

## WINGONEER HAT10090

# WINGONEER PC817 4-Channel Optocoupler Isolation Board User Manual

Model: HAT10090 | Brand: WINGONEER

## 1. INTRODUCTION AND OVERVIEW

The WINGONEER PC817 4-Channel Optocoupler Isolation Board is designed for applications requiring electrical isolation and voltage conversion. This module facilitates control of interfaces with varying voltage levels, specifically enabling compatibility between 3.3V or 5V control signals and 3.6V to 30V interfaces. Its optical isolation feature provides strong anti-interference capabilities, making it suitable for driving high-power components like triodes and MOS tubes, or directly controlling low-voltage 24V relays.

## 2. FEATURES

- Isolation Control:** Provides electrical isolation between control and controlled circuits.
- Voltage Conversion:** Supports conversion between 3.3V/5V logic and 3.6V-30V interfaces.
- High Anti-Interference:** Optical isolation ensures robust performance in noisy environments.
- Versatile Output:** Capable of driving high-power triodes, MOS tubes, and 24V relays.
- Independent Channels:** Four independent channels allow simultaneous control of different voltages.
- Configurable Output:** Output can be configured as high-level or low-level using jumper caps.

## 3. SPECIFICATIONS

Parameter	Value
Drive Terminal Signal Voltage	3.6V - 24V
Output Terminal Voltage Range	3.6V - 30V
Maximum Output Current (per channel)	10mA (total power is constant; voltage and current are inversely proportional)
Number of Channels	4 (Independent)
Board Dimensions (L x W)	48mm x 38mm
Long Side Hole Distance	42mm

Parameter	Value
Wide Side Hole Distance	32mm
Model Number	HAT10090
ASIN	B07HC5TXDX
UPC	723466657150

## 4. SETUP

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This section outlines the basic steps for setting up your PC817 Optocoupler Isolation Board.

### 4.1. Component Identification

Familiarize yourself with the board's components:

- **Input Terminals:** Screw terminals on one side for connecting the control signal (3.6V-24V).
- **Output Terminals:** Screw terminals on the opposite side for connecting the controlled circuit (3.6V-30V).
- **Optocouplers (PC817):** The black ICs providing optical isolation.
- **Jumper Caps:** Red jumpers used to configure the output level (high or low).

