

MACCOR

Battery & Cell Test Equipment Worldwide

Your Source To Provide More Intelligent Battery Testing.



WELCOME TO MACCOR

Maccor was founded in 1987 by a group of electronics and software engineers with experience in the battery industry. Our goal then was to build the finest test equipment available, and to support it comprehensively. This continues to be our goal and our only business today, after over 35 years in operation.

We have thousands of systems in operation, in over 50 countries worldwide. Maccor remains independent, and continues to be operated by the company founders. We are located in company owned facilities in Tulsa, Oklahoma, USA.

We sell to and support our equipment in North and South America directly from Tulsa. For much of the rest of the world, we sell and support through our representatives. Nearly all of our representatives have been with Maccor for over ten years, and all have substantial, “hands on” experience with our products.

Maccor equipment is used by researchers, manufacturers (production, quality control), and organizations needing to perform detailed evaluation of batteries and other energy storage devices.

We have sold equipment to a high percentage of the leading manufacturing and research organizations worldwide. We have sold equipment to well over half of the startup battery companies formed in the last twenty years.



***Battery-powered devices are evolving —
and your testing tools should too.***



Discover Maccor's Comprehensive Battery Test Systems

Our testing systems drive advancements in battery technology, enabling life-enhancing implantable devices, space exploration, and the integration of cutting-edge technology into everyday life. We also contribute to cleaner energy solutions for our planet. Whether you're manufacturing batteries, supplying battery materials, or incorporating batteries into your products, Maccor's equipment is here to help you develop the optimal device for your needs.

Safety should never be an afterthought—and with Maccor, it isn't. Every Maccor channel is built with integrated safety hardware that disconnects the device under test (DUT) during a battery failure, eliminating the need for costly, space-consuming external safety systems. Safety limits are easily programmed into the test procedure and monitored in real time, triggering an isolation relay if thresholds are exceeded. Maccor's system goes beyond standard limits, supporting user-defined functions and including watchdog timers to protect against communication failures. Features like MacNotify provide email alerts for test interruptions or critical test points. From the beginning, Maccor has prioritized safety to protect people, equipment, and facilities from the inherent risks of high-energy lithium batteries.

Coulombic efficiency testing is a powerful tool for evaluating battery performance quickly and effectively. Rather than waiting for full cycle life tests, researchers can detect the impact of material changes early by measuring charge efficiency—defined as the ratio of discharge to charge capacity (Q_{out}/Q_{in}). Accurate coulombic efficiency hinges on precise current, time, and temperature control. Maccor systems deliver industry-leading accuracy in both measurement and environmental control, ensuring reliable and repeatable results that support fast, data-driven development.

Floor Standing Battery Test Systems

Series 4000 / 4000H

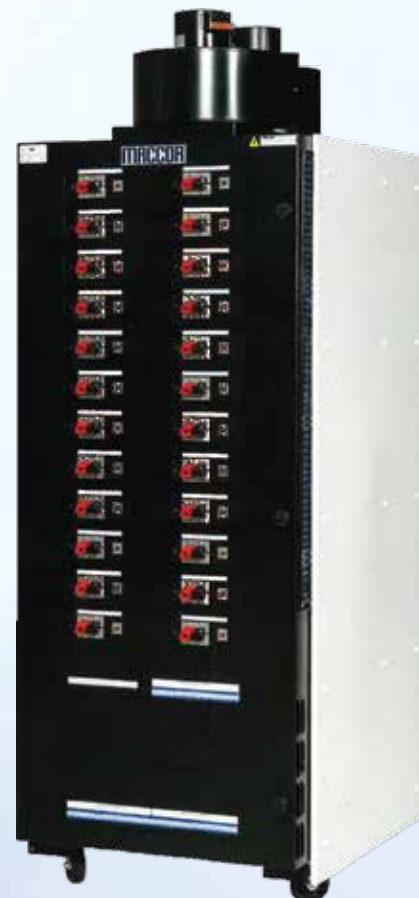
Maximize your testing capabilities with Maccor's hardware and software. Our comprehensive turnkey systems come bundled with all the essentials to jumpstart your testing process. Select from multiple options and configurations.

