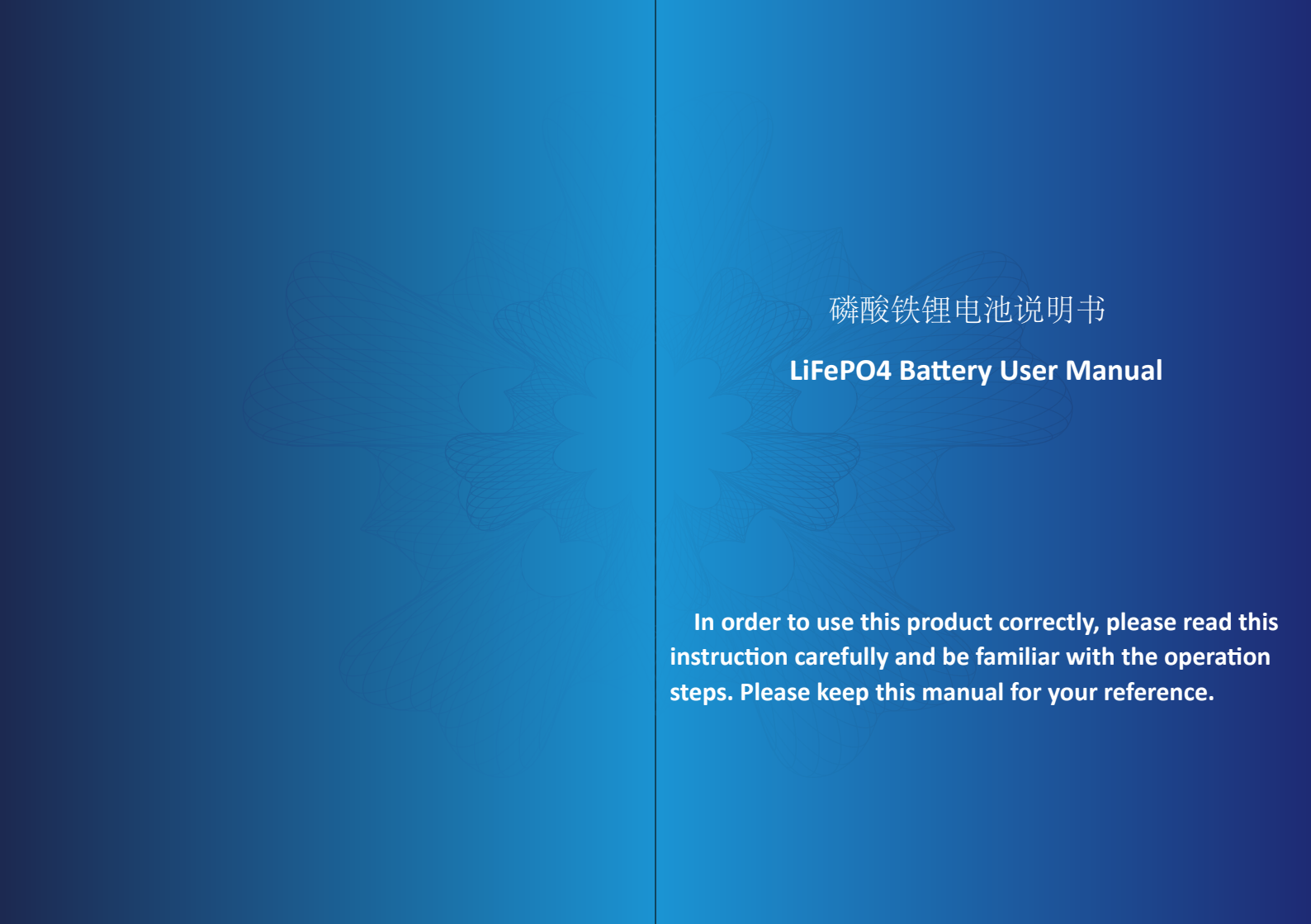




磷酸铁锂电池说明书

LiFePO₄ Battery User Manual

In order to use this product correctly, please read this instruction carefully and be familiar with the operation steps. Please keep this manual for your reference.

