

Central air conditioning thermostat

User Manual

Model : XR-01



The product specifications and information mentioned in this manual are for reference only. Any updates to the content will not be notified separately. Unless otherwise specified, this manual is only intended as a guide for use, and all statements, information, etc. in this manual do not constitute any form of warranty.

This manual is for the use of the Xinrui XR-01. Please read this manual carefully before using the XR-01 to ensure correct use. Incorrect use may cause accidents. Please make sure to keep this manual properly so that it can be accessed at any time.

Open box inspection

Take out the Xinrui XR-01 from the packaging box and check whether the product shell is damaged or deformed, and whether the accessories are damaged or detached; Carefully verify whether the product meets your ordering requirements; If you have any questions or if the product is damaged, please keep the original packaging and accessories and immediately contact the supplier for resolution.

Product accessories

Install 2 screws

Safety precautions

- ① This product can only be used under normal conditions (all protective functions are intact).
- ② Please confirm the power supply voltage before use and do not touch the power cord interface of the device with your hands.
- ③ Ensure that the product operates within the normal operating temperature/humidity range.
- ④ Do not apply excessive pressure to the LCD screen, as it may cause damage.
- ⑤ Do not allow water, mud or other debris to enter the thermostat.

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Chapter 1 Product Overview

1.1 Product Introduction

Firstly, thank you very much for using the Xinrui XR-01.

Xinrui XR-01 is the latest product developed for centralized management of central air conditioning. It has the functions of setting the ambient temperature and the operation mode of the fan coil unit.

The XR-01 thermostat is suitable for central air conditioning systems with two or three wires. It is used to control the opening and closing of the electric valve of the fan coil unit and the selection of three levels of fan speed, to achieve temperature setting and monitoring. Through power line carrier, low-power wireless and concentrator control signals and data communication, remote control of the central air conditioning's on/off, operation status, etc. can be achieved.

By collecting NTC high-precision sensor signals and comparing them with the set temperature, according to the set working mode, output control signals to control the electric valve and three levels of wind speed, automatically adjust the amount of cold and warm air, and achieve the goal of maintaining indoor constant temperature. The appearance is in the form of 86 boxes.

This product is widely used for temperature regulation in hotels, office buildings, and large conference rooms. Its use will make your life more comfortable and convenient, and can also play a role in energy conservation and consumption reduction

1.2 Typical applications and main functions of the product

The temperature controller XR-01 serves as an information acquisition and command execution terminal to monitor the operation of central air conditioning. Its specific application in the centralized air conditioning control system is shown in Figure 1.

The centralized air conditioning control system mainly consists of a monitoring center (including control equipment, servers, display devices, and monitoring software), intelligent routers, terminal controllers, and communication systems.

The Xinrui XR-01 is connected to the central air conditioning fan coil unit components and communicates with the concentrator through power line carrier, RF wireless, and remote communication between the concentrator and the monitoring center through Ethernet, GPRS, and other methods. Monitoring software is installed on the monitoring center server. Meanwhile, the remote monitoring center can remotely control the air conditioning system through servers and databases.

The centralized air conditioning management system can be widely used in various office buildings, dormitories, public facilities, and other places.

