

**BLITZ**Power

DCM series  
12V to 2000V, 100kW to 5MW



Programmable Bidirectional DC Power Supply

[blitz-power.com](http://blitz-power.com)

# HIGH POWER CAPACITY WITH PARALLEL OPERATION

With 100kW - 750kW of unit capacity, the total capacity can be expanded up to 5MW by series-parallel connections.

**2000V**  
**MAXIMUM**  
**DC OUTPUT**  
**VOLTAGE**

**5MW**  
**MAXIMUM**  
**DC OUTPUT**  
**POWER**

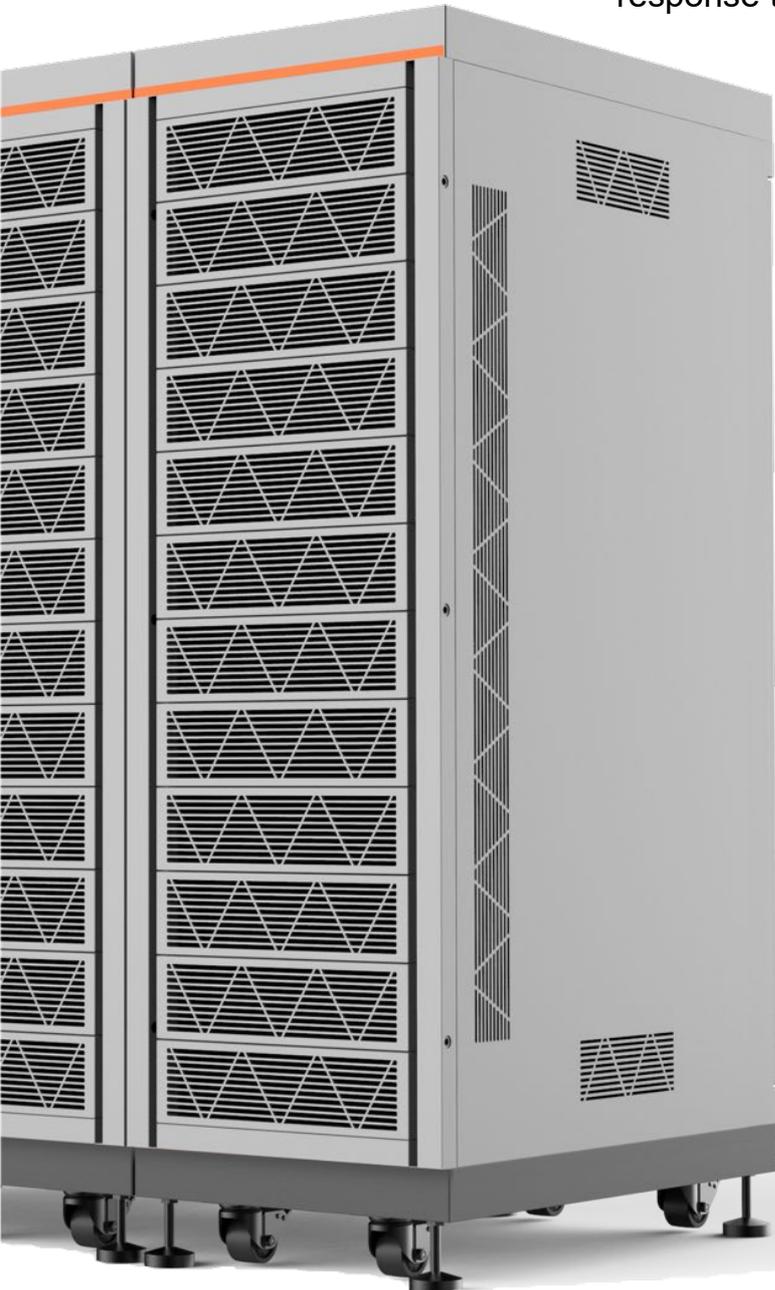
**MULTI-**  
**OUTPUT**  
**MODE**



Multiple DC power supply cabinets can individually operate in single mode to configure multi-channel output, or in Master/ Slave mode to configure single-channel output with combined capacity.

