

SP5000 Initial-P ~ SP5000 Initial-M

# SP Initial Series

Keep high value with economy, SP Initial Series allow you easily to use solar energy.

User friendly, high-efficiency and reliable

Enjoy the green life

## Features

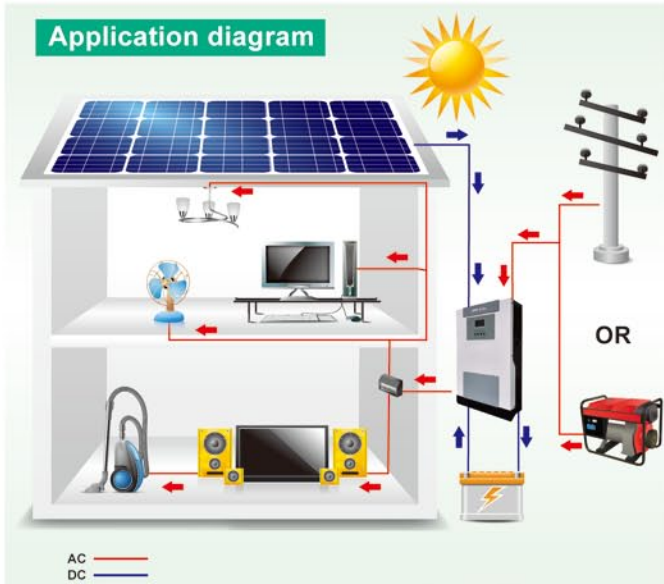
- Pure sine wave inverter
- Selectable high power charging current
- Compatible to mains voltage or generator power
- Smart battery charger design for optimized battery performance
- Built-in solar charge controller
- Overload and short circuit protection
- Smart battery charger design for optimized battery performance
- Cold start function
- USB communication port



## Specifications

MODEL	SP3000 Initial-P	SP5000 Initial-P	SP3000 Initial-M	SP5000 Initial-M
Rated Power	3000VA/ 2400W	5000VA/ 4000W	3000VA/ 2400W	5000VA/ 4000W
<b>INPUT</b>				
Voltage	230 VAC			
Selectable Voltage Range	170-280 VAC (For Personal Computers) 90-280 VAC (For Home Appliances)			
Frequency Range	50 Hz/60 Hz (Auto sensing)			
<b>OUTPUT</b>				
AC Voltage Regulation (Batt. Mode)	230VAC ± 5%			
Surge Power	10000VA			
Peak Efficiency	93%			
Transfer Time	10 ms (For Personal Computers) 20 ms (For Home Appliances)			
Waveform	Pure sine wave			
<b>BATTERY</b>				
Battery Voltage	24 VDC	48 VDC	24 VDC	48 VDC
Floating Charge Voltage	27 VDC	54 VDC	27 VDC	54 VDC
Overcharge Protection	33 VDC	63 VDC	33 VDC	63 VDC
<b>SOLAR CHARGER &amp; AC CHARGER</b>				
Maximum PV Array Open Circuit Voltage	60VDC	105Vdc	100VDC	145Vdc
Operation Voltage Range	30~32Vdc	60~72Vdc	N/A	N/A
PV Array MPPT Voltage Range	N/A	N/A	30~80Vdc	60~115Vdc
Maximum Solar Charging Current	50A		40A	60A
Maximum AC Charging Current	25A	60A	25A	60A
Maximum Charging Current	70A	110A	60A	120A
<b>PHYSICAL</b>				
Dimension (D×W×H)	100×285×334 mm	100×300×440 mm	100×285×334 mm	100×300×440 mm
Net Weight	9.6kgs	11.8kgs	9.8kgs	13kgs
<b>OPERATING ENVIRONMENT</b>				
Humidity	5% to 95% Relative Humidity (Non-condensing)			
Operating Temperature	-10°C ~ 55°C			
Storage Temperature	-15°C ~ 60°C			

## Application diagram

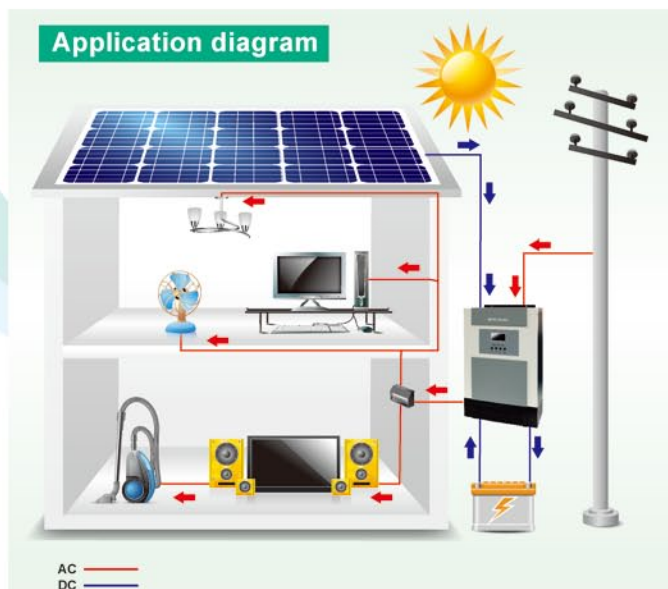


Specifications are subject to change without notice.

