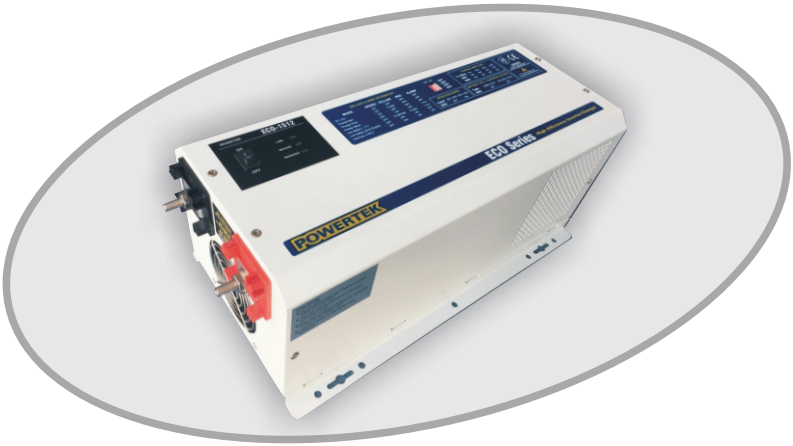
POWERTEK

www.powertekinverters.com

INVERTER / CHARGER

USER MANUAL

ECO-1512 **ECO-2524** **ECO-3524**



REV 4.0

Contents

1. Safety instructions

Please follow this instructions in order to guarantee your safety:

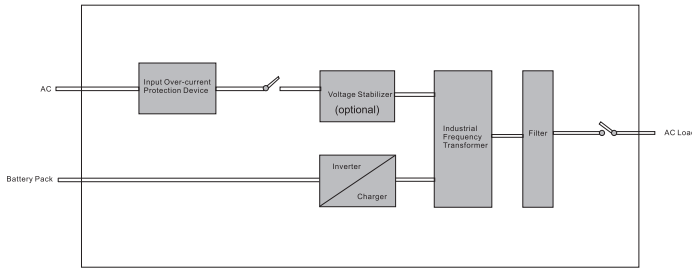
(1) Please read carefully before this product is operated.
(2) Do not use this product If you forsee overload conditions.
(3) If the converter faults please cut off the electricity supply and contact the technical service center or distributor.
(4) Do not store or use this series of products in the following enviroments:

- A place with flammable gas, corrosive substances and too much dust.
- A place with abnormal high or low temperature (above 40°c or below 0°c) or high humidity (above 90%).
- A place with direct sunlight or that is close to heating appliances.
- A place with vibrations.
- Outdoors.

(5) Please insert battery switch between the battery and the master.
(6) The switch should be placed close to the inverter so the power supply may be cut off in case of emergency.

2. Operation

1. Block diagram for system operation



2. Working modes

2.1 Inversion mode:

Under normal battery voltage, the battery and the transformer will provide a stable AC voltage to the load; when the battery voltage is low, the system will shut off

2.2 Line mode:

The commutation switch closes when the input voltage is normal, the utility into the filter and out to power to the load, meanwhile the battery is charged by the utility after passing through industrial frequency transformer and charger.

2.3 Automatic transfers:

In case of interruptions or abnormal line voltage, the system will switch automatically to battery mode to supply power to the load.

If the line voltage is restored to normal, the system will switch automatically to line mode to power the load and to charged the battery.

3. Product Characteristics

1. Square-wave output.

2. LEDs status indication.

3. Intelligent Alarm feature.

4. Intelligent parameter setting, adjustable range of input voltage, adjustable charging amps and battery type.

5. Smart fan control.

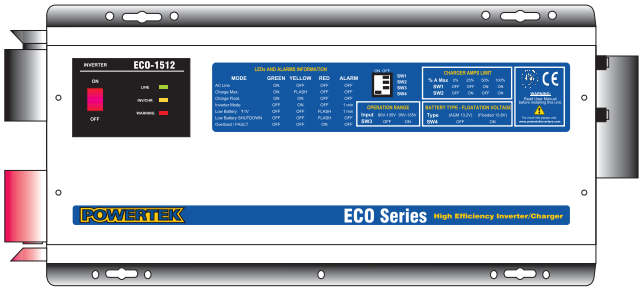
6. Fast transfer.

