ENVIRONMENTAL DUST MONITOR FOR APPROVED PM MEASUREMENTS EDM 180

The GRIMM EDM 180 is the leading Automated Measuring System (AMS) for measuring particulate matter concentration (PM_{10}, $PM_{2.5}$) in ambient air.

This system offers outstanding features such as simultaneous PM measurements in 31 particle size channels, 0.1 µg/m³ resolution, and an isothermal inlet with an integrated Nafion dryer. The EDM 180 runs silent, requires low maintenance and can be validated on site using the field test kit together with our system diagnosis software.

The EDM 180 is the optimal solution for reliable environmental monitoring, e. g. automated PM measurements in environmental networks, epidemiological studies, urban and rural PM monitoring. The EDM 180 is in service of governmental networks and institutes in over 30 countries.

FEATURES

- certificates and approvals: US-EPA, UK-MCERTS, CN-CMA; demonstration of equivalence in over 20 countries
- real-time measurement of PM_{10}, $PM_{2.5}$, PM_1, total counts (TC), and particle number distribution
- fully automated monitoring system with remote access
- extremely energy-efficient, low maintenance, no consumables
- no loss of semi-volatile compounds
- no radioactive source, insensitive to vibrations (applicable also in vehicles)
- versatile data acquisition and communication (GSM data logger)
- self-test of all optical and pneumatic components for high quality standards
- rinsing air for protecting laser and detector in optical cell
- temperature and relative humidity sensors
- total inlet flow analyzed in optical cell
- excellent counting statistics and reproducibility at low and high dust concentrations

APPLICATIONS

- AMS for PM networks
- PM monitoring
- epidemiological studies
- monitoring of construction and mining sites

PM_{10} $PM_{2.5}$ PM_1	US EPA PM2.5	MCERTS PM_{10} $PM_{2.5}$	EN 12341 PM_{10}	EN 14907 $PM_{2.5}$

TECHNICAL DATA

SPECIFICATIONS

measured mass fractions	PM_{10}, $PM_{2.5}$, PM_1
optionally	TC (Total Counts) and particle number for all size channels (size distribution)
particle size range	0.25 - 32 µm
size channels	31
particle number	0 - 3 000 000 p/L
reproducibility	> 97% of total measuring range

FUNCTION

detection principle optical	light scattering at single particles; detection volume aerodynamically focused, no border zone error
optical cell	diode laser 660 nm
detector	2 x 16 raw data channels
time resolution	selectable storage intervals: 6 s; 1, 5, 10, 15, 30, 60 min
sample air flow rate	1.2 L/min, ± 3% constant due to self-regulation
internal rinsing air flow rate	0.4 L/min, protection for laser optics, reference air for self-test
sampling inlet	isothermal humidity extraction via Nafion membrane, sensor-controlled, without loss of semi-volatile compounds (SVC)

HANDLING

operation	keypad or PC with GRIMM software or Hyper Terminal
interfaces	RS-232 (GESYTEC)
analog input	1 port (0 - 10 V) for auxiliary sensors
power supply	in: 230 V/50 Hz; optional 115 V/60 Hz
power consumption	18 W standard, 104 W with Nafion dryer, 116 W maximum, I_{max}: 1.4 A
temperature range	-20 to +50°C (-4 to 122°F), non-condensing
absolute pressure range	900 - 1100 mbar; adjustable sample flow rate at high altitudes over 2000 m
weather protection housing	model **199**, stand-alone, fully air-conditioned, providing space for EDM180 and other 19" rack instruments (see Accessories)
dimensions (h x w x d)	26.6 x 48.3 x 36.4 cm (10.5 x 19 x 14.3 in) without sampling inlet (19" rack, 4 HU, extra 2 HU for rack adapter)
weight	18 kg (39.7 lbs) without rack adapter and sampling pipe