1. Product brief introduction

This product is a fully functional lithium iron phosphate battery pack management system, with single overvoltage/undervoltage, total undervoltage/overvoltage, charge/discharge overcurrent, high temperature, low temperature and short circuit protection and recovery functions. Accurate measurement of SOC and SOH health status statistics are realized in the charging and discharging process. Realize voltage balance during charging process. Real-time data communication and monitoring with APP through Bluetooth communication.

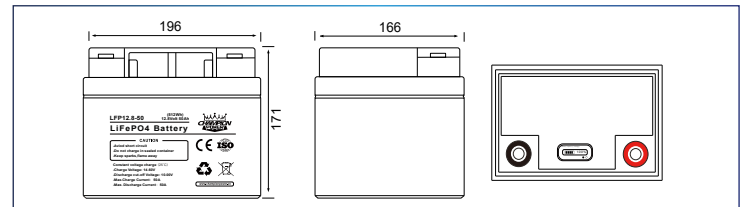
It can be applied to photovoltaic system, wind energy system, RV energy storage, electric ship, backup emergency energy storage system and other fields. It has the advantages of light weight, easy installation, long life and so on.

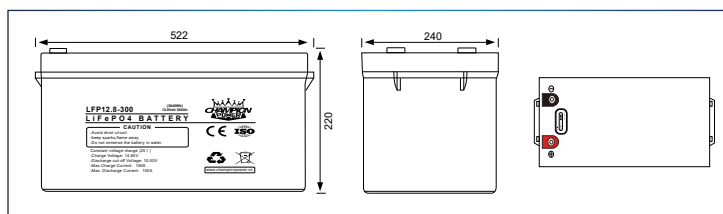
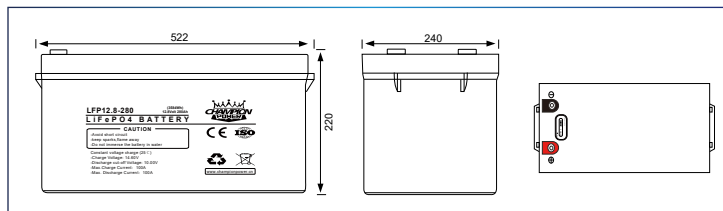
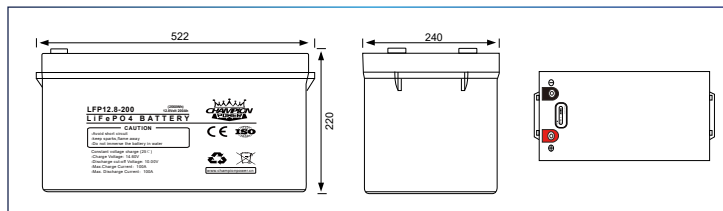
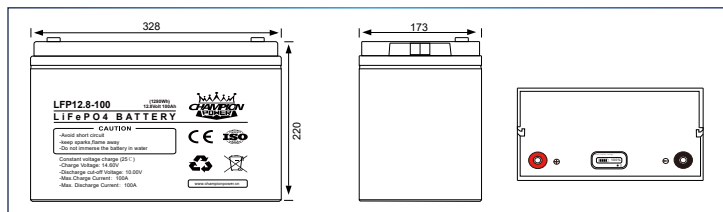
2. Technical specification

