Wireless Interconnected Relay Module

User's Manual

ZHEJIANG HUAXIAO TECHNOLOGY CO., LTD. V1.0.4

1.Important Safeguards and Warnings

This section introduces content covering the proper handling of the device, hazard prevention, and prevention of property damage. Read carefully before using the device, and comply with the guidelines when using it.

Operation Requirements

 WARNING

- Never ignore any alarm. Failure to respond may lead to serious injury or death.
- The device will activate after being fully mounted to the mounting bracket.

 CAUTION

- Make sure that the power supply of the device works properly before use.
- Use the device according to the operating environment.
- Only use the device within the rated power range.
- Transport, use and store the device under allowed humidity and temperature conditions.
- Prevent liquids from splashing or dripping on the device. Make sure that there are no objects filled with liquid on top of the device to avoid liquids flowing into it.
- Avoid using relays in strong magnetic field because it will change the parameters of relay such as operate and release voltage.
- To maintain the performances of relays, please do not make the relay drop or be shocked strongly.
- Please avoid using the relay in an environment containing organic silicon, otherwise the entry of organic silicon into the relay may acceleration contact failure. If there are harmful substances and elements such as water vapor, H2S, SO2, NO2, Cl, P, dust, etc., as well as unknown harmful substances and elements. In the use of environmental gases, it may lead to increased contact resistance and poor contact during the use of relays. In the above situations, please control the materials that produce harmful substances and elements or use plastic sealed type, and arrange relevant tests to confirm that it meets the requirements for actual use.

Installation Requirements

 WARNING

- The device **MUST NOT** be powered from a light dimmer circuit.
- The device **MUST NOT** be connected when the house wiring insulation is being checked with high voltages. i.e. Do not use a high voltage insulation tester on the device.
- Before installation and removal, disconnect the Mains power supply.
- The device must be installed by a qualified electrician. There are no repairable parts inside.
- Strictly comply with the local electrical safety code and standards, and check whether the power supply is correct before operating the device.

- Do not connect the device to two or more kinds of power supplies, unless otherwise specified, to avoid damage to the device.
- The device must be installed in a location that only professionals can access, to avoid the risk of non-professionals becoming injured from accessing the area while the device is working. Professionals must have full knowledge of the safeguards and warnings of using the device.

⚠ CAUTION

- Observe all safety procedures and wear required protective equipment provided for your use while working at heights.
- Do not expose the device to direct sunlight or heat sources.
- Keep the original packing material well because you might need it to pack the device and send it back for repair.
- Make sure the application scenario conforms to installation requirements. Contact your local retailer or customer service center if there is any problem.
- All installation and operations shall conform to your local electrical safety requirements, fire protection regulations, and other relevant regulations.
- The device doesn't need to be earthed. The device is a class II electrical appliance.
- This product must be installed by a licensed electrician in accordance with AS/NZS 3000.

Maintenance Requirements

- Do not clean the device with any cleaning products.
- Disposal of a battery into fire or a hot oven. or mechanically crushing or cutting of a battery, that can result in an explosion.
- Leaving a battery in an extremely high temperature surrounding environment that can result in an explosion or the leakage of flammable liquid or gas; and a battery subjected to extremely low air pressure that may result in an explosion or the leakage of flammable liquid or gas.

