

Battery Charge-discharge Test System





Background

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Solutions

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Cell Test

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Module&PACK

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Our Customers

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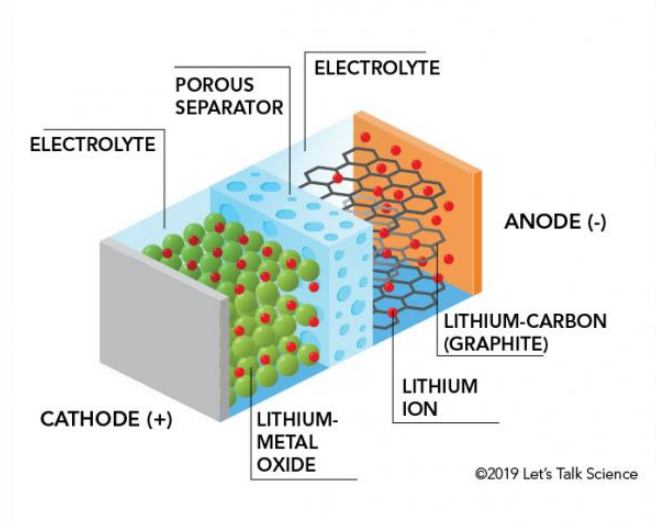


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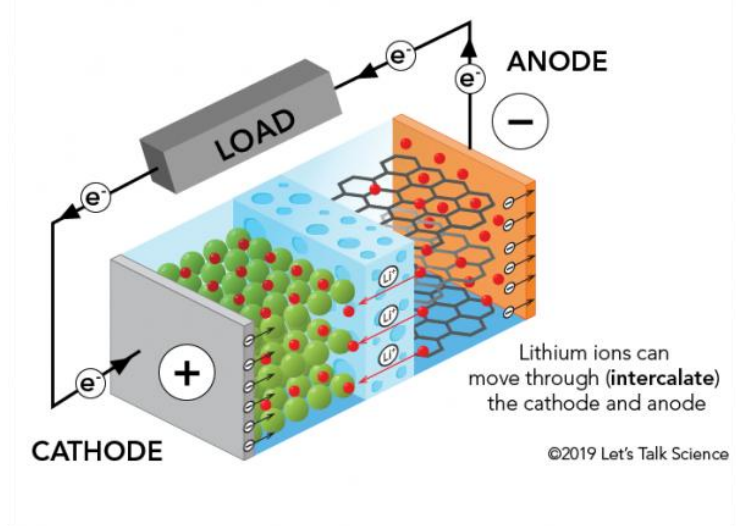
05

