
AIM5000P Portable Particle Monitor

for Wet Gas

Sensitive System For Continuous Extractive Particle Concentration Measurement In Accordance With Faraday-Cup Principle.



PPS inside

Applications

The AIM5000P is used for measuring dust concentration in wet gas.

Potential applications e.g.:

- Measurements in saturated gas downstream of desulfurization plants
- Downstream of wet cleaning plants
- Waste incineration plants
- Technological processes.

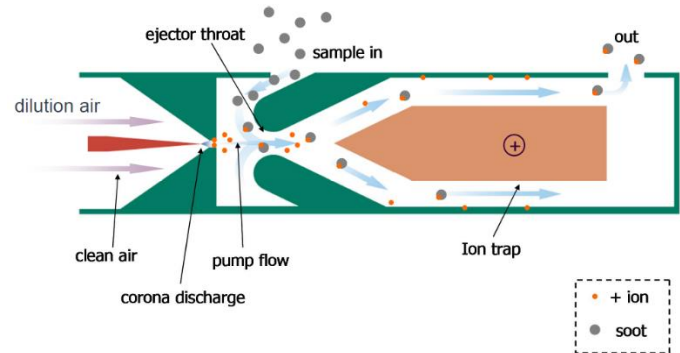
Features

- Measures both particle number and mass
- Compact design
- Low maintenance requirement
- In-situ measuring method with continuous measurement
- High sensitivity
- No laborious device adjustment
- Integrated Air Compressor

Measuring principle

AIM5000P is based on particle charging and Faraday-Cup which detect the free ions. It is a non-collecting measurement method, ensuring long maintenance and cleaning interval.

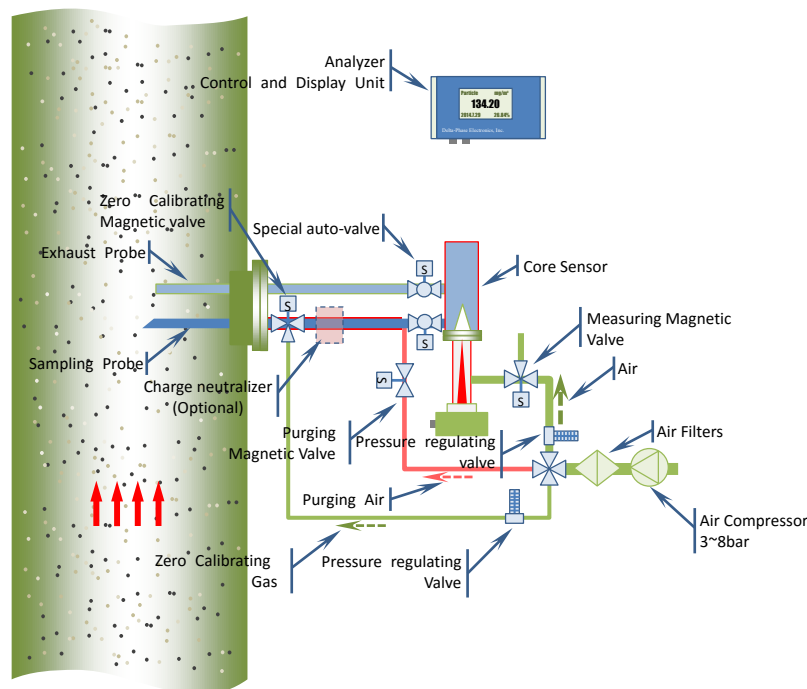
AIM5000P comprises an ejector where the motive fluid flow is generated by pure, particle free gas. Typically this gas is filtered air. The motive fluid flow generates an under pressure to the sample inlet and due to the negative pressure, particle-containing gas flows into the sensor.



The clean motive fluid is ionized before it enters the sensor. This ionized air is then used to charge the particles in the sensor. Mixing between the ionized air and the sample flow is very effective and thus all particles are efficiently charged. Particle charging is relative to the particle size.

