

POWERED BY ACOEM

# 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 ng/m<sup>3</sup> 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

- AirQualitySurveillance.
- 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

<b>Measurement Principle:</b>	Filter-Based Multiple Wavelength Optical Absorption.
<b>Illumination Wavelengths:</b>	370, 430, 470, 525, 565, 590, 660, 700, 880, and 950 nm.
<b>Measurement Range:</b>	<1 ng/m <sup>3</sup> to >100,000 ng/m <sup>3</sup> (effective).
<b>Display Resolution:</b>	0.1 ng/m <sup>3</sup> .
<b>Limit of Detection:</b>	<8 ng/m <sup>3</sup> with 1 minute resolution; <1 ng/m <sup>3</sup> with 1 hour resolution.
<b>Measurement Interval:</b>	1 minute, standard. (5, 10, 15, 30, or 60 minute selectable intervals.)
<b>Flow Rate:</b>	2 or 5 LPM standard, user selectable, volumetric flow controlled and reported under actual conditions.
<b>Filter Tape:</b>	Proprietary reinforced glass fiber.
<b>Power Supply:</b>	12 VDC Universal 100-240 VAC 50/60Hz input; 12 VDC 8.5 A output supply included.
<b>Power Consumption:</b>	50 W
<b>Pump Type:</b>	External AC vacuum pump (115 VAC or 230 VAC power options).
<b>Ambient Sensor:</b>	Model BX-597A combination AT/BP/RH digital smart sensor included.
<b>Additional Sensor Inputs:</b>	Support for digital Wind Speed and Wind Direction inputs.
<b>Unit Operational Temps:</b>	0° to +40° C (inside shelter).
<b>Outdoor Ambient Temps:</b>	-30° to +50° C
<b>Ambient Humidity Range:</b>	0 to 90% RH non-condensing.
<b>Humidity Control System:</b>	13 W Inlet Heater (setpoints from 25° to 40° C).
<b>Internal Data Storage:</b>	Internal flash memory stores more than 1 year of 1-minute interval data.
<b>Data Collection Interface:</b>	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.
<b>Compatible Software:</b>	Met One Comet software and USB driver (free download).
<b>User Interface:</b>	Color graphic touchscreen display: 4.75" H (11.2 cm) x 6.75" W (17.1 cm).
<b>Mounting Options:</b>	Bench top or equipment rack mountable. Weatherproof shelter required.
<b>Inlet:</b>	PM1, PM2.5, PM10 sharp cut cyclones available at either 2 or 5 LPM sampling rates through flexible tubing.
<b>Unit Weight:</b>	Approximately 40 lbs (18 kg).
<b>Unit Dimensions:</b>	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/m<sup>3</sup>.
- Factory calibrated with smoke chamber methodology utilized on Met One's time-tested beta attenuation mass (BAM) monitors.



1600 Washington Blvd. Grants Pass, OR 97526, USA  
Phone: +1.541.471.7111  
Sales: sales.moi@acoem.com  
Service: service.moi@acoem.com  
[metone.com](http://metone.com)

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