

MCAC806 Digital AC Servo Drive Manual

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1 Overview

MCAC706 is designed and manufactured using DSP vector control, closed loop servo drives with low-cost and all-digital AC. It includes three adjustable feedback loop control which are position loop, speed loop and current loop. It has stable performance which suitable for driving voltages between 48V and 80V, and the power below 400W AC servo motor.

2 Characteristics

2.1 More than one kinds of pulse input mode

Pulse + direction

CW / CCW double pulse

A / B phase pulse

2.2 Servo reset input interface optocoupler isolation ERC

2.3 Current loop bandwidth: (-3dB) 2KHz (the typical value)

2.4 Speed loop bandwidth: 500Hz (the typical value)

2.5 Position loop bandwidth: 200Hz (the typical value)

2.6 Motor encoder inputs upright post :differential input (26LS32)

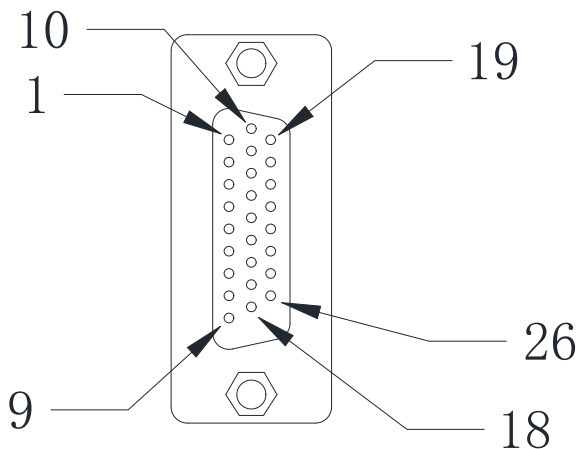
2.7 RS232C interface parameters available to download via PC or text display

2.8 Overcurrent, I2T, overvoltage, undervoltage, Overtemperature, speeding, over-differential protection

2.9 The green light indicates running and the red light indicates that the protection or offline

3 Ports Description and definition

3.1 Digital AC Servo Driver I/O

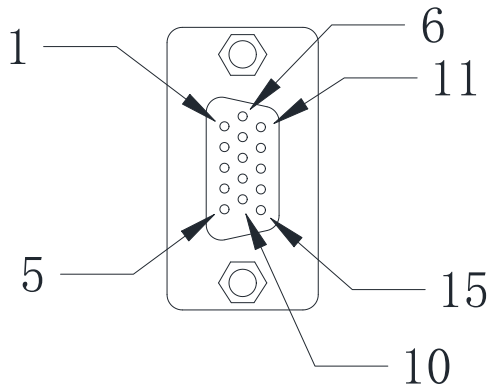


Terminal No.	Sign	Name	Description
1	ENA+	Enable positive input	High level 4 ~ 5V effective
2	ENA-	Enable negative input	Low level 0 ~ 0.5V effective
3	PUL+	Positive input pulse	High level 4 ~ 5V effective

4	PUL-	Negative input pulse	Low level 0 ~ 0.5V effective
5	DIR+	The direction of the positive input	High level 4 ~ 5V effective
6	DIR-	The direction of the negative input	Low level 0 ~ 0.5V effective
7	FL	Result	
8	RL	Result	
9	SGND	output power ground	
10	PEND+	Place positive output	Output current 20mA
11	PEND-	Place negative output	
12	ALM+	Alarm positive output	Output current 20mA
13	ALM-	Alarm negative output	
14	REF+	Result	
15	REF-	Result	
16	NC	Result	
17	FG	Result	
18	SGND	Power ground	

19	+5V	Power	
20	EA+	A-phase Encoder positive input	differential input
21	EA-	A-phase Encoder negative input	differential input
22	EB+	B-phase Encoder positive input	differential input
23	EB-	B-phase Encoder negative input	differential input
24	EZ+	Z-phase Encoder positive input	differential input
25	EZ-	Z-phase Encoder negative input	differential input
26	SGND	Power ground	

