

# Proximity Sensors Inductive Full Metal Body Types EI, M8, M12, M18 and M30, Plug

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- Stainless steel housing, cylindrical
- Diameter: M8, M12, M18 and M30
- Plug: M8 types: M8 and M12 plug  
M12, M 8 and M30 types: M 2 plug
- Sensing distance: 1 to 15 mm
- Supply voltage: 10 to 40 VDC
- Output: Transistor NPN/PNP, normally open or closed
- Protection: Short-circuit, reverse polarity and transients
- LED-indication for output ON: M8, M18, M30: 1 point  
M12: 4 points

## Product Description

Inductive proximity switch. M8, M12, M18 and M30 in rugged stainless steel housings are able to handle the most demanding environments. All are available with

transistor output. M8 types are available with two different plugs; M8 or M12 and M12, M18 and M30 types are available with M12 plug.

## Ordering Key

**EI 1202 NPOFS-1**

Type: Inductive proximity switch \_\_\_\_\_  
Housing diameter (mm) \_\_\_\_\_  
Rated operating distance (mm) \_\_\_\_\_  
Output type \_\_\_\_\_  
Full metal body \_\_\_\_\_  
Body style \_\_\_\_\_  
Plug type \_\_\_\_\_

## Type Selection

Housing diameter	Body style	Plug	Rated operating distance $S_n$	Ordering no. Transistor NPN normally open	Ordering no. Transistor NPN normally closed	Ordering no. Transistor PNP normally open	Ordering no. Transistor PNP normally closed
M8		M8	1 mm <sup>1)</sup>	EI 0801 NPOF-5	EI 0801 NPCF-5	EI 0801 PPOF-5	EI 0801 PPCF-5
M8		M8	2 mm <sup>2)</sup>	EI 0802 NPOF-5	EI 0802 NPCF-5	EI 0802 PPOF-5	EI 0802 PPCF-5
M8		M12	1 mm <sup>1)</sup>	EI 0801 NPOF-1	EI 0801 NPCF-1	EI 0801 PPOF-1	EI 0801 PPCF-1
M8		M12	2 mm <sup>2)</sup>	EI 0802 NPOF-1	EI 0802 NPCF-1	EI 0802 PPOF-1	EI 0802 PPCF-1
M12	Short	M12	2 mm <sup>1)</sup>	EI 1202 NPOFS-1	EI 1202 NPCFS-1	EI 1202 PPOFS-1	EI 1202 PPCFS-1
M12	Short	M12	4 mm <sup>2)</sup>	EI 1204 NPOFS-1	EI 1204 NPCFS-1	EI 1204 PPOFS-1	EI 1204 PPCFS-1
M18	Short	M12	5 mm <sup>1)</sup>	EI 1805 NPOFS-1	EI 1805 NPCFS-1	EI 1805 PPOFS-1	EI 1805 PPCFS-1
M18	Short	M12	8 mm <sup>2)</sup>	EI 1808 NPOFS-1	EI 1808 NPCFS-1	EI 1808 PPOFS-1	EI 1808 PPCFS-1
M30	Short	M12	10 mm <sup>1)</sup>	EI 3010 NPOFS-1	EI 3010 NPCFS-1	EI 3010 PPOFS-1	EI 3010 PPCFS-1
M30	Short	M12	15 mm <sup>2)</sup>	EI 3015 NPOFS-1	EI 3015 NPCFS-1	EI 3015 PPOFS-1	EI 3015 PPCFS-1

