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## User Manual

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### Smart Router ZNLY-201



## Preface About This Manual

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# Safety and Regulatory Information

## Important Safety Instructions

When using your equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock, and injury to persons, including the following:

- » Read all of the instructions listed here and/or in the user manual before you operate this device. Give particular attention to all safety precautions. Retain the instructions for future reference.
- » This device must be installed and used in strict accordance with manufacturer's instructions, as described in the user documentation that is included with the device.
- » To prevent fire or shock hazard, do not expose this device to rain or moisture. The device must not be exposed to dripping or splashing. Do not place objects filled with liquids, such as vases, on the device.
- » This device was qualified under test conditions that included the use of the supplied cables between system components. To ensure regulatory and safety compliance, use only the provided power and interface cables and install them properly.
- » Installation of this device must be in accordance with national wiring codes and conform to local regulations.
- » Operate this device only from the type of power source indicated on the device's marking label. If you are not sure of the type of power supplied to your home, consult your dealer or local power company.
- » Do not overload outlets or extension cords, as this can result in a risk of fire or electric shock. Overloaded AC outlets, extension cords, frayed power cords, damaged or cracked wire insulation, and broken plugs are dangerous. They may result in a shock or fire hazard.
- » Place this device in a location that is close enough to an electrical outlet to accommodate the length of the power cord.
- » Place the device to allow for easy access when disconnecting the power cord of the device from the AC wall outlet.
- » Do not connect the plug into an extension cord, receptacle, or other outlet unless the plug can be fully inserted with no part of the blades exposed.
- » Place this device on a stable surface.
- » It is recommended that the customer install an AC surge protector in the AC outlet to which this device is connected. This is to avoid damaging the device by local lightning strikes and other electrical surges.
- » Postpone installation until there is no risk of thunderstorm or lightning activity in the area.
- » Do not cover the device or block the airflow to the device with any other objects. Keep the device away from excessive heat and humidity and keep the device free from vibration and dust.
- » Wipe the device with a clean, dry cloth. Never use cleaning fluid or similar chemicals. Do not spray cleaners directly on the device or use forced air to remove dust.
- » Upon completion of any service or repairs to this device, ask the service technician to

perform safety checks to determine that the device is in safe operating condition.

» This device should not be used in an environment that exceeds 60 °C.

## FCC STATEMENT

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.

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

**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 environment. 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 device 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 device 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.

## FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. To comply with the FCC RF exposure compliance requirements, the separation distance between the antenna and any person's body (including hands, wrists, feet, and ankles) must be at least 20 cm (8 inches).

# CHAPTER 1 Overview

## Package Contents

Your box should contain the following items:

- » Smart Router ZNLY-201
- » AC power adapter (plug varies by region)
- » User Manual
- » Warranty

If any parts are incorrect, missing, or damaged, contact your Risecomm dealer. Keep the carton and original packing materials, in case you need to return the product for repair.

## Introduction

Smart Router ZNLY-201 is specifically designed to centralize management of air conditioners. It is independent research and development by Risecomm Microelectronics (Shenzhen) Co., Ltd. The Smart Router supports wireless (WIFI) and wired (Ethernet/LAN) network connection. It is an important component of air conditioning centralized management and energy analysis system, serves as a bridge to connect the control computer and A/C Manager (Air Conditioner Manager).

The Smart Router connects A/C Manager through PLC (power line communication) and micro-power wireless communication dual-channel. The Smart Router records and processes the data collected by A/C Manager, generates a variety of forms for management, and transmits to the control computer. Accordingly, a professional air conditioning centralized management and energy consumption analysis system is formed. Administrator communicates with the Smart Router through a wireless or wired LAN, to achieve unified configuration, centralized management and remote control for all air conditioner in the system.

The Smart Router WIFI is 24GHz. The factory default mode is wireless access point mode (AP mode). In the AP mode, the Smart Router can be used as a wired signal and wireless signal converters, just plug the cable connected to the Smart Router with in-room broadband, without setting you can achieve more machines to share Internet access.

