



**MCU Isolated PWM Module –
DC Motor Driver**

MT2306S

User Manual

Version 1.0

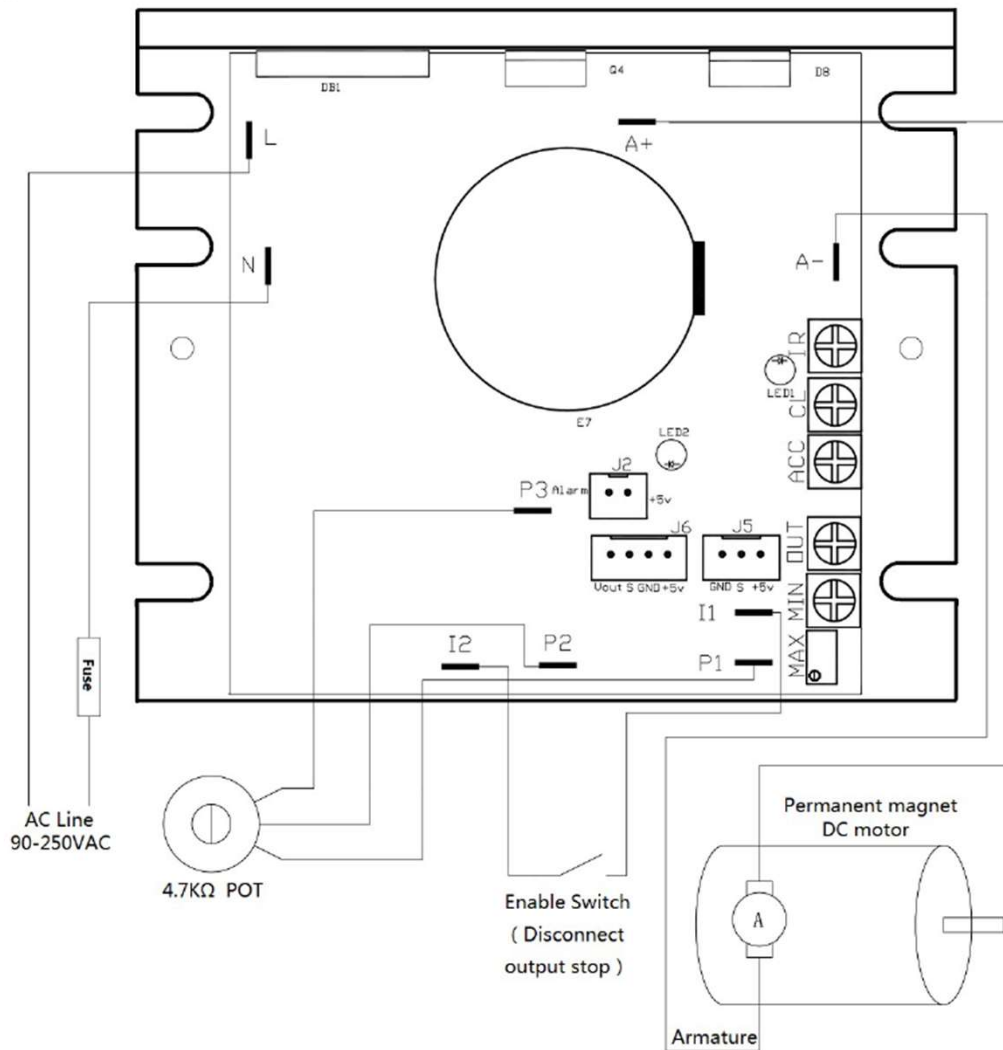
Characteristics

- MT2306S is an MCU-isolated PWM module DC motor driver suitable for 50-500W / 90VDC motor drives.
- MT2306S features 0-5V isolation analog quantity, maximum and minimum speed regulation, torque regulation, current feedback, delayed start, remote start, etc.
- External potentiometer for speed adjustment.
- Equipped with a load compensation potentiometer to improve speed stability accuracy.
- Current limiting protection and current feedback.
- Delayed start, remote start.
- It possesses characteristics such as dual digital PID regulation for voltage and current, stable control, compact size, small calorific value, and low noise

Warnings

- Please confirm that the voltage range of the input AC power supply is 90 to 250VAC (50/60Hz) before powering on.
- Before powering on, ensure that the maximum output voltage does not exceed the rated voltage of the motor (adjust the max potentiometer).
- Before powering on, ensure that each adjusting potentiometer has been set to the appropriate position (refer to the adjustment instructions for details).
- Ensure the wiring is correct before powering on (refer to the wiring instructions for details).
- Do not touch any component by hand when powering on (Electrical Hazard) and avoid touching the components immediately after powering off (Some components may remain hot even during normal operation).