# SIMULATION FUNCTION WITH HIGH PERFORMANCE

DCM series provide real-time battery and  
PV simulation function with fast  
response time of less than 1 ms



**BATTERY  
SIMULATION**

**PV  
SIMULATION**

**ELEC-  
TRONIC  
LOAD**

DCM series provide grid-regenerative DC  
electronic load function, which is applicable  
for testing fuel cell stack or fuel cell engine  
system, etc.

# Ratings, types and voltages

## DCM series Battery Simulator

| Model      | Power [kW] | Output Voltage [V] | Output Current [A] | Size (WDH) [mm] | Weight [kg] |
|------------|------------|--------------------|--------------------|-----------------|-------------|
| DCM2K0200J | ±100       | 20-2000            | ±200               | 800x1000x1950   | 600         |
| DCM2K0400K | ±200       | 20-2000            | ±400               | 800x1000x1950   | 800         |
| DCM2K0600L | ±300       | 20-2000            | ±600               | 1400x1000x1950  | 1,310       |
| DCM2K0800M | ±400       | 20-2000            | ±800               | 1400x1000x1950  | 1,510       |
| DCM2K01K0N | ±500       | 20-2000            | ±1000              | 1400x1000x1950  | 1,710       |
| DCM2K01K2O | ±600       | 20-2000            | ±1200              | 2000x1000x1950  | 2,220       |
| DCM2K01K4P | ±700       | 20-2000            | ±1400              | 2000x1000x1950  | 2,420       |
| DCM2K01K5Q | ±750       | 20-2000            | ±1500              | 2000x1000x1950  | 2,520       |
| DCM1K2300J | ±100       | 12-1200            | ±300               | 800x1000x1950   | 600         |
| DCM1K2600K | ±200       | 12-1200            | ±600               | 800x1000x1950   | 800         |
| DCM1K2900L | ±300       | 12-1200            | ±900               | 1400x1000x1950  | 1,310       |
| DCM1K21K2M | ±400       | 12-1200            | ±1200              | 1400x1000x1950  | 1,510       |
| DCM1K21K5N | ±500       | 12-1200            | ±1500              | 1400x1000x1950  | 1,710       |
| DCM1K21K8O | ±600       | 12-1200            | ±1800              | 2000x1000x1950  | 2,220       |
| DCM1K22K1P | ±700       | 12-1200            | ±2100              | 2000x1000x1950  | 2,420       |
| DCM700300S | ±50        | 10-700             | ±300               | 800x1000x1950   | 500         |
| DCM700600J | ±100       | 10-700             | ±600               | 800x1000x1950   | 600         |
| DCM7001K2K | ±200       | 10-700             | ±1200              | 800x1000x1950   | 800         |
| DCM7001K8L | ±300       | 10-700             | ±1800              | 1400x1000x1950  | 1,310       |
| DCM7002K4M | ±400       | 10-700             | ±2400              | 1400x1000x1950  | 1,510       |
| DCM7003K0N | ±500       | 10-700             | ±3000              | 1400x1000x1950  | 1,710       |
| DCM7003K6O | ±600       | 10-700             | ±3600              | 2000x1000x1950  | 2,220       |
| DCM7004K2P | ±700       | 10-700             | ±4200              | 2000x1000x1950  | 2,420       |
| DCM7004K5Q | ±750       | 10-700             | ±4500              | 2000x1000x1950  | 2,520       |

# Technical data

| DCM series                | Specification  |
|---------------------------|--|
| <b>AC Input</b>           |  |
| Voltage, Phases           | 380V±15%, 3ph+PE   |
| Frequency                 | 47Hz to 63Hz   |
| Power Factor              | 0.96 @ full load   |
| Efficiency                | 94.2%  |
| <b>DC Output Voltage</b>  |  |
| Setting resolution        | ±0.01V   |
| Accuracy                  | ±0.1% F.S.   |
| Ripple                    | 1.5Vrms  |
| Voltage slew rate         | 1000V/ms   |
| Voltage rise time         | ≤2ms   |
| <b>DC Output Current</b>  |  |
| Setting resolution        | 0.01A  |
| Accuracy                  | ±0.1% F.S.   |
| Rise time                 | ≤1ms (10%-90% rated current)   |
| Switching time            | ≤2ms (-90% to +90% rated current)  |
| <b>DC Output Power</b>    |  |
| Set resolution            | 0.001kW  |
| Accuracy                  | ±(0.1% Setting +0.1%F.S.)  |
| <b>Battery Simulation</b> |  |
| Battery type              | Simulate various battery types including lithium manganese oxide, lithium cobalt oxide, lithium iron phosphate, nickel-metal hydride, ternary lithium, lithium titanate, and lead- acid batteries. Customizable battery types with open 1-stage, 2-stage, and 3-stage RC battery models. |
| Parameter                 | Series Count, Parallel Count, Initial SOC (State of Charge), Initial Temperature, Internal Resistance, Cell Capacity, and other parameters   |
| Data input                | Import of CSV user-defined model is supported  |
| Update rate               | 200μs  |

