Stepper Motor Driver DQ542MA

Electrical specification:

Input voltage	18-50VDC
Input current	＜ 4A
Output current	1.0A～4.2A
Consumption	Consumption：80W； Internal Insurance：6A
Temperature	Working Temperature -10～45℃； Stocking temperature -40℃～70℃
Humidity	No condensation, no water droplets
gas	Prohibition of combustible gases and conductive dust
weight	300GS

Pins assignments and description:

1) Connector Pins Configurations

Pin Function	Details
PUL +,PUL-	Pulse signal, PUL+ is the positive end of pulses input pin PUL- is the negative end of pulse input pin
DIR+,DIR-	DIR signal: DIR+ is the positive end of direction input pin DIR- is the negative end of direction input pin

ENBL+	Enable signal: ENBL+ is the positive end of direction input pin. This signal is used for enabling/disabling the driver. High level for enabling the driver and low level for disabling the driver.
ENBL-	ENBL- is the negative end of direction input pin. Usually left unconnected (enabled)

2) Pins wiring diagram:

PC's control signals can be active in high and low electrical level. When the high electrical leve lis active, all control negative signals will be connected together to GND. When low electrical le vel is active, all control positive signals will be connected together to public port. Now give tw o examples(Open collector &PNP), please check them:

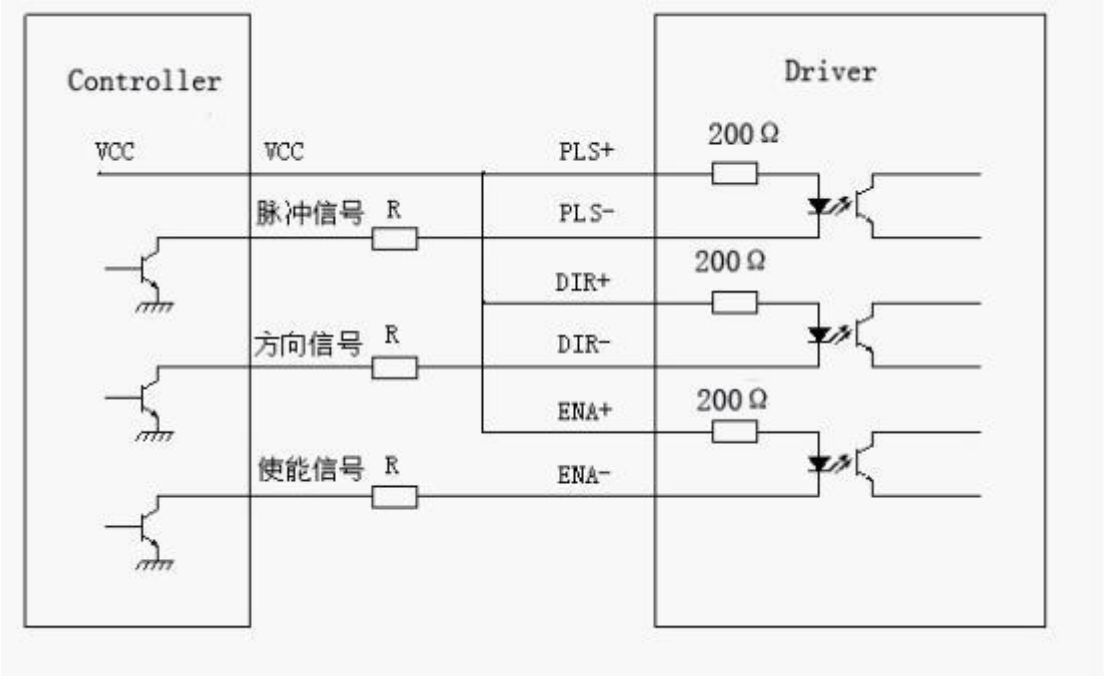


Fig 1. Input port circuit (Yang connection)

