

SemiChem Advanced Process Monitor 200 Series

Provides a lab quality measurement in a durable, reliable, online platform

WET CHEMICAL MONITORING

Our SemiChem Advanced Process Monitor (APM) is a wet chemical monitoring system that automatically samples, analyzes, and reports quantitative chemical concentration of critical chemical mechanical planarization (CMP) and formulated cleaning chemistry processes. It offers process engineers the accuracy, reliability, and flexibility for a higher degree of efficiency and consistency to meet the demands for higher yield and zero defect tolerance. In the ultra-competitive microelectronics industry, the most advanced facilities can ill afford highly expensive processes without the use of sophisticated monitoring and control to ensure consistent wafer manufacturing.

Our SemiChem APM 200 Series allows quantitative chemical concentration. Full on-line chemical monitoring allows real-time correction of bath composition and therefore stable control of the process conditions.

The system provides class-leading chemical concentration data. When immediately apparent, variations that can negatively affect product quality can be quickly corrected, helping to meet the demands for zero defect tolerance and higher product yields.

ADVANTAGES

- Increases tool throughput
- Decreases chemical costs
- Real-time process monitoring
- Ensures against batch loss
- Improves cost of ownership



APPLICATIONS

Worldwide, we have nearly 3,000 SemiChem APM systems installed for controlling metal CMP concentration. It is a trusted, central tool for controlling CMP peroxide, and is proven to provide exceptional performance in all wet chemical applications in the microelectronics environments including:

- Copper, tungsten, barrier, and metal CMP
- Formulated cleans
- DSP+
- Wet etch, nitride etch
- PAN etch, Piranha etch
- HF
- Wastewater

SPECIFICATIONS

PERFORMANCE SPECIFICATIONS

Analysis methods	Potentiometry/standard addition/photometry
Accuracy of potentiometry¹	± 0.2% of displayed value
Accuracy of standard addition¹	± 2.0% of displayed value
Precision of potentiometry¹	± 0.2% relative error
Precision of standard addition¹	± 2.0% of relative error
Measurement time	< 5 minutes/analysis (application dependent)
Calibration interval	At start-up ²
Sample consumption	< 5 mL/analysis
Sample size	0.05 to 5 mL (application dependent)
Sample temperature	Up to 93°C (200°F)
Water consumption	< 1000 mL/analysis

SYSTEM FACILITY REQUIREMENTS³

Sample inlet/return	< 207 kPa (30 psi) 0.5 L/min ¼" OD flare fitting, 1" FPT containment coupling
Deionized water	138 to 276 kPa (20 to 40 psi) 2.0 L/min ¼" OD flare fitting
CDA	414 to 552 kPa (60 to 80 psi) ¼" OD quick fitting
Drains	Process: ¾" NPT gravity drain Cabinet: ½" NPT gravity
Power	110 /220 VAC, 50/60Hz, 1.0/0.5A field switchable
Exhaust	1-7/8" OD @ 17 CFM

¹ Refers to "hardware" only. External factors such as application, chemistry, and process conditions can affect system accuracy and precision

² This does not include calibration of pH or Ion Selective sensor. Please refer to the Installation and Operating Manual for more information.

³ For a complete list of required facilities, refer to the SemiChem APM 200 Installation and Operating Manual.

