

Power+ Series Product

USER MANUAL

This manual is applicable to the following models:

12V 80Ah		
12V 105Ah-G31	12V 105Ah-G24	
12V 210Ah	24V 105Ah	

Thank you for purchasing this Power+ series product.
Please read this manual carefully before use and keep it for future reference!

OVERVIEW

Multipurpose series lithium iron phosphate (LFP) battery modules are specially designed for multi-applications. These battery modules adopt an ABS shell which can be used 24/7. They have outstanding advantages of being waterproof, bluetooth capabilities, heating features, impact resistance, good insulation performance, easy installation and maintenance-free. They can meet the application of Rvs, solar lights, small medical equipment, toys and some small off-grid energy storage scenarios. Battery modules integrate intelligent BMS inside which offers great advantages in terms of safety, cycle life, balancing and smart control.



Compact Design

Smaller size & Lighter weight can save more space compared with traditional lead-acid battery.



Smart Balancing

Built-in balance circuit will auto trigger while reaches to set conditions, which will greatly improve the consistency of the battery and extend product lifespan.



Bluetooth (Optional)

Monitoring the battery operation status (Voltage, Current, Temperature, SOC etc.) in real time with the built-in Bluetooth module on mobile devices.



High IP Rating

IP65 design meets most application scenarios.



Heating Features (Optional)

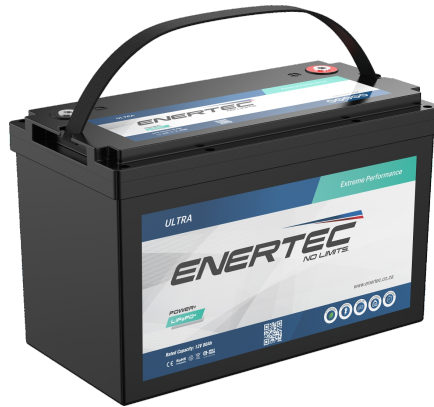
When the ambient temperature is between -20~0°C and an external power input exists the heating feature will automatically trigger to ensure that the battery can be charged normally (0~45°C).



Intelligent BMS

The battery management system (BMS) provides short-circuit, over-voltage, low-voltage, over-temp, low-temp protection.

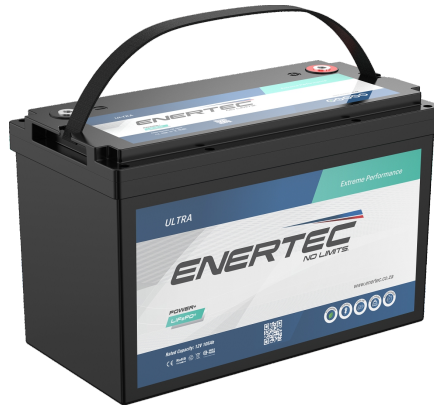
12.8V 80Ah



Specification

Voltage (V)	12.8	25°C, 0.2C
Capacity (Ah)	80	
Weight (kg)	9	±0.3
Dimensions (W*D*H, mm)	330*172*214, M8	±2
Charging Cut-off Voltage (V)	14.4	
Discharging Cut-off Voltage (V)	9.6	
Charging Current (A)	Max constant charge: 80	Recommended: 50
Discharging Current (A)	Max constant discharge: 80	
Charge Range	0°C~50°C	
Discharge Range	-20°C~50°C	
Storage Range	-20°C~50°C	
Built-in BMS	Voltage / current / temperature management & cell balance	Bluetooth connection
Low Temperature Charging Heating	≤0°C: start heating	Optional
	> 5°C: stop heating	
Cycle Life	>3000 times, 0.5C, 80% DOD	25°C
IP Rating	IP 65	
Certification	UN38.3, IEC 62619, IEC 60730, IEC 61000, EN 300 328, EN 301 489-1/17, EN 62479	