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

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

## Specifications

<b>Rated operational voltage</b> ( $U_a$ )	12 to 36 VDC ( $U_B$ ) 10 to 40 VDC (ripple incl.)	<b>Protection</b>	Reverse polarity, short-circuit, transients
<b>Ripple</b>	≤ 10%	<b>Time delay before availability</b> ( $t_v$ )	(Delay after power on)
<b>Rated operational current</b> ( $I_e$ )	≤ 200 mA	<b>EI 08</b>	typ. 30.0 ms
<b>Supply current</b> ( $I_o$ )	<b>EI 08</b> ≤ 8.0 mA <b>EI 12</b> ≤ 7.0 mA <b>EI 18</b> ≤ 7.0 mA <b>EI 30</b> ≤ 7.0 mA	<b>EI 12</b>	typ. 6.5 ms (≤ 10 ms)
<b>Voltage drop</b> ( $U_d$ )	<b>EI 08</b> ≤ 2.5 VDC at max load <b>EI 12</b> ≤ 2.0 VDC at max load <b>EI 18</b> ≤ 2.0 VDC at max load <b>EI 30</b> ≤ 2.0 VDC at max load	<b>EI 18</b>	typ. 6.5 ms (≤ 10 ms)
		<b>EI 30</b>	typ. 6.5 ms (≤ 10 ms)

## Specifications (cont.)

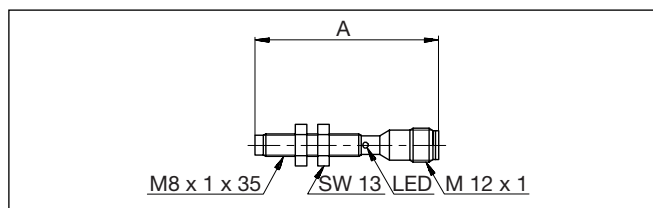
<b>Operating frequency (f)</b>	<b>EI 08..</b> ≥ 2000 Hz
	<b>EI 1202</b> ≥ 800 Hz
	<b>EI 1204</b> ≥ 500 Hz
	<b>EI 1805</b> ≥ 500 Hz
	<b>EI 1808</b> ≥ 400 Hz
	<b>EI 3010</b> ≥ 300 Hz
<b>EI 3015</b> ≥ 100 Hz	
<b>Indication for output ON</b>	LED, yellow
<b>Assured operating sensing distance (S<sub>a</sub>)</b>	$0 \leq S_a \leq 0.81 \times S_n$
<b>Effective operating distance (S<sub>r</sub>)</b>	$0.9 \times S_n \leq S_r \leq 1.1 \times S_n$
<b>Usable operating distance (S<sub>u</sub>)</b>	$0.9 \times S_r \leq S_u \leq 1.1 \times S_r$
<b>Repeat accuracy (R)</b>	≤ 5%
<b>Differential travel (H) (Hysteresis)</b>	1 to 15% of sensing dist.
<b>Ambient temperature</b>	
Operating	-25° to +70°C (-13° to +158°F)
Storage	-30° to +80°C (-22° to +176°F)

<b>Housing material</b>	
Body	Stainless steel
Front	Grey thermoplastic polyester
<b>Degree of protection</b>	
	IP 67 (Nema 1, 3, 4, 6, 13)
<b>Weight (2 nuts included)</b>	
<b>EI 080. .P.F-1</b>	16 g
<b>EI 080. .P.F-5</b>	14 g
<b>EI 120. .P.FS-1</b>	23 g
<b>EI 180. .P.FS-1</b>	26 g
<b>EI 301. .P.FS-1</b>	75 g
<b>Tightening torque</b>	
<b>EI 08</b>	3.0 Nm (x)
	7.0 Nm (y)
<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

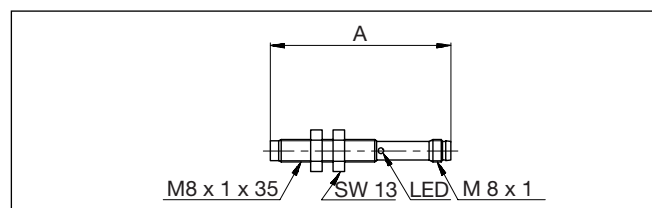
Type	A mm
EI 0801 .P.F-1	62,5
EI 0802 .P.F-1	65,5
EI 0801 .P.F-5	61,5
EI 0802 .P.F-5	64,5
EI 1202 .P.FS-1	55
EI 1204 .P.FS-1	59

