


## PRESSURE SENSOR



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## 1 SAFETY INSTRUCTIONS

: **WARNING:** The sensor must be powered by a LIMITED POWER SOURCE. The protection offered may be compromised if the pressure sensor is not used as specified. A suitable isolation device must be provided outside the equipment. Detailed information on safety symbols and marks can be found on the last page of this document (**section 8**).

## 2 DESCRIPTION

**PARATRONIC** pressure sensors are designed for liquid pressure measurements on pipes. This is handled by a G ¼ or ½ inch male coupling.

Self-powered by the measurement circuit, they supply a 4/20mA signal for a measurement of up to 25 bar (depending on the model).

A DIN IP65 connector or cable output (IP68 option) is used for connection.

They are simple and quick to use.

## 3 TECHNICAL SPECIFICATIONS

### 3.1 MECHANICAL SPECIFICATIONS

Description:	Metallic tubular body
Material:	Stainless steel
Dimensions (mm):	diam. $27 \pm 0.1$ , standard length: 136, (depending on connector model – max 146). IP68 option: 160 (see details)
Weight (g):	200 (standard) or 160 + 50 (IP68 option + metre of cable)
Use:	

Pressure connection: Screwed onto G1/4 male (8x13mm) or G1/2 male (15x21mm) pipe

Electrical connection: By screw connector (IP65) or cable output (IP68 option)

Cable (for IP68 option): Double-coated, with no capillary tube. Blue polyethylene outer cladding. Electrical shielding, 2 x 0.60 mm<sup>2</sup> conductors (60 mΩ/m of cable), diam. 7 mm +/-0.5 mm, weight 50 g per metre

### 3.2 ELECTRICAL SPECIFICATIONS

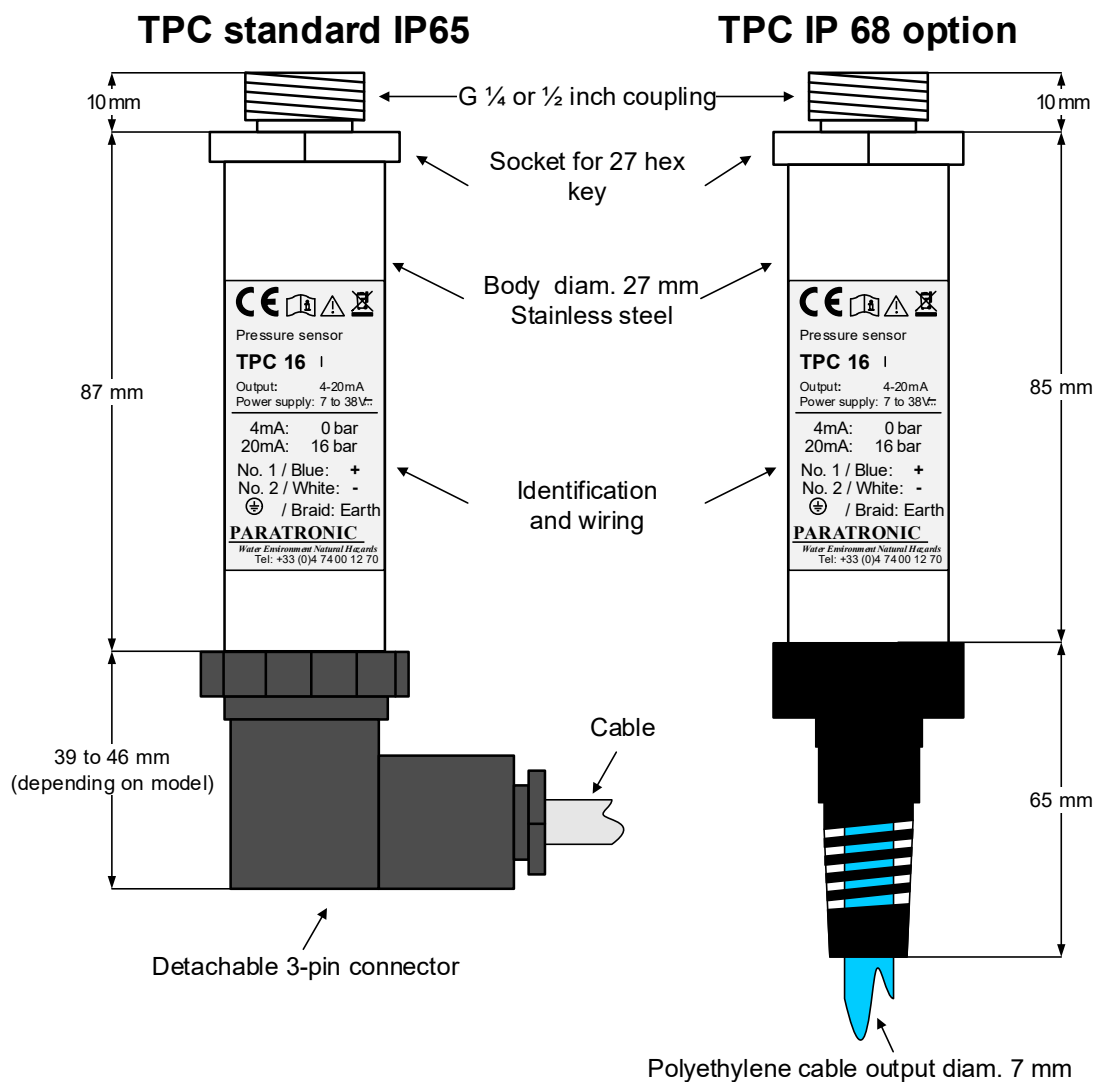
Power supply voltage:	7 to 38 V= with limitation at 1A
Output signal:	4/20mA (protected against polarity inversion)
Measurement range:	0 - 0.1 bar to 0 – 25 bar (depending on model)
Temperature drift:	<± 0.03% FS / °C (± 4.5 µA/°C)
Repeatability and hysteresis:	<± 0.2%FS (± 30 µA).
Line-of-best-fit linearity:	<± 0,25%FS (± 40 µA).*
Non-deterioration range:	1.5 x full scale
Heating time:	<150ms
Response time:	<10ms
Constancy:	<± 0.3% FS/year
Connection:	Cable with 2 x 0.60 mm <sup>2</sup> conductors