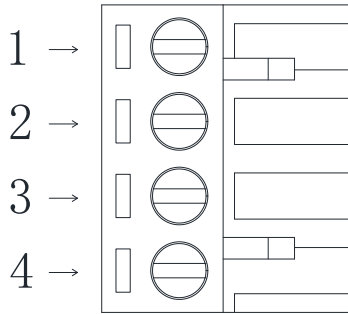
3.2 HALL&Encoder (D15 female)



Terminal No.	Sign	Name	Description
1	PA+	A-phase Encoder positive input	
2	PB+	B-phase Encoder positive input	
3	GND	Output power ground	
4	PW+	W-phase pole positive input	Single-side connection
5	PU+	U-phase pole positive input	Single-side connection
6	Mask		
7	PZ+	Z-phase Encoder positive input	
8	PZ-	Z-phase Encoder negative input	
9	PV+	V-phase pole positive input	Single-side connection
10	NC		
11	PA-	A-phase Encoder negative input	
12	PB-	B-phase Encoder negative input	
13	VCC	Output power	50mA

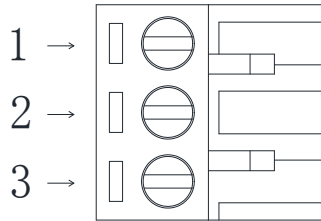
14	NC		
15	NC		

3.3 Motor line port



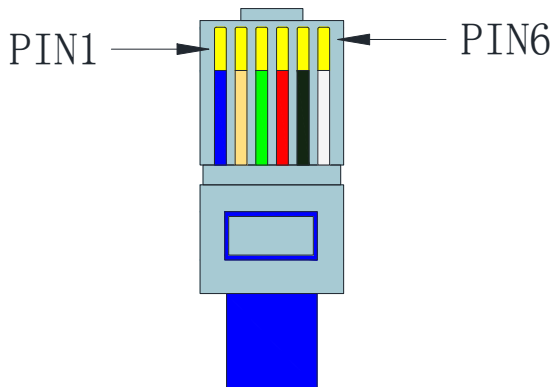
Terminal No.	Sign	Name	Description
1	W	Motor W side	
2	V	Motor V side	
3	U	Motor U side	
4	PE	Grounding	

