SP300VAC2000W-3000W

Specification

MODEL		SP300VAC2000W Advanced	SP300VAC2000W Professional	SP300VAC3000W Advanced	SP300VAC3000W Professional
INPUT					
Voltage		190~265VAC			
Frequency		47~63Hz			
Phase		1 Phase, 2Wire+Groud			
Max.Current		14A		20A	
Power Factor at 220VAC Input ,Full Load		≥0.99 Active PFC		≥0.98 Active PFC	
Efficiency		>87% (Peak) >86% at 220VAC,50Hz input/220VAC,50Hz output,Full Load		>86% (Peak) >85% at 220VAC,50Hz input/220VAC,50Hz output,Full Load	
OUTPUT					
AC Power		2000VA		3000VA	
Max.Current (r.m.s)	0~150V(L)	16A		27.6A	
	0~300V(H)	8A		13.8A	
Max.Current (Peak)	0~150V(L)	80A		165.6A	
	0~300V(H)	40A		82.8A	
Phase		1 Phase			
Total Harmonic Distortion (THD)		<0.5% (Resistive Load) at 15.0~70.0Hz and output voltage within the 80~140VAC at Low Range or the 160~280VAC at High Range <1% (Resistive Load) at 70.1~500Hz and output voltage within the 80~140VAC at Low Range or the 160~280VAC at High Range <1% (Resistive Load) at 501~1000Hz and output voltage within the 100~140VAC at Low Range or the 160~280VAC at High Range <2% (Resistive Load) at 1001~1200Hz and output voltage within the 100~140VAC at Low Range or the 160~280VAC at High Range Note: 1001~1200Hz only available to Professional Version Models			
Crest Factor(CF)		≤5		≤6	
Load Regulation		±0.1V			
Line Regulation		±(1% of output + 1V)			
Voltage(AC)	Range	0~300VAC, 150V/300V/Auto Mode			
	Resolution	0.1V			
	Accuracy	0.2% of setting +0.2%F.S.			
Phase Angle (Starting /Ending)	Range	0~359.9°			
	Resolution	0.1°			
	Accuracy	±1° @45~65Hz			

High Efficiency & High Precision & High Stability

Specification

MODEL		SP300VAC2000W Advanced	SP300VAC2000W Professional	SP300VAC3000W Advanced	SP300VAC3000W Professional
Voltage(DC)	Range	0~424VDC			
	Resolution	0.1V			
	Accuracy	0.2% of setting +0.2%F.S.			
	Max.Power	2000W		3000W	
	Max.Current (L/H Range)	L 11.3A H 5.65A		L 19.6A H 9.8A	
	Ripple& Noise(r.m.s)	L <700mVrms @Bandwidth 20Hz to 1MHz H <1100mVrms @Bandwidth 20Hz to 1MHz			
	Ripple& Noise(Peak)	<4000mVp-p @Bandwidth 20Hz to 1MHz			
Current OC Fold Mode	Resolution	0.01A			
	Accuracy	2.0% of setting +0.1%F.S.			
	Response Time	<1400ms			
Frequency	Range	15~1000Hz Full Range ADJ	15~1200Hz Full Range ADJ	15~1000Hz Full Range ADJ	15~1200Hz Full Range ADJ
	Resolution	0.1Hz at 15.0~99.9Hz, 1Hz at 100~1000Hz	0.1Hz at 15.0~99.9Hz, 1Hz at 100~1000Hz, 5Hz at 1001~1200Hz	0.1Hz at 15.0~99.9Hz, 1Hz at 100~1000Hz	0.1Hz at 15.0~99.9Hz, 1Hz at 100~1000Hz, 5Hz at 1001~1200Hz
	Accuracy	0.03% of setting			
Programmable Output Impedance	Range	Not Support	0Ω +200μH~1Ω +1mH	Not Support	0Ω +200μH~1Ω +1mH
Harmonic & Inter-harmonics Simulation	Range	Not Support	2400Hz	Not Support	2400Hz
MEASUREMENT					
Voltage	Range	AC 0~300VAC DC 0~424VDC			
	Resolution	0.1V			
	Accuracy	0.2% of setting +0.2%F.S.			
Frequency	Range	15~1000Hz	15~1200Hz	15~1000Hz	15~1200Hz
	Resolution	0.1Hz at 15.0~99.9Hz, 1Hz at 100~1000Hz	0.1Hz at 15.0~99.9Hz, 1Hz at 100~1000Hz, 5Hz at 1001~1200Hz	0.1Hz at 15.0~99.9Hz, 1Hz at 100~1000Hz	0.1Hz at 15.0~99.9Hz, 1Hz at 100~1000Hz, 5Hz at 1001~1200Hz
	Accuracy	0.1% of setting			
Current (r.m.s)	Range	H 0.15A~16A M - L 0.1A~5A mA 0.02A~1.5A		H 0.2A~27.6A M 0.15A~20A L 0.1A~5A mA 0.02A~1.5A	
	Resolution	0.01A			
	Accuracy	H/M 0.4%+0.3%F.S. L/mA 0.4%+1.0%F.S.			