\*: Value given for full scales ≥ 1bar, line-of-best-fit linearity FS< 1 bar <+/- 0.45%FS (+/-70 µA).

**3.3 ENVIRONMENT, STANDARDS**

Maximum altitude: 2000m above sea level  
 Protection rating: IP65 (standard), IP68 (option)  
 Operating temperature: -5°C to 50°C (liquid phase)  
 Storage temperature: 0°C to 80°C  
 Electromagnetic compatibility: Fast transients level 4  
 Lightning surge wave 1.2/50 - 8/20, 2 KV  
 EN 61000-6-2, EN 61000-6-3  
 Electrical safety: EN 61010-1  
 Health: EN 62479  
 Environment: EN 50581  
 CE Mark : **CE**

**4 DIMENSIONS**



## 5 USE AND MAINTENANCE


The TPC sensor is designed for non-sewage water pressure measurement, on a conduit (see hydraulic connection below). It does not require any maintenance.

## 6 USE

### 6.1 ELECTRICAL CONNECTION

- The pressure sensor is connected via the removable 3-pin connector or via the cable if the IP68 option is selected.
- In any case, measurement circuit protection with a PRO TAS30, for example, is required.

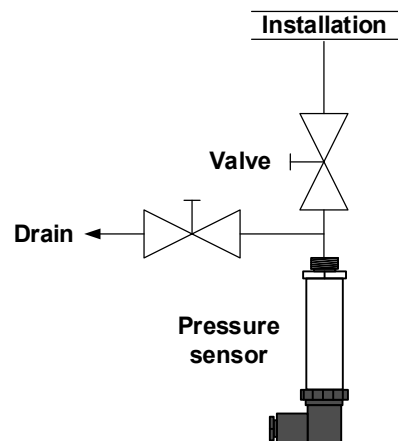
Connection via 3-pin connector. "Terminal marking" →

