

Senzooe XY-MOS

Senzooe XY-MOS 15A 400W MOSFET Trigger Switch Driver Module User Manual

Model: XY-MOS

1. INTRODUCTION

This manual provides detailed instructions for the proper installation, operation, and maintenance of your Senzooe XY-MOS 15A 400W MOSFET Trigger Switch Driver Module. Please read this manual thoroughly before using the product to ensure safe and efficient operation.

1.1. Overview

The XY-MOS module is a high-power MOSFET electronic switch designed for controlling high-current DC loads. It supports PWM regulation and can be triggered by various control signals, making it suitable for a wide range of applications such as motor control, LED dimming, and heating element switching.

1.2. Safety Precautions

- Always disconnect power before making any connections or disconnections to the module.
- Ensure correct polarity when connecting power and load to prevent damage to the module and connected devices.
- Do not exceed the maximum voltage (DC 5-36V) or current (15A continuous, 30A peak) ratings.
- Avoid short circuits on the output terminals.
- Keep the module away from moisture, dust, and extreme temperatures.
- If you are unsure about any wiring or operation, consult a qualified technician.

2. PRODUCT FEATURES

- **High Power Handling:** Capable of switching loads up to 15A continuous and 400W.
- **Wide Voltage Range:** Operates with DC 5V to 36V power supplies.
- **MOSFET Technology:** Utilizes high-performance MOSFETs for efficient switching and low heat generation.
- **PWM Regulation Support:** Compatible with PWM signals for variable speed control or dimming.

- **Flexible Trigger Input:** Can be triggered by various digital signals (3.3V-20V).
- **Indicator LED:** Visual feedback for module status.

3. SPECIFICATIONS

Parameter	Value
Model	XY-MOS
Operating Voltage	DC 5V - 36V
Output Current	15A (continuous), 30A (peak)
Output Power	400W (max)
Trigger Signal Source	Digital high/low level (DC 3.3V - 20V), PWM signal
Operating Temperature	-40°C to 85°C
Dimensions	Approx. 34mm x 17mm x 12mm

4. PACKAGE CONTENTS

Upon opening your package, please verify that all items are present and undamaged:

- 1x Senzooe XY-MOS 15A 400W MOSFET Trigger Switch Driver Module



Image 1: Packaging of the Senzooe XY-MOS module. The brown cardboard box shows manufacturer details and handling instructions.

