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 fractions.

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 31 size channels for EDM 180 and user selectable number of channels for SMPS+C (e. g. 64 per decade)

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/cm^3
max concentration photometric mode	10^7 p/cm^3
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)
weather housing	stainless steel, powder-coated, air-conditioned
climate sensors	wind speed and direction, precipitation, pressure, temperature relative humidity; GPS positioning
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 V/50 Hz; optional 110 V/60 Hz or 230 V/60 Hz
power consumption	max. 950 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 (d x w x h)	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)