



Product Information Guide



1000W	4000W
2000W	5000W
3000W	6000W

Continuous power
with P.F.C charger

SineWave Combined Inverter & Charger



Models: 1012、2012、3012、2024、3024、1012E、
2012E、3012E、2024E、3024E、4024E、
5024E、6024E、4048E、5048E、6048E



Combined inverter & charger



Warning: High voltage, do not open unless qualified to do so;
Please read instructions before working on this product.

Features:

On inverter

- High overload ability
- Low battery voltage trip selectable, extracting max power from various batteries with different protections
- Low quiescent current, selectable sensing cycle to reduce power consumption

On battery charger

- 3-step intelligent battery charging
- 8 preset battery type selector plus de-sulphation for totally flat batteries
- Powerful charge rate up to 70Amp, selectable charging current
- PFC(Power Factor Correction) for charger, less power consumption than conventional units

On Transfer

- Delay before transfer, extra protections for loads under generator mode
- Input AC voltage range selectable, for different kinds of loads
- 8 ms typical transfer time, guarantees power continuity
- 30A/40A through current ability
- Output voltage regulation optional

On remote control & other features

- Ability to switch the unit on/off
- Ability to select/deselect power saver mode
- 17 alarms/warnings, informative for easier operation and trouble-shooting
- LCD display
- RS232 communication port optional

Application

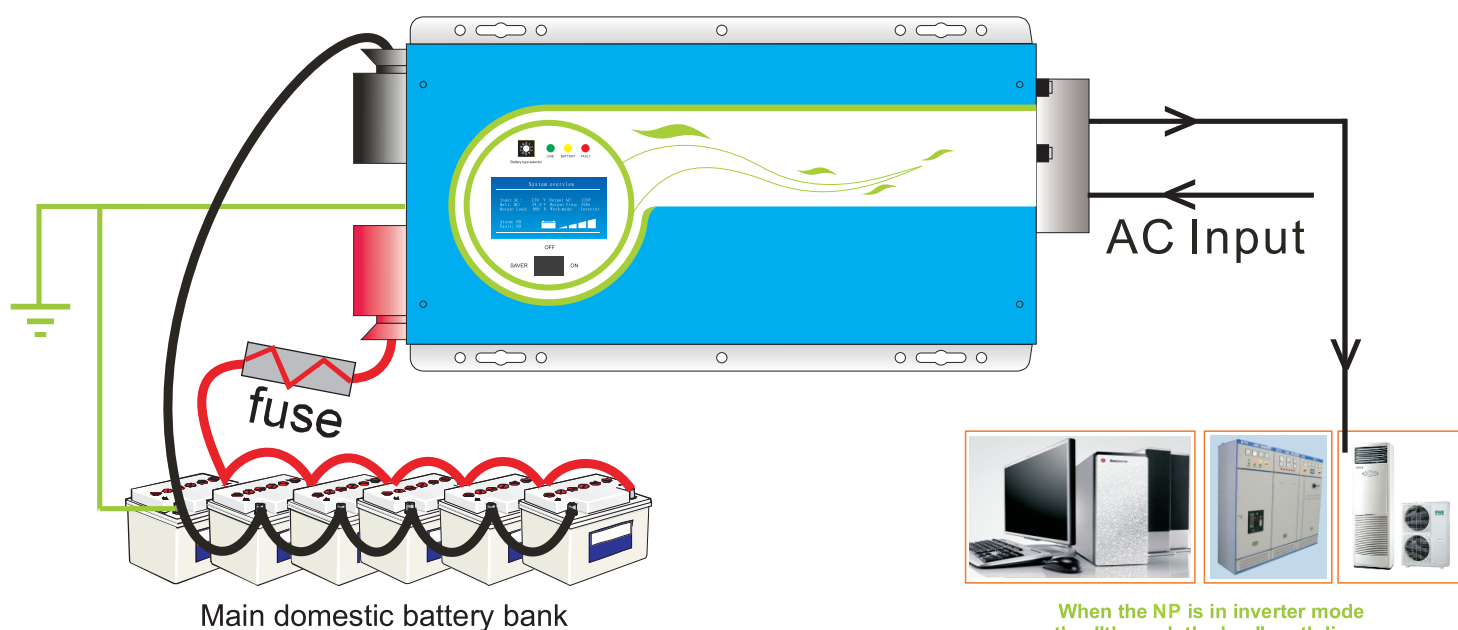
- 1) Home entertainment electronics – television, VCRs, video games, stereos, musical instruments, satellite equipment.
 - 2) Office equipment – computers, printers, monitors, facsimile machines, scanners.
 - 3) Kitchen appliances – coffee makers, blenders, ice makers, toasters.
 - 4) Industrial equipment – metal halide lamp, high – pressure sodium lamp.
 - 5) Household items – vacuum cleaners, fans, fluorescent and incandescent lights, shavers, sewing machines.
 - 6) Power tools – circular saws, drills, grinders, sanders, buffers, weed and hedge trimmers, air compressors.
- The NP Series Pure Sine Wave Inverter is suitable for Renewable energy system, Utility, RV, Marine and Home appliances. To get the most out of the power inverter, it must be installed, used and maintained properly. Please read the instructions in this manual before installing and operating.