Type	A mm
EI 1805 .P.FS-1	55,5
EI 1808 .P.FS-1	63,5
EI 3010 .P.FS-1	55,5
EI 3015 .P.FS-1	67,5

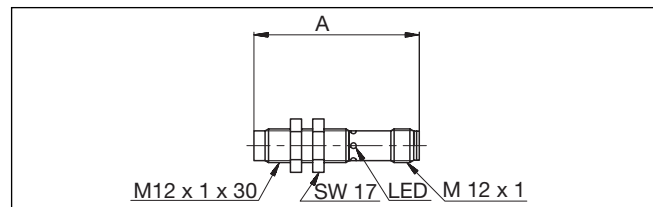
## Dimensions



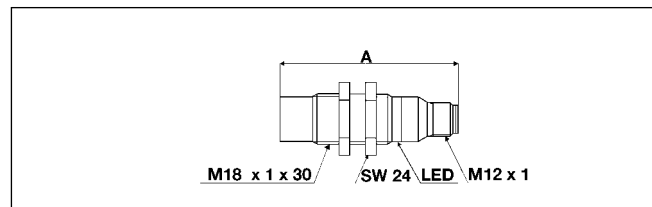
EI 080.-1



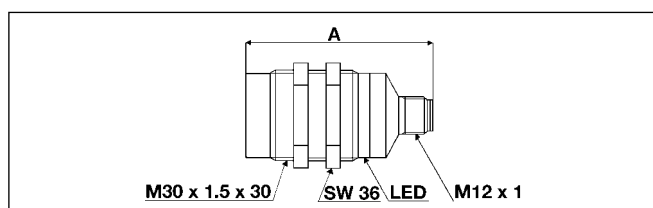
EI 080.-5



EI 120.-1



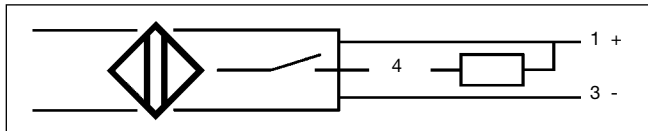
EI 180.-1



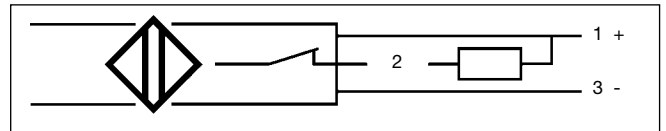
EI 301.-1



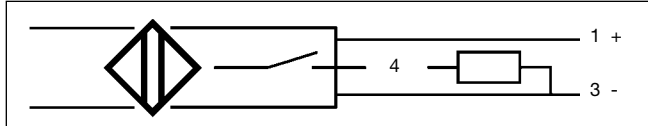
## Wiring Diagrams



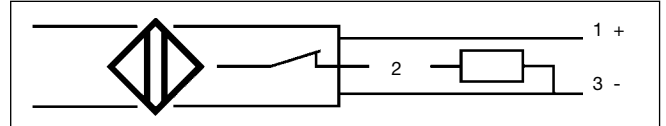
EI ... NPOF.-1/EI 080. NPOF-5



EI ... NPCF.-1/EI 080. NPCF-5



EI ... PPOF.-1/EI 080. PPOF-5



EI ... PPCF.-1/EI 080. PPCF-5

## Installation Hints

Refer to "Installation Hints".

## Power Supplies

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

## Accessories

### M 12 connector

CONH10-A2 (90°, 2 m cable)  
 CONH10-A5 (90°, 5 m cable)  
 CONH10-S2 (straight, 2 m cable)  
 CONH10-S5 (straight, 5 m cable)

### M 8 connector

CONH5A-A2 (coupler, 90°, 2 m cable)  
 CONH5A-A5 (coupler, 90°, 5 m cable)  
 CONH5A-S2 (coupler, straight, 2 m cable)  
 CONH5A-S5 (coupler, straight, 5 m cable)