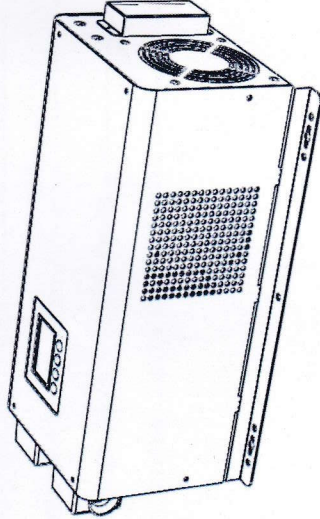




User Manual

FT series 1K-6K



Dear Customers

It's very grateful to you for trusting our company and selecting our products! Before using this product, please read carefully this user manual, including installation, using, failure investigation and other important information and suggestion, we also suggest you keep this manual well!

Catalogue

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1Product Features

- Double CPU intelligent control technology, excellent performance
- The grid mode /battery mode could be set, application flexible
- Charge current/battery type could be set, convenient and practical
- Intelligent fan control, safe and reliable
- Pure sine wave AC output, and be adapt to all kinds of loads;
- LCD display equipment parameter in real-time, operation status be clear at a glance
- Output overload, short circuit protection, various of automatic protection and alarm warning;

2Installation、Storage instruction

(1) Unpacking Inspection

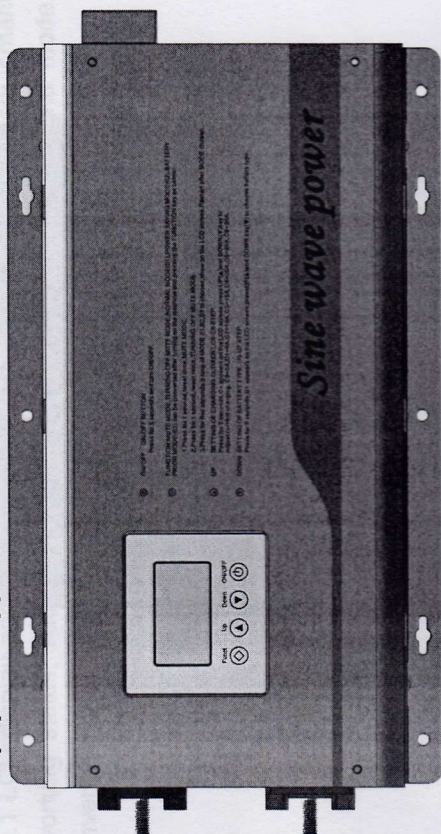
- 1.1 Open the package, inspect product accessories,including:1 host,1piece user manual
- 1.2Inspect whether the machine have been damaged during the transport or not,If it have some damage,don't start the machine, contact the logistics company and dealer.

(2) Installation、Storage Notes

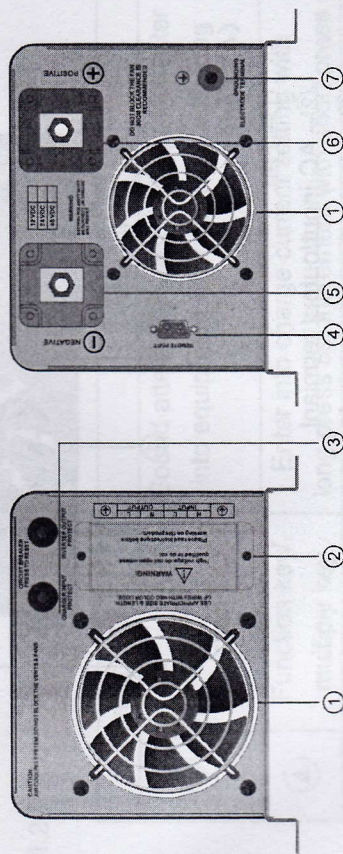
- 2.1 The product installation should be operated by professionals , or assisted by dealer.
- 2.2 If it needs to transport machine,please take proper protection measures; move the machine from low temperature environment to high temperature environment, may appear droplet, please keep it dry and ensure safety.
- 2.3Don't let the machine exposure in damp, inflammable and explosive or large accumulation of dust environment. Don't cover and block vents, please preset above 10cm air circulation clearance so that having a good cooling.
- 2.4 It is battery switch must be shut down when the equipment is not connected with the grid and not being used

