microAeth® MA200 Black Carbon monitor

The microAeth® MA200 is a compact, real-time, wearable 5-wavelength UV-IR Black Carbon monitor with a 15 sampling location automatic filter tape advance system which allows for up to 2-3 weeks of continuous measurements.

The device is a self-contained instrument with built-in pump, flow control, data storage, and battery with onboard GPS, satellite time synchronization, accelerometer, altimeter/barometer, and sensors for relative humidity and temperature. Wireless communications via Wi-Fi and Bluetooth Low Energy are provided for network and/or smartphone app integration and connection to other wireless health and environmental sensors.

The MA200 is designed for on-person, mobile applications and multi-day / multi-week measurement campaigns with low-power operation.

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

Wearable personal monitoring	Mobile monitoring
Continuous real-time monitoring	Multi-week monitoring
Exposure assessment	Health effects
Occupational safety	UAVs & vertical profiling
Source apportionment	Woodsmoke
Tobacco	Biomass

Your local distributor

European Tech Serv NV
Belgium
tel: +32 51 81 00 10
email: info@etserv.be
http://www.etserv.be

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	MA200 Filter Tape Cartridge with PTFE material (15 sampling locations)
Sensors	Accelerometer, Relative Humidity, Temperature, Altimeter/Barometer
Dimensions	L: 136.75 mm (5.38 in), W: 85 mm (3.35 in), D: 35.75 mm (1.41 in)
Weight	400 grams (14.1 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	USB 2.0, 3.3V Serial, DC input via barrel jack
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 3200 mAh rechargeable lithium-ion battery
Recharging	Barrel jack for fast charging via AC adapter (~3 hours to full charge, instrument turned off) or USB charging (~6.5 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 MA200, 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	MA200 Filter Tape Cartridge, MA Flow Calibration Kit, microCyclone™ PM2.5 Size-selective Inlet, MA200 Serial data cable