Wiring Instructions



- L1 and L2 are the AC power input terminals.
- A + and A - are the armature voltage output terminals of the DC brushless motor.
- P1, P2, and P3 are the input terminals of the output control potentiometer. (Please confirm that the central tap of the adjustable potentiometer is connected to P2).
- P1 and P2 can input a 0-5V analog signal for speed regulation. P2 is positive.
- The isolated side I1 and I2 are the output stop control terminals (the output is zero when I1 and I2 are disconnected).
- LED1 (green) is the working indicator. I1 and I2 are normally on when they are closed, and flash when I1 and I2 are disconnected.
- LED2 (red) is the fault indicator light, which does not work normally. After the current protection, the indicator light is always on, I1 and I2 open, and then close to reset, and the light is not on.
- The J2 interface is an alarm output port, which can be connected with an LED or buzzer, or a client PC.
- J6 is the speed display interface, and J5 is the sensor interface.

Electrical Parameters

Input Voltage (VAC) 50/60Hz	Output Voltage (VDC)	Additional Heat Sink	
		Maximum DC Output Current (Amperes)	Maximum Output Power kW (HP)
185-250	0-90	6.0	0.5 (2/3)

Speed Regulation Ratio	50:1
Current Limiting Range	0 – 150%
Load Adjustment Rate	1%
Acceleration Time	0.5 – 4.0s
Min. Speed Adj. Range	0 – 30%
Max. Speed Adj. Range	50 – 110%
Line Voltage Regulation	0.5%
Control Linearity	2%
Speed Measurement Feedback Voltage	0 – 5 /krpm(Optional)
Max. Instantaneous Starting	3 times of current setting
Max. Ambient Temperature	45°C (Full Load)

Adjustment Instructions

*(*All adjustment potentiometers are at their minimum value when rotated to the full counterclockwise position.)*

- Maximum Speed Adjustment (**MAX**)

When a specific speed is required as the maximum speed of the motor, the maximum speed of the potentiometer can be adjusted to meet the control requirements. The adjustable range is 50% - 110% of the rated speed (that is, the maximum output DC voltage is set, and the factory setting is 90VDC).

- Minimum Speed Adjustment (**MIN**)

When the motor needs to be adjusted from a non-zero speed, adjust the potentiometer to meet the minimum speed requirements. The adjustable range is 0-30% of the rated speed.

- Current Limit Adjustment (**CL**)

The potentiometer can adjust the maximum output current. The adjustable range for a 1.5KW output is 0-150% of the rated current of the motor. (This function can be used for overload protection or motor torque adjustment).

- Current Feedback Adjustment (**IR**)

- (a) When the load change on the line is small, the potentiometer can be adjusted to the minimum value.
- (b) When it is required to keep the speed change less than 1% when the load on the line changes greatly, the potentiometer can be adjusted according to the following steps:
 - When the motor is no-load, measure the armature voltage of the motor at this time.
 - Adjust the line to full load, and the armature voltage of the motor will decrease.
 - Adjust the potentiometer anticlockwise to restore the armature voltage of the motor to its no-load voltage.