OCP OVP OPP ℃ SHORT RS232 RS485 LAN GPIB CE c SP us

SP300VAC2000W-3000W

Specification

MODEL		SP300VAC2000W Advanced	SP300VAC2000W Professional	SP300VAC3000W Advanced	SP300VAC3000W Professional
Current (Peak)	Range	0A~81.5A		0A~168.6A	
	Resolution	0.01A			
	Accuracy	H/M 0.4%+0.6%F.S. L/mA 0.4%+1.0%F.S.			
Power	Range	0~2040W		0~3060W	
	Resolution	0.1W			
	Accuracy	0.4% of setting +0.3%F.S. at PF>0.2, Voltage >5V			
Power Apparent (VA)	Range	0~2040VA		0-3060VA	
	Resolution	0.1VA			
	Accuracy	Voltage*Irms, Calculated value			
Power Resistive (VAR)	Range	0~2040VAR		0~3060VAR	
	Resolution	0.1VAR			
	Accuracy	$\sqrt{(VA)^2-(W)^2}$, Calculated value			
Power Factor (PF)	Range	0.00-1.00			
	Resolution	0.01			
	Accuracy	W/VA, Calculated value			
Harmonic	Range	Not Support	2~40 orders	Not Support	2~40 orders
EXTRA FUNCTION					
Slew Rate	Range	AC Voltage 0.001~1200.000V/ms and Disable DC Voltage 0.001~1000.000V/ms and Disable Frequency 0.001~1600.000Hz/ms and Disable			
Remote Sense	Range	5V(rms), Max. Total power less than rated power			
Transient Generator (only for 15~70Hz)	Range	Trans-Start : 0.0~66.5ms @15Hz, Resolution : 0.1ms Trans-Volt : -212V~+212V(L), -424V~+424V(H), Resolution : 0.1V Trans-Time : 0.0~66.5ms @15Hz, Resolution : 0.1ms Trans-Count : 0~9999, Constant			
Calibration		Firmware-based calibration through the digital interface or front panel display			
Test Function		Yes			
Parallel Output for 1 Phase		Yes, 4 Units Max. (Option: Remote I/O&Parallel, Multiphase Link Card)			
Series Output for 1 Phase		Yes, 2 Units Max. (Option: Remote I/O&Parallel, Multiphase Link Card)			
Link Output for 3 Phase		Yes (Option: Remote I/O&Parallel, Multiphase Link Card)			
GENERAL					
Graphic Display		5.6" Color touch LCD			
Operation Key Feature		Soft key, Numberic key, Rotary Knob, Support USB disk			

High Efficiency & High Precision & High Stability

Specification

MODEL	SP300VAC2000W Advanced	SP300VAC2000W Professional	SP300VAC3000W Advanced	SP300VAC3000W Professional
Rack mount Handles	Yes			
FAN	Temperature Control			
Protection Circuits	OCP, OVP, OPP, OTP, RCP, PRI_UVP, PRI_OVP, PRI_OTP, PRI_OCP, USB_OCP			
Interface	USB, RS485, RS232, LAN(Standard); GPIB(Option)			
REMOTE CONTROL INPUT/OUTPUT SIGNAL CHARACTERISTICS(OPTION)				
Remote Input Signal	Signal input for external trigger for execution of programmed value Signal : ON/OFF, RESET, KEEP OFF, Recall program memory 1 through 7			
Remote Output Signal	Signal output indicating that a test mode is present Signal : PASS, FAIL, TEST-IN-PROCESS			
External Signal -Waveform input	Signal input for output voltage waveform programming by external analog reference via BNC type. Between the sync signal and the output wave will be 0.5ms time difference			
ENVIRONMENTAL				
Operating Temperature	0°C to 40°C			
Storage Temperature	-40°C to 85°C			
Altitude	2000m			
Relative Humidity	5%~95%, non-condensing			
Temperature Coefficient	100ppm/°C at Voltage, 300ppm/°C at Current, 100ppm/°C at Frequency			
MECHANICAL				
Dimensions(W*H*D)	483.0*133.0*520.0 mm/19.0*5.2*20.5 inch		483.0*177.0*520.0 mm/19.0*7.0*20.5 inch	
Package Dimensions (W*H*D)	597.0*276.0*694.0 mm/23.5*10.9*27.3 inch		597.0*321.0*694.0 mm/23.5*12.6*27.3 inch	
Unit Net Weight	21.2kg/46.7lbs		28.8kg/63.5lbs	
Accessories Weight	0.4kg/0.9lbs		0.4kg/0.9lbs	
Net Weight	24.2kg/53.4lbs		31.8kg/70.1lbs	
REGULATORY COMPLIANCE				
EMC	CE marked for EMC Directive 2014/ 30/EU /EN61326-1: 2013 Class A for emissions and immunity standard as required for EU CE Mark. FCC Verification of conformity for CFR 47 Part 15 of the FCC Rules.			
Safety	CE marked for LVD Directive 2014/ 35/EU /EN61010-1-third edition as required for EU CE Mark.			
CE Mark	Installation Overvoltage Category II，Pollution Degree 2，Class II equipment，indoor use only.			
UL Mark	CSA NRTL certified for US and Canada to CAN/CSA-22.2 No.61010-1-12, UL 61010-1 Third Edition.			
Isolation Voltage	3000VAC, input to output, 1500VAC, input to chassis			
RoHS	Meet to EU Directive 2011/65/EU for restriction of hazardous substances in Electrical and Electronic Equipment			

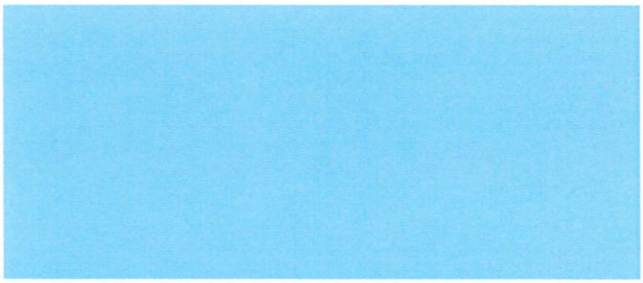
OCP
OVP
OPP
℃
SHORT
RS232
RS485
LAN
GPIB
C US

