



Power Inverter / UPS Movable Trolley System

Instruction Manual

720W / **1440W**
12VDC to 230VAC 24VDC to 230VAC
FBIT1200 FBIT2400



Introduction

Thank you for purchasing the Ellies Inverter/UPS. Properly used, this product will give you many years of reliable service. The Ellies Inverter/UPS is an electronic product that has been designed to take low DC voltage power from batteries and convert it to standard AC power like the current you have at home. The Ellies Inverter/UPS is a DC-to-AC Inverter with auto mains-to-battery transfer and integrated charging system, and powers connected appliances from either AC power or DC battery source, serving as an extended run UPS. When AC cable is connected to a wall socket, utility power goes to connected equipment and/or charges the battery set via charging system. In UPS mode, the Ellies Inverter/UPS series automatically converts battery energy into AC power for backing up the connected devices.

Important Safety Information

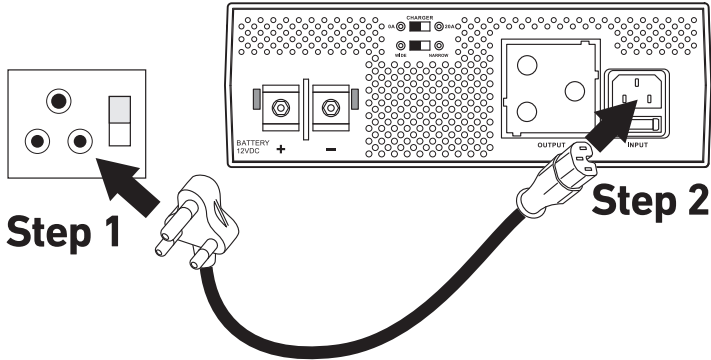
Before installing Ellies Inverter/UPS, please read the following information carefully and save this manual for further reference. Disregard of these safety notes may endanger life or health, as well as the function of the equipment and will render the warranty invalid. Special attention must be paid to the Cautions and Warnings statements in this manual.

Cautions

- Leave plugged in continuously and switched on at the mains to maintain battery for use.
 - Ensure UPS on/off switch is on to provide uninterrupted power to your connected appliances.
 - These batteries expel explosive hydrogen gas, which can be ignited by sparks from electrical connections.
 - DO NOT obstruct the ventilation openings.
-
- Shock hazard. Keep away from children.
 - Always transport and use the inverter/UPS right side up, do not use on its side or upside down, this will lead to battery shorting on casing and battery acid will leak out. The batteries are strapped into position, this keeps the battery firmly down on the base. Rubber mats will not help if it's moved around on its side or upside down.
 - The inverter/UPS generates the same potentially lethal AC power as a normal household wall outlet. Treat it with the same respect that you would any AC outlet.
 - Do not insert foreign objects into the inverter/UPS's AC outlets, fan or vent openings.
 - Do not under any circumstances, connect the inverter/UPS output directly to household wiring. (Connect only the equipment you want to power to the supplied extension cables).
 - Heated surface: The inverter/UPS's housing may become uncomfortably warm, reaching 140°F (60°C) under extended high power operation. Ensure at least 2 inches (5cm) of air space is maintained on all sides of the inverter/UPS. During operation, keep away from materials that may be affected by high temperatures.
 - Explosion hazard: Do not use the inverter/UPS in the presence of flammable fumes or gases, such as in the bilge of a gasoline powered boat, or near propane tanks. Do not use the inverter/UPS in an enclosure containing automotive-type, lead-acid batteries.
 - When working on electrical equipment always ensure someone is nearby to help you in an emergency.
 - Do not connect live AC power to the inverter/UPS's AC outlets. The inverter/UPS will be damaged even if it is switched off.
 - To reduce risk of injury, charge ONLY lead-acid type rechargeable batteries. Other types of batteries may cause damage and injury.
 - Do not use this product if damaged or a fault is detected - switch off power immediately.
 - Do not expose the Ellies Inverter/UPS to rain, use it near water or in damp or wet conditions. If water or liquid seeps into product, turn off the power at the household electrical distribution board immediately and remove from wall socket.
 - Ellies Inverter/UPS is designed for indoor/covered installation only.
 - NEVER charge a frozen battery.
 - Never insert or remove an electric plug with wet hands.
 - Do not remove cover. No user serviceable parts inside. Refer servicing to qualified service personnel.
 - The sum of the earth leakage current of the Ellies Inverter/UPS and the connected equipment should not exceed 3.5mA.
 - Risk of explosion if battery is incorrectly connected or replaced.
 - Please take care opening and handling packaging to prevent cuts.
 - Once opened please dispose of this packaging responsibly.
 - Do not use the inverter/UPS with the following equipment: Small battery operated products such as rechargeable flashlights, some rechargeable shavers, and night-lights that are plugged directly into an AC receptacle to recharge.
 - Connect inverter/UPS only to batteries with a 12V DC nominal output. Wrong DC input will not supply enough voltage or damage the inverter/UPS.
 - Any internal adjustment on the inverter/UPS is prohibited!
 - The cooling fan is designed to operate only when the temperature is higher than 104°F (40°C).

Electrical Connections (connect to)

- First plug Computer cord into wall mains outlet and then plug extension cord into the socket provided.



Connecting Appliances

- Plug appliances directly into the 3 pin mains socket on the back of the inverter or into one of the sockets on the 10m extension cable and switch the unit ON.

Recommendations

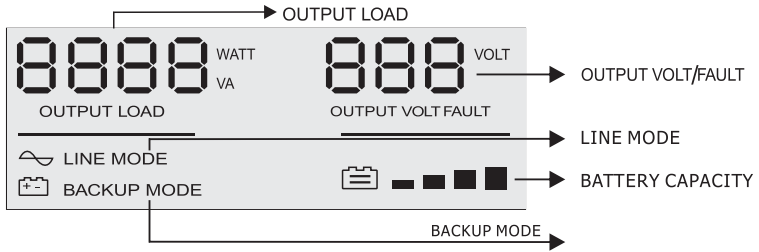
- Ideal for home and office use
- Indoor use only
- In the event of your unit's battery needing replacement, we recommend that your unit is brought in to your nearest Ellies branch to ensure correct installation.
- 10A setting is recommended to increase the battery lifespan.

Features

- Movable trolley system is easy to move around and setup when required
- Built-in ATS (Automatic Transfer Switch), automatic line to battery switch over.
- Auto restart during AC recovery.
- Overload protection, automatically shuts down to prevent damage to your equipment and inverter if maximum output is exceeded.
- Multi-function LED status indicators.
- Fossil fuel and pollution free.
- Low battery disconnect function.
- Energy efficient inverter / UPS.
- Selectable mains failure detection sensitivity.
- Warning buzzer (notifies you for low battery and overload).
- Built-in intelligent 2 stage battery charger to prolong battery life.
- Battery saving and low battery disconnect function (still charges batteries when On/Off switch is in the Off position), to prevent the batteries from going flat when you are not there.
- 10 or 20 Amp selectable battery charger.

LCD Display Specifications

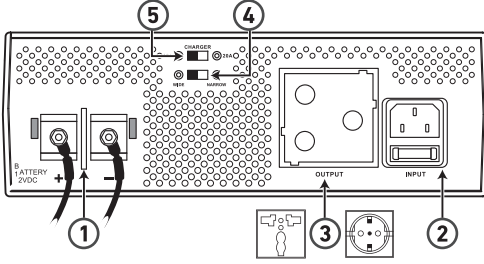
By pressing the power switch the Inverter works in normal mode, including ON/OFF, Charging mode and fault mode. When LCD starts to work it will display all information for 3 seconds.



| | |
|------------------------------------|---|
| <p>Inverter Mode</p> | <p>Line Mode</p> |
| <p>Short circuit</p> | <p>Over load fault</p> |
| <p>DC overvoltage fault</p> | <p>Fan block fault</p> |
| <p>DC low voltage</p> | <p>Output over voltage</p> |
| <p>Output low voltage</p> | <p>AC IN/OUT voltage difference>10V</p> |

| Alarm | Code |
|-------------------------------|------|
| Battery low voltage | 0 |
| Inverter output overload | 1 |
| Input AC power low voltage | 2 |
| Input AC power high voltage | 3 |
| Input AC power low frequency | 4 |
| Input AC power high frequency | 5 |
| Battery high voltage | 6 |

Rear Panel and Output Description

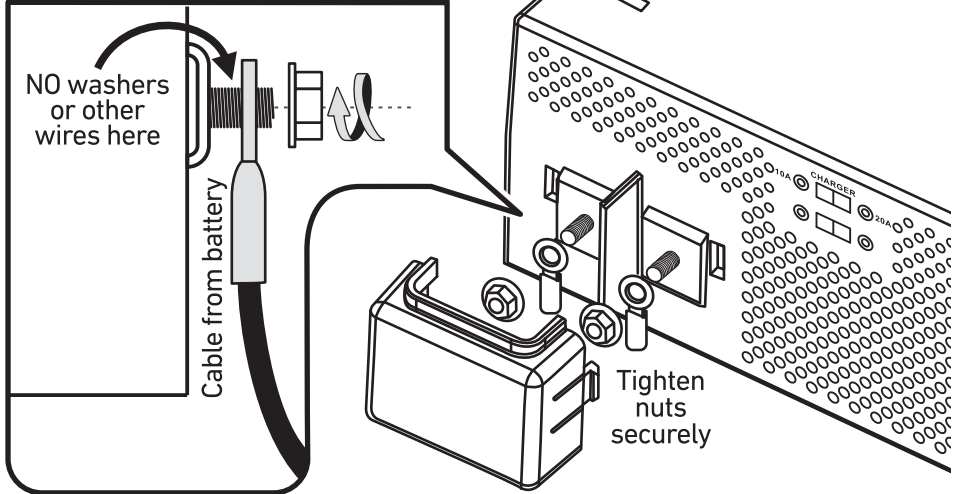


1. DC input connector (battery terminal).
2. AC input and 10A / 20mm fuse.
3. Output receptacle.
4. Input voltage range selector:
(See specifications chapter).
5. Charge current selector: 10A/20A adjustable, (10A setting is recommended to increase the battery lifespan).

- A.** Select 'Narrow' setting for general electrical appliance such as tube lights, energy saving lamps, TV, Juicer & mixer etc, but it is not suitable to meet high-power motor or inductive load such as the fridge of 1 KW the motor of 800W, air cooler, PC (having risk of rebooting) and so on. In this mode, the Inverter / UPS operating voltage, in 'mains' mode, is within 170-280Vac with the same output voltage. The line sensitivity is higher.
- B.** Select "Wide" setting to save energy. In this mode the operating range of voltage for the Inverter / UPS is 90-280Vac, hence the output voltage will be the same as the MAINS input voltage. The Inverter / UPS unit in 'Wide' mode has a lower sensitivity. You can connect and use only for certain appliances, such as a lamp or a fan.

Caution!

Always connect the inverter/UPS first and then the battery.
DO NOT place anything between battery cable ring terminals and battery terminals. The terminal stud/bolt is not designed to carry current. Apply Anti-oxidant paste to terminals after terminals have been torqued.



Specifications

| Model | | FBIT1200 Inverter / UPS | FBIT2400 Inverter / UPS |
|------------------------------|--|-----------------------------------|-----------------------------------|
| Capacity | | 720W / 1200VA | 1440W / 2400VA |
| AC Input | Nominal voltage | 220 / 230 / 240VAC | |
| | Input voltage range | 90~280VAC / 10 Amp Max | |
| | Nominal frequency | 50 / 60Hz (Auto Detection) | |
| Input Voltage Range Selector | Narrow | 170~280VAC | |
| | Wide | 90~280VAC | |
| Inverter Mode Output | Voltage | 230VAC + 10 / -18% | |
| | Frequency | 50 / 60Hz ± 0.5Hz | |
| | Waveform | Modified sine wave | |
| | Efficiency (AC to AC) | > 95% | |
| | Efficiency (DC to AC) | > 80% | |
| | No load input current | Approx 2A DC | |
| Battery | Nominal voltage | 12V DC 102A/h Maintenance free | 24V DC 102A/h Maintenance free |
| | Boost voltage | 14.4 +/- 0.4V | 28.8 +/- 0.4V |
| Charger | Float voltage | 13.7 +/- 0.2V | 27.4 +/- 0.4V |
| | Charging current 10A | ± 2A | |
| | Charging current 20A | ± 2A | |
| | Overcharging protection | 15.5 +/- 0.4V | 31 +/- 0.8V |
| | Charging time 10A | < 13 hours | |
| | Charging time 20A | < 7 hours | |
| | Transfer | Transfer time | Typical 15-20ms, 40ms max. |
| LCD Indicator | Input/Battery, Output/Load/Fault, Load level, Battery capacity, Line mode, Backup mode. | | |
| Audible Alarm | Low battery voltage in battery mode | Beeps every 2 seconds | |
| | Overload | Beeps every 0.5 second | |
| | Fault | Beeps continuously | |
| Environment | Temperature | 0 ~ 40°C | |
| Physical | Dimension (mm) DxWxH | 267 x 475 x 475 | 480 x 445 x 587 |
| | Net weight (Kg) | 39.5Kg | 68.5Kg |
| Protections | Deep discharge, Overcharge, Short circuit, Overload, Battery short, Over voltage, Under voltage. | | |

Troubleshooting

| Problem | Possible Causes | Remedy |
|---|---------------------------------|--|
| No LED display | Battery Weak | Re-charge battery |
| | Battery defective | Battery replacement |
| | Power switch is not pressed | Press and hold power switch |
| Mains normal but works in inverter mode | AC Input missing | Check AC input connection |
| | Input protector is effective | Have the input fuse checked/replaced by a qualified person |
| Alarm buzzer beeps continuously | Overload | Verify that the load matches the capability specified in the specs |
| | Wrong / looped 220AC connection | Ensure that 220VAC input plug is not plugged into 220VAC output socket |
| Back up time is shortened | Overload | Remove some non-critical load |
| | Battery voltage is too low | Charge battery for 8 hours or more |

In the unlikely event that any abnormal situations occur that are not listed above, please call Ellies service personnel immediately

Appendix A

| Models | Input/output cables (gauge copper wire) | Battery cables (gauge copper wire) |
|--------------------------------|---|------------------------------------|
| 720W 1200VA / 12VDC | At least 18 AWG / 0.8mm ² | At least 12 AWG x 2 |
| 1440W 2400VA / 24VDC | At least 18 AWG / 0.8mm ² | At least 12 AWG x 2 |

Quick Reference Chart Guide

720W UPS / Inverter
12VDC to 230VAC
 FBIT1200

Max recommended runtime is 140W for 4 hours 30 mins

1440W UPS / Inverter
24VDC to 230VAC
 FBIT2400

Max recommended runtime is 250W for 4 hours 30 mins

Runtimes based on 140W/250W average power usage

Please note: This is only a guide, please consult your equipment handbook for accurate power usage and requirements.

Remember: Electric motors require an average power source of up to 3 x their rating to start. **Over approximately one year of daily use, your battery charge storage capacity will drop to about 70% of its original charge capacity, this is normal.**

| | | | | | | |
|---------------------|--------------|----------------------------------|---------------------|-------------------------------|---------------------|--|
| | | | | | = 100W | |
| LED LAMPS 3 x 5W | ALARM 20W | WI-FI WIRELESS ROUTER 10W-20W | SMALL LED TV 30W | CELLPHONE OR TABLET 5W-15W | | |
| approximate runtime | | | | | approximate runtime | AN AVERAGE SLIDING ELECTRIC GATE WILL USE 100W OVER A 24 HOUR PERIOD |
| 5 hours | | | | | 10 hours | |

| | | | | | | |
|------------------------|--------------|----------------------------------|------------------|---------------------|-------------------------------|---------------|
| | | | | | | = 140W |
| LED LAMPS 4 x 5W | ALARM 20W | WI-FI WIRELESS ROUTER 10W-20W | SATELLITE 45W | SMALL LED TV 30W | CELLPHONE OR TABLET 5W-15W | |
| approximate runtime | | | | | approximate runtime | |
| 4 hours 30 mins | | | | | 9 hours | |

| | | | | | | | | |
|---------------------|-----------------------|--------------|----------------------------------|---|---------------------|-------------------|-------------------------------|---------------|
| | | | | | | | | = 300W |
| LED LAMPS 5 x 5W | LED SPOT LIGHT 10W | ALARM 20W | WI-FI WIRELESS ROUTER 10W-20W | BLU-RAY PLAYER OR GAMING CONSOLE 50W-90W | LED TV 60W | LAPTOP 30W-60W | CELLPHONE OR TABLET 5W-15W | |
| approximate runtime | | | | | approximate runtime | | | |
| 2 hours | | | | | 4 hours | | | |

IMPORTANT !

Modified sinewave inverters are not suitable for use with medical devices!

This inverter cannot be used for the following appliances:



IRONS



KETTLES



TOASTERS



ELECTRIC BLANKETS



HEATERS



AIRCONS



WASHING MACHINES



TUMBLE DRYERS



FRIDGES

As these devices will not work or damage the inverter if used while there is no mains but they might blow the fuse in the mains input socket of the product if used when mains is present. (The inverter will then run in backup mode even if mains is connected until this fuse is replaced).

It is recommended to keep the inverter powered at all times.

The inverter's battery charging life span is shortened when they are run completely flat too frequently.

Warranty

This product carries a warranty by Ellies Electronics (Pty) Ltd for one year from date of purchase to be free from defects and to perform as specified. Keep receipt as proof of purchase.

Warranty excludes the batteries

Help line

South Africa: 0861-ELLIES (355437)
 For branch or contact details, please refer to website: www.ellies.co.za