SPECIAL NOTES FOR CHILDREN

⊘ NEVER allow children to use the inverter

⊘ NEVER install the unit where it is accessible to children.Keep the unit away from children.

ⓘ Accessories may cause harm to children, please place all accessories in places that are not easily accessible to children.

2. DC Side Connection Requirements

WARNING

ⓘ The VOLFVERT pure sine wave inverters are suitable for 12V battery bank systems only. not following the minimum DC requirement will cause irreversible damage to the unit.

CAUTION

ⓘ Be careful of the positive and negative poles. Reversing the poles might cause permanent damage to the inverter. It will surely blow the internal fuse.

NOTE

ⓘ The input terminals of the inverters have large capacitors connected to them. Once a positive and negative wire are connected to the terminals, it will complete the circuit, and commence drawing a heavy current momentarily. As a result, there may be a sparking occurring even if the inverter is in the off position. To minimize sparking, it is recommended that the user have the appropriate size wire feeding into the inverters and/or install an external fuse leading into the inverter.

SECURE CONNECTION OF THE INVERTER

a. NEGATIVE: Connect one side of the provided Negative(BLACK) DC cable to the Negative(-) bolt of the inverter,and the other side to the Negative(-)post of the battery.

b. POSITIVE: Connect one side of the provided Positive(RED) DC cable to the Positive(+)bolt of the inverter, and the other side to the Positive(+)post of the battery.

c. The nuts of the connection posts must be tightened to ensure a good connection.

d. SWITCH BUTTON: Please note that the switch has 3 gears. From top to bottom are on, off, and remote.

e. The inverter will shutdown automatically if connection reversed.Irreversible damage to the machine cannot be excluded which will affect your warranty.

3. Battery Bank Requirements

ⓘ The battery is for supplying DC input voltage to the inverter. Its rated voltage should be the same as the rated input voltage of the VOLFVERT inverter. Any voltage that exceeds the input voltage range of the inverter will cause the inverter to be overloaded and may damage the inverter.

ⓘ The battery ought to supply enough current for the load. (The load is the amperage or wattage rating of the equipment being powered by the inverter.) A small capacity battery cannot supply enough power for large electrical equipment and it will cause the inverter to be under-voltage.

SIMPLE METHOD

For determining the required battery capacity size is shown below for reference:

1. Determine the Watts (Amps * Volts) of the load
   (Each appliance has technical specifications indicating the wattage or voltage and amperage required for operation.)

2. Utilize the formula Amps=Watts/ Volts

3. Inverter consumption=Amps*10%
   (Due to inverter efficiency 90%,the recommended estimate for the calculation is 10%)

4. Estimated load runtime
   (The capacity of the battery depends on the load wattage and runtime. Most loads are not constant, so estimation is essential.)

5. Determine Ah(Ampere-Hour) of the battery

Example: Using 12VDC battery to run a 1200Watts hotplate for 2 hours needs at least 220Ah battery. (10%Inverter consumption)

The calculations are as follows:

Utilize the formula Amps=Watts/ Volts	1200 Watts / 12 Volts = 100 Amps
Inverter consumption	100 Amps × 10%=10Amps
Load runtime = 2 hours	(100 Amps+10) × 2 hours = 220 Ah

Conclusion: At least a 220 Ah battery must be selected in order to use the 1200 watts hotplate at 2 hours a day. However, determining the capacity of the battery is also dependent on the battery that is able to handle repeated discharge/charge cycles.

*This is just an example. Actual quantities vary by battery capacity and rates.

*Running wattage may fluctuate.To power the hotplate in the example, must use an inverter of at least 1500 watts.

4. Grounding Requirements

① The VOLFVERT Pure Sine Wave inverters come equipped with a ground terminal to appropriately ground to earth or to another designated ground.
(for example, a metal frame of an RV).

① The connections to ground must be tight and against bare metal. Whether using the inverter in a mobile application, such as an RV, or in a building, grounding is highly recommended.

RECOMMENDATION

The recommended wire size for grounding is 14AWG or larger insulated copper strand wire. For more information regarding grounding, users and/or installers must consult with the Local and National Electric Codes (NEC) for more specific grounding regulations and suggestions as they can change per scenario.

