CHONG YI TECHNOLOGY

CYSTECV12
Control Card

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 CYSTECV12 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.
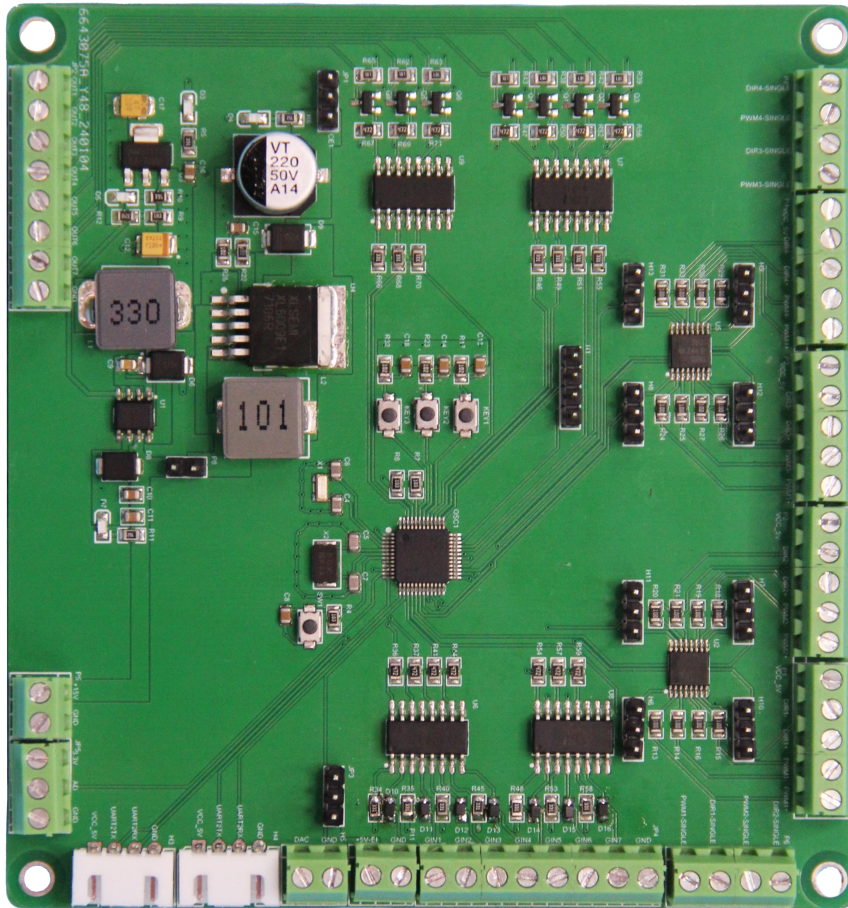
1. Products Pictures

