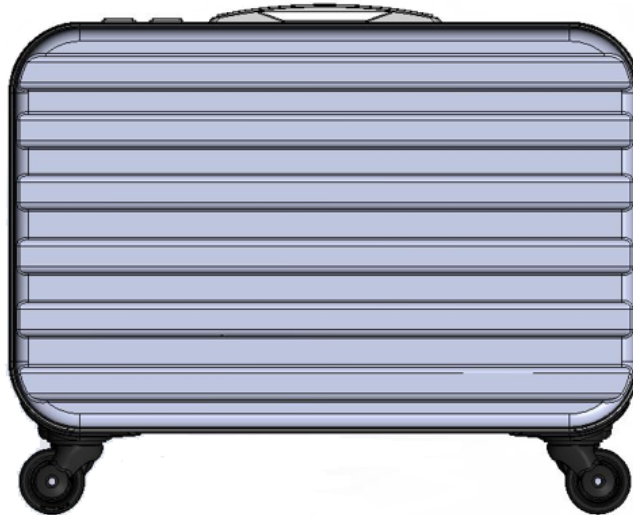




EMERGY 1000

User Manual



Please read this User Manual first before Operating the System.

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1. About this Manual

This User Manual is for use with EMERGENCY 1000. User must refer to the User Manual before using to avoid abnormal situations.

1.1 Additional Information

- (1) The information in this document is subject to change without notice.
- (2) Specification of the product can be changed without any notice to customers for the system improvement.
- (3) All rights reserved. Reproduction, adaptation, or translation of this document without prior written permission is prohibited, except as allowed under the copyright laws.

1.2 Symbol Used

Symbols	Meaning	Description
	DANGER	Beware dangerous voltage.
	WARNING	It calls attention to a procedure, practice, or the like, which, if not correctly performed or adhered to, could result in personal injury.
	CAUTION	It calls attention to an operating procedure, or the like, which, if not correctly performed or adhered to, could result in damage to or destruction of part or all of the products.

2. Product Overview

EMERGY 1000 is All-in-One Energy Storage System that integrate Li-Ion Battery System, Battery Management System, AC charger, Photovoltaic (PV) charger, DC to AC inverter, System Control into the compact & portable suitcase.

2.1 Appearance and Functions

Figure 1 illustrates the appearance and key external parts in EMERGY 1000 . The functions of each key parts are highlighted in Table 1.

