

BC 1054

Multispectrum Black Carbon Analyzer

The **BC 1054** Multispectrum Black Carbon Analyzer from Met One Instruments Powered by Acoem provides a reliable, cost effective solution for high-temporal-resolution data collected at 10 wavelengths ranging from the near-UV to near-IR.

The **BC 1054** comes standard with active flow control. Utilizing a robust design with a single mass flow controller and a single flow path, the factory configuration permits easy flow calibrations and leak tests. A dilution flow system is available for high-concentration areas, and recommended for use when BC concentrations are expected to exceed $7,000 \text{ ng/m}^3$ on a routine basis. The optional dilution flow system extends the intervals between filter tape replacement.

All **BC 1054** units are equipped with a humidity control system that can be set to maintain a constant sample temperature and thereby reduce moisture-related measurement artifacts. All **BC 1054** units are manufactured at our ISO-9001 facility in Grants Pass, Oregon. A variety of data output options exist including standard Ethernet, RS-232 Modem, RS-232 Computer, USB-B connection, and USB-A port.



Applications

- Air Quality Surveillance.
- Global Climate Change Studies.
- Particulate Emission Studies.
- Near-Roadside or Parking Structure Monitoring.
- Visibility Studies.
- Climatology Research.
- Source Apportionment Determination.
- Angstrom Absorption Exponent Determination.

Specifications

Measurement Principle:	Filter-Based Multiple Wavelength Optical Absorption.
Illumination Wavelengths:	370, 430, 470, 525, 565, 590, 660, 700, 880, and 950 nm.
Measurement Range:	<1 ng/m ³ to >100,000 ng/m ³ (effective).
Display Resolution:	0.1 ng/m ³ .
Limit of Detection:	<8 ng/m ³ with 1 minute resolution; <1 ng/m ³ with 1 hour resolution.
Measurement Interval:	1 minute, standard. (5, 10, 15, 30, or 60 minute selectable intervals.)
Flow Rate:	2 or 5 LPM standard, user selectable, volumetric flow controlled and reported under actual conditions.
Filter Tape:	Proprietary reinforced glass fiber.
Power Supply:	12 VDC Universal 100–240 VAC 50/60Hz input; 12 VDC 8.5 A output supply included.
Power Consumption:	50 W
Pump Type:	External AC vacuum pump (115 VAC or 230 VAC power options).
Ambient Sensor:	Model BX-597A combination AT/BP/RH digital smart sensor included.
Additional Sensor Inputs:	Support for digital Wind Speed and Wind Direction inputs.
Unit Operational Temps:	0° to +40° C (inside shelter).
Outdoor Ambient Temps:	-30° to +50° C
Ambient Humidity Range:	0 to 90% RH non-condensing.
Humidity Control System:	13 W Inlet Heater (setpoints from 25° to 40° C).
Internal Data Storage:	Internal flash memory stores more than 1 year of 1-minute interval data.
Data Collection Interface:	RS-232 Modem (38,400 baud default), RS-232 Computer (9,600 baud default, user-selectable between 300 – 115,200 baud), USB-B COMM (115,200 baud), Ethernet Serial Port, and USB-A Flash Drive Port for data download.
Compatible Software:	Met One Comet software and USB driver (free download).
User Interface:	Color graphic touchscreen display: 4.75" H (11.2 cm) x 6.75" W (17.1 cm).
Mounting Options:	Bench top or equipment rack mountable. Weatherproof shelter required.
Inlet:	PM ₁ , PM _{2.5} , PM ₁₀ sharp cut cyclones available at either 2 or 5 LPM sampling rates through flexible tubing.
Unit Weight:	Approximately 40 lbs (18 kg).
Unit Dimensions:	Height: 10.5" (26.7 cm) Width: 17" (43 cm) Depth: 15.8" (40 cm)*.

*Depth dimension does not include back panel connections.

Advanced Features of the BC 1054:

- Active flow control at either 2 LPM or 5 LPM.
- Built-in filter loading correction algorithm.
- Internal flash storage of greater than one year's worth of data.
- Advanced diagnostics for flow, optics, and tape drive operation.
- Ultra-high sensitivity with lower limits of detection less than 1 ng/m³.
- Factory calibrated with smoke chamber methodology utilized on Met One's time-tested beta attenuation mass (BAM) monitors.



**Met One
Instruments**

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