3Equipment appearance graphical representation guide

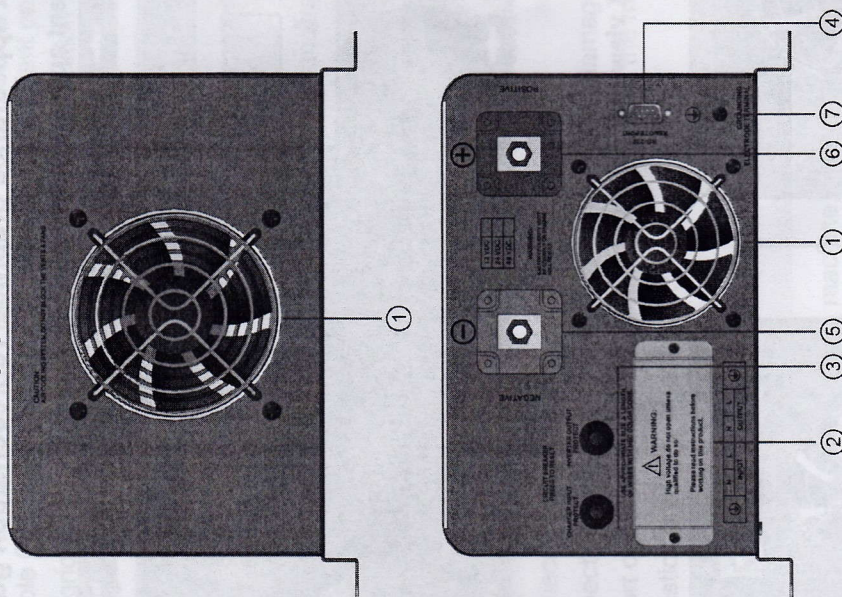
(1) Equipment appearance view



(2) 1K/2K/3K view of equipment appearance



(3) 4K/5K/6K view of equipment appearance



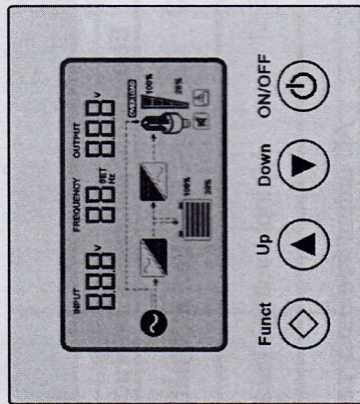
(4) Guide

- ①-- Fan
- ②-- AC input/output terminal
- ③--AC input/outputfuse holder
- ④--RS232 communication interface(optional function)
- ⑤--Battery terminal negative input terminal
- ⑥-- Battery terminal positive terminal
- ⑦-- Earth terminal

4Operating instructions

(1) Panel LCD display graphical representation instruction

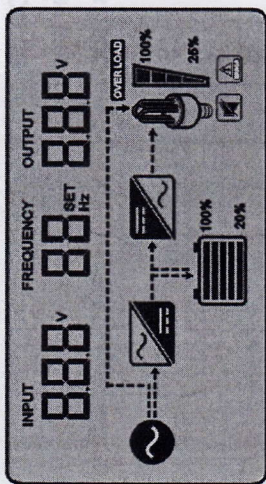
1.1 LCD display and function keys interface can display the equipment working status, such as: input/output voltage, frequency, grid mode, inverter mode, battery capacity, load capacity, alarm warning etc.



1.2 Instruction of keys

Function keys		Instruction
	Mute/ function key	Sound attenuation with short press; enter into equipment working mode with long press
	Function key/ multiply key	Enter into charge current setting with long press 5s; increment with short press
	Function key / Reducing key	Enter into battery mode setting with long press 5s; decrement with short press
	ON/OFF	Single bond ON/OFF control

1.3 LCD display instruction



Equipment parameter instruction	
LCD display	Function instruction
INPUT 888 V	AC input voltage parameter
FREQUENCY 88 Hz	AC output frequency parameter
OUTPUT 888 V	AC output voltage parameter
Equipment working mode selection	
88 SET	Grid priority mode
	Battery priority mode
	03 SET

Load icon instruction	
LCD display	Function instruction
Output overload reminder	
OVERLOAD 100% 25%	0%~25%
	25%~50%
100% 25%	50%~75%
	75%~100%
100% 25%	100%
	25%

