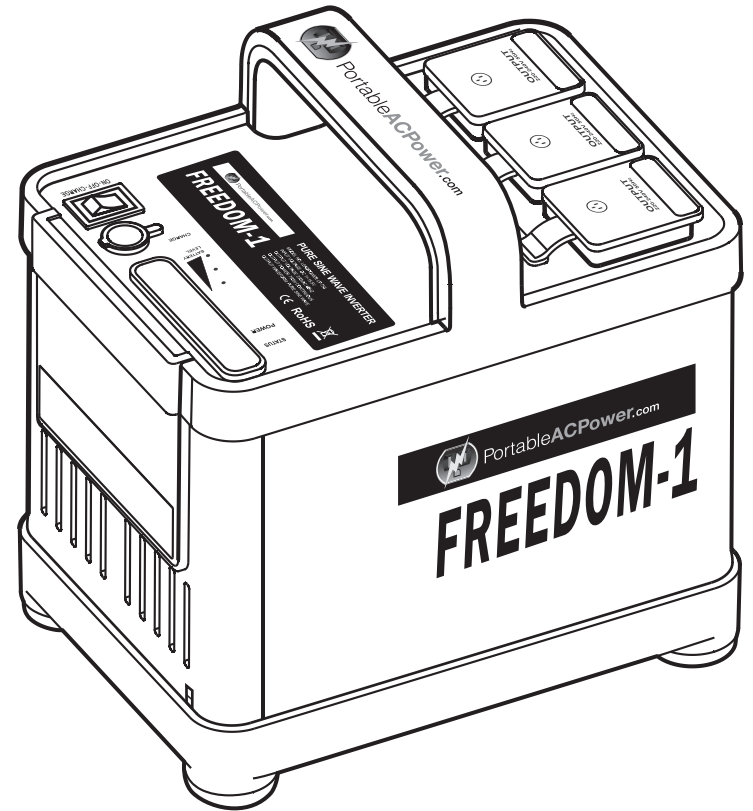


Portable**ACPower**.com

Instruction Manual



FREEDOM-1



Portable Power Solution

CONTENTS

Foreword

Thanks for choosing the Freedom-1 power solution from PortableACPower.com

Featuring a lightweight and powerful design, combined with interchangeable batteries, the Freedom-1 is the ideal solution for your location power needs.

The Freedom-1's "equipment friendly" pure sine wave circuitry and special heavy-duty (HD Mode) operating mode is designed to power precision electronic equipment. Please read the instructions prior to use to ensure proper operation and excellent performance.

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I. Safety Instructions

WARNING!

- ⚠ Make sure to use the correct model, e.g., Use the 110 Volt model for 110 Volt devices
- ⚠ Be careful of electric shock from the high-voltage AC output
- ⚠ In case that an external battery (e.g., car) is used, the built-in battery must be removed first; otherwise, the power supply may be damaged
- ⚠ Open the air vents on the soft case prior to use. Failure to do so will cause the unit to overheat

Please read the following safety precautions prior to installing or using the Freedom-1 power supply so as to avoid any damage or personal injury.

1. Safety Precautions

- Rated power is 750W. Do not connect the Inverter with any equipment with the rated power of over 750W.
- The power supply shall be used in a dry and dustless environment. Do not expose it to water, fog, rain, snow or dust.
- To avoid fire or electric shock, please ensure that the equipment to be powered is in a good condition.
- Some components of the power supply may cause a spark. Therefore, to avoid any fire or explosion, do not place flammable materials near it, nor store or use it in a place with any flammable gas.
- Do not cover or block the vents. Please ensure the power supply is no less than 12 in.(30cm) away from other articles. Do not place it in a gapless space, because overheating may cause some fault.
- The battery of Inverter is NI-MH battery, so it is recommended that it should be used under the temperature range of 0℃- 40℃; otherwise, it may be decayed or become inoperative under other temperatures.
- Please close the socket cover for the unused AC socket.
- The equipment shall be maintained by the authorized repair station.

2. Safe Battery Usage

- The battery is a high-quality NI-MH battery featuring high capacity and rapid discharge. Do not cross the anode and cathode with any metal objects, otherwise, electric shock or explosion may occur. Do not place any metal objects near the battery.
- In case that the skin or clothes comes in contact with battery acid, please wash it with soap and water immediately. In case of eye contact, please wash the eye with cold water right now; then get medical attention.

