How to wire an optocoupler relay module



Overview

Learn how to use the Relay with optocoupler with detailed documentation, including pinouts, usage guides, and example projects.

Key Takeaways

To wire an optocoupler relay module, connect the control side to your microcontroller with a current-limiting resistor, power the relay separately, and connect the load to the relay terminals while ensuring proper isolation and protection. Step 1: Understand the ModuleAn optocoupler relay module combines a relay and an optical isolator, allowing a low-voltage control signal to safely switch high-voltage or high-current loads. The module typically has: VCC: Power for the control circuitGND: Ground for the control circuitJD-VCC: Power for the relay coil (separate from control voltage)IN1, IN2, etc.: Control input pinsRelay terminals: COM (Common), NO (Normally Open), NC (Normally Closed) for connecting the load.

Step 2: Power ConnectionsConnect VCC and GND to the microcontroller's power supply (e.g., 5V for Arduino). Connect JD-VCC to an external power supply suitable for the relay (e.g., 12V for a 12V relay). This prevents the microcontroller from supplying high current to the relay coil.

If using separate supplies, tie the grounds together to maintain a common reference. Step 3: Control Signal WiringConnect the IN pin to a GPIO pin of your microcontroller. Use a current-limiting resistor (typically 220–330 ohms) in series with the optocoupler LED to prevent overcurrent.

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Set the jumper for HIGH or LOW trigger depending on your logic: L (LOW trigger): Relay activates when the input is LOWH (HIGH trigger): Relay activates when the input is HIGH. Step 4: Load ConnectionsConnect your device to the relay terminals: NO and COM: Device turns ON when relay is activatedNC and COM: Device turns OFF when relay is activatedEnsure the relay's voltage and current ratings match your load. Use a flyback diode across inductive loads like motors or solenoids to prevent voltage spikes.

Step 5: Safety and TestingVerify the relay coil resistance is sufficient to avoid overloading the optocoupler (most cannot handle more than 50 mA directly) if connecting directly. Mount the module in a ventilated enclosure if switching high-current loads. Test the circuit with a low-voltage load first to ensure correct operation before connecting mains or high-power devices.

By following these steps, you can safely wire an optocoupler relay module to control high-voltage or high-current devices while protecting your microcontroller and ensuring electrical isolation.

Article Content

How to Use Relay with optocoupler: Examples, Pinouts,

Learn how to use the Relay with optocoupler with detailed documentation, including pinouts, usage guides, and example projects. Perfect for students, hobbyists,

How to Use One Channel Relay with Optocoupler: Pinouts, Specs,

Learn how to use the One Channel Relay with Optocoupler with detailed documentation, including pinouts, usage guides, and example projects. Perfect for students, hobbyists, and developers

User''s Guide: 12V 4-Channel Relay Module with Optocoupler

This module allows microcontrollers to control high-voltage devices (AC or DC) using opto-isolated relays. Each channel can be triggered by either HIGH or LOW logic, selectable via

Arduino Tutorial: 2-Channel Optocoupler Relay Module

The optocoupler is extensively utilized in computer terminals, thyristor control devices, measuring instruments, copiers, automatic ticketing systems, and

Relay Module Optocoupler: Schematic and Working Explained

This article shares the Relay Module Optocoupler Schematic and Working principle. Cheap DIY relay module project with guidance.

Optocoupler Tutorial for Beginners

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An optocoupler (or opto-isolator) is a component that transfer signals between circuits using light. In this guide, you''ll learn how they work and how you can use one in your own projects.

2-Channel 5V 10A Optocoupler Relay Module User Guide

Complete user guide for the 2-channel 5V SPDT relay module with optocoupler isolation. Covers pinout, wiring to Arduino, JD-VCC jumper setup,

User''s Guide: 12V 1-Channel Relay Module (High/Low Trigger,

This module allows microcontrollers to safely control high-voltage devices using a relay with optocoupler isolation. It supports both HIGH and LOW level triggering, selectable via jumper,

Opto-Isolated Relay Switching Module

The circuit above is a two chanel relay switch using opto-couplers. The opto-coupler is a sealed four pin device containing a light emitting diode (LED) and a spatially

6-Channel 5V Relay Module with Optocoupler | Manualsee

Overview This relay module provides six isolated channels for switching high-power loads using a low-voltage control signal. It is designed for use with microcontrollers like Arduino, AVR, PIC, ARM, and

Best Raspberry Pi Boards for IoT, AI, NAS and Industrial Projects in ...

Use active cooling because Pi 5 performs best with active cooling under sustained load. Do not switch industrial loads directly from GPIO. Use an optocoupler, relay module or PLC-rated

6Pcs DC 3.3V Relay Module 1 Channel Optocoupler Module

Product name: Single-channel 3V high-level relay isolation control module (with optocoupler isolation control) The core of the 3/3.3V relay isolation drive control module is the electronic control

5V Relay Module with Optocoupler 4 Channel Relay Module

5V 4 Channel Relay Output Modules, Relay Output Contacts Up To 250A 10A. With Optocoupler. Standard Interface, Can Be Extended On Various Development Boards. Be Able To Control Various

4 Channel 5V Relay Module with Optocoupler | Manualsee

This 4-channel relay module operates at 5V and includes optocoupler isolation for reliable switching. It is designed to be controlled by microcontrollers like Arduino and Raspberry Pi, supporting both high

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BLUNAMI, legacy, tmcc, dcc, dcs, soundtraxx | Have any of

For situations where you need more current capability for an output device, use of a 14V bulb, or extend the logic of an existing function (Like controlling additional lights via fwd and reverse)

5 PCS 1 Channel Relay Module with Optocoupler Relay Control

IN: the signal trigger terminal of the relay module (low-level trigger is valid). □Versatile Applications□Designed to meet international safety standards, this module incorporates an isolation slot between

24V 30A Relay Module with Optocoupler Isolation

Features: The relay module is essentially a mechanical switch controlled by an electromagnetic isolation The switch has three ports,normally open,normally closed,and common And has no wires connected

How to Build a Smart Switch: Home Automation with ESP32 & Alexa

A relay module connected to the ESP32 controls a mains-powered device such as a lamp, a fan, or any standard household appliance. The ESP32 connects to your home Wi-Fi network and

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African project coordination: Waterfall City, Midrand, Gauteng, South Africa

This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

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