Main Characteristics

- High power density, up to 5kVA/4U output power
- High speed DSP+CPLD control, high frequency PWM technology, active PFC design, up to 85% conversion efficiency
- 5.6" large touch color screen, possess complete functions and easy to operate. Support for USB data import/export and screen snap from front panel
- AC+DC mixed or independent output mode for voltage DC offset simulation
- Voltage range：0-150V/0-300V/Auto
- Capable of setting voltage and current output restriction, support for constant current output mode
- Capable of setting output slope of voltage and frequency
- Capable of setting ON/OFF phase angle
- Support for LIST/PLUSE/STEP mode, simple time setting and circulation setting, which is suitable for power line disturbance simulation test
- Built-in test object power sweeping function
- Standard RS232/RS485/USB/LAN communication interface (GPIB optional)

Function Introduction

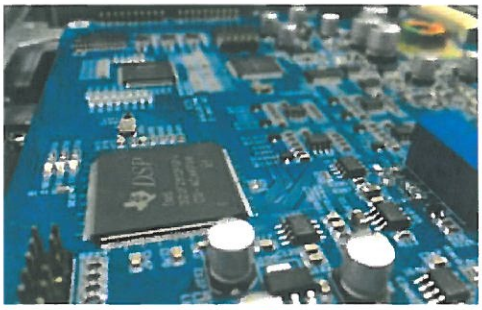
- Support extra wide frequency adjustment, DC/15Hz-1000Hz for Advanced Version products and DC/15Hz-1200Hz for Professional Version products
- High output current crest factor (5~6)
- Built-in Transient mode
- Built-in power meter, which is capable of measuring 15 electrical parameters, including voltage, current, frequency, etc
- Built-in Dimmer function
- With reverse current protection to avoid current flowing backward
- Support mA current measurement function
- Support for IEC61000-4-11 voltage dip, short time interrupt and voltage variation simulation function
- Professional Version product is comply with the IEC61000-3-2, IEC61000-3-3 standard requirement of output impedance test
- Professional Version product supports IEC61000-4-14 (voltage irregular variation) and IEC61000-4-18 (power frequency change immunity simulation function) simultaneously
- Professional Version product supports harmonics/ inter-harmonics generate simulation and measuring function
- Support up to 2 units in series, 4 units in parallel and 3 units combined to 3-phase power output (optional)
- Synchronous signal output (3 channels), analog input (6 channels), waveform amplification function (1 channel), convenient for remote control and PLC system integration (optional)



Basic Functions

High Speed DSP+CPLD Control Platform

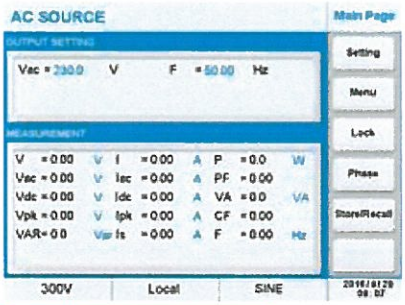
Adopts current high-end power supply DSP+CPLD control technology to strengthen inner data and logic operation ability. The product is of faster control and more stable operation. Enable user to quick set and read various waveform, generate harmonics analysis, support remote update.



DSP+CPLD

Integrated Multifunctional Power Meter

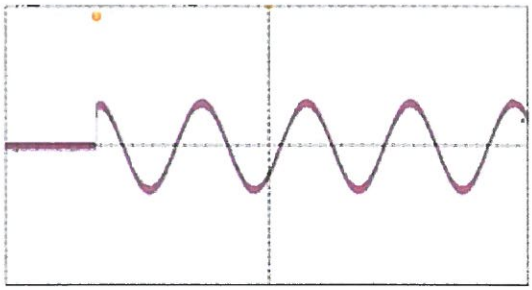
This series contains a high-precision power meter, the real-time data could be checked precisely and quickly during test, the situation of the test object could be grasped easily, there is no need to connect extra complex circuit and power meter to save test time and equipment cost. It can measure 15 parameters in the figure and the parameters can be self-defined in sequence.



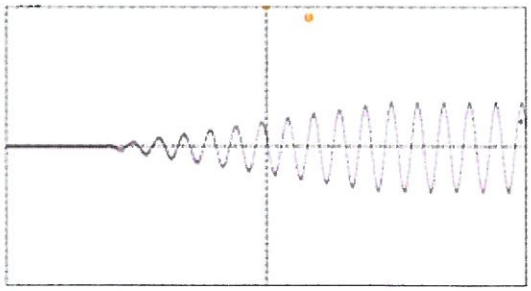
Main Interface of Display Panel

Adjustable Phase Angle/Slope

User could set the start and stop phase angle ranged from 0-359.9° , which is applicable to verification test of ON/OFF inrush current testing. User can set the rise & fall slope of voltage and frequency to make the voltage change slowly, which is applicable to start inductive or capacitive load with large capacity to avoid circuit break caused by protection that triggered by high current when instantaneously start the device.



