

TRANSPORTABLE AIR QUALITY MONITORING STATION EDM 164

The EDM 164, in its compact and mobile weather housing, performs reliable optical detection for counting and classifying dust particles.

The EDM 164 is applicable for short and long-term continuous monitoring of dust pollution and enables a real-time data analysis of dust and meteorological measurement data.

This configuration places the EDM 164 in the leading position of the mobile environmental dust monitoring for such applications as dust mass, PM values, total counts and particle size distribution.

The EDM 164 is the optimal solution for reliable environmental monitoring, e.g. PM monitoring, source identification, or pollution control at construction and mining sites.



FEATURES

- fully automatic monitoring system with remote access
- extremely energy-efficient, low maintenance
- no consumables
- real-time monitoring of PM values (PM_{10} , $PM_{2.5}$, PM_1) and particle number
- additional information on particle size and mass distribution
- high precision over 31 size channels
- versatile data acquisition and communication (data logger with GSM via internet)
- self-test of all optical and pneumatic components for high quality standards
- rinsing air for protecting laser and detector in optical cell
- meteorological sensors
- 11 size channels $< 1 \mu m$ for precise submicron detection
- total inlet flow volume (1.2 L/min) entirely analyzed in optical cell
- excellent counting statistics and reproducibility at low and high dust concentrations

APPLICATIONS

- mobile and simultaneous monitoring of PM_{10} , $PM_{2.5}$ and PM_1
- hot spot monitoring
- public site and urban monitoring
- source identification
- quantification of diffusive emissions according to VDI 4285 part 3
- early warning system for forest fires

PM_{10}

$PM_{2.5}$

PM_1

0.25 - 35 μm

real-time

TECHNICAL DATA

SPECIFICATIONS

measured mass fraction	PM ₁₀ , PM _{2.5} , PM ₁
particle size range	0.25 – 32 µm
size channels	31
particle number	0 – 3 000 000 p/L
dust mass	0 – 100 000 µg/m ³
reproducibility	> 97% of total measuring range
optionally	GPS positioning, TSP (Total Suspended Particles), TC (Total Counts), and particle number for all size channels (size distribution)

FUNCTION

detection principle	light scattering at single particle
	detection volume aerodynamically focused, no border zone error
optical cell	diode laser 660 nm
detector	fast signal processing, 2 x 16 raw data channels
time resolution	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
rinsing air	0.4 L/min, protection of laser optics, reference air for self-test
sampling inlet	heated, constant above ambient temperature

HANDLING

operation	keypad, data logger or PC with GRIMM software (wireless or data cable)
interfaces	data logger (4 x RS-232, RS-485, Ethernet, µSD, GSM) or RS-232
analog input	1 port (0 - 10 V) for auxiliary sensors
power supply	in: 110 – 230 VAC, 50 – 60 Hz
power consumption	22 W standard, I _{max} : 1.4 A
temperature range	- 20 to +60°C (-4 – 140°F), RH < 95%, non-condensing
absolute pressure range	900 - 1100 mbar
dimensions (h x w x d)	housing only: 21 x 45 x 44 cm (8.3 x 17.7 x 17.3 in); with meteorological sensor 157L / 158L / 159L 23 x 51 x 73 / 79 / 85 cm (9.1 x 20.0 x 28.7 / 31.1 / 33.5 in)
weight	20 kg (44.1 lbs)