

JZK M467862U

JZK F5305S Electronic Switch Control Board User Manual

Model: M467862U

1. INTRODUCTION

The JZK F5305S Electronic Switch Control Board is a versatile MOSFET module designed for controlling high-power DC equipment. It features an optocoupler for complete isolation between input and output, ensuring stable and safe operation. This module is suitable for various applications, including controlling motors, light bulbs, LED strips, micro water pumps, and solenoid valves.

2. PRODUCT OVERVIEW

The F5305S module acts as a pulse trigger switch, allowing digital high and low-level signals to control higher voltage and current loads. Its compact design integrates an F5305S power field effect tube, enabling efficient power switching and PWM control capabilities.

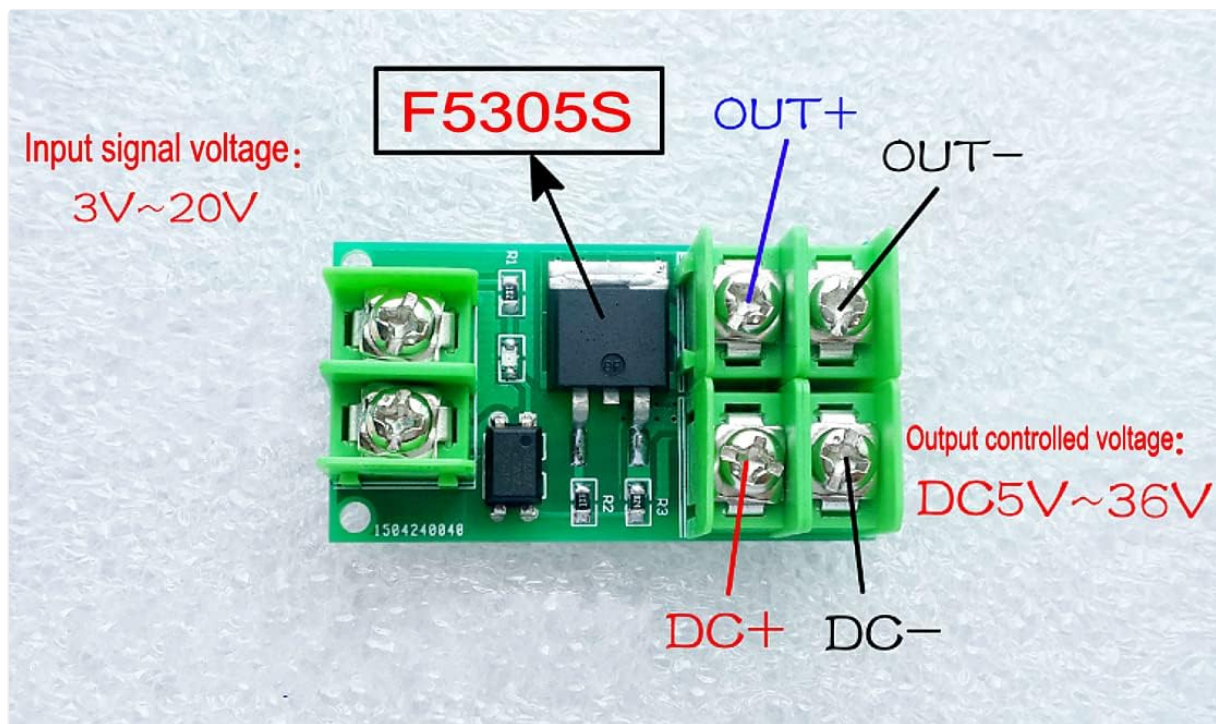


Figure 1: JZK F5305S Electronic Switch Control Board showing input and output terminals. Input signal voltage range is 3V-20V, and output controlled voltage range is DC 5V-36V.

