BLDC Motor Driver Manual

48QDZ10

Please read this manual carefully before using

48QDZ10 adopts US dedicated high-performance brushless DC motor driver IC, which is suitable for driving small and medium sized brushless DC motor. As a result of the new PWM technology, the motor has higher speed, smaller vibration, lower noise, smoother operation.

1. Features

1.1 DC voltage 18-50V
1.2 PWM frequency ≥12KHZ
1.3 Input signal is compatible with TTL
1.4 Maximum current:10A
1.5 Dimensions： 100 x 59 x 19
1.6 Weight： 0.27Kg

2. Connection Description

2.1+ AT, -AT: external DC power supply
2.2 Port U = Motor's U-phase
2.3 Port V = Motor's V-phase
2.4 Port W = Motor's W-phase
2.5 Port + 5V = Hall sensor power
2.6 Port GND = the negative terminal of the Hall sensor power, 0V
2.7 Port HALL A = Hall sensor A
2.8 Port HALL B = Hall sensor B
2.9 Port HALL C = Hall sensor C
2.10 Port CW = Motor Forward running port, effective in low
2.11 Port CCW = Motor Forward reverse port, effective in low
2.12 Port DA = speed adjust port, usually 0~5V, or 0~10V
2.13 Port BRAKE = Brake input, effective in low
2.14 Built ACC drive potentiometer is used to accelerate, the acceleration time between 0.1 seconds to 3 seconds
2.15 The Drive built-in SUB SPEED potentiometer is used to aid speed regulation. Different motor parameters need to do the following adjustment:
DA input voltage adjusted to 5V, if the motor speed is less than the maximum speed, SUB SPEED potentiometer rotates clockwise, until the motor reaches maximum speed. If the DA terminal is less than 5V, the motor has reached maximum speed, transfer the DA port to 5V, SUB SPEED potentiometer is rotated counterclockwise, wait until the motor speed to the maximum speed.

Note: 1. CLK port can be added, single hall sensor pulse or 3 hall sensors output, 0-5V hopping
2. Panel display speed output, default is 4 poles (two pairs of poles) motor speed, 8-pole (four pairs of poles) motor speed need to be divided by 2.

3. Electrical Characteristics (Tj = 25 ℃)

3.1 DC voltage 18VDC-50VDC
3.2 Maximum output current 10A。

3. 3 Insulation resistance greater than 500MΩ。

4. Working Environment

4. 1 Cooling; natural cooling or forced air cooling.
4. 2 Working environment; avoid dust and corrosive gases
4. 3 Temperature; 0 ° C- + 50 ° C
4. 4 Humidity; 40- 89% RH

6. Power supply

The driver can be operated between DC18V—DC50V normal. It can be powered with a non-regulated DC power supply, transformer + bridge rectifier + capacitor filter is also available, capacitance greater than desirable 2200μF. However, pay attention that the peak rectified voltage ripple does not exceed 50V.

If you use regulated switching power supply, please pay attention that the output current range of the switching power should be set up larger than 10A.

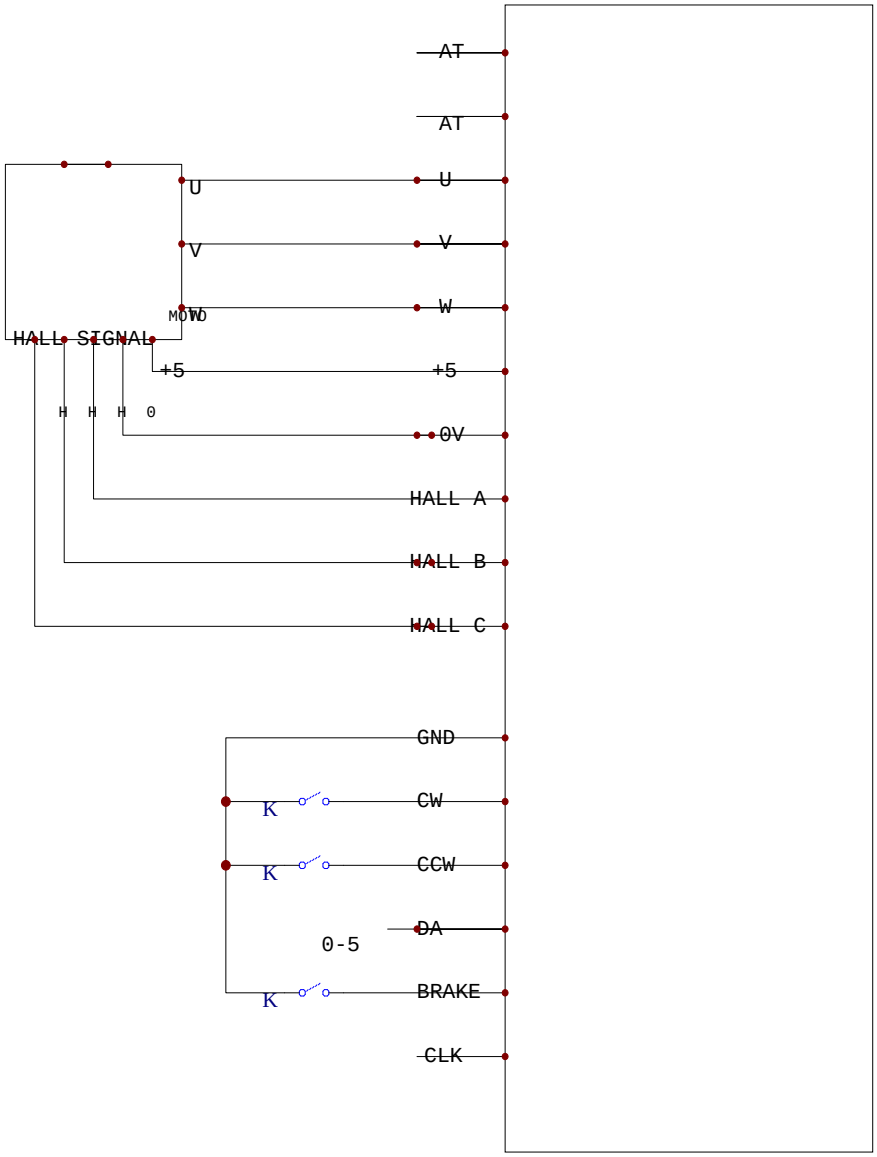
Note： 1. Use of non-regulated power supply is preferred;

