

# SemiChem Advanced Process Monitor

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

Entegris is a market leader in the design and production of high precision analytical instruments for chemical mechanical planarization (CMP) slurries and formulated cleaning chemistries used in the semiconductor manufacturing process. Our technology is designed to ensure precise consistency of complex blended chemistries and enable high yields in the CMP and formulated cleaning processes.

Our SemiChem Advanced Process Monitor (APM) is a wet chemical monitoring system that automatically samples, analyzes, and reports quantitative chemical concentration of critical processes. 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.

## 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

## FEATURES & BENEFITS



SemiChem APMi 200

### Proven, standard electrochemical techniques

Provide the industry's most precise monitoring available to maintain process chemical composition and integrity

Provides class-leading chemical concentration data allowing the slurry/chemical distribution system to deliver exact chemical concentration

### Online, near real time system

Detects process excursions in volatile chemistries, preventing loss of product quality

Transitions the lab technology to the process, allowing fast and accurate process control

### Rugged, industrial design

Maintains a MTBF >8500 hours

Withstands tough, industrial environments

## SPECIFICATIONS

<b>Analysis methods</b>	Potentiometry, standard addition, photometry
<b>Accuracy of potentiometry*</b>	±0.2% of displayed value
<b>Accuracy of standard addition*</b>	±2.0% of displayed value
<b>Precision of potentiometry*</b>	±0.2% relative error
<b>Precision of standard addition*</b>	±2.0% relative error
<b>Measurement time</b>	>5 minutes/analysis (application dependent)
<b>Calibration interval</b>	at start-up**
<b>Sample consumption</b>	<5 mL/analysis
<b>Sample size</b>	0.05 to 5 mL (application dependent)
<b>Sample temperature</b>	up to 93°C (200°F)
<b>Water consumption</b>	<1000 mL/analysis
<b>Sample inlet/return</b>	<207 kPa (30 psi), 0.5 L/min 1/4" OD flare fitting, 1" FPT containment coupling
<b>Deionized water</b>	138 to 276 kPa (20 to 40 psi) 2.0 L/min 1/4" OD flare fitting
<b>CDA</b>	414 to 552 kPa (60 to 80 psi) 1/4" OD quick fitting
<b>Drains</b>	Process: 3/4" NPT gravity drain      Cabinet: 1/2" NPT gravity
<b>Power</b>	110/220 VAC, 50/60 Hz, 1/0.5 A field switchable
<b>Exhaust</b>	1 7/8" OD @ 17 CFM

\*Refers to hardware only. External factors such as applications, chemistry, and process conditions can affect system accuracy and precision.

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## Standard Features

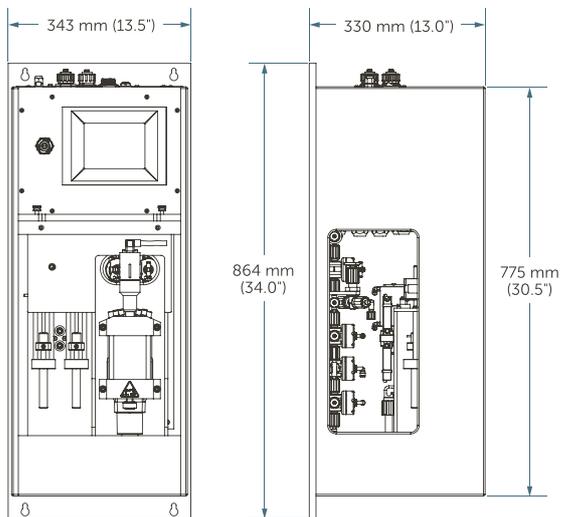
- Four 4-20 mA analog outputs
- Eight programmable relays
- Ethernet and RS232 serial
- Color Touchscreen
- Single measuring cell
- Integrated reagent storage
- Single sample point
- One 5 mL digital burette
- Multiple sensor inputs

## Optional Features

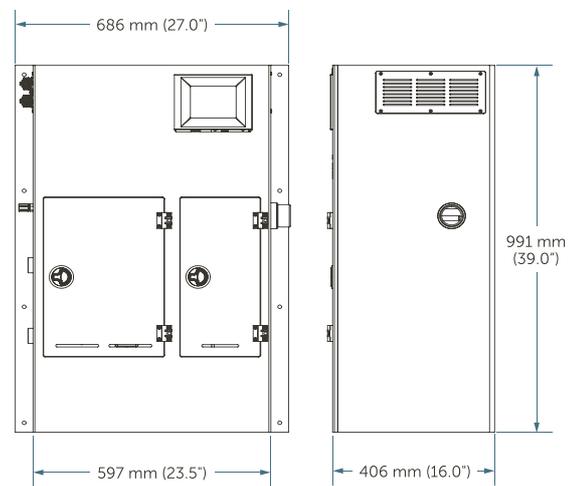
- Multiple sample points
  - Additional 5 mL digital burettes
  - Additional sensors
  - Safety interlocks
  - Reagent low level detection
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## DIMENSIONS

SemiChem APMi

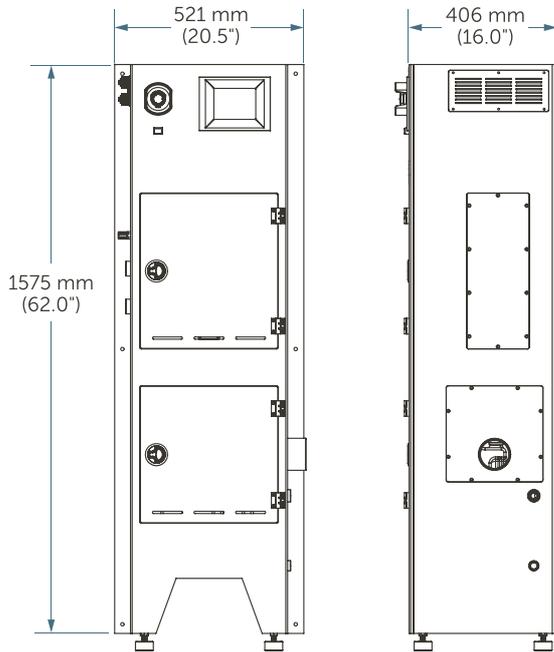


SemiChem APM Wall Mount

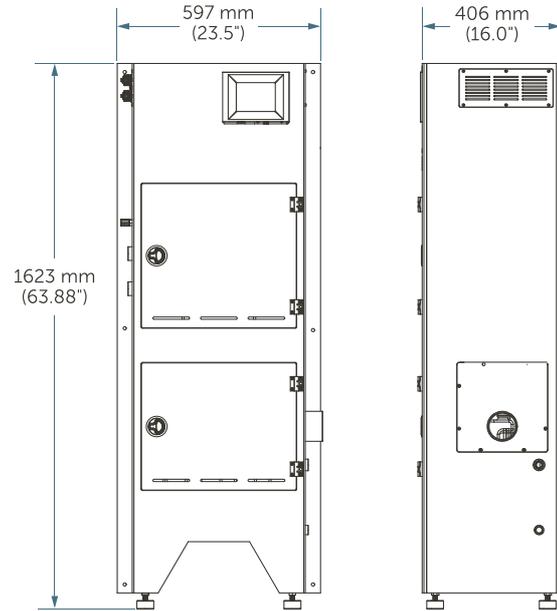


## DIMENSIONS

SemiChem APM Single Cell Floor Mount



SemiChem APM Dual Cell Floor Mount



### FOR MORE INFORMATION

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