# Technical data

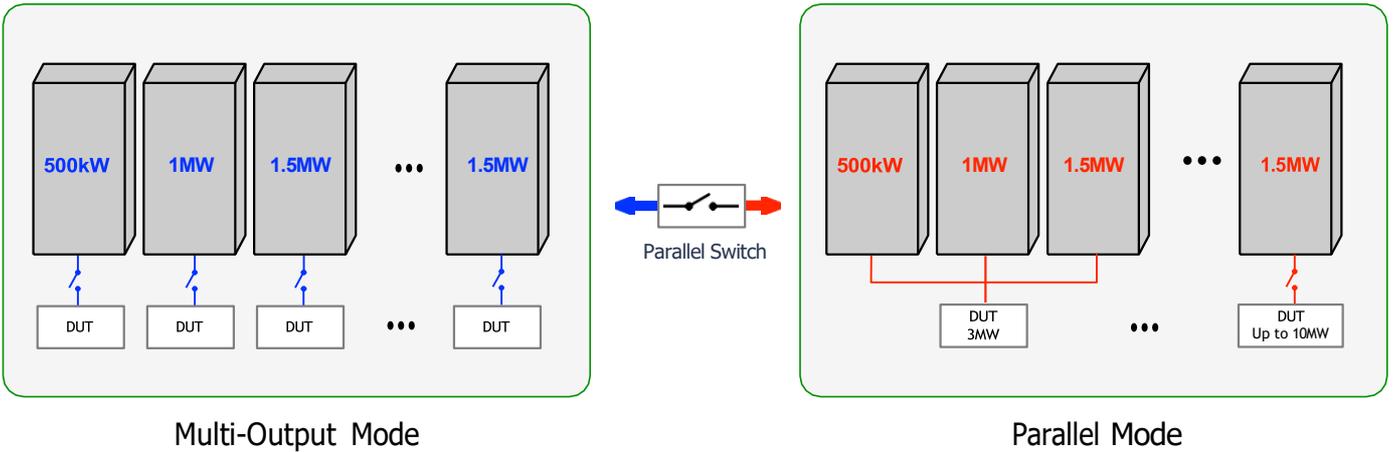
| DCM series                          | Specification   |
|-------------------------------------|---|
| <b>I-V Curve</b>                    |   |
| Open-Circuit Voltage Setting Range  | Full Voltage Range Adjustable   |
| Short-Circuit Current Setting Range | 0A~1e   |
| Simulated Fill Factor Range         | 0.3 - 0.95  |
| Photovoltaic Panel Type Selection   | c-si, Thin-film, Customization  |
| I-V Curve Update Rate               | Typical Time: 1 ms, with Online Curve Switching Function  |
| I-V Curve Standard                  | Sandia, EN50530, Simple   |
| I-V Curve Function                  | Static Curve; Curve Scanning; Static Sequence; Static MPPT; Dynamic MPPT; Weather Simulation; Shadow Masking; Curve Programming; Custom Curves, etc.  |
| Curve Setting                       | Custom IV Curve settings can be configured using parameters such as Voc (Open-Circuit Voltage), Isc (Short-Circuit Current), FF (Fill Factor), and Pm (Maximum Power).  |
|                                     | Dynamic operating mode accounts for environmental factors such as temperature changes and irradiance, and can continuously output IV Built-in EN50530/Sandia Dynamic I-V Curve Testing Programs under different environmental conditions. |
|                                     | Built-in EN50530/Sandia Dynamic I-V Curve Testing Programs  |
| <b>Resistor Parameters</b>          |   |
| Range                               | 0.5-3000 $\Omega$   |
| Accuracy                            | $\pm ( 0.1\% \text{Setting} + 0.2\% \text{ F.S. } )$  |
| Resolution                          | 0.01 $\Omega$   |
| <b>Programmable</b>                 |   |
| Mode                                | List, Wave, Step, Advanced  |
| Step                                | 200   |
| Cycle Range                         | 0-9,999,999   |
| Time Range                          | 0ms-999s  |
| Minimum Programming Time Step       | 100 $\mu\text{s}$   |
| Edit Mode                           | Add, Delete, Import, Export   |
| Running Mode                        | Load, End, Trigger  |