2. When using non-regulated power supply, current output capacity should be greater than the 60% set current of driver. When using power supply, should be greater than the set current of driver;

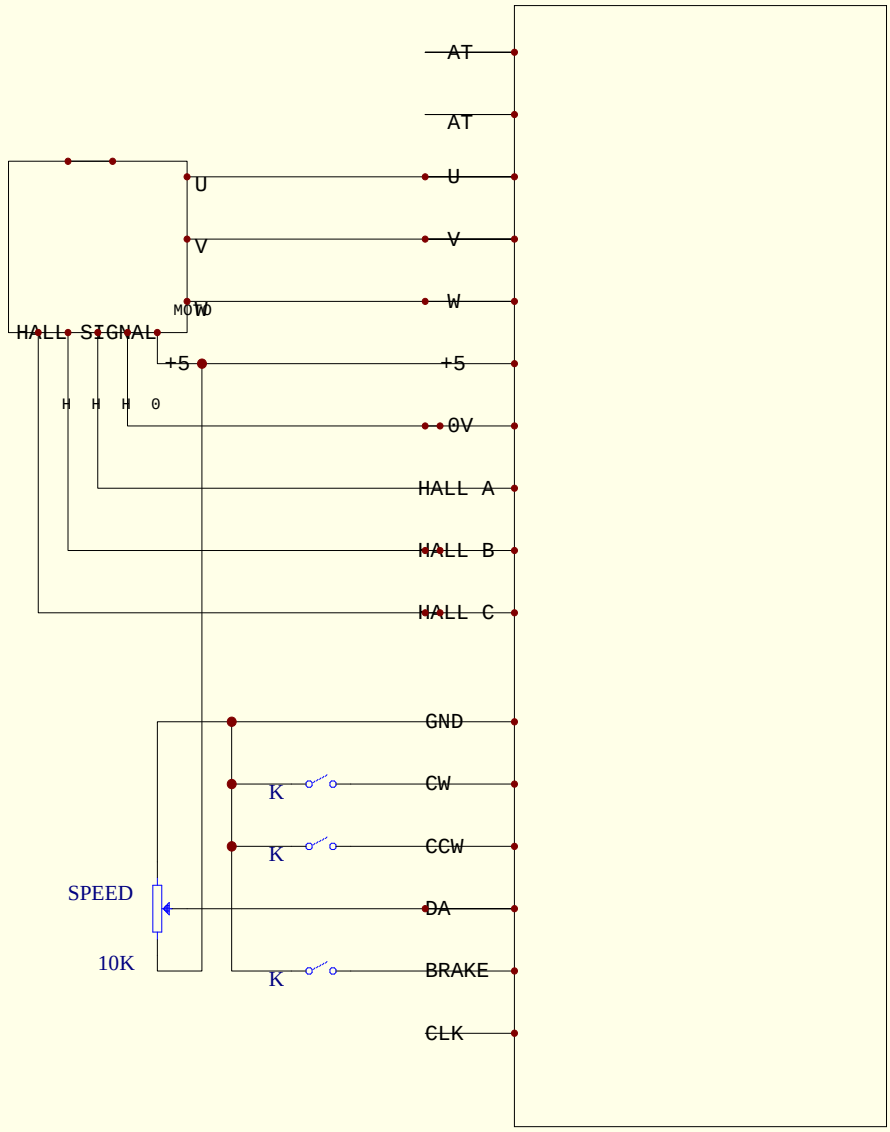
3. In order to reduce the cost, one power can be used by two or three drivers, but you should improve the rated power and rated output current of the power and pay attention to the heat.

7. Drive Wiring：

A complete brushless DC motor drive control system should contain a brushless DC motor, brushless DC motor drives, DC power and control signals. The following is a typical system diagram:



Wire diagram



Potentiometer speed adjustment wiring diagram