VEVOR

Affordable. Reliable. Home Improvement.

SERVER RACK BATTERY

MODEL:LPS48100

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This is the original instruction, please read all manual instructions carefully before operating. VEVOR reserves a clear interpretation of our user manual. The appearance of the product shall be subject to the product you received. Please forgive us that we won't inform you again if there are any technology or software updates on our product.

	Warning-To reduce the risk of injury, user must read instructions manual carefully.
	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.
	This product is subject to the provision of European Directive 2012/19/EC. The symbol showing a wheelie bin crossed through indicates that the product requires separate refuse collection in the European Union. This applies to the product and all accessories marked with this symbol. Products marked as such may not be discarded with normal domestic waste, but must be taken to a collection point for recycling electrical and electronic devices

Limitation of Liability

The equipment manufacturer shall not assume any direct or indirect liability for battery system damage or property loss caused by the following situations.

- Modifications, alterations, or component replacements of the battery system without authorization from the equipment manufacturer.
- Changes or removal of the battery system serial number by non-manufacturer technicians.
- System design and installation with other devices that do not conform to standards, safety regulations, and other related requirements.
- Damage to the equipment caused by failure to follow requirements related to the battery system user's manual.
- Damage to the equipment caused by force majeure, such as earthquakes, storms, lightning, overvoltage, fires, etc.
- Damage to the equipment caused by any external factors.
- Damage to the equipment caused by insufficient ventilation of the battery system.
- Failure to follow acceptable standards for battery system maintenance procedures.
- Damage to the equipment caused by improper use or misuse of the battery system.

1.Safety Instructions

⚠ DANGER!

- Before operating the equipment, please turn off the power to avoid danger and strictly adhere to all safety precautions in this manual and the safety signs on the equipment.
- Only professional personnel are allowed to operate the equipment. Professional personnel should be familiar with local regulations and standards, electrical systems, be professionally
- trained, and be knowledgeable about the product.
- Do not use if the battery module is defective, damaged, or missing.
- Do not disassemble or modify any part of the battery module without official authorization from the equipment manufacturer.
- Battery damage may cause electrolyte leakage. If electrolyte leaks, do not touch the leaking
- electrolyte and volatile gases, and immediately contact the After-sales Service Center for help.

⚠ WARNING!

If you accidentally come into contact with the leaked substance, please perform the following actions:

- Inhalation of leaked substances: Evacuate from the contaminated area and seek medical assistance immediately.
- Eye contact: Rinse with clean water for at least 15 minutes and seek medical assistance immediately.
- Skin contact: Wash the affected area thoroughly with soap and water, and seek medical assistance immediately.
- Ingestion: Induce vomiting and seek medical assistance immediately
- Do not move the battery system when connecting an external battery expansion module. Contact the After-sales service center if battery replacement or addition is required.

⚠ CAUTION!

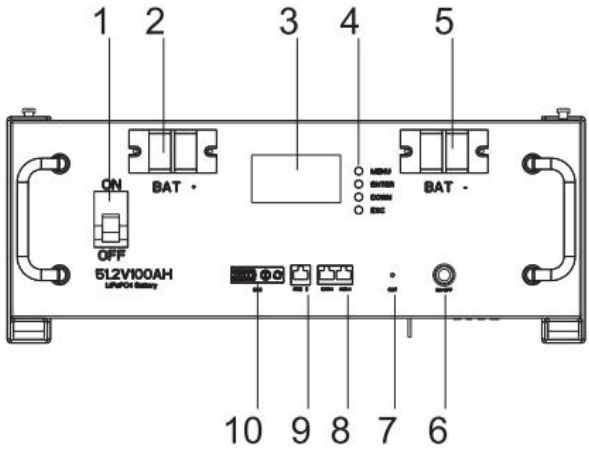
Transportation:

- Ensure that the battery system is not damaged during transportation and storage.
- Exercise caution and consider weight when lifting the battery.
- Do not strike, pull, drag or step on the equipment, nor place unrelated items in any part of the battery system.

