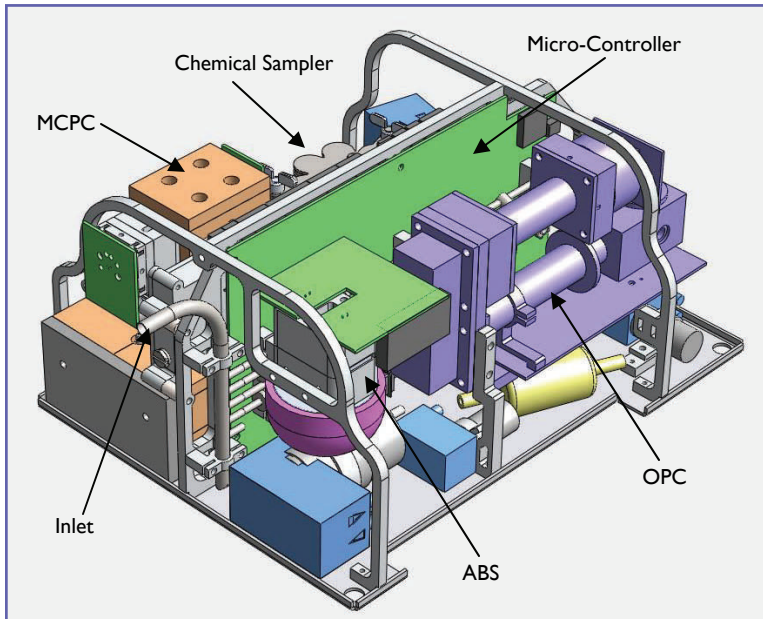


ACCESS - Miniature Aerosol Measurement Suite - Model 9400

The Aerosol Counting, Composition, Extinction, and Sizing System (ACCESS) provides integrated measurements of multiple aerosol properties and satisfies demanding sampling applications where space, weight, power and cost are significant barriers to deployment.



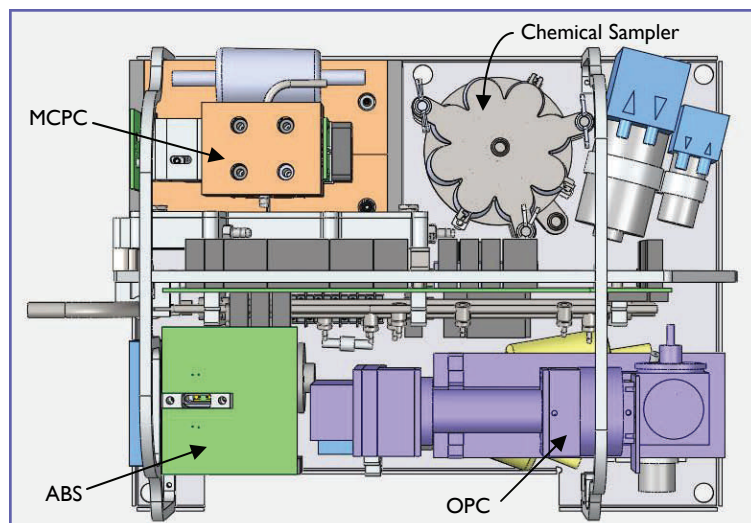
Isometric view of Model 9400 ACCESS

Highlights:

- Allows observations of ambient total aerosol number concentration $D_p > 0.005 \mu\text{m}$
- Time resolved filter sampling for aerosol composition ($D_p < 1 \mu\text{m}$)
- Size resolved optical number concentration $0.2 < D_p < 5 \mu\text{m}$. (OPC under development)
- Aerosol absorption coefficient at 3 wavelengths, $D_p < 5 \mu\text{m}$.
- Complete integrated package fits into a volume of 10x8x4.5 inches (25x20x12 cm)
- Total weight: 9.5 lbs (4.3 kg, without batteries)
- Battery or AC Powered (12-15 VDC, 5 amps)
- Portable unit

Applications:

- Unmanned Aerial Systems/Vehicles
- Traditional Research Aircraft Sampling
- Climate Change Field Studies
- Remote Ground Based Operation
- Air Quality Monitoring
- Bio-Aerosol Detection
- Indoor Air Quality Monitoring
- Personal Exposure Monitoring
- Balloon Platform Sampling