Attention

- 1) Ensure that the inverter has the correct DC voltage for your boat or vehicle system. ie 12v or 24v /48v.
 - 2) Fit as close to the batteries as possible. the shorter the DC cables the better. Voltage drop on long cables will effect the unit's performance.
 - 3) Do not reverse the cables! Connect the red cable to the positive terminal and the black cable to the negative terminal of the battery. In the event of reverse polarity the unit could be totally destroyed.
 - 4) Always use the inverter in an environment which is well ventilated, not exposed to direct sunlight or a heat source, away from water, moisture, oil or grease, away from any highly inflammable substance, out of reach from children.
 - 5) The output voltage of this unit must never be on your AC system at the same time as any other AC source such as the 230V external mains line or a generator. All external power must go through the NP.
 - 6) Always switch on the NP first, before plugging in any appliance.
 - 7) Under new electrical legislation only professional electricians should install this product.
- Ensure the fitting instructions are fully understood before fitting this product.

Notes for installation

- 1) Position the unit as close to the main battery bank as possible
- 2) Position in a cool, dry & well ventilated space
- 3) Orientation of the unit is not critical.
- 4) Either purchase the standard cable set from Dealer which is about 1.5 metres, or if using your own cable, use the cable size chart provided on the installation drawing to ensure you have thick enough cable for the DC leads. In the event of not being able to get the size requested (it can be hard to get thick cable) then simply add multiple length of thinner cable, i.e. if you cannot get 90mm² cable then use 3* 35mm² cable, at the end of the day it's just copper we need.
- 5) Fit a fuse suitable for the job, again look at the installation drawing, We have a full range of high current fuses in the GANLR range of gold fuse products, ranging from 100-500 AmPs. on the DC side
- 6) Connect the cables from the batteries to the fuse then to the unit, this way if there is a fault at the unit the fuse is already in place and this will be safe. In the event of an isolation switch being used, please ensure the rating of the switch can handle the power of the unit.
- 7) Ensure the unit is switched off during installation.
- 8) On the AC side ensure the shore power (all external AC sources) are totally disconnected, connect the output from the inverter to suitable Residual Current Breaker (R.C.D. for earth protection) and current over load trips. Fuse the AC input side depending on through power requirements, the max through power is 30 AmPs, so fuse at 40A (allowing also for charger consumption) if you intend to use the full through power for standard 13-16 amps throughput then a 20A fuse would be appropriate.
- 9) We recommend Multi core tri rated AC cable, if used on a boat or vehicle, as this is much safer where vibration is likely. Only use single solid household AC cable if the product is being used as a power source for a house or platform free of vibration.
- 10) Before attempting to switch on the unit, please ensure you have selected the correct battery type on the small battery type selector switch on the front of the main box, rotate the switch to your battery type. The Progressive charge control software will automatically adjust for battery bank size and state

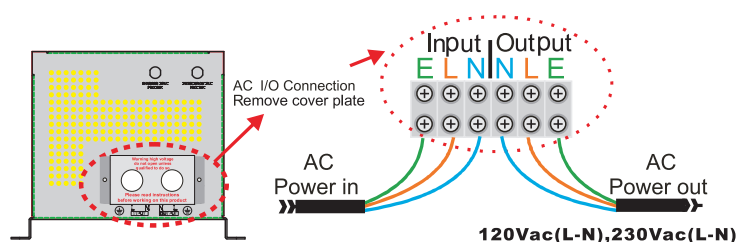
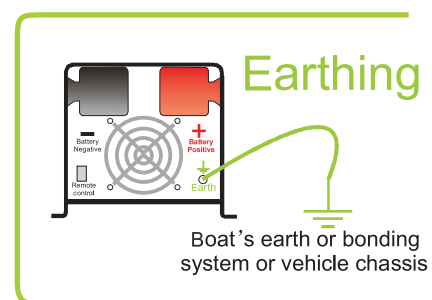