# Technical data

| DCM series               | Specification   |
|--------------------------|---|
| <b>Measurement</b>       |   |
| Voltage accuracy         | ±0.1% F.S.  |
| Voltage resolution       | 0.01V   |
| Current accuracy         | ±0.1% F.S.  |
| Current resolution       | 0.01A   |
| Power accuracy           | ±(0.1% Reading +0.1% F.S.)  |
| Power resolution         | 0.01kW  |
| <b>Others</b>            |   |
| Protection               | Input under-voltage/over-voltage/over-frequency/phase loss protection Output over-voltage/over-current/over-power/over-temperature protection |
| Interface                | USB, LAN, RS485, CAN  |
| Multi-function Interface | “Anyport”, see the user manual for more details   |
| Control and Display      | Local touchscreen control, remote host control; display voltage, current, frequency, power.   |
| Cooling Mode             | Air cooling   |
| Noise                    | ≤70dB   |
| Operation Temperature    | -10°C~50°C  |
| Humidity                 | 10% ~ 90% RAH   |
| Altitude                 | ≤2000m  |

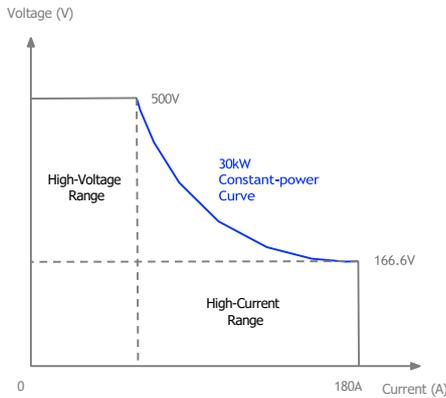
# High Power Scalable Design

DCM series supports large-scale parallel expansion and stable power supply, which enables capacity expansion up to 5MW by connecting in parallel in 750kW increments from 50kW minimum through high-speed optical fiber communication method. In particular, parallel connected panels can be used in multi-output mode by separating outputs according to user needs, enabling multiple test equipment to be tested at the same time, maximizing user convenience and saving costs.

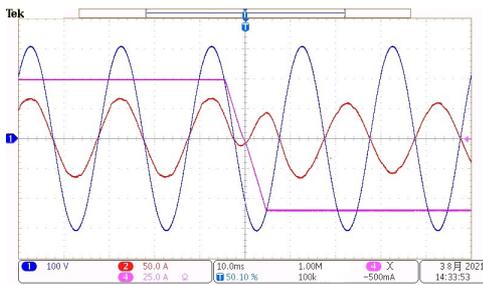


|   | 2000V                      | 1200V                      | 700V                       |
|---|----------------------------|----------------------------|----------------------------|
|  | 100kW-200kW<br>200A-400A   | 100kW-200kW<br>300A-600A   | 100kW-200kW<br>600A-1200A  |
|  | 300kW-500kW<br>600A-1000A  | 300kW-500kW<br>900A-1500A  | 300kW-500kW<br>1800A-3000A |
|  | 600kW-750kW<br>1200A-1500A | 600kW-700kW<br>1800A-2100A | 600kW-750kW<br>3600A-4500A |

# Auto ranging



The auto ranging function automatically controls voltage and current through the programmable DC power supply to maintain the rated output over a wide operating range. That is the higher voltage is available at lower current, and vice versa, allowing the DUT to be tested under different voltage/current conditions with a single DC power supply.



In addition, it supports smooth and ultra-fast automatic switching with the bidirectional Automatic “source” & “load” function. The overshoot of voltage or current can be effectively controlled without any delay in the transition between the two states of source and load.

