

## Cloud Aerosol and Precipitation Spectrometer



**CAPS** is an airborne canister probe incorporating multiple instruments in one package:

- CAS section measures droplets in the 0.5-50 $\mu\text{m}$  range.
- CIP section measures droplets in the 25-1550 $\mu\text{m}$  range.
- Pitot tube measures airspeed.
- Temperature sensors measure both ambient and internal temperatures.
- Liquid Water Content(LWC) "hot-wire" sensor measures in the 0.01-3.0g/m<sup>3</sup> range.

### Description:

The CAPS is a combination probe designed around the newest technologies and the experience gained with over 20 years of using similar probes. It meets the goals of measuring a large range of particle sizes--0.5 $\mu\text{m}$  to 1.55mm--with one probe, thus minimizing space, cable connections, and data systems necessary for measurement of this range. Today's technology also provides the CAPS the processing power necessary to perform at speeds up to 200m/s. An intuitive graphical user interface, the [Particle Analysis and Collection System \(PACS\)](#), at the host computer, provides simple but powerful control of measurement parameters, while simultaneously displaying on-the-fly size distributions and derived parameters. All data interfaces are done via line drivers meeting the RS-422 electrical specification, allowing cable lengths of up to 100 meters--an improvement over RS-232 lines capable of only 15-meter cable lengths.

### Features:

- No electronic dead-time losses.
- Particle image compression yields smaller data files, fewer overloads.
- High-speed serial interface to standard RS-232 or RS-422 communications ports.

**Operating limits:**

- Temperature: -50° to +50°C
- Altitude: 50,000 feet
- Humidity: 0-100%

**Physical specifications:**

- Weight of CAPS with canister: 45 lbs./20.4Kg

**Power requirements:**

- For instrument electronics and internal heaters: 10 amps @ 28VDC
- For anti-icing heaters: User-selectable 30-40 amps @ 28VDC

**NOTE:** CAPS system power is 28VDC. Stand-alone CAS or CIP probes can be either 28VDC or 115VAC.