Series 6000 / 6000H

The multifunction Series 6000 / 6000H is the newest addition to our range of fully automated, computerized test systems. With its high-speed data acquisition and control, this is the perfect tester to meet current and future testing demands.

NEW!
Next
Generation
Capabilities

- Ims Data Collection
- 1ms Step Length & Control
- 1ms Waveform
- Scope Trace
- Advanced Multi-Level Pulsing



SPECIFICATION	4000	4000H	6000	6000H
Maximum Channels	96	96	48	48
Maximum Current (Amps)	1440	2400	1440	2400
Maximum Power (Watts)	14,400	28,800	14,400	28,800
Current Ranges	1 or 4	2 or 3	1 or 4	2 or 3
Control, Measure, Adjustment Time (ms)	2, 5, or 10	2, 5, or 10	1	1

Battery test systems for all applications:



Desktop Battery Test Systems

Maximize your testing capabilities with Maccor's hardware and software, conveniently packed into a compact desktop unit. Our comprehensive turnkey systems come bundled with all the essentials to jumpstart your testing process. Select from multiple options and configurations to match your requirements.



SPECIFICATION	4400	4600A	4300	4200
Maximum Channels	4	32	8	16
Maximum Current (Amps)	5	18.75	120	240
Maximum Power (Watts)	200	600	1,200	2,400
Current Ranges	4	1	1 or 4	1 or 4
Control, Measure, Adjustment Time (ms)	5	50	2, 5, or 10	2, 5, or 10

Take your testing capabilities to the next level with a range of optional accessories listed below:

SPECIFICATION	4400	4600A	4300	4200
Auxiliary Voltage	✓	*	✓	✓
Temperature	✓	*	✓	✓
Pressure	✓	*	✓	✓
Digital Inputs & Outputs	*		✓	✓
External Charge Controller			✓	✓
External Discharge Controller			✓	✓
SMBus (I ² C)	*		✓	✓
CAN	*		✓	✓
AC Impedance Multiplexer Interface		✓	✓	✓

* Requires separate Model 1100 Auxiliary Input Desktop Cabinet

ACCESSORIES

Save time by adding any of the following accessories.



Series 1100

With the Series 1100 you can mount up to six (6) panels of Auxiliary Inputs closer to the device under test. This reduces wire runs and minimizes clutter. Additionally, you can easily add additional capability with the Plug-n-Play benefit of the remote interface.



Molded Kelvin Cell Holder

The first and only true four-wire cell holders are available in a variety of sizes including: AAA, AA, C, D, 18650, 21700, and 9 Volt. These cell holders provide the most accurate measurements at the cell. Cell holders are mounted on a circuit board with either power pole or phoenix connectors and plug-in directly to the cabinet's interface.



Coin/Button Cell Holder

The coin/button cell holder is adjustable for a variety of coin cell diameters. With a thumb screw terminal on one end and a spring-loaded terminal on the other, it makes perfect contact every time. These cell holders are mounted on a circuit board and plug-in directly to the cabinet's interface.



Voltage Source

The MVC-95A Voltage Source is the tool used by our own support team to calibrate voltage. With an output as high as 95 VDC it is perfect for most Maccor testers in the field. Voltage range -95VDC to +95VDC with 0.5 mV increments up to 30 VDC and 1.5 mV increments for higher voltages.

Adjustable Cylindrical Cell Holders



The adjustable cylindrical cell holder may be mounted on the cabinet's interface or remotely. The cell holder is 8-positions per cell holder and is adjustable from button to 18650 cell sizes.

Auto Calibrator



The Auto-Calibrator (for use with 5 volt / 5 amp multi-range channels) verifies and calibrates current and voltage with a click of a button. The powerful Auto-Calibrator software lets you connect up to 96 channels at once, with appropriate cable sets, and calibrate with virtually no other intervention. Upon completion a calibration verification report is available and can be saved or printed.

OPTIONS

Experience the power of our optional add-ons and take your capabilities to the next level! Measured values are stored permanently in the data file for the assigned channel, empowering you to have full control over the test flow. Most inputs are grouped in blocks of sixteen. Assign one, all, or as many inputs as you need to a test channel.

