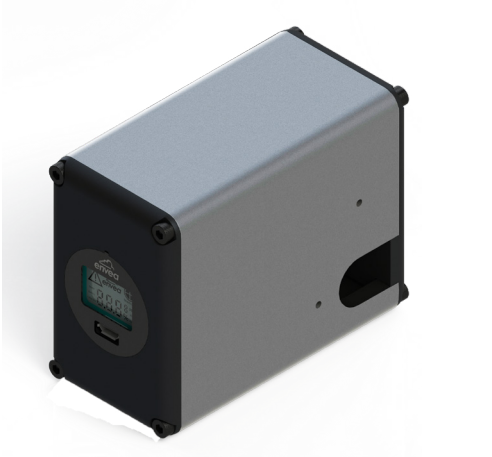
PM Cairsens© Micro-Sensors - Technical Specifications

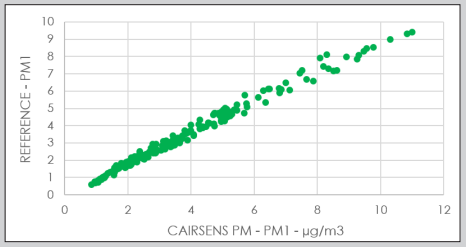


The particles taken in the measuring chamber pass through a continuous laser beam and emit light in all directions according to the principle of light scattering. This scattered light is analyzed to calculate a mass concentration in µg/m³ for each particle size fraction: PM1, PM2.5 and PM10.

Sampling is carried out by a micro-fan controlled to maintain the flow rate at 2.5 L/min.

A sample heating system maintains the relative humidity in the chamber below the 60% threshold. Threshold beyond which the optical characteristics of the particles are altered and the sensor measurement is distorted.

This system avoids the undesirable effects of high relative humidity on the measurement of PM10, PM2.5 and PM1.

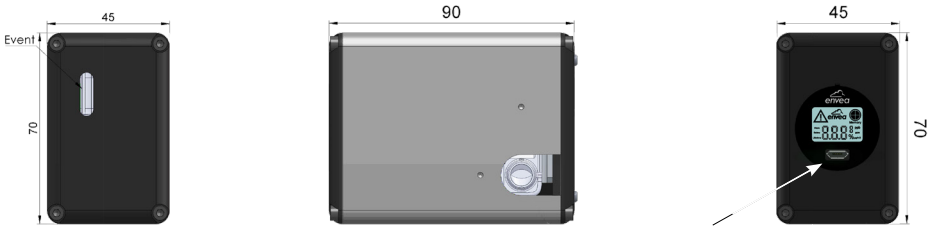


Correlation of measurements:
Qualified Testing Devices vs PM Cairsens (PM1)

STORAGE CONDITIONS	
Temperature (°C)	-20 to 70
Relative Humidity (% HR)	0 to 95 (no-condensing)
Pressure (mbar)	500 to 1500

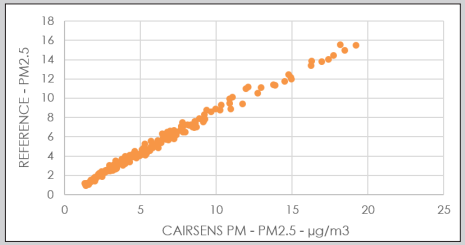
COMPLIANCE TO ENVIRONMENTAL REGULATIONS	
Electrical safety	NF EN 61010-1: 2010
Electromagnetic Compatibility	NF EN 61326-1: 2013
Protection Index	IP 42 (according to IEC 60529)

SYSTEM SPECIFICATIONS	
Lifetime	1 year of continuous operation (10 000 h)
Nominal Power supply	5V DC / 500 mA, USB port of a PC or Power bank (not provided).
Power Consumption	250 mA max under 5V DC
Gas sampling method	Controlled airflow with fan, flow rate 2.5 L/min
I/O loggin & communications	UART, Modbus using micro-USB port.
LCD Display	Concentration in µg/m³, sensor lifetime remaining, operating status, memory available ...
Control & data treatment board	Internal microprocessor for data acquisition and treatment, embedded timer.
Data Storage (internal)	2 days for 1 min data, 30 days for 15 min data or 120 days for 60 min data
Download data mode	- Customized integration / DAHS - Cairnet mini station (data export on Caircloud®) (option)
Weight	370 g

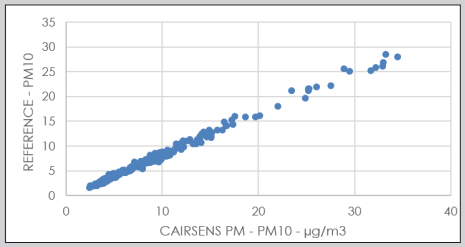


BACK SIDE FRONT

The last generation of Cairsens® micro-sensors for Particulate Matters (PM) monitoring operates without any influence from moisture in ambient air.



Correlation of measurements:
Qualified Testing Devices vs PM Cairsens (PM2.5)



Correlation of measurements:
Qualified Testing Devices vs PM Cairsens (PM10)

* PM Cairsens® are manufactured in France and calibrated in our metrological laboratory using Standard Reference AQMS monitors. Every sensor shipped includes a calibration certificate. No maintenance and no need for recalibration for 1 year warranty.

METROLOGICAL PERFORMANCES(1)

Mesured parameters	PM1, PM2.5 & PM10
Measuring Range (3)	0 – 1 000 µg/m³
Particle size detection range ø	0.3 – 10 µm
Certified* Detection Limit (2)	< 5 µg/m³
Display resolution	0.01 µg/m³
Linearity (2)	R^2 > 0.75
Uncertainty between sensors	< 5 µg/m3
Accuracy (slope) (2)	0.7 to 1.3
Sample conditioning	Controlled airflow, heated air flow over 60% relative humidity
Temperature effect	< 0.01 µg/m³/°C
Technology	Laser Light Scattering
Operating Temperature	-20 to 70 °C
Operating Relative Humidity	0 to 95 HR % (no-condensing)
Operating Atmospheric Pressure	500 to 1 500 mbar

(1) Laboratory operating conditions: 20°C ± 2°C / 50% RH ± 10% / 1013 mbar ± 5%
(2) According to our laboratory evaluation: daily averages measurements for PM2.5 in comparison with an reference
(3) Arizona sand equivalent

ENVEA
111 Bd Robespierre / CS 80004
78300 Poissy Cedex 4 - FRANCE
☎ +33(0)1 39 22 38 00
✉ info@envea.global

OHSAS 18001:2007
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CERTIFICATION

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www.envea.global