Battery icon instruction		
LCD display	Status	Battery voltage values/12V; *A (pcs)
	Twinkle	<11.1V; *A
	Lighten	11.1~11.6V; *A
	Lighten	11.6~11.8V; *A
	Lighten	11.8~12.2V; *A
	Lighten	12.2~12.5V; *A
	Lighten	>12.5V; *A

Working mode icon instruction	
LCD display	Function instruction
	Grid input icon
	AC-DC icon
	DC-AC icon
Buzzing icon instruction	
	Lighten
	dark
Prohibit buzzer tweet	
Start buzzer tweet	
Fault/abnormal icon instruction	
	Fault/Abnormal reminder

(2) Panel key/LCD setting instruction

▲	Function key	Long press for 5s, LCD panel 88^{SET} will display relative charge current regulation C+, press ▲ increase charge current, press ▼ decrease charge current							
		C0	C1	C2	C3	C4	C5	C6	
		0A	5A	10A	15A	20A	25A	30A	
▼	Function key	Long press for 5s, LCD panel 88^{SET} will display charge voltage regulation U+, press ▲ increase charge voltage from U0 to U7, press ▼ decrease charge voltage from U7 to U0;							
		U0	Gel U.S.A				13.7V		
		U1	A.G.M.1				13.4V		
		U2	A.G.M.2				13.7V		
		U3	Sealed lead Acid				13.6V		
		U4	Gel European				13.8V		
		U5	Open lead acid				13.8V		
		U6	Calcium(open)				13.6V		
⏻	ON/OFF key	U7	De sulphation cycle 15.5 for 4 hrs						
		Starting up	Long press for 2s, buzzing 1 time, equipment start output						
		Power off	Long press for 2s, Long press for 2s, after internal relay energized, the equipment power off output						

Error code and solution		
Error code	Faulty	Solution
E01	Overcurrent of MOSFETS board	Kindly contact sales if still having this issue after restarting
E02	Output short circuit	Check whether it's overloaded seriously or shortcircuit inside appliances loaded
E03	Appliance Overloaded	Check whether it's overloaded, and remove some loads not important
E04	Inner Over-temperature	Check whether fan is working well or the air dust for cooling be blocked
E05	Overvoltage of battery	Check whether battery connection and configuration correct
E06	Undervoltage of battery	Make sure battery be fully charged, or replace new battery
E07	Reverse connected cables between transformer with heatsink on power board	Fix the two cables after they are interchanged
E08	Start Protection when low output voltage	Kindly contact sales if still having this issue after restarting

Function key	Operating instructions
Mute key	Long press for 1 second, buzzing 1 time, start mute state; Long press for 1 second again, buzzing 2 times, close mute stage;
Function key	Long press for 5s, 01,03 mode can be recurrent selection, it will take effect after restarting:
	Grid priority mode
	Battery priority mode
	 

(3) Working mode instruction

Icon	Working mode	Running state
	The grid preferred mode	After starting the inverter and the electricity input working well, inverter supply power to loads via the grid bypass regulated, and charge battery. When the grid happened abnormal such as overvoltage, low-voltage, massive distortion etc, inverter can supply high quality power via inner modules to loads
	Battery preferred mode	With the grid working well and battery be charged fully, the grid works standby, inverter supply power from battery to loads. When battery power drops too low to supply power, inverter supply power to loads via the grid bypass regulated but not charge battery. This mode is designed for new energy power system such as wind or solar power system.

(4) Audible alarm reminder instruction

Equipment running normal	Buzzing prohibit	Buzzer is no tweet under default state
	Buzzer starts	Buzzer tweet 4 times every 15s, indicate the equipment operated under battery inverter state
Battery high voltage alarm	Buzzer tweets 4 times per second, voltage	Buzzer tweets 4 times per second, alarms high
Battery low voltage alarm	Buzzer tweets 2 times per second, voltage	Buzzer tweets 2 times per second, alarms low
Overtemperature alarm	Buzzer alarm 2 seconds pause 1 second	

(5) Electric generator connection announcements

If connect electric generator, it needs operating as below:

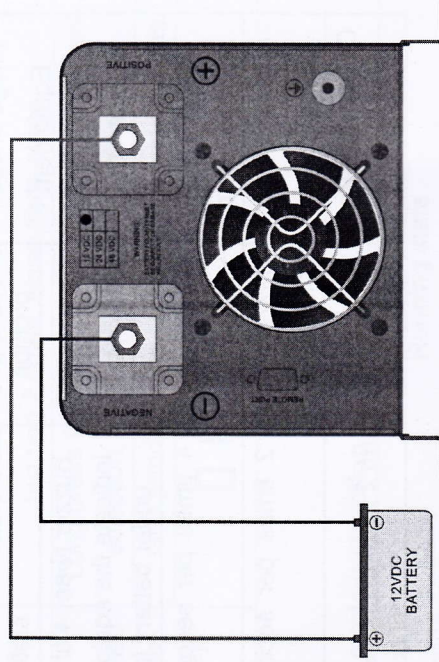
5.1 Start up electric generator and after it running stable, make electric generator output power supply be connected into the equipment input terminal, then make sure the equipment output is no-load, then start up the equipment.

5.2 After the equipment starting, then connect load one by one

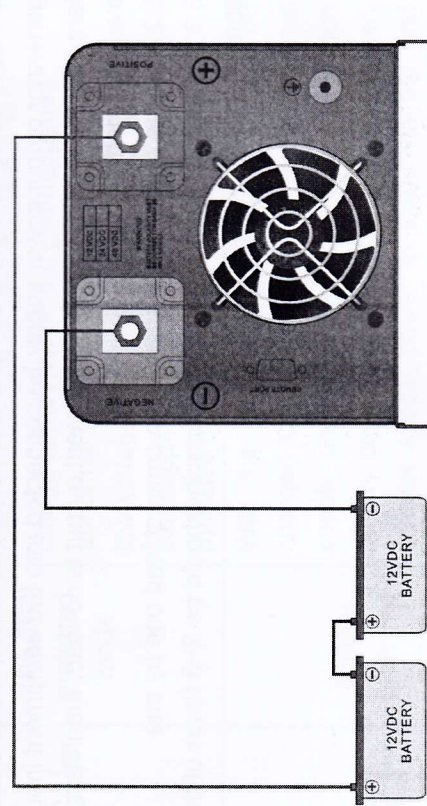
5.3 We suggest electric generator capacity should be 2~3 times of this equipment

5 Equipment wiring diagram

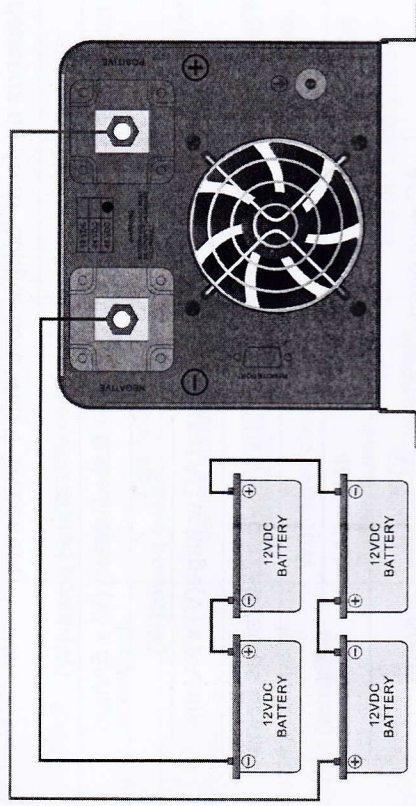
(1) 12VDC series battery wiring graphical representation



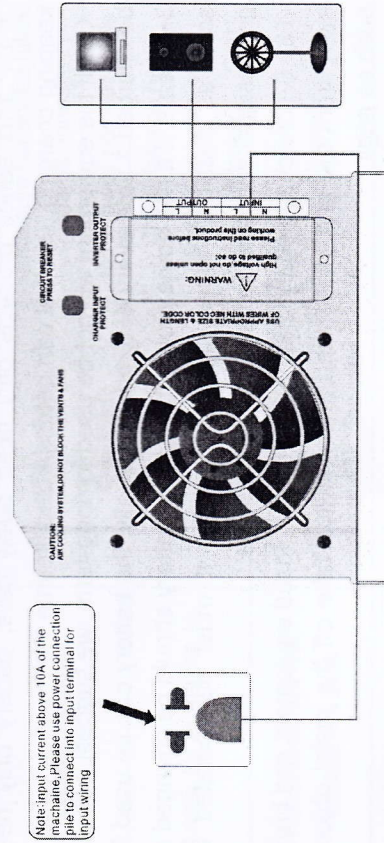
(2) 24VDC series battery wiring diagram



(3) 48VDC series battery wiring diagram (It is 8 pieces 12VDC battery connected in series of 96VDC series battery connection)