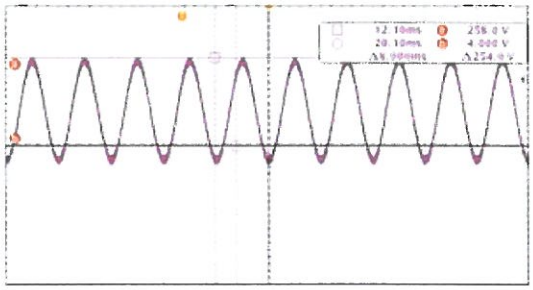
Adjustable Phase Angle



Adjustable Slope

AC/DC Output

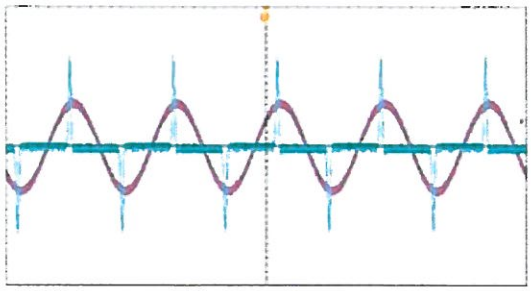
Capable of setting AC or DC output, as well as setting mixed AC&DC output mode, when no strict demand on output ripple, it can be used as DC power supply. Meanwhile, in some special application, DC output could achieve real-time positive and negative reversal.



AC/DC Output

High Output Current Crest Factor

The surge current could reach 5-6 times of the rated current, especially suitable for inrush current testing, which could meet the requirement of load whose start current is high without adding high-capacity power supply (electrical machine, compressor and capacitive load).

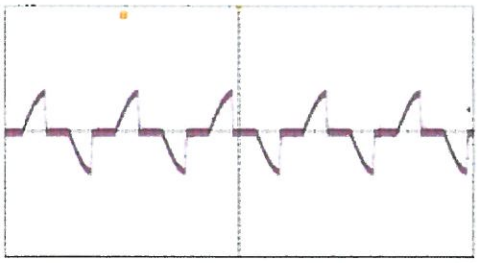


High Output Current Crest Factor

High Efficiency & High Precision & High Stability

Dimmer Function

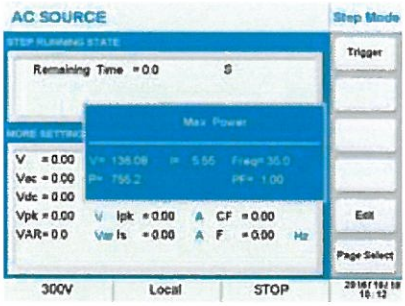
Support Dimmer function, which is applicable to conduct speed regulating or dimming verification test for electric motor, lamp and other products, it is applicable to production test as well, capable of simulating the user's real application scenarios to make it easier to find out the quality issue of the products.



Dimmer Function

Sweep Mode

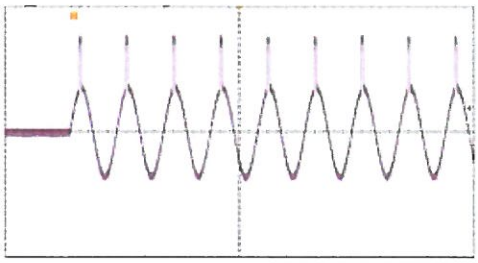
Support max power point sweep mode, which is applicable to find out the max power point of the device under test under various voltage and frequency. It could control voltage and frequency change according to stepping ladder through setting the start/end voltage value, stepping voltage, start/end frequency, stepping frequency and time of each step. Voltage, frequency and other data at max power will be displayed on the screen after testing.



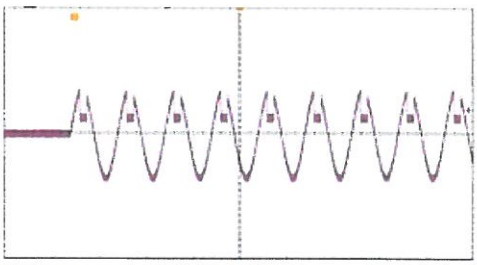
Max power point sweeping

Transient mode

Transient mode simulates the impact on the device under test when turn on or turn off transient high power capacity load in power grid.



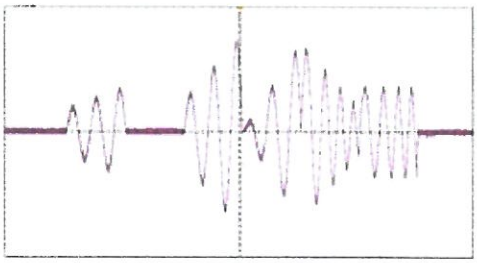
Voltage Spikes



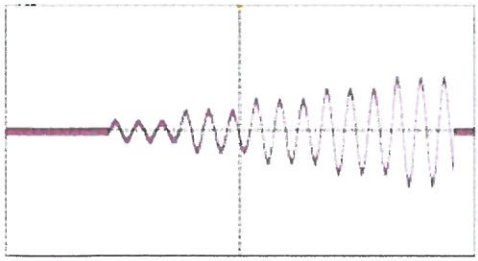
Voltage Sags

Output Simulation Sequence and Disturbance Simulation

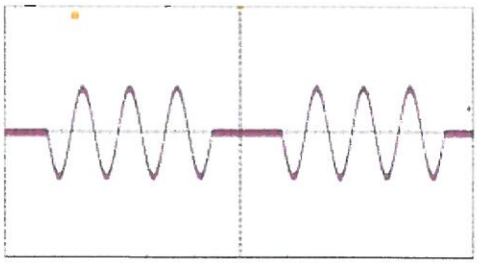
Provide powerful function to simulate power line disturbance.
Apply LIST mode to change output by recalling inner sequence file;
Apply STEP mode to change output value;
Apply PULSE mode to program special impulse voltage waveform.
Functions above are convenient for user to apply in test condition such as cycle dropout, transient spike and brown out, etc.



