Princeton Applied Research

PARSTAT™ MC

multi-channel potentiostat/galvanostat

Designed to protect your experiment from the unexpected, the PARSTAT™ MC is the most modular and robust multi-channel electrochemical testing platform on the market. It builds on our industry-leading 50+ years of experience in potentiostat development and software user-interface design. The PARSTAT™ MC combines function, flexibility and value. Key features include:

- The *ultimate* in modular design
- Widest dynamic current range of 2 Amps to 4 nA (120 fA resolution) as standard - No need for expensive hardware options
- Hot-swappable channels allow potentiostats to be added or removed without interruption of experiments on other channels
- Fast data acquisition at 500 kS/sec allows for a wide range of high speed applications
- Features the most popular electrochemical acquisition and analysis software solution, VersaStudio
- Floating ground allows testing of multiple samples in the same cell

AMETEK

Key Specifications

Compliance Voltage	± 12 V
Polarization Voltage	±10 V
Standard Maximum Current	2 A
Standard Lowest Current Range	4 nA
Number of Current Ranges	10 ranges
EIS Frequency Range	1 MHz to 10 µHz
Data Acquisition Rate	500 kS/sec
PMC-1000 PSTAT Card	AC/DC
PMC-1000/DC PSTAT Card	DC only
Connectivity	USB

- Multi-channel chassis capable of housing up to 8 potentiostat cards
- Up to 4 chassis (32 channels) driven by a single computer
- Each potentiostat card is electrically isolated ensuring floating ground operation
- Each system component is user-replaceable
- Compatible with low current interface providing aA level resolution

Ordering Information

Options:

PMC CHS08A	Chassis
PMC-1000	PSTAT Channel AC/DC
PMC-1000/DC	PSTAT Channel DC only
VersaSTAT-LC	Low Current Interface
PMC AUX01	Digital AUX cable (1 m)
PMC ALG01	Analog AUX cable (1 m)

User Replaceable Modules:

PMC FAN01	Fan module
PMC BPLN01	Backplane module
PMC PWR01	Power supply module
223945	Cell cable (2 m)

Each PARSTAT MC chassis is configured with up to eight (8) potentiostats. Each potentiostat card provides a wide range of functionality as standard.

Channels can operate simultaneously for high-throughput routine testing, asynchronously for different experiments on distinct cells or in a complex matrix of multiple electrodes in a single test environment. Additional channels can be added on-site by the user, even while other channels are in operation. Every component within the chassis is designed to be user-replaceable minimizing the impact of any interruptions in your experiment.

This design maximizes value by reserving the slots of the chassis for potentiostat channels and not expensive hardware options. The high-functioning core potentiostat is the basis for a system with excellent price-per-channel, especially compared to typical configurations of other option-based offerings.

The PARSTAT MC provides a platform to expand with you as your research needs grow and evolve.

The PARSTAT MC runs on Princeton Applied Research's popular VersaStudio software which now includes new features specifically engineered to tailor the test environment to the multichannel user, including the ability to:

- Overlay data files from multiple channels in a single graph: both during or after acquisition
- Create graphs of data using parameters from different channels or files – e.g., the *voltage* from one channel and the *current* from another channel, as is common in bipotentiostat work
- Access a full suite of electrochemical measurements for energy storage, sensors, corrosion, fundamental research, and nanotechnology

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Energy Storage

Batteries | Fuel Cells | Super Capacitors

Designed to protect your experiment from the unexpected, the PARSTAT™ MC is the most modular and robust multi-channel electrochemical testing platform on the market. Key features for Energy Storage applications include:

- "Hot-swappable" potentiostat channels can be installed or removed while the chassis is powered. Other experiments can continue to run on other channels. This is the *ultimate* in protection of the experiment.
- 2-Amps per channel standard without boosters inherently provides better accuracy and bandwidth
- 4 nA range (120 fA resolution) standard on each channel for wider applications in small scale battery research
- 2 µs data acquisition rate (500 kSamples per second) for the ability to accurately capture the charge during fast transients such as seen with Super Capacitors
- 4,000,000 Data Point Buffer on each channel allows preservation of data if any interruption or delay occurs between the device and host computer
- Access to every electrochemical technique in VersaStudio including those specifically for Energy Storage such as Mott-Schottky, GITT, and PITT
- "Delta" function feature in VersaStudio provides reduced file sizes while preserving all important data