SemiChem APMi 200

PRODUCT FEATURES

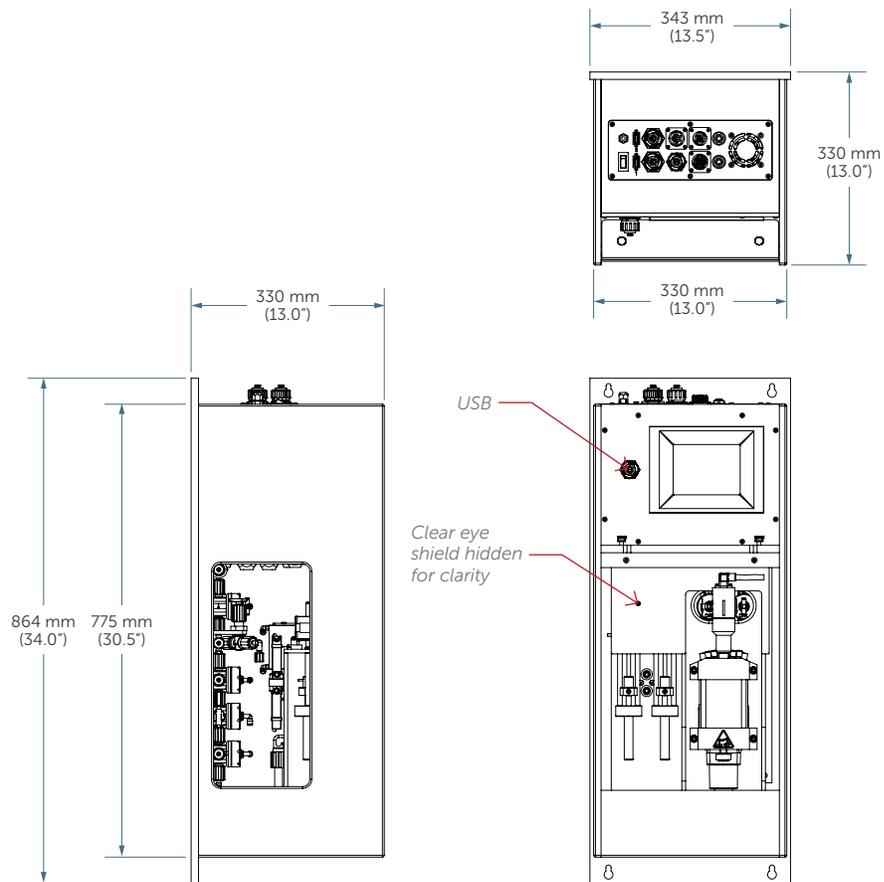
- Designed for full process tool integration
- Four, 4-20 mA analog outputs
- Eight programmable relays
- Ethernet and RS232 serial
- Color touchscreen
- Low voltage (24 VDC) operation
- Single 200 mL measuring cell
- Single sample point
- One, 5 mL digital burette
- Multiple sensor inputs

PRODUCT OPTIONS

- Dual sample points
- Additional 5 mL digital burettes



DIMENSIONS



SemiChem APM 200, Single Cell Wall Mount

PRODUCT FEATURES

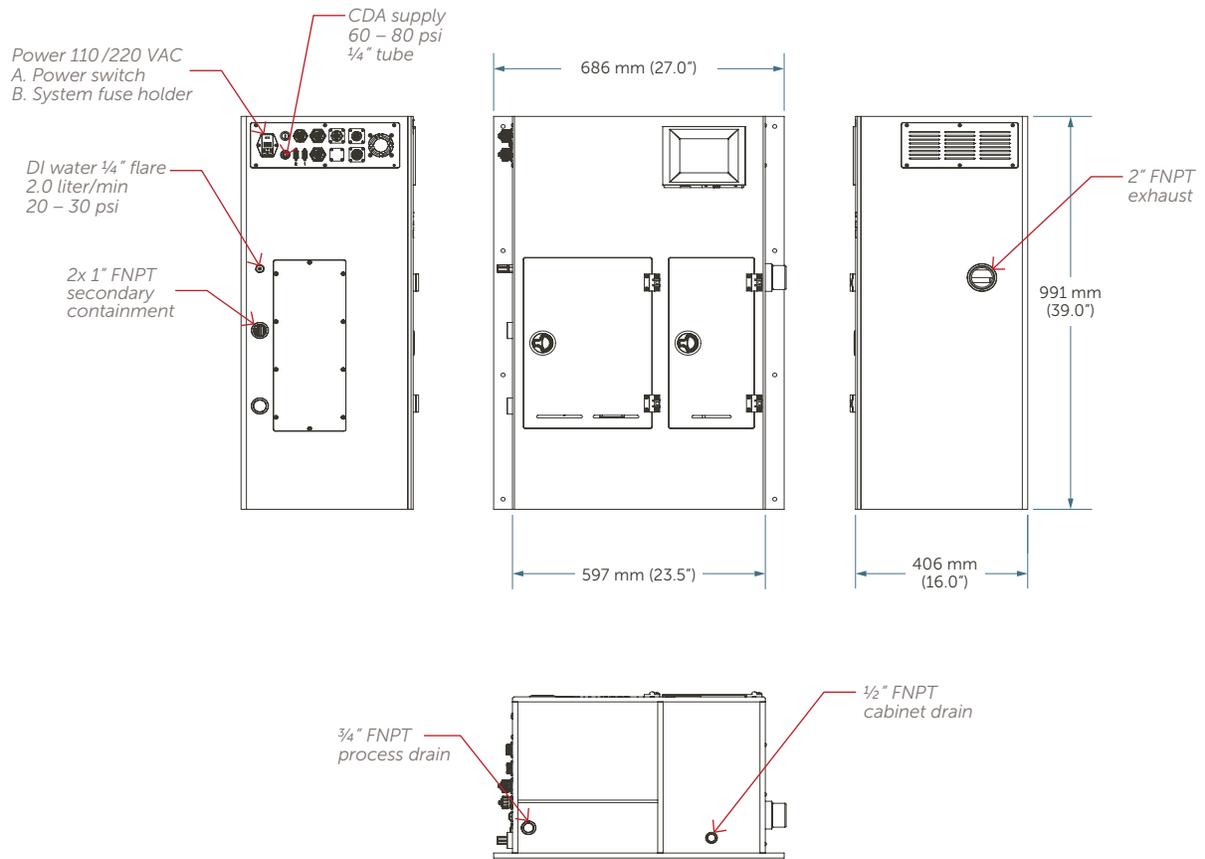
- Four, 4-20 mA analog outputs
- Eight programmable relays
- Ethernet and RS232 serial
- Color touchscreen
- Single 200 mL measuring cell
- Integrated reagent storage
- Single sample point
- One, 5 mL digital burette
- Multiple sensor inputs