3.4 Power port



Terminal No.	Sign	Description
1	GND	DC ground
2	VDC	DC 36~80V
3	Rbrake	NC

3.5 The definition Crystal Head Connection

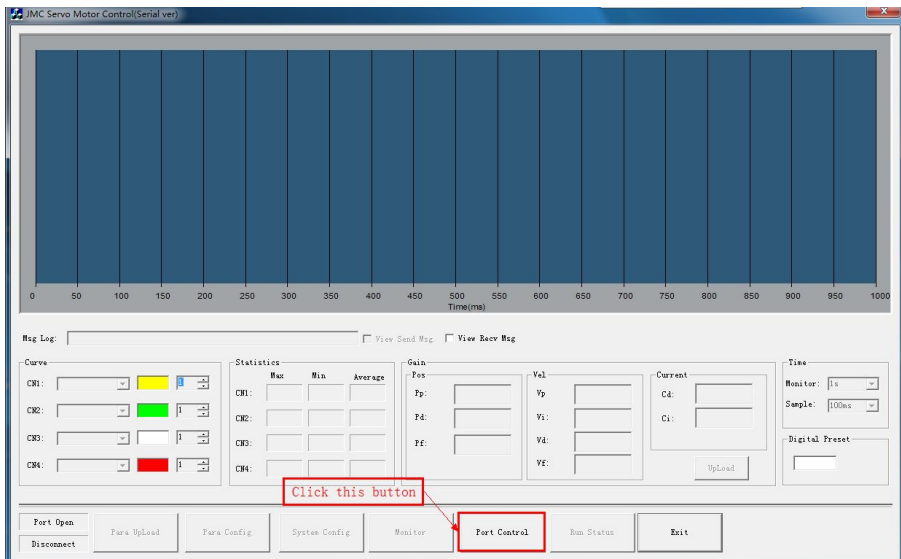


Pin No.	Definition
PIN1	TXD
PIN2	RXD
PIN3	NC
PIN4	NC
PIN5	NC
PIN6	GND

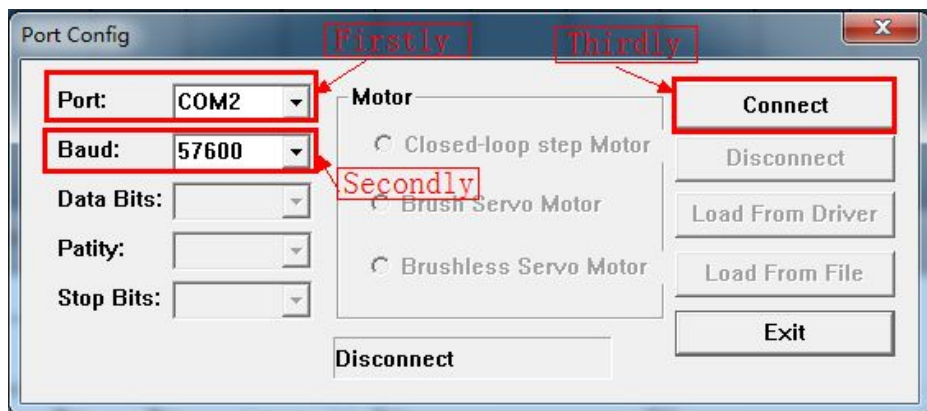
4 Parameter adjustment and setting of the servo system

MCAC806 parameter modification step

Select **MCAC806** communication-specific software, double-click to open the following diagram:



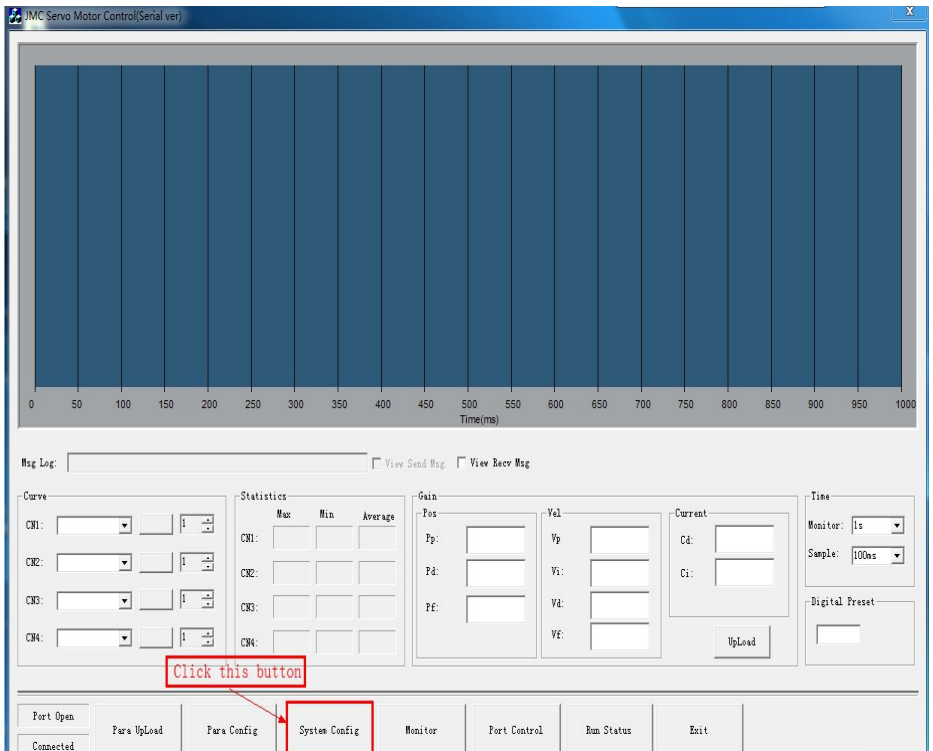
In the dialog box, select the corresponding communication COM port, baud rate is set to 57600, in point connection operating below:



Click on the link in, there is connected shown in the dialog box below:



If the connection is failed , make sure that the COM port is selected right, drive to work again to retry;Exit communication settings:



Select System Settings, then data of the software is initial status, no data;

系统设置

Motor/Encoder

Line:

Motor:

Electronic gear

Molecular:

Denominator:

Control Mode

Pos Control Vel Control

Torque Control

Input

Pluse

Digital

Ramp enable

Singal

Pluse+Dir

Pluse+CW Dir

Dipulse

dipulse+CW Dir

Mode 2

Servo Control: Internal Control External Control

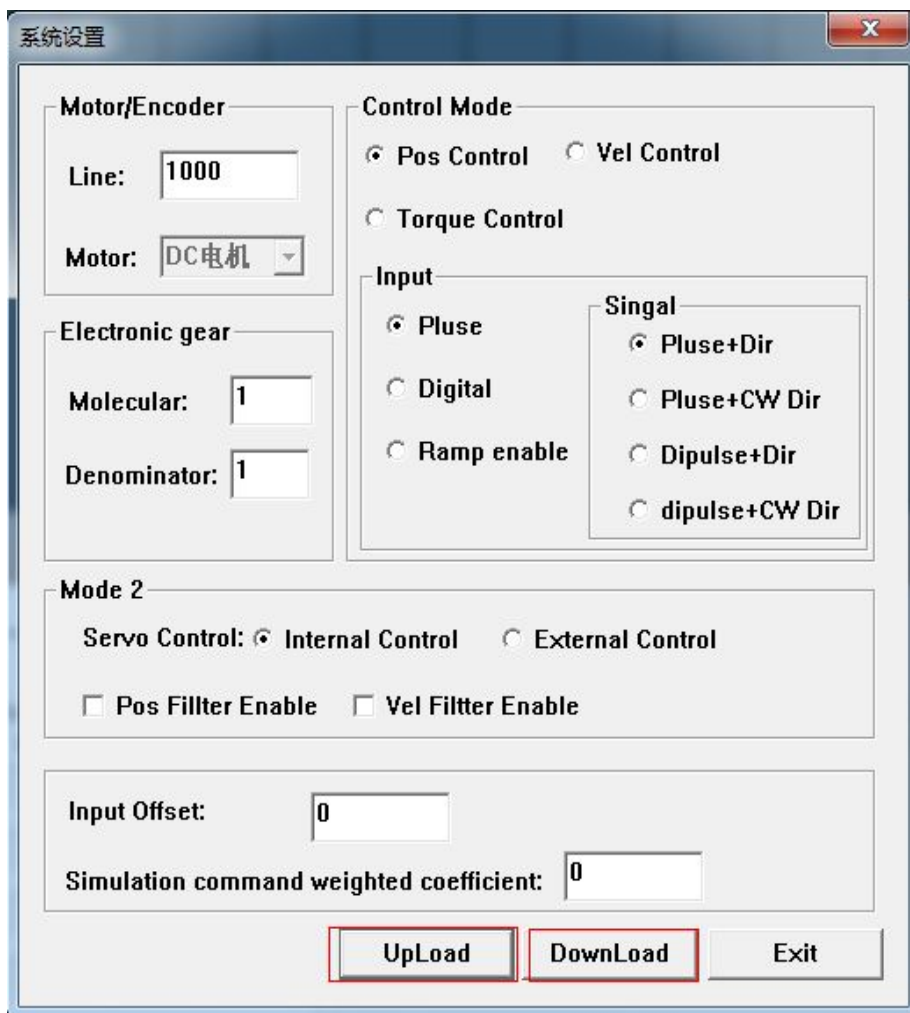
Pos Filter Enable Vel Filter Enable

Input Offset:

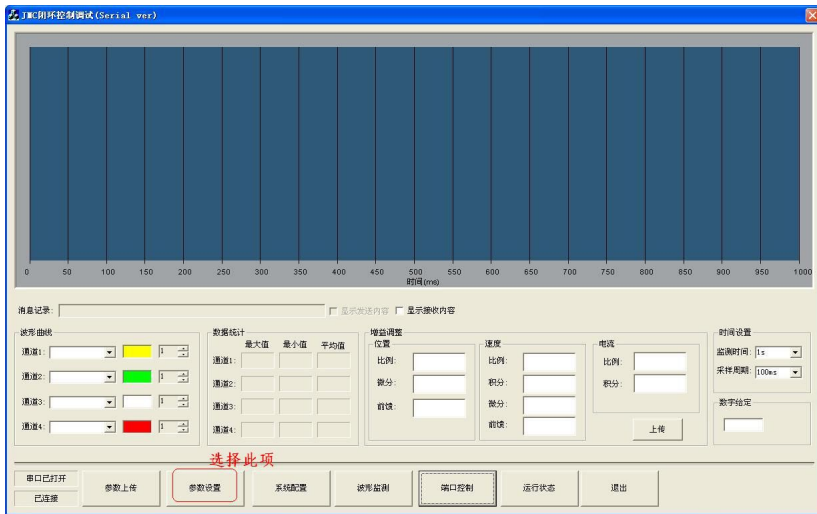
Simulation command weighted coefficient:

UpLoad DownLoad Exit

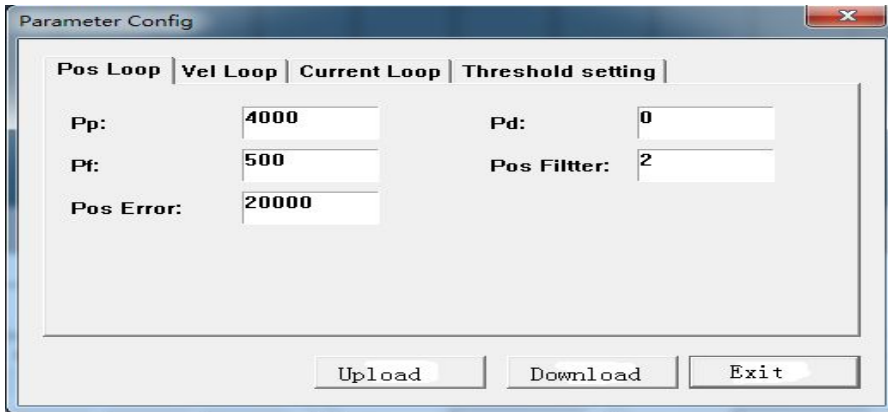
Click Upload, you can put the drive parameters are displayed, if need a parameter, enter a value, or use the mouse to select items, click "download" button, then the parameter update to the drive, in the attempt to upload, you can check the data whether the update was successful as shown:



Exit interface, select the parameter settings as shown below:



Pop-up parameter setting dialog box, the parameter settings according to upload → modify → Download → upload step, four main items position loop, velocity loop, current loop, threshold setting requires a single download, click to download individual effective as shown below:



Parameter Config

Pos Loop | **Vel Loop** | Current Loop | Threshold setting

Vp:	6000	Continuous Vel:	0
Vi:	500	Vel Limit:	16383
Vd:	0	Acc:	255
Aff:	0	Dec:	255
Vel Filter:	7		

