

# Proximity Sensors Inductive Analogue Position Sensor Types EI, M18, M30



- Nickel-plated brass housing, cylindrical
- Diameter: M18, M30
- Sensing range: EI 1805 I020: 2 to 5 mm  
EI 3008 I020: 3 to 8 mm
- Power supply: 15 to 30 VDC
- Current source output: 0 to 20 mA
- Protection: Reverse polarity, internal current limiter
- 2 m cable or plug M12

## Product Description

Cylindrical analogue position sensor in M18 and M30 nickel-plated brass housings. High degree of linearity, output current 0 to 20 mA. Can be ex-

tended with level amplifier relay S 183 and analogue display to make up complete measuring systems.

## Ordering Key

**EI 1805 I020-1**

Type: Inductive switch  
Housing diameter  
Rated operating dist. (mm)  
Current output 0 to 20 mA  
Connection type

## Type Selection

| Housing diameter | Rated operating dist. (S <sub>n</sub> ) | Ordering no.<br>Output type<br>0 to 20 mA | Ordering no.<br>Output type<br>0 to 20 mA |
|------------------|-----------------------------------------|-------------------------------------------|-------------------------------------------|
| M18              | 2 to 5 mm <sup>1)</sup>                 | EI 1805 I020                              | EI 1805 I020-1                            |
| M30              | 3 to 8 mm <sup>1)</sup>                 | EI 3008 I020                              |                                           |

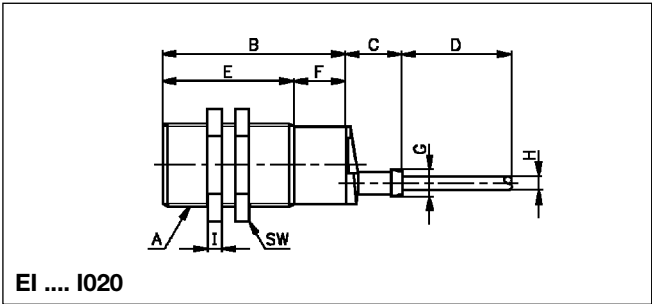
<sup>1)</sup> For flush mounting in metal