# CV/CC Priority Setting Function

CV (constant voltage) priority / CC (constant current) priority mode can be selected and set.

## Suppression of Overshoot with CC Priority Mode

With the DCM series power supply, the CC priority mode can effectively respond to load variations. This mode suppresses momentary current spikes when the load suddenly changes its resistance, thus ensuring stable protection for sensitive loads.

Configuring the power supply in CC priority mode allows for voltage adjustment according to load changes, maintaining a stable current. This effectively protects sensitive loads such as high-power laser diodes and minimizes the risk of damage due to overshoot.

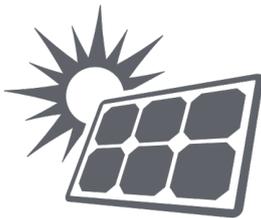
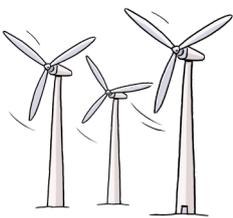
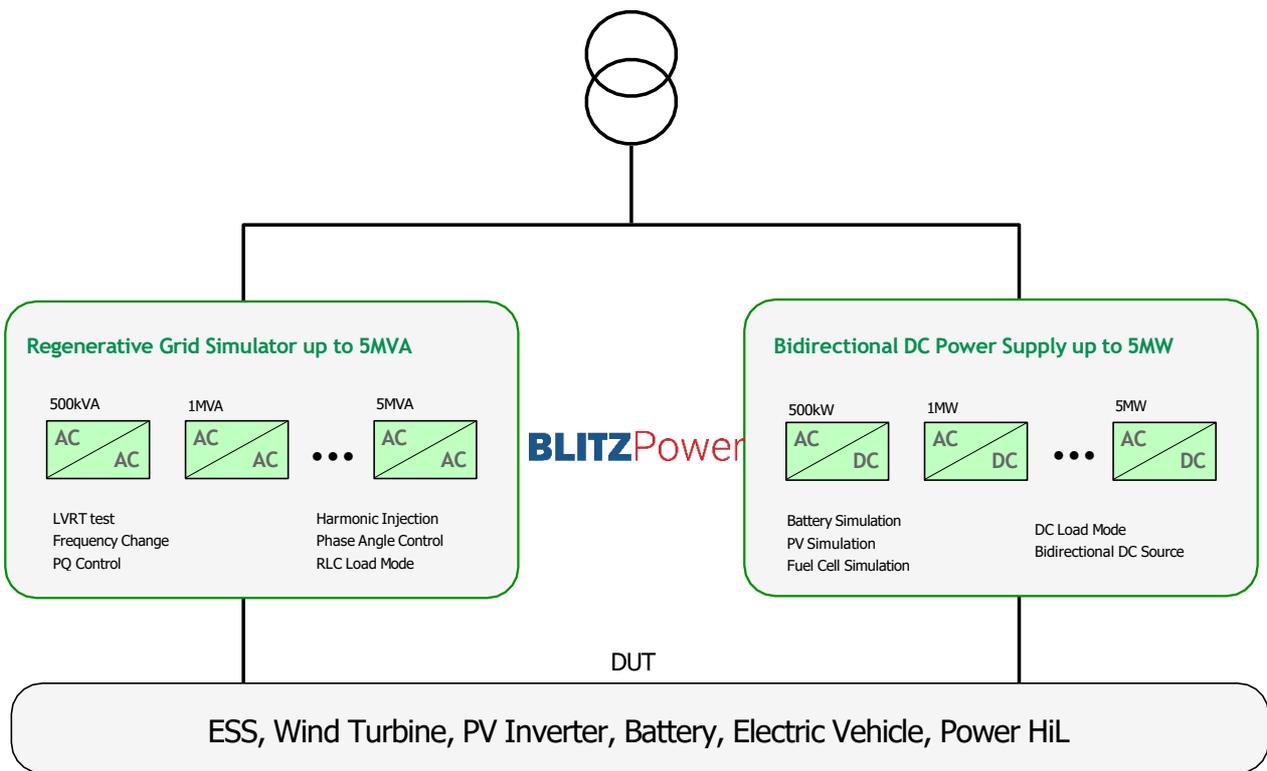
## Current Overshoot in CV Priority Mode

In CV priority mode, the power supply prioritizes maintaining a constant output voltage. However, sudden load variations can cause momentary current spikes, posing a risk of damage to sensitive loads.

