

FainWan 5V2Channel-2pcs

FainWan 2-Channel 5V Relay Module Instruction Manual

Model: 5V2Channel-2pcs

Brand: FainWan

1. INTRODUCTION

The FainWan 2-Channel 5V Relay Module is an expansion board designed to control various electrical appliances and high-current devices. It features two independent relays and an optocoupler for isolation, ensuring safe operation with microcontrollers. This module can be directly controlled by standard microcontroller interfaces, making it suitable for a wide range of function experiments and projects.

Each relay on the module operates independently, providing both normally open (NO) and normally closed (NC) output configurations. An integrated LED indicator illuminates when a relay is triggered by a low-level signal, providing visual feedback on its operational status.

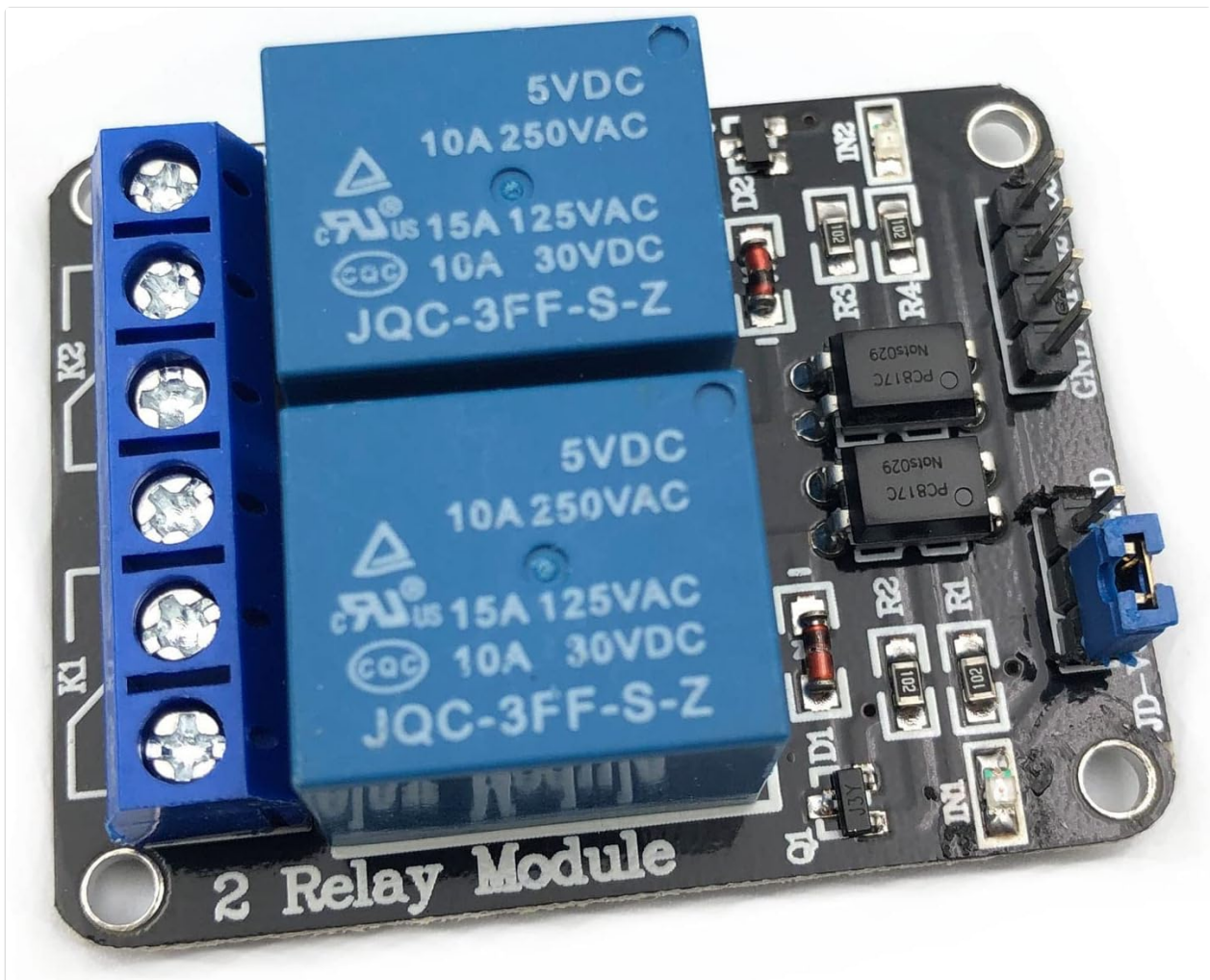


Figure 1: Overview of the FainWan 2-Channel 5V Relay Module.

2. PRODUCT FEATURES

- **Low-Level Trigger:** The module is designed for active low-level triggering, with an input voltage range of 0-5V.
- **High Contact Capacity:** Each relay offers a contact capacity of 250V AC at 10A or 30V DC at 10A.
- **Flexible Output:** Outputs are available in both normally open (NO) and normally closed (NC) configurations.
- **LED Indicators:** Each relay has an LED light to indicate its current output state when triggered.
- **Microcontroller Compatibility:** Directly controllable by standard microcontroller interfaces (e.g., Arduino, 8051, AVR, PIC, DSP, ARM, TTL logic).
- **Wide Applications:** Suitable for MCU control, industrial automation, PLC control, smart home systems, and VCC system power applications.

3. SETUP AND INSTALLATION

3.1 Component Identification

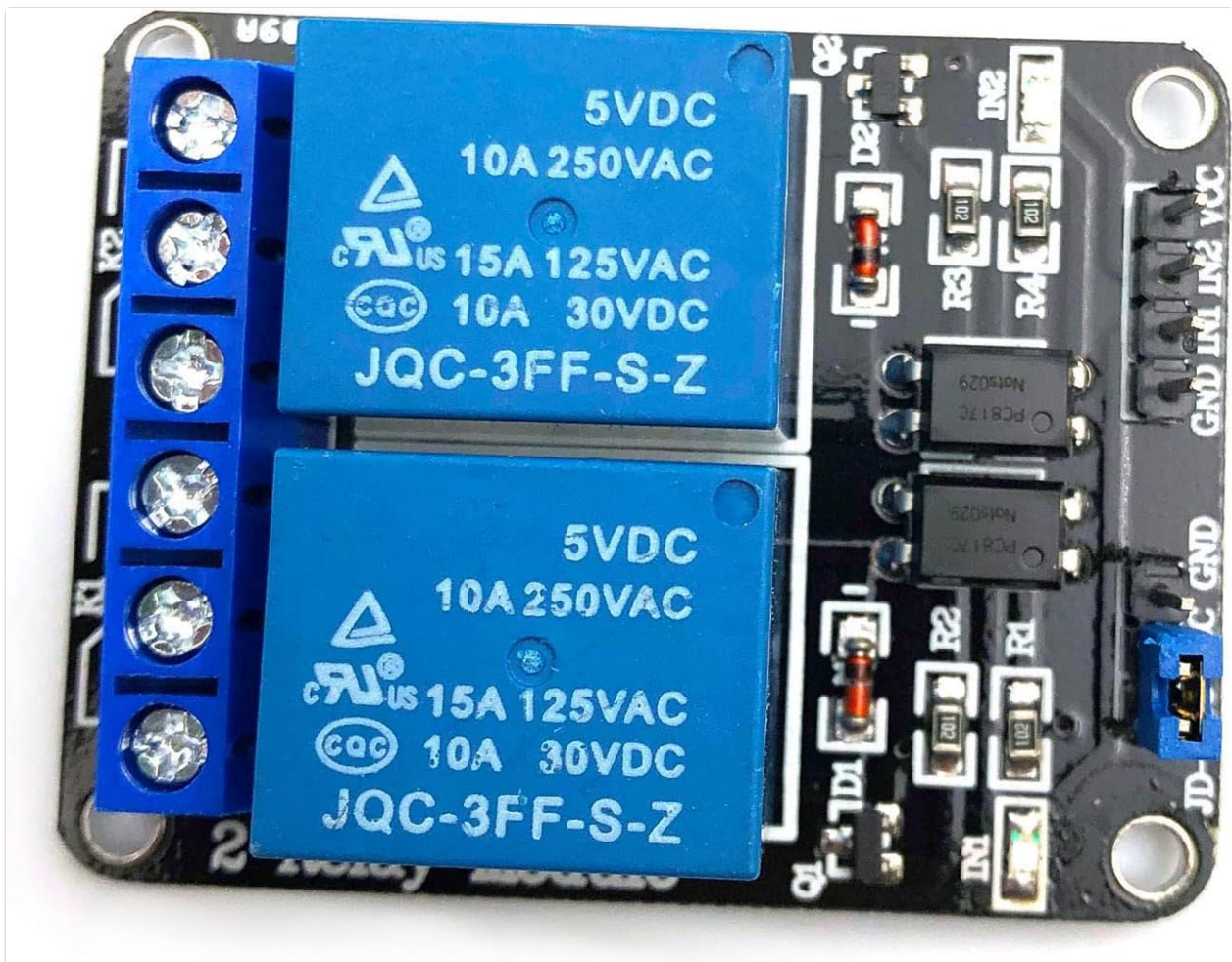


Figure 2: Top-down view highlighting key components.

- **Relays (JQC-3FF-S-Z):** Two blue relays for switching high-current loads.
- **Screw Terminals (K1, K2):** Output terminals for connecting the load to each relay.
- **Input Pins (VCC, GND, IN1, IN2):** For connecting power and control signals from a microcontroller.
- **JD-VCC Jumper:** Used to select power source for the relay coils.
- **Optocouplers (PC817C):** Provide optical isolation between the control circuit and the relay coils.
- **LED Indicators (D1, D2):** Indicate the active state of each relay.

3.2 Wiring Connections

Proper wiring is crucial for safe and reliable operation. Refer to the images below for connection points.

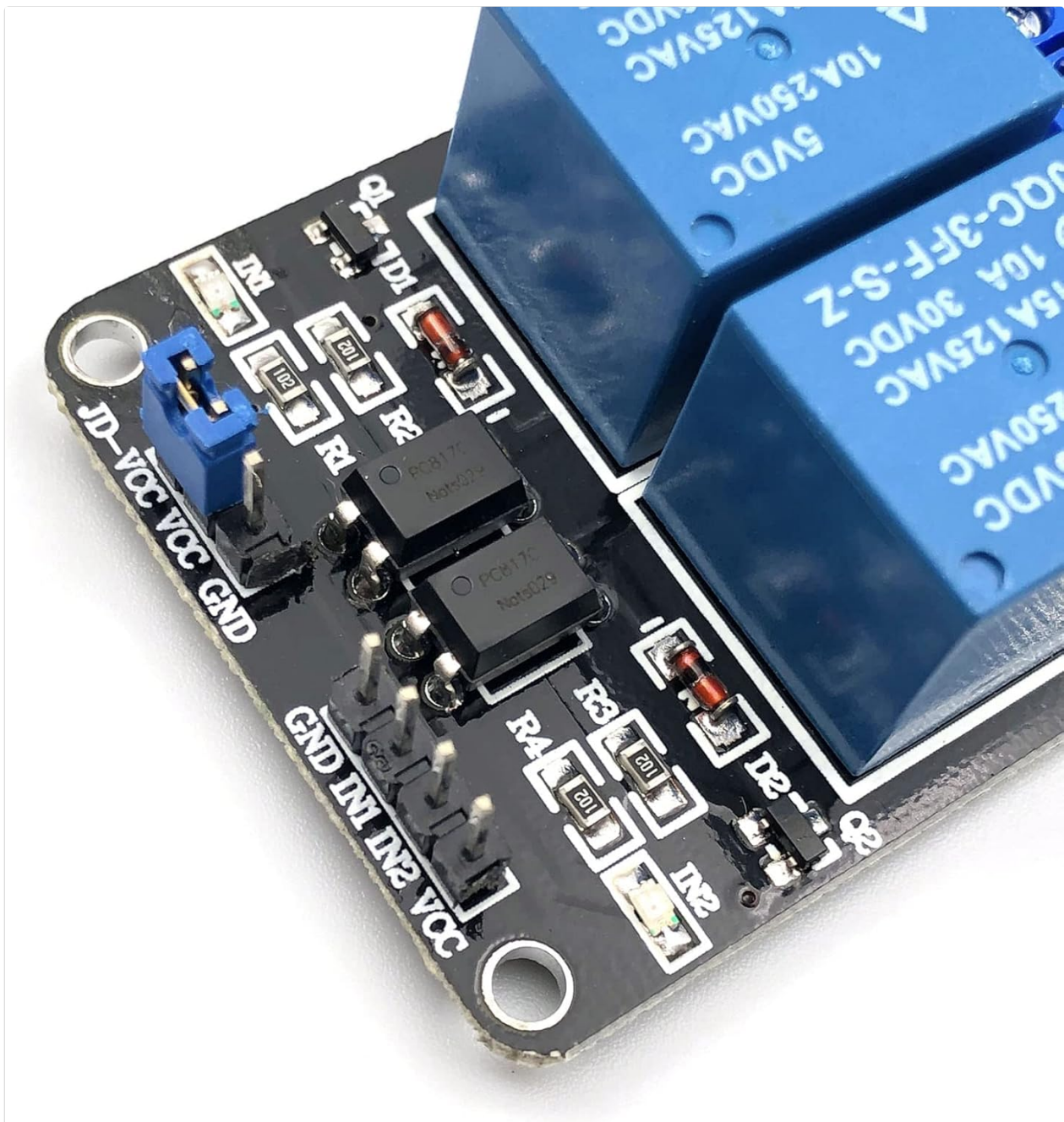


Figure 3: Input pin connections and JD-VCC jumper.

1. **Power Supply (VCC, GND):**

- Connect **VCC** to the +5V power supply of your microcontroller or external 5V source.
- Connect **GND** to the ground of your microcontroller or external power supply.

2. **Control Signals (IN1, IN2):**

- Connect **IN1** to a digital output pin of your microcontroller to control Relay 1.
- Connect **IN2** to a digital output pin of your microcontroller to control Relay 2.

3. **JD-VCC Jumper:**

- **Jumper ON (Default):** The relay coils are powered by the same VCC as the control logic. This is suitable for most applications where isolation is not critical or when using a single 5V supply.
- **Jumper OFF:** To provide isolated power to the relay coils, remove the JD-VCC jumper. Connect an external 5V power supply to the **JD-VCC** pin and **GND** pin (next to JD-VCC). This setup is recommended for applications requiring electrical isolation between the control circuit and the relay power, or when the microcontroller's 5V supply cannot provide enough current for the relays.

4. Load Connections (K1, K2 Screw Terminals):

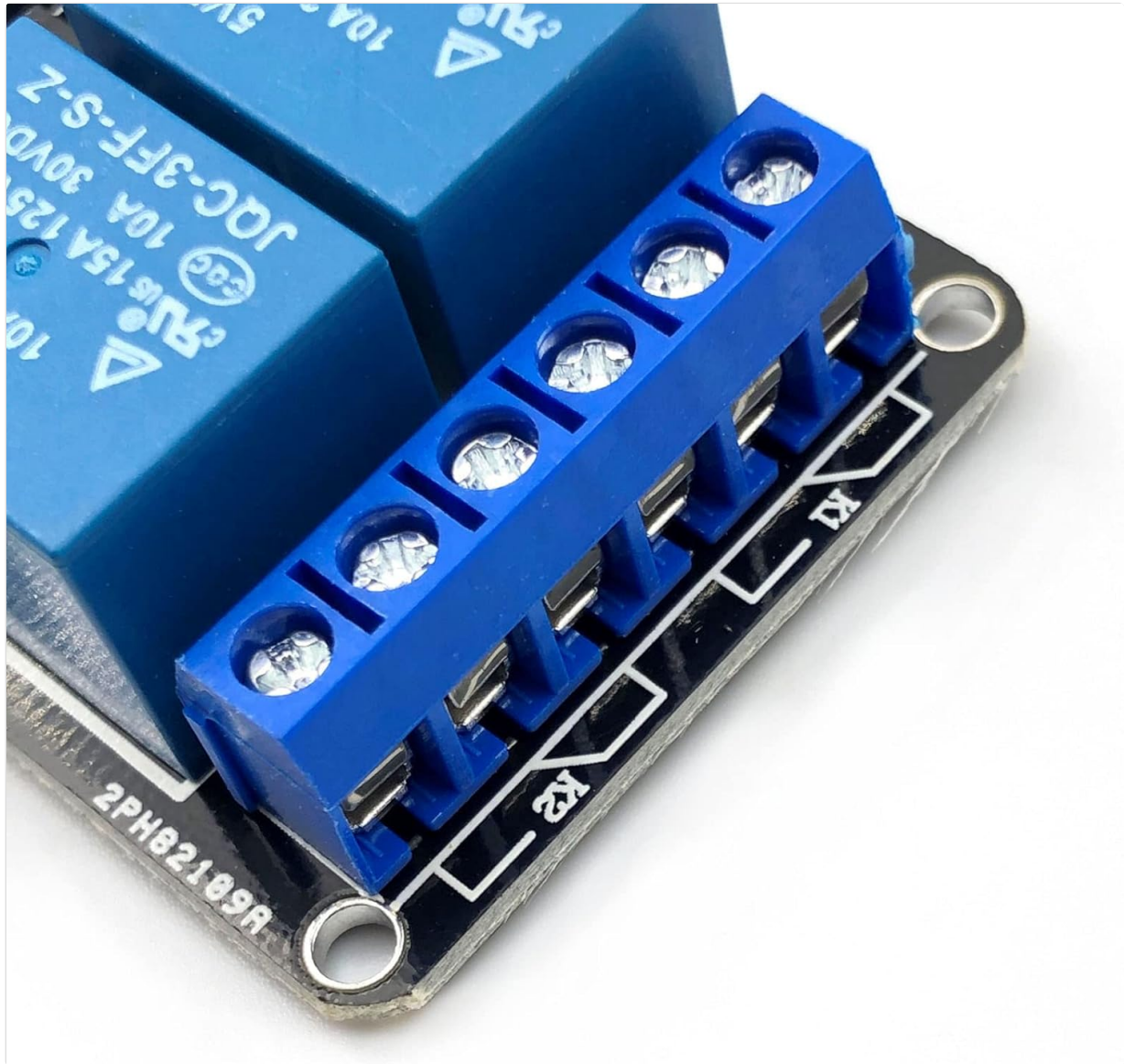


Figure 4: Output screw terminals for connecting loads.

- Each relay has three terminals: Common (COM), Normally Open (NO), and Normally Closed (NC).
- **Normally Open (NO):** The circuit is open (disconnected) when the relay is de-energized and closes (connects) when the relay is energized.
- **Normally Closed (NC):** The circuit is closed (connected) when the relay is de-energized and opens (disconnects) when the relay is energized.
- Connect your load according to whether you need it to be ON or OFF by default. For example, to turn a light ON when the relay is triggered, connect one side of the light to the power source and the other side to the NO terminal, with the COM terminal connected to the other side of the power source.

4. OPERATING INSTRUCTIONS

4.1 Triggering the Relays

The FainWan 2-Channel Relay Module uses an active low-level trigger. This means:

- When the input pin (IN1 or IN2) receives a **LOW** signal (0V or close to GND), the corresponding relay will energize (trigger). The LED indicator for that relay will light up.

- When the input pin (IN1 or IN2) receives a**HIGH** signal (5V or close to VCC), the corresponding relay will de-energize (release). The LED indicator for that relay will turn off.

4.2 Example Control Logic (Pseudocode)

To turn a relay ON (energize) using a microcontroller:

```
Set digital pin connected to INx as OUTPUT;  
Set digital pin connected to INx to LOW; // This will energize the relay
```

To turn a relay OFF (de-energize):

```
Set digital pin connected to INx as OUTPUT;  
Set digital pin connected to INx to HIGH; // This will de-energize the relay
```

5. SPECIFICATIONS

Specification	Value
Model	5V2Channel-2pcs
Coil Voltage	5 Volts DC
Input Trigger Level	Active Low (0-5V)
Contact Type	Normally Open (NO), Normally Closed (NC)
Maximum Switching Voltage	250 Volts AC / 30 Volts DC
Maximum Switching Current	10 Amps
Contact Material	Silver
Mounting Type	PCB Mount (Through Hole)
Operation Mode	Automatic
Manufacturer	FainWan
UPC	768571599407
ASIN	B09LM67679

6. TROUBLESHOOTING

- **Relay not triggering:**
 - Ensure the module is receiving 5V power at VCC and GND.
 - Verify that the control signal (IN1/IN2) is indeed going LOW (0V) when you intend to trigger the relay.
 - Check the JD-VCC jumper. If removed, ensure an external 5V supply is connected to JD-VCC and GND.
 - Confirm the control pin on your microcontroller is configured as an output.
- **LED indicator not lighting up:**
 - This usually indicates the relay is not receiving a trigger signal or is not receiving power. Follow the steps above for "Relay not triggering".

- **Load not switching:**

- Ensure the load is correctly wired to the COM and either NO or NC terminals.
- Verify that the relay is audibly clicking and its LED is lighting up when triggered.
- Check the load's power supply and connections independently of the relay module.
- Confirm the load's current and voltage requirements do not exceed the relay's maximum ratings (10A, 250VAC/30VDC).

- **Module getting hot:**

- This could indicate an overload or short circuit. Immediately disconnect power and re-check all wiring and load specifications.

7. MAINTENANCE

The FainWan 2-Channel 5V Relay Module is designed for durability and requires minimal maintenance. To ensure optimal performance and longevity:

- **Keep Clean:** Periodically inspect the module for dust or debris. Use a soft, dry brush or compressed air to gently clean the board.
- **Avoid Moisture:** Protect the module from moisture, humidity, and corrosive environments.
- **Proper Storage:** When not in use, store the module in an anti-static bag in a cool, dry place.
- **Inspect Connections:** Regularly check screw terminals and pin headers to ensure connections are secure and free from corrosion.
- **Operating Environment:** Operate the module within its specified temperature and humidity ranges.

8. WARRANTY AND SUPPORT

FainWan products are manufactured to high-quality standards. This product is covered by the standard manufacturer's warranty against defects in materials and workmanship. Please refer to the product packaging or the official FainWan website for specific warranty terms and conditions.

For technical support, troubleshooting assistance, or warranty claims, please contact FainWan customer service through their official channels. When contacting support, please have your product model number (5V2Channel-2pcs) and purchase information readily available.

For more information, visit the [FainWan Store on Amazon](#).