Figure 1-1 Actual picture of CYSTECV12 board

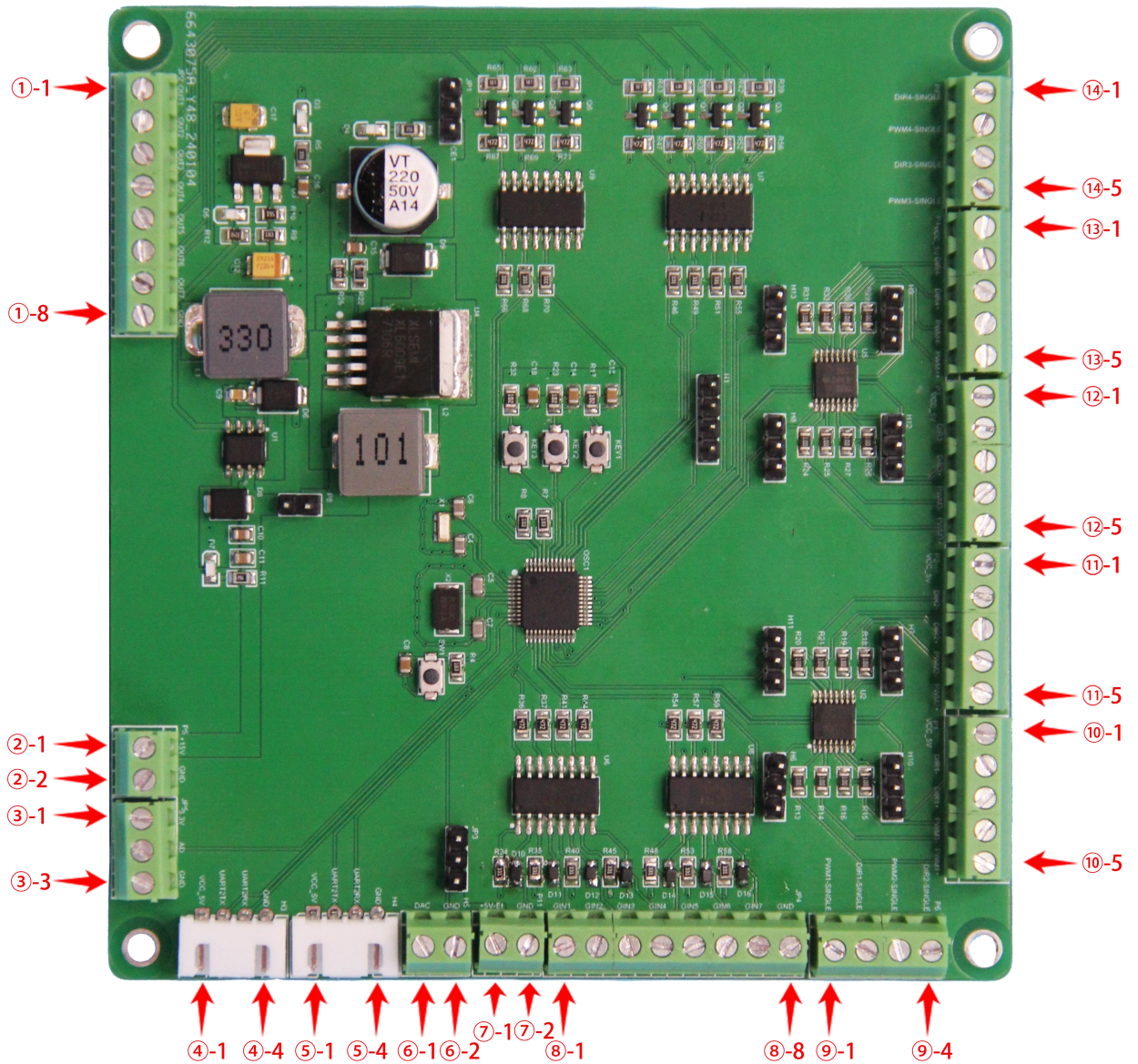# 2. Cables Definitions and Descriptions

Figure 2-1 Control card interface labeling diagram (1)

External interface definition

No.	Terminal	Functions	Cables order
①	5V/24V output	Can output 5V/24V voltage externally	①-1 to ①-7: OUT1 to OUT7，①-8: GND
②	15V power supply	Provide 15V power to the system	②-1: +15V，②-2: GND
③	AD Input	Convert external input analog quantity to digital quantity	③-1: 3.3v ③-2: AD ③-3: GND
④	Serial interface	Serial communication	④-1: VCC, ④-2: Pin TX, ④-3: Pin RX, ④-4: GND
⑤	Serial interface	Serial communication	⑤-1: VCC，⑤-2: Pin TX ⑤-3: Pin RX, ⑤-4: GND
⑥	DA output	Output analog quantity	⑥-1: Pin DAC, ⑥-2: GND
⑦	External 5V power supply	Input detection external power supply	⑦-1: +5V-EI external 5V input, ⑦-2: GND
⑧	External input	Connect external entity buttons to control the stepper motor. GIN1 controls the forward rotation of stepper motor 1, GIN2 controls the reverse rotation of stepper motor 1, GIN3 controls the forward rotation of stepper motor 2, and GIN4 controls the reverse rotation of stepper motor 2, GIN5 controls the forward rotation of the stepper motor 3, and GIN6 controls the reverse rotation of the stepper motor 3. Two control methods can be realized: double-click to start and stop, and long-press to start and release to stop.	⑧-1to ⑧-7:GIN1-GIN7，⑧-8: GND
⑨	Stepper motor 1	Control stepper motor 1	⑨-1: a single-ended

	and 2 control interface	(single-ended) and stepper motor 2 (single-ended)	PWM1 signal, ⑨-2: a single-ended DIR1 signal, ⑨-3: a single-ended PWM2 signal, ⑨-4: a single-ended DIR2 signal.
⑩	Stepper motor 1 control interface	Control stepper motor 1 (differential)	⑩-1： differential PWM1+ signal, ⑩-2: differential PWM1- signal, ⑩-3: differential DIR1+ signal, ⑩-4: differential DIR1- signal, ⑩-5: 5V power supply
⑪	Stepper motor 2 control interface	Control stepper motor 2 (differential)	⑪-1: differential PWM2+ signal, ⑪-2: differential PWM2- signal, ⑪-3: differential DIR2+ signal, ⑪-4: differential DIR2- signal, ⑪-5: 5V power supply
⑫	Stepper motor 3 control interface	Control stepper motor 3 (differential)	⑫-1: differential PWM3+ signal, ⑫-2: differential PWM3- signal, ⑫-3: differential DIR3+ signal, ⑫-4: differential DIR3- signal, ⑫-5: 5V power supply
⑬	Stepper motor 4 control interface	Control stepper motor 4 (differential)	⑬-1: differential PWM4+ signal, ⑬-2: differential PWM4- signal, ⑬-3: the differential DIR4+

