



SP-3U/6U Series Wide-range High-power Programmable DC Power Supply & System

- High Efficiency
- High Precision
- High Stability

Application Guide

- DC Power Supply: P2-P9
- DC Power Supply System: P10-P17

SP-3U/6U Series Wide-range High-power Programmable DC Power Supply

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(3U)6000W~18000W



(6U)24000W~36000W

Rated Voltage	Output		Model	Size	Ripple		Response		Internal Resistance
	Rated Current	Rated Power			Voltage	Current	Voltage increase	Voltage Drop	
80V	200A	6000W	SP80VDC6000W	3U ①	<180mVpp, <15mVrms	<100mArms	<15ms (No Load) <30ms (Full Load)	<850ms (No Load) <15ms (Full Load)	0~12Ω
	400A	12000W	SP80VDC12000W	3U ②	<288mVpp, <23mVrms	<200mArms			0~6Ω
	600A	18000W	SP80VDC18000W	3U ③	<320mVpp, <25mVrms	<300mArms			0~4Ω
	800A	24000W	SP80VDC24000W	6U ④	<320mVpp, <25mVrms	<360mArms			0~3.0Ω
	1000A	30000W	SP80VDC30000W	6U ⑤	<320mVpp, <25mVrms	<450mArms			0~2.4Ω
	1200A	36000W	SP80VDC36000W	6U ⑥	<320mVpp, <25mVrms	<540mArms			0~2.0Ω
165V	180A	12000W	SP165VDC12000W	3U ②	<540mVpp, <50mVrms	<100mArms	<15ms (No Load) <30ms (Full Load)	<900ms (No Load) <15ms (Full Load)	0~27.5Ω
	360A	24000W	SP165VDC24000W	6U ④	<540mVpp, <50mVrms	<200mArms			0~13.75Ω
	540A	36000W	SP165VDC36000W	6U ⑥	<540mVpp, <50mVrms	<300mArms			0~9.167Ω
250V	180A	18000W	SP250VDC18000W	3U ③	<550mVpp, <50mVrms	<100mArms	<15ms (No Load) <30ms (Full Load)	<950ms (No Load) <15ms (Full Load)	0~41.6667Ω
360V	42.5A	6000W	SP360VDC6000W	3U ①	<320mVpp, <55mVrms	<21mArms	<15ms (No Load) <80ms (Full Load)	<800ms (No Load) <15ms (Full Load)	0~440Ω
	85A	12000W	SP360VDC12000W	3U ②	<320mVpp, <55mVrms	<43mArms			0~220Ω
	127.5A	18000W	SP360VDC18000W	3U ③	<320mVpp, <55mVrms	<64mArms			0~147Ω
	170A	24000W	SP360VDC24000W	6U ④	<350mVpp, <60mVrms	<85mArms			0~64Ω
	212.5A	30000W	SP360VDC30000W	6U ⑤	<350mVpp, <60mVrms	<106mArms			0~51Ω
	255A	36000W	SP360VDC36000W	6U ⑥	<350mVpp, <60mVrms	<128mArms			0~43Ω
500V	32A	6000W	SP500VDC6000W	3U ①	<600mVpp, <150mVrms	<16mArms	<15ms (No Load) <80ms (Full Load)	<1500ms (No Load) <15ms (Full Load)	0~469Ω
	64A	12000W	SP500VDC12000W	3U ②	<650mVpp, <160mVrms	<32mArms			0~235Ω
	96A	18000W	SP500VDC18000W	3U ③	<650mVpp, <160mVrms	<48mArms			0~157Ω
	128A	24000W	SP500VDC24000W	6U ④	<650mVpp, <160mVrms	<64mArms			0~118Ω
	160A	30000W	SP500VDC30000W	6U ⑤	<650mVpp, <160mVrms	<80mArms			0~94Ω
	192A	36000W	SP500VDC36000W	6U ⑥	<650mVpp, <160mVrms	<96mArms			0~79Ω
750V	21A	6000W	SP750VDC6000W	3U ①	<900mVpp, <225mVrms	<11mArms	<15ms (No Load) <80ms (Full Load)	<600ms (No Load) <20ms (Full Load)	0~1072Ω
	42A	12000W	SP750VDC12000W	3U ②	<1000mVpp, <250mVrms	<22mArms			0~536Ω
	63A	18000W	SP750VDC18000W	3U ③	<1000mVpp, <250mVrms	<33mArms			0~358Ω
	84A	24000W	SP750VDC24000W	6U ④	<1000mVpp, <250mVrms	<44mArms			0~268Ω
	105A	30000W	SP750VDC30000W	6U ⑤	<1000mVpp, <250mVrms	<55mArms			0~215Ω
	126A	36000W	SP750VDC36000W	6U ⑥	<1000mVpp, <250mVrms	<66mArms			0~179Ω
1000V	32A	12000W	SP1000VDC12000W	3U ②	<1500mVpp, <320mVrms	<22mArms	<15ms (No Load) <85ms (Full Load)	<1700ms (No Load) <15ms (Full Load)	0~937.5Ω
	64A	24000W	SP1000VDC24000W	6U ④	<1500mVpp, <320mVrms	<26mArms	<15ms (No Load) <80ms (Full Load)	<1700ms (No Load) <15ms (Full Load)	0~468.75Ω
	96A	36000W	SP1000VDC36000W	6U ⑥	<1500mVpp, <320mVrms	<48mArms	<15ms (No Load) <80ms (Full Load)	<1700ms (No Load) <15ms (Full Load)	0~312.5Ω
1500V	21A	12000W	SP1500VDC12000W	3U ②	<2500mVpp, <600mVrms	<11mArms	<15ms (No Load) <80ms (Full Load)	<700ms (No Load) <20ms (Full Load)	0~2142Ω
	32A	18000W	SP1500VDC18000W	3U ③	<1950mVpp, <650mVrms	<22mArms	<15ms (No Load) <90ms (Full Load)	<1800ms (No Load) <15ms (Full Load)	0~1406.25Ω
	42A	24000W	SP1500VDC24000W	6U ④	<2500mVpp, <600mVrms	<22mArms	<15ms (No Load) <80ms (Full Load)	<700ms (No Load) <20ms (Full Load)	0~1071Ω
	63A	36000W	SP1500VDC36000W	6U ⑥	<2500mVpp, <600mVrms	<33mArms	<15ms (No Load) <80ms (Full Load)	<700ms (No Load) <20ms (Full Load)	0~714Ω
2250V	21A	18000W	SP2250VDC18000W	3U ③	<3200mVpp, <750mVrms	<11mArms	<15ms (No Load) <85ms (Full Load)	<800ms (No Load) <20ms (Full Load)	0~3214Ω

Dimensions & Weight



① 423.0x133.0x718.0 mm & 27kg



② 423.0x133.0x718.0 mm & 38kg



③ 423.0x133.0x718.0mm & 50kg



④ 423.0x265.0x745.0 mm & 75kg



⑤ 423.0x265.0x745.0 mm & 86kg



⑥ 423.0x265.0x745.0 mm & 97kg

Optional Information

(1) US standard, input voltage range: 187~253Vac*

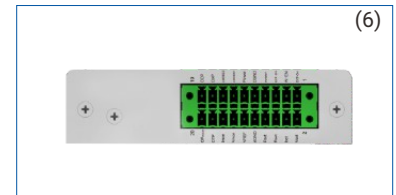
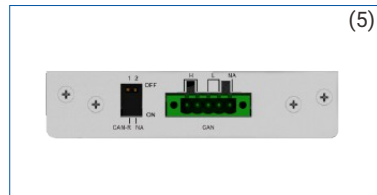
(2) European standard, input voltage range: 340~460Vac*

(3) Continuous source & sink function*

(4) GPIB & LAN communication card & cables

(5) CAN communication card

(6) TTL/Analog control card



* These options must be specified at the time of order as they are installed at the factory prior to shipment.

Features

- Large color touch screen with intuitive interface provides an excellent intuition operational experience.
- 3-phase input voltage meets worldwide power distribution regulation, AC mains 187~253Vac/340~460Vac for optional.
- Constant voltage (CV), constant current (CC) and constant power (CP) operation mode, CC or CV working priority setting.
- Adjustable voltage/current slew rate.
- DDS arbitrary function generator.*
- Solar panel I-V curve simulation function.*
- Smart 3-stage charging algorithm simulation.*
- Battery simulator function.*
- Continuous source & sink function, with APM DC E-load to expand loading capability (optional).
- List/ Step mode programming.
- TTL/Analog control and monitoring.
- Built-in standard automotive power network voltage curves.*
- Full protection: OVP, OCP, OPP and OTP protection.
- Supports master-slave mode, paralleling up to 16 units.
- Supports SCPI commands, provides web GUI function.

* Only professional version units support these functions.

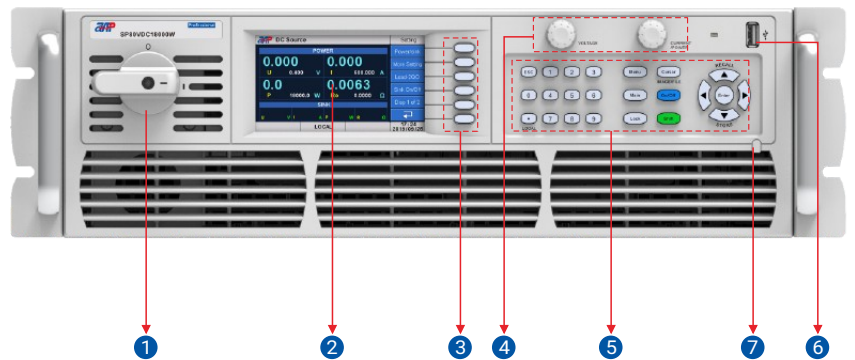
Supported Functions Professional Version Only

No.	Description	Application
1	DDS arbitrary function generator	Includes a true function generator, built-in typical functions, supports complex waveforms creation, used for testing purposes in development and production
2	Solar panel I-V curve simulation function	Users can set the parameters to simulate I-V curve characteristic output
3	Smart 3-stage charging algorithm simulation	Commonly used charging curve simulation
4	Battery simulator function	Truly simulate the changes of internal resistance of battery in charging and discharging test.
5	Built-in standard automotive power network voltage curves	Users can recall the built-in standard curve to do the DUT performance test directly.

Panel Introduction

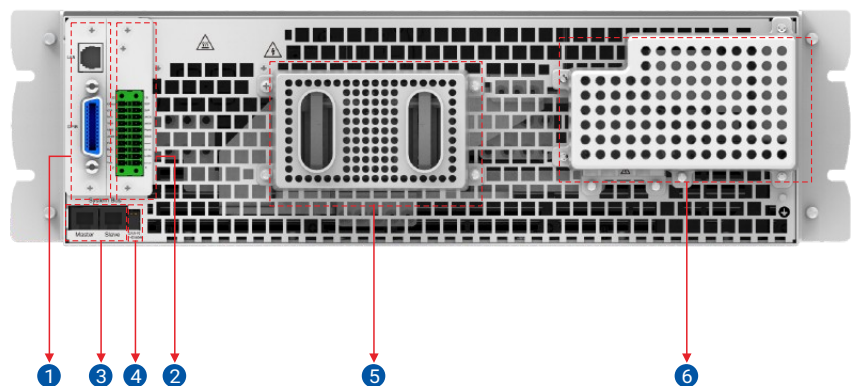
Front Panel Description

- ① Power switch
- ② Color touch screen
- ③ Selection soft keys
- ④ Voltage/Current & Power knob
- ⑤ Numeric and functional keys
- ⑥ USB port, for data transfers and firmware upgrading
- ⑦ Stylus



Rear Panel Description

- ① RS485/RS232/USB communication interface (standard), LAN&GPIB communication interface (optional), CAN communication interface (optional)*
- ② External TTL/Analog control interface.
- ③ System Bus, for master/slave system data transmission
- ④ Termination resistor CAN-R
- ⑤ DC output negative/positive terminal
- ⑥ AC mains input connector

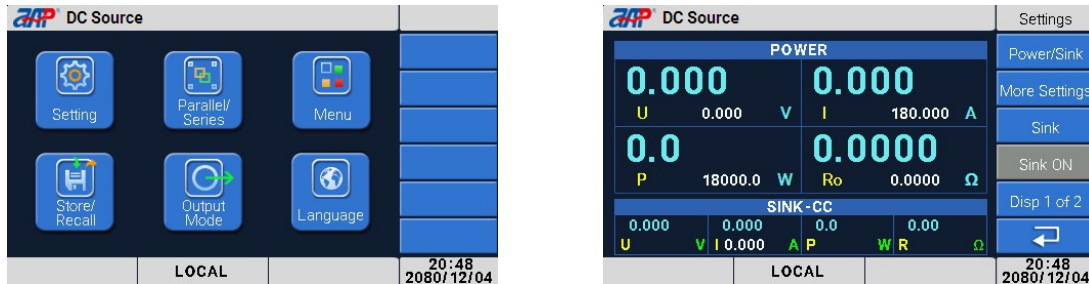


* These interface option installs in place of the standard RS485/RS232/USB interfaces, occupies the same physical slot.

Function Introduction

Graphical User Interface

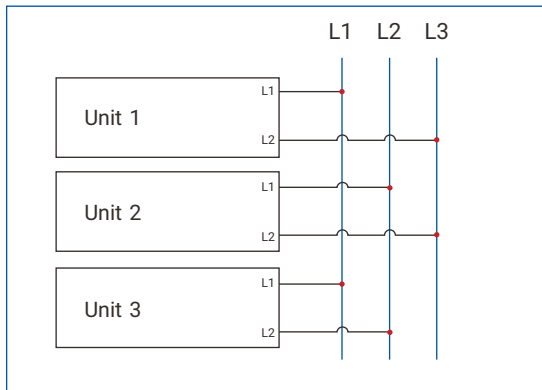
The large color touch screen provides simple and fast operation for customers, real-time update of display output data and power status. The actual values are displayed with bigger characters, so they can be read from a large distance.



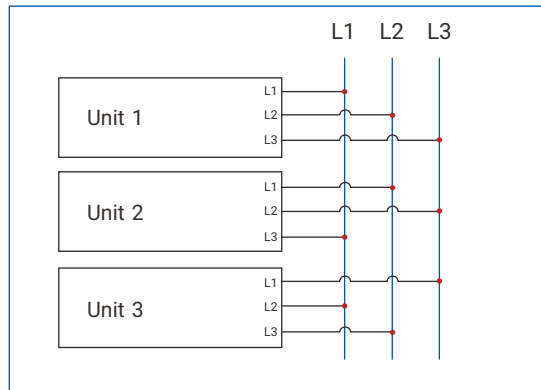
Wide Input Voltage Range & High Power Density

3-phase input voltage range 187~460Vac meets worldwide power distribution regulation. 36kW/6U high density, higher efficiency, lower ripple and fast response make it ideal for test requirements in different periods of different applications. This series power supply can have from one to three internal 6kW power blocks, each of which is connected across a separate phase of the 3-phase AC mains. The following figures illustrate how to install three 6kW units or three 12kW to obtain a balanced current draw on the 3-phase AC mains.

Phase balancing connection for three 6kW units

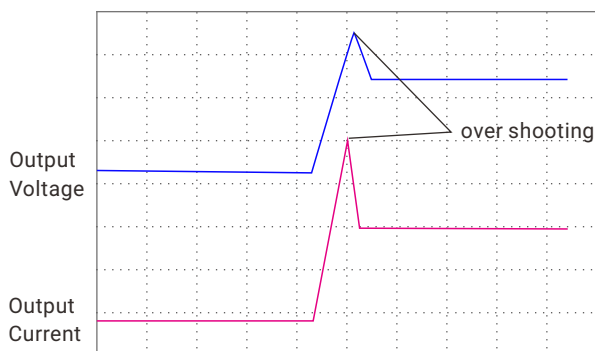


Phase balancing connection for three 12kW units

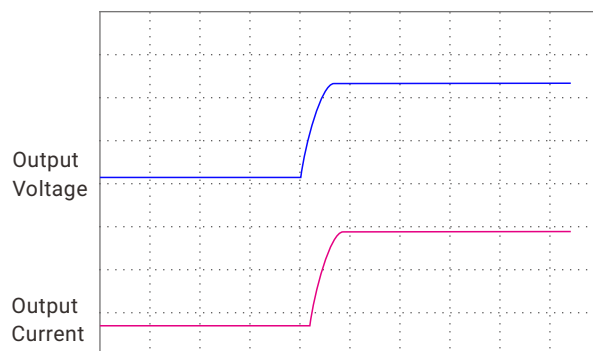


CC & CV Priority

This series power supply provides CC/CV priority function allows the user to select suitable mode correspond to test requirement, let the output be voltage high speed or current no overshoot mode. Below shows an application of CC priority to avoid current overshoot during LED test.



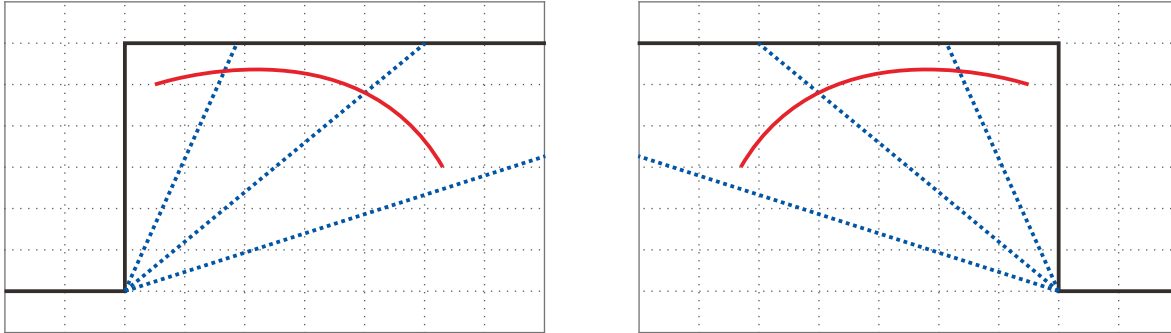
CV priority in LED test



CC priority in LED test

Adjustable Voltage/Current Slew Rate

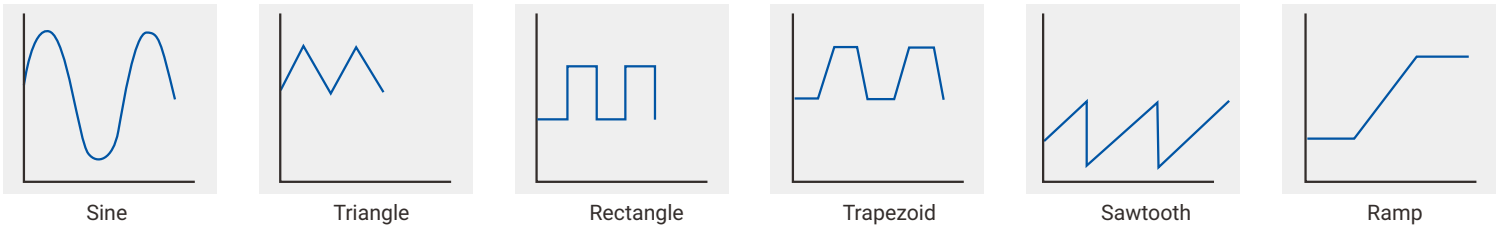
This series power supply provides adjustable rise and fall slew rate setting for voltage and current.



* Actual ramp down time may shift refer to load.

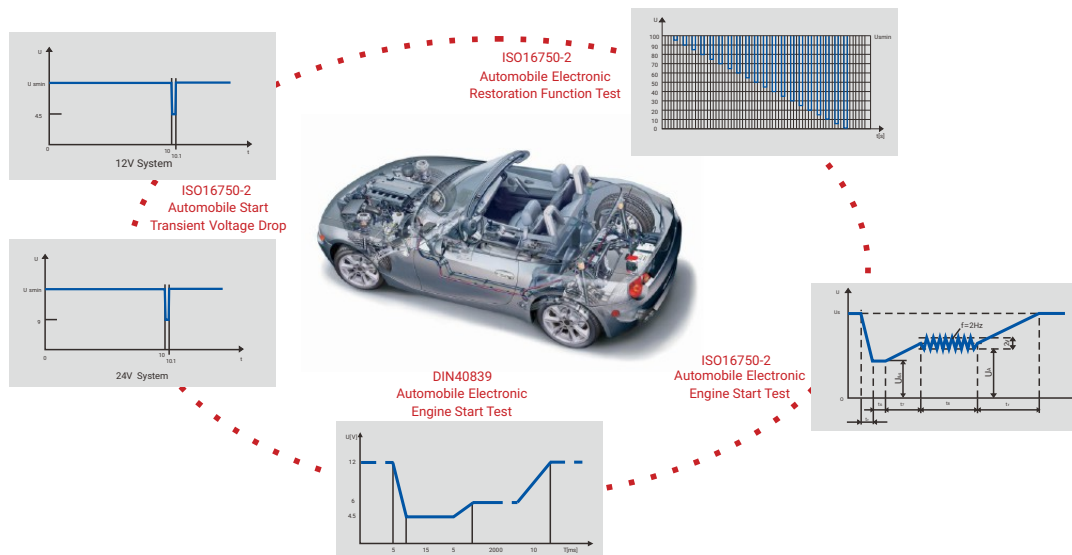
DDS Arbitrary Function Generator

This series power supply includes a true function generator which can generate typical functions as displayed below, convenient for editing or directly recall. Additional to the standard functions, this arbitrary generator is accessible for the creation and execution of complex sets of functions, which is can be used for testing purposes in development and production.



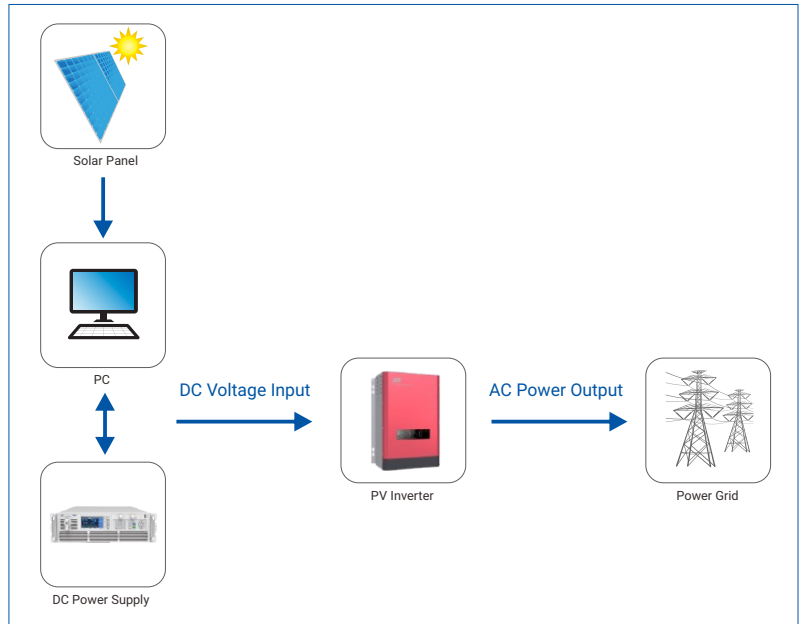
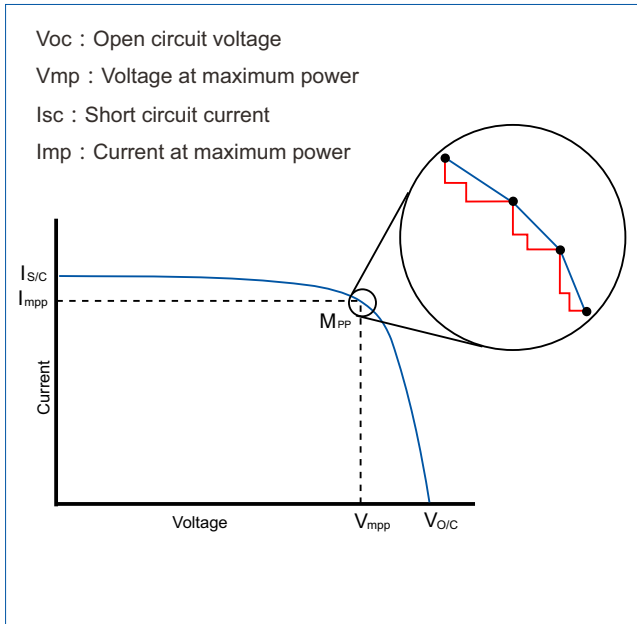
Built-in Standard Automotive Power Network Voltage Curves

This series power supply has built-in German DIN40839 standard voltage curve for the automotive power network and the international standard ISO-16750-2 pulse waveform. The fast rise/fall response time together with arbitrary function generate ability make it can truly simulate the influence on the performance of automotive electronic equipment under different test conditions, is the preferred power testing instrument in the automotive electronics industry.



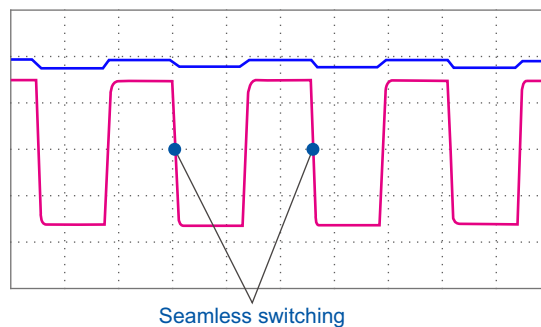
Solar Panel I-V Curve Simulation Function

The power supply provides a unique feature to simulate the output characteristics of a solar array includes Curve Mode, User-defined Mode and SAS Mode. With Curve mode, only need to set four parameters to simulate the solar array I-V curve. With User-defined mode, user can shape an I-V curve by entering up to 4096 points to simulate dynamic cloud cover effect which is useful for MPPT performance evaluation on PV inverter device. With built-in SAS mode, user can set the parameters to simulate I-V curve characteristic output and generate reports.



Continuous Source & Sink Function (optional)

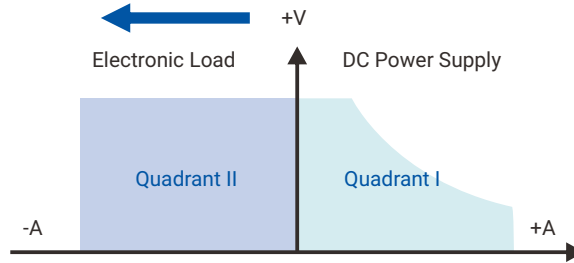
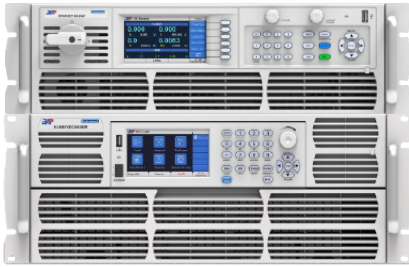
Additionally to the Source mode, this series power supply is equipped with electronic load, also called Sink mode, to absorb power, that enables it work as a two-quadrant power supply. The switchover between these two operating modes occurs without interruption and time loss, thus avoiding overshoot of voltage or current. As a power supply, CV, CC, CP modes are available. As an electronic load, CV, CC, CP and CR mode are available. Thus making it suitable for inductive load and capacitive load testing.



SP-3U/6U Series Wide-range High-power Programmable DC Power Supply

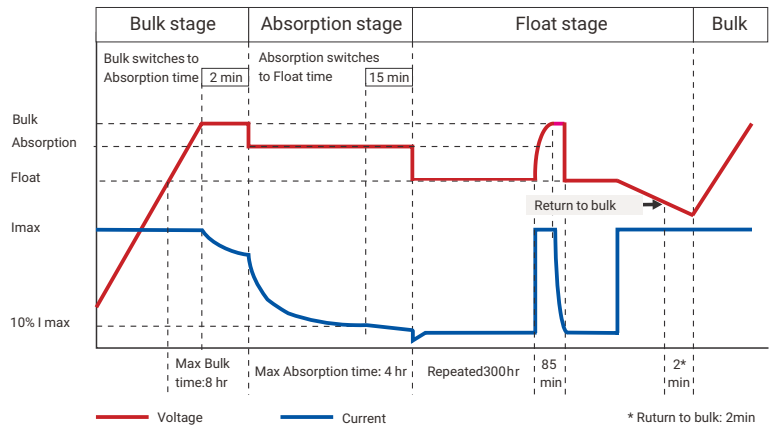
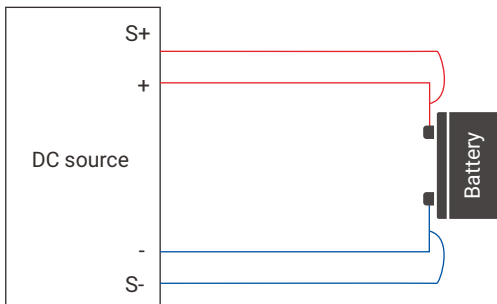
With APM DC E-load To Expand Loading Capability

If a large fast current sinking capability is required, the user can choose APM programmable electric DC loads as well. A power supply can connect and control three DC loads at the same time through CAN communication to realize a rapid response system. Meeting demanding requirements of high power discharging test.



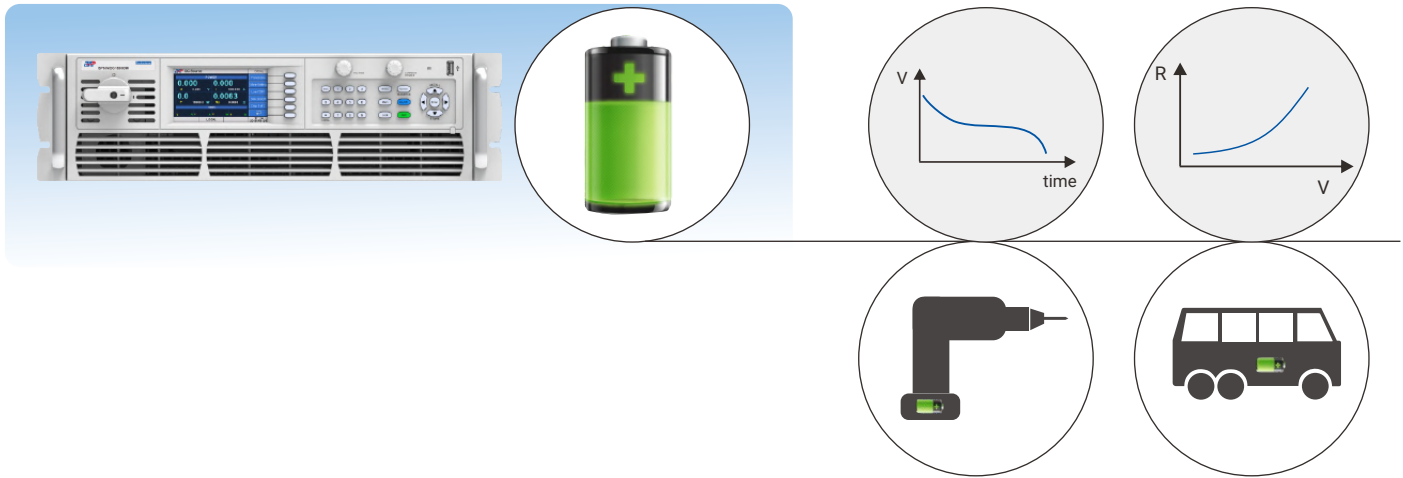
Smart 3-stage Charging Algorithm Simulation

This series power supply adopts 3-stage charging algorithm, built-in charging curves which is suitable for the commonly known types of batteries on the market. Users can directly recall the default curves or change the switching conditions at different charging stage according to the test requirement. Through the internal design, it improved and optimized hardware improvements, the current passing from the battery to power supply will be less than 10mA at any battery voltage when turn off the power supply. Thus avoid battery capacity loss, even when there is no anti reverse irrigation equipment.



Battery Simulator Function

This series power supply built-in typical battery internal resistance curves and discharging curves can easily simulate battery behavior in real-case.



List/Program/Step Mode Programming

This series power supply provides List/Program/Step modes for output waveform programming. Users can edit the voltage/current value & the time of each step in advance and provide the power supply with a trigger signal. Then the preset sequences / waveform will be executed automatically according to the defined files. Sequence mode supports link between multiple files, the user can set the repeat times of each file and the total repeat times of the complete sequence file.

TTL/Analog Control and Monitoring

This series power supply provides TTL/Analog control and monitoring function, in this way the unit can be controlled and monitored easily by external instruments. The user can define the active level according to the actual requirement by themselves. The reserved port also can be used for the secondary development in the future.

SPS-M/A Series DC Power Supply System

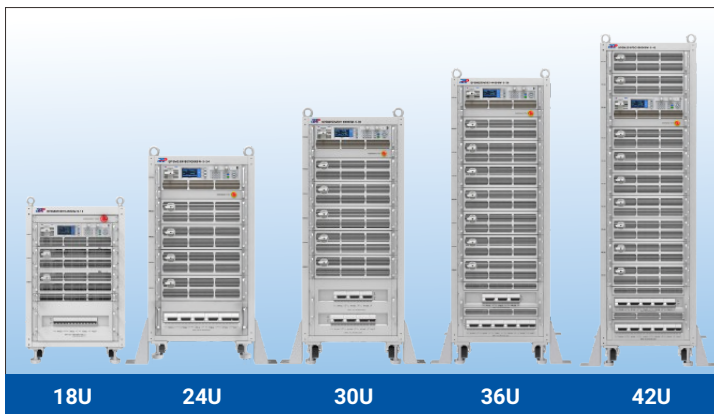
SPS-M/A Series DC Power Supply System

The SPS-M/A Series DC Power Supply System supports two series cabinets based on the control mode: SPSM and SPSA. The maximum output voltage and current of a single cabinet is up to 2250V and 3000A respectively. Output power of a single cabinet is up to 180kW. Support master-slave configuration to increase the output capacity to 576kW.

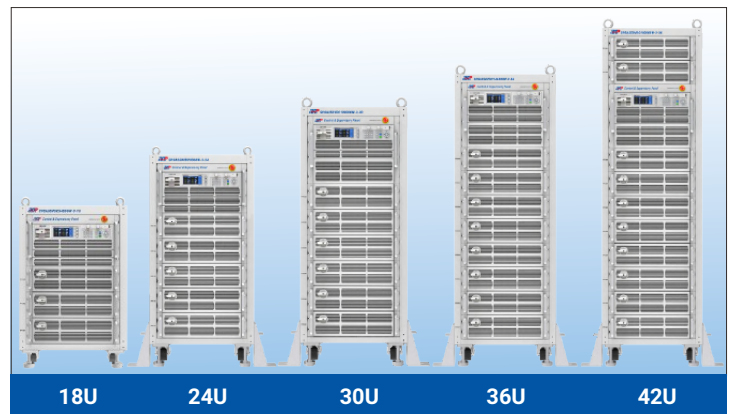
SPSM series cabinets use world famous circuit breaker to control the input of each power module inside. After power on, the specified 3U or 6U height power supply will be configured as a Master to control all of the slave units.

CSP is the Master in **SPSA series cabinets**, which is equipped with a PDU (Power Distribution Unit) and a CSP (Control & Supervisory Panel). The PDU consolidates microprocessor and management of hundreds of thousand VA AC mains in a 5U/8U height chassis. The CSP will display the input and output parameters of this system. The touchpanel provides a complete, intuitive user interface for users to easily manage all configuration, setup and update. Full protection designs prevent potential injury.

Manual Type



Automatic Type



System Configuration

SPSM Series Cabinets

Cabinet Height	18U	24U	30U	36U	42U
Capacity for Power Supplies	9U	15U	18U	24U	30U
Capacity (3U height unit)	3	4~5	4~6	7~8	9~10
Capacity (6U height unit)	1	2	3	4	5
PDU Height	4U	4U	7U	7U	7U
EMS Panel Height	1U	1U	1U	1U	1U
Cabinet Frame	2U	2U	2U	2U	2U
Wiring Height	2U	2U	2U	2U	2U

SPSA Series Cabinets

Cabinet Height	18U	24U	30U	36U	42U
Capacity for Power Supplies	9U	15U	18U	24U	30U
Capacity (3U height unit)	3	4~5	4~6	7~8	9~10
Capacity (6U height unit)	1	2	3	4	5
CSP Height	5U	5U	8U	8U	8U
Cabinet Frame	2U	2U	2U	2U	2U
Wiring Height	2U	2U	2U	2U	2U

Note: PDU or CSP will be equipped based on the connected DC power supplies.

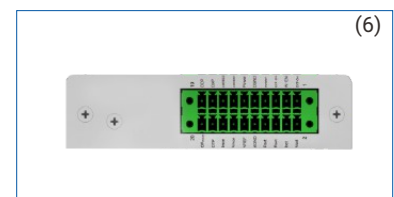
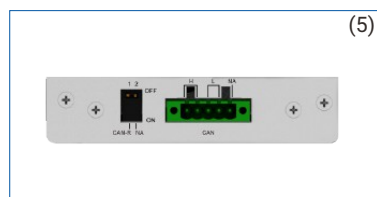
Rated Voltage	Output		Model (Manual Type)	Model (Automatic Type)	Size	Certificates
	Rated Power	Rated Current				
80V	36KW	1200A	SPSM80VDC36000W-3-18	SPSA80VDC36000W-3-18	18U ^①	CE
	54KW	1800A	SPSM80VDC54000W-3-18	SPSA80VDC54000W-3-18	24U ^②	
	72KW	2400A	SPSM80VDC72000W-3-24	SPSA80VDC72000W-3-24		
	90KW	3000A	SPSM80VDC90000W-3-24	SPSA80VDC90000W-3-24	30U ^③	
	108KW	3000A	SPSM80VDC108000W-3-30	SPSA80VDC108000W-3-30		
	126KW	3000A	SPSM80VDC126000W-3-36	SPSA80VDC126000W-3-36	36U ^④	
	144KW	3000A	SPSM80VDC144000W-3-36	SPSA80VDC144000W-3-36		
	162KW	3000A	SPSM80VDC162000W-3-42	SPSA80VDC162000W-3-42	42U ^⑤	
180KW	3000A	SPSM80VDC180000W-3-42	SPSA80VDC180000W-3-42			
165V	24KW	360A	SPSM165VDC24000W-3-18	SPSA165VDC24000W-3-18	18U ^①	CE
	36KW	540A	SPSM165VDC36000W-3-18	SPSA165VDC36000W-3-18	24U ^②	
	48KW	720A	SPSM165VDC48000W-3-24	SPSA165VDC48000W-3-24		
	60KW	900A	SPSM165VDC60000W-3-24	SPSA165VDC60000W-3-24	30U ^③	
	72KW	1080A	SPSM165VDC72000W-3-30	SPSA165VDC72000W-3-30		
	84KW	1260A	SPSM165VDC84000W-3-36	SPSA165VDC84000W-3-36	36U ^④	
	96KW	1440A	SPSM165VDC96000W-3-36	SPSA165VDC96000W-3-36		
	108KW	1620A	SPSM165VDC108000W-3-42	SPSA165VDC108000W-3-42	42U ^⑤	
120KW	1800A	SPSM165VDC120000W-3-42	SPSA165VDC120000W-3-42			
250V	36KW	360A	SPSM250VDC36000W-3-18	SPSA250VDC36000W-3-18	18U ^①	CE
	54KW	540A	SPSM250VDC54000W-3-18	SPSA250VDC54000W-3-18	24U ^②	
	72KW	720A	SPSM250VDC72000W-3-24	SPSA250VDC72000W-3-24		
	90KW	900A	SPSM250VDC90000W-3-24	SPSA250VDC90000W-3-24	30U ^③	
	108KW	1080A	SPSM250VDC108000W-3-30	SPSA250VDC108000W-3-30		
	126KW	1260A	SPSM250VDC126000W-3-36	SPSA250VDC126000W-3-36	36U ^④	
	144KW	1440A	SPSM250VDC144000W-3-36	SPSA250VDC144000W-3-36		
	162KW	1620A	SPSM250VDC162000W-3-42	SPSA250VDC162000W-3-42	42U ^⑤	
180KW	1800A	SPSM250VDC180000W-3-42	SPSA250VDC180000W-3-42			
360V	36KW	255A	SPSM360VDC36000W-3-18	SPSA360VDC36000W-3-18	18U ^①	CE
	54KW	382.5A	SPSM360VDC54000W-3-18	SPSA360VDC54000W-3-18	24U ^②	
	72KW	510A	SPSM360VDC72000W-3-24	SPSA360VDC72000W-3-24		
	90KW	637.5A	SPSM360VDC90000W-3-24	SPSA360VDC90000W-3-24	30U ^③	
	108KW	765A	SPSM360VDC108000W-3-30	SPSA360VDC108000W-3-30		
	126KW	892.5A	SPSM360VDC126000W-3-36	SPSA360VDC126000W-3-36	36U ^④	
	144KW	1020A	SPSM360VDC144000W-3-36	SPSA360VDC144000W-3-36		
	162KW	1147.5A	SPSM360VDC162000W-3-42	SPSA360VDC162000W-3-42	42U ^⑤	
180KW	1275A	SPSM360VDC180000W-3-42	SPSA360VDC180000W-3-42			
500V	36KW	192A	SPSM500VDC36000W-3-18	SPSA500VDC36000W-3-18	18U ^①	CE
	54KW	288A	SPSM500VDC54000W-3-18	SPSA500VDC54000W-3-18	24U ^②	
	72KW	384A	SPSM500VDC72000W-3-24	SPSA500VDC72000W-3-24		
	90KW	480A	SPSM500VDC90000W-3-24	SPSA500VDC90000W-3-24	30U ^③	
	108KW	576A	SPSM500VDC108000W-3-30	SPSA500VDC108000W-3-30		
	126KW	672A	SPSM500VDC126000W-3-36	SPSA500VDC126000W-3-36	36U ^④	
	144KW	768A	SPSM500VDC144000W-3-36	SPSA500VDC144000W-3-36		
	162KW	864A	SPSM500VDC162000W-3-42	SPSA500VDC162000W-3-42	42U ^⑤	
180KW	960A	SPSM500VDC180000W-3-42	SPSA500VDC180000W-3-42			

Rated Voltage	Output		Model (Manual Type)	Model (Automatic Type)	Size	Certificates
	Rated Power	Rated Current				
750V	36KW	126A	SPSM750VDC36000W-3-18	SPSA750VDC36000W	18U ^①	CE
	54KW	189A	SPSM750VDC54000W-3-18	SPSA750VDC54000W	24U ^②	
	72KW	252A	SPSM750VDC72000W-3-24	SPSA750VDC72000W		
	90KW	315A	SPSM750VDC90000W-3-24	SPSA750VDC90000W	30U ^③	
	108KW	378A	SPSM750VDC108000W-3-30	SPSA750VDC108000W-3-30		
	126KW	441A	SPSM750VDC126000W-3-36	SPSA750VDC126000W-3-36	36U ^④	
	144KW	504A	SPSM750VDC144000W-3-36	SPSA750VDC144000W-3-36		
	162KW	567A	SPSM750VDC162000W-3-42	SPSA750VDC162000W-3-42	42U ^⑤	
180KW	630A	SPSM750VDC180000W-3-42	SPSA750VDC180000W-3-42			
1000V	24KW	64A	SPSM1000VDC24000W-3-18	SPSA1000VDC24000W-3-18	18U ^①	CE
	36KW	96A	SPSM1000VDC36000W-3-18	SPSA1000VDC36000W-3-18	24U ^②	
	48KW	128A	SPSM1000VDC48000W-3-24	SPSA1000VDC48000W-3-24		
	60KW	160A	SPSM1000VDC60000W-3-24	SPSA1000VDC60000W-3-24	30U ^③	
	72KW	192A	SPSM1000VDC72000W-3-30	SPSA1000VDC72000W-3-30		
	84KW	224A	SPSM1000VDC84000W-3-36	SPSA1000VDC84000W-3-36	36U ^④	
	96KW	256A	SPSM1000VDC96000W-3-36	SPSA1000VDC96000W-3-36		
	108KW	288A	SPSM1000VDC108000W-3-42	SPSA1000VDC108000W-3-42	42U ^⑤	
120KW	320A	SPSM1000VDC120000W-3-42	SPSA1000VDC120000W-3-42			
1500V	36KW	64A	SPSM1500VDC36000W-3-18	SPSA1500VDC36000W-3-18	18U ^①	CE
	54KW	96A	SPSM1500VDC54000W-3-18	SPSA1500VDC54000W-3-18	24U ^②	
	72KW	128A	SPSM1500VDC72000W-3-24	SPSA1500VDC72000W-3-24		
	90KW	160A	SPSM1500VDC90000W-3-24	SPSA1500VDC90000W-3-24	30U ^③	
	108KW	192A	SPSM1500VDC108000W-3-30	SPSA1500VDC108000W-3-30		
	126KW	224A	SPSM1500VDC126000W-3-36	SPSA1500VDC126000W-3-36	36U ^④	
	144KW	256A	SPSM1500VDC144000W-3-36	SPSA1500VDC144000W-3-36		
	162KW	288A	SPSM1500VDC162000W-3-42	SPSA1500VDC162000W-3-42	42U ^⑤	
180KW	320A	SPSM1500VDC180000W-3-42	SPSA1500VDC180000W-3-42			
2250V	36KW	42A	SPSM2250VDC36000W-3-18	SPSA2250VDC36000W-3-18	18U ^①	CE
	54KW	63A	SPSM2250VDC54000W-3-18	SPSA2250VDC54000W-3-18	24U ^②	
	72KW	84A	SPSM2250VDC72000W-3-24	SPSA2250VDC72000W-3-24		
	90KW	105A	SPSM2250VDC90000W-3-24	SPSA2250VDC90000W-3-24	30U ^③	
	108KW	126A	SPSM2250VDC108000W-3-30	SPSA2250VDC108000W-3-30		
	126KW	147A	SPSM2250VDC126000W-3-36	SPSA2250VDC126000W-3-36	36U ^④	
	144KW	168A	SPSM2250VDC144000W-3-36	SPSA2250VDC144000W-3-36		
	162KW	189A	SPSM2250VDC162000W-3-42	SPSA2250VDC162000W-3-42	42U ^⑤	
180KW	210A	SPSM2250VDC180000W-3-42	SPSA2250VDC180000W-3-42			

* This formula is the standard cabinet for SP-3U model. It could extend to 576W via SP-6U model. It is available to select cabinet with different specification according to exact situation. Detail please consults our area manager.

Optional Information

- (1) US standard, input voltage range: 187~253Vac*
- (2) European standard, input voltage range: 340~460Vac*
- (3) Continuous source & sink function*
- (4) GPIB & LAN communication card & cables
- (5) CAN communication card
- (6) TTL/Analog control card



* These options must be specified at the time of order as they are installed at the factory prior to shipment.

SPS-M/A Series DC Power Supply System

Dimensions & Weight



① 560.0x790.0x920.0 mm & 225kg



② 560.0x1056.0x920.0 mm & 350kg



③ 560.0x1324.0x920.0 mm & 416kg



④ 560.0x1590.0x920.0 mm & 535kg



⑤ 560.0x1857.0x920.0 mm & 653kg

Features

- Large color touch screen, rotary knob and keys provide an excellent operational experience.
- 3-phase input voltage meets worldwide power distribution regulation, AC mains 187~253Vac/340~460Vac for optional.
- Constant voltage (CV), constant current (CC) and constant power (CP) operation mode, CC or CV working priority setting.
- Adjustable voltage/current slew rate.
- Smart 3-stage charging algorithm simulation.
- Full protection: OVP, OCP, OPP and OTP protection.
- Equipped with Emergency Stop, physically off all managed DC power supplies at once.
- Back door with protect switch, safe to the operator.
- List/ Step mode programming.
- Standard RS232/RS485/USB interface, optional LAN & GPIB interface, optional CAN interface.
- SCPI compatible, provide web GUI function.

SPSA Series Advantage

- CSP5/CSP8*, connect with 5 units /10 units 3U height DC power supply or 2 units /5 units 6U height DC power supply.
- Built-in power meter, to monitor the AC mains parameters such as V, A, Frequency, Power and PF.
- Support efficiency calculation and electrical quantities recording.
- Built-in Timer, allows to set output running time.
- Easy to enable the output of each power supply from the touch screen, sequence On/Off DC power supplies.
- Display the output parameters of each DC power supply in the same system.
- PDU significantly simplifies the wiring for DC power system.
- User-defined AC input protection parameters such as OVP, UVP, OFP, UFP, OCP and Phase loss.
- Provide web GUI function to monitor & control the CSP via ethernet.

* Even the same model CSP may be configured differently, which is based on the connected DC power supplies.

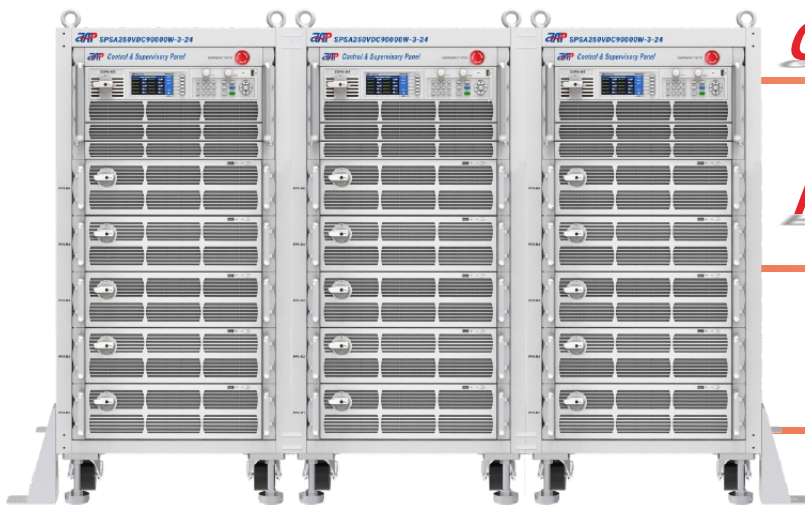
Connecting the cabinet

1. The cabinets can be connected in parallel in order to increase output power.

- Maximum 16 units 3U height same model DC power supplies or 6U height same model DC power supplies can be connected via the bus.
- 16 units each with a power of 18kW are connected together to a 288kW system.
- 16 units each with a power of 36kW are connected together to a 576kW system.

2. Different height cabinets can be connected in parallel.

- Use parallel bars to simplify the connection between multiple rack cabinets.
- Realized the gapless connection between multiple rack cabinets.



GAPLESS connection

FLEXIBLE ASSEMBLY
and disassembly

Up to **576kW**

CSP Panel Introduction

Front Panel Description

The image shows the front panel of the CSP8-M10 power supply system. It features a control and supervisory panel at the top with a color touch screen, a power switch, and a numeric keypad. Below the panel are three rows of ventilation grilles. Red dashed boxes highlight the control panel area, and red arrows point from numbered callouts (1-8) to specific components.

- 1 Emergency Stop, physically off all managed DC power supplies at once.
- 2 CSP power switch
- 3 Color touch screen
- 4 Selection soft keys
- 5 Voltage/Current & Power knob
- 6 Numeric and functional keys
- 7 USB port, for data transfers and firmware upgrading
- 8 Stylus

Rear Panel Description

The image shows the rear panel of the CSP8-M10 power supply system. It features a large terminal block with 10 modules (M1-M10) and a communication interface section. Red dashed boxes highlight the communication interface and terminal block areas, and red arrows point from numbered callouts (1-8) to specific components.

- 1 RS485/RS232/USB communication interface (standard), LAN&GPIB communication interface (optional), CAN communication interface (optional)*
- 2 External TTL/Analog control interface.
- 3 System Bus, for master/slave system data transmission
- 4 Termination resistor CAN-R
- 5 PDU AC output terminals to each DC power supply
- 6 FAN & EMS AC input terminals
- 7 PDU AC input terminals
- 8 Protective earth (ground) terminals

* These interface option installs in place of the standard RS485/RS232/USB interfaces, occupies the same physical slot.

Displays of CSP

CSP provides below menus which allows user to control and monitor the power supply system via front panel.

System

Master-slave system configuration page.

DC Source		System
Breaker State M1 Breaker <input checked="" type="checkbox"/> ON M6 Breaker <input type="checkbox"/> OFF M2 Breaker <input checked="" type="checkbox"/> ON M7 Breaker <input type="checkbox"/> OFF M3 Breaker <input checked="" type="checkbox"/> ON M8 Breaker <input type="checkbox"/> OFF M4 Breaker <input type="checkbox"/> OFF M9 Breaker <input type="checkbox"/> OFF M5 Breaker <input type="checkbox"/> OFF M10 Breaker <input type="checkbox"/> OFF Manual Connection <input checked="" type="checkbox"/> Auto Connection <input type="checkbox"/>		Save Type Enable Calibration ↩
LOCAL		13:27 2020/06/28

Submodule

DC output parameters reading page.

DC Source		PDU
Submodule ∑ 80.000 V ∑ 1200.00 A M1 80.000 V 400.00 A ● ON M6 0.000 V 0.000 A ● OFF M2 80.000 V 400.00 A ● ON M7 0.000 V 0.000 A ● OFF M3 80.000 V 400.00 A ● ON M8 0.000 V 0.000 A ● OFF M4 0.000 V 0.000 A ● OFF M9 0.000 V 0.000 A ● OFF M5 0.000 V 0.000 A ● OFF M10 0.000 V 0.000 A ● OFF		Submodule PWR Breaker Input info. System OP Setting ↩
LOCAL		13:27 2020/06/28

Input Info.

AC input parameters measurement page.

DC Source		Input Info.
Voltage A: 384.73 V B: 385.06 V C: 384.63 V		↩
Current A: 3.10 A B: 2.89 A C: 3.25 A		
F 49.97 HZ P 1115 W PF 0.57		
LOCAL		
		13:29 2020/06/28

OP Value

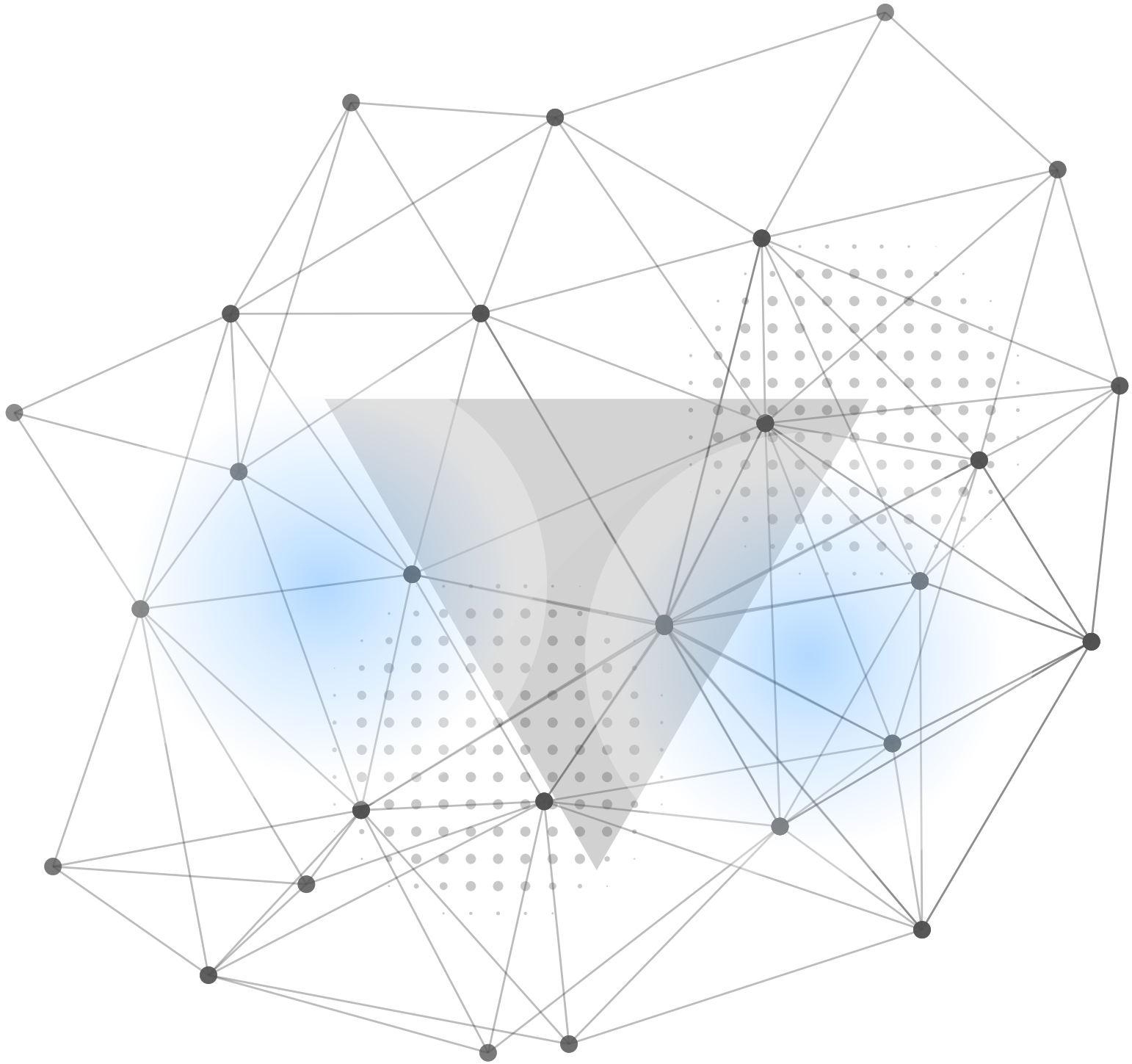
AC input protection parameters setting page.

DC Source		OP Value
OP Value A OVP 440.00 V A UVP 228.80 V B OVP 440.00 V B UVP 228.80 V C OVP 440.00 V C UVP 228.80 V A OCP 165.00 A C OCP 165.00 A B OCP 165.00 A OFF 56.40 Hz UFP 47.00 Hz		OP Enable ↩
LOCAL		13:28 2020/06/28

SPS-M/A Series DC Power Supply System

Model		CSP8		CSP5	
Control Unit		1~10 (3U Height Unit)	1~5 (6U Height Unit)	1~5 (3U Height Unit)	1~2 (6U Height Unit)
Input					
Input Voltage Range (L-L) ^[1]		187~253VAC			
Rated Voltage (L-L) ^[1]		340~460VAC			
Input Frequency Range		45~65Hz			
Wires		3ph, PE			
Max Current ^[1]		800A@208V Input	800A@208V Input	400A@208V Input	400A@208V Input
		400A@400V Input	400A@400V Input	200A@400V Input	200A@400V Input
Max Power		230kVA	230kVA	120kVA	120kVA
Timer Setting					
Power OFF Timer		DDD/HH/MM			
Sequential Control Settings					
Power ON Sequence		From the first Slave unit to the last Slave unit			
Power OFF Sequence		All slave units Power Off at the same time			
ON/OFF Control		Manual/Timer/Remote			
Power Meter					
Voltage(L1/L2/L3)	Range	180~460VAC			
	Resolution	0.01V			
	Accuracy	± 0.2%			
Frequency	Resolution	0.01Hz			
	Accuracy	± 0.2%			
Current(L1/L2/L3)	Range	0~800A	0~400A		
	Resolution	0.01A			
	Accuracy	± 0.8%			
Power	Resolution	0.001kW			
	Accuracy	± 1.5%			
Power Factor	Resolution	0.01			
	Accuracy	± 1%			
Protection					
OVP		+10% of Nominal Input			
UVP		-10% of Nominal Input			
OCP		+10% of Max. Input Current			
OFP/UFP		50Hz±5Hz/60Hz±5Hz			
Phase Loss		Alarm and stop operation when lose any phase			
Safety					
Emergency Stop		Multiple rack cabinet EMS can be connected in series Extendable EMS switch			
General Specification					
Controller Power Supply	Input Voltage	187~253VAC			
		340~460VAC			
	Frequency	45~65Hz			
	Power Consumption	55W	60W	44W	50W
Standby Power	28W	28W	28W	28W	
Graphic Display		4.3" Color touch LCD			
Operation Key Feature		Soft keys, Numeric keys, Rotary knob, USB port for transfer and upgrading firmware			
Interface		RS232/RS485/USB(Standard), GPIB & LAN(Optional), CAN(Optional)			
Command Response Time		<3ms			
Environmental					
Operating Temperature		0~40°C			
Storage Temperature		-20~70°C			
Temperature Coefficient		<95%RH(non-condensing)@35°C, <80%RH(non-condensing)@40°C			
Relative Humidity		<2000m			
Cooling Method		Forced air cooling			
Mechanical					
Dimensions(WxHxD)		423.0 x 353.0 x 578.0 mm		423.0 x 220.0 x 578.0 mm	
Unit Weight		28kg		20kg	
Withstanding Voltage					
Primary - Chassis		DC 2121V			
Primary - Secondary		DC 4242V			
Secondary - Chassis		DC 2121V			

[1] For different input voltage standard option must be specified at the time of order as they are installed at the factory prior to shipment.



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