

# Off-grid Energy Storage Solutions

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

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# Overview

PV Off-grid Solutions use photovoltaic power to solve the household electricity, domestic water and work electricity demand of residents, schools or small factories in areas without or in shortage of electricity, and areas suffering from power instability. Being economical, clean, environmentally friendly and noise-free, photovoltaic power can partially or completely replace the power generation function of a diesel generator.

Growatt has complete high-frequency off-grid inverter, low frequency off-grid inverter, MPPT controller, solar pump inverter, and related lithium battery as well as monitoring products, which can form 3-30 kW photovoltaic off-grid systems according to the needs of practical applications.



High Frequency Inverter



Low Frequency Inverter



MPPT Controller



Solar pump Inverter

# Solutions

## Application scenarios of the high frequency inverter

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

### Product Features

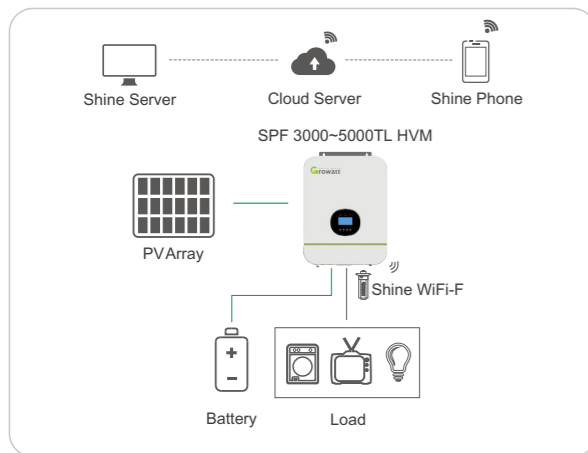
- Integrated MPPT Controller
- The priority of grid supply and photovoltaic power can be set
- Compatible with lead acid and lithium batteries
- Optional Wi-Fi or GPRS remote communication module
- Supports up to 6 single-phase or three-phase machines in parallel

### System Diagram

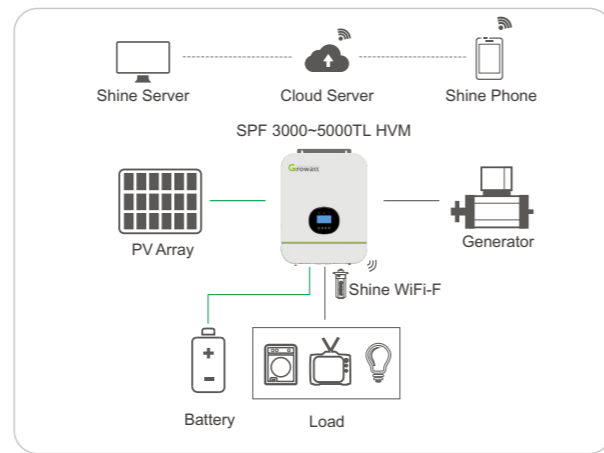
#### A. Single inverter basic application

