Please read this user manual carefully before installation.

# TCMK5413W Wireless Input&Output Module

# User Manual

Liaoning·Tiancheng Fire Protection Equipment Co., LTD

| Version | Date | Author | Note |
| --- | --- | --- | --- |
| Ver1.0 202009 | Nov. 16, 2020 | Deng Yi, Yan Chong | Create |
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## I. General

The TCMK5413W wireless input/output module (hereinafter referred to as the module) is suitable for installation in public places, factories and other environments. When there is a fire alarm, the module can send an alarm signal to the controller through wireless communication technology after receiving the closing signal, or it can output the closing signal to connect to other 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 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.

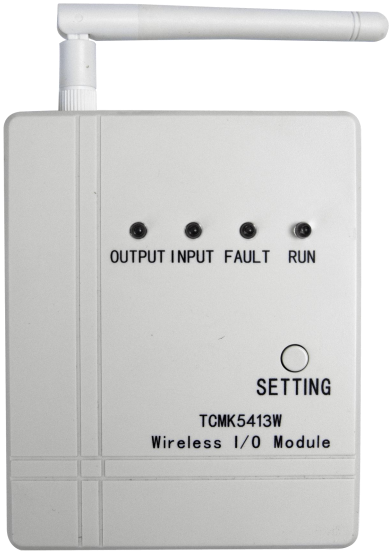
--Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

--Consult the dealer or an experienced radio/TV technician for help.

Important: You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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.

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




II. Features

1. Adopting 470MHz wireless communication technology, no need to pre-buried wiring, easy and quick engineering installation;

2. With battery low-voltage detection function, it can reflect the battery power status in time;

3. Use microprocessor to realize signal processing, and use digital signal to communicate with controller, work stably and reliably, and have good suppression ability against electromagnetic interference.

III. Technical specifications

1. Battery type： CR17450（wired）

2. Rated working voltage：3.0V

3. Working Current： Standby Current≤14uA Alarm Current≤10mA

4. Indicators：Input light: red, always on when there is an input signal

Output light: red, always on when output action

Fault Indicator: yellow, flashing when the module is faulty

Working Indicator: Green, flashing when communication is normal

Note: When all the lights in this manual are flashing, the lights will turn on once every 200ms

5. Coding Method: The controller is automatically assigned during networking

6. Communication method: 470MHz FSK coded two-way communication

7. Communication distance：≤50m

8. Transmitted power：<20dBm

9. Reset method: by control panel

10. Application environment：

Type： indoor Atmosphere pressure：86kPa～106kPa

Temperature：-10℃～+55℃ Relative humidity≤95%， non-condensing

11. Outline dimension：101mm×137mm×43mm

12. Material and color：ABS, off-white

13. Weight： about 170g (including battery)

14. Executive standard：GB 16806-2006 "Fire Linkage Control System"

XF 1151-2014 "General Requirements for Wireless Communication Functions of Fire Alarm Systems"

IV. Structure characteristics and working principle

1. The outline diagram of the module is shown in Figure 1 ：

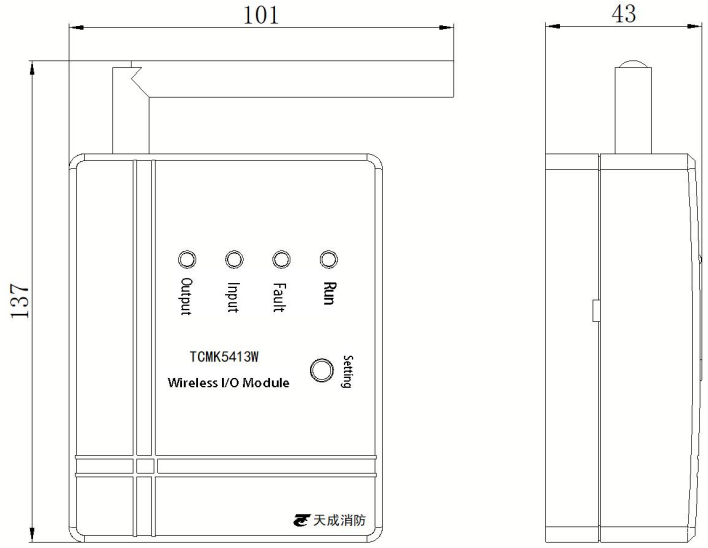



Figure 1 Outline diagram of the module

2. Working principle

When the module input terminal receives the closing signal, it sends an alarm signal to the control panel through wireless communication technology, and the module input indicates that the red light is always on.

