CHONG YI
TECHNOLOGY

CYLMCM4CV12
Control Card Hardware

Instruction Manual

Beijing Chongyi Technology Co., Ltd.

Content

Preface

Beijing Chongyi Technology Co., Ltd. (CY Tech) is an advanced technology enterprise dedicated to the research, development and application of laser scanning systems. Since its establishment, the company has always focused on providing cutting-edge laser marking, laser cleaning, laser welding software systems and professional technical solutions to global customers. So far, the company has successfully applied for a number of copyright and patent certificates related to laser scanning software. As an enterprise with technology as its core, CY Tech has assembled a R&D team composed of a group of senior engineers and industry experts. Not only are they proficient in various laser scanning technologies and their applications, but they are also able to keenly capture market trends and customer needs and provide tailor-made solutions.

In the field of laser marking, CY Tech has developed a number of efficient and stable software systems. These software systems can be widely used in surface treatment of metals, non-metals, semiconductors and other materials to achieve precise and rapid marking. At the same time, the company also provides customers with one-stop services such as marking effect optimization and material adaptability testing to ensure that customers' products are competitive in the market.

For laser cleaning, CY Tech's R&D team broke through the bottleneck of traditional cleaning technology and developed an efficient and environmentally friendly laser cleaning software system. This system can be widely used for surface cleaning of

various materials, such as metal, plastic, glass, etc., solving various cleaning problems for customers.

What's more, we are also engage in laser welding's R&D, CY Tech also has rich experience and technology accumulation. The laser welding software system developed by the company has the characteristics of high precision, high speed and high stability, and can be widely used in automobile manufacturing, aerospace, electronics manufacturing and other industries.

In addition to providing software systems, CY Tech also provides customers with a full range of technical support and services. The company has a professional pre-sales team and after-sales team that can provide customers with timely and effective technical support and after-sales services. At the same time, the company also provides training and guidance to customers to help them better apply and maintain software systems. The company has strong R&D capabilities and a professional technical team to provide customers with high-quality and reliable technical services. If you need software systems and technical support for laser marking, laser cleaning, laser welding, etc., please contact us!

Security Information

1. Please read this section carefully before using the CYLMCM4CV12 control card. This product is a system used to control stepper motors. If you have any questions, please contact our company in time.

2. Please prevent the board from being damaged by moisture, dust, corrosion, and impact from foreign objects. When storing and using the board, please avoid damage by electromagnetic fields and static electricity.

3. Before starting the wiring, you need to carefully read the interface definition and instructions, and perform wiring according to the instructions to avoid damage to the board and peripherals.

4. When using it with other boards of our company, you need to read the instructions for use of the stepper motor related parts of the board.

1. CM4 Core Board Circular Control Marking Card Hardware Connection Instructions

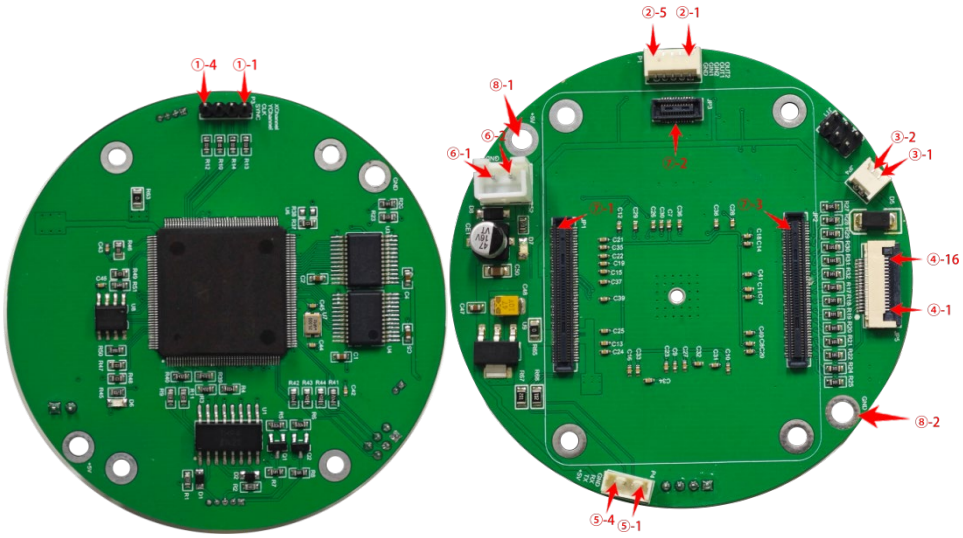


Figure 1-(1) Control card interface labeling diagram

No.	Terminal	Functions	Cables order
①	Galvo head interface	Output galvo head control signal	①-1: the X axis, ①-2: the Y axis, ①-3: CLK, ①-4: SYNC See Table 1-(4) for details
②	Input and output interface	Receive external signals or send signals externally	②-1: GOUT1, ②-2: GOUT2, ②-3: GIN1, ②-4: GIN2, ②-5: GND
③	Laser source interface 1	Used to output laser control signals	See Table 1-(5) for details
④	Laser source interface 2	Used to output laser control signals	See Table 1-(6) for details

⑤	Serial port	Serial communication with external devices	⑤-1: GND, ⑤-2: RX, ⑤-3: TX, ⑤-4: 5V
⑥	Port power supply	Provide power to the system	⑥-1: GND, ⑥-2: +5V
⑦	Core board interface	The connection between the host computer and the control board	
⑧	Stud powered	Provide power to the system	⑧-1: +5V, ⑧-2: GND

Table 1-(1) External interface definition

1.1 Power Supply

The control card can use 5V power supply. It is recommended to choose 2A DC power supply. It has two power supply methods. Directly connect to the 5V power supply through terminal ⑥ or other equipment can provide 5V power supply to the control card through stud ⑧

1.2 Serial Port

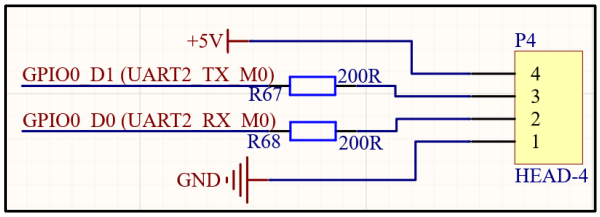


Figure 1-(2) Serial port pin definition diagram

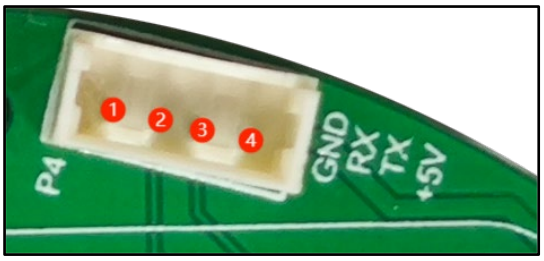


Figure 1-(3) Physical screenshot of the serial port interface

(Note: The TX interface is connected to the TX of the external device, and the RX interface is connected to the RX of the external device.)

Pin	Name	Note
1	GND	Connected to digital ground
2	RXD0	Receive data
3	TXD0	Send data
4	+5V	Provide +5V power

Table 1-(2)

1.3 Input and Output Interface

Port	Mode	Function
GIN1	Default	GIN1 and GND short contact trigger marking
GIN2	NONE	GIN2 input is invalid
	LIFT TO STOP	Shorting GIN2 and GND allows laser marking; GIN2 is disconnected from GND, and GIN1 trigger marking is invalid; During the marking process, GIN2 and GND are disconnected and marking stops.
	PRESS TO STOP	During the marking process, GIN2 and GND are short-circuited, and both laser marking and red-light preview stop.
GOUT1	Default	Output level signals to the outside world. After clicking on power on, red light or marking in the main interface, a high-level signal will be output; after clicking on power off or entering standby mode (see software description), the level will be pulled down.
GOUT2	Check the end signal	The level is pulled low before marking starts, pulled high after marking is completed, and the high level continues for a period of time and then pulled low. The high-level duration is set by software. In this mode, the level of GOUT2 is not affected by power-off and power-on states.
	Check the end signal	GOUT2 and GOUT1 output signals are synchronized

Table 1-(3)

1.4 Galvo Head Control

The galvo head control signal is a digital signal, and the four galvo head control signals are all single-ended outputs.

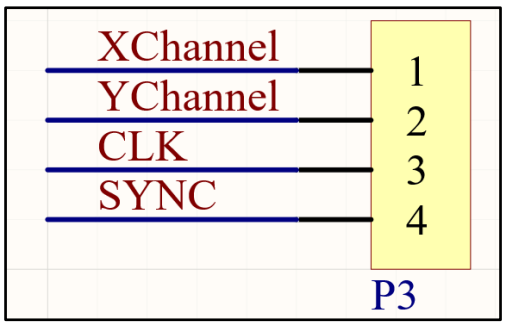


Figure 1-(4) Schematic diagram of galvo head pin definition

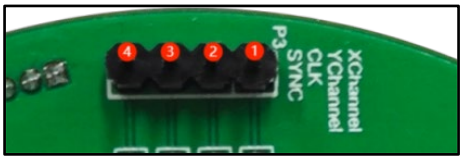


Figure 1-(5) Actual screenshots of the galvo head interface

Pin	Name	Note
1	X CHANNEL	Galvo head X-axis data channel
2	Y CHANNEL	Galvo head Y-axis data channel
3	CLK	Galvo head synchronized clock
4	SYNC	Galvo head synchronized signal

Table 1-(4)

1.5 Laser Source Interface 1

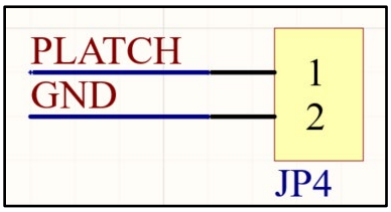


Figure 1-(6) Schematic diagram of laser interface 1 pin definition

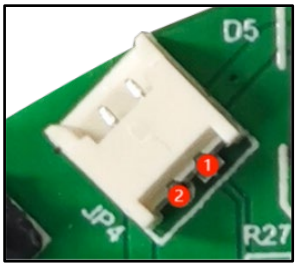


Figure 1-(7) Physical screenshot of the laser interface 1 part

1.6 Laser Source Interface 2

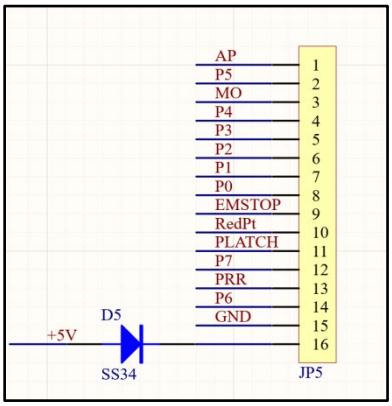


Figure 1-(8) Laser interface 2 pin definition diagram

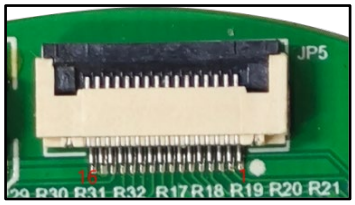


Figure 1-(9) Physical screenshot of 2 parts of the laser interface

Laser interface pin 2	Name	Note
11	PLATCH	PWM Signal
15	GND	GND Signal

1.6.1 Fiber Laser Pin Description

Pin	Name	Note
8、7、6、5、4、2、14、12	P0~P7	Laser power value
11	PLATCH	Laser power value latch signal
16	+5V	+5V power supply
3	MO	Main oscillator on
1	AP	Modulator on
13	PRR	Laser repetition pulse frequency
10	Red Pt	Auxiliary infrared laser
9	EMSTOP	Emergency stop
15	GND	Digitally

Table 1-(6)

1.6.2 CO2 Glass Tube Pin Description

Pin	Name	Note
11	PLATCH	Switch Signal
2	P5	PWM Signal
15	GND	GND Signal

Table 1-(7)

1.6.3 Pump Laser Pin Description

Pin	Name	Note
11	PLATCH	Switch Signal
2	P5	PWM Signal
15	GND	GND Signal

Table 1-(8)

1.6.4 CO2 RF Tube Pin Description

Pin	Name	Note
13	PRR	PWM Signal
15	GND	GND Signal

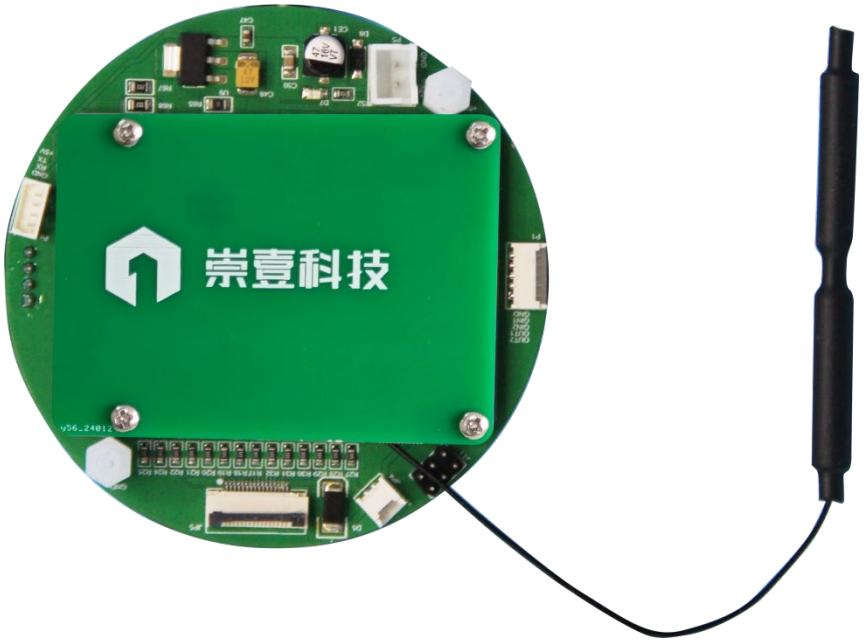
Table 1-(9)

2. Main Functions of the Control Card

The CYLMCM4CV12 control card can be used for laser marking and has a smaller size. The CYLMCM4CV12 control card can support fiber laser, CO2 laser, UV laser and other types of lasers.

- With marking function
- Comes with Bluetooth and WIFI modules for Bluetooth and network communication
- One serial port for serial communication
- Can be directly connected to RF tube CO2 laser
- 2 inputs and 2 outputs
- Support multiple laser types

3. Physical Picture of the Control Card



If any questions, please be free to contact us. Thank you.

Company: Beijing Chongyi Technology Co., Ltd.

E-Mail: sales01@bjchongyi.com

Web.: www.vipcylaser.com

We chat: chongyi0201

Whats app: +86 185 1158 5382

Address: Room 9001, 9th Floor, Building 2, No. 10, Baifuquan Road, Science & Technology Park, Changping District, Beijing, China