

BATTERY TEST MONITORING SYSTEM MODEL 17091

Battery laboratories conduct numerous testing tasks every day. As the scope of applications expands, batteries need to be adaptable to an increasingly diverse range of usage scenarios. Seeking to cope with highly diversified testing needs, many battery labs find themselves populated with an ever-growing sprawl of standalone charge and discharge test systems. This brings along issues in terms of usage and management, and test recipe management in particular; maintaining consistency between versions while ensuring easy maintenance remains a vexing issue for engineers.

Battery testing often involves spending substantial amounts of time verifying battery stability and performance. Testing personnel need to regularly inspect the testing progress on-site and take appropriate actions when necessary. Two key factors can cut down time spent by personnel traveling back and forth to inspect the testing site: convenient observation of battery test conditions and real-time monitoring of overall lab equipment operations during testing.

Chroma 17091 Battery Test Monitoring System (BTMS) serves as an upper-level system for battery lab test equipment, focusing on recipe management and convenient test monitoring to enhance the usability of laboratory equipment and the efficiency of testing tasks. Users operate the system through a browser connection to the Chroma 17091 BTMS service, facilitating client-side installation and maintenance. The BTMS centrally manages recipes, DUT information, user accounts, and permissions, addressing the challenges users face in individually maintaining each test system.

Additionally, Chroma 17091 BTMS features a real-time monitoring solution that allows users to remotely monitor test progress from their seats or from a control room, providing them with instant access to the operational status of the entirety of the lab's charge-discharge systems and chambers. Built-in functions for equipment group management and statistics offer users a clear understanding of the capacity and usage of various systems, serving as a solid basis for lab equipment planning and configuration.

MODEL 17091

KEY FEATURES

- Web-based application
- Centralized management
- Equipment group management
- Remote control and real-time monitoring

MAIN FUNCTIONALITIES

- Test managemen
  - Centralized recipe management
  - Maintenance of DUT information
  - Equipment registration and group settings
  - Remote control of test stations
  - Chamber status monitoring
- Permission management
  - Account maintenance
  - Role-based permission maintenance
  - Project-based permission management
- Real-time dashboard

APPLICATIONS

- Battery laboratories



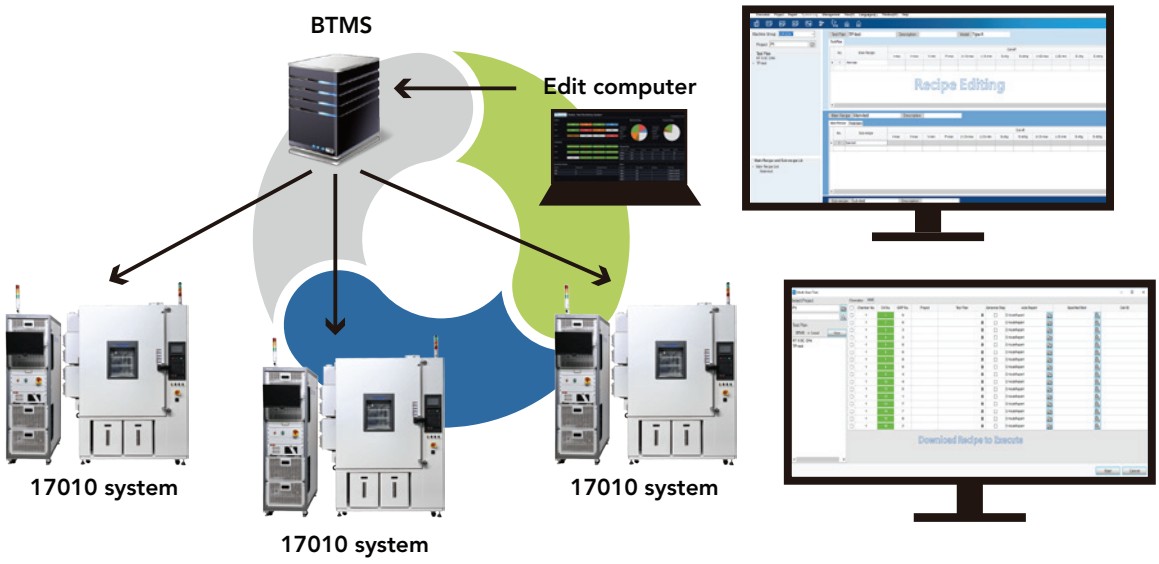
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KEY FEATURES

Centralized Recipe Management

In the past, testing recipes were stored separately on various testing systems within the laboratory. Engineers needed to know which workstation contained the recipe and then use that specific workstation for testing. Chroma 17091 BTMS features a connection mode in which users can edit recipes at designated editing workstations, upon which they are centrally stored by the BTMS. Users can then select, download and run these saved recipes at any other workstation.

Chroma 17091 BTMS also introduces the concept of a standard recipe library. Users can designate laboratory test specifications as standard recipes, serving as templates for recipe engineers when creating new recipes. This recipe library helps to implement test specifications across the lab and achieve efficient knowledge transfer.