II. Product Introduction

1. Characteristics

- 1.1 With its leading technology, the Freedom-1 is designed to meet professional demands and power precision electronics including computers and pro photographic equipment.
- 1.2 Two operating modes: Normal and Heavy-Duty (HD). The HD mode is intended for equipment that has high power in-rush requirements like 200 watt HMI lights and studio strobe lights
- 1.3 Interchangeable battery packs for extended usage
- 1.4 The charger is capable of charging the battery both inside or outside the unit
- 1.5 The external power interface can be connected to a car battery for even longer usage
- 1.6 Fuel Gauge: Three LED lamps indicate the remaining battery life
- 1.7 The tricolor LED lamp indicates the output power
- 1.8 Features pure sine wave power output in 2 models: 230V/50HZ or 110V/60HZ
- 1.9 Continuous power output up to 750W
- 1.10 Built-in self-adjustable cooling fan
- 1.11 High-end microelectronics processing system

2. Automatic Protection

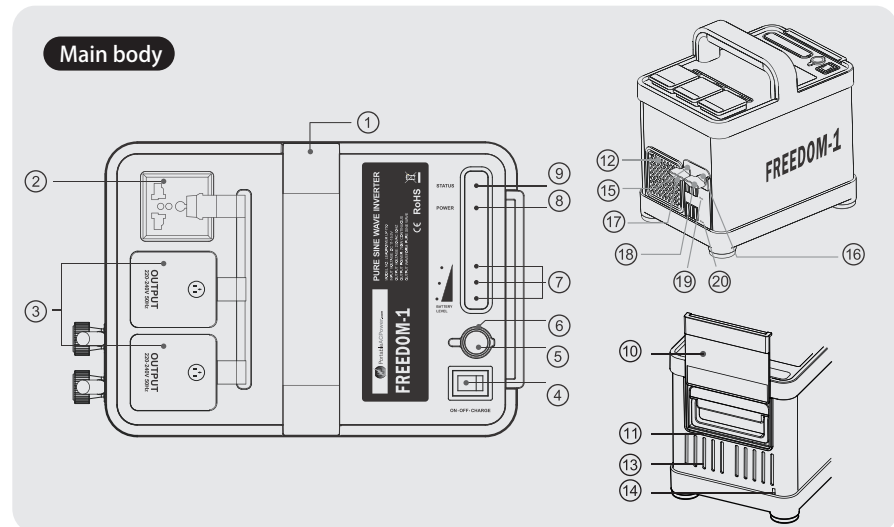
- 2.1 Low-voltage input protection
- 2.2 Overload protection
- 2.3 Short-circuit protection
- 2.4 Low-electric energy prompt
- 2.5 High-voltage input protection
- 2.6 Overheating protection
- 2.7 Positive and negative connection protection of power supply

3. Applicable Scope

- Lighting: Litepanels [1x1, Sola, Inca, Hilio]; K5600 [Joker 200]; Kinoflo [up to 750w]; Studio flash packs
- Video: monitors, cameras, digital recorders, RF and audio equipment, etc.;
- Equipment: Computers, network servers, printers, fax machines, scanners, etc.;
- Tools: Electric saws, electric drills, grinders, sanders, etc.;
- Any other equipment with the rated power of less than 750W.

