

LinkAnyArts-CD ^{BMU} ^{BMU/Automotive}

Emulates EV Powertrain Dynamics to Advance Real-World Battery Cycles

Outline

LinkAnyArts-CD is Charging & Discharging Software designed exclusively for Takasago test systems.

The software accurately acquires the battery cell voltage and temperature information via the DUT during the charge and discharge cycle along with the total voltage and current from the test system and stores the information as time-synchronized data.

This process enables easy comparison among design models and ensures efficient performance evaluations.

Main Features

- **Programming:** Easily designs battery management test conditions with flexible, hierarchical criteria settings. Predefines powertrain emulation scenarios based on real-time battery status data from the BMU.
- **Real-Time Viewer:** Displays the measured values in real-time during test system operation.
- **Control:** Controls the test system from an external PC to perform the charge and discharge management tests.
- **Logging:** The software then logs the test results.

Features in Detail

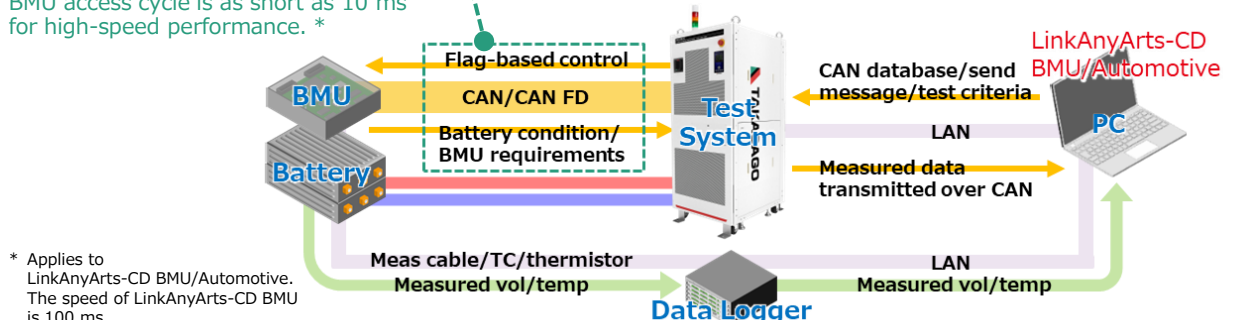
Data Communication

- ◆ Users can acquire the cell temperature and voltage of the DUT via two methods:
 - Transmit the measurement data from a Takasago data logger (DU-1041H) to the PC via Ethernet.
 - Send the data from the BMU to the PC through the test system.

In addition, the test system itself transmits total voltage and current during the charge and discharge cycle to the PC.

Enables realistic coordinated operation via bidirectional CAN communication with the BMU.

BMU access cycle is as short as 10 ms for high-speed performance. *

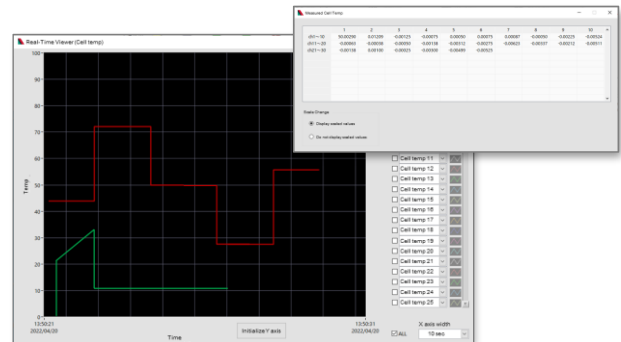


Data Communication (continued)

Data Handling

Time-synchronizes and stores the acquired data, such as voltage and temperature, for easy comparison with design models and to ensure high-precision performance evaluation.

Easy-to-Use Interface



Screenshots are for illustration purposes only and may differ from the actual product.

Programming

Different Modes

Supports essential battery test modes that include constant current (CC) and constant current/constant voltage (CC/CV) charging and discharging, plus advanced pulse charge and discharge management capability.

High-Speed Interlocking with BMU

Configures powertrain control parameters according to battery status feedback from the BMU using this software.

