

**Measurement Method**

Real-time Aethalometer® method 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 Wavelength

880 nm

Timebases (User setting)

1, 60, or 300 seconds

Flow Rates (User setting)

Internal pump provides 50, 75, 100, 125, 150, 175, 200, 225 or 250 ml/min

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 minutes @ 50 ml/min

Measurement Resolution

0.001 µg BC/m³

Limit of Detection

0.010 µg BC/m³, 5 minute timebase, 250 ml/min flow rate

<0.003 µg BC/m³, 1 hour average from 5 min timebase, 250 ml/min flow rate

Pump

Internal micro rotary vane pump

Flow Control

Internal mass flowmeter with closed-loop control

Filter Material / Capacity

Polytetrafluoroethylene (PTFE) filter strip material with 1 sampling location per filter

Sampling

3 mm spot created on filter strip containing insert of PTFE filter material. PM2.5 size selective inlet available

Environmental Sensors

Temperature, Relative Humidity, Altimeter/Barometer, Accelerometer

Dimensions and Weight

Length: 98.5mm (3.878 inches)

Width: 61mm (2.401 inches)

Depth: 24.5mm (0.964 inch)

Weight: 162 grams (5.71 ounces)

**Memory**

4 GB internal flash memory, providing data storage up to: 9 years operating on 1 minute timebase 55 days operating on 1 second timebase

Wireless Communications / Data Output

Data Stored in local memory.

Direct local data download over WiFi interface.

WiFi transmission to cloud data management system.

Real-time and bulk data transfer when network is available

802.11 b/g/n Wi-Fi

Connections

USB-C (Power)

3.3V TTL Serial (Flow Calibration Communication)

Aerosol sample inlet and outlet ports

Total Run Time (Single battery charge)

Up to 24 hours @ 5 minute timebase, 50 ml/min flow rate. Run time may vary due to settings and PM concentrations.

Battery

Internal 3.7V 2200 mAh (8.14 Wh) 1 cell rechargeable lithium-ion battery.

Charging Time

Approximately 2.2 hours to full charge (using USB-C AC adapter, instrument turned off).

Power Supply Adapter

Input: 100~240 VAC 50/60 Hz 0.4 A

Output: 5VDC / 2A, USB-C

Operation Environment

5 ~ 40 °C operating, non-condensing.

Included

microAeth AL30

1 Pack of 30 Filter Strips

1 USB-C power cable

1 territory-specific USB-C AC wall adapter

1 one meter sampling hose with swivel tube connector

1 Lapel clip for sampling hose

Manual available for download via AethLabs website