



**RETON POWER**



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WhatsApp

# CATALOGUE

HENAN RETON POWER CO., LTD.

[www.retonpower.com](http://www.retonpower.com)

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## ABOUT US

Henan Reton Power Co.,Ltd is a high-tech enterprise specializing in solar energy system and electrical equipment research and development, design, manufacture and sales based out of Zhengzhou city, Henan province since 2014.

Our main products is solar inverter, battery, solar system and power quality equipment. Our products have been awarded TUV , CEC, UL, CE certificates and are widely used in solar power plants, home photovoltaic systems, solar energy charging systems, home refrigeration, and lighting systems.

We establish our brand (Retonpower) with high quality and wins the market with our brand. we are committed to establish long-term cooperation with customers and work together to create a better future in line with the spirit of “Social Commitment, integrity and win-win.

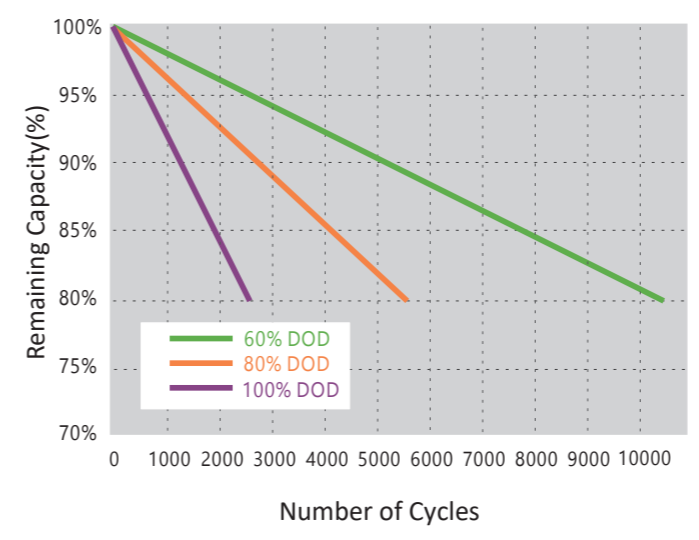
We have Research and development department,Quality inspection department,-sales department, After-sales service department. Since we were founded we have been built favorable business relationship with many customers from different markets all over the world, such as Europe, North America, Southeast Asia, Africa and so on.



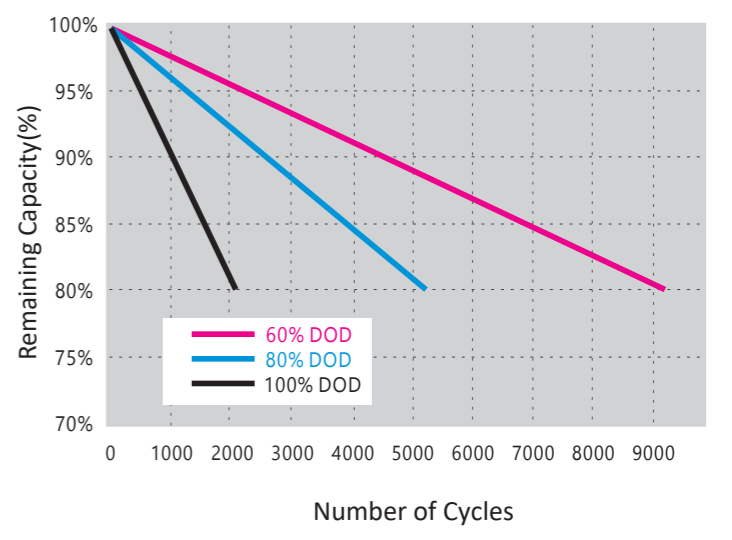


## Cycle Life Curve

● Different discharge depth life curves &25°C0.5C

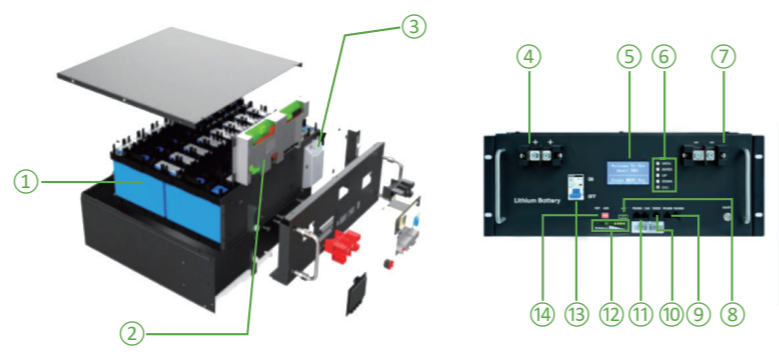


● Different discharge depth life curves &40°C0.5C



## Product Overview

- 1. Square shell cell
- 2. BMS module
- 3. Precharge resistor
- 4. Positive Electrode
- 5. LCD
- 6. LCD Key Indicator
- 7. Negative Electrode
- 8. DO
- 9. RS485B
- 10. RS232
- 11. RS485A+CAN
- 12. Power/Alarm/Run Indicator
- 13. Switch
- 14. ADS



## Main Features

- 1 High Specific Energy
- 2 Support Parallel Operation
- 3 Easy Installation
- 4 Long Cycle Life



Model	RT-E1-5kWh	RT-E1-10kWh
Nominal Voltage	48V	
Nominal Capacity	100Ah	200Ah
Battery Cell	3.2V 100Ah Prismatic Battery Cell	
Parallel Capacity	Yes, 15 units maximum	
Max.Charging Current	100A	
Max.Discharging Current	100A	
Charging Voltage	53.5~54.5V	
Discharge Cut-off Voltage	41V	
Design life	15+ Years (25°C/77°F)	
Cycle life	> 6000 Cycles, 25°C	
Communication Port	CAN, RS485, RS232	
Size (L*W*H)	460*442*180mm	680*442*180mm
Weight	46Kg±1Kg	85Kg±1Kg
Operation Temperature Range	Charge: 0~55°C/Discharge: -20~55°C	
Shelf Temperature	10-50°C	



## Main Features

- 1 Support a variety of communications, can communicate with a variety of inverters;
- 2 Products cover 10-30KWH capacity segment;
- 3 The product supports parallel connection and expansion;
- 4 4U standard rack-mount battery design;
- 5 Convenient installation, no need for traditional cabinet;



