HARDWARE-CNC

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CL-D507E

Closed loop stepper driver

User manual

Index

一、Installation

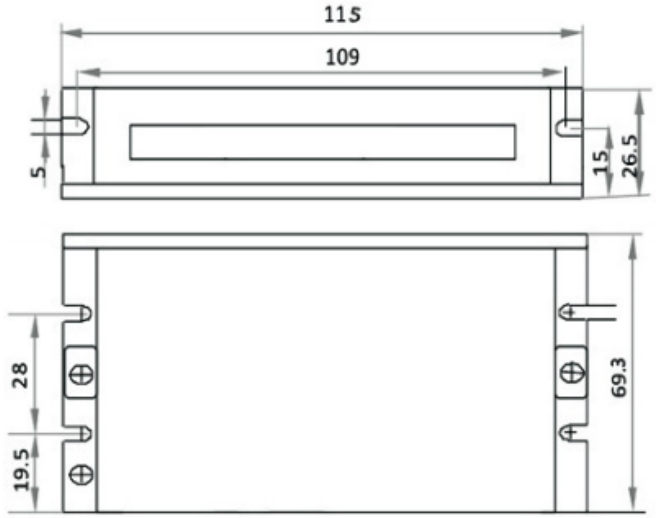
1、Electrical Specifications

·Voltage input range: DC: 20V~50V (36V and above recommended)
·Maximum output current: 7A
·Pulse form: pulse + direction, CW/CCW
·Logic input current: 10~20mA
·Pulse response frequency: 0~200kHz
·Insulation resistance: 500M

2、Environmental indicators

·Storage temperature: -20℃～80℃
·Operating temperature: 0℃～55℃
·Operating humidity: 90%RH (non-condensing)
·Vibration frequency: less than 0.5G (4.9m/s2) 10Hz～60Hz (non-continuous operation)

3、Installation dimensions (unit: mm)



二、wiring

1、Driver Terminal Description

1）Power Terminal Definition

No.	symbol	Function Definition
1	U	Motor power line terminal Wiring color see label on motor
2	V	
3	W	
5	+VDC	DC power input terminal It is recommended to connect to DC 36V or above
6	GND	

2）Driver control terminal definition

PIN	symbol	Specication
1	PUL+	Pulse input positive
2	PUL-	Pulse input negative
3	DIR+	Direction input positive
4	DIR-	Direction input negative
5	ENA+	Enable input positive

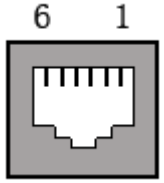
PIN	symbol	Specication
6	ENA-	Enable input negative
7	ALM+	Alarm output positive
8	ALM-	Alarm output negative

3）Definition of driver encoder terminals

No.	symbol	Color	Specication
1	EB+	Yellow	Encoder B signal positive
2	EB-	Green	Encoder B signal negative
3	EA+	Black	Encoder A signal positive
4	EA-	Blue	Encoder A signal negative
5	VCC	Red	Encoder +5V input
6	EGND	White	Encoder power ground

3）Definition of driver communication terminals

PIN	symbol	Sign
1	NC	Undefined
2	GND	Signal ground
3	TXD	RS232 transmitter
4	RXD	RS232 receiver
5	GND	Signal ground
6	+5V	Power positive

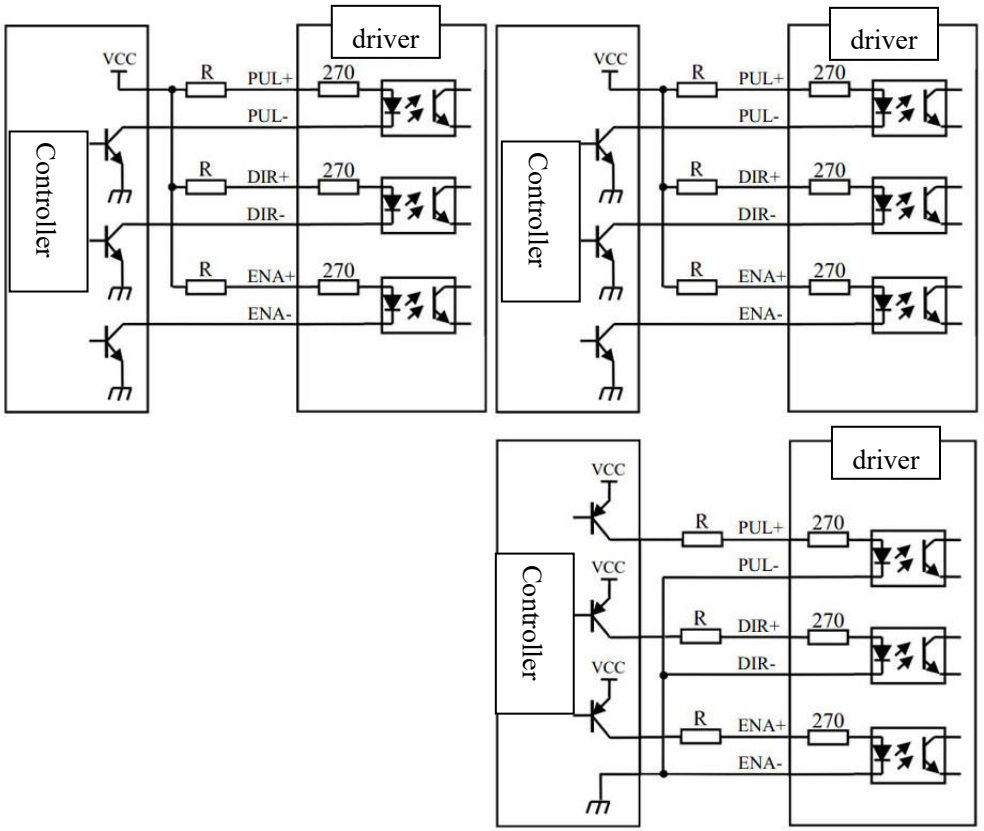


Driver and computer communication line connection method

Computer end (9-pin female connector)		Driver end (6-pin crystal connector)
3 TXD	———	4 RXD
2 RXD	———	3 TXD