Ions that are not attached to the particles are removed from the gas flow by an ion trap. As the electrical mobility of the ions is much higher than the mobility of charged particles, the ion trap effectively removes only the ions.

When the free ions are removed, the only mechanism carrying electrical current is the flow of charged particles. The electrical current escaping from the sensor with the charged particles can be measured and this gives a direct, fast real-time measurement of the particle concentration. The measurement result can be expressed either or both as mass concentration or as number concentration.



SYSTEM COMPONENTS

Sampling Probe, Heating System, Core Sensor, Analyze Unit, Purging System, Multistage Air Filter and Air Compressor.

COMPARE WITH LIGHT SCATTERING

| Technology | AIM5000P | Light Scattering |
|--|---------------------------|--|
| Lowest Measurable Particle size* | 10nm | 200~300nm |
| Concentration Rang | 0.01~300mg/m ³ | 0.1~5mg/m ³ 0.1~200mg/m ³ |
| Sensitive to Particle Refractive index | No | Yes |
| Sensitive to Flue Channel Pressure Variations | No | - |
| Heating of extraction pipe | Yes(180°C) | Yes |
| *After good filtration technology (wet ESP) 50% or more of mass is at PM-1(<1µm). It's now necessary to cover the full size range and especially the ultrafine (Nano) particle range (most dangerous for lungs and air pollution). | | |

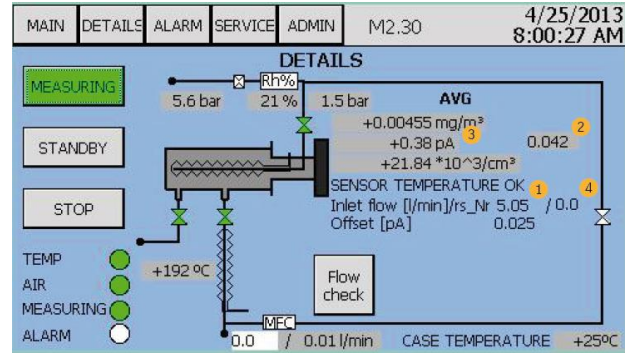
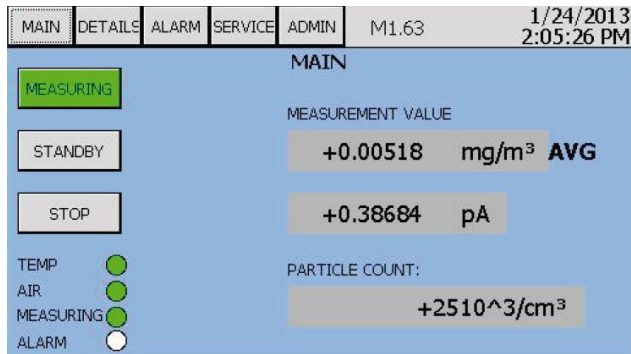
AIM5000P MAINTENANCE

| | <5mg/m ³ PM | <100mg/m ³ PM |
|---------------------------------|------------------------|--------------------------|
| Inlet Cleaning | Once in two months | Once a month |
| Sensor Cleaning | Once in six months | Once in three months |
| Sample Flow Check | Automatic | Automatic |
| Zero Point Check | Automatic | Automatic |
| Reference point Check | Automatic | Automatic |
| Corona Current Check | Automatic | Automatic |
| Impedance (Contamination) Check | Automatic | Automatic |
| Calibration | Once a year | Once a year |

