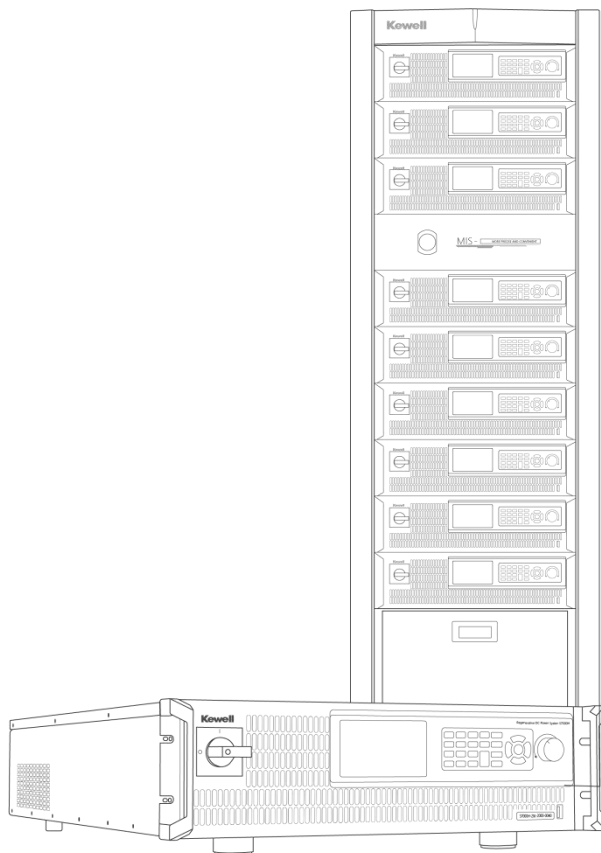




S7000UG SERIES

BIDIRECTIONAL PROGRAMMABLE DC SOURCE-LOAD SYSTEM

May. 2025 Version: A/8.1

KEWELL TECHNOLOGY CO., LTD.

www.kewelltest.com



ES France - Département Puissance Energie
127 rue de Buzenval BP 26 - 92380 Garches



Tél. 01 47 95 99 45
Fax. 01 47 01 16 22



e-mail : tem@es-france.com
Site Web : www.es-france.com



CONTENTS

1 Summary	1
2 Advantages	2
3 Product Specifications	3
4 Technical Parameters	4
5 Functions	6
6 Appearance	12



1 Summary

S7000 Series is a high precision DC power source (hereinafter referred to as S7000) supporting energy regenerative feature.

As a DC source, it supports dual quadrant energy flow.

High conversion efficiency and high-power density. 3U-sized enables it to power up to 30kW and output voltage up to 2000V. Support parallel operation of multiple machines. Human-computer interface: Colorful touchscreen and knob. It can be applied in battery testing, battery storage inverter testing, electronic testing of EV, etc.



Medium / High Voltage Series



2 Advantages

- **Ultra-high power density**

Maximum power density per device up to 3U/30kW, compact, lightweight and space efficient.

- **Source & load in one**

The bidirectional power supply supports seamless switching between the two quadrants, while the source-load system supports one-button switching between source & load.

- **Fast dynamic response**

Microsecond response for sudden loading/unloading, with response time as short as 1ms.

- **Parallel operation**

Flexible paralleling for higher power.

- **Built-in standard curves**

Built-in standard curves such as EN50530, NB/T32004, CGC/GF004, CGC/GF035, one click to call.

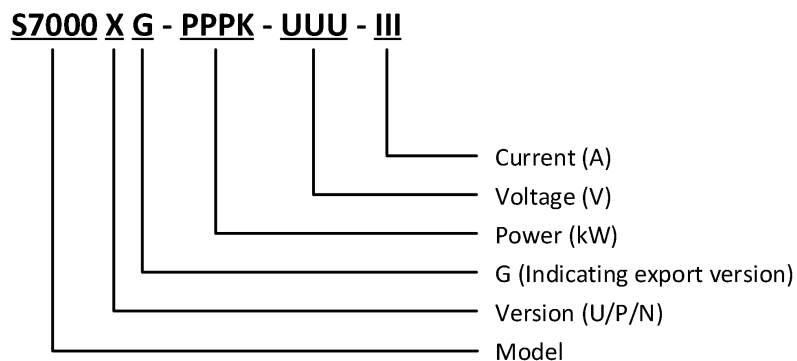
- **CC/CV Priority**

CV mode supports voltage switching at high speed while CC mode supports switching without overshoot, meeting various test requirements.



3 Product Specifications

3.1 Product Naming



3.2 Product Portfolio

- **Ultra**

Model	Power [kW]	Voltage [V]	Current [A]
S7000UG-7K5-0750-0060	7.5kW	750V	60A
S7000UG-15K-0750-0120	15kW	750V	120A
S7000UG-30K-0750-0180	30kW	750V	180A
S7000UG-15K-1500-0060	15kW	1500V	60A
S7000UG-21K-2000-0060	21kW	2000V	60A
S7000UG-30K-2000-0060	30kW	2000V	60A

3.3 Functions

Version	U
Bidirectional DC Power Source	•
IV Simulation	•
Battery Test	•
Battery Simulation	•
DC Electronic load	•

Note:

- come with standard machine

- none



4 Technical Parameters

4.1 Technical Parameters

Technical specifications for S7000UG series medium and high voltage models:

Model		S7000UG-7K5 -0750-0060	S7000UG-15K- 0750-0120	S7000UG-30K -0750-0180	S7000UG-15K- 1500-0060	S7000UG-21K -2000-0060	S7000UG-30K- 2000-0060
Power Supply							
Rated	Voltage	750V	750V	750V	1500V	2000V	2000V
	Current	60A	120A	180A	60A	60A	60A
	Power	7.5kW	15kW	30kW	15kW	21kW	30kW
Read-back Resolution	Voltage	0.01V					
	Current	0.01A					
	Power	1W					
Accuracy	Voltage	≤0.05%F.S.					
	Current	≤0.1% F.S.					
Line Regulation	Voltage	≤0.02%F.S.					
	Current	≤0.02%F.S.					
Load Regulation	Voltage	≤0.05%F.S.					
	Current	≤0.05%F.S.					
Ripple	Voltage Vpp (20MHz)	< 1000mV	< 3000mV	< 3000mV	< 3000mV	< 3000mV	< 3000mV
	Voltage (rms)	< 200mV	< 300mV	< 300mV	< 400mV	< 400mV	< 400mV
	Current (rms)	< 60mA	< 100mA	< 100mA	< 60mA	< 60mA	< 60mA
Slew Rate	Voltage (no load)	0.001V/ms ~ 80V/ms	0.001V/ms ~ 200V/ms	0.001V/ms ~ 200V/ms	0.001V/ms ~ 200V/ms	0.001V/ms ~ 200V/ms	0.001V/ms ~ 200V/ms
	Voltage (full load)	0.001V/ms ~ 30V/ms			0.001V/ms ~ 90V/ms		
	Current	0.001 ~ 20A/ms	0.001 ~ 60A/ms	0.001 ~ 60A/ms	0.001 ~ 20A/ms	0.001 ~ 20A/ms	0.001 ~ 20A/ms
Dynamic Response Time		< 1ms					
Overshoot/Drop*1		10%	15%	15%	15%	10%	15%
AC Input	Voltage	342 ~ 528Vac					
	Frequency	47Hz ~ 63Hz					
	Max. current	13.5A	27A	53.8A	27A	37.8A	53.8A
	Max. apparent power	8kVA	16kVA	32kVA	16kVA	22.4kVA	32kVA
Load							
Rated	Input Voltage	750V	750V	750V	1500V	2000V	2000V
	Input Current	60A	120A	180A	60A	60A	60A
	Input Power	7.5kW	15kW	30kW	15kW	21kW	30kW



Model		S7000UG-7K5 -0750-0060	S7000UG-15K- 0750-0120	S7000UG-30K -0750-0180	S7000UG-15K- 1500-0060	S7000UG-21K -2000-0060	S7000UG-30K- 2000-0060
	Input Resistance	7500Ω	7500Ω	7500Ω	7500Ω	7500Ω	7500Ω
	Max. Operating voltage	6V@60A	6V@120A	6V@180A	6V@60A	10V@60A	10V@60A
Read-back Resolution	voltage	0.01V					
	Current	0.01A					
	Power	1W					
Setting Resolution	Resistance	0.1Ω					
Accuracy	Voltage	≤0.05%F.S.					
	Current	≤0.1% F.S.					
	Power	≤0.3% F.S.					
	Resistance	≤1%Rmax (0 ~ 10%Rmax); ≤5%Rmax (10% ~ Rmax)					
Common Parameters							
Withstand Voltage		1500Vdc					
Efficiency		≈95%					
Power Factor		> 0.99					
Protection		OVP, OCP, OPP, OTP, anti-island, Sense reverse connection protection					
Communication		RS485/LAN/CAN/USB					
IP Grade		IP20					
Storage temperature		-20℃ ~ +70℃					
Ambient Temperature		0 ~ 40℃					
Humidity		0 ~ 90%RH, 25℃ non-condensing					
Altitude		2000m					
Dimensions (mm)		736(D)*445(W)*132.5(H)					
Weight (net weight)		34kg	39kg	46kg	39kg	46kg	46kg

*1: Rated voltage fluctuation value at sudden change of 0-50% resistive load (at maximum voltage slew rate).

The above specifications are subject to updates without further notice.

4.2 Optional Configuration

Optional Configuration	
GPIB	Communication interface
Soft start box for battery test	Battery testing requires a soft-start box between the DC output and the battery to ensure that the circuit is disconnected before wiring.

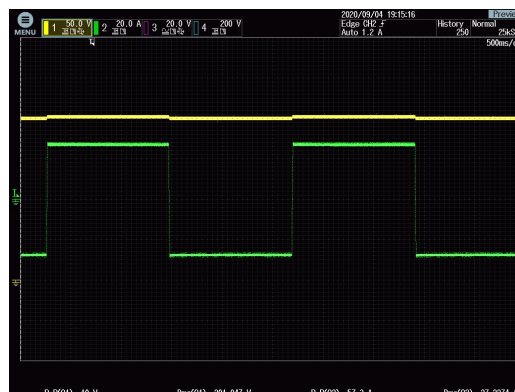
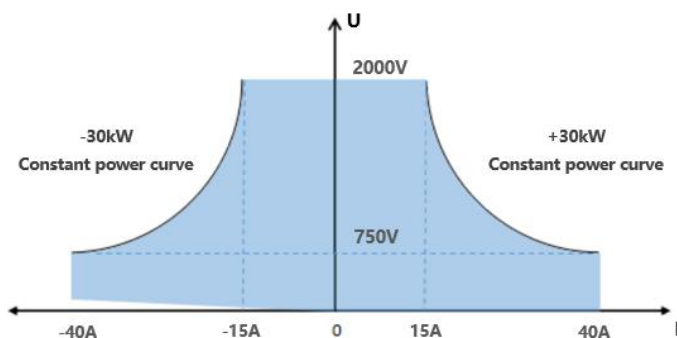
5 Function

5.1 Bidirectional DC Power Supply

- Bidirectional DC Power Supply**

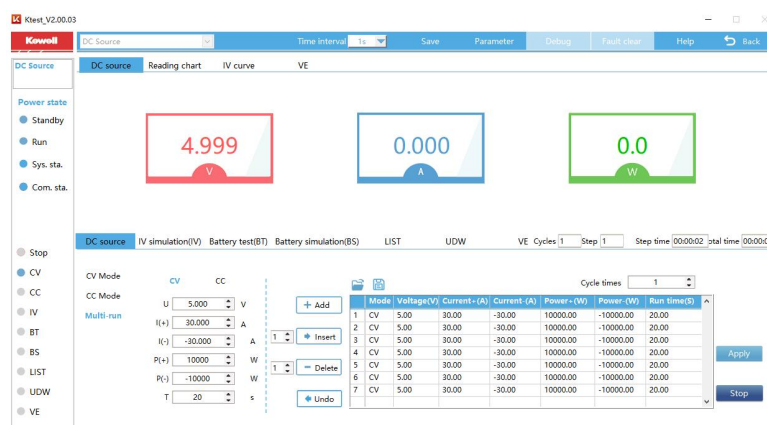


S7000 is a high-speed bi-directional power supply that enables high-speed conversion between source and load modes. The current can be seamlessly switched during bi-directional conversion, effectively avoiding voltage and current overshoot. Widely used in the fields such as battery, charging pile, and energy storage converter PCS.



● Multi-step operation:

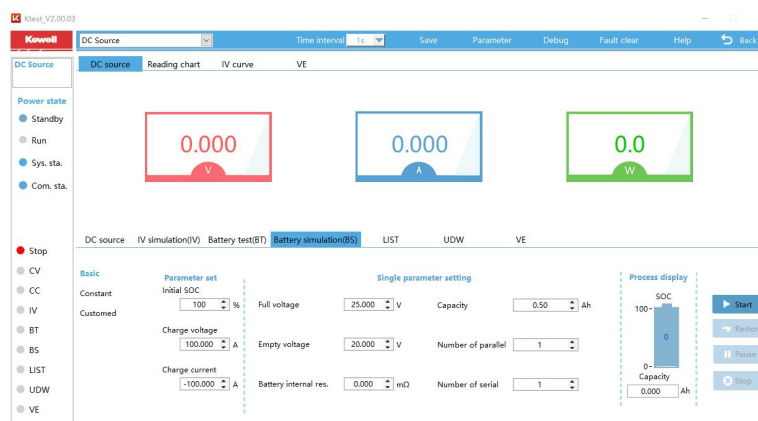
Up to 999 work steps editable, work steps can be set in cycles.



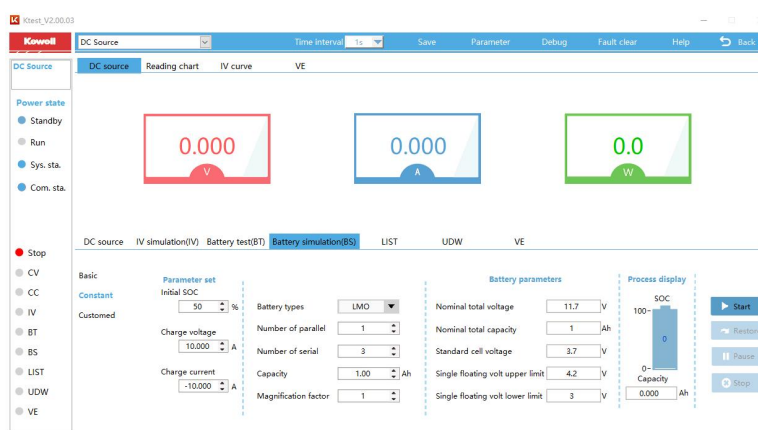
5.2 Battery Simulation

Standard mode: parameters: [Initial Soc], [Discharge Limit], [Charge Limit], [Fully-charged Voltage], [Fully-discharged Voltage], [Battery Internal Resistance], [Capacity], [Number in Parallel], [Number in Series] can be set for testing.

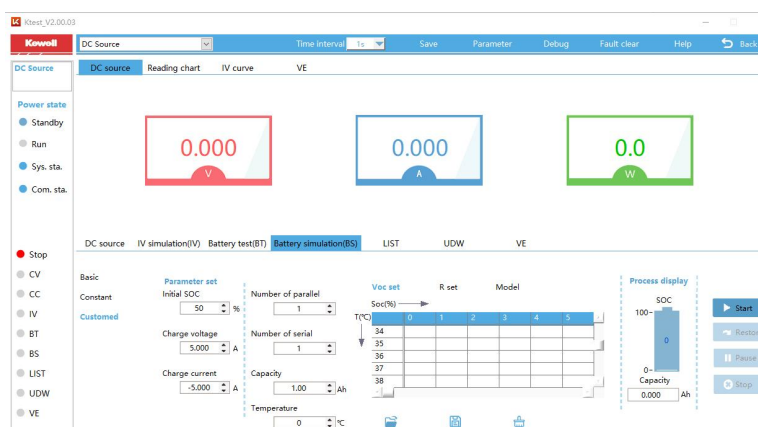




Fixed battery type mode: Lithium manganese oxide, lithium cobalt oxide, lithium iron carbonate, nickel-metal hydride batteries, ternary lithium, lithium titanate and other battery types can be selected for simulation.



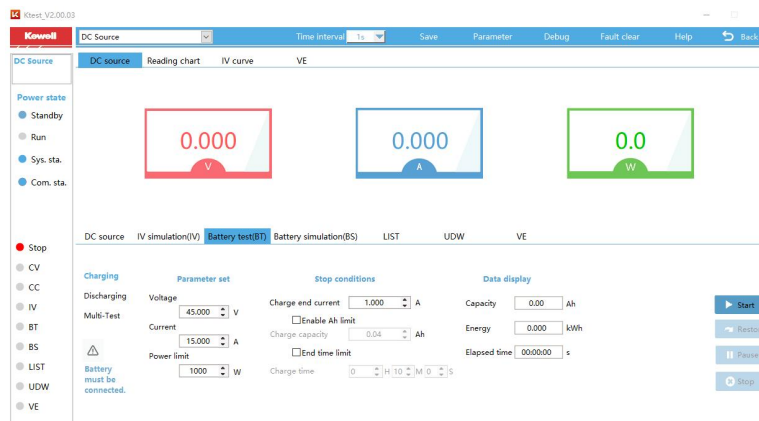
Custom battery type: At a given temperature and SoC, fill in the open circuit voltage and internal resistance in the sheet, or import the Excel file written in advance, then set other parameters and click to start running.



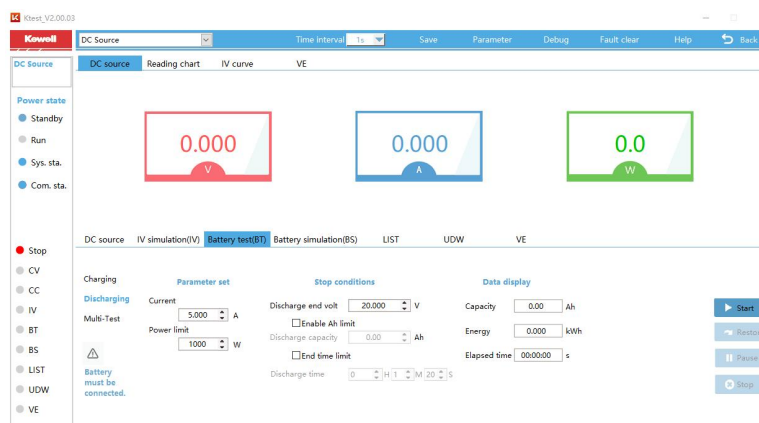
5.3 Battery Pack Charge-discharge Function

Static charging mode: parameters such as charging voltage, charging current and charging power can be set,

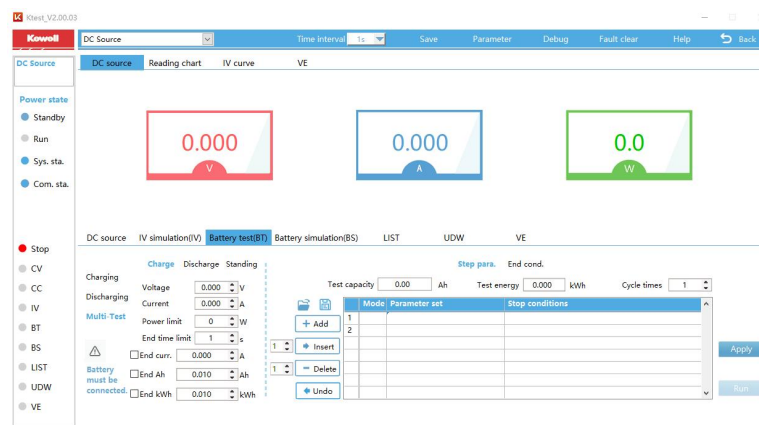
while the charging cut-off conditions including end-of-charge current, capacity and time can also be set.



Static discharging mode: parameters such as discharge current and discharge power can be set, as well as discharge cut-off conditions including end-of-discharge voltage, capacity and time.



In the battery test mode, users can set parameters such as static charging and discharging mode and standby time to simulate different operating conditions.



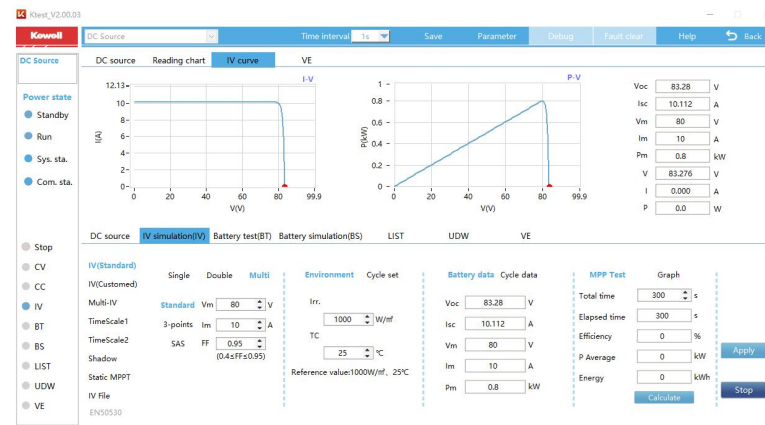
Note: Battery testing requires a soft-start box between the DC output and the battery to ensure that the circuit is disconnected before wiring.



5.4 IV simulation

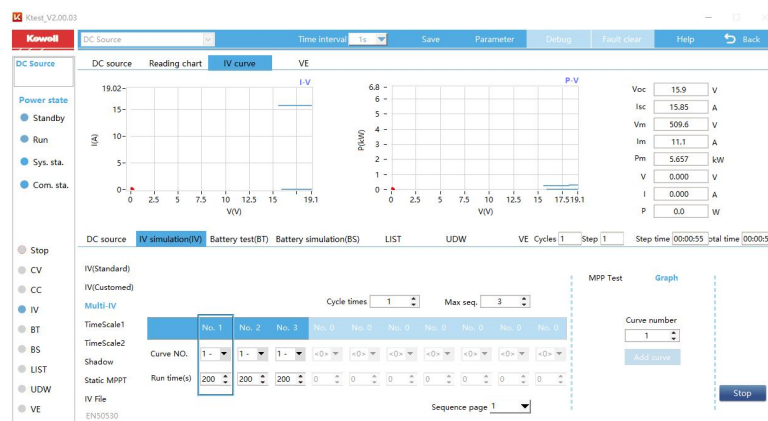
Photovoltaic array simulation.

Three modes: single-point, double-point and multi-point setting.



- **Multi-step IV mode**

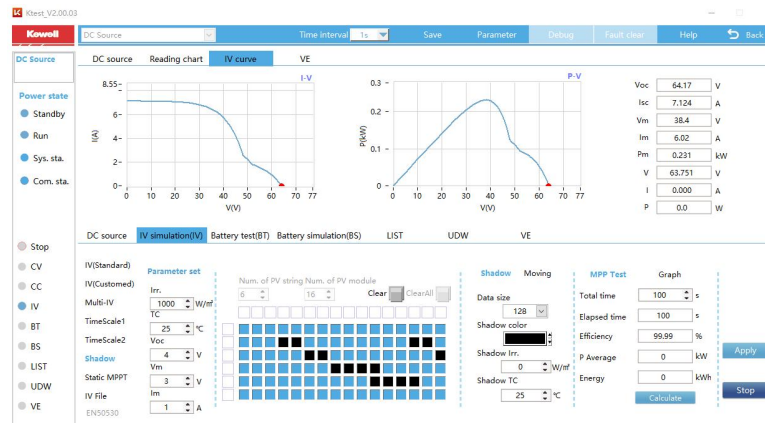
Up to 100 IV curves can be set. Users can also select to import IV curve files to run.



- **Shadow (Multimodal shadow curve) function**

S7000 can simulate the IV curve (multimodal shadow curve) of shaded solar panels. Users can set the irradiance, temperature, array type, shadow movement direction, etc.





● Time scaling

S7000 can simulate the typical output changes of solar panels in a given period of time. The characteristic mode, array type, irradiance and temperature parameters can be set.



● Static MPPT test

Users can select single or multi-step configuration mode to test static MPPT performance.



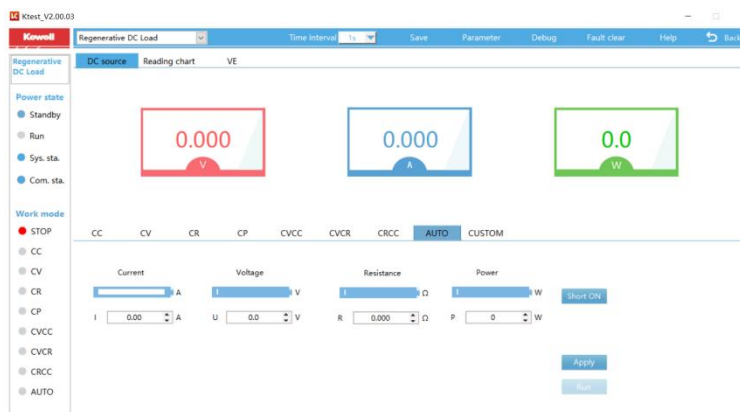
● Dynamic MPPT test

S7000 has the built-in dynamic test environment of EN50530 standard, with three power bands "1%-10%", "10%-50%" and "30%-100%", supporting detailed testing of the MPPT performance of the PV inverter.



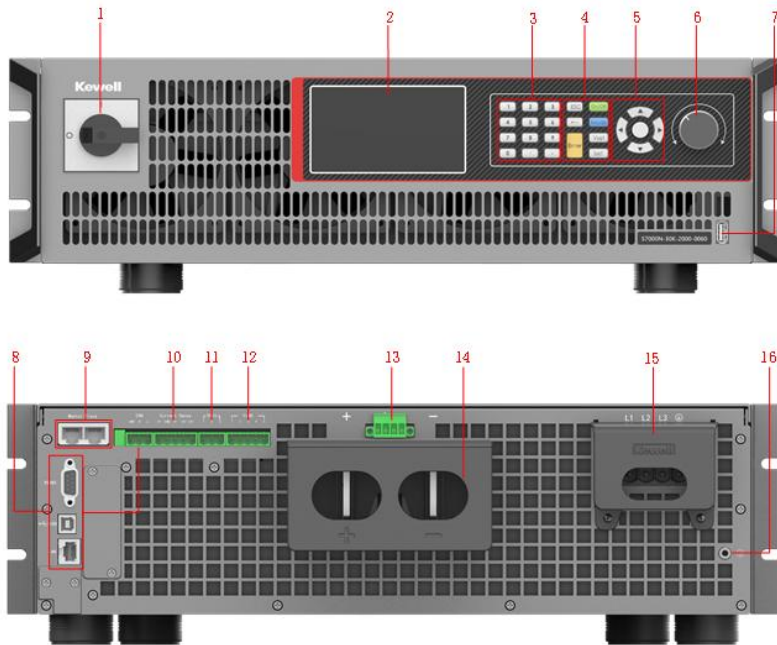
5.5 Regenerative load function

S7000 supports a variety of operating modes, including basic operation modes: CC, CV, CP, CR and composite operation modes: CV+CC, CV+CR, CC+CR, CV+CC+CP+CR.



6 Appearance

6.1 Single device



No.	Name
1	Power switch
2	TFT touch screen
3	Numeric keypad
4	Function keypad
5	Arrow keys
6	Pushable knob
7	USB
8	Communication interface
9	Parallel interface
10	Remote sense
11	Sync signal interface
12	Multifunctional interface
13	Remote sense
14	DC output
15	AC input
16	Grounding interface

S7000 Medium / High Voltage Series($\geq 750V$)

6.2 Parallel



Specification	Number of devices	Weight (cabinet alone)
HK-15U cabinet	2~4	130kg
HK-29U cabinet	5~8	220kg
HK-42U cabinet	9~10	280kg