When the NP is in inverter mode the "through the box" earth line is automatically disconnected from the input earth and joined to the output neutral, complying with the natural earth inverter requirements if you wish to maintain a through earth simply connect the input earth to the output earth

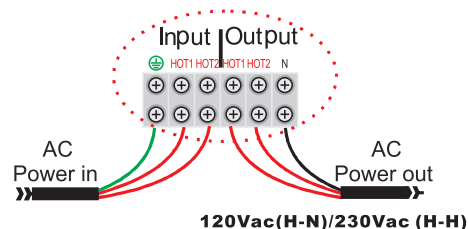
WHAT CABLE TO USE in mm²:

A charger or inverter	cable run distance 0 - 1.5m	cable run distance 1.5 - 4.0m
125-180 A	50 mm ²	70 mm ²
180-330 A	70 mm ²	90 mm ²

Please note that if there is a problem obtaining for example 90 mm² cable, use 2* 50 mm², or 3* 35 mm². One cable is always best but, cable is simply copper and all you require is the copper, so it does not matter if it is one cable or 10 cables as long as the square area adds up. Performance of any product can be improved by thicker cable and shorter runs, so if in doubt round up and keep the length as short as possible.

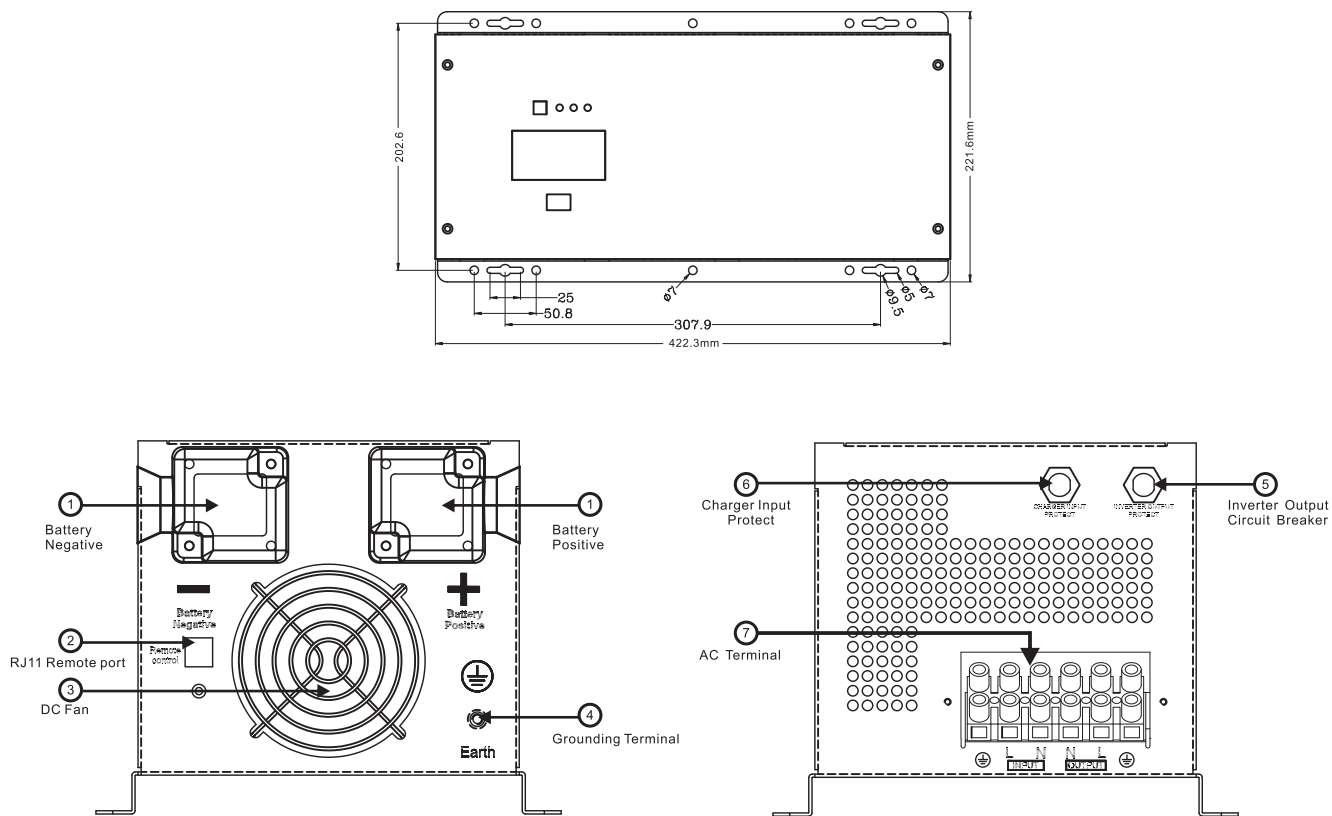


I/P: L+N=230V, O/P: L+N=230V or
I/P: HOT1+HOT2=230V, O/P: HOT1+HOT2=230V
(HOT1=HOT2=120V, not to input E wire again while
Your E and N are same one wire)

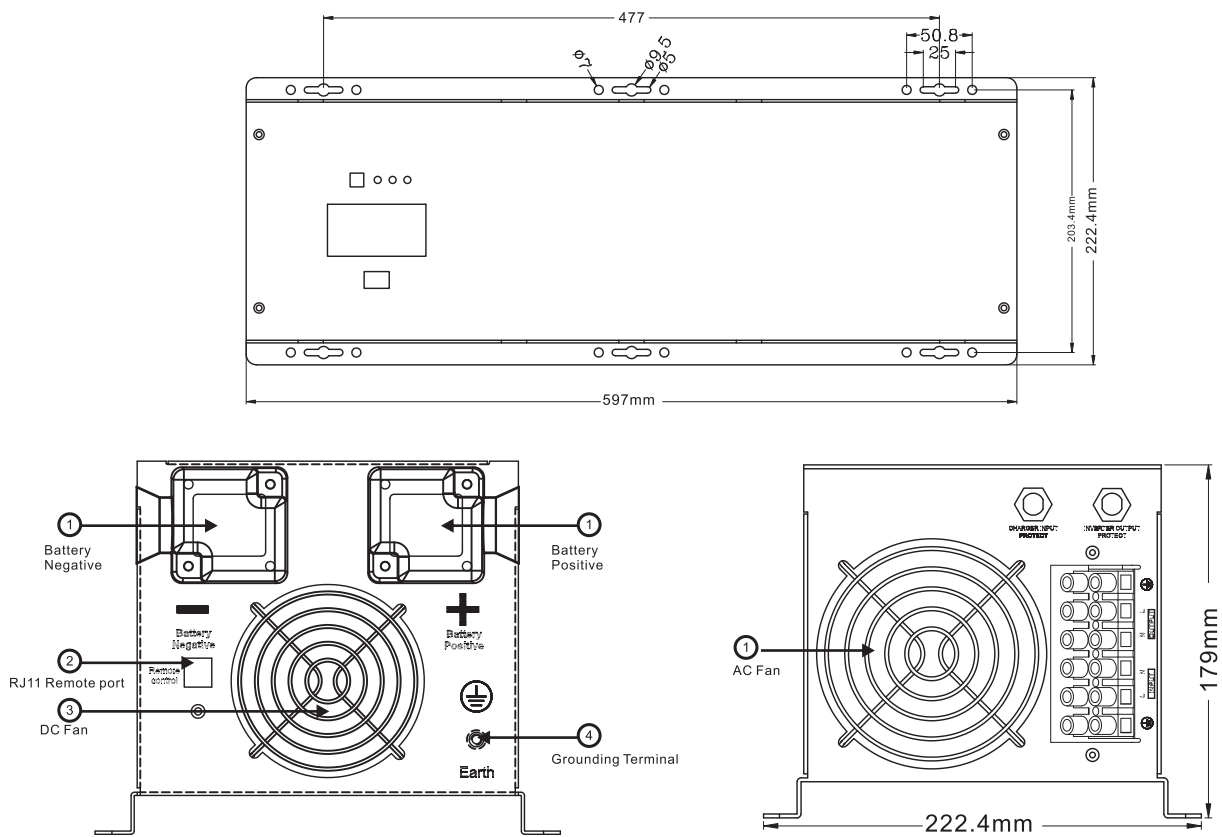


I/P: HOT1+HOT2=230V, O/P: HOT1+HOT2=230V
HOT1+N=120V, HOT2+N=120V
(HOT1=HOT2=120V, not to input E wire again while
Your E and N are same one wire)

Model 1-3K

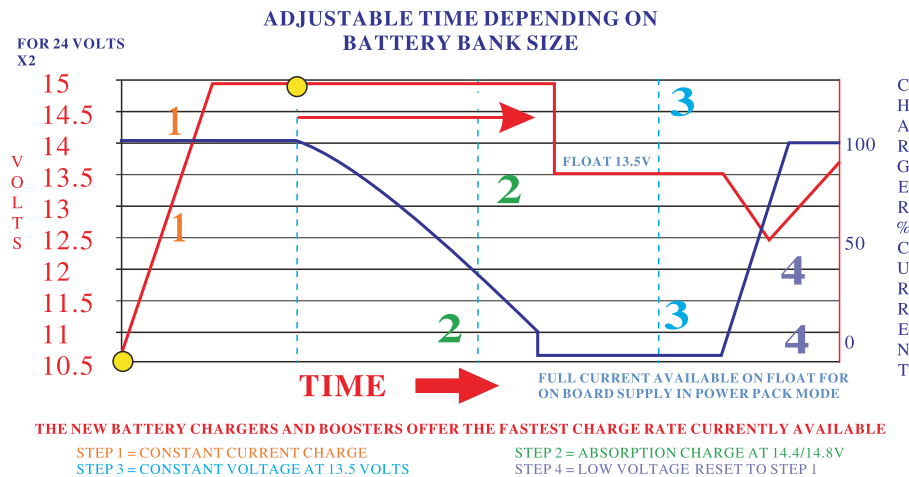


Model 4-6K



Charge Stage Transition Definitions

- Boost CC Stage: If AC input is applied, the charger will run at full current in CC mode until the charger reaches the boost voltage.
- Software timer will measure the time from AC start until the battery charger reaches 0.3V below the boost voltage, then take this time as T_0 and $T_0 \times 10 = T_1$.
- Boost CV Stage: Start a T_1 timer; the charger will keep the boost voltage in Boost CV mode until the T_1 timer has run out. Then drop the voltage down to the float voltage. The timer has a minimum time of 1 hour and a maximum time of 12 hours.
- Float Stage: In float mode, the voltage will stay at the float voltage.
- If the AC is reconnected or the battery voltage drops below 12Vdc/24Vdc, the charger will reset the cycle above.
- If the charge maintains the float state for 10 days, the charger will reset the cycle.



The battery type and charge voltage recommendations are set out above For 24V unit x the above by 2. Some battery types may look confusing such as gel usa and gel euro, AGM usa and AGM euro. If you find this confusion then join the club, we have had the different voltage curves supplied to us by different companies from the U.S.A. and Europe for what we seem the same product, however it's not our call, we simply supply the options, if in doubt call your battery supplier and ask which charge voltage they want you to use for their battery type, and select the closest to it. If totally confused then use the lower voltage setting until you have had a higher voltage setting confirmed to you by whoever supplied the batteries to you. **The de-sulphation cycle on switch position 8 is marked in red** because this is a very dangerous setting if you do not know what you are doing. **Before even attempting to use this cycle you must clearly understand what it does and when and how you would use it.** What causes sulphation? This can occur with infrequent use of the batteries, or if the batteries have been left discharged so low that they will not accept a charge. **This cycle is a very high voltage charge cycle designed to try to break down the sulphate 'crust' that is preventing the plates taking a charge and thus allow the plates to clean up and so accept charge once again.** How to use this function. **(only suitable for open lead acid batteries)**

