


## CNR SUBMERGED LEVEL SENSOR



### 1 SPECIFICATIONS\*

Measurement range	0 – 0.5mH <sub>2</sub> O to 0 – 30mH <sub>2</sub> O.
Power supply voltage	6V to 38Vdc.
Output signal	4 / 20mA.
Operating temperature	-20°C to +60°C (in liquid phase).
Storage temperature	-20°C to +80°C before first use / 0°C to +80°C after first use.
Precision	< +/- 0.3% FS.
Temperature drift (0°C to 40°C)	< +/- 0.02% FS / °C**.
Repeatability and hysteresis	< +/- 0.30% FS***.
Linearity (at 25°C)	< +/- 0.15% FS****.
Non-deterioration range	1.5 times full scale.
Heating time	< 300ms.
Response time	< 150ms.
Fast transients	Level 4.
Surge immunity	20kA (wave 8/20).
Standards: (CE Mark)	EN61000-6-2 - EN61000-6-3 - EN61010-1 EN62479- EN50581
Hydrology (ACS)	ISO 4373 Certificate of Sanitary Conformity.
Dimensions	Diam. 21.4mm +/- 0.1mm, Length = 170.5mm +/- 0.2mm.
Weight	180g + 50g per metre of standard cable.
Material	Passivated 316L stainless steel.
Standard cable	Double-coated, no capillary tube. Blue polyethylene outer cladding. Electrical shielding, 2 x 0.60mm <sup>2</sup> conductors (60mΩ / m of cable), diam. 7mm +/-0.5mm, weight 50g per metre.
Reinforced cable (optional)	Triple-coated, with no capillary tube. Blue polyethylene outer cladding limiting the effects of abrasion. High-density stainless steel outer braid providing effective protection against mechanical damage (cuts, rodents, etc.). Kevlar supporting cable, electrical shielding, 2 x 0.60mm <sup>2</sup> conductors (60mΩ / m of cable), diam. 9mm +/-0.5mm, weight 100g per metre.
Use	Suspension on cable.

### 2 SAFETY INSTRUCTIONS

 : WARNING: The protection offered may be compromised if this appliance is not used as specified. Detailed information on safety symbols and marks can be found on the last page of this document (section 8).

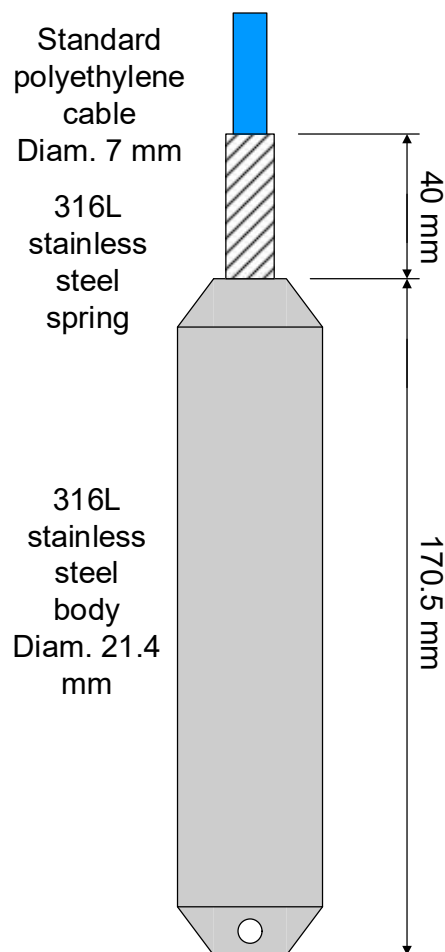
### 3 PRECAUTIONS FOR INSTALLATION AND USE

In order to vent the pressure sensor via the cable, a number of installation precautions are required:

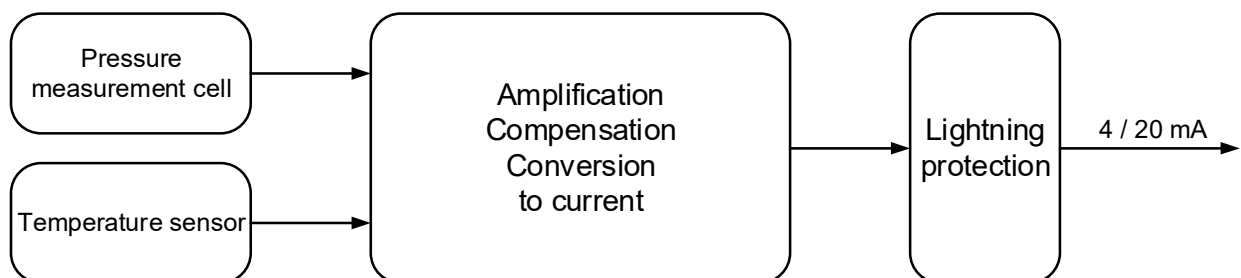
- Suspend it with the clamp provided.
- Ensure that the end of the cable is at atmospheric pressure and that it is never submerged.
- Do not damage or pierce the cable.
- Fit the cable in a sleeve protecting it from sunlight.
  
