


## CR420/6, CR420/10 and CR420/20 RADAR SENSORS



### Contents

1	SAFETY INSTRUCTIONS.....	2
2	DESCRIPTION.....	2
3	TECHNICAL SPECIFICATIONS.....	2
3.1	MECHANICAL SPECIFICATIONS.....	2
3.2	ELECTRICAL SPECIFICATIONS.....	2
3.3	ENVIRONMENT, STANDARDS.....	3
4	USE.....	3
5	IDENTIFICATION.....	3
6	RADIO APPROVAL.....	3
7	SAFETY SYMBOLS AND MARKS.....	4

## 1 SAFETY INSTRUCTIONS

: **WARNING:** The radar sensor must be powered by a LIMITED POWER SOURCE. The protection offered may be compromised if the radar 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 7**).

## 2 DESCRIPTION

**PARATRONIC** radar sensors are designed for non-submerged level measurement, free from contact with liquids. They are particularly suitable for use in waterways, dams, treatment stations, reservoirs, storm overflows, discharge channels, etc., and are protected against submersion effects (IP68). Self-powered by the measurement circuit, they supply a 4/20mA signal for a measurement of up to 20m (depending on the model). They are simple and quick to use.

## 3 TECHNICAL SPECIFICATIONS

### 3.1 MECHANICAL SPECIFICATIONS

Description:	Plastic casing
Housing material:	ABS PC, PETP and PTFE
Mounting:	On horizontal tube diam. 40mm
Dimensions (in mm):	300 x 220 x 85
Weight (in g):	1.800

### 3.2 ELECTRICAL SPECIFICATIONS

Technology:	Pulse radar
Emission frequency	24.05 to 26.5 GHz
Repeat frequency	3.57 MHz
Pulse duration	1.2 ns
Radiated power	<20 dBm
Antenna aperture at -3dB	+/- 4° by +/- 6° (=angle of radiation with respect to vertical)
Power supply voltage:	10 to 33Vdc
Measurement range:	CR420/6: 0m to 6m CR420/10: 0m to 10m CR420/20: 0m to 20m
Output signal:	4/20mA on 2 wires
Connection:	"+" = brown (or blue), "-" = white (or black), earth = braid
Cable type:	Shielded, 2 wires, cross-section 0.5mm <sup>2</sup> , diam. 5.5mm, 50Ω/Km (protected against polarity inversion)
Cable length:	2 m (other lengths on request)
Resolution:	1mm for a full scale of 1 to 8m 2μA for a full scale of 8 to 20m
Precision:	Clearance of < 20 cm: +/-100 mm
(excluding temperature drift)	Clearance of 20 cm to 50 cm: +/-20 mm Clearance of 50 cm to 20 m: +/-5 mm (EMC +/-10 mm)
Temperature drift:	<0.2μA/°C (from -20°C to +60°C)
Heating time at 22mA:	< 2s (minimum power supply time = heating time + smoothing depth)
Heating time at 4mA:	< 6s (minimum power supply time = heating time + smoothing depth)
Fault signal:	Configurable from 4 to 22mA (22mA by default)
Fault time delay:	Configurable from 10 to 250s (240s by default)
Smoothing depth:	Configurable from 2 to 60s (30s by default)

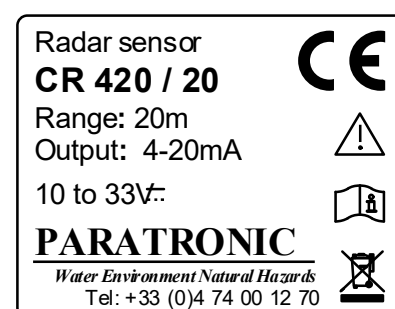
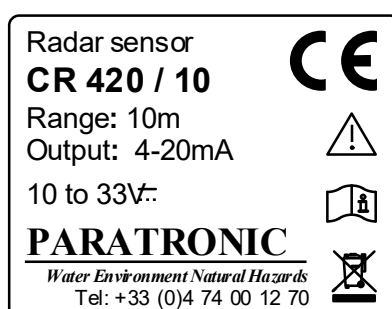
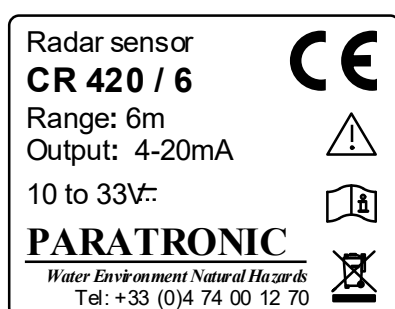
### 3.3 ENVIRONMENT, STANDARDS

Maximum altitude:	2000 m above sea level
Protection rating:	IP68 (100 days at 1 metre)
Fire rating:	UL94-V2
Storage temperature:	-20 to 60°C
Operating temperature:	-20 to 60°C
CE Mark:	<b>CE</b> EN 302729-1/2 (2011-05) EN 61326-1 (2013-05) EN 50581 (2013-01)
Hydrology	ISO 4373
Electromagnetic compatibility:	Fast transients level 4 Lightning surge wave 8/20, 2kV
Electrical safety:	EN 60950-1 (2006-09) + Av. A1, A2, A11, A12
Health:	EN 62479 (2010-11)

## 4 USE

- The CR420 radar sensor is mounted directly on a horizontal tube of external diam.  $\leq 40\text{mm}$  (or using the optional "RADAR EQUERRE").
- For auto positioning, the transport seal must be removed from the CR420 radar (black rubber beading inserted between the case [green] and the antenna [white]).
- If required (specific applications not corresponding to the factory settings), the CR420 radar sensor configuration is modified with **PARATRONIC** "IHM capteur" software and using the **PARATRONIC** "ADP USB" interface (see "IHM capteur" installation instructions).

## 5 IDENTIFICATION



## 6 RADIO APPROVAL

The device is compliant with the radio standard EN 302729-1/2. It is approved for internal and external use, in France and in EU countries that have adopted this standard.

The following conditions must be fulfilled for use outside closed tanks:

- Installation is carried out by qualified staff
- The radar beam is oriented downwards, avoiding surfaces and sharp edges
- Unless it has been exempted by the telecommunication regulatory authority, the radar is installed at least 4 km from radioastronomy stations. Up to 40 km, its height above ground level does not exceed 15m
- The radiation is reduced by at least one of the following methods:
  - Device activation is limited to 10% of the time.
  - The minimum distance between 2 devices is 800 m.

Radioastronomy stations in France:


Station	Latitude	Longitude
Plateau de Bure	44° 38' 01" N	05° 54' 26" E
Nançay	47° 22' 15" N	02° 11' 50" E


The full list of radioastronomy stations is available on the site "www.craf.eu."

## 7 SAFETY SYMBOLS AND MARKS

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

: Read the instructions for use.

: 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 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.