Therefore, configuring the DCM series power supply in CC priority mode enhances load stability and prevents damage caused by overshoot.

# Application

Blitz power's high-capacity bi-directional DC power supplies are innovative products that are used in a variety of applications based on unique technology and optimal performance. Blitz power products can act as regenerative electronic load while providing bi-directional DC power, which is applicable of long-term reliability test applications such as electric vehicle DC charging stations, automotive battery charge and discharge tests, fuel cell discharge tests, ESS charge and discharge tests, and other applications requiring very fast response time, such as simulating electric vehicle driving patterns.

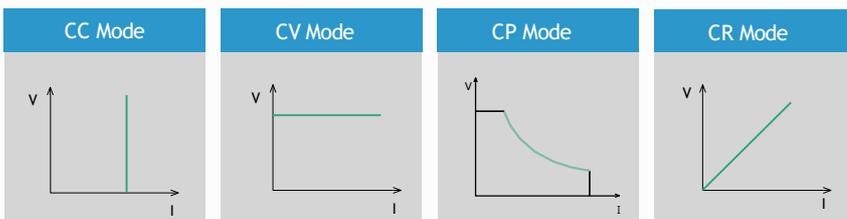


# Powerful Software

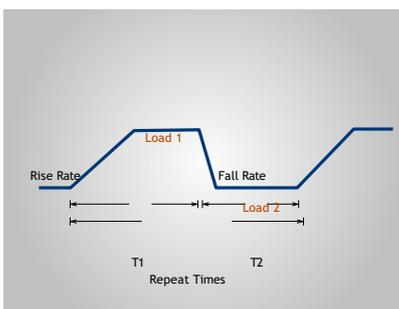


## Provides Diverse Simulation Modes

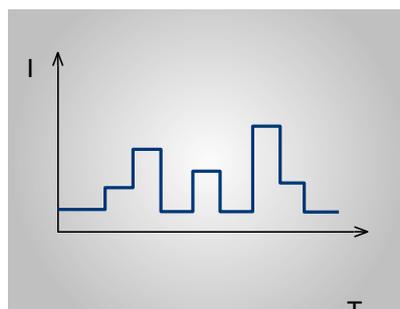
### Basic Mode



### Dynamic Mode



### Programmable Sequences

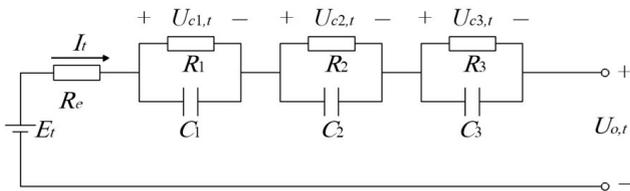


## KEY FEATURES

- **Battery Simulation**  
LiMn204, LiCoO2, LiFePO4, NiMH, Ternary LI, LiTiO2 and PbO2 batteries
- **PV Simulation**  
Static curves, Curve programming, Static MPPT, Dynamic MPPT, Weather Simulation, Shading of photovoltaic panels
- **Electronic Load Function**
- **Programming waveform**

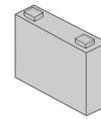
# Comprehensive Battery Simulation

The product can simulate the output and charge/discharge characteristics of various battery packs such as lithium manganese, lithium cobalt, lithium iron phosphate, nickel-hydrogen, ternary lithium, lithium titanate and lead-acid batteries, and can set the parameters such as serial/parallel quantity, temperature, SOC, internal resistance and single battery capacity to simulate the output characteristics of the whole battery pack. The power supply opens first, second and third-order RC battery models and supports user-defined battery parameters and import of CSV user-defined model; the power supply has high real-time performance and the command refresh rate is as high as 1kHz, so as to comprehensively simulate the characteristics of the battery pack.



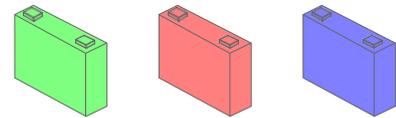
RCR Equivalent Circuit Model

One battery cell format

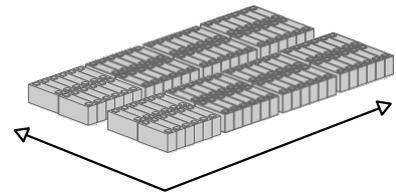


Different cell chemistries

Lithium-Iron-Phosphate      Lithium-Nickel-Cobalt      Lithium-Nickel-Mangante

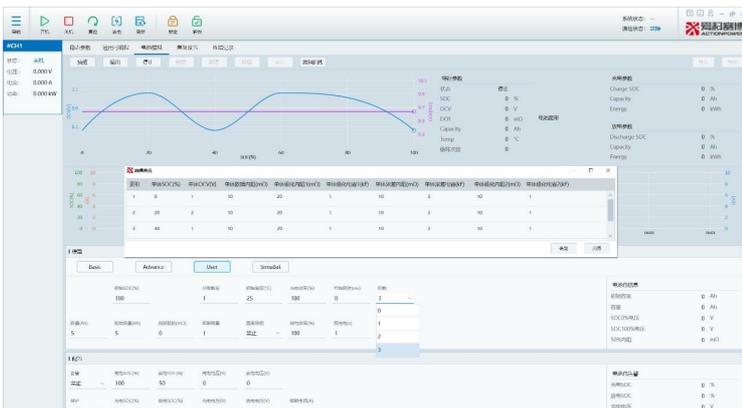


Modular platform -> scalable to configure batteries for various pack



|                          |  |
|--------------------------|--|
| Architecture             | 400 V                                      |
| Nominal battery capacity | 33.2 kWh                                   |
| Usable battery capacity  | 27.2 kWh                                   |
| Pack layout              | 96s1p (8 serially connected 12s1p modules) |
| Number of Li-ion cells   | 96   |
| Rated cell voltage       | 3.7 V                                      |
| Capacity per cell        | 94 Ah                                      |
| Cell chemistry           | NCM333                                     |

User-defined battery parameters



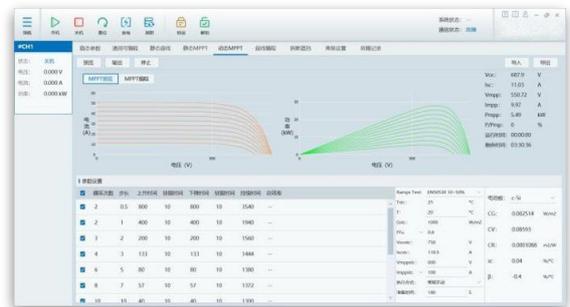
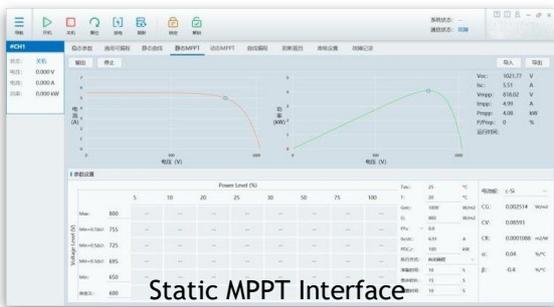
Battery Simulation Interface

## KEY FEATURES

- DC Output Voltage : 12-2000Vdc
- Parallel Connection : up to 5MW
- Battery Simulation  
LiMn204, LiCoO2, LiFePO4, NiMH, Ternary LI, LiTiO2 and PbO2
- High Dynamic : <2ms (10-90%)
- Voltage Slew Rate : 1000V/ms
- ESS, UPS, EVE, etc. testing

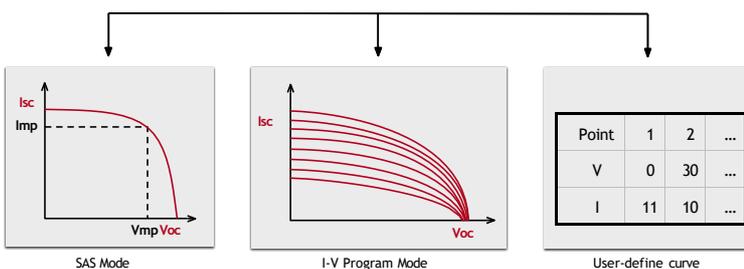
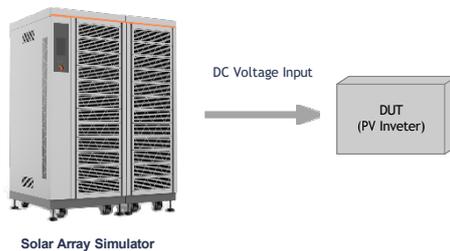
# PV Simulation