LIST Mode



STEP Mode

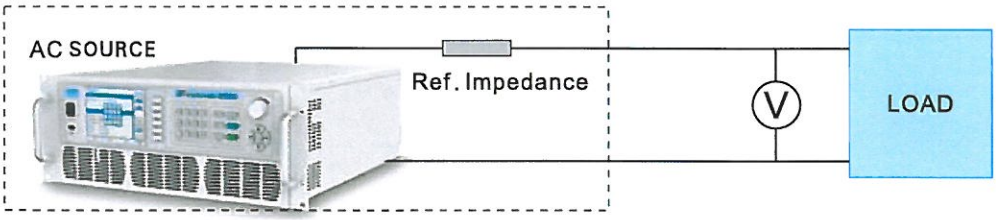


PULSE Mode

Advanced Functions

Output Impedance (Applicable to Professional Version)

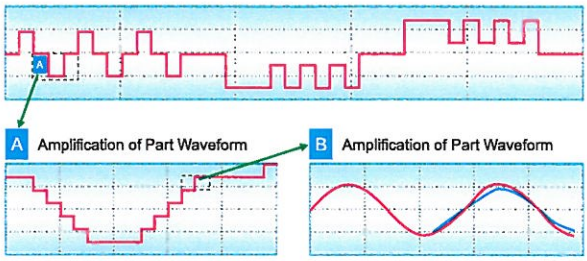
The default output impedance of programmable AC power source is very low, while in some application, user needs special output impedance. This series is equipped with output impedance function through front panel or monitoring software and set output resistance and inductance to simulate the special application of the impedance.



Output Impedance Function

IEC Standard Test (Applicable to Professional Version)

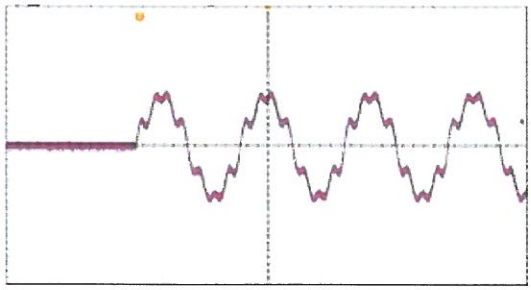
With built-in IEC standard test function, it is applicable to immunity test of power electronics products under abnormal condition. Standards below are contained and could be recalled directly. Standards: IEC61000-3-3 (test output impedance), IEC61000-3-2 (low output impedance), IEC61000-4-11 (voltage dip, Short interruption and voltage variations immunity test), IEC61000-4-14 (voltage fluctuation immunity test), IEC61000-4-28 (Variation of power frequency, immunity test), IEC61000-4-13 (harmonics/ Inter-harmonics low frequency immunity test).



IEC Standard Test

Harmonics/Inter-harmonics Generate Simulation and Measurement (Applicable to Professional Version)

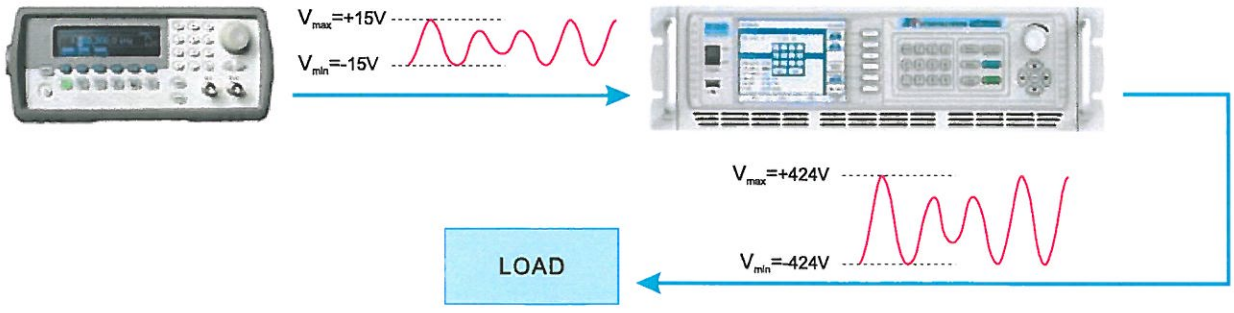
Support waveform synthesis edition, up to 40 orders of harmonics components based on 50Hz or 60Hz fundamental. The value and angle of each order could be set through front panel or monitoring software. Meanwhile, it supports inter-harmonics synthesis edition. On the basis of original voltage output, add another voltage component whose frequency is changeable, which is applicable to some interference simulation test. THD(total harmonic distortion) and harmonics value(2~40 orders) are displayed on the screen and monitoring software.



Harmonic Generate Simulation Waveform

Amplifier Function (Remote I/O & Parallel, Multiphase Link Card Optional)

User can set the output through simulation signal of external devices, Amplifier mode and Level mode could be applied flexibly. Programmable AC power source could realize real time output by tail after signal waveform, which is applicable to industry sector.