SP1000 Efecto ~ SP5000 Efecto

# SP Efecto Series

SP Efecto series represent Hybrid/off-grid solar inverters that adapt high-frequency switching technology and offer high efficiency power saving results to customers who seek for environment friendly solutions that shall help reduce on the electricity bill. SP Efecto inverters feature AC charger and PV solar charger controllers to allow for batteries up to 500AH to be used. The less than 10ms transfer time from utility to autonomous power supply is perfect for computer systems and is unique for high efficiency solar power supply systems. SP Efecto inverters introduce the parallel inter-connectivity to increase your overall solar installation power rating by simply adding inverters.



## Features:

- Pure sine wave inverter
- Parallel connection capability (Optional for SP4000 Efecto and SP5000 Efecto)
- Selectable input voltage range for home appliances and personal computers
- Selectable charging current suitable for high AH-rating batteries
- Configurable AC/Solar input priority
- Diesel generator compatible
- Auto restart as AC recovers
- Overload and short circuit protection
- Smart battery charger
- Cold start function

## Specifications

MODEL	SP1000 Efecto	SP2000 Efecto	SP3000 Efecto	SP4000 Efecto	SP5000 Efecto
<b>Rated Power</b>	1000VA / 800W	2000VA/1600W	3000VA / 2400W	4000VA / 3200W	5000VA / 4000W
<b>INPUT</b>					
<b>Voltage</b>	230 VAC				
<b>Selectable Voltage Range</b>	170-280 VAC (For Personal Computers) 90-280 VAC (For Home Appliances)				
<b>Frequency Range</b>	50 Hz/60 Hz (Auto sensing)				
<b>OUTPUT</b>					
<b>AC Voltage Regulation (Batt. Mode)</b>	230VAC ± 15%				
<b>Surge Power</b>	2000VA	4000VA	6000VA	8000VA	10000VA
<b>Peak Efficiency</b>	93%				
<b>Transfer Time</b>	10 ms (For Personal Computers) 20 ms (For Home Appliances)				
<b>Waveform</b>	Pure sine wave				
<b>BATTERY</b>					
<b>Battery Voltage</b>	12 VDC		24 VDC		48 VDC
<b>Floating Charge Voltage</b>	13.5 VDC		27 VDC		54 VDC
<b>Low Battery Alarm Voltage</b>	10.5 VDC		21 VDC		42 VDC
<b>Shutdown Voltage</b>	10 VDC		20 VDC		40 VDC
<b>Overcharge Protection</b>	15 VDC		30 VDC		60 VDC
<b>Maximum Utility Charging Current</b>	20 A		30 A		60 A
<b>SOLAR CHARGER</b>					
<b>Charging Current</b>	50A				
<b>Suggested operating Voltage Range</b>	15-30VDC		30-60 VDC		60-90 VDC
<b>Maximum PV Array Open Circuit Voltage</b>	40 VDC		78 VDC		100 VDC
<b>Standby Power Consumption</b>	1W			2W	
<b>JOINT UTILITY AND SOLAR CHARGING</b>					
<b>Maximum Charging Current</b>	50A			110A	
<b>PHYSICAL</b>					
<b>Dimension (D×W×H)</b>	95 x 250 x 330mm		100 x 272 x 367mm		110 x 300 x 455mm
<b>Net Weight</b>	4kgs	4.5kgs	6.8kgs	7.5kgs	8.5kgs
<b>OPERATING ENVIRONMENT</b>					
<b>Humidity</b>	5% to 95% Relative Humidity (Non-condensing)				
<b>Operating Temperature</b>	0°C - 55°C				
<b>Storage Temperature</b>	-15°C - 60°C				

Specifications are subject to change without notice.