Battery Cell

## Application



Family



Small store



Office



Church

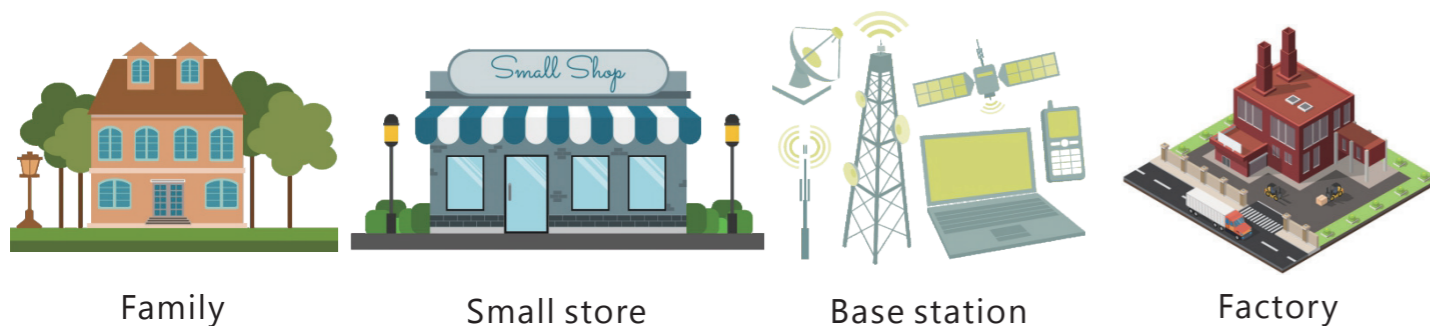
Model	RT-Box-48200	RT-Box-48300	RT-Box-48400	RT-Box-48500	RT-Box-48600
Nominal Voltage	48V/51.2V(optional)				
Capacity	200Ah	300Ah	400Ah	500Ah	600Ah
Energy	10KWH	15KWH	20KWH	25KWH	30KWH
Internal Resistance	≤60mΩ				
Cycle Life	≥5000cycles@80%DOD,25°C,0.5°C ≥4000cycles@80%DOD,40°C,0.5°C				
Design Life	≥10 Years				
Charge Cut-off Voltage	53V ±0.5V(15S);56.0V±0.5V(16S)				
Max. Continuous Work Current	150A	200A	300A	300A	300A
Discharge Cut-off Voltage	45V±1.0V(15S);48V±1.0V(16S);				
Charge Temperature	0°C~60°C				
Discharge Temperature	-20°C~60°C				
Storage Temperature	-40°C~55°C @ 60%±25% relative humidity;				
Dimensions	483*460(510)*186	483*460(510)*372	483*460(510)*558	483*460(510)*744	483*460(510)*930
Weight	110kg	165kg	230kg	285kg	340kg
Protocol (optional)	RS232-PC,RS485(B)-PC RS485(A)-Inverter,Canbus-Inverter				
Batteries in parallel	Support up to 10 batteries in parallel				
Certification	UN38.3,MSDS,UL1973(Cell),IEC62619(Cell)				



## Main Features

- 1 Support a variety of communications, can communicate with a variety of inverters;
- 2 Products cover 30-80KWH capacity segment;
- 3 The product supports parallel connection and expansion;
- 4 4U standard rack-mount battery design;
- 5 Convenient installation, no need for traditional cabinet;

## Application



Family

Small store

Base station

Factory

Model	RT-Box-48600	RT-Box-48800	RT-Box-481000	RT-Box-481200	RT-Box-481400	RT-Box-481600
Nominal Voltage	48V/51.2V(optional)					
Capacity	600Ah	800Ah	1000Ah	1200Ah	1400Ah	1600Ah
Energy	30KWH	40KWH	50KWH	60KWH	70KWH	80KWH
Internal Resistance	≤60mΩ					
Cycle Life	≥5000cycles@80%DOD,25°C,0.5C ≥4000cycles@80%DOD,40°C,0.5C					
Design Life	≥10 years					
Charge Cut-off Voltage	53V ±0.5V(15S);56.0V±0.5V(16S);					
Max. Continuous Work Current	200A	300A	400A	400A	400A	400A
Discharge Cut-off Voltage	45V±1.0V(15S);48V±1.0V(16S);					
Charge Temperature	0°C~60°C					
Discharge Temperature	-20°C~60°C					
Storage Temperature	-40°C~55°C @ 60%±25% relative humidity					
Dimensions	600*800*988	600*800*1166	600*800*1388	600*800*1610	600*800*1833	600*800*2055
Weight	350kg	460kg	570kg	680kg	780kg	900kg
Protocol (optional)	RS232-PC,RS485(B)-PC RS485(A)-Inverter,Canbus-Inverter					
Batteries in parallel	Support up to 10 batteries in parallel					
Certification	UN38.3,MSDS,UL1973(Cell),IEC62619(Cell)					



## Main Features

- 1 Support a variety of communications, can communicate with a variety of inverters;
- 2 Products cover 5-10KWH capacity segment;
- 3 The product supports parallel connection and expansion;
- 4 Wall-mounted design, easy to install;

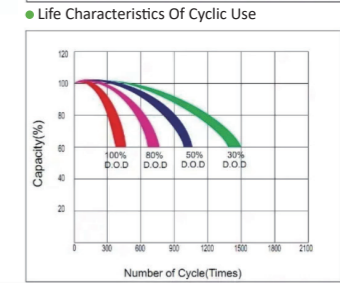
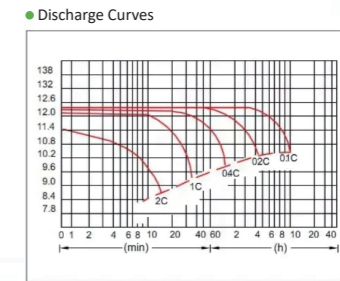
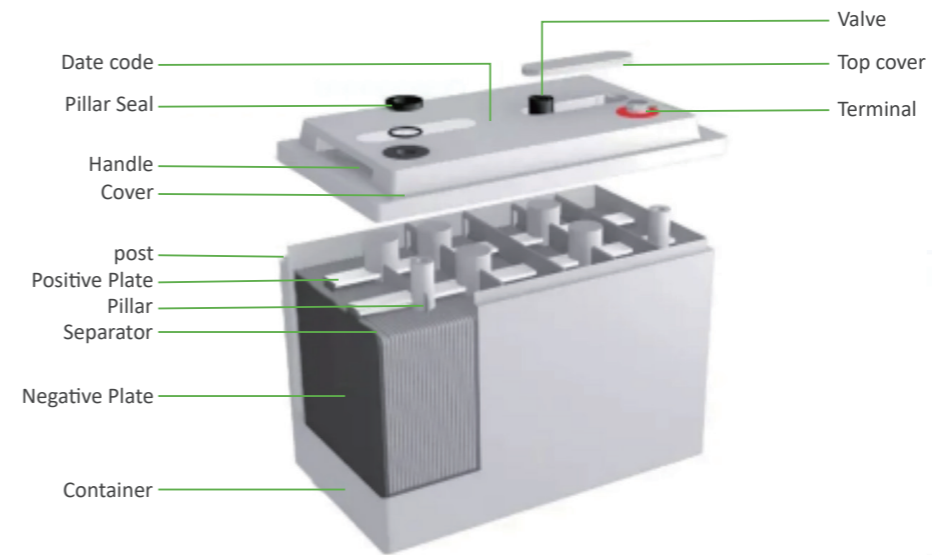
## Application



Model	RT-5000W	RT-7000W	RT-10000W
Nominal Voltage	51.2V(16series)		
Capacity	100Ah	150Ah	200Ah
Energy	5120Wh	7680Wh	10240Wh
Internal Resistance	≤30mΩ		
Cycle Life	≥ 5000 cycles @ 80% DO D,25°C,0.5°C ≥ 4000 cycles @ 80% DO D,40°C,0.5°C		
Design Life	≥10 years		
Charge Cut-off Voltage	56.0V±0.5V		
Max. Continuous Work Current	100A/150A(Can choose)		
Discharge Cut-off Voltage	45V±0.2V		
Charge Temperature	0°C~60°C		
Discharge Temperature	-20°C~60°C		
Storage Temperature	-40°C~55°C @ 60%±25% relative humidity		
Dimensions	680×485×180(220)mm		
Weight	Approx:62kg	Approx:79kg	Approx:98kg
Protocol(optional)	RS232-PC,RS485(B)-PC RS485(A)-Inverter,Can bus-Inverter		
Batteries in parallel	Support up to 10 batteries in parallel		
Certification	UN38.3,MSDS,UL1973(Cell),IEC62619(Cell)		

# Lead-acid battery

Lead-acid battery is a rechargeable battery that uses lead and sulphuric acid to function. The lead is submerged into the sulphuric acid to allow a controlled chemical reaction. This lead-acid battery is great for smaller solar applications and is currently the most popular of its kind on the Marketplace. It has a total capacity of 1.8KWh and 2.4kWh, 50% depth of discharge.