Auxiliary Voltage Inputs

Enhance your testing capabilities with the option to add fully-isolated high impedance software-assignable voltage inputs in blocks of sixteen. Customize your test channels by assigning any combination of voltage inputs, and seamlessly integrate the measured data into the test channel's data record. Voltages measured by these inputs can control operation of the test and display real time values.

Temperature Inputs

Optimize your system by seamlessly integrating software-assignable temperature inputs in blocks of sixteen. Assign these inputs to channels to access a comprehensive historical temperature record. Leverage temperature functions to effectively control tests conducted on channels featuring thermocouple inputs, providing options such as absolute temperature, $\Delta T/\delta t$, ΔT , and more.

Explore a variety of available inputs including thermocouple types (K, T, or J), thermistors, and RTDs.

Pressure Inputs

Streamline your testing process by assigning Pressure Inputs via the software to any test channel, conveniently grouped in blocks of sixteen. Capture and analyze historical pressure data to gain valuable information. Utilize the data to accurately control a test channel using absolute pressure, $\Delta P/\delta t$, ΔP , and various other parameters.

SMBus (I2C) Interface

The SMB interface allows for the reading of data from battery packs fitted with SMB electronics. The data read from the battery becomes a permanent part of the data file's record. Comparisons between measured values and data from the pack can be made.

CAN Interface

CAN Interface allows capability for test systems to receive CAN communications from the battery modules and store the CAN data in the data file. The details of the specifications for the CAN communications is by mutual agreement.

EIS Electrochemical Interface

Connect test channels to a Princeton Applied Research or Solartron Impedance Analyzer. This integrated solution results in increased productivity by letting the test channel automatically switch in the EIS hardware when the specified step is reached. Current supported devices: VersaSTAT4-500, ParSTAT 4000A, and Solartron Energylab.

Digital Inputs and Outputs

Control the flow based on an external signal with the Digital Inputs.

Each Digital Input/Output Board has 16-Opto-Isolated Bipolar inputs with factory-settable voltage threshold and 16 Normally Open dry contact outputs rated 2A. Control a Normally Open dry contactor rated 2A with the Digital Outputs.

With this hardware added to your system, you can branch to other steps in the testing profile or close a relay to activate an external device.

ECC and ELC

External Charge Controllers can be added to any or all of the test channels. These devices work as follows: The test channel retains all of the capabilities it normally has. In addition, tests run on the channel can connect to an external charger during a particular step. During such connection, all the data-gathering capabilities and all the step end conditions of the test channel can still be used.

External Load Controllers can be added to any or all of the test channels. These devices work as follows: The test channel retains all of the capabilities it normally has. In addition, tests run on the channel can connect to an external load during a particular step. During such connection, all the data-gathering capabilities and all the step end conditions of the test channel can still be used.

MacTest Battery Test System Software

MacTest is Maccor's proprietary software platform, purpose-built for seamless integration with all Maccor battery and energy storage device test systems. It delivers comprehensive functionality for test creation, execution, control, and real-time or post-process data analysis—whether locally or remotely. Developed entirely in-house by Maccor, MacTest ensures full autonomy, security, and long-term support without reliance on third-party vendors. Engineered for performance and ease of use, this powerful and flexible software continues to evolve and is compatible with modern Windows operating systems, offering a robust solution for today's demanding test environments.

