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Walfront WALFRONTf42aqcz6yt

Walfront Optocoupler Isolation Board 3.6-30V Module User Manual

Model: WALFRONTf42aqcz6yt

1. INTRODUCTION

This manual provides detailed instructions for the Walfront 8-Channel Optocoupler Isolation Module (Model WALFRONTf42aqcz6yt). This module is designed to provide electrical isolation between control circuits and controlled circuits, enhancing system stability and protecting sensitive components from voltage spikes and noise. It supports a wide voltage range for both input and output, making it suitable for various industrial and electronic applications.

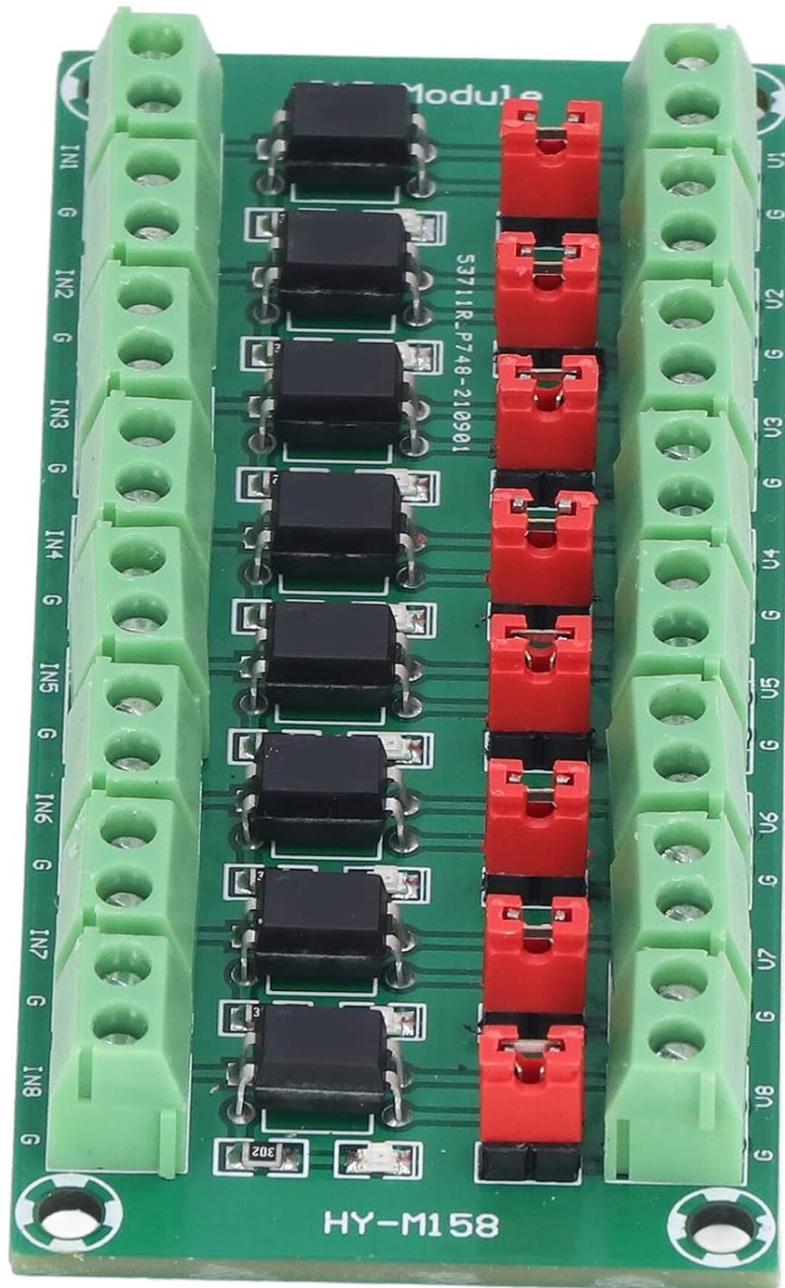


Figure 1: Walfront 8-Channel Optocoupler Isolation Board. This image shows the top view of the green PCB with eight optocoupler channels, input and output screw terminals, and red jumper caps.

2. KEY FEATURES

- **High Level or Pull-Down Output:** Configurable output terminal for either high-level or pull-down operation via jumper settings.
- **Versatile Drive Capability:** Strong interference immunity, capable of driving high-power transistors, MOS tubes, and other high-voltage applications. Can also directly drive low-power 24V relays.
- **Quality PCB Construction:** Manufactured with high-quality PCB materials for reliability, miniaturization, ease of maintenance, and interchangeability.
- **Control Interface Compatibility:** Supports 3.3V or 5V control interfaces for 3.6-24V voltage levels. When the control terminal is activated, the controlled terminal also activates.
- **Independent Channel Control:** The board features four independent 817 optocoupler channels, allowing simultaneous control of different voltages.

