

Walfront WALFRONTwue56z14oh

# Walfront Ethernet Relay Switch Controller User Manual

Model: WALFRONTwue56z14oh

## 1. INTRODUCTION

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The Walfront Ethernet Relay Switch Controller is an advanced 8-way relay module board designed for versatile control applications. It features 8-way 10A relay outputs with normally open and normally closed contacts, and 8-way switch on-off inputs. This controller supports various network modes including TCP server, TCP client, and UDP, making it suitable for smart home automation, industrial control, and remote monitoring of electrical equipment. Its robust design and flexible firmware options provide a reliable solution for integrating physical devices into network-based control systems.

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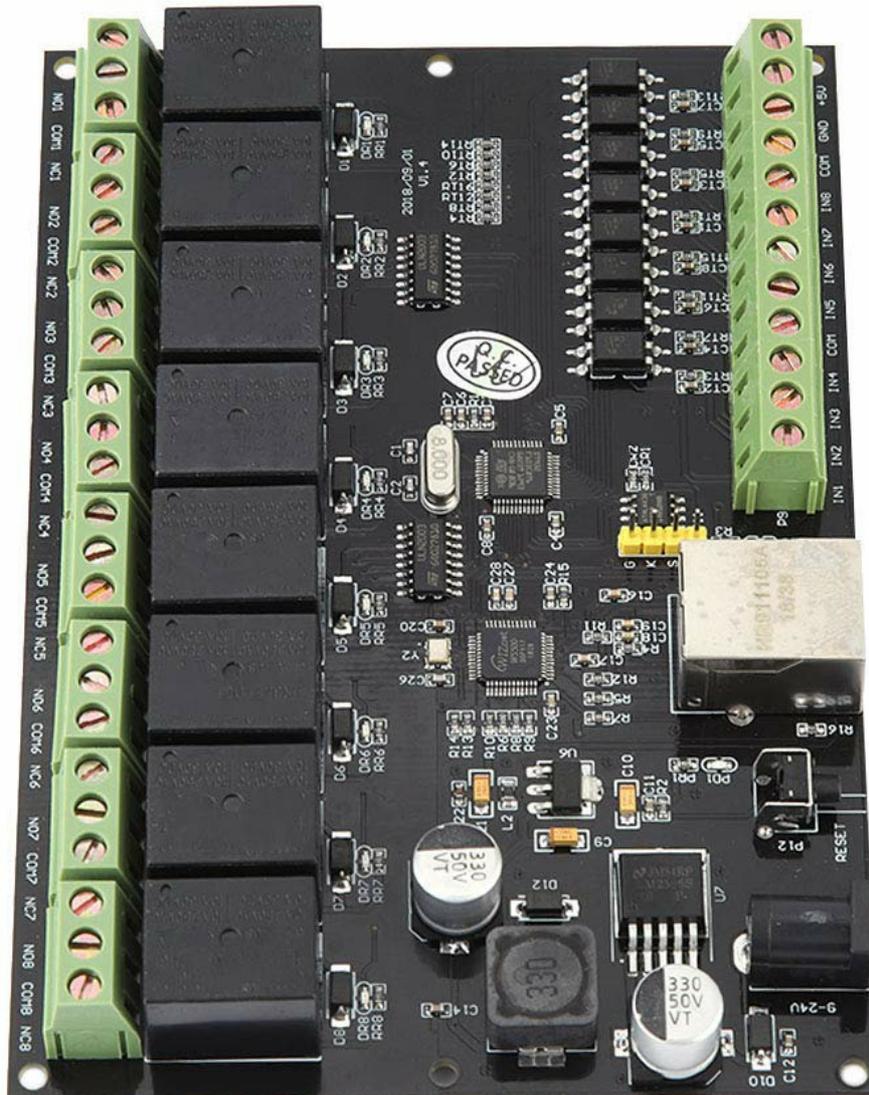


Figure 1: Top view of the Walfront Ethernet Relay Switch Controller, showing the relay outputs, input terminals, Ethernet port, and power input.

## 2. KEY FEATURES

- **8-Way 10A Relay Outputs:** Provides normally open (NO) and normally closed (NC) contacts for flexible control.
- **8-Way Switch On-Off Inputs:** Allows for external trigger inputs, compatible with sensors or button switches.
- **Multiple Network Modes:** Supports TCP server, TCP client, and UDP modes for diverse network integration.
- **Multi-Client Support:** In TCP server mode, it can support up to 4 client connections simultaneously.
- **Automatic Network Reconnection:** Ensures continuous operation by automatically reconnecting if the network goes offline.
- **32-bit MCU:** Utilizes a powerful microcontroller for efficient processing.
- **User-Defined Naming:** Allows for custom device names, simplifying management in multi-device setups.
- **Configurable Packet Time:** Supports user-defined packet time and off-line restore functionality.

- **Firmware Options:** General firmware (slave mode, command control), Switch On-Off Unvarnished Transmission firmware (paired control), and Access Control firmware (supports four 26 protocol read heads).
- **C++ Source Code Provided:** Facilitates secondary development and customization.
- **Applications:** Ideal for smart home control, remote control of lights, motors, and other electrical equipment, and computer room power failure detection.

## 3. SETUP GUIDE

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### 3.1. Power Connection

Connect a 9-24V DC power supply to the power input terminal (labeled '9-24V') on the board. Ensure correct polarity (+ and -) to prevent damage to the device.

### 3.2. Network Connection

Connect a standard Ethernet cable from your network router or switch to the RJ45 Ethernet port on the controller. The device supports automatic network reconnection.

### 3.3. Device Connections

**Relay Outputs:** Connect your electrical equipment (lights, motors, etc.) to the 8 relay output terminals. Each relay has Normally Open (NO), Common (COM), and Normally Closed (NC) contacts. Refer to the labels on the board for correct wiring.

**Switch Inputs:** Connect external sensors (e.g., human body infrared sensors, smoke alarms) or button switches to the 8 switch input terminals (labeled IN1 to IN8, with corresponding COM and +5V terminals). These inputs can trigger actions or provide status feedback.

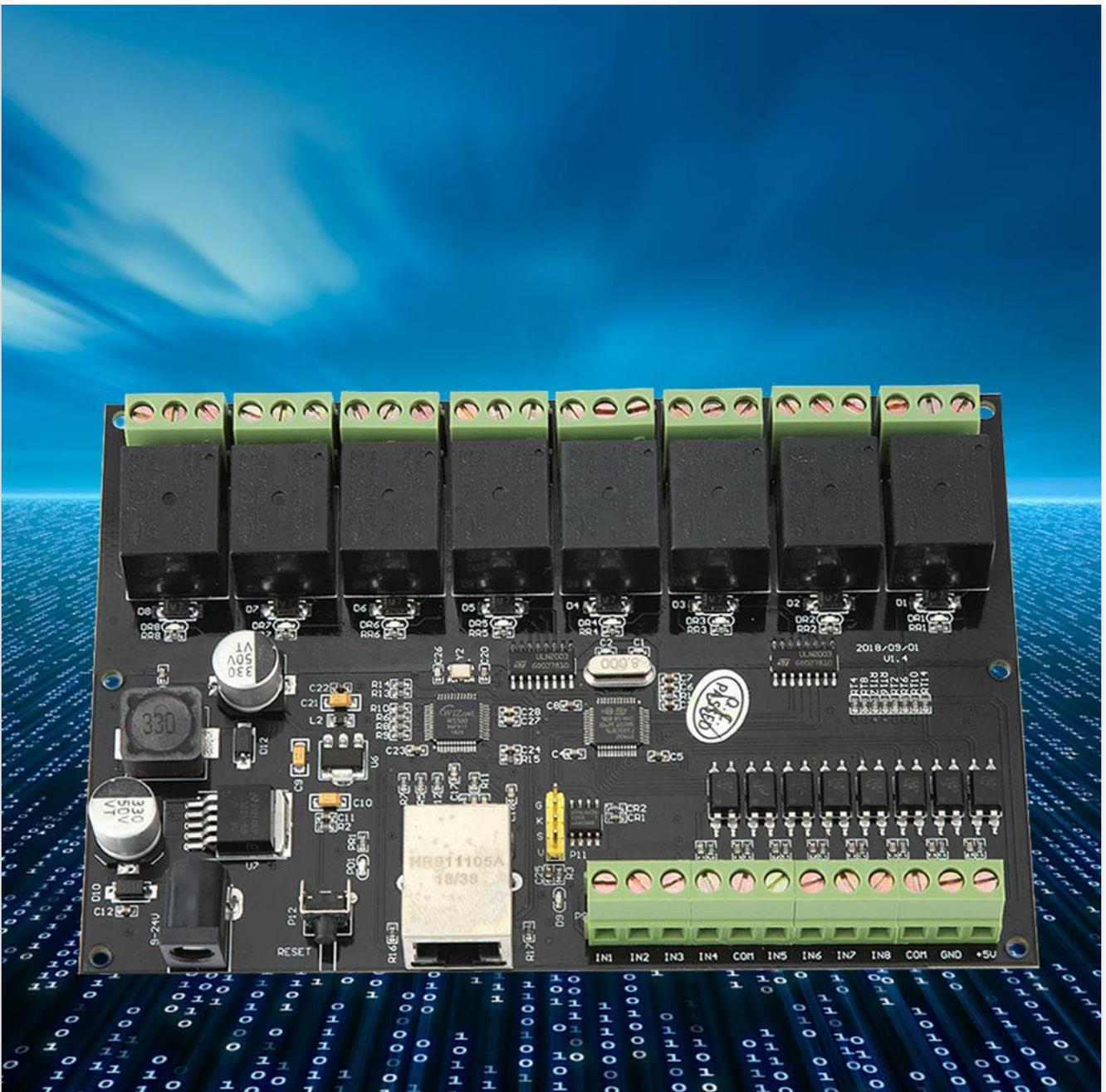


Figure 2: Detailed view of the controller's terminal blocks for power, Ethernet, inputs, and relay outputs.

### 3.4. Software Configuration

Use the provided network parameter setting software to configure the device's network settings (e.g., IP address, subnet mask, gateway) and operating mode (TCP server, TCP client, or UDP). This software also allows for user-defined naming of the device.

## 4. OPERATING INSTRUCTIONS

### 4.1. Operating Modes

- **TCP Server Mode:** The controller acts as a server, listening for incoming connections from up to 4 clients. Commands are sent from clients to control the relays.
- **TCP Client Mode:** The controller connects to a specified TCP server. Commands can be sent from the server to the controller.
- **UDP Mode:** The controller communicates using UDP packets, suitable for broadcast or multicast applications.

### 4.2. Firmware Types and Usage

The device supports downloading three different firmware types through the configuration project:

- **General Firmware:** This is the default firmware, operating in slave mode. Relays are controlled by sending specific commands over the network. This is suitable for most general-purpose control applications.
- **Switch On-Off Unvarnished Transmission Firmware:** This firmware is designed to be used in pairs. One controller's input directly controls the output of another paired controller. Each input on the transmitting unit corresponds to a specific relay output on the receiving unit, enabling direct, unvarnished signal transmission.
- **Access Control Firmware:** This specialized firmware allows the controller to connect to and manage up to four 26 protocol read heads, making it suitable for access control systems.

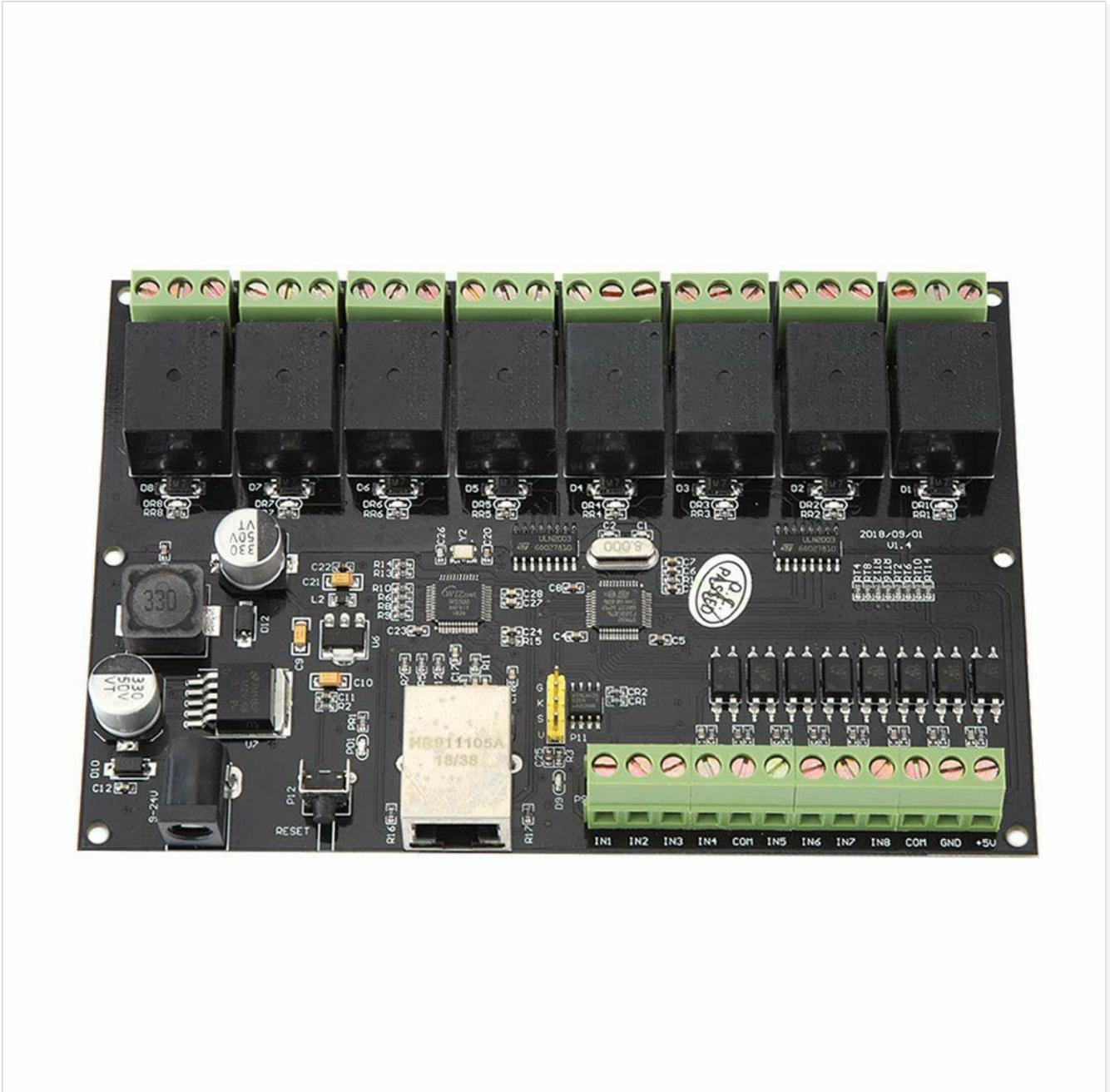


Figure 3: Overhead view of the controller, highlighting the main components and layout.

### 4.3. Secondary Development

C++ source code is provided to assist users with secondary development, allowing for custom applications and integration into existing systems. This enables advanced users to tailor the controller's functionality to specific project requirements.

## 5. MAINTENANCE

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The Walfront Ethernet Relay Switch Controller is designed for reliable operation with minimal maintenance. Follow these guidelines to ensure longevity:

- **Keep Clean:** Regularly clean the device with a soft, dry cloth. Avoid using liquid cleaners or solvents.
- **Environmental Conditions:** Operate the device within its specified temperature and humidity ranges. Avoid extreme temperatures, direct sunlight, and high moisture environments.
- **Power Supply:** Ensure a stable and correct voltage power supply (9-24V DC) is used. Unstable power can lead to malfunction.
- **Connections:** Periodically check all wiring connections to ensure they are secure and free from corrosion.
- **Firmware Updates:** Check the manufacturer's website for any available firmware updates that may improve performance or add new features.

## 6. TROUBLESHOOTING

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- **Device Not Powering On:**
  - Verify the power supply is connected correctly and providing the specified 9-24V DC.
  - Check the power adapter and cable for damage.
- **No Network Connectivity:**
  - Ensure the Ethernet cable is securely connected to both the controller and the network router/switch.
  - Check the network status lights on the Ethernet port.
  - Verify network settings (IP address, subnet mask, gateway) using the configuration software. Ensure there are no IP conflicts on your network.
  - Restart your network router/switch.
- **Relays Not Responding:**
  - Confirm the device has network connectivity.
  - Ensure the correct commands are being sent to the controller based on the installed firmware (General, Unvarnished, or Access Control).