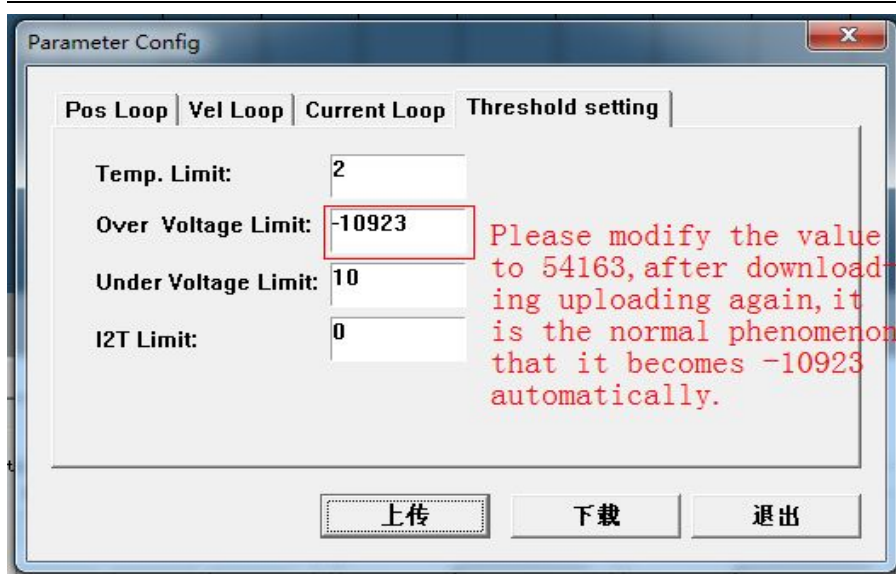
Upload Download Exit

Parameter Config

Pos Loop | Vel Loop | **Current Loop** | Threshold setting

Cp:	2000	Continuous Current:	3000
Ci:	500	Limit Current:	4000

Upload Download Exit



The above picture is only for reference, in case of doubt, please contact JMC after-sales Services!

* **Note:** The parameter may need to be increased or decreased based on the different mechanical structure.

5 Technical indicators

5.1 DC input voltage range 36 ~ 80V (48V typical)

5.2 200W continuous output power

5.3 Continuous output current 6A 32KHz PWM

5.4 Overload output current 18A (3 seconds)

5.5 Protection:

Action value over current peak $30A \pm 10\%$

Overload I²t current action value 300% 5S

Overheating action value 80 °C

85V overvoltage voltage action value

Action value 18V voltage undervoltage

5.6 Maximum pulse input frequency 300K

5.7 Default communication speed 9.6Kbps (requires additional interface converter)

5.8 Use of the environment:

Occasions: Avoid dust, oil mist and corrosive gases

Working temperature: 0 ~ +50 °C

Storage temperature: -20 °C ~ +80 °C

Humidity: 40 ~ 90% RH

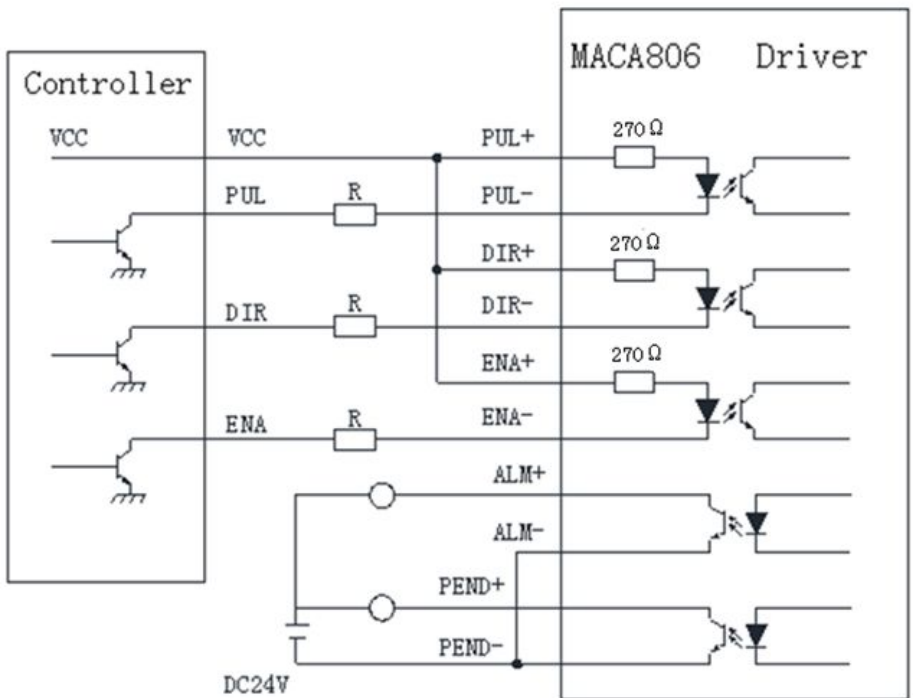
Cooling: Natural cooling or forced air cooling