12.8V 105Ah



Specification

Specification			
Voltage (V)	12.8		25°C, 0.2C
Capacity (Ah)	105		
Weight (kg)	11.5	11	±0.3
Dimensions (W*D*H, mm)	330*172*214, M8	258*166*210, M8	±2
Charging Cut-off Voltage (V)	14.4		
Discharging Cut-off Voltage (V)	9.6		
Charging Current (A)	Max constant charge: 105		Recommended: 50
Discharging Current (A)	Max constant discharge: 105		
Charge Range	0°C~50°C		
Discharge Range	-20°C~50°C		
Storage Range	-20°C~50°C		
Built-in BMS	Voltage / current / temperature management & cell balance		Bluetooth connection
Low Temperature Charging Heating	≤0°C: start heating		Optional
	> 5°C: stop heating		
Cycle Life	>3000 times, 0.5C, 80% DOD		25°C
IP Rating	IP 65		
Certification	UN38.3, IEC 62619, IEC 60730, IEC 61000, EN 300 328, EN 301 489-1/17, EN 62479		

12.8V 210Ah/25.6V 105Ah

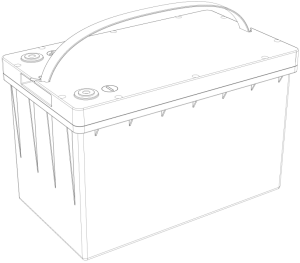
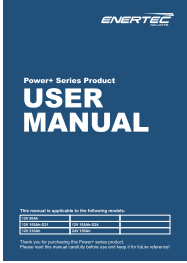
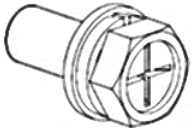


Specification

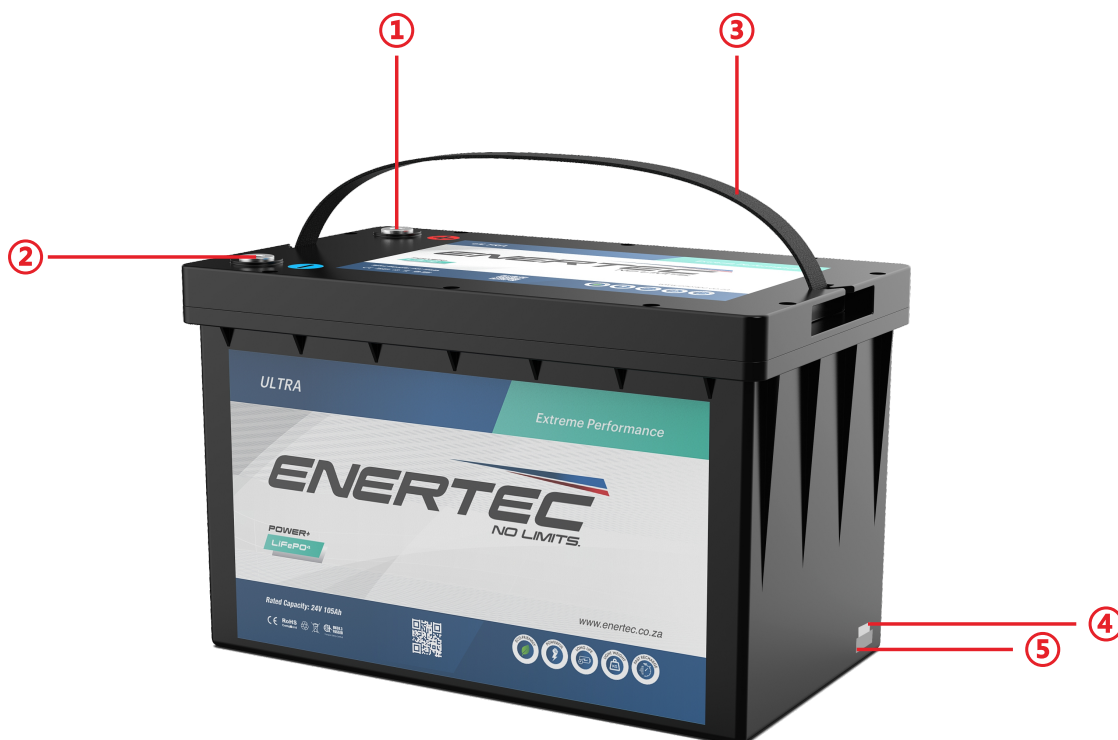
Specification			
Voltage (V)	12.8	25.6	25°C, 0.2C
Capacity (Ah)	210	105	
Weight (kg)	20		±0.3
Dimensions (W*D*H, mm)	345*180*245, M8		±2
Charging Cut-off Voltage (V)	14.4	29.2	
Discharging Cut-off Voltage (V)	9.6	20	
Charging Current (A)	Max constant charge: 105		Recommended: 50
Discharging Current (A)	Max constant discharge: 105		
Charge Range	0°C~50°C		
Discharge Range	-20°C~50°C		
Storage Range	-20°C~50°C		
Built-in BMS	Voltage / current / temperature management & cell balance		Bluetooth connection
Low Temperature Charging Heating	≤0°C: start heating		Optional
	> 5°C: stop heating		
Cycle Life	>3000 times, 0.5C, 80% DOD		25°C
IP Rating	IP 65		
Certification	UN38.3, IEC 62619, IEC 60730, IEC 61000, EN 300 328, EN 301 489-1/17, EN 62479		

PRODUCT INTRODUCTION

Packing List

		
Product *1	User manual *1	M8*12mm *2

PRODUCT DESCRIPTION

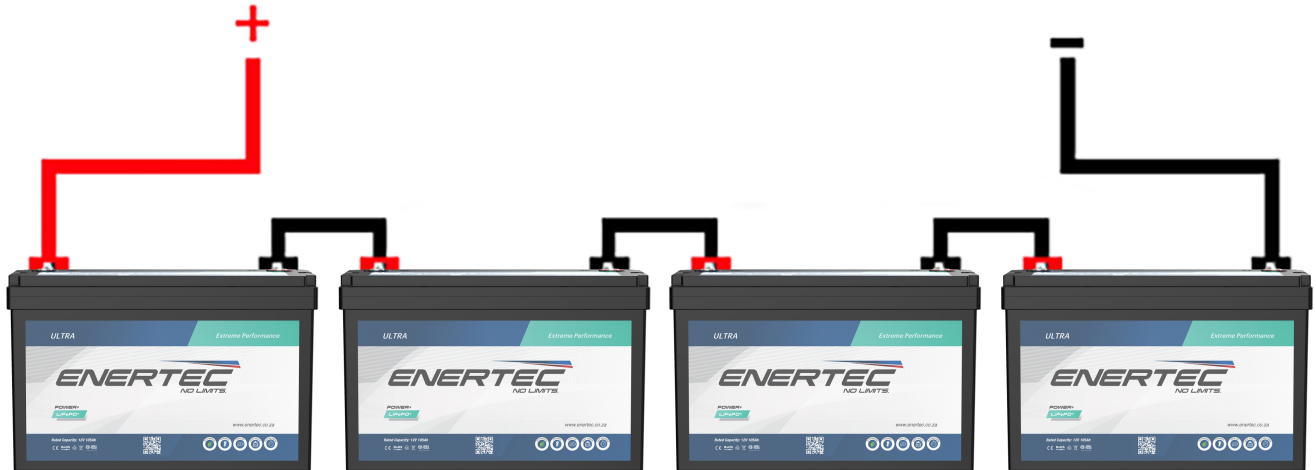


1. Positive Terminal
2. Negative Terminal
3. Lifting Handle
4. Bluetooth QR Code
5. Factory Code

12V USE IN SERIES/PARALLEL

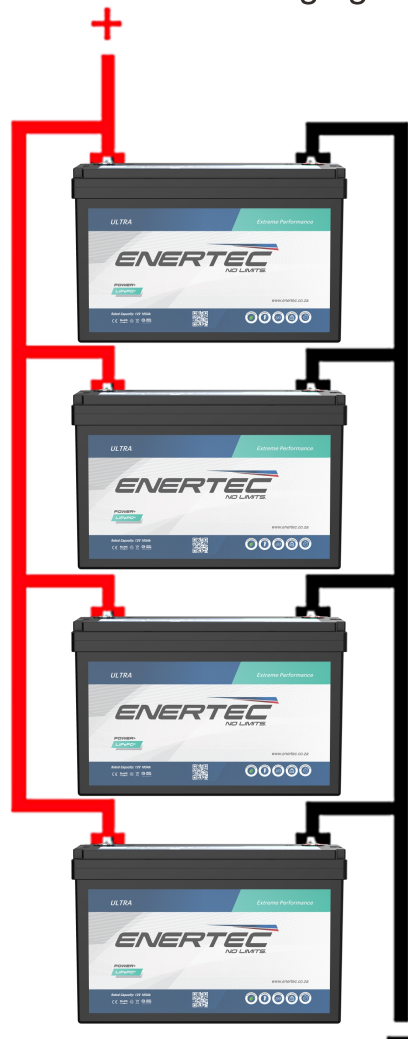
Series Connection

The battery supports up to 4 identical batteries in series, and the wiring method for series use is shown in the following figure.



Parallel Connection

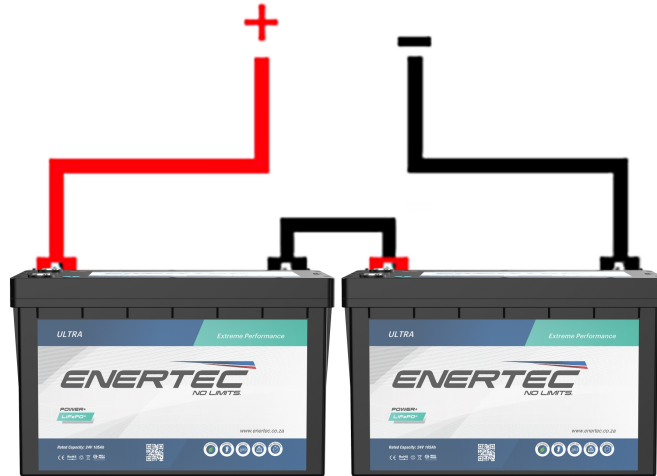
The battery supports up to 4 identical batteries for parallel use, and the wiring method for parallel use is shown in the following figure.



24V USE IN SERIES/PARALLEL

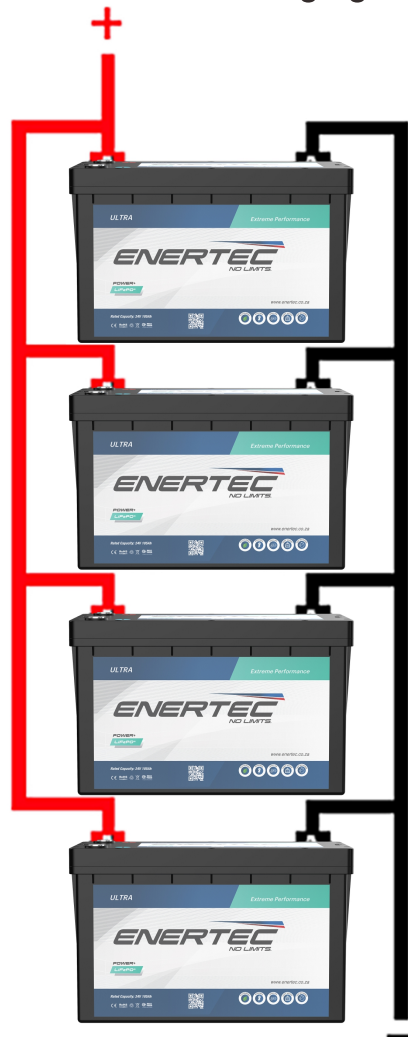
Series Connection

The battery supports up to 2 identical batteries in series, and the wiring method for series use is shown in the following figure.



Parallel Connection

The battery supports up to 4 identical batteries for parallel use, and the wiring method for parallel use is shown in the following figure.



OPERATING MODE

1. Charging Mode

When the product detects an external charging voltage of $\geq 48V$, and the voltage and temperature of the battery cell are within the rechargeable range, the charging MOSFET for charging will automatically be turned on. In charging mode, both charging and discharging MOSFETs are conducting. If the charging current exceeds the set charging overcurrent protection value, overcurrent protection will be triggered.

2. Discharge Mode

When the product detects a load connection and the voltage and temperature of the battery cell are within the discharge range, and the discharge current is greater than 0.6A, it enters the discharge mode.

3. Standby Mode

When neither of the above modes is met, enter standby mode.

4. Sleep Mode

When the following conditions are met, the system enters sleep mode (low-power mode).

During normal operation, if the load current is detected to be less than 600mA and there is no UART communication, it will enter shallow sleep mode after 30 minutes (default); Wake up at regular intervals every 1 hour. Bluetooth will be turned off in light sleep mode.

When the system is in sleep mode and any of the following conditions are met, the system will exit sleep mode and enter normal operation mode:

- ① Detected charging to activate the battery and enter normal charging and discharging mode.
- ② Detection of discharge current greater than 800mA will release shallow sleep and enter normal charging and discharging mode.

5. Shutdown Mode

The low voltage protection of the battery will cut off the discharge MOSFET, and the battery will shut down after 30 seconds.

Activation method: Detected charging to activate the battery.

BIUETOOTH APP USER GUIDE

1. Download the App Android Users

Scan the QR code using a browser to download the app



IOS Users

Enter the Appstore and search for "Bms Blue Tooth" for download



BIUETOOTH APP USER GUIDE

2. Set App Language

Open the app and click on System Settings below - click on Language to switch (currently only supports Chinese and English). As shown in the following figure:

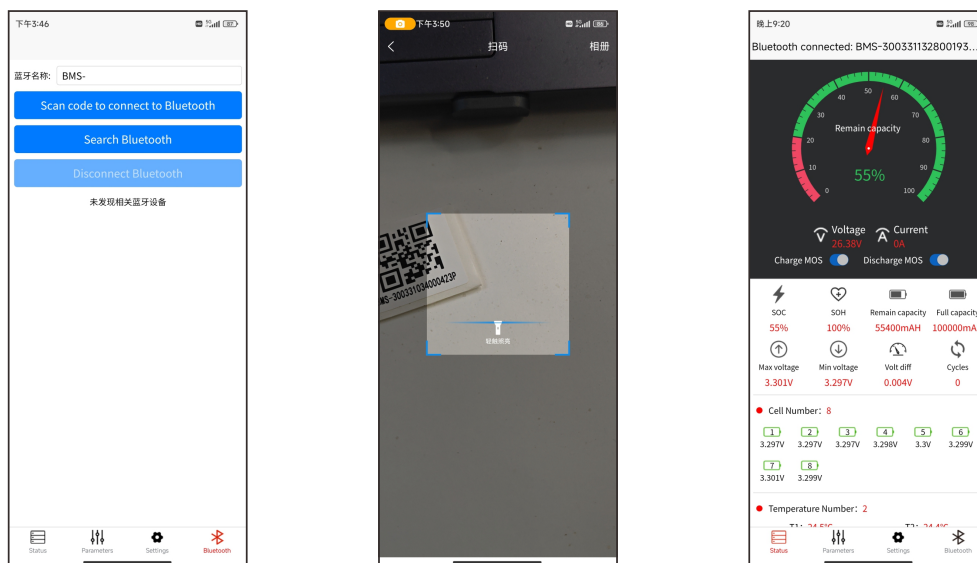
The screenshot displays the BIUETOOTH APP interface. At the top, the status bar shows the time as 下午4:17, 5G signal, and 85% battery. The main header reads "Please connect Bluetooth". Below this, the "Electricity(mAH):" section contains three input fields for "Design capacity:", "Remain capacity:", and "Full capacity:", all showing "0". A blue "Read" button is positioned below these fields. The "Language:" section features two radio buttons: "Chinese" and "English". The "English" option is selected and highlighted with a red box. Below the language selection are three input fields for "Model Code:", "PACK Code:", and "Password:", each with the placeholder text "Please enter". Further down, there are two toggle switches: "Charging state" (green icon) and "Discharge state" (red icon), both with a "state: Close" label. At the bottom, a navigation bar contains four icons: "Status", "Parameters", "Settings" (highlighted with a red box), and "Bluetooth".

BIUETOOTH APP USER GUIDE

3. Open the App to Search for Devices

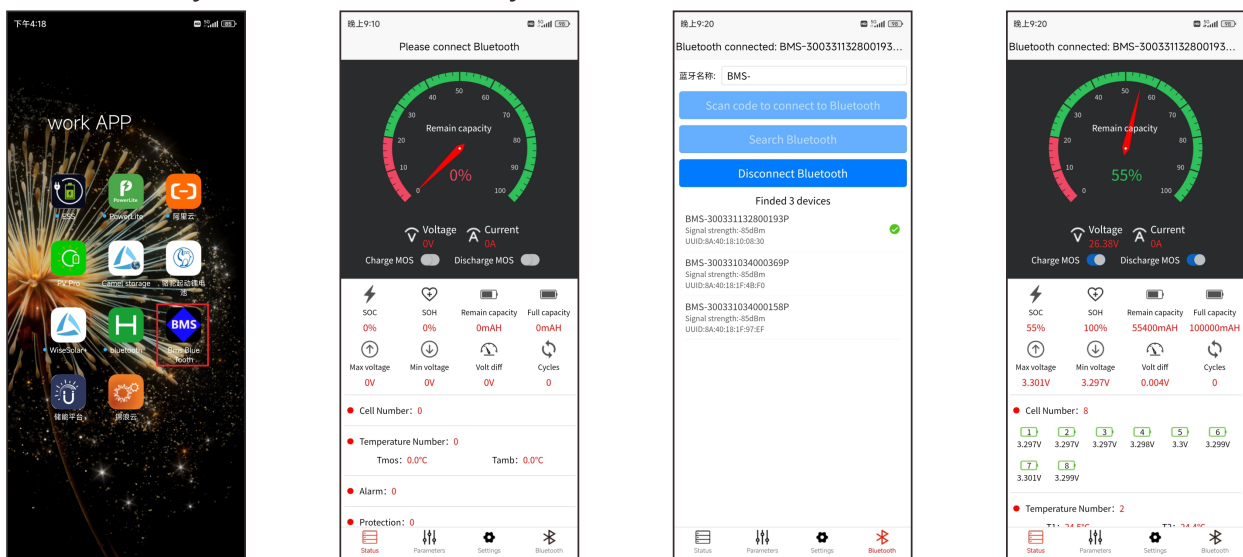
3.1 Connect to Bluetooth by Scanning the QR Code

After the device is discharged and activated, open the app. After entering the homepage, click "Connect Bluetooth" below and on the new page, click "Scan Code to Connect Bluetooth" to scan the QR code attached to the battery for connection. After the scan code is completed and the connection is successful, click "Device Status" to jump to the battery information page. When there is data on the battery information page, it can be considered that the connection is successful.



3.2 Connect to Bluetooth Through Search

After the device is discharged and activated, open the app. After entering the homepage, click "Connect Bluetooth" below and search for Bluetooth on the new page. Click on the scanned Bluetooth code and switch to the homepage displaying "SOC", "Current", "Voltage" and other data. Once successfully connected, you can view battery related information.



STORAGE CONDITIONS

Items	Parameters
Storage temperature	-20 °C to 45 °C (within 1 month)
	15 °C to 35 °C (within 6 months)
Storage humidity	5%~95%RH, no condensation
Charging	Needs to be replenished every 6 months
Other requirements	Should not be exposed to direct sunlight, and the distance from the heat source should not be less than 2 meters. When storing, the battery pack must not be inverted and mechanical impact and heavy pressure should be avoided. Do not short-circuit the positive and negative terminals.

CAUTIONS

1. Avoid dropping the product.
2. Keep this product away from liquid.
3. Keep this product away from explosive or flammable materials.
4. Please use the power source as mentioned in this user manual.
5. Use original or certified cable.
6. Please DO NOT disassemble this product.
7. Avoid using this product in an extreme high or low temperature.
8. This product contains battery. Please dispose this product according to local laws and regulations.
9. To extend battery lifespan, please use and recharge it at least once every 4 months.
10. OSTATION does not support charge and discharge simultaneously.



WARNING

When using this product, basic precautions should always be followed, including the following:

- 1) Read all the instructions before using the product.
- 2) To reduce the risk of injury, close supervision is necessary when the product is used near children.
- 3) Do not put fingers or hands into the product.
- 4) Use of an attachment not recommended or sold by power pack manufacturer may result in a risk of fire, electric shock, or injury to persons.
- 5) Do not use a battery pack or appliance that is damaged or modified. Damaged or modified batteries may exhibit unpredictable behavior resulting in fire, explosion or risk of injury.
- 6) Do not operate the power pack with a damaged cord or plug, or a damaged output cable.
- 7) Do not disassemble the power pack, take it to a qualified service person when service or repair is required. Incorrect reassembly may result in a risk of fire or electric shock.
- 8) To reduce the risk of electric shock, unplug the power pack from the outlet before attempting any instructed servicing.

Personal Precautions

- 9) NEVER smoke or allow a spark or flame in vicinity of battery or engine.
- 10) Be extra cautious to reduce risk of dropping a metal tool onto battery. It might spark or short-circuit battery or other electrical part that may cause explosion.
- 11) When charging the internal battery, work in a well ventilated area and do not restrict ventilation in any way.
- 12) Under abusive conditions, liquid may be ejected from the battery; avoid contact. If contact accidentally occurs, flush with water. If liquid contacts eyes, additionally seek medical help. Liquid ejected from the battery may cause irritation or burns.
- 13) Do not expose a power pack to fire or excessive temperature. Exposure to fire or temperature above 130 °C may cause explosion. The temperature of 130 °C can be replaced by the temperature of 265 F.
- 14) Have servicing performed by a qualified repair person using only identical Replacement parts. This will ensure that the safety of the product is maintained.

SAVE THESE INSTRUCTIONS

WARRANTY

Warranty service within 36 months from the date of purchase

Please show this warranty card if a problem occurs, and fill out the relative details.

All of our products are warranted for 36 months from the date of purchase.

WARRANTY RANGE

1. Problem occurred under proper operation
2. The warranty does not apply to any product damage caused by improper operation
3. The warranty does not apply to any product damage caused by improper installation
4. No warranty if the device is without the warranty label

Our company can provide maintenance services for the products that are not under the warranty requirements. These maintenance services will be for the customers expense.

Model		Name	
Serial Number		Contacts	
Purchase Date		Address	
Repair Date		Department	
Product Anomaly Description			

Product by: Enertec Batteries (Pty) Ltd

Website: enertec.co.za

Contact us: 031 701 7761

Email: leads@enertec.co.za

