

P O W E R
- I N G ●
T O M O -
R R O W ●

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Q Growatt New Energy

GR-CA-026-06

GROWATT

Off-grid Energy Storage Solutions



Overview

An estimated 759 million people worldwide lack access to electricity, and approximately 1 billion people have access to an unreliable grid. Off-grid solar systems are an ideal energy solution for isolated islands and remote areas with limited or no access to the grid. These systems can utilize multiple power sources, such as solar, generator, storage battery, and the utility grid, to support diverse electrical loads.

Growatt offers a comprehensive off-grid energy storage system that includes high-frequency and low-frequency PV inverters, MPPT solar charge controllers, solar pump inverters, lithium batteries, and related monitoring devices. This system is designed for both residential and commercial applications and has a capacity range of 3-36kW.



High Frequency Inverter



Low Frequency Inverter



MPPT Solar Charge Controller



Solar Pump Inverter



OUR STRENGTH IN DATA



GLOBAL NETWORK



HONORS & AWARDS



TOP BRAND PV AWARDS

EUROPE



AFRICA



AMERICAS



APAC



Solutions

Application scenarios of the high frequency inverter

(Wide PV range)

The wide PV range inverter is an ideal solution for households in areas with limited or unreliable access to electricity. With a PV input voltage of 500Vdc and the ability to operate without batteries, it offers significant cost savings on initial investment.

Product Features (SPF 6000 ES Plus)

- Plug-and-Play terminal for PV port
- Dual MPP trackers
- Maximun PV input voltage up to 500VDC
- Configurable grid or solar input priority
- Parallel for scalability
- Dust-proof filter for harsh environment
- Two AC input terminals with integrated transfer switch

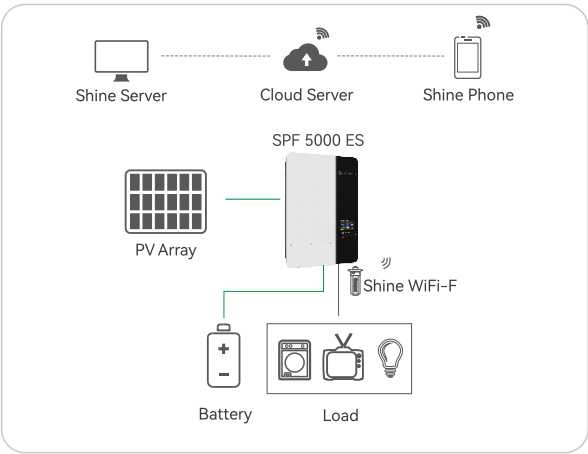
Product Features (SPF 3000~5000 ES)

- Integrated MPPT charge controller
- Work with or without battery
- Maximun PV input voltage up to 450VDC
- Configurable grid or solar input priority
- Optional WIFI/ GPRS remote monitoring
- Parallel for scalability
- Equalization charging function
- Flexibly schedule the inverter charging and discharge time