  - Check the wiring of the electrical equipment connected to the relay outputs.
  - Verify the power rating of the connected load does not exceed 10A per relay.
- **Input Signals Not Detected:**
  - Check the wiring of the sensors or switches connected to the input terminals.
  - Ensure the input device is functioning correctly.
- **Firmware Update Issues:**
  - Ensure a stable network connection during the firmware update process.
  - Follow the instructions provided with the firmware update tool precisely.

## 7. SPECIFICATIONS

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| Feature      | Specification      |
|--------------|--------------------|
| Model Number | WALFRONTwue56z14oh |

| Feature              | Specification                      |
|----------------------|------------------------------------|
| Brand                | Walfront                           |
| Relay Channels       | 8-way                              |
| Relay Current Rating | 10A per channel                    |
| Input Channels       | 8-way switch on-off input          |
| Power Supply         | 9-24V DC                           |
| Network Protocols    | TCP Server, TCP Client, UDP        |
| MCU                  | 32-bit Microcontroller             |
| Connector Type       | Screw Terminals                    |
| Mounting Type        | DIN Rail Mount (implied by design) |
| Operation Mode       | Automatic                          |
| Dimensions (approx.) | 16 x 15 x 5 cm                     |
| Weight (approx.)     | 232 g                              |
| Country of Origin    | China                              |

## 8. WARRANTY AND SUPPORT

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For warranty information and technical support, please refer to the official Walfront website or contact your point of purchase. Keep your purchase receipt as proof of purchase for any warranty claims.

For further assistance or to download the latest software and firmware, please visit the [Walfront Store on Amazon](#) or the manufacturer's official support channels.

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