AC cable | DC cable | COM cable

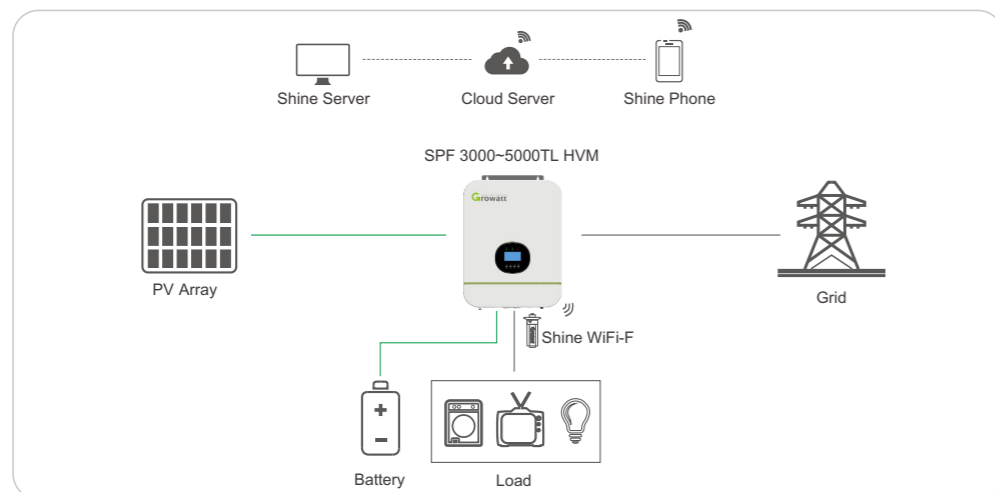
##### 01 Only PV application



##### 02 PV + generator application

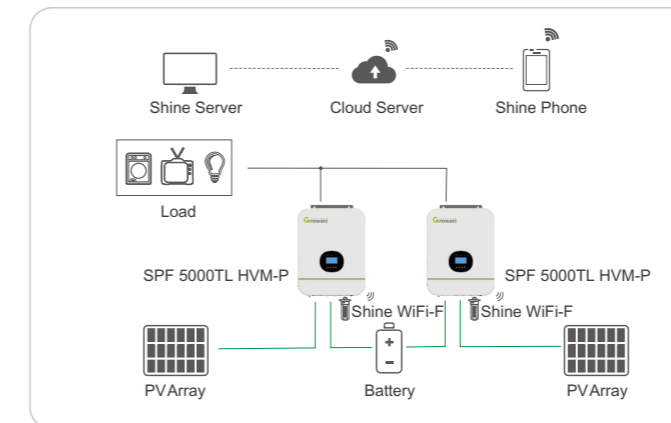


##### 03 PV + grid supply application

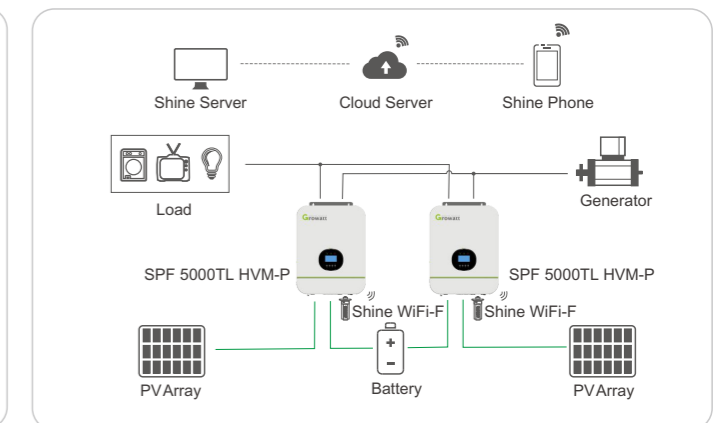


#### B. Single-phase parallel application

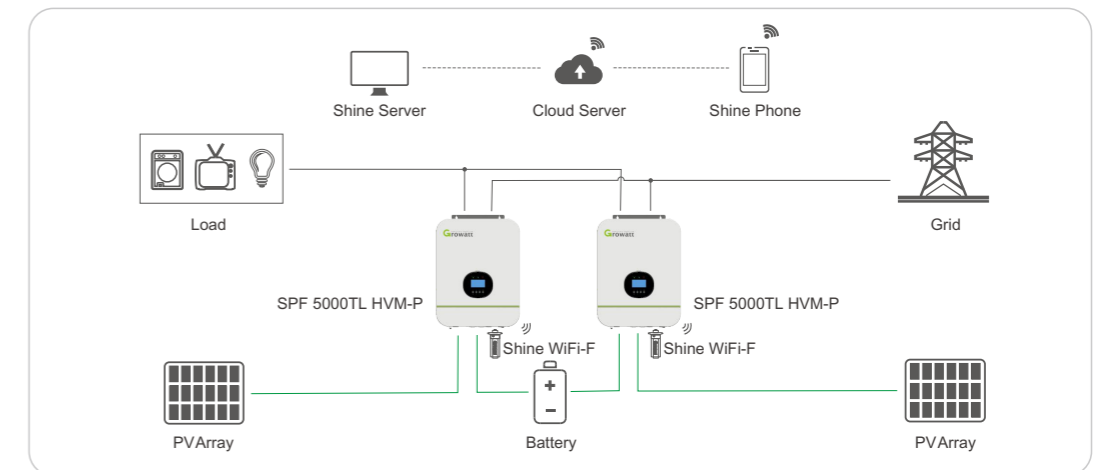
##### 01 Only PV application



##### 02 PV + generator application

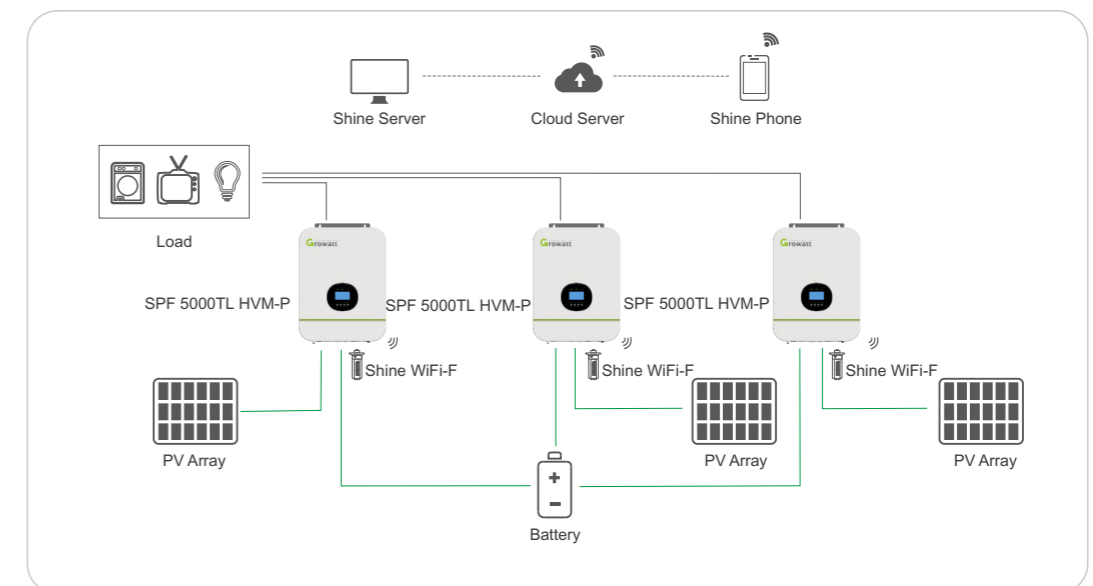


##### 03 PV + grid supply application

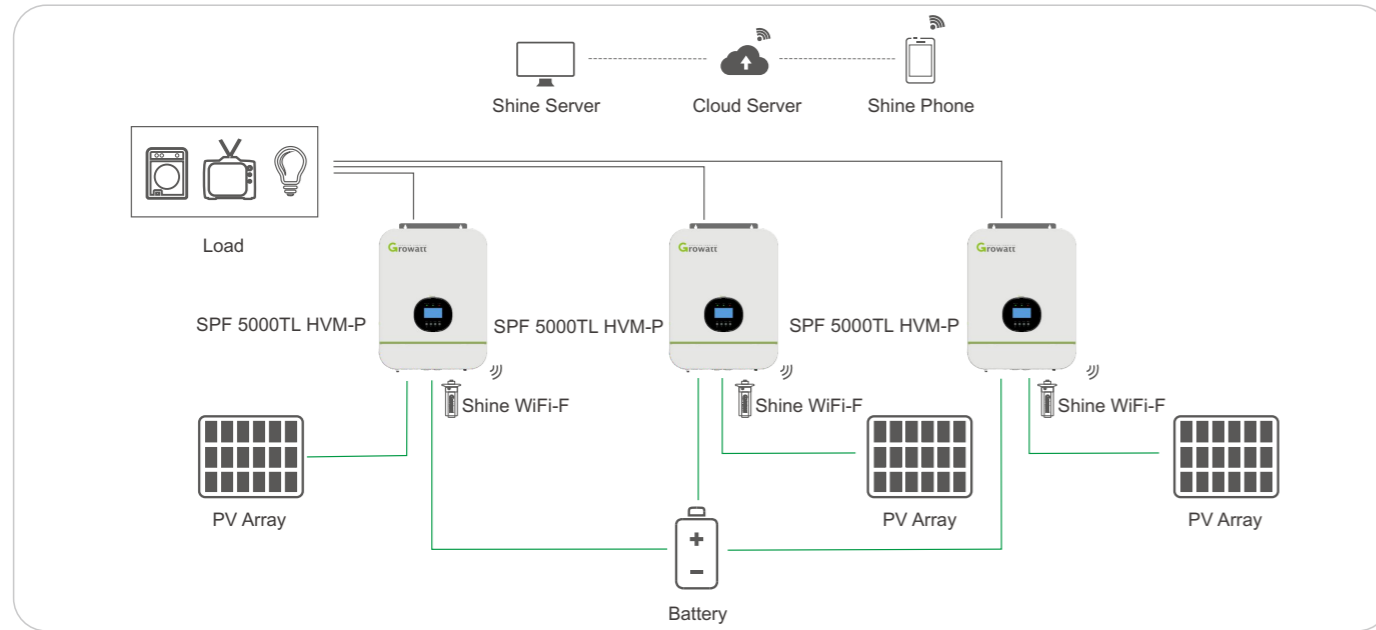


#### C. Three-phase parallel application

##### 01 Only PV application



02 PV application

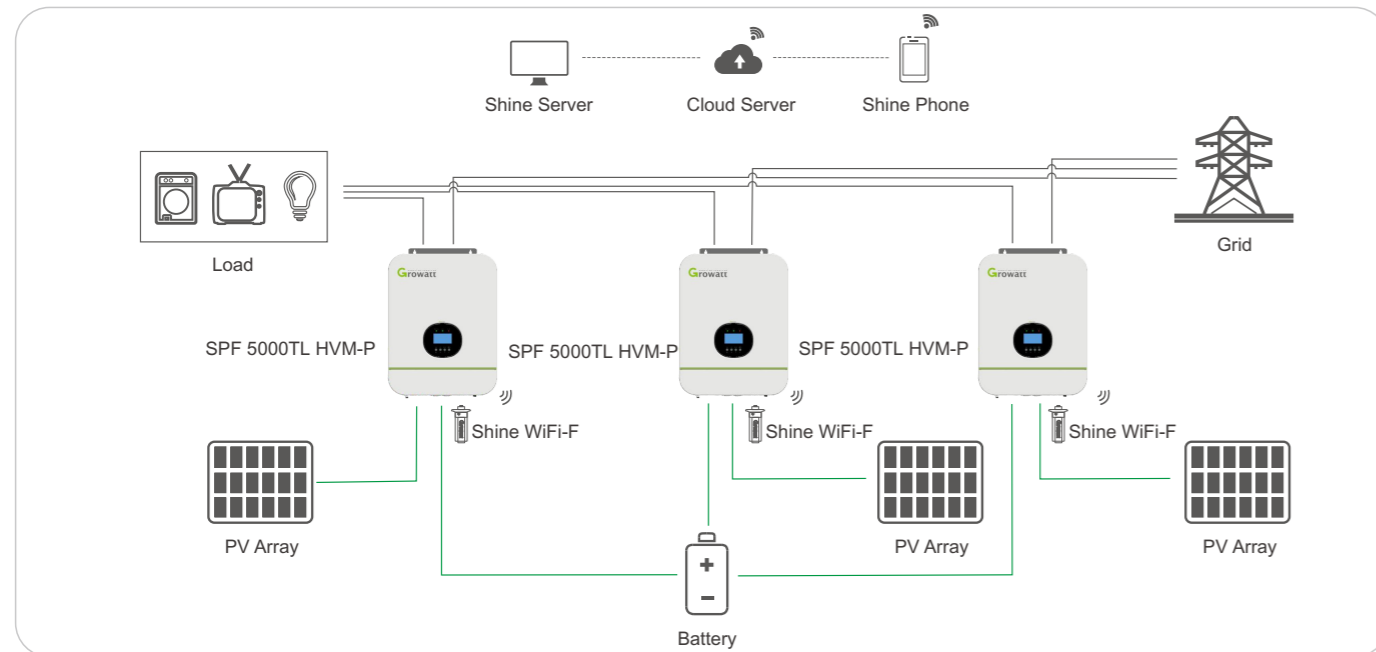


# SPF 2000~5000TL HVM

High frequency, 230Vac output

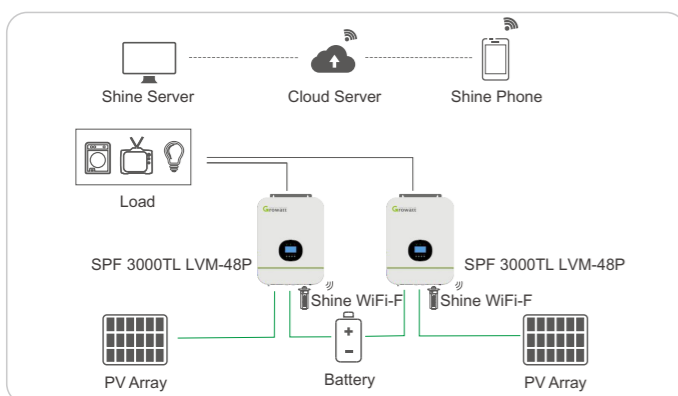


03 PV + grid supply application

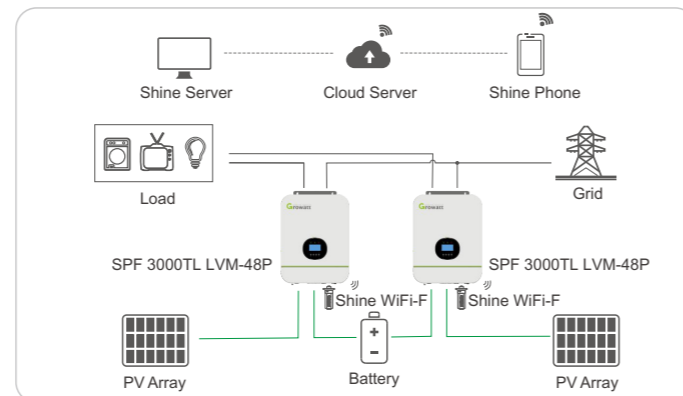


D. Split-phase parallel application (only SPF 3000TL LVM/LVM-ES)

01 Only PV application



02 PV + grid supply application



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		
<b>INVERTER OUTPUT</b>					
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				
<b>SOLAR CHARGER</b>					
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%				
<b>AC CHARGER</b>					
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)				
<b>PHYSICAL</b>					
Protection Degree	IP20				
Dimension (W/H/D)	315/400/130mm				350/455/130mm
Net Weight (kgs)	8	8.5	8	8.5	11.5
<b>OPERATING ENVIRONMENT</b>					