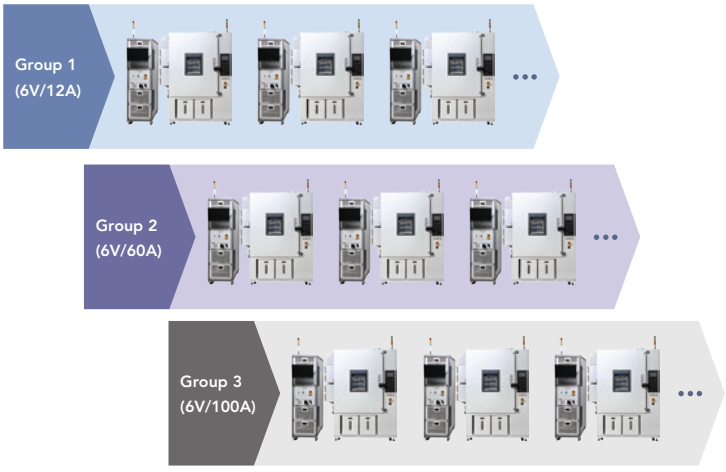


Equipment Group Management

Chroma 17091 BTMS provides equipment grouping functionality. This allows users to categorize test equipment into different groups based on model specifications and purposes, serving as a reference for configuration and usage of lab equipment. All equipment within a group can be used to complete the same testing tasks using the same recipes.

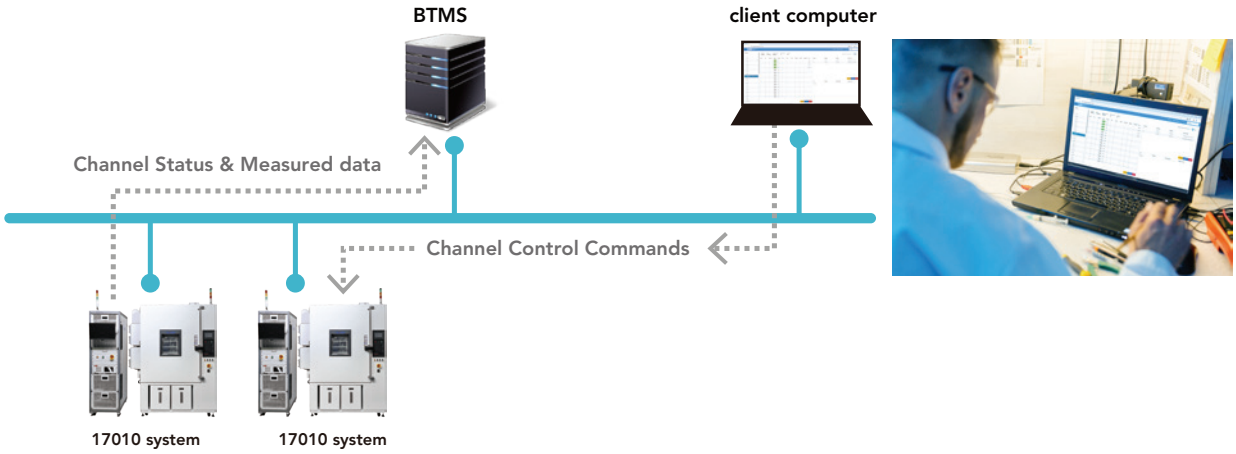
The distinction between equipment groups also applies to the centralized recipe management. When recipes are saved through the Chroma 17091 BTMS, the system records which equipment group the recipe applies to and only allows equipment in that same group to download and run the recipe for testing tasks.

Chroma 17091 BTMS presents usage statistics based on equipment groups on the dashboard, displaying channel statistics for different usage states such as run, idle, abnormal, and protected for each group.



Remote Control

In the Chroma 17091 BTMS connection mode, the battery charge-discharge test system completes the startup process, enters remote control mode, and then continuously reports channel statuses to the BTMS. Based on these reports, the BTMS enables users to remotely view the operating status of equipment channels as well as important readings like I, V, and T.When a special situation is detected and it is necessary to pause, resume, or stop the running channel, the user can issue control commands to the specified equipment through the remote control interface. Users can also remotely control the temperature and humidity status of all chambers, or set target temperature and humidity values for chambers that are controllable remotely.



Real-Time Dashboard

Chroma 17091 BTMS consolidates the channel statuses reported by the test equipment and presents them on a real-time monitoring dashboard. Managers can clearly see the usage status of each charge-discharge system and chamber and view the usage status statistics of equipment and channels. When an anomaly occurs, the dashboard promptly alerts the user with audible warnings.

