

## Middle Power Single Phase AC Source

» Product specification sheet



# Middle Power Single Phase AC Source

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### Selection List:

Model	Voltage	Current	Power	Corresponding page
SP300VAC600W	150V/300V	5.6A/2.8A	600W	P01
SP300VAC1000W	150V/300V	9.2A/4.6A	1000W	P01
SP300VAC1500W	150V/300V	13.8A/6.9A	1500W	P01
SP300VAC2000W	150V/300V	16A/8A	2000W	P03
SP300VAC3000W	150V/300V	27.6A/13.8A	3000W	P03
SP300VAC4000W	150V/300V	32A/16A	4000W	P03
SP300VAC5000W	150V/300V	46A/23A	5000W	P03

# Middle Power Single Phase AC Source

Model		SP300VAC600W	SP300VAC1000W	SP300VAC1500W	
<b>Input</b>					
Voltage		90~265VAC	90~265VAC	100~265VAC	
Frequency		47~63Hz			
Phase		1 Phase, 2Wire+Ground			
Max. Current		10A	15A	19A	
Power Factor at 220VAC Input, Full Load		≥ 0.91 Active PFC	≥ 0.95 Active PFC	≥ 0.97 Active PFC	
Efficiency		> 82%(Peak) > 80% at 220VAC, 50Hz input/230VAC, 50Hz output, Full Load	> 86%(Peak) > 84% at 220VAC, 50Hz input/230VAC, 50Hz output, Full Load	> 87%(Peak) > 86% at 220VAC, 50Hz input/230VAC, 50Hz output, Full Load	
<b>Output</b>					
AC Power		600VA	1000VA	1500VA	
Max. Current (r.m.s)	0~150V(L)	5.6A	9.2A	13.8A	
	0~300V(H)	2.8A	4.6A	6.9A	
Max. Current (Peak)	0~150V(L)	32.4A	55.2A	82.8A	
	0~300V(H)	16.2A	27.6A	41.4A	
Phase		1 Phase			
Total Harmonic Distortion (THD)		<0.5% (Resistive Load) at 15.0~70.0Hz and output voltage within 80~140VAC at Low Range or 160~280VAC at High Range. <1% (Resistive Load) at 70.1~500Hz and output voltage within 80~140VAC at Low Range or 160~280VAC at High Range. <1% (Resistive Load) at 501~1000Hz and output voltage within 100~140VAC at Low Range or 160~280VAC at High Range. <2% (Resistive Load) at 1001~1200Hz and output voltage within 100~140VAC at Low Range or 160~280VAC at High Range. Note: 1001~1200Hz only available to Professional Version Models.			
Crest Factor (CF)		< 6			
Load Regulation		± 0.1%F.S. @15~70Hz (Resistive Load) ± 0.5%F.S. @Others Freq. (Resistive Load)			
Line Regulation		± 0.1V			
Rise/Fall Time (DC)		< 250us			
Voltage (AC)	Range	0~300VAC , 150V/300V/Auto			
	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			
Voltage (DC)	Range	0~424VDC			
	Resolution	0.1V			
	Accuracy	0.2% of setting + 0.2%F.S.			
	Max. Power	600W	1000W	1500W	
	Max. Current (L/H Range)	L	3.96A	6.5A	9.76A
		H	1.89A	3.3A	4.88A
	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 CC Fold Mode	Resolution	0.01A			
	Accuracy	0.5% of setting + 1.0%F.S.			
	Response Time	<1400ms			
Frequency	Range <sup>[1]</sup>	15~1200Hz Full Range ADJ			
	Resolution	0.1Hz (15.0~99.9Hz), 1Hz (100~1000Hz), 5Hz (1001~1200Hz)			
	Accuracy	0.03% of setting			
Programmable Output Impedance <sup>[2]</sup>		0Ω+0mH~1Ω+1mH			
Harmonics & Inter-harmonics Simulation <sup>[3]</sup>		2400Hz			
<b>Measurement</b>					
Voltage	Range	AC 0~300VAC DC 0~424VDC			
	Resolution	0.1V			
	Accuracy	0.2% of setting + 0.2%F.S.			
Frequency	Range <sup>[1]</sup>	15~1200Hz			
	Resolution	0.1Hz(15.0~99.9Hz),1Hz(100~1000Hz), 5Hz(1001~1200Hz)			
	Accuracy	0.1% of setting			
Current (r.m.s)	Range	H	0.15A~5.6A	H 0.15A~9.2A	H 0.15A~13.8A
		M	-	M -	M -
		L	0.1A~3A	L 0.1A~3A	L 0.1A~3A
		mA	-	mA -	mA -
	Resolution	0.01A			
Accuracy	0.4%+1.0%F.S.				
Current (Peak)	Range	0~32.4A	0~55.2A	0~82.8A	
	Resolution	0.01A			
	Accuracy	H 0.4%+1.0%F.S. L 0.4%+1.5%F.S.			

