

Swam 5a Dual Channel HM Dust monitor

Beta Attenuation Sampling and Measurement Systems Detailed Specifications

Parameter	Specification	Key advantages
Measuring Principle	Beta-Attenuation method	Same measuring system for 2 lines (better uncertainties PM 10 and PM 2,5)
Source	(¹⁴ C) Max 3,7 MBq (for both PM 10 & PM 2,5)	Same sources for two PM fractions (Low radiations)
Sampling and measuring modalities	Simultaneous sampling and mass measurement on two filter membranes (standard use PM10 and PM2.5 fractions or PM10 and PM 1).	Flexibility in sampling and measuring PMx fractions with only one instruments.
Accumulation support	Filter membranes 47 mm with different matrix Glass fibre, Quarts, Teflon etc.	Available sample for further chemical speciation
Standard Compliance	<p>Fully compliant with: Directive 2008/50/EC of the European Parliament and of the Council (May 2008)</p> <p>Equivalence Certification in compliance with EN 12341:2014 and previous EN 14907</p> <p>US EPA Certification for PM 10, PM 2,5 and PM coarse (only Hourly mode version)</p> <p>Compliance with new EN 16450 (March 2017)</p>	<p>This compliance allow use of instrument on line with future limit value for PM 2,5 up to 2020 calendar year</p> <p>Instrument could be used as certified Monitor and as Reference Sampler</p>
Detection Limit In between Uncertainty	$< 1 \mu\text{g}/\text{m}^3$ $<< 1 \mu\text{g}/\text{m}^3$	Better accuracy in measuring low level of contamination
Time resolution	<p>Timing programmable by the operator depending on the specific project.</p> <p>Minimum time resolution: 8 Hours (multitime 24H version)</p> <p>1 Hour (hourly mode version)</p>	Flexibility in programming different “temporal windows” for specific ambient study
Real-time data	Possibility of a connection of the instrument with an Optical particle Counter for real-time data on particulate matter trend (number and granulometric cut size)	Integrated system for source apportionment study
Communications	Analog output and digital communication must include appropriate software or datalogger	Remote interrogation (telemetry).
QC/QA analysis	All technical parameters recorded in buffer structure available for end user	Data validation analysis

Additional Technical informations:

1. Typical operational sampling flow rate (m³/h)
Programmable in the range 0.8 – 2.5 m³/h

2. Type of sampling inlet
PM10 2.3 m³/h (EN 12341-2014), PM10 1 m³/h European Design, PM2.5 2.3 m³/h (EN 14907), PM2.5 1 m³/h European Design, PM1 2.3 m³/h, TSP
Possible use also with US EPA heads and cyclones

Special application:

The combination of different flow rate, different equivalent beta spot area of filters and different sampling heads could allow instrumental performances compliant with special application and specific user requirements.

Due to the flexibility in setting different parameters of device, including measurement of differential pressure on filter section during sampling time, is possible to align instrumental configuration to increase mass measurement limit.

This limit could reach concentration of 50 mg/m³ using filter holder of 11,95 cm² at 1 m³/h of sampling flow rate (glass fibre or Teflon filter matrix).