Shenzhen TT Motor Industrial Co.,Ltd.

Brushless Motor Driver TT-MM0230 Manual

Ⅰ.Driver Image

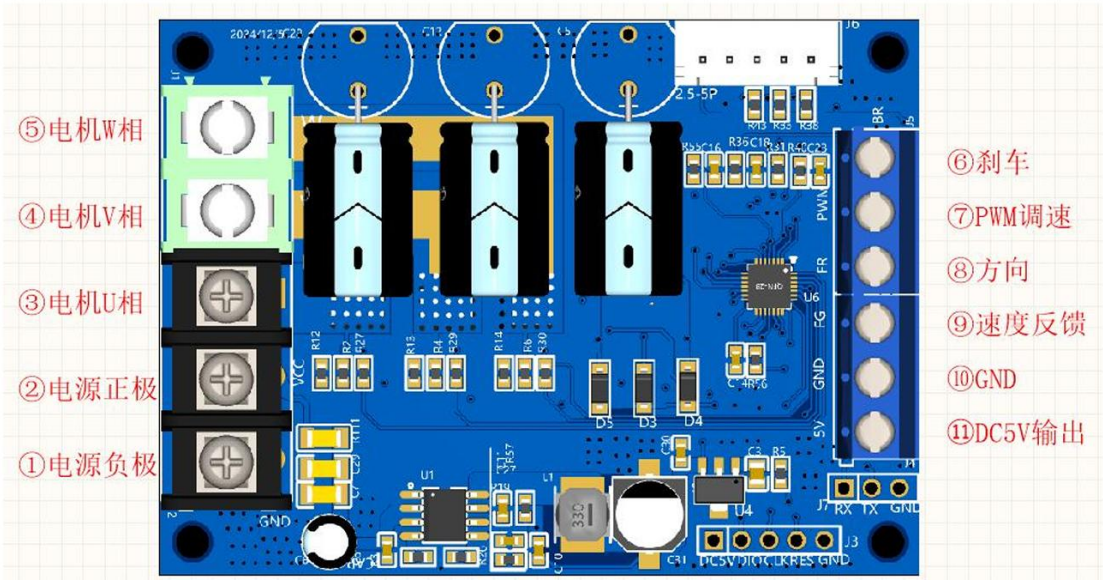

Figure1 Interface Definition

Ⅱ. Electrical Specifications of the Driver

1. Driver Type: Brushless motor driver (general sensorless type)
2. Voltage Range: DC7V ~ 48V
3. Controller Features:

① Supports ultra-low speed operation

② Smooth motor start-up

③ The motor automatically adjusts the starting torque in case of stalling

④ The motor supports a maximum electrical speed of about 100,000 rpm (Motor actual speed = Electrical speed ÷ Pole pair number)

⑤ Motor current-limiting start-up, starting current ＜ 3A

⑥ The motor will restart automatically after stall protection and overcurrent protection; PWM reset is required to restart after over-temperature protection, overvoltage protection and short-circuit protection.

4. Over-temperature Protection: Activated when the temperature exceeds 100℃
5. Sensorless Stall Protection
6. Short-circuit Protection
7. Overcurrent Protection (approx. 12A)
8. Overvoltage Protection (56V)
9. Operating Temperature: -40℃-- 85℃
10. Storage Temperature: -40℃-- 105℃
11. Dimensions: 70mm (L) × 51mm (W)

Ⅲ. Driver Wiring Instructions

Motor wiring is shown in Fig.1:

① Motor Operating Power Supply Negative Terminal (GND)
② Motor Operating Power Supply Positive Terminal (VCC)
③ Motor U Phase
④ Motor V Phase
⑤ Motor W Phase
⑥ Motor brake signal input control (BR)
⑦ PWM speed regulation (PWM)
⑧ Motor direction control input signal (FR)
⑨ Speed feedback signal, pulse function output (FG)
⑩ DC5V output power negative (GND)
⑪ DC5V output power positive (5V)

Ⅳ. Function Description of Driver Leads

Specific functions are as follows:

① Motor Operating Power Supply Negative Terminal (GND)
② Motor Operating Power Supply Positive Terminal (VCC), Voltage Range: DC8~48V
③ Connect to Motor U Phase
④ Connect to Motor V Phase
⑤ Connect to Motor W Phase
⑥ Motor brake signal input control (BR), Input Voltage Range: 0-5V (5V internal pull-up in the controller). The motor runs at high level and stops at low level. For stable operation, it is recommended that the low level ≤ 0.5V and the high level ≥ 2.7V.
⑦ PWM Speed Regulation: Adopts PWM negative duty cycle speed regulation. PWM speed regulation frequency: 6-20KHZ, recommended value: 10KHZ.
⑧ Motor direction control input signal (FR), Input Voltage Range: 0-5V (5V internal pull-up in the controller). Generally, the motor reverses (CCW) at high level and rotates forward (CW) at low level. In special cases, the motor can also rotate forward (CW) at high level and reverse (CCW) at low level, which is determined by the actual motor.
⑨ Speed feedback signal, pulse signal output (3×FG, for external equipment to detect motor speed; a motor with a two-pole pair magnetic ring outputs two square wave pulses per revolution). Output Voltage Range: 0-5V (5V internal pull-up in the controller). Speed = FG×60/(3×Motor pole pair number).
⑩ & ⑪: DC5V output

Ⅴ. Usage and Precautions of the Driver

1. The positive and negative power supply of the driver must be connected in accordance with the manual; reverse connection is prohibited, otherwise the driver will fail to work and be burned out.
2. When using a high-current motor, the connection between the controller power supply and

the motor three-phase must be firm, otherwise there is a risk of burning the connection terminals.

3. All parameters of the driver must not be used beyond the rated load, otherwise the driver will be damaged destructively.