## Specifications

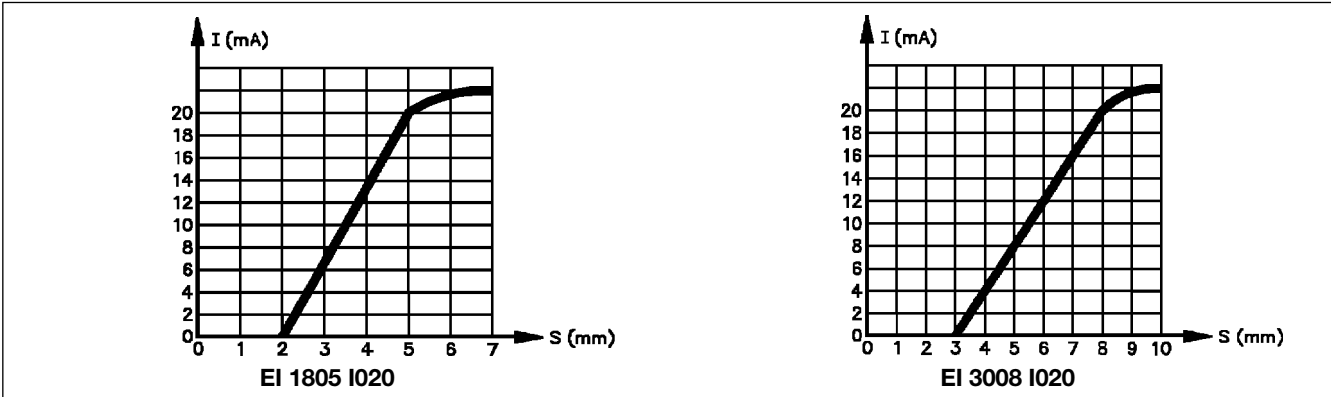
|                                                                       |                                                                    |                                                    |                                                                |
|-----------------------------------------------------------------------|--------------------------------------------------------------------|----------------------------------------------------|----------------------------------------------------------------|
| <b>Rated operational volt.</b> (U <sub>e</sub> )<br>(U <sub>B</sub> ) | 17 to 27 VDC<br>15 to 30 VDC<br>(ripple included)                  | <b>Ambient temperature</b><br>Operating<br>Storage | -15° to +65°C (+5° to +144°F)<br>-20° to +70°C (-4° to +158°F) |
| <b>Ripple</b>                                                         | ≤ 10%                                                              | <b>Degree of protection</b>                        | IP 67<br>(Nema 1, 3, 4, 6, 13)                                 |
| <b>Rated operational current</b> (I <sub>a</sub> )                    | 0 to 20 mA<br>(R load: 0 to 500 Ω)<br>Max. 30 mA (current limiter) | <b>Housing material</b><br>Body<br>Front           | Nickel-plated brass<br>Blue thermoplastic polyester            |
| <b>No-load supply current</b> (I <sub>o</sub> )                       | ≤ 7 mA (no load)                                                   | Back                                               | Black thermoplastic polyester                                  |
| <b>Protection</b>                                                     | Reverse polarity<br>current limiter                                | <b>Cable</b>                                       | 2 m, 3 x 0.25 mm <sup>2</sup><br>grey PVC, oil proof           |
| <b>Transient voltage</b>                                              | ≤ 2 kV/0.5 J (prepared)                                            | <b>Weight</b> (cable included)                     | EI 1805 I020 85 g<br>EI 3008 I020 195 g                        |
| <b>Power ON delay</b>                                                 | Safe operation after 1 s                                           | <b>Tightening torque</b>                           | EI 1805 I020 17.5 Nm<br>EI 3008 I020 35.0 Nm                   |
| <b>Rate of rise</b>                                                   | EI 1805 I020 ≥ 1 mm/ms<br>EI 3008 I020 ≥ 3 mm/ms                   | <b>CE-marking</b>                                  | Yes                                                            |
| <b>Assured operating dist.</b> (S <sub>a</sub> )                      | EI 1805 I020 2 to 5 mm<br>EI 3008 I020 3 to 8 mm                   |                                                    |                                                                |
| <b>Linearity</b>                                                      | ± 3% of full scale                                                 |                                                    |                                                                |
| <b>Repeat accuracy</b> (R)                                            | ≤ 1%                                                               |                                                    |                                                                |
| <b>Temperature drift</b>                                              | EI 1805 I020 ≤ 2 µm/°C per mm<br>EI 3008 I020 ≤ 1 µm/°C per mm     |                                                    |                                                                |

Dimensions

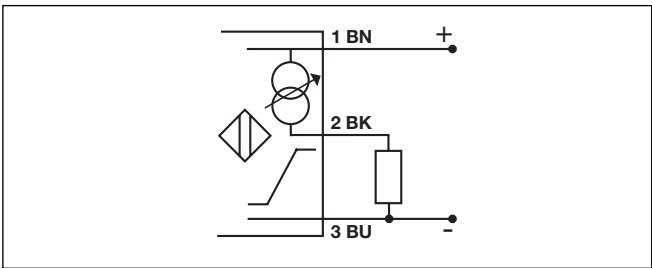
| Type         | A         | B<br>mm | C<br>mm | D<br>mm | E<br>mm | F<br>mm | G<br>mm | H<br>Ø mm | I<br>mm | SW<br>mm |
|--------------|-----------|---------|---------|---------|---------|---------|---------|-----------|---------|----------|
| EI 1805 I020 | M18 x 1   | 71      | 20.5    | 2000    | 52      | 19      | 10      | 5.2       | 4       | 24       |
| EI 3008 I020 | M30 x 1.5 | 67      | 20.5    | 2000    | 48      | 19      | 10      | 5.2       | 5       | 36       |



Output Curves



Wiring Diagram



Power Supplies

Power supplies VAC: > SS 110.  
Power supplies VDC: > SS 130/140.

Installation Hints

|                                                                                                                                                                                 |                                                                                                     |                                                                                                     |                                                                                                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| <p>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</p> | <p>Relief of cable strain</p> <p>Incorrect</p> <p>Correct</p> <p>The cable should not be pulled</p> | <p>Protection of the sensing face</p> <p>A proximity switch should not serve as mechanical stop</p> | <p>Switch mounted on mobile carrier</p> <p>Any repetitive flexing of the cable should be avoided</p> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|