## Features

- » CPU clocked at 433MHz
- » Memory is 64M, Flash memory is 256M
- » Supports 9600 Half-duplex Power Line communication
- » The wireless network supports 802.11g etc. mainstream protocol
- » Supports STA and AP two operating modes
- » Supports the local Web management
- » Abnormal automatic restart

## Product Application and Functions

The Smart Router ZNLY-201 is the relay platform of the air conditioning centralized management system and the energy consumption analysis system. The application of the Smart Router in air conditioning centralized management system is shown in Figure 1:

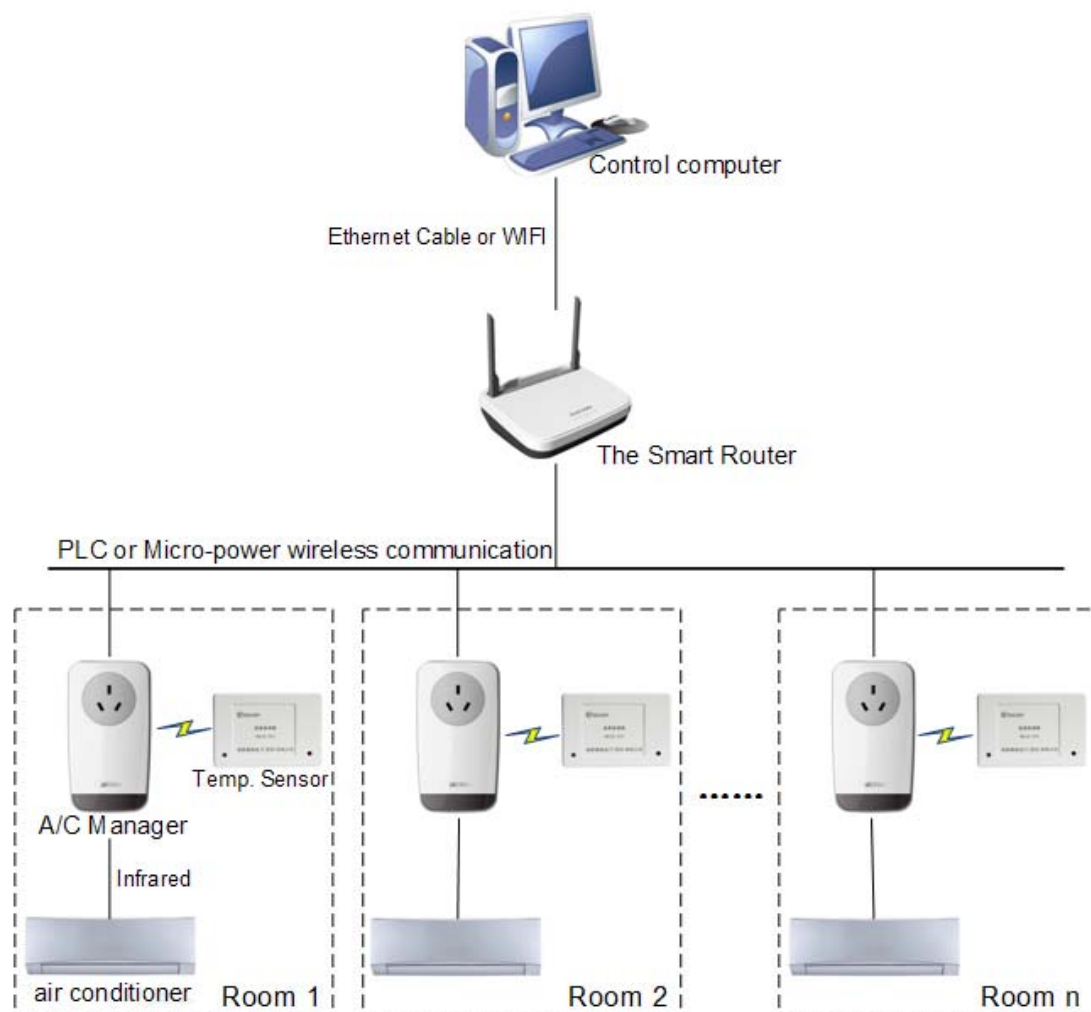


Figure 1 Air conditioning Centralized Management System

In the system, the Smart Router ZNLY-201 has the following main functions:

» Collects and records the running status of the air conditioners and the room environment data through A/C Manager.

Smart Router gathers air conditioner data through A/C Manager according to the set time, the data including: room temperature, power supply voltage, working status, air conditioner failure, etc. Smart Router converts the data into the corresponding format, and reports to the control computer.

» Processing data and generates a variety of forms for management.

After Smart Router processes the collected data, it will displays the data in its software system including the total number of air conditioner, air conditioner working hours, maximum / minimum temperature, the room occupancy, daily and monthly electricity consumption and alarms etc. profile information.

Administrator clicks a room number can view air conditioner running status in the room, such as temperature, power supply voltage, power consumption (day, month and quarter

total) , etc.