7. Automatic recovery from over temperature protection.

8. Perfect and reliable low battery voltage, output overload and output short circuit protection functions.

4. Product Description

1. Figure of front panel



2. Figure of back panel

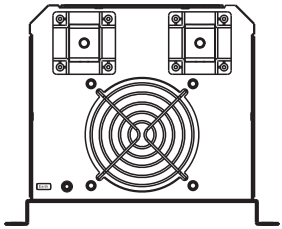


Figure 3 DC side

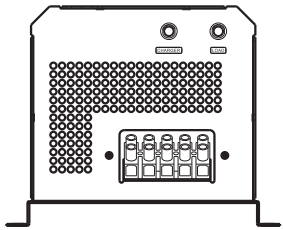
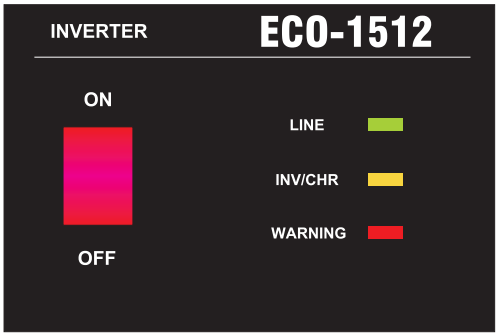


Figure 4 AC side

5. LEDs instructions

1. The external view of panel is as follows:



2. LED lights:

2.1 Green light indicates when the line is powering the load.

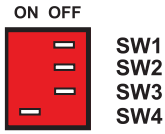
2.2 Yellow light indicates charging state, while in line mode and battery mode. If the line is absent or out of range.

2.3 Red light (Warning): Indicates low battery or inverter fault.

3. Eplanations of buzzer and LED lights:

	GREEN	YELLOW	RED	ALARM
AC Line	ON	OFF	OFF	OFF
Charge Max.	ON	FLASH	OFF	OFF
Charge Float.	ON	OFF	OFF	OFF
Inverter Mode	OFF	ON	OFF	1 min
Low Battery < 11V	OFF	FLASH/ON	FLASH	1 min
Low Battery SHUTDOWN	OFF	OFF	ON	OFF
Overload / FAULT	OFF	OFF	ON	ON

6. Parameters settings:



6.1 SW1 / SW2: Sets the charging current.

SW1 OFF, SW2 OFF: Charging current is 0%
SW1 OFF, SW2 ON: Charging current is 25%
SW1 ON, SW2 OFF: Charging current is 50%
SW1 ON, SW2 ON: Charging current is 100%

6.2 SW3 Sets input range:

OFF is wide range (80V-135V)
ON is narrow range (95V-135V

6.3 Sw4: Selector switch for type of battery

ON: Flooded battery / Float voltage 13.8V
OFF: AGM battery / Float voltage is 13.2V

7. Installation Instructions

(1) Precautions for installation

1. Unpack the inverter and check the accompanying attachments including one User Manual.
2. Check if the inverter is damaged during transportation and if so, keep the machine in original state and inform the carrier or dealer about this.
3. Check if the machine type is correct according to specification marks on machine.
4. The inverter shall be properly placed to avoid accidental shut-down and the storage place shall have good ventilation and be far from water, combustible gas or corrosive agent.

5. The ambient temperature for inverter shall be maintained at 0-40℃.

(2) Installation steps:

1. Have the inverter placed properly (see Article 4 of safety instructions);
2. Check if battery pack is correctly connected and its voltage is conforming to that of equipment.
3. Have the input wire of AC power correctly connected to input terminal of inverter.
4. Have the power wire of AC load connected to output terminal of inverter.
5. Connect the battery wire of equipment correctly with the battery and provide one power switch or fuse between battery input end and battery.
6. Connect the earthin wire of machine

8. Instructions for Startup/Shutdown

(1) Startup steps

1. Turn the switch on panel to ON, after which the equipment starts self inspection, LED will be illuminated and the fan will operate.

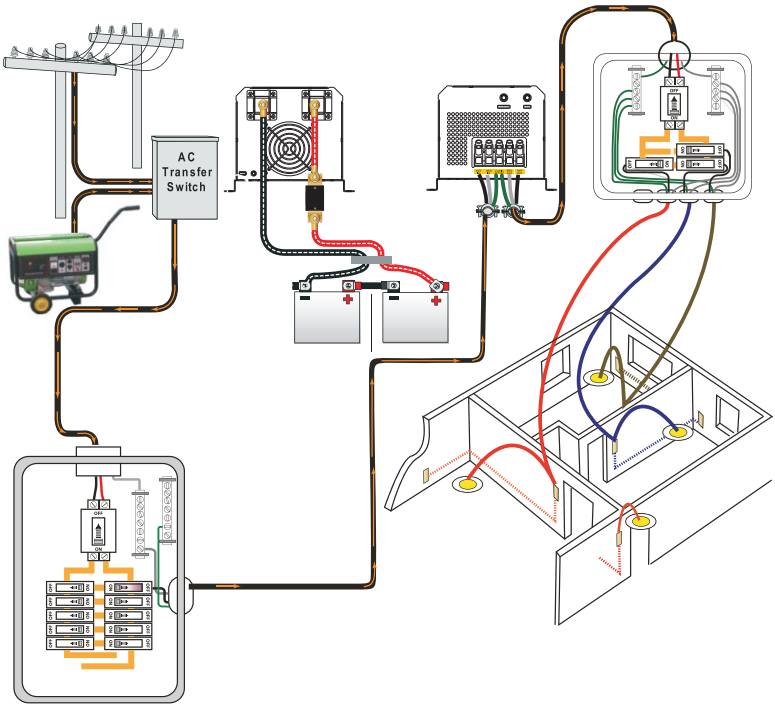
2. The startup of inverter is finished in a few seconds, LED and fan will operate normally.
3. Set the parameters as required, shut down the machine and then restart it.
4. Close the electric supply switch after inversion is normal.
5. Close the load switch in a few seconds to make equipment supply power to load.

(2) Shutdown steps

1. Please turn off load switch before stopping load.
2. Turn switch on panel to OFF.

9. Installation Procedure:

1. Insure the DC voltage of inverter in accordance with the battery voltage.
2. Insure the positive pole(red) of inverter connect with the positive pole(red) of battery, and the negative pole(black) of inverter connect with the negative pole(black) of battery, then tighten the srcew.
3. Turn on the inverter and see if it is good, if good then turn off.
4. Connect with AC power/Ground wire, turn on the inverter and see if it is working normally(charge the battery, show charge current), if so, turn off the inverter.
5. Connect with the load/ground wire and turn on the inverter(Power saver auto or Power saver off).
6. Turn on the load



Remark:Used in utility power or solar system.

10. Technical Characteristics

Model	ECO-1512	ECO-2524	ECO-3524
Inverter Mode Specification			
Capacity (W)	1500	2500	3500
Waveform	Modified sinewave		
Output voltage	120Vac ~+3%		
Output frequency	60Hz ± 1Hz		
Overload capacity	Overload > 103%, Output down voltage when loaded after buck: 105%<load<125%(1875W), delay 30S protection, 130%> LOAD 200ms Shut down. The fault light is on.		
Output short circuit protection	Shut down output after 200 ms		
Battery voltage	12V	24V	
Voltage range	12V(10.5Vdc ~15Vdc) ±0.3Vdc /24V*2		
Battery overvoltage protection	12V(Battery voltage>16V ± 0.3Vdc overvoltage alarm, >16.5V ± 0.3Vdc change to error); 24V*2		
DC low voltage alarm	12V(10.5 ±0.3Vdc) / 24V*2		
DC shutdown voltage	12V(10.0 ±0.3Vdc) / 24V*2		
Charging Current Specification			
3 - stage charging	(Constant current, Constant voltage, Float charge) Constant voltage when the maximum voltage can not be higher than 14.5VDC, The minimum time of 30 minutes can not be more than 2 hours		
Charging current（±5A）	45	45	45
(Charging current 4 files adjustable)	0%,25%,50%,100%		
AC Mode Specification			
Input voltage wave	Pure Sine Wave		
Input voltage	120Vac		
Output voltage	Same as Input		
Input voltage range	80～135V (For Home Appliances) 95~135V (For Personal Computers)		
Frequency range	43~64HZ (±1HZ)		
Change to battery mode while input low voltage	80V (For Home Appliances) 95V(For Personal Computers)		
Recover to AC mode from low voltage	85V(For Home Appliances) 100V(For Personal Computers)		
Change to battery mode while input high voltage	135Vac±3V		
Recover to AC mode from high voltage	132Vac±3V		
Output frequency	Same as Input		
Output waveform	Same as Input		
Output short circuit	Recover breaker		
Efficiency (AC Mode)	>95%		

Transfer time (AC to Battery mode)	Max. 10ms		
Transfer time (Battery to AC mode)	Max. 10ms		
Transfer time (AC low/high voltage to battery mode)	Max. 6ms		
Mains input delay time	10 seconds		
OTHER			
Fan control	Battery cold start function, battery low voltage protection, AC Auto Restart A. When the charging current is higher than 5A charging current, the fan B. When the INVTER MODE load is higher than 35%, the fan rotates. C. When the fan has no operating interval of 30 minutes, turn for 1 minute		
Over temperature	Temperature switch protection 95°C		
Noise	≤40Db		
Humidity	0%~95%		
Operating temperature	0°C~+40°C		
Weight（kg）	16 Kgr	18 Kgr	20 kgr
Dimension (LxHxW)	422. 3*221. 6*178		422. 3*221. 6*208

Note: Technical specifications may change without previous notice.

11. Support and Technical services

If you have any questions, contact our representative in the Dominican Republic: **ACTEL SRL**
Tel. (809) 565-1717 and ask for a technical representative.

Please have the following information ready when you call the **Local Distributor**:

- Model number
- Serial number
- Date of failure or problem
- Symptoms of failure or problem
- Customer returns address and contact information
- Warranty document and equipment invoice.

Units damaged in shipment as a result of improper packaging are not covered under warranty.

12. Warranty

The POWERTEK warranty is five (5) years, covering any failure due to manufacturing and including spare parts costs during the first year.
The warranty does not cover damages caused by external factors such as: fire, flooding, electrical accidents, etc.
The warranty does not cover damages caused to devices connected to the unit nor indemnity & for opportunity cost due to devices out of service.
The warranty is honored in the authorized Service Department and does not cover transport and technical services done to evaluate or correct nor the dismounting or mounting of the device.

The unit must be installed by personnel properly trained. In case of damage, a Local Service Representative should be allowed to inspect the installation condition in order to determine the cause of damage.

Warranty will not cover damages caused by:

1. Reversing Battery polarity
2. Applying an AC source to the Unit's output
3. Grounding absence
4. High input voltage that damages the surge suppressor.

Warranty will be voided if:

1. The unit has been opened by unauthorized personal.
2. The unit is in abnormal conditions such as: excessive dirt, wet, visible corrosion or any other condition that indicates misuse.
3. The owner does not present the Warranty card properly filled out and the purchase invoice indicating name, date and serial number.

技术要求:

1: 材质:封面:105克铜板CMYK印刷， 内页80克书写纸黑白印刷

2: 装订后成品尺寸:142*210mm(公差+/-2MM)；

3: 印刷效果:图片、字体、线条需清晰,无重影，无毛边，无多余杂点；