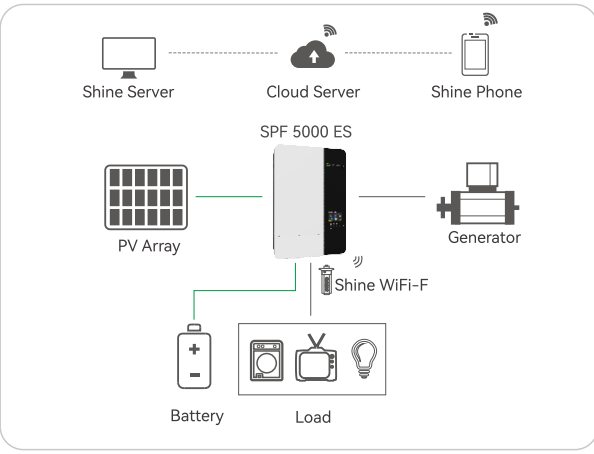
System Diagram

A. Single inverter basic application

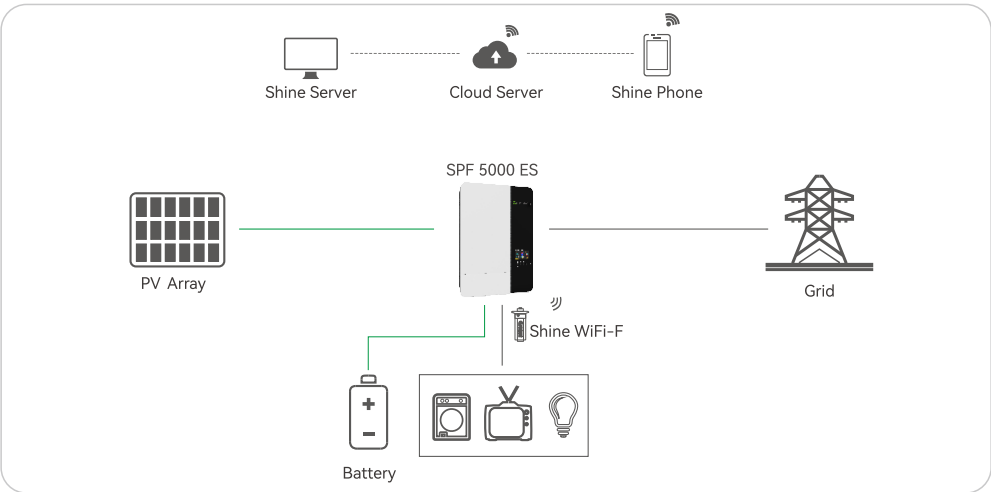
01 Only PV application



02 PV+generator application

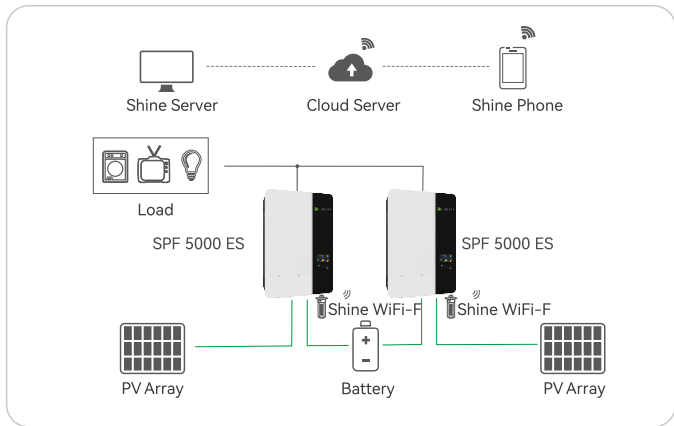


03 PV+grid supply application

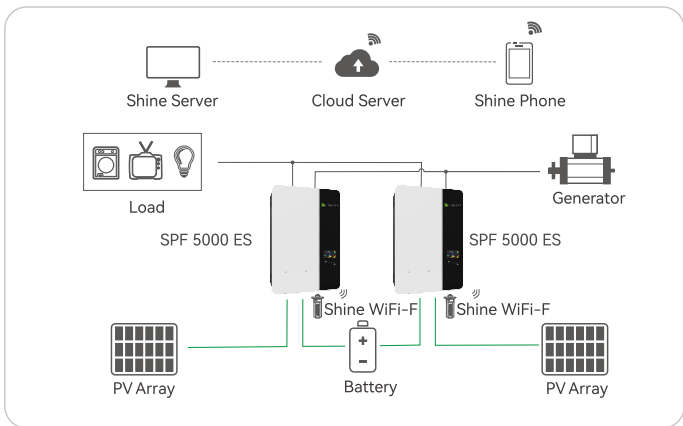


B. Single-phase parallel application

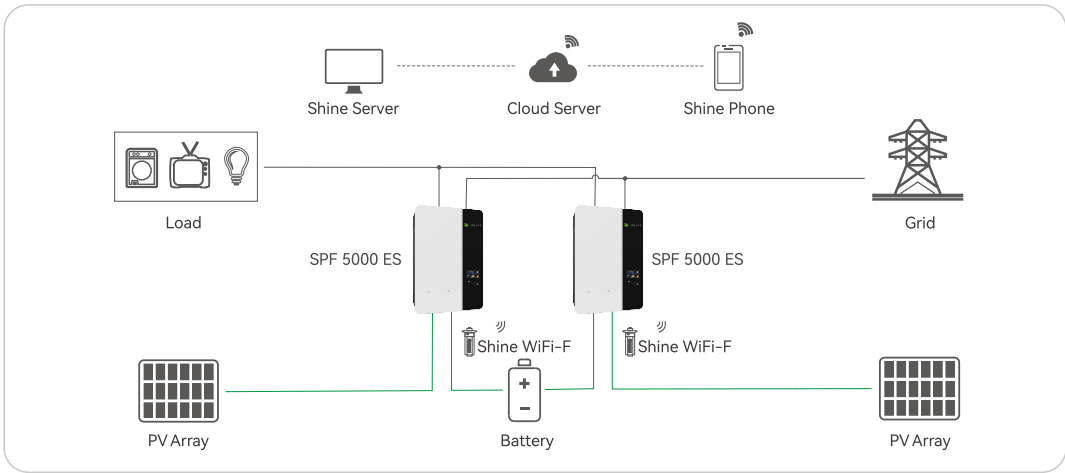
01 Only PV application



02 PV+generator application

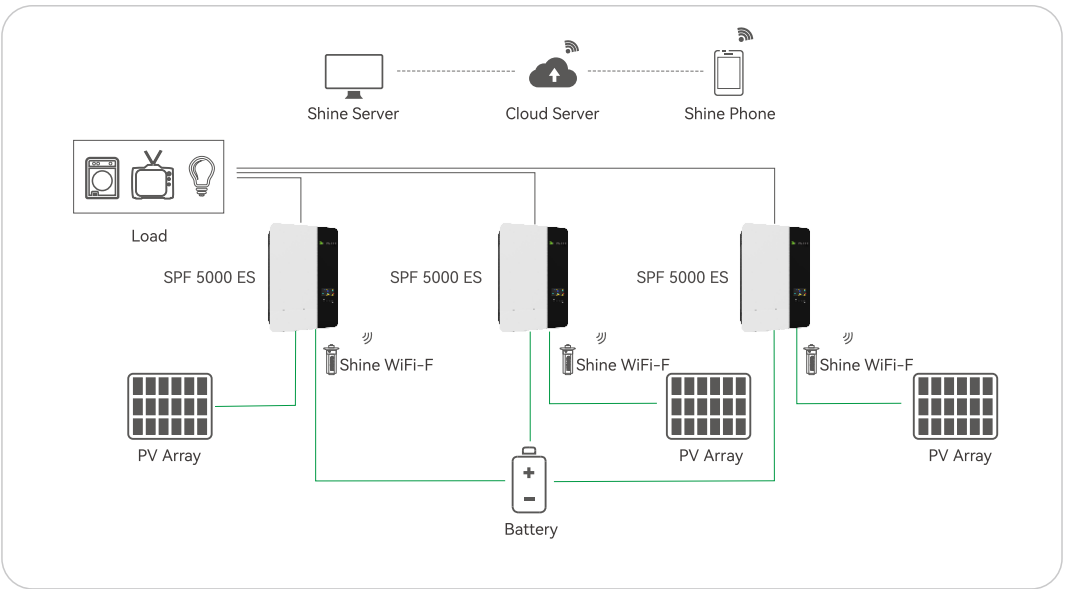


03 PV+grid supply application

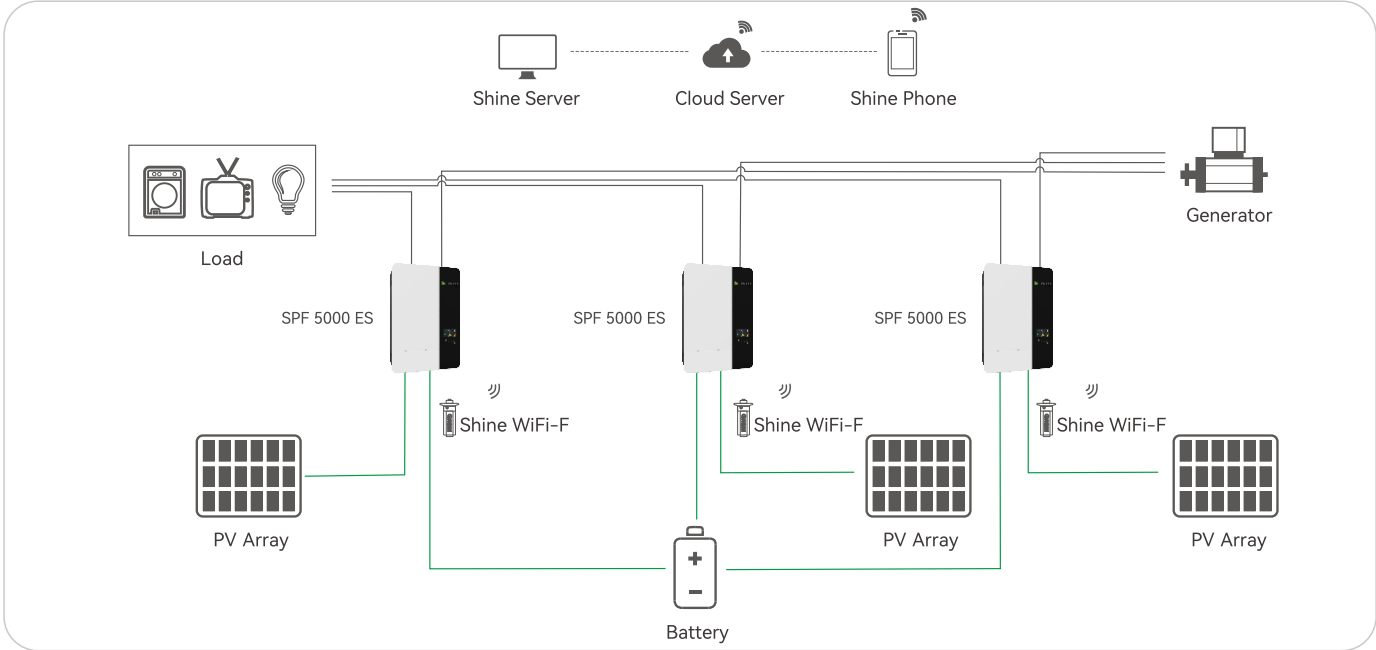


C. Three-phase parallel application

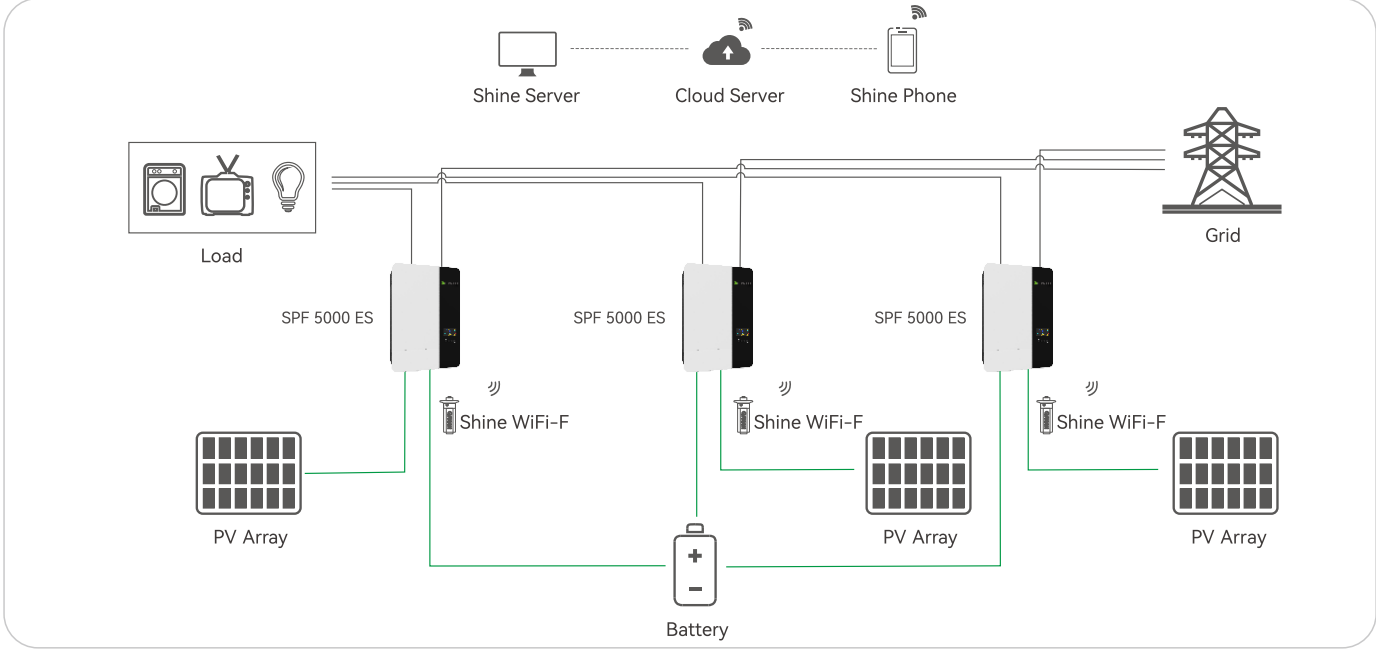
01 Only PV application



02 PV+generator application

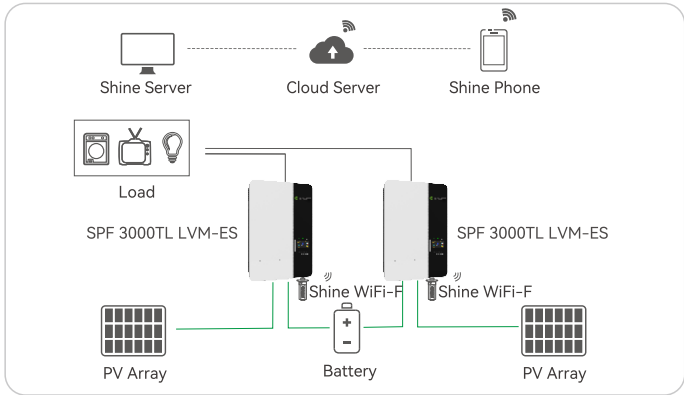


03 PV+grid supply application

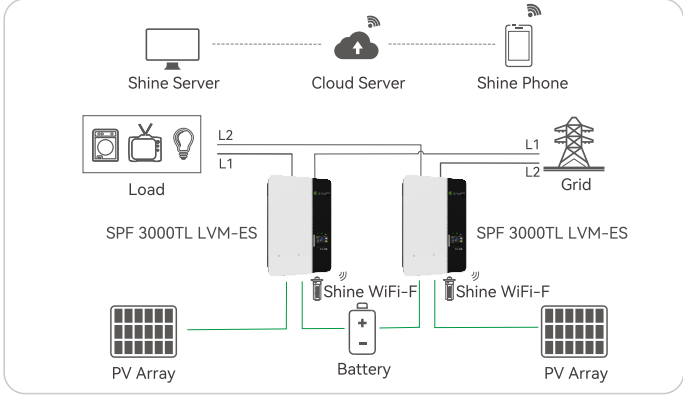


D. Split-phase parallel application (SPF 3000TL LVM-ES)

01 Only PV application



02 PV+grid supply application



SPF 6000 ES Plus

High frequency,
wide PV input voltage, 230Vac output



Datasheet	SPF 6000 ES Plus
Battery Voltage	48VDC
Battery Type	Lithium/Lead-acid
Inverter Output	
Rated Power	6000VA/6000W
Parallel Capability	Yes, 6 units maximum
AC Voltage Regulation (Battery Mode)	230VAC $\pm$ 5% @ 50/60Hz
Surge Power	12000VA
Efficiency (Peak)	93%
Waveform	Pure sine wave
Transfer Time	10ms typical, 20ms Max
Solar Charger	
Maximum PV Array Power	8000W
MPPT Range @ Operating Voltage	120VDC ~ 450VDC
Number of Independent MPP Trackers/ Strings Per MPP Tracker	2/1
Max. input current per MPP tracker	16A
Maximum PV Array Open Circuit Voltage	500VDC
Maximum Solar Charge Current	100A
AC Charger	
Charge Current	80A
AC Input Voltage	230VAC
Selectable Voltage Range	170-280 VAC (For Personal Computers) ; 90-280 VAC (For Home Appliances)
Frequency Range	50Hz/60Hz (Auto sensing)
Physical	
Protection Degree	IP20
Dimension (W/H/D)	460/395/132mm
Net Weight	13.5kg
Operating Environment	
Humidity	5% to 95% Relative Humidity(Non-condensing)
Altitude	<2000m
Operating Temperature	0°C - 55°C
Storage Temperature	-15°C - 60°C
CE	

SPF 3000~5000 ES

High frequency,
wide PV input voltage, 230Vac output



Datasheet	SPF 3000 ES	SPF 3500 ES	SPF 5000 ES
Battery Voltage	48VDC		
Battery Type	Lithium/Lead-acid		
Inverter Output			
Rated Power	3000VA/ 3000W	3500VA/ 3500W	5000VA/ 5000W
Parallel Capability	NO	Yes, 6 units maximum	
AC Voltage Regulation (Battery Mode)	230VAC ± 5% @ 50/60Hz		
Surge Power	6000VA	7000VA	10000VA
Efficiency (Peak)	93%		
Waveform	Pure sine wave		
Transfer Time	10ms typical, 20ms Max		
Solar Charger			
Maximum PV Array Power	4000W	4500W	6000W
MPPT Range @ Operating Voltage	120VDC ~ 430VDC		
Number of Independent MPP Trackers/ Strings Per MPP Tracker	1/1		
Maximum PV Array Open Circuit Voltage	450VDC		
Maximum Solar Charge Current	60A	80A	100A
AC Charger			
Charge Current	60A		80A
AC Input Voltage	230 VAC		
Selectable Voltage Range	170-280 VAC (For Personal Computers) ; 90-280 VAC (For Home Appliances)		
Frequency Range	50Hz/60Hz (Auto sensing)		
Physical			
Protection Degree	IP20		
Dimension (W/H/D)	330/485/135mm		
Net Weight	11.5kg	11.5kg	12kg
Operating Environment			
Humidity	5% to 95% Relative Humidity(Non-condensing)		
Altitude	<2000m		
Operating Temperature	0°C - 55°C		
Storage Temperature	-15°C - 60°C		
CE			