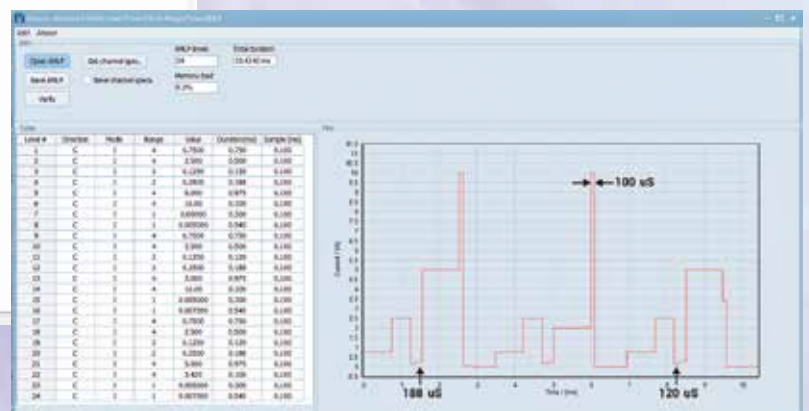
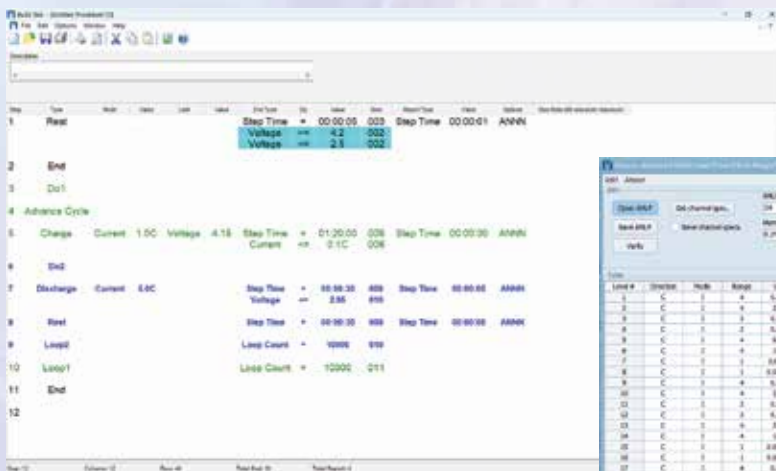
Key Features:

Test Programming:

- Grid layout with menu-driven cells for simple test creation
- Up to 128 steps per test, plus subroutines for virtually unlimited test length
- Supports various step types, from simple charge/discharge to complex drive cycle simulations
- Allows control by constant current, voltage, power, or resistance
- Automatic switching between control modes (e.g., CC to CV) when limits are met

Advanced Functionality:

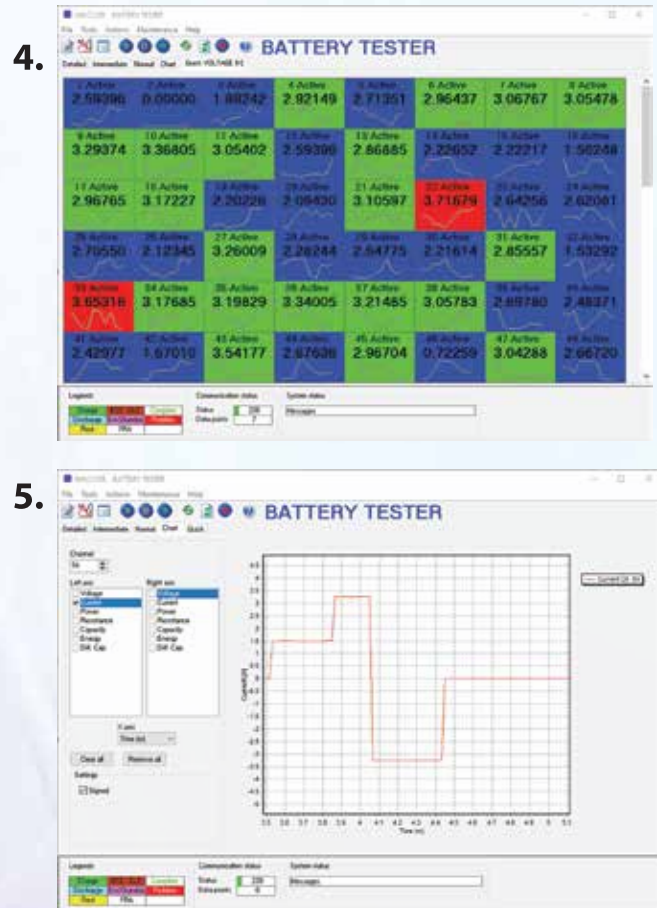
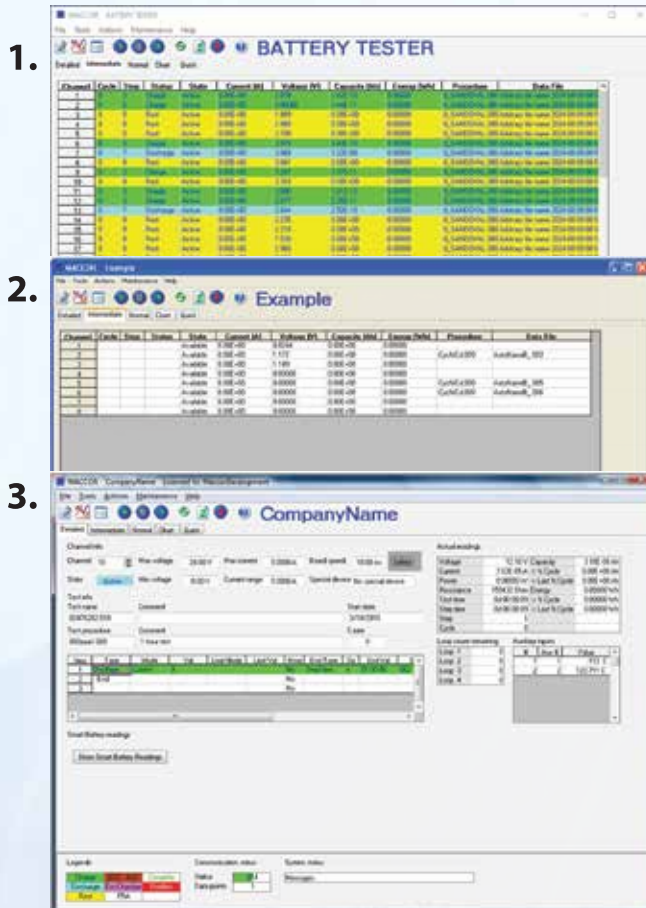
- High-speed multi-level pulse programming
- Conditional branching with up to 16 end conditions per step
- Flexible test data rate control (time-based or data-change-based)
- Supports mathematical operators including value changes and derivatives
- User-friendly features: step comment fields, full step-view on one screen, insert/delete steps, cut and paste, syntax error checking
- Supports over 65,000 test cycles



