

# THE STANDARD FOR APPROVED AUTOMATED PM MEASUREMENT



a member of  
**DURAG GROUP**

## MODEL EDM 180+

The GRIMM well-known EDM 180+ is the leading Automated Measuring System (AMS) for the measurement of the concentration of particulate matter (PM<sub>10</sub>, PM<sub>2.5</sub>) in ambient air. The GRIMM EDM 180 series is used by hundreds of reputable organizations and environmental networks throughout the world for approved and precise real-time PM monitoring. The newest EDM 180+ is a "fit for purpose" state-of-the-art system, capable of making more accurate and higher resolution measurements than any other dust monitoring devices on the market.

This system offers outstanding features such as simultaneous PM measurements in 31 high resolution particle size channels, 0.1 µg/m<sup>3</sup> resolution, an isothermal inlet with an integrated Nafion dryer. The system runs extremely silent, requires very low maintenance and by using the field test kit together with our System Diagnosis Software, the EDM180+ can also be validated on site.

**The best choice for reliable environmental monitoring e.g. automated PM measurements in environmental networks, epidemiological studies, urban, roadside or background PM monitoring!**



## YOUR BENEFITS

- Approved according to US-EPA
- Real-time measurement of PM<sub>10</sub>, PM<sub>2.5</sub>, PM<sub>1</sub>, 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 (can also be used in vehicles)
- Versatile data acquisition and communication (data logger with GSM via internet)
- Self-test for all optical and pneumatic components ensures high quality standards
- Internal rinsing air protects the laser and detector in the optical cell
- Meteorological sensors for wind speed and direction, precipitation, T and RH
- Aerodynamically focused aerosol with no boarder zone error
- Total inlet volume flow (1.2 liter/min) is entirely analyzed in the optical cell
- Excellent counting statistics and reproducibility at low and high dust concentrations

## APPLICATIONS

- AMS for PM<sub>10</sub> and PM<sub>2.5</sub> networks
- Urban or background PM-monitoring
- Epidemiological studies
- Monitoring of construction and mining sites



**PM<sub>10</sub>**

**PM<sub>2.5</sub>**

**PM<sub>1</sub>**

**0.25-32 µm**

**REAL-TIME**

# TECHNICAL DATA

## SPECIFICATIONS

Measured mass fractions	PM <sub>10</sub> , PM <sub>2.5</sub> and PM <sub>1</sub>
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 – 2 000 000 particles/liter
Dust mass	0.1 – 1 500 µg/m <sup>3</sup>
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, P <sub>max</sub> = 80 mW, P <sub>nom</sub> 0.5/32 mW CW (multiplex)
Detector	Super-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 self-regulation
Internal rinsing air	0.4 l/min, protects laser optics, reference air for self-test
Sampling inlet	Isotherm 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
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 <sub>max.</sub> : 0.5 A
Dimensions	266 x 483 x 364 mm / 10.5 x 19 x 14.3 inches (L x W x H) 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	+4 to +40°C (39 – 104°F), RH < 95 %, non-condensing
Sample air	-20 to +50°C (-4 – 122°F) 1013 hPa +/- 120 hPa If measuring 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\_V2p0.pdf

Dealer: