

SyilTM

SUPER DRIVER

CNC STEPPER MOTOR DRIVER



Features

- * Power supply from DC 32V to 60V.
- * Auto half-current function—that means the output current of the driver will automatically decline to half if the stepper pulse pause over than 0.3s.
- * Forced shut down the output current by the FREE connector.
- * Driving current can be adjusted from 1.0A to 4.3A infinitely.
- * Phase origin and malfunction protection indicator.
- * All input / output are isolated by photocoupler.
- * 2, 4, 5, 10, 20, 25, 50, 100 subdivision are selectable.
- * Over-heat protection is integrated. When the driver is over-heat, it will shut down the output current. And when the temperature down to the normal level, it will recover to work automatically.
- * H bridge structure driver circuits just like the servo system are applied in the driver and so the performance of this stepper drive system is close to a servo system.
- * Perfect protect functions----When the power supply is lower than 30V, or the temperature of the shell is over than 80℃, the driver will shut down automatically and the **fault LED** will light.

Model explain

PD 2 06 4 M A 002

PD: stepper motor driver

SD: servo motor driver

2: two phase

3: three phase

5: five phase

06: MAX power supply is DC 60V

22: MAX power supply is AC220V

4: MAX drive current is 4.3A

8: MAX drive current is 8.6A

M: subdivision function

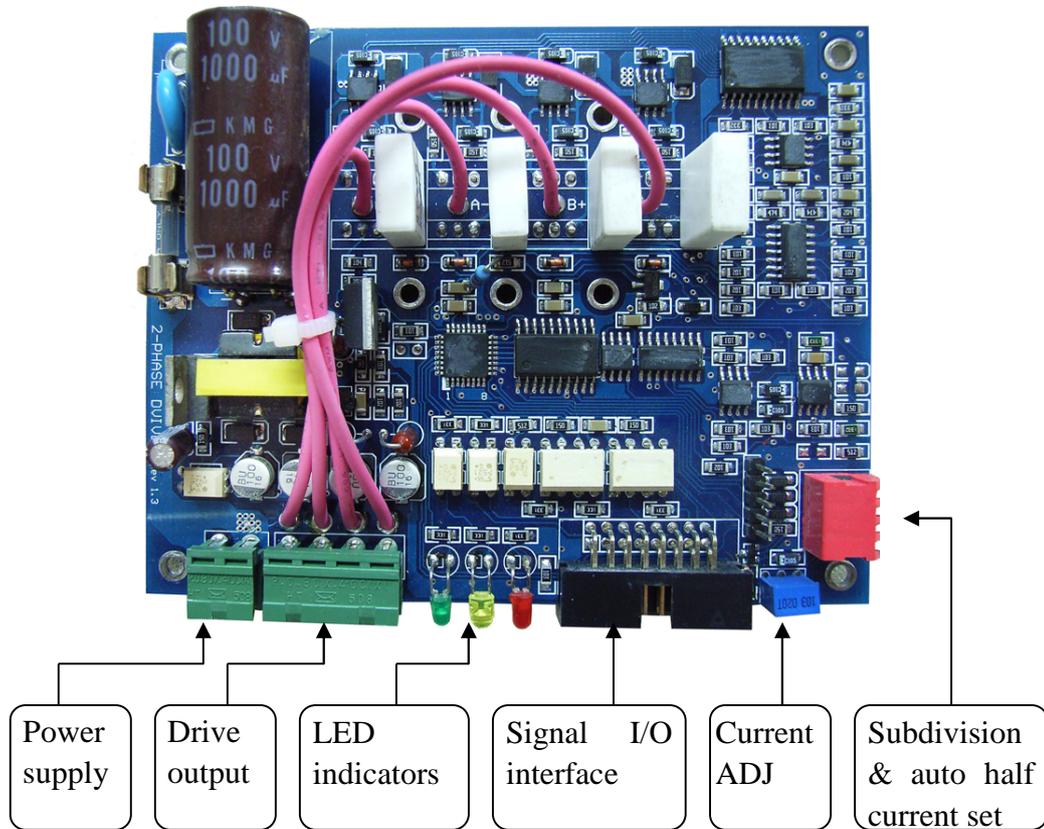
N: no subdivision function

A: A type subdivision

B: B type subdivision

Design sequence code

Interfaces



Subdivision set :

A type subdivision configuration:

division number	s2	s3	s4	steps per round (1.8 stepper as example)
2	ON	ON	ON	400
4	OFF	ON	ON	800
5	ON	OFF	ON	1000
10	OFF	OFF	ON	2000
20	ON	ON	OFF	4000
25	OFF	ON	OFF	5000
50	ON	OFF	OFF	10000
100	OFF	OFF	OFF	20000

!ATTENTION:

After resetting the subdivision, user must start the power supply again to make the operation efficient.

