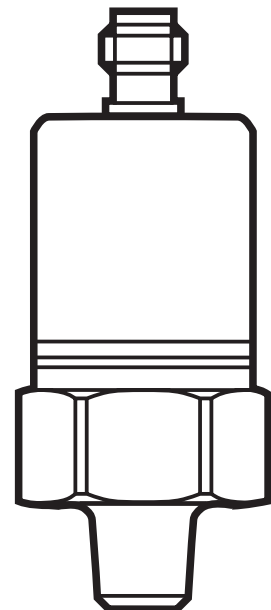




Installation Instructions  
Electronic pressure sensor  
**efector500<sup>®</sup>**

**PX32xx**

704571 / 03 04 / 2010



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## 1 Safety instructions

Please read the product description prior to installing the unit. Please check that the product is suitable for your application without any restrictions.

If the operating instructions or the technical data are not adhered to, personal injury and/or damage to property may occur.

Please check in all applications that the product materials (see Technical data) are compatible with the media to be measured.

For gaseous media the application is limited to max. 363 PSI.

For units with cULus approval and the scope of validity cULus: The device shall be supplied from an isolating transformer having a secondary Listed fuse rated as noted in the following table.

| Overcurrent protection    |                    |                                      |
|---------------------------|--------------------|--------------------------------------|
| Control-circuit wire size |                    | Maximum protective device rating [A] |
| AWG                       | [mm <sup>2</sup> ] |                                      |
| 22                        | 0.32               | 3                                    |
| 20                        | 0.52               | 5                                    |
| 18                        | 0.82               | 7                                    |
| 16                        | 1.3                | 10                                   |
| 14                        | 2.1                | 20                                   |
| 12                        | 3.3                | 25                                   |

## 2 Function and features

The pressure sensor detects the system pressure and converts it into an analog output signal.

- 0 to 10 V (PX9xxx)
- 10 to 0 V (PX9119)
- 4 to 20 mA (PX3xxx)
- 20 to 4 mA (PX3229)

Applications (type of pressure: relative pressure)

| Order no.        | Measuring range     | Permissible overload pressure | Bursting pressure |
|------------------|---------------------|-------------------------------|-------------------|
|                  | PSI                 | PSI                           | PSI               |
| PX3220<br>PX9110 | 0 to 5000           | 11600                         | 17400             |
| PX3111<br>PX9111 | 0 to 3000           | 5800                          | 12300             |
| PX3222<br>PX9112 | 0 to 1000           | 4350                          | 9400              |
| PX3224<br>PX9114 | 0 to 100            | 1087                          | 2175              |
| PX9134           | 0 to 200            | 1087                          | 2175              |
| PX3226<br>PX9116 | 0 to 30             | 290                           | 725               |
| PX3227<br>PX9117 | 0 to 15             | 145                           | 450               |
| PX3229<br>PX9119 | -14.5 to 0 (vacuum) | 145                           | 450               |
| PX3422           | -14.5 to 735.5      | 4350                          | 9400              |
|                  | inH2O               | inH2O                         | inH2O             |
| PX3228<br>PX9118 | 0 to 100            | 4015                          | 12043             |



Avoid static and dynamic overpressure exceeding the given over-load pressure.

Even if the bursting pressure is exceeded only for a short time the unit can be destroyed (danger of injuries)!

### 3 Installation



Before mounting and removing the sensor, make sure that no pressure is applied to the system.

Mount the pressure sensor on a suitable process connection (see type label "Port Size").

### 4 Electrical connection



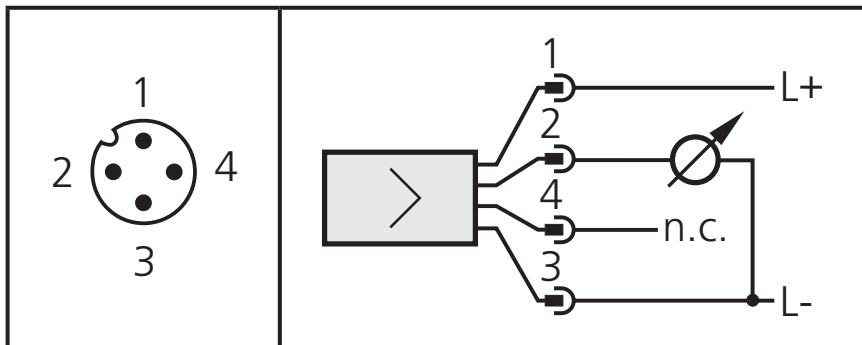
The unit must be connected by a qualified electrician.

The national and international regulations for the installation of electrical equipment must be adhered to.