2.Introduction

2.1 Overview

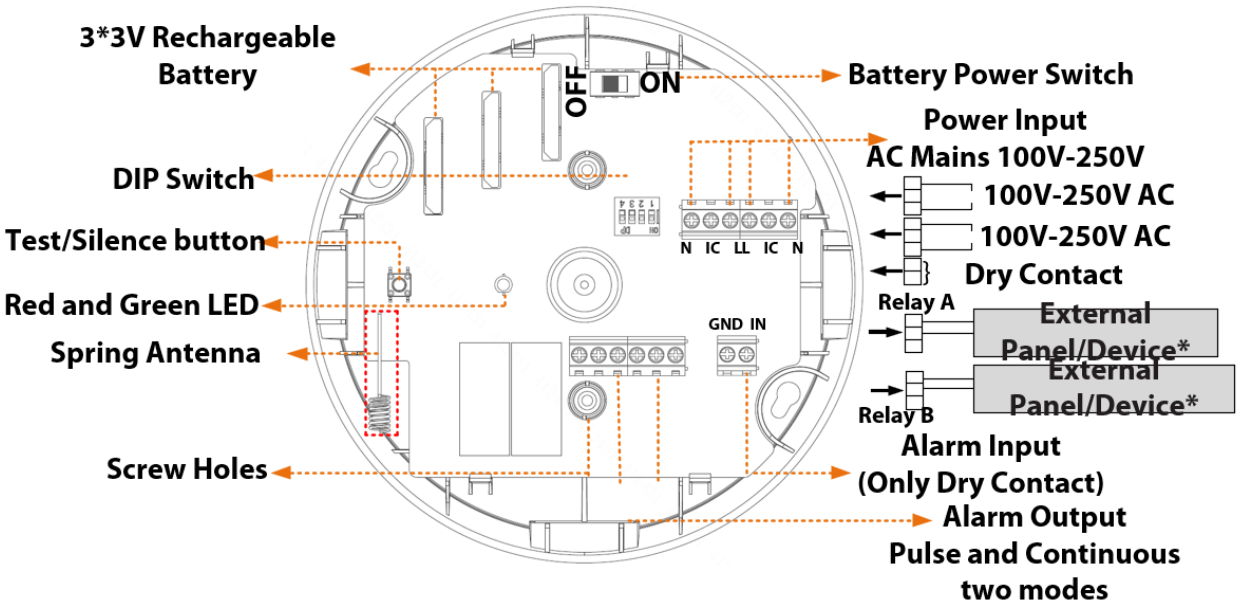
The Wireless Interconnected Relay Module is designed to enable ad hoc networking with Wisualarm wireless interconnection devices, supporting the interconnection of up to 24 devices. In conjuction with the Wisualarm wireless gateway, this module facilitates wireless interconnection and provides real-time notifications via the Wisualarm application.

The relay features a dry contact input that can receive alarm outputs from other devices. However, the alarm output signal from these devices must be processed in a quarantine state, as it is a passive signal.

With normally open (NO) and normally closed (NC) output contacts, it allows the alarm device to activate and differentiate between smoke, heat, and carbon monoxide (CO) alarm signals.

The module operates on AC mains power ranging from 100V to 250V and is equipped with a built-in rechargeable lithium battery backup to ensure operation in the event of a mains power failure.

2.2 Product Profile



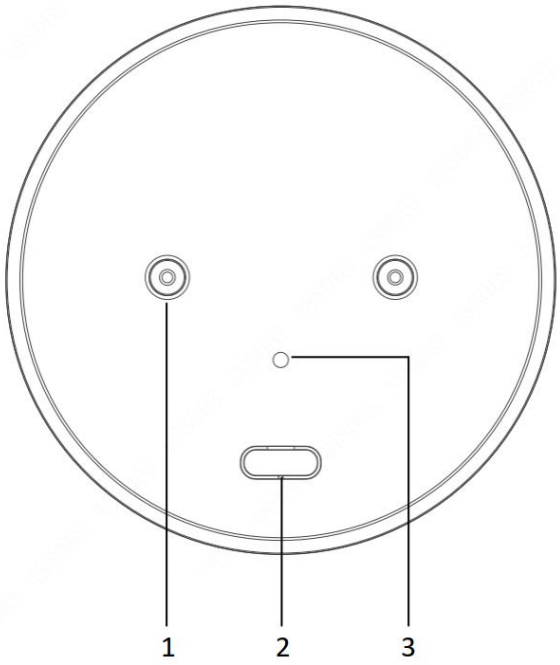


Table 2-1 Panel introduction

No.	Name	Introduction
1	Screw Hole	Secure the relay cover.
2	Test/Silence Button	Used for testing and pairing. For specific functions and operations, refer to the table.
3	Indicator	Indicate power, alarm, and other states.