Top view of instrument suite

ACCESS - Miniature Aerosol Measurement Suite - Model 9400

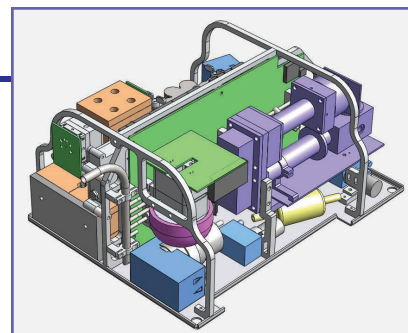
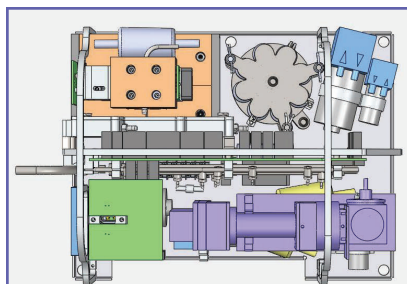
The ACCESS sub-systems and other key components:

Mixing Condensation Particle Counter (MCPC)

The MCPC measures the total number concentration of aerosols by mixing the aerosol sample flow with a warm, butanol-saturated airflow in a turbulent fashion. The mixing creates sufficient supersaturation to grow particles large enough to be detected by an optical particle counter.

Key specifications include:

D ₅₀ :	~0.005 μm
N _{max} :	~180,000 cm^{-3}
Sample Flow:	0.36 or 0.72 lpm
Response Time:	180 msec
Background:	<0.001 cm^{-3}
Fluid Use:	2 ml/hr
Data Output:	RS-232
Pressure:	0.5-1.0 atm
Size:	8"Lx5.8"Wx5.3"H



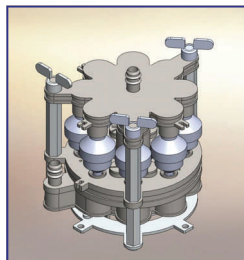
Optical Particle Counter (OPC)

(Under development - planned release Dec. 2011)

The OPC sizes individual particles by measuring the intensity of scattered light as the particles pass through the optical scattering volume.

Wavelength:	624 nm
Dia. Size Range:	0.2-5 μm
Concentration Range:	TBD
Sample Flow:	0.06 lpm
Sheath Flow:	1-2 lpm
Size:	7.5"L x 2.2"Wx3.5"H

Multi-Channel Chemical Sampler



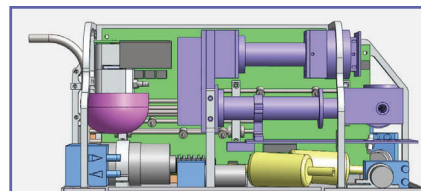
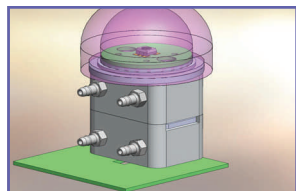
The Multi-Channel Chemical Sampler uses eight, off-the-shelf filter holders (13 mm dia.) and a magnetically-driven, rotary valve manifold to distribute the vacuum/flow from one central pump to each of the separate sampling channels. Remote serial commands are used to move the rotary valve to a new sampling channel at any desired time. The sampler fits in a cylindrical volume 3 inches in diameter by 2 inches long. The 3 lpm sample flow rate is measured by a LFE and the flow is actively controlled with an integrated pump. One of the 8 channels can be used to maintain flow through the device when no sample is desired. Filters may be extracted with water or other solvents for off-line chemical analysis by ion-chromatography or other techniques.

Absorption Photometer (ABS)

Airborne soot particles have been linked to acute human health impacts. The ABS instrument provides real-time measurements of soot and other absorbing aerosols in an extremely compact package.

Specifications:

Wavelengths:	450, 525, 624 nm
Sample Flow:	1.0 to 1.7 lpm
Noise Level (1 sigma):	+/- 0.1 Mm^{-1}
Filter:	Quartz fiber
Size:	2.6" high x 2.2" dia. (6.6 x 5.6 cm)



Other Key Components

An integrated micro-controller system manages the control needs of each instrument and provides output data via a serial port at 1Hz. On-board data storage is currently not supported. For aircraft applications, a passively-pumped inlet system is available. For ground-based sampling, an external inlet pump may be required to draw sample flow to the instruments so that particle transmission is maximized.



For more information about the ACCESS, please visit our website at www.brechtel.com/aerosol.html or contact our sales department by email at sales@brechtel.com or 510-732-9723