Cell Introduction - Learn about the electrochemistry in the cells

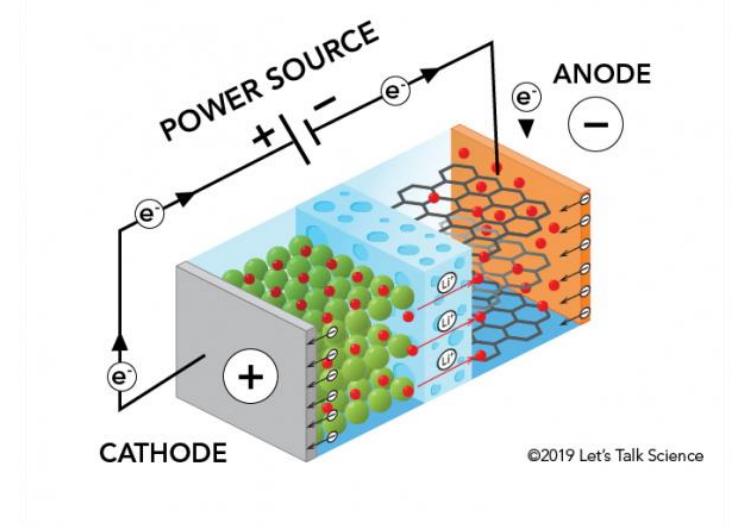
PARTS OF A LITHIUM-ION BATTERY



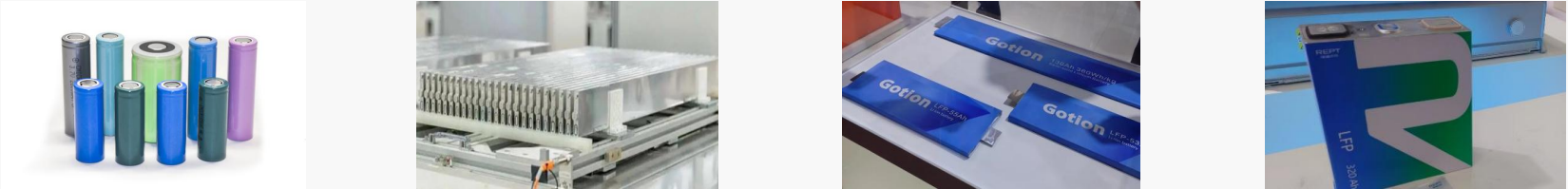
DISCHARGING



CHARGING



Cell Introduction

Cell	<p>Composition: Mainly composed of anode, cathode, membrane, and electrolyte.</p> <p>Function: During the charging process, electrical energy is converted into chemical energy and stored; During discharge, the chemical energy is converted back into electrical energy and released.</p>	<ol style="list-style-type: none">1. Voltage range of battery cell: 2.0V~4.1V;2. Individual cell capacity specifications include 280Ah, 300Ah, 314Ah, 320Ah, 600Ah, 1000Ah and so on.		
Type	Ternary Lithium Battery, Lithium Iron Phosphate Battery, Lithium cobalt battery, Lithium ion manganese oxide battery, Lithium-titanate battery, Lithium polymer battery			
Shape	 <p>The image displays four distinct battery cell shapes: 1. Cylindrical Cell: A group of seven cylindrical cells in various colors (blue, green, purple). 2. Blade Cell: A long, thin, rectangular cell with a complex internal structure. 3. Pouch Cell: A flat, rectangular cell with a blue and white pouch-like appearance. 4. Prismatic Cell: A rectangular cell with a blue and green prismatic shape.</p>			

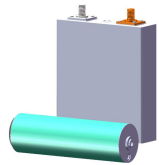
Cylindrical Cell

Blade Cell

Pouch Cell

Prismatic Cell

Product Introduction - Relationship between Cells, Modules, and PACKs



Cells

2.0-4.1V/580AH



Module

Under 300V



PACK

Under 1600V

Cells make up a module

Modules make up a pack

Mostly used for energy storage



B2000-EC

Power: 9.6-28.8KW

Voltage: 0-6V

Current: 100-600A



B2000-EM

Power: 40-240KW

Voltage: 0-300V

Current: 100-600A



B2000-EP

Power: 100-600KW

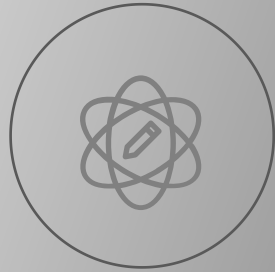
Voltage: 24-2000V

Current: 300-1200A



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The Problem Battery Charge-discharge Test System Can Solve