Table 2-2 Button and Indicator Functions

State	Action	Introduction
Normal Test	Press the button once	After pressing the button, the red LED flashes 3 times, pauses for 1 second, then flashes 3 times again
Interconnection Test	Press and hold the Test/Silence button	The red LED flashes once every second
Interconnection	Press the button four times to enter interconnecting receiving mode	The red indicator flashes once every second for 3 minutes
	Press the button twice to enter interconnecting transmission mode	The red indicator flashes once every 0.5 seconds for 1 minute
	Interconnection succeeded	The green LED of the sending device flashes once per second until the button is pressed again or times out automatically (timeout is 3 minutes)
Pairing with gateway	Press the button three times	The green LED flashes quickly until pairing is successful or times out automatically (timeout is 1 minute)

State	Action	Introduction
	Pairing succeeded	The green LED flashes once per second until the button is pressed or times out automatically (timeout is 3 minutes), then the device resets
Indicator	Mains power supply	Green LED is constantly on
	Backup power supply	Green LED flashes once every minute
	Low backup power	Red LED flashes once every minute
	Alarm	Red LED flashes once every second
Silence	Press the button once	All interconnected devices are temporarily silenced

3.Technical Information

Specification	Introduction
Power Supply	AC 100-250V
Battery Back-up	9V Lithium rechargeable (non-replaceable)
Operating Temperature	-10°C to +50°C (+14°F to +122°F)
Operating Humidity	≤95% RH (non condensing)
RF Frequency	868MHz (-R8 Model) / 925MHz(-R9 Model)
RF Range	● 868MHz：RF range up to 1000 m in open, interference-free area ● 925MHz：RF range up to 500 m in open, interference-free area
Contact Rating	AC 250V, 5A resistive, Continuous or Pulse mode
Output	2 volt free contacts (NO/NC)
Input	1 dry contact input
Maximum Number of Interconnected Units	24
Standby Power Consumption	20μA
Battery Life	700 hours without alarm when the battery is fully charged
Dimensions	Φ144.4mm × 36.4mm (Φ5.69" × 1.43")
Weight	232 g (Packaging is not included)

4.Interconnection

4.1 Interconnect with wireless devices

This device can only be interconnected with Wisualarm wireless interconnected devices. It is not designed to communicate with wireless interlinked devices from other manufacturers.

Prerequisite

- Make sure all devices are powered on to ensure a successful interconnection.
- A maximum of 24 RF devices may be interconnected to one relay. When one device beeps, all interconnected devices will beep.
- It is recommended to use backup battery to interconnect.
- The relay module does not include a buzzer, and the distinction between the interconnection phenomenon and other devices lies in the presence or absence of a buzzer; the light phenomenon remains the same.

WARNING

Make sure that only 2 devices are powered on at a time to ensure successful interconnection. Otherwise, the interconnection will fail or device malfunction may occur.

How to interconnect

Step 1 Press the **Test/Silence** button on the device 1 continuously 4 times (the interval between each press is less than 1 second), this device emits 1 short quick beep and the red LED indicator flashes continuously (about once every 0.5 seconds), indicating the device 1 enters the interconnecting receiving mode.

To ensure that all devices enter the same interlinked network, make sure only one device enters interconnecting mode at a time.

Step 2 Press the **Test/Silence** button on device 2 twice (the interval between each press is less than 1 second), this device emits 1 short quick beep and the red LED indicator starts to flash rapidly (about once every 0.25 second), indicating the device 2 enters the interconnecting transmission mode.

Step 3 Device 2 will emit 1 short quick beep, then the green LED indicator will flash continuously, which means the pairing between two devices succeed. The green LED indicator will flash continuously until device 1 quit the interconnecting mode, or you can press the **Test/Silence** button on device 2 to force it enter the normal standby state immediately.

Device 1 will be in interconnecting mode for 3 minutes with red LED indicator flashing once every 0.5 seconds. During this period, you can pair several wireless interconnected heat alarms one by one. If needed, you can manually press the **Test/Silence** button to help

device 1 quit the interconnecting mode, the red LED indicator flashes once and green LED indicator flashes once, then device 1 will emit 1 short quick beep, indicating the device has already quit the interconnecting mode and enters normal standby state. Once you press the **Test/Silence** button on device 1, the device 2 will follow device 1 to quit the interconnecting mode and enter the normal standby state.