## Main Features:

- Long service life
- Good sealing performance
- Wide using temperature range
- Low self-discharge rate
- Sufficient capacity
- Good electrical conductivity
- Good safety performance

## Application:

- Solar/Wind Power System
- Auto Control System
- Uninterruptible Power Supplies (UPS)
- DC Power Supplies
- Electric Power Systems (EPS)
- Communication Power Supplies
- Emergency Backup Power Supplies

## Datasheet

Normal Volatage	12V	12V	
Rated Capacity(C10)	150Ah	200Ah	
Capacity25°C(77°F)	10 Hour rate(1.8V)	150Ah	200Ah
	3 Hour rate(1.8V)	112Ah	150Ah
	1 Hour rate(1.75V)	85Ah	110Ah
Internal Resistance	25°C(Full Charged Battery)	≤4.0mΩ	≤3.5mΩ
	40°C(104°F)		102%
	25°C(77°F)		102%
	0°C(32°F)		85%
Discharge Current (10 hour)	-15°C(5°F)		65%
	3 months later		91%
	6 months later		82%
	12 months later		64%
Self Discharge 25°C(77°F)			

Charge Method 25°C(77°F)	Floating Charge	Current:0.05C-0.15C Voltage:13.6V-13.8V	
	Equalizing Charge	Current:0.05C-0.15C Voltage:14.2V-14.5V	
Dimension	Length	484±2mm	522±2mm
	Width	172±2mm	240±2mm
	Height	240±2mm	222±2mm
Terminal		T16	T16
Net Weight		40.5kg±3%	52.8kg±3%
Gross Weight		41.0kg±3%	53.3kg±3%

# HY VMII SERIES

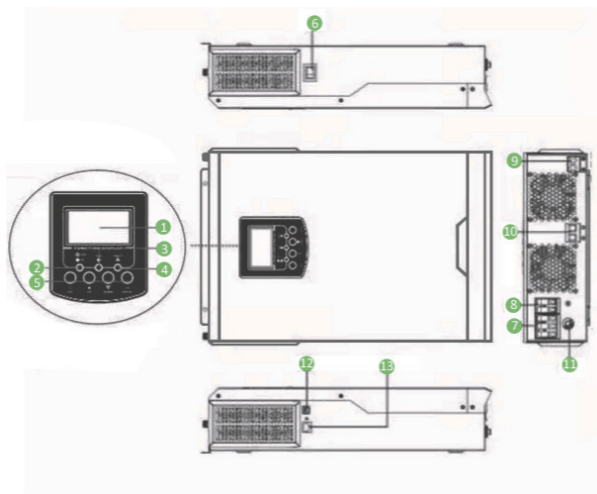
This is a multi functional inverter/charger, combining functions of inverter, solar charger and battery charger to offer uninterruptible power support in portable size. Its comprehensive LCD display offers user-configrble and easy-accessible button operation such as battery charging current, AC/solar charger priority, and acceptable input voltage based on different applications.



## VMII Series Solar Inverter

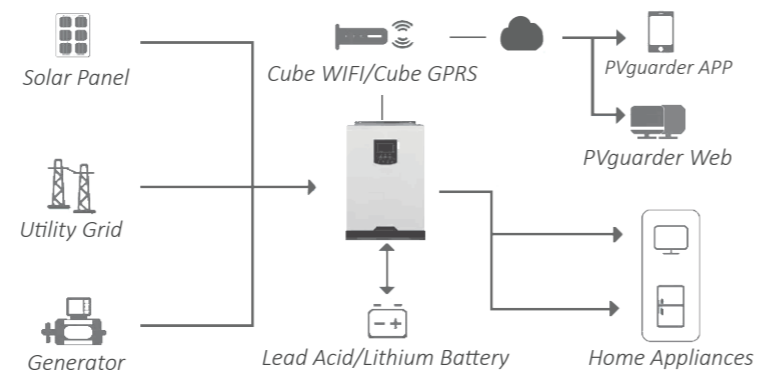
### Product Overview

- |                        |                               |
|------------------------|-------------------------------|
| 1. LCD display         | 8. AC output                  |
| 2. Status indicator    | 9. PV input                   |
| 3. Charging indicator  | 10. Battery input             |
| 4. Fault indicator     | 11. Circuit breaker           |
| 5. Function buttons    | 12. USB communication port    |
| 6. Power on/off switch | 13. RS-232 communication port |
| 7. AC input            |                               |



### Main Features

- \* High efficiency pure sine wave inverter(PF=1 )
- \* Wide PV input range (120V dc -500V dc) 80A MPPT SCC
- \* Intelligent 3 stage 60A AC battery charger.
- \* Surges to 2X continuous power for 5 seconds for motor loads.
- \* Intelligent functionality enables utility and solar input prioritization.
- \* Wide utility input range (90V ac ~280Vac) for unreliable grid even in the most challenging environments.
- \* Field serviceable with replacement boards and spare parts.
- \* Monitor, troubleshoot, or communication with USB/RS 232.
- \* This series inverters can work without batteries when there is the sun.



Model	HY3222VMII	HY3522VMII	HY5032VMII	HY5532VMII
Rated Power	3200VA/3200W	3500VA /3500W	5000VA / 5000W	5500VA / 5500W

### INPUT

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)			

### OUTPUT

AC Voltage Regulation (Batt. Mode)	230 VAC ±5%			
Surge Power	6000VA	7000VA	10000VA	11000VA
Efficiency (Peak)	90%~93%			
Transfer Time	10ms (For Personal Computers)			
	20ms (For Home Appliances)			
Waveform	Pure sine wave			

### BATTERY

Battery Voltage	24 VDC	48 VDC
Floating Charge Voltage	27 VDC	54 VDC
Overcharge Protection	33 VDC	63 VDC

### SOLAR CHARGER & AC CHARGER

Max. PV Array Open Circuit Voltage	500VDC			
MPP Range @operating Voltage	120~450VDC			
Max. PV Array Power	4000 W	5000W		
Max. Solar Charge Current	80 A	100 A	80 A	100A
Max. AC Charge Current	60 A			
Max. Charge Current	100A			

### PHYSICAL

Dimension, D x W x H (mm)	115*300*400mm			
Net Weight (kgs)	9kg	10kg		
Communication Interface	USB/RS232/RS485/Bluetooth/Dry-contact			

### ENVIRONMENT

Humidity	5% to 95% Relative Humidity (Non-condensing)			
Operating Temperature	-10° C to 50° C			
Storage Temperature	-15° C to 60° C			





