

# Online Systems

## On-line Air Pollution Monitoring Unit

# APM-6

- Determination of PM10 and PM2.5 mass concentration based on TÜV approved constant angle light scattering technology
- Automatic span calibration (via zero air flush) in photometer chamber
- Determination of gaseous pollutants (SO<sub>2</sub>/NO<sub>2</sub>/O<sub>3</sub>/CO, optional for VOCs) by using advanced semiconductor / electrochemical sensors
- Easy maintenance and long service cycle
- Remote control and monitoring via Derenda Cloud Platform
- Data transmission via USB, RS232, GPRS, 3G/4G, WLAN, LAN
- GPS positioning, moving track
- Small size, light weight and high mobility



Suitability Tested  
Complying with  
2008/50/EC  
EN 15267  
Regular  
Surveillance  
www.tuv.com  
ID0000040336  
Only approved for  
model APM-2  
(PM2.5/PM10)



\* If there is inconsistency between the image and the actual product, the actual product shall govern.

### Technical Data

Dimensions: 300mm\*250mm\*450mm  
 Weight: ≈16kg  
 Noise Level: < 35 Dba (DIN 2058)  
 Operating temperature: -20 – 50 C  
 Operating humidity: 5% - 95%RH  
 Execution: IP65 – ready for outdoor installation  
 Power consumption: 80 VA  
 Power Supply: AC 220V±22V, 50/60 Hz  
 Control unit: LCD Touch Screen Display  
 Flash memory  
 Frequency of readings: 1 sec  
 Storage of 60'/15'/10'/5' or 2' averages  
 Output via USB, RS232, GPRS, 3G/4G, WLAN, LAN

### Measurement parameters

Parameter	Resolution	Precision	Range	Principle
PM <sub>2.5</sub>	1 µg/m <sup>3</sup>	±2% F.S	0-2500 µg/m <sup>3</sup>	Light Scattering
PM <sub>10</sub>	1 µg/m <sup>3</sup>	±2% F.S	0-2500 µg/m <sup>3</sup>	Light Scattering with virtual impactor
NO <sub>2</sub>	1 ppb	±2% F.S	10-470 ppb	Semiconductor sensor
O <sub>3</sub>	1 ppb	±2% F.S	10-500 ppb	Semiconductor sensor
CO	0.1 ppm	±2% F.S	0.1-60 ppm	Semiconductor sensor
SO <sub>2</sub>	1 ppb	±2% F.S	5-5000 ppb	Electrochemical sensor

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## Product Description

APM-6 is a new on-line air quality monitoring solution for direct and continuous determination of the concentration of particles (PM<sub>10</sub>/PM<sub>2.5</sub>) and gaseous pollutants (SO<sub>2</sub>/NO<sub>2</sub>/O<sub>3</sub>/CO etc.). Provide friendly HMI operation interface with colored touch screen, the unit also can realize remote monitoring and network control based on Derenda Cloud platform. The measurement for particulate is made using a photometer, utilizing the principle of constant angle light scattering combined with virtual impactor. Equipped with fully integrated modules - Thick Film Metal Oxide Semiconductor (TF-MOS) and Electrochemical Technology (EC), APM-6 can also monitor continuously gas pollutants in outdoor applications ensuring excellent sensitivity and selectivity. With small size, light weight and long service life, APM-6 could be used as both stationary and portable monitoring device.

## Application Scenario

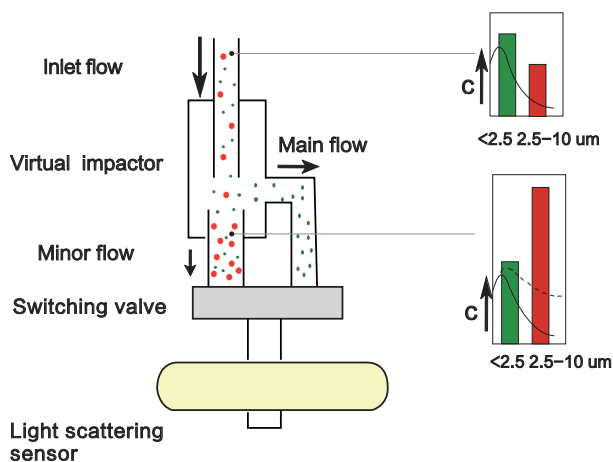
- Urban air quality
- Roadstreet pollution
- Industrial area air quality
- Fenceline monitoring
- Landfill monitoring

## Working principle of PM measurement

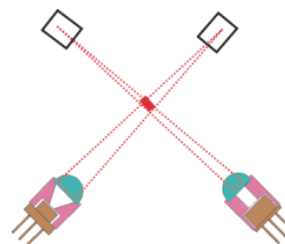
The outdoor air is drawn in via a PM10 sampling inlet, particles greater than 10 μm in size will be segregated out inside the inlet during intake. The outside air is then divided into two streams in a virtual impactor located downstream. Main stream contains particles with diameter less than 2.5μm, while sub-stream contains particles with diameter from 2.5μm to 10μm. A low-loss diverter unit (electromagnetic valve block) determines

whether the aerosol from the auxiliary stream (enrichment mode) or from the main stream (normal mode) passes into the reflected light detector.

The light scattering detective unit is composed of an accurate and stable 680nm laser diode and a sensitive semiconductor photo detector, which are placed at a 90° angle. The light scattered by all the particulates inside this measurement space is detected and transferred as a voltage signal (0 to 5 V). Combine with the factors of ambient influence, the concentration of PM2.5/PM10 are then calculated by system.



Principle behind the virtual impactor



The schematic diagram of light scattering



Photometer appearance