

microAeth[®] Model AE51 Aethalometer[®]



Measurement Principle

Real-time analysis by measuring the rate of change in absorption of transmitted light due to continuous collection of aerosol deposit on filter. Measurement at 880 nm interpreted as concentration of Black Carbon ('BC').

Measurement Range

0-1 mg BC/m³, filter life time dependent on concentration and flow rate setting:
avg. 5 µg BC/m³ for 24 hours @ 100 mL/min
avg. 100 µg BC/m³ for 3 hours @ 50 mL/min
avg. 1 mg BC/m³ for 15 min @ 50 mL/min

Measurement Resolution

0.001 µg BC/m³

Measurement Precision

±0.1 µg BC/m³, 1 min avg., 150 mL/min flow rate

Measurement Timebase (user setting)

1 second, 1 minute or 5 minute

Flow Rate (user setting)

Internal pump provides 50, 100, or 150 mL/min, monitored by mass flow meter and stabilized by closed-loop control.

Sampling

3 mm spot created on filter strip containing insert of T60 Teflon-coated borosilicate glass fiber filter material.

Consumables

Filter strip: 1 filter strip per sampling event, typically one per day.

Data Storage

4 MB internal flash memory, providing up to 1 month data storage when operating on a 5 minute timebase, and 1 week when operating on a 1 minute timebase.

Communications

USB connectivity to Windows[®]-based PC with microAethCOM, or data stream via digital output through mini USB port (command protocols can be supplied).

Data Output

Internal data files are uploaded to microAethCOM PC software and stored on local disk.

PC Software

microAethCOM software is included. Provides visual interface including real-time BC mass concentration values. Facilitates settings configuration, calibration routines, downloading data, and uploading new instrument firmware.

Dimensions

4.6 in (117 mm) L x 2.6 in (66 mm) W x 1.5 in (38 mm) D

Weight

Approximately 0.62 lbs (280 g).

Power

Internal rechargeable lithium-ion battery.

Power Supply Adapter

Input: 100~240 VAC 50/60 Hz 0.2 A
Output: 5VDC / 0.5A

Charging Time

4 hours to full charge (using AC adapter, instrument turned off).

Total Run Time (single battery charge)

Minimum 24 hours @ 5 minute time base at 100 mL/min flow rate.

Operation Environment

0 ~ 40 °C operating, non-condensing.

Specifications are subject to change without notice.