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

# 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
<b>INVERTER OUTPUT</b>		
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	
<b>SOLAR CHARGER</b>		
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%	
<b>AC CHARGER</b>		
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)	
<b>PHYSICAL</b>		
Protection Degree	IP20	
Dimension (W/H/D)	350/455/130mm	
Net Weight (kgs)	11	
<b>OPERATING ENVIRONMENT</b>		
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 high frequency inverter (Wide PV range)

Wide PV range series inverter is off-grid inverter for back-up power and self-consumption application, maximum PV input voltage up to 450Vdc, also it can work without battery that indirect savings in investment cost.

### Product Features (SPF 5000TL HVM-WPV)

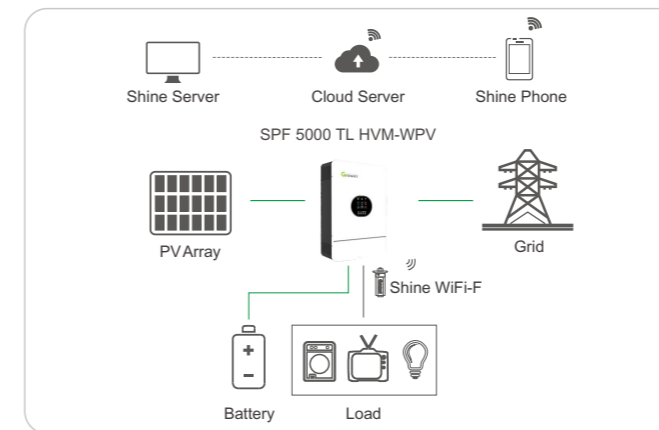
- Integrated MPPT charge controller
- Maximum PV input voltage up to 450VDC
- Configurable grid or solar input priority
- Optional WIFI/ GPRS remote monitoring
- Parallel for scalability

### Product Features (SPF 5000 ES)

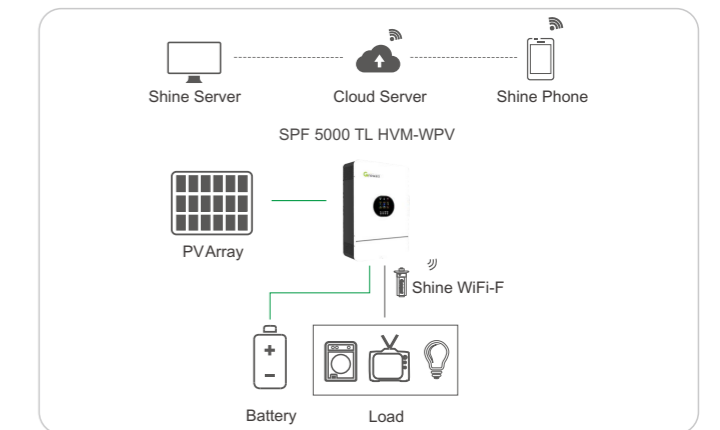
- Integrated MPPT charge controller
- It can work with battery or without battery
- Maximum PV input voltage up to 450VDC
- Configurable grid or solar input priority
- Optional WIFI/ GPRS remote monitoring
- Parallel for scalability
- Equalization charging function
- Timing charging and output function

