



2-PHASE STEPPER MOTOR DRIVE



Dongguan ICAN Technology Co., Ltd

2 Phase digital stepper motor driver

2MD 320

Features

2MD320 2phase digital stepper motor driver is a cost-effective, high performance step drives. It can provide maximum current output of 2.0A. Both AC and DC power input are workable. The design is based on pure sine wave current control technology, and features high torque, low noise, and low vibration. The running current, micro step resolution and other parameters are switch selectable. 2MD320 can be matched for 28mm, 35mm, 49mm and 42mm 2 phase and 4 phase hybrid stepper motor.

Functional diagram



Electrical performance and environment indicators

Electrical Specifications

Parameter	Min	Typical	Max	Unit		
Input voltage	12	24	36	VDC		
Drive mode	Bipolar constant current chopping drive					
Insulating strength	>500v/min					
Weight	140g					

Environment Indicators

Heat Sinking Method	Natural cooling or fan-forced cooling
Atmosphere	Avoid dust, oily mist and corrosive air
Operating Temperature	0~40°C
Ambient Humidity	90% or less (non-condensing)
Storage Temperature	-10~70°C
Vibration Resistance	5.9m/s ² maximum

Dimension (Units: mm)







Standard wiring diagram of driver and controller signal

Connecting the motor

To change the direction of motor, customers only need to change the line sequence of Phase A or Phase B. Customer can select different modes of connection according to different user environment.





High torque output



A

High speed output

• 8 leads series motor



In series (High torque output)

In parallel (High speed output)

B+

B-

Function setting

Pulse input mode and pulse response mode setting

This driver only supports pulse& direction mode. By selecting jumpers inside the driver, the driver can support two response modes: (1) The pulse rising edge is valid. (2) the falling edge is valid.

1) Pulse rising edge is valid: Factory's default setting . Pulse voltage amplitude is 5V

(2) Pulse falling edge is valid: Factory sets as required by user. Pulse voltage amplitude is 5V

All setting should be done in driver power off state, otherwise it may cause driver failure or invalid setting.

If the input pulse voltage is greater than 5V, a current limiting resistor is required. (For example, 24V series 2K resistor as below)



Idle Current

If set the SW4 switch to ON, whenever the motor has not moved for over 0.1s second, the current is automatically reduced to 50% of its running value. If set the switch SW4 to OFF, it is full current mode. To minimize motor and drive heating it is highly recommended that the idle current reduction feature be set to 50% unless the application requires the higher setting

EN Input

When a high level voltage is input to EN, the motor would be free.

⚠ Do not input enable signal in vertical position. Otherwise, it would cause falling objects and mechanical damage.

Running current

The output current of the driver is set by the SW1, SW2 and SW3 switches and can be changed as necessary. There are 8 settings available according to the ON/OFF combination of the switches. Normally, the current is set the same with the motor rated current.

Current	SW1	SW2	SW3	
0.25A	OFF	OFF	OFF	
0.50A	ON	OFF	OFF	
0.75A	OFF	ON	OFF	
1.00A	ON	ON	OFF	
1.25A	OFF	OFF	ON	
1.50A	ON	OFF	ON	
1.75A	OFF	ON	ON	
2.00A	ON	ON	ON	

Microstepping

The microstep resolution is set by the SW5, SW6, SW7 switches. There are 8 settings.

Subdivision (Step/r)	Step Angle	SW5	SW6	SW7
200	1.8°	ON	ON	ON
400	0.900 °	OFF	ON	ON
800	0.450 °	ON	OFF	ON
1600	0.225 °	OFF	OFF	ON
3200	0.1125 °	ON	ON	OFF
6400	0.05625 °	OFF	ON	OFF
12800	0.028125 °	ON	OFF	OFF
25600	0.014063 °	OFF	OFF	OFF

LED Error Codes

LED	Motion status/Alarm
Flashing green	Normal
2 green, 2red circulation flashing	Over current
2 green, 3red circulation flashing	Open motor winding
2 green, 4red circulation flashing	Over voltage
2 green, 5red circulation flashing	Under voltage
Flashing red	Motor enabled

Turning on power is banned when driver hasn't been connected with motor, power positive and negative pole will ruin the driver.

Troubleshooting

Situation	Possible cause	Suggestion
	Motor is in EN status	Input a falling signal into the EN input.
	Wrong wiring	Check the wiring and make sure connection is right
	Output current is low	Set the switch to set suitable current
Motor disabled	Microstep resolution is low	Set the resolution higher
disubica	No pulse signal input	Make sure pulse signal input
	Input pulse signal is weak	Make sure the input signal voltage DC5-24V, 7-16mA
	CW and CCW signal are input simultaneously	Make sure the pulse input mode
	No power supply	Make sure power supply works
Motor motion S		Set the microstep resolution higher
is not smooth	External interference exists	Make sure the interference source and interference position
The amount of movement of the motor	Microstep resolution is not right	Set the right resolution
varies with the set value	Wrong wiring Output current is low Microstep resolution is low No pulse signal input Input pulse signal is weak CW and CCW signal are input simultaneously No power supply No Motor speed is in resonance zone cotion nooth External interference exists Microstep resolution is not right Output current is low Acceleration / deceleration time is too short Rated torque is low Start frequency is too high Current value is low Voltage value is low External interference exists	Set the switch to set suitable current
	Acceleration / deceleration time is too short	Set the Acceleration / deceleration time longer
	Rated torque is low	Select suitable motor
Motor out of	Start frequency is too high	set the frequency lower when start
step	Current value is low	Set the current higher
	Voltage value is low	Set the voltage higher
	External interference exists	Make sure the interference source and interference position

Recommended motor

2 phase hybrid nema 11 stepper motor







Model	Holding Torque(Nm)	Current/ phase(A)	Resistance (Ω)	Inductance (mH)	Diameter of axle X(mm)	Axial length L1(mm)	Motor Length L(mm)
28H2P3205A4	0.06	0.45	11	6.9	3	13.8	32
28H2P4509A6	0.075	0.95	3.4	1.2	5	19.8	45





2 phase hybrid nema 14 stepper motor



Model	Holding Torque(Nm)	Current/ phase(A)	Resistance (Ω)	Inductance (mH)	Diameter of axle X(mm)	Axial length M L1(mm)	lotor Length L(mm)
35H2P2803A4	0.11	0.3	40	1.6	5	21	28
35H2P2810A4	0.125	1.0	3.5	3.5	5	20	28







X_ ⁺⁰

2.6

 $22_{-40,052}$





Model	Holding Torque(Nm)	Current/ phase(A)	Resistance (Ω)	Inductance (mH)	Diameter of axle X(mm)	Axial length M L1(mm)	lotor Length L(mm)
42H2P3412A4	0.19	1.2	3.2	4.4	5	20.6	34
42H2P4010A4	0.35	1.0	5.7	9.0	5	20.6	40
42H2P4412A4	0.35	1.2	2.7	6.0	5	20.6	44
42H2P4812A4	0.45	1.2	3.2	6.0	5	20.6	48



After sale service

Warranty period

Dongguan ICAN Technology provides warranty for 1 year from the date of shipping.

Maintenance process

1) Get the maintenance permission

2) Ship the package to the following address: 4/F, Block B, RuiLian Zhenxing Industrial Park, Wanjiang District, Dongguan City, Guangdong Province Tel: 86-0769-22327568

Return policy

1. After use or man-made damage condition (etc, wrong wiring), no return

2. ICAN Technology guarantees the product quality, but product incompatibility is not in the return or maintain condition.

3. Customers don't use the products under the specified electrical performance and environment indicators, no maintain condition



Dongguan ICAN Technology Co., Ltd

Add:4/F, Block B, RuiLian Zhenxing Industrial Park, Wanjiang District, Dongguan City, Guangdong Province, China Tel: 086-0769- 22327568 Fax:086-0769- 22327578 Website: ican-tech.en.alibaba.com



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