PC open connector output

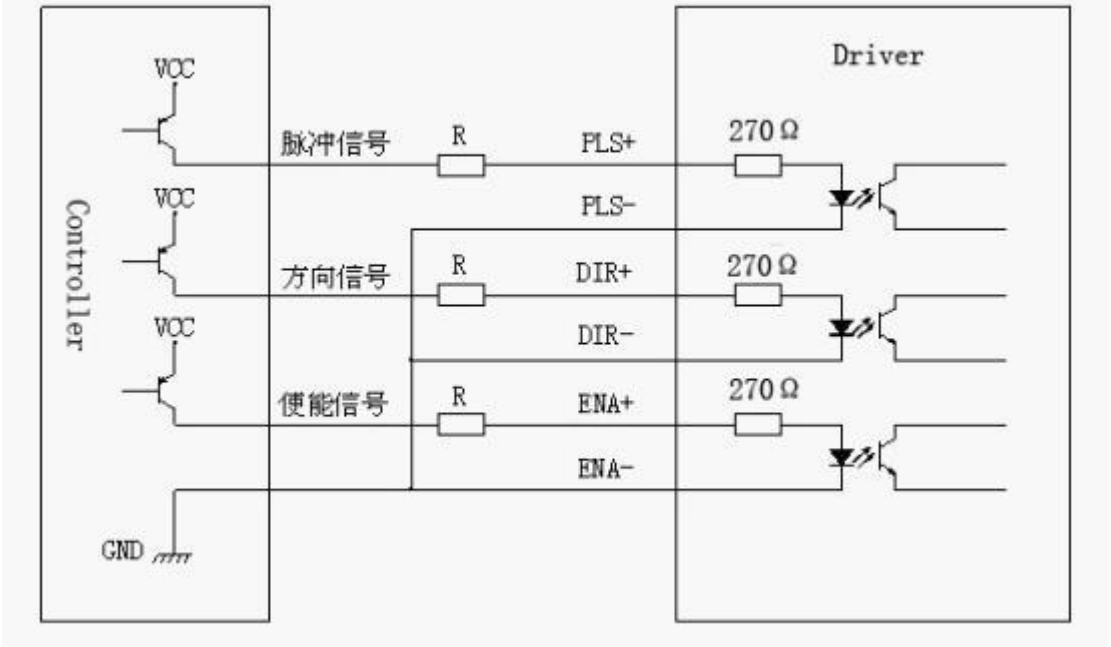


Fig. 2 Input port circuit (Yin connection)
PC PNP output
Note: When VCC=5V, R=0
When VCC=12V, R=1K, ＞1/8W
When VCC=24V, R=2K,＞1/8W
R must connect in the control signal part .

3.Function choice (Using DIP pins to achieve this function)
1) Micro step resolution is set by SW 5,6,7,8 of the DIP switch as shown in the following table:

SW5	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
SW6	ON	OFF	OFF	ON	ON	OFF	OFF	ON	ON	OFF	OFF	ON	ON	OFF	OFF
SW7	ON	ON	ON	OFF	OFF	OFF	OFF	ON	ON	ON	ON	OFF	OFF	OFF	OFF
SW8	ON	ON	ON	ON	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
PULSE/ REV	400	800	1600	3200	6400	12800	25600	1000	2000	4000	5000	8000	10000	20000	25000

2) Standstill current setting
SW4 is used for this purpose. OFF meaning that the standstill current is set to be half of the se lected dynamic current and ON meaning that standstill is set to be the same as the selected dy namic current.

3) Output current setting:
The first three bits (SW 1, 2, 3)of the DIP switch are used to set the dynamic current.
Select a setting

Closest to your motor’s required current

Output current (A)				
SW1	SW2	SW3	PEAK	RMS
ON	ON	ON	1.00	0.71
OFF	ON	ON	1.46	1.04
ON	OFF	ON	1.91	1.36
OFF	OFF	ON	2.37	1.69
ON	ON	OFF	2.84	2.03
OFF	ON	OFF	3.31	2.36
ON	OFF	OFF	3.76	2.69
OFF	OFF	OFF	4.20	3.00