## System Diagram

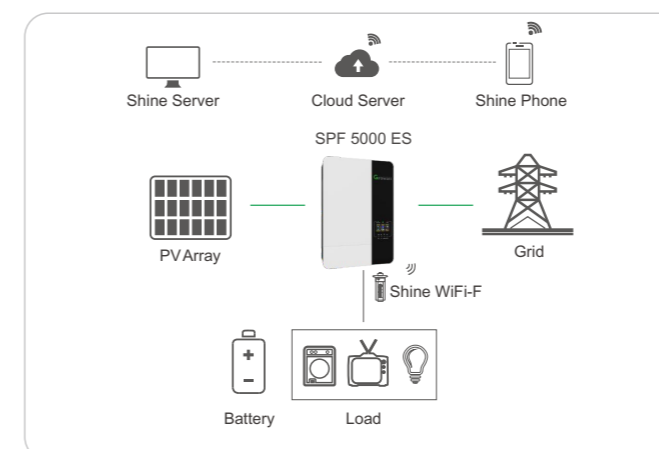
### 01 PV + grid supply application



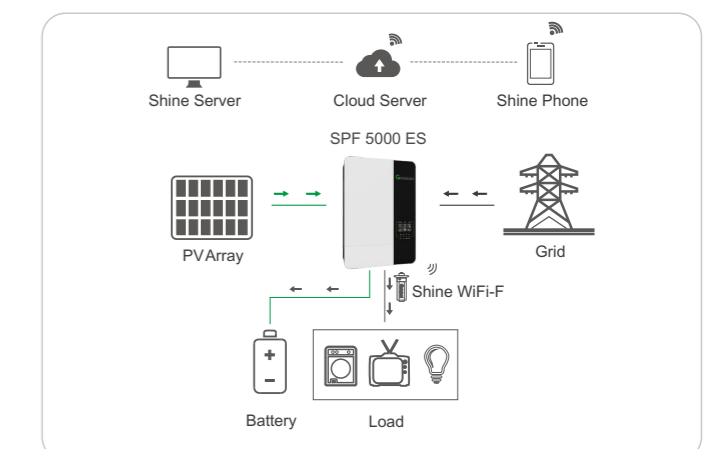
### 02 Only PV application



### 01 Without battery mode application



### 02 SUB mode application



# SPF 5000TL HVM-WPV

High frequency,  
wide PV input voltage, 230Vac output



Datasheet	SPF 5000TL HVM-WPV/WPV-P
Battery Voltage	48VDC
Battery Type	Lithium/Lead-acid
<b>INVERTER OUTPUT</b>	
Rated Power	5000VA/ 5000W
Parallel Capability	No/ Yes, 6 units maximum
AC Voltage Regulation (Battery Mode)	230VAC $\pm$ 5% @ 50/60Hz
Surge Power	10000VA
Efficiency (Peak)	93%
Waveform	Pure sine wave
Transfer Time	10ms typical, 20ms Max
<b>SOLAR CHARGER</b>	
Max. Recommended PV Power	6000W
MPPT Range @ Operating Voltage	120VDC ~ 430VDC
Maximum PV Array Open Circuit Voltage	450VDC
Number of Independent MPP Trackers/ Strings Per MPP Tracker	1/1
Maximum Solar Charge Current	100A
<b>AC CHARGER</b>	
Charge Current	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)
<b>PHYSICAL</b>	
Protection Degree	IP20
Dimension (W/H/D)	330/485/135mm
Net Weight (kgs)	12
<b>OPERATING ENVIRONMENT</b>	
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

# SPF 3500~5000 ES

High frequency,  
wide PV input voltage, 230Vac output



Datasheet	SPF 3500 ES	SPF 5000 ES
Battery Voltage	48VDC	
Battery Type	Lithium/Lead-acid	
<b>INVERTER OUTPUT</b>		
Rated Power	3500VA/ 3500W	5000VA/ 5000W
Parallel Capability	Yes, 6 units maximum	
AC Voltage Regulation (Battery Mode)	230VAC $\pm$ 5% @ 50/60Hz	
Surge Power	70000VA	10000VA
Efficiency (Peak)	93%	
Waveform	Pure sine wave	
Transfer Time	10ms typical, 20ms Max	
<b>SOLAR CHARGER</b>		
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
<b>AC CHARGER</b>		
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)	
<b>PHYSICAL</b>		
Protection Degree	IP20	
Dimension (W/H/D)	330/485/135mm	
Net Weight	11.5kgs	12kgs
<b>OPERATING ENVIRONMENT</b>		
Humidity	5% to 95% Relative Humidity(Non-condensing)	
Altitude	<2000m	
Operating Temperature	0°C - 55°C	
Storage Temperature	-15°C - 60°C	

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# SPF 3000TL LVM-ES

High frequency,  
120Vac output



Datasheet	SPF 3000TL LVM-ES
Battery Voltage	48VDC
Battery Type	Lithium/Lead-acid
<b>INVERTER OUTPUT</b>	
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
<b>SOLAR CHARGER</b>	
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	300VDC
Maximum Solar Charge Current	60A
Maximum Efficiency	97%
<b>AC CHARGER</b>	
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)
<b>PHYSICAL</b>	
Protection Degree	IP20
Dimension (W/H/D)	320/470/135mm
Net Weight (kgs)	12
<b>OPERATING ENVIRONMENT</b>	
Humidity	5% to 95% Relative Humidity(Non-condensing)
Operating Temperature	0°C - 50°C
Storage Temperature	-15°C - 60°C

\* All specifications are subject to change without notice

## Solutions

### Application scenarios of the low frequency inverter

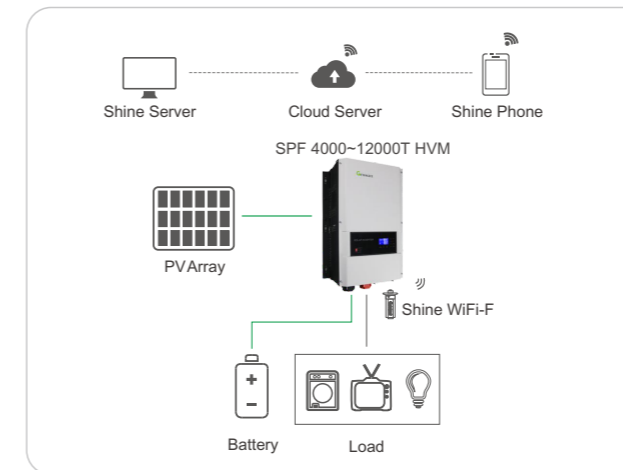
Suitable for the area with many impact loads (like motors) but without or in shortage of electricity, and areas suffering from power instability.

### Product Features

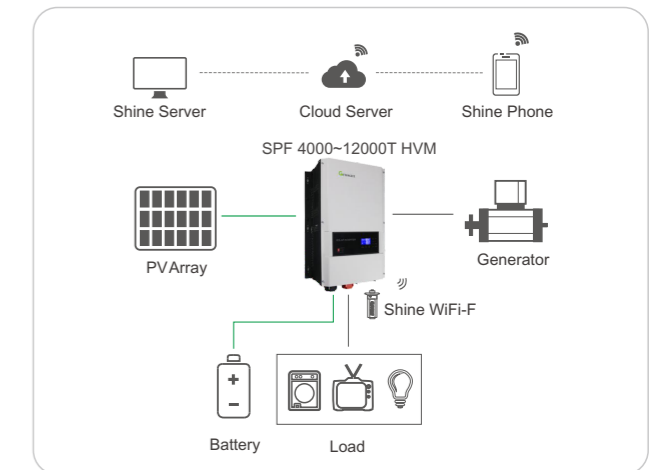
- Integrated MPPT Controller
- Built-in power frequency transformer, strong impact resistance
- The priority of grid supply and photovoltaic power can be set.
- Optional Wi-Fi or GPRS remote communication module
- Split-phase 120 V/240 V AC output (Only SPF 4000-12000T DVM)

### System Diagram

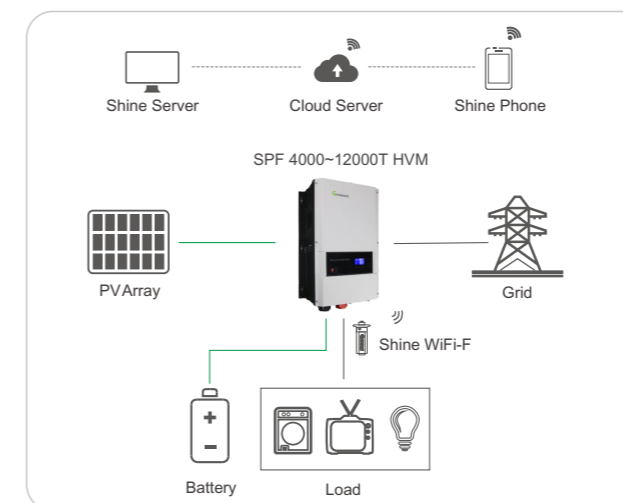
#### 01 Only PV application



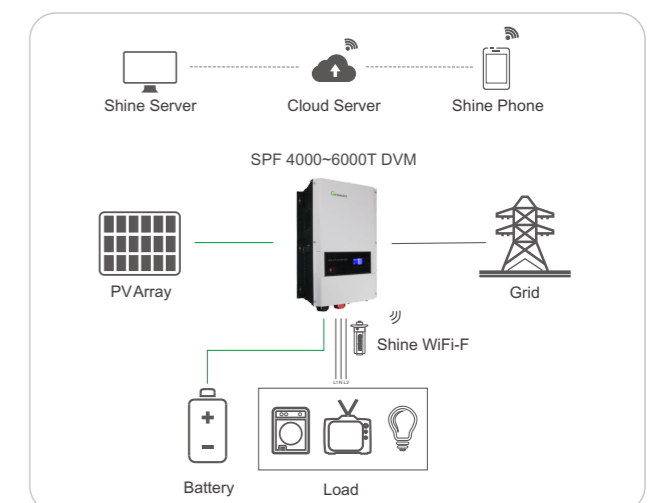
#### 02 PV+generator application



#### 03 PV+grid supply application



#### 04 Split-phase application



# SPF 4000T~12000T DVM

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



Datasheet	SPF 4000T DVM	SPF 5000T DVM	SPF 6000T DVM	SPF 8000T DVM	SPF 10000T DVM	SPF 12000T DVM
Battery Voltage	48VDC					
Battery Type	Lithium/Lead-acid					
<b>INVERTER OUTPUT</b>						
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	104-110-115-120/208-220-230-240VAC(optional)					
Output Frequency	50Hz/60Hz +/-0.3 Hz					
Inverter Efficiency(Peak)	>85%					
Transfer Time	10ms					
Power Factor	1.0					
<b>SOLAR CHARGER</b>						
Maximum PV Charge Current	80A			120A		
Max. Recommended PV Power	5000W			7000W		
Number Of Independent MPP Trackers/ Strings Per MPP Tracker	1/1			2/1		
MPPT Range @ Operating Voltage(VDC)	60~145VDC			60~145VDC		
Maximum PV Array Open Circuit Voltage	150VDC			150VDC		
Maximum Efficiency	98%			98%		
<b>AC INPUT</b>						
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
<b>MECHANICAL SPECIFICATIONS</b>						
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
Weight (kgs)	42	47	52	64	66	75
<b>OPERATING ENVIRONMENT</b>						
Altitude	<2000m					
Operation Temperature Range	0°C to 50°C					

\* All specifications are subject to change without notice

# SPF 4000T~12000T HVM

Low frequency, 230Vac output



Datasheet	SPF 4KT HVM	SPF 5KT HVM	SPF 6KT HVM	SPF 8KT HVM	SPF 10KT HVM	SPF 12KT HVM
Battery Voltage	48VDC					
Battery Type	Lithium/Lead-acid					
<b>INVERTER OUTPUT</b>						
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	208V220V/230V/240VAC(+/-1.0% RMS)					
Output Frequency	50Hz/60Hz +/-0.3 Hz					
Inverter Efficiency(Peak)	>85%					
Line Mode Efficiency	>95%					
Power Factor	1.0					
Transfer Time	10ms					
<b>SOLAR CHARGER</b>						
Maximum PV Charge Current	80A			120A		
Max. Recommended PV Power	5000W			7000W		
Number Of Independent MPP Trackers/ Strings Per MPP Tracker	1/1			2/1		
MPPT Range @ Operating Voltage(VDC)	60~145VDC					
Maximum PV Array Open Circuit Voltage	150VDC					
Maximum Efficiency	98%					
<b>AC INPUT</b>						
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
<b>MECHANICAL SPECIFICATIONS</b>						
Protection Degree	IP20					
Dimensions (W/H/D)	360/540/218mm			380/650/255mm		
Net Weight (kgs)	38	41	45	64	66	75
<b>OPERATING ENVIRONMENT</b>						
Altitude	<2000m					
Operation Temperature Range	0°C to 50°C					

\* All specifications are subject to change without notice



# SPF 3000T HVM-G2



Low frequency,  
230Vac output second generation

Datasheet	SPF 3000T HVM-G2
Battery Voltage	48VDC
Battery Type	Lithium/Lead-acid
<b>INVERTER OUTPUT</b>	
Rated Power	3KW
Surge Rating	9KW
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)	95%
Transfer Time	10ms
<b>SOLAR CHARGER</b>	
Maximum PV Charge Current	120A
Max. Recommended PV Power	7000W
Number of independent MPP trackers/ strings per MPP tracker	2/1
MPPT Range @ Operating Voltage(VDC)	60~200VDC
Maximum PV Array Open Circuit Voltage	250V
Maximum Efficiency	97%
<b>AC INPUT</b>	
Voltage	230VAC
Selectable Voltage Range	184~272VAC(UPS);154~272VAC(APL)
Frequency Range	50Hz/60Hz (Auto sensing)
Max. Charging Current	40A
<b>MECHANICAL SPECIFICATIONS</b>	
Protection Degree	IP20
Dimensions (W/H/D)	360/540/218mm
Net Weight (kgs)	38
<b>OPERATING ENVIRONMENT</b>	
Altitude	<2000W
Operation Temperature Range	0°C to 45°C

\* All specifications are subject to change without notice

# SPF 8000~12000T DVM-MPV



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

Datasheet	SPF 8000T DVM-MPV	SPF 10000T DVM-MPV	SPF 12000T DVM-MPV
Battery Voltage	48VDC		
Battery Type	Lithium/Lead-acid		
<b>INVERTER OUTPUT</b>			
Rated Power	8KW	10KW	12KW
Surge Rating	24KW	30KW	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		
<b>SOLAR CHARGER</b>			
Maximum PV Charge Current	120A		
Max. Recommended PV Power	7000W		
Number of independent MPP trackers/ strings per MPP tracker	2/1		
MPPT Range @ Operating Voltage(VDC)	60~245VDC		
Maximum PV Array Open Circuit Voltage	250V		
Maximum Efficiency	97%		
<b>AC INPUT</b>			
Voltage	240VAC		
Selectable Voltage Range	184~272VAC(UPS);154~272VAC(APL)		
Frequency Range	50Hz/60Hz (Auto sensing)		
Max. Charging Current	70A	80A	100A
<b>MECHANICAL SPECIFICATIONS</b>			
Protection Degree	IP20		
Dimensions (W/H/D)	380/650/225mm		
Net Weight (kgs)	64	66	75
<b>OPERATING ENVIRONMENT</b>			
Altitude	<2000W		
Operation Temperature Range	0°C to 45°C		

