

4 CHANNEL SPECIATION SAMPLER

ECOTECH MODEL AAS 406

(Fitted with USEPA Design Impactor for PM 10 & PM 2.5)

BACKGROUND:

Detailed investigation of to composition of fine particulate matter present in atmosphere is necessary to understand the sources of high PM_{2.5}/PM₁₀ concentration in the atmosphere. Therefore, it is necessary to not only monitor concentration of PM_{2.5}/PM₁₀ mass but also required to determine the major chemical components of PM_{2.5}/PM₁₀ dust.

Since aerosol are typically made up of hundreds of different substances many of which are interacting with environment and also with one another. Investigation of aerosol chemical speciation has become a need for air pollution source apportionment studies for air quality management & control.

Speciation is two step sampling process of aerosol with filter-based sampler onto a specialized filter/pretreated cartridge followed by retrieval of samples and its analysis in lab using sophisticated analytical instruments.

FEATURES & SPECIALITIES:

Speciation sampler Ecotech Model AAS 406 is specially designed for collection of PM_{2.5}/PM₁₀ on to multiple 47mm dia filters followed by subsequent laboratory analysis of collected PM_{2.5}/PM₁₀ dust for different relevant chemical compounds including EC/OC, Trace Metals, Ions (Anions & Cations) Sulphates and Nitrates species.

AAS406 has 4 channel configuration where sampling flow rate of 16.67 lpm is maintained using Electronic pneumatic Mass Flow Controller at each channel independently. 4 channel speciation sampler offers unique advantage in ease of selecting any channels for PM₁₀ or PM_{2.5}. Filter of any kind can be used as per need. Its compact nature and ease of handling without compromising effective control on monitoring duration where all 4 samples are collected for same time exactly and simultaneously.

Each channel is provided with filter holder housing to place 47mm diameter PTFE filter/ Quartz filter / Nylon filter/Glass micro fiber/EPM2000 filter as per sampling protocol of specific chemical substances of interest. Provision also exists to fit Denuder for sampling of gaseous related species, as and when required. Flow control is taking place at 16.67lpm. Filter temperature is also recorded in logger continuously for all 4 channels. Sampler is fitted with new generation data logger which record internal data besides user defined input data for monitoring period.



Logger is provided with display to show important ongoing events and last recorded information. Logger has keypad for user programming & data retrieval using USB port and pen drive.

Logger has RS232 connectivity at which Laptop can be connected for parameter setting and for remote access of the data. Internet is needed at Laptop with operator to allow remote user to access the logger data & setting through anydesk or Team Viewer. On each channel Microprocessor based Mass Flow with Pneumatic Flow Controller is provided.

Operation and event record and sampling performance parameters like Filter Temperature, Pressure, Volume, of air sampled, Elapsed time besides display of Ambient Temperature, Barometric Pressure & Relative Humidity are monitored by in formal computer fitted in sampler.

Machine is automatically switched off if any of the following condition is arrive during sampling to safe guard the sample.

1. If flow rate is reduced beyond range of flow controller upto 10% for 5 minutes.
2. If difference in the ambient Temp and Filter Temperature is more than 5⁰C for 5 minutes.
3. If filter pressure variation during sampling is more than 180 mmHg.

Coefficient of variation is computed for flow rate and recorded in logger for each channel.

Sensors for recording Temperature, R.H, & Barometric Pressure are provided and data are directly stored in Data logger at defined interval. Additional connector on card are also provided to connect ultrasonic W/S & W/D sensor. Standard unit is supplied without W/D, W/S sensor. Only ultrasonic W/S & W/D Sensor can be connected need to be oredred separately.

Ecotech product are designed to sustain harsh environmental condition of extreme Indian weather and dusty atmosphere.

A compatible laptop for data ownloading and management can also be supplied as per requirements (optional). This need to be ordered separately. Laptop supplied shall be loaded with 4 channel data handling software.

Key Features:

- 4 Channel configuration with standard flow 16.7lpm \pm 2%
- Recording of Filter Temperature & Filter Pressure for each channel.
- Sensors for Ambient Temp., R.H & B.P. provided.
- User defined programming & sampling interval.
- Can be operated in harsh environmental condition (Temp. upto 50⁰C) R.H & Dusty area.
- Parameters can be sampled EC/OC, SO₄, NO₃, Ions, Trace metals beside PM2.5/PM10 mass
- Impactors are having certification of cut off from CSIR-NPL .



For pricing information and queries contact:

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SPECIFICATIONS OF SPECIATION SAMPLER ECOTECH MODEL 406

- 4 Channel Speciation Sampler
- 2 Lines for PM10 & 2 lines for PM2.5
- Sampling heads are based on USEPA design demensionally traceable to USEPA design published 40 CFR Appendix L.
- Sampling Flow rate 16.7 lpm.
- Internal Control is microprocessor based panel PC.
- Microprocessor based Mass Flow Pneumatic Flow Controller provided for control of volumetric flow rate at prevailing Ambient Temp & Barometric pressure.
- Sensor for Ambient Temp, R.H and Barometric Pressure provided.
- Remote access through Laptop hook up is provided.
- USB Port for data retrieval
- RS232 communication for Laptop connection and remote data access.
- If deviation in flow rate in any channel is beyond permissible limit it is recorded in the logger memory and Sampler is switched off.
- Machine restart automatically after Power Failure.
- 4 Pcs filter holder to house filter 47mm dia.
- Software with user defined supply protocol is loaded in Panel PC of Sampler.
- Digital Flow calibrator capatable to system is provided for 16.67 lpm.
- Input Power – 230 VAC, Single Phase , 50 Hz.
- Provision exist in logger to connect Ultrasonic W/S & W/D sensor which need to be ordered separately.
- Laptop Loaded with data downloading and operation software for effective operation & management of sampler is provided useful for remote access.
- All ecotech products carry one year warranty.



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