

Waveshare Relay Quick Setup Guide

Introduction

This guide is specific to the Waveshare Modbus Relay Plugin for Q-SYS. It is not a general guide for the Waveshare Device.

I have done my best to ensure ALL the correct parameters are set by default in the plugin so it works straight out of the box with the device. Please note: if you decide to change device settings via the web GUI or the Vicom software, you should read this guide to understand the implications.

Quick Reference

Default Device Settings: *(depending on firmware version)*

- **Default IP Address:** <http://192.168.1.200> or <http://192.168.1.254>
- **Default Web Password:** Empty - Leave blank or 123456
- **Default Plugin Port:** 4196 (RTU over TCP)
- **Device Power:** POE or 7-36V DC power supply

Prerequisites

- Q-SYS Designer v9.10.2 or higher
- Waveshare Modbus POE ETH Relay module
- Network connectivity between Q-SYS Core and Waveshare device
- Device IP address and network configuration
- Valid plugin license key

Installation

1. Hardware Setup

1. **Connect the Waveshare to your network** via Ethernet cable.
2. **Power the device** using PoE (Power over Ethernet) or external 7-36V DC power supply.
3. **Verify network connectivity** - ensure the device and Q-SYS Core are on the same network or have proper routing.

2. Plugin Installation

1. **Drag the Waveshare Modbus Relay Plugin** from the Plugins section of the Schematic Library into your Q-SYS design.
 2. **Configure the plugin properties** before starting the design. See Configuration section below.
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Initial Device Configuration

Accessing the Web Interface

1. **Open a web browser** and navigate to your device's IP address
 - No DHCP: `http://192.168.1.200` or `http://192.168.1.254`
 - DHCP: Scan the subnet for the device IP
2. **Login to the web interface:**
 - Password field: Leave blank (empty) OR enter 123456
 - Click Login

Recommended Device Settings

For optimal Q-SYS integration, configure these settings via the web interface:

The screenshot shows the WaveShare web interface for configuring a device. The browser address bar shows '192.168.1.200/ip_en.html'. The page features the WaveShare logo and a 'Logout' button. The settings are organized into several sections:

- Device Information:** Device Name (ZLDEV0001), Firmware Version (V1.486), Device MAC (04-EE-E8-15-1A-EB).
- Network Settings:** Device IP (192.168.1.200), Device Port (4196), Device Web Port (80), Work Mode (TCP Server), Subnet Mask (255.255.255.0), Gateway (192.168.1.1), Destination IP/DNS (192.168.1.3), Destination Port (4196), IP mode (Static).
- Serial Settings:** Baud Rate (115200), Databits (8), Parity (None), Stopbits (1), Flow control (None).
- Advanced Settings:** No-Data-Restart (Disable), No Data Restart Time (300 second), Reconnect-time (255 second).
- Multi-Host Settings:** Protocol (None), Instruction Time out (192), Enable Multi-host (Yes), Conflict Time Gap (20).
- Modify Web Login Key:** New Key and Input Key Again fields.

A 'Submit' button is located at the bottom of the settings page.



WaveShare Relay Properties	
License Key	
Device Configuration	
Keep Alive and Feedback	On
Keep Alive Interval	10
Show Debug	No
Graphic Properties	
Label	Waveshare ETH Relay 1.2
Position	661,171
Fill	
Script Access	
Code Name	ProgrammedAVWaveShareRelay
Script Access	None
Control Pins	
▶ Connection	
▶ Controls	
▶ Response	
▶ Sequence	
Disable	

Network Configuration

- **IP Mode:** Static (recommended)
- **IP Address:** Set to a static IP within your network range
- **Device Port:** 4196 (default for RTU over TCP - matches plugin default)
- **Gateway:** Configure according to your network
- **Work Mode:** TCP Server

Advanced Settings

- **No-Data-Restart: Disable** (*See Keep Alive note below*)
- **No Data Restart Time:** 300 seconds (only relevant if enabled)
- **Reconnect-time:** 255 seconds

Multi-Host Settings

- **Protocol:** None
- **Instruction Time out:** 192
- **Enable Multi-host:** Yes
- **Conflict Time Gap:** 20

Important Keep Alive Information

No-Data-Restart and Plugin Keep Alive Relationship:

The No-Data-Restart setting in the Waveshare's Advanced Settings controls whether the device requires regular communication to maintain its connection. The plugin's "Keep Alive and Feedback" property handles this intelligently:

- **Plugin "Keep Alive and Feedback" = ON (Default):** The plugin sends commands at regular intervals (configurable via "Keep Alive Interval"). This serves dual purposes:
 - Satisfies the device's Keep Alive requirement (if enabled)
 - Provides real-time relay status feedback
 - Maintains connection health monitoring
- **Plugin "Keep Alive and Feedback" = OFF:** No automatic polling occurs. If you disable this:
 - You **MUST** also disable "No-Data-Restart" in the device web interface
 - Relay status feedback will only update when commands are sent
 - Connection health monitoring is reduced
 - May be useful if the network is unstable or the device is not always on

Q-SYS Plugin Configuration

Plugin Configuration

- **IP Address:** Enter your Waveshare device IP address
- **Port:** 4196
- **Keep Alive and Feedback: On** (*Recommended - enables status polling and connection health*)
- **Keep Alive Interval:** 10 seconds (*Default - adjust based on requirements*)
- **Show Debug:** No

Controlling Relays

The plugin provides these control methods:

Individual Relay Control

- **Relay Toggle:** Toggle individual relays using the dedicated controls
- **Relay Flash:** Pulse relay on then auto-off

Group Control

- **All Toggle:** Control all relays simultaneously
- **Control Pins:** Use the control pins to control any combination of relays with an external toggle or button. The plugin will automatically handle network command collisions.

Status Monitoring

- **Connection Status:** Green = Connected, Red = Disconnected
- **Response Info :** Real-time feedback for each relay position. This is also available in boolean format via the control pins.

Troubleshooting

Cannot Connect to Device

Check network connectivity:

- Verify device IP address using ping from Q-SYS Core
- Ensure no firewall blocking port 4196
- Confirm device and Core are on same network/VLAN

Verify device settings:

- Access web interface to confirm IP and port settings
- Ensure Multi-Host Protocol is set to "None" (enables RTU over TCP)
- Confirm Enable Multi-host is set to "Yes"

Connection Drops Frequently

Check Plugin Keep Alive and Feedback setting:

- Ensure "Keep Alive and Feedback" is enabled in plugin properties
- Verify "Keep Alive Interval" is appropriate (10-30 seconds recommended)
- If No-Data-Restart is enabled on device, ensure interval is shorter than device timeout

Alternative approach:

- Disable "No-Data-Restart" on device for more stable connections
- Plugin "Keep Alive and Feedback" can remain enabled for status monitoring

Check network stability:

- Verify network infrastructure between Core and device
- Consider using dedicated network for control devices
- Check for network congestion or packet loss

Relays Not Responding

Verify addressing:

- Confirm Device Address setting matches Waveshare configuration

Check protocol settings:

- Ensure device Multi-Host Protocol is set to "None" (RTU over TCP)
- Verify port number is 4196 (or matches plugin setting if changed)
- Confirm Enable Multi-host is set to "Yes"

Web Interface Access Issues

If you cannot access the device web interface:

1. **Find current IP address** using network scanning tools
2. **Reset to factory defaults** if necessary:
 - Power off the device
 - Short the "DEF" pins on the circuit board for 5+ seconds
 - Power on - device will reset to IP 192.168.1.254
3. **Reconfigure network settings** via Vicom software if web access fails

Advanced Configuration

Integration with Q-SYS Logic

Connect plugin outputs to:

- **Snapshot triggers** for scene recall
- **Logic components** for complex automation
- **Custom Lua scripts** for advanced control

Multiple Device Support

For installations with multiple Waveshare modules:

- Use unique IP addresses for each device
- Configure separate plugin instances
- Implement device naming conventions

Configuration Best Practices

1. **Always use static IP addresses** for control devices
2. **Enable "Keep Alive and Feedback"** in plugin (default) for automatic status updates
3. **Set appropriate Keep Alive Interval** (10-30 seconds recommended)
4. **Configure device Multi-Host Protocol to "None"** (enables RTU over TCP)
5. **Enable Multi-host setting** in device configuration
6. **Use dedicated network** for control devices when possible