\* All specifications are subject to change without notice

# Solutions

## Application scenarios of the MPPT controller

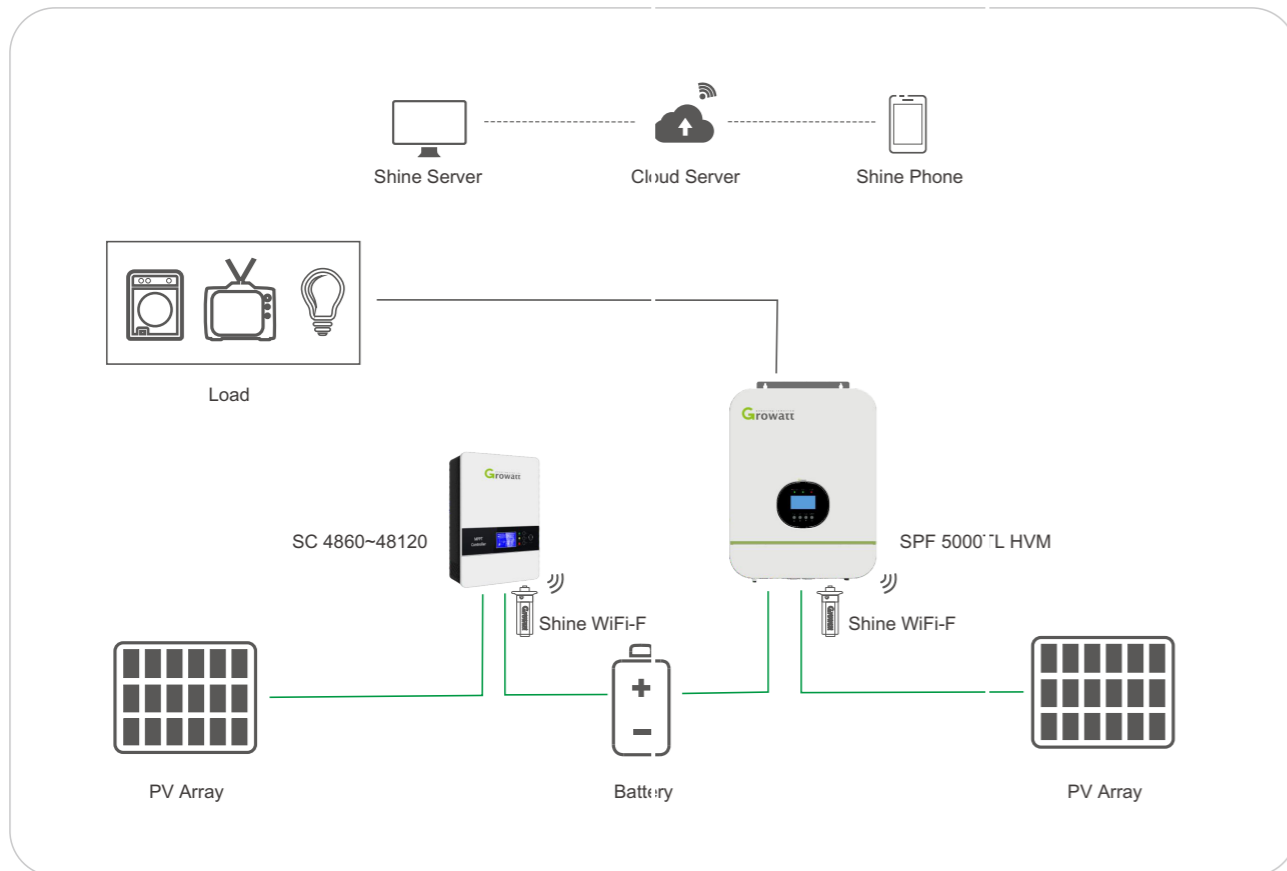
Suitable for the areas needs long backup time also without or in shortage of electricity, and areas suffering from power instability.

### Product Features

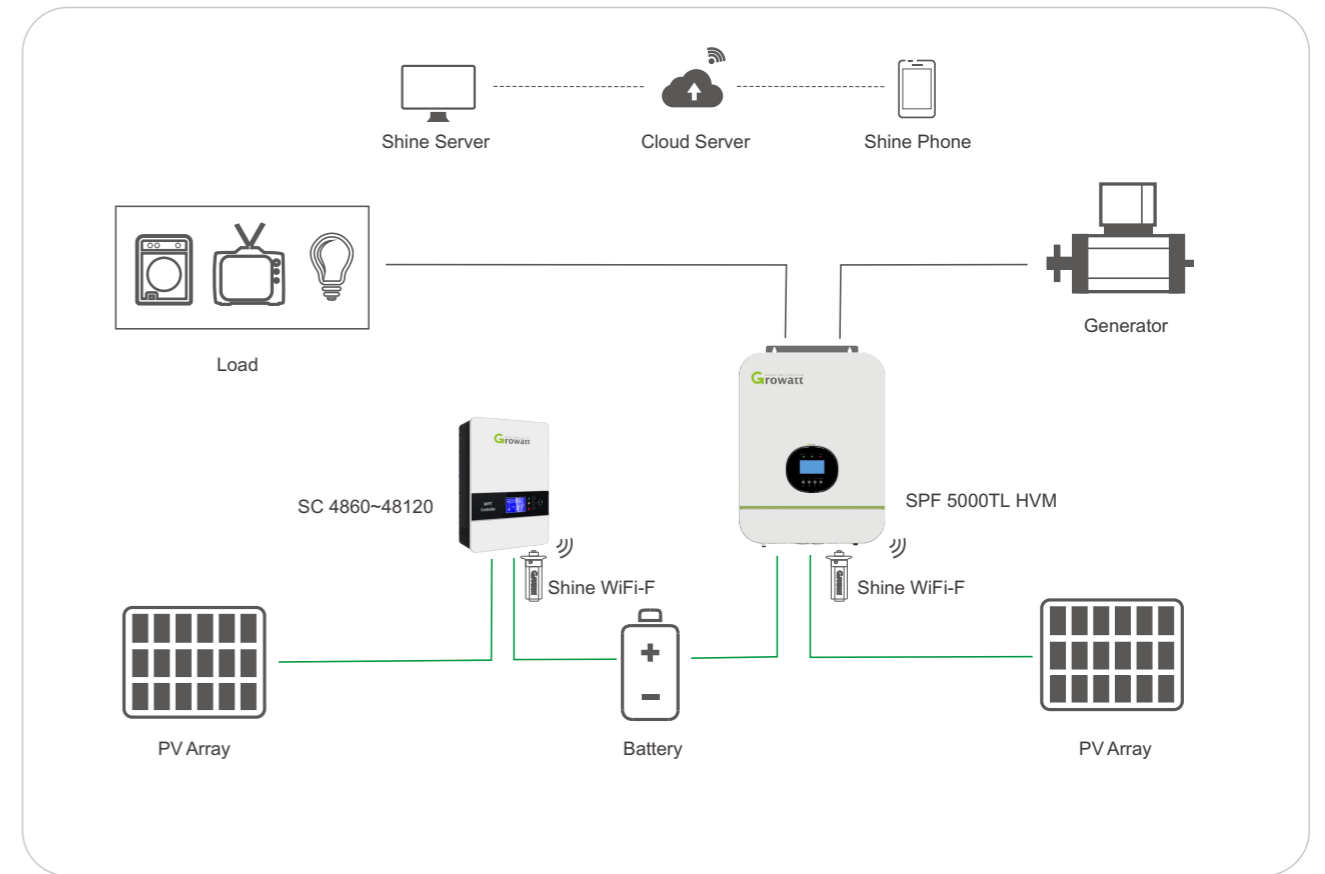
- 12 V/24 V/48 V battery voltage automatically adapted
- Compensation function for battery temperature
- Optional Wi-Fi or GPRS remote communication module