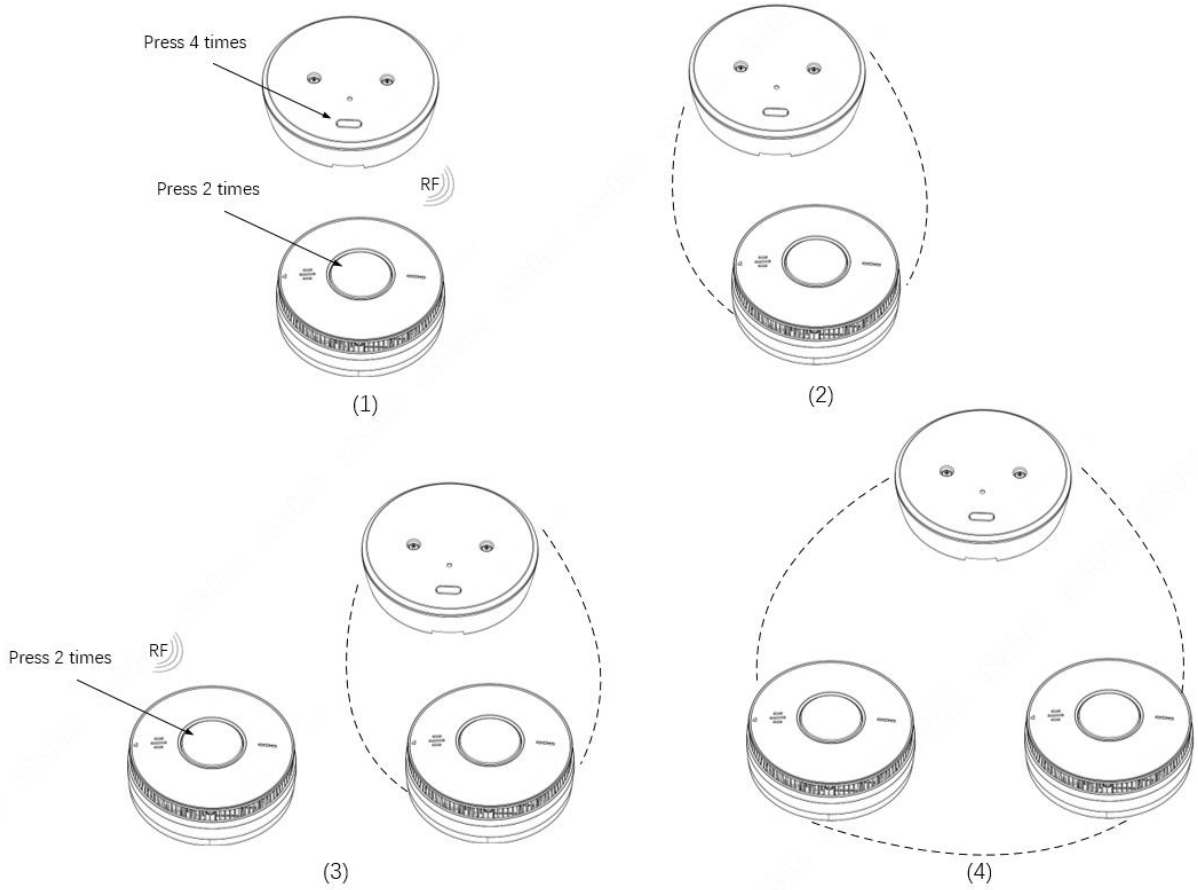
Step 4 (Optional) Interconnect device 3.

1) If device 3 is in the interconnecting receiving mode of device 1 within 3 minutes, then press the button twice on device 3 to enter the interconnecting transmission mode. If the interconnecting receiving mode of device 1 surpasses 3 minutes, then press button on either of the two previously interconnected devices 4 times to enter the interconnecting receiving mode, then press the button twice on device 3 to the join interconnected network.
2) If enters the interconnected network successfully, red LED indicator on device 3 will go out and it will emit 1 short quick beep, then the green LED indicator will flash continuously until device 1 quit the interconnecting mode, or you can press the button on device 3 to force it enter the normal standby state immediately.

Step 5 If you want to connect more devices, please repeat **Step 4**.

Up to 24 wireless alarms can be interconnected this way.

Figure 4-1 Interconnect device



How to disconnect

Step 1 Continuously press the **Test/Silence** button 4 times on the device that needs to unpair with other alarms, and the device emits 1 short quick beep and red LED indicator starts to flash continuously.

Step 2 Press and hold the **Test/Silence** button until the red LED indicator goes out, then release the button. If the disconnection finished, the red LED indicators on all alarms in the interconnected network will flash once. You can connect it again to join an interlinked network.

Please disconnect all the wireless interconnected devices if you want to use them in another interconnected network.

4.2 Pair with the wireless gateway

You can add a Wireless Gateway into the network which will allow you to receive updates on the network when you're away from home. The Gateway will communicate with the Wisualarm App via your home's internet connection, enabling you to receive a push notification timely.

Prerequisites

Make sure that the wireless gateway has a stable internet connection.

WARNING

Pair alarms one by one to ensure successful pairing. Otherwise, the pairing will fail or device malfunction may occur.

How to pair

Step 1 Press the **Pairing** button on the wireless gateway 3 times. The green indicator is flashing continuously (about once every 0.5 seconds), indicating that it is searching for a device to connect to.

Step 2 Press the **Test/Silence** button on one wireless interconnected device continuously 3 times to enter the pairing mode. The green LED indicator flashes, indicating the device enters pairing mode and is searching for a new device to be added.
Once the pairing is successful, the wireless device will the green LED indicator flashes slowly for 1 minute. After this, the device will be in normal monitoring mode.

Step 3 (Optional) Repeat **Step 2** to pair with other interconnected devices. (Other Wisualarm devices with buzzers will be accompanied by buzzers when they are paired successfully.）

The wireless interconnected alarm will enter the pairing mode for 1 minute. If there is no response over 1 minute, the gateway will exit pairing automatically. Alternatively, you can

press the **Pairing** button on the wireless gateway once to force it to stop pairing mode immediately.

5.Device Installation

5.1 Packing List

Check the package according to the following checklist. If you find device damage or any loss, contact the after-sales service.

Table 6-1 Checklist

Name	Quantity
Wireless Interconnected Relay Module	1
Screw Package	1
User's Manual	1

5.2 Installation Principle

It is recommended to follow local laws and regulations for equipment installation. For example the guidance in British Standard BS 5839-6:2019 or the building code of Australian, state and territory building regulation and AS 1670.1 in general (for further information refer to the relevant standards).

- Mains-operated devices must be installed and interconnected by a licensed electrician in accordance with AS/NZS 3000. Failure to install this device correctly may expose the user to shock or fire hazards and damage the product.
- The device must be continuously powered throughout the day. Do not connect the device to a circuit that can be turned off by a switch.
- Avoid installation in new or renovated buildings until all work is completed.

5.3 Installation Position

The relay module can be installed directly underneath a Mains Powered Smoke/Heat alarm base but can also be sited separately with the cover supplied.

This device is intended for use in ordinary indoor locations of residential accommodation. Construction and layout of individual dwellings will vary, so this should be regarded as a reference only. For further guidance, please check with your local fire station.

Figure 5-1 Wall mount Installation

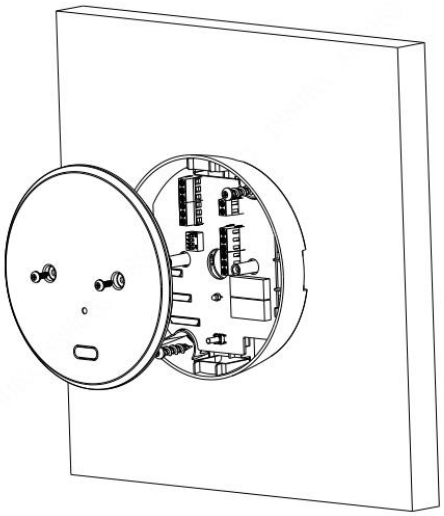


Figure 5-2 Ceiling mount Installation

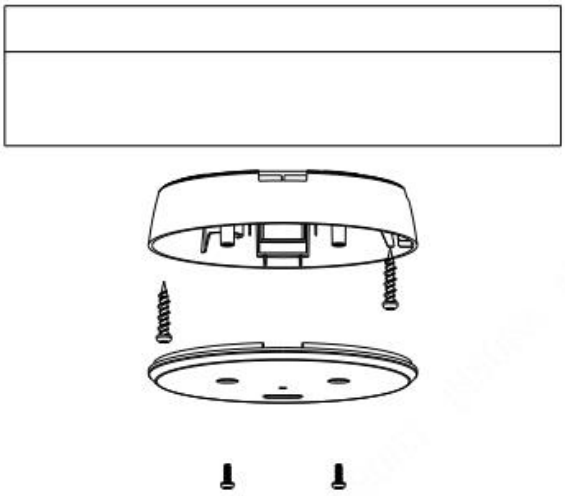
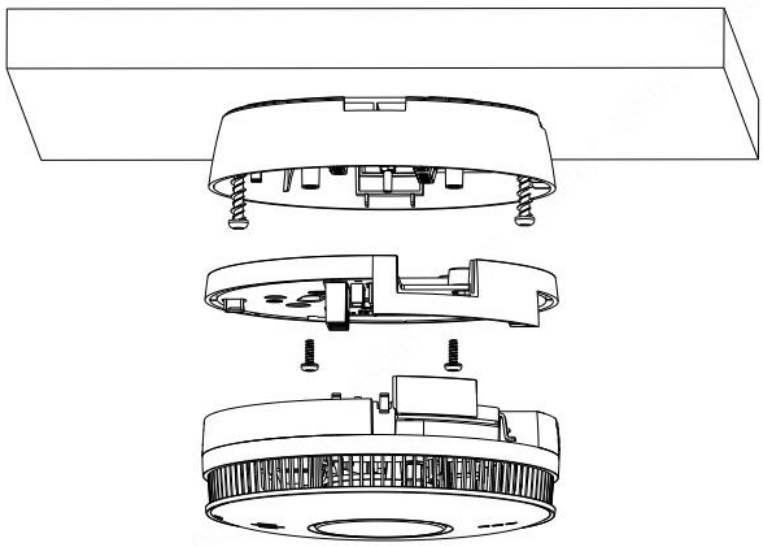


Figure 5-3 Combined installation with Wisualarm's AC device with Wireless Interconnected Module



5.4 Installation Steps

Follow below steps to install the device properly.

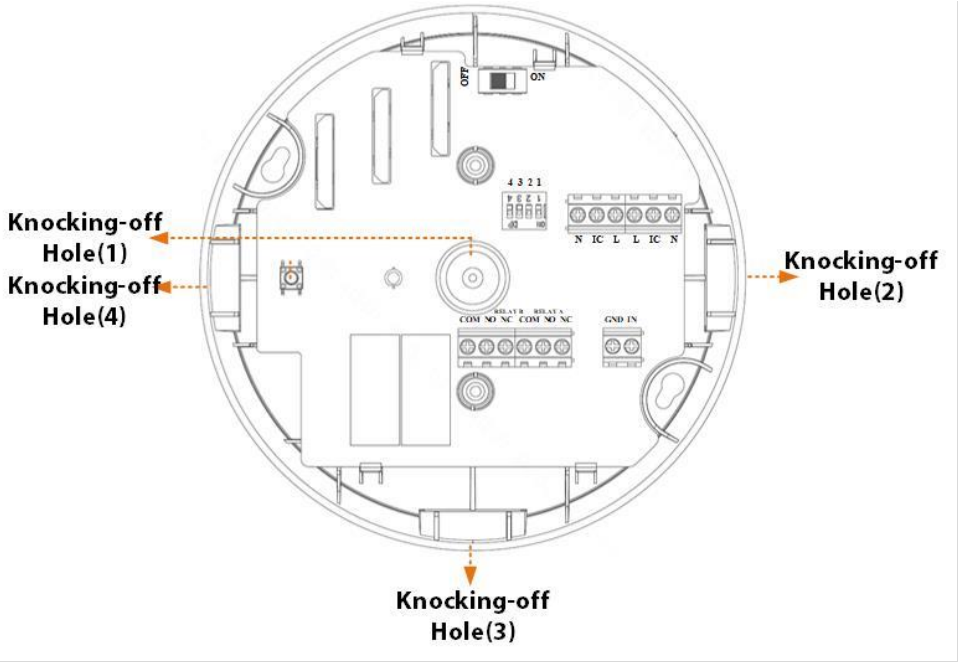
Step 1 Choose a suitable mounting position near the mains supply and the device to be connected to the relay. Keep it away from metal surfaces or large metal objects (such as water cylinder and fuse boards), as these may adversely affect the range of the radio frequency signal.

Step 2 Use a sharp knife to remove the material from the knocking-off hole. Screw the module to the wall after bringing the power supply through the knocking-off hole.

⚠

There are four designated knocking-off holes: three located on the sidewall and one at the center. DO NOT USE the knocking-off hole 4 which is closest to the antenna, otherwise, it will affect the antenna signal.

Figure 5-4 Knocking-off holes



Step 3 Dial the relay and turn on the standby power switch (refer to Chapter 8 for related operations and instructions).

Step 4 Connect the relevant cable to the corresponding wiring sub-section and tighten the screw.

- Main power supply wiring

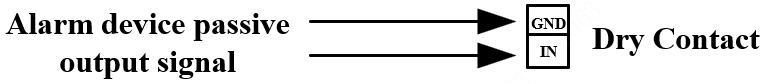
WARNING

Do not connect the mains supply to the IC interface; otherwise, the device will be damaged. The device cannot be earthed, please do not connect a green/yellow or copper earth wire to any terminal.

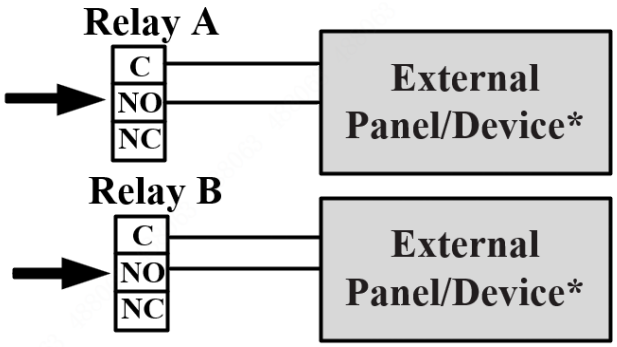
- Input wiring

WARNING

The output signal of the alarm device must be a passive signal; otherwise, the relay will be damaged.



- Output wiring



The wiring must be connected to the terminal block on the mounting plate as follows:

- L: Live - connect to the house wires coloured brown or marked L.
- N: Neutral - connect to the house wires coloured blue or marked N.

- Wiring must be in accordance with local codes.
- Checking for Live and Neutral using a two-probe tester is recommended.
- Checking for Live using a neon tester is recommended.
- Make sure that the Interconnect wire is NOT connected to Live or Neutral. DO NOT use an Earth wire to connect the interconnect terminal (IC terminal) for the interconnection.

Step 5 Install the upper cover, making sure that the upper cover is properly aligned with the lower case, and tighten it with the screw.

The battery switch should be switched to the **ON** position prior to completing the installation of the relay and fitting the upper cover.

6.Test and Maintenance

After the installation of the device or regular maintenance, a test must be carried out to confirm that the device is operating properly.

If any device defects are detected during the testing process, please refer to the “Frequently Asked Questions” and "Maintenance" section and retest the device. If it fails to complete the test successfully, please send the device to the manufacturer for repair.

6.1 Test

When the device is not interconnected, press the **Test/Silence** button once, the red LED indicator flashing three times for two cycles.

When the device is interconnected, press and hold the **Test/Silence** button (over 3 seconds), interconnected devices enter test state.

Press and hold the **Test/Silence** button (no more than 3 minutes), the relay A and relay B will be activated.

⚠

If the DIP switch 2/3 is in the ON position, the relay A/B will be latching for 5 seconds and then switches off.

⚠ WARNING

NEVER IGNORE ANY ALARM.

6.2 Maintenance

We recommend a monthly check of your Relay Module:

- Check that the green LED power indicator is on. If it is off, check circuit breaker fuse, wiring etc. When the mains power is restored, the green light will come on solid.
- The LED flashes red every minute, indicating a battery problem. Check that the slide switch is in the “ON” position and leave the battery to recharge for 2 hours before checking again. If the unit continues to flash red every minute, then the unit is defective and must be replaced.
- End of Life: After 10 years (see date label on the side of the Relay), the device must be replaced.

7.Frequently Asked Questions

Problem	Solutions
The green indicator light flashes once every minute	Only standby power supply works, please check whether the main power wiring and power supply are connected.
After the relay disconnects the main power, the green indicator light is constantly off	Check whether the standby power switch is in the **ON** position. When only the standby power is supplied, the green light flashes once every minute.
The red indicator light of the relay flashes once every minute	If only the standby power is supplied and the battery is undervoltage, check whether the mains power is connected. After the mains power is connected and the battery is charged for two hours, disconnect the mains power and check whether the green indicator light flashes once every minute.
Weak interconnection signal	Check for interference around the device and check whether the mains cable is close to the antenna.