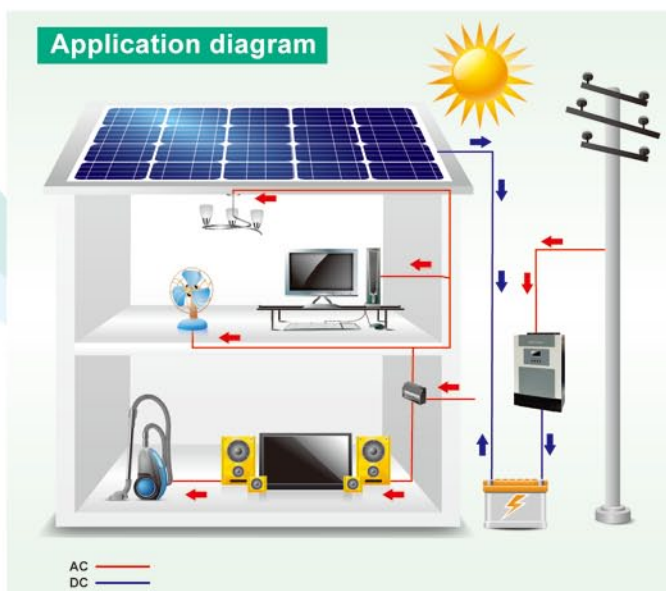
\* Either SP4000 Efecto or SP5000 Efecto can be installed in parallel, and total capacity can reach 24KVA or 30KVA (Transfer time is 30ms in parallel operation)



SP2000 Brilliant~ 5000 Brilliant

# SP Brilliant Series

**MPPT  
Built-in**



## Features

- Pure sine wave inverter
- Parallel connection capability (Optional for SP5000 Brilliant)
- Built-in MPPT solar charge controller
- Selectable input voltage range for home appliances and personal computers
- Selectable charging current based on applications
- Configurable AC/Solar input priority
- Compatible to mains voltage or generator power
- Auto restart as AC recovers
- Overload and short circuit protection
- Smart battery charger design for optimized battery performance
- Cold start function

## Specifications

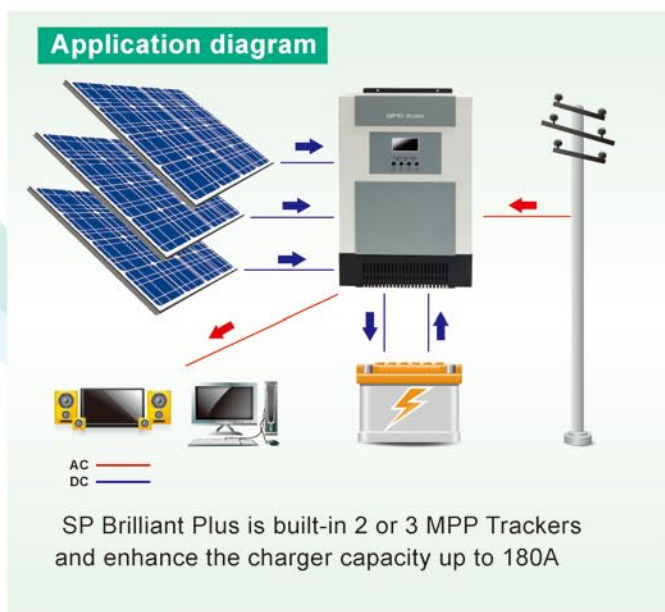
MODEL	SP2000 Brilliant	SP3000 Brilliant	SP5000 Brilliant
<b>Rated Power</b>	2000VA/1200W	3000VA/2400W	5000VA/4000W
<b>INPUT</b>			
<b>Voltage</b>	120 VAC	230 VAC	
<b>Selectable Voltage Range</b>	95-140 VAC (For Personal Computers) 65-140 VA (For Home Appliances)	170-280 VAC (For Personal Computers) 90-280 VAC (For Home Appliances)	
<b>Frequency Range</b>	50 Hz/60 Hz (Auto sensing)		
<b>OUTPUT</b>			
<b>AC Voltage Regulation (Batt. Mode)</b>	110/120VAC ± 5%	230VAC ± 5%	
<b>Surge Power</b>	4000VA	6000VA	10000VA
<b>Peak Efficiency</b>	90%		
<b>Transfer Time</b>	10 ms (For Personal Computers) 20 ms (For Home Appliances)		
<b>Waveform</b>	Pure sine wave		
<b>BATTERY</b>			
<b>Battery Voltage</b>	48 VDC		
<b>Floating Charge Voltage</b>	54 VDC		
<b>Low Battery Alarm Voltage</b>	42 VDC		
<b>Shutdown Voltage</b>	40 VDC		
<b>Overcharge Protection</b>	60 VDC		
<b>Maximum Utility Charging Current</b>	10A	15 A	60 A
<b>SOLAR CHARGER</b>			
<b>Maximum PV Rated Power</b>	3000W		
<b>Maximum PV Array Open Circuit Voltage</b>	145Vdc		
<b>MPPT Operation Voltage Range</b>	60~115Vdc		
<b>Maximum Charging Current</b>	60A		
<b>Standby Power Consumption</b>	2W		
<b>JOINT UTILITY AND SOLAR CHARGING</b>			
<b>Maximum Charging Current</b>	60A		120A
<b>PHYSICAL</b>			
<b>Dimension (D X W X H)</b>	140 x 295 x 479mm		140 x 295 x 540mm
<b>Net Weight</b>	11.5kgs		13.5kgs
<b>OPERATING ENVIRONMENT</b>			
<b>Humidity</b>	5% to 95% Relative Humidity (Non-condensing)		
<b>Operating Temperature</b>	0°C - 55°C		
<b>Storage Temperature</b>	-15°C - 60°C		

Specifications are subject to change without notice.

