

ICQUANZX 01088

ICQUANZX Dual MOSFET High Power Trigger Switch Module User Manual

Model: 01088

1. INTRODUCTION

This manual provides detailed instructions for the ICQUANZX Dual MOSFET High Power Trigger Switch Module. This module is designed for electronic switching applications, utilizing dual parallel MOS active output for lower internal resistance, higher current, and increased power handling. It is suitable for controlling high-power devices such as electric motors, light bulbs, LED strips, DC motors, micro pumps, and solenoid valves.

2. PRODUCT FEATURES

- **High Power Capacity:** Operates at 15A continuous current, 400W, with a maximum current of 30A under enhanced cooling conditions.
- **Wide Operating Voltage:** Supports DC 5V to 36V.
- **Flexible Trigger Source:** Compatible with digital high-low signals (DC 3.3V - 20V), microcontroller I/O ports, PLC interfaces, and DC power supplies.
- **PWM Support:** Perfect support for PWM signals with a frequency range of 0-20KHz, enabling motor speed control and light dimming.
- **Dual MOSFET Design:** Features dual parallel MOS active output for improved performance and reliability.

3. SPECIFICATIONS

Parameter	Value
Operating Voltage	DC 5V - 36V
Trigger Source Voltage	Digital High-Low (DC 3.3V - 20V)

PWM Signal Frequency	0 - 20KHz
Continuous Output Current	15A (at room temperature)
Maximum Output Current	30A (with enhanced cooling)
Output Power	400W
Operating Temperature	-40°C to 85°C
Dimensions (L x W x H)	34 mm x 17 mm x 12 mm (1.34 x 0.67 x 0.47 inches)

4. PACKAGE CONTENTS

Each package contains:

- 5 x Dual MOSFET High Power Trigger Switch Modules

5. SAFETY INSTRUCTIONS

Please read and follow these safety guidelines to prevent damage to the module or connected devices, and to ensure personal safety:

- Ensure all power is disconnected before making any connections.
- Verify correct polarity for all power inputs and outputs. Incorrect polarity can damage the module and connected components.
- Do not exceed the maximum specified operating voltage (36V DC) or current (30A with cooling).
- Provide adequate cooling for high-current applications to prevent overheating.
- Avoid short circuits on the output terminals.
- Handle the module with care to prevent electrostatic discharge (ESD) damage.
- This module is designed for low-voltage DC applications. Do not connect to AC mains voltage.

6. SETUP AND WIRING

The module features clearly labeled terminals for power input, load output, and trigger signal input. Refer to the diagram below for proper connections.

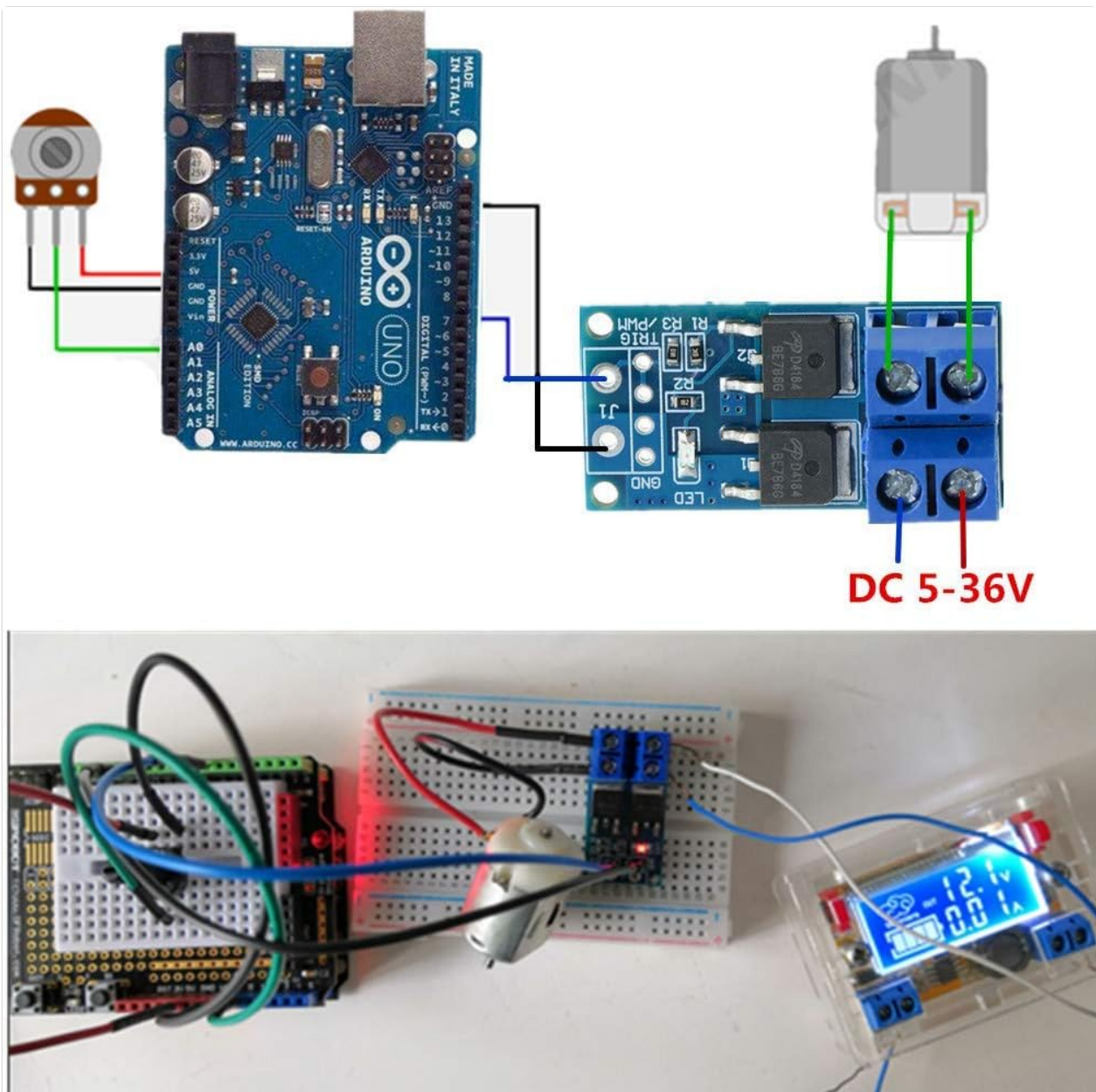


Figure 6.2: Arduino and MOSFET Module Wiring Diagram. This diagram shows an Arduino board connected to the MOSFET module. The Arduino's PWM output (e.g., Pin 9) is connected to the TRIG/PWM input of the module, and the Arduino's GND is connected to the module's GND. A separate DC power supply (5-36V) is connected to the module's DC+ and DC- terminals, and a DC motor is connected to the module's OUT+ and OUT- terminals.

