



# APM 550EL



## NEED

Changes in pressure drop due to dust deposited on the filter paper affects the sampling flow rate and the flow rate may not remain constant throughout the sampling period. APM550 EL Fine Particulate Sampler is designed for a constant sampling flow rate of 1 m<sup>3</sup>/hr maintained by the feedback from an electronic controller that automatically compensates for any change in pressure drop due to dust deposited on the filter paper. Instrument automatically shuts down if pressure exceeds the safe limits and thus the sample integrity is maintained. All other features of the instrument are similar to the standard APM550.

## APPLICATION

APM550 EL system has been designed for precise monitoring of PM<sub>2.5</sub> in ambient air, as it uses an electronic flow rate controller.

## WORKING PRINCIPAL

The PM<sub>10</sub> and PM<sub>2.5</sub> impactors used in the APM550 EL are based on USEPA designs and as such the particle size cut-off of the system complies with international norms for PM<sub>2.5</sub> Samplers. It fully meets all the requirements of the Central Pollution Control Board (CPCB). Ambient air enters the APM 550EL sampler through an omnidirectional opposed jet impactor system designed to provide a clear aerodynamic cut-point for particles larger than 10 microns. The air stream then passes through a WINS Impactor that retains the fraction between PM<sub>10</sub> and PM<sub>2.5</sub>.

**Automatic Compensation for Filter Pressure Drop:** The sampling rate is held constant at 1m<sup>3</sup>/hr by a microprocessor based electronic flow controller that automatically compensates for increasing pressure drop due to dust deposit on the filter. An ambient air temperature sensor and barometric pressure sensor have been provided to automatically provide temperature and pressure correction while reporting flow rate in volumetric flow units. An additional filter pressure sensor is also provided to continuously monitor and record the filter pressure and the system terminates the sample collection if the pressure drop across the filter exceeds a safe limit.

**in-built USB Flash memory based data logger:** The APM 550EL has an in-built USB Flash memory based data logger that records Filter ID, air temperature, filter temperature, barometric pressure, filter pressure, flow rate, Coefficient of Variation (CV) and also totalizes and records the volume of air sampled. A PC based software is provided to download the data for audit and prepare an intelligent report highlighting all important information in a convenient graphical format.

The brushless, continuous rated induction motor driven suction pump of the APM 550EL causes no electromagnetic interference (EMI) in gadgets and is immune to voltage fluctuations. The instrument has been housed in a compact and sturdy powder coated Aluminum cabinet. The pump unit of the APM 550EL is housed in a separate cabinet to minimize heat dissipation near the filter holder assembly. The two cabinets are clamped



## FEATURES

- PM 10 and PM<sub>2.5</sub> Impactors as per designs standardized by USEPA.
- Microprocessor based controller maintains constant air sampling rate of 16.7LPM.
- In-built system to control start and stop times of sampler.
- Micro-controller based datalogger records Air Temperature, Filter Temperature, Filter Pressure, Barometric Pressure, Flow Rate and Air Sample Volume.
- Data Recorded in USB Memory stick/ Memory Card for ease in recovery of data from remote field locations
- Brushless, Oil-free, low noise pump practically requires no maintenance.
- Auto Shut off of Sampler if flow rate falls below 1m<sup>3</sup>/hr. due to filter choking.
- Auto Leak Check

## SPECIFICATION

Flow Rate	1 m <sup>3</sup> /hr maintained by Mass Flow controller
Elapsed time indicator	Real Time clock based, records the operating time for each sample in hours and minutes.
Volumetric Flow rate Compensation	Performed automatically by the system using Sensors for Ambient Temperature and Barometric Pressure.
Volume Totalizer	MCU unit totalizes and displays volume of air sampled.
Flow Recorder	USB flash memory based system records flow rate, volume of air sampled, air temperature, filter temperature, filter pressure and barometric pressure
Size selective inlets	PM 10 Impactor and WINS Impactor for PM <sub>2.5</sub> conform to USEPA design.
Special Features	Auto shut-off of sampler if flow rate drops by more than 10% from designed value of 16.7 LPM. Same inst. can be used as a PM <sub>10</sub> Sampler by removing the WINS impactor.
Vacuum Pump	Oil free, pump driven by induction motor for stable flow rate.
PC based Software	Windows XP compatible software provided to process recorded data.
Leak Check	Leak Check Adopter.

# 1 Year Warranty

\*Specifications are subject to change without any prior notification

To facilitate sampling of gaseous pollutants, provision has been made to attach the APM 411/ 411TE gaseous sampling attachment with the main sampler.