- **Safety Assurance**



- **Reliability Testing**



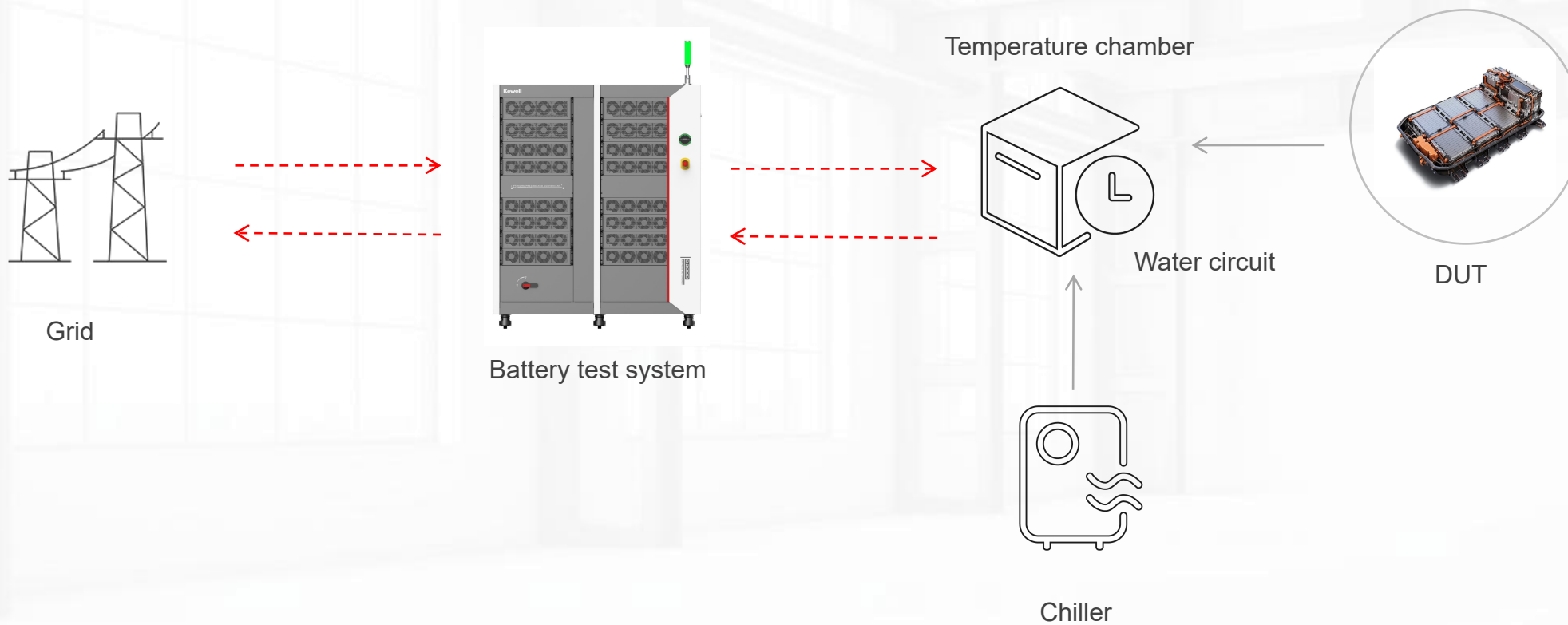
- **Performance Verification**



- **Optimization of Battery Management Systems (BMS)**

Reference Standards:

IEC 62660-1	Secondary lithium-ion cells for the propulsion of electric road vehicles - Part 1: Performance testing
IEC 61960	Secondary cells and batteries containing alkaline or other non-acid electrolytes – Secondary lithium cells and batteries for portable applications
IEC 62619	Secondary cells and batteries containing alkaline or other non-acid electrolytes - Safety requirements for secondary lithium cells and batteries, for use in industrial applications
ISO 12405-4	Electrically propelled road vehicles --Test specification for lithium-ion traction battery packs and systems - Part 4: Performance testing





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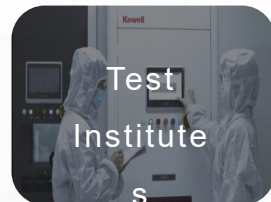


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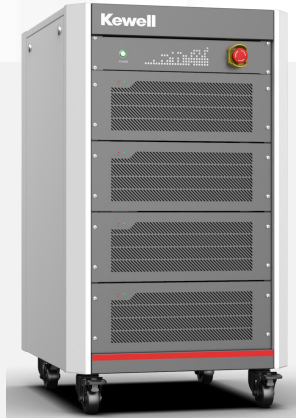
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B2000-EC series is an efficient, high-performance cell charge-discharge test system.