PRODUCT OPTIONS

- Dual sample points
- Additional 5 mL digital burettes
- Additional sensors
- Safety interlocks
- Reagent low level detection



DIMENSIONS



SemiChem APM 200, Single Cell Floor Mount

PRODUCT FEATURES

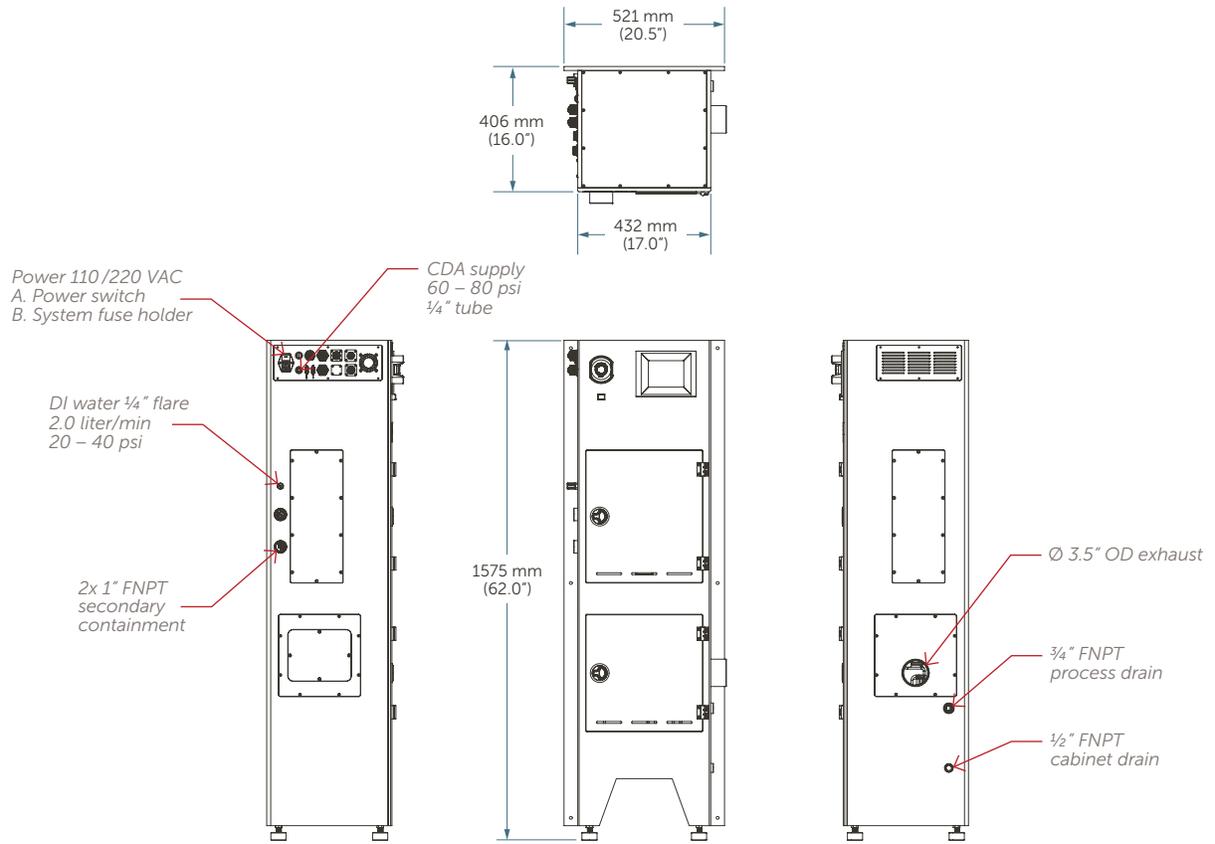
- Four, 4-20 mA analog outputs
- Eight programmable relays
- Ethernet and RS232 serial
- Color touchscreen
- Single 200 mL measuring cell
- Single sample point
- Three, 5 mL digital burettes
- Multiple sensor inputs

