

EDM 280

Environmental dust monitor for PM monitoring in ambient air

- Unique particle size range $0.178 \mu\text{m} < D_o < 29.4 \mu\text{m}$
- Continuous real-time monitoring with high temporal resolution of PM values, total particle count (TC) and particle number size-distribution
- TÜV approved according to DIN EN 16450



FEATURES

- Latest generation 19-inch based optical aerosol spectrometer, unique detection limit and excellent counting efficiency
- Touch display for intuitive menu control with color guided status information
- All-weather sampling system, -40 to 60 °C, 60 g/m³ absolute humidity and wind
- Output of six dust mass fractions TSP, PM₁₀, PM₄, PM_{2.5}, PM₁, PM_{coarse}, total particle concentration and particle number size distribution
- Aerodynamic aerosol focusing as per ISO 21501-1, no border zone error, total inlet flow analyzed in optical cell
- PSL traceable particle sizing as per ISO 21501-1
- Flexible data protocols: GRIMM protocol, Modbus, GESYTEC/Bayern-Hessen protocol

BENEFITS

- Suitable for PM monitoring under any environmental conditions and at all sites (traffic, urban, background, maritime, mountain and others)
 - Approved immission measuring device for particulate matter PM₁₀ and PM_{2.5} in air monitoring networks
 - Source apportionment with high time resolution for air pollution control strategies
 - Insensitive to vibrations, therefore also suitable for installation in measuring vehicles
- Robust design, energy efficient and lowest running costs
- Low maintenance due to internal particle-free purge-air circuit to protect the optical components
- Fits in all existing EDM (180, 180+) installations
- Stand-alone option with fully air-conditioned weather protection housing (construction site monitoring, port facilities, etc.)

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	TSP, PM ₁₀ , PM ₄ , PM _{2.5} , PM ₁ , PM _{coarse}
Particle size range	0.178 µm < Do < 29.4 µm (Do = optical latex equivalent diameter)
Size channels	72, channel boundaries equidistant, 32 channels per decade
Mass concentration	0 ... 12,000 µg/m ³ for PM ₁₀ 0 ... 5,100 µg/m ³ for PM _{2.5} (with 10 % coincidence error for Arizona Dust A1 ultrafine)
Detection limit	0.1 µg/m ³ for PM ₁₀
Zero level	≤ 0.1 µg/m ³
Sample volume flow	1.2 l/min, accuracy ≤ ±2 %, constant at the orifice plate by regulation
Internal purge air	0.3 to 0.5 l/min, protection of laser optics, reference air for self-test
Storage interval	Selectable, 6 seconds, 1, 5, 10, 15, 30, 60 minutes, daily average value
Data interfaces	RS-232 (selectable up to 115,200 baud/s), USB-B, Ethernet, USB flash drive (USB 2.0), data logger
Data protocol (ASCII)	GRIMM protocol, Modbus TCP, GESYTEC/Bayern/Hessen Protocol

Meteo sensor	<ul style="list-style-type: none"> • Temperature: -50 ... 60 °C, ±0.2 °C (-20 ... 50 °C), otherwise ±0.5 °C (> -30 °C) • Relative humidity: 0 ... 100 % RH, ±2 % RH • Air pressure: 300 ... 1200 hPa, ±0.5 hPa (0 ... 40 °C)
Operation	Via touch display or PC via data interface
Power supply	Wide range power supply 100 ... 240 VAC at 50 ... 60 Hz, 4 A
Power consumption	<ul style="list-style-type: none"> • Typical 25 W (continental warm) • Typical 40 W (tropical humid) • Typical 80 W (polar cold) • Typical 220 W (maximum equipment, all heaters at maximum power)
Conditions (sample air on site)	<ul style="list-style-type: none"> • Temperature: -40 ... 60 °C • Relative humidity: 100 % (-40 °C) ... 30 % (60 °C) or maximum 60 g/m³ absolute humidity • Ambient pressure: 530 ... 1,080 hPa
Conditions (measuring container)	<ul style="list-style-type: none"> • Temperature: 5 ... 40 °C • Relative humidity: 5 ... 90 %, non-condensing
Transport and storage	-20 ... +50 °C, RH < 95 % (non-condensing)
Dimensions (H x W x D)	<ul style="list-style-type: none"> • 19" spectrometer: 180.5 x 434 x 320 mm • Sample tube holder: 88.9 x 441 x 156 mm • Sample tube with sampling head: 1500 (L) x Ø 45 (tube)/Ø 105 mm (Sigma-2 sample inlet)
Weight	<ul style="list-style-type: none"> • Total: 20.5 kg (with meteo sensor 157 L, 2.35 kg) • 19" spectrometer: 10.45 kg • Sample tube holder: 2.4 kg • Sample tube with sampling head: 5.3 kg

OPTIONAL ACCESSORIES

- 199** Stand-alone, fully air-conditioned weather protection housing, providing space for EDM 280 and other 19" rack instruments