\* SP5000 Brilliant can be installed in parallel, and total capacity can reach 30KVA (Transfer time is 30ms in parallel operation)

SP3000~5000 Brilliant Plus

# SP Brilliant Plus Series



## Features

- Pure sine wave inverter
- Built-in 2 or 3 strings of MPPT solar charge controller
- Enhance AC charger up to 60A
- Selectable input voltage range for home appliances and personal computers
- Selectable charging current based on applications
- Configurable AC/Solar input priority
- Compatible to mains voltage or generator power
- Auto restart as AC recovers
- Overload and short circuit protection
- Smart battery charger design for optimized battery performance
- Cold start function

## Specifications

MODEL	SP3000 Brilliant Plus	SP5000 Brilliant Plus
<b>Rated Power</b>	3000VA/2400W	5000VA/4000W
<b>INPUT</b>		
<b>Voltage</b>	230 VAC	
<b>Selectable Voltage Range</b>	170-280 VAC (For Personal Computers) 90-280 VAC (For Home Appliances)	
<b>Frequency Range</b>	50 Hz/60 Hz (Auto sensing)	
<b>OUTPUT</b>		
<b>AC Voltage Regulation (Batt. Mode)</b>	230VAC ± 5%	
<b>Surge Power</b>	6000VA	10000VA
<b>Peak Efficiency</b>	90% ~ 93%	
<b>Transfer Time</b>	10 ms (For Personal Computers) 20 ms (For Home Appliances)	
<b>Waveform</b>	Pure sine wave	
<b>BATTERY</b>		
<b>Battery Voltage</b>	48 VDC	
<b>Floating Charge Voltage</b>	54 VDC	
<b>Low Battery Alarm Voltage</b>	42 VDC	
<b>Shutdown Voltage</b>	40 VDC	
<b>Overcharge Protection</b>	60 VDC	
<b>Maximum Utility Charging Current</b>	60 A	
<b>SOLAR CHARGER</b>		
<b>Maximum PV Rated Power</b>	2000W	9000W
<b>Maximum PV Array Open Circuit Voltage</b>	102VDC	145Vdc
<b>MPPT Operation Voltage Range</b>	60~88Vdc	60~115Vdc
<b>Maximum Charging Current</b>	40A	180A
<b>Standby Power Consumption</b>	2W	
<b>JOINT UTILITY AND SOLAR CHARGING</b>		
<b>Maximum Charging Current</b>	100A	240A
<b>PHYSICAL</b>		
<b>Dimension (D X W X H)</b>	128 x 272 x 400mm	194 x 295 x 455mm
<b>Net Weight</b>	9kgs	17kgs
<b>OPERATING ENVIRONMENT</b>		
<b>Humidity</b>	5% to 95% Relative Humidity (Non-condensing)	
<b>Operating Temperature</b>	0°C - 55°C	
<b>Storage Temperature</b>	-15°C - 60°C	

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\* SP5000 Brilliant Plus can be installed in parallel, and total capacity can reach 30KVA (Transfer time is 30ms in parallel operation)

SP3000 Premium ~ SP10000 Premium

# SP Premium Series

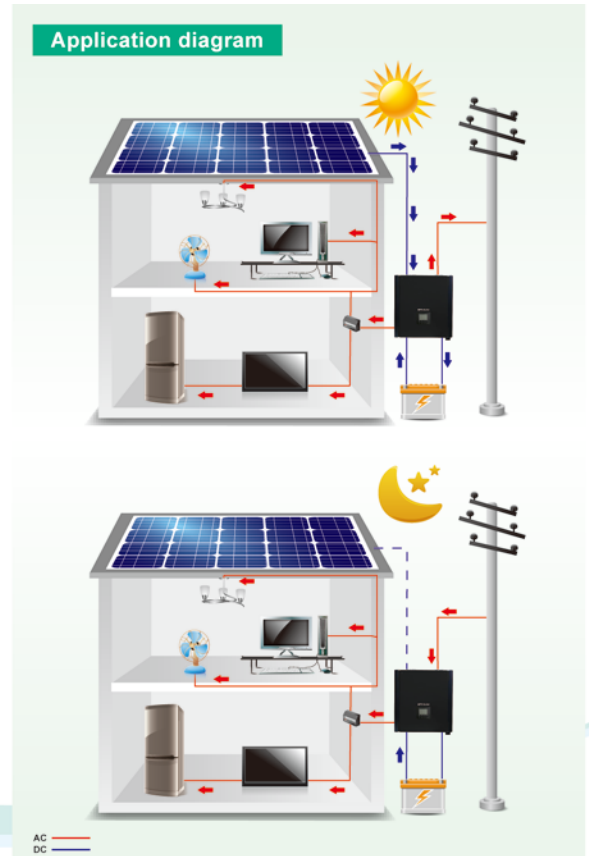
## True Hybrid Solar Inverter with Energy Storage

**SP Premium Series** are a universal power supply tool for houses. It utilizes solar power at day time feeding it to your appliances like illumination lamps, TV, stereo and PC equipment, saving the power to the batteries for the night time usage, and selling the power surplus unused by the connected appliances to the grid.

