APPROVED AUTOMATED PM MEASUREMENT

GRIMM AEROSOL TECHNIK

MODEL EDM 180+

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 (PM_{10}, $PM_{2.5}$) 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.

YOUR BENEFITS

- Certificates and approvals: US-EPA, MCERTS
- 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)
- Self-test of all optical and pneumatic components for high quality standard
- Internal rinse air cirquit protecting laser and detector in optical cell
- Meteorological sensors for wind speed and direction, precipitation, pressure, T and RH
- Aerodynamically focused aerosol with no border zone error
- Total inlet volume flow (1.2 liter/min) analyzed in optical cell
- Excellent counting statistics and reproducibility at low and high dust concentrations

APPLICATIONS

- AMS for PM_{10} and $PM_{2.5}$ networks
- Urban and rural PM monitoring
- Epidemiological studies
- Monitoring of construction and mining sites

PM_{10} $PM_{2.5}$ PM_1 | **US EPA** | **MCERTS** | **0.25-32 µm** | **Real-time**

TECHNICAL DATA

SPECIFICATIONS

Measured mass fractions	PM_{10}, $PM_{2.5}$ and PM_1
Additional	TC (Total Counts) and particle number for all size channels (size distribution)
Particle size range	0.25 – 32 µm
Size channels	31 in total 0.25/0.28/0.3/0.35/0.4/0.45/0.5/0.58/0.65/0.7/0.8/1/1.3/1.6/2 /2.5/3/3.5/4/5/6.5/7.5/8.5/10/12.5/15/17.5/20/25/30/32 [µm]
Particle number	0 – 3 000 000 particles/liter
Dust mass	0 – 100 mg/m³
Reproducibility	± 3% of total measuring range

FUNCTION

Detection principle	Light scattering at single particles Detection volume aerodynamically focused, no boarder zone error
Optical cell	Diode laser 660 nm
Detector	Fast signal processing with 2 µs pulse length, 2 x 16 raw data channels
Time resolution	6 s, 31 channels (selectable storage intervals 6 s, 1, 5, 10, 15, 30, 60 min)
Sample flow rate	1.2 l/min, ± 3% constant due to self-regulation
Internal rinse air	0.4 l/min, protects laser optics, reference air for self-test
Sampling inlet	Isothermal humidity extraction via Nafion membrane, sensor-controlled, without loss of SVC (semi-volatile compounds)

HANDLING

Operation	Keypad or PC with GRIMM software or HyperTerminal
Interfaces	RS-232 (GESYTEC), USB-flash drive and Ethernet
Analogue input	3 values (0 – 10 V), for auxiliary sensors
Power supply	in: 110 – 230 VAC, 50 – 60 Hz, out: 12 VDC, 2.5 A
Power input	18 W standard, 104 W with Nafion dryer, 116 W maximum, $I_{max.}$: 0.5 A
Dimensions L x W x H	266 x 483 x 364 mm (10.5 x 19 x 14.3 inches) without sampling inlet 19 inch rack, 4 HU, extra 2 HU for rack adapter)
Weight	18 kg (39.7 lbs) without rack adapter and sampling pipe
Operating conditions	-20 to +50°C (-4 – 122°F), non-condensing 1013 hPa +/- 120 hPa For measuremets at high altitudes with low ambient pressure, the sample volume needs to be adjusted via flowmeter and HyperTerminal

This technical data may be subject to change without notice.
Datasheet_180-PLUS_EDM_ENG_2018

GRIMM Aerosol Technik Ainring GmbH & Co. KG
Dorfstr. 9 ● D-83404 Ainring
Tel: +49-8654-578-0
Fax: +49-8654-578-35