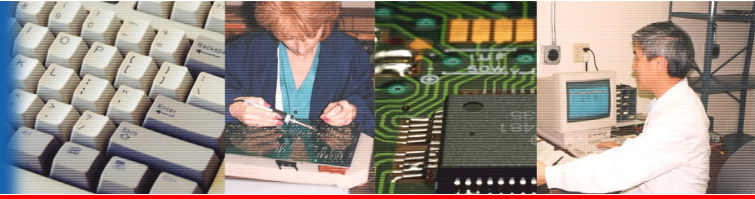


Product Profile



Advancing the Future of Energy Storage & Conversion Device Testing



- *BT2000* - Multi-purpose Battery Testing System
- *PBT* - Primary Battery Testing System
- *MSTAT* - Electrochemistry Testing System
- *FCTS* - Fuel Cell Testing System
- *SCTS* - Supercapacitor Testing System
- *SAFOR* - Li Battery Formation System
- *HSTS* - High Speed Testing System
- *EVTS* - Electric Vehicle Battery Testing System
- *MITS Pro* - Battery Testing Software
- *DPH* - Dew Point Humidifier System
- Battery Testing Services
- Accessories

Arbin: Innovative “Total Solution” Provider

Arbin Instruments manufactures electrochemical testing systems for the energy storage and energy conversion devices industry. Backed by a team of electrochemistry, electronics and computer science experts, Arbin’s innovative products make us an undisputed leader today. Our goal is to provide a “Total Solution” for the industry’s wide variety of testing needs in R&D, QC, and production.

MITS: Multiple, Integrated Testing System

Arbin’s MITS concept enables integrated multiple channel systems to combine such features as programmable power supply, electronic load, data acquisition and coulometer into one system of several inter-connected modules. In addition, the MITS software has an intuitive method that builds sophisticated tests through simple configuration and mapping. Since Arbin does all the electrical design, wiring, coding and debugging, no hardware design or software coding is required for the customer. Therefore, the performance is greater and turn-around time is shorter (as quick as a few weeks!).



BT2000 Series

- **Battery R&D, testing & life cycle testing**
- **Custom design**
- **Multi-channels**
- **Three current ranges per channel**
- **High-speed pulse (optional)**

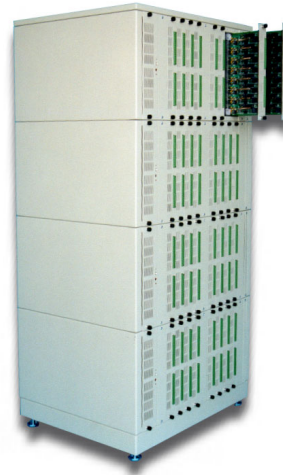
The BT2000 is the system of choice for battery, supercapacitor, and material research labs.

Every current/voltage output channel is a 4 terminal potentiostats/galvanostats with multiple current ranges that allow each channel to work over a wide current range. Basic control modes include bipolar current and voltage output. Extended control modes include power, load, external charger, smart battery, current or voltage scan and staircase. High power systems extend the BT2000 from small battery R&D to a whole spectrum of energy related R&D, QC, and production.



PBT Primary Battery Testing System

- **High performance, compact size, low cost**
- **Suitable for all primary battery chemistries**
- **Easy to use with battery holders**
- **Plug & Play —easy maintenance**
- **Custom design**



PBT is designed specifically for primary battery testing. With high performance and dedicated discharging circuitry, PBT provides a low cost solution to the primary battery testing needs. PBT is built with modules of up to 80 electronic load channels. Each channel is independent and may have two current ranges.

Current can be as low as milliamps or as high as 50A per channel.

MSTAT Multi-Stations Multi-Electrodes PST/GST System

- **Multiple PST/GST stations fine-tuned for electrochemical research**
- **Three current ranges on each PST/GST channel**
- **Multiple electrodes functionality**



MSTAT contains multiple stations, which enable multiple, independent experiments to run simultaneously. It performs many useful electrochemical analyses such as current scan, chronoamperometry, chronocoulometry,

chronopotentiometry, cyclic voltammetry, and linear sweep voltammetry; independently on each electrode in a multi-working electrode cell.

FCTS Fuel Cell Testing System

- **Plug & play, advanced eload module**
- **Advanced humidifier units**
- **Integrated system**

The FCTS is a complete, integrated system for testing any type of fuel cells. The system includes electronic load, gas handling units, humidifier units, and testing software. Optional auxiliaries such as auxiliary voltage, temperature and pressure measurements are available. Safety features include audible emergency alarms, emergency switch, and emergency shut-down procedure.