- 1) Ensure the battery bank is totally isolated from anything else on the boat or vehicle; the high voltage applied by this setting could destroy all your electronics and other electrical equipment still connected (hence all these instructions are in red, this is a very expensive mistake).
- 2) Make sure the battery compartment is very well ventilated and battery caps are removed.
- 3) Switch the battery type selector switch to the correct position, then switch the AC power on.
- 4) Because this is such a dangerous setting there is a 4 hr time out period build into the software, however on a very large battery bank this may not be enough and the unit may need to be switched off and on again to do another cycle. What to expect on this cycle. I would recommend you monitor the voltage of the sulphated battery bank. When you switch on the cycle the voltage should shoot up to the full 15.5 volts very fast (within minutes) this is because the batteries cannot accept the charge (assuming they are sulphated). However, over a period of 1-2 hrs the voltage should start to drop (as the plates start to clean and the batteries start to take a charge) the voltage could drop way down to about 12.5 volts then start to rise. This shows the batteries are now taking a charge and starting to fill up. In this case it would be safe to switch the unit off and select your normal charging curve and hopefully this will bring your batteries back from the dead. You may need to repeat the process a few times. Please note this is a professional guess tool, which most times helps, but it's not magic, so expect the worst and hope for the best. **Never leave a system unattended when on this mode. If the battery temperature reaches above 50 deg c (ie. if the batteries are almost too hot to touch) then stop the process).**

Install remote control.

Isolate the unit before attempting this so there are no high voltages. The local control panel on the front of the unit can also be used as a remote control, reveal the screws holding the panel onto the main box, carefully remove the panel and disconnect it from the connection socket behind the unit. Fill the hole on the main unit using the blank replica of the remote control unit. Using the remote cable supplied then re-connect the panel to the unit

Operation and what to expect

- 1) After the unit is installed, using the panel on the front of the unit, and with the shore power (120/230VAC) still disconnected, switch the unit on. The leds will cycle through their test routine, then the unit should go into inverter mode and 120/230V should be produced on the output AC terminals (provided the batteries are over 11 volts).
- 2) If the above is ok, then connect the shore power to feed 120/230V into the NP, after a short while, the inverter should go off line, and feed the shore power through the inverter. Changeover is about 20 milli secs (so fast that you should not be able to notice it) and the battery charger should come on-line and go through its charge sequence ending, after 1-10 hrs, with float voltage.

Common Faults:

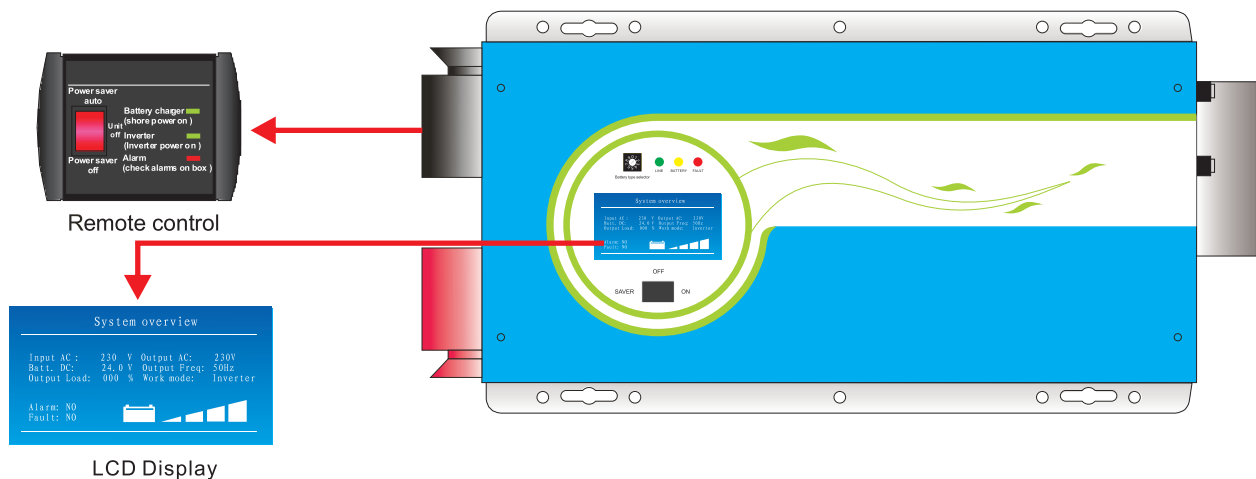
There are numerous faults which the unit can detect and transmit the fault to you by the use of l.e.d.s and alarm on the unit itself. The remote control gives a little help but the real fault finding can only take place at the unit. Please see the fault finding chart over the page for full information.