Walfront

8 Channel Driver Photoelectric Isolated Module

● Voltage 3.6-24V

● PCB Material

● Anti Interference

● Independent Control

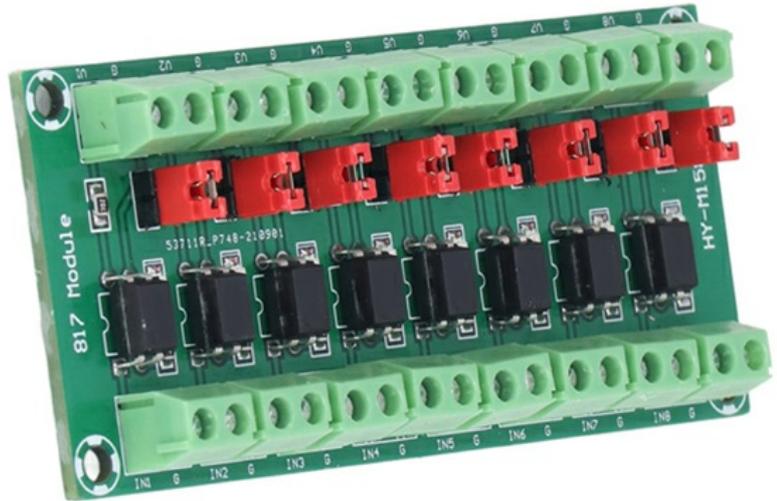


Figure 2: Overview of the Walfront 8-Channel Optocoupler Isolation Module highlighting its key features: Voltage 3.6-24V, PCB Material, Anti Interference, and Independent Control.

3. SPECIFICATIONS

Attribute	Value
Item Type	Optocoupler Isolation Board
Material	PCB
Driver Signal Voltage	3.6-24V
Output Voltage Range	3.6-30V
Maximum Output Current	Not to exceed 10mA (total power is constant, voltage and current are inversely proportional)
Model Number	WALFRONTf42aqcz6yt
Dimensions	5.79 x 4.84 x 0.55 inches
Weight	1.41 ounces

Important Note: If using a pulse signal, ensure the frequency is below 4KHz. This module will not function properly with control signals exceeding 4KHz.

Specification



Note:

If it is a pulse signal, please note that the limit of 817 is below 4KHZ, please do not use this module for control signals greater than 4KHZ, which will not work properly.

Item Type: Optocoupler Isolation Board
Material: PCB
Driver Signal Voltage: 3.6-24V
Package List: 1 x Optocoupler Isolation Board
Output Voltage Range: 3.6-30V
(Output current depends on the specific situation, but the maximum power is not exceed 10MA, the total power is constant, the voltage and current are inversely proportional)

Figure 3: Detailed specifications for the Walfront Optocoupler Isolation Board, including item type, material, driver signal voltage, and output voltage range.

4. SETUP AND WIRING

Proper wiring is crucial for the correct and safe operation of the optocoupler isolation board. Refer to the schematic diagram and follow the steps below for connection.

4.1. Wiring Diagram Overview

Optocoupler Isolation Board Wiring Diagram

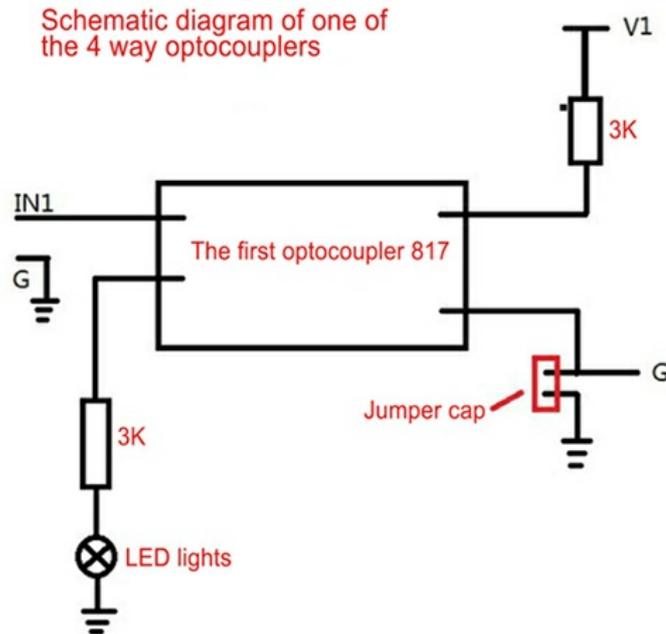


Figure 4: Schematic diagram illustrating the wiring for one of the 817 optocoupler channels. It shows input (IN1), ground (G), LED lights, a 3K resistor, the 817 optocoupler, V1, another 3K resistor, and a jumper cap for output configuration.

