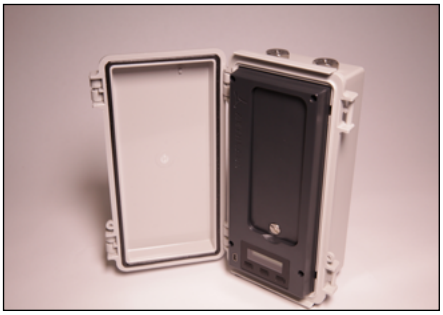
microAeth® MA350 Black Carbon monitor



The microAeth® MA350 is a real-time 5-wavelength UV-IR Black Carbon monitor housed in an outdoor-rated case with an 85 sampling location automatic filter tape advance system which allows for 3-12 months of continuous measurements.

The device is a self-contained instrument with built-in pump, flow control, data storage, and 4X the battery capacity of the MA200. The MA350 also features onboard GPS, satellite time synchronization, accelerometer, altimeter/barometer, and sensors for relative humidity and temperature. Wireless communications are provided for network or smartphone app integration and connection to other wireless health and environmental sensors. A BLDC brushless pump is optional.

The MA350 is designed as a network node to be installed outdoors on street poles and along fence lines for extended multi-month measurement campaigns with low maintenance and infrequent site visits. The 85 location filter tape cartridge allows for long term continuous sampling of higher concentrations for up to a year depending on the sampling environment conditions and instrument settings.

The spectrum measurement provides insight into the composition of light absorbing carbonaceous particles and helps to distinguish among the different optical signatures of various combustion sources such as diesel, woodsmoke, biomass, and tobacco.

The instrument supports the DualSpot® loading compensation method which corrects for optical loading effects and provides additional information about aerosol optical properties.

Applications

Continuous real-time monitoring	Mobile monitoring
Multi-month monitoring	Stationary monitoring
Ambient air monitoring	Indoor air quality
Source apportionment	Woodsmoke / Biomass
Tobacco	High concentration / Cookstove monitoring
Engine testing	Network monitoring
Fence line monitoring	Near-road monitoring
Urban environment on street poles	UAVs & vertical profiling

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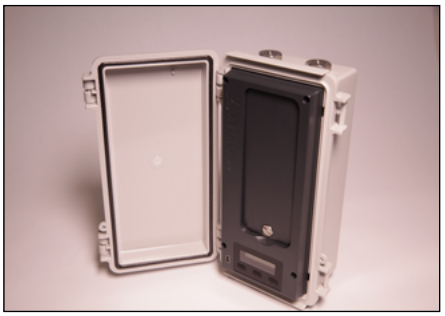
microAeth® MA350

Tech Specs



Measurement method	Real-time, 5 wavelength spectrum analysis by measuring the rate of change of transmitted light due to continuous particle deposition on filter. Measurement at 880 nm interpreted as concentration of Black Carbon ('BC'). Measurement at 375 nm interpreted as Ultraviolet Particulate Matter ('UVPM') indicative of woodsmoke, tobacco, and biomass burning.
Measurement wavelengths	880 nm, 625 nm, 528 nm, 470 nm, 375 nm
DualSpot® Loading Compensation	Real-time analysis by measuring the rate of change in absorption of transmitted light due to the continuous collection of aerosol on filter. Simultaneous collection on two spots in parallel at different flow rates.
Timebases	1, 5, 10, 30, 60, 120, or 300 seconds
Flow Rates	Internal pump provides 50, 100, 150, or 200 ml/min
Pump Options	Standard internal diaphragm pump. Optional internal rotary vane pump
Flow Control	Internal mass flowmeters with closed-loop control
Filter Material	Polytetrafluoroethylene (PTFE)
Filter Capacity	MA350 Filter Tape Cartridge with PTFE material (85 sampling locations)
Sensors	Accelerometer, Relative Humidity, Temperature, Altimeter/Barometer
Dimensions	L: 199.90 mm (7.87 in), W: 99.82 mm (3.93 in), D: 69.85 mm (2.75 in)
Weight	1100 grams (38.8 ounces)
Memory	16 GB internal flash memory, providing multiple years of data storage
On-board interface	Low Power Screen, 3 Buttons
Location services	GPS with Internal Antenna
Date/Time format	ISO 8601 with satellite synchronization
Wireless	802.11 b/g/n Wi-Fi with AES hardware encryption, Bluetooth Low Energy
Connections	Via sealed connector for 3.3V Serial and DC power input, USB 2.0 on inside panel
Communications	USB and wireless connectivity to cross-platform microAeth® Manager software available on MacOS X and Windows. microAeth Manager software is included and facilitates settings configuration, calibration routines, downloading data, and uploading new instrument firmware.
Battery	Internal 3.6V 12800 mAh rechargeable lithium-ion battery
Recharging	Sealed connector for fast charging via AC adapter (~11.75 hours to full charge, instrument turned off) or USB charging on inside panel (~25.75 hours to full charge, instrument turned off)
Power Supply Adapter	Input: 100~240 VAC 50/60Hz 0.4A, Output: 5VDC / 2A, with option for Type A, C, G, or I plug
Operating Environment	0 ~ 40 °C operating, non-condensing.
Included	microAeth MA350, MA350 Sealed connector to DC barrel jack and serial port cable, Barrel jack AC adapter, USB communication/charging cable, 1 meter sampling hose with swivel tube connector, Lapel clip for sampling hose. Cross-platform microAeth® Manager software, Quick Start Guide, and Manual available by download
Accessories & Consumables	MA350 Filter Tape Cartridge, MA Flow Calibration Kit, microCyclone™ PM2.5 Size-selective Inlet, MA350 Sealed connector to bare leads cable