PRODUCT OPTIONS

- Dual sample points
- Additional 5 mL digital burettes
- Additional sensors
- Safety interlocks
- Reagent low level detection



DIMENSIONS



SemiChem APM 200, Dual Cell Floor Mount

PRODUCT FEATURES

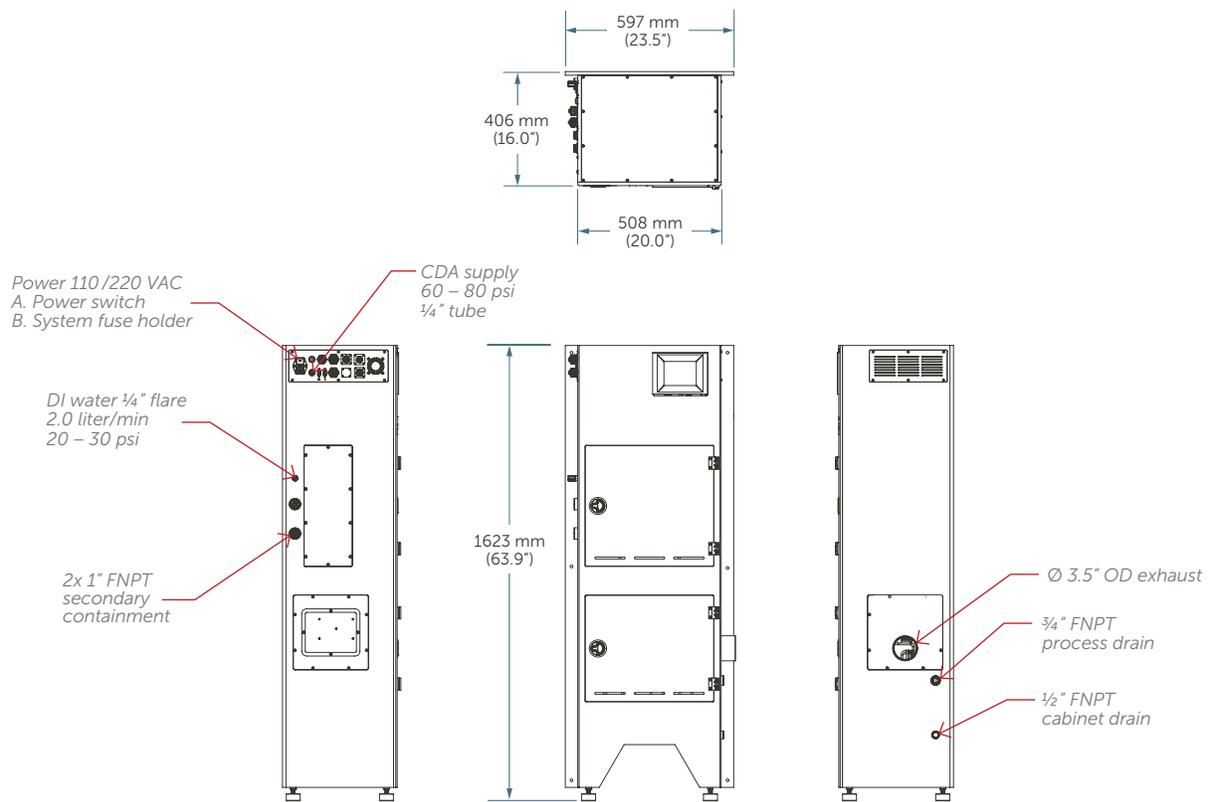
- Four, 4-20 mA analog outputs
- Eight programmable relays
- Ethernet and RS232 serial
- Color touchscreen
- Dual 200 mL measuring cell and dual sample capture loops
- Integrated reagent storage
- Single sample point
- Four, 5 mL digital burettes
- Multiple sensor inputs