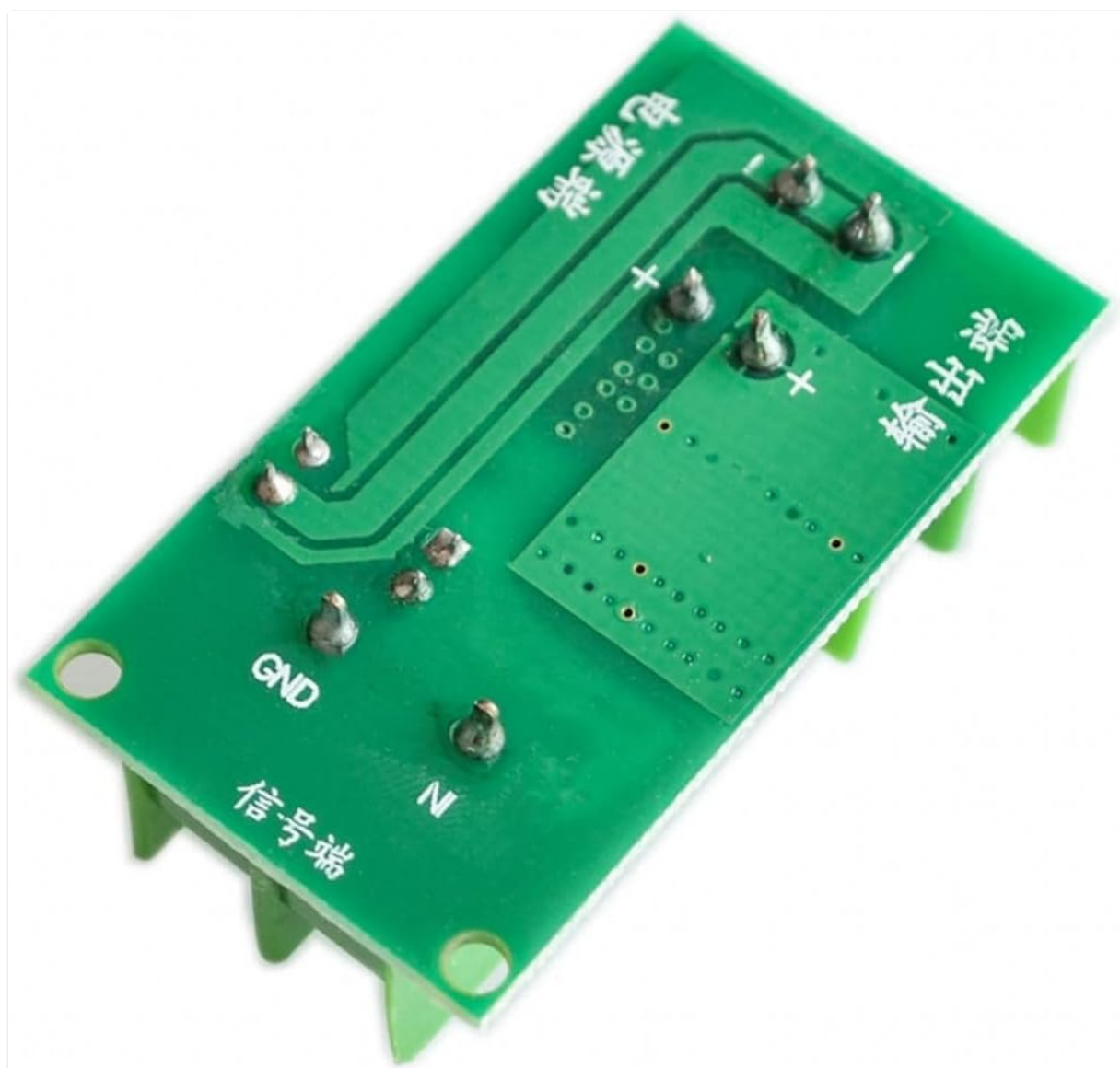


Figure 2: Rear view of the JZK F5305S module, showing solder points and general layout.

3. FEATURES

- **Signal Trigger Terminal:** Accepts digital high and low-level signals (3V-24V input voltage, approximately 5mA current).
- **Wide Output Control:** Controls devices with 5V-36V DC voltage.
- **High Current Capability:** Handles currents up to 5A without a heatsink. For currents exceeding 5A (up to a maximum of 20A), an external heatsink is required.
- **Versatile Applications:** Suitable for controlling high-power equipment such as motors, light bulbs, LED strips, DC motors, micro water pumps, and solenoid valves.
- **PWM Control:** Utilizes the original F5305S power field effect tube, allowing for Pulse Width Modulation (PWM) input to control motor speed or lamp brightness.
- **Opto-Isolation:** Input and output terminals are completely isolated, enhancing safety and preventing interference.