Operation Safety

Assuming proper battery connection, the inverter is now ready for use.

1. AC Side Operation

a. Connect electronic devices to electrical socket(s) on inverter. Flip inverter power to ON position (on AC side)

b. When finished, switch AC devices off FIRST, then turn off inverter switch

CAUTION

① Make sure that the switches of the inverter and appliance power are in OFF position before connection.

① When switching off the Inverter, turn off the electronic devices first. Although the Inverter Is off, the capacitors will still have a charge, so the DC and AC terminals must be disconnected If altering the circuitry.

c. Connection of heavy duty
For the appliances with a load more than the limit of AC outlet ,please connect to the Hard Terminals Blocks, make sure the ground terminal of inverter connected with ground terminal of appliance.

Use Safety

- Do not operate the inverter if under the influence of alcohol or drugs. Read warning labels on prescriptions to determine if your judgement or reflexes are impaired while taking drugs. If there is any doubt, do not operate the inverter.

- People with pacemakers should consult their physician(s) before using this product. Electromagnetic fields in close proximity to a pacemaker could cause interference to or failure of the pacemaker.

- Avoid unintentional starting. Be sure the switch is in the OFF position when not in use and before plugging in any appliance.

- The power inverter will output the same AC power as utility power, please treat the AC outlets as carefully as you would treat an AC outlets at home. Do not put anything besides the appliance into the output terminals. It may cause electric shock or fire.Do not put anything besides the electrical appliance into the output terminal. It may cause electric shock or fire.

FCC Warning

- This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-- Reorient or relocate the receiving antenna.

-- Increase the separation between the equipment and receiver.

-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-- Consult the dealer or an experienced radio/TV technician for help.

The device has been evaluated to meet general RF exposure requirement. The device can be u sed in portable exposure condition without restriction

PROTECTION DESCRIPTION

a. Input under-voltage alarm: When the input DC voltage is lower than 9.8V (19.6V), the buzzer will whistle intermittently to remind that the inverter will go into the under voltage protection.

b. Under voltage protection: The inverter will automatically shut down when the input DC voltage is lower than 9.5V(19V). The buzzer will whistle continuously and the green light is off, red light is on. Please turn off the inverter and use it after recharging the battery.

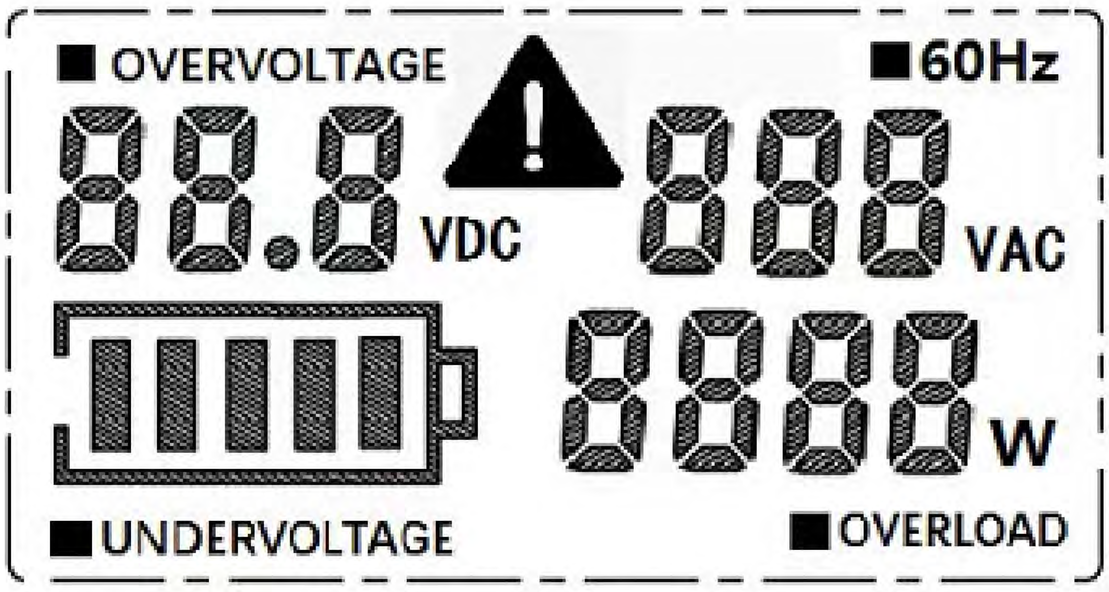
c. Over voltage protection: The inverter will automatically shut down when the input DC voltage is higher than 16V(32V). The buzzer will whistle continuously and the green light is off, red light is on. Please turn off the inverter and adjust the input voltage to the admissible range.