5. SETUP AND WIRING

5.1. Module Layout

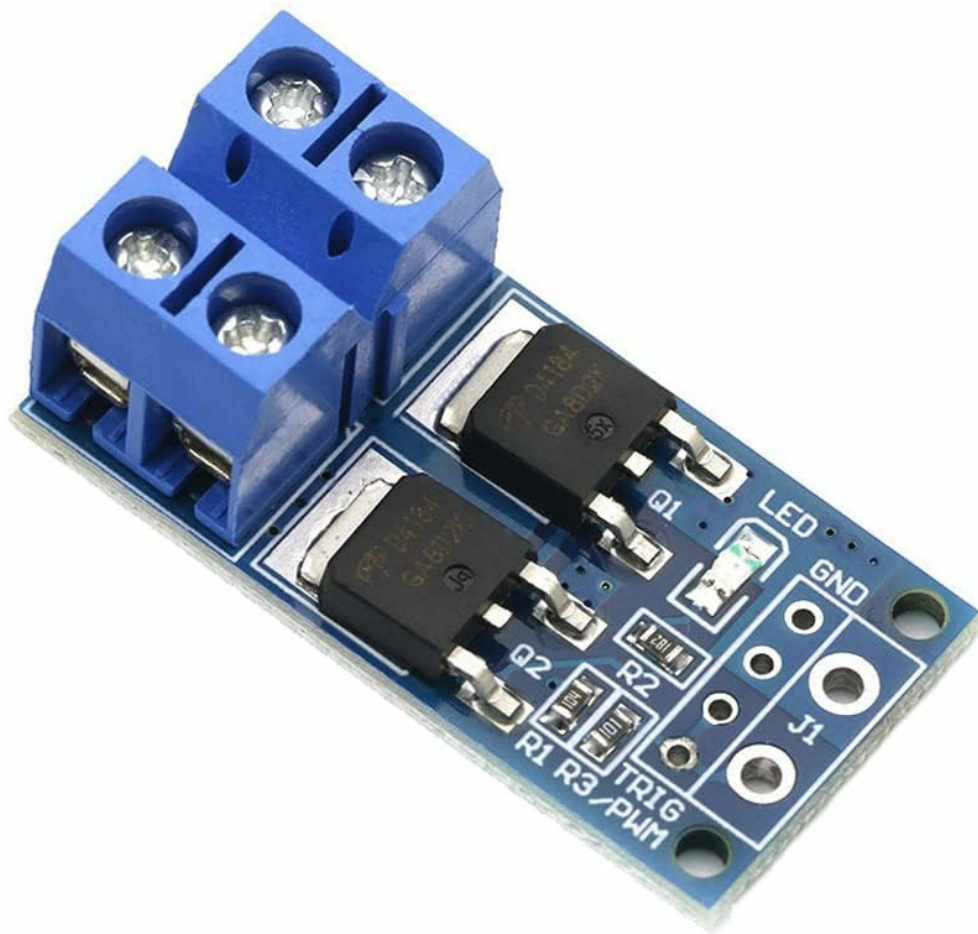


Image 2: Top view of the Senzoo XY-MOS module. This image displays the two blue screw terminals for power and load, the two MOSFETs (Q1, Q2), the LED indicator, and the trigger/PWM input pins (TRIG, PWM, GND).

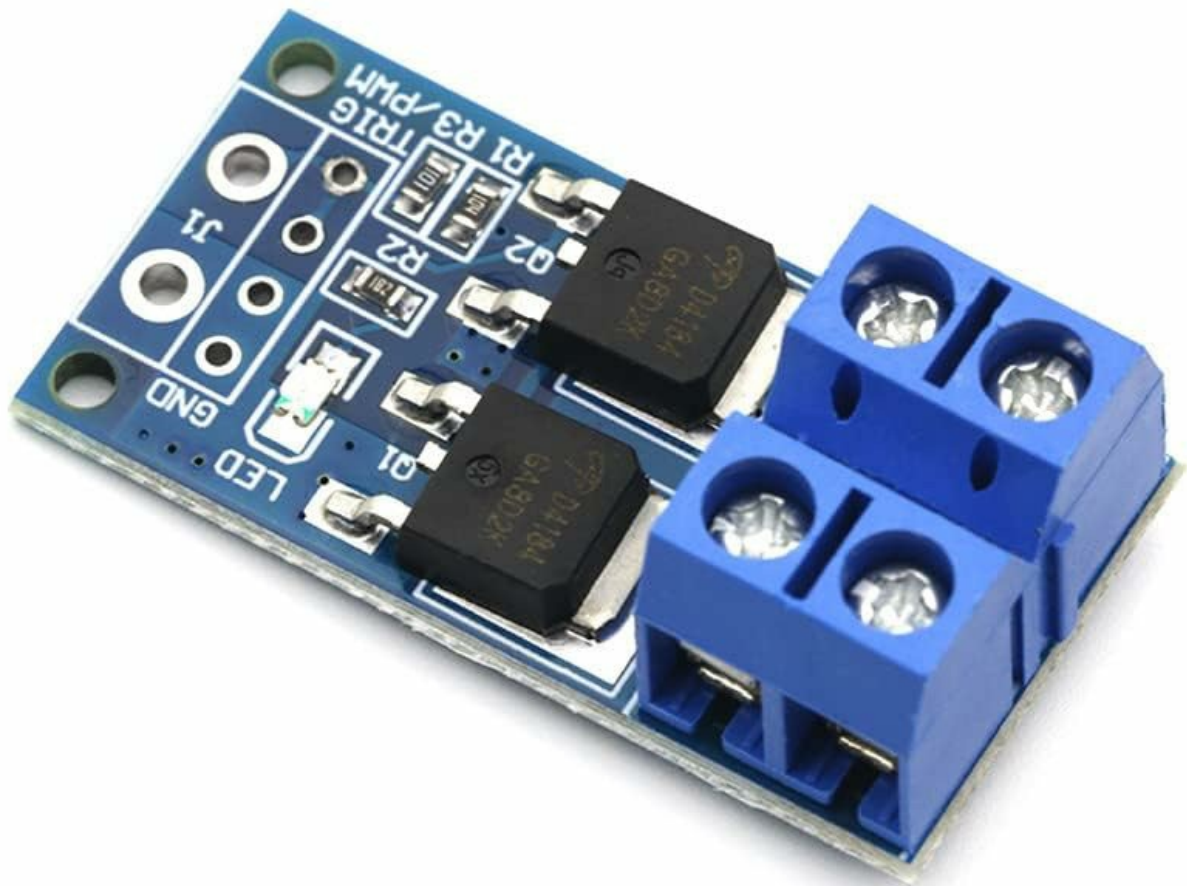


Image 3: Angled view of the Senzooe XY-MOS module. This perspective clearly shows the screw terminals for robust wire connections and the smaller pin headers for control signals.