General Parameter					
Specification	Model				
Item	LFP12.8-50	LFP12.8-100	LFP12.8-200	LFP12.8-280	LFP12.8-300
Types of Battery Cells	lifepo4 battery				
Assembly Method	4 S				
Model of Battery Cells	3.2V50Ah	3.2V100Ah	3.2V200Ah	3.2V280Ah	3.2V300Ah
Combination of Voltage	12.8V				
Combination of Capacity	50Ah/640wh	100Ah/1280wh	200Ah/2560wh	280Ah/3584wh	300Ah/3840wh
Maximum Discharge current	50A	100A	100A	100A	100A
Maximum Charging Current	50A	100A	100A	100A	100A
Charge Voltage	14.60V				
Discharge cut-off Voltage	10V				
Charge Method	CC/CV				
Cycle Life	≥ 6000 times				
Terminal	M8				
Dimension	196*166*171	331*173*210	522*240*220	522*240*220	522*240*220
Weight	6.50kg	12.50kg	23.50kg	27.00kg	28.50kg
Working Temperature Range	Charge: 0℃~50℃ Discharge: -20℃~-60℃				
Storage Temperature	0℃~-40℃ (Recommendation 23±2℃)				
Display Board					
Display Material	LCD				
Display Content	Real-time Voltage and Power				
Communication					
Communication Mode	Bluetooth				
Monitoring software	APP(Android and Apple)				
Fire Protection Device					
Fire Protection Characteristics	Aerosol				
Start Mode	Warm Start				
Warm Start Temperature	≥170℃				

Protection function of BMS					
Features	Test items	Specification			Unit
		Minimum	Typical	Maximum	
Charging protection	Charger Voltage (CC-CV)	14.60			V
	Overcharge protection voltage	3.60	3.65	3.70	V
	Overcharge protection delay time	1000	2000	3000	mS
	Overcharge protection recovery voltage	3.45	3.50	3.55	V
Discharge protection	Over discharge protection voltage	2.45	2.50	2.55	V
	Over-discharge protection delay time	1000	2000	3000	mS
	Over-discharge protection recovery voltage	2.90	3.00	3.10	V
Overcurrent Protection	Charge overcurrent protection value	105	110	115	A
	Charge overcurrent delay	7	/	13	S
	Charge Overcurrent Release Recovery Condition	Delay 32S release			
	Discharge overcurrent 1 Protection current value	105	110	115	A
	Discharge overcurrent 1 protection delay	7	/	13	S
	Discharge overcurrent 2 Protection current value	400	440	500	A
	Discharge overcurrent 2 protection delay	100	/	500	mS
	Discharge overcurrent protection recovery condition	Delay 32S release			
	Short circuit protection delay time	200	/	600	uS
Short circuit protection	Short circuit protection recovery	Disconnect the load			
Balance function	Balance turn-on voltage	3.35	3.40	3.45	V
	Balance opening differential pressure	/	15	/	mV
	Balance mode	Charging balance			
	Balance current	40	/	60	mA
Temperature protection	Charging high temperature protection value	63	65	67	℃
	Charging high temperature protection release value	53	55	57	℃
	Charging low temperature protection value	-1	1	3	℃
	Charging low temperature protection release value	-8	10	12	℃
	Discharge high temperature protection value	73	75	77	℃
	Discharge high temperature protection release value	63	65	67	℃
	Discharge low temperature protection value	-12	-10	-8	℃
	Discharge low temperature protection release value	-2	0	2	℃
Internal resistance	Discharge circuit internal resistance	/	5	10	mR
Self-consumption	Operating mode	/	/	20	mA
	Sleep mode	/	/	200	uA
	Sleep Conditions and Delays	No current, communication, delay 10S in protection state			

3. Product standard





4. Installation instructions

4.1 Preparations

- 4.1.1 Appearance: Check whether the packing case and battery are in good appearance and do not crack, distort, stain, or leak electrolyte

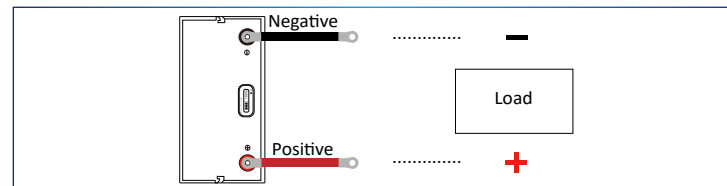
- 4.1.2 Inspection: Check whether the battery model and accessories are complete

- 4.1.3 Protection: Wear protective equipment such as gloves and goggles



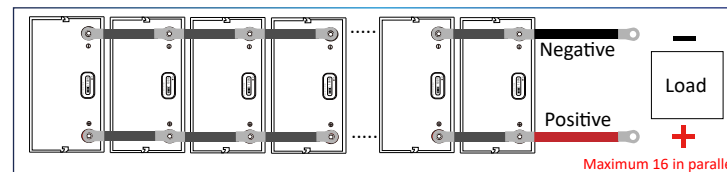
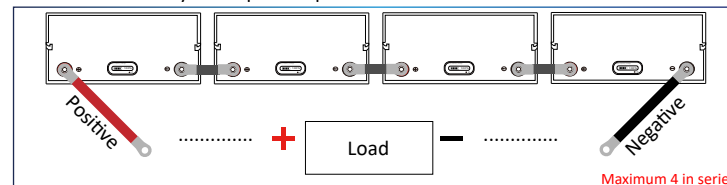
4.2. Installation reference

4.2.1 Using a Single Battery



- 4.2.2 Using in Series or Parallel (A maximum of 16 batteries can be connected in parallel and 4 batteries can be connected in series. Note: It is forbidden to use series and parallel simultaneously)

- Series and parallel modules must be of one voltage, one capacity, and one batch
- After series and parallel connection, only the voltage and capacity expansion are allowed, and the charge and discharge current is not increased
- The battery serial-parallel pressure difference is $\leq 100\text{mV}$



5. LCD Instruction

Use the function key to switch to the voltage mode and power mode one by one.
Refer to the below:



6. Communication Instructions

It is mainly used to read the battery voltage, charge and discharge current, protection status of each string of lithium batteries, and the parameter setting function of the lithium battery protection board, so that users can clearly understand the health status of lithium batteries and ensure the safety of lithium batteries.

6.1 Use of APP

The APP can be installed on Android 4.3 and above, and used on devices that support Bluetooth 4.0, and can only run after obtaining the permission to use Bluetooth.

6.2 APP download

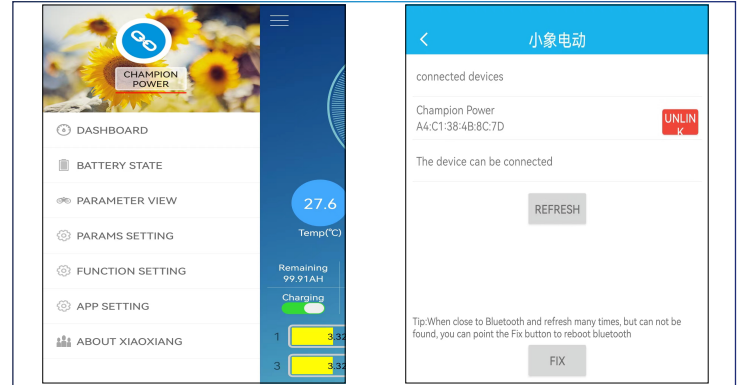
Please open your mobile browser and scan the QR code below to download and install:



6.3 Bluetooth connection

In the connection interface, scan the surrounding Bluetooth 4.0 devices, click the connection device. The APP automatically recognizes whether the device is

supported, and if it is supported, it will enter the dashboard interface. If it is not supported, it will prompt the user that the device is not supported and disconnect.



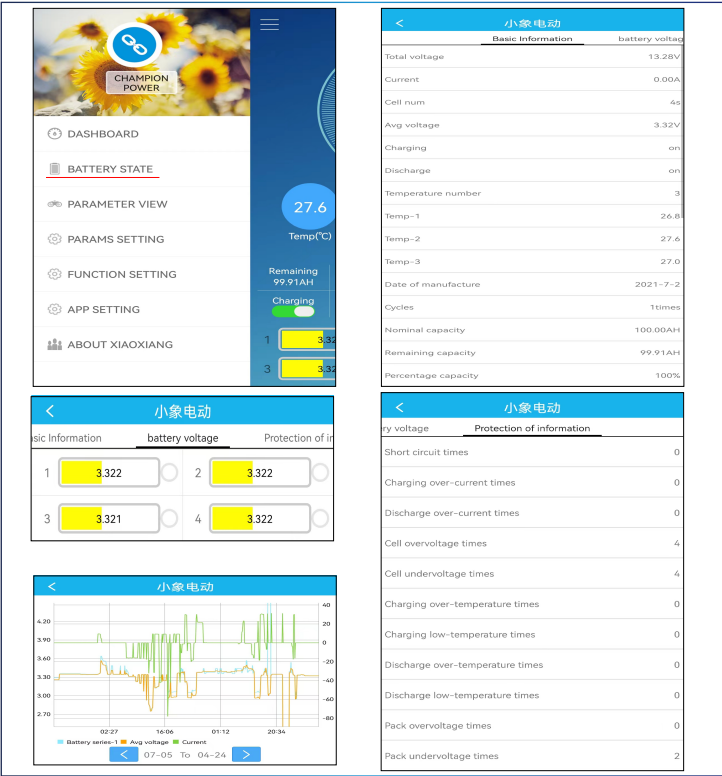
6.4 Battery status dashboard

- Display the battery power percentage to allow users to better know the battery status
- Display the current during charging and discharging
- Displays total battery voltage
- Display the voltage range of each cell
- Displays the current battery temperature



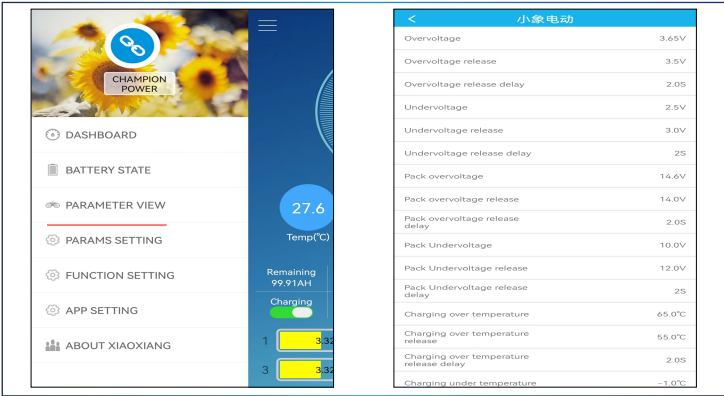
6.5 Basic battery information reading

- Read the basic information of the battery, display the current battery temperature, and the number of battery cycles.
- Read single cell voltage and charge and discharge curves
- Read the battery protection information, so that the user can better understand the cause of the current power outage, so as to take timely countermeasures



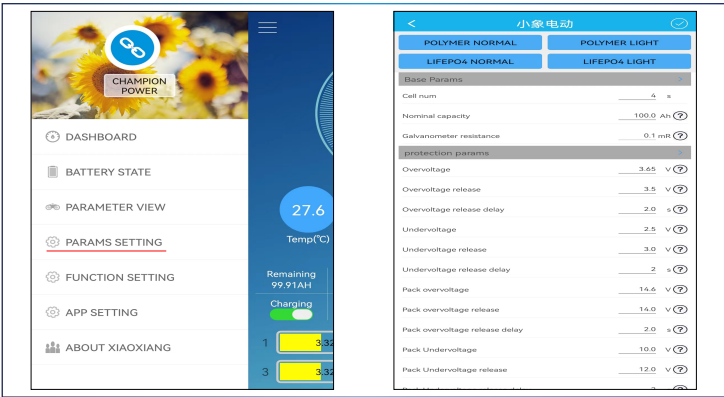
6.6 Lithium battery protection parameter view

Users can view all parameters on the protection board, so as to clearly understand the protection action of the battery and the conditions under which the release action is turned on



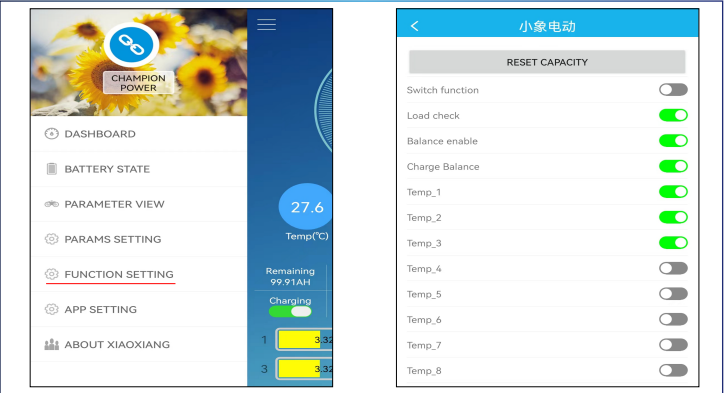
6.7 Lithium battery protection parameter settings

The user adjusts the parameters according to the state of the battery cells and the characteristics of the electric equipment, so that the protection board, the battery, and the electric equipment can work more harmoniously and achieve the optimal working state.



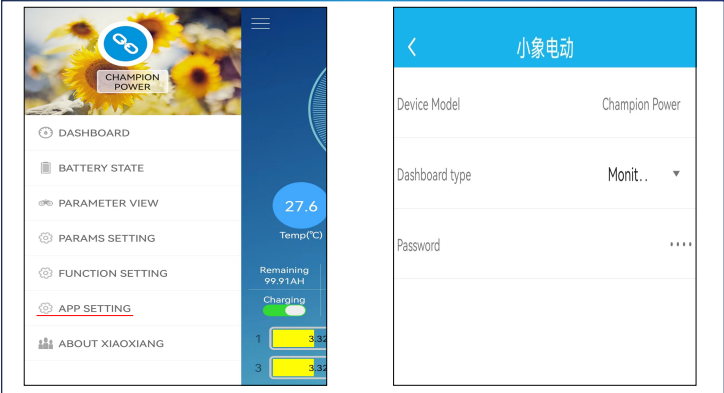
6.8 Function settings

Users can set their own functions such as charge and discharge, load detection, balance function, temperature detection, etc.



6.9 APP settings

Users can set the bluetooth name of the battery by themselves on this page



7.Precautions

To prevent possible battery leakage, heat generation, and fire, please observe the following precautions:

- ⦿Please use a special charger for lithium iron phosphate battery when charging.
- ⦿It is strictly forbidden to immerse the battery in seawater or water.
- ⦿It is forbidden to use the battery near the hot high temperature source, such as fire, heater, etc.
- ⦿It is forbidden to use the battery by reversing the positive and negative poles.
- ⦿It is forbidden to connect the battery directly to the power outlet
- ⦿It is forbidden to throw the battery into a fire or heater
- ⦿It is forbidden to use metal directly to short-circuit the positive and negative electrodes of the battery
- ⦿It is forbidden to transport or store batteries together with metals, such as hairpins, necklaces, etc.
- ⦿It is forbidden to knock or throw, trample on the battery, etc.
- ⦿It is forbidden to weld the battery directly and pierce the battery with nails or other sharp objects.

8. Packing List

Packing List			
Serial number	Material packing list	Qty	Unit
1	LiFePO4 battery pack	1	Pcs
2	Screw/with gasket	2	Pcs
3	6 AWG cable,length of each cable=100cm	2	Piece
4	Specification	1	Part

9. Others

- ◎ If the customer needs to use the battery for equipment beyond the specification in the document, or use the battery under the usage conditions beyond the specification in the document, please contact with supplier in advance. It is necessary to carry out specific experimental tests to verify the performance and safety of the battery under the use conditions.
- ◎ Our company is not responsible for any accident caused by using the battery under conditions other than those specified in the document.
- ◎ If necessary, the company will inform the customer in writing about the improvement measures for the correct operation and use of the battery.
- ◎ Any matters not mentioned in this manual must be determined through negotiation between the two parties

FCC warning:

1. This device should be installed and operated with minimum distance 20cm between the radiator&your body.
2. This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:
 - (1) This device may not cause harmful interference, and
 - (2) This device must accept any interference received, including interference that may cause undesired operation.
3. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
4. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
 - Reorient or relocate the receiving antenna.
 - Increase the separation between the equipment and receiver.
 - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
 - Consult the dealer or an experienced radio/TV technician for help.