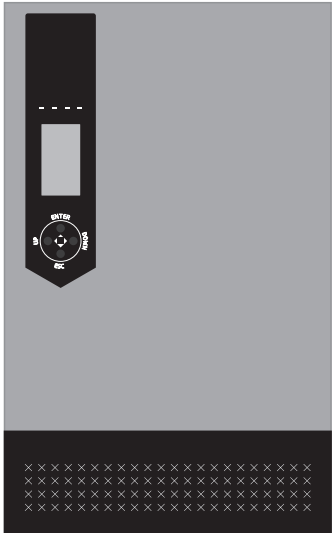


制作说明：A4对折
封面纸质：铜板纸

Optional Power Capacity



1012/24
1512/24
2012/24
3024/48
5024/48

USER MANUAL

Techfine

VE Series
Inverter/charger

7. Warranty Scope

The following is not within the scope of warranty:

- (a) Battery configured by user.
- (b) Operate not according to the user's manual, resulting in damage to the machine.
- (c) Mechanical damage due to natural disasters such as fire, flood, etc..
- (d) Products beyond the warranty period, provide the paid maintenance service.

6. TECHNICAL DATASHEET

MODEL	1012/24	1512/24	2012/24	3024/48	5024/48
Input					
Capacity (VA)	1000VA	1500VA	2000VA	3000VA	5000VA
Voltage (DC)	12/24V	12/24V	12/24V	24/48V	24/48V
Nominal Voltage	220VAC/110VAC				
Voltage Range	154-265VAC/77-135VAC				
Frequency	50-60Hz Auto sensing				
Output					
Watt	800W	1200W	1600W	2400W	4000W
Voltage	220VAC/110VAC(± 10% ups mode)				
Frequency	50/60Hz				
Waveform	Pure sinewave				
Transfer time(AC to DC)	<8ms				
Transfer time(DC to AC)	<8ms				
Output voltage regulation	10%rms				
Bypass Mode	Yes				
Saver Mode	Yes				
Efficiency	>98%				
Protection					
Input Protection	Circuit Breaker				
Output Protection	Circuit Breaker				
Battery					
Battery Type	AGM-Deep Cycle,GEL				
	Up to 500Ah				
Charging current	20/10A	30/15A	35/18A	30/15A	40/20A
Low Level disconnect(Selectable)	(10V or 10. 5V) x N N means the number of batteries in series				
LCD Indicator status	Input AC,Output AC				
	Battery DC,Output Load				
	Alarm,Fault				
	Battery Charge Level				
	Output Frequency				
LED Indicator status	AC Line In:Green				
	Inverter:Green				
	Charging:Yellow				
	Alarm:Red				
Alarm					
Low battery alarm	Audible alarm-5 seconds beeping				
Overload alarm	Audible alarm-continuous beeping				
Fault	Audible alarm-continuous beeping				
Environment					
Temperature	0-40				
Humidity	C0-95 %, Non condensing				
Accoustic Noise(db)	>55dB				

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1. SAFETY INSTRUCTIONS

1.1 General

Please read the manual and all the safety remarks. This product is designed and tested in accordance with international standards. It must be used exclusively for the purpose for which it was designed.



This product is worked with the rechargeable battery. It may still has dangerously voltage in input/output terminals. Please switch the AC and battery power source before carrying out maintenance or servicing the product.

Please call service center. Do not operate the product if any fault. Only Qualified person can undertake all servicing.

Never use the product where there is a risk of gas or dust explosions. (before using) Consult the battery manufacture' s to confirm the products if can be used with the battery. Always comply with the battery manufacturer' s safety instructions.

1.2 Installation

Read the installation instructions on the manual before installing. This is a Safety Class I product (supplied with a protective grounding terminal). Uninterruptible protective grounding must be provided at the AC input and output terminals.

Tab.IV

Models	DC Rating (Volts)	Minimum Batteries	Maximum Batteries
1012/24	12/24V	1/2	3/6
1512/24	12/24V	1/2	3/6
2024/48	12/24V	2/4	6/8
3024/48	24/48V	2/4	6/8
5024/48	24/48V	2/4	6/8

5. TROUBLESHOOTING

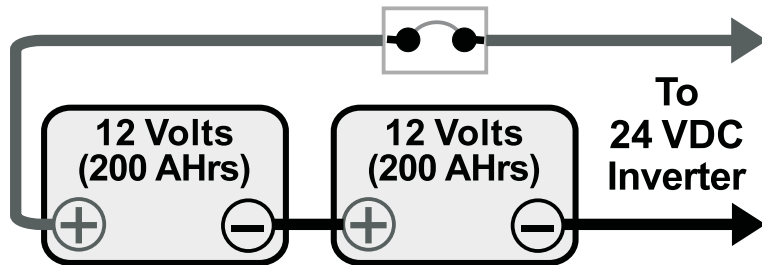
Proceed as follows for quick detection of common faults.DC loads must be disconnected from the batteries and the AC loads must be disconnected from the inverter before the inverter and/or battery charger is tested.

Consult your local dealer/repair center if the fault cannot be resolved.

Tab.V

Problem	Cause	Solution
The inverter fails to operate when switched on	Battery terminal not firm	Tighten the battery terminals.
Continuous spark from the inverter terminal	Battery terminal reversal	Check and connect the cable to the right terminal lead.
No output from inverter	Output cable terminals loosed	Open the casing and connect the output cable terminals firm to the appropriate lead.
Inverter not charging battery	input power less than(<) 150VAC	A step-up stabilizer of rating higher than the inverter should be installed.
Continuous alarm when the inverter is loaded	Overloading condition	Check the loads and disconnect heavier loads.

12 volts Battery in Series



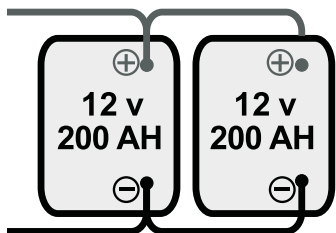
24 Volts battery (total capacity=200 Ah)

Fig 7. Parallel Battery Wiring

Difference between Series and Parallel connection

Batteries in Parallel

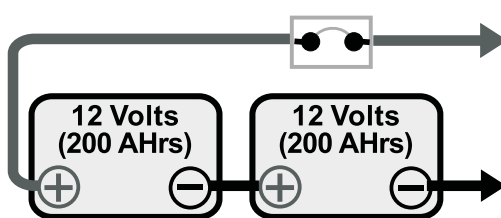
Voltage remain the same
Ah capacity doubles



**System Voltage = 12Volts
Ah Capacity = 400AH**

Batteries in Series

Voltage doubles
Ah capacity stays the same



**System Voltage = 24V
Ah Capacity = 200AH**

It will cause electric shock when the grounding protection has been faulty, please turn off the product.

Ensure that the DC and AC Input cables are fused and the circuit breakers. Never replace the component with a different type. Always consult the manual to determine the correct component.

Before connecting AC, ensure the power source matches the manual requirement.

Never operate the product in a wet or dusty environment.

Ensure there is adequate free space for ventilation around the product and check that the ventilation vents are not blocked.

Ensure that the application's power consumption does not exceed the product's maximum power.

1.3 Transport and Storage

Ensure that the mains power and battery leads have been disconnected before storing or transporting the product.

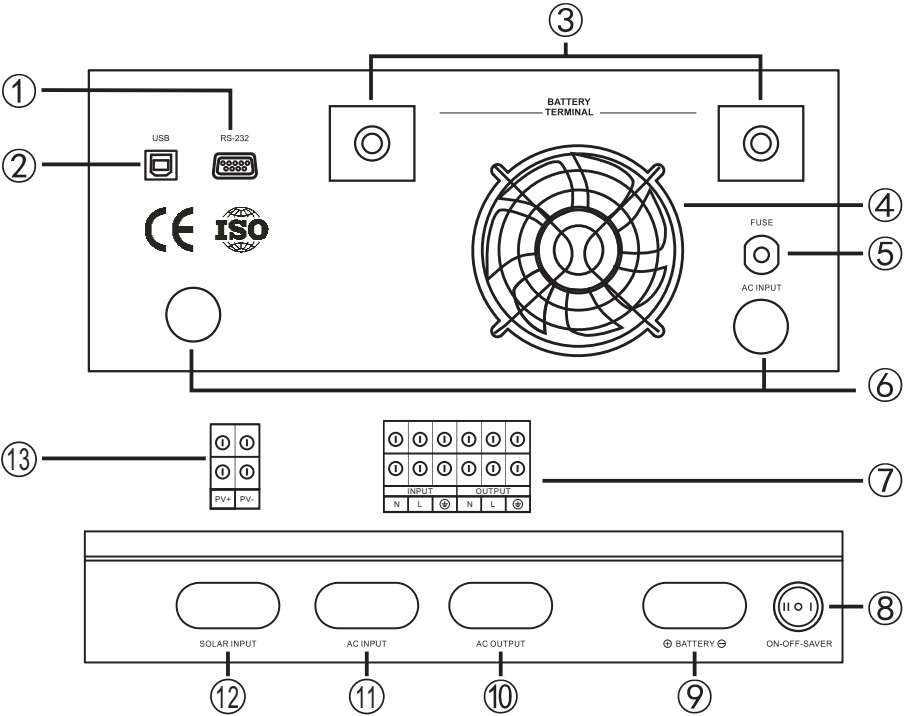
No liability can be accepted for any transport damage if the equipment is shipped in non-original packaging.

Store the product in a dry environment, the storage temperature must be between -20°C and 60°C .

Consult the battery manufacturer's manual in respect of transport, storage, charging, recharging and disposal of the battery.

2. Description

Fig. 1 : Inverter



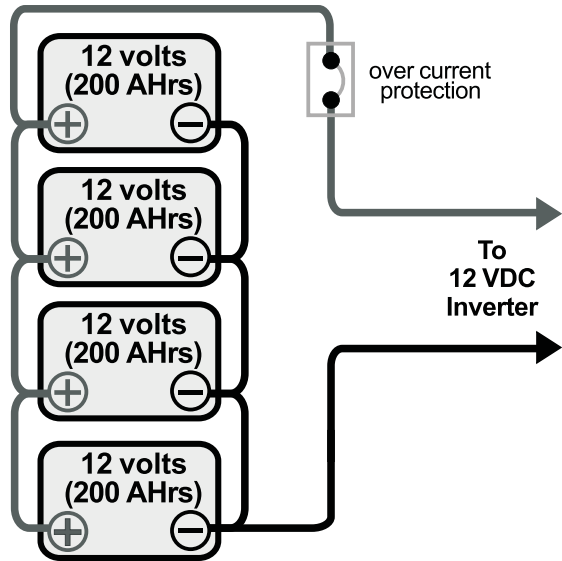
- 1. -----RS232 Communication port
- 2. -----USB Communication port
- 3. -----Battery Terminal
- 4. -----Fan
- 5. -----Fuse (Recoverable over current protector)
- 6. -----Wire holes
- 7. -----AC connect terminals
- 8. -----power switch
- 9. -----Battery wire hole
- 10. -----AC output wire hole
- 11. -----AC input wire hole
- 12. -----Solar panel input wire hole
- 13. -----Solar panel connect terminals

Tab.III

Models	Minimum DC Wire Size(rating)	Maximum DC Fuse size	DC Grounding wire size
1012/24	16/8mm ²	100/50A	2.5mm ²
1512/24	25/16mm ²	160/80A	2.5mm ²
2024/48	16/8mm ²	100/50A	2.5mm ²
3024/48	25/16mm ²	160/80A	2.5mm ²
5024/48	50/25mm ²	200/100A	2.5mm ²

4.3.3 Parallel and Series Connection

12 Volts Battery In Parallel



12 volt battery (total capacity=800 Ah)

Fig 6. Parallel Battery Wiring

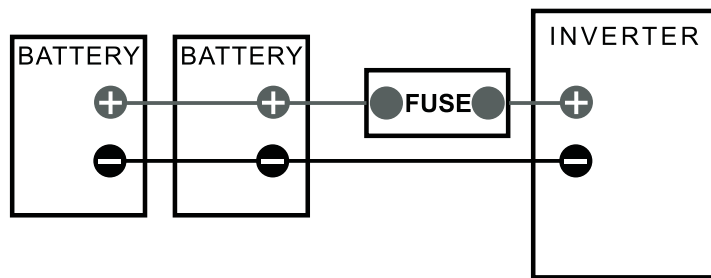


Fig 5:Inline fuse

A brief spark or arc may occur when connecting the battery cables to the inverter DC terminals;this is normal and due to the inverter's internal capacitors being charged.

All wiring to the battery terminals should be checked periodically (once a month) for proper tightening

Secure the nuts tightly in order to reduce the contact resistance as much as possible.

Be aware that over-tightening or misthreading the nuts on the DC terminals can cause the bolts to strip and snap/break off.

4.3.2 DC Wiring Size

It is important to use the correct sized DC wire to achieve maximum efficiency from the system and to reduce fire hazards associated with overheating. Always keep your wire runs as short as practical to prevent low voltage shutdowns and to keep the DC breaker from nuisance tripping (or open fuses) because of increased current draw. The correct minimum DC wire size (and corresponding over current device) is required in order to reduce stress on the inverter minimize voltage drops.increase system efficiency and ensure the inverter's ability to surge heavy loads. If the distance from the inverter to the battery bank is <5 feet.use a minimum DC wire size of #2 AWG (33.6 mm²).If the distance between the inverter and the battery is>5 feet.the DC wire will need to be increased.Longer distances cause an increase in resistance.which affects the performance of the inverter.

Fig 2 : LCD SCREEN

1. -----LED SCREEN
2. -----AC Mode Indicator
3. -----Inverter Mode Indicator
4. -----Charging Indicator
5. -----Alarming Indicator
6. -----Enter
7. -----Down
8. -----UP
9. -----Esc

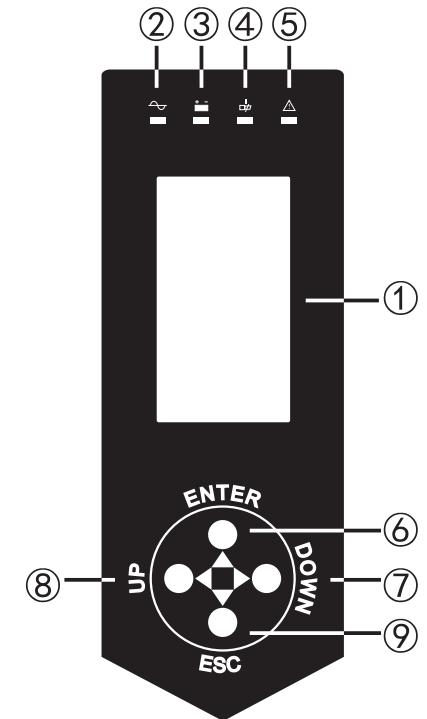
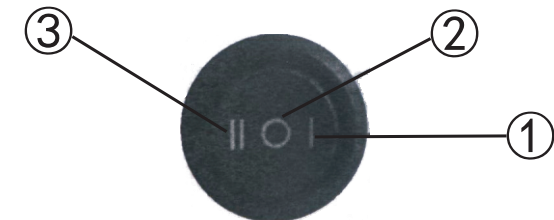


Fig 3 : Power Switch

1. -----SAVER
2. -----OFF
3. -----ON



3. OPERATION

3.1 AC Mode

Switch on the power button, the product is fully functional, the green LED "AC In" will light up.

3.2 Inverter Mode

When electricity off or generator power being disconnected, it will transfer to inverter mode. The transfer time is less than 10 milliseconds so that computers and other electronic equipment will continue to operate without disruption. The green LED light of "Inverter" will light up.

3.3 Charging Mode

When electricity recovery or generator power on the green LED "AC In" comes up and the orange "Charge" light starts blinking. When the batteries are fully charged, the blinking orange light changes to Solid Orange.

3.4 Alarm Mode

When battery discharge and it gets close to the battery cutoff voltage, the red "Alarm" light starts showing with a continuous beeping sound, if the electricity not recovery, it will keep this status until the battery reaches the low voltage cut-off point and shut down automatically.


3.5 Bypass Mode

The product's power button is off, but the electricity or generator on, it has output to load meanwhile charging the battery. When the power button is off, if without electricity or generator off, there will be no output to load.

3.6 Saver Mode

When the power control button is switched to "SAVER", and there is no supply of grid, the inverter's AC output will not be supplied until a load greater than 15 watts is connected to the inverter. It automatically detects the connected load every 15 seconds.

4.3 DC Wiring:

 WARNING
DO NOT connect the DC wires from the battery bank to the inverter until: <ul style="list-style-type: none">• All AC wiring is complete,• The correct DC and AC protection switches are OFF• The correct DC voltage and polarity have been verified


Depending upon the type of batteries you use in the installation (6 or 12VDC), the batteries must be wired in series, parallel, or series-parallel. The interconnecting DC wires must be sized and rated exactly the same as those used between the battery bank and the products.

To ensure the best performance from your inverter system, do not use old or untested batteries. Batteries should be of the same size, type, rating and age.

4.3.1 Procedure

The battery's Ampere Hour bigger, the back up time longer, and the battery connects wire should be corresponding.

Please follow below connect the battery cables:

 WARNING
<ul style="list-style-type: none">• Use an insulated box spanner in order to avoid shorting the battery.• Avoid shorting the battery cables.

Connect the battery cables: the + (red) on the left and the - (black) on the right, to the battery. Reverse polarity connection (+ to - and - to +) will cause damage to the product. (Safety fuse inside the Inverter unit can be damaged)

The DC over current device (i.e., fuse or circuit breaker) must be placed in the positive (RED) DC cable line between the inverter's positive DC terminal and the battery's positive terminal (RED); as close to the battery as possible.

AC Wiring should be connected with following order:

- AC INPUT (Source)
- AC OUTPUT (Load)



Fig 4:AC input/Output Connections

AC Input: The product has Input protection circuit breaker. This should be switched off before the wiring connection. Remove the AC wiring compartment cover to connect AC terminal, include grounding L and N to the corresponding terminal.

AC Output: The product has output protection circuit breaker. It should be switched off before the wiring connection. When connect the AC OUTPUT wiring, it should be connected the corresponding terminal.

After wiring ,double check and review all connections to make sure the wires are in the correct terminals and the terminals are tight.

AC Safety Grounding: During the AC wiring installation, AC input and output ground wires are connected to the product. The AC input ground wire must connect to the incoming ground from your AC utility source. The AC output ground wire should go to the grounding point for your applications.

Tab.I

MODE	BUTTON	NO AC SUPPLY	AC SUPPLY
SAVER	I	≤15W LOAD,NO O/P	CHARGING,O/P
		≥15W LOAD,O/P	
ON	II	INVERTER	CHARGING,O/P
OFF	O	NO O/P	CHARGING,NO O/P


3.7 Setting Mode

After press “ **ESC** ”and “ **ENTER** ”buttons together,LCD will show “Password:00000”,it enter into setting mode,the pass word is:12345,use “ **UP/DOWN** ” button to input password and choose “ Yes ”,then press “ **ENTER** ”button.

After confirm pass word,enter into “System Settings”, press “ **ENTER** ”button,it will show“◀”,use “ **UP/DOWN** ”button to move“◀”to setting items,then press “ **ENTER** ”button,then you can use “ **UP/DOWN** ” button to set.After finish setting, please choose “Yes”at confirm page.

Setting Items	Parameters	Remarks
Input Range	UPS	180~265VAC/90-133VAC
	INV	155~265VAC/78-133VAC
Input Priority	UTI	AC supply power to load when AC is normal,battery supply power load when AC is off
	SBU	Battery supply power to load,it will change to AC when battery low voltage
CHA Utility	** A	Increase or decrease charging current
CHA Solar	** A	Changing solar charging current(with solar controller type)
Floate CHA	(13-14)*N (N isseries battery qty)	Battery floating voltage setting depends on different batteries
Bulk CHA	(14-14.6)*N (N isseries battery qty)	Battery strong charging setting depends on different batteries
Low Cut-Off	(9.5-11.0)*N	Setting battery protection cut-off voltage
SOL TO AC	(11-12.5)*N	when choose “ SBU” priority,setting voltage return to AC supply
Inverter output	105~120V	Setting output voltage
Output Freq	50Hz/60Hz	Setting output frequency
AC CHK Speed	Fast	AC sensitivity setting:Fast,Median,Slow
	Median	
	SLOW	
Fault Restart	NO	No restart if short circuit or over load
	Yes	Restart 3times if short circuit or over load
Backlight	Normal	Backlight will off after 60s
	ON/Off	Setting backlight lighting or close
Factory	Yes	Factory setting parameters
	NO	User can change parameters

4. INSTALLATION

 WARNING
A qualified electrician should install this product.

4. 1 Locating and Mounting the Inverter

The product must be installed in a dry and well-ventilated area. as close as possible to the batteries. There should be a clear space of at least 10cm for cooling.

High temperature will result following issue:

- Reduced product serving life.
- Reduced charging current.
- Reduced peak capacity, or shutdown of the inverter.

Never mount the appliance directly above the batteries. The product is suitable for wall mounting. The appliance can be mounted horizontally as well as vertically;vertical mounting is preferable. The vertical position offers optimum cooling.

After installation,keeping the air circulating inside the product. In order to minimize the losses of cable voltage, keep the suitable distance between the product and battery.

For safety purposes this product should be installed in a well ventilated place, keep it away from chemicals synthetic components curtains or other textiles, etc.

4. 2 AC Wiring

This is a Safety Class I product (supplied with a protective grounding terminal). Uninterruptible protective grounding must be provided at the AC input and/output terminals.