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Corrosion

Bare Metals | Coatings | Galvanic Couples

Designed to protect your experiment from the unexpected, the PARSTAT™ MC is the most modular and robust multi-channel electrochemical testing platform on the market. Key features for Corrosion applications include:

- "Hot-swappable" potentiostat channels can be installed or removed while the chassis is powered. Other experiments can continue to run on other channels. This is the *ultimate* in protection of the experiment.
- 4 nA range (120 fA resolution) standard on each channel for highly accurate measurement of low corrosion rates
- Access to every electrochemical technique in VersaStudio including those specifically for Corrosion with built-in templates for ASTM G5, G59, G61, F2129, G108 and G106

  Coatings and Inhibitor Evaluation: EIS, Rp-versus-Time, Loop functions
  Uniform Corrosion: Linear Polarization (LPR), Split LPR, Tafel
  Non-uniform Corrosion: Cyclic Polarization, Potentiodynamic
  Galvanic Couples: Galvanic Corrosion, Electrochemical Noise in ZRA mode
  Disbondment: Potentiostatic, Galvanostatic
- Floating Ground operation allows experiments to be run inside autoclaves, on earth-ground rebar, or other grounded cells
- Bandwidth, E channel, and I channel filters to maximize stability and minimize noise
- 4,000,000 Data Point Buffer on each channel allows preservation of data if any interruption occurs between the device and host computer

AMETEK

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User Replaceable Modules:

PMC FAN01	Fan module
PMC BPLN01	Backplane module
PMC PWR01	Power supply module
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Options & Accessories for Corrosion Applications:

K0047	Corrosion Cell Kit
K0235	Flat Cell Kit
K0307	Tait Cell Kit

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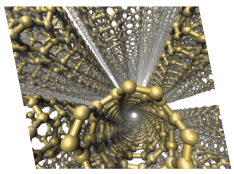

Physical Electrochemistry

Sensors | Nanotechnology | Fundamental Research

Designed to protect your experiment from the unexpected, the PARSTAT™ MC is the most modular and robust multi-channel electrochemical testing platform on the market. Key features for Physical Electrochemistry applications include:

- "Hot-swappable" potentiostat channels can be installed or removed while the chassis is powered. Other experiments can continue to run on other channels. This is the *ultimate* in protection of the experiment.
- 4 nA range (120 fA resolution) standard on each channel for highly accurate low current measurements. Optional VersaSTAT LC provides 4 pA range (122 aA resolution).
- 2 µs data acquisition rate (500 kSamples per second) can generate scan rates of 5,000 V/s using only a 10 mV step
- 4,000,000 Data Point Buffer on each channel allows preservation of data if any interruption or delay occurs between the device and host computer
- Access to every electrochemical technique in VersaStudio including those specifically for Physical Electrochemistry. These include a range of Voltammetry and Pulse techniques.
- Create graphs of data using parameters from different channels or files – e.g., the *voltage* from one channel and the *current* from another channel, as is common in bipotentiostat work
- Floating Ground operation allows multiple samples in a single cell
- Bandwidth, E channel, and I channel filters to maximize stability and minimize noise

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VersaSTAT-LC	Low Current Interface
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User Replaceable Modules:

PMC FAN01	Fan module
PMC BPLN01	Backplane module
PMC PWR01	Power supply module
223945	Cell cable (2 m)

Options & Accessories for Phys Echem Applications:

K0264	Micro-Cell Kit
K0235	Flat Cell Kit
RDE0018	Analytical Cell Kit
QCM922	Quartz Crystal Microbalance
636A	Rotator for RDE, RRDE
616A	Rotator for RDE

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