It has the following application scenarios

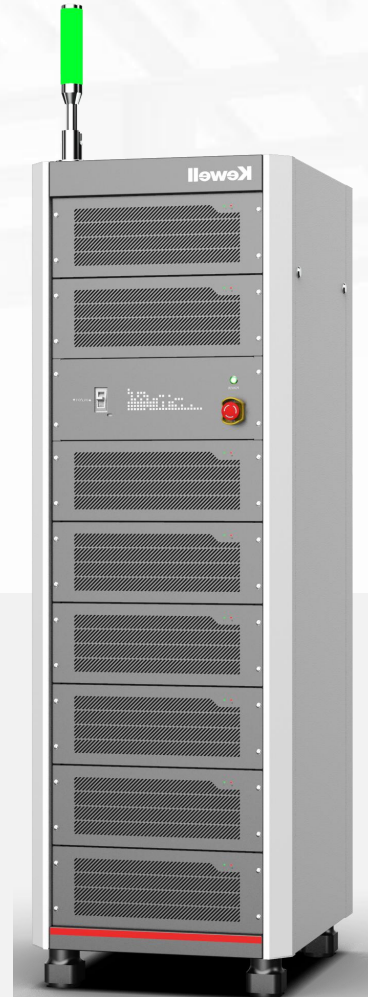


Product Portfolio



Rate power/CH [kW]	Voltage range [V]	Current range/CH [A]	Number of channels
1.2	0-6	200	8
1.8	0-6	300	8
3.0	0-6	500	4
3.6	0-6	600	4

Rate power/CH [kW]	Voltage range [V]	Current range/CH [A]	Number of channels
0.6	0-6	100	16
1.2	0-6	200	16
1.8	0-6	300	8
3.0	0-6	500	8
3.6	0-6	600	8



Modularized Design

Users can replace faulty modules on their own, no need of returning the equipment to factory.

Remove faulty modules and the equipment will run normally, avoiding affecting test efficiency