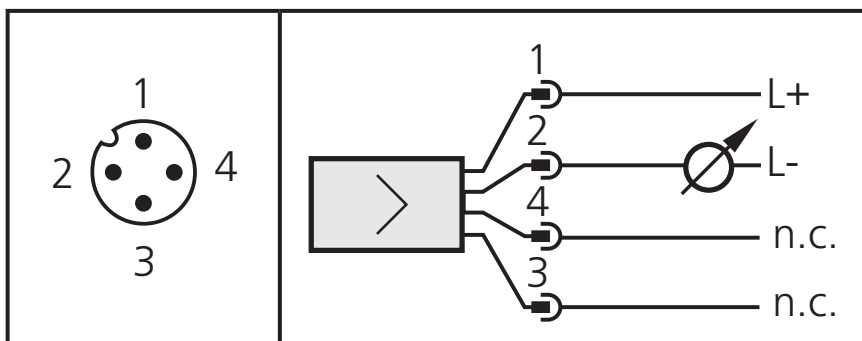
Voltage supply to EN50178, SELV, PELV.

► Disconnect power before connecting the unit as follows:

Voltage output (PX9xxx)



Current output (PX3xxx)



For information about available sockets/connectors see:

[www.ifm.com](http://www.ifm.com) → Products → Accessories

## 5 Technical data

|  |   |
|--|---|
| PX3xxx   |   |
| Operating voltage [V].....                     | 9.6 to 32 DC <sup>1)</sup>                            |
| Analog output .....                            | 4 to 20 mA  |
| Load [ $\Omega$ ].....                         | max. $(U_B - 9,6) \times 50$ ; 720 at $U_B = 24$ V DC |
| Step response time analog output [ms].....     | 3   |
| PX9xxx   |   |
| Operating voltage [V].....                     | 16 to 32 DC <sup>1)</sup>                             |
| Current consumption [mA].....                  | < 18  |
| Analog output .....                            | 0 to 10 V DC  |
| Load [ $\Omega$ ].....                         | min. 2000   |
| Step response time analog output [ms].....     | 3   |
| Characteristics deviation (in % of full range) |   |
| PX3111, PX9111 .....                           | < $\pm 0.35$ (BFSL) / < $\pm 0.75$ (FR)               |
| PX3220, PX3222, PX3422, PX9112.....            | < $\pm 0.35$ (BFSL) / < $\pm 0.75$ (FR)               |
| PX3224, PX9114.....                            | < $\pm 0.35$ (BFSL) / < $\pm 0.75$ (FR)               |
| PX3226, PX9116.....                            | < $\pm 0.35$ (BFSL) / < $\pm 0.75$ (FR)               |
| PX3227, PX9117.....                            | < $\pm 0.25$ (BFSL) / < $\pm 0.5$ (FR)                |
| PX3228, PX9118.....                            | < $\pm 0.35$ (BFSL) / < $\pm 0.75$ (FR)               |
| PX3229, PX9119.....                            | < $\pm 0.25$ (BFSL) / < $\pm 0.5$ (FR)                |
| PX9110 .....                                   | < $\pm 0.35$ (BFSL) / < $\pm 0.75$ (FR)               |
| PX9134 .....                                   | < $\pm 0.35$ (BFSL) / < $\pm 0.75$ (FR)               |
| Repeatability (in % of full range)             |   |
| PX3111, PX9111 .....                           | < 0.15  |
| PX3220, PX3222, PX3422, PX9112.....            | < 0.15  |
| PX3224, PX9114.....                            | < 0.15  |
| PX3226, PX9116.....                            | < 0.15  |
| PX3227, PX9117.....                            | < 0.1   |
| PX3228, PX9118.....                            | < 0.15  |
| PX3229, PX9119.....                            | < 0.1   |
| PX9110 .....                                   | < 0.15  |
| PX9134 .....                                   | < 0.1   |

<sup>1)</sup> to EN50178, SELV, PELV

BFSL = Best Fit Straight Line / FR = full range

Temperature coefficients (TEMPCO) in the compensated temperature range 0 to 80°C  
(in% of full range/10 °C); greatest TEMPCO of the zero point / of full range

|                             |            |
|-----------------------------|------------|
| PX3111, PX9111 .....        | 0.2 / 0.3  |
| PX3220, PX3422, PX9110..... | 0.3 / 0.4  |
| PX3222, PX9112.....         | 0.2 / 0.3  |
| PX3224, PX9114.....         | 0.2 / 0.3  |
| PX3226, PX9116.....         | 0.2 / 0.3  |
| PX3227, PX9117.....         | 0.15 / 0.2 |
| PX3228, PX9118.....         | 0.2 / 0.3  |
| PX3229, PX9119.....         | 0.15 / 0.2 |
| PX9134 .....                | 0.15 / 0.2 |