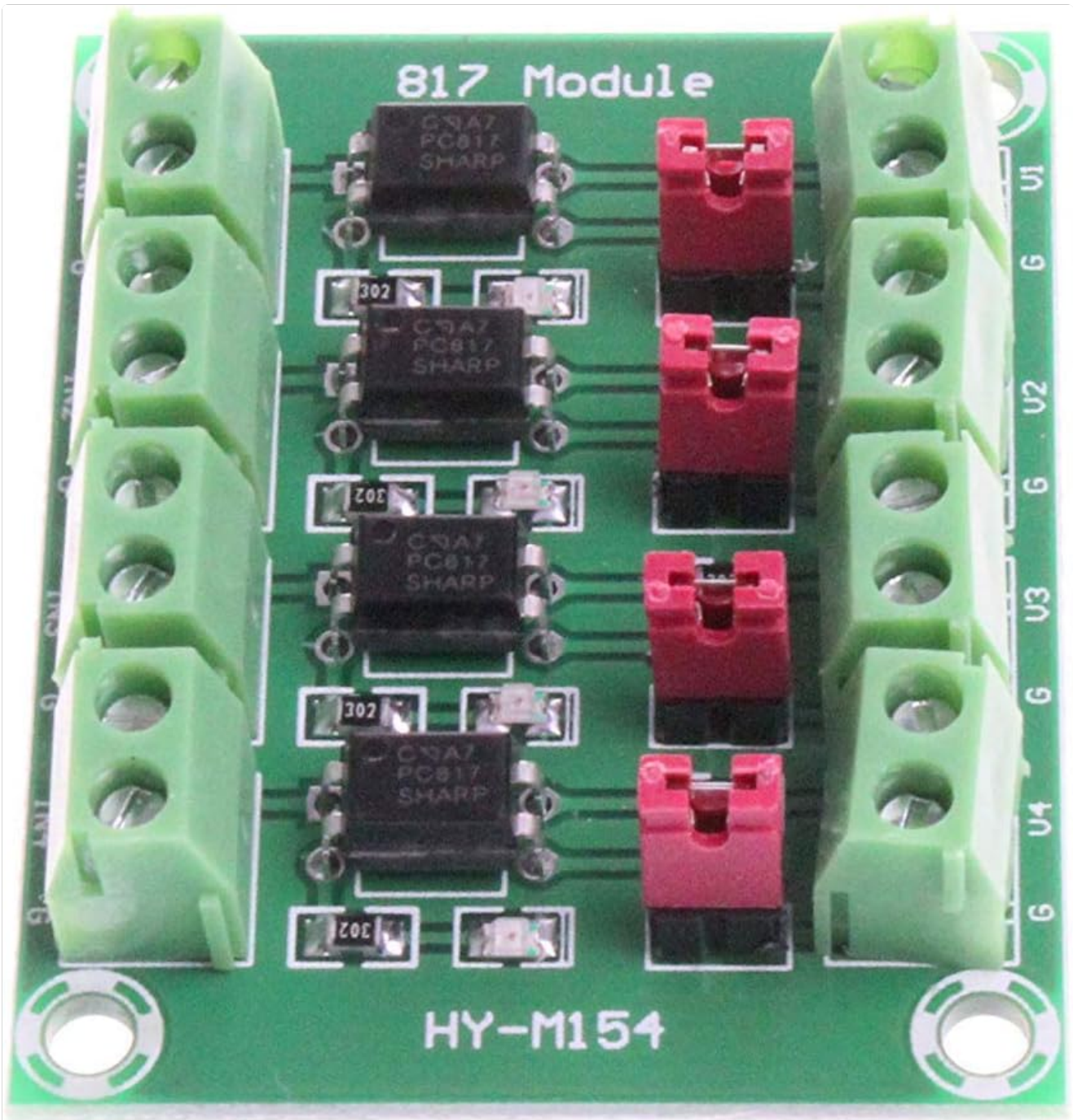


Figure 1: Top view of the PC817 Isolation Board. This image displays the green PCB with four PC817 optocoupler ICs, green screw terminals for input and output connections, and red jumper caps for output configuration.

## 4.2. Wiring Instructions

1. **Connect Input Signal:** Connect your control signal source (e.g., microcontroller output) to the input screw terminals. Ensure the input voltage is within the 3.6V-24V range.
2. **Connect Output Load:** Connect your controlled device or circuit to the output screw terminals. The output voltage can range from 3.6V to 30V.
3. **Configure Output Level:** Use the red jumper caps to select whether the output is high-level or low-level when activated. Refer to the specific application requirements for this setting.

Ensure all connections are secure to prevent accidental disconnections or short circuits.

## 5. OPERATING INSTRUCTIONS

The PC817 module operates by optically isolating the input and output signals. When a control signal is applied to an input channel, the corresponding output channel is activated.

1. **Power On:** Apply power to both the input control circuit and the output controlled circuit.
2. **Signal Application:** When the input control terminal receives a signal (e.g., goes high), the internal optocoupler activates.
3. **Output Activation:** Consequently, the corresponding controlled terminal on the output side will also activate (turn on), providing the configured high or low output level to your connected device.

Each of the four channels operates independently, allowing for simultaneous control of multiple devices or circuits at different voltage levels.

## 6. MAINTENANCE

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The WINGONEER PC817 module is designed for reliable operation with minimal maintenance. Follow these guidelines to ensure longevity:

- **Keep Clean:** Periodically inspect the board for dust or debris. Clean gently with a soft, dry brush if necessary.
- **Avoid Moisture:** Ensure the module is operated and stored in a dry environment to prevent damage from moisture.
- **Temperature Control:** Operate within recommended temperature ranges to prevent overheating.
- **Secure Connections:** Regularly check that all screw terminal connections are tight and secure.