Space-efficient

Equipment width: 600mm, depth: 700mm

Footprint: only 0.42m²



Easy to Move

Weight

1050mm-high equipment: 160kg

1850mm-high equipment: 320kg

With casters, easy to move

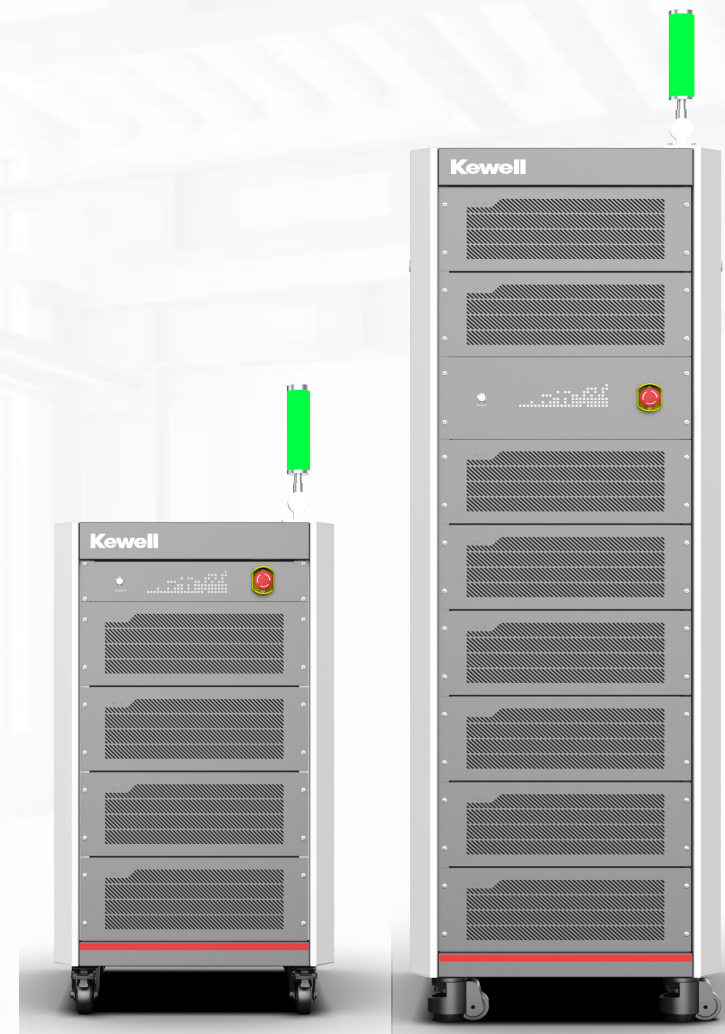
NORMAL

Outstanding parameters
Facing conventional test scenarios

PRO

Industry-leading parameters
Fully-featured for various applications

Para. / Version	Voltage accuracy	Current accuracy	Current response	Working condition interval	Data logging time
Normal	$\pm 0.05\% \text{F.S.}$	$\pm 0.05\% \text{F.S.}$	2ms	20ms	10ms
Pro	$\pm 0.02\% \text{F.S.}$	$\pm 0.02\% \text{F.S.}$	1ms	10ms	1ms



Higher Testing Performance

Fast response, fast data saving, multi-channel paralleling, meeting a variety of extreme test conditions



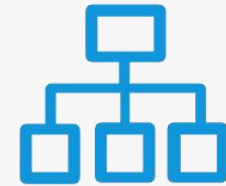
N Version:
Fast current response: 2ms

P Version:
Fast current response: 1ms



N Version:
Fast data saving: 10ms

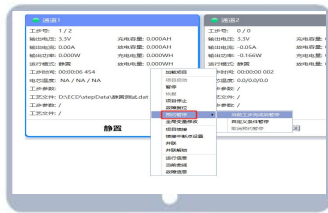
P Version:
Fast data saving: 1ms



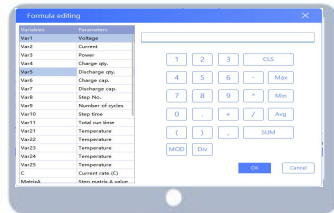
Multi-channel paralleling: up to
2400A

Complete Software Functions

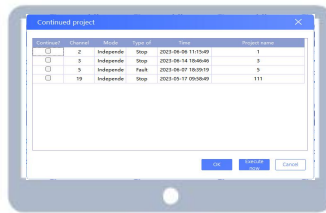
Pre-set pause



Formula editing

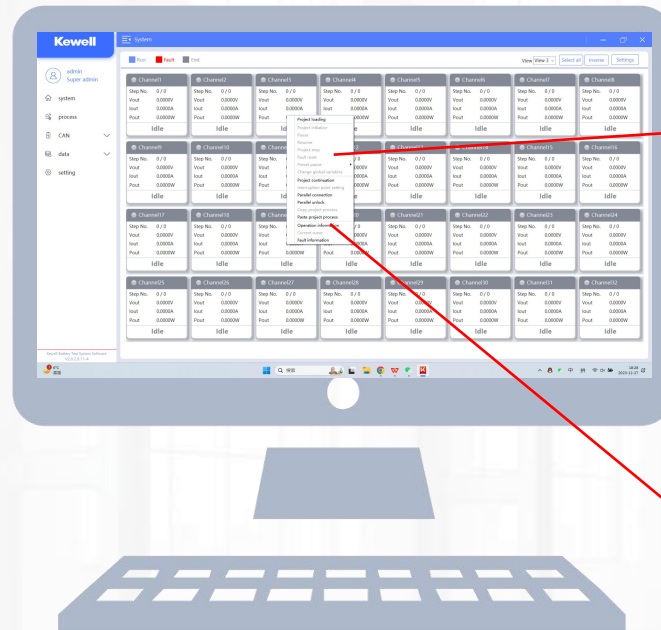


Project continuation



Longer right-click menu

More functions and easier operations



Project loading

Project initiation

Pause

Resume

Project stop

Fault reset

Preset pause

Change global variables

Project continuation

Interruption point setting

Parallel connection

Parallel unlock

Copy project process

Paste project process

Operation information

Current curve

Fault information

Multiple Charge-discharge Modes

CV, CC, CR, CC+CV, pulse current, pulse power, ramp current, etc.

```

1 begin
2 SetCoolingParams (Tmax, 13) ;end
3 else if (Tmax>40) and (Tmax<=43) then
4 begin
5 SetCoolingParams (15, 13) ;end
6 else if (Tmax>43) then
7 begin
8 end;]

