USER MANUAL

1500 SERIES 0.64kWh
1500 SERIES 1.3kWh

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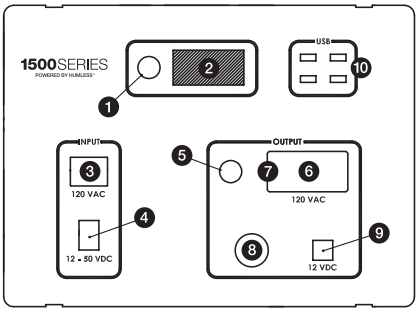
Publication Number: 1500SERIES-UM001

QUICK START GUIDE



1. Main On/Off
2. See what you have
3. Charge from wall
4. Charge from solar
5. On/Off for ❼
8. ❽ & ❾ run 12V stuff
10. Run USB

PRODUCT REGISTRATION:

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We will not spam you or sell your information.

HUMLESS™
Reliable Power Systems

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PRODUCT CERTIFICATION

HUMLESS guarantees this product conforms to the national and industrial standards (or standard conformance certification is in progress)

CONTACT US

If you have any problem or requirement when using our products, please contact HUMLESS LLC, your local distributor, or visit **www.humless.com**

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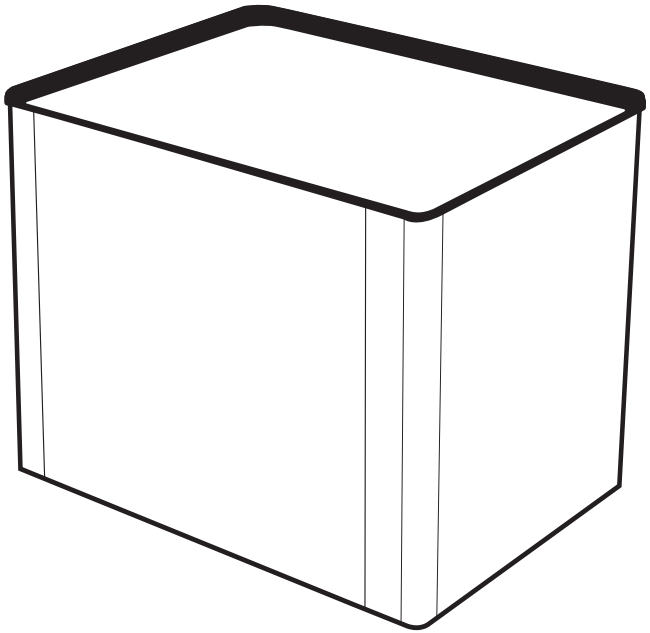
1500 SERIES HUMLESS GENERATORS

The 1500 Series Humless Generator model 1500-640W and 1500-1300W is a backup power/Energy Storage Unit.

FEATURES:

- It is safe for indoor use, emits no fumes/gases.
- It is quiet.
- It can be charged from renewable sources (solar, wind, etc) or the gird.
- It is portable (38 lb/15.5 Kg or 47 lb/21.5 Kg).
- It has a Lithium battery (LiFePO4) which can be charged from any 120VAC and/or 12-50VDC input source.
- Three different outputs: 120VAC 1500 watts pure sine wave inverter, 12VDC (CL and Anderson connectors), and four 5VDC USB ports.



SAFETY TERMS AND SYMBOLS

!WARNING: Warning statements indicate the conditions or practices that could result in injury or loss of life.

!CAUTION: Caution statements indicate the conditions or practices that could result in damage to this product or other property.

ADDITIONAL TERMS:

A	Ampere/Amp
AC	Alternating Current
DC	Direct Current
kW	Kilowatt/One thousand watts
LED	Light Emitting Diode
mA	Milliampere
PV	Photovoltaic
VAC	Volts AC
VCD	Volts DC
W	Watts

GENERAL SAFETY SUMMARY

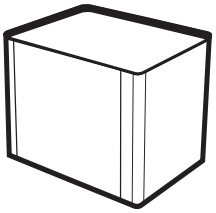
Please review the following safety precautions carefully before using the unit so as to avoid any personal injury or damage to the unit and any product connected to it. To prevent potential hazards, please use the unit only as specified by this manual.

- Before using your unit, **read all instructions and information** in this user manual
- **Observe All Input/Output connectors ratings:** To avoid fire or electric shock hazard, observe all ratings and markers on the unit and check your manual for more information about ratings before connecting.
- **Do Not Operate with Covers:** Do not cover the unit or obstruct fan vents located in the side and bottom of the unit to avoid overheating. Inadequate ventilation may cause increased temperature or damage to the unit. Keep well ventilated and inspect the intake fans regularly.
- **Do not operate with suspected failures:** If you suspect damage to the unit, have it inspected by qualified service personnel before further

operation. Any maintenance, adjustment or replacement to circuits or accessories must be performed by HUMLESS authorized personnel.

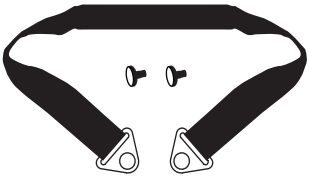
- **Do Not Operate in Wet Conditions:** In order to avoid short circuits or electric shock, **DO NOT** operate in a humid or wet environment.
- **Do not Operate in an Explosive Atmosphere:** In order to avoid damage to the unit or personal injury, **DO NOT** operate in an explosive atmosphere.
- **Keep Product Surfaces Clean and Dry:** To avoid the influence of dust and/or moisture in air, keep the surface of the unit clean and dry.
- **To reduce the risk of electrical shock, disconnect all sources of AC/DC from the unit before attempting any cleaning/or before working on any circuits connected to the unit.**

IN THE BOX

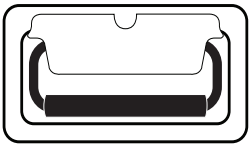


1500-SERIES Unit
(1500S-640Wh/1500S-1.3kWh)

AC Charging Cord



Carrying Strap
(1500S-640Wh Only)

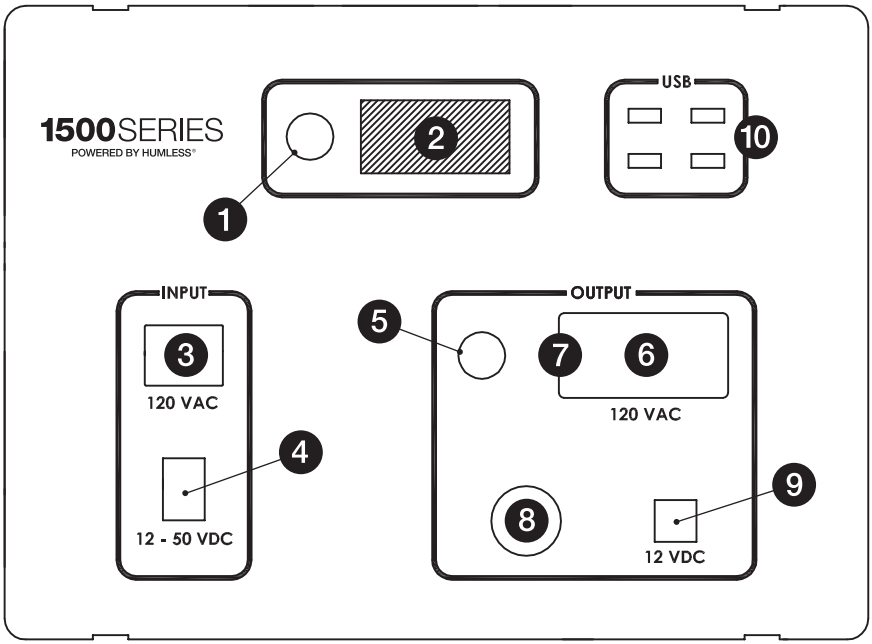


Integrated Handle
(1500S-640Wh/1500S-1.3kWh)

User Manual/ Quick Start Guide

KEY

1. Main Power Switch
2. LCD Display
3. 120VAC Charging Input
4. 12-50VDC Charging Input
5. AC Outlet Switch (inverter)
6. GFCI Reset Button
7. 120VAC Outlet
8. 12VDC Cigarette Outlet
9. 12VDC Anderson Outlet
10. 5VDC USB Outlets



LCD DISPLAY

- **Press and hold** main power switch for **three seconds** to turn unit **ON**.
- Lightly press the main power switch when the unit is powered **ON** to turn the back light **ON** and **OFF** for use during day or night.
- **Press and hold** the main power switch for **three seconds** to power down the unit and place it in hibernation mode. *(**Note:** You may still charge the unit via **AC** or **DC** while in hibernation mode).*
- Remember to **store the unit fully charged** and make sure the unit is completely **OFF**.

AC CHARGING

!WARNING
Electrical shock can occur if AC cord is damaged.

- To charge the unit, plug in the AC cord that is provided. LCD display will show **AC:IN**, charge level and remaining charge time. Once the unit is fully charged, the display will read **FU:LL** *(**Note:** when unit is close to fully charged, the display will flash and read **00:01 for 5 to 20 minutes** until all the cells in the unit are balanced and fully charged.)*
- If the unit is plugged into AC outlet at the same time it is being used to power an AC device, the display will read **PA:SS** because the current is being passed through the unit into the AC device (Pass Through Mode: device is being powered by the outlet, not the unit).
- The unit can be charged via AC and DC at the same time for a shorter charge time.
- 120VAC is the rated voltage to charge the unit; never connect it to a higher voltage, it will damage the unit.

DC CHARGING

!WARNING
Electrical shock can occur if DC cord/wires are damaged. Never connect bare wires into the DC input, always use the same type of connector that the unit has (Anderson connectors)

- To charge the unit, insert the DC charging cord that is connected to your charging source (solar panel, hand crank, windmill, etc.). The LCD display will show **DC:IN**, charge level and remaining charge time. Once the unit is fully charged, the display will read **FU:LL** *(**Note:** when the unit is close to fully charged, the display will flash and read 00:01 for 5*

to 20 minutes until the cells in the unit are balanced and fully charged)

- The unit can be charged via AC and DC at the same time for a shorter charge time.
- 12-50VDC is the rated voltage to charge the unit; never connect it to a higher voltage, it will damage the unit.

AC OUTLET

!WARNING

Electrical Shock can occur if AC cord is damaged.

The unit comes with a 120VAC 1500 watts PSW inverter (max output capacity)

- To use the inverter/AC Outlets, first turn **ON** the inverter switch by depressing the outlet button **(A)**. Once **ON**, the outlets will work like normal AC outlets in your home. You can plug in devices up to 1500 watts/12.5A.
- Keep the inverter **OFF** if not in use.
- The outlets are based on a ground-fault circuit interrupter (GFCI) which means that if there is a power surge or short, the outlets will trip an internal safety fuse.
- Power conservation mode: If using ≤ 100W the units will automatically switch off after 6 hours.

DC OUTLET

!WARNING

Electrical shock can occur if DC cord is damaged. **Never connect bare wires into the DC outlets**, always use the proper wire connector.

- The DC cigarette outlet is 12VDC output rated for a maximum of 10A/120 watts.
- The DC Anderson connector outlet is a 12VDC output rated for a maximum of 20A/240 watts.

DC USB Outlet

Four USB ports rated 5VDC and a maximum of 8 cumulative Amps across all four ports. Each individual port has a max output of 3A, but the unit will automatically configure the amount of power required to charge/run the device.

ERROR CODE LIST

ERROR CODE	SPECIFICATION	POSSIBLE CAUSE	REMEDY
E1:01	System over current protection	Total load on system exceeds 1500W constant rating or short term surge maximum	Check current draw of appliances/loads. Retry with smaller load. Switch unit ON/OFF to reset
E1:02	Battery over temperature protection	Internal battery temperature too high	Check ambient temperature (outside). Place unit in cooler environment (shade/inside). Constant charge/ discharge load on unit may need to be reduced
E1:03	Battery Low Voltage protection	Battery empty	Recharge unit
E2:01	Inverter over current protection	Maximum surge current exceeded for maximum time	Check current draw of appliances/loads. Reduce number of discharge devices
E2:02	Inverter over temperature protection	Temperature limit exceeded	Switch OFF inverter. Check appliances/loads. Retry with smaller loads
E2:03	Inverter low voltage protection	Battery voltage too low to run inverter	Recharge unit
E3:01	DC Out over current protection	Maximum surge current exceeded for maximum time	Check current draw of appliances/ loads. Reduce the number of discharge devices

1500 SERIES 1.3KWH
TECHNICAL SPECIFICATIONS

Specifications

Primary use	Commercial lights & appliances; Consumer home/domestic: lights & appliances (fridges, washing machines, computers, furnace blowers)
Cycle life	2,500+ cycles (daily use ~6.8 yrs)
Component reliability	2,500+ cycles
Expected usage	Daily
System efficiency	>90%

AC Charger

AC charging model	CC:Constant Current CV:Constant Voltage
Input AC voltage	90~260Vac+/-5%
Input AC frequency	50/60Hz+/-5%
Max.output DC current	25A
Max.output DC voltage	14.6Vdc
Over voltage protection	Yes
Low voltage protection	Yes
Max AC amperage protection	Yes, self-limit
Temperature protection (hot/cold)	No

DC Charger

DC inputs	Variable (solar, wind, other)
DC input voltage	12~50V
Max.output DC current	15A
Max.output DC voltage	14.6Vdc
Over voltage protection	Yes, auto-reset
Low voltage Protection	Yes, auto-reset

Max DC amperage protection	Yes, self-limit
Over temperature protection	Yes, auto-reset

AC Out: Inverter

Output wave form/THD	PSW Pure sine wave / THD 3.82%
Input DC voltage	10.5~14.6V
Output AC voltage	120 +/-5%
Output AC frequency	60Hz±5%
Inverter efficiency (minimum)	88%
Max. consistent output power	1500W
Peak output power	1599W (5 seconds)
Startup peak power	115A for 300ms
Overload protection	1600W for <5 seconds
Over temperature protection	Yes 100.2 C
Short protection	Yes
By-pass functionality	Yes, 110~130Vac / 57~63Hz
Low Voltage Protection	Yes

DC Out

DC output - Anderson connector	Voltage: 10.5~14.6 Current max: 20A All DC Max = 38A
USB output	~5V @3A for each port, Max. current for 4 ports is 8A All DC Max = 38A
DC output - Cigarette socket	Voltage: 10.5~14.6 Current max: 10A~20A All DC Max = 38A

Battery (incl. BMS)

Battery type	LFP
Battery standard voltage	12.8V

Battery volume	100AH
Battery Cycle Life (100% DOD; 25 degrees Celsius)	2,500
Battery standards	UL1642 IP20
Battery max. charging current	AC & DC simultaneous charge Max. total current = 40A (0.8C)
BMS shut down voltage	15.2V
LVP (battery)	LVP: 10.0Vdc Shutdown LVP: 9Vdc
Battery Expected Float Charge	~13.3 to 14.2
Internal System Power Consumption: ON (no charge, no discharge)	@13Vdc ~187W/24Hr (600mA)
Internal System Power Consumption: ON (no charge, no discharge); AC inverter switch ON but no AC load	@13Vdc ~ 530W/24Hr (~2A)
Internal System Power Consumption: OFF (no charge, no discharge)	@13Vdc ~ 0.01W/24Hr (60uA)
Internal System Power Consumption: OFF (no charge, no discharge) AC inverter switch ON but no AC load	@13Vdc ~ 0.01W/24Hr (60uA)

Other

Application environment	Indoor
Normal ambient temperature	25+/-5 °C
Case temperature	< 55 °C full load discharging status
Normal ambient moisture	<= 90%
Storage temperature	0~40 °C
Storage moisture	<= 90%
Altitude	2,000m

Cooling	Fan & Convection
Industrial Design	Aluminium 255mm x 255mm x 455mm
Weight	21.6kg (47.5lbs)

Safety requirement/Standards

FCC	Conform to FCC Part 15 Subpart J Class B
CE	Yes
UL	Not certified but UL standards used in design

1500 SERIES 0.64KWH
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Temperature protection (hot/cold)	No

DC Charger

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Storage moisture	<= 90%
Altitude	2,000m
Cooling	Fan & Convection
Industrial Design	Aluminium 255mm x 255mm x 355mm
Weight	15.6kg (34.5lbs)

Safety requirement/Standards

FCC	Conform to FCC Part 15 Subpart J Class B
CE	Yes
UL	Not certified but UL standards used in design

WARRANTY INFORMATION

Humless LLC warrants to the original purchaser that its products and the component parts thereof will be free from defects in workmanship and materials, for a period on one year from date of purchase.

Humless LLC will, without charge, repair or replace, at its option, defective product or component parts. Returned product must be accompanied by proof of the purchase date in the form of a sales receipt and an Humless-authorized RMA number.

Exclusions: This warranty does not apply in the event of misuse or abuse of the product or as a result of unauthorized alterations or repairs. The warranty is void if unit is open or altered in any way or used in a manner contrary to instructions in this user manual or specifications.

Humless LLC shall not be liable for any consequential damages, including without limitation, damages resulting from loss of use.