FAI instruments

SWAM 5A DUAL CHANNEL HM

SWAM 5A Particle Measurement System

Dual-channel Sequential Sampler and Mass Monitor

- PM10, PM2.5, and PM10-2.5 measurements and sample collection all-in-one instrument
- TUV Certified as equivalent AMS and reference sampler in compliance with EU Standard
- Designed to minimize common uncertainties in PM measurement
- Atmospheric Stability Assessment

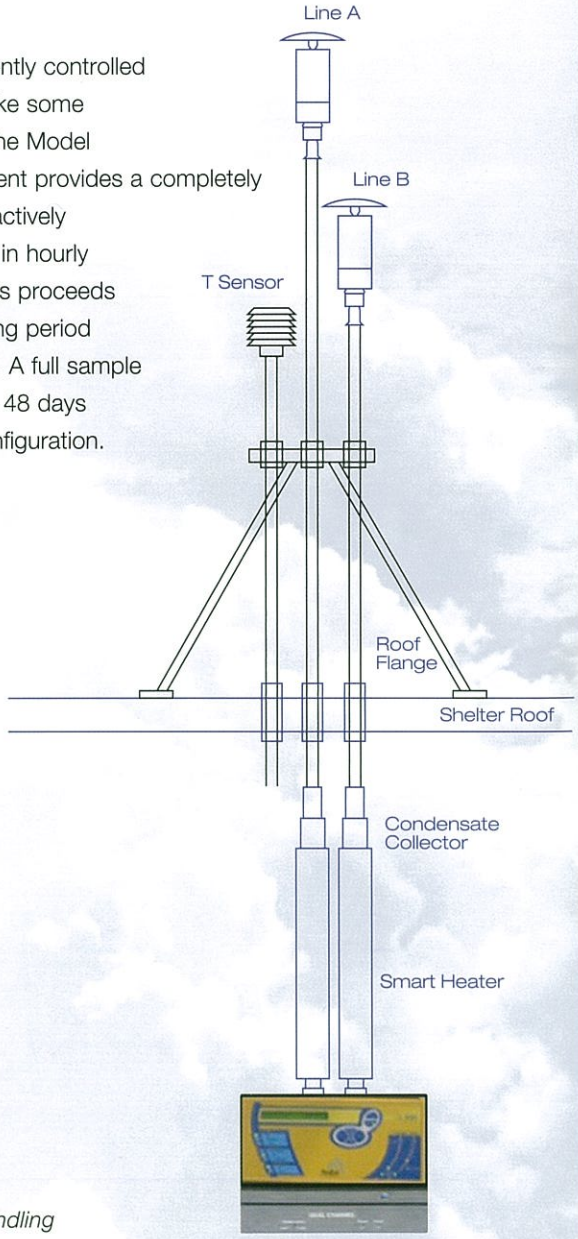
SWAM 5A DUAL CHANNEL
Particle Measurement System

FAI Instruments is proud to announce a new system for the continuos automated monitoring and sampling of particulate matter (PM) contained in ambient air.
The Model SWAM 5A Dual Channel instrument combines field-proven beta attenuation analysis with dual-channel, sequential sampling technology yielding simultaneous PM10, PM2.5, and PM10-2.5 (PM Coarse) mass concentration results every hour. The system is TUV Certified for both PM10 and PM2.5 in full compliance with the European Standards EN12341 and EN14907 and also as reference sampler.

Dual-channel Sequential Sampling

- **Two separate and parallel sampling channels**
  Can be configured with a variety of size selective inlet options (TSP, PM10, PM2.5, and PM1)
- **Flexible Flow Rate Options**
  1 m^3/hr or 2.3 m^3/hr
- **47mm diameter sample filters**
- **Variety of sampling media**
  (Teflon®, quartz, glass fiber, etc.)
- **Simple handling with sample filter cartridges and loader/unloader magazines**

The two flow lines are independently controlled and operate simultaneously. Unlike some other continuous PM monitors, the Model SWAM 5A Dual Channel instrument provides a completely representative sampling period, actively sampling the air for >57 minutes in hourly mode. Sample filter mass analysis proceeds immediately following the sampling period without interruption or downtime. A full sample filter magazine will last from 16 – 48 days depending on the instrument configuration.



