

# EM-11000 Ambient Air Monitor

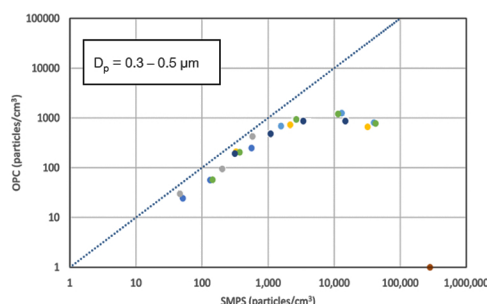
The Particles Plus EM-11000 is a low cost, high-accuracy dust monitor designed for outdoor particulate and gas monitoring. These robust monitors provide reliable, accurate measurement of airborne contamination allowing for the detection of environmental and public health concerns. The first real time monitor to provide 30 accurate particulate size channels at higher concentrations..

## Realtime Data

30 particle size channels recorded by the EM-11000 Monitor are stored in an internal 65,000 record non-volatile memory at user-defined data sampling rates (1 second to 99 hours). The high time-resolution of the Model EM-11000 measurements provides a near-instantaneous look at changing airborne particulate concentrations, leading to a well-defined model of local point source influences that may disproportionately affect air quality.

## Highest Concentration OPC based Monitor

The EM-11000 series has the highest concentration available in the market for an optical particle counter based ambient air monitor. With a flow rate of 1.2 LPM the sensor is capable of accurately counting and sizing particles up to 30,000,000 particles/ft<sup>3</sup> (1,000 particles/cm<sup>3</sup>). The monitor can handle TPM concentrations up to 20,000 µg/m<sup>3</sup> before experiencing coincidence loss.

