

Estink MA860H (Yosoo4qvx5m6yhf)

Estink MA860H Stepper Motor Driver User Manual

Model: MA860H (Yosoo4qvx5m6yhf)

1. INTRODUCTION

The Estink MA860H is a high-performance microstep driver based on pure-sinusoidal current control technology. It is designed for driving 2-phase 86 series stepper motors, offering smooth operation, low noise, and high efficiency. This manual provides essential information for the safe and effective installation, operation, and maintenance of your MA860H stepper motor driver.

Please read this manual thoroughly before using the product to ensure proper setup and to prevent damage or injury.

2. SAFETY INFORMATION

- Always disconnect power before making any connections or disconnections.
- Ensure proper grounding to prevent electrical shock.
- Do not expose the driver to moisture, dust, or corrosive substances.
- Operate the driver within its specified voltage and current ranges.
- Avoid touching the heatsink during operation, as it may become hot.
- Installation and wiring should be performed by qualified personnel.

3. PRODUCT OVERVIEW

The MA860H stepper motor driver features advanced technology for precise motor control. Key features include:

- Suitable for 2-phase 86 motors.
- Supports automatic adjustment technology for optimal performance.
- TTL compatibility and optical isolation input for reliable signal processing.
- Built-in protection against short circuit, over voltage, over current, and short ring.
- Automatic reactive current reduction for improved efficiency.



Figure 3.1: Front view of the Estink MA860H Stepper Motor Driver, showing the control panel with current and pulse/rev tables, signal inputs, and high voltage terminals.