- Transportation must be conducted by trained professionals, and operations must be recorded during the process.
- Ensure that the equipment is placed securely and not tilted, as tipping may cause equipment damage and personal injury.
- Ensure that CO2, Novec1230, or FM-200 fire extinguishers are nearby.
- Use recommended material extinguishers for fire extinguishing, do not use water or ABC dry powder extinguishers, and firefighters must wear protective clothing and self-contained breathing apparatus.
- Batteries pose an explosion risk when ambient temperature exceeds 150°C.
- Use appropriate tools and take protective measures when installing and maintaining heavy equipment. Improper operation may cause personal injury.
- Using cables in high-temperature environments may cause insulation aging and damage; maintain at least 30mm distance between cables and the perimeter of heating components or heat source areas.
- Group same type cables together; different type cables should be routed at least 30mm apart, and should not be intertwined or cross-laid.

2.Battery Introduction

2.1 Component Introduction



Battery Port Definition

Number	Component	Description
1	Circuit Breaker	Short/Open Circuit Protection
2	Battery Positive Electrode	Battery Positive Power Transfer
3	Display	Data Display
4	Buttons	Display Data Viewing
5	Battery Negative Electrode	Battery Negative Power Transfer
6	Button Switch	Battery On/Off
7	RST Reset	Machine Reset
8、9	RS232/CAN Communication Port	Communication Transmission
10	SOC/ALM/RUN Indicator Light	Battery Status Indicator

3、System Installation

3.1 Installation Environment

The battery system should be installed on the ground with sufficient bearing capacity and flatness; if the ground does not have enough support and flatness, other measures should be taken to ensure it (such as laying a foundation, adding support plates, etc.).

The battery works best in an environment with temperatures between 20~40℃.

Avoid installation in environments exposed to direct sunlight or rain.

Avoid installation near high-temperature heat sources or low-temperature cold sources.

Avoid installation in areas with extreme temperature variations.

Avoid installation in strong interference environments.

Avoid installation in areas accessible to children.

Avoid installation in areas prone to water accumulation.

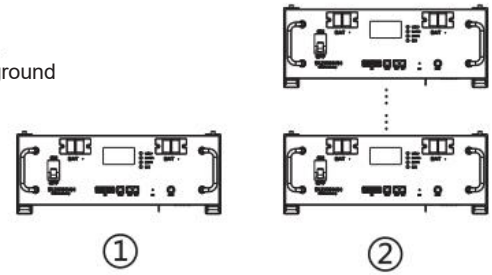
Do not place flammable or explosive materials around the equipment.

Installation Schematic

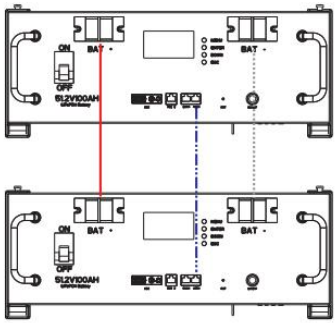
（1）Place the battery module on the designated ground

（2）Stack the battery modules from bottom to top according to the number.

The number of battery modules in each stack should not exceed 8 units.



3.2 System Wiring



4. System Operation

4.1 Pre-Power-On Inspection

Before powering on the battery system, please check the following items to prevent system damage.

Number	Checklist
1	The equipment is firmly installed, the installation position facilitates operation and maintenance, the installation space allows for ventilation and heat dissipation, and the installation environment is clean and tidy.
2	The protective ground wire, power line, and communication line are correctly and securely connected
3	The cable bundling meets routing requirements, is reasonably distributed, and is undamaged.
4	Unused ports are sealed.

4.2 Battery Power-On

1. Close the circuit breaker.

2. Press the battery button switch, the display lights up with a digital display, and the battery outputs normally.

4.3 LED Indication Explanation

Status	Run LED	Alarm LED	Power Indicator LED				Description
	●	●	●	●	●	●	
Shutdown/ Sleep	Off	Off	Off	Off	Off	off	/
Standby	Flash 1	Off	Refer to 5.2				Position in readiness
	Flash 1	Flash 3					Trigger second level protection,please connect to the host computer to check fault information and take appropriate measures
Charging	Always On	Off	Refer to 5.2				Normal charging
	Always On	Flash 3					Overcharge waning,please unplug the charger
	Always On	Off	Always On	Always On	Always On	Always On	Overcharge protection;unplug the charger,the indicator light turns to Position in readiness
Discharge	Flash 3	Off	Refer to 5.2				Normal discharge
	Flash 3	Flash 3					Over discharge protection,please charge the battery
	Off	Off	Off	Off	Off	Off	Under voltage sleep,please charge the battery
Fault	Off	Always On	Off	Off	Off	Off	System is in temperature, over current,short circuit protection,etc, cannot charge or discharge,need to troubleshoot the cause