On cloudy days when the solar power is weak, **SP Premium Series** take the lacking power from the grid. At night, the power stored in the batteries are being used for your equipment. With this true hybrid design, we give you the confidence that 100% of your solar power is fully utilized.

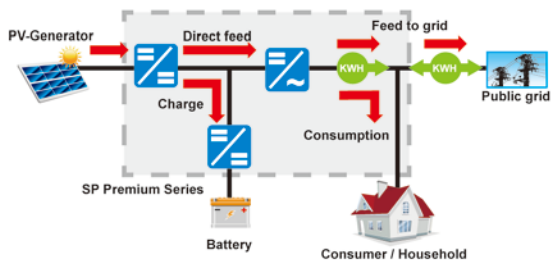
### Features

- 3KW/10KW on-grid inverter with energy storage
- Pure sine wave output
- Microprocessor controlled to guarantee stable charging system
- Multiple operations: Grid tie, Off grid, and grid-tie with backup
- Built-in MPPT solar charger
- LCD display panel for comprehensive information
- Multiple communication
- Green substitution for generators
- User-adjustable battery charging current

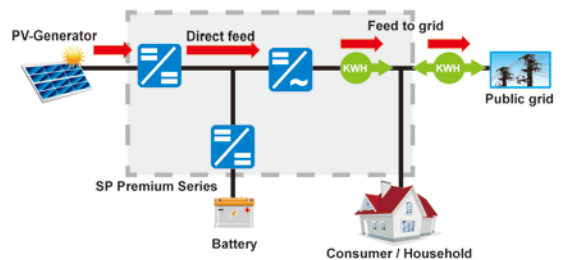


### Operation Diagram

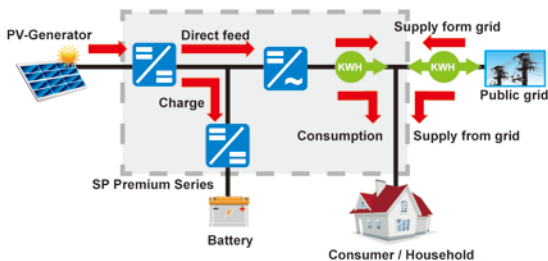
#### Enough PV Energy Input



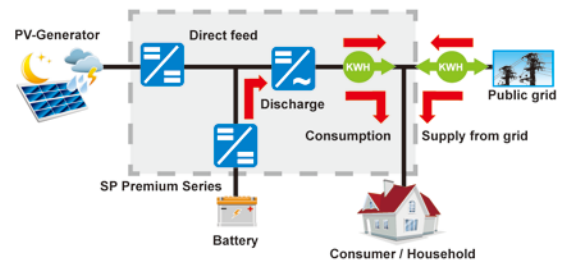
#### No consumption from household and the battery is fully charged



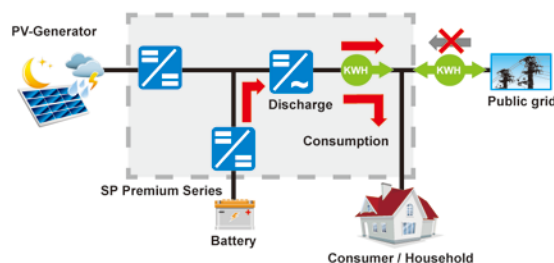
#### Household's consumption is higher than supply from PV