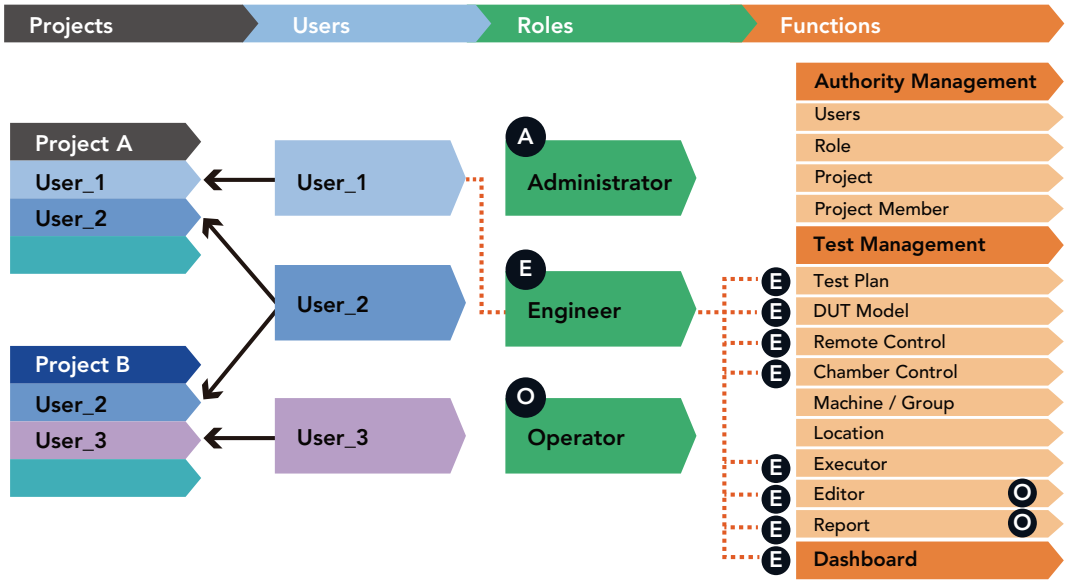
Chroma 17091 BTMS provides six display components: ① Equipment status ② Equipment/channel status statistics pie chart ③ Chamber temperature and humidity display ④ Group channel status statistics list ⑤ Abnormal channel list ⑥ Abnormal event log. Since equipment configurations and application scenarios vary across different laboratories, the BTMS can be customized to fit the monitoring dashboard according to the lab's configuration and application requirements upon implementation. This helps managers to quickly and intuitively grasp the laboratory's overall operations.



Real-Time Dashboard

Permission Management

Permission management is divided into three roles: ① Administrator ② Engineer ③ Operator. The system administrator can define different functional roles based on laboratory responsibilities and assign appropriate roles to each user. Users must log in to the system for access verification. After logging in, the system displays different function menus based on the user's role. In addition to managing functional permissions, Chroma 17091 BTMS also enables specification of project-based permissions, allowing users to only participate in tasks or view test data related to their assigned projects.



SPECIFICATIONS

Model	17091 Battery Test Monitoring System
Configuration	
Number of equipment that can be connected	17091 BTMS authorized units (each valid for 20 connections) e.g., 20, 40, 60, 80, 100
Client browser	*Google Chrome, Microsoft Edge (*Google Chrome recommended)
Interface language	English, Chinese (Simplified), Chinese (Traditional), Japanese
Screen resolution	1920 x 1080 pixels
Functional specifications	
Recipe management	
DUT model information	Supports uploading and downloading DUT model information
Equipment group assignment	Specify equipment groups for recipe editing
Editor test recipe upload	Supports uploading test recipes via designated editing workstation
Editor test recipe download	Supports downloading test recipes via designated editing workstation
Executor test recipe download	Supports downloading of recipes for execution on workstations in the same group
Equipment Group Management	
Equipment group definition	Define equipment groups based on equipment models and uses
Equipment group distinction	Specify the group to which the equipment belongs
Remote Control	
Remote control channel status	Channel number, execution status, step name, recipe/sub-recipe/step number, DUT serial number
Remote control channel reading value	I, V, T
Channel remote control	Specify channel pause, resume, stop (when equipment is in remote control mode)
Chamber remote control information	Chamber temperature (humidity) reading value, target temperature (humidity) setting value
Chamber remote control	Set target temperature and humidity of the independent thermostat
Real-time dashboard	
Dashboard refresh frequency	Fastest: 10 seconds ; Default: 60 seconds
Monitoring display components	Equipment status component, Equipment/channel status statistics pie chart, Chamber temperature and humidity display, Group channel status statistics list, Abnormal channel list, Abnormal event log.
Alarm message refresh frequency	Fastest: 10 seconds ; Default: 10 seconds
17090-K001 Chamber controller (Optional)	
Chamber temperature and humidity status report and temperature and humidity control	
Number of controllable chambers	17090-K001 authorized units (each valid for 5 connections) ex. 5, 10, 15, 20 ; Each authorization can control 5 independent chambers
Operating system requirements	Windows 10, Windows 11
Report frequency	Fastest: 10 seconds ; Default: 60 seconds

* All specifications are subject to change without notice.

ORDERING INFORMATION

17091 : Battery Test Monitoring System
17090-K001 : Chamber Controller

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