### System Diagram

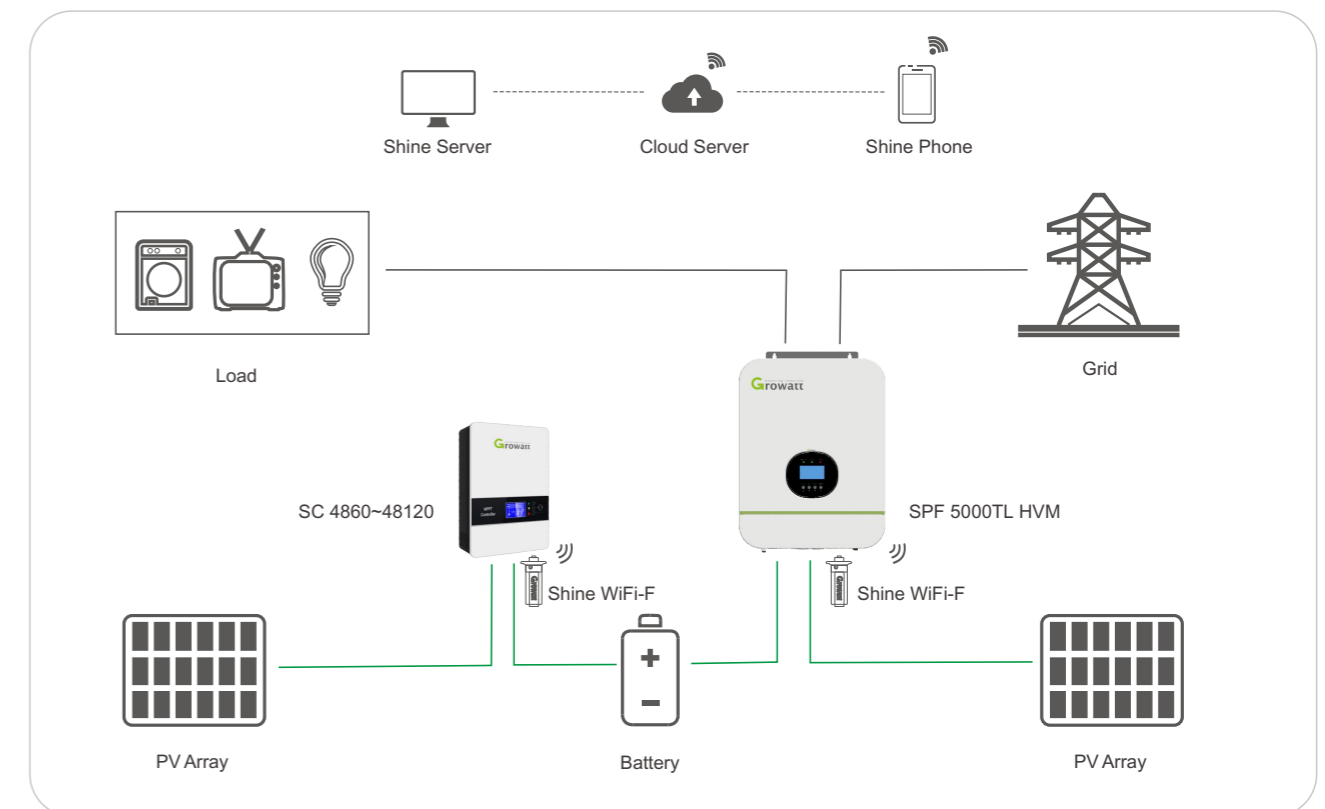
#### 01 Only PV expansion application



#### 02 PV expansion + generator



#### 03 PV expansion + grid supply



# SC 4860~48120-MPV

MPPT Controller



Datasheet	SC 4860-MPV	SC 4880-MPV	SC 48100-MPV	SC 48120-MPV
Compatible Battery Nominal Voltage	12V/24V/48V			
<b>ELECTRICAL</b>				
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			
<b>BATTERY CHARGING</b>				
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)			
<b>COMMUNICATION</b>				
Communication Port	USB,BMS			
<b>MECHANICAL</b>				
Net Weight (kgs)	3	3.2	3.9	4.1
Gross Weight (kgs)	3.7	3.9	4.5	4.7
Dimensions (W/H/D)	295/180/100mm		320/200/105mm	
Cooling	Fan cooling			
Protection Degree	IP20			
<b>ENVIRONMENT</b>				
Ambient Temperature	-20~55°C(Derating from 45°C)			
Storage Temperature	-40°C~+60°C			
Humidity	100% non-condensing			
Altitude	<2000m			

## Solutions

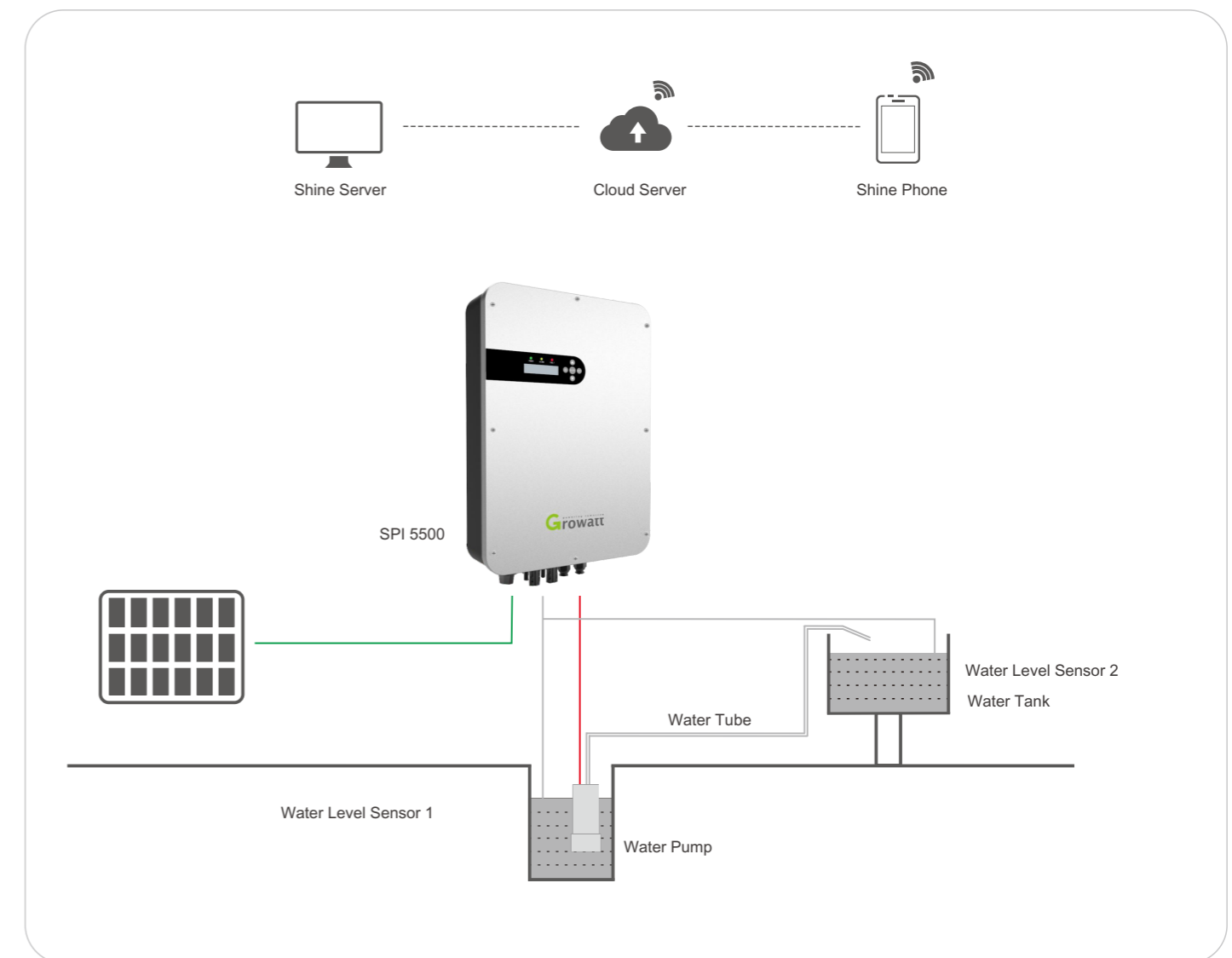
### Application scenarios of the pump inverter

Suitable for the areas using solar power to pump water.