Amplifier Function

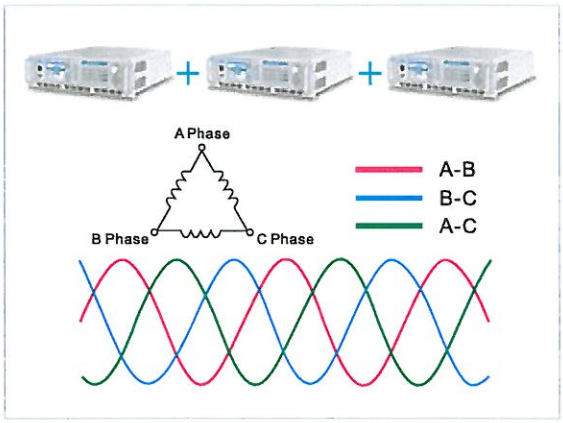
High Efficiency & High Precision & High Stability

- External control also contains synchronization signal output (3 channels) and analog input (6 channels) (Remote I/O & Parallel, Multiphase Link Card Optional)

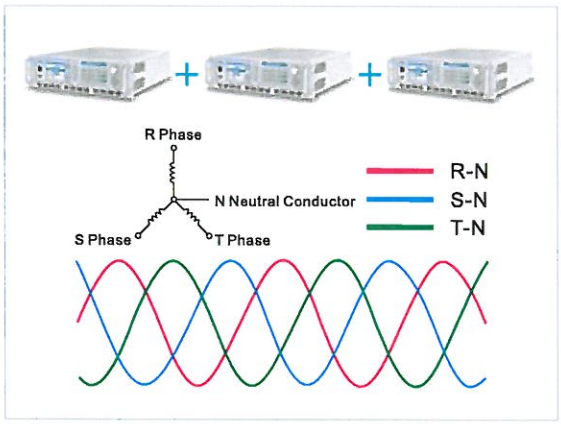
  Programmable AC power source could provide analog input under test simulation of PASS, FAIL and RUN status and user can control ON/OFF externally, force to shutdown, reset and upload 7 sets of stored parameters.

- 3-Phase Operation and Parallel Mode(Remote I/O & Parallel, Multiphase Link Card Optional)

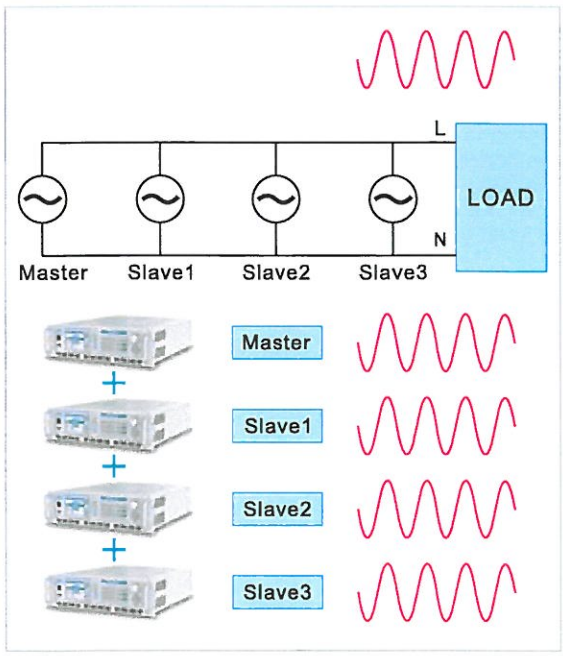
  When 3-phase AC power source is needed, user can apply three units of programmable AC power source combining with parallel cable to compose 3-phase AC system. User can set the master-slave relation under 3-PHASE MODE. Exchange data with CAN communication through synchronizing signal, which is applicable to 3-phase operation or test conditions of 3-phase unbalance and phase-deficient operation, etc.
  User can apply up to 4 units of same model power source in parallel operation.
  When output voltage is higher than 300V, up to two units of same model power source could be applied in series operation, the max voltage is up to 600V.