System Status Screens

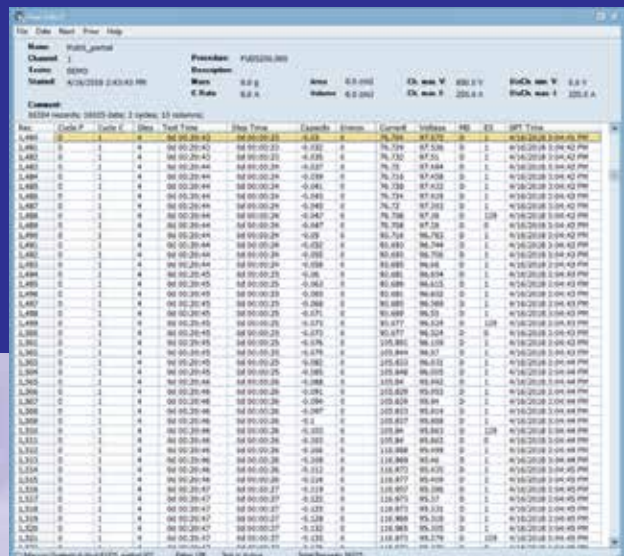
Highlight the real-time monitoring and data visualization features of the Maccor battery test software.

1. Displays the overall system status with color-coded indicators that update as tests progress.
2. Shows real-time voltage, current, and capacity for each active test channel.
3. Provides detailed test information for a selected channel.
4. Displays critical test values (voltage, current, capacity) in large, bold format for visibility from a distance.
5. Includes a one-click graphical display of real-time test data.



View Data

Test data can be viewed live or after the test ends, in both spreadsheet and graphic formats. During testing, data is saved in an Active file. Once testing is complete and the channel is reset, data is transferred to an Archive file. Data can be analyzed within the Maccor Client program or exported in ASCII format for external analysis.



