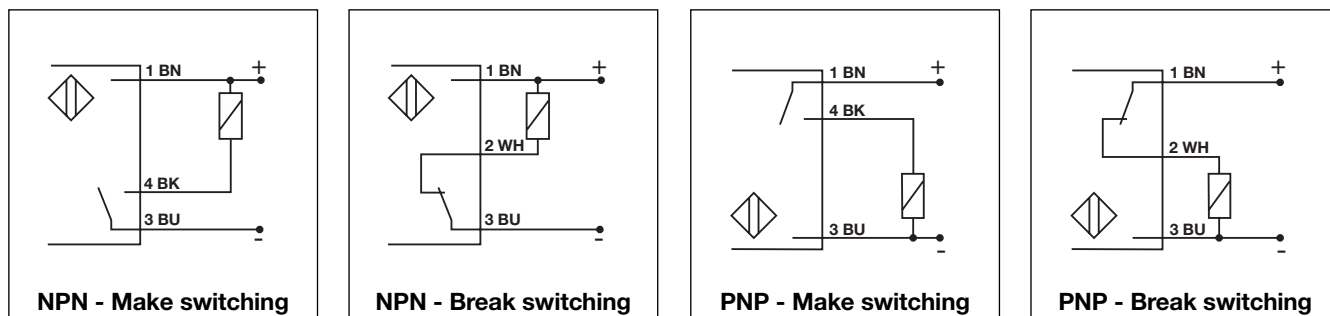
Dimensions

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 XPXPS	M 12 x 1 x 30	10.7	30	11	5.0	8				17		
EI 1202 XPXPL	M 12 x 1 x 50	10.7	50	11	5.0	8				17		
EI 1202 XPXPS-1	M 12 x 1 x 30	10.7	30	12.6	11.9	8				17		
EI 1202 XPXPL-1	M 12 x 1 x 50	10.7	50	12.6	11.9	8				17		
EI 1204 XPXPS	M 12 x 1 x 30	10.7	34	11	5.0	8				17		
EI 1204 XPXPL	M 12 x 1 x 50	10.7	54	11	5.0	8				17		
EI 1204 XPXPS-1	M 12 x 1 x 30	10.7	34	12.6	11.9	8				17		
EI 1204 XPXPL-1	M 12 x 1 x 50	10.7	54	12.6	11.9	8				17		
EI 1805 XPXPS	M 18 x 1 x 30	16.7	30	11.6	15.4	8				24		
EI 1805 XPXPL	M 18 x 1 x 50	16.7	50	11.6	15.4	8				24		
EI 1805 XPXPS-1	M 18 x 1 x 30	16.7	30	13.1	11.9	8				24		
EI 1805 XPXPL-1	M 18 x 1 x 50	16.7	50	13.1	11.9	8				24		
EI 1808 XPXPS	M 18 x 1 x 30	16.7	38	11.6	15.4	8				24		
EI 1808 XPXPL	M 18 x 1 x 50	16.7	58	11.6	15.4	8				24		
EI 1808 XPXPS-1	M 18 x 1 x 30	16.7	38	13.1	11.9	8				24		
EI 1808 XPXPL-1	M 18 x 1 x 50	16.7	58	13.1	11.9	8				24		
EI 3010 XPXPS	M 30 x 1.5 x 30	28	30	13.6	15.4	10				36		
EI 3010 XPXPL	M 30 x 1.5 x 50	28	50	13.6	15.4	10				36		
EI 3010 XPXPS-1	M 30 x 1.5 x 30	28	30	13.6	11.9	10				36		
EI 3010 XPXPL-1	M 30 x 1.5 x 50	28	50	13.6	11.9	10				36		
EI 3015 XPXPS	M 30 x 1.5 x 30	28	42	13.6	15.4	10				36		
EI 3015 XPXPL	M 30 x 1.5 x 50	28	62	13.6	15.4	10				36		
EI 3015 XPXPS-1	M 30 x 1.5 x 30	28	42	13.6	11.9	10				36		
EI 3015 XPXPL-1	M 30 x 1.5 x 50	28	62	13.6	11.9	10				36		
RNAP												
EI 3010	M 30 x 1.5	28.16	80	19.5	2000	1	59	20	10	36	15	6.7
EI 3015	M 30 x 1.5	28.16	80	19.5	2000	12	48	20	10	36	15	6.7





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>Incorrect</p> <p>Correct</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 VAC: > SS 110.
- Power supplies VDC: > SS 130/140.
- Power supplies with amplifier relays: > SV 190.