* All specifications are subject to change without notice

SPF 3000TL LVM-ES

High frequency, 120Vac output



Datasheet	SPF 3000TL LVM-ES
Battery Voltage	48VDC
Battery Type	Lithium/Lead-acid
Inverter Output	
Rated Power	3000VA/ 3000W
Parallel Capability	Yes, 6 units maximum
AC Voltage Regulation (Battery Mode)	100Vac/110Vac/120Vac @ 50/60Hz
Surge Power	6000VA
Efficiency (Peak)	93%
Waveform	Pure sine wave
Transfer Time	10ms typical, 20ms Max
Solar Charger	
Max. Recommended PV Power	4000W
MPPT Range @ Operating Voltage	120VDC ~ 250VDC
Number of Independent MPP Trackers/ Strings Per MPP Tracker	1/1
Maximum PV Array Open Circuit Voltage	250VDC
Maximum Solar Charge Current	60A
Maximum Efficiency	97%
AC Charger	
Charge Current	40A
AC Input Voltage	120VAC
Selectable Voltage Range	95-140VAC (For Personal Computers) ; 65-140VAC (For Home Appliances)
Frequency Range	50Hz/60Hz (Auto sensing)
Physical	
Protection Degree	IP20
Dimension (W/H/D)	320/470/135mm
Net Weight	12kg
Operating Environment	
Humidity	5% to 95% Relative Humidity(Non-condensing)
Altitude	<2000m
Operating Temperature	0°C - 50°C
Storage Temperature	-15°C - 60°C

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SPF 3000~3500TL LVM-US

High frequency, 120Vac output



Datasheet	SPF 3000TL LVM-US		SPF 3500TL LVM-US	
Battery Voltage	48VDC			
Battery Type	Lithium/Lead-acid			
Inverter Output				
Rated Power	3000VA/ 3000W		3500VA/ 3500W	
Parallel Capability	Yes, 6 units maximum			
AC Voltage Regulation (Battery Mode)	100Vac/110Vac/120Vac @ 50/60Hz			
Surge Power	6000VA		7000VA	
Efficiency (Peak)	90%			
Waveform	Pure sine wave			
Transfer Time	10ms typical, 20ms Max			
Solar Charger				
Maximum PV Array Power	4000W		4500W	
MPPT Range @ Operating Voltage	120VDC ~ 225VDC			
Number of Independent MPP Trackers/ Strings Per MPP Tracker	1/1			
Maximum PV Array Open Circuit Voltage	280VDC			
Maximum Solar Charge Current	80A			
AC Charger				
Charge Current	40A			
AC Input Voltage	120VAC			
Selectable Voltage Range	95-140VAC (For Personal Computers) ; 65-140VAC (For Home Appliances)			
Frequency Range	50Hz/60Hz (Auto sensing)			
Physical				
Protection Degree	IP20			
Dimension (W/H/D)	330/485/135mm			
Net Weight	12kgs			
Operating Environment				
Humidity	5% to 95% Relative Humidity(Non-condensing)			
Altitude	<2000m			
Operating Temperature	0°C - 50°C			
Storage Temperature	-15°C - 60°C			
Warranty	2 Years			
UL 1741:2010, CSA C22.2				

SPF 3500~5000 US

High frequency,
wide PV input voltage, 230Vac output



Datasheet	SPF 3500 US		SPF 5000 US	
Battery Voltage	48VDC			
Battery Type	Lithium/Lead-acid			
Inverter Output				
Rated Power	3500VA/3500W		5000VA/ 5000W	
Parallel Capability	Yes, 6 units maximum			
AC Voltage Regulation (Battery Mode)	230VAC ± 5% @ 50/60Hz			
Surge Power	7000VA		10000VA	
Efficiency (Peak)	93%			
Waveform	Pure sine wave			
Transfer Time	10ms typical, 20ms Max			
Solar Charger				
Maximum PV Array Power	4500W		6000W	
MPPT Range @ Operating Voltage	120VDC ~ 430VDC			
Number of Independent MPP Trackers/ Strings Per MPP Tracker	1/1			
Maximum PV Array Open Circuit Voltage	450VDC			
Maximum Solar Charge Current	80A		100A	
AC Charger				
Charge Current	60A		80A	
AC Input Voltage	230 VAC			
Selectable Voltage Range	170-280 VAC (For Personal Computers) ; 90-280 VAC (For Home Appliances)			
Frequency Range	50Hz/60Hz (Auto sensing)			
Physical				
Protection Degree	IP20			
Dimension (W/H/D)	330/485/135mm			
Net Weight	12kgs			
Operating Environment				
Humidity	5% to 95% Relative Humidity(Non-condensing)			
Altitude	<2000m			
Operating Temperature	0°C - 50°C			
Storage Temperature	-15°C - 60°C			
Warranty	2 Years			
UL 1741:2010, CSA C22.2				

SPF 2000~5000TL HVM

High frequency, 230Vac output



Datasheet	SPF 2000TL HVM-24	SPF 3000TL HVM-24	SPF 2000TL HVM-48	SPF 3000TL HVM-48	SPF 5000TL HVM/HVM-P
Battery Voltage	24VDC		48VDC		
Battery Type	Lead-acid		Lithium/Lead-acid		
Inverter Output					
Rated Power	2000VA/ 2000W	3000VA/ 3000W	2000VA/ 2000W	3000VA/ 3000W	5000VA/ 5000W
Parallel Capability	No				No/ Yes, 6 units maximum
AC Voltage Regulation (Battery Mode)			230VAC ± 5% @ 50/60Hz		
Surge Power	4000VA	6000VA	4000VA	6000VA	10000VA
Efficiency (Peak)	93%				
Waveform	Pure sine wave				
Transfer Time	10ms typical, 20ms Max				
Solar Charger					
Max. Recommended PV Power	1500W		1800W		4500W
MPPT Range @ Operating Voltage	30VDC ~ 80VDC		60VDC ~ 115VDC		
Maximum PV Array Open Circuit Voltage	102VDC		145VDC		
Number of Independent MPP Trackers/ Strings Per MPP Tracker	1/1				
Maximum Solar Charge Current	50A		30A		80A
Maximum Efficiency	98%				
AC Charger					
Charge Current	30A		15A		60A
AC Input Voltage	230 VAC				
Selectable Voltage Range	170-280 VAC (For Personal Computers) ; 90-280 VAC (For Home Appliances)				
Frequency Range	50Hz/60Hz (Auto sensing)				
Physical					
Protection Degree	IP20				
Dimension (W/H/D)	315/400/130mm				350/455/130mm
Net Weight	8kg	8.5kg	8kg	8.5kg	11.5kg
Operating Environment					
Humidity	5% to 95% Relative Humidity(Non-condensing)				
Altitude	<2000m				
Operating Temperature	0°C - 55°C				
Storage Temperature	-15°C - 60°C				
CE					

* All specifications are subject to change without notice

SPF 3000TL LVM

High frequency, 120Vac output,
supporting split phases system



Datasheet	SPF 3000TL LVM-24P		SPF 3000TL LVM-48P	
Battery Voltage	24VDC		48VDC	
Battery Type	Lead-acid		Lithium/Lead-acid	
Inverter Output				
Rated Power	3000VA/ 3000W			
Parallel Capability	Yes, 6 units maximum			
AC Voltage Regulation (Battery Mode)	120VAC ± 5% @ 50/60Hz			
Surge Power	6000VA			
Efficiency (Peak)	93%			
Waveform	Pure sine wave			
Transfer Time	10ms typical, 20ms Max			
Solar Charger				
Max. Recommended PV Power	2250W		4500W	
MPPT Range @ Operating Voltage	30VDC ~ 115VDC		60VDC ~ 115VDC	
Maximum PV Array Open Circuit Voltage	145VDC			
Number of Independent MPP Trackers/ Strings Per MPP Tracker	1/1			
Maximum Solar Charge Current	80A			
Maximum Efficiency	97%			
AC Charger				
Charge Current	60A		40A	
AC Input Voltage	120 VAC			
Selectable Voltage Range	95-140 VAC (For Personal Computers) ; 65-140 VAC (For Home Appliances)			
Frequency Range	50Hz/60Hz (Auto sensing)			
Physical				
Protection Degree	IP20			
Dimension (W/H/D)	350/455/130mm			
Net Weight	11kg			
Operating Environment				
Humidity	5% to 95% Relative Humidity(Non-condensing)			
Altitude	<2000m			
Operating Temperature	0°C - 55°C			
Storage Temperature	-15°C - 60°C			

* All specifications are subject to change without notice

Solutions

Application scenarios of the low frequency inverter

Suitable for the area with many impact loads (like motors) but without or in shortage of electricity, and areas suffering from power instability.

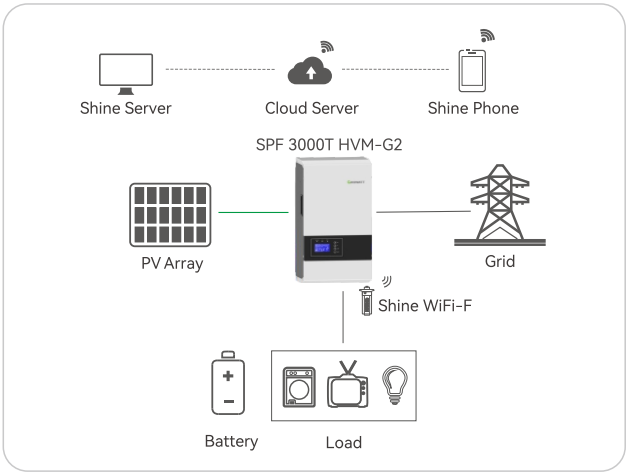
Product Features

(SPF 3000~6000T HVM-G2)

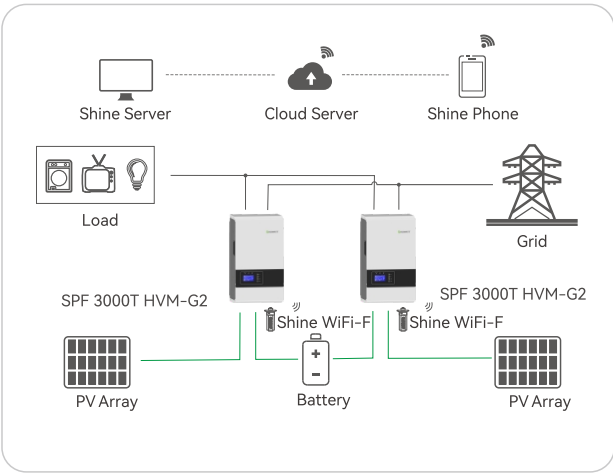
- Industry-leading efficiency up to 95%
- Extended surge rating suitable for motor loads
- Wide PV input voltage range up to 250Vdc
- Parallel for high scalability
- Warranty extend to 5 years
- Load segment control to maximise battery runtime for critical devices