**RGB light**  
Different color to present output source from PV, Grid or battery and battery charge/discharge status

**Communication for Remote panel**

**Parallel connectors:**  
Maximum 6 units in parallel (only for MAX-7200)

**Diverse communications:**  
USB On-the-Go function, Dry contact and BMS communication

**Anti-dust filter:**  
Increase product reliability in harsh environment

**DC output connectors:**  
Connect to DC fan, LED bulb or router

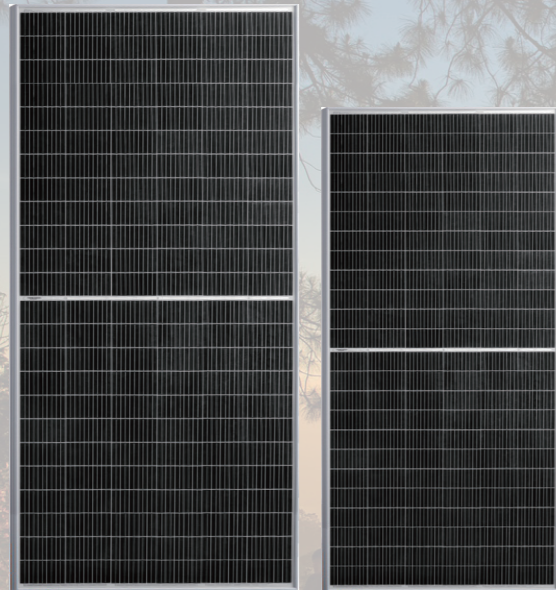
# Max Series Solar Inverter

## Main Features

- \* Customizable status LED bar with RGB lights
- \* Built-in WiFi for mobile monitoring (Android/iOS App are available)
- \* Support USB on the go function
- \* Reserved communication port for BMS (RS485, CAN-BUS or RS232)
- \* Replaceable fan design for ease of maintenance
- \* Battery independent design
- \* Configurable AC/PV output usage timer and prioritization
- \* Selectable high power charging current
- \* Selectable input voltage range for home appliance and personal computers
- \* Compatible to Utility Mains or generator input
- \* Built-in anti-dust kit
- \* Optional DC output for DC fan, LED bulb, router and so on
- \* Parallel operation up to 6 units only available for 7.2kVA



Model	Max 3600	Max 7200 /Max 8000	Max 6500
RATED POWER	3600VA / 3600W	7200VA / 7200W 8000VA / 8000W	6500VA / 6500W
Parallel	No	Yes, 6 units	Yes, 6 units
<b>INPUT</b>			
Voltage	230 VAC		120 VAC
Selectable Voltage Range	170-280VAC (for personal computers) 90-280VAC (for home appliances)		90-140 VAC (For Personal Computers) 80-140 VAC (For Home Appliances)
Frequency Range	50Hz/60Hz (auto sensing)		
<b>OUTPUT</b>			
AC Voltage Regulation (Batt. Mode)	230 VAC ±5%		120 VAC ± 5%
Surge Power	7500VA	15000VA	15000VA
Efficiency (Peak)	90%~93%		
Transfer Time	10ms (For Personal Computers);20ms (For Home Appliances)		
Waveform	Pure sine wave		
No Load Power Consumption	<45W	<70W	<70W
<b>BATTERY</b>			
Battery Voltage	24 VDC	48 VDC	48 VDC
Floating Charge Voltage	27 VDC	54 VDC	54 VDC
Overcharge Protection	33 VDC	66 VDC	66 VDC
<b>SOLAR CHARGER &amp; AC CHARGER</b>			
Solar Charger type	MPPT		
Max. PV Array Open Circuit Voltage	500VDC	500VDC	250VDC
MPPT Range @Operating Voltage	120~450VDC	90~450VDC	90~230VDC
Max. PV Array Power	4000 W	8000 W (4000 W x2)	8000 W (4000 W x2)
Max. Solar Charge Current	80 A	80 A	120A
Max. AC Charge Current	80 A	80 A	120A
Max. Charge Current	80 A	80 A	120A
<b>PHYSICAL</b>			
Dimension, D x W x H (mm)	147.4 x 432.5 x 553.6		
Net Weight (kgs)	14.1	18.4	18.4
Communication Interface	USB/RS232/RS485/WiFi/Dry-contact		
<b>ENVIRONMENT</b>			
Humidity	5% to 95% Relative Humidity (Non-condensing)		
Operating Temperature	-10° C to 50° C		-10° C to 40° C
Storage Temperature	-15° C to 60° C		



# RT-455W-166M/144 HALF CELL PERC

Cell: 166\*166mm (144 half cell PERC)

