

WIDE RANGE AEROSOL SPECTROMETER

EDM 665



The EDM 665 Environmental Wide Range Aerosol Spectrometer combines two technologies for particle counting and classifying in one device: the Scanning Mobility Particle Sizer (SMPS+C) with the butanol condensation particle counter for nanoparticles and the approved EDM 180 for the larger fraction.

Designed and specifically built for atmospheric monitoring, the EDM 665 is a unique high-tech system for accurate and highly resolved measurements over the entire particle size range from 5 nm to 32 μm in 71 particle size channels.

The system requires low maintenance, and can be transported and deployed in the field for short and long-term atmospheric monitoring projects. This configuration places the EDM 665 in the leading position of the atmospheric particle monitoring systems.

FEATURES

- real-time monitoring of the entire particle size range, fully automatic 24/7 monitoring system
- low maintenance, 30 days unattended operation, remote access
- energy-efficient, sampling with isothermal drying system
- high precision with CPC and OPC at low and high-concentrations
- excellent counting statistics and reproducibility
- low diffusion losses
- versatile data acquisition and communication (data logger with GSM via internet)
- self-test of all optical and pneumatic components for high quality standards
- meteorological sensors for wind speed and direction, precipitation, pressure, temperature and relative humidity
- instrument parameters secured against data loss



APPLICATIONS

- atmospheric monitoring of ultrafine particles and dust
- source identification
- atmospheric science
- traffic emission monitoring

SMPS+C

EDM 180

24/7

5 nm - 32 μm

real - time

TECHNICAL DATA

SPECIFICATIONS

SMPS+C

measurement principle

electrostatic classification with subsequent detection by condensational growth

particle size range

selectable M – DMA (5 – 350 nm) or L – DMA (10 – 1094 nm)

minimum scan time

150 s

max concentration single count mode

150 000 p/cm³

max concentration photometric mode

10⁷ p/cm³

reproducibility

> 95% for single particle count mode

working fluid

n-butanol (n-butyl alcohol)

optical aerosol spectrometer

measurement principle

light scattering at single particles;

detection volume aerodynamically focused, no border zone error

particle size range

0.25 µm – 32 µm

concentration range

1 to 3 000 000 p/L

reproducibility

> 97% of total measuring range

FUNCTION

sampling and conditioning

1 m sampling pipe with sampling head,
isothermal humidity extraction via Nafion membrane, sensor-controlled, without loss of semi-volatile compounds (SVC)
stainless steel, powder-coated, air-conditioned
wind speed and direction, precipitation, pressure, temperature
relative humidity; GPS positioning

weather housing

climate sensors

total flow rate

1.5 L/min, ≤ 5% difference to the nominal flow rate

sample air flow rate

0.3 L/min CPC, flow control with critical orifice, temperature stabilized

1.2 L/min aerosol spectrometer, ± 3% constant due to self-regulation

HANDLING

operation

data logger and netbook integrated in housing for online data, meteorological sensor and GPS position

interfaces

data logger, USB, GSM with SIM card for mobile network

power supply

230 VAC, 60 Hz

power consumption

750 W

temperature range

-20 to +55°C (-4 to 131°F), RH < 95%

pressure range

SMPS+C: 600 – 1100 mbar,

optical aerosol spectrometer: 900 - 1100 mbar;

flow rate adjustable to pressure

dimensions (h x w x d)

housing: 107 x 65 x 224 cm (42.1 x 25.6 x 88.2 in)

total height with meteorological sensor: 270 cm (106.3 in)

weight

250 kg (551 lbs)