Sample filters are housed in filter cartridges for simple handling and preservation should chemical speciation laboratory analysis be performed later. Filter cartridges are color coded for easy differentiation between channels.

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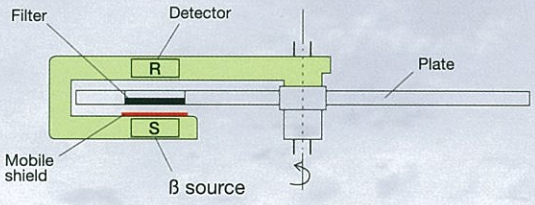
Multi-step Analysis

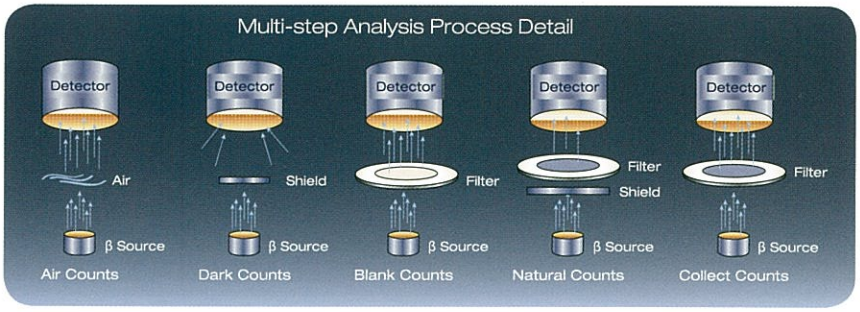
- **Air Counts**
  Assess changes in air density
- **Dark Counts**
  Measure background radiation in air
- **Blank Counts**
  Measure sample filter prior to sampling
- **Natural Counts**
  Measure background radiation in sample
- **Collect Counts**
  Measure mass of collected sample

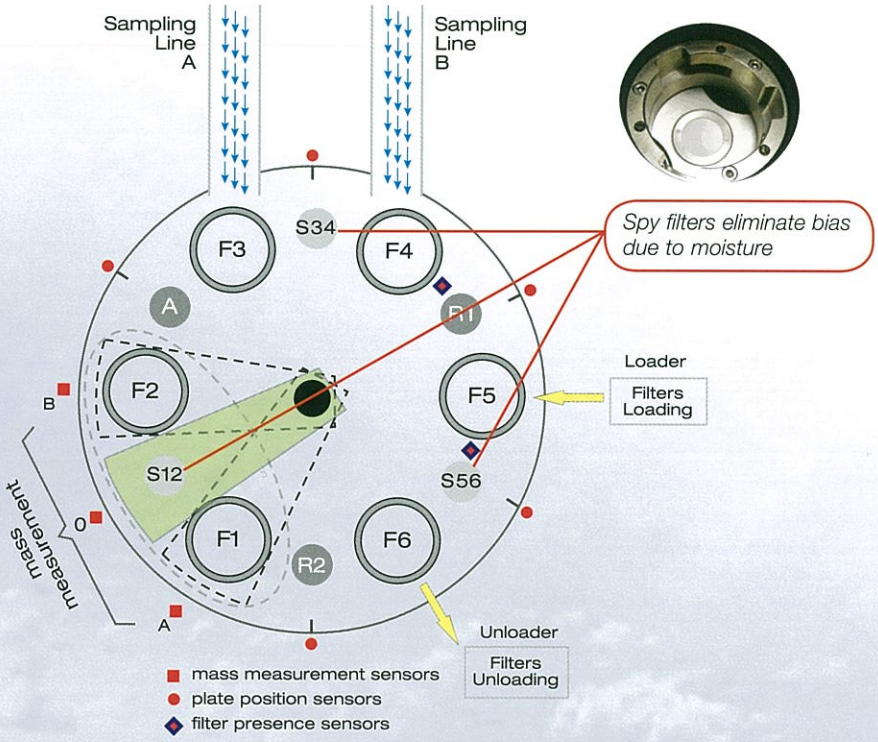
The SWAM 5A Dual Channel instrument provides unprecedented agreement with the Reference Method by eliminating uncertainties in the sample mass measurement. The patented, multi-step analysis process independently assesses interferences such as humidity and background radiation during every cycle.