System Diagram

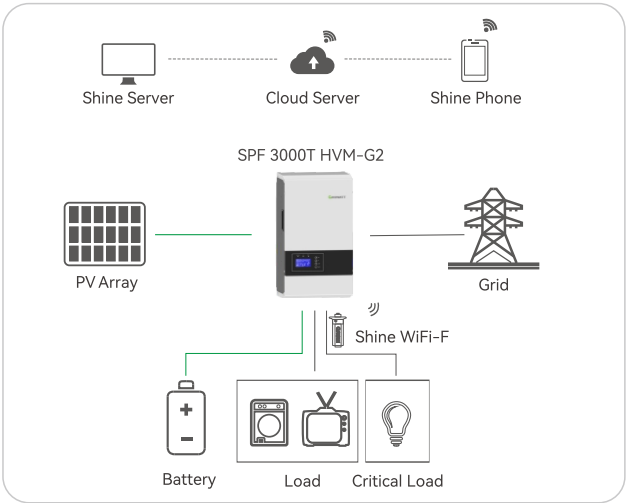
01 Without battery mode application



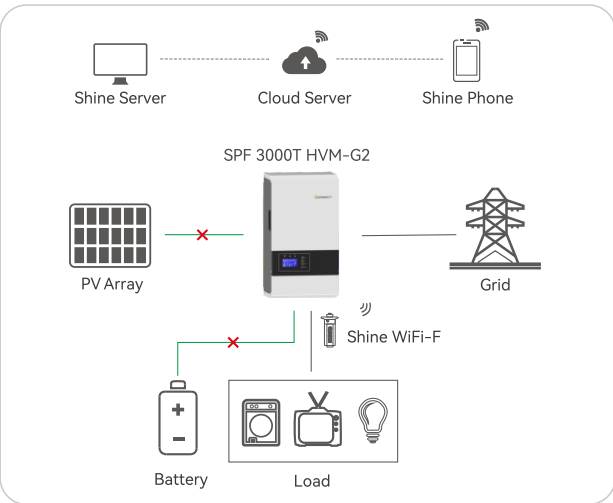
02 PV+grid supply parallel application



03 Load segment control application



04 Maintenance bypass application



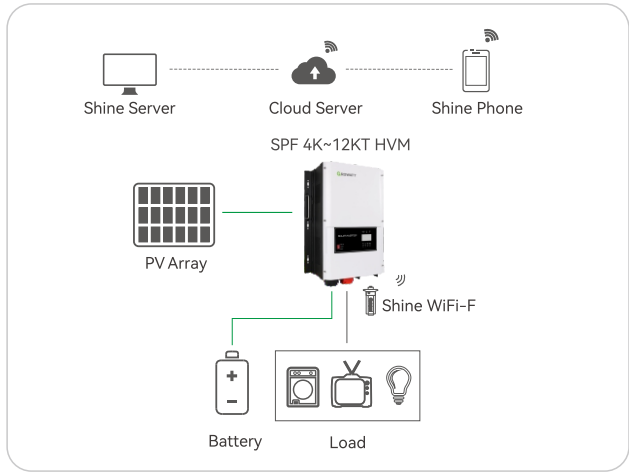
Product Features

(SPF 4K~12KT HVM/SPF 4000~12000T DVM)

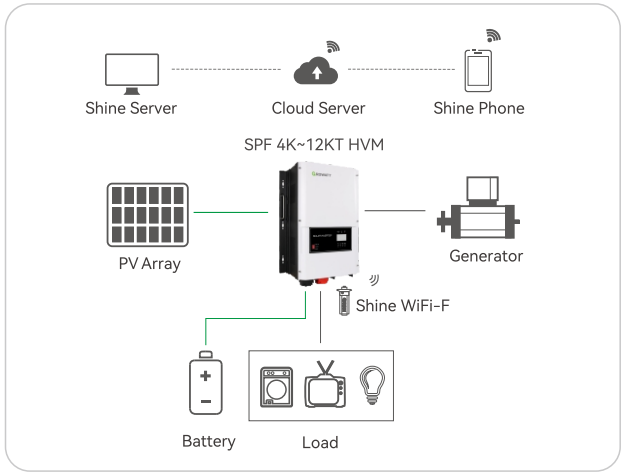
- Integrated MPPT Controller
- Built-in low frequency transformer, strong impact resistance
- Configurable grid or solar input priority
- Optional WIFI/ GPRS remote monitoring
- Split-phase 120 V/240 V AC output (Only SPF 4000~12000T DVM)

System Diagram

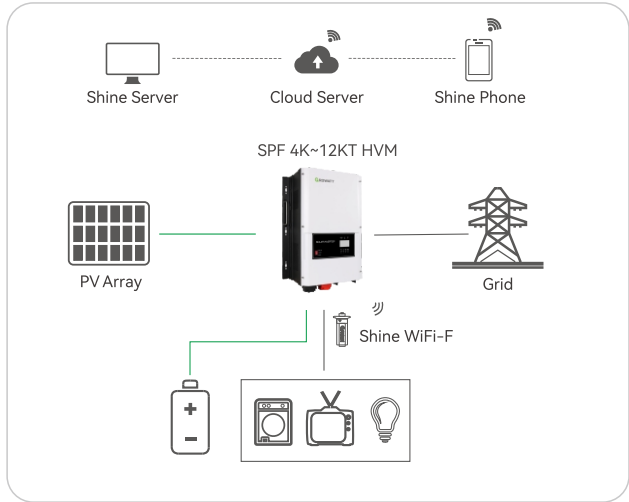
01 Only PV application



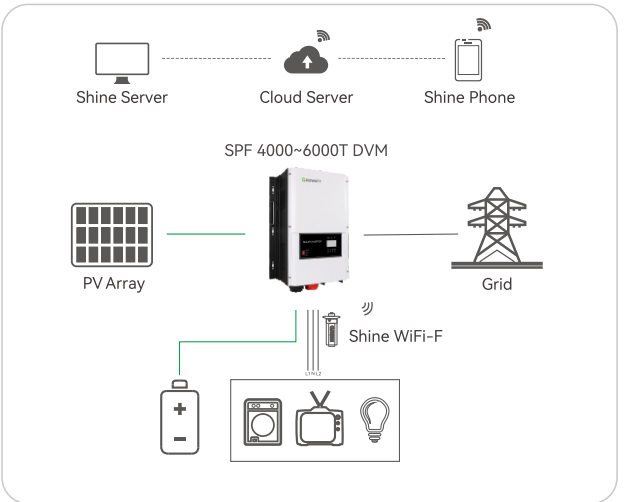
02 PV+generator application



03 PV+grid supply application



04 Split-phase application



SPF 3000~6000T HVM-G2

Low frequency,
230Vac output second generation



Datasheet	SPF 3000T HVM-G2		SPF 6000T HVM-G2
Battery Voltage	48VDC		
Battery Type	Lithium/Lead-acid		
Inverter Output			
Rated Power	3KW	6KW	
Surge Rating	9KW	18KW	
Parallel Capability	Yes, 6 units maximum		
Waveform	Pure sine wave/ same as input (bypass mode)		
Nominal Output Voltage RMS	208-220-230-240VAC(optional)		
Output Frequency	50Hz/60Hz +/-0.5 Hz		
Inverter Efficiency(Peak)	94%	93.5%	
Transfer Time	10ms		
Solar Charger			
Maximum PV Charge Current	80A		
Max. Recommended PV Power	4500W		
Number of independent MPP trackers/ strings per MPP tracker	1/1		
MPPT Range @ Operating Voltage(VDC)	60~200VDC		
Maximum PV Array Open Circuit Voltage	250V		
Maximum Efficiency	97%		
AC Input			
Max. AC Input Current	30A	50A	
Voltage	230VAC		
Selectable Voltage Range	184~272VAC(UPS);154~272VAC(APL)		
Frequency Range	50Hz/60Hz (Auto sensing)		
Max. Charging Current	40A	60A	
Physical			
Protection Degree	IP20		
Dimensions (W/H/D)	300/550/225mm	365/650/247mm	
Net Weight	27kg	38.5kg	
Operating Environment			
Altitude	<2000W		
Operation Temperature Range	-20°C to 50°C		
CE			

* All specifications are subject to change without notice

SPF 6000T DVM-G2

Low frequency,
120 V/240Vac split-phase output



Datasheet	SPF 6000T DVM-G2	
Battery Voltage	48VDC	
Battery Type	Lithium/Lead-acid	
Inverter Output		
Rated Power	6000VA / 6000W	
Parallel Capability	Yes, 6 units maximum	
AC Voltage Regulation (Battery Mode)	104-110-115-120/208-220-230-240VAC(optional)	
Surge Power	18000VA	
Efficiency (Peak)	93%	
Waveform	Pure sine wave	
Transfer Time	10ms	
Solar Charger		
Maximum PV Array Power	4500W	
MPPT Range @ Operating Voltage	60VDC ~ 200VDC	
Number of Independent MPP Trackers/ Strings Per MPP Tracker	1/1	
Maximum PV Array Open Circuit Voltage	250VDC	
Maximum Solar Charge Current	80A	
Maximum Efficiency	97%	
AC Charger		
Charge Current	60A	
AC Input Voltage	240 VAC	
Selectable Voltage Range	184-272 VAC (For Personal Computers) ; 154-272 VAC (For Home Appliances)	
Frequency Range	50Hz/60Hz (Auto sensing)	
Physical		
Protection Degree	IP20	
Dimension (W/H/D)	365/650/247mm	
Net Weight	38.5kg	
Operating Environment		
Humidity	5% to 95% Relative Humidity(Non-condensing)	
Operating Temperature	-20°C - 50°C	
Storage Temperature	-40°C - 60°C	
CE		

SPF 4~12KT HVM-MPV

Low frequency, 230Vac output



Datasheet	SPF 4KT HVM-MPV	SPF 5KT HVM-MPV	SPF 6KT HVM-MPV	SPF 8KT HVM-MPV	SPF 10KT HVM-MPV	SPF 12KT HVM-MPV
Battery Voltage	48VDC					
Battery Type	Lithium/Lead-acid					
Inverter Output						
Rated Power	4KW	5KW	6KW	8KW	10KW	12KW
Surge Rating	12KW	15KW	18KW	24KW	30KW	36KW
Waveform	Pure sine wave/ same as input(bypass mode)					
Nominal Output Voltage RMS	220V/230V/240VAC(+/-10% RMS)					
Output Frequency	50Hz/60Hz +/-0.3 Hz					
Inverter Efficiency(Peak)	>85%					
Line Mode Efficiency	>95%					
Power Factor	1.0					
Transfer Time	10ms typical, 20ms Max					

SOLAR CHARGER		
Maximum PV Charge Current	80A	120A
Maximum PV Array Power	5000W	7000W
Number of independent MPP trackers/ strings per MPP tracker	1/1	2/1
MPPT Range @ Operating Voltage	60~245VDC	
Maximum PV Array Open Circuit Voltage	250VDC	
Maximum Efficiency	>98%	

