

EDM 180+

APPROVED AUTOMATED PM MEASUREMENT

The GRIMM EDM 180 series is widely used by reputable organizations and environmental networks for approved and precise real-time PM monitoring. The most recent model EDM 180+ is the state-of-the-art Automated Measuring System (AMS) for measuring the particulate matter concentration (PM₁₀, PM_{2.5}) in ambient air, performing more accurate and higher resolution measurements than other dust monitoring devices on the market.

This system offers simultaneous PM measurements in 31 high resolution particle size channels, 0.1 µg/m³ resolution and isothermal inlet with an integrated Nafion dryer. The EDM 180+ runs extremely silent, requires very low maintenance and, with the field test kit supported by our System Diagnosis Software, can be also validated on site.



The optimal solution for reliable environmental monitoring e.g. automated PM measurements in environmental networks, epidemiological studies, urban, roadside and rural PM monitoring.

FEATURES

- certificates and approvals: US-EPA, MCERTS,
- real-time measurement of PM₁₀, PM_{2.5}, PM₁, 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)
- self-test of all optical and pneumatic components for high quality standard
- rinsing air for protecting laser and detector in optical cell
- meteorological sensors for wind speed and direction, precipitation, T and RH
- total inlet flow (1.2 L/min) 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

PM₁₀ PM_{2.5}
PM₁

US EPA

MCERTS

0.25 - 32 µm

real-time

TECHNICAL DATA

SPECIFICATIONS

measured mass fractions	PM ₁₀ , PM _{2.5} , PM ₁
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 with diode laser; detection volume aerodynamically focused, no border zone error
optical cell	diode laser 660 nm
detector	fast signal processing , 2 x 16 raw data channels
time resolution	selectable storage intervals: 6 s; 1, 5, 10, 15, 30, 60 min
sample air flow rate internal	1.2 L/min, ± 3% constant due to self-regulation
rinsing air sampling inlet	0.4 L/min, protection for laser optics, reference air for self-test 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), USB, Ethernet
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