General specification

Input Wave form:	Sine wave(Utility or Generator)						
Nominal voltage:	120VAC		230VAC				
Low voltage trip:	90v ± 4%		184v/154v ± 4%				
Low voltage re engage:	100v ± 4%		194v/164v ± 4%				
High voltage trip:	140v ± 4%		263v ± 4%				
High voltage re engage:	135v ± 4%		253v ± 4%				
Max input AC voltage:	150VAC		270VAC				
Nominal input frequency:	50Hz or 60Hz (Auto detect)						
Low freq trip:	47 Hz for 50 Hz, 57Hz for 60Hz						
High freq trip:	55 Hz for 50 Hz, 65Hz for 60Hz						
Output wave form:	(Bypass mode) same as input						
Overload protection:	Circuit breaker						
Short circuit protection:	Circuit breaker						
Transfer switch rating:	30 amp or 40 amp						
Efficiency on line transfer mode:	95%+						
Line transfer time:	10 ms Typical						
Bypass without battery connected:	Yes						
Max bypass current:	30 amp or 40 amp						
Bypass over load current:	35 amp or 45 amp: Alarm						
Inverter specification / output							
Output wave form:	Pure sine wave or quasi sine wave						
Output continuos power watts:	1000	2000	3000	4000	5000	6000	
Output continuos power VA:	1000	2000	3000	4000	5000	6000	
Power factor:	0.9-1.0						
Nominal output voltage rms:	120/230VAC						
Output voltage regulation:	+/- 10% rms						
Output frequency:	50Hz ± 0.3Hz or 60Hz ± 0.3Hz						
Nominal efficiency:	>88%						
Surge ratings:	3000	6000	9000	12000	15000	18000	
Short circuit protection:	Yes, fault after 10 secs						
Inverter specification / input							
Nominal input voltage:	12v		24v		48v		
Minimum start voltage:	10v		20v		40v		
Low battery alarm:	10.5v		21v		42v		
Low battery trip:	10v		20v		40v		
High voltage alarm:	16v		32v		64v		
Power saver:	Below 25 watts when enabled						
Power saver:	Same switched on/off on remote						
Charger mode specification							
Input voltage range:	100-135 VAC		194-253VAC / 164-253VAC(W)				
Output voltage:	Dependent on battery type						
Charge current:	35A / 70A						
Battery initial voltage for start up:	0-15.7v for 12v(*2 for 24v; *4 for 48v)						
Over charge protection shutdown:	15.7v for 12v(*2 for 24v; *4 for 48v)						
Charger curves (4 stage constant current) battery types							
4 step digital controlled progressive charge							
Battery type:	Fast V		Float V(*2 for 24v; *4 for 48v)				
Gel U.S.A	14.0		13.7				
A.G.M. 1	14.1		13.4				
A.G.M. 2	14.6		13.7				
Sealed lead acid	14.4		13.6				
Gel euro	14.4		13.8				
Open lead acid	14.8		13.8				
Calcium	15.1		13.6				
De-sulphation	15.5 for 4 hrs						
Remote control / RS232 / USB	Yes. Optional						
Size: in mm	1000/2000/3000 Model:442*218*179mm³						
	4000/5000/6000 Model:598*218*179mm³						
Weight:	1000	2000	3000	4000	5000	6000	
	18kg	20kg	24kg	35kg	45kg	45kg	

Indication & fault finding chart

L.E.D.s on remote				
Function	Buzzer	SHORE POWER ON	INVERTER	Alarm
		●	●	●
CC		on		
CV		on		
Float		on		
Standby		on		
Inverter on			on	
Power saver				
Battery low	Beep 0.5s every 5 s		on	on
Battery high	Beep 0.5s every 5 s		on	on
Over load on Invert mode	Beep 0.5s every 5 s		on	on
Over -Temp On Invert mode	Beep 0.5s every 5 s		on	on
Over -Temp On line mode	Beep 0.5s every 5 s	on		on
Over charge	Beep 0.5s every 5 s	on		on
Fan lock	Beep continuous			
Battery high	Beep continuous		on	
Inverter mode over load	Beep continuous			
Over temperature	Beep continuous			
Back voltage	Beep continuous			flash



技术说明:

1. 整页尺寸: 630*297 (mm), 三折页后尺寸: 210*297 (mm)
2. 材质: 157克铜板纸.(须折页)
3. CMYK印刷, 内容印刷清晰、无毛边、重影