4.2. Connection Steps

- Input Side (Control Terminal):** Connect your control signal source (e.g., microcontroller output) to the **IN1** to **IN8** terminals. Ensure the ground (**G**) of your control circuit is connected to the corresponding ground terminal on the input side of the board. The input voltage range is 3.6V to 24V.
- Output Side (Controlled Terminal):** Connect the device you wish to control (e.g., relay, MOS tube) to the **J1** to **U8** terminals. Connect the power supply for the controlled device to **V1** (or V2, etc., depending on the channel) and its ground to the corresponding ground (**G**) terminal on the output side. The output voltage range is 3.6V to 30V.
- Jumper Configuration:** Each channel has a jumper cap. This jumper determines whether the output terminal operates in high-level output or pull-down output mode.
 - **High-Level Output:** (Refer to schematic) Typically, this involves connecting the output to a positive voltage through a resistor, and the optocoupler pulls it low when active.
 - **Pull-Down Output:** (Refer to schematic) The optocoupler pulls the output to ground when active.

Carefully consult your application's requirements and the provided schematic (Figure 4) to set the jumpers correctly for each channel.

- Power Supply:** Ensure that the power supplies for both the control circuit and the controlled circuit are within the specified voltage ranges and are properly isolated if required by your application.

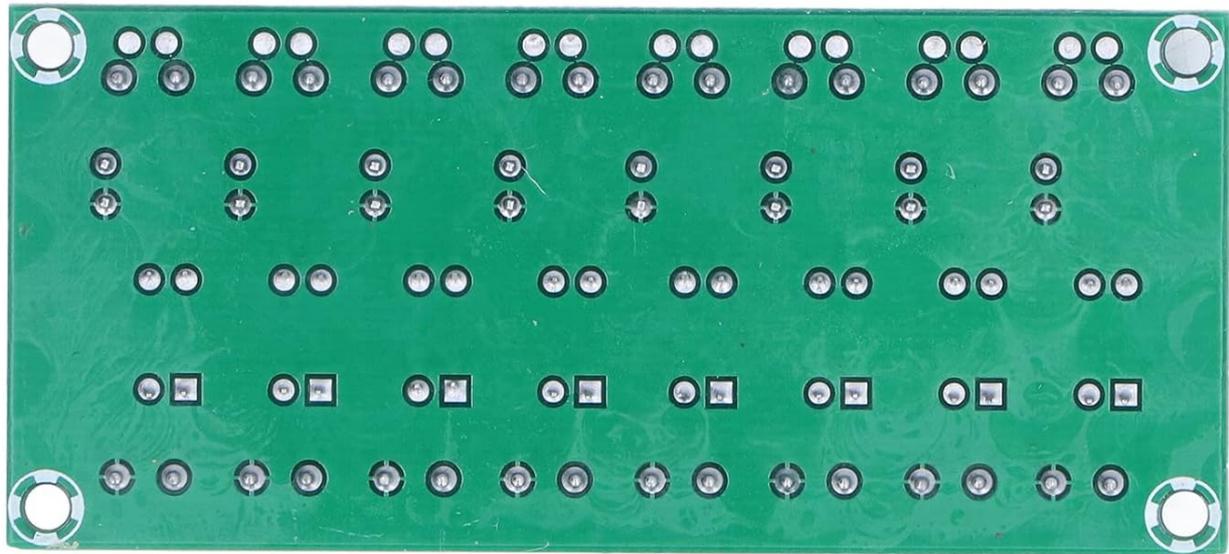
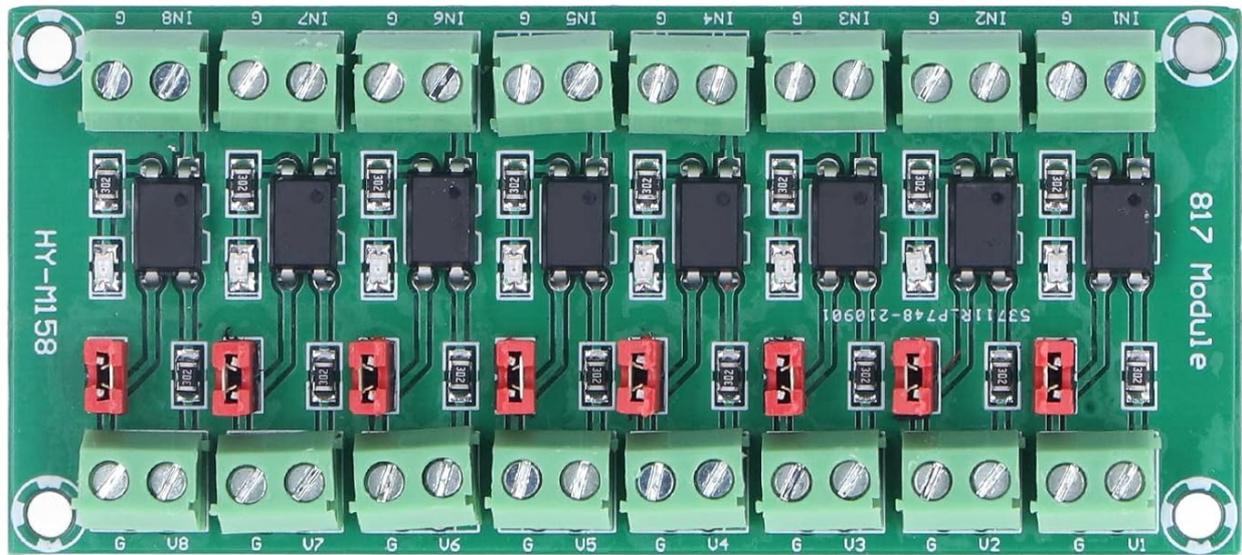