# Middle Power Single Phase AC Source

Model		SP300VAC600W	SP300VAC1000W	SP300VAC1500W
Power	Range	0~600W	0~1000W	0~1500W
	Resolution	0.1W		
	Accuracy	0.4% of setting + 1.0% F.S. at PF>0.2, Voltage>5V		
Power Apparent (VA)	Range	0~612VA	0~1020VA	0~1530VA
	Resolution	0.1VA		
	Accuracy	Voltage*Irms, Calculated value		
Power Resistive (VAR)	Range	0~612VAR	0~1020VAR	0~1530VAR
	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 <sup>[4]</sup>	2~40 orders		
<b>Extra Function</b>				
Remote Sense	Range	5V(rms), Max. Total power less than rated power.		
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		
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			
Test Function	Yes			
Parallel Output for 1 Phase	Yes, 4 Units Max. (Option: Multiphase Link Card)			
Series Output for 1 Phase	Yes, 2 Units Max. (Option: Multiphase Link Card)			
Link Output for 3 Phase	Yes, (Option: Multiphase Link Card)			
<b>General</b>				
Graphic Display	4.3" Color touch LCD			
Operation Key Feature	Soft key, Numeric key, Rotary Knob, USB port for transfer and upgrading firmware			
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	Standard USB, RS-485, RS-232, GPIB & LAN is Optional			
<b>Remote Control Input/Output Signal Characteristics (Option)</b>				
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			
<b>Environment</b>				
Operating Temperature	0°C ~ 40°C			
Storage Temperature	-40°C ~ 85°C			
Fan Noise	73dBA Max.			
Altitude	2000m			
Relative Humidity	5%~95%, non-condensing			
Temperature Coefficient	100ppm/°C at Voltage, 300ppm/°C at Current, 100ppm/°C at Frequency			
<b>Mechanical</b>				
Dimensions (W*H*D)	423.0x87.0x520.0 mm			
Package Dimensions (W*H*D)	594.0x241.0x 744.0 mm			
Unit Weight	15.9kg			
Shipping Weight	19kg			
<b>Regulatory Compliance</b>				
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.			
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.			

[1] Only Professional Version units support 15.00~1200.00Hz.

[2] Only Professional Version units support Programmable Output Impedance function.

[3] Only Professional Version units support Harmonics & Inter-harmonics Simulation function.

[4] Only Professional Version units support Harmonics function.

All specifications are subject to change without notice.