PRODUCT OPTIONS

- Dual sample points
- Additional sensors
- Safety interlocks
- Reagent low level detection



DIMENSIONS



SemiChem APM 200, Dual Cell Floor Mount with Grabport

PRODUCT FEATURES

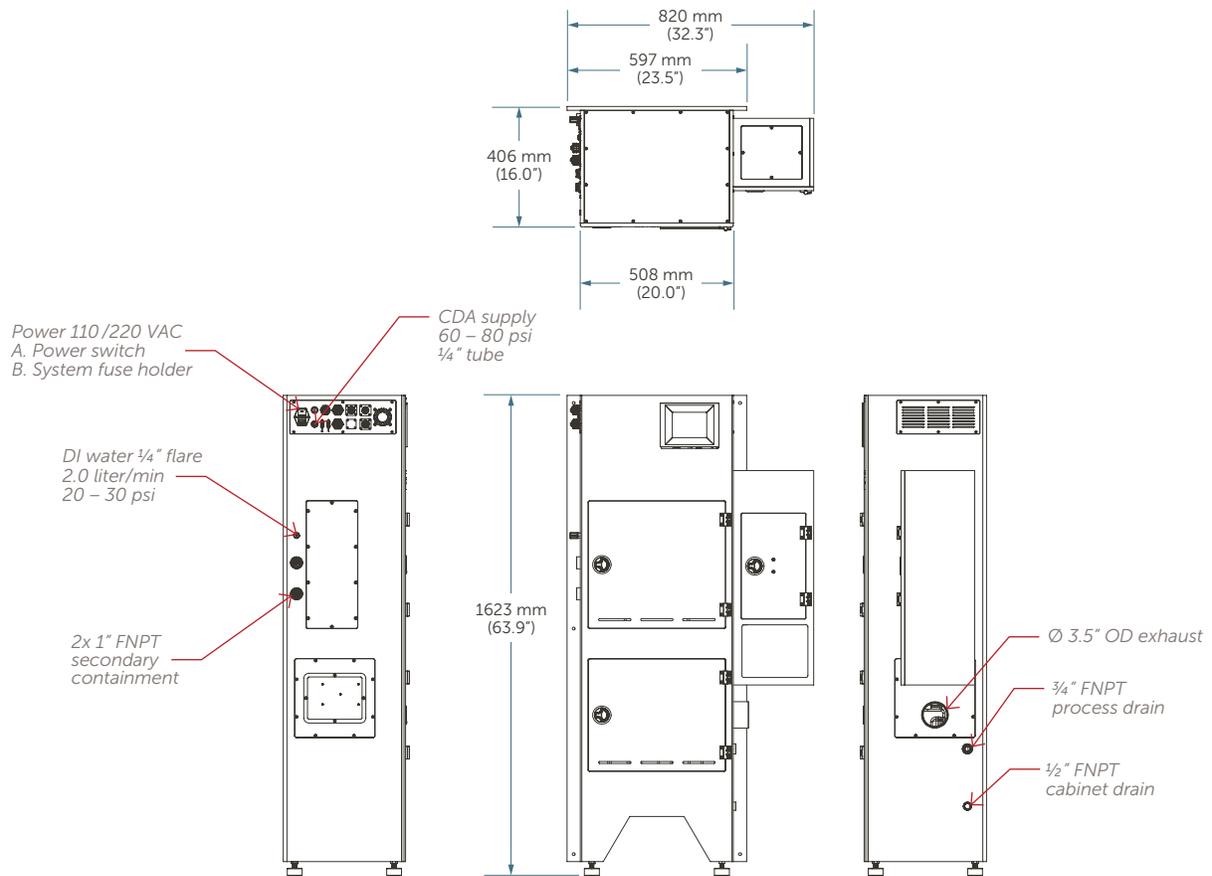
- Integrated grabport for offline manual sampling
- Four, 4-20 mA analog outputs
- Eight programmable relays
- Ethernet and RS232 serial
- Color touchscreen
- Dual 200 mL measuring cell and dual sample capture loops
- Integrated reagent storage
- Single sample point
- Four, 5 mL digital burettes
- Multiple sensor inputs



PRODUCT OPTIONS

- Dual sample points
- Additional sensors
- Safety interlocks
- Reagent low level detection

DIMENSIONS



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Corporate Headquarters

129 Concord Road
Billerica, MA 01821
USA

Customer Service

Tel +1 952 556 4181
Fax +1 952 556 8022
Toll Free 800 394 4083

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