Enviro
Technology Services Ltd

FM-120

Fog Monitor

Outcome

The Fog Monitor (FM-120) is the world's go-to instrument for measuring the microphysical properties of fog, i.e., the size distribution, liquid water content and visibility of fog droplets. These critical measurements help researchers develop fog models that forecast adverse conditions for driving, boating or flying. Such forecasts greatly decrease injuries or deaths from driving in inclement weather and allows flight operations to be conducted more efficiently and safely. The Fog Monitor also allows researchers to understand ideal fog harvesting conditions, providing alternative water sources for areas impacted by drought and those areas with limited access to water. Fog is a critical component in ecosystems because it can be a source of needed moisture and it is also nature's way to process aerosols, sometimes making them even more active CCN after they have been cycled through fog.

Overview

The Fog Monitor (FM-120) is an all-weather optical spectrometer that continuously samples droplet-laden ambient air. It measures particles in the 2-50µm range. The FM-120 is popular on fog monitoring towers for characterizing droplets in visibility studies, and for evaluation of the super-cooled droplets that lead to highway and power-line icing.

The instrument is a compact, robust, easy-to-deploy, aerosol spectrometer that continuously measures the size and size distribution of aerosols in fog so that the fog-critical parameters of number concentration, liquid water content, and visibility may be understood.

Applications

- Weather research
- Fog harvesting
- Studies of fog formation and dissipation
- Visibility and light-extinction studies
- Coastal fog studies
- Long field deployments

Advantages

The FM-120 is a trusted instrument which has been used for years in applications around the world. It is an ideal instrument for measuring the concentration of droplet size in fog. The unit is self-contained with the analytical spectrometer, pump for aspirating the sample, laptop computer for data visualization, instrument control and data recording, and software. The instrument also includes heaters and a weather enclosure which make it suitable for harsh conditions and tower mounting.

Product Specifications

Measurement Parameters:

- Single particle forward light scattering
- Temperature
- Pressure

Derived Parameters:

- Particle diameter
- Particle number concentration
- Polarization ratio
- Liquid water content
- Effective diameter
- Median volume diameter
- Particle size range: Droplets with 2µm-50µm diameter
- Number of size bins: 30
- Typical sample area: 0.24mm^2
- Sample flow volume: 1m^3/min

Environmental Operating Conditions:

- Temperature: 0°-40°C
- Altitude: 0-4,000 meters
- Relative humidity: 0-100% non-condensing
- IP54 rated

Data System and Power Requirements:

- Data system interface: RS-232 or RS-422 serial interface up to 460kB
- Software: Particle Analysis Data Software (PADS), included
- Data Rate: Selectable, 0.04-20 sec
- Power requirements: Universal input for analyzer head, 50-60Hz, 115-120V or 230V for pump (user configurable), 200W instrument, 400W pump

Weight:

- 10kg (instrument), 9.5kg (pump
- Dimensions: 23cm H x 28cm W x 37cm L

Available Accessories

- Swivel inlet (to keep instrument directed into wind)
- Science Care Program
- 1 and 2 Year Extended Warranty
- Lifecycle Care Program

The Droplet Guarantee

Droplet understands how the versatility and performance of an instrument can impact your research, career, and the world we live in. As you strive to provide a better understanding of our planet, we guarantee to be here to support you through your journey.

Whether you are establishing your first laboratory or are a tenured researcher; we have a team of scientists, engineers, and technical staff available to assist with application questions, technical support, data analysis, and training.

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