Figure 5: Top and bottom views of the Walfront Optocoupler Isolation Board, showing component placement and solder points for reference during wiring.

5. OPERATING INSTRUCTIONS

Once the module is correctly wired and powered, its operation is straightforward. The optocoupler acts as a switch, controlled by the input signal.

1. **Input Signal Activation:** Apply a control signal (3.6V to 24V) to an input terminal (e.g., IN1). This signal activates the internal LED of the optocoupler.
2. **Optical Isolation:** The light from the internal LED activates a phototransistor on the output side, completing the circuit without direct electrical connection between input and output.
3. **Output Response:** The state of the output terminal (U1-U8) will change according to the input signal and the jumper configuration (high-level or pull-down output).
 - If configured for **high-level output**, the output will go high when the input is active.
 - If configured for **pull-down output**, the output will go low (to ground) when the input is active.

4. **Independent Channels:** Each of the eight channels operates independently. You can control different loads with different voltages simultaneously, provided each channel's input and output are correctly wired and powered.

Always ensure that the current and voltage ratings for both input and output circuits are respected to prevent damage to the module or connected devices.

6. MAINTENANCE

The Walfront Optocoupler Isolation Board is designed for durability and requires minimal maintenance. Adhering to these guidelines will ensure its longevity:

- **Cleanliness:** Keep the board free from dust, dirt, and moisture. Use a soft, dry brush or compressed air for cleaning. Avoid liquid cleaners.
- **Environmental Conditions:** Operate and store the module in a dry environment, away from extreme temperatures and corrosive substances.
- **Physical Handling:** Handle the board by its edges to avoid touching components, especially the optocouplers, which can be sensitive to static discharge.
- **Connection Integrity:** Periodically check all screw terminal connections to ensure they are secure and free from corrosion. Loose connections can lead to intermittent operation or damage.

7. TROUBLESHOOTING

If you encounter issues with your Walfront Optocoupler Isolation Board, consider the following troubleshooting steps:

- **No Output Response:**
 - Verify that the input signal voltage is within the 3.6V-24V range.
 - Check all wiring connections for continuity and proper polarity.
 - Ensure the power supply for the controlled device is active and within the 3.6V-30V range.
 - Confirm the jumper cap is correctly placed for the desired output mode (high-level or pull-down).
 - If using a pulse signal, ensure its frequency is below 4KHz.
- **Intermittent Operation:**
 - Inspect for loose wiring connections at the screw terminals.
 - Check for any signs of physical damage or corrosion on the PCB or components.
 - Ensure the operating environment is stable and free from excessive electrical noise.
- **Module Overheating:**
 - Verify that the output current does not exceed 10mA per channel. Excessive current can cause overheating.
 - Ensure proper ventilation around the module.
- **Incorrect Output Level:**
 - Re-check the jumper settings for the specific channel.
 - Confirm the expected output behavior based on the chosen configuration (high-level vs. pull-down).

If these steps do not resolve the issue, contact Walfront customer support for further assistance.

8. WARRANTY AND SUPPORT

Specific warranty information for the Walfront Optocoupler Isolation Board (Model WALFRONTf42aqcz6yt) is typically provided at the point of purchase or within the product packaging. Please refer to your purchase documentation for details

regarding warranty coverage and duration.

For technical support, troubleshooting assistance beyond this manual, or warranty claims, please contact Walfront customer service through the retailer where the product was purchased or visit the official Walfront website for contact information.



Figure 6: The Walfront Optocoupler Isolation Board shown in various application contexts, including industrial control, circuit board integration, and general electronics projects.