```

variable

Tmax	0.0
Tmin	0.0
DeHT	0.0
Vmax	0.000
Vmin	0.000
BMSVar1	0.000
BMSVar2	0.000
BMSVar3	0.000
BMSVar4	0.000
BMSVar5	0.000
BMSVar6	0.000
BMSVar7	0.000
BMSVar8	0.000
BMSVar9	0.000
BMSVar10	0.000

global

```

gIntTemp1
gIntTemp2
gIntTemp3
gIntTemp4

```

function

```

SetTempOnOff(Value)
(Set Chamber, 1: start 0: stop)

SetTempParams(Value1, Value2)
(Chamber paras, temp, humidity)

SetCoolingOnOff(Value)
(Set Cooling, 1: start 0: stop)

SetCoolingParams(Value1, Value2)
(paras, temp, flow rate)

```

New step Current step: 0

Normal step | Matrix mode | Peripherals | Condition

Mode of operation: Charge | Operating mode: Constant current

param

Current (A) []

current limit (A) Chg. [] Disch. []

power limit (W) Chg. [] Disch. []

Note: Enter the value into the edit box, or double-click to enter the formula editing mode.

Programming Script Variables

Providing a variety of script programming or graphical programming interface for users to control the temperature chamber, water cooling and other devices.

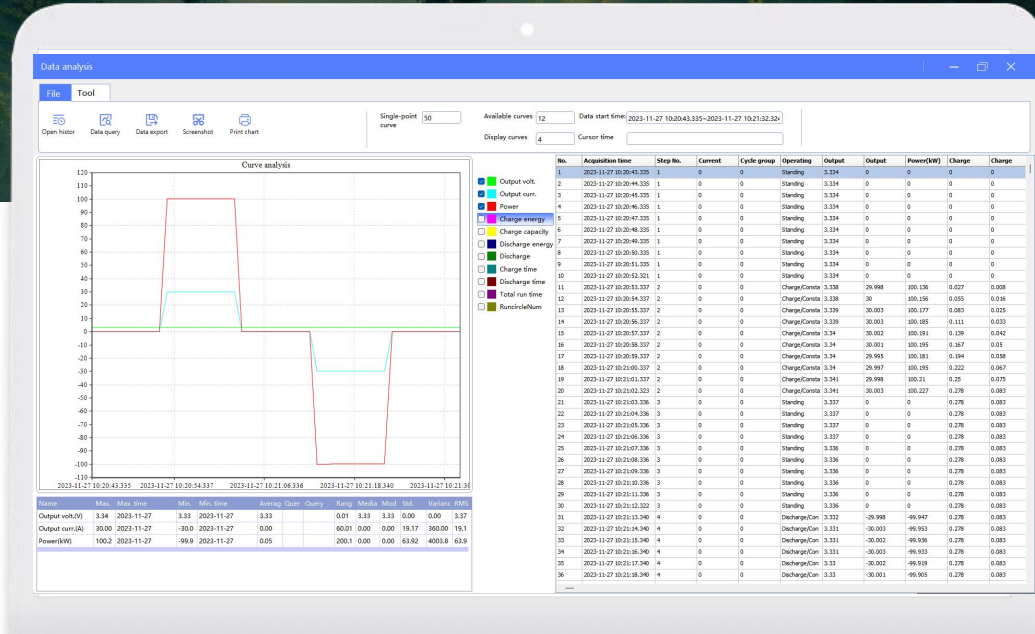
Super Fast Simulation of Operating Conditions

10ms roadmap simulation, accuracy: $\pm 0.02\% \cdot F.S.$, true to actual conditions, supporting dynamic test in line with reference standards such as CLTC, WLTC and NEDC



Online Data Analysis

Online data display, historical data analysis, and channel test data can be selected.