d. Overload protection: The inverter will automatically shut down when the load is higher than the rated power. The buzzer will whistle continuously. Turn off the inverter and resume to normal operation after taking away the excessive load.

e. Short-circuit protection: The AC output will be automatically shut down when short circuited. It will automatically reset after the problem is solved.

f. Thermal protection: The unit will get hot during operation. If the temperature is higher than 149ºF, the inverter will automatically shut down. Then the buzzer will whistle continuously and the green light is off, red light is on. Please turn off the inverter, and continue using it after the temperature goes back to normal naturally. Meanwhile find out the factors causing the fault, such as ventilation, ambient temperature, vent, load power etc. It can avoid similar things from happening again.

■ LCD Display



Once the inverter is on protection mode, the following codes will shown:

a. UNDERVOLTAGE: Under-voltage Protection

b. OVERVOLTAGE: Over-voltage Protection

c. OVERLOAD: Over-load or Short-circuit Protection

TROUBLESHOOTING TIPS

Problem	Potential Issue	Proper Solution
No output voltage with buzzer sounds continuously	Under-voltage	• Charge or replace the battery. • Try to restart the inverter several times due to under-voltage caused by excessive transient current.
	Over-voltage	• Do not start the inverter while the battery is charging. • Check the rated voltage of the battery with RMS meter to ensure it is match with the inverter parameters.
	Overload	Reduce the load on the inverter.
	Overheat	• Avoid blocking the cooling fan and check for Sufficient ventilation. • Allow the inverter to cool to normal temperature then restart it. •Reduce the load.
Not output voltage nor sounds.	1.The switch is off 2.Poor cable connection	1. Confirm the switch is on. 2. Inspect terminals and tighten all cables
Unable to run equipment	1.Overload,or the actual running power of the equipment exceeds nominal power. 2.Higher starting power than rated peak power of the equipment (especially with motor). 3. Low battery level or poor battery condition.	1. Reduce the load,or replace a larger power inverter. 2. Turn on the equipment first,then the power inverter. 3. Ensure the battery was charged or replace a good condition one.

SPECIFICATIONS

Model	VF- 3000 Watts	VF- 4000 Watts
Rated Input Voltage	12VDC	12VDC
Continuous Power	3000W	4000W
Peak Power	6000W	8000W
Input Voltage Range	9.5-16VDC	9.5-16VDC
Over Voltage Shutdown	16VDC	16VDC
Low Voltage Shutdown	9.5VDC	9.5VDC
Low Voltage Alarm	10VDC	10VDC
No Load Current	2A	3A
Over Load Protection	3200W	4200W
Output Voltage	☐110V / ☐120V AC±10%(Refer to label)	
Frequency	☐60Hz ±1Hz	
Wave Form	Pure Sine Wave	
Efficiency	≥ 90%	
Over Heat Protection	149℉±8℉	
Short Circuit Protection	Yes	
Display	LCD	
USB	5VDC, 0-2.4A × 2 MAX 3.4A	
Type-C	Max 18W (5V / 3.1A , 7V / 2.4A, 9V / 2A, 12V / 1.5A)	
Cooling Fan	Thermal controlled cooling fan. It works only when the inverter housing temperature reaches 104°F.	
Operating Temperature (Automatic Recovery/ Shutdown)	32-113℉	
Storage Temperature	14-113℉	

VOLFVERT reserved the right to change the contents of this manual without notice.