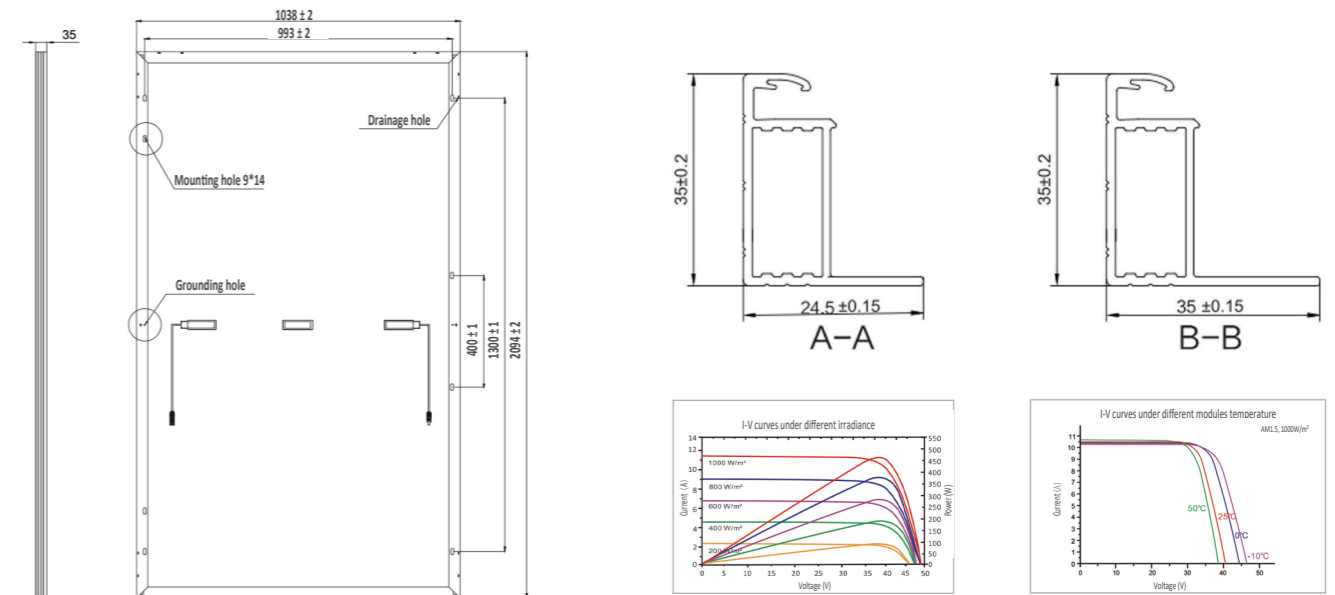
**20.96%**  
Max Module Efficiency

**1500VDC**  
Max System Voltage

**430-455Wp**  
output power range

**2094x1038x35mm**  
Modules size

## ENGINEERING DRAWINGS

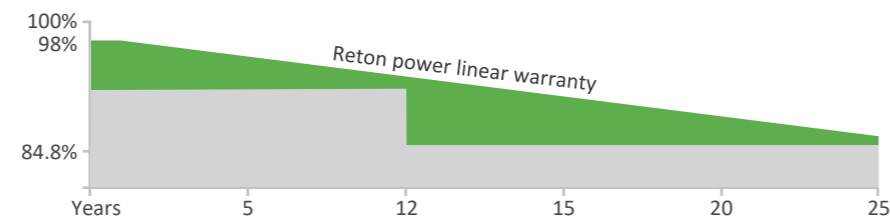


## Main Features:

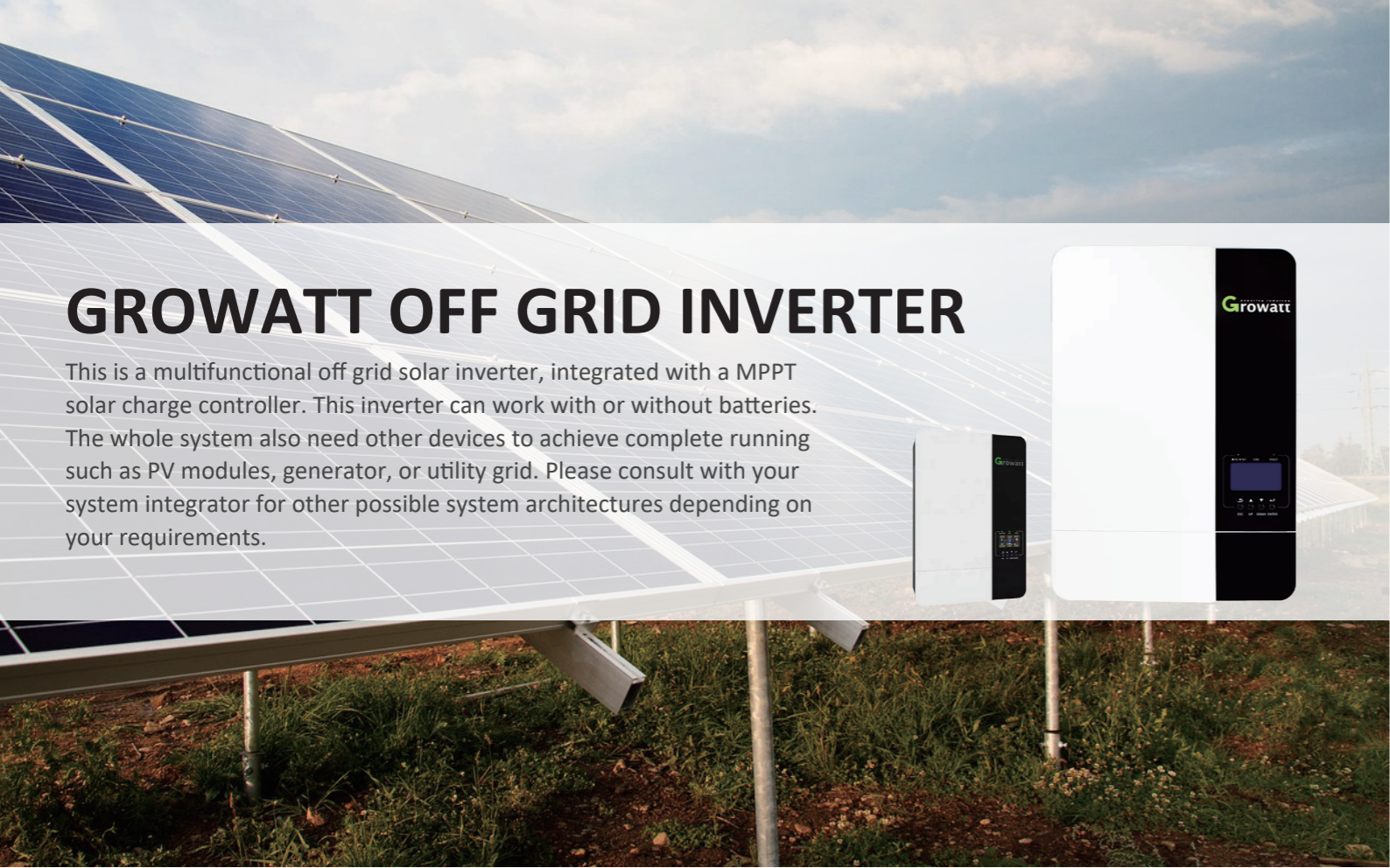
- Excellent low temperature coefficient
- Excellent low-light power generation performance
- Pass the PID test under harsh conditions
- Modules current classification to reduce mismatch loss
- Two EL tests to ensure component quality
- Positive tolerance of modules power
- Withstand harsher environments  
Anti-reflective and easy-to-clean, minimizing power generation losses from stains and dust  
Passed salt spray, ammonia and sand dust tests, suitable for seaside, farm, desert and other environments  
Passed 2400Pa wind load and 5400Pa snow load certification

According to the applicable Henan Reton power Limited Warranty Statement.

- Linear Performance Warranty
- Standard Performance Warranty



Model	RT-430W-166/144	RT-435W-166/144	RT-440W-166/144	RT-445W-166/44	RT-450W-166/144	RT-455W-166/144
<b>SPECIFICATIONS ( STC )</b>						
Maximum Power (Pmax/W)	430	435	440	445	450	455
Open-Circuit Voltage (Voc/V)	48.70	49.00	49.20	49.40	49.60	49.80
Short-Circuit Current (Isc/A)	11.23	11.31	11.39	11.46	11.53	11.61
Operating Voltage (Vmp/V)	40.30	40.50	40.70	40.80	41.00	41.20
Operating Current (Imp/A)	10.67	10.74	10.82	10.90	10.98	11.06
Module Efficiency	19.78	20.01	20.26	20.46	20.71	20.96
<b>MECHANICAL SPECIFICATION</b>						
Cell Type	Monocrystalline					
Cell Dimensions	166mmx166mm					
Cell Arrangement	144 (6*12+6*12)					
Module Dimensions	2094*1038*35mm					
Weight	24.59kg					
Front glass	Tempered glass					
Frame	Anodized Aluminium Alloy					
Junction Box	PV-RM01,IP68,1500VDC,IP68					
No. of Bypass Diodes	3					
Cable Length	4.0mm2(12AWG),positive pole (+) 300mm,negative pole(-) 1000mm (including connector)					
Cable Cross Section Size	4.0mm2 (12AWG)					
Connector	MC4					
<b>Temperature parameters &amp; application environment</b>						
NMOT	44°C±2°C					
Open-circuit voltage temperature coefficient (β)	0.27%/°C					
Short-circuit current temperature coefficient (α)	0.04%/°C					
Temperature Coefficient Pmax	-0.36%/°C					
Operating temperature range	-40°C~+85°C					
Max system voltage	1500VDC					
Max fuse rated current	20A					
Limited reverse current	30A					
<b>Packaging</b>						
Container Type	40ft(HQ)					
Amount	660pcs					
Pieces/box	30					
Number of boxes	22					
Packing box size (L*W*H)	2120*1120*1190					
Gross weight per box (kg)	755					



# GROWATT OFF GRID INVERTER

This is a multifunctional off grid solar inverter, integrated with a MPPT solar charge controller. This inverter can work with or without batteries. The whole system also need other devices to achieve complete running such as PV modules, generator, or utility grid. Please consult with your system integrator for other possible system architectures depending on your requirements.



## Growatt SPF3500-5000 ES

### Product Overview

- |                                 |                                  |
|---------------------------------|----------------------------------|
| 1. LCD display                  | 9. BMS/RS485 communication port  |
| 2. Status indicator             | 10. Dry contact                  |
| 3. Charging indicator           | 11. PV input                     |
| 4. Fault indicator              | 12. Input breaker                |
| 5. Function buttons             | 13. AC output                    |
| 6. AC input                     | 14. Current sharing ports        |
| 7. WiFi/GPRS communication port | 15. Parallel communication ports |
| 8. USB communication port       | 16. Battery input                |
|                                 | 17. Power on/off switch          |

