



Compliant with:
40 CFR Appendix B to Part 50
Reference Method for the Determination of
Suspended Particulate Matter in the
Atmosphere (High-Volume Method)

Micropollutants High Volume Sampler

ECHO HiVol EPA

ECHO HiVol is a “stand alone” automatic instrument designed to be used outdoor even in hars outdoor weather conditions. The Venturi gas meter used is made according to ISO 5167 standards. This kind of gas meter gives many advantages compared to other flow measurement systems: the measures stability in the long term, the capability of being used with all weather conditions, a reduced sensitivity to stain thanks to the gas meter self cleaning profile and the absence of elements which are sensitive once in contact with inhaled air.

Mass flow meter is also available.

The flow measure and regulation in relation to actual condition, make **ECHO HiVol** a unique instrument. This feature allows the user to change the sample head and flow rate without recalibrating.

The adjustable flow range is between 30 to 60 ft/m³. The sampling time is fully programmable.

ECHO HiVol is equipped with a multiple stages brushless blower, practically maintenance free, and its averaged life is higher than 20000 hours (more than 2 non-stop operating years).



Main Features:

- Ⓢ Anodized aluminium chassis IP54 for outdoor use;
- Ⓢ Multiple stages brushless motor;
TSP, PM₁₀ or PM_{2.5} with approved US EPA sampling head;
- Ⓢ Differential pressure meter or mass flow meter for automatic flow control;
- Ⓢ Flow 30-60 CFM;
- Ⓢ Stainless steel filter holder 8"x10";
- Ⓢ Electronically controlled flowrate with possibility to set standard or actual condition;
- Ⓢ Large touch screen display back-lighted with keyboard; USB/ETHERNET interface;
- Ⓢ Programming with permanent clock;
- Ⓢ Sampling time with 1 second resolution and selectable from 1 minut to 168 hours;

- Ⓢ Measured and stored parameters: Flowrate, Total volume, Ambient temperature, Ambient pressure, Filter load;
- Ⓢ Capable of storing up to 60 sampling reports;
- Ⓢ Capable of storing the sampling flow with 5 minutes interval;
- Ⓢ Light alloy cabinet of small size and light weight suitable for outdoor mounting;

Optionals:

- Ⓢ Modem for remote control and data download;
- Ⓢ Ultrasonic wind speed/wind direction sensor (Sample start depending on wind direction and/or velocity feature);
- Ⓢ Optical Particle Counter for real time PM₁₀, PM_{2.5}, PM₁ and 24 dimensional classes;
- Ⓢ CO₂ sensor;
- Ⓢ Relative Humidity sensor;





ECHO HiVol EPA

Primary Standard for Flow Calibration

To check and calibrate **ECHO HiVol** sampler is necessary to compare the sampler reading and to correct data if needed.

TCR TECORA Flowcal Air Multifunction Calibrator allows to perform all necessary controls to verify the calibration of some parameters, which are normally measured by sampler, like flow rate, pressure and temperature. This characteristic make **Flowcal Air** to test the accuracy of an instrument and to follow a quality system procedure.

Flowcal Air generates a calibration report, containing the following data: cell in use, calibration expiration date, ambient conditions during verification test, deviations, test date and hour, etc. It is no longer necessary to write paper reports.

Flowcal Air has a USB port: to download the report, simply insert and copy files onto a common USB key.

Sensor and measurement calibration have been performed with high accuracy and care. Each sensor is calibrated through an accurate procedure and is traceable to standards.

Each instrument is supplied with a calibration certificate or, optionally, with [ISO 17025](#) accredited laboratory certificate.



Technical Features

Range	30 to 60 CFM
Pump	Multiple stages brushless blower
Pump Maintenance	Interval 20.000 operating hours
Power Supply	VAC 110 60Hz or VAC 220/240 50 Hz
Temperature Operating Conditions	-5° to 45° C
Low Temp Kit	For -20° to 45°C available
Size mm (w x d x h)	650 x 650 x 1400 mm
Weight	18 Kg (TSP Version)
Heads Weight	PM10 or PM2.5 (23Kg)

