AiM®-200

Surface Molecular Contamination (SMC) Monitor

The AiM-200 is the newest development in monitoring molecular contamination using Surface Acoustic Wave (SAW) technology. A high frequency, temperature controlled SAW sensor provides detection of sub-monolayer changes in mass on critical surfaces caused by organic and inorganic contaminants.

BENEFITS

Improve Yield

- Baseline cleanroom contamination conditions that may shift over time. Alarms alert users to subtle or catastrophic changes in molecular contamination levels
- Determine if contamination source is from the outside air (make-up) or within the facility (recirculated)
- Protect photolithography optics and reticles by monitoring for organic condensables or crystal growth of ammonium sulfate
- Quantify organic contamination in diffusion that can damage gate oxide formation, which leads to detrimental shifts in breakdown voltage
- Evaluate chemical filter performance to maximize filter lifetime
- High sensitivity; detects very low levels of contamination

Easy to Use

- Ethernet capability eases data transfer and communications
- Real-time data display and tracking via powerful Facility Net monitoring software
- Onboard storage of up to 50,000 data samples
- Sensor chip is easy to remove and to send for TOF/SIMS lab testing to identify contaminating species
- Controller LEDs and buttons allow user to quickly check power and probe status
- Software menu system allows easy setup and configuration changes

Cost Effective

- Low capital investment and cost of ownership
- Data provided on deposition mass, deposition rate, sensor temperature, relative humidity, and statistical averaging of deposition rate
- Ethernet and RS-232 communications allow easy integration into Facility Net or other existing data management systems
- Sub-monolayer sensitivity allows SMC problems to be detected before they significantly damage product or process surfaces
- High frequency silicon dioxide sensor emulates silicon wafer or optical surfaces

FEATURES

- Monitors SMC deposition on SiO_2 surfaces
- Detects corrosion caused by sub-ppb levels of SO_x contamination
- Detects mass depositions of 0.0032 ng/cm^2/Hz on surfaces
- Sample intervals as close as 5 seconds
- Temperature controlled probes to $\pm$ 0.1°C
- Onboard memory storage of 50,000 samples; USB data storage possible
- Ethernet or RS-232 communications
- Relative humidity compensation algorithm
- Probes can be mounted 4 meters away from controller
- Real-time data collection, monitoring, and alarms via Facility Net software

APPLICATIONS

Photolithography	Minienvironments
Diffusion	Chemical filtration
Purge gases	Aerospace optics
Reticle and wafer storage	Hard disk drive
Air handling systems	... and more

Without measurement, there is no control.

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Specifications

AiM-200

SMC collection surfaces:	SiO_2
Nominal mass sensitivity:	Sub-monolayer, i. e., detects mass changes of 0.0032 ng/cm^2/Hz;
Sample interval:	5 seconds to 1 day
Software required for operation:	Facility Net (for real-time data recording in a facility management system), HyperTerminal® or Telnet (for stand-alone use only)
Communications:	Ethernet, RS-232
Data storage:	Stores up to 50,000 samples
Temperature stability:	Stable within ±0.1°C with temperature control on
Relative humidity measurement:	±3% RH accuracy and 0.5% RH repeatability
Dimensions (h, w, d):	Controller (7.5 x 4 x 1.5 in.), probe (3.5 x 2 x 1.5 in.), probe and stand (4 x 6 x 4 in.)
Weight:	Controller (1.35 lb.), probe (1.6 lb.), probe and stand (1.7 lb.)
Power:	100-240 VAC power supply
Battery:	3.0 V nonrechargable lithium battery (Type CR2450) provides internal data and clock retention for up to 2 months with unit unpowered
Operating temperature:	15-35°C (59-95°F)
Operating relative humidity:	20-50% RH

AUTHORIZED REPRESENTATIVE

ISO 9001:2000
FM 40574

Registration applies to the Boulder, Colorado facility

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