

## EDM 180+

Approved next generation PM monitor  
for measuring particulate matter concentration in ambient air

- Approvals: PM<sub>10</sub> (MCERTS, ...), PM<sub>2.5</sub> (US-EPA, MCERTS, ...)
- Real-time monitoring of PM values (PM<sub>10</sub>, PM<sub>2.5</sub>, PM<sub>1</sub>), total counts (TC), and particle number distribution
- "Full flow analysis" of the entire sample volume



## FEATURES

- 19-inch measuring device with 19-inch attachment, sampling probe, meteorological sensor, and accessories; configurable by the customer (firmware, meteorological sensor, etc.)
- USB and Ethernet
- Fully automatic monitoring system with remote access
- Purge-air circuit to protect optical components
- Self-test of all optical and pneumatic components for high quality standards
- Total inlet flow analyzed in optical cell
- Versatile data acquisition and communication (GSM data logger)

## TECHNICAL DATA

<b>Detection principle</b>	Light scattering at single particles with diode laser; detection volume aerodynamically focused (ISO 21501-1), no border zone error
<b>Measured mass fractions</b>	PM <sub>10</sub> , PM <sub>2.5</sub> , PM <sub>1</sub>
<b>Particle size range</b>	0.25 ... 32 µm
<b>Size channels</b>	31
<b>Particle number concentration</b>	0 ... 3,000,000 particles/l
<b>Reproducibility</b>	R>97% of total measuring range
<b>Detector</b>	Fast signal processing, 2x 16 raw data channels
<b>Time resolution</b>	6 s (selectable storage intervals: 6 s, 1 min, 5 min, 10 min, 15 min, 30 min, 1 h)

## OPTIONAL ACCESSORIES

- 199** Stand-alone, fully air-conditioned weather protection housing, providing space for EDM 180+ and other 19"-rack instruments
- 1178** Advanced GRIMM software
- 1146** GPS sensor
- 180-DL** Data logger stores data on micro SD card, radio transmission via GSM to server-based platform for access at any time from anywhere

### Selectable meteo sensors (version 180+ L)

- 157L** Sensor for temperature, relative humidity, and pressure
- 158L** Sensor like 157L plus wind speed and direction; requires data logger 180-DL
- 159L** Sensor like 158L plus precipitation; requires data logger 180-DL

## BENEFITS

- Suitable for many applications
  - AMS for PM networks
  - PM monitoring
  - Epidemiological studies
  - Monitoring of construction and mining sites
- Extremely energy-efficient, low maintenance, no consumables
- No loss of semi-volatile compounds, no radioactive source, insensitive to vibrations (applicable also in vehicles)
- Excellent counting statistics and reproducibility at low and high dust concentrations

<b>Sample flow rate</b>	1.2 l/min, ±3% constant due to self-regulation
<b>Sampling inlet</b>	Isothermal humidity extraction via Nafion membrane, sensor-controlled, without loss of semi-volatile compounds (SVC)
<b>Internal purge air</b>	0.4 l/min, protection of laser optics, reference air for self-test
<b>Operation</b>	Keypad, data logger or PC with GRIMM software, or HyperTerminal
<b>Data interfaces</b>	RS-232 (GESYTEC), USB-B (115,200 baud/s) Ethernet (10BASE-T/100BASE-TX)
<b>Analog input</b>	1 port (0 ... 10 V) for auxiliary sensors
<b>Power supply</b>	In: 230 V/50 Hz; optional 115 V/60 Hz
<b>Power consumption</b>	18 W standard; 104 W with Nafion dryer; 116 W maximum; I <sub>max</sub> : 1.4 A
<b>Temperature range</b>	-20 ... +50 °C (-4 ... 122 °F), non-condensing
<b>Absolute pressure range</b>	900 ... 1,100 mbar, adjustable sample flow rate at high altitudes over 2,000 m
<b>Dimensions (H x W x D)</b>	26.6 x 48.3 x 36.4 cm (10.5 x 19 x 14.3 inch) without sampling inlet (19" rack, 4U, 2U extra for rack adapter)
<b>Weight</b>	18 kg (39.7 lbs.) without rack adapter and sampling pipe



199 weather protection housing