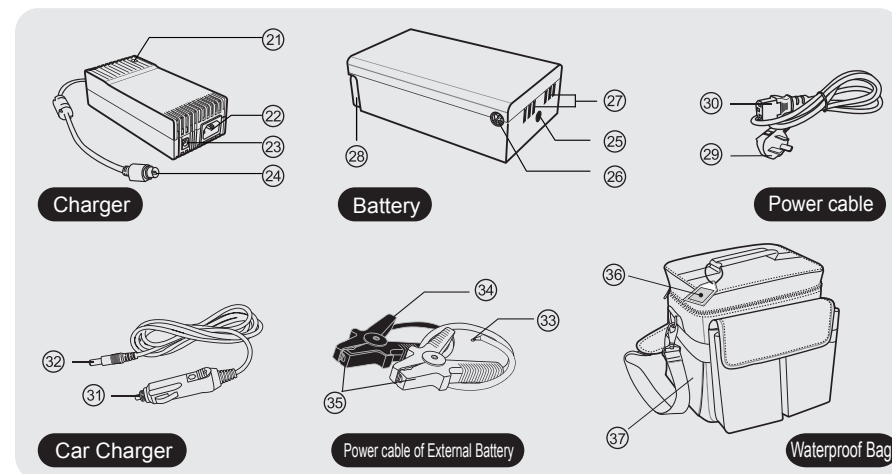
III. Directions for Use

1.Component Names



• Main body

- (1) Handle
- (2) AC Output Socket (100V/60HZ or 220V/50HZ)
- (3) Socket Cover
- (4) Power Switch
 - Off (Power off)
 - On (Power on)
 - Charge (Charging)
- (5) Charging Port
- (6) Charging Port Cover
- (7) Battery Level (displaying the electric quantity of battery)
- (8) Power (displaying output power)
- (9) Status (working condition)
- (10) Battery Cover
- (11) Battery Port
- (12) Air Inlet of Cooling Fan
- (13) Heat Sink
- (14) Mode Switch
 - HD (heavy duty mode)
 - Normal (normal mode)
- (15) Anode Input Connecting Base of External Battery
- (16) Cathode Input Connecting Base of External Battery
- (17) Anode Bolt of External Battery (grey)
- (18) Cathode Bolt of External Battery (black)
- (19) Fuse for External Connection
- (20) Fuse for Battery



• Charger

- (21) Charging Indicator Light
- (22) AC Input Socket
- (23) DC Input Socket
- (24) Charging Connecting Circuit

• Power Cable

- (29) AC Input Plug
- (30) AC Output Plug

• External Battery Cable (optional)

- (33) Anode Output Connecting Sheet
- (34) Cathode Output Connecting Sheet
- (35) DC Input Clamp

• Car Charger

- (31) DC Input Plug
- (32) DC Output Plug

• Waterproof Bag

- (36) Warning Label
- (37) Air Vents (both sides)

2. Function Description

2.1 Indicator Light

(1) Battery Level ⑦ (displaying the electric quantity of battery)

Voltage	Battery Level LED1	Battery Level LED2	Battery Level LED3
10 V~12.6 V	ON	OFF	OFF
12.6 V~13.2 V	ON	ON	OFF
13.2 V~15 V	ON	ON	ON

- In the mode of standby, in case that only one LED is lit, please charge immediately!
- In loaded operation, the voltage of battery is reduced, and LED changes correspondingly; the higher load power is, the more obviously LED changes.
- In loaded operation, in case that the indicator light "Power⑧" (displaying output power) flickers continuously and the buzzing occurs for over 5s, then the equipment is locked automatically, which indicates that the existing electric quantity of battery is too low cannot afford the load, so please use only after recharging.

IV. Operating Instructions

(2) Power ⑧ (displaying output power)

Power LED	Output Power
Off	0~35W
Green	35W~230W
Yellowgreen	230W~520W
Red	520W~670W
Red, flickering	>670W

(3) Status ⑨ (working condition)

Status LED	Working Condition
Red	No
Green	Yes

2.2 Mode Switch ⑭

FREEDOM-1 Inverter is equipped with two operating modes including "Normal" (normal mode) and "HD" (heavy duty mode). Users can choose from one of the working modes according to their needs. The HD mode is specially designed for high current in-rush equipment including 200 watt HMI's and studio strobe photographic equipment. The HD mode allows for a broader range of electrical appliances to be used; however, no "battery-extending" power-idle mode is provided in the HD mode; accordingly, it is recommended that all standard [non high in-rush] equipment be powered in the "Normal" (normal mode) for maximum usage time.

As for detailed data, see "VI. Operating Modes".

2.3 Power Switch ④

"OFF" refers to power off;

"ON" refers to power on; at the moment, the equipment can be used;

"CHARGE" refers to charging state, at the moment, the Inverter cannot be used. The battery may be placed in the "Battery Port ⑪" and then directly connect the "Charging Port" ⑤ on the Inverter with the charger to charge it.

2.4 Charging Port ⑤

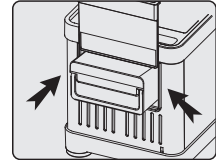
"CHARGE" refers to charging hole. The plug of charger may be inserted into the port to directly charge the battery.

2.5 AC Output Sockets ②

- Three AC output sockets are provided, with a combined total output of 750W.
- The socket is universal and applicable for all the countries and regions. A conversion plug isn't necessary.
- AC output standard voltage includes 230V 50HZ or 120V 60HZ. If additional requirements are from some special voltage, please inform our relevant personnel prior to purchase.