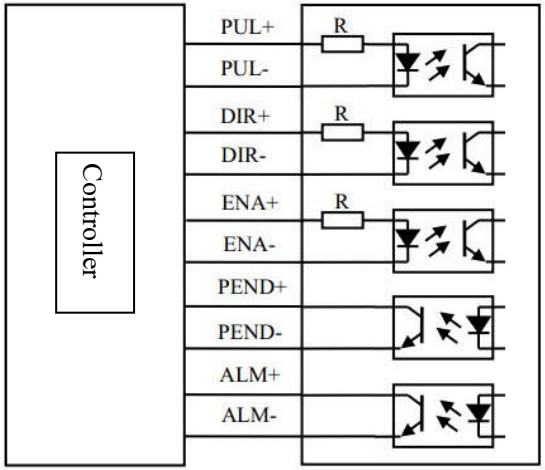
5 GND	5 GND

2、Control port wiring method



Picture/2 Common anode connection

Picture/3 Common cathode connection



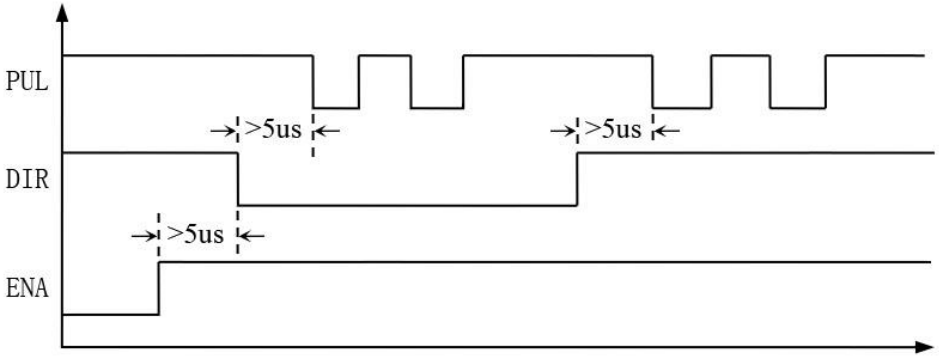
Picture/4 Differential signal input and output signal connection method

Note:

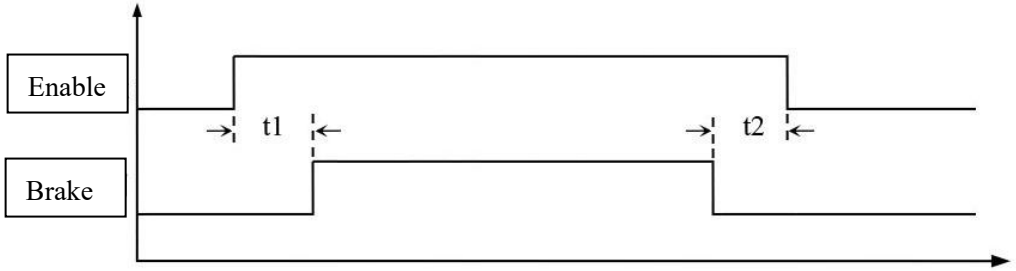
When the control signal voltage VCC = 24V, the current limiting resistor R = 2K;

When the control signal voltage VCC = 5V, the current limiting resistor R = 0;

3、Control signal timing diagram



Picture/5 Control signal timing diagram



Picture/6 Motor brake signal control timing diagram

Note:

t1: Brake delay opening time

t2: Brake delay closing time

三、DIP switch setting

The current of this series of drivers is automatically adjusted, so there is no need to manually set the current. The corresponding functions of the DIP switches are as follows:

·SW1~SW4: Set the driver subdivision (see the subdivision table on the driver housing for details);

·SW5: Set the motor direction;

·SW6: Select the working mode;

Parameter settings

Common parameters are shown in the table below:

Parameter number	Parameter Description	Setting range	Remark
PA-000	Current loop proportional gain P	1～32767	
PA-001	Current loop integral gain I	1～32767	
PA-002	Position loop proportional gain P	1～32767	
PA-003	Position loop integral gain P	1～32767	
PA-004	Speed loop high speed proportional gain P	1～32767	
PA-005	Speed loop feedforward	1～32767	
PA-006	Number of given pulses per revolution	200～32767	Pulse/rev
PA-007	Number of pulses per revolution of encoder	200～32767	Pulse/rev
PA-008	Position tracking error threshold	10～32767	Pulse
PA-009	Maximum value of low-speed vibration resistance speed	1～40	
PA-011	Percentage of holding current	1～100	
PA-012	Percentage of open-loop current	1～100	

PA-013	Percentage of closed-loop current	1～100	
PA-014	Vibration resistance coefficient	0～32767	
PA-015	Input filter switch	0～1	1：With filtering
PA-016	Input filter time	0～32767	us
PA-017	Enable level selection	0～1	1：The optocoupler is not conducting to enable
PA-018	Fault output selection	0～1	
PA-019	Low speed vibration resistance coefficient	0～2000	
PA-020	Pulse input mode selection	0～65535	

For more parameters, please refer to the user manual of the simple debugger.

Note: The parameters can be adjusted through the additional debugging board or PC host debugging software. For debugging board adjustment methods, please refer to the user manual of the simple debugger. For software adjustment methods, please refer to the software help instructions.