4. SETUP AND WIRING

Proper wiring is crucial for the safe and effective operation of the F5305S module. Refer to Figure 1 for terminal identification.

1. Input Signal Connection:

- Connect your control signal source (e.g., microcontroller IO port, PLC interface, DC power supply) to the **DC+** and **DC-** terminals on the input side.
- Ensure the input signal voltage is within the 3V to 24V range.

2. Output Load Connection:

- Connect the positive terminal of your DC load (e.g., motor, LED strip) to the **OUT+** terminal.
- Connect the negative terminal of your DC load to the **OUT-** terminal.
- The output controlled voltage should be between 5V and 36V.

3. **Power Supply for Load:** The power supply for the load should be connected directly to the load, with the module acting as a switch in the load's circuit. The module switches the negative side of the load (low-side switching).

4. **Heatsink Requirement:** If your load current exceeds 5A, you must attach an appropriate heatsink to the F5305S MOSFET to prevent overheating. The maximum current without a heatsink is 5A; with a heatsink, it can handle up to 20A.

5. OPERATING INSTRUCTIONS

Once wired correctly, the F5305S module operates by receiving a trigger signal from your control source.

- **Basic Switching:** When a high-level signal (e.g., 3V-24V) is applied to the input terminals (DC+ and DC-), the MOSFET will turn on, allowing current to flow through the connected load. When the signal is removed or a low-level signal is applied, the MOSFET will turn off, cutting power to the load.
- **PWM Control:** For applications requiring variable control (e.g., motor speed, LED brightness), apply a Pulse Width Modulation (PWM) signal to the input terminals. The duty cycle of the PWM signal will directly control the average power delivered to the load.
- **Indicator LED:** The module typically includes a small LED to indicate the status of the switch (on/off).

6. MAINTENANCE

The JZK F5305S module is designed for reliable operation with minimal maintenance. Follow these guidelines:

- **Keep Clean:** Ensure the module is free from dust, dirt, and moisture. Use a soft, dry brush or compressed air for cleaning if necessary.
- **Inspect Connections:** Periodically check all wiring connections to ensure they are secure and free from corrosion.
- **Thermal Management:** If operating at high currents (above 5A), regularly check the heatsink (if installed) for proper attachment and ensure adequate airflow around the module to prevent overheating.
- **Avoid Physical Stress:** Do not apply excessive force or bend the circuit board, as this can damage components or solder joints.

7. TROUBLESHOOTING

If you encounter issues with your F5305S module, consider the following troubleshooting steps:

- **Module Not Switching:**
 - Verify that the input signal voltage is within the 3V-24V range.
 - Check if the input signal current is sufficient (around 5mA).
 - Ensure all input and output connections are correct and secure.
 - Test the input signal source independently to confirm it is functioning.
- **Load Not Receiving Full Power/Dim Output:**
 - Confirm the output controlled voltage is within the 5V-36V range.
 - Check the load's power requirements and ensure the module's current capacity (with or without heatsink) is not exceeded.
 - If using PWM, verify the duty cycle and frequency of the PWM signal.
- **Module Overheating:**
 - Reduce the load current if it exceeds 5A without a heatsink.
 - Install an appropriate heatsink if the current is between 5A and 20A.
 - Ensure adequate ventilation around the module.
- **No Indicator LED Activity:** This may indicate no input signal, incorrect input wiring, or a faulty module. Recheck input connections and signal source.

8. SPECIFICATIONS

Parameter	Value
Model Number	M467862U
Input Signal Voltage	3V - 24V DC
Input Signal Current	Approximately 5mA

Parameter	Value
Output Controlled Voltage	5V - 36V DC
Output Current (No Heatsink)	Less than 5A
Output Current (With Heatsink)	Up to 20A (Maximum)
Isolation Type	Optocoupler (Input and Output Isolated)
Dimensions (Approx.)	47mm x 25mm x 15mm (Length x Width x Height)
Item Weight	Approximately 1.76 ounces (per module)