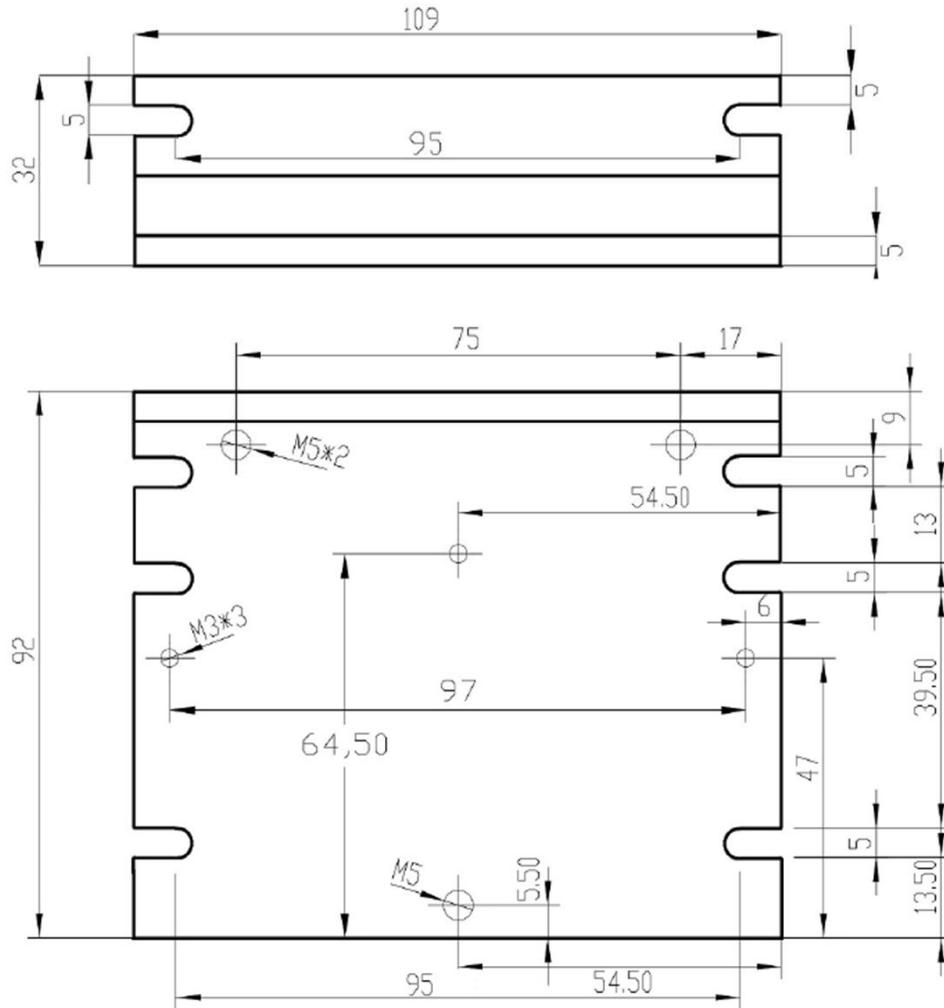
Fuse Selection Table in Line (Fuse)

Motor Power (W)	50-200	201-500
Fuse (A)	5	10

Fault Analysis

Fault	Reason / Remedy
The DC motor is not running.	a) The fuse is broken, and it remains broken after replacement: ➤ Rectifier module breakdown. ➤ Thyristor module breakdown. ➤ Motor coil short circuit. ➤ Motor load is too large. b) The fuse is normal: ➤ Open circuit or poor contact of the line. ➤ The control integrated circuit is damaged (Return to the factory for repair).
The speed of the DC motor is abnormal.	➤ The current feedback potentiometer is not set properly. ➤ Component performance changes or damages (Return to the factory for repair).

Dimension (unit in mm)



Related Information

S/N	ALSTRON MODEL	REPLACES MINARIK MODEL	REPLACES KB MODEL
1	ALSTRON BC-2000TB	MM23001C	KBIC-240D
2	ALSTRON MT2306S	XL3050	KBWS-25D
3	ALSTRON MM4Q-24-15-B	XP32-12/24	KBBC-24M
4	ALSTRON BC15 (to pair with BC-2000TB)	PCM4	SI-5
5	ALSTRON BC11 (to pair with BC-2000TB)	PCM23001	
6	ALSTRON HDC-2000S-ZFZ	RG500UA	KBMG-212D
7	ALSTRON DH-180-B (without voltmeter)	MM23201	KBMD-240D
8	ALSTRON DH-180-PRO (with voltmeter)	MM23201	KBMD-240D
9	ALSTRON MMT-A1D02	PCM4	KBSI-240D