



SP²XR

SINGLE PARTICLE SOOT PHOTOMETER
EXTENDED RANGE

ACCURATE, REAL TIME, SIZE RESOLVED
SINGLE PARTICLE MEASUREMENTS OF
BLACK CARBON

OVERVIEW:

The SP2-XR is one of two (SP2-D, Droplet Measurement Technologies) instruments in the world that directly measure black carbon in individual aerosol particles. The SP2-XR's unique design is compact and portable making it an ideal monitoring device. Its high sensitivity, fast response and specificity to absorbing aerosols along with its straightforward data analysis make it the premier instrument for researchers interested in black carbon.

APPLICATIONS:

- » Atmosphere and climate research
- » Monitoring networks
- » Air quality
- » Biomass burning
- » Combustion emissions

FEATURES AND ADVANTAGES:

- » Real-time output of black carbon mass and particle size for individual particles
- » Detects black carbon particles down to 50 nm
- » Intuitive output of measured and derived parameters
- » Small, lightweight packaging makes instrument easily deployable in both ground and airborne field applications
- » Intracavity laser measures absorbing aerosol mass independent of mixing state
- » Toolkit enables the user to process calibration data quickly
- » Simplified maintenance, less down time



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SPECIFICATIONS

MEASURED PARAMETERS:	Single particle incandescence Single particle light scattering
AUXILIARY PARAMETERS:	Air, computer, and laser temperature; cavity and flow controller pressure; sample and sheath flow
DERIVED PARAMETERS:	Single particle black carbon mass Single particle size distribution for purely scattering particles
PARTICLE SIZE RANGE:	SCATTERING CHANNEL: 100-500 nm diameter INCANDESCENT CHANNEL: 50 nm-800 nm, assuming a black carbon density of 1.8g/cm ³
LASER:	Nd:YAG Laser: 1064 nm, up to 1MW/cm ² intracavity circulating power
SAMPLE FLOW:	30-120 standard cm ³ /minute
COMPUTER SYSTEM:	Intel i7-6600U CPU 8 GB RAM 128 GB mSATA SSHD
WEIGHT:	13 kg (28.5 lbs.)
DIMENSIONS:	20cm W x 40.5cm L x 21.5cm H, not including inlet hardware and fuses

INCLUDED ITEMS:

- » SP2-XR analytical instrument
- » Integrated computer and electronics package
- » Software (LabVIEW)
- » Calibration toolkit
- » Copy of Igor Pro
- » Shipping case
- » One-year warranty

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