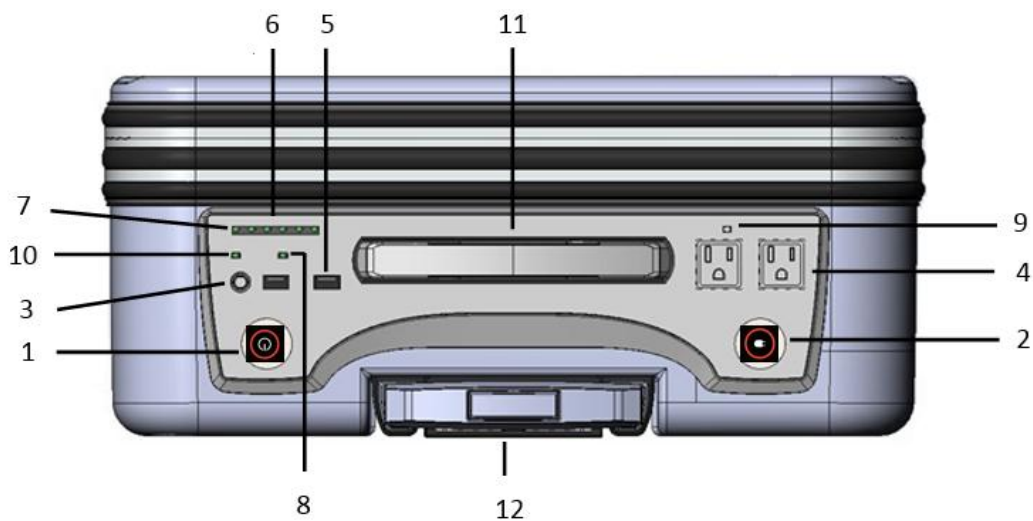


Figure 1(a). Top View

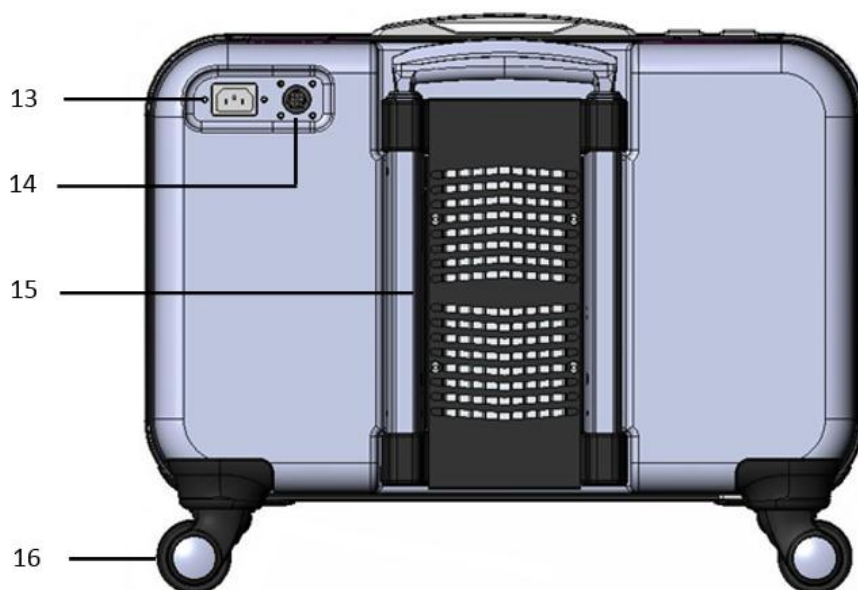


Figure 1(b). Rear View

Table 1. Key External Parts and Functions

Item	Name	Function	Notes
1	MSW (MAIN CONTROL SW)	Switch ON/OFF the system	Hard press MSW to toggle system ON/OFF.
2	AC OUT SW	Switch ON/OFF AC output	Hard press AC OUT SW to toggle AC output ON/OFF.
3	MODE	Select Standby or On-Line Operating Mode	Typical transfer time for Standby Mode is 16mS. No transfer time (0mS) for On-Line Mode.
4	AC OUT	AC output(s)	AC socket(s) varies with country.
5	5V USB OUT	USB Power Sources	Total current rated at 2A.
6	GAUGE INDICATOR	Display State Of Charge (SOC) of Li-Ion batteries	(Please see Table 2)
7	CHARGING INDICATOR	Indicate charging state of the battery	With a lightning mark under CHARGING INDICATOR . (Please see Table 3)
8	SYSTEM INDICATOR	System status indication	USB power outlet is synched with system power. Light up when power is present.
9	AC OUT INDICATOR	AC output power indication	Light up when power is present.
10	MODE INDICATOR	Indicate operating mode	Light up for On-Line Mode. Turn off for Standby Mode.
11	LIFT HANDLE	For Lifting EMERGY 1000.	
12	PULL HANDLE	For pulling/ pushing the system while on wheels.	Not for lifting EMERGY 1000.
13	AC INLET	AC Input connection	(Please see paragraph 3.2.1)
14	PV INLET	AC Input connection	(Please see paragraph 3.2.2)
15	HEAT SINK	For heat dissipation	Blockage of heat sink area may impede system performance.
16	WHEELS	For carrying system along flat or smooth surface.	Please see Figure 6 to know the locking mechanisms are provided in the two front wheels.









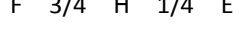
DO NOT use **PULL HANDLE**, but **LIFT HANDLE** to lift up EMERGY 1000 to avoid damage to the system.

2.2 Gauge/Charging Indicators and Alarm

2.2.1 Gauge Indicator

The State Of Charge (SOC) or remaining capacity of the battery is illustrated thru five (3 green, 1 orange, 1 red) LED indicators on its face panel. From right to left each additional indicator corresponds to about 20% additional battery capacity as illustrated in Table 2.




Table 2. Gauge Indicators

Status		Meaning
 F 3/4 H 1/4 E	5 LEDs On (GGWOR)	SOC > 80%
 F 3/4 H 1/4 E	4 LEDs On (GGOR)	SOC between 60-80%
 F 3/4 H 1/4 E	3 LEDs On (GOR)	SOC between 40-60%
 F 3/4 H 1/4 E	2 LEDs On (OR)	SOC between 20-40%
 F 3/4 H 1/4 E	1 LED On (R)	SOC between 10-20% (Charge Soon)
 F 3/4 H 1/4 E	1 LED blinking (R)	SOC between 0-10% (Charge Immediately)
 F 3/4 H 1/4 E	All LEDs Off	MSW is off or battery fully drained.

2.2.2 Charging Indicator

CHARGING INDICATOR is used to indicate the stage of charging to the battery as illustrated in Table 3.

Table 3. Charging Indicator

Status		Meaning
	Stay On	Charging
	Blinking	<ol style="list-style-type: none">1. Close to fully charged.2. Blinking happens if charging current is less than 2A.3. When closing to fully charged, it is normal whether CHARGER INDICATOR is blinking or not.
	Off	Five GAUGE INDICATOR s are all on and CHARGING INDICATOR is off if the system is fully charged.

2.2.3 Alarm

When the remaining battery capacity drops below 15%, an alarm sound- a periodical short buzz will be initiated to inform user that the battery may run out of energies soon. It should be recharged as soon as possible to avoid damage batteries.

3. System Operations

3.1 Turning On/Off System

To turn on the system, firmly press **MSW** (Main Control Switch) for a light click. **SYSTEM INDICATOR** and **GAUGE INDICATOR** should light up after about 10 seconds delay. This delay is normal and should not be alarmed.

To turn off the system, press **MSW** again. All indicating lights will be off. Slight delay in **AC OUT INDICATOR** is normal when **AC OUT** is not or lightly loaded. Pressing **MSW** will toggle the system status.

3.2 Charging System

3.2.1 AC Charging

To perform system charging via AC power source, the following steps are to be followed.

Step 1: Turn on the system by pressing **MSW**.

Step 2: Connect power cord (IEC320 type) to **AC INLET**, as illustrated in Figure 2.



Figure 2. AC charging

When EMERGY 1000 is charging, **CHARGING INDICATOR** will light up **CHARGING INDICATOR** will turn off automatically when charging is terminated. The charging time for EMERGY 1000 is around 2.5 hours for a full charge cycle (from empty to full).



The input source should comply with the input range (100-120Vac or 220-240Vac) as indicated on **AC INLET**.

3.2.2 PV Charging

To perform system charging via PV power source, the following steps are to be followed.

Step 1: Connect PV charging cable adaptor to **PV INLET** first, as illustrated in Figure 3.

Step 2: Connect MC4 connectors from the cable adaptor to MC4 connectors from PV panels.

Use Y Type MC4 connectors (not provided) for multiple PV panel branches.

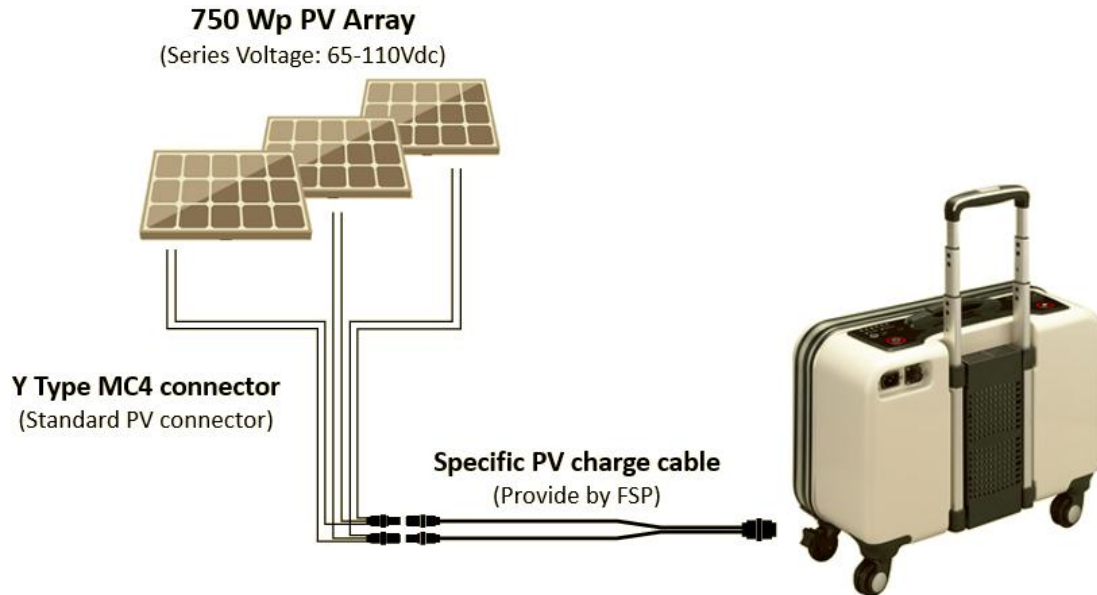


Figure 3. PV charging

Step 3: Turn on the system by pressing **MSW**.

When EMERGY 1000 is charging by PV power, **CHARGING INDICATOR** will light up **CHARGING INDICATOR** will turn off automatically when charging is terminated.

EMERGY 1000 would take about 3 hours for a full charger cycle (from empty to full) when PV power is greater than 650Wp and it is optimal solar radiation.



Failure to connect the cable adaptor first may cause unexpected electrical shock from exposed connector pins in the adaptor before follow-up step. Proper PV configuration should be used to ensure suitable input voltage range for PV charger of EMERGY 1000 (refer to product specifications). Excessive voltage level (>200V) may result in damage to PV charger.

3.3 System Outputs

3.3.1 AC Output

AC outlet(s) of EMERGY 1000 provided is (are) also compatible with local electrical plugs. To utilize AC output, the following steps are to be followed.

Step 1: Turn on the system by pressing **MSW**.

Step 2: Turn on AC output(s) by pressing **AC OUT SW**. **AC OUT INDICATOR** will turn on.

Step 3: Connect power cord of apparatus, equipment or appliance to **AC OUT** (AC outlet).

To discontinue using AC output, simply remove power cord of load unit from **AC OUT** or turn off AC output by pressing **AC OUT SW** again. **AC OUT INDICATOR** will turn off.



The voltage and frequency range of the apparatus, equipment or appliance should comply with the output voltage and frequency range of EMERGY 1000 to avoid under-performance or damage to the load unit.

3.3.2 DC (USB) Output

DC (USB) output is turned on and off in accordance with the system. When system is turned on (thru pressing **MSW**), DC output is also turned on. When the system is turned off, DC output is also turned off. A total of 2A current is available for the two USB outlets.

3.4 Operating Modes

The default operating mode for EMERGY 1000 is “Standby” mode. To toggle between “Standby” mode and “On-Line” mode, lightly press **MODE** button. **MODE INDICATOR** will turn on under “On-Line” mode and turn off under “Standby” mode.

3.4.1 Standby Mode

Under Stand-by mode, AC Output power will automatically be supported by the battery when AC input power disappears. The typical transfer time is less than 16mS.

3.4.2 On-Line Mode

Under On-Line mode, AC Output power is supported by the battery all the time. It is no time for delay when AC input power disappears and the system has energy. AC Output is constantly regulated as a refined voltage source that are suitable for sensitive electronics.

The continuous output power under this mode is however limited to 525W. The maximum output power though can reach 1,500W with the duration depending on the battery’s state of charge.

3.5 Physical Positioning

EMERGY 1000 is designed to operate in an upright position as illustrated in Figure 4. Stable footing should be provided when using the system. It is also highly recommended that the two braking mechanisms be engaged to avoid possible skidding especially when the ground is inclined.

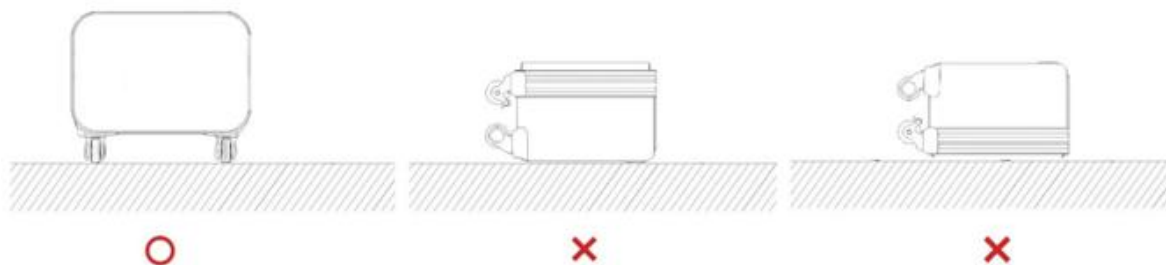


Figure 4. Physical Operating Position



Operations under other positions will add to thermal stresses on the system and reduce system operating time.

3.6 Apparatus/Equipment/Appliances

3.6.1 Compatibility

Although EMERGY 1000 is designed to operate with most household apparatus/equipment/appliances, certain loads that require heavy surge current may not operate properly.

A list of apparatus/equipment/appliances that are compatible or incompatible with EMERGY 1000 are shown Table 4.

Table 4. Loads Supports

Operate Properly	Not Operate Properly
(1) Consumer electronics Mobile phones, tablets, NBs, PCs, monitors, projectors, desk-top printer/copier, shredder, etc.	Air conditioners, microwave ovens, office printers/copiers, coffee makers (build-in motor), vacuum cleaners, industrial motors, etc.
(2) Household appliances Rice cookers, TVs, refrigerators, hair dryers, lamps/lights (fluorescent, LED), fans, induction ranges, irons, coffee makers (build-in heater), toasters, heater, etc.	
(3) Industrial equipment Oscilloscopes, electrical drills/screw drivers, soldering irons, etc.	

3.6.2 Running Time

Estimated run time for a fully charged EMERGY 1000 is shown in Table 5.

Table 5. EMERGY 1000 Run Time for Select Loads

	Electrical Equipment	Power Consumption	Running Time
Lighting	Camping Lantern	5W	162.0 hours
	LED Lighting	10W	81.0 hours
	LED Searchlight	30W	27.0 hours
	Fluorescent Lamp	36W	22.5 hours
Home Appliance	Radio	10W	81.0 hours
	Electric Fan	66W	12.3 hours
	Refrigerator	130W	6.2 hours
	42" LCD TV	200W	4.1 hours
	Sound System	200W	4.1 hours
	Toasters	600W	1.4 hours
	Electric Pot	800W	1.0 hours
	Heater	1,000W	0.8 hours
	Induction Cooker	1,200W	0.7 hours
3C	Smart Phone	2W	405.0 times
	Tablet	20W	40.5 times
	Notebook Computer	40W	20.3 hours
	Projector	200W	4.1 hours
	Desktop PC & Monitor	310W	2.6 hours
	Laser Printer	500W	1.6 hours

4. Transportation

EMERGY 1000 is designed with a pull handle and a lift handle for easy transportations. A custom-design backpack (sold separately) is available for carrying EMERGY 1000 in rougher outdoor terrains. The correct ways for moving and carrying EMERGY 1000 are illustrated in Figure 5.

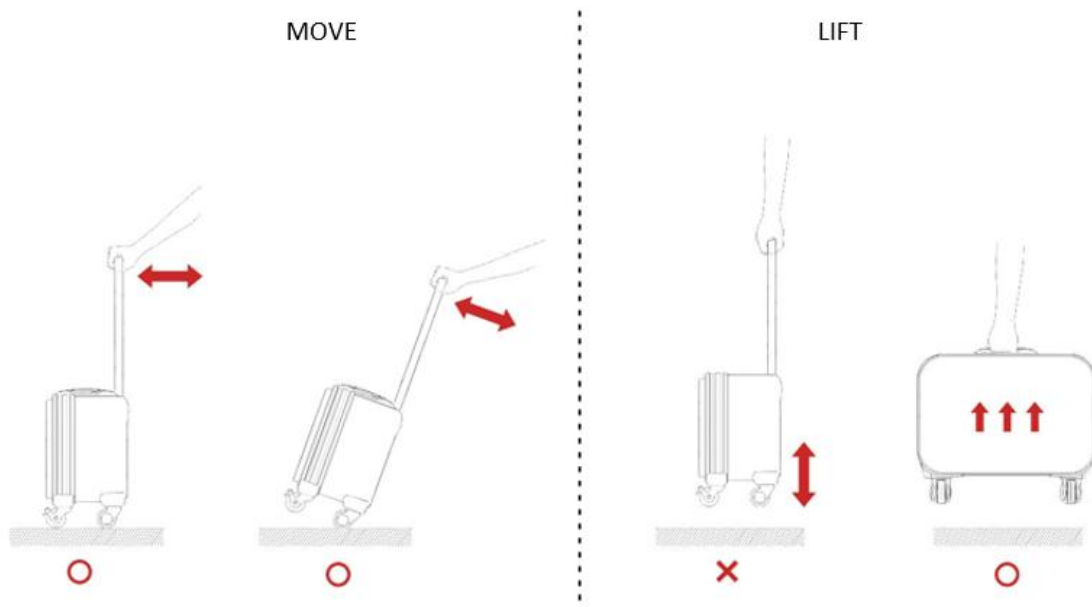


Figure 5. Moving and Lifting EMERGY 1000

Locking mechanisms are provided in the two front wheels of EMERGY 1000. Figure 6 illustrates how to engage or dis-engage the locking mechanism.



Figure 6. Wheel Locking Mechanism

When transporting the system in a vehicle, EMERGY 1000 should be laid flat on **HEAT SINK** side, as illustrated in Figure 7.

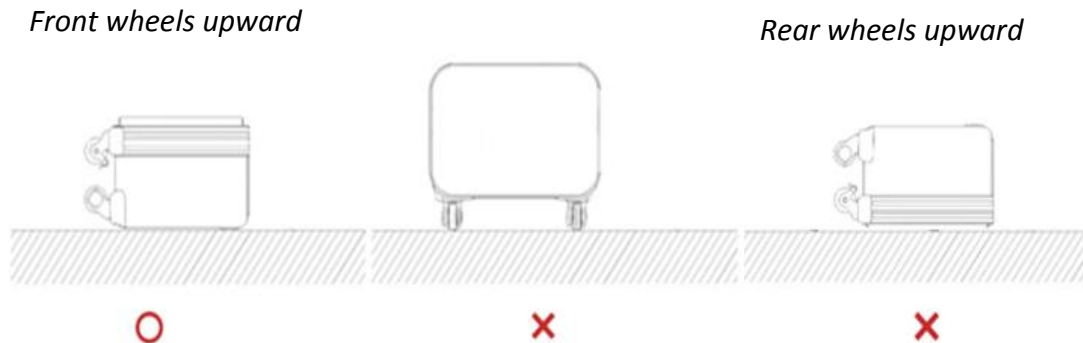


Figure 7. Physical Positioning for Transportation in a Vehicle

5. Storage

It is highly recommended that EMERGY 1000 is turned off (**MSW** off) when it is not in use to conserve the battery energies. Failure to do so may deplete the battery energies prematurely and reduce system's availability.

In extreme case, the battery may be over-discharged rendering expensive replacement of the battery.

The following practices should be exercised when storing EMERGY 1000.

- (1) Charge EMERGY 1000 to 50%-70% capacity. (For short term storage while preparing for usage, charge the system to full capacity.)
- (2) Turn off **MSW**. All panel lights should be off.
- (3) Place the system in solid footing to avoid skidding or falling. Engage the locking mechanism in the front wheels.
- (4) Store EMERGY 1000 in a cool, dry, airy place and away from fire or heat sources.

6. In Case of Emergency

In the case of unlikely situation when smokes rise from the system, under the premise of no immediate danger, the following actions can be taken to reduce possible damages.



Evacuate the premises immediately if imminent danger is sensed.

- (1) Avoid inhaling the smokes from the system.
- (2) Hard press **MSW** to shut the system off.
- (3) Unplug input cables followed by output cables.
- (4) Move the system to an open area.
- (5) If fire results, use sand or dry-powder/ CO₂ extinguisher to extinguish fire.

7. Maintenance

Regular maintenance of EMERGY 1000 is not necessary except maintaining sufficient charge state of the batteries to avoid possible over-discharge during storage especially after usage. The appearance and surface can be cleaned with a damped cloth with water.



DO NOT attempt to repair EMERGY 1000 yourself. All units should be returned to authorized vendor or repair center for repair. Unauthorized opening of the system case will void product warranty and may expose the user to dangerous high voltage.



DO NOT spray water directly onto the system to clean the unit. Water sips thru connector openings on the face panel and the power inlets may accumulate inside the system and cause damages.

For outdoor applications connector plugs (provided with the system) should be used to cover the unused inlets and outlets to prevent unexpected rain which may cause water sipping into the system. Remove the system from the rain immediately.

8. Warranty

EMERGY 1000 is warranted against defects in material and workmanship for a period of one year after purchase to the original owner. It is at the Manufacturer's sole discretion whether to repair or to replace system assembly part(s) found to be defective. Transportation to the service center or the factory is the responsibility of the purchaser.

This warranty is void for products repaired or altered by the customer or any unauthorized person or entity. This warranty also does not cover damages caused by improper use, accidents, and natural disasters.

WARRANTY CARD

Product Name: EMERGY 1000

Date of Purchase:

Purchase From:

Name:

Address:

City / State / Zip:

Phone:

E-mail:

Please keep this warranty card for future reference.

Contact Information:

FSP USA

Add: 14284 Albers Way, Chino, California

Tel: (909)606-0960

E-mail: info@fspgroupusa.com

Web: www.fspgroupusa.com

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