### Product Features

- 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 Wi-Fi or GPRS remote communication module

### 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
<b>INVERTER OUTPUT</b>										
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									
<b>SOLAR INPUT</b>										
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			
Recommended MPP Voltage (Vdc)	500-680V									
<b>MECHANICAL SPECIFICATIONS</b>										
Protection Degree	IP65									
Weight (kgs)	14			18			22			
Dimension (W/H/D)	340/480/155mm			346/563/148mm			405/533/190mm			
<b>OPERATING ENVIRONMENT</b>										
Altitude	<2000m									
Operation Temperature Range	-25°C to 60°C									

\* All specifications are subject to change without notice

# SPI 7500~11000TL3-G2

Solar Pump Grid-tied Inverter



Datasheet	SPI 7500TL3-G2	SPI 9200TL3-G2	SPI 11000TL3-G2
<b>PV INPUT</b>			
Max Input String Number	3		
Start Voltage(vdc)	250Vdc		
Number Of Independent Mpp Trackers	1		
Max. Recommended PV Power	9000W	11000W	13000W
Max Dc Input Voltage (vdc)	900Vdc		
<b>ON-GRID FEATURES</b>			
Rated Output Power(w)	8000W	9000W	11000W
Max. Output Current(a)	13.3A	15A	18.3A
Ac Nominal Voltage(vac)	230/400Vac		
Ac Grid Frequency	50/60HZ±5HZ		
Thdi	<3%		
Max. Efficiency	98.3%	98.4%	98.4%
<b>PUMP FEATURES</b>			
Recomm Mppt Voltage Range (vdc)	500-680Vdc		
Rated Output Power(w)	7500W	9200W	11000W
Max Output Current(a)	18A	21A	24A
Max. Efficiency	98%		
Output Voltage(vac)	380Vac		
Output Frequency (hz)	0-50/60Hz		
<b>GENERAL DATA</b>			
Cooling	Natural convection		
Protection Level	IP65		

\* All specifications are subject to change without notice

# SPI 750~4000TL

Solar Pump Inverter



Datasheet	SPI 750TL	SPI 1500TL	SPI 2200TL	SPI 4000TL
<b>INPUT DATA (DC)</b>				
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
<b>INPUT DATA (AC)</b>				
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			
<b>OUTPUT DATA (AC)</b>				
AC Nominal Power	750W	1500W	2200W	4000W
Rated Output Current	5.1A	10.2A	14A	25A
Nominal AC Voltage Range	0~220Vac			
AC Frequency	0-50/60 Hz			
AC Connection	1P2L			
<b>PERFORMANCE</b>				
Control Mode	V/F			
Type of Motor	Asynchronous machine			
Pump capacity	550W	750W	1500W	3000W
<b>GENERAL DATA</b>				
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			

# SPI 750~4000TL3-LV

Solar Pump Inverter



Datasheet	SPI 750TL3-LV	SPI 1500TL3-LV	SPI 2200TL3-LV	SPI 4000TL3-LV
<b>INPUT DATA (DC)</b>				
Max. PV Power	1000W	2100W	3100W	5500W
Max. DC Voltage	450V			
Start Voltage	100V			
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
<b>INPUT DATA (AC)</b>				
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			
<b>OUTPUT DATA (AC)</b>				
AC Nominal Power	750W	1500W	2200W	4000W
Rated Output Current	4.2A	7.5A	10A	16A
Nominal AC Voltage Range	0~220Vac			
AC Frequency	0-50/60 Hz			
AC Connection	3P3L			
<b>PERFORMANCE</b>				
Control Mode	V/F			
Type of Motor	Asynchronous machine			
Pump capacity	550W	750W	1500W	3000W
<b>GENERAL DATA</b>				
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			

# Hope 3.3L-C1

3.3 kWh lithium battery module



Datasheet		Hope 3.3L-C1
<b>Battery Data</b>		
Nominal Voltage		51.2V
Normal Capacity		3.3kWh
Usable Capacity		3kWh
Operating Voltage		48 ~ 57.6V
Rated Charging Current		32A
Rated Discharging Current		42.5A
Max. Discharging Power		3kW
Peak Discharging Power		4.3kW/5s
Max Charging Power		1.5kW
<b>General Data</b>		
Dimension (W/D/H)		445/131/400mm
Weight		29Kg
IP Protection		IP20
Working Temperature		-10°C~+55°C
Storage Temperature		-20°C~+45°C
<b>Features</b>		
DOD		93%
Cycle Life		> 3500 (25°C, 60% SOH)
Parallel Connection		Max. 6packs
Communication Port		CAN2.0 / RS485
Warranty		5 Years
IEC62619 , CE , UN38.3		

# 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
Battery Module	ARK 2.5L-A1 (2.56kWh, 51.2V, 30kg)								
Number of Modules	1	2	3	4	5	6	7	8	9
Energy Capacity	2.56kWh	5.12kWh	7.68kWh	10.24kWh	12.8kWh	15.35kWh	17.92kWh	20.48kWh	23.04kWh
Dimension (W/D/H)	650/260/170mm	650/260/340mm	650/260/510mm	650/260/680mm	650/260/850mm	650/260/1020mm	650/260/1190mm	650/260/1360mm	650/260/1530mm
Weight	30kg	60kg	90kg	120kg	150kg	180kg	210kg	240kg	270kg
Max Charge/Discharge Current	25A	50A	75A	100A	120A	120A	120A	120A	120A
<b>General</b>									
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								
Operation Temperature	-10~45°C								
<b>Features</b>									
DoD	90%								
Cycle Life	> 6000								
BMS Monitoring Parameters	SOC, System voltage, current, cell voltage, cell temperature, PCBA temperature measurement								
Communication Port	CAN/RS485								
Warranty	10 Years								
IEC62619 (Cell&Pack), CE, CEC, RCM, UN38.3									

\*Floor installation requires extra base (W/D/H=650/260/110 mm)

# Shine WiFi-F

Monitoring devices



Datasheet		WiFi-F
<b>GENERAL DATA</b>		
Dimensions(W/H/D)		79/135/29mm
Weight		63g
Manual Language		English, Chinese
<b>WIRELESS PARAMETERS</b>		
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.)
<b>HARDWARE PARAMETERS</b>		
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
<b>APPLICATION ON PARAMETERS</b>		
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

# Shine GPRS-F

Monitoring devices



Datasheet	GPRS-F
<b>GENERAL DATA</b>	
Dimensions (W/H/D)	79/135/29mm
Weight	70g
Language	English, Chinese
<b>WIRELESS PARAMETERS</b>	
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)
<b>HARDWARE PARAMETERS</b>	
Serial Port Speed	9600bps
Operating Voltage	5V(+/-15%)
Operating Current	1A
Operating Temperature	-30°C ... +65°C
Storage Temperature	-40°C ... +70°C
<b>APPLICATION PARAMETERS</b>	
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 Interval	5 Mins(1-15 adjustable)
Default Server IP	server-cn.growatt.com

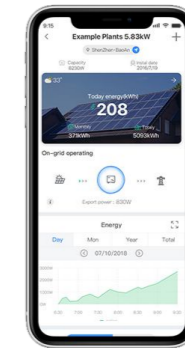
## EXCEPT THE STRENGTHS OF PRODUCT WITH GROWATT, YOU CAN ALSO ENJOY

### Powerful Monitoring Platform

ShineServer and ShinePhone are the new generation monitoring systems developed by Growatt and freely open to our users.



ShineServer



ShinePhone



### Powerful cloud server

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

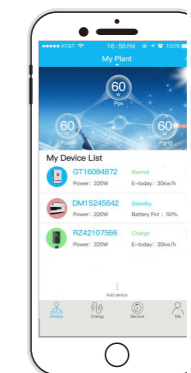
### Managing wherever you are and whatever you want

- 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
- ▶ South Africa
- ▶ SPF 5000TL HVM-P



# OFF GRID SYSTEM

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



- ▶ 15KW Three phase system
- ▶ China
- ▶ SPF 5000TL HVM-P

- ▶ 5KW Single phase Lithiem battery
- ▶ Nigeria
- ▶ SPF 5000TL HVM



- ▶ 30kW
- ▶ South Africa
- ▶ SPF 5000TL HVM-P





# OFF-GRID ENERGY STORAGE SYSTEM

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



▶ 20KW  
▶ Argentina  
▶ SPF 5000 TL HVM-P



# OFF GRID SYSTEM

▶ 15KW ▶ Nigeria ▶ SPF 5000 TL HVM-P



▲ 15KW ▲ South Africa

◀ 15KW  
◀ China  
◀ SPF 5000 TL HVM-P