1. Battery Installation and Charging

- Opening the "Battery Cover ⑩", insert the battery into the "Battery Port ⑪" as shown in the figure, then close the battery cover.
- In case that "Battery Level ⑦" (displaying the electric quantity of battery) displays lower electric quantity, a charger is required to charge it. At most 6 hours is needed to charge it fully.



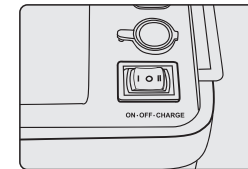
1.1 Charging Source

- (1) 100V-240V AC charging; (2) DC (12V) charging, e.g. car charger.

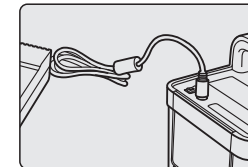
1.2 Charging Mode

Users can connect the external case of battery with a charger to charge it according to the actual demand, or place it in the case body to charge.

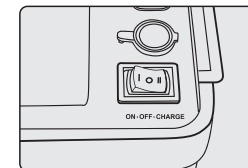
(1) Built-in Battery Charging (as shown in the figure)



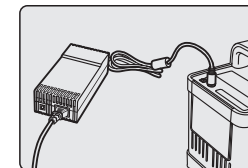
1. Move the button "Power Switch ④" of FREEDOM-1 Inverter to "OFF" (power off);



2. Insert the one end "Charging Connecting Cable ②④" of charger into "Charging Hole ⑤" of the Inverter;

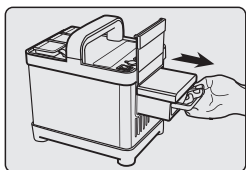


3. Move the button "Power Switch ④" of the Inverter to "Charge" (charging);

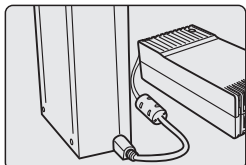


4. Connect "AC Output Plug ③⑩" of power cable with the "AC Input Socket ②②", and connect the other end "AC Input Plug ②⑨" with any AC power supply to charge.

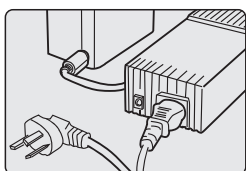
(2) External Battery Charging (as shown in the figure)



1. Take out the built-in battery;



2. Insert the "Charging Connecting Cable ②②" of charger into "External Charging Hole ②④" of battery;

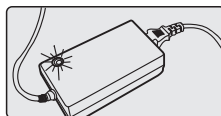


3. Connect "AC Output Plug ③①" of power cable with the "AC Input Socket ②②", and connect the other end "AC Input Plug ②⑨" with any AC power supply to charge.

Note: The battery is suitable for charging 100-240V AC power supply; however, in different countries, the sizes of their power socket varies, therefore, a standard conversion plug may be required.

1.3 LED Lamps of the Charger

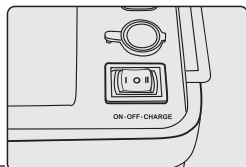
- (1) The red lamp is flickering: No charging;
- (2) The red lamp is lit continuously: In charging;
- (3) The green lamp is lit: Completed charging.



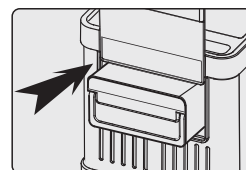
Note: If the battery has been spent, about 6 hours is needed to charge it fully. After charging, please pull out the charging connecting cable. To ensure the expected service life of battery, please charge it fully in the following special cases:

- After each use;
- After nonuse beyond 10 days.

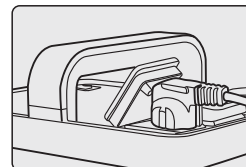
2. Connecting FREEDOM-1



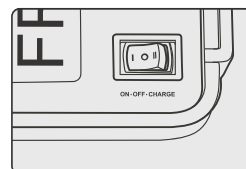
1. Move the button "Power Switch ④" to "OFF" (power off);



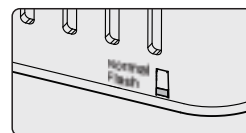
2. Install the battery in the "Battery Port ①①" of the Inverter, and then close the "Battery Cover ①⑩".



