

ifm electronic



Installation Instructions
Electronic pressure sensor

efector500[®]

PX3111

PX322x

PX323x

PX3244

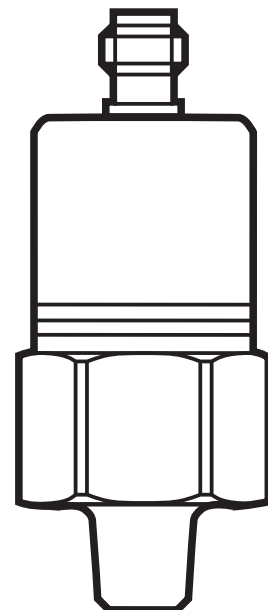
PX3422

PX911x

PX913x

02/2011

704571/06



Contents

1 Safety instructions	2
2 Function and features	4
3 Installation.....	5
4 Electrical connection.....	5
5 Scale drawing	6
6 Technical data.....	8

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.

High-pressure units (5000 PSI) are supplied with a pressure relief mechanism and an integrated damping device to comply with the regulations for UL approval and to avoid any risk of injury in case of bursting when bursting pressure is exceeded.



Any manipulation of the damping device is not permissible.

When the damping device is removed, there is no damping function any more. **ATTENTION:** risk of injury!

For units with cULus approval this approval becomes invalid when the damping device is removed.

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 Ampere
AWG	(mm ²)	
26	(0.13)	1
24	(0.20)	2
22	(0.32)	3
20	(0.52)	5
18	(0.82)	7
16	(1.3)	10

The Sensor shall be connected only by using any R/C (CYJV2) cord, having suitable ratings.

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 PX9110	0 to 5000	11600	17400
PX3111 PX9111	0 to 3000	5800	12300
PX3222 PX9112	0 to 1000	4350	9400
PX3223	0 to 500	2175	5075
PX3224 PX9114	0 to 100	1087	2175
PX3244	0 to 150	1087	2175
PX9134	0 to 200	1087	2175
PX3226 PX9116	0 to 30	290	725
PX3237	0 to 20	145	450
PX3227 PX9117	0 to 15	145	450
PX3238	0 to 5	145	450
PX3229 PX9119	-14.5 to 0 (vacuum)	145	450
PX3422	-14.5 to 735.5	4350	9400
	inH2O	inH2O	inH2O
PX3228 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



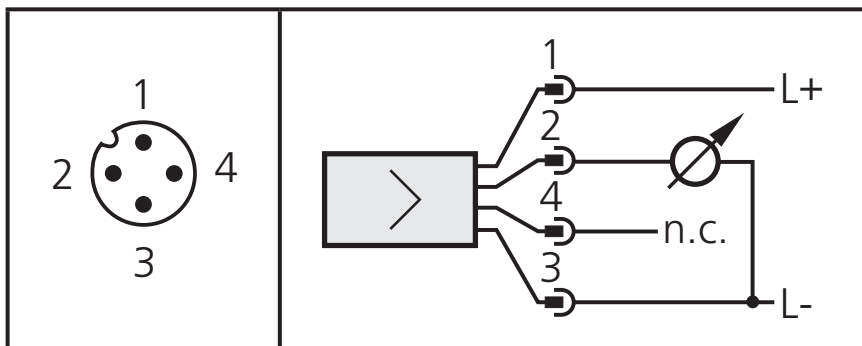
The unit must be connected by a qualified electrician.

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

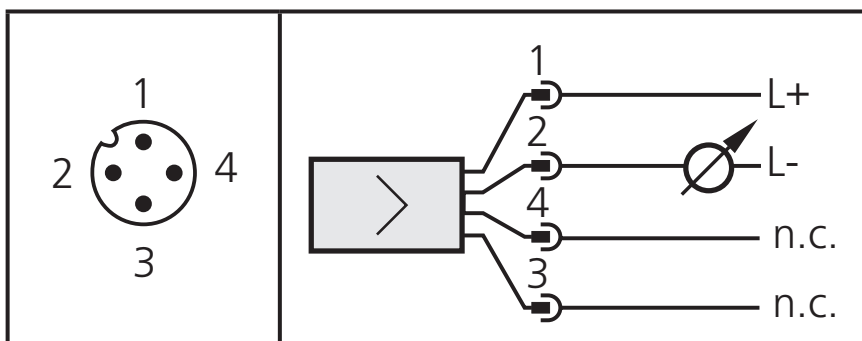
Voltage supply to EN50178, SELV, PELV.

