UCB Particle and Temperature Sensor (UCB-PATS) Specifications

The UCB Particle and Temperature Sensor is a small, portable datalogging device (a modified commercial smoke detector) that uses an optical scattering sensor to measure real-time particle (~$PM_{2.5}$) concentrations.

Physical

- Dimensions 11.7 cm diameter
  6.2 cm height
- Weight (with battery) 0.22 kg (0.48 lb)

Sampling Conditions

- Operating temperature 0 to 50°C (32 to 120°F)
- Operating humidity 0 to ~95% RH, non-condensing

Capabilities

- Lower detection limit 30 to 50 µg/m^3 ($PM_{2.5}$)
- Upper detection limit ~25,000 µg/m^3 ($PM_{2.5}$)
- Datalogging
  - Logs PM concentration, temperature, and battery voltage
  - Logging interval 1 to 240 minutes
  - Storage capacity 32,768 records

Light Scattering Chamber

- LED output wavelength 880 nm
- Photodiode measures intensity of scattered light at a 45° angle from the forward direction

Power requirements

- One 9-volt battery
- Minimum voltage ~7.5 volts
- Battery run-time ~5 days

Equipment Requirements

- UCB-PATS
- UCB-PATS software (Version 2.5)
- 9-volt batteries
- USB serial cable or 9-pin serial cable
- Computer:
  - Windows 2000 or later
  - Pentium 90 or faster processor (min 66 MHz)
  - At least 24 MB of RAM
  - One free USB port/male 9-pin COM port

Storage

- Storage temperature 4 to 38°C (40 to 100°F)
- When not in use, keep in a sealed Ziploc (airtight) bag in a box in a safe location

Contact Information

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Available from Berkeley Air:

- UCB Particle and Temperature Sensor (UCB-PATS)
- Software for UCB-PATS (on CD)
- Keyspan USB serial cable