

OVERVIEW OF TECHNICAL CHARACTERISTICS AND SPECIFICATIONS OF MICRO-SENSOR & MINI-STATIONS CAIRNET

Sensor type:

- Electrochemical sensors for O₃-NO₂, NO₂, CO, NH₃, SO₂ or H₂S/CH₄S
- PID sensor for non-methane VOCs (nmVOC) measurement
- Optical Particle Counter for PM₁₀ and PM_{2.5}

Compliance to EU standards:

Sensors are compliant with the criteria of the European directive 2008/50/EC, which requires a minimum of accuracy for indicators measuring air quality: < +/- 30%.

Measuring ranges and accuracy:

Measured pollutant		Measurement Range (ppb)	Typical Application	Certified * Detection limit (ppb)	Resolution (ppb)
Combined Ozone and Nitrogen Dioxide	O ₃ -NO ₂	0 – 250		20	1
	NO ₂	0 – 250		20	1
Carbon Dioxide	CO	0 – 20 000		50	1
Ammonia	NH ₃	0 – 25 000		500	1
Sulphur Dioxide	SO ₂	0 – 1 000		50	1
Non-Methane volatile Organic Compounds	nm COV	0 – 16 000		500	1
		0 – 2 000		200	1
Hydrogen Sulfide And Mercaptans	H ₂ S/CH ₄ S	0 – 1 000	Ambient Air / Odors Monitoring	10	1
		0 – 20 000	Ambient Air / Odors Monitoring Controls Applications	30	1
		0 – 200 000	Health & safety Monitoring	200	1
Particulate Matter (PM)	PM ₁₀ & PM _{2.5}	0 – 1 000 µg/m ³			1



Sensor characteristics:

*** All ours Sensors are Manufactured and Calibrated towards reference US EPA approved chemiluminescence analyzer in our metrological laboratory**

- Delivered with its calibration certificate.
- No calibration nor maintenance required over a period of 1 year operation.
- Minimum Cairsens micro_sensor lifetime: 1 year of measurement (up to 2 years for particle sensor).
- Each micro-sensor is equipped with a patented** combination of a dynamic sampling system associated to dust and moisture sensitivity influence filter.
- Data display Unit of measurement: ppb or ppm
- Real-time measurement display on the screen of each sensor
- Display of alarms on the screen
- Language used for display: French or English
- Power supply: 115-220 VAC / 50-60Hz to 5VDC-500mA.

Network Configuration:

The Cairnet housing:

- Housing for outdoor operation (Temperature -20°C to +50°C)
- 100 % autonomous thanks to its onboard battery rechargeable from solar panel.
- Embeded 2.5G (GPRS)/3G communication modem allowing data transmission from sensors to the Caircloud.
- 1 mn data transmission from the Cairnet to the Caircloud every 10 min (programmable)
- Allows to house up to 3 gas micro-sensors plus 1 particulate (PM10/PM2.5) sensors.
- Embeded temperature, relative humidity and atmospheric pressure sensors for data validation.
- Housing 230 x 370 x 200 mm / Weight 5.1 Kg
- Easy mouting on tripod, pole, mast ...

The Caircloud:

- The Caircloud is a private space accessible from anywhere and with any support via a smartphone, tablette or PC via a simple internet link.
- Secured access to all data from Cairnet and sensors.
- Can integrate more than 50 Cairnet Stations.
- This tool is a platform that allows to manage micro-sensors and Cairnet station
- Monitoring in real time all measurements and technical data to perform automated data exports.
- Possibility to access on database of Caircloud by using **API (Application Programming Interface) REST (Representational State Transfer)** from another supervision platform to retrieve the measurement data.

***Patent number and reference available upon request.*

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