AC INPUT						
Voltage	230VAC					
Selectable Voltage Range	154~272VAC(for appliances);184~272VAC(for UPS)					
Frequency Range	50Hz/60Hz (Auto sensing)					
Maximum Charge Current	40A	50A	60A	70A	80A	100A

MECHANICAL SPECIFICATIONS						
Protection Degree	IP20					
Dimensions (W/H/D)	360/540/218mm			380/650/255mm		
Net Weight (Solar CHG)	38kg	41kg	45kg	64kg	66kg	75kg

OPERATING ENVIRONMENT						
Operation Temperature Range	0°C to 45°C					

SPF 6000~12000T DVM-US MPV

Low frequency,
120V/240Vac split-phase output



Datasheet	SPF 6000T DVM-US MPV		SPF 12000T DVM-US MPV	
Battery Voltage	48VDC			
Battery Type	Lithium/Lead-acid			
Inverter Output				
Rated Power	6KW		12KW	
Surge Rating	18KW		36KW	
Waveform	Pure sine wave/ same as input (bypass mode)			
Nominal Output Voltage RMS	104-110-115-120/208-220-230-240VAC(optional)			
Output Frequency	50Hz/60Hz +/-0.5 Hz			
Inverter Efficiency(Peak)	88%			
Transfer Time	10ms			
Solar Charger				
Maximum PV Charge Current	80A		120A	
Maximum PV Array Power	5000W		7000W	
Number of independent MPP trackers/ strings per MPP tracker	1/1		2/1	
MPPT Range @ Operating Voltage(VDC)	60~245VDC			
Maximum PV Array Open Circuit Voltage	250V			
Maximum Efficiency	97%			
AC Input				
Voltage	240VAC			
Selectable Voltage Range	184~272VAC(UPS);154~272VAC(APL)			
Frequency Range	50Hz/60Hz (Auto sensing)			
Max. Charging Current	60A		100A	
Physical				
Protection Degree	IP20			
Dimensions (W/H/D)	360/540/218mm		380/650/225mm	
Weight	52kg		75kg	
Operating Environment				
Operation Temperature Range	0°C to 50°C			
Altitude	<2000m			
Warranty	2 Years			
UL 1741:2010, CSA C22.2				

SPF 4000~18000T DVM-MPV

Low frequency,
120V/240Vac split-phase output



Datasheet	SPF 4000T DVM-MPV	SPF 5000T DVM-MPV	SPF 6000T DVM-MPV	SPF 8000T DVM-MPV	SPF 10000T DVM-MPV	SPF 12000T DVM-MPV	SPF 18000T DVM-MPV
Battery Voltage	48VDC						
Battery Type	Lithium/Lead-acid						
Inverter Output							
Rated Power	4KW	5KW	6KW	8KW	10KW	12KW	18KW
Surge Rating	12KW	15KW	18KW	24KW	30KW	36KW	54KW
Waveform	Pure sine wave/ same as input (bypass mode)						
Nominal Output Voltage RMS	104~110~115~120/208~220~230~240VAC(optional)						
Output Frequency	50Hz/60Hz +/-0.3 Hz						
Inverter Efficiency(Peak)	>85%						
Transfer Time	10ms(max)						
Solar Charger							
Maximum PV Charge Current	80A			120A			240A
Maximum PV Array Power	5000W			7000W			1400W
Number of independent MPP trackers/strings per MPP tracker	1/1			2/1			
MPPT Range @ Operating Voltage(VDC)	60~245VDC						
Maximum PV Array Open Circuit Voltage	250VDC						
Maximum Efficiency	>97.5%						
AC Input							
Voltage	240VAC						
Selectable Voltage Range	184~272VAC(UPS);154~272VAC(APL)						
Frequency Range	50Hz/60Hz (Auto sensing)						
Max. Charging Current	40A	50A	60A	70A	80A	100A	100A
Physical							
Protection Degree	IP20						
Dimensions (W/H/D)	360/540/218mm	360/540/218mm	360/540/218mm	380/650/225mm	380/650/225mm	380/650/225mm	420/780/250mm
Weight	42kg	47kg	52kg	64kg	66kg	75kg	105kg
Operating Environment							
Operation Temperature Range	0°C to 45°C						

Future-H Series

All-In-One energy storage solution



Inverter Model	SIM 6000 ES Plus-H		
Inverter Output			
Rated power	6000VA/6000W		
Parallel capability	Yes, 3 units maximum (single or three phase)		
AC voltage regulation (battery mode)	230VAC ± 5% @ 50/60Hz		
Surge power	12000VA		
Efficiency (peak)	93%		
Waveform	Pure sine wave		
Transfer time	10ms typical, 20ms Max		
Solar Charger			
Maximum PV array power	8000W		
MPPT range @ operating voltage	120VDC ~ 450VDC		
Number of independent MPP trackers/ strings per MPP tracker	2/1		
Max. input current per MPP tracker	16A		
Maximum PV array open circuit voltage	500VDC		
Maximum solar charge current	100A		
AC Charger			
Charge current	80A		
AC input voltage	230VAC		
Selectable voltage range	170-280 VAC (For personal computers) ; 90-280 VAC (For home appliances)		
Frequency range	50Hz/60Hz (Auto sensing)		
Physical			
Number of Inverter modules	1	2	3
System capacity	6000VA/6000W	12000VA/12000W	18000VA/18000W
Protection degree	IP20		
Dimension (W/H/D)	630/150/440mm	630/300/440mm	630/450/440mm
Net weight	16kg	32kg	48kg
Operating Environment			
Humidity	5% to 95% Relative humidity(Non-condensing)		
Altitude	<2000m		
Operating temperature	0°C - 55°C		
Storage temperature	-15°C - 60°C		
Battery Model	ABM 5.5L-A1-H		
Nominal Voltage	51.2V		
Rated Capacity	5.5kWh		
Usable Capacity	5.12kWh		
Operating Voltage	40 ~ 58.4V		
Max. Discharging Current	100A		
Peak Discharging Current	120A/3S		
Max Charging Current	100A		
General Data			
Dimension (W/H/D)	630/150/440mm		
Weight	45±1Kg		
IP Protection	IP20		
Charge Temperature	0°C~+55°C		
Discharge Temperature	-20°C~+55°C		
Features			
DOD	93%		
Cycle life	>6000 (25°C, 0.2C,)		
Parallel Connection	Max.6 packs		
Communication Port	CAN/RS485		
Warranty	5 Years		
Inverter : CE, ROHS;Battery : CE(EMC) , UN38.3, MSDS, ROHS			

Solutions

Application scenarios of the MPPT Solar Charge Controller

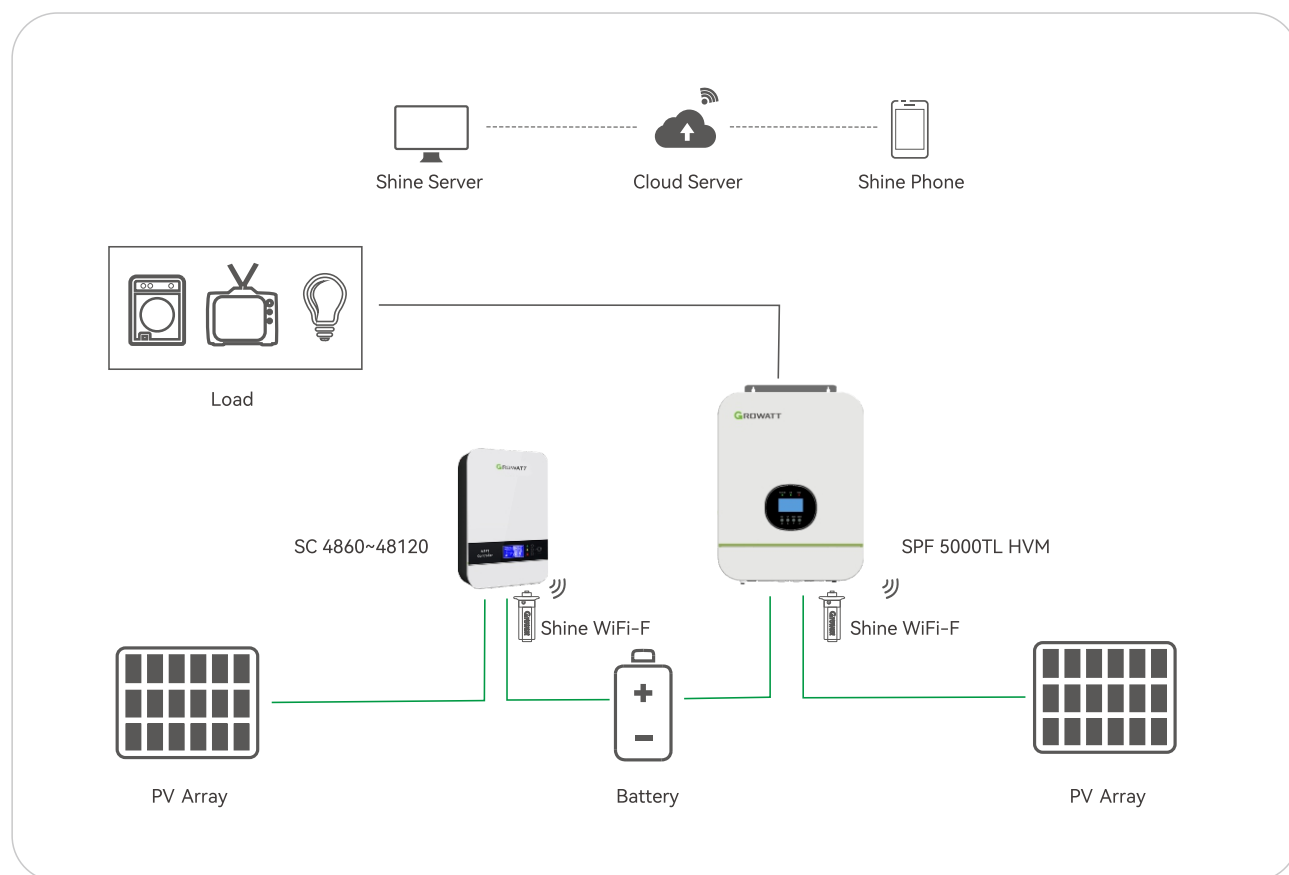
Suitable for the area is in shortage of electricity and suffering from power instability, the solar system can connect more solar panels by this controller to ensure long battery backup time.