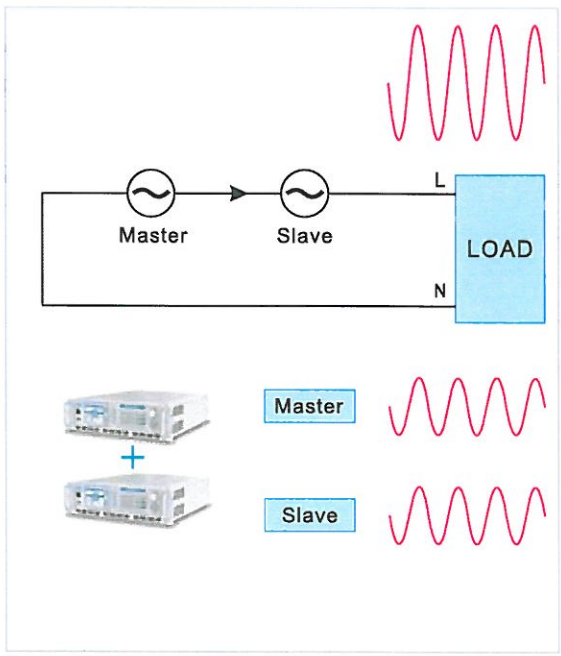
3-phase 3-wire



3-phase 4-wire



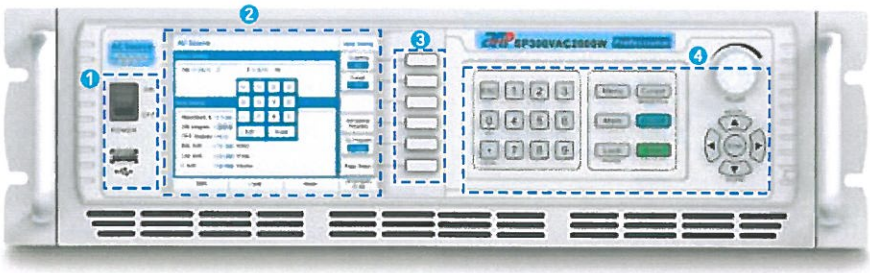
Parallel Mode



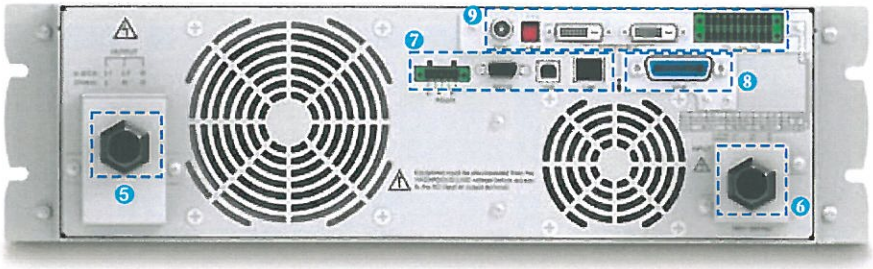
Series Mode

Panel Introduction

- Front Panel Interface



- Back Panel Communication Interface and Input / Output Interface



Panel Introduction	
1	Power Switch(Up) USB Storage Slot(Down)
2	Color Touch Screen
3	Multifunctional Keys
4	Numeric and Functional Keys
5	Output Terminal
6	AC Input Terminal
7	RS485/RS232/USB/LAN Communication Interface
8	GPIB Communication Interface (Optional)
9	Remote I/O & Parallel, Multiphase Link Card (Optional)

Monitoring Software

Monitoring software is capable of controlling all functions of programmable AC power source. The operation interface adopts guided design, which is open-and-shut. The system interface with right push design for hidden icons makes the operation screen more delicate without occupation of spare desk space.

High Efficiency & High Precision & High Stability

Selection List

	Function Description / Model Order Information	Professional Version	Advanced Version	GPIB Interface	Remote I/O&Parallel Multiphase Link Card
	SP300VAC2000W				
1	8201-113-30-001	✓			
2	8201-113-30-002	✓		✓	
3	8201-113-30-003	✓		✓	✓
4	8201-113-30-004	✓			✓
5	8201-113-30-005		✓		
6	8201-113-30-006		✓	✓	
7	8201-113-30-007		✓	✓	✓
8	8201-113-30-008		✓		✓
	SP300VAC3000W				
9	8201-112-30-001	✓			
10	8201-112-30-002	✓		✓	
11	8201-112-30-003	✓		✓	✓
12	8201-112-30-004	✓			✓
13	8201-112-30-005		✓		
14	8201-112-30-006		✓	✓	
15	8201-112-30-007		✓	✓	✓
16	8201-112-30-008		✓		✓
	SP300VAC4000W				
17	8201-016-30-001	✓			
18	8201-016-30-002	✓		✓	
19	8201-016-30-003	✓		✓	✓
20	8201-016-30-004	✓			✓
21	8201-016-30-005		✓		
22	8201-016-30-006		✓	✓	
23	8201-016-30-007		✓	✓	✓
24	8201-016-30-008		✓		✓
	SP300VAC5000W				
25	8201-111-30-001	✓			
26	8201-111-30-002	✓		✓	
27	8201-111-30-003	✓		✓	✓
28	8201-111-30-004	✓			✓
29	8201-111-30-005		✓		
30	8201-111-30-006		✓	✓	
31	8201-111-30-007		✓	✓	✓
32	8201-111-30-008		✓		✓

* For more AC source products, please contact your customer representative to get the information.

Installation Guide for Optional Accessories

Information of Optional Accessories			
APM Code	Weight	Software/ Available Cards	Cable Wires Accessories
List 201	0.29kg	GPIB Interface Card	Contain 1PCS GPIB IEE-488 Cable Wire 1M
List 202	0.43kg	Remote I/O&Parallel, Multiphase Link Card	Contain 1PCS BNC Cable Wire 1M
			Contain 1PCS DVI Cable Wire 1M

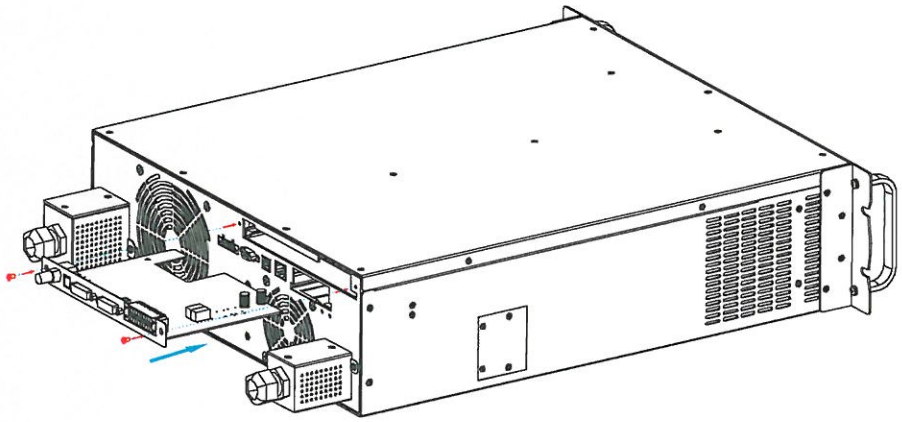
Installation of GPIB Interface Card and Remote I/O & Parallel, Multiphase Link Card