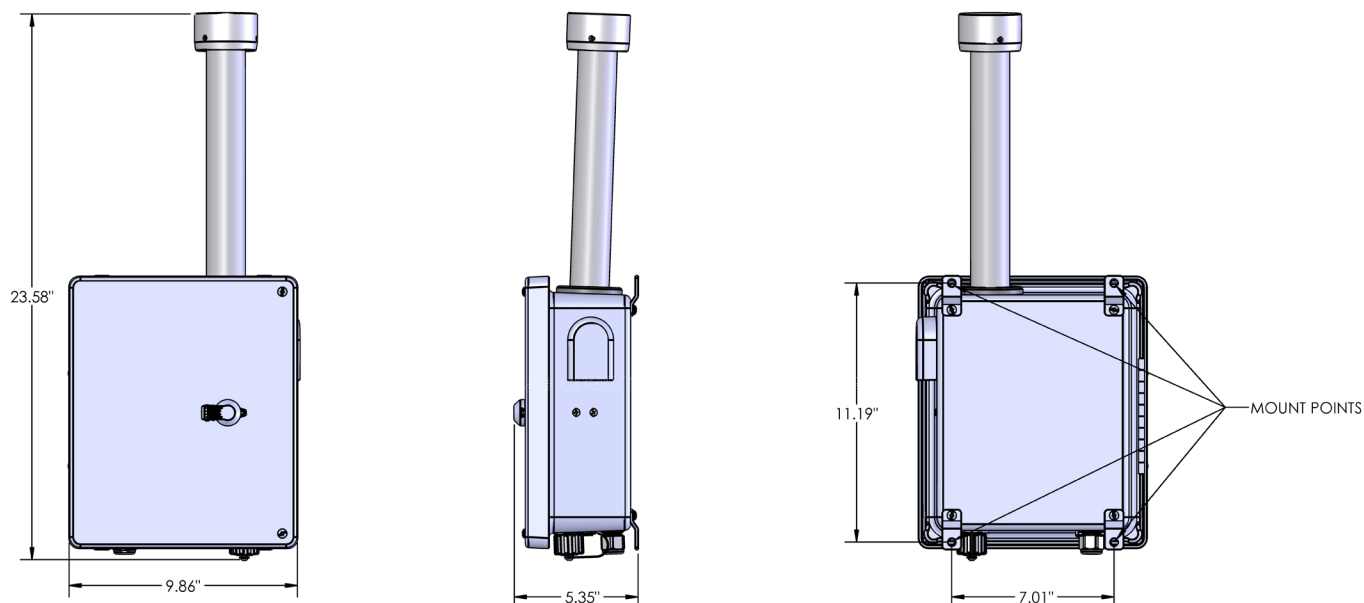


## Applications

- Airborne Pollution and Environmental Research
- Perimeter or Fence-line Monitoring for Construction, Remediation or Waste Sites
- Mine and Quarry Fence-line Monitoring for dust control operations
- City Wide or Community Air Pollution Monitoring
- Roadside Emissions Monitoring
- Medical Facilities Property Monitoring
- Power Line Wild-Fire Monitoring
- Environmental Disasters
- Monitor for 24 hours a day, 7 days a week, 365 days a year

## Features and Benefits

- Concurrent measurement of multiple PM sizes from 0.3µm to 10.0 µm, including TPM of particles up to 25 µm
- Closed-loop humidity control for incoming airstream with heated inlet
- Closed-loop condensation control within the enclosure
- Aerosol Concentration Range of 0.01 to 20,000 ug/m3
- ULTRAGUARD® Fiberglass reinforced polyester NEMA 4 rated outdoor tamper-proof enclosure with internal thermal control
- Optional pole mount option
- Density correction by channel for 30 channels allowing for highly accurate approximations of mass concentrations



## Specifications

<b>Model</b>	<b>EM-11000</b>
Size Range	0.3 to 25 $\mu\text{m}$
Size Channels	Factory calibrated at 0.3, 0.5, 0.7, 1.0, 2.5, 5.0 $\mu\text{m}$ variable binning
Flow Rate / Accuracy	1.2 LPM (0.04 CFM) / +/- 3%
Aerosol Concentration Range	0.01 to 47,000 $\mu\text{g}/\text{m}^3$ (2500 particles / $\text{cm}^3$ , 70,000,000 particles/ $\text{ft}^3$ )
Light Source	Long life laser diode
Resolution	.00003 $\mu\text{g}/\text{m}^3$
Zero Stability	No appreciable drift
Count Modes	Cumulative/differential count/ $\text{m}^3$ and count/ $\text{ft}^3$ , and mass concentration (PM)
Log Interval	Minimum 1 second with no hold time, maximum 99 hours
Calibration	NIST traceable
Internal Vacuum Pump	Internal pump with automatic flow control
Number of Channels	6 to 30
Communication Modes	MODBUS over RS485 or USB direct (USB to IMS-9K software utility)
Optional Communication Modes	Future Plug & Play (optional) Communication Modules - Wi-Fi, LoRaWAN and Ethernet
Environmental Sensor	(Optional) Temperature +/-2C, Relative Humidity +/-9%, co2 +/-50ppm, Barometric Pressure +/-2.5mbar
Alarm	Alarms for all particle values, environmental sensors, flow and sensor failure
Instrument Calibration	Particle sensor recommended once per year
User Calibration	Field Calibration of Temperature, Humidity, CO <sub>2</sub> and TVOC possible with included utility software
External Surface	ULTRAGUARD® Fiberglass reinforced polyester - compression molded SMC box and Cover
Enclosure	Temperature controlled ventilation blower and heated backplate for environmental extremes
Heated Inlet	Humidity sensor controlled heated inlet to remove hygroscopic effects
Dimensions (L x W x H)	12.85" x 7.41" x 25.54" (32.7 cm x 18.9 cm x 64.9 cm) includes barb fittings
Weight	12.5 lbs. (5.66 kg)
Accessories	Quick start guide, operating manual on USB flash drive, mounting feet
Optional Accessories	Printed manual, data cable, pole mounting hardware kit
Data Storage	Internal 65,000 sample records (rotating buffer) including particle count data and environmental data
Sample Time	1 second to 99 hours
Power	110 to 240 VAC 50/60 Hz universal in-line power supply
Operating Conditions	-4° to 122°F (-20° to 50°C) / 20% to 95% non-condensing
Warranty	1 year limited warranty. Extended warranties available.

PAT. <https://particlepatents.com/> Additional Patents Pending.

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