Gavigain IO25B01

Gavigain Bistable Self-Locking Switch User Manual

Model: IO25B01

Introduction

This manual provides comprehensive instructions for the installation, operation, and maintenance of the Gavigain Bistable Self-Locking Switch (Model IO25B01). This mini 6-24V flip-flop latch relay module is designed for various applications requiring reliable bistable control, such as smart home systems, emergency lighting, and automotive electronics. Please read this manual thoroughly before using the product to ensure proper functionality and safety.

Safety Information

Always observe the following safety precautions to prevent injury or damage to the device:

- Ensure the power supply voltage is within the specified range (6-24V DC) before connecting the module.
- Do not exceed the maximum current rating of 10 Amps for the relay contacts.
- Disconnect power before making any wiring connections or disconnections.
- Avoid exposing the module to moisture, extreme temperatures, or corrosive environments.
- This product is an electronic component; handle with care to avoid static discharge damage.
- Installation should be performed by individuals familiar with electronic circuits and safety practices.

Product Overview

The Gavigain Bistable Self-Locking Switch is a compact and reliable relay module designed for various control applications. It features a self-locking mechanism, allowing it to maintain its state (ON/OFF) after a momentary trigger pulse.

Key Features:

- **Bistable Operation:** Triggers and holds position when pulled, releases when triggered again.
- **Wide Voltage Range:** Operates from 6V to 24V DC.
- **High Durability:** Constructed with quality electronic components for reliable performance.
- **User-Friendly:** Simple trigger mechanism for state toggling.
- **Versatile Applications:** Suitable for automotive electronics, industrial equipment, smart homes, and more.

Component Identification:

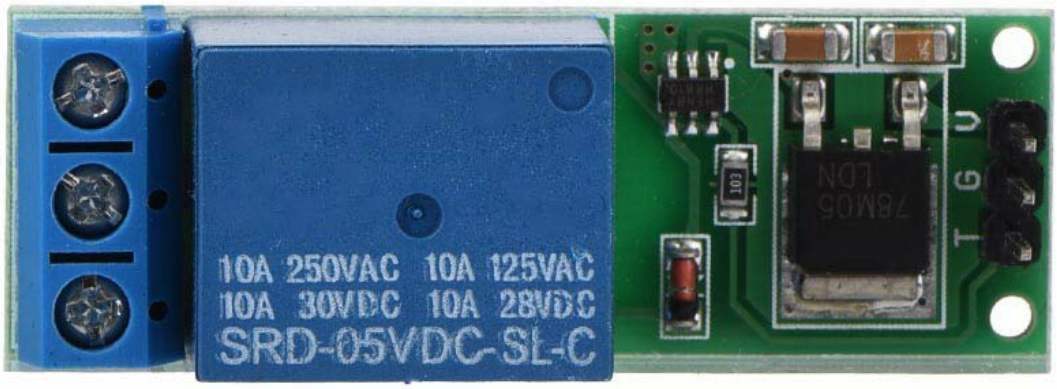

Figure 1: Top view of the Bistable Self-Locking Switch module.

The module consists of a compact circuit board with a blue relay, screw terminals for power and load connections, and a 3-pin header for trigger input. The relay is rated for 10A at 250VAC, 10A at 125VAC, 10A at 30VDC, and 10A at 28VDC.

Figure 2: Angled view of the module, highlighting the trigger input pins.

The 3-pin header typically includes VCC (power input), GND (ground), and Trigger (signal input). The screw terminals are for connecting the load to be controlled by the relay.

Setup

Follow these steps to set up your Bistable Self-Locking Switch module:

1. **Power Connection:** Connect your 6-24V DC power supply to the VCC and GND pins on the 3-pin header. Ensure correct polarity. The VCC pin is typically marked or is the leftmost pin when looking at the module with the relay on the left and the 3-pin header on the right.
2. **Load Connection:** Connect the device or circuit you wish to control to the screw terminals. The relay has Normally Open (NO) and Normally Closed (NC) contacts, along with a Common (COM) terminal. Refer to the markings on the relay for specific connections. For most applications, you will connect your load between the COM and NO terminals if you want the load to turn ON when the relay is triggered.
3. **Trigger Connection:** Connect your trigger source (e.g., a momentary push button, MCU output) to the Trigger pin.

The module is designed to respond to a low pulse trigger.

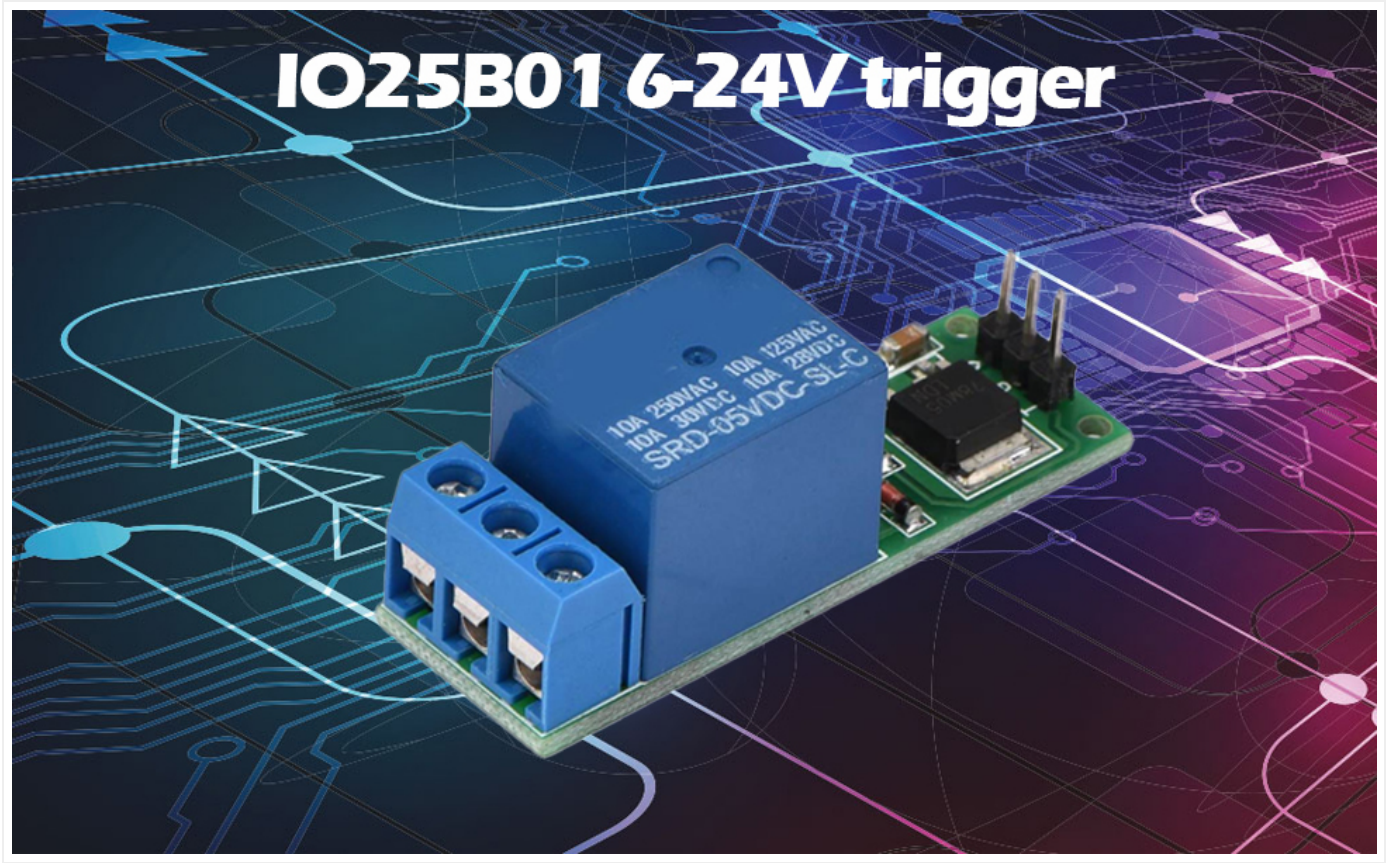

Figure 3: Illustrative diagram of the module and its trigger mechanism.