Product Features

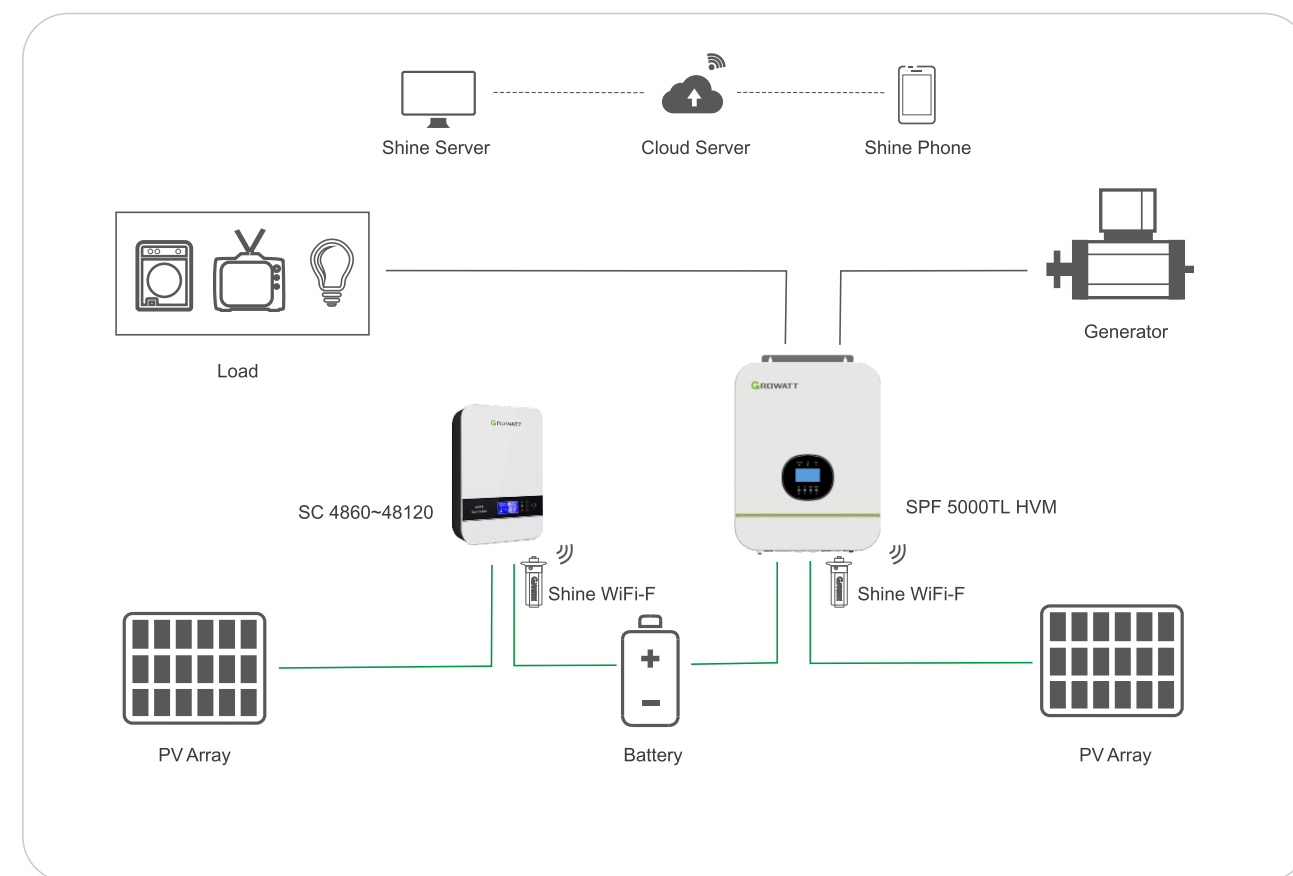
- 12 V/24 V/48 V battery voltage automatically adapted
- Compensation function for battery temperature
- Optional WIFI/ GPRS remote monitoring

System Diagram

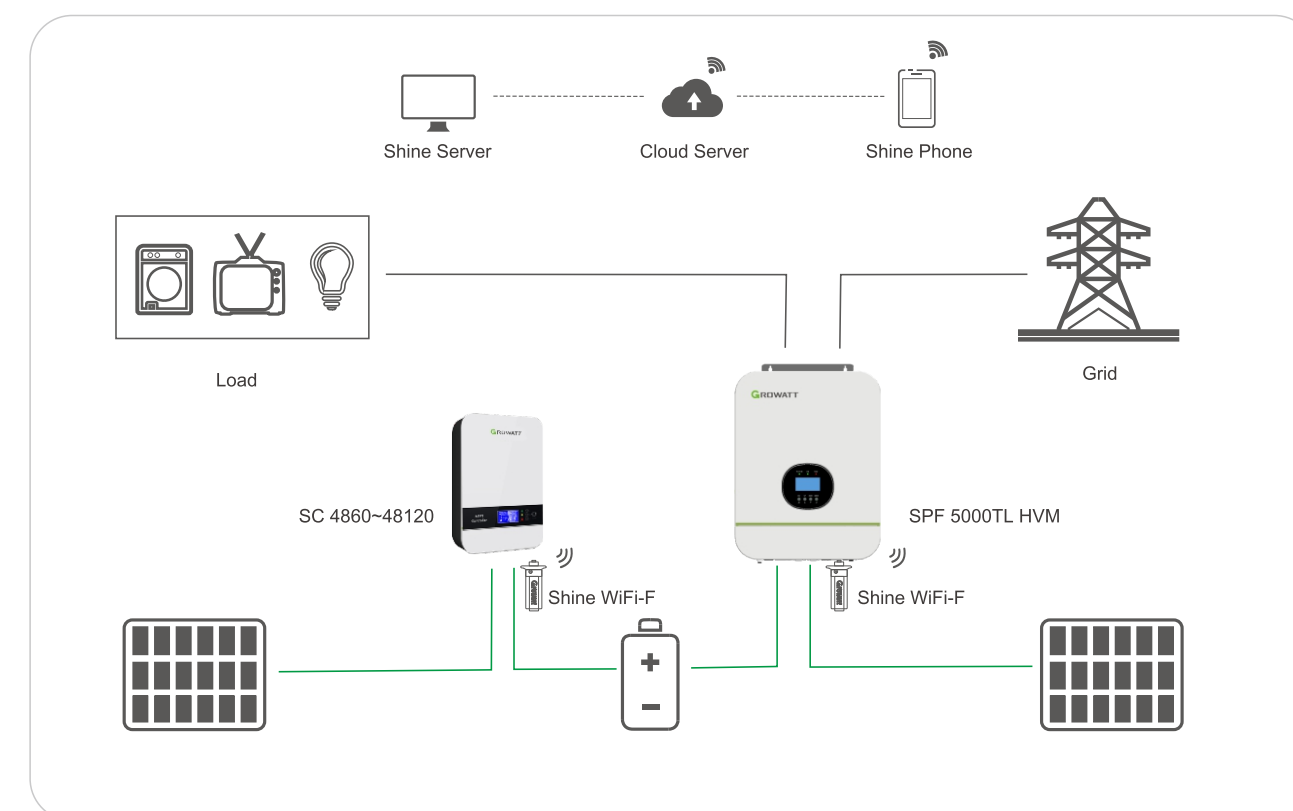
01 Only PV expansion application



02 PV expansion + generator



03 PV expansion + grid supply



SC 4860~48120-MPV

MPPT Solar Charge Controller



Datasheet	SC 4860-MPV		SC 4880-MPV		SC 48100-MPV		SC 48120-MPV	
Compatible Battery Nominal Voltage	12V/24V/48V							
Electrical								
PV Operating Voltage	18~50Vdc@12V 34~100Vdc@24V 60~200Vdc@48V							
Max.PV Open Circuit Voltage	250Vdc							
Max. Recommended PV Power	1000W@12V 2000W@24V 4000W@48V	1250W@12V 2500W@24V 5000W@48V		1500W@12V 3000W@24V 6000W@48V		1750W@12V 3500W@24V 7000W@48V		
Max.Charging Current	60A	80A		100A		120A		
Self Consumption	2W							
MPPT Efficiency	99.5%							
Max.Efficiency	97.5%							
Protection	Overload,high voltage, high temperature protection							
Battery Charging								
Battery Type	Lithium/Sealed: AGM, Gel, Flooded,User define							
Charging Algorithm	3-stage: Bulk, Absorption, Float, Equalize							
Bulk Charge Voltage	14.1V@12V 28.2V@24V 56.4V@48V User define:48~58.4V							
Float Charge Voltage	13.6V@12V 27.2V@24V 54.4V@48V User define:48~58.4V							
Temperature Compensation	-5mV/°C with BTS(Optional)							
Communication								
Communication Port	USB,BMS							
Physical								
Net Weight	3kg	3.2kg		3.9kg		4.1kg		
Gross Weight	3.7kg	3.9kg		4.5kg		4.7kg		
Dimensions (W/H/D)	180/295/100mm				200/320/105mm			
Cooling	Fan cooling							
Protection Degree	IP20							
Environment								
Ambient Temperature	-20~55°C(Derating from 45°C)							
Storage Temperature	-40°C~~+60°C							
Humidity	100% non-condensing							
Altitude	<2000m							

Solutions

Application scenarios of the pump inverter

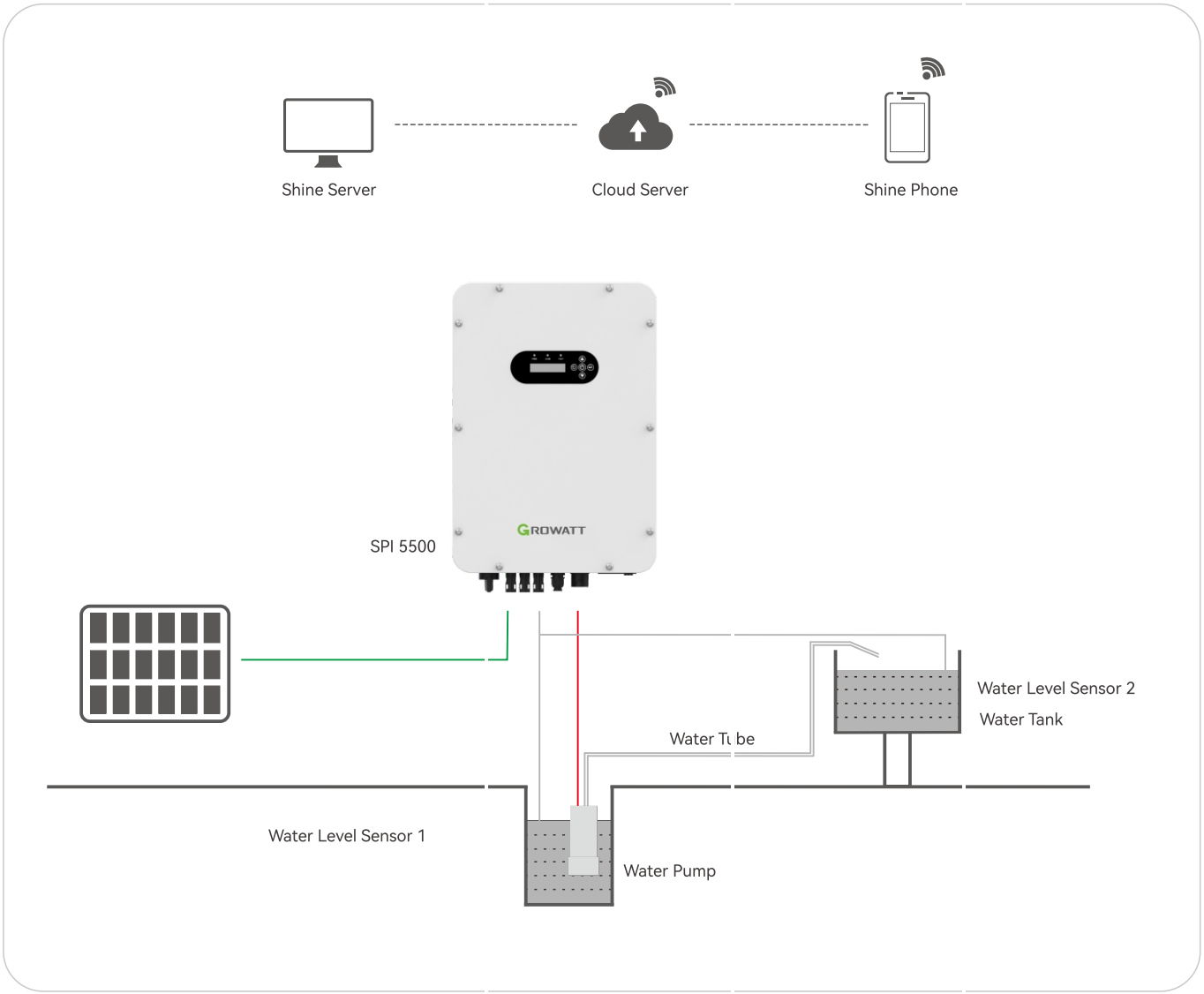
Suitable for using in applications such as agricultural irrigation, forestry, fish farming, desert control, water supply for islands, and even landscapes and fountains in residential areas.