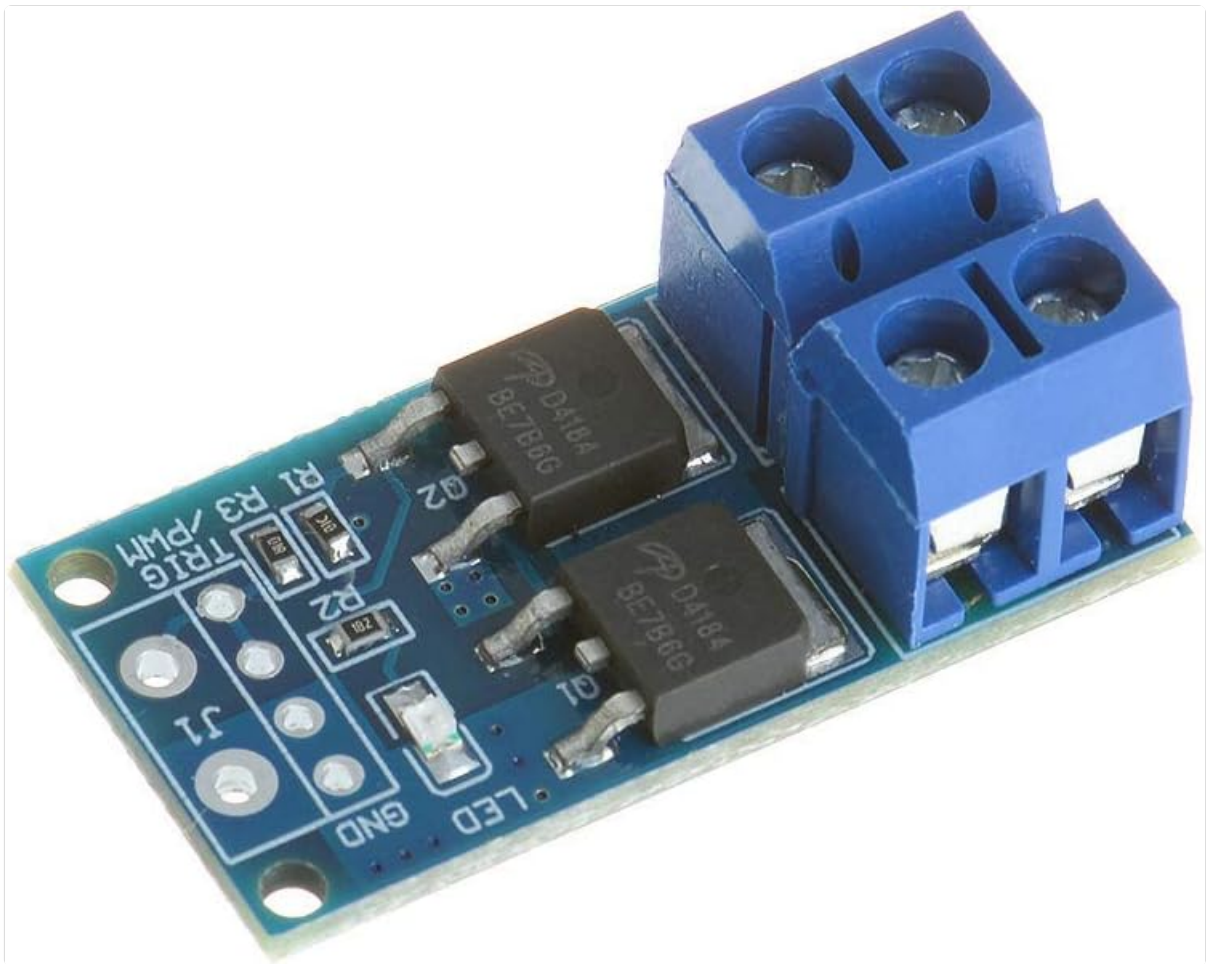


Figure 6.3: MOSFET Module in a Breadboard Setup. This image displays a practical setup with the MOSFET module integrated into a breadboard circuit, controlling a small DC motor. An external power supply and a control board (possibly an Arduino or similar) are also visible, demonstrating a real-world application.

1. Connect the **GND** pin of your Arduino (or other control device) to the **GND** terminal on the MOSFET module.
2. Connect a PWM output pin from your Arduino (e.g., Digital Pin 9) to the **TRIG/PWM** terminal on the MOSFET module.
3. Connect your external DC power supply (5V-36V) to the **DC+** and **DC-** terminals on the MOSFET module. Ensure correct polarity.
4. Connect your DC motor (or other high-power load) to the **OUT+** and **OUT-** terminals on the MOSFET module. Ensure correct polarity for the motor if applicable.
5. Double-check all connections before applying power.

7. OPERATING INSTRUCTIONS

Once the module is wired correctly, you can control the connected load by sending a trigger signal to the TRIG/PWM input.

- **On/Off Control:** Apply a high-level signal (3.3V-20V DC) to the TRIG/PWM input to turn the load ON. Apply a low-level signal (0V) or disconnect the trigger to turn the load OFF.
- **PWM Control (Speed/Brightness):** To control the speed of a DC motor or the brightness of an LED strip, apply a Pulse Width Modulation (PWM) signal to the TRIG/PWM input. Varying the duty cycle of the PWM signal will adjust the average power delivered to the load. The module supports PWM frequencies from 0-20KHz.
- The onboard LED indicator will illuminate when the MOSFET is switched ON, providing visual feedback

of the module's state.

8. APPLICATIONS

This versatile MOSFET module can be used in a wide range of applications, including:

- DC Motor speed control
- LED strip dimming and control
- Control of high-power light bulbs
- Switching micro pumps
- Actuating solenoid valves
- General high-current DC load switching

9. TROUBLESHOOTING

- **Module not turning ON/OFF:**
 - Check all wiring connections for proper polarity and secure contact.
 - Verify that the trigger signal voltage is within the specified range (3.3V-20V for high, 0V for low).
 - Ensure the power supply to the module (DC 5V-36V) is active and within range.
 - Test the load independently to confirm it is functional.
- **Module overheating:**
 - The load current may be exceeding 15A. Consider adding a heatsink or active cooling (fan) if operating above 15A or in high ambient temperatures.
 - Ensure the load is not short-circuited.
- **PWM control not working as expected:**
 - Verify the PWM signal frequency is within the 0-20KHz range.
 - Check the duty cycle of your PWM signal.
- **No power to load:**
 - Confirm the main power supply (DC 5V-36V) is connected and providing power.
 - Check the connections to the load (OUT+ / OUT-).

10. MAINTENANCE

The ICQUANZX Dual MOSFET High Power Trigger Switch 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.
- **Environmental Conditions:** Operate the module within the specified temperature range (-40°C to 85°C) and avoid excessively humid environments.
- **Connections:** Periodically check all screw terminal connections to ensure they remain tight and secure, especially in environments with vibration.
- **Cooling:** For applications drawing currents close to or above 15A, ensure adequate ventilation or consider adding a heatsink to the MOSFETs to prevent thermal stress.

11. WARRANTY AND SUPPORT

For warranty information and technical support, please refer to the seller's policy or contact ICQUANZX customer service through your purchase platform. Please have your model number (01088) and purchase details ready when seeking support.