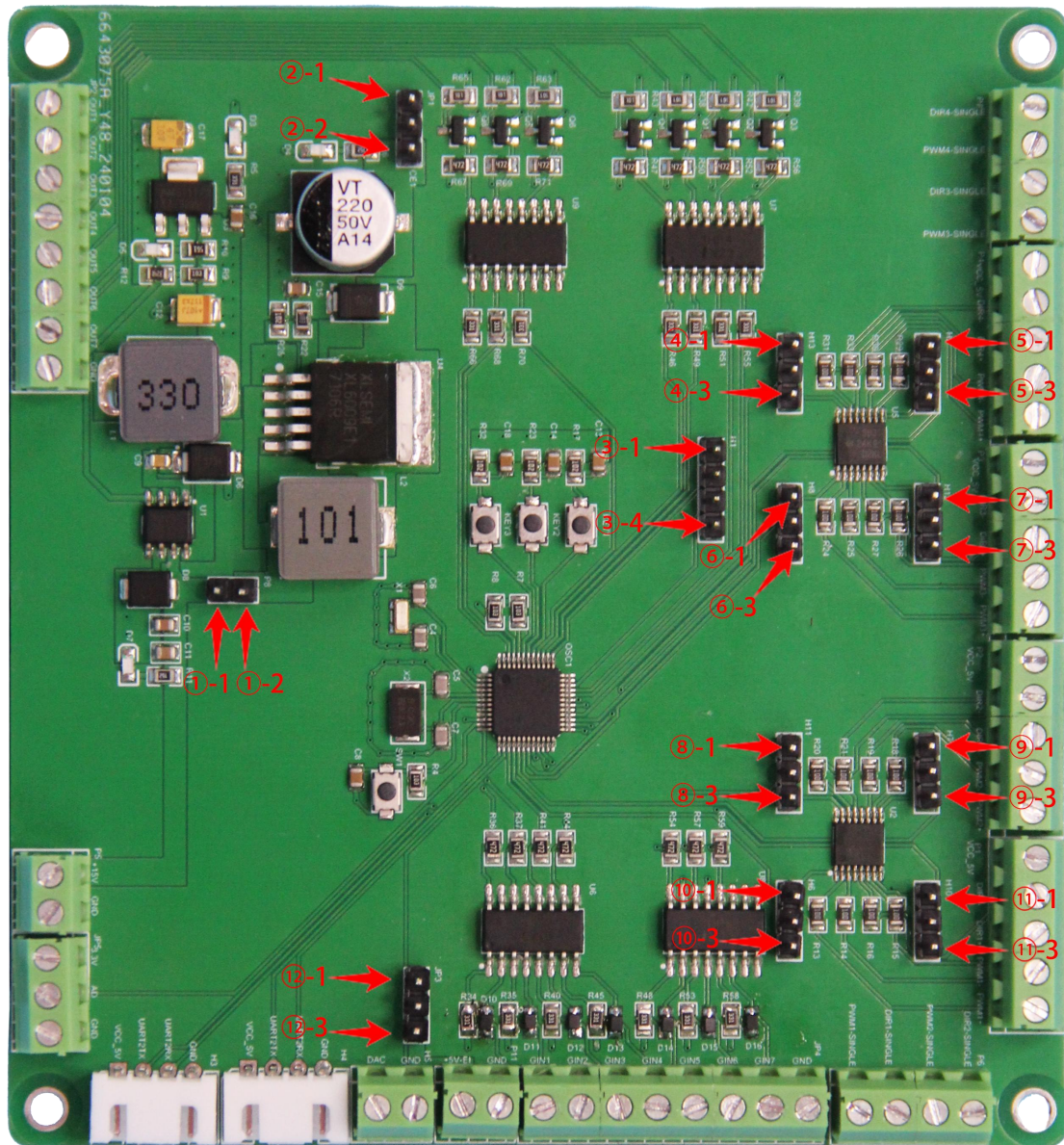|			signal, ⑬-4: the differential DIR4-signal, ⑬-5: the 5V power supply
⑭	Stepper motor 3 and 4 control interface	Control stepper motor 3 (single-ended) and stepper motor 4 (single-ended)	⑭-1: single-ended PWM3 signