Cloud Droplet Analyzer

The Cloud Droplet Analyzer is an optical aerosol spectrometer for high-resolution measurement of the size distribution and number concentration of cloud aerosols.

Operation principle

Aerosol spectrometer for in-situ cloud monitoring

The Cloud Droplet Analyzer uses the recognized measurement technique of optical light scattering according to ISO 21501-1 on individual particles and is equipped with an LED light source of high light intensity, high light stability and long service life.

It is equipped with a Sigma-2 sampling head in accordance with VDI 2119, which enables representative sampling even in strong winds. An automatically controlled heater on the sampling head prevents icing and thus enables reliable sampling even in adverse climatic conditions.

Benefits

- Continuous and simultaneous measurement of particle number concentration and particle size distribution
- Intuitive and simple operation
- Remote monitoring, operation and maintenance easily possible
- No radioactive material
- No consumables
- Low energy consumption
- Low maintenance
- On-site calibration possible

DATASHEET

Measuring principle	Optical light scattering at single particles
Reported data	Particle size distribution, particle number concentration, mean volume diameter, equivalent diameter, water content
Measurement range (number C_N)	0 – 200 particles/cm^3
Measurement range (size)	0.6–40 μm, 0.8–100 μm
Volume flow	5 l/min
Size channels	64 (32/decade)
Time resolution	1 s–24 h
Interfaces	USB, Ethernet (LAN), RS-232/485
User interface	Touchscreen, 800 • 480 pixel, 7″ (17.78 cm)
Protocols	UIDEP, UDP, ASCII, MODBUS
Software	PDAnalyze
Data acquisition	Digital, 20 MHz processor, 256 raw data channels
Light source	Long term stable LED
Housing	Weatherproof housing IP55
Operating system	Windows 10 IoT Enterprise
Power supply	115–230 V, 50/60 Hz
Installation conditions	-30–+40 °C, <95% rH, non-condensing, max. 4.000 m (above sea level)
Sampling head	Sigma-2 passive collector, heatable with automated control
Dimensions	Ca. 1,150 • 742 • 404 mm (H x W x D)
Weight	Approx. 40 kg
Noise emission	< 60 dB(A)
Power consumption	Normal operation: approx. 60 W, max. 200 W

APPLICATIONS

- Cloud research
- Ice nucleation events
- Environmental research

Mehr Informationen:
https://www.palas.de/product/cda