### Main Features

#### High Yields

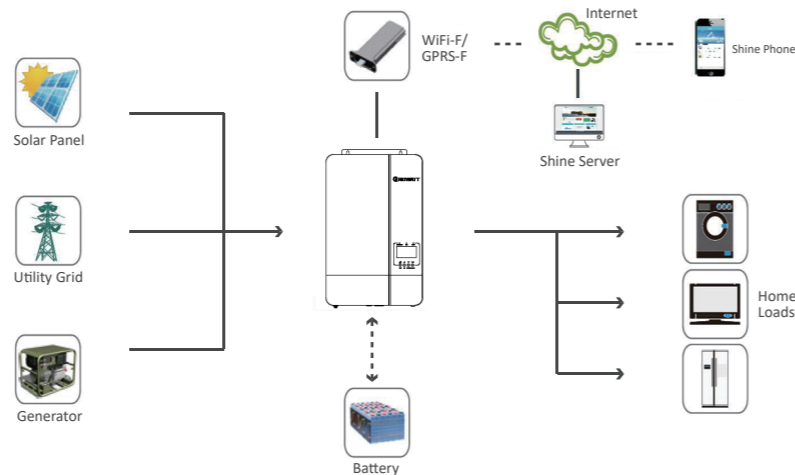
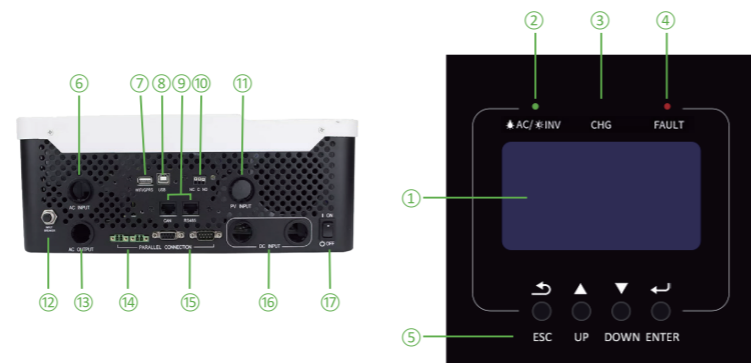
- DC/AC ratio up to 1.2
- 2 times peak power ability
- Output power factor up to 1.0

#### Scalable & Flexible

- Up to 6 units in parallel for capacity extension
- Multi-customized modes for diverse scenarios
- Compatible with lithium and lead-acid battery

#### Smart & Reliable

- Support WiFi and GPRS remote monitoring
- PVkeeper platform for local commissioning
- Timing charging and output control



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±5%@50/60Hz	
Surge Power	7000VA	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	

# GROWATT HYBRID INVERTER

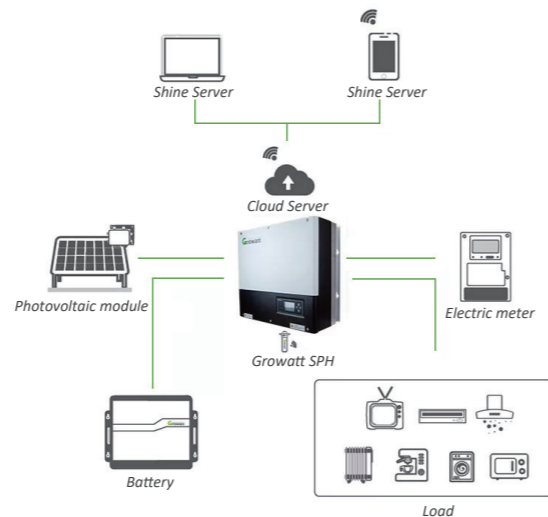
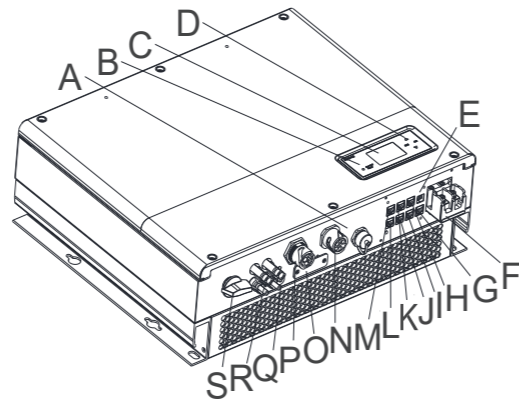
SPH Series is used to store energy generated by the photovoltaic cell panels or energy from grid if it is allowed in the battery, also energy can be sent to power grid through SPH for self consumption or when Grid power is lost, SPH can be used as backup power.



## Growatt SPH3000~6000TL BL-UP

### Product Overview

- A. USB interface
- B. LED of status display
- C. LCD screen
- D. Function button
- E. Dry contact
- F. Battery terminal
- G. VPP communication
- H. RS485-2 communication
- I. RS485-1 communication
- J. NTC: Lead-acid temperature sensor terminal
- K. CAN communication interface of Lithium battery
- L. RJ45 interface of DRMs(used only in Australia)
- M. RS485 communication interface of Merter/CT input terminal
- N. AC Grid (on grid connection)
- O. RSD(do not open except by Professional staff)
- P. EPS output(off grid connection)
- Q. Ground point
- R. PV input
- S. PV switch



### Main Features

#### Leading Functions

- UPS function, 10ms transition
- Scalable system available

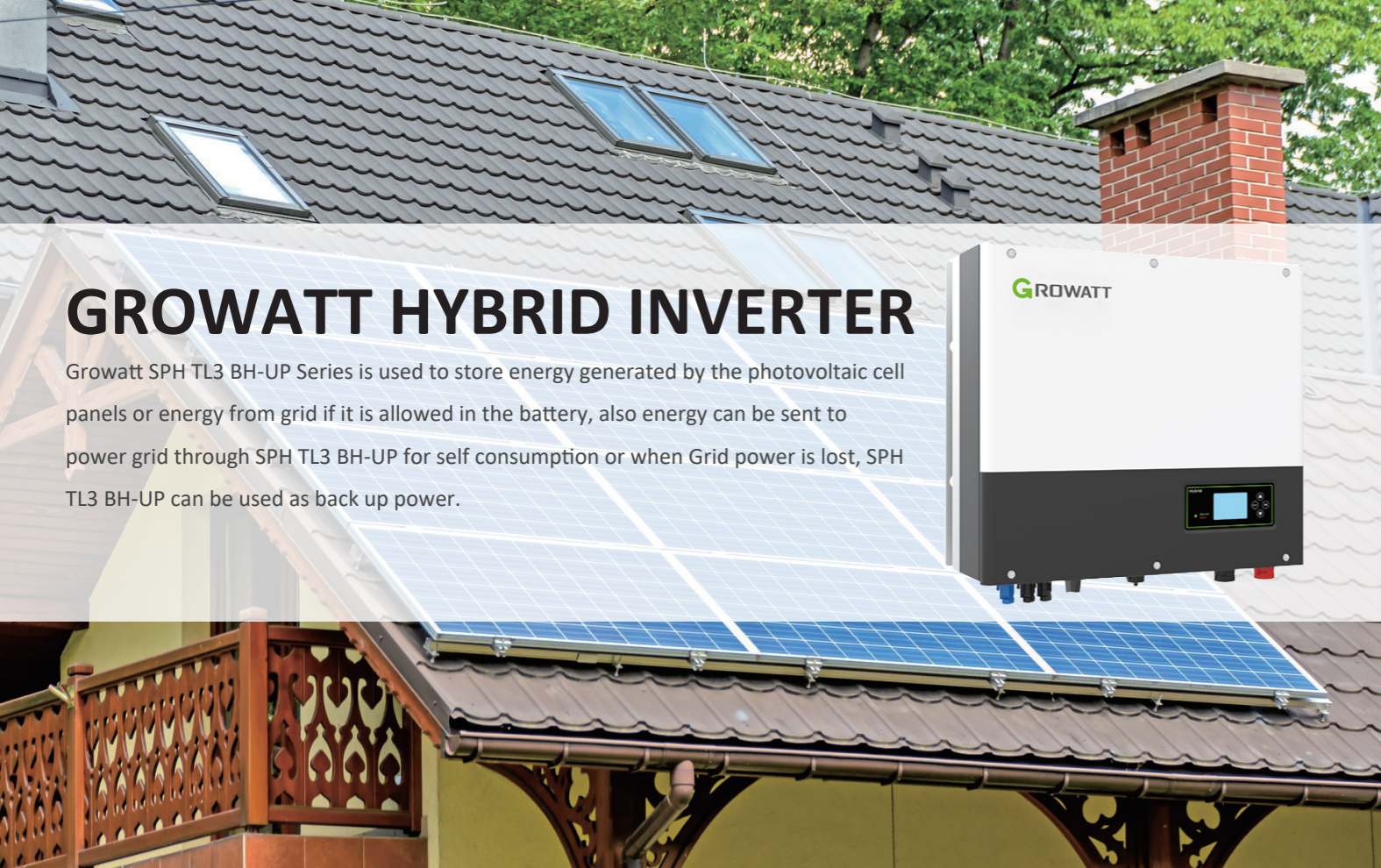
#### High Yields

- DC/AC ratio up to 2.0
- Dual MPP trackers

#### System Flexibility

- Support lithium and lead-acid battery
- VPP interface ready
- Smart load control via dry contact