#### No PV energy and battery is fully discharged



#### No PV energy and the consumption from household is supplied by battery





SP10000 Premium



SP3000 Premium



## Specifications

MODEL	SP3000 Premium
<b>RATED POWER</b>	3000 W
Maximum PV Input Power	4500W
Maximum Charging Power	1200 W
<b>GRID-TIE OPERATION</b>	
<b>PV INPUT (DC)</b>	
Nominal DC Voltage / Maximum DC Voltage	360 VDC / 500 VDC
Start-up Voltage / Initial Feeding Voltage	116 VDC / 150 VDC
MPP Voltage Range	250 VDC ~ 450 VDC
Number of MPP Trackers / Maximum Input	1x18 A
<b>GRID OUTPUT (AC)</b>	
Nominal Output Voltage	208/220/230/240 VAC
Output Voltage Range	184 - 264.5 VAC*
Nominal Output Current	13.1 A
Power Factor	> 0.99
<b>EFFICIENCY</b>	
Maximum Conversion Efficiency (DC/AC)	96%
<b>OFF-GRID OPERATION</b>	
<b>AC INPUT</b>	
AC Start-up Voltage/Auto Restart Voltage	120 - 140 VAC / 180 VAC
Acceptable Input Voltage Range	170 - 280 VAC
Max. AC Input Current	25 A
<b>PV INPUT (DC)</b>	
Maximum DC Voltage	500 VDC
MPP Voltage Range	250 VDC ~ 450 VDC
Number of MPP Trackers / Max. Input Current	1x18 A
<b>BATTERY MODE OUTPUT (AC)</b>	
Nominal Output Voltage	208/220/230/240 VAC
Output Waveform	Pure Sinewave
Efficiency (DC to AC)	93%
<b>HYBRID OPERATION</b>	
<b>PV INPUT (DC)</b>	
Nominal DC Voltage / Maximum DC Voltage	360 VDC / 500 VDC
Start-up Voltage / Initial Feeding Voltage	116 VDC / 150 VDC
MPP Voltage Range	250 VDC ~ 450 VDC
Number of MPP Trackers / Max. Input Current	1x 18 A
<b>GRID OUTPUT (AC)</b>	
Nominal Output Voltage	208/220/230/240 VAC
Output Voltage Range	184 - 264.5 VAC
Nominal Output Current	13.1 A
<b>AC INPUT</b>	
AC Start-up Voltage / Auto Restart Voltage	120 - 140 VAC / 180 VAC
Acceptable Input Voltage Range	170 - 280 VAC
Maximum AC Input Current	25 A
<b>BATTERY MODE OUTPUT (AC)</b>	
Nominal Output Voltage	208/220/230/240 VAC
Efficiency (DC to AC)	93%
<b>BATTERY &amp; CHARGER</b>	
Nominal DC Voltage	48 VDC
Maximum Battery Discharging Current	250 A
Maximum Charging Current	200 A
<b>PHYSICAL</b>	
Dimension (D×W×H)	117×438×480mm
Net Weight	15.57 kgs
<b>INTERFACE</b>	
Communication Port	RS-232/USB
Intelligent Slot	SNMP/Modbus/AS-400 cards(Optional)
<b>ENVIRONMENT</b>	
Humidity	0 ~ 90% RH (No condensing)
Operating Temperature	0 to 40°C
Altitude	Max. 1000m**

Product specifications are subject to change without further notice.

\*These figures are based on VDE-4105 standard. All figures may vary depending on different AC voltage and country requirements.

\*\*Power derating 1% every 100m when altitude is over 1000m.

MODEL	SP10000 Premium
<b>RATED POWER</b>	10000 W
<b>PV INPUT (DC)</b>	
Maximum DC Power	14850 W
Nominal DC Voltage	720 VDC
Maximum DC Voltage	900 VDC
Start-up Voltage / Initial Feeding Voltage	320 VDC / 350 VDC
MPP Voltage Range	400 VDC ~ 800 VDC
Maximum Input Current	2*18.6 A
<b>GRID OUTPUT (AC)</b>	
Nominal Output Voltage	230 VAC (P-N) / 400 VAC (P-P)
Output Voltage Range	184 - 265 VAC per phase
Nominal Output Current	13 A per phase
Inrush Current/Duration	17 A per phase / 20ms
Maximum Output Fault Current/Duration	51 A per phase / 1ms
Maximum output Overcurrent Protection	51 A per phase
Power Factor	>0.99
<b>EFFICIENCY</b>	
Maximum Conversion Efficiency (DC/AC)	96%
European Efficiency@Vnominal	95%
<b>AC INPUT</b>	
AC Start-up Voltage	120-140 VAC per phase
Auto Restart Voltage	180 VAC per phase
Acceptable Input Voltage Range	170 - 280 VAC per phase
Nominal Frequency	50 Hz / 60 Hz
AC Input Power	10000VA/10000W
Maximum AC Input Current	25 A
Inrush Input Current	25 A
<b>BATTERY MODE OUTPUT (AC)</b>	
Nominal Output Voltage	230 VAC (P-N) / 400 VAC (P-P)
Output Frequency	50 Hz / 60 Hz (auto sensing)
Output Waveform	Pure sine wave
Output Power	10000VA/10000W
Output Current	13 A per phase
Efficiency (DC to AC)	91%
<b>BATTERY &amp; CHARGER</b>	
Nominal DC Voltage	48 VDC
Maximum Battery Discharging Current	250 A
Maximum Charging Current	200 A
<b>PHYSICAL</b>	
Dimension (D×W×H)	622×500×167.2mm
Net Weight	45kgs
<b>INTERFACE</b>	
Communication Port	RS-232/USB
Intelligent Slot	Optional SNMP, Modbus and AS-400 cards available
<b>ENVIRONMENT</b>	
Protective Class	I
Ingress Protection Rating	IP20
Humidity	0 ~ 90% RH (No condensing)
Operating Temperature	0 to 40°C
Altitude	0 ~ 1000 m*

Product specifications are subject to change without further notice.

