



LIFETEK PMS

Sequential System for Dusts

MEGA SYSTEM
s.r.l.

POLLUTION CONTROL SYSTEMS

The LIFETEK PMS is a continuous control unit for sampling atmosphere particles in OUTDOOR environment in compliance with the regulation UNI EN 12341:2014.

The system is compact and easy to carry.

It can be used in external environment thanks to the cabinet where the entire system is stored otherwise it can be placed in a mobile laboratory providing to the instrument the special adapter for the sampling head. It's made of materials that grant suitable protection against atmospheric agents.

The LIFETEK PMS is a control unit for continual monitoring of the atmosphere particulate matter by the gravimetric method on filtering membrane of 47 mm. The sequential system for filter changes has an autonomy of 16 filter which combined with the automatic flow control, allows the continuous monitoring without the supervision of a technician; it also offer the possibility to change the exposed filters without interrupting the sampling in progress.

The ventilation system of the sampling tube guarantees a temperature difference lower than 5 °C between the filter and the sampling point with an ambient temperature greater or equal than 20 °C (UNI EN 12341:2014 - point 5.1.4).

The straight path of the aspiration tube and the separation of the filter storage from internal or radiant heating sources allows to gather and keep intact samples.

The entire system has been designed with the goal of eliminating all the possible causes of jamming filters during the loading operations. So the filter loading occurs for gravity (falling from the top to the bottom) and not by the use of a compressor which pushes them. The pump works on the effective power needed to sample and to at the maximum of its capabilities so it grants a longer duration of the palette greatly affecting the maintenance costs.

The pump also is completely soundproof; this allow to install the instrument in residential area where it's fundamental to have a low background noise not to disturb during the night hours.

The sampling system is supplied with a GSM modem to remotely manage sampling and alarms by the use of SMS.

A conditioning and thermoregulated heating system allows to use the system in extreme environment conditions with compromising the electronical parts.



The instrument is supplied with a Peltier conditioning system which allows the storage of the sampled filters at a controlled temperature inferior than 23°C (UNI EN 12341:2014 - point 5.1.8).

It's also possible (optional) to supply the sequential system with sensors for the measurement of meteorological parameters (wind speed and direction, humidity, etc.) or connect it with an existing weather station to acquire its parameters.

The modularity of the sampling heads allows to use the system even with USEPA 40, CFR Part 50 heads.

The instrument can also be supplied with an optional interface to connect an external electro valves system (SELECT 8) for sampling total dust (TSP) with an autonomy of 8 or 16 filters.

The instrument is supplied with a complete testing report.

Note: The test report also specifies the calibration procedure used and the primary reference standards. The primary standards used are certified by LAT Centres or by international Calibration Centres accredited by bodies which are members of E.A. – European co-operation for Accreditation (an association representing the European accreditation bodies)



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TECHNICAL FEATURES

Quick connection to the sampling heads.
Constant flow with automatic loss compensation of the load losses. In case of elevated pressure drop on the filter the system allows to continue the sampling in progress moving to the next filter and recording the event.

Electronic system for the regulation of the flow which allows real time updates of the flow itself which grant a constant flow of 2,3 m³/h in the sampling zone where the granulometric separation occurs in such way to maintain constant air speed at the entrance of the fractionator.



The loaders are made to protect the filters from dust and sunlight.
The system guarantees a leakage inferior to 1% of the set nominal flow.

Settings of the digital flow by the use of the keyboard.
Recording and measuring by dedicated temperature sensors (ambient, sampling filter, stored filters, dry gas meter) and pressure sensors (ambient and load loss on the sampling line).

Memory to store all the sampling data.
Backup battery to restart the unit in case of power loss and recording of the event.

Environment sampling at constant scope: TSP, PM10, PM2.5 and PM1 in compliance with European and American regulation.

RS232 interface for the communication and download of the data on a PC (it's possible to use a console software compatible with Windows).

USB host interface for the data download on a pen drive (even during the sampling).

FIRMWARE FEATURES

Guided programming with display and keyboard
Sampling modes:

- timer with programmable sampling period
- volumetric with adjustable volume to sample
- Intermittent uniform and non-uniform with the setting of the sampling time and pauses

Setting the duration of the initial delay or synchronized start at the 24 hours to initiate the sampling and for filters change.



Management and setup of the anomalies, pauses and power loss. This events are recorded in the memory and can be sent over SMS with the installed modem (SIM card not included).



Display and recording of the sampling time, sampled volume and all signals. Flow calculation and average temperature of sampling and sampled volume to standard conditions.

Display of stored data.

Download stored data on RS232 or USB pen drive (even during sampling)

Via RS232 is available a string containing ALL the sampling parameters and all sensor signals. This string can be transmitted any data acquisition system at user programmable intervals (from 1 to 99 minutes)

Possibility to connect a printer (optional)



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TECHNICAL SPECIFICATIONS



PUMP

Rotary vane pump of 6m³/h with high pump head
Vacuum > 600 mmHg

OPERATIVE RANGE

5 ÷ 70 l/min

STABILITY OF THE SUCTION FLOW

(see p.to 5.1.5 – UNI EN 12341:2014)
≤ 2,0 % over the sampling period (average flow)
≤ 5,0 % nominal flow (instantaneous flow)
Pulsation-free flow

PUMP'S COOLING CIRCUIT

Forced ventilation and dissipation coil

DRY GAS METER

Dry Gas meter non resettable
Max error: ± 2%
Resolution: 0,2 l

DRY GAS METER TEMPERATURE SENSOR

Temperature sensor: digital
Range: -10 ÷ 50 °C
Resolution: 0,1 °C
Precision: ± 2 °C
Linearity: ± 2 °C (software linearization)

AMBIENT TEMPERATURE SENSOR

Temperature sensor: digital
Range: -10 ÷ 50 °C
Resolution: 0,1 °C
Precision: ± 2 °C
Linearity: ± 2 °C (software linearization)

FILTER TEMPERATURE SENSOR

Temperature sensor: digital
Range: -10 ÷ 50 °C
Resolution: 0,1 °C
Precision: ± 2 °C
Linearity: ± 2 °C (software linearization)

STORED FILTERS TEMPERATURE SENSOR

Temperature sensor: digital
Range: -10 ÷ 50 °C
Resolution: 0,1 °C
Precision: ± 2 °C
Linearity: ± 2 °C (software linearization)

VACUUM SENSOR (load losses of the line)

Range: 0 ÷ 760 mmHg
Resolution: 1 mmHg
Precision: ± 5mmHg

BAROMETRIC PRESSURE SENSOR

Range: 800 ÷ 1100 mbar
Resolution: 0,1 mbar
Precision: ± 1 mbar

SAMPLING TIME

Uncertainty: < 30 s / gg

USAGE TEMPERATURE

-10°C ÷ +50°C 95% UR

PROTECTION GRADE

IP55

NOISE LEVEL

LW inferior to 33 dB (A) at 8 m

MAIN POWER

230 V_{ac} - 50 Hz

DIMENSIONS

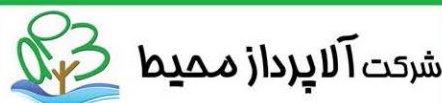
800 mm x 490 mm x 580 mm
(1225 mm x 490 mm x 580 mm – Total height including the head
UNI EN 12341:2014)

WEIGHT

59 Kg

CABINET

Made to resist the atmospheric agents



شرکت آلایرداز محیط
تهران - خیابان آزادی - بین خیابان شادمهر و
بزرگراه یادگار امام - شماره ۴۱۷ - واحد ۵

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