» Remote controls and manages air conditioners.

Administrator through the smart router issues a variety of commands to A/C Manager for remote control air conditioners.

The smart router can be set up by Administrator to achieve automatic management air conditioners

Administrator can also set up the smart router to automatic management air conditioners, such as air conditioner switch, sleep mode, air conditioner operating temperature, working mode, etc.

## CHAPTER 2 Hardware Features

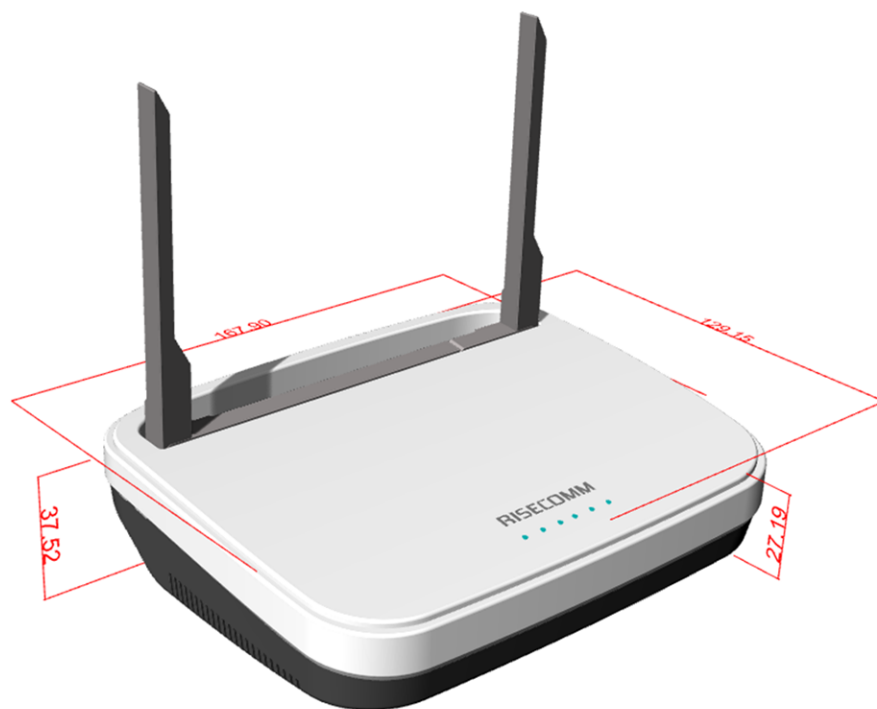


Figure 2 Appearance and size

Size: L 167.9 \* W 129.15 \* H 37.52mm (Front Height 27.19mm)

Before you cable the router, take a moment to become familiar with the front and back panels. Pay particular attention to the LEDs on the front panel.

### Front Panel



Figure 3 Front Panel

| No. | LEDs                       | Description                                                                                                          |
|-----|----------------------------|----------------------------------------------------------------------------------------------------------------------|
| 1   | PLC/Wireless receiving LED | A blinks light indicates that the PLC/Wireless receiving segment is working. This LED blinks during data receiving.  |
| 2   | PLC/Wireless Sending LED   | A blinks light indicates that the PLC/Wireless sending segment is working. This LED blinks during data transmission. |
| 3   | STA/AP Connecting LED      | A solid light indicates a proper connection to STA or AP connecting.                                                 |
| 4   | WIFI LED                   | A solid light indicates that the WIFI segment is working.                                                            |
| 5   | Ethernet LED               | A solid light indicate connection on the LAN port.                                                                   |
| 6   | POWER LED                  | A solid light indicates a proper connection to the power supply.                                                     |

## Back Panel

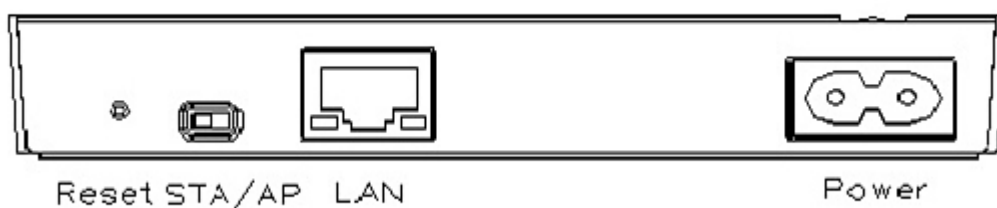


Figure 4 Back panel

| Connections    | Description                                                                                                  |
|----------------|--------------------------------------------------------------------------------------------------------------|
| <b>Reset</b>   | <b>Reset Button.</b> Pressing the Reset Button restores the router to its original factory default settings. |
| <b>STA/AP</b>  | <b>STA /AP Mode switch.</b>                                                                                  |
| <b>LAN</b>     | <b>LAN Ports.</b> Meaning you can use Ethernet cable connects with Local Area Network or computer.           |
| <b>Power</b>   | <b>Receptor for the Power Adapter and PLC connector.</b>                                                     |
| <b>Antenna</b> | Send and receive wireless data.                                                                              |