► Disconnect power before connecting the unit as follows:

Voltage output (PX9xxx)



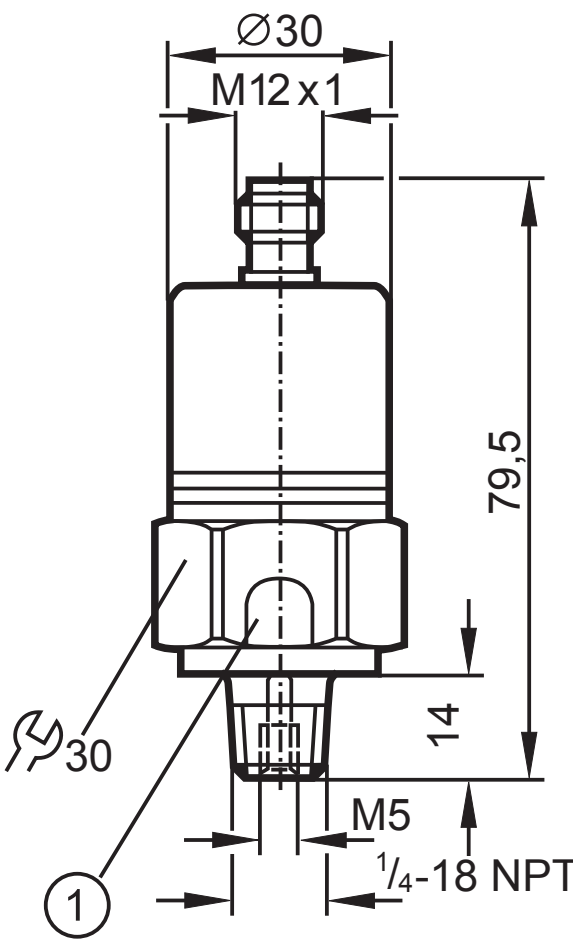
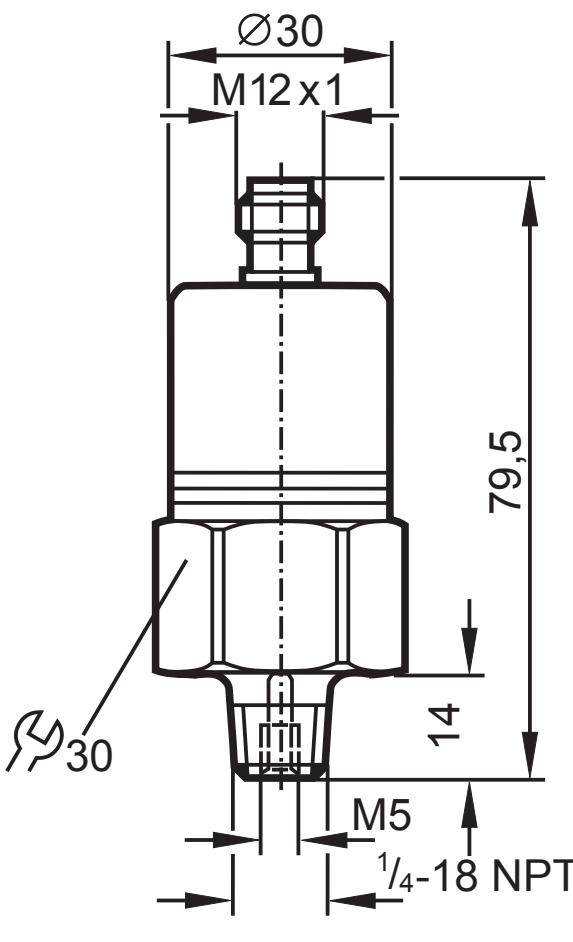
Current output (PX3xxx)



For information about available sockets/connectors see:

www.ifm.com → Products → Accessories

5 Scale drawing

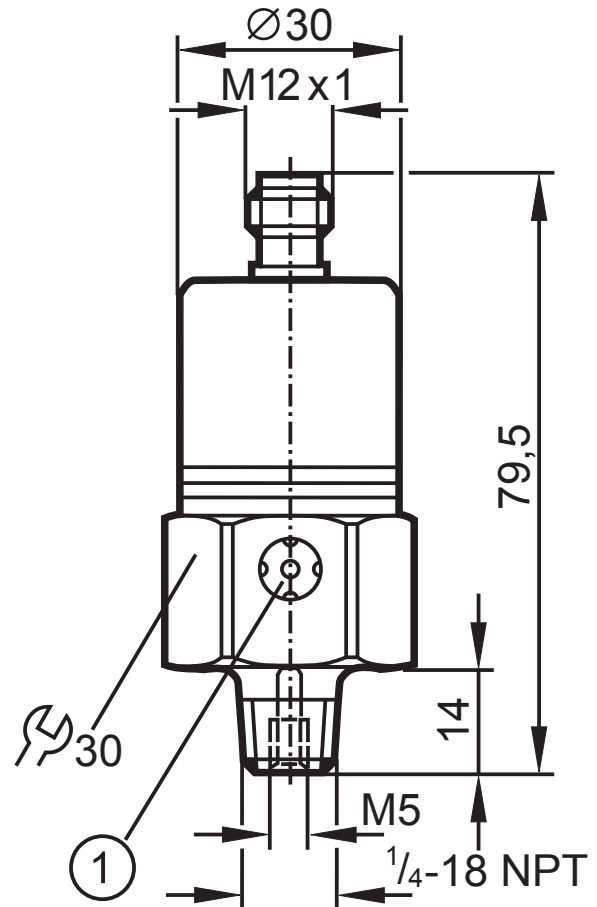
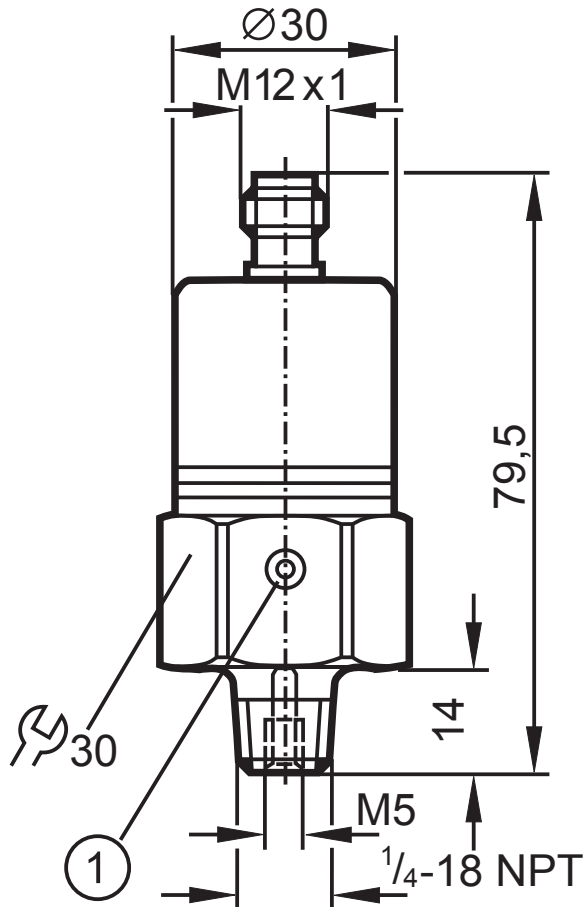
PX3220 PX9110	PX3111 PX3222 PX3422 PX9111 PX9112
 <p>Technical drawing of a pressure relief valve (PX3220/PX9110) showing a top view. Dimensions include: Ø30, M12 x 1, 79,5, 14, M5, 1/4-18 NPT, and a callout '1' pointing to the pressure relief mechanism.</p>	 <p>Technical drawing of a pressure relief valve (PX3111/PX3222/PX3422/PX9111/PX9112) showing a top view. Dimensions include: Ø30, M12 x 1, 79,5, 14, M5, 1/4-18 NPT.</p>
<p>1: Pressure relief mechanism No mechanical force must be exerted on the pressure relief mechanism.</p>	

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

PX3223
PX3224
PX3244
PX3226
PX3227
PX3228
PX3229

PX9114
PX9116
PX9117
PX9118
PX9119
PX9134

PX3237
PX3238



1: Ventilation

1: Ventilation

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

6 Technical data

PX3xxx	
Operating voltage [V].....	9.6 to 32 DC ¹⁾
Analog output	4 to 20 mA
Load [Ω].....	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 ¹⁾
Current consumption [mA].....	< 18
Analog output	0 to 10 V DC
Load [Ω].....	min. 2000
Step response time analog output [ms].....	3
Characteristics deviation (in % of full range)	
PX3111, PX9111	< ± 0.35 (BFSL) / < ± 0.75 (FR)
PX3220, PX3222, PX3223, PX3422, PX9112	< ± 0.35 (BFSL) / < ± 0.75 (FR)
PX3224, PX3244, PX9114.....	< ± 0.35 (BFSL) / < ± 0.75 (FR)
PX3226, PX9116.....	< ± 0.35 (BFSL) / < ± 0.75 (FR)
PX3227, PX3237, PX3238, PX9117	< ± 0.25 (BFSL) / < ± 0.5 (FR)
PX3228, PX9118.....	< ± 0.35 (BFSL) / < ± 0.75 (FR)
PX3229, PX9119.....	< ± 0.25 (BFSL) / < ± 0.5 (FR)
PX9110	< ± 0.35 (BFSL) / < ± 0.75 (FR)
PX9134	< ± 0.35 (BFSL) / < ± 0.75 (FR)
Repeatability (in % of full range)	
PX3111, PX9111	< 0.15
PX3220, PX3222, PX3422, PX9112	< 0.15
PX3224, PX3244, PX9114.....	< 0.15
PX3226, PX9116.....	< 0.15
PX3223, PX3227, PX9117	< 0.1
PX3228, PX9118.....	< 0.15
PX3229, PX9119.....	< 0.1
PX3237, PX3238	< 0.15
PX9110	< 0.15
PX9134	< 0.1

¹⁾ 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
PX3223	0.2 / 0.3
PX3224, PX3244, 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
PX3237	0.2 / 0.4
PX3238	0.3 / 0.5
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 ²⁾
Protection	IP 67 ³⁾
Protection	IP 65 ⁴⁾
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

²⁾ for PX3111, PX3220, PX3222, PX3422, PX9110, PX9111, PX9112,

³⁾ for PX3237, PX3238

⁴⁾ for PX3223, PX3224, PX3226, PX3227, PX3228, PX3229, PX3244
PX9114, PX9116, PX9117, PX9118, PX9119, PX9134

More information at www.ifm.com