HiLetgo 3-01-0341

HiLetgo 12V 1 Channel Relay Module with Optocoupler Isolation Instruction Manual

Model: 3-01-0341

Introduction

The HiLetgo 12V 1 Channel Relay Module is an electronic switching component designed for controlling higher power loads with a low-power signal. This module incorporates optocoupler isolation, which provides electrical separation between the control circuit and the load circuit, enhancing safety and preventing interference. It supports both high and low-level trigger signals, making it versatile for various applications. Its compact design and clear interface labeling facilitate easy integration into your projects.

Product Features

- Uses a genuine high-quality relay with a maximum load capacity of AC 250V / 10A or DC 30V / 10A.
- Features optocoupler chip isolation for strong drive capability and stable performance, with a trigger current of 5mA.
- Configurable for high or low-level trigger signals via an onboard jumper.
- Incorporates a fault-tolerant design, ensuring the relay remains stable even if the control line is interrupted.
- User-friendly interface design with direct connection terminal leads for convenient wiring.

Specifications

Attribute	Value
Module Size	50mm x 26mm x 18.5mm (L x W x H)
Fixed Bolt Holes	3.1mm diameter, 44.5mm x 20.5mm spacing
Coil Voltage	12V DC
Maximum Switching Current	10A
Maximum Switching Voltage	AC 250V / DC 30V

Attribute	Value
Trigger Current	5mA
Contact Material	Silver
Contact Type	Normally Open (NO), Common (COM), Normally Closed (NC)
Connector Type	Terminal Leads
Operation Mode	Automatic
Mounting Type	Screw Mount
Wattage	120 watts

Setup

This section details the physical connections and configuration of the relay module.

Module Overview

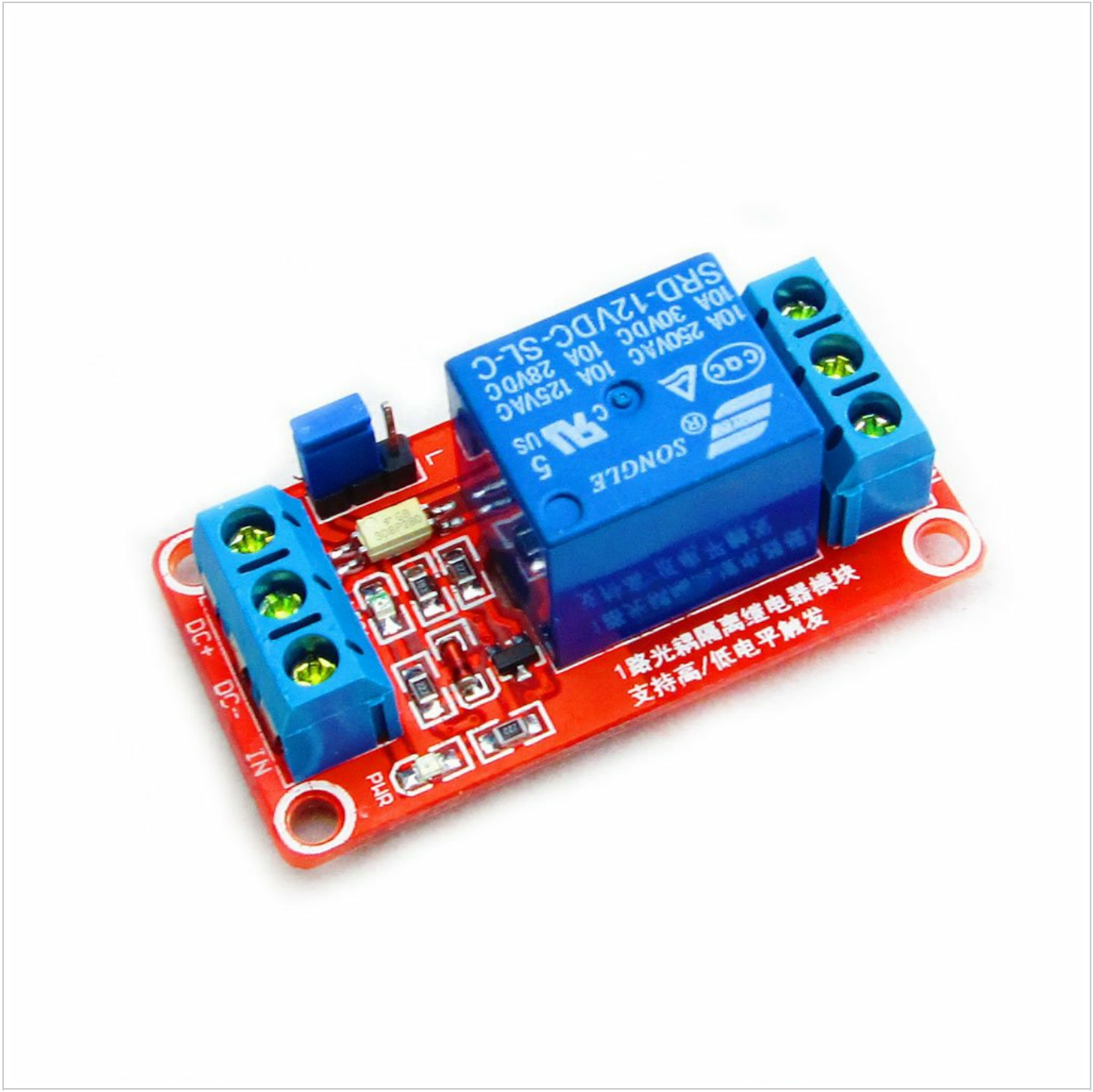

Figure 1: Top view of the HiLetgo 12V 1 Channel Relay Module. This image displays the input terminals (VCC, GND, IN), the output terminals (NO, COM, NC), the blue relay component, and the jumper for trigger level selection. The green power indicator and red relay status indicator are also visible.

