Ambient Dust Monitor

Stationary continuous fine dust measuring system for the simultaneous measurement of PM_{10}, $PM_{2.5}$ and PM_1 Model #180

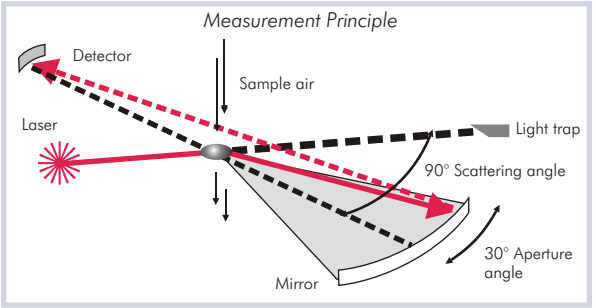
The GRIMM #180 has been designed as stationary ambient dust monitor for the installation in a 19"-rack in a measuring container or a shelter. It was developed particularly for the continuous fine dust measurement of the values for PM_{10}, $PM_{2.5}$ and PM_1 (according to EN 12341/EN 14907). The dust monitor shows the airborne dust mass in $\mu g/m^3$. The resolution of the mass calculation is 0.1 $\mu g/m^3$ with a flowrate of 72 l/h.

Specifications #180

Measurement principle:	Orthogonal Light Scattering (90°)
Measurement range:	0.25 to >32 μm in 31 channels
Channel thresholds:	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- 2.0- 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 counts:	1 to 2 000 000 particle/liter
Dust mass:	0.1 to >1500 $\mu g/m^3$
Sample flow:	72 l/h, flow controlled
Reproducibility:	3 % in max. range
Power supply:	230 VAC, 50 Hz (Optional: 110 VAC, 60 Hz)
Size:	19", 6 HE
Weight:	15 kg
Sample pipe:	Length: 1.5 m (optional: 3 m)

Data output

- in PM values on the display of the dust monitor, sensor values
- via Windows® GRIMM-Software: PM_{10}, $PM_{2,5}$ and PM_1 and sensor values



Measurement principle

The #180 dust monitor takes a continuous air sample with a flow controlled pump. The particles are measured by the physical principle of orthogonal light scattering. Here particles are illuminated by a laser light in and the scattered signal from the particle passing through the laser beam is collected at approx. 90° by a mirror and transferred to a recipient diode. Each signal of the diode is fed, after a corresponding reinforcement, to a pulse height analyser then classified to size and transmitted in each size channel. These counts are converted each 6 seconds to a mass distribution from which the different PM values derive.
Results of the measurement are shown on the display. Over the RS 232 interface and our software program it is possible to display the data as mass distribution in $\mu g/m^3$: PM_{10}, $PM_{2.5}$ and PM_1.

System configuration

The complete system #180 for the installation in the 19"-rack consists of the #180 dust monitor, #181 sample pipe support, sensors for temperature and relative air humidity and the #182 sampling pipe with TSP head.

The ambient dust measuring system #180 has the following advantages:

- Simultaneous determination of PM_{10}, $PM_{2.5}$ and PM_1 mass value (EN 12341/EN 14907)
- No sample heating, volatile components are not lost
- Temperature-, relative humidity- and pressure sensor are included
- Enhancement to a complete weather station is possible (wind-, rain sensor)
- Integrated data logger
- All data are stored on internal memory or a removable memory card (optional)
- Data can be automatically retrieved by remote access
- Customer-friendly software package
- Very low maintenance.

GRIMM Aerosol Technik is the leading European manufacturer of different dust and particle size measuring systems for ambient-, emission-, industrial safety and filter efficiency measurements.

All instruments are carefully calibrated in the factory
- for proper particle sizing in over 30 ranges
- for a known particle mass distribution and
- by our reference system

GRIMM Aerosol Technik GmbH & Co. KG • Dorfstr. 9 • 83404 Ainring • Germany • Phone: + 49 (0) 8654-578-0 • Fax: + 49 (0) 8654-578-35 • contact@grimm-aerosol.com
GRIMM Technologie Inc.•PO Box 6358•Douglasville•Georgia 30135•Phone: + 1-770 577-0853•Fax: + 1-770 577-0955•grimm1usa@aol.com•www.dustmonitor.com
GRIMM-Asia Control Ltd.•01-262 Singapore 521133•Tampines Street 11•Block 133•Phone: + 65-6783-6809•Fax: + 65-6786-8296•grimm1asia@pacific.net.sg
GRIMM Aerosol Canada Inc. • 5740 Place Trenet • Unit #303 • Laval • QC • H7K-3Z2 • Toll-Free: + 1-877-GRIMM-02 • gilcossette@videotron.ca