Datasheet	SPH3000TL BL-UP	SPH3600TL BL-UP	SPH4000TL BL-UP	SPH4600TL BL-UP	SPH5000TL BL-UP	SPH6000TL BL-UP
<b>Input data(PV)</b>						
Max.recommended PV power	6000W	7200W	8000W	9200W	10500W	11200W
Max. DC voltage	550V					
Start voltage	120V					
MPP voltage range	120-550V/360V					
No. of MPP trackers	2					
No. of PV strings per MPP tracker	1					
Max. input current per MPP tracker	13.5A					
Max. short-circuit current per MPP tracker	16.5A					
<b>Output data(AC)</b>						
AC nominal power	3000W	3680W	4000W	4600W	5000W	6000W
Max. AC apparent power	3000VA	3680VA	4000VA	4600VA	5000VA	6000VA
Nominal AC voltage(range)	230V/(180Vac-270Vac)					
AC grid frequency(range)	50Hz/60Hz(45Hz-55Hz/55Hz-65Hz)					
Max. output current	16A	16A	22A	22A	27A	27A
Adjustable power factor	0.8leading...0.8lagging					
THDi	<3%					
AC grid connection type	Single phase					
<b>Battery data(DC)</b>						
Battery voltage range	42~59V					
Max charging and discharging current	66A	75A	85A	85A	85A	85A
Continuous charging and discharging power	3000W	3680W	4000W	4000W	4000W	4000W
Type of battery	Lithium/Lead-acid					
<b>Backup power(AC)</b>						
Max. AC output power	3000W	3680W	4000W	4000W	4000W	4000W
Max. output current	17.4A					
Nominal AC output voltage	230Vac					
Nominal AC output frequency	50/60HZ					
THDv	<3%					
Switch time	<10ms					
<b>Efficiency</b>						
MAX. efficiency	97.20%	97.20%	97.30%	97.40%	97.50%	97.60%
European efficiency	97%	97%	97.10%	97.10%	97.20%	97.20%
MPPT efficiency	≥99.5%					
<b>Protection devices</b>						
DC switch	Yes					
DC reverse polarity protection	Yes					
AC/DC surge protection	Yes					
Battery reverse protection	Yes					
AC short-circuit protection	Yes					
Ground fault monitoring	Yes					
Grid monitoring	Yes					
Anti-islanding protection	Yes					
Residual-current monitoring unit	Yes					
Insulation resistance monitoring	Yes					
<b>General data</b>						
Dimensions(W / H / D)	458/565/188mm					
Weight	31kg					
Operating temperature range	-25°C ... +60°C					
Nighttime power consumption	<10W					
Topology	Transformerless					
Cooling	Natural					
Protection degree	IP65					
Relative humidity	0~100%					
Altitude	2000m					
PV DC Connection	H4/MC4(Optional)					
Battery DC Connection	OT Terminal					
AC connection	Connector					
Display	LCD+LED					
Interfaces:RS485/CAN/USB	Yes					
Monitor:RF/WIFI/GPRS	Optional					
Warranty:5 years / 10 years	Yes/Optional					



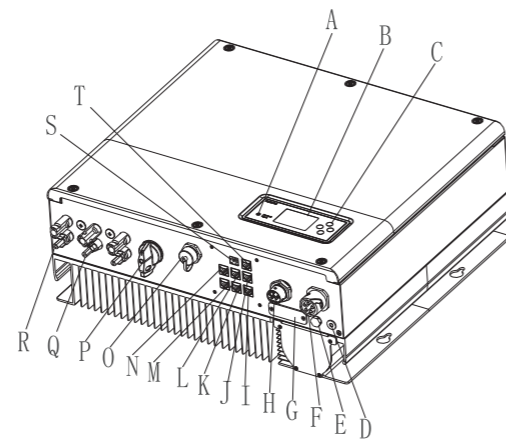
# GROWATT HYBRID INVERTER

Growatt SPH TL3 BH-UP Series is used to store energy generated by the photovoltaic cell panels or energy from grid if it is allowed in the battery, also energy can be sent to power grid through SPH TL3 BH-UP for self consumption or when Grid power is lost, SPH TL3 BH-UP can be used as back up power.

## SPH 4000-10000TL3 BH-UP

### Product Overview

- |  |  |
|--|--|
| A. LED of status display                             | K. NTC: Lead-acid temperature sensor terminal        |
| B. LCD screen  | L. Rj45 interface of DRMs(used only in Australia)    |
| C. Function button                                   | M. Rs485 communication interface of meter1           |
| D. Ground point                                      | N. CAN communication interface of Lithium battery    |
| E. Breathable valve                                  | O. USB interface                                     |
| F. EPS output(off grid connection)                   | P. PV switch   |
| G. RSD(do not open except by Professional staff)     | Q. PV input  |
| H. AC Grid (on grid connection)                      | R. Battery terminal                                  |
| I. Rs485 communication interface (Reserved)          | S. Dry contact                                       |
| J. Rs485 communication interface of meter2(Reserved) | T. Rs485 communication interface of meter2(Reserved) |



### Main Features

#### Leading Functions

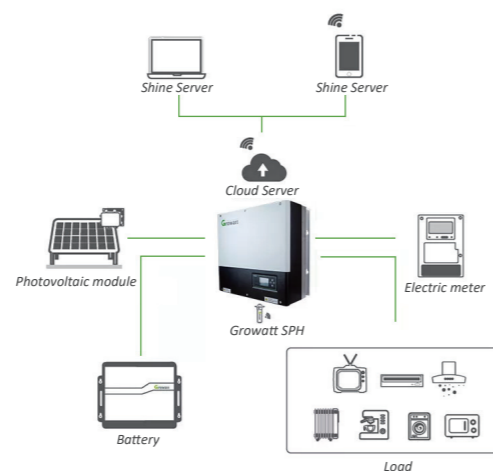
- UPS function, 10ms transition
- 100% three-phase imbalance output
- Smart phase-level power control
- Type II SPD on DC and AC side

#### High Yields

- DC/AC ratio up to 1.5
- Dual MPP trackers
- Max. efficiency 98.2%

#### System Flexibility

- Support lithium and lead-acid battery
- VPP interface ready
- Smart load control via dry contact