Interface Description

- **Input Power (DC+ / VCC):** Connect the positive (+) terminal of your 12V DC power supply.
- **Input Ground (DC- / GND):** Connect the negative (-) terminal of your 12V DC power supply.
- **Signal Trigger Input (IN):** This terminal receives the control signal. The relay will activate based on the voltage level applied here, as configured by the jumper.
- **Normally Open (NO):** This terminal is open (disconnected) from COM when the relay is inactive and closes (connects) to COM when the relay is active.
- **Common (COM):** This is the common terminal for the relay switch. Connect one side of your load here.
- **Normally Closed (NC):** This terminal is closed (connected) to COM when the relay is inactive and opens (disconnects) from COM when the relay is active.

Trigger Level Selection

The module features a jumper to select between high-level and low-level triggering. This jumper is typically located near the 'IN' terminal.

- **High-Level Trigger:** When the jumper is set to high-level, the relay activates when a high voltage (e.g., 12V) is applied to the 'IN' terminal.
- **Low-Level Trigger:** When the jumper is set to low-level, the relay activates when a low voltage (e.g., 0V or ground) is applied to the 'IN' terminal.

Ensure the jumper is correctly positioned according to your control signal requirements before powering the module.

Operating Instructions

Follow these steps to operate your HiLetgo 12V 1 Channel Relay Module:

1. **Power Connection:** Connect a stable 12V DC power supply to the VCC (positive) and GND (negative) terminals of the module. The green power indicator LED should illuminate.
2. **Load Connection:** Connect the device you wish to control to the relay's output terminals (NO, COM, NC).
    - For a device that should turn ON when the relay is active, connect it between **NO** and **COM**.
    - For a device that should turn OFF when the relay is active, connect it between **NC** and **COM**.

    Ensure the load's voltage and current requirements do not exceed the relay's maximum ratings (AC 250V/10A, DC 30V/10A).
3. **Trigger Signal:** Apply your control signal to the 'IN' terminal.
    - If configured for *High-Level Trigger*, apply a high voltage (e.g., 12V) to 'IN' to activate the relay.
    - If configured for *Low-Level Trigger*, apply a low voltage (e.g., 0V or ground) to 'IN' to activate the relay.

    When the relay is activated, the red relay status indicator LED will illuminate, and you may hear a faint click as the relay switches.
4. **Example Application (Auto Shut-down for 3D Printer):**

    This module can be used to automatically shut down a 3D printer after a print job. Wire the relay in parallel with the printer's power switch. Use the hotend fan power as the trigger signal for the relay. When the hotend fan turns on (e.g., at 50°C), the relay activates. After the print finishes and the hotend cools below 50°C, the hotend fan turns off, deactivating the relay and shutting down the printer.

Maintenance

The HiLetgo 12V 1 Channel Relay Module is designed for reliable operation with minimal maintenance. To ensure longevity and optimal performance:

- **Keep Clean and Dry:** Protect the module from dust, dirt, and moisture. Use a soft, dry cloth to clean the surface if necessary.
- **Inspect Connections:** Periodically check all wiring connections to ensure they are secure and free from corrosion. Loose connections can lead to intermittent operation or damage.
- **Avoid Overloading:** Ensure that the connected load's current and voltage do not exceed the relay's specified maximum ratings.
- **Environmental Conditions:** Operate the module within its specified environmental conditions (temperature, humidity) to prevent premature failure.

Troubleshooting

If you encounter issues with your relay module, refer to the following troubleshooting steps:

- **Relay Not Activating:**
  - Verify that the 12V DC power supply is correctly connected to VCC and GND and is providing the correct voltage. The green power LED should be on.
  - Check the trigger signal at the 'IN' terminal. Ensure it matches the jumper setting (high-level for high trigger, low-level/ground for low trigger).
  - Confirm the jumper is correctly positioned for your desired trigger level.
  - Inspect the 'IN' signal wire for breaks or loose connections.
- **Load Not Switching:**
  - Ensure the relay is activating (red LED on, audible click). If not, refer to "Relay Not Activating" above.
  - Check the connections to the NO, COM, and NC terminals. Ensure they are secure and correctly wired for your application.
  - Verify that the load's voltage and current requirements are within the relay's specifications (AC 250V/10A, DC 30V/10A). An overloaded relay may fail to switch or sustain damage.
  - Test the load independently to ensure it is functional.
- **Intermittent Operation:**
  - Check for loose wiring connections on both the input and output sides.
  - Ensure the power supply is stable and free from voltage fluctuations.
  - Verify that the trigger signal is consistent and clean, without noise or intermittent drops.

Warranty Information

HiLetgo products are typically covered by a standard manufacturer's warranty against defects in materials and workmanship. Please retain your proof of purchase for any warranty claims. For specific warranty terms and conditions, refer to the documentation provided with your purchase or contact HiLetgo customer support.

Support

For technical assistance, troubleshooting, or further inquiries regarding your HiLetgo 12V 1 Channel Relay Module, please contact HiLetgo customer support through their official website or the platform where the product was purchased. When contacting support, please provide your product model number (3-01-0341) and a detailed description of your issue.
You can often find additional resources and community forums online by searching for "HiLetgo 12V 1 Channel Relay Module" or "Model 3-01-0341".

Anonymous

Email

you@example.com

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Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question