SCTS Supercapacitor Testing System

- High power system
- High stability and accuracy
- Multiple channels, multiple current ranges
- ESR, leakage current, cyclic voltammetry measurements

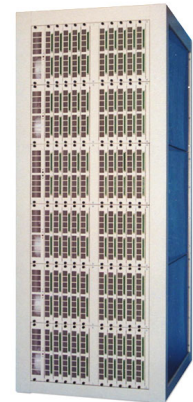
SCTS is designed for R&D, as well as production of ultra/supercapacitors. High power bipolar linear system provides high accuracy and stability, while unipolar linear system can deliver very high power and voltage. Optional pulse feature covers most pulse applications on supercapacitor. Safety protections are integrated into the hardware and software.



SAFOR Li Battery Formation System

- Intrinsically safe — over & under voltage protection
- Plug & Play — easy maintenance
- Proprietary technology
- High efficiency, compact size
- Flexible, custom design

SAFOR is built with modules of independent charge/discharge channels. These modules are designed specifically for the formation and sorting of Lithium-based batteries. Maximum charge and discharge current can be up to 5A per cell position. The design of the system emphasizes maximum preventive safety protection, reliability, easy maintenance, and low cost.



HSTS High Speed Testing System



Arbin's High-Speed Testing System is designed to test battery or supercapacitor for telecommunication applications. Its pulse function covers a broad range of communication profiles (GSM, CDMA, iDEN, GPRS, etc.) from 500 microseconds of pulse stage width up to 60 minutes of width. Commonly used functions in energy storage device testing; such as charge-discharge, constant current, constant voltage, constant load and constant power are also independently conducted on each channel of the system. The system also features high reliability, facilitated maintenance, and a preventive safety net.

EVTS Electrical Vehicle Battery Testing System

- High power, automatic testing system
- Programmable power supply
- PWM regulation for high power, linear regulation for others
- Bipolar and analog feedback in both current and voltage

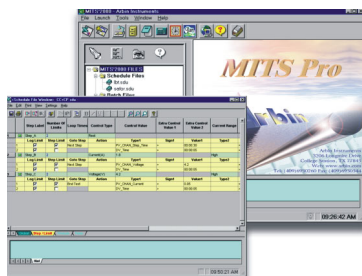
EVTS is a series of high power, automatic testing systems for electric vehicle power source testing as well as other power source or device testing. It provides a programmable power supply and/or electronic load up to 100kW for charge and discharge of power sources. Current can be as high as 600A and voltage as high as 450V. Multiple channels (up to 24) per system provides high performance to cost ratio.





MITS Pro Software

- Multifunction testing software
- Windows™ XP based
- MS™ Excel & Access data treatment
- Virtual mapping hardware



MITS Pro software is based on the MITS concept with an emphasis on user-friendly interface. With MITS Pro, all functional components are

independent and can be configured and mapped to form different systems (virtual system). As a result, the universal programming package allows sophisticated experiment schedules. The operators define a step by formula and meta-variables (real time parameters) in order to exponentially increase the capabilities of the system. Furthermore, network-enabled infrastructure provides distributed system control and data acquisition. To better support large scale systems, enterprise-level database scheme is incorporated to store massive data.

DPH Dew Point Humidifier System

- Energy efficient
- Proprietary humidification technology (patent pending)
- Stand-alone or integrated with fuel cell testing equipment

The DPH is a humidification system used to saturate gas stream with water vapor at a set dew point and provide heating of the gas to a set temperature prior to delivery into the fuel cell. Direct water contact, water boiling, mixing and condensation take place in one compact unit; eliminating the need for separate boiler, condenser or chiller. The advantages of this unique technology make it possible to be applied not only for fuel cell testing system, but also directly in fuel cell engine, such as in stationary and automotive fuel cells. The DPH has dew point control accuracy of $\pm 1^\circ\text{C}$ over wide temperature range and wide dynamic flow rate range.



Battery Testing Services

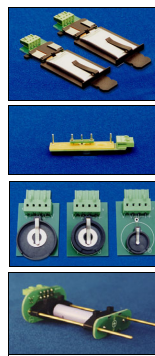
- Fully equipped testing lab
- Experienced electrochemists
- Testing & data treatment
- Test results & graphics provided



Arbin offers battery and energy related testing services to address short-term testing needs. Services offered include quality control testing and independent consulting. Arbin has established a fully functional testing lab with a team of electrochemists and engineers capable of designing

and constructing specific testing systems.

Battery Holders & Cables



Arbin designs and makes battery holders, trays and racks to fit various battery sizes to be used with Arbin testing systems or third-party's testing systems. Arbin battery holders are made from lightweight materials and provide secure contact, ease and security of alignment. Custom-designed battery holders, trays, or racks can be provided.

Cables for I/O communication, AC power, I/V, or auxiliaries are available for testing applications. Different length, type of connectors, current, or clips can be specified when ordering cables.