	
Pressure sensor	
<b>TPC 16</b>	
Output :	4-20mA
Power supply:	7 to 38V ...
4mA :	0 bar
20mA :	16 bar
No. 1 / Blue :	+
No. 2 / White :	-
⊕ / Braid :	Earth
<b>PARATRONIC</b>	
<small>Water Environment Natural Hazards</small>	
<small>Tel: +33 (0)4 74 00 12 70</small>	

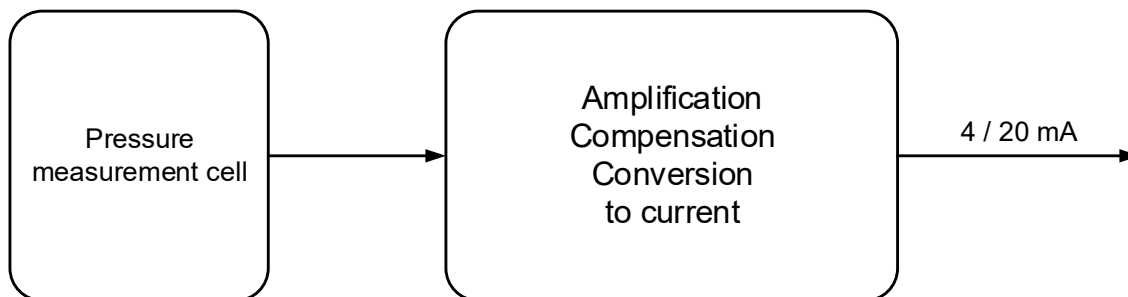
← Connection via cable (IP68 option). "Wire marking"

### 6.2 HYDRAULIC CONNECTION

- The hydraulic assembly of the pressure sensor must be carried out in the upright position with the connector facing downwards and the pressure sensor upwards, in order to prevent any air pockets.
- It is also recommended, during installation, to pressurise slowly and gradually.
- During its use, the pressure sensor must not be subjected to sudden pressure and temperature variations and to overshoots of these specification values.



## 7 FUNCTIONAL DIAGRAM



## 8 MAIN ADVANTAGES

Ceramic or silicon piezoresistive measurement cell:

- **The measurement is made by applying pressure directly on the sensitive cell.**
- **The lack of membrane and hence of oil prevents any risk of pollution.**

Direct atmospheric pressure transmission; no capillary tube:

- **Reliable, simple and robust design.**
- **No risk of venting blockage or degradation.**
- **Enables use in extreme humidity conditions.**

Lightning protection:

- **The circuit must be protected with a PRO TAS30.**

Polarity inversion protection:

- **Robust design and easy installation.**

Pressure connection:

- **Screwed onto pipe. G1/4 male (8x13) or G1/2 male (15x21) coupling.**
- **Simple to use.**

Electrical connection:

- **IP65 3-pin connector.**
- **Enables quick and failsafe connection.**

2-conductor cable, with electrical shielding (IP68 option only):

- **Flexibility and high resistance to physical and chemical attacks.**

Power supply 7 to 38 V=:

- **Compatibility with all acquisition standards: automated systems, remote management, data loggers.**

Signal 4 – 20 mA on 2 wires:

- **Measurement standard.**
- **No line resistance limitation.**

Equipment in contact with liquid:

- **Stainless steel body and cell.**

Fully dismountable:

- **Enables modification of the measurement scale, recalibration, cable replacement and any intervention on the sensor electronics.**

No special maintenance required:

- **Optimal ease of use.**

## 9 SAFETY SYMBOLS AND MARKS



**!**: Hazard risk. Important information. Refer to the instructions for use.



**i**: Read the instructions for use.



**CE**: Compliant with European Union and EFTA directives.



**WEEE**: European Directive 2002/96/EC of 27 January 2003 on waste electrical and electronic equipment (WEEE Directive) was transposed in France by Decree No. 2005-829 of 20 July 2005.

Electrical or electronic appliances, and their spare parts and consumables must never be disposed of in household waste.

**PARATRONIC** has undertaken to set up an Individual Collection System.

**PARATRONIC** waste electrical and electronic equipment should be returned by customers (End users) to the following address:

**PARATRONIC - Zone Industrielle - Rue des Genêts, 01600 REYRIEUX, France**  
**Service Recyclage DEEE**

The specifications described in this document are subject to change by the manufacturer without notice.