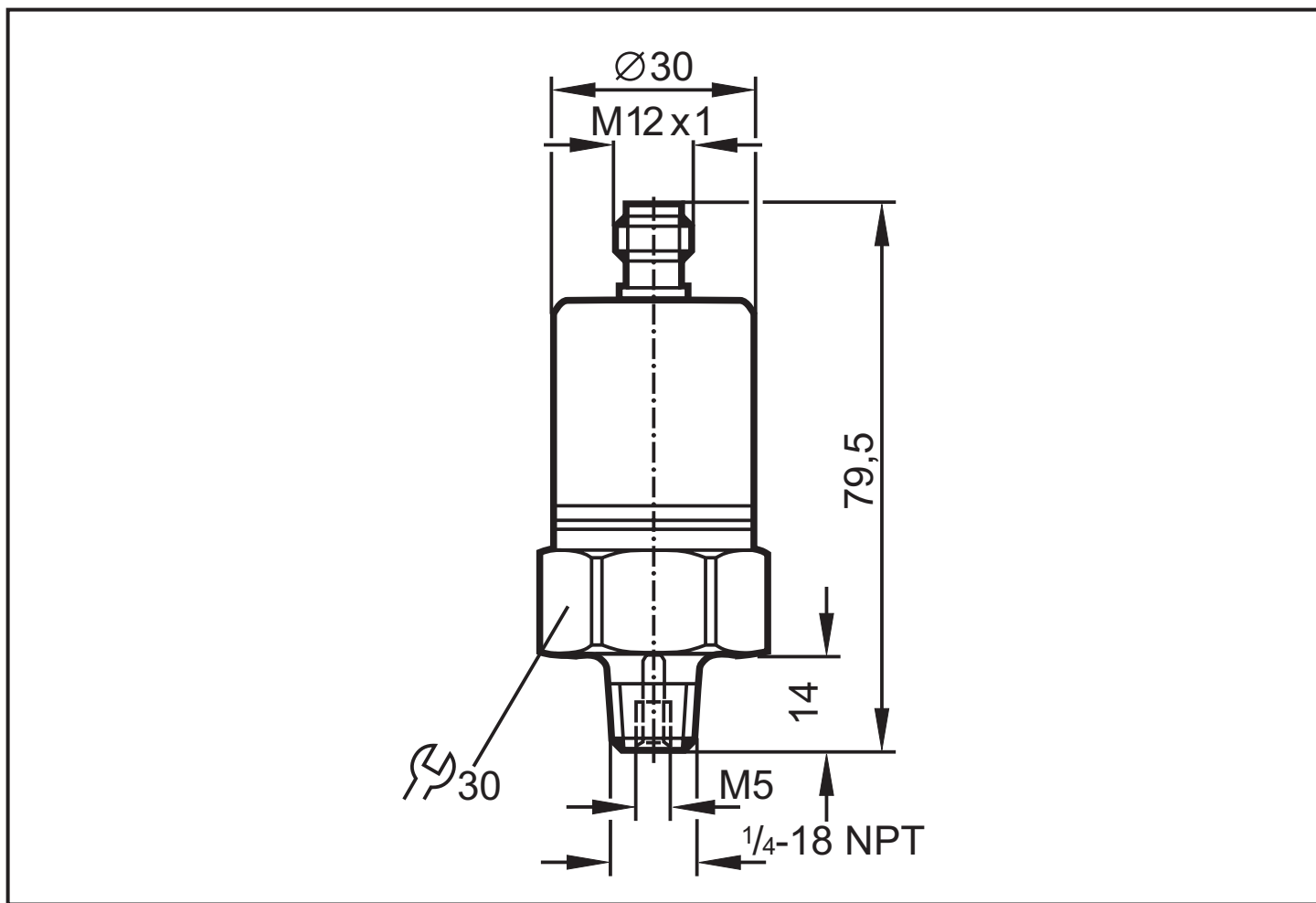
|                                  |  |
|----------------------------------|--|
| Housing material.....            | stainless steel (316S12); FPM (Viton); PA; EPDM/X (Santoprene) |
| Materials (wetted parts).....    | stainless steel (303S22); ceramics; FPM (Viton)                |
| Operating temperature [°C] ..... | -25 to +80   |
| Medium temperature [°C] .....    | -25 to +90   |
| Storage temperature [°C].....    | -40 to +100  |
| Protection .....                 | IP 68 / IP 69K <sup>2)</sup>                                   |
| Protection .....                 | IP 65 <sup>3)</sup>  |
| Protection class .....           | III  |
| Insulation resistance [MΩ] ..... | > 100 (500 V DC)   |
| Shock resistance [g] .....       | 50 (DIN / IEC 68-2-27, 11ms)                                   |
| Vibration resistance [g].....    | 20 (DIN / IEC 68-2-6, 10 - 2000 Hz)                            |

|  |   |
|--|---|
| EMC  |   |
| EN 61000-4-2 ESD:.....   | 4 kV / 8 KV AD                            |
| EN 61000-4-3 HF radiated: .....  | 30 V/m                                    |
| EN 61000-4-4 Burst:.....   | 2 KV                                      |
| EN 61000-4-6 HF conducted:.....  | 10 V                                      |
| Radiation of interference: according to the road vehicle guideline 2004/104/EC / CISPR25 |   |
| Noise immunity: ..... according to the road vehicle guideline 2004/104/EC / ISO 11452-2  |   |
| HF conducted: .....  | 100 V/m                                   |
| Pulse resistance: .....  | according to ISO7637-2 / severity level 3 |

<sup>2)</sup> for PX3111, PX3220, PX3222, PX3422, PX9110, PX9111, PX9112,

<sup>3)</sup> for PX3224, PX3226, PX3227, PX3228, PX3229,  
PX9114, PX9116, PX9117, PX9118, PX9119, PX9134

## 6 Scale drawing



dimensions are in millimeters (25.4 mm = 1 inch)  
process connection 1/4 NPT, tightening torque 25 Nm