Datasheet	SPH4000TL3 BH-UP	SPH5000TL3 BH-UP	SPH6000TL3 BH-UP	SPH7000TL3 BH-UP	SPH8000TL3 BH-UP	SPH10000TL3 BH-UP
<b>Input data(PV)</b>						
Max. recommended PV power (for module STC)	6000W	7500W	9000W	10500W	12000W	15000W
Max. DC voltage	1000					
Start voltage	120V					
MPP voltage range	120V-1000V/600V					
No. of MPP trackers	2					
No. of PV strings per MPP tracker	1					
Max. input current per MPP tracker	13.5A					
Max. short-circuit current per MPP tracker	16.9A					
<b>Output data(AC)</b>						
AC nominal power	4000W	5000W	6000W	7000W	8000W	10000W
Max. AC apparent power	4000VA	5000VA	6000VA	7000VA	8000VA	10000VA
Nominal AC voltage (range*)	230V/400V (310~476V)					
AC grid frequency (range)	50Hz/60Hz (45Hz-55Hz/55Hz-65Hz)					
Max. output current	6.1A	7.6A	9.1A	10.6A	12.1A	15.2A
Adjustable power factor	0.8leading...0.8lagging					
THDi	<3%					
AC grid connection type	3W+N+PE					
<b>Battery data (DC)</b>						
Battery voltage range	100~550V					
Max charging and discharging current	25A					
Continuous charging and discharging power	4000W	5000W	6000W	7000W	8000W	10000W
Type of battery	Lithium battery					
<b>Backup power(AC)</b>						
Max. AC output power	4000W	5000W	6000W	7000W	8000W	10000W
Max. AC apparent power	4000VA	5000VA	6000VA	7000VA	8000VA	10000VA
Max. output current	6.1A	7.6A	9.1A	10.6A	12.1A	15.2A
Nominal AC output voltage	230V/400V					
Nominal AC output frequency	50/60HZ					
THDv	<3%					
Switch time	<10ms					
<b>Efficiency</b>						
MAX. efficiency	97.6%	97.8%	98.0%	98.2%	98.2%	98.2%
European efficiency	97.0%	97.2%	97.3%	97.4%	97.4%	97.5%
<b>Protection devices</b>						
DC switch	Yes					
DC reverse polarity protection	Yes					
AC/DC surge protection	Type II					
Battery reverse protection	Yes					
AC short-circuit protection	Yes					
Ground fault monitoring	Yes					
Grid monitoring	Yes					
Anti-islanding protection	Yes					
Residual-current monitoring unit	Yes					
Insulation resistance monitoring	Yes					
<b>General data</b>						
Dimensions (W / H / D)	505/453/198mm					
Weight	30kg					
Operating temperature range	-25 °C ... +60 °C					
Nighttime power consumption	<13W					
Topology	Transformerless					
Cooling	Natural					
Protection degree	IP65					
Relative humidity	0~100%					
Altitude	3000m					
DC connection	H4 / MC4 (Optional )					
AC connection	Connector					
Display	LCD+LED					
Interfaces: RS485/CAN/USB	Yes					
Monitor : RF/WIFI/GPRS	Optional					
Warranty: 5 years / 10 years	Yes / Optional					

# DEYE Hybrid Solar Inverter

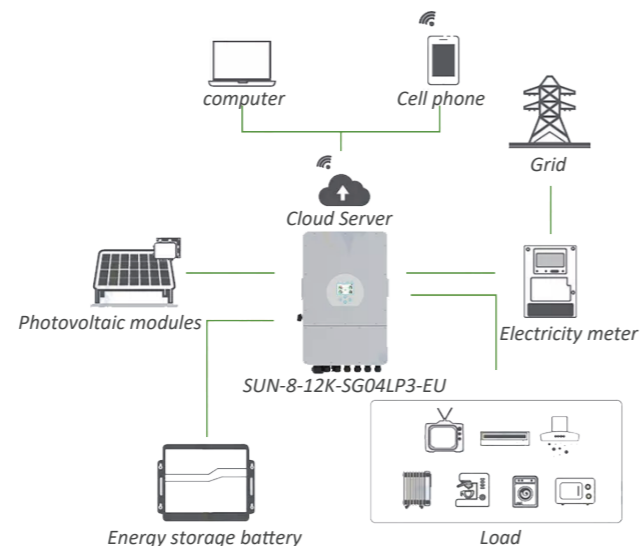
SUN 8/10/12K-SG is brand new three phase hybrid inverter with low battery voltage of 48V, ensuring the system safe and reliable. With compact design and high-power density, this series supports 1.3 DC/AC ratio, saving device investment. It supports three phase unbalanced output, extending the application scenarios. Equipped with CAN port (x2) BMS and parallel, x1 RS485 port for BMS, x1 RS232 port for remotely control, x1 DRM port, which makes the system smart and flexible. It is equipped with RS485 / CAN port for battery communication



## SUN-8~12K-SG04LP3

### Main Features

- \* 100% unbalanced output, each phase
- \* Max. output up to 50% rated power
- \* 48V low voltage battery, transformer isolation design
- \* 6 time periods for battery charging/discharging
- \* Max. charging/discharging current of 240A
- \* Frequency droop control, Max.16pcs parallel
- \* DC couple and AC couple to retrofit existing solar system
- \* Support storing energy from diesel generator



### Product Overview



Model	SUN-8K-SG04LP3	SUN-10K-SG04LP3	SUN-12K-SG04LP3
<b>Battery Input Data</b>			
Battery Type	Lead-acid or Lithium		
Battery Voltage Range (V)	40~60V		
Max. Charging Current (A)	190A	210A	240A
Max. Discharging Current (A)	190A	210A	240A
Charging Curve	3 Stages / Equalization		
External Temperature Sensor	Optional		
Charging Strategy for Li-ion Battery	Self-adaption to BMS		
<b>PV String Input Data</b>			
Max. DC Input Power (W)	10400W	13000W	15600W
PV Input Voltage (V)	550V (160V~800V)		
MPPT Range (V)	200V-650V		
Start-up Voltage (V)	160V		
PV Input Current (A)	13A+13A	26A+13A	26A+13A
No.of MPPT	2		
No.of Strings Per MPPT	1+1	2+1	2+1
<b>AC Output Data</b>			
Rated AC Output and UPS Power (W)	8000W	10000W	12000W
Max. AC Output Power (W)	8800W	11000W	13200W
Peak Power (off grid)	2 times of rated power, 10 S		
AC Output Rated Current (A)	12A	15A	18A
Max. AC Current (A)	18A	23A	27A
Max. Continuous AC Passthrough (A)	50A		
Output Frequency and Voltage	50/60Hz; 230/400Vac		
Grid Type	Three Phase		
Current Harmonic Distortion	THD<3% (Linear load<1.5%)		
<b>Efficiency</b>			
Max. Efficiency	97.60%		
Euro Efficiency	97.00%		
MPPT Efficiency	99.90%		
<b>Protection</b>			
PV Input Lightning Protection	Integrated		
Anti-islanding Protection	Integrated		
PV String Input Reverse Polarity Protection	Integrated		
Insulation Resistor Detection	Integrated		
Residual Current Monitoring Unit	Integrated		
Output Over Current Protection	Integrated		
Output Shorted Protection	Integrated		
Output Over Voltage Protection	Integrated		
Surge protection	DC Type II / AC Type II		
<b>Certifications and Standards</b>			
Grid Regulation	IEC61727, IEC62116, IEC60068, IEC61683, NRS 097-2-1		
Safety EMC / Standard	IEC62109-1/-2, IEC61000-6-1, IEC61000-6-3, IEC61000-3-11, IEC61000-3-12		
<b>General Data</b>			
Operating Temperature Range ( °C )	-25~60 °C , >45 °C Derating		
Cooling	Smart cooling		
Noise (dB)	<30 dB		
Communication with BMS	RS485; CAN		
Weight (kg)	36.8		
Size (mm)	422W×658H×281D		
Protection Degree	IP65		
Installation Style	Wall-mounted		
Warranty	5 years		