Side View of the Source / Detector Assembly



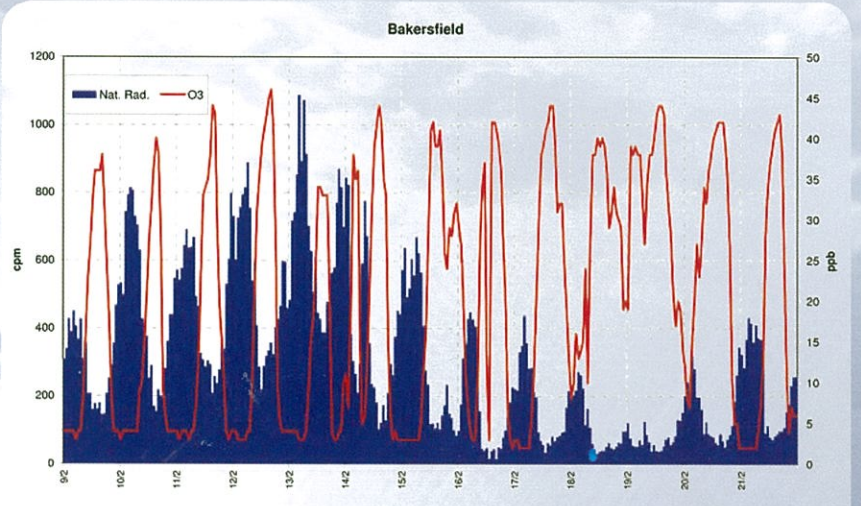
Designed to minimize geometrical variations for extremely repeatable mass measurements





Atmospheric Stability Assessment

The natural background radioactivity measurements can be used for providing information about Atmospheric Stability. Combining this information with local air pollution measurements can help determine factors which influence air pollution events.

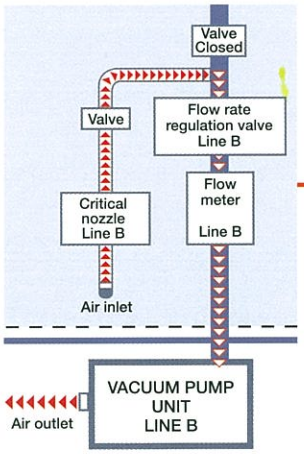


Data collected in Bakersfield CA during February 2011

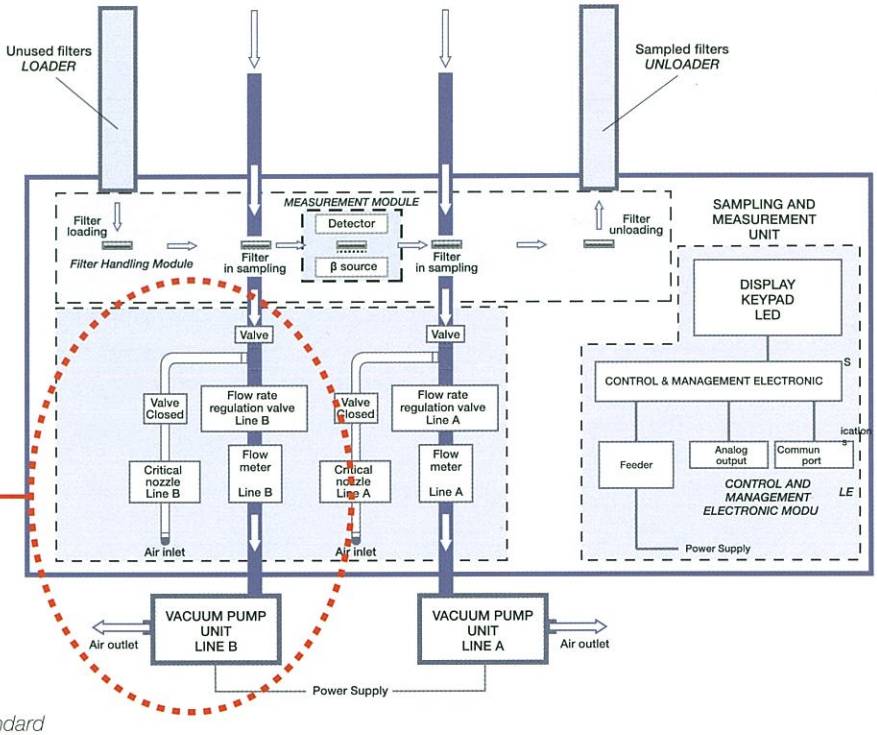
SWAM 5A DUAL CHANNEL
Particle Measurement System

Quality Control & Quality Assurance

- Two (one per channel) built-in flow transfer standards for automatic flow span checks
- Automatic leak and two-point beta span checks
- Active pneumatic integrity monitoring
- Active analytical component monitoring
- User-definable alarm thresholds for QC parameters



Internal flow transfer standard performs automatic flow checks

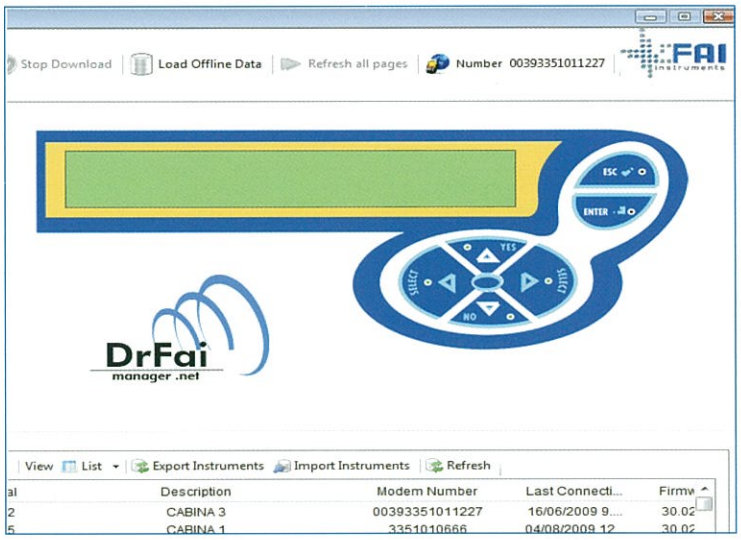


Initial instrument data validation is performed automatically, with nearly 60 parameters measured and recorded per channel during each cycle. Immediate notifications can be given when the instrument performance has fallen outside of the users pre-defined limits, resulting in higher data quality and capture rates.

Connectivity and Remote Access

- Digital communications
- Remote communications software

All raw and calculated data are stored within the instrument for diagnostics and review. Data can be accessed locally or remotely through an external data logger or the supplied Model SWAM 5A Dual Channel Manager software.



SWAM 5A Dual Channel software provides secure access and control, locally or remotely.

US EPA Federal Equivalent Method Candidate: PM10, PM2.5, and PM10-2.5 (Hourly Mode)

EN12341-1999 and EN14907-2005: PM10 and PM2.5 (Hourly and 24Hr Modes) TUV Certified as AMS and reference sampler.

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CERTIQUALITY Certificato n. 14733

IQNet ISO 9001:2008