\*Power derating 1% every 100 m when altitude is over 1000m.

SP3000 Power-P~SP3000 Power-M

# SP Power Series

*The system is designed for 120V to provide more choices.*

*Friendly solutions that shall help reduce on the electricity bill.*

*Built-in AC charger and PV solar charger controllers.*

*Parallel operation with up to 6 units.*

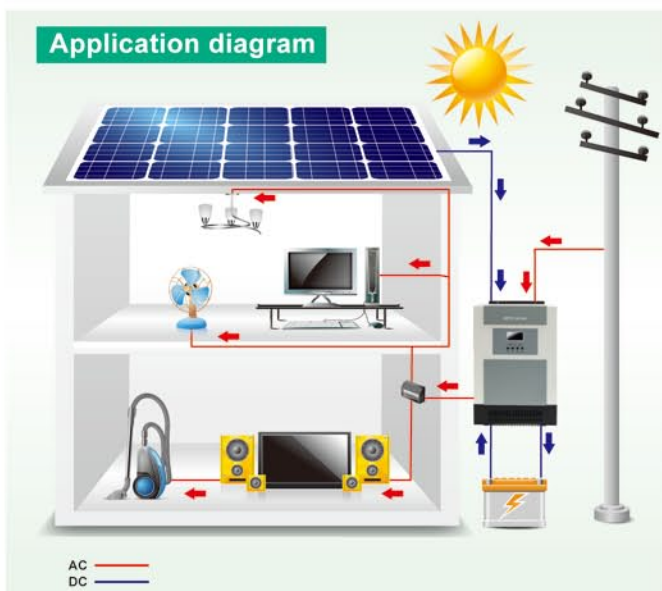
## Features

- Pure sine wave inverter
- Built-in PWM or MPPT solar charge controller
- Selectable input voltage range for home appliances and personal computers
- Selectable charging current based on applications
- Configurable AC/Solar input priority via LCD setting
- Compatible to mains voltage or generator power
- Auto restart while AC is recovering
- Overload and short circuit protection
- Smart battery charger design for optimized battery performance
- Cold start function



## Specifications

MODEL	SP3000 Power-P	SP3000 Power-M
Rated Power	3000VA/2400W	
<b>INPUT</b>		
Voltage	120VAC	
Selectable Voltage Range	95-140 VAC (For Personal Computers) 65-140 VAC (For Home Appliances)	
Frequency Range	50 Hz/60 Hz (Auto sensing)	
<b>OUTPUT</b>		
AC Voltage Regulation (Batt. Mode)	120VAC ± 5%	
Surge Power	6000VA	
Peak Efficiency	93%	
Transfer Time	10 ms (For Personal Computers) 20 ms (For Home Appliances)	
Waveform	Pure sine wave	
<b>BATTERY</b>		
Battery Voltage	24 VDC	
Floating Charge Voltage	27 VDC	
Low Battery Alarm Voltage (load ≥ 50%)	21.2VDC	
Shutdown Voltage (load ≥ 50%)	19.2 VDC	
Overcharge Protection	33 VDC	
Maximum Utility Charging Current	60A	
<b>SOLAR CHARGER</b>		
Maximum PV Rated Power	1250W	2000W
Maximum PV Array Open Circuit Voltage	105Vdc	145Vdc
MPPT Operation Voltage Range	60~80Vdc	60~115Vdc
Maximum Charging Current	50A	80A
Standby Power Consumption	2W	
<b>JOINT UTILITY AND SOLAR CHARGING</b>		
Maximum Charging Current	110A	140A
<b>PHYSICAL</b>		
Dimension (D X W X H)	120 x 295 x 468 mm	
Net Weight	11kgs	11.5kgs
<b>OPERATING ENVIRONMENT</b>		
Humidity	5% to 95% Relative Humidity (Non-condensing)	
Operating Temperature	0°C - 55°C	
Storage Temperature	-15°C - 60°C	



Specifications are subject to change without notice.



SP3200 AVR~ SP4000 AVR

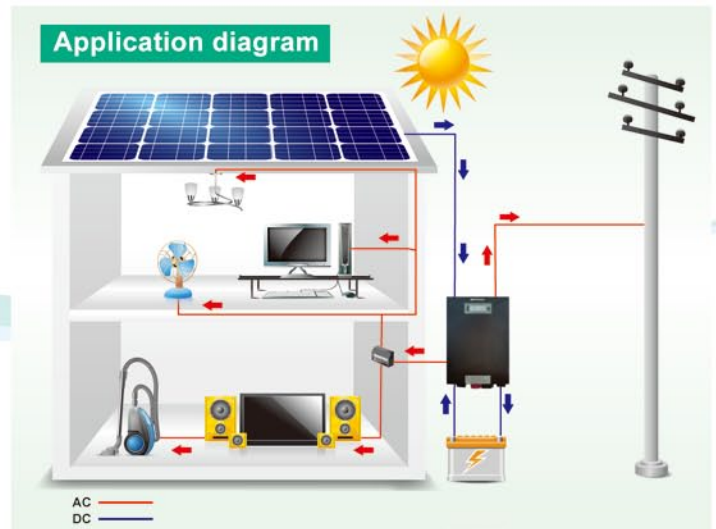
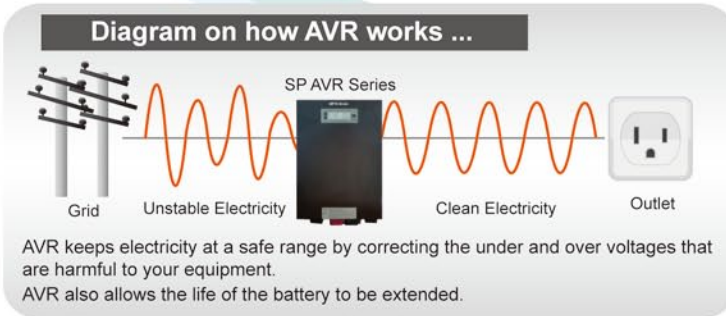
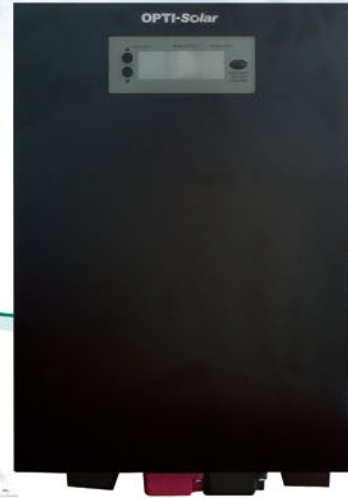
# SP AVR Series

**AVR**  
Function

**Built-in AVR takes care of the rest - voltage fluctuations!**

## Features

- Adjustable voltage-transfer points & charging voltage
- Automatic restart of load after inverter shutdown
- Smart AVR function (Two buck / boost modes)
- Wide input range 140V~310V
- Generator compatible
- Cold-start capable
- Full-functional of LCD display with Audible alarms
- Intelligent double-stage charging control; Adjustable charging current by DIP switches for different battery types
- Thermal control cooling fan
- DC/AC Isolation



## Specifications

MODEL	SP3200 AVR	SP4000 AVR
<b>Rated Power</b>	3200VA / 2400W	4000VA / 3200W
<b>INPUT</b>		
<b>Voltage</b>	200V/220V/230V/240V Selectable	
<b>Voltage Range</b>	140V ~ 310V	
<b>Regulation Range</b>	<b>Enhanced Buck</b>	+28% of selected nominal voltage
	<b>Buck mode</b>	+10% of selected nominal voltage
	<b>Boost mode</b>	-10% of selected nominal voltage
	<b>Enhanced Boost</b>	-25% of selected nominal voltage
<b>Frequency Range</b>	50 Hz/60 Hz (Auto sensing)	
<b>Surge Protection</b>	660 Joules	
<b>OUTPUT</b>		
<b>AC Voltage Regulation (Batt. Mode)</b>	230VAC ± 3%	
<b>Crest Factor</b>	3 : 1	
<b>Efficiency (Normal mode)</b>	97%	
<b>Transfer Time</b>	3 ms	
<b>Over current protection</b>	Yes	
<b>Waveform</b>	Pure sine wave	
<b>BATTERY</b>		
<b>Battery Voltage</b>	36 VDC	48 VDC
<b>Floating Charge Voltage</b>	40.5 VDC	54 VDC
<b>Low Battery Alarm Voltage</b>	31.5 VDC	42 VDC
<b>Shutdown Voltage</b>	30 VDC	40 VDC
<b>Overcharge Protection</b>	32 VDC	60 VDC
<b>Maximum Utility Charging Current</b>	30 A	
<b>SOLAR CHARGER</b>		
<b>Maximum solar charge current</b>	25A	20A
<b>Suggested operating Voltage Range</b>	40 ~ 63VDC	60 ~ 84Vdc
<b>Polarity Protection</b>	Yes	
<b>PHYSICAL</b>		
<b>Dimension (D×W×H)</b>	510×200×180mm	
<b>Net Weight</b>	34kgs	41kgs
<b>OPERATING ENVIRONMENT</b>		
<b>Humidity</b>	5% to 95% Relative Humidity (Non-condensing)	
<b>Operating Temperature</b>	0°C - 40°C	
<b>Storage Temperature</b>	-15°C - 55°C	

Specifications are subject to change without notice.