APM 550 MFC-1V

NEED

Maintaining the sampling the flow rate constant throughout the sampling period is one of the main requirements for precise cut off of the PM 2.5 particles through the WINS impactor. Pressure through the filter paper increases with the dust deposition on it and the flow rate tends to decrease during the course of sampling. Mass flow controller is the device recommended by CPCB and BIS for control of the flow rate based on the feedbacks from temperature and pressure sensors.

APPLICATION

APM550 MFC-IV fine particulate sample uses a mass flow controller to accurately measure air sample flow rate and have all the features prescribed by CPCB, BIS & USEPA.

WORKING PRINCIPAL

The APM550 MFC-IV system is based on impactor designs standardized by USEPA for ambient air quality monitoring. Ambient air enters the APM550MFC-IV sampler through an omni-directional 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 PM10 and PM2.5. Mass Flow rate sensor does not drift with Filter Pressure Drop. The APM550MFC-IV uses a Mass Flow Sensor to accurately measure air sample flow rate. The sampling rate is held constant at 1m3 /hr by a microprocessor based electronic flow controller that automatically adjusts pump RPM with 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. The APM550MFC-IV 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. The brushless, continuous rated induction motor driven suction pump of the APM 550MFC-IV 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 APM550 MFC-IV is housed in a separate cabinet to minimize heat dissipation near the filter holder assembly. The two cabinets are clamped together during operation and can be separated for ease.

APM 550 MFC-IV

FEATURES

- In full Compliance with USEPA Design & Meeting all requirements of CPCB & BIS 5182 (Part 24)-2019 for Measurement of PM2.5 in the Ambient Air
- Mass Flow rate sensor does not drift with Filter Pressure Drop:
- Uses a Mass Flow Sensor to accurately measure air sample flow rate.
- The sampling rate is held constant at 1m3/hr by a microprocessor based electronic flow controller that automatically adjusts pump RPM with 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 corrections to flow rate in volumetric flow units.
- An ambient air temperature sensor and barometric pressure sensor have been provided to automatically provide temperature and pressure corrections to 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 flow rate or pressure drop across the filter exceeds the safe limits.
- Out of spec. data is flagged as per the requirements prescribed by USEPA.

Year Warranty

*Specifications are subject to change without any prior notification

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APM 550 MFC-IV

SPECIFICATIONS

Compliance	In full compliance with USEPA Design & meeting all requirements of CPCB & B & IS 5182 (Part 24) – 2019 for Measurement of PM2.5 in the. ambient air
Flow rate	1 m3 /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
Data logging	All run time parameters such as Flow rate, Air Temperature, Filter Temperature, Barometric Pressure, Filter Pressure, Sample Volume, CV recorded in Memory Card.
Size selective inlets	PM10 Impactor and WINS Impactor for PM2.5 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 PM10 Sampler by removing the WINS impactor.
Flagging of Out of Spec. data	Out of spec. data is flagged as per the requirements prescribed by CPCB, BIS & USEPA.
Vacuum Pump	Oil free, pump driven by induction motor for stable flow rate
Data File compatible with MS EXCEL	Downloaded data directly opens in an Excel Sheet. No additional software is required
Leak check Unit	Leak Check provided
Flow rate Calibration Unit	Flow rate calibration system supplied optionally.

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