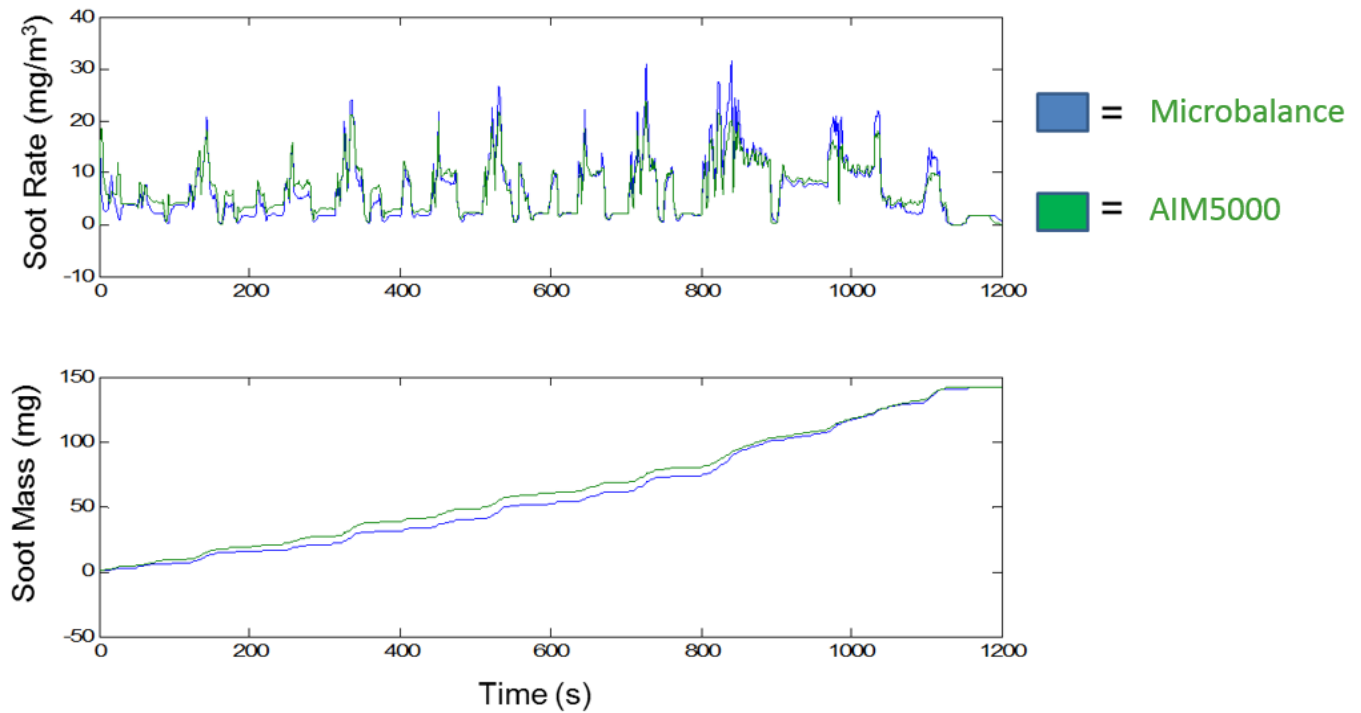
SPECIFICATION

| | | | |
|---------------------|---|-------------------|---|
| Measuring Principle | Electrical Charging of Particles | Sampling Temp. | 392 °F (200 °C); 1562 °F (850 °C) is optional |
| Measuring Range | 1 µg/m ³ - 250 mg/m ³ 10 µg/m ³ - 500 mg/m ³ | Sampling Humidity | > 100% R.H. |
| Resolution | 0.01 µg/m ³ | Sampling Pressure | 1 to 10 bar |
| Ambient Temp. | -4 °F to 131 °F (-20 to 55 °C) | Sampling Flow | 8 to 10 L/min |
| Respond Time | 0.2 s Depend on sampling line length | Probe Material | Stainless Steel 316L |
| Analyzer Power | 230 VAC, 50/60 Hz, 400 W | Probe Flange | DN100, PN6 |
| Heater Power | 230 VAC, 50/60 Hz, 100 W/m | Air Source | Integrated Air Compressor, Multistage Air Filter & Drying Pot |
| Display | 6" Touch Screen Particle Concentration, Quantity and the instrument working Condition | Output | History data recording; 4 to 20mA @ 600 Ω; RS 485 Modbus; USB 2.0 |
| Dimension | 490 mm × 340 mm × 800 mm | IP Rate | IP55 |
| Weight | 45kg | | |

DISPLAY INTERFACE



Correlation with Microbalance Measurement



DISTRIBUTOR: