S7200 Series Bidirectional Programmable DC Power Supply

Version No:
K-IBD-PRODUCT TRAINING A01@2025

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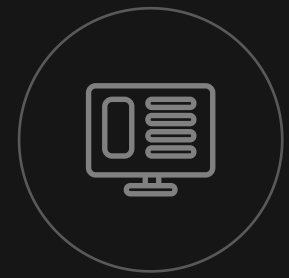

More applications

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Introduction- S7200 Series Bidirectional Programmable DC Power Supply

Power: 7.5kW~30kW **Voltage: 400/800/1200/1600/2000/2400V** **Current：80A~400A**

S7200 Series Bidirectional Programmable DC Power Supply

The S7200 series integrates the functions of bi-directional DC power supply and DC electronic load, featuring free/active source-load mode switching to meet users' diversified testing requirements. In the bi-directional DC power supply mode, it has both source and load capabilities, the former for providing power and the latter for returning the energy absorbed from the device under test (DUT) back to the grid. In the DC electronic load mode, there are multiple loading modes available such as the basic and the composite modes, ensuring no power output.

S7200 Product Portfolio

Voltage[V]	Power[kW]	Current[A]
400V	30kW	400A
800V	7.5/10kW	80A
	15kW	160A
	20kW	200A
	30kW	240A
1200V	15kW	100A
	20kW	100A
	30kW	100A
1600V	15kW	80A
	20kW	80A
	30kW	80A
2000V	20kW	80A
	30kW	80A
2400V	30kW	80A

S7000 (High voltage) Product Portfolio

Voltage[V]	Power[kW]	Current[A]
750	7.5kw	60A
	15kw	120A
	30kw	180A
1500	15kw	60A
2000	21kw	60A
	30kw	60A

S7200 Series

VS

S7000 High Voltage

*Each model of S7200 shown in the table has both of P and N version
And models marked in blue are the ones already released.

S7200 Product Portfolio:

NORMAL

Fully-featured, Multi-scenario

PRO

Ultimate experience, Lab testing-oriented

Model	N	P
DC Power Source	●	●
Battery Simulation	●	●
Battery Test	-	●
Automotive Power Curve*	●	●
Load Function	●	●
IV Simulation	●	●
Custom Waveforms*	●	●
Communication Interfaces RS232/LAN/CAN/USB/GPIB(Optional)	●	●

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S7200 VS S7000 Technical Specification:

Item		S7200NG-30K-2400-80	S7200PG-30K-2400-80	S7000UG-30K-2000-0060
Read-back Resolution	Voltage	0.001V		0.01V
	Current	0.001A		0.01A
	Power	0.1W		1W
Accuracy	Voltage	0.02%	0.01%	0.05%
	Current	0.05%	0.05%	0.1%
Voltage Slew Rate (No Load)		0.001–500 V/ms		0.001–200 V/ms
Voltage Slew Rate (Full Load)		0.001–500 V/ms		0.001–90 V/ms
Current Slew Rate (No Load)		0.001–150 A/ms		0.001–20 A/ms
Current Slew Rate (Full Load)		0.001–150 A/ms		0.001–10 A/ms
Dynamic Response Time		0.5 ms		1 ms
Minimum Editable Step Time		1 ms		1 s

Price wise S7000 is lower than S7200 X% in same power rate

Competitor Comparison S7200

Model		Kewell S7200PG-30K-2400-80	Brand E EA-PSB 12000-40	Brand C 62180D-1800
Power Density		3U/30kW	4U/30kW	3U/18kW
Voltage		2400V	2000V	1800V
Current		80A (optional 100A)	40A	40A
Accuracy	Voltage	≤0.01%F.S.	≤0.05%F.S.	0.05% + 0.05%F.S
	Current	≤0.05%F.S.	≤0.1%F.S.	0.1% + 0.1%F.S.
Ripple	Voltage (rms)	400mV	400mV	255mV
	Current (rms)	200mA	/	30mA
Voltage slew rate	No load	0.001V/ms ~ 500V/ms	/	0.001V/ms ~ 180V/ms
	Full load	0.001V/ms ~ 500V/ms	/	0.001V/ms ~ 80V/ms
Current slew rate	Full load	0.001A/ms ~ 150A/ms	/	0.001A/ms ~ 10A/ms
Dynamic Response Time		0.5ms	2ms	0.5ms
Load Regulation	Voltage	≤0.05%F.S.	≤0.05%F.S.	±0.04% F.S.
	Current	≤0.05%F.S.	≤0.05%F.S.	±0.1% F.S.
Line Regulation	Voltage	≤0.02%F.S.	≤0.01%F.S.	±0.01% F.S
	Current	≤0.02%F.S.	≤0.01%F.S.	±0.05% F.S
Effiecny		95.5%	96%	92%

Competitor Comparison S7200

Model		Kewell S7200NG-20K-800-200	Brand I IT6018B-1500-40
Power Density		3U/20kW	3U/18kW
Voltage		800V	1500V
Current		200A	40A
Accuracy	Voltage	≤0.02%F.S	≤0.02% + 0.02%FS
	Current	≤0.05%F.S.	≤0.1% + 0.1%FS
Ripple	Voltage (rms)	200mV	≤0.02%FS（RMS）-300mV
	Current (rms)	400mA	≤0.1%FS（RMS）-40mA
Voltage slew rate	No load	0.001V/ms ~ 500V/ms	≈80V/ms
	Full load	0.001V/ms ~ 500V/ms	≈40V/ms
Current slew rate	Full load	0.001A/ms ~ 450A/ms	40A/ms
Dynamic Response Time		0.5ms	2ms
Load Regulation	Voltage	≤0.05%F.S.	≤0.005%F.S.
	Current	≤0.05%F.S.	≤0.015%F.S.
Line Regulation	Voltage	≤0.02%F.S.	≤0.02%FS
	Current	≤0.02%F.S.	≤0.05%FS
Effiecny		93%	92%

Price wise S7200 is lower than I brand X% in similar power rate

Competitor Comparison S7200

Model		Kewell S7200PG-30K-2400-80	Kewell 2 Parallel	Brand C 62450D-2000
Power Density		3U/30kW	6U/60kW	4U/45kW
Voltage		2400V	2400V	650V/2000V
Current		80A (optional 100A)	160A (optional 200A)	180A/40A
Accuracy	Voltage	≤0.01%F.S.	≤0.01%F.S.	0.05%F.S
	Current	≤0.05%F.S.	≤0.05%F.S.	0.2%F.S.
Ripple	Voltage (rms)	400mV	400mV	80mV/2405mV
	Current (rms)	200mA	400mA	135mA/75mA
Min. operating voltage		65V@80A (optional：65V@100A)	65V@160A (optional：65V@200A)	35V@180A 105V@60A
Voltage slew rate	No load	0.001V/ms ~ 500V/ms	0.001V/ms ~ 500V/ms	65V/ms 200V/ms
	Full load	0.001V/ms ~ 500V/ms	0.001V/ms ~ 500V/ms	/
Current slew rate	Full load	0.001A/ms ~ 150A/ms	0.001A/ms ~ 300A/ms	90A/ms 30A/ms
Dynamic Response Time		0.5ms	0.5ms	0.5ms
Load Regulation	Voltage	≤0.05%F.S.	≤0.05%F.S.	±0.04% F.S.
	Current	≤0.05%F.S.	≤0.05%F.S.	±0.1% F.S.
Line Regulation	Voltage	≤0.02%F.S.	≤0.02%F.S.	±0.01% F.S
	Current	≤0.02%F.S.	≤0.02%F.S.	±0.05% F.S
Effiecny		95.5%	95.5%	94%

Introduction

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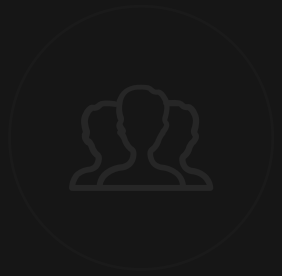

Comparison

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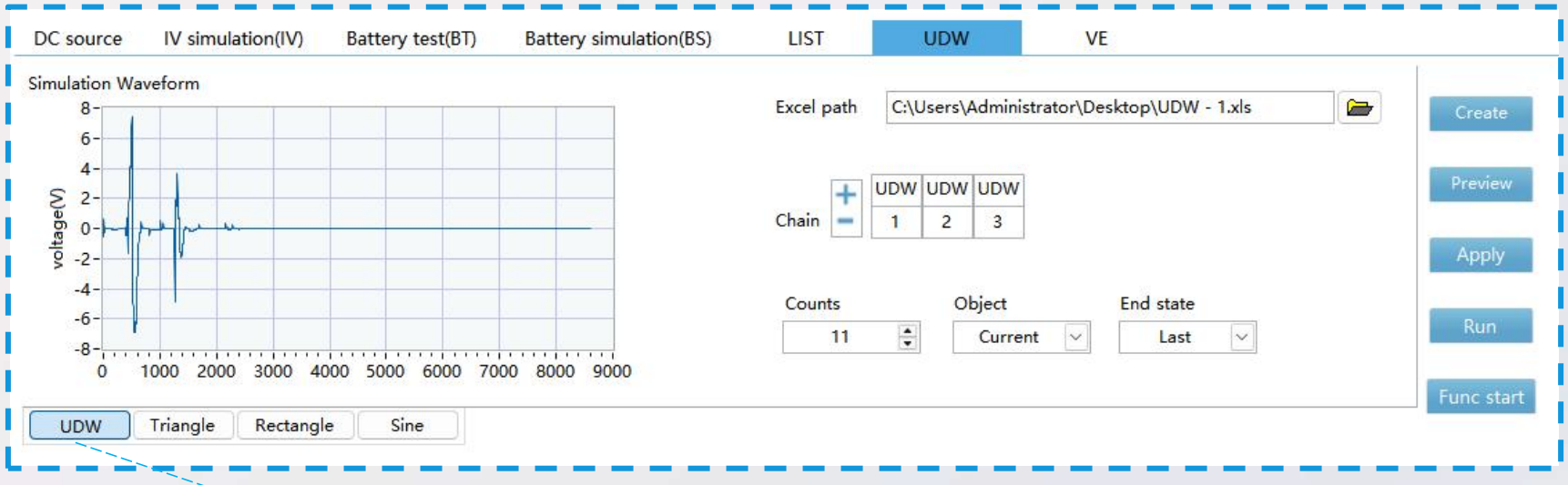
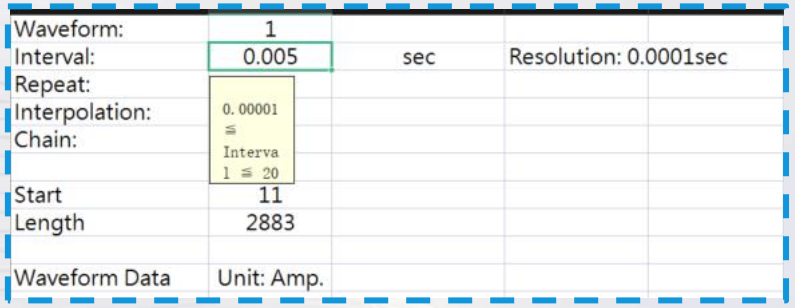
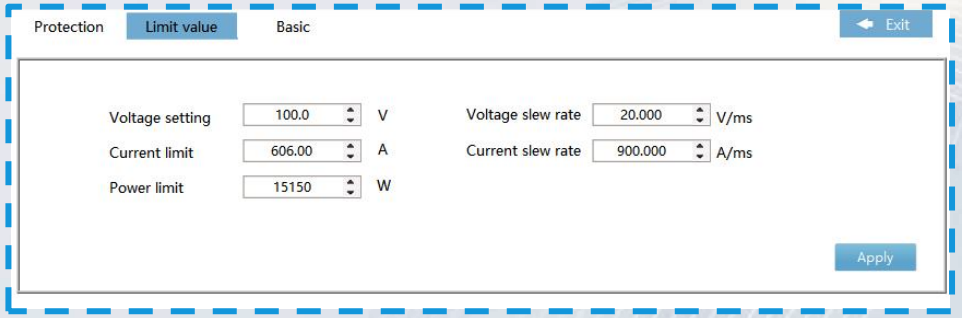
UDW(Customed Waveform)

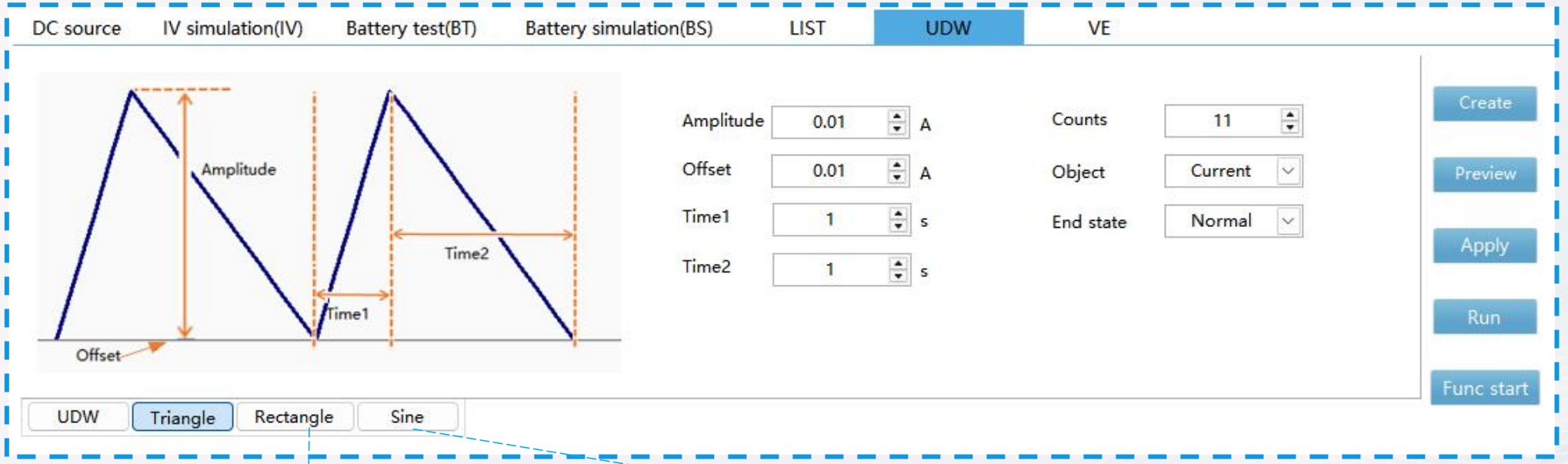


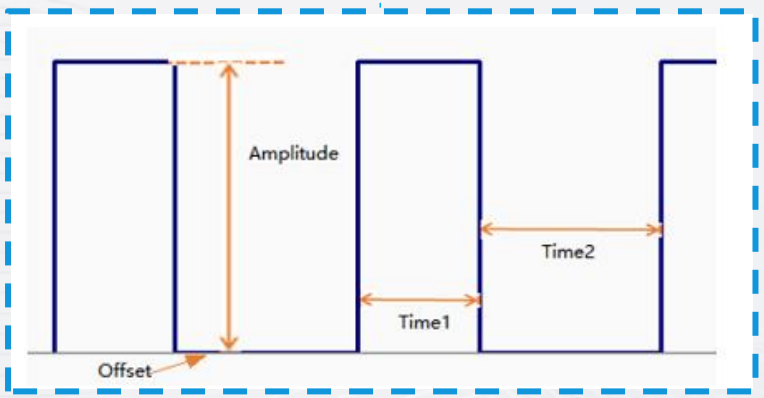


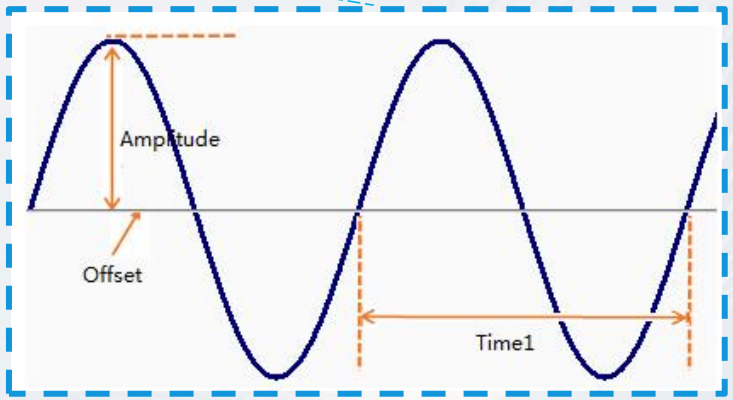


The UDW function can generate any waveform of current or voltage. The minimum duration for a single step can be set at 0.1 ms. In this mode, the slope of voltage or current is higher than that in the conventional CV/CC mode, which is 1000V/ms and 300A/ms or 500A/ms respectively.

UDW(Customed Waveform)

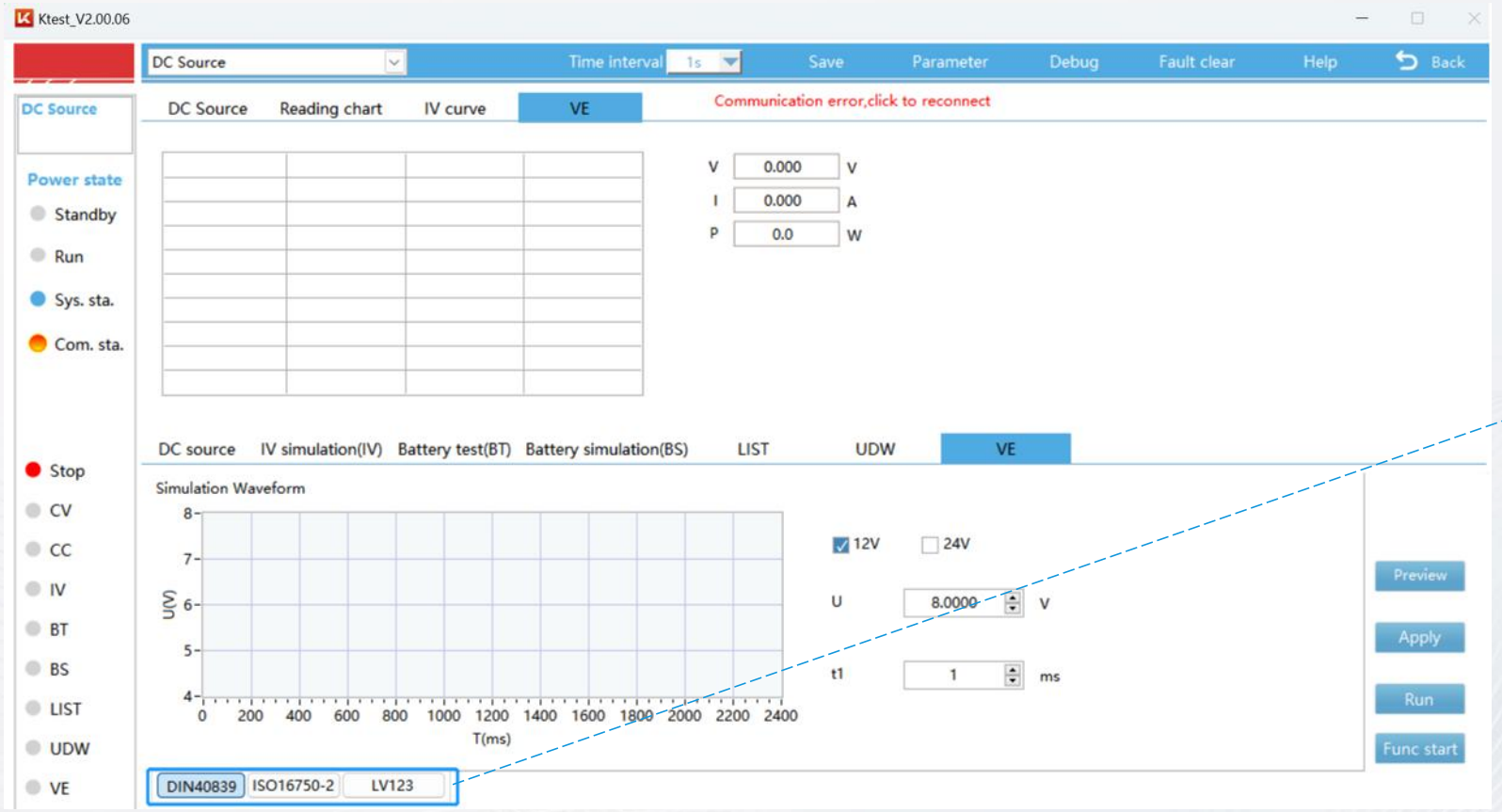






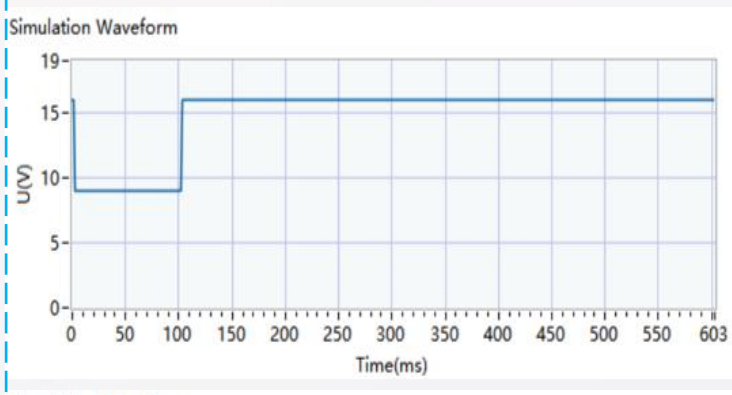
S7200 can generate triangle waves, rectangle waves and sine waves by setting (offset) (Amplitude) (Time1) (Time2).

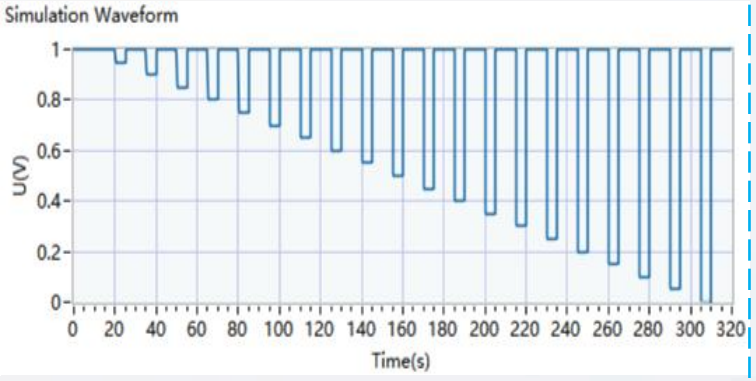
Automotive power curve

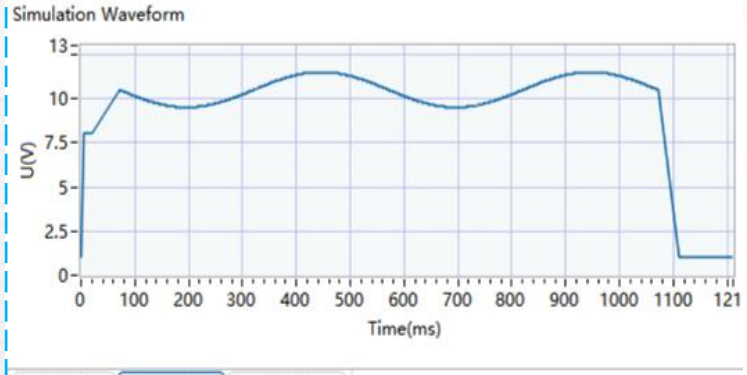


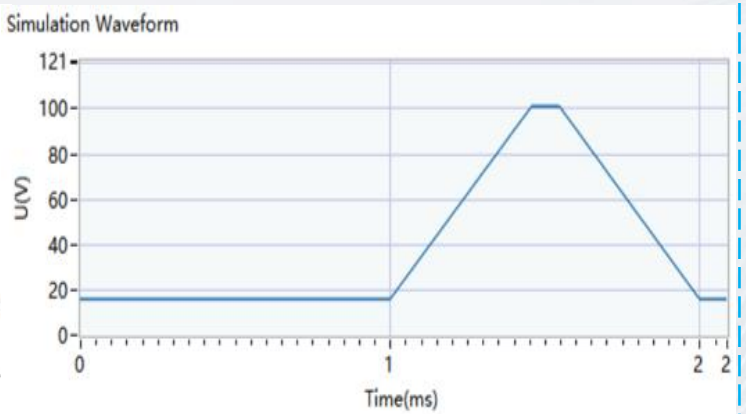
Automotive power curve

ISO16750-2



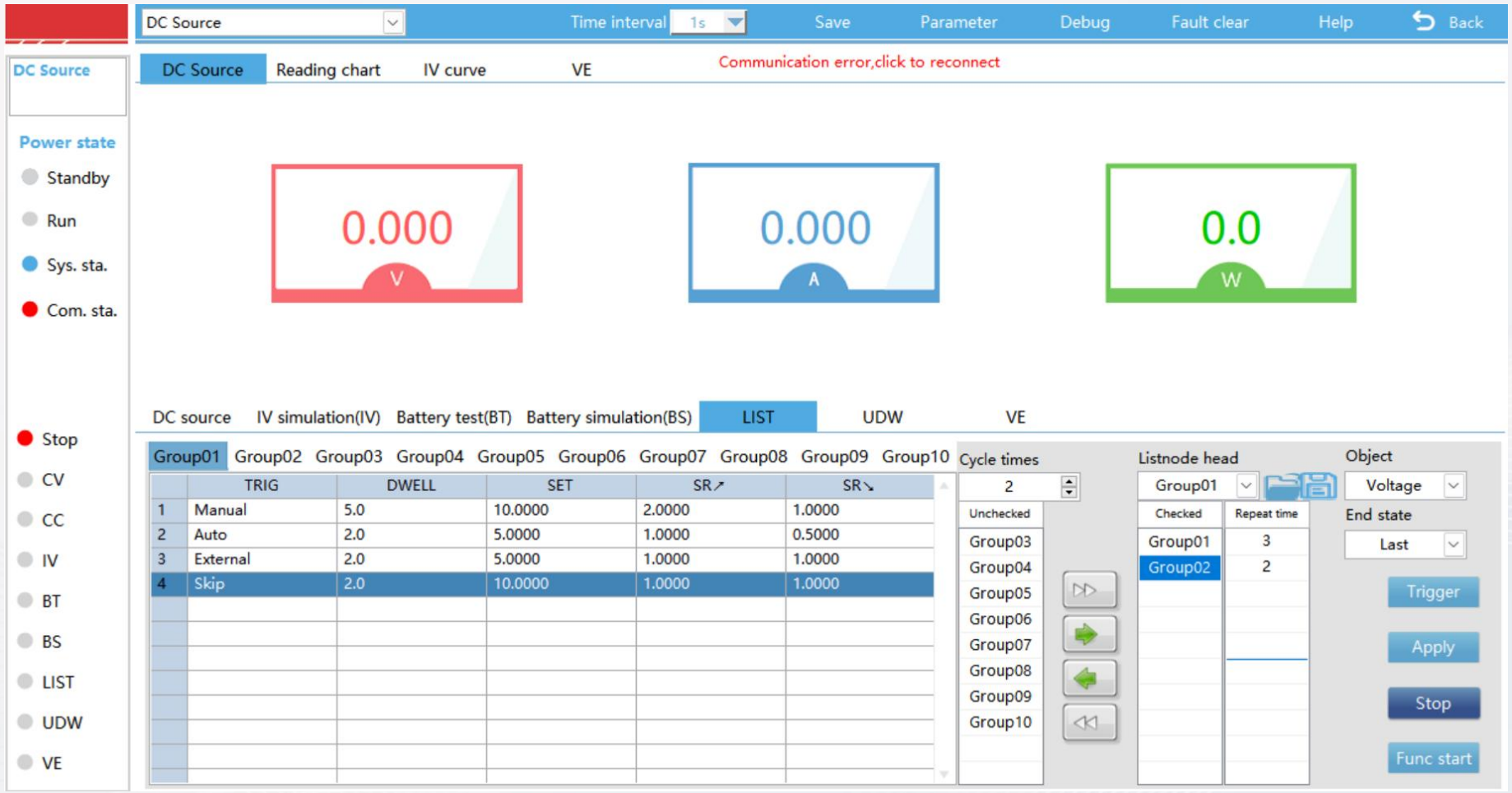






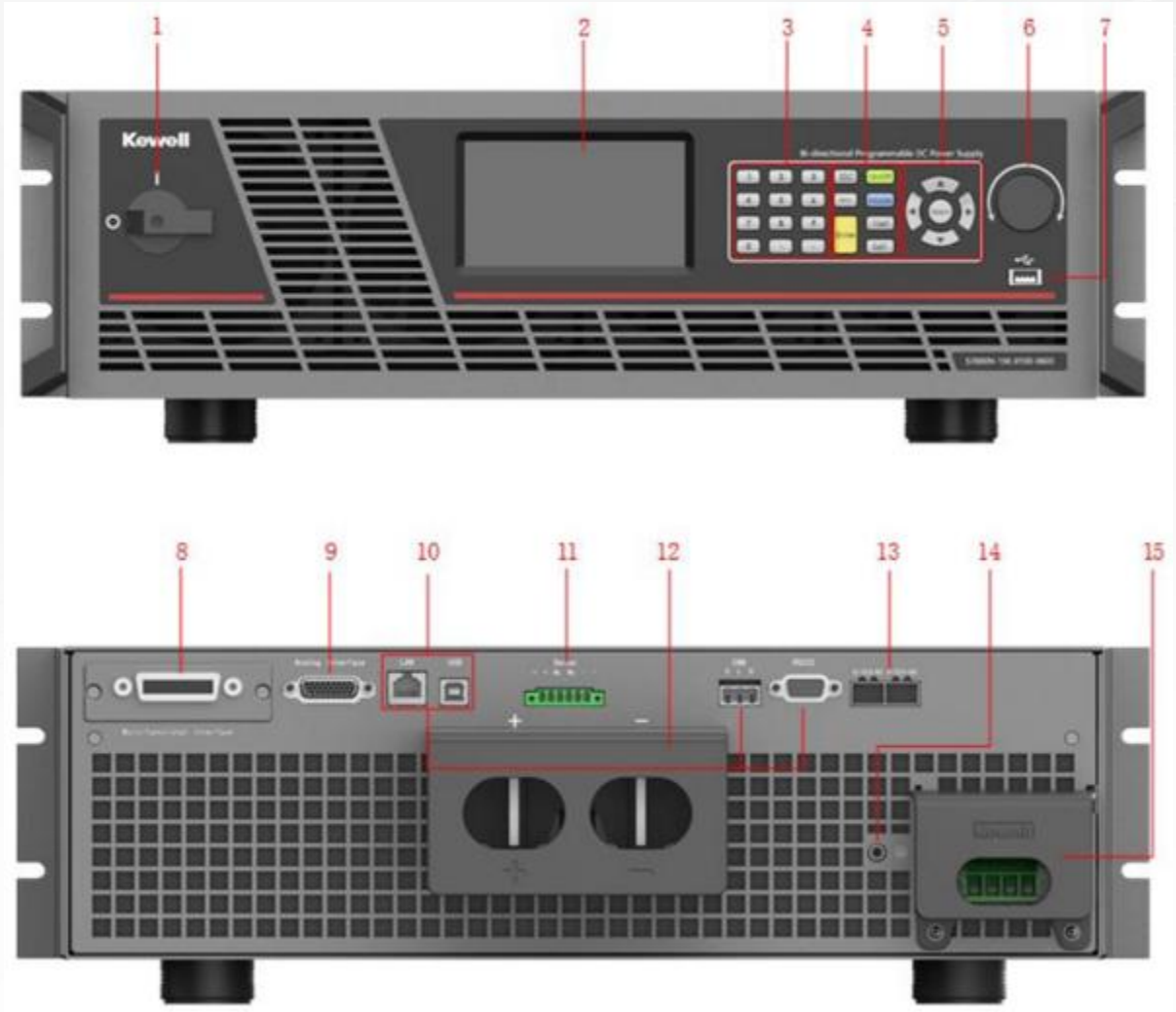
LV123

List Mode



List mode can support file programming for 10 groups, in each of which 10 arrays can also be edited, Single step can be set to 1ms，min voltage slew rate 0.001V/ms, cycles can be set from 1 to 65535 times

S7200 Appearance:

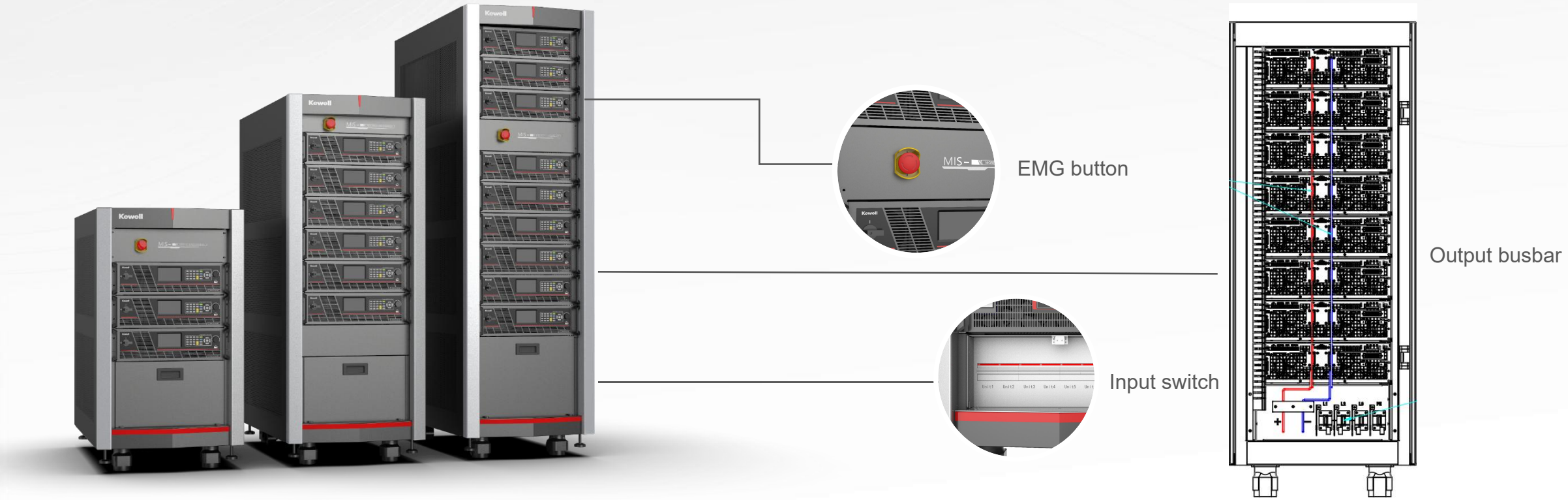


Num.	Name
1	Power switch
2	TFT screen
3	Numeric keys
4	Function keys
5	Arrow keys
6	Push-button knob
7	USB upgrading port
8	GPIB port
9	Analog interface
10	Communication interface (RS232/LAN/CAN/USB)
11	Remote sensing port
12	DC output port
13	Parallel interface
14	Grounding port
15	AC input port

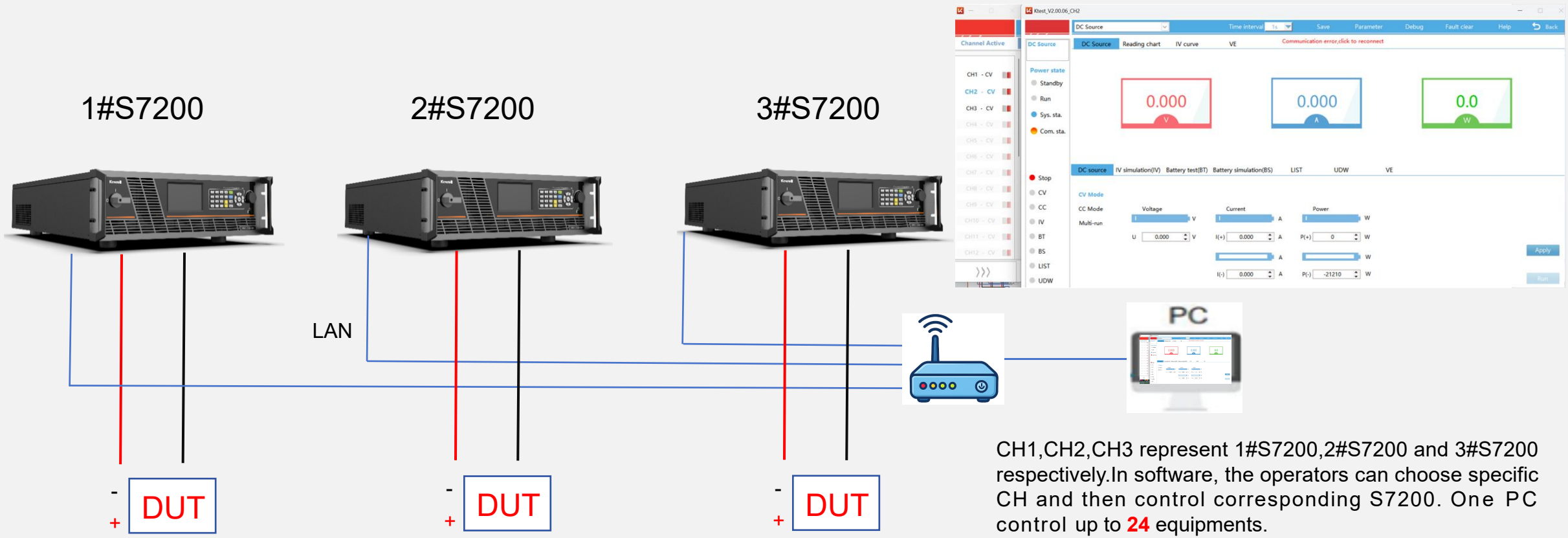
Operating in Parallel:

Model	Numbers	Weight(cabinet)
HK-15U	2~3	130kg
HK-29U	4~6	220kg
HK-42U	7~9	280kg

Note: There are two fiber optic cables (2m each) and fiber optic communication modules coming with the standard S7200 device. The series supports up to 10 devices in parallel connection.



Operating in One PC Control Multiple Equipments



CH1,CH2,CH3 represent 1#S7200,2#S7200 and 3#S7200 respectively.In software, the operators can choose specific CH and then control corresponding S7200. One PC control up to **24** equipments.

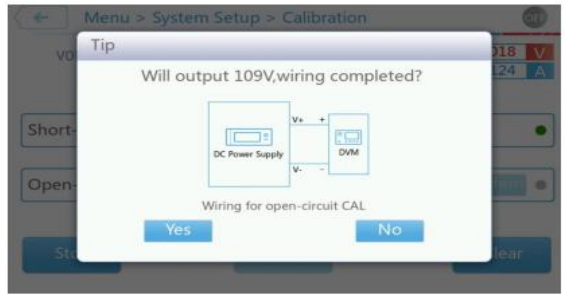
Multiple S7200 equipments communicate with PC via LAN through network switche,one PC can control multiple S7200 equipments,

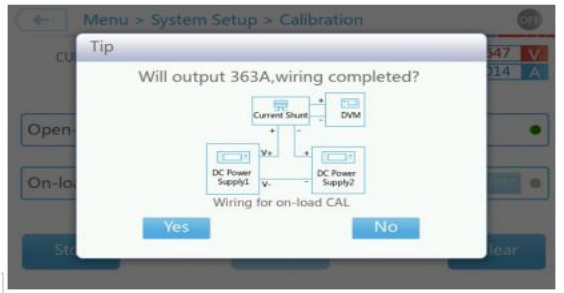
Fully Automatic One-Touch Calibration

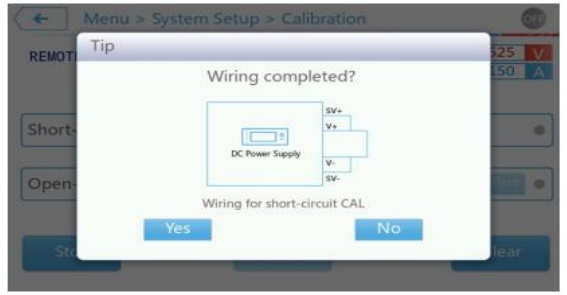
Voltage Calibration
--Short-circuit CAL
--Open-circuit CAL

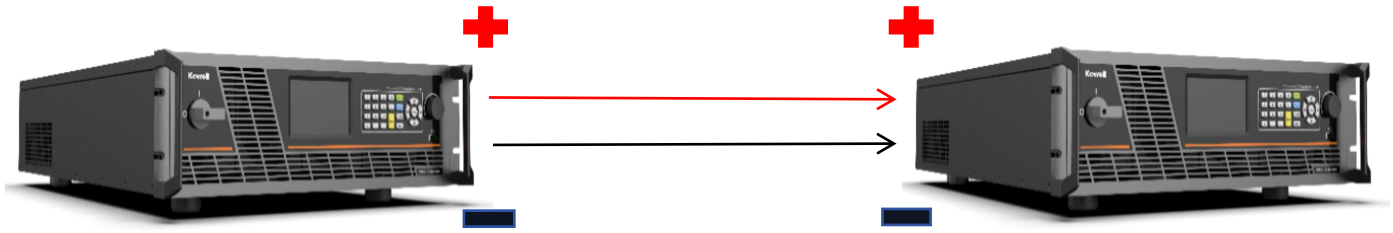
Remote Voltage Calibration
--Short-circuit CAL
--Open-circuit CAL

Current Calibration
--Short-circuit CAL
--On-load CAL









Introduction

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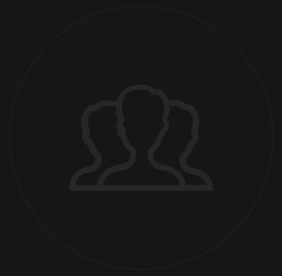
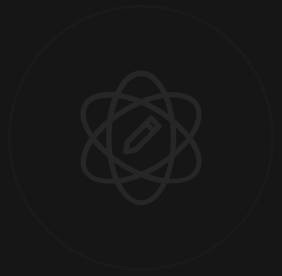


Comparison

02



Software

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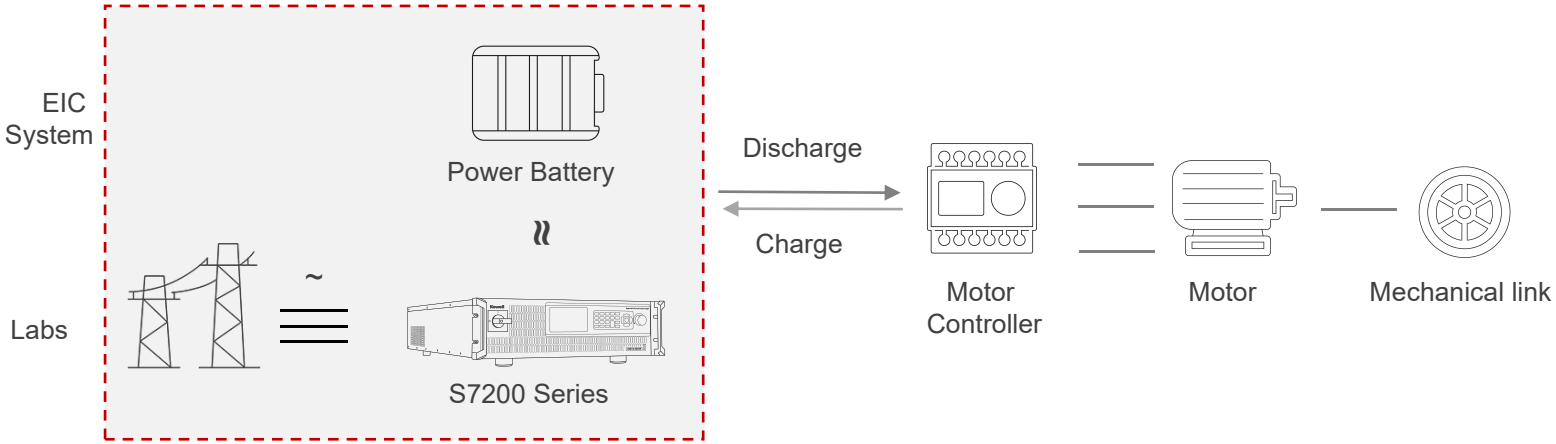
Application-Motor Controller Testing



Discharge of Battery:
Speed↑ Current Output↑ Power Consumption↑

Charge of Battery:
Recycling Power→Power decreased to be negative→Transient electrical consumption to be negative

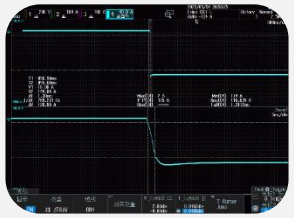
Battery Simulations

1.Simulating the EV running in reality, in which **Speeding up** is the process for **energy output**.

2.**Deceleration** process allows the output from power battery, which is **recycling energy**.

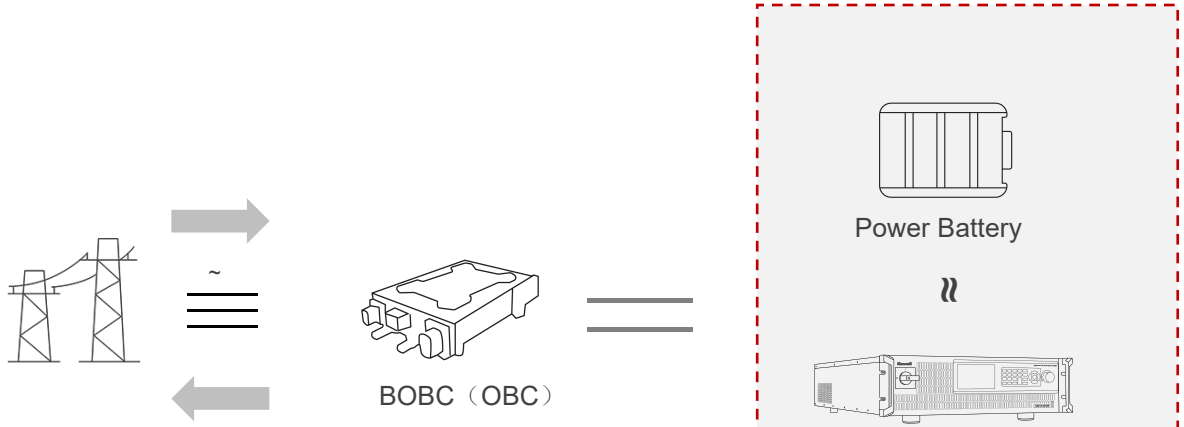
3.**Batteries of Lithium Iron Phosphate** and **Ternary Lithium** are typical Power source for EVs. Their performances can be simulated by our devices.

Transition from Average speed to Acceleration



Transition from Average Speed to Decceleration

Application-On Board Charger Test



Discharge of Battery:
Speed↑ Current Output↑ Power Consumption↑

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Battery Simulations

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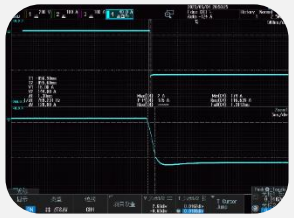
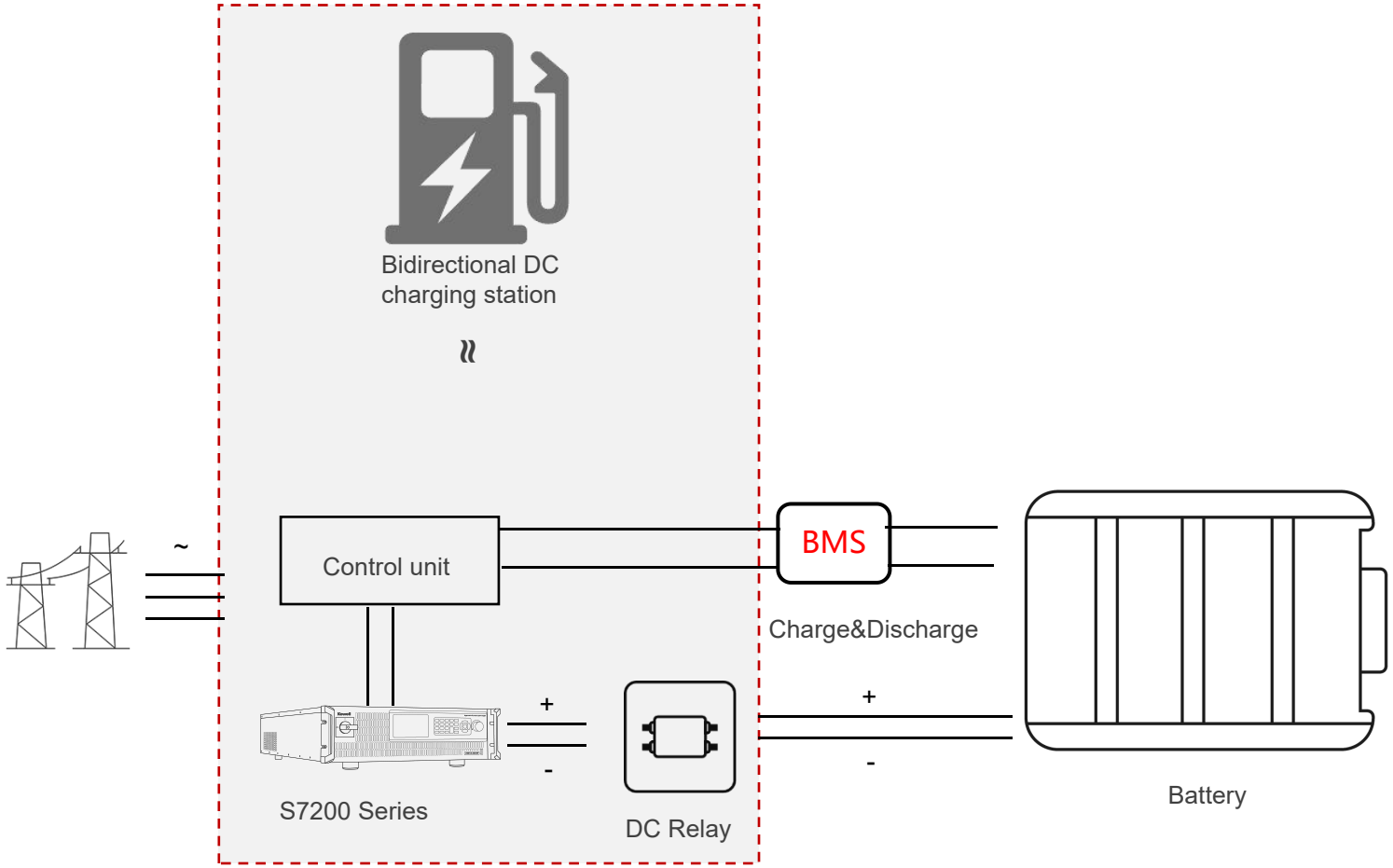
Transition from Average speed to Acceleration



Transition from Average Speed to Decceleration

Application-Battery Charge/Discharge Test

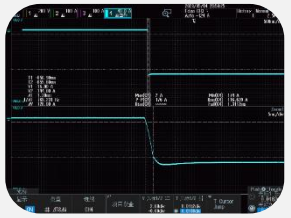


Charge/Discharge of Battery

1.Tests for **Module**, **Pack** and **Energy Storage Battery** Performance and Aging Test

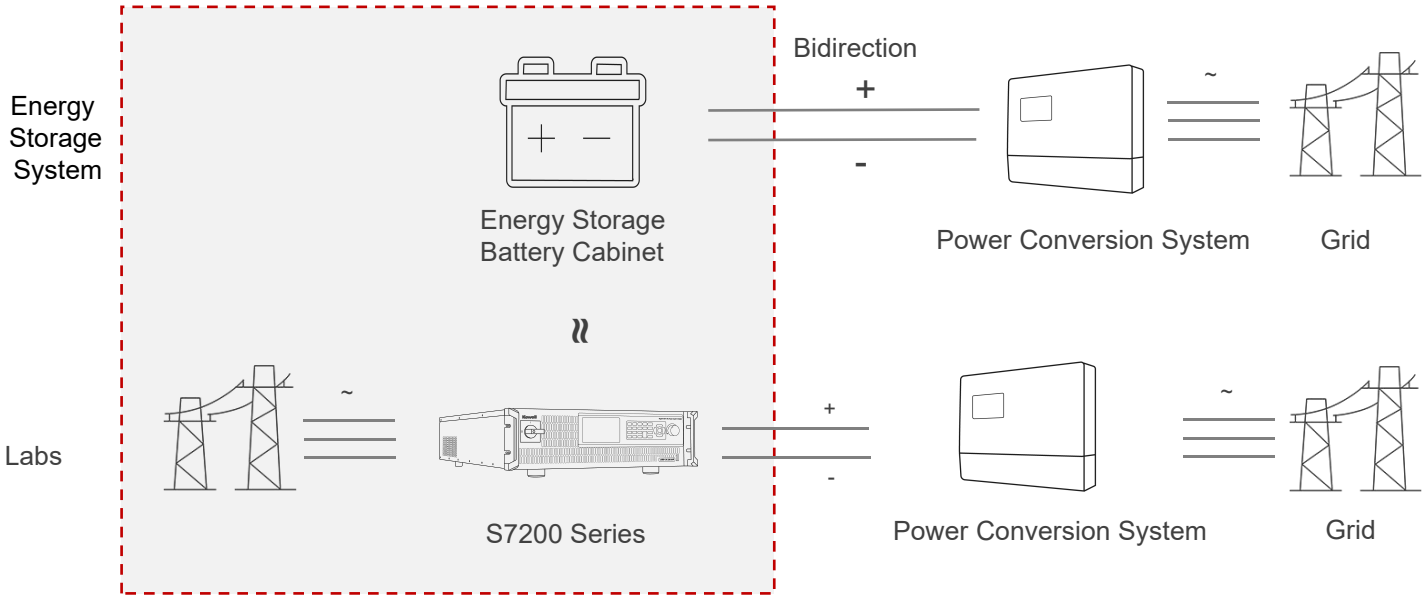
2.**Charge**,**Discharge** and **Quiescence** Test

Battery Charge



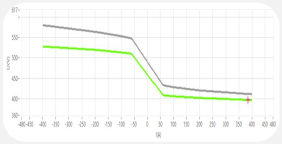
Battery Discharge

Application-Power Conversion System Test

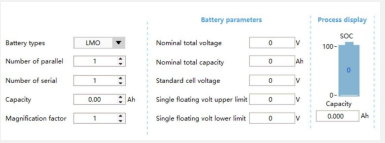


Battery Simulation

1. **Lithium Iron Phosphate Battery** is a typical energy storage unit and its performances can be simulated.
2.Simulation for **battery charge**.
3.Simulation for **battery discharge**.
4.Alternatives to real **power conversion system** for the **aging tests**

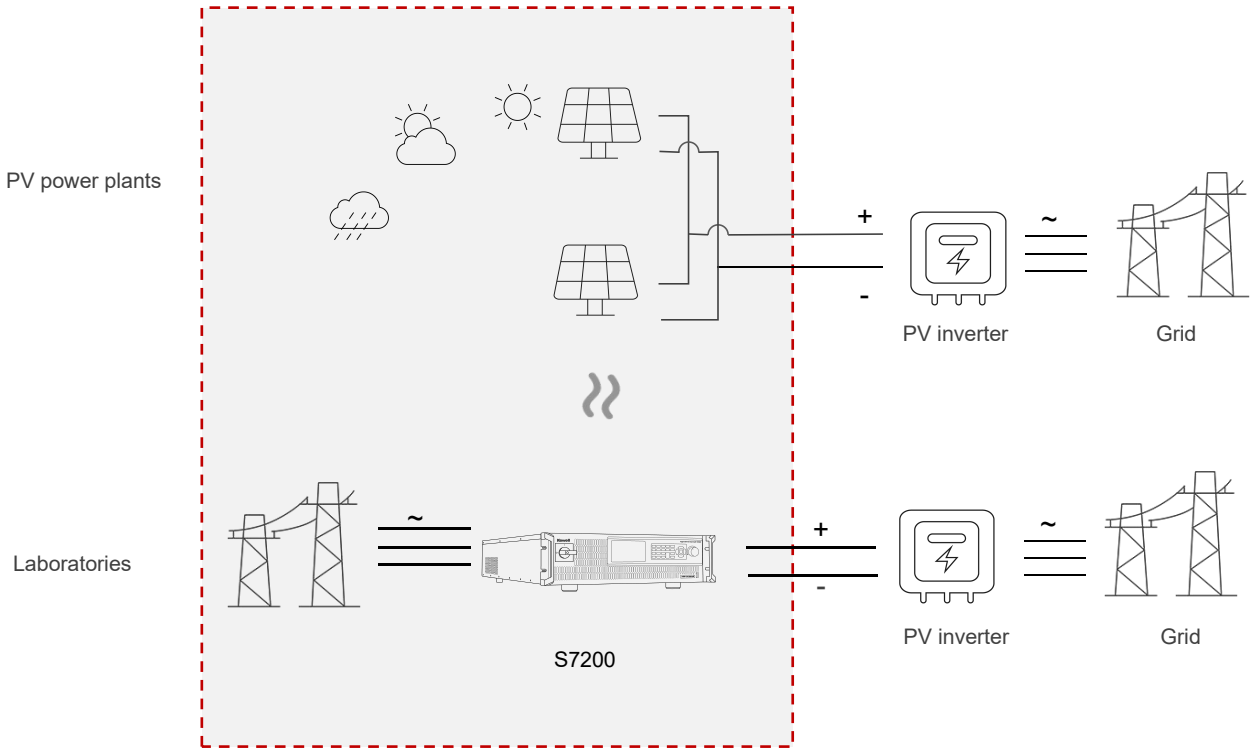


IV Simulation



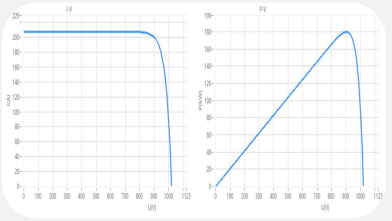
Simulation for multiple batteries

Application—IV Simulation

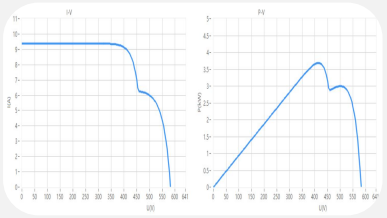


IV simulation function

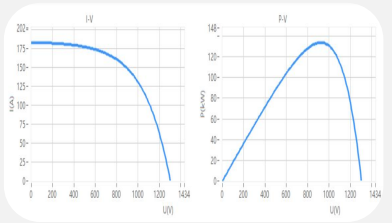
1. The equipment can simulate the corresponding characteristics of monocrystalline, polycrystalline, and thin film solar panels;
2. Simulate the output of solar panels on sunny days, cloudy days, rainy days, etc.
3. Static MPPT test, simulate a single output characteristic of solar cells;
4. Dynamic MPPT test, simulate multiple output characteristics of solar cells.



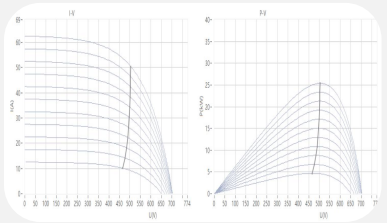
IV simulation



Shading



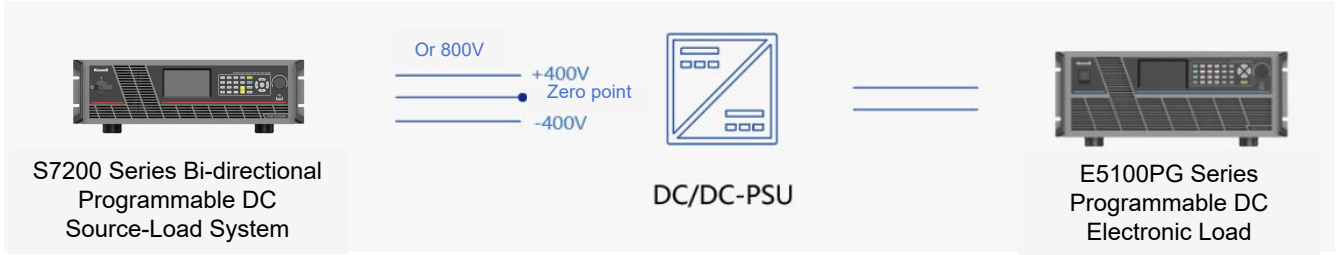
Static MPPT test



Dynamic MPPT test

Application—HVDC Test

HVDC-DC Test Platform



S7200 Series Bi-directional Programmable DC Source-Load System

E5100PG Series Programmable DC Electronic Load

HVDC-DC Power Range:

Power: 10kW/20kW and above

Input voltage: 800V/±400V, etc.

Output voltage: 54V.

S7000/S7200 Series

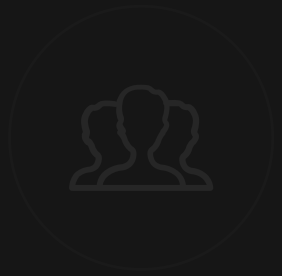
100/800/1200 V Voltage	600/240/100 A Current	5~30 kW Power
0.02 %F.S. Voltage accuracy	95 % Efficiency	

E5100P Series

150 V Voltage	600~2400A Current	6~60 kW Power
42 A/us Loading slope	50 kHz Dynamic loading frequency	

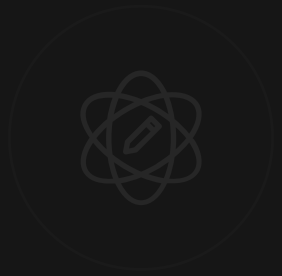
Introduction

01



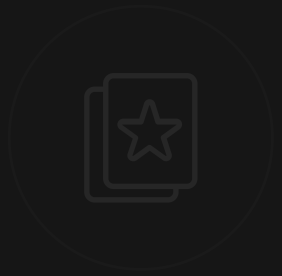
Comparison

02



Software

03



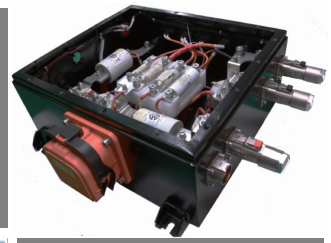
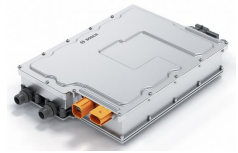
Application

04

More applications

05

More applications

01 Geen energy and energy storage		Fuel cell test		Capacitor	Solar charger	liquid-cooling charging pile module	Fuel cell DCDC test
02 EV and power	High-voltage components		DC motor	Electric motor		OBC	DCDC converter
03 Industry and communication power supply		Communication power supply	LED products		UPS	Power semiconductor components	Electric welding/ plating
04 High-power testing and R&D	High-speed electronic test	Micro-inverter	eVTOL industry		Automatic test systems	Bi-directional DC/DC converter	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covering versatile application industries based on test power supplies.
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