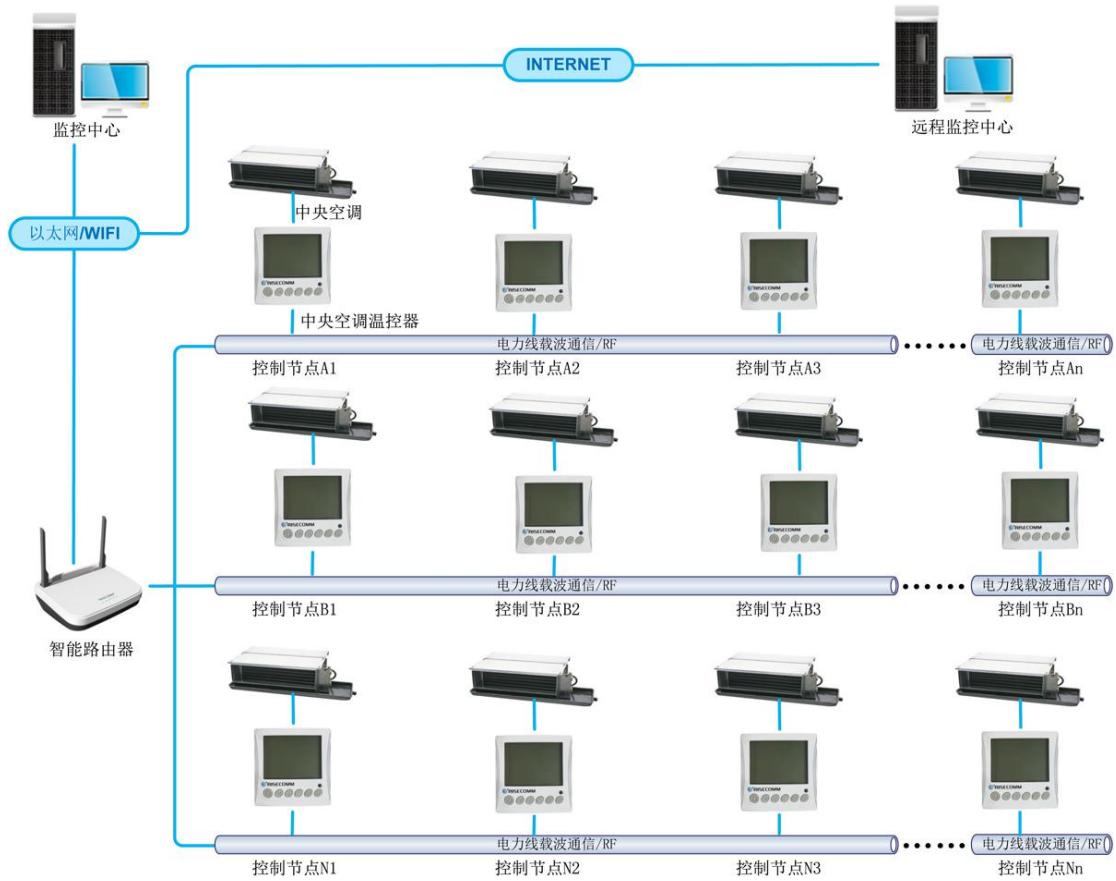


Figure 1 Schematic diagram of centralized air conditioning control system

The main functions of the XR-01 thermostat in the centralized air conditioning management system are:

- ① Real time detection and control of central air conditioning switches and wind speed.
- ② Detect indoor temperature, set and monitor temperature.
- ③ Receive and execute control commands from the concentrator to turn on, off, and change the operating status of the air conditioner.
- ④ Support time slot control to determine whether air conditioning operation is allowed, with a maximum of 4 time slots supported. Let users no longer worry about energy waste and equipment loss caused by forgetting to turn off the air conditioner.
- ⑤ Support setting temperature limits: allowing the air conditioner to operate only within the allowed temperature range.
- ⑥ The buttons can be remotely locked to prohibit the operation of the air conditioner.

1.3 Main features of the product

- LCD display, clear and concise, with abundant buttons and simple operation.
- Communication through power line carrier, wireless and concentrator.
- It has multiple functions such as temperature setting, automatic control, timed power on/off, automatic power on/off, compressor delay protection, keyboard lock, etc.
- High measurement accuracy for indoor environmental temperature.
- Accurately control the room temperature.
- Control response speed quickly.
- Low power consumption, energy-saving and reliable, with a self power consumption between 0.7W~1W, and even lower power consumption in standby and shutdown modes, with power consumption below 0.3W.
- Power line carrier communication complies with international standards such as EIA-709.1 and EIA-709.2.

Chapter 2 Hardware Description

2.1 Product appearance and dimensions

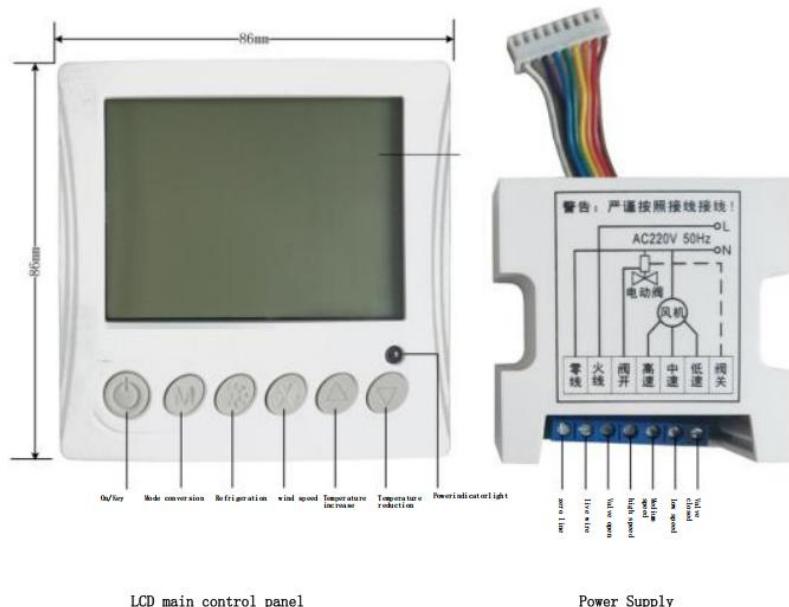


Figure 2 Schematic diagram of product appearance dimensions

Dimensions: Height 86mm * Width 86mm * Thickness 15mm, ± 2mm

The Xinrui XR-01 has an 86 box appearance, consisting of an LCD main control panel and a power box.

There is one power indicator light and six buttons on the front of the LCD main control panel: power/off button, M-mode conversion button, function setting button, wind speed selection button, ▲ temperature increase button, and ▼ temperature decrease button.

There are 7 wiring terminals on the power box. There are a total of 5 relay outputs, of which 2 are used for electric valve control and 3 are used for fan control.

The fan can operate in three wind speed states: high, medium, and low, controlled by three relays;

project	Function Description
LCD display screen	<p>The first row displays: fan speed. Display the current wind speed of the fan: high speed, medium speed, low speed, automatic four gears; Display locked.</p> <p>Second row display: Temperature display. Display the set temperature and indoor temperature.</p> <p>The third row displays: working mode. Display current working mode: cold air, warm air, ventilation; Clock.</p>
Pilot lamp	Power indicator light. Always on when powered on.
key	<p> Power on/off button. Control the startup and shutdown of the thermostat.</p> <p> M Mode conversion key. Operation mode conversion: cold air, warm air, ventilation.</p> <p> Function setting key. Temperature controller system time setting.</p> <p> Wind speed selection key. Indoor fan air volume selection: high speed, medium speed, low speed, automatic.</p>

	<p>▲ Temperature increase key. Raise the set temperature by 1 degree per time.</p> <p>▼ Temperature decrease key. Reduce the set temperature by 1 degree per time</p>
	<p>The neutral and live wires are AC input terminals, connected to the neutral and live wires of 100–240V AC.</p>
connecting terminal	<p>Valve opening: Electric valve terminal, working in a 2-wire system: used to close and disconnect electric valves. When working in a 3-wire system, it is only used to close electric valves.</p> <p>Valve closing: Electric valve terminal. Only used to close the electric valve when working in a 3-wire system.</p>
	<p>High speed, medium speed, and low speed are fan terminals connected to the central air conditioning fan.</p>

2.2 Product back appearance

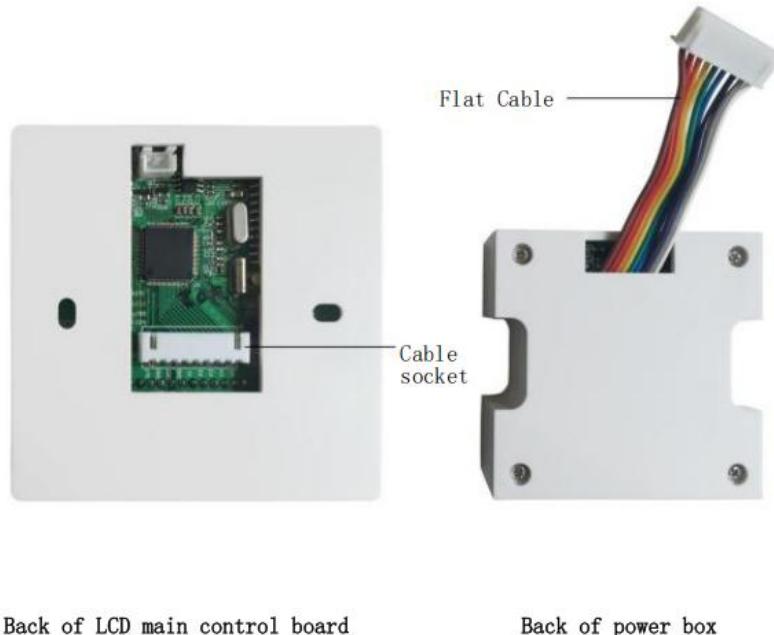


Figure 3 Schematic diagram of the back of the product

There is one wiring socket on the back of the main control panel for inserting the ribbon cable of the power box.

Chapter 3 Installation and Wiring Operation Guide

3.1 Installation and wiring instructions

Installation location: The installation location should be about 1.4m above the ground, avoiding direct sunlight, shelter from wind, and away from heat sources. It should be a representative location of the room temperature.

Tools required for wiring installation: wire strippers, screwdrivers, and other wiring tools.

Installation personnel: The installer of this product must be a professional technician with experience in electrical equipment installation and operation. Under no circumstances should there be personnel without professional qualifications or training to operate it.

Installation wiring requirements: Cut off the power supply during installation. Configure a power switch to cut off power when not heating. When wiring, it is necessary to follow the relevant specifications and standards for wire connectors to ensure that the wire connectors do not ignite, short circuit, or have poor contact, in order to prevent accidents. Non professionals are prohibited from wiring and installing the central air conditioning controller.

3.2 Install wiring

The Xinrui XR-01 is powered by 100-240V AC mains electricity. Please confirm that the circuit system is in a power-off state before connecting to Xinrui. The installation steps of temperature controller XR-01 are as follows:

Step one, use a screwdriver to open the thermostat.

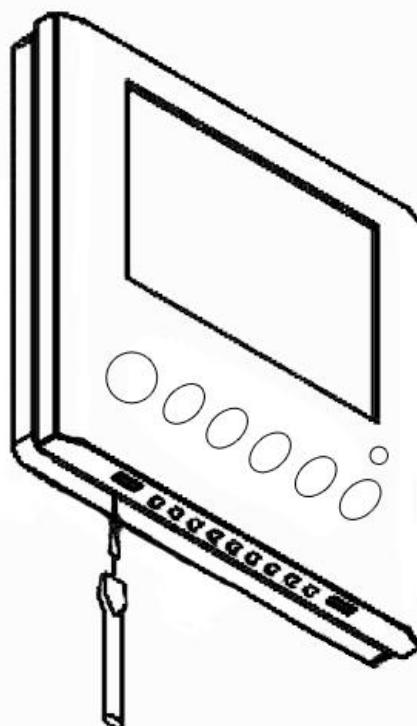


Figure 5 Schematic diagram of disassembling the main control board

Use a Phillips screwdriver to extend along the slope to the slot and remove the bottom plate of the LCD main control panel.

Step two, connect the wires.

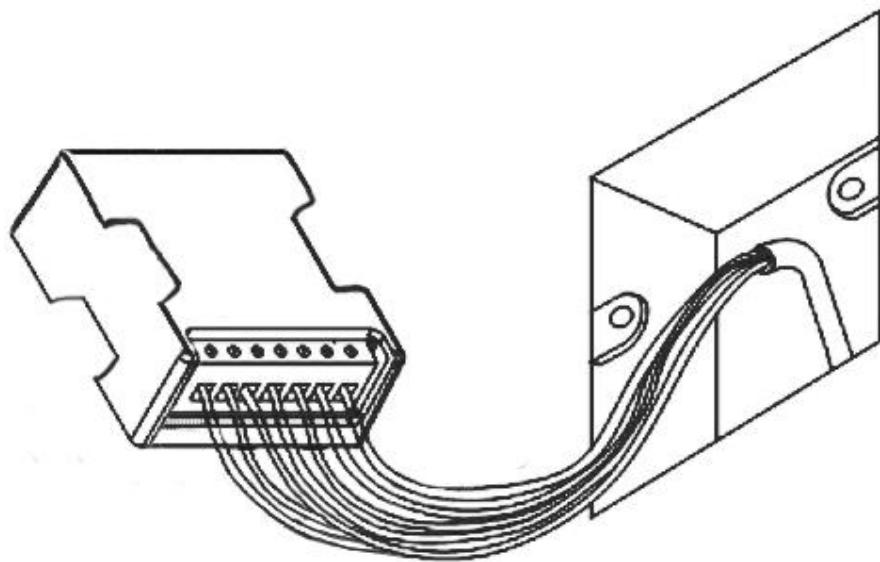


Figure 6 Schematic diagram of connecting wires

As shown in Figure 6, lead out the wire from the bottom box of wiring 86 to the wiring terminal of the power box, and tighten the screw.

The wiring terminals are all screw connected ports, please use screw connection technology for reliable connection.

Step three, fix the thermostat base plate.

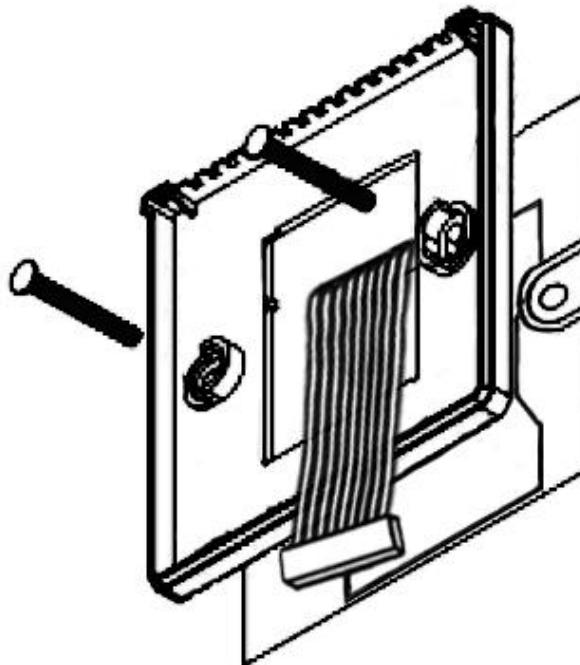


Figure 7 Schematic diagram of fixed power box

As shown in Figure 7, place the power box into the bottom box of 86 and thread the power box's cable through the bottom plate;

Secure the thermostat base plate to the bottom box with screws.

Step four, connect the LCD main control panel cable.

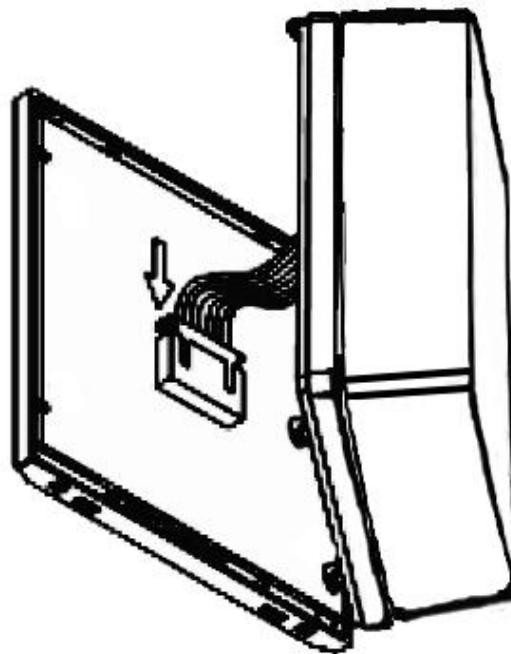


Figure 8 Schematic diagram of connecting cable

Insert the ribbon cable of the power box into the ribbon socket of the LCD main control panel.

Step five, fix the main control panel.

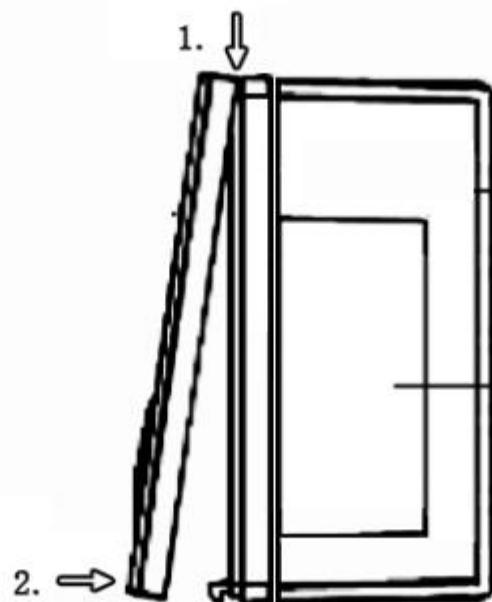


Figure 9 Schematic diagram of panel installation

First, hang the two hooks on top at a 30 degree angle and press down slightly to secure the upper

shell. Installation is complete.

The power cord must be installed correctly, and the live and neutral wires cannot be reversed to avoid damaging the thermostat.

A stable power supply is required for the operation of the thermostat. Abnormal power outages and momentary power outages may cause the thermostat to shut down or malfunction. Regardless of the nature of the power outage, returning the power may cause the air conditioning system to stop working. Therefore, when the panel is found to be closed during normal operation, please promptly activate the thermostat to enter the working state.

3. 3 Key operation guide

1、Power on/off:

Press the **【∅】** key once to turn on the device while it is turned off, and press it again to turn it off.

2、Mode conversion:

Press the **【M】** key once to switch modes, which are "cold air", "warm air", and "ventilation" mode when there is no display.

3、Time setting:

Press the **【*】** key once to enter the "minute" setting function. The "minute" will flash. Press the **【▲】** key to increase, press the **【▼】** key to decrease. After 5 seconds, the setting function will automatically exit, and the "minute" setting is complete.

Press **【*】** again to enter the "hour" setting function. When entering the "hour" setting function, the "hour" will flash. Press **【▲】** to increase, press **【▼】** to decrease. After 5 seconds, the setting function will automatically exit, and the "hour" setting is complete.

4、Wind speed selection:

Press the **【▼】** wind speed key to select the fan speed: high speed, medium speed, low speed, automatic. Press the **【▼】** key once to switch the wind speed once.

5、Temperature increase key: In the power on state, press the **【▲】** key to increase the set temperature, and the temperature changes by 1 °C with each key press.

6、Temperature reduction key: In the power on state, press the **【▼】**

key to lower the set temperature, with a temperature change of 1 °C each time you press the key.

3.4 Dismantling and replacement

Non professional maintenance personnel are not allowed to disassemble or replace this product. When disassembling, please follow the relevant specifications. When replacing and installing, please refer to the above installation wiring requirements and steps.

Chapter 4 Product Specifications and Parameters

Project	Specification parameters
Temperature sensor	NTC thermistor
Control accuracy	±1 °C
Temperature setting	10–31 °C
Display Range	0~50 °C
Display	LCD
Key	Tap the button lightly
Self consumption power	< 1W
Load power	LED < 500W
Carrier communication frequency	406KHz
RF wireless communication frequency	RX 470Mhz
Wiring terminals	Can connect wires of 2 * 1.5mm ² or 1 * 2.5mm ²
Shell	PC+ABS flame retardant
Installation hole spacing	60mm (standard)
Protection level	IP30
Work environment	Working temperature: 0-45 °C; Humidity: 5-95% RH (non condensing)
External dimensions	Width 86 * Height 86 * Thickness 13mm

Product Warranty Statement

This product has a one-year warranty period. Before returning the product to the company for warranty, repair, replacement, or parts replacement services, please call the company's technical service department to provide the model of the device to be returned and describe the problem or reason for your dissatisfaction. The company does not make any express or implied warranties regarding this product in certain circumstances, including but not limited to: unauthorized or unauthorized repairers have arbitrarily replaced or repaired it, it has been operated incorrectly, used negligently, unable to use it, equipment damage caused by force majeure accidents or natural disasters, and it has been connected to abnormal mains power.

§ 15.19 Labelling requirements.

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.

§ 15.21 Information to user.

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

§ 15.105 Information to the user.

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.