8.Relay Switch Control

8.1 Standby Power Switch

The wireless relay module contains a non-replaceable, rechargeable 9V lithium battery designed to power the relay in the event of a mains failure.

Before the relay is connected to the main power supply, please switch the backup power switch to the **ON** position.

WARNING

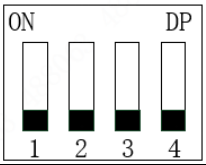
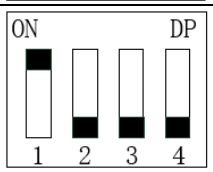
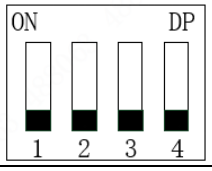
- Make sure that the mains power supply is disconnected before operating the switch.
- If in the event of a mains failure, the dedicated battery back-up will activate. The green LED will flash every minute to indicate powered by battery back-up. When the mains power has been restored, the LED will change to a constant green.

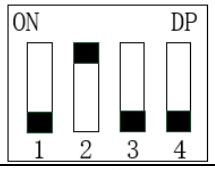
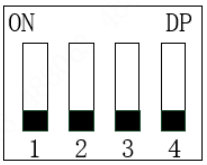
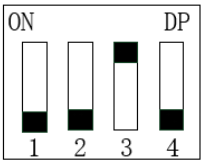
8.2 DIP Switch

The wireless relay module is equipped with a set of DIP switches. These DIP switches are used to select the output for relays A and B, as well as the output signal mode. Users can make selections based on their specific requirements.

- The Relay Module has the additional option to turn Relay B into a contact reporting only CO events, selectable by the DIP switch (1).
- The Relay Module are equipped with 2 x NO/NC contacts rated at 250V AC - 5A. Each contact has both pulse and continuous modes of operation, determined via DIP switch selection at the point of install (2 & 3).

- All switches can be used in different combinations at the same time.
- DIP switch 4 is a reserved switch and has no function for the time being.

Function	DIP switch	DIP switch Status	Function Introduction
Activate the carbon monoxide alarm feature	DIP switch 1		OFF：When DIP switch 1 is in the OFF position, relay contact A and B reporting only fire events.
			ON：When DIP switch 1 is in the ON position, relay contact B reporting only CO events.
Relay A output mode	DIP switch 2		OFF：When DIP switch 2 is in the OFF position, relay A latching continuously.

Function	DIP switch	DIP switch Status	Function Introduction
			ON：When DIP switch 2 is in the ON position, relay A latching for 5 seconds.
Relay B output mode	DIP switch 3		OFF：When DIP switch 3 is in the OFF position, relay B latching continuously.
			ON：When DIP switch 3 is in the ON position, relay B latching for 5 seconds.

9.Disposal

Waste electrical products should not be disposed of your other household waste. Please dispose in an environmentally friendly manner, and strictly follow the local regulations regarding the disposal or recycling of the electrical device.

WARNING

Do not burn or dispose of in fire.

10. Warranty

Western EU Importer: DAHUA EUROPE B.V.
ADD: Louis Braillelaan 80, 2719 EK Zoetermeer The Netherlands
Email address for service purposes: support@wisualarm.com

CEE&Nordic Importer: Dahua Technology Poland Sp.z.o.o.
Address: Poleczki Park Salsy 2, 02-823 Warszawa
Email address for service purposes: support@wisualarm.com

UK Importer: Dahua Technology UK Ltd.
ADD: 3rd Floor, Quantum House, 60 Norden Road, Maidenhead, SL6 4AY
Email address for service purposes: support@wisualarm.com

Germany Importer: Dahua Technology GmbH
Address: Niederkasseler Lohweg 185, 40547 Düsseldorf, Deutschland
Email address for service purpose: support@wisualarm.com

11. Discard

Waste electrical products should not be disposed of your other household waste. Please dispose in an environmentally friendly manner, and strictly follow the local regulations regarding the disposal or recycling of the electrical device.

 **WARNING**

Do not burn or throw into fire.

12. Documents

The full text of the EU declarations of conformity and EU declarations of performance is available at the following internet address: https://en.wisualarm.com/en/Download

For more information, please scan the QR code below or visit https://en.wisualarm.com/en/Product.