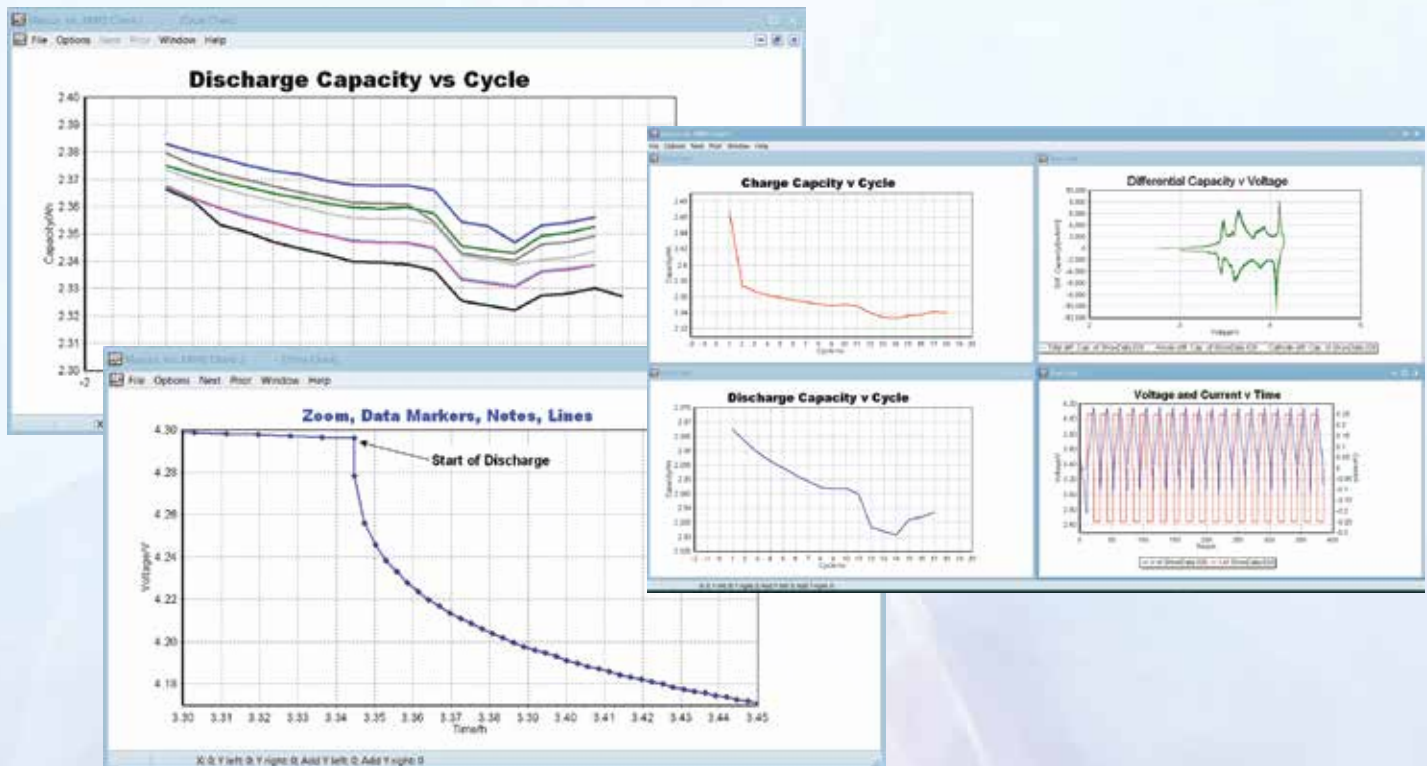
MIMS Client Processing Software

The MIMS Client is Maccor's advanced statistical and data analysis tool designed to simplify the evaluation of battery test data. It allows users—whether operators or scientists—to easily view, analyze, and print data in user-friendly formats.