Always double-check all connections before applying power to prevent damage to the module or connected devices.

Operating Instructions

The Bistable Self-Locking Switch operates on a simple toggle principle:

1. **Initial State:** By default, when power is applied, the relay is in its released state (e.g., Normally Open contacts are open, Normally Closed contacts are closed).
2. **First Trigger:** Apply a momentary low pulse to the Trigger pin. The relay will pull in (energize), changing its state. For example, if connected to NO, the load will turn ON. The relay will remain in this state even after the trigger pulse is removed.
3. **Second Trigger:** Apply another momentary low pulse to the Trigger pin. The relay will release (de-energize), returning to its initial state. The load will turn OFF (if connected to NO).
4. **Subsequent Triggers:** Each subsequent low pulse to the Trigger pin will toggle the relay's state between energized and de-energized.

This self-locking behavior makes it ideal for applications where a single button press needs to toggle a device's power state without continuous holding of the button.

Maintenance

The Gavigain Bistable Self-Locking Switch module is designed for long-term, reliable operation with minimal maintenance. However, adhering to these guidelines can extend its lifespan:

- **Keep Clean:** Ensure the module is free from dust, dirt, and debris. Use a soft, dry brush or compressed air to clean if necessary.

- **Environmental Conditions:** Operate the module within its specified temperature and humidity ranges. Avoid direct sunlight, excessive heat, or moisture.
- **Connection Integrity:** Periodically check all wiring connections to ensure they are secure and free from corrosion. Loose connections can lead to intermittent operation or damage.
- **Avoid Overload:** Do not connect loads that exceed the relay's maximum current and voltage ratings. Overloading can cause premature failure of the relay contacts.

Troubleshooting

If you encounter issues with your Bistable Self-Locking Switch, refer to the following troubleshooting guide:

Problem	Possible Cause	Solution
Relay does not energize/de-energize.	No power to module. Incorrect power polarity. Trigger signal not applied or incorrect. Faulty relay.	Check power supply connections (VCC, GND). Verify VCC and GND are connected correctly. Ensure a momentary low pulse is sent to the Trigger pin. Test trigger source. If all else fails, the relay may be defective.
Load does not turn ON/OFF.	Incorrect load wiring. Load is faulty. Relay contacts are damaged.	Verify load is connected to COM and NO/NC terminals correctly. Test the load independently to ensure it is functional. Check relay contacts for continuity when energized/de-energized.
Module gets excessively hot.	Overloaded relay contacts. Incorrect input voltage.	Reduce load current to within specifications. Verify input voltage is within 6-24V DC range.

Specifications

Parameter	Value
Model	IO25B01
Operating Voltage	6-24V DC
Relay Contact Rating (AC)	10A 250VAC / 10A 125VAC
Relay Contact Rating (DC)	10A 30VDC / 10A 28VDC
Trigger Mode	Low Pulse Trigger
Operation Mode	Bistable (Self-Locking)
Dimensions	Approximately 1.85 x 0.63 x 0.71 inches (47 x 16 x 18 mm)
Weight	Approximately 0.71 ounces (20 grams)

Warranty and Support

Gavigain products are manufactured with high-quality components and undergo rigorous testing to ensure reliability. For

specific warranty information, please refer to the terms and conditions provided at the time of purchase or contact your retailer.

For technical support, troubleshooting assistance, or inquiries regarding your Gavigain Bistable Self-Locking Switch, please visit the official Gavigain store on Amazon or contact their customer service directly. You can find more information and contact details by visiting the Gavigain Store.