



Atmospheric PMx particles monitor

SWAM 5A Monitor



Main characteristics

- Suitable for PM10, PM2.5, PM1 sampling inlet
- Operating flow rate range 0.8 ÷ 2.5 m³/h
- Sampling on 47mm diam. filter membrane for further analysis
- Mass measurement using the β attenuation method
- Completely automatic management of sampling and measurement quality controls, with immediate validation of the supplied PMx concentration data
- On line monitoring of all parameters related to the sampling process, with relative diagnostic warnings of possible anomalies
- Sampling and measurement data storage on internal buffer
- Local control with RS232 serial interface
- Complete remote control via Modem/GSM

SWAM 5A Monitor has been engineered to allow a 100% yearly data coverage (365 data/year).

Actually, ordinary management, maintenance and calibration check are carried out without stopping the operating cycle. The instrument guarantees an excellent level of data quality and reliability.

SWAM 5A can be supplied with PM10 or PM2.5 sampling inlet, working at 2.3 m³/h.

The instrument gives the mass concentration measurement, in compliance with the DI 155/10, acknowledging the European Directive 99/30/EC.

As this system is in compliance with the EN 12341 and EN14907 standards, it can be used as a **reference sampler**.

The instrument can also carry out sampling and measurement processes in compliance with the US EPA regulations, using the relative sampling inlets:

- US EPA 40 CFR part 50 sampling inlet, for PM10 sampling, at 1 m³/h volume flow rate.
- US EPA 40 CFR part 50 sampling inlet with WINS PM2.5 impactor, for PM2.5 sampling, at 1 m³/h volume flow rate.

Filter membranes

The instrument can use glass, quartz, Teflon-coated glass, Teflon and other filter membranes. The choice depends on the selected operating flow rate, the



environmental conditions where the instrument is running, the compounds searched.

Filter cartridges with reduced β spot area are available, in order to increase the sensitivity in case of low concentrations.

The instrument can manage automatically the changing of 36 filter membranes (72 on demand). At the end of every sampling and measurement cycle, the sampled filter will be moved to the similar unloading cylinder.

The operator can replace the filters at any time, with no interference with the operating cycle in process.

SWAM 5A Monitor uses a coaxial chamber inside the main sampling tube. Through this chamber passes the ambient air sucked by an auxiliary aspiration fan, in order to guarantee a good thermostatic effect on the sampling tube. The temperature near the filter and the external one are constantly monitored.

This process allows to minimize volatile materials losses during the sampling process.

Technical Specifications

Sampled mass measurement range	0 ÷ 50 mg
Mass concentration measurement precision	± 0.3 µg/ m ³ (24 hours cycle 2,3 m ³ /h operating flow rate)
Mass concentration measurement detection limit	1 µg/ m ³ (24 hours cycle 2,3 m ³ /h operating flow rate)
Filters Loader/Unloader capacity	n° 36 filter cartridges (or 72 on demand)
Operating flow rate	Programmable in the range 0.8 – 2.5 m ³ /h
Supplied sampling inlet	PM10 cut size (LVS-PM10 model in compliance with EN 1234-1 standard, working at 2.3 m ³ /h) PM2.5 cut size (LVS-PM2.5 model in compliance with EN 14907 standard, working at 2.3 m ³ /h)_Other inlet available
Max pressure drop	40 kPa at 2.3 m ³ /h
Flow rate measurement precision	± 1% of the measured value
Flow rate measurement accuracy	< 2% of the measured value
Power supply	230 Vac (± 10%) 50 Hz single-phase 5 A
Absorbed electric power	1000 W (max)
Power supply	2 Floating batteries 12 V 3.5 Ah

Operating conditions (inside the installation cabinet)

- Temperature between 5-35 °C
- Relative Humidity lower than 85% (with no condensation)

Storage conditions

- Temperature between -10 and +55 °C
- Relative Humidity lower than 85% (with no condensation)

Sizes (W x D x H) and Weight

- Sampling unit:	430 x 540 x 240 mm	38 kg
- Vacuum pump unit:	200 x 320 x 200 mm	10 kg
- Sampling inlet diam. 145 mm	H 200 mm	1 kg
- Sampling tube diam. 100 mm	H 1500 mm	4.5 kg
- Service air compressor unit	180 x 420 x 240 mm	18 kg

Conformity to the following European Directives and last amendments:

- Directive 73/23/EC about low-voltage electric material
- Directive 98/37/EC about machinery safety
- Directive 89/336/EC about Electromagnetic Compatibility

Harmonized technical regulations:

- EN 61010-1 - Safety Requirements for Electrical Equipment for Measurement, Control

Laboratory Use:

- EN 61326-1 - Electromagnetic Compatibility (EMC) – Emission and Immunity
- EN 61000-3-2 - Harmonics
- EN 61000-3-3 - Flicker



Filterholder cartridge

SWAM 5A installed