5.9 Overall dimensions 171 × 99 × 44

5.10 Weight about 550 grams

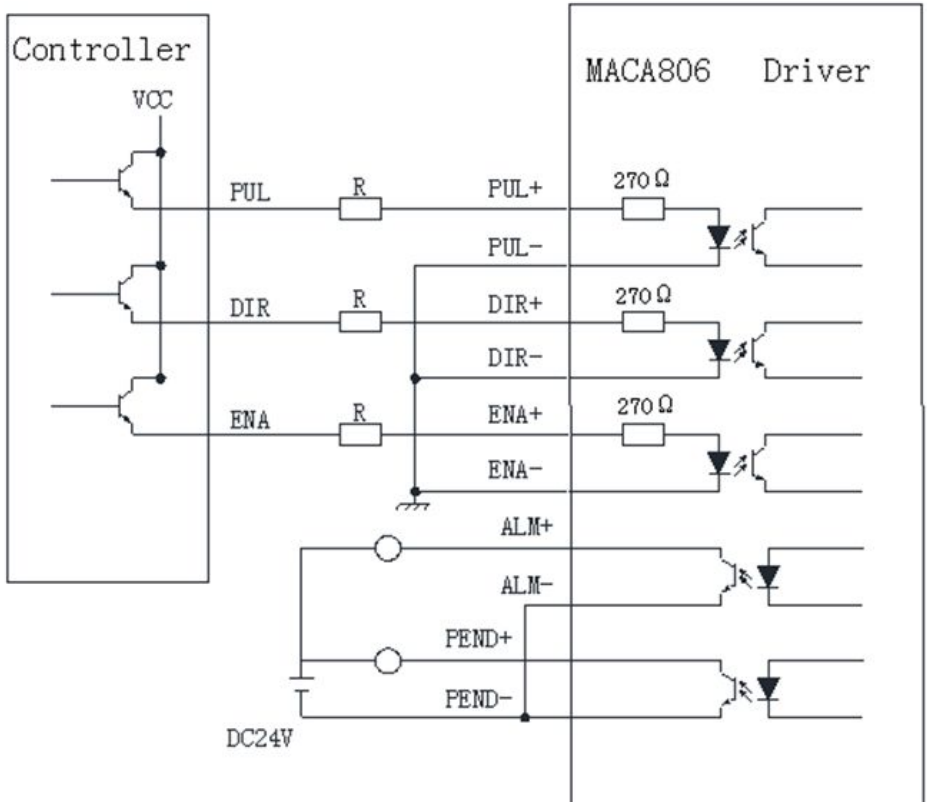
6 Control signal connection

6.1 Control signals using a single-ended signal common anode connection, as shown below:



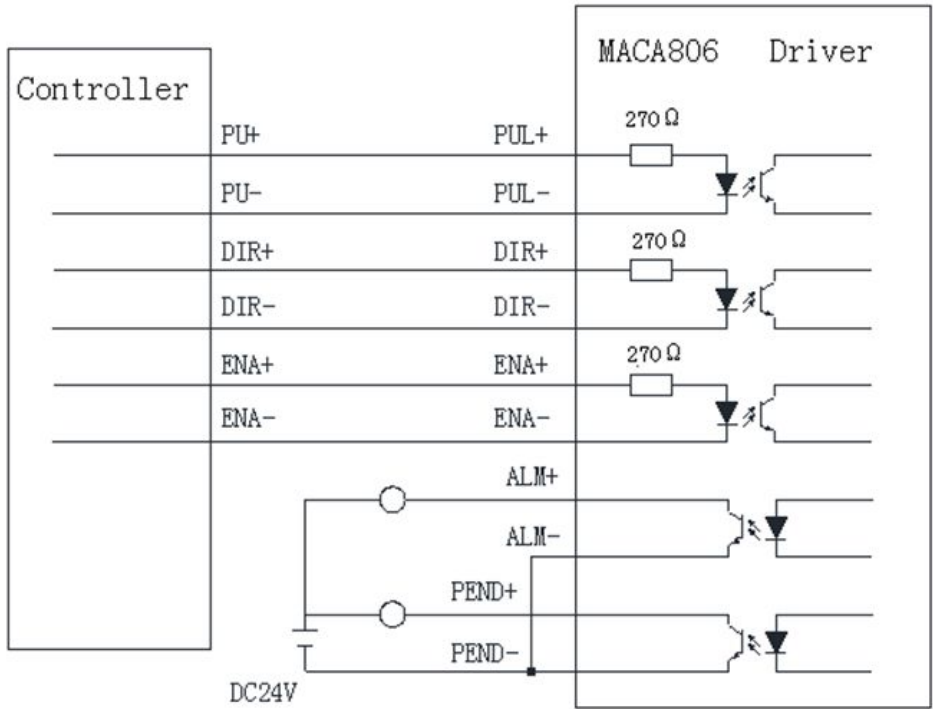
Note: When VCC is 5V, R shorted;
 When VCC is 12V, R is 1K, more than 0.125W resistance;
 VCC is 24V, R is 2K, 0.125W greater resistance;
 Above resistance must be connected to the control signal terminal.