**CAUTION:** Using a power supply with a different voltage rating than the one included with the Smart Router ZNLY-201 will cause damage and void the warranty for this product.

## Reset To Factory Default Settings

You can reset the router to its factory settings using the reset button. If your router has become unmanageable, or you have forgotten the password and you need to log into it, you may wish to restore it to a factory default condition and reset your router settings.

**Things You'll Need:** Paperclip or ballpoint pen etc.

**Resetting the Smart Router to Factory Default Settings, please do the following:**

1. Unplug all cables from the router except the power cable.
2. Locate the reset button, a small hole.
3. Insert the straightened end of a paper clip or the point of a ballpoint pen into the hole. Press and hold for at least 7 seconds and then release. Lights will blink, indicating that the Smart Router is rebooting.

## STA/AP Mode Switch

STA mode is the Smart Router as the client, to connect other WIFI, receive WIFI.

AP mode is the Smart Router as the server, create WIFI hotspot, other network terminals (such as: computer, phones, etc.) to connect to the WIFI.

AP is the Smart Router default mode. The STA is on the left side of the STA/AP button, the AP is on the right.

**How to switch STA / AP mode, the specific switching steps are as follows:**

1. Disconnect the power supply of the Smart Router;
2. Push the STA/AP button to the STA or AP end;
3. Restart Smart Router. If the button at the STA ends, Smart Router is STA mode. If the button at the AP ends, Smart Router is AP mode.

## CHAPTER 3 Hardware Setup and Getting Started

### Connecting the Router

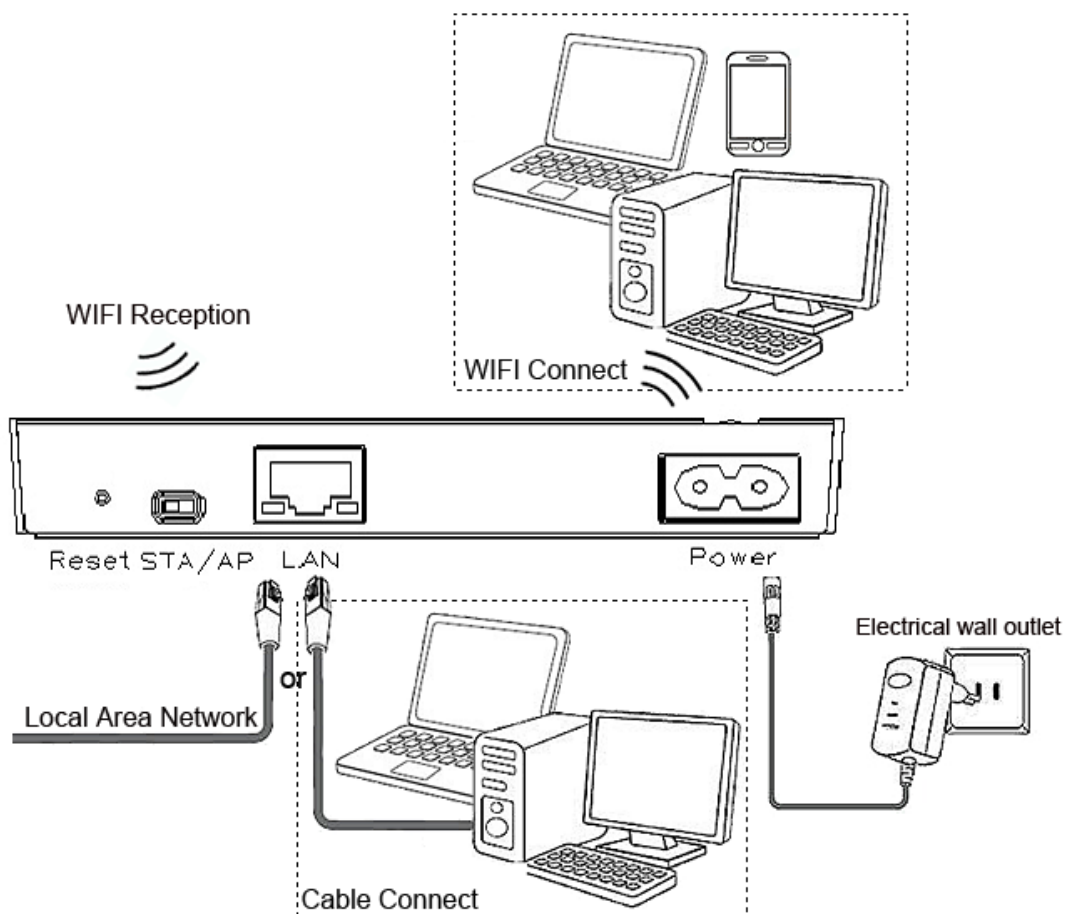


Figure 5 Connection

Select the connection type (Ethernet Cable OR Wi-Fi). Please do the following:

#### 1. Connection the Smart Router and the computer

- » If your computer has installed wire network card, connect your computer to the router using an Ethernet cable.
- » If your computer has installed Wireless network card, disconnect the Smart Router to the computer, but you can connection the router to the Local area network through an Ethernet cable.

#### 2. Connection the Smart Router power

Plug the power cord into the power port on the Smart Router.

### **3. Restart Power**

Plug the other end of the power cord into an electrical wall outlet, and then your network cables are connected. You are ready to start your network. It is important that you start your network in the correct sequence (first power on the Smart Router, and after it finishes starting up, power on the computer).

**CAUTION:** The operating distance or range of your wireless connection can vary significantly depending on the physical placement of your router. For example, the thickness and number of walls the wireless signal passes through can limit the range. For optimal wireless network performance, place your router in a suitable area for installation (near an AC power outlet and the center of the area where your computers and other devices operate.)

## **Getting Started**

This part explains how to set up your router after you complete cabling as described in the Connecting the Router and in the previous chapter.

Before you start the setup process, make sure the computers and devices in the network have the settings described here.

## **Wire Network Setup Preparation**

You need to set up your computer to use a static IP address, and change the IP addresses so that it uses the same address range of the Smart Router. (The default IP Address of the router is 192.168.8.18). Consult the documentation that came with your computer or operating system for instructions about how to set a static IP address.

**Here are the steps to set a static IP address on Windows 7.**

- » Click **Start**, click **Control Panel**, and then choose **Network and Internet**.
- » Click **Network and Sharing Center** displays the Network and Sharing Center window.
- » Click the **Local Area Connection** to begin configuring your static IP address.
- » From the Local Area Connection Status window, click the **Details** button to see your existing connection details (most likely DHCP). Click the **Close** button.
- » Back at the Local Area Connection Status window, click the **Properties** button. It will show you the Local Area Connection Properties dialog. Click on the **Internet Protocol Version 4 (TCP/IPv4)** in the item box of the dialog window.
- » Click the **Use the following IP address** radio button and enter the appropriate values for your static IP address that is on the same range as the LAN IP Address on your router. The IP Addresses on your network must be within the same range. Example: If the router's LAN IP Address is 192.168.8.18, make your IP Address 192.168.8.X where X = 2-99. Make sure that the number you choose is not in use on the network.
- » Click **OK**.

Other operating systems just locate the "Internet Protocol (TCP/IP)" set a Static IP Address according to the above

## Wire Network Login and Access

Log into the web based Smart Router software system through wire network, please do the following:

- » Launch the web browser from a computer or other device that is connected to the router.
- » Type in the IP Address of the Router (Default: 192.168.8.18) in the web browser address bar, press the Enter key, and then login window display.
- » Type in the default User name of the Smart Router: admin; type in the default Password: admin.
- » Click Login, enter Air Conditioning Centralized Management System.

## Establish Wireless Network

You need to set up your computer or wireless device to connect the Smart Router WIFI.

**Here are the steps to establish a wireless network.**

- » Verify that the Smart Router is AP mode. If it is not, switch it to AP mode.
- » On your computer or wireless device, open the software that manages your wireless connections. The wireless software scans for all wireless networks in your area.
- » Refresh wireless networks, look for the Smart Router WIFI “Gateway\_PR16” (The default wireless network name) and select it.
- » Enter the router password and click Connect

The preset wireless network name of the Smart Router is Gateway\_PR16 and preset WIFI password is 123456789. If you changed these settings, look for the network name that you used.

## Wireless Network Login and Access

Log into the web based Smart Router software system through wireless network, please do the following:

- » Launch your browser from a computer or wireless device that is connected to the router.
- » Type in the Wireless IP Address of the Router (Default: 192.168.18.18) in the web browser address bar, press the Enter key, and then login window display.
- » Type in the default User name of the Smart Router: admin; type in the default Password: admin.
- » Click Login, enter Air Conditioning Centralized Management System.

## Outline of the Smart Router Software

When you want to login Air Conditioning Centralized Management System, you can access the system by opening the web-browser, typing in the IP Address of the Smart Router, and type in the User name and Password.

After successful login the router management system, the screen will display home screen (the default display). In System screen, the left column has the menus, and tabs at

the top. You can click any sections of the page to view more detailed information. The left column menus are as follows: Alarm Query, Running Status, History Data, Energy Consumption Comparison, and System Settings. Click on a menu item, you can enter the corresponding menu view information and set the features. If you need more detailed information on operation of the Air conditioning Centralized Management system, please contact Risecomm to obtain more information about the System.

## CHAPTER 4 Product Specifications

| Feature                   | Description                                                                              |
|---------------------------|------------------------------------------------------------------------------------------|
| Input Power               | North America 105 to 125 VAC, 60 Hz<br>Outside North America 100 to 240 VAC, 50 to 60 Hz |
| Static power consumption  | <4.2W                                                                                    |
| PLC Frequency             | 357KHz                                                                                   |
| Modulation Technology     | BPSK                                                                                     |
| Wireless Frequency        | 433 MHz CHINA: 470MHz                                                                    |
| WIFI Receiver Sensitivity | 54/135M:-72dBm@10%PER; 11M:-85dBm@8%PER;<br>6M:-88dBm@10%PER; 1M:-90dBm@8%PER            |
| PLC Sensitivity           | -60dB                                                                                    |
| RF Wireless Sensitivity   | ≤-108dB                                                                                  |
| Operating Temperature     | -25℃ ~ +60℃                                                                              |
| Limit temperature         | -40℃ ~ +70℃                                                                              |
| Storage Temperature       | -5℃ ~ +30℃                                                                               |
| Operating Humidity        | ≤90%                                                                                     |
| Storage Humidity          | 25% ~ 60%                                                                                |
| Dimensions                | L167.9*W129.15*H37.52mm                                                                  |
| Data encoding standards   | IEEE 802.11g etc.                                                                        |
| Operating frequency range | 2.4 GHz                                                                                  |

### Warranty

1-year limited warranty.

If you purchased this product directly from Risecomm or from an authorized Risecomm retail reseller, Risecomm warrants to you, the original end user customer, that the product, excluding software, will be free from defects in materials and workmanship under normal use, and for a period of one year from the date of purchase from Risecomm or from an authorized Risecomm reseller. Risecomm's sole and exclusive obligation under this limited warranty for retail sales shall be to repair or replace any product or software that does not meet this limited warranty. All warranty claims must be made within the applicable warranty period.

If you did not purchase this product directly from Risecomm or from a Risecomm

authorized retail reseller, Risecomm does not warrant this product to you, the end-user. A limited warranty for this product (including software) may have been provided to your service provider from whom you obtained the product. Please contact your service provider if you experience problems with this product.

General information. The warranties described in this section shall not apply:

(i) to any product subjected to accident, misuse, neglect, alteration, acts of god, improper handling, improper transport, improper storage, improper use or application, improper installation, improper testing or unauthorized repair; or

(ii) to cosmetic problems or defects which result from normal wear and tear under ordinary use, and do not affect the performance or use of the product.

Risecomm's warranties apply only to a product that is manufactured by Risecomm and identified by Risecomm owned trademark, trade name or product identification logos affixed to the product. Risecomm does not warrant to you, the end user, or to anyone else that the software will perform error free or without bugs. Risecomm is not responsible for, and provides "as is" Any software supplied by 3rd parties. Except as expressly stated in this section ("warranty information"), there are no warranties of any kind relating to the product, express, implied or statutory, including but not limited to implied warranties of merchantability, fitness for a particular purpose, or the warranty against infringement provided in the uniform commercial code. Some states do not allow for the exclusion of implied warranties, so the above exclusion may not apply to you.

Risecomm is not responsible for problems or damage caused by the interaction of the product with any other software or hardware. All warranties are void if the product is opened, altered, and/or damaged.

## **FCC STATEMENT :**

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.

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

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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.

### **FCC Radiation Exposure Statement:**

This equipment complies 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.