- During use, the CNR sensor must not be exposed to frost.
- Avoid "harsh" cleaning (high pressure, corrosive substances, etc.) of the sensor.

N.B.: The use of the Kevlar supporting cable, included in the reinforced cable (CABFOR option), involves, before submerging the sensor, tying the supporting cable at a fixed point and positioning the cable clamp at its definitive position on the cable.

### 4 DIMENSIONS



### 5 FUNCTIONAL DIAGRAM



## 6 **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.***

Temperature sensor:

***Continuous temperature compensation.***

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:

***Self-protected CNR sensors can withstand, under all circumstances and with no extra protection, shocks of up to 20 kA.***

Polarity inversion protection:

***Robust design and easy installation.***

(Standard or reinforced) 2-conductor cable, with electrical shielding:

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

Connection without specific connector:

***Allows compatibility with all acquisition standards: automated systems, remote management, data loggers.***

Power supply 6 to 38 V:

***Allows 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:

Passivated 316L stainless steel body  
Standard double-coated polyethylene cable

***These materials make the CNR sensor suitable for use in drinking water and in sewage (low or high pH, raw or treated water, etc.).  
This choice guarantees optimal operating safety, qualifying the CNR sensor for the “ACS” Certificate of Sanitary Conformity, which is mandatory for use in drinking water.***

Mounting with cable clamp provided:

***Simple and safe to use.***

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.***

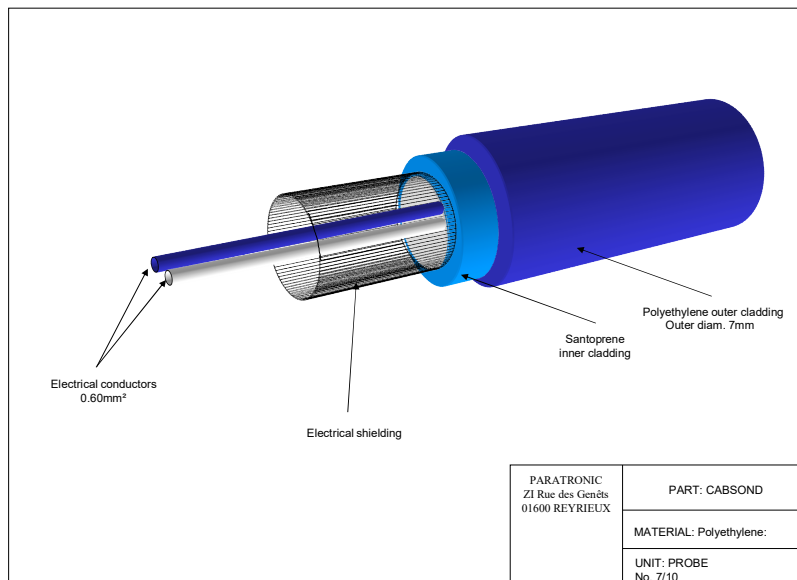
## 7 SELF-SUPPORTING CABLE WITH POLYETHYLENE CLADDING

The cable structure, dimensional, mechanical and chemical characteristics of its components are based on technologies stemming from PARATRONIC's experience and research and development capabilities. This component is part of PARATRONIC's proprietary know-how and plays a key role in the differentiation of PARATRONIC sensors from other sensors on the market.

The cable used for these piezometric sensors allows you to vent the sensor without using a capillary tube, which avoids the drawbacks associated with crushing, pinching, bending or blockage (by a water droplet) of such a capillary tube.

Furthermore, the flexibility of the cable allows installations with bends, angles and sinuous routes.

Finally, this self-supporting cable is resistant to damage from water, chlorine, etc. However, it is recommended to protect it against direct sunlight and physical damage (rodents, friction, etc.) by fitting a sleeve.



- Length of cable: The required length of cable must be specified when ordering, it can be varied from 1 to 500m.

- Cable mounting: The cable is usually mounted using the cable clamp supplied with each probe.

## 8 SAFETY SYMBOLS AND MARKS

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

📖: Read the instructions for use.

CE: Compliant with European Union and EFTA directives.

♻: 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 our company's head office, at the following address:

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

\*: The values given are typical values.

\*\*.: Value given for full scales  $\geq 4\text{m}$ , temperature drift (-20°C to 60°C)  $\pm 0.03\%$  FS / °C

\*\*\*: Value given for full scales  $> 1\text{m}$ , repeatability and hysteresis  $< 1\text{m}$ :  $\pm 3\text{ mm}$ .

\*\*\*\*: Value given for full scales  $\leq 10\text{m}$ , linearity  $> 10\text{m}$ :  $\pm 0.20\%$  FS.

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