When the module receives the control signal from the control panel, the module outputs a closing signal to connect to other devices, and the module output red light is always on.

When the module battery is low, the module sends a battery undervoltage signal to the control panel, and the fault yellow light flashes.

3.Installation method

1. Before installation, first check whether the shell is intact and whether the identification is complete.

2. Module fixing method:

When installing, use two screws to fix the module base on the 86 series (width 72mm, height 49mm, depth 47mm) embedded box, and then install the button front panel, the installation hole distance is 60mm.

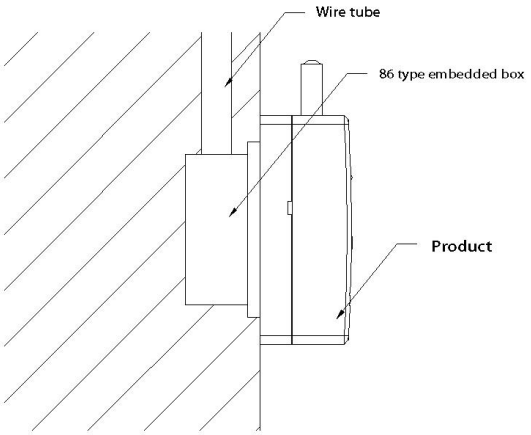



Fig.2 Installation method

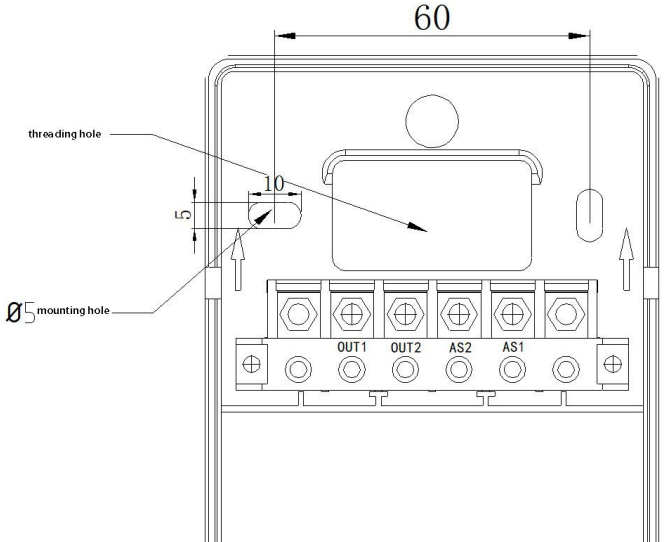


Fig.3 Installation hole distance

AS1,AS2: Passive answer signal input

OUT1,OUT2: Passive normally open output

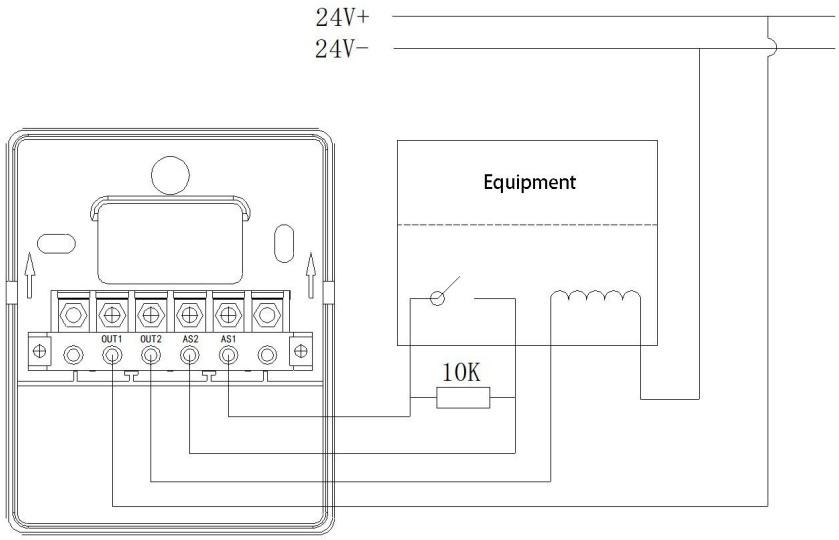



Fig.4 Wiring diagram

V. Test

Warning: Please make sure that the polarity of the battery is correct before proceeding.

1. After the module is installed and tested every year during use.

2. Alarm test: After the networking is successful, choose a module to artificially make it meet the alarm conditions (please turn off the fire alarm linkage function to avoid unnecessary alarm linkage), after the test, power on again, and notify the relevant management department Restore the system to normal.

3. During the test, the unqualified modules are resolved according to "general failure and repair" and "maintenance".

VI. Use and operation

1. Network segment setting: The device network segment should be set before the module accesses the network. In the network setting interface of the control panel menu, set the module access network segment according to the actual situation on site.

2. The device enters and exits the network:

A) Network access operation: When the control panel is in the "wireless registration interface" and the module is not connected to the network, quickly press the "Settings" button 3 times, and the green light flashes 3 times, the module sends a network access application to the control panel, application After success, the total number of network access displayed by the control panel +1.

B) Network exit operation: When the control panel is in the "wireless registration interface" and the module is in the network access state, press the "Settings" button 3 times in rapid succession, and the green light flashes 3 times, the module sends a exit to the control panel After the application is successful, the total number of withdrawals displayed by the control panel will be +1.

C) Status detection: After the module is powered on, press the "Settings" button once and the green light flashes once. If the control panel responds to the device, it indicates that the module has successfully connected to the network, otherwise the module is not connected to the network.

3. Equipment alarm: When the module input terminal receives the closing signal, it sends an alarm signal to the control panel through wireless communication technology, and the module input red light is always on.

4. Output start: when the module receives the control signal from the control panel, the module outputs a passive close signal, which can be connected to other devices, and the module output red light is always on.

5. Device reset: power on again.

6. Restore factory settings: After the module is connected to the network, when it is powered on again, the output red light will be on for 10s. During this period, you can restore the factory settings by pressing the setting button 5 times. The factory restoration is successful, and the output red light will flash 3 times.

7. Whether the output is detected or not: After the module is connected to the network, when it is powered on again, the output red light will stay on for 10s. During this period, click the setting button 3 times to turn off the output fault detection, and the yellow light will flash 3 times when the setting is successful. (Note: If the output failure detection has been set to turn off, the above operation can turn on the failure detection)

VII. General failure and repair

General faults and their solutions are shown in the table below：

| Fault | Reason | Solution |
|---|---|---|
| Faulty yellow light flashes once every 48s | Low battery | Change the battery |
| Faulty yellow light flashes twice every 48s | Too far away from the controller or interference sources nearby | Move the module near the controller to eliminate the source of interference |
| Faulty yellow light flashes three times every 48s | A fault is detected at the input of the module | 10K resistors are serially connected to the input of the module |
| Faulty yellow light flashes four times every 48s | A fault is detected at the output of the module | Input 24V power at the output of the module |
| Faulty yellow light flashes five | The module detects the | Refer to the above solutions to solve |

| | | |
|---|---|---|
| times every 48s | above-mentioned multiple faults | one by one |
| After the device alarms, the controller has no status prompt | The device is not connected to the network | Restart the network operation |
| Device networking is unsuccessful | Too far away from the controller or interference sources nearby | Move the device near the controller, reconnect to the network and remove the source of interference |
| The fault yellow light keeps flashing | The battery is low and the device is not working properly | Change the battery |

VIII. Notes

1. After the signal passes through the wall, the signal strength will be greatly attenuated, so try to reduce the number of partition walls for wireless products.

2. When installing the product, keep it away from metal to reduce the shielding of metal objects to the signal. For example, it cannot be installed in a metal box such as a fire hydrant box or outside of a metal cabinet.

3. Install in a low-interference environment and far away from motors or large-scale electrical equipment.

IX. Documents and warranty instructions

1. Packing documents: 1) Packing list: 1

2) Instructions: 1 copy

3) 10K resistance: 1

2. Warranty: Our company is responsible for the maintenance of this product. If you find any problems, please contact our company's technical service department in time. Users are not allowed to disassemble or repair by themselves, otherwise they will be responsible for the consequences.

3. The maintenance contact information is as follows:

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