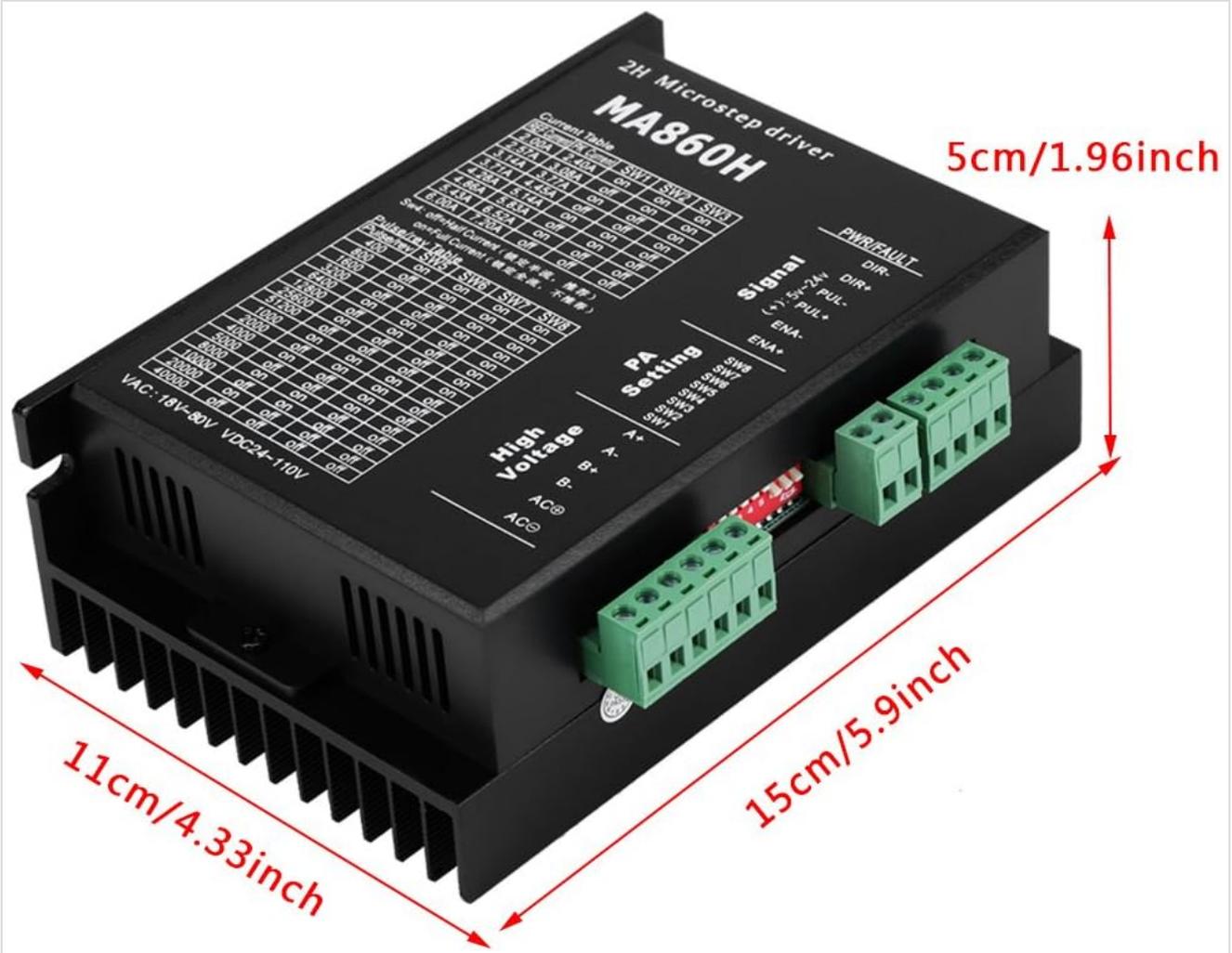


Figure 3.2: Dimensions of the MA860H driver, indicating approximate measurements of 15cm (5.9 inches) in length, 11cm (4.33 inches) in width, and 5cm (1.96 inches) in height.

4. SETUP

4.1 Wiring Connections

Proper wiring is crucial for the driver's functionality and safety. Refer to the labels on the driver for correct terminal connections.

- **Signal Inputs:**

- DIR+: Direction signal positive input.
- DIR-: Direction signal negative input.
- PUL+: Pulse signal positive input.
- PUL-: Pulse signal negative input.
- ENA+: Enable signal positive input.
- ENA-: Enable signal negative input.

- **Motor Connections:**

- A+, A-: Connect to one coil of the 2-phase stepper motor.
- B+, B-: Connect to the second coil of the 2-phase stepper motor.

- **Power Supply:**

- ACØ, ACØ: Connect to the AC power source (18-80V AC).
- Alternatively, connect to a DC power source (24-110V DC). Ensure correct polarity.



Figure 4.1: Detailed view of the MA860H's cooling fan, green terminal blocks for wiring, and the red DIP switch array for configuration.

4.2 DIP Switch Settings

The MA860H uses DIP switches to configure the output current and microstep resolution. The switches are labeled SW1 to SW8.



Figure 4.2: The MA860H driver displaying the current and pulse/rev setting tables, along with the corresponding DIP switch configurations.

4.2.1 Current Setting (SW1, SW2, SW3)

Use switches SW1, SW2, and SW3 to set the desired peak output current for the motor. SW4 controls the half/full current mode.

Peak Current (A)	RMS Current (A)	SW1	SW2	SW3
2.00A	1.40A	ON	ON	ON
2.57A	1.84A	OFF	ON	ON
3.14A	2.24A	ON	OFF	ON
3.71A	2.65A	OFF	OFF	ON
4.28A	3.06A	ON	ON	OFF
4.86A	3.47A	OFF	ON	OFF

Peak Current (A)	RMS Current (A)	SW1	SW2	SW3
5.43A	3.88A	ON	OFF	OFF
6.00A	4.29A	OFF	OFF	OFF

SW4 Setting:

- ON: Half Current (reduced reactive current)
- OFF: Full Current

4.2.2 Microstep Setting (SW5, SW6, SW7, SW8)

Use switches SW5, SW6, SW7, and SW8 to set the desired microstep resolution (pulses per revolution).