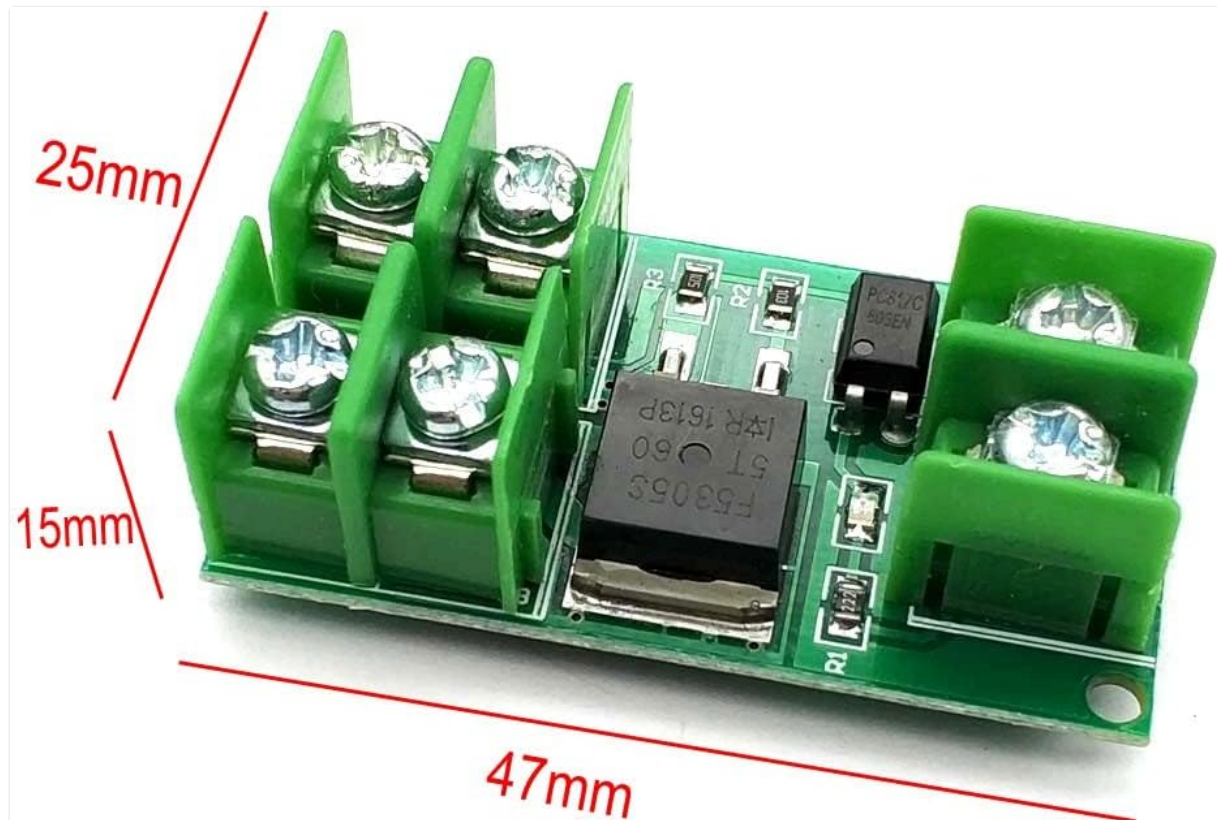


Figure 3: Approximate dimensions of the JZK F5305S module.