Multi-channel data logging



Data analysis



Background

01



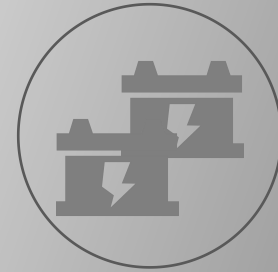
Solution

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Cell

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Module&PACK

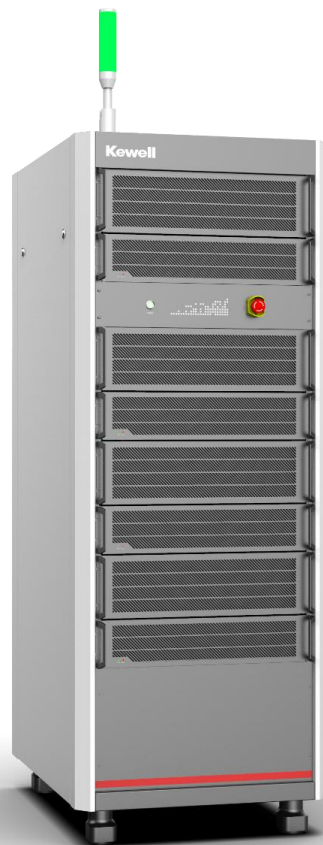
04



Customer

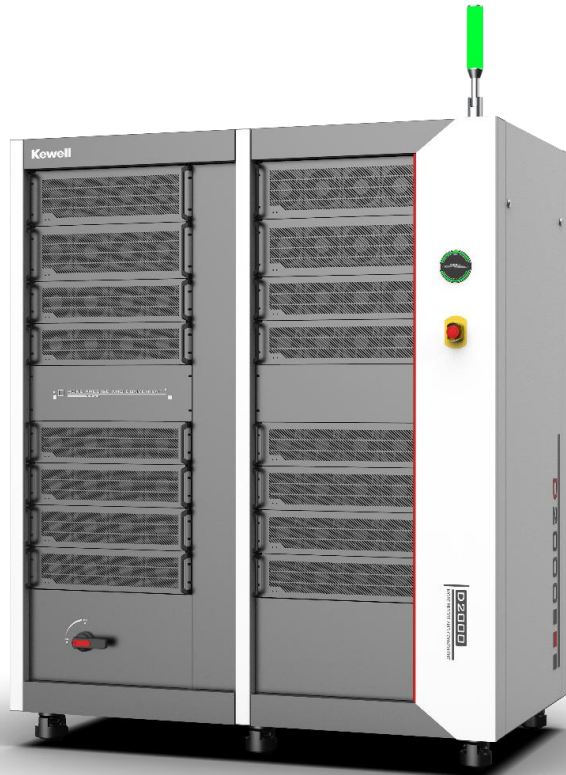
05

B2000-EM series is an efficient, high-performance battery module charge-discharge test system.



Rate power/CH [kW]	Voltage range [V]	Current range/CH [A]	Number of channels
20	0~100	200	2/4
30	0~100	300	2/4
	0~150	200	2/4
40	0~100	400	2
	0~200	200	2/4
45	0~150	300	2/4
50	0~100	500	2
60	0~100	600	2
	0~150	400	2
	0~200	300	2/4
75	0~150	500	2
80	0~200	400	2
90	0~150	600	2
100	0~200	500	2
120	0~200	600	2

B2000-EP series is an efficient, high-performance battery pack charge-discharge test system.



Voltage range [V]	Power [kW]/Current [A]/Number of channels
0~800	200kW/300A/2/4 300kW/300A/2/4/8 400kW/300A/2/4/8 500kW/300A/2/4/8 600kW/300A/2/4/8
12~1200	300kW/600A/2 400kW/800A/2 500kW/800A/2 600kW/1200A/2
20-1600	300kW/300A/1/2 400kW/300A/1/2 500kW/400A/1/2 600kW/500A/1/2
20-2000	300kW/300A/1/2 400kW/300A/1/2 500kW/400A/1/2 600kW/500A/1/2

A dramatic landscape of snow-capped mountains under a starry night sky. The mountains are illuminated from the side, creating strong highlights and deep shadows. The sky is dark with numerous stars visible.

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