(4) Input/Output wiring diagram



(5) Direction for using of wire diameter

Direction for using of battery, AC input/output wire diameter: (Compute depends on 1mm² copper core with 4-5A current)

Battery wire diameter = $\frac{\text{Rated power(W)}}{\text{Rated battery(V)} \times 5\text{A/mm}^2}$
AC wire diameter = $\frac{\text{Rated power(W)}}{\text{Rated AC voltage(V)} \times 5\text{A/mm}^2}$

For example: Wire diameter of 5000W/48Vdc/220Vac as below:

Battery wire diameter = $\frac{5000\text{W}}{48\text{V} \times 5\text{A/mm}^2} \approx 20(\text{mm}^2)$
AC wire diameter = $\frac{5000\text{W}}{220\text{V} \times 5\text{A/mm}^2} \approx 6(\text{mm}^2)$

6Care and Maintenance

- (1) This series products only need rarely care, battery only need keeping charging so that can get expected lifetime.
- (2) If the equipment will not be used for long-term, we suggest it should be charged 1 time every 4~6 month. Usually, the battery can be used for 3~5 years, if it has some problem, then the battery should be changed as soon as possible. When changing battery, it must be operated by professional and obey battery supplier indicate.
- (3) Before changing the battery, it must be closed equipment and break away from the grid, close the battery switch. Take off the metal objects such as rings.
- (4) Connect the battery line, tiny spark in joint belongs to the normal phenomenon, and will not cause harm to the personal safety and equipment. Never connect the battery positive and negative into short or the reverse.

7Judgment and treatment for simple faults

Warning :High voltage inside the device! Do not open it by yourself, or try to do maintenance, so as not to be in danger!

Fault	Possible causes	solution
The grid occasional	Strong out of restoration fuse holder	Press again the strong out part
Time degradation of Machine with loads	Battery undercharge	Make sure battery be full of charging normally
	Machine connect load overcharge	Move away non-key loads
	Battery burn-in and can't charge enough power	Please contact with CSR and get battery need changing module
The machine can't be started	The grid input line or battery input line is in bad connect	Check and reconnection
Starting up alarm	Low battery	Make sure battery be full of charge normally
	Overload	Move away non-key loads
Buzzer for 2s, pause 1s	Internal over-temperature	Check fan and hear dissipation whether be blocked
Fan sometimes fast, sometimes slow	Internal temperature above 45℃ fan fast, below 42℃ fan slow	Normal

When you contact with engineers, please provide the following information: machine model/problem date/complete description of the problem(including indicator status, battery specification, all of the connection etc.)

8 Technology Parameter

Type: FT-	1KW	2KW	3KW	4KW	5KW	6KW
Rated power	1000W	2000W	3000W	4000W	5000W	6000W
Rated voltage	12VD/24VDC /48VDC	12VDC/24VDC /48VDC	24VDC/48VDC /96VDC			
Charge current	30A (default) -C0-C6can be set					
Battery type	U0-U7 can be set					
Voltage range	85-138VAC/170-275VAC					
Frequency	45-65Hz					
Voltage range	110VAC/220VAC; $\pm 5\%$ (Inverter mode)					
Frequency	50/60Hz $\pm 1\%$ (Inverter mode)					
Output wave	Pure sine wave					
Switching time	<10ms(typical load)					
Efficiency	>85% (80% Resistance load)					
Overload	110-120%/30S; > 160%/300ms;					
Protection	Battery overvoltage/lowvoltage, overload, short circuit protection, overtemperature protection, etc.					
Operating ambient temperature	0-40℃					
Storage ambient temperature	-15 - +50℃					
Operating/Storage ambient	0-90%No condensation					
Machine Size: L*W*H (mm)	486*247*179		555*307*189			
Package size: L*W*H (mm)	550*310*230		640*370*240			
Net weight/Gross weight(Kg)	11/13	14/16	16/18	23/27	26/30	30/34

Note: Our company has the right of changing this user manual without any information