

100V 1000A Battery Test System

Item Number: DC07



Introduction

High power 100V 1000A battery test system with two independent channels energy regeneration precision measurement fast dynamic response and flexible cycling for demanding battery development validation and manufacturing research programs.

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Application	Description	Key Benefit
High-power lithium-ion cell validation	Characterize charge acceptance, discharge capability, capacity, and pulse behavior of large-format cells at controlled current and voltage limits.	High current and fine measurement resolution support detailed cell-performance evidence.
Battery module development	Evaluate module capacity, internal resistance, charge-discharge efficiency, and temperature-dependent behavior across repeated cycles.	Independent channels enable parallel but separately programmed module tests.
Electric vehicle duty-cycle simulation	Import DBC-format operating-condition files and reproduce communication-protocol-based current profiles for traction battery research.	Application-relevant profiles improve correlation between laboratory testing and field duty.
BMS validation and communication testing	Connect BMS hardware through CAN, CANFD, RS485, RS232, or Ethernet while exercising battery-side protection and operating limits.	Broad interfaces support coordinated validation of control logic and battery response.
Pulse and DCIR characterization	Apply controlled current pulses, ramps, and DCIR procedures to examine transient voltage response and resistance behavior.	Fast response and 100 ms pulse capability capture short-duration electrical behavior.
Cycle-life and durability studies	Run nested, condition-based programs for up to 65535 cycles with capacity, energy, temperature, and expression-based transitions.	Sophisticated sequencing reduces manual intervention in long-duration reliability testing.
Production quality and consistency assessment	Compare capacity, internal resistance, charge-discharge characteristics, and cell voltage or temperature behavior across samples.	Consistent control and high-resolution recording improve test-to-test comparability.
Environmental and auxiliary-system test setups	Coordinate battery cycling with a chamber, chiller, insulation monitor, balancing device, auxiliary voltage source, or adjustable power supply.	External-device linkage supports more complete test-station automation.

Parameter	Specification
Site-facing identifier	DC07
Main channel quantity	2
Maximum voltage	100V
Maximum current	1000A
ADC sampling resolution	24 Bit
Control mode	Constant-current and constant-voltage modes use a dual closed-loop structure; each channel is independently controlled
Energy regeneration	Full-power energy regeneration; recovered energy is used by local loads first and surplus energy is returned to the grid

Grid-side parameter	Specification
Voltage range	400Vac/480Vac $\pm 10\%$
Frequency range	50Hz/60Hz $\pm 5\%$

Grid-side parameter	Specification
Maximum power	235.3kW
Power factor (PF)	>0.99
Total harmonic current distortion (THDi)	<5%
Wiring method	3W+PE
Isolation method	Low-frequency isolation

Channel voltage parameter	Specification
Charge voltage range	0~100V
Discharge voltage range	3V~100V (with accessory, discharge to 0V is available)
Voltage ranges, optional	3 Scales (100V, 60V, 30V)
Voltage accuracy	±0.05% F.S
Voltage resolution	1mV
Voltage ripple	±0.5% F.S

Channel current parameter	Specification
Independent-channel current range	-1000A~1000A
Combined-channel current range, optional	2CH: -2000A~2000A
Independent-channel current ranges, optional	4 Scales (1000A, 600A, 360A, 180A)
Current accuracy	±0.05% F.S
Current resolution	1mA
Minimum cutoff current	±0.2% F.S (can be reduced according to requirements)

Channel power parameter	Specification
Independent-channel maximum power	100kW
Combined-channel maximum power	200kW
Power accuracy	±0.1% F.S
Power resolution	1W

Charge and discharge parameter	Specification
Current response time	≤10ms (10%~90%)
Charge-discharge switching time	≤20ms (-90%~+90%)
Minimum pulse width	100ms
Charge modes	Constant current, constant voltage, constant-current constant-voltage, constant power, current ramp, pulse, and more
Discharge modes	Constant current, constant-current constant-voltage, constant power, constant resistance, current ramp, pulse, DCIR, and more
Cutoff and transition conditions	Voltage, current, time, temperature, capacity, energy, -ΔV, expression function, and more

Cycle and duty-cycle simulation parameter	Specification
Cycle test range	1~65535 cycles
Editable step count	254 steps
Cycle nesting	Supports 3 levels
Programming feature	Multiple exits per step with goto function and arbitrary transitions

Cycle and duty-cycle simulation parameter	Specification
Operating-condition file	DBC-format operating-condition files can be imported and edited according to the communication protocol
Row limit	1 million rows
Switching time	100ms

Protection parameter	Specification
Grid-side protection	Overvoltage, overcurrent, phase loss, overheating, overload, short circuit, communication interruption, emergency stop, and more
Battery-side protection	Overvoltage, overcurrent, power interruption, reverse connection, communication heartbeat, overcapacity, sensing-line dropout, and more
Full-load conversion efficiency	>85%

Host software and data parameter	Specification
Communication method	TCP/IP protocol
Supported test projects	Operating-condition simulation, capacity, internal resistance, cycle life, charge-discharge characteristics, pulse charge-discharge characteristics, state-of-charge retention, charge-discharge efficiency, overcharge and over-discharge tolerance, individual-cell temperature characteristics, individual-cell voltage characteristics, consistency evaluation, and more
Software step operations	Cut and paste steps, forced step transition, conditional transition, cycle testing, and more
Minimum data-recording time interval	10ms
Minimum data-recording voltage interval	0.1mV
Minimum data-recording current interval	0.1mA
Data protection	Power-loss data protection
Offline testing	Safety protection conditions can be configured, including upper voltage limit, lower voltage limit, upper current limit, lower current limit, and delay time
Software and system integration	Database, MES system, LIMS system, and more

External linkage parameter	Specification
Communication interfaces	RS485, RS232, CAN2.0A, CAN2.0B, CANFD, Ethernet, and more
Supported external equipment	BMS, auxiliary voltage, auxiliary temperature, environmental test chamber, water chiller, insulation monitoring, adjustable power supply, balancing equipment, and more

Physical and environmental parameter	Specification
Equipment dimensions	WDH: 400010701980(mm)
Weight	≈ 3000kg
Protection rating	IP20
Cooling method	Air cooling
Noise	<75dB
Storage temperature	-30°C~70°C
Operating temperature	-10°C~45°C
Humidity	<85%(non-condensing)
Altitude	≤2000m

Optional accessory	Specification
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Computer	i5 8G 1T integrated graphics, 21-inch display, Windows10 Chinese operating system, mouse; customizable
DC cables	Normal-temperature RV cable, silicone flexible cable, and more; customizable
Fixtures	Polymer fixture, alligator clip, OT terminal, toggle fixture, and more
Battery rack	Designed according to battery dimensions and channel quantity; insulated shelves and bottom casters; customizable
Auxiliary channels	Designed according to maximum voltage, temperature range, thermocouple type, and channel quantity
Discharge-to-0V module	Designed according to channel quantity
Separate charge-discharge port module	Designed according to maximum voltage, maximum current, and channel quantity
Negative-voltage discharge module	Designed according to maximum voltage, maximum current, and channel quantity
Distribution box, DC or AC	Designed according to maximum voltage and maximum current
Power transformer	Designed according to maximum voltage and maximum power