Applicable Model

SP300VAC2000W

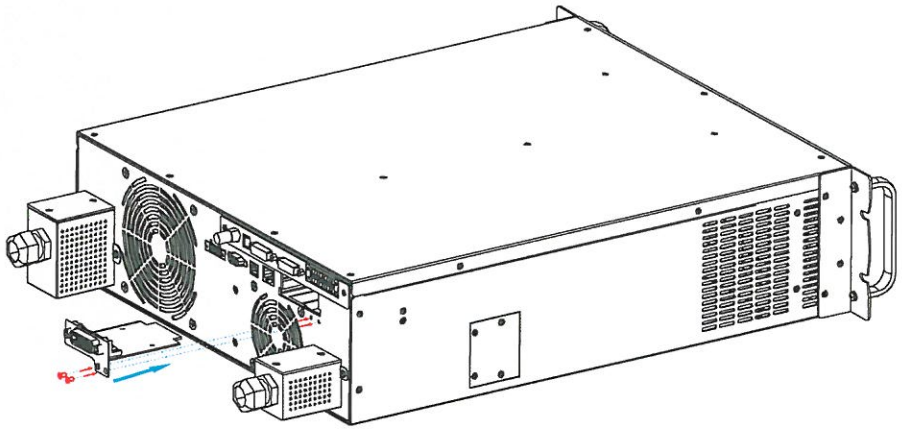
Step1:

Install Remote I/O & Parallel, Multiphase Link Card, then tighten the screws.



Step2:

Install GPIB Interface Card, then tighten the screws.



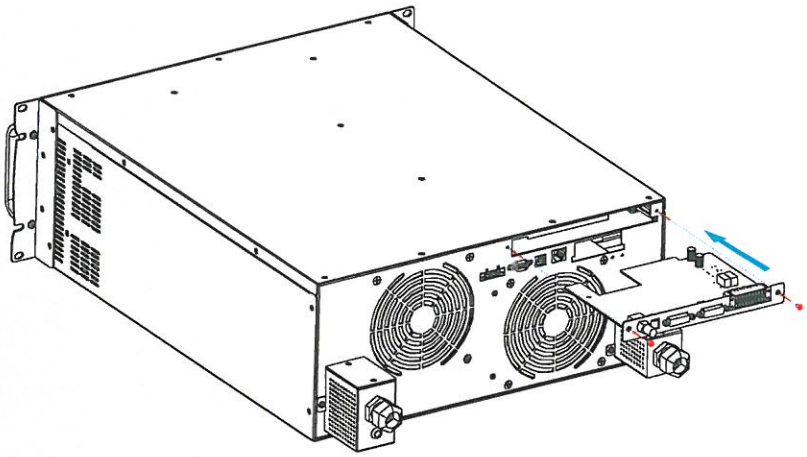
Installation of GPIB Interface Card and Remote I/O & Parallel, Multiphase Link Card

Applicable Model

- SP300VAC3000W
- SP300VAC4000W
- SP300VAC5000W

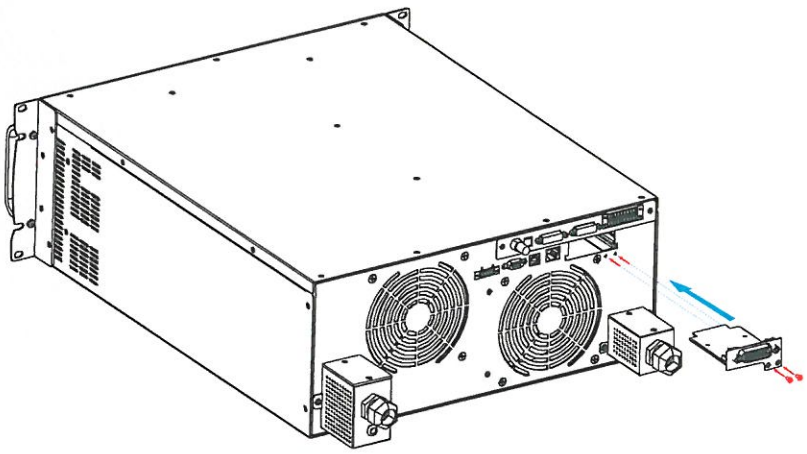
Step1:

Install Remote I/O & Parallel, Multiphase Link Card, then tighten the screws.



Step2:

Install GPIB Interface Card, then tighten the screws.

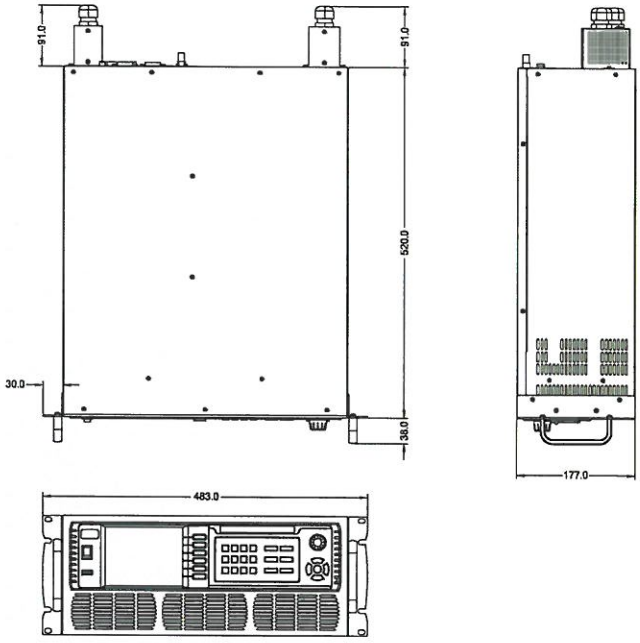


Dimensional Drawing (Unit: mm)

Applicable Model

- SP300VAC3000W
- SP300VAC4000W
- SP300VAC5000W

Top View | Side View
Front View |



Applicable Model

- SP300VAC2000W

Top View | Side View
Front View |