9. SAFETY INFORMATION

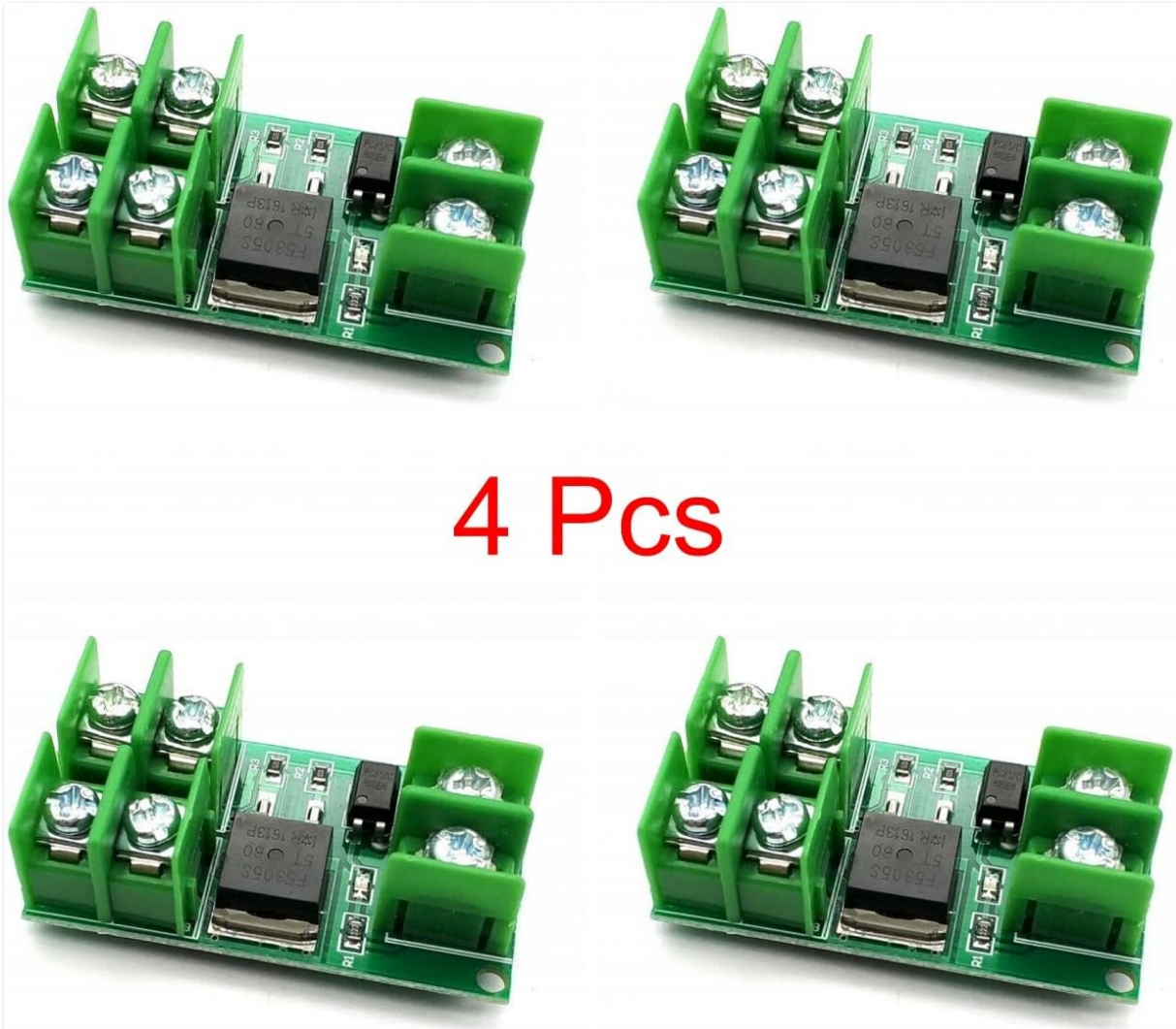
Please read and follow these safety precautions to prevent injury or damage to the module and connected equipment:

- Always disconnect power before making any connections or disconnections to the module.
- Ensure all wiring is correct and secure to prevent short circuits or improper operation.
- Do not exceed the maximum input signal voltage (24V) or output controlled voltage (36V).
- Do not exceed the maximum output current (20A with heatsink, 5A without heatsink). Overcurrent can cause permanent damage to the module and pose a fire hazard.
- Operate the module in a dry environment, away from moisture, dust, and corrosive substances.
- Keep the module away from children.
- If the module shows signs of damage or malfunction, discontinue use immediately.

10. PACKAGE CONTENTS

Each package typically contains:

- 4 x JZK F5305S Electronic Switch Control Board Modules



4 Pcs

Figure 4: Four JZK F5305S Electronic Switch Control Boards as typically included in a package.



Figure 5: Example of product packaging for the JZK F5305S modules.

11. WARRANTY AND SUPPORT

For warranty information or technical support, please refer to the seller's policies or contact the manufacturer directly. Keep your purchase receipt for any warranty claims.