6.2 Control signals using a single-ended signal common cathode wiring, as shown below:

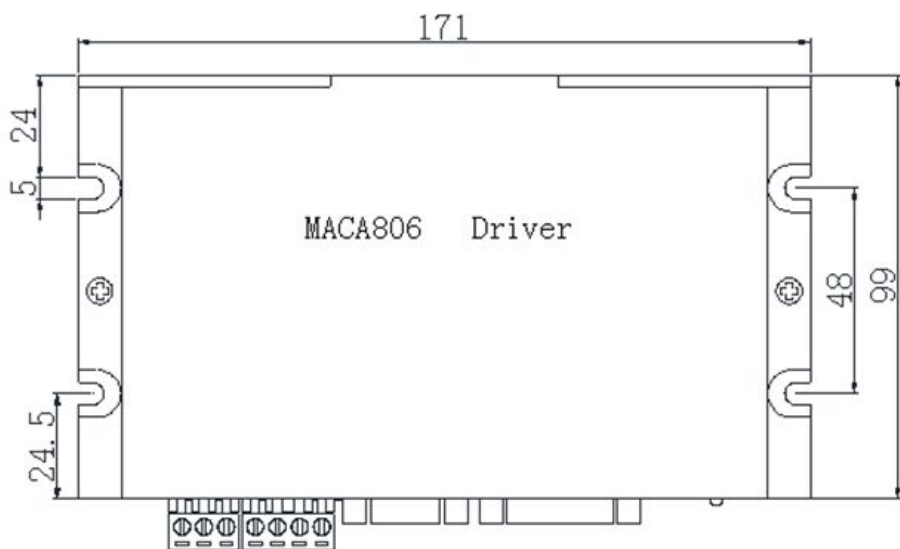
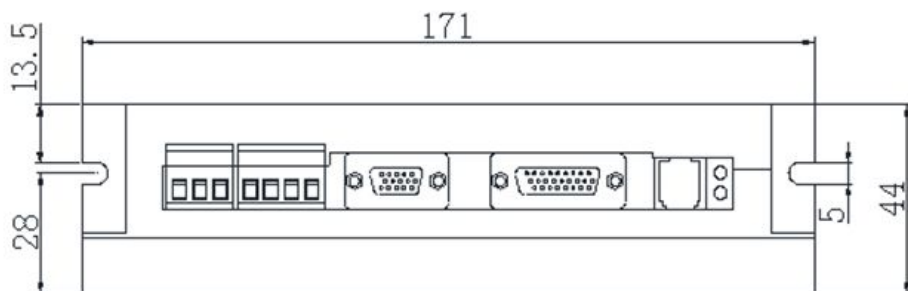


Note: When VCC is 5V, R shorted;
When VCC is 12V, R is 1K, more than 0.125W resistance;
VCC is 24V, R is 2K, 0.125W greater resistance;
Above resistance must be connected to the control signal terminal.

6.3 Differential control signal wiring, wiring diagram is shown below:



7 Dimensions



8 Connection

The driver can provide +5 V, maximum 80mA of power to the encoder. Four-octave counting mode, the encoder resolution is multiplied by four the number of pulses per servo motor revolution.