When applied as the PV simulator, the product is a DC power supply featuring high precision, high dynamics and high-speed switching. With the complete I-V curve simulation function, it can simulate the output characteristics of various VP panels, and provide various kinds of user- defined curves, static and dynamic I-V curves and shadow occlusion simulations. The programming function can simulate different waveform outputs through three programming modes like Step, List and Wave, in order to fulfill the test requirements of various industries. The power supply can not only provide standard power supply environment for electrical equipment, but also receive the energy from load and feed ti back to the grid, with feedback efficiency of above 94%, to save energy and improve the test environment.



Curve Programming Interface

Shadow I-V Interface

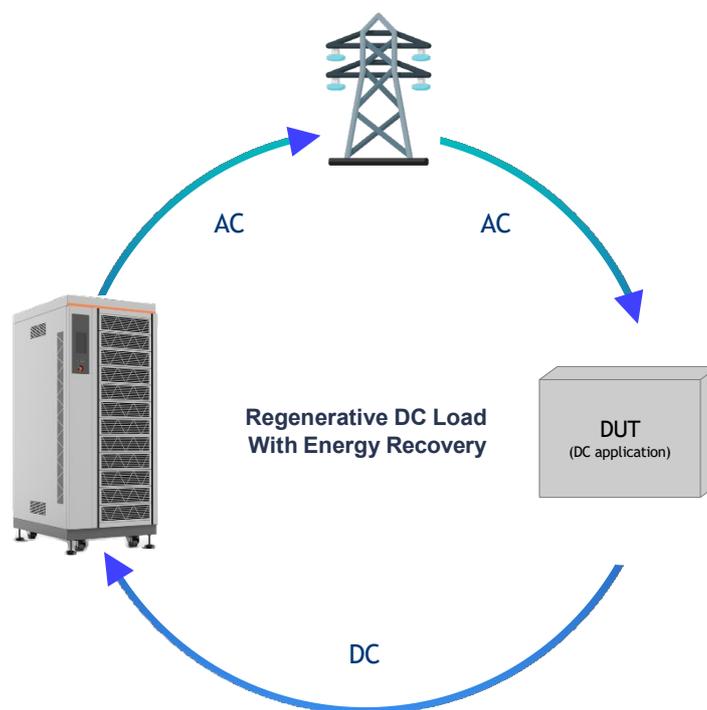


## KEY FEATURES

- DC Output Voltage : 12-2000Vdc
- Parallel Connection : up to 5MW
- Complete I-V Curve Simulation
- High Dynamics: <2ms (10-90%)
- Voltage Slew Rate : 1000V/ms
- Fast I-V Curve Switching : <1ms
- Shadow I-V curve simulation
- Built-in dynamic MPPT test profile Sandia, EN50530, CGC/GF004

# Electronic Load

The DCM series feedback DC electronic load is different from the traditional consumption load. It feeds back the absorbed electric energy to the power grid after transformation to save energy and improve the test environment. The product adopts full digital control technology, and has characteristics such as stepless adjustment, high accuracy, high dynamic performance and high reliability. It meets the requirements of low voltage and high current test, and can be applied to test scenarios such as fuel cell stack and fuel cell engine system.



The DCM series is regenerative DC electronic loads capable of absorbing current and efficiently feeding it back into the power grid. The DCM series achieves an impressive efficiency of up to 94%. The returned electrical energy can be reused by other equipment within the facility, resulting in savings in overall energy consumption and carbon emissions, reducing the environmental impact.

## KEY FEATURES

- DC Output Voltage : 12-2000Vdc
- Parallel Connection : up to 5MW
- High Dynamics : <2ms (10~90%)
- Voltage Slew Rate : 1000V/ms
- Output slow start
- Low Harmonic Current: <3% F.S.
- Anti-revers function
- Online insulation impedance monitoring
- Discharging resistor
- Capacitance compensation