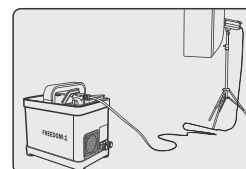
3. Insert the load into the "AC Output Socket ②"



4. Move the button "Power Switch ④" to "ON" (power on);



5. Move the "Mode Switch ①④" to "HD" (heavy duty mode) or "Normal" (normal mode). Use the HD mode only for high current in-rush devices.



6. Turn on the device being powered.

Note:

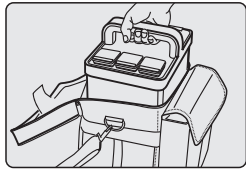
- It is recommended that the modeling light should be closed while using it in a flash, because the modeling light may use up the electric energy in the battery of Inverter in short time.
- Move the button "Power Switch ④" of power supply to "ON" (power on); at the moment, the buzzer gives out buzzing, which indicates the Inverter will perform internal detection automatically, and LED indicator lights will display different colors. Finally, the buzzer gives out another buzzing, and the indicator light "Status" (working condition) is green, which indicates the Inverter begins to work normally.
- In case of outdoor usage, the Inverter can be placed in a waterproof bag to avoid any dust, sand and water. At the moment, users can open the "air vents ③⑦" on both sides of waterproof bag to hang it at the braces, avoiding blocking and sealing "Air Inlet of Cooling Fan ①⑫".

V. Connecting Car Battery or Other External Batteries

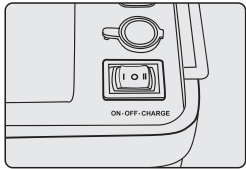
1. Connecting an External Battery

In case that an external battery is used, **you MUST first remove the built-in battery (F1 Power Module)** of the Inverter, and then connect the External Battery Cables to the car battery. In case that an external battery is used, generally, the capacity of an external battery is larger, so the Inverter can work longer than using the built-in F1 Power Module. You can purchase external batteries with different capacities according to your needs. A typical car battery can power a 50 watt device for 20 hours.

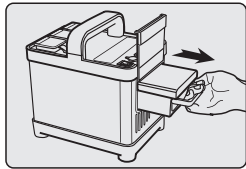
Illustration for external battery charging



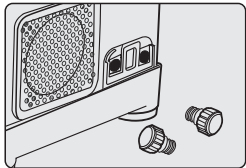
1. Take the FREEDOM-1 Inverter out of the waterproof bag.



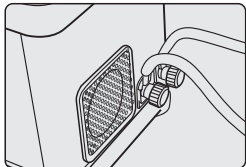
2. Reconfirm the Inverter is in the shutdown mode.



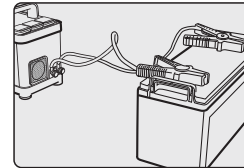
3. Remove the built-in battery of Inverter.



4. Remove the "Bolts ⑱" at the anode and cathode interfaces of the battery.



5. * Fasten the "Anode Output Connecting Sheet ③③" at the terminal interface of external DC power cable to the "Anode Input Hole of External Battery ⑮" with the "Anode Bolt ⑰".
* Fasten the "Cathode Output Connecting Sheet ③④" at the terminal interface of external DC power cable to "Cathode Input Hole of External Battery ⑯" with the "Cathode Bolt ⑱".



6. * Connect the one end "DC Input Clamp ③⑤" of external DC power cable with an external battery (as shown in the figure)
In case that the above connection is correct, move the "Power Switch ④" of Inverter to "ON" to operate.

2. External Power Cables

2.1 Purchase the connecting cables (visit www.PortableACPower.com)

Warning!

- ⚠ Please ensure the anode and cathode of external battery aren't reversed; otherwise, the fuse of inverter may be burned and the inverter damaged irreversibly. Reversing the anode and cathode voids the warranty.
- ⚠ In case that an external battery is connected, please ensure that the positive and negative do not come into contact with each other; otherwise, dangerous high-voltage spark may be caused.
- ⚠ Do not operate around any flammable and explosive gas/liquids.
- ⚠ In case of an external battery is used, the built-in battery shall be removed first.

Note:

- In case that the Inverter is connected with a car storage battery or other external batteries, the built-in battery cannot be changed. You only need to connect the Inverter with any external storage battery by the power cable of external battery. In this way, the external battery will replace the built-in battery to supply power.
- In case that a car storage battery is used to charge, if you feel any operation relating to your car may be unsafe or uncertain, do not operate it.
- In case that you open the car cover, please ensure the surrounding to be stable; only in the way, you can place the battery properly and identify the anode and cathode correctly. Please shut down your car firstly prior to connection. Besides, you are expected to start your car engine at definite time to ensure the normal charging of battery.
- The required voltage of external battery is from 11V to 15.5V.
- [+] represents anode, while [-] represents cathode.

VI. Operating Modes

1. Normal Mode

In the mode, the flash cannot be used, but supporting the use of any electrical appliance with rated power. The maximum power of used equipment is 750W; equipped with the power-down mode, the standard battery can stand by for 40 hours continuously.

In case that the service power exceeds 750W, the indicator light "Power ⑧" (displaying output power) will become red and flickering, meanwhile, the buzzing occurs. In the following standard cases, the indicator light "Status ⑨" will become red, and the equipment will be closed automatically for protection.

- The equipment with the power of about 800W can be used for 3min continuously, and then buzzing occurs; finally, it is closed.
- The equipment with the power of 1000W-1400W can be used for 2-3s, and then buzzing occurs; finally, it is closed.
- The equipment with the power of 1400W-1800W, the system will be started half, and then it is closed within 3s.
- The equipment with the power of more than 1800W, the system cannot be started.
- As for the equipment with other powers, it shall be regulated according to the above values.

The standard battery is 9A13.2V NI-MH battery. The reference values of service time are listed as follows (the battery charged fully):

- 100W halogen lamp can be used for about 60min continuously;
- Litepanels 1x1 light can be used for about 2 hours 20 minutes continuously.

2. HD Mode

The mode is designed in accordance with the performance characteristics of flashes, supporting the use of any electrical appliance with rated power; without the power-down mode, the standard battery can stand by for only 9 hours continuously.

In case that an electrical appliance with rated power is used, please refer to the above 1 for service data.

While using a flash:

2.1 The maximum service energy of flash

- (1) In case that the flash recycling time for 1s, the maximum service energy will be 1500WS (it can be accumulated, similarly hereinafter);
- (2) In case that the flash recycling time for 2-3s, the maximum service energy will be 3000WS;
- (3) In case that the flash recycling time for 5s, the maximum service energy will be 5000WS;
- (4) As for the flash with other recycling time specification, please refer to the above.

2.2 Flash's recycling time changes during using the Inverter

- (1) For flashlight with recycling time of 1s, the recycling time remains if power is within 800WS (it can be accumulated, similarly hereinafter); if power is more than 800WS, the recycling time will be extended to no longer than 5s.
- (2) For flashlight with recycling time of 2-3s, the recycling time remains if power is within 2400WS (it can be accumulated, similarly hereinafter); if power is more than 2400WS, the recycling time will be extended to no longer than 5s.
- (3) For flashlight with recycling time of 3s, the recycling time remains if power is within 3000WS (it can be accumulated, similarly hereinafter); if power is more than 3000WS, the recycling time will be extended to no longer than 5s.

2.3 In case that the standard battery is charged fully, Flash can be used for following flash times:

- (1) Mini Pioneer Series 250DI*3 can be used in full power for about 300 flash times;
- (2) Studio Flashlight TC600*1 can be used in full power for about 380 flash times (it can be accumulated, similarly hereinafter);
- (3) Studio Flashlight TC1000*2 can be used in full power for about 120 flashtimes;
- (4) As for use in other powers, please refer to the above.

3. LED Lamp Alarm

During charging the flash, the instantaneous power may be increased by more than 3 times, e.g. for 100WS flash, its transient current may be equal to that of a 300W lamp. Therefore, when using certain flashes, the indicator light "Power ⑧" may flicker with short buzzing, which is normal as the instantaneous power of the flash has exceeded 750W.

If the indicator light "Power ⑧" (displaying output power) flickers continuously, occurring buzzing for over 5s, the equipment will be locked automatically.

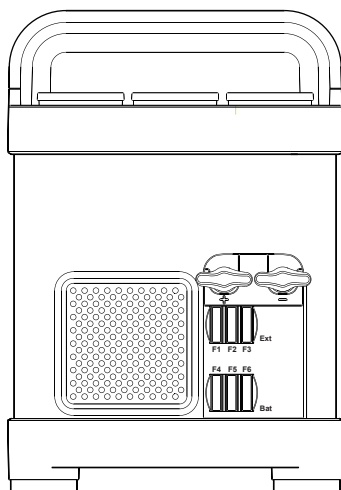
After locking the equipment automatically, you only need to turn off the power switch, and then turn it on to reuse.

VII. Replacing Fuses

On the FREEDOM-1, there are two types of fuses. "Ext" indicates that fuses "F1, F2, F3" are for external battery connection; "Bat" indicates that fuses "F4, F5, F6" are for internal battery connection. If the inverter can not be operated normally, please check the status of these fuses. They may be easily replaced if necessary.

Before replacing the fuses, ensure that the inverter is turned off, and then simply unplug the blown fuses and insert a new one in its place.

All fuses are specified at 30A.



VIII. Product Compatibility

On the premise that the above VI condition is met, the Company hasn't found any incompatible products. In case that you find any incompatible equipment, we would appreciate if you would notify us immediately.

IX. Maintenance and Warranty

All the finished products of FREEDOM-1 Inverter shall be transported from the factory only after being checked by our professional QC one by one. For your more convenience, it's necessary to debug the product a little. To prevent any performance influence caused by accumulated dust, please wipe the outside with clean wet cloth, firstly fastening the screw at the interface of DC power supply.

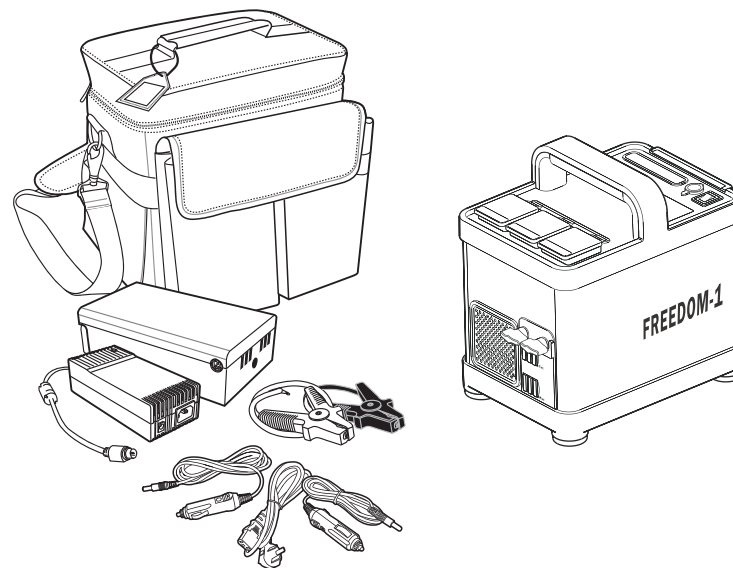
The warranty period of FREEDOM-1 Inverter is one year, but the battery, charger, car charger, power cable and other accessories are not listed in the range of warranty. Company shall not be responsible for the warranty of any fault caused by improper operation.

In case of some fault in use, you can log in our website for further useful information. If the fault fails to be solved, please contact with any authorized service point or us directly. Besides, to solve your fault more conveniently, please provide the relevant information as follows:

1. Your name, and the name & contact information of contact person;
2. Fault description

X. Product Kit

- 1- FREEDOM-1 Inverter
- 1- NI-MH Battery (Chargeable)
- 1- Charger
- 1- Car Charger
- 1- Power Cable
- 2- Bolts for External Power Interface
- 1- Shoulder Bag
- 1- 2M External Power Cable (optional)



XI. Technical Data

Model	FREEDOM-1
Continuous Output	750W
Peak Power	1400W
Input Voltage Range	11-15.5V
Output Voltage/Frequency	110V/60HZ or 230V/50HZ
Output Waveform	Pure Sine wave
High Harmonic Distortion	< 3%
No-load Current Consumption	Normal mode: 0.25A HD mode: 1A
Conversion Efficiency	91%
Low-voltage Alarm	Yes
Low-voltage Shutdown	Yes
Storage Temperature Range	- 30°C – 70°C
Operating Temperature Range	0-40°C
Battery Type	Ni-MH
Nominal Capacity of the Battery	9Ah
Charging Period	About 6h (standard 1.7A charger)
Fuse	Built-in 3*30A
Size	27*17.5*25.5(CM)
Weight	5.6KG (Including the battery)