Pulse/rev	SW5	SW6	SW7	SW8
400	ON	ON	ON	ON
800	OFF	ON	ON	ON
1600	ON	OFF	ON	ON
3200	OFF	OFF	ON	ON
6400	ON	ON	OFF	ON
12800	OFF	ON	OFF	ON
25600	ON	OFF	OFF	ON
51200	OFF	OFF	OFF	ON
1000	ON	ON	ON	OFF
2000	OFF	ON	ON	OFF
4000	ON	OFF	ON	OFF
5000	OFF	OFF	ON	OFF
8000	ON	ON	OFF	OFF
10000	OFF	ON	OFF	OFF
20000	ON	OFF	OFF	OFF
40000	OFF	OFF	OFF	OFF

5. OPERATING INSTRUCTIONS

Once the driver is correctly wired and configured, apply power. The driver will enter an idle state. Provide pulse signals to the PUL+ and PUL- inputs to initiate motor movement. The direction of rotation is controlled by the DIR+ and DIR- inputs. The ENA+ and ENA- inputs can be used to enable or disable the motor output.

Ensure that the control signals (PUL, DIR, ENA) are within the specified voltage range (5V-24V) for TTL compatibility.

6. MAINTENANCE

The MA860H driver is designed for reliable operation with minimal maintenance. However, adhering to the following guidelines can prolong its lifespan:

- Keep the driver clean and free from dust and debris. Use a soft, dry cloth for cleaning.
- Ensure adequate ventilation around the driver, especially around the heatsink and fan, to prevent overheating.
- Regularly check all wiring connections for tightness and signs of wear or corrosion.
- Operate the driver within its specified environmental conditions (temperature, humidity).

7. TROUBLESHOOTING

If you encounter issues with your MA860H driver, refer to the following common problems and solutions:

Problem	Possible Cause & Solution
Motor does not move or moves erratically.	<ul style="list-style-type: none">• Incorrect wiring: Verify all motor, power, and signal connections.• Insufficient power supply: Ensure voltage and current meet specifications.• Incorrect DIP switch settings: Check current and microstep settings.• Enable signal not active: Ensure ENA+ and ENA- are correctly connected and enabled.• Pulse signal issue: Verify pulse signal integrity from controller.
Motor vibrates excessively or makes unusual noise.	<ul style="list-style-type: none">• Motor current too high/low: Adjust current settings via DIP switches.• Microstep setting too low/high for application: Adjust microstep resolution.• Motor or mechanical issue: Inspect motor and mechanical load for binding or damage.
Driver overheats.	<ul style="list-style-type: none">• Insufficient ventilation: Ensure proper airflow around the heatsink.• Motor current too high: Reduce current setting.• Ambient temperature too high: Operate within specified temperature range.• Motor impedance mismatch: Ensure motor is compatible with driver.
PWR/FAULT LED is red.	<ul style="list-style-type: none">• Over-voltage, under-voltage, over-current, or short circuit protection activated.• Check power supply voltage.• Inspect motor wiring for shorts.• Reduce motor current if consistently tripping.

8. SPECIFICATIONS

Parameter	Value
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Parameter	Value
Model Number	MA860H (Yosoo4qvx5m6yhf)
Input Voltage	18-80V AC / 24-110V DC
Output Current	2.00A - 6.00A (Peak)
Microstep Resolution	400 to 51200 steps/revolution
Pulse Frequency	Up to 200KHz
Logic Current	7-16mA
Isolation Resistance	500MΩ
Material	Copper (internal components)
Item Weight	0.55 Kilograms (1.21 pounds)
Product Dimensions	5.91 x 2.76 x 1.18 inches (15 x 7 x 3 cm)
Manufacturer	Estink
UPC	712979920097

9. WARRANTY AND SUPPORT

Estink products are manufactured to high quality standards. For warranty information or technical support, please refer to the product packaging or contact your retailer. Keep your purchase receipt as proof of purchase.