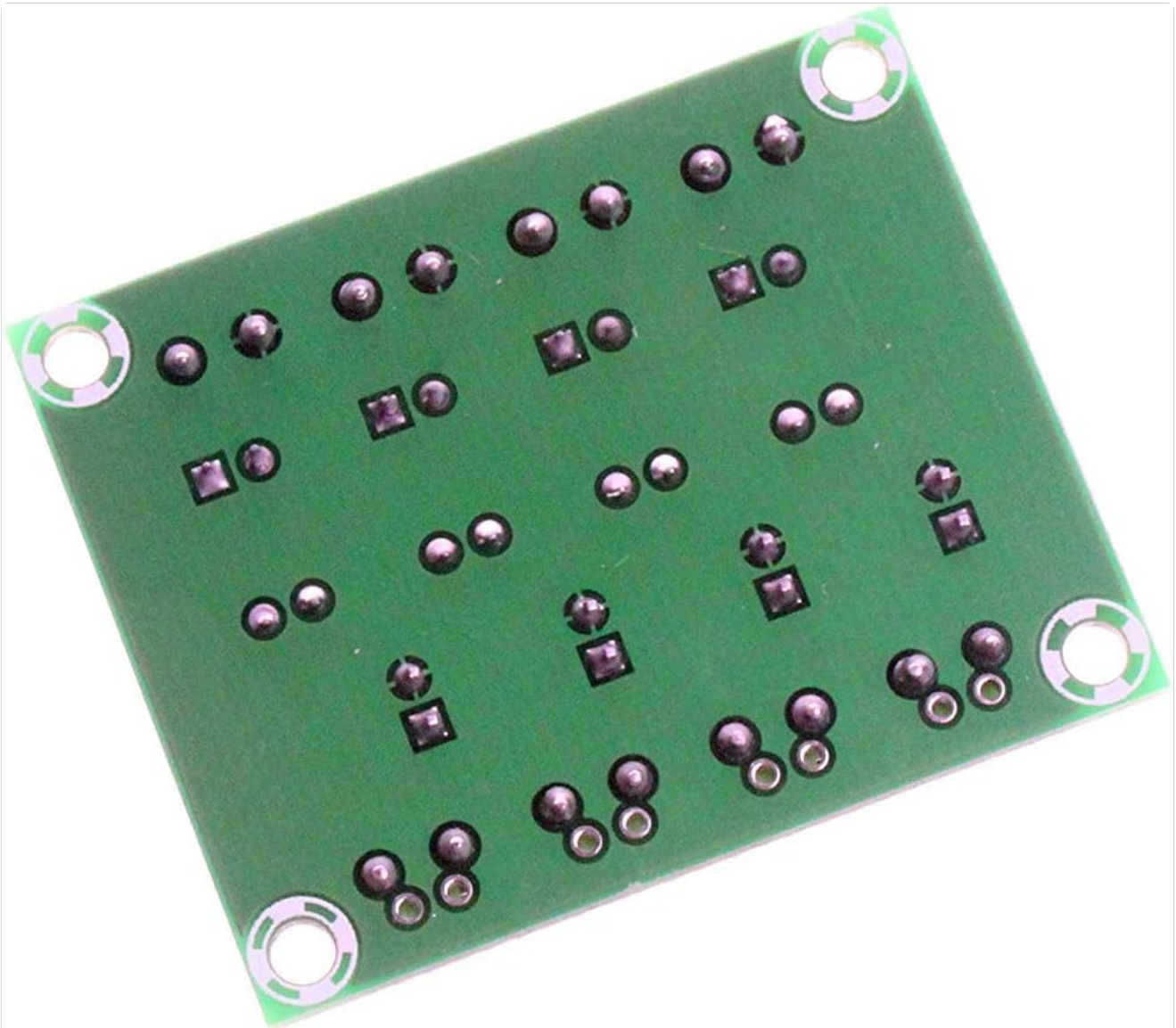


Figure 2: Bottom view of the PC817 Isolation Board. This image shows the underside of the green PCB, revealing solder joints and circuit traces.

## 7. TROUBLESHOOTING

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If you encounter issues with your PC817 module, consider the following:

- **No Output Signal:**
  - Verify input signal voltage is within 3.6V-24V.
  - Check output load connections and ensure the load's voltage requirements are met (3.6V-30V).
  - Confirm jumper cap settings for high/low output are correct for your application.
  - Ensure power is supplied to both input and output sides.
- **Incorrect Output Level:**
  - Re-check the position of the red jumper caps. These determine whether the output is high-level or low-level when active.
- **Unreliable Operation with Pulse Signals:**
  - **Important Note:** The PC817 optocoupler has a limitation for pulse signals. It is designed for frequencies **below 4KHz**. If your control signal frequency exceeds 4KHz, this module will not function correctly. For higher frequency pulse signals, an alternative isolation solution may be required.
- **Physical Damage:** Inspect the board for any visible signs of damage, such as burnt components or broken traces.

## 8. PACKAGE CONTENTS

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The package typically includes:

- 1x WINGONEER PC817 4-Channel Optocoupler Isolation Board

## 9. SAFETY INFORMATION

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Please observe the following safety precautions:

- **Electrical Safety:** Always disconnect power before making or changing connections to the module.
- **Voltage Limits:** Do not exceed the specified input and output voltage ranges.
- **Current Limits:** Be aware of the maximum output current per channel (10mA) and ensure your load does not draw excessive current.
- **Proper Handling:** Handle the board by its edges to avoid touching components, especially when powered.
- **Environment:** Use in a clean, dry, and non-conductive environment.

## 10. WARRANTY AND SUPPORT

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For warranty information and technical support, please refer to the retailer or manufacturer's official website. Keep your purchase receipt for any warranty claims.