Please **DONOT** reset the subdivision when **POWER ON**, this maybe causes the driver malfunction. If the driver is under such state, please turn off and turn on the power, the driver will recover.

Auto half current set :

This driver contain the auto half current function. the output current of the driver will automatically decline to half if the stepper pulse pause over than 0.3s. When the next pulse come, the current will recover to the pre set value. This function can depress the thermal value both of the driver and stepper motor. When the drive current is in half state, the lock moment of force will come down too. In some apply situation, this is not permitted. So user can disable the function.

auto half current function	s1
able	OFF
disable	ON

NOTE:

The auto half current function is a real-time function. So user can set it when the driver is working.

Drive current adjust :

The driving current can be adjusted from 1.0A to 4.3A infinitely. The current will go down when clockwise rotate the adjustable resistor; and the current will go up when counter-clockwise rotate the adjustable resistor.

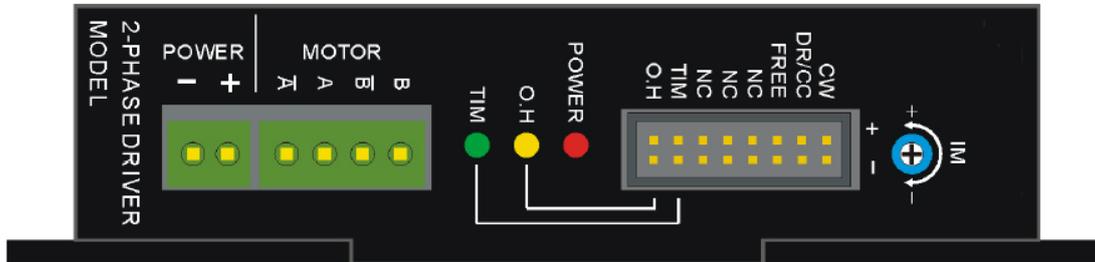
!ATTENTION:

Do not adjust the current value too high. High current will strengthen the moment of the stepper motor, but it will bring more thermal problem too.

Some stepper motor will have accurate subdivision angle just under a special drive current. Please adjust the drive current follow the stepper motor's specification.

wire suture :

all the I/O signals of the driver are isolated by photocouplers and each signal is isolated. So user can use the driver under different GND.

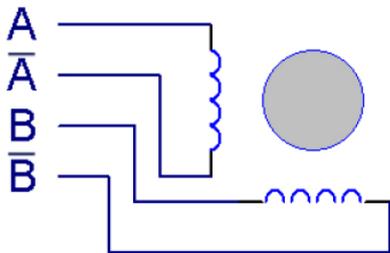


POWER

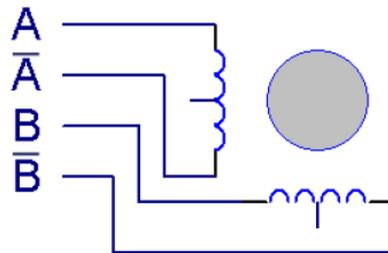
- * use DC32-60V and must pay attention to the polarity.
- * A filter capacitor of 3300uf is suitable for the power supply.
- * the output capacity of the power should up to 1.5 times of the drive current. If user is using a switch power supply, it should be over than 2 times.

STEPPER MOTOR

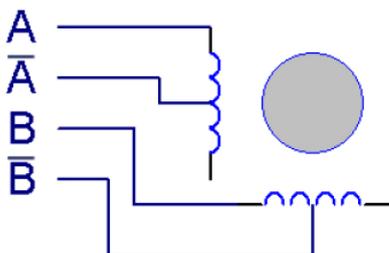
The driver is suitable for four wire or six wire motors. The wire suture as follows:



Wire suture for four wire motors



Wire suture for six wire motors with big moment of force



Wire suture for six wire motors with high speed

!!ATTENTION:

Make sure of the correction of wire connection before turn on the power. Fault connection maybe cause FUSE in the driver burn up. If this situation happens, please open the shell of the driver and replace a same FUSE.

Signal interface pins define :

CW:

Pulse signal input ----- input signals should accord the standard

DR / CC:

When driven by single pulse, it is direction signal input.

When driven by double pulse, it is reverse signal pulse.

----- input signals should accord the standard

FREE:

OFF-LINE signal input. When this signal is HIGH, the function is effective.

NC:

Not used pin

TIM:

Phase origin signal output

One cycle will output one pulse signal. The duty ratio is about 50%.

O. H:

Protection signal output.

LED indicators:

POWER (RED): POWER ON

O.H (YELLOW): PROTECTION OPRATED (synchronous with output O.H signal)

TIM (GREEN): PULSE INDICATOR (synchronous with output TIM signal)

IM:

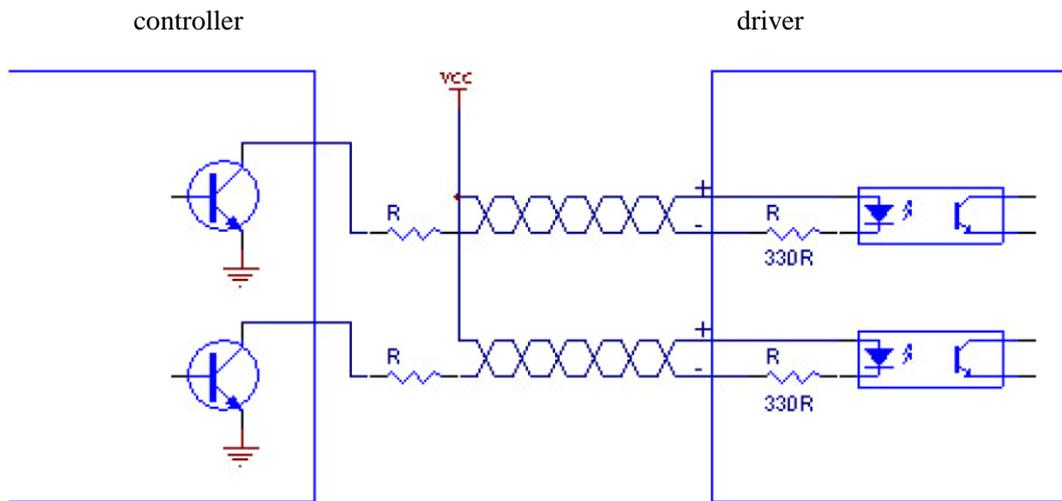
Drive current adjustable resistor

The current will go down when clockwise rotate the adjustable resistor; and the current will go up when counter-clockwise rotate the adjustable resistor.

Standard of I/O signals

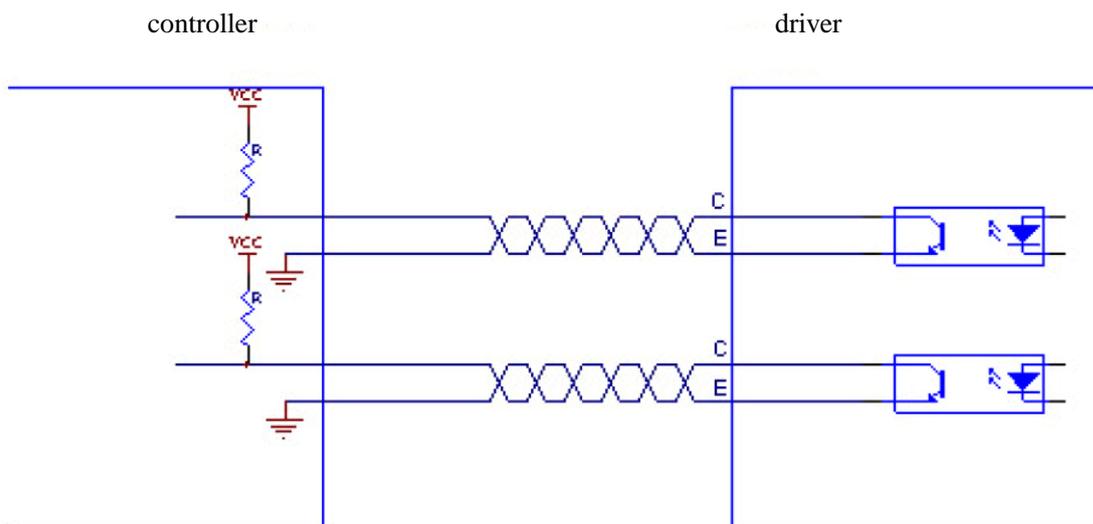
Input signal standard

- * The input signals are isolated by photocouplers and the input signal should provide the current of 6-20mA. And the input signal voltage is 5V.



Output signal standard

- * The output signals are isolated by photocouplers. The max drive capacity of the photocoupler in the driver is 10mA.



Standard of usage

Work environment

- * The driver can not be installed in the place containing metal dust in the air.
- * The driver can not be installed in the place with too much humidity. If the board are sopped, be sure to dry it completely before reuse it.
- * The driver can not be installed in the place with good heat sink condition to make sure it works stably.

Others

- * The power supply voltage must not be over than 60V.
- * Please connect the shell of the driver to GND.
- * This CNC driver is just suit for two phase stepper motors.
- * Please don't modify the circuit or change the elements of other standard.