

EDM 180+

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

- Approvals: PM₁₀ (MCERTS, ...), PM_{2.5} (US-EPA, MCERTS, ...)
- Real-time monitoring of PM values (PM₁₀, PM_{2.5}, PM₁), 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

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

Sample flow rate	1.2 l/min, ±3% constant due to self-regulation
Sampling inlet	Isothermal humidity extraction via Nafion membrane, sensor-controlled, without loss of semi-volatile compounds (SVC)
Internal purge air	0.4 l/min, protection of laser optics, reference air for self-test
Operation	Keypad, data logger or PC with GRIMM software, or HyperTerminal
Data interfaces	RS-232 (GESYTEC), USB-B (115,200 baud/s) Ethernet (10BASE-T/100BASE-TX)
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 ... +50 °C (-4 ... 122 °F), non-condensing
Absolute pressure range	900 ... 1,100 mbar, adjustable sample flow rate at high altitudes over 2,000 m
Dimensions (H x W x D)	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)
Weight	18 kg (39.7 lbs.) without rack adapter and sampling pipe



199 weather protection housing