Product Features

(SPI 3000 - 22000)

- Dynamic MPPT control, MPPT efficiency up to 99%
- Ip65 design for outdoor installation
- Functions and parameters can be set via LCD
- Optional water level detection sensor
- Optional WIFI/ GPRS remote monitoring

System Diagram

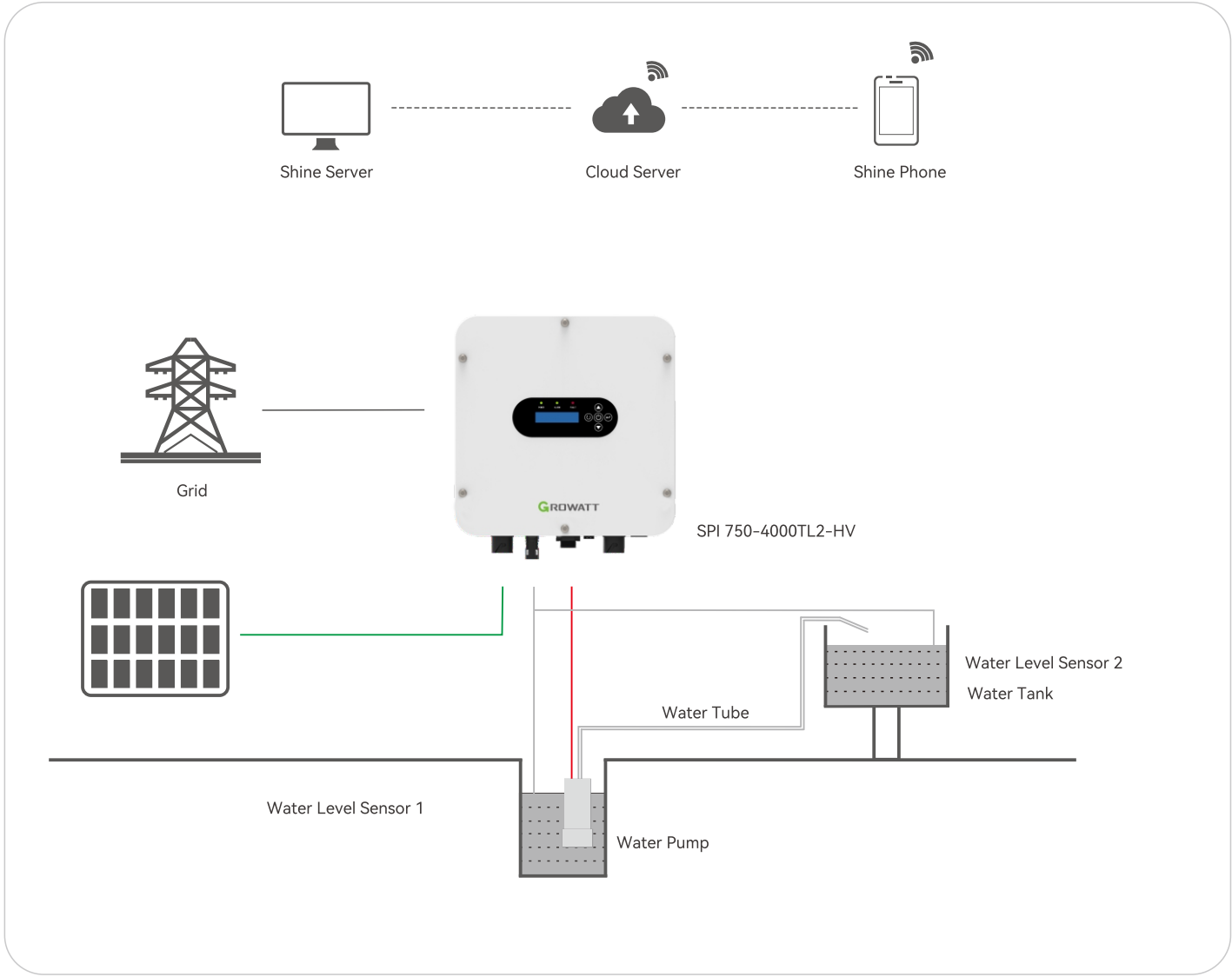


Product Features

(SPI 750~4000TL2-HV)

- Automatically running convenience for customer operate
- MPPT efficiency up to 99%
- IP65 protection level suitable for outdoor harsh environment
- Wide PV input voltage up to 450V to reduce the BOS cost
- Built-in booster module, flexible solar panel configuration
- Support PV and AC double input
- With full / empty water level and dry running protection
- Natural Cooling, maintenance-free design

System Diagram



SPI 3000~22000

Solar Pump Inverter



Datasheet	SPI 3000	SPI 4000	SPI 5500	SPI 7500	SPI 9200	SPI 11000	SPI 13000	SPI 15000	SPI 18500	SPI 22000
Inverter Output										
Rated Output Power (W)	3000W	4000W	5500W	7500W	9200W	11000W	13000W	15000W	18500W	22000W
Max. Output Current (A)	8A	10A	13A	18A	21A	24A	28A	30A	39A	45A
Output Frequency (Hz)	0-50/60Hz									
Output Voltage (Vac)	3PH 380V									
Solar Input										
Max. Recommended PV Power	3600W	4800W	6600W	9000W	11000W	13200W	15600W	18000W	22200W	26500W
Recommend Pump Capacity	2.2KW(3HP)	3KW(4HP)	3.7KW(5HP)	5.5KW(7.5HP)	7.5KW(10HP)	9.2KW(12.5HP)	11KW(15HP)	13KW(17.5HP)	15KW(20HP)	18.5KW(25HP)
Max. DC Input Voltage (Vdc)	900V									
Qty. of PV Input Ports	2			3			6			
Recommned MPP Votage (Vdc)	500-680V									
Physical										
Protection Degree	IP65									
Weight	14kg			18kg			22kg			
Demension (W/H/D)	340/480 /155mm			346/563/148mm			405/533/190mm			
Operating Environment										
Altitude	<2000m									
Operation Temperature Range	-25°C to 60°C									
CE										

* All specifications are subject to change without notice

SPI 750~4000TL2-HV

Solar Pump Inverter



Datasheet	SPI 750TL2-HV	SPI 1500TL2-HV	SPI 2200TL2-HV	SPI 4000TL2-HV
Input Data (DC)				
Max. PV Power	1000W	2100W	3100W	5500W
Max. DC Voltage	450V			
Start Voltage	80V			
MPP Voltage Range	100-400V			
No. of MPP Trackers	1			
No. of Pv Strings Per Mpp Tracker	1	1	1	2
Max. Input Current Per Mpp Tracker	9A	12A	12A	20A
Input Data (AC)				
Nominal AC Voltage	220~240V(-15%~+10%)			
Rated Input Current	9.5A	16A	24A	38A
AC Grid Frequency	47~63Hz			
AC Connection	L,N,PE			
Output Data (AC)				
AC Nominal Power	750W	1500W	2200W	4000W
Rated Output Current	5.1A(1PH)/4.2A(3PH)	10.2A(1PH)/7.5A(3PH)	14A(1PH)/10A(3PH)	25A(1PH)/16A(3PH)
Nominal AC Voltage Range	0~220Vac			
AC Frequency	0-50/60 Hz			
AC Connection	1P2L(1PH)/3P3L(3PH)			
Performance				
Control Mode	V/F			
Type of Motor	Asynchronous machine			
Pump capacity	550W	750W	1500W	3000W
General Data				
Dimensions (W / H / D)	335/370/135mm	335/370/135mm	335/370/135mm	365/450/150mm
Weight	9.5kg	9.5kg	9.5kg	16.5kg
Operating Temperature Range	-25°C ... +60°C			
Cooling	Natural convection			
Protection Degree	IP65			
Relative Humidity	0-100%			
Altitude	2000m without derating			
DC Connection	H4/MC4(Optional)			
AC Connection	Connector			
Display	LCD			
Interfaces: Wi-Fi/ GPRS	Optional			
CE				

Hope 4.8L-C1 Lithium Battery

4.8 kWh lithium battery module



Datasheet	Hope 4.8L-C1
Battery Data	
Nominal Voltage	48V
Normal Capacity	4.8kWh
Usable Capacity	4.46kWh
Operating Voltage	42 ~ 54V
Rated Charging Current	50A
Rated Discharging Current	100A
Max. Discharging Power	4.5kW
Peak Discharging Power	6.1kW/6s
Max Charging Power	4.5KW
General Data	
Dimension (W/D/H)	442/130/480mm
Weight	40Kg
IP Protection	IP20
Working Temperature	-10°C~+55°C
Storage Temperature	-20°C~+45°C
Features	
DOD	93%
Parallel Connection	Max.16packs
Communication Port	CAN/RS485
Warranty	5 Years
IEC62619 , CE , UN38.3	

Hope 5.5L-A1 Lithium Battery

5.5 kWh lithium battery module



Datasheet	Hope 5.5L-A1
Battery Data	
Nominal Voltage	51.2V
Rated Capacity	5.5kWh
Usable Capacity	5.12kWh
Operating Voltage	40 ~ 58.4V
Max. Discharging Current	100A
Peak Discharging Current	120A/3S
Max Charging Current	100A
General Data	
Dimension (W/D/H)	440/540/130.5mm
Weight	45±1Kg
IP Protection	IP20
Charge Temperature	0°C~+55°C
Discharge Temperature	-20°C~+55°C
Features	
DOD	93%
Cycle life	>6000 (25°C, 0.2C,)
Parallel Connection	Max.12 packs
Communication Port	CAN/RS485
Warranty	5 Years
CE(EMC) , UN38.3, MSDS, ROHS	

ARK LV Battery System

2.5 kWh lithium battery module



Datasheet	ARK 2.5L	ARK 5.1L	ARK 7.6L	ARK 10.2L	ARK 12.8L	ARK 15.3L	ARK 17.9L	ARK 20.4L	ARK 23.0L	ARK 25.6L
Battery Module	ARK 2.5L-A1 (2.56kWh, 51.2V, 28kg)									
Number of Modules	1	2	3	4	5	6	7	8	9	10
Energy Capacity	2.56kWh	5.12kWh	7.68kWh	10.24kWh	12.8kWh	15.35kWh	17.92kWh	20.48kWh	23.04kWh	25.64kWh
Usable Capacity	2.30kWh	4.6kWh	6.9kWh	9.21kWh	11.52kWh	13.81kWh	16.12kWh	18.43kWh	20.73kWh	23.04kWh
Standard Charge/Discharge Power#1	1.25kW	2.5kW	3.75kW	5kW	5kW	5kW	5kW	5kW	5kW	5kW
Standard Charge/Discharge Current	25A	50A	75A	100A	100A	100A	100A	100A	100A	100A
Dimension (W/D/H)	650/260/185mm	650/260/365mm	650/260/545mm	650/260/725mm	650/260/905mm	650/260/1085mm	650/260/1265mm	650/260/1445mm	650/260/1625mm	650/260/1805mm
Weight	28kg	56kg	84kg	112kg	140kg	168kg	196kg	224kg	252kg	280kg

General	
Battery Type	Cobalt Free Lithium Iron Phosphate (LFP)
Nominal Voltage	51.2V
Operating voltage Range	47.2 - 56.8V
IP Protection	IP65
Installation	Wall-mounted or Floor installation#2
Operation Temperature	-10~50°C* 3

Features	
BMS Monitoring Parameters	SOC, System voltage, current, cell voltage, cell temperature, PCBA temperature measurement
Communication Port	CAN
Warranty: 10 years	Yes

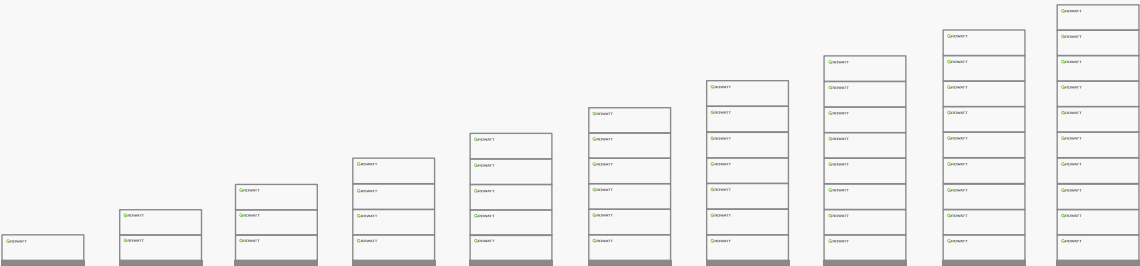
Certification	IEC62619 (Cell&Pack), CE, CEC, RCM, UN38.3
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*1 Depend on the max. battery charge/discharge power of the inverter.
*2 Floor installation requires extra base (W/D/H=650/260/80mm)
*3 Battery discharge: -10°C ~ 50°C, battery charge: 0°C ~ 50°C
* ARK series battery has an EU model and a General model, the storage inverters sold in European countries only work with EU model ARK battery.
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AXE 5.0L Modular Battery

5.0 kWh lithium battery module



Datasheet	AXE 5.0L	AXE 10.0L	AXE 15.0L	AXE 20.0L	AXE 25.0L	AXE 30.0L	AXE 35.0L	AXE 40.0L	AXE 45.0L	AXE 50.0L
System Demo										
	AXE 5.0L - C1 (5.0kWh, 51.2V, 40kg)									
	1	2	3	4	5	6	7	8	9	10
	5.0kWh	10.0kWh	15.0kWh	20.0kWh	25.0kWh	30.0kWh	35.0kWh	40.0kWh	45.0kWh	50.0kWh
	3kW	6kW	6kW	6kW	6kW	6kW	6kW	6kW	6kW	6kW
Battery Module	AXE 5.0L - C1 (5.0kWh, 51.2V, 40kg)									
Number of Modules	1	2	3	4	5	6	7	8	9	10
Energy Capacity	5.0kWh	10.0kWh	15.0kWh	20.0kWh	25.0kWh	30.0kWh	35.0kWh	40.0kWh	45.0kWh	50.0kWh
Max Charge/Discharge Power*	3kW	6kW	6kW	6kW	6kW	6kW	6kW	6kW	6kW	6kW
Max Charge/Discharge Current	60A	120A	120A	120A	120A	120A	120A	120A	120A	120A
Dimension (W/D/H)*	650/350/165mm	650/350/305mm	650/350/445mm	650/350/585mm	650/350/725mm	650/350/865mm	650/350/1005mm	650/350/1145mm	650/350/1285mm	650/350/1425mm
Weight	42kg	82kg	122kg	162kg	202kg	242kg	282kg	322kg	362kg	402kg

General

Battery Type	Cobalt Free Lithium Iron Phosphate (LFP)
Nominal Voltage	51.2V
Operating voltage Range	48 - 57.6V
IP Protection	IP20
Installation	Floor installation [‡]
Operation Temperature	0~50°C

Features

DoD	92%
Multi-cluster AXE battery system in parallel	Max. 8 clusters (Max. 400kWh)
BMS Monitoring Parameters	SOC, System voltage, Current, Cell voltage, Cell temperature, PCBA temperature measurement
Communication Port	CAN/RS485
Warranty(5/10 years)	Yes/Opt

Certification	CE, ROHS, UL1973+FCC, UN38.3+PI965
---------------	------------------------------------

*1 Depend on the max. battery charge/discharge power of the inverter.
*2 The system dimension is included with the battery base
*3 Floor installation requires extra base (W/D/H=654/353/25mm)
* AXE series battery has an EU model and a General model, the storage inverters sold in European countries only work with EU model AXE battery.

Shine WiFi-F

Monitoring devices



Datasheet	WiFi-F
General Data	
Dimensions(W/H/D)	79/135/29mm
Weight	63g
Manual Language	English, Chinese
Wireless Parameters	
Wireless Type	WiFi
Wireless Standard	802.11 b/g/n
Transmit Power	802.11b: +20dBm(Max.); 802.11g: +18dBm(Max.); 802.11n: +15dBm(Max.)
Receiver Sensitivity	802.11b: -89dBm(Max.); 802.11g: -81dBm(Max.); 802.11n: -71dBm(Max.)
Hardware Parameters	
Data Interface	UART: 9600bps; Ethernet: 100Mbps
Operating Voltage	5V (+/-15%)
Operating Current	1A
Operating Temperature	-20°C~+65°C
Storage Temperature	-40°C~+70°C
Network Type	AP (Access Point); station mode (with soft AP)
Security Mechanisms	WEP / WPA-PSK / WPA2-PSK
Encryption	WEP64 / WEP128 / TKIP / AES
Application On Parameters	
Supported Servers	ShineServer
Inverter Communication	USB A-type
Sever Communication	WiFi via router (Modbus TCP protocol)
Supported Routers	Wireless router (Include 3G router)
User Configuration Interface	Wireless web server (Internet Browser)
Max. Communication Range	100m
Data Transfer Interval	5 minutes
Default Server URL	server-cn.growatt.com
CE	

Shine GPRS-F

Monitoring devices



Datasheet	GPRS-F
General Data	
Dimensions (W/H/D)	79/135/29mm
Weight	70g
Language	English, Chinese
Wireless Parameters	
Wireless Type	GPRS
GRM / GPRS /EDGE Frequency Range	850/900/1800/1900 MHz
Antenna Gain	3dbi
Max. Output Power: GSM850 / GRM900	2W; DCS1800/PCS1900:1W
Speed	Max. 85.6Kbps(DL); Max 42.8Kbps(UL)
Hardware Parameters	
Serial Port Speed	9600bps
Operating Voltage	5V(+/-15%)
Operating Current	1A
Operating Temperature	-30°C ... +65°C
Storage Temperature	-40°C ... +70°C
Application Parameters	
Servers	ShineServer
Communication With Inverter	USB A-type
Communication With Server	TCP(Modbus TCP protocol)
Network Supported	2G GSM(GPRS)
Configuration Interface	APP
SIM Type	Regular SIM card
Uploading Interva	5 Mins(1-15 adjustable)
Default Server IP	server-cn.growatt.com
CE	

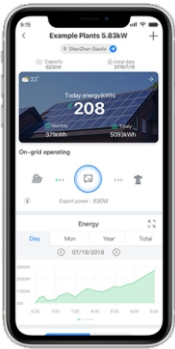
EXCEPT THE STRENGTHS OF PRODUCT WITH GROWATT, YOU CAN ALSO ENJOY

Powerful Monitoring Platform

ShineServer and ShinePhone are the new generation monitoring systems developed by Growatt and free for our customers.



ShineServer



ShinePhone



Powerful cloud server

- User data security
- Up to 10 years user data storage
- Continues data upload even local network outage

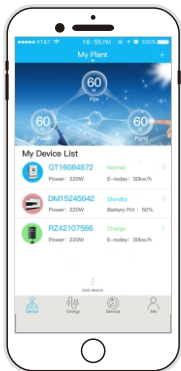
Managing wherever you are and whatever you want

- Mobile APP platform
- Working mode adjustable
- Inverter parameters are adjustable

Smart Online Service System (OSS)



OSS platform



APP platform

Growatt Online Smart Service (OSS in short) system is a smart customer service platform, which can offer a quick support for service, lowering service costs for both Growatt installers and distributors. With the help of Growatt OSS, service engineers almost can handle 60%+ problems by remote configuration and FW updating without on-site service.

OFF-GRID ENERGY STORAGE SYSTEM

► 15KW Three phase system ► Nigeria ► SPF 5000 TL HVM-P



▼ 15kW three phase system ▼ Nigeria ▼ SPF 5000ES



▼ 10kW single phase system ▼ Philippines ▼ SPF 5000 ES



► 5KW Single phase system ▼ 10kw Single phase system ▼ Turkey ▼ SPF 5000ES

► Brazil

► SPF 5000ES



► 10kW single phase system
► Ghana
► SPF 5000 ES



OFF-GRID ENERGY STORAGE SYSTEM

► 15KW Three phase system ► South Africa ► SPF 5000TL HVM-P



► 15kW ► South Africa ► SPF 5000 HVM-P



► 5KW Single phase Lithiem battery

▼ 20KW Three phase system ▼ Zimbabwe ▼ SPF 5000TL HVM-P

► Nigeria

► SPF 5000TL HVM



► 30kW

► South Africa

► SPF 5000TL HVM-P



OFF-GRID ENERGY STORAGE SYSTEM

► 25kW single phase system ► Mexico ► SPF 5000ES



▼ 10kW single phase system ▼ South Africa ▼ SPF 5000ES



▼ 15KW Three phase system ▼ South Africa ▼ SPF 5000ES



▼ 10kW single phase system ▼ Uganda ▼ SPF 5000ES ▼ 15kW three phase system ▼ Turkey ▼ SPF 5000ES



► 30kW three phase system ► South Africa ► SPF 5000ES