Data Analysis & Visualization:

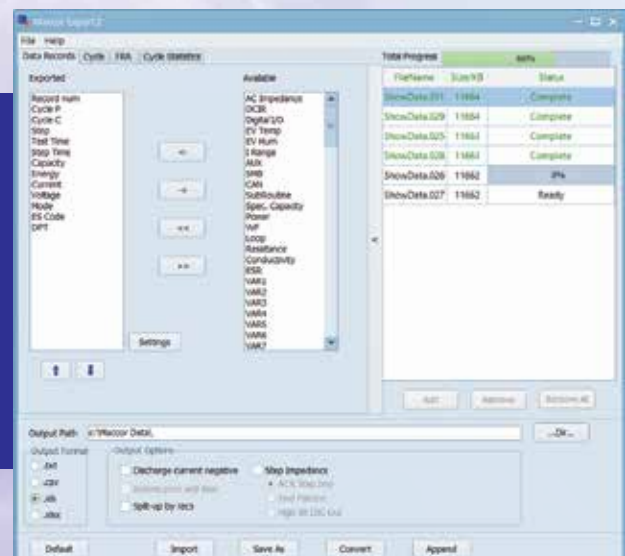
Supports a wide range of graph types using various test parameters, including:

- Voltage, Current, Capacity, Energy, Power
- Temperature, Pressure, Resistance, Conductivity, Capacitance
- Differential Capacity, SMB/arbitrary data, and calculated Ratios
- Time-based analysis



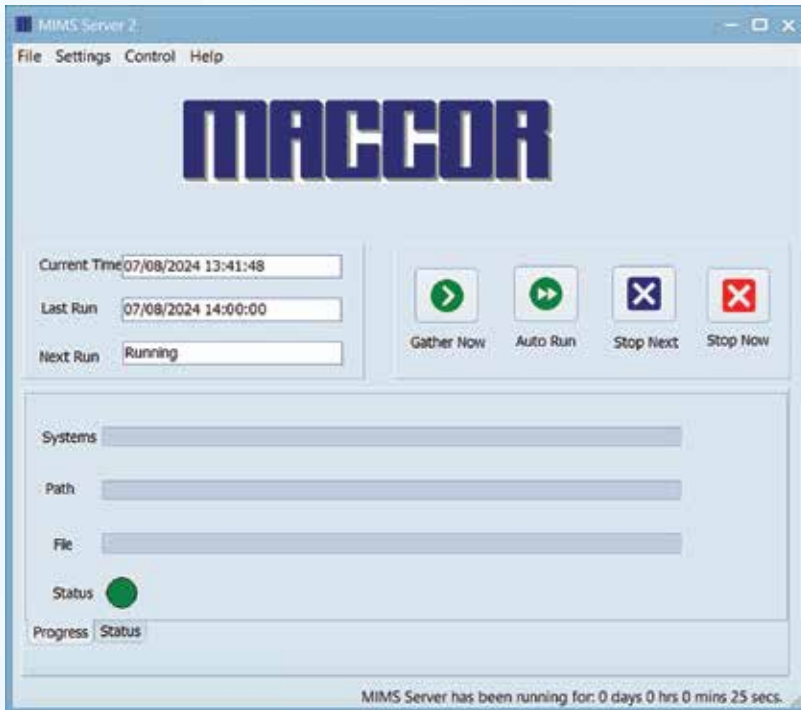
Data Export:

- Export data to Excel or Text format
- Customizable export fields and formats
- Supports appending data to existing files for extended analysis



MIMS Server

The MIMS Server program provides a fully automated, secure solution for collecting, backing up, and managing data from multiple Maccor battery test systems across a local area network.



Data Collection & Backup:

- Automatically gathers test data from multiple systems
- Backs up test data, configuration files, and calibration files
- Converts test data into a binary indexed engineering format for fast access
- Optionally saves data in ASCII text format

Network Integration:

- Operates from a dedicated server PC
- Allows remote viewing and processing of data across the company network

Settings & Customizations:

- Users can configure:
 - Automatic data transfer schedules
 - Data types to collect
 - Source and destination directories
 - File handling for old data
 - Synchronization of test procedures across systems

Benefit from Maccor's team of highly skilled sales and service engineers who are trained by the factory, ensuring comprehensive coverage for all your needs.

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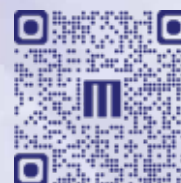
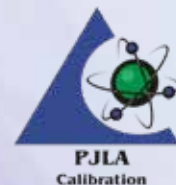
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Our worldwide customer service team is ready to handle upgrades, service, and repairs directly at your location, eliminating the need to ship your equipment. This minimizes downtime and enhances efficiency.