Emulates high-speed* interlocking between the BMU and powertrain by storing control parameters in the test system and by linking them via CAN communication.

* LinkAnyArts-CD BMU offers a 100 ms cycle, and LinkAnyArts-CD BMU/Automotive offers 10 ms cycle.

Hierarchical Layers

An Evaluation Group (test program) is structured into three hierarchical layers: *evaluation group*, *programs*, and *patterns*. Patterns include steps that emulate real vehicle driving conditions through pulse settings with each pulse setting capable of up to 60,000 current variations.

An evaluation group can contain up to two programs. Each program supports up to 100 patterns with a maximum of 10 pulse settings across the program. Each pattern can include up to 100 steps, including pulse steps.

This layered structure enables easy configuration of complex and highly flexible test scenarios.

1 group

Eva group

Max 2

Program

Max 100

Pattern

Max 100

Step

Modes available such as

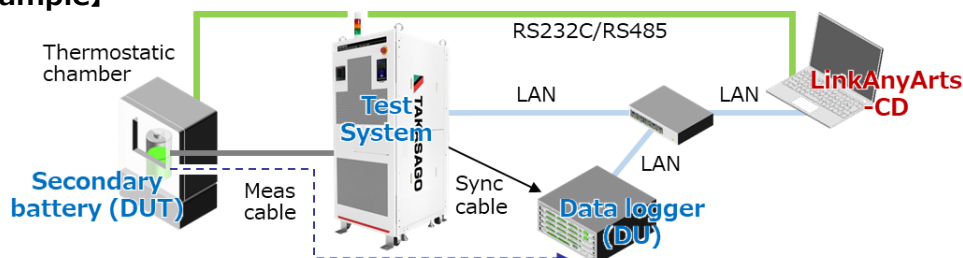
- CC ch/disch
- CV ch/disch
- CC/CV ch/disch
- CP ch/disch
- CP/CV ch/disch
- Pulse (1 to 10) ...

Test Control Configuration

LinkAnyArts-CD runs on a PC with Windows 11 installed and controls the test system, RZ-X2-100K-HG.

The Takasago DU-1041H data logger acquires the voltage and temperature data from the DUT's battery cells. All devices communicate through an Ethernet hub, while a synchronization cable connects the test system and data logger to ensure time-aligned measurements. Additionally, interlocking the thermostatic chamber with the PC allows precise control of the DUT's environmental temperature.

[Configuration Example]



Specifications

Description Model Name		LinkAnyArts-CD BMU	LinkAnyArts-CD BMU/Automotive
		LA-4374	LA-4375
Compatible Model		RZ-X2-100K-HG	
Interface		Ethernet	
Charge Mode/Discharge Mode		CC, CV, CC/CV, CP, CP/CV, Pulse	
Main Features		DU (data logger) integration, thermostatic chamber interlocking, BMU interlocking, real-time monitor, test program import, test result save	
Hierarchical Program Configuration	Evaluation Group	Up to two programs	
	Program Settings	Up to 100 patterns + up to 10 pulse settings	
	Pattern Settings	Up to 100 steps	
	Pulse Settings	Up to 60,000 current variations during a charging pulse step	
DU (Data Logger) Integration	Connections	Supports integration with up to two DUs	
	Vol Meas Channels	Up to 208 channels	
	Temp Meas Channels	Up to 200 channels	
BMU Interlocking * Settings are subject to BMU specifications.	Access Cycle	100 ms	10 ms
	Transmission (TX)	5 messages/100 ms	5 messages/10 ms
	Reception (RX)	40 messages/100 ms	40 messages/10 ms
Thermostatic Chamber	Communication Interface	RS232C or RS485 To ensure compatibility, please make sure it adheres to the communication commands supported by this software. Contact us for more details.	
Operating Environment		Microsoft Windows 11 (64-bit)	

TAKASAGO, LTD., reserves the right to modify the features and specifications in this brochure at any time without prior notice or obligation. For the most up-to-date information, please visit our website at www.takasago-ss.co.jp/en/.

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