Indicator light SOC description

Battery remaining charge SOC	Charging				Discharge				Standby			
	L4 ●	L3 ●	L2 ●	L1 ●	L4 ●	L3 ●	L2 ●	L1 ●	L4 ●	L3 ●	L2 ●	L1 ●
0-25%	Off	Off	Off	Flash 2	Off	Off	Off	Always On	Off	Off	Off	Always On
25~50%	Off	Off	Flash 2	Always On	Off	Off	Always On	Always On	Off	Off	Always On	Always On
50~75%	Off	Flash 2	Always On	Always On	Off	Always On	Always On	Always On	Off	Always On	Always On	Always On
75~100%	Flash 2	Always On	Always On	Always On	Always On	Always On	Always On	Always On	Always On	Always On	Always On	Always On

4.4 Reset Button Explanation

1. When the BMS is in sleep mode, pressing and releasing the button will activate the protection board, and the LED indicator will light up sequentially from "RUN" for 0.5 seconds.

2. When the BMS is active, pressing the button (3~6S) and releasing it will put the protection board into sleep mode, and the LED indicators will light up sequentially for 0.5 seconds, starting from the lowest power indicator.

3. When the BMS is active, pressing the button (6~10S) and releasing it will reset the protection board, and all LED lights will turn off simultaneously.

4. When the BMS is active, pressing the button 3 times within 5 seconds will automatically recode it.

4.5 Sleep and Wake-Up

4.5.1 Sleep

When any of the following conditions are met, the system enters sleep mode.

1.Overdischarge protection has not been lifted within 30 seconds.

2. Press and release the button (3~6S).3. Simultaneously meet the requirements of no communication, no protection, no balancing, and no current, with the duration reaching the sleep delay time.

Ensure that no external voltage is connected to the input before entering sleep mode. Otherwise, it will not be able to enter sleep mode.

4.5.2 Wake-up

When the system is in sleep mode, it exits sleep mode and enters normal operation mode when any of the following conditions are met:

1.Connecting a charger/load.

2. Pressing and then releasing the button

3.485CAN communication activation.

Note: After entering sleep mode due to cell or overall over-discharge protection, it will automatically wake up every 4 hours to enable the charge/discharge MOS. If charging is possible, it will exit sleep state and enter normal charging

4.6 Inverter Communication

1. The RJ45 single network interface integrates RS485, UART, and CAN functions. The BMS can communicate with the upper computer through the RJ45 single port, enabling the monitoring of various battery information through the upper computer, including battery voltage, current, temperature, status, and battery production information, with a default baud rate of 9600bps.

2. The inverter protocol supports RS485 and CAN communication interfaces. Connection with a Bluetooth module or upper computer allows the selection of the corresponding protocol settings for communication.

4.7 Battery Power-Down

When shutting down the battery system, follow the steps in the sequence below to prevent damage to the system:

1. Press the self-locking button switch and ensure the self-locking button pops out

2.Disconnect the circuit breaker.

3. Ensure the battery SOC indicator and the screen are off.

5. Display Operation

5.1 Page Introduction

1. Home Page

After powering on, the home page will be directly displayed, or you can enter it through the MENU button.

Home Page		
Content	Description	Unit
Pack Volt	Total Battery Voltage	Volt V
Im	Current	Ampere A
SOC	Remaining Battery Capacity	%
BMS Info	BMS Information	/

2. BMS Info Page

On the main page, press the enter button to enter the "BMS Info" page.

BMS Info page		
Content	Description	Remark
Cell Volt	Cell Voltage	Enter to view all individual cell voltage information
TEMP	Temperature	monitored by the NTC
Capacity	Capacity	Enter to view battery remaining capacity and other information
BMS Status	BMS Status	Enter to check if the battery status is normal

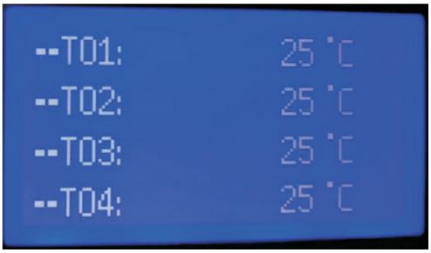
5.2 BMS Info Details

1. Cell Voltage Page

Select "Cell Volt" to enter the cell voltage page, displaying 16 sets of cell voltages

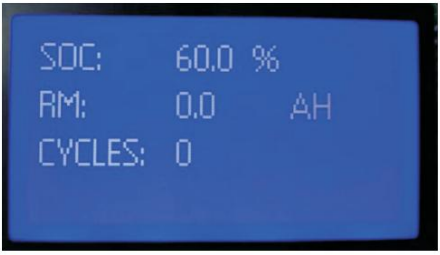
2. Temperature Display Page

Select "Temp" to enter the temperature display page



3. Battery Capacity Display Page

Select "Capacity" to enter the capacity display page



4. BMS Status Display Page

Select "BMS Status" to enter the BMS status display page, where you can check if the BMS status is normal

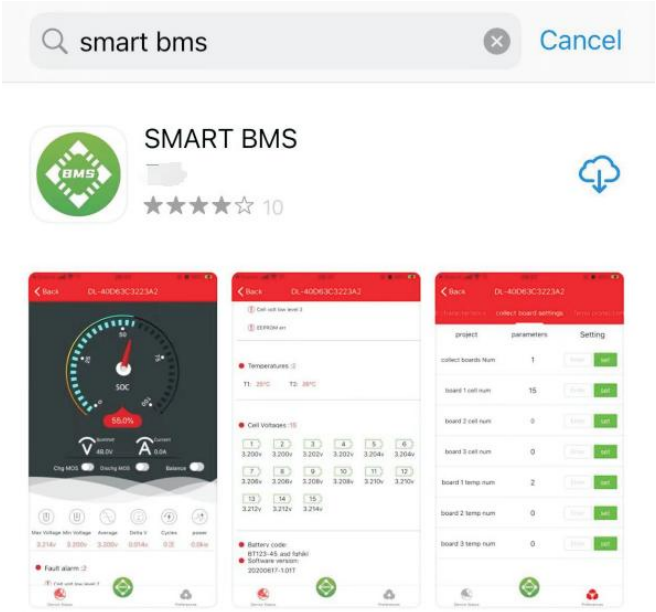
5. BMS State Page

In the "BMS State" page, you can view BMS protection & alarm information (Y for warnings or protection, N for none)

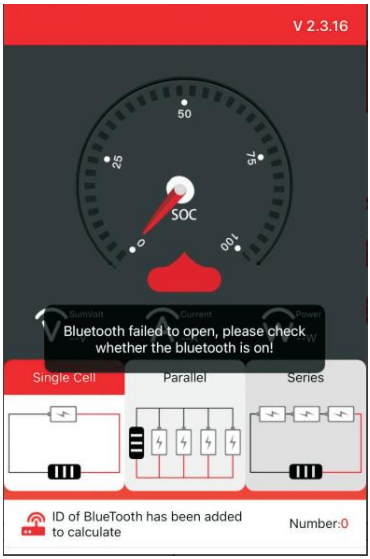
BMS State Page			
Content	Description	Content	Description
Cell OV	Cell Overcharge Alarm	Cell OVP	Cell Overcharge Protection
Cell UV	Cell Overdischarge Alarm	Cell OVP	Cell Overdischarge Protection
Pack OV	Overall Overcharge Alarm	Pack OVP	Overall Overcharge Protection
Pack UV	Overall Overdischarge Alarm	Pack UVP	Overall Overdischarge Protection
CHG OT	Charging High Temperature Alarm	CHG OTP	Charging High Temperature Protection
CHG UT	Charging Low Temperature Alarm	CHG UTP	Charging Low Temperature Protection
DSG OT	Discharge High Temperature Alarm	DSG OTP	Discharge High Temperature Protection
DSG UT	Discharge Low Temperature Alarm	DSG UTP	Discharge Low Temperature Protection
CHG OC	Charging Overcurrent Alarm	CHG OCP	Charge Overcurrent Protection
DSG OC	Discharge Overcurrent Alarm	DSG OCP	Discharge Overcurrent Protection

6. Bluetooth Operation

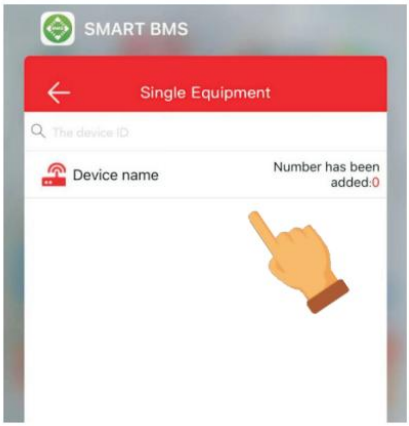
6.1 Enter the mobile app store, search for "SMART BMS", download and install it on the mobile desktop (using iOS as an example)



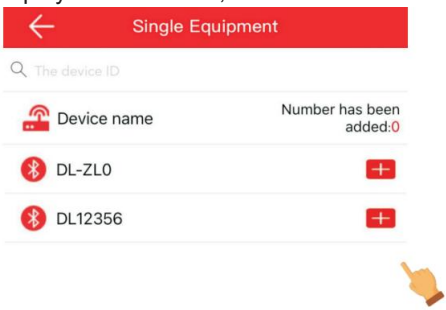
6.2 Open the downloaded "SMART BMS" app and connect Bluetooth



6.3 Exit mobile background applications



6.4 Return to the mobile desktop and re-enter the "SMART BMS" app, wait a few seconds until the phone automatically displays "Connected", then click "Device"



6.5 Enter the Bluetooth app interface to read real-time data 3.6 Enter Bluetooth

6.6 Enter "Parameter Settings", where various parameters can be set. Please contact the dealer for the password

7. Battery Parameters

Model	LPS48100
Rated Capacity	5120Wh
Cell Type	Lithium Iron Phosphate
Cell Configuration	16SIP
Rated Voltage	51.2V
Operating Voltage Range	41.6V-58.4V
Maximum Continuous Discharge Current	100A
Parallel Communication Method	RS485/CAN
Communication Method with Inverter Connection	RS485/CAN
Display Method	LCD
Operating Temperature	0~55℃(Charging)-5~60℃(Discharge)
Storage Temperature	-20~40℃(≤1 month)/0~35℃(≤1 year)
Humidity	20%~95%(No Condensation)
Altitude	<2000M
Protection Level	IP20
Installation Method	Rack-mounted

8. Maintenance

Maintenance Items	Maintenance Cycle
If the battery is not in use, it should be fully charged, and the charge should be maintained at 25-50%.	Every 3 months
Check if the wall mount is loose, if so, tighten the corresponding position.	Every 6 months
Check for any damage to the casing; if found, touch up the paint or contact the after-sales service center.	Every 6 months
Check for wear on exposed wires; if found, replace the corresponding cables or contact the after-sales service center.	Every 6 months
Check for any clutter around the battery, if present, clean up to ensure proper battery heat dissipation.	Every 6 months
Check for water or pests to prevent long-term battery damage	Every 6 months

⚠ **WARNING!**

- If any issues potentially affecting the battery or the battery with the energy storage inverter system are found, contact after-sales personnel, and do not disassemble privately.
- If' exposed copper wires are found inside the conductive cable, do not touch due to high voltage danger, contact after-sales personnel, and do not disassemble privately.

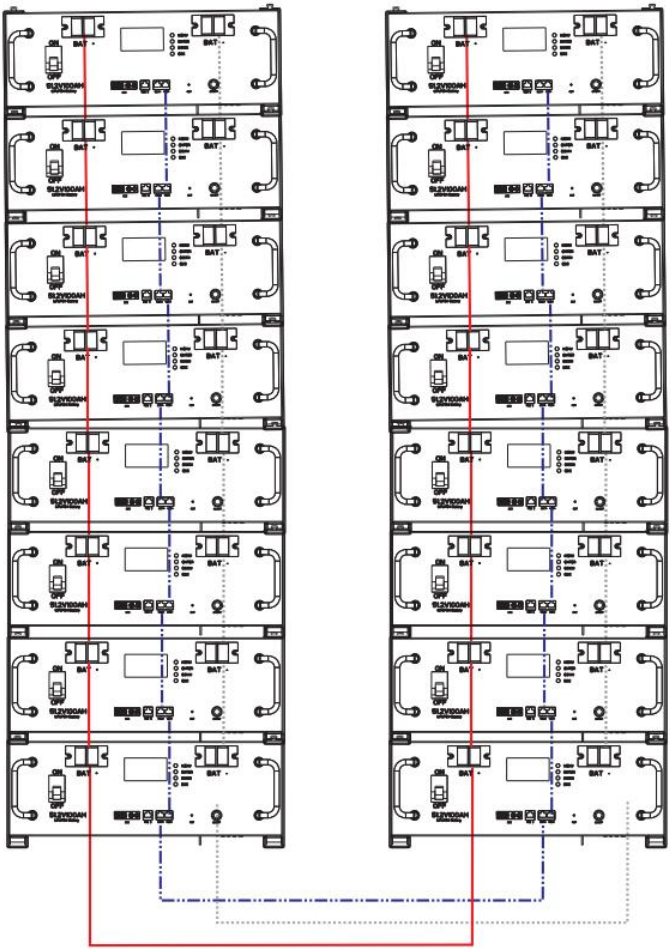
9. Storage and Packaging

If the equipment is not installed for immediate use, please ensure that the storage environment meets the following conditions.

- The equipment should be packed in a carton, sealed after placing desiccants inside.
- If not installed within 3 days after unpacking, it is recommended to store the equipment in the carton.
- Storage SOC: 25~50% $OC, a charge-discharge cycle is required every 3 months of storage.Storage temperature range: Not exceeding 1 month at -20°C~40C, not exceeding l year at 0~35
- Humidity range: 0~95% with no condensation. Do not install if there is moisture condensation on the battery interface.
- The equipment should be stored in a cool place, avoiding direct sunlight.
- The equipment should be stored away from flammable, explosive, and corrosive items.
- The equipment should not be exposed to rain.

10. Parallel Connection Method

16 battery modules in parallel

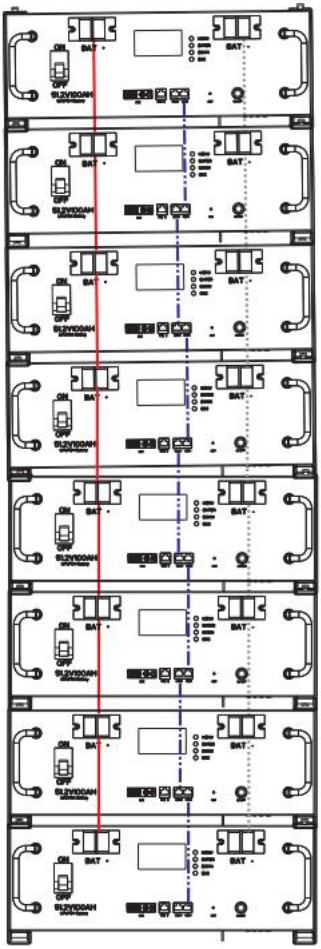


Battery Positive Electrode

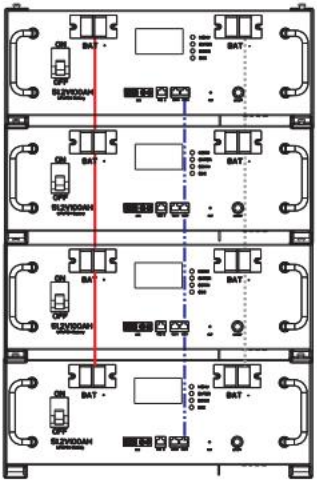
Battery Negative Electrode

Standard Network Cable

8 units in parallel



4 units in parallel



Steps for parallel connection:

1. Before parallel connection, please ensure correct wiring and connect according to the schematic diagram.
2. The communication between the inverter and the battery should be set to master communication; do not select slave communication with the inverter.
3. After completing the above steps, turn on the battery switches one by one

Note: 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..

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.

FCC Radiation Exposure Statement

This equipment complied with FCC radiation exposure limits set forth for an uncontrolled environment.This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Any changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.