# Middle Power Single Phase AC Source

Model		SP300VAC2000W	SP300VAC3000W	SP300VAC4000W	SP300VAC5000W				
<b>Input</b>									
Voltage		190~265VAC							
Frequency		47~63Hz							
Phase		1 Phase, 2Wire+Groud							
Max. Current		14A	20A	25A	30A				
Power Factor at 220VAC Input, Full Load		≥ 0.99, ActivePFC	≥ 0.98, ActivePFC	≥ 0.99, ActivePFC	≥ 0.99, ActivePFC				
Efficiency		> 87%(Peak) > 86% at 220VAC, 50Hz input 230VAC,50Hz output, Full Load	> 86%(Peak) > 85% at 220VAC, 50Hz input 230VAC,50Hz output, Full Load	> 87%(Peak) > 86% at 220VAC, 50Hz input 230VAC,50Hz output, Full Load	> 87%(Peak) > 86% at 220VAC, 50Hz input 230VAC,50Hz output, Full Load				
<b>Output</b>									
AC Power		2000VA	3000VA	4000VA	5000VA				
Max. Current (r.m.s)	0~150V(L)	16A	27.6A	32A	46A				
	0~300V(H)	8A	13.8A	16A	23A				
Max. Current (Peak)	0~150V(L)	80A	165.6A	160A	184A				
	0~300V(H)	40A	82.8A	80A	92A				
Phase		1 Phase							
Total Harmonic Distortion (THD)		<0.5% (Resistive Load) at 15.0~70.0Hz and output voltage within 80~140VAC at Low Range or 160~280VAC at High Range. <1% (Resistive Load) at 70.1~500Hz and output voltage within 80~140VAC at Low Range or 160~280VAC at High Range. <1% (Resistive Load) at 501~1000Hz and output voltage within 100~140VAC at Low Range or 160~280VAC at High Range. <2% (Resistive Load) at 1001~1200Hz and output voltage within 100~140VAC at Low Range or 160~280VAC at High Range. Note: 1001~1200Hz only available to Professional Version Models.							
Crest Factor (CF)		≤ 5	≤ 6	≤ 5	≤ 4				
Load Regulation		± 0.1%F.S. @15~70Hz (Resistive Load) ± 0.5%F.S. @Others Freq. (Resistive Load)							
Line Regulation		± 0.1V							
Rise/Fall Time (DC)		<180us							
Voltage (AC)	Range	0~300VAC, 150V/300V/Auto							
	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							
Voltage (DC)	Range	0~424VDC							
	Resolution	0.1V							
	Accuracy	0.2% of setting + 0.2%F.S.							
	Max. Power	2000W	3000W	4000W	5000W				
	Max. Current (L/H Range)	L 11.3A H 5.65A	L 19.6A H 9.8A	L 22.6A H 11.3A	L 32.6A H 16.3A				
	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 CC Fold Mode	Resolution	0.01A							
	Accuracy	0.5% of setting + 1.0%F.S.							
	Response Time	<1400ms							
Frequency	Range <sup>[1]</sup>	15~1200Hz Full Range ADJ							
	Resolution	0.1Hz (15.0~99.9Hz), 1Hz (100~1000Hz), 5Hz (1001~1200Hz)							
	Accuracy	0.03% of setting							
Programmable Output Impedance <sup>[2]</sup>		0Ω+0mH~1Ω+1mH							
Harmonics & Inter-harmonics Simulation <sup>[3]</sup>		2400Hz							
<b>Measurement</b>									
Voltage	Range	AC 0~300VAC DC 0~424VDC							
	Resolution	0.1V							
	Accuracy	0.2% of setting + 0.2%F.S.							
Frequency	Range <sup>[1]</sup>	15~1200Hz							
	Resolution	0.1Hz(15.0~99.9Hz), 1Hz(100~1000Hz), 5Hz(1001~1200Hz)							
	Accuracy	0.1% of setting							
Current (r.m.s)	Range	H	0.15A~20A	H	0.3A~27.6A	H	0.3A~32A	H	0.3A~46A
		M	-	M	0.2A~20A	M	0.2A~20A	M	0.2A~20A
		L	0.1A~5A	L	0.1A~5A	L	0.1A~5A	L	0.1A~5A
		mA	0.02A~1.5A	mA	0.02A~1.5A	mA	0.02A~1.5A	mA	0.02A~1.5A
	Resolution	0.01A							
Accuracy	H/M 0.4%+1.0%F.S.		H/M 0.4%+0.6%F.S.						
	L/mA 0.4%+1.0%F.S.		L/mA 0.4%+1.0%F.S.						
Current(Peak)	Range	0~81.5A	0~168.6A	0.05~163A	0.05~188A				
	Resolution	0.01A							
	Accuracy	H/M 0.4%+1.5%F.S. L/mA 0.4%+1.5%F.S.							

# Middle Power Single Phase AC Source

Model		SP300VAC2000W	SP300VAC3000W	SP300VAC4000W	SP300VAC5000W
Power	Range	0~2040W	0~3060W	0~4080W	0~5100W
	Resolution	0.1W			
	Accuracy	0.4% of setting + 1.0% F.S. at PF>0.2, Voltage>5V			
Power Apparent (VA)	Range	0~2040VA	0~3060VA	0~4080VA	0~5100VA
	Resolution	0.1VA			
	Accuracy	Voltage*I <sub>rms</sub> , Calculated value			
Power Resistive (VAR)	Range	0~2040VAR	0~3060VAR	0~4080VAR	0~5100VAR
	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 <sup>[4]</sup>	2~40 orders			
<b>Extra Function</b>					
Remote Sense	Range	5V(rms), Max. Total power less than rated power.			
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			
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				
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)				
<b>General</b>					
Graphic Display	5.6" Color touch LCD				
Operation Key Feature	Soft key, Numeric key, Rotary Knob, USB port for transfer and upgrading firmware				
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	Standard USB, RS-485, RS-232, GPIB & LAN is Optional				
<b>Remote Control Input/Output Signal Characteristics (Option)</b>					
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				
<b>Environment</b>					
Operating Temperature	0°C ~ 40°C				
Storage Temperature	-40°C ~ 85°C				
Fan Noise	73dBA Max.				
Altitude	2000m				
Relative Humidity	5%~95%, non-condensing				
Temperature Coefficient	100ppm/°C at Voltage, 300ppm/°C at Current, 100ppm/°C at Frequency				
<b>Mechanical</b>					
Dimensions (W*H*D)	423.0x133.0x520.0 mm	423.0x177.0x520.0 mm			
Package Dimensions (W*H*D)	643.0x278.5x802.0 mm	643.0x323.0x802.0 mm			
Unit Weight	21.4kg	29.0kg			
Shipping Weight	24.4kg	32.0kg			
<b>Regulatory Compliance</b>					
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.				
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.				

[1] Only Professional Version units support 15.00~1200.00Hz.

[2] Only Professional Version units support Programmable Output Impedance function.

[3] Only Professional Version units support Harmonics & Inter-harmonics Simulation function.

[4] Only Professional Version units support Harmonics function.

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