

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

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|---------------------------------|---------------------------|
| 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

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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 |