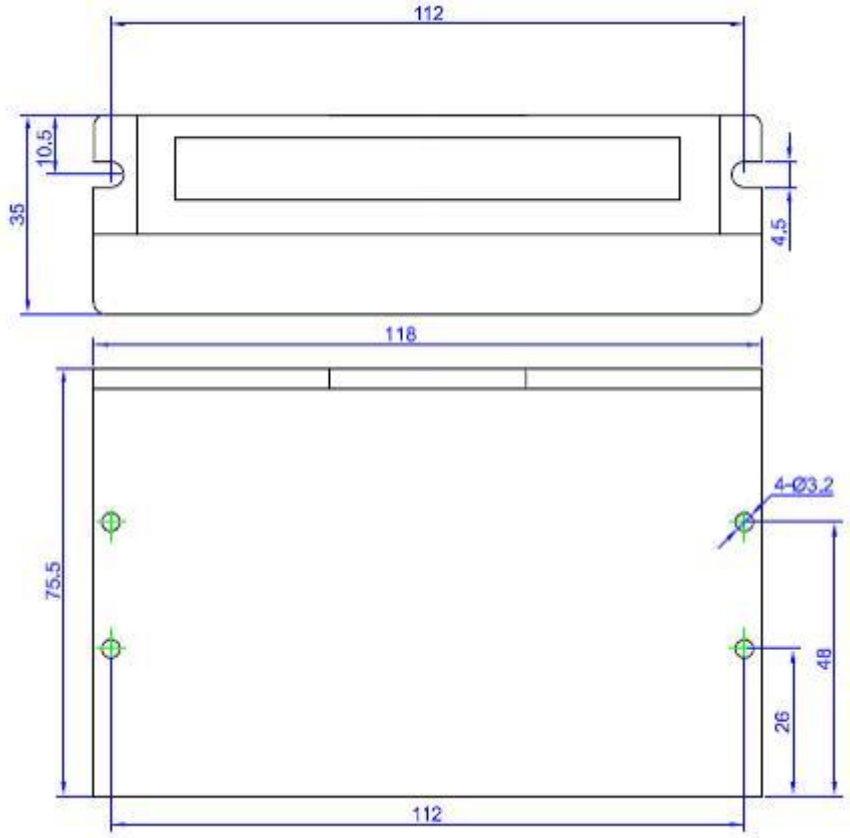
4) Semi-flow function:
Semi-flow function is that there is not step pulse after 500 ms, the driver output current automatically reduced to 70% of rated output current, which is used to prevent motor heat.

4. Pins of motor & power:

Motor and power pins	1	A+	Motors wiring	
	2	A-		
	3	B+		
	4	B-		
	5,6	DC+ DC-	Power supply	Power supply ：DC18-50VDC

5. Mechanical Specification:

To have 20mm of space around, cannot be placed next to other heating devices. Whats more, avoid dust, oil mist, corrosive gas, heavy humidity and high vibration.



6. Adjustment of troubleshooting

1) , the status on light’s indication

PWR: green, normal work light.

ALM: red, failure light, the motor with phase short-circuit, overvoltage and under-voltage protection.

2) Troubles

Alarm indicator	Reasons	Measures
LED off turn	Wrong connection for power	Check wiring of power
	Low-voltages for power	Enlarge voltage of power

Motor doesn't run, without holding torque	Wrong connection of stepper motor	Correct its wiring
	RESET signal is effective when offline	Make RESET ineffective
Motor doesn't run, but maintains holding torque	Without input pulse signal	Adjust PMW & signal level
Motor runs wrong direction	Wrong wires' connection	Change connection for any of 2 wires
	Wrong input direction signal	Change direction setting
Motor's holding torque is to o small	Too small relative to current set ting	Correct rated current setting
	Acceleration is too fast	Reduce the acceleration
	Motor stalls	Rule out mechanical failure
	Driver does not match with the motor	Change a suitable driver

7. Driver wiring

A complete stepper motor control system should contain stepper drives, DC power supply and controller (pulse source). The following is a typical system wiring diagram