The module features two main sections: the power/load terminals and the control signal input. The blue screw terminals are for connecting the main power supply and the load. The smaller pin headers are for the trigger/PWM input.

5.2. Wiring Instructions

Follow these steps to correctly wire the XY-MOS module:

1. **Power Supply Connection:** Connect your DC power supply (5V-36V) to the input screw terminals. Ensure the positive (+) terminal of the power supply connects to the positive (+) input terminal of the module, and the negative (-) terminal connects to the negative (-) input terminal.
2. **Load Connection:** Connect your DC load (e.g., motor, LED strip, heating element) to the output screw terminals. The positive (+) terminal of the load connects to the positive (+) output terminal of the module, and the negative (-) terminal connects to the negative (-) output terminal. The module acts as a low-side switch, meaning it switches the negative side of the load.
3. **Control Signal Connection:** Connect your trigger or PWM signal source to the designated pins:
 - **TRIG:** Connect the positive signal from your microcontroller, PLC, or other trigger source (3.3V-20V).
 - **PWM:** This pin is often labeled with TRIG, indicating it accepts PWM signals. Connect your PWM

output here.

- **GND:** Connect the ground of your control signal source to the GND pin of the module. This common ground connection is crucial for proper operation.

Note: The module's power supply and the control signal's power supply can be separate, but their grounds must be connected for the trigger signal to be effective.

6. OPERATING INSTRUCTIONS

6.1. Basic Operation

Once wired correctly, the module will switch the connected load based on the input trigger signal. The onboard LED indicator will illuminate when the MOSFET is turned ON (conducting current to the load).

6.2. PWM Control Mode

To use the module for PWM regulation (e.g., motor speed control, LED dimming):

1. Connect a PWM signal generator (e.g., microcontroller, Arduino) to the TRIG/PWM input pin and its ground to the module's GND pin.
2. Vary the duty cycle of the PWM signal. A higher duty cycle will result in more power delivered to the load, and a lower duty cycle will reduce power.
3. Ensure the PWM signal voltage is within the 3.3V-20V range.

6.3. Trigger Switch Mode

For simple ON/OFF switching:

1. Connect a digital high-level signal (e.g., 5V from a microcontroller pin, or a switch connected to a voltage source) to the TRIG pin.
2. When the TRIG pin receives a high-level signal, the MOSFET will turn ON, activating the load.
3. When the TRIG pin receives a low-level signal (or is disconnected, depending on the circuit design), the MOSFET will turn OFF, deactivating the load.

7. MAINTENANCE

The Senzooe XY-MOS module is designed for reliable operation with minimal maintenance. To ensure its longevity:

- Keep the module clean and free from dust and debris.
- Avoid exposing the module to excessive heat or direct sunlight.
- Ensure proper ventilation, especially when operating at high currents, to prevent overheating.
- Regularly check wire connections for tightness and signs of corrosion.

8. TROUBLESHOOTING

If you encounter issues with your XY-MOS module, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
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Problem	Possible Cause	Solution
Module not turning ON / Load not activating	No power supply; Incorrect power polarity; No trigger signal; Incorrect load wiring; Faulty load.	Check power supply connection and voltage; Verify power polarity; Ensure trigger signal is present and within voltage range; Check load wiring and test the load independently.
Module LED is ON, but load is OFF	Faulty load; Open circuit in load wiring.	Test the load directly; Check continuity of load wiring.
Module overheating	Exceeding current/power limits; Insufficient ventilation.	Reduce load current/power; Ensure adequate airflow around the module; Consider a heatsink if operating continuously at high power.
PWM control not working	Incorrect PWM signal frequency/voltage; No common ground between module and PWM source.	Verify PWM signal parameters; Ensure common ground connection.

9. WARRANTY AND SUPPORT

9.1. Warranty Information

Senzooe products are manufactured to high-quality standards. This product is covered by a standard manufacturer's warranty against defects in materials and workmanship. Please refer to your purchase documentation for specific warranty terms and duration. The warranty does not cover damage caused by improper installation, misuse, unauthorized modifications, or exceeding specified operating limits.

9.2. Customer Support

For technical assistance, troubleshooting, or warranty claims, please contact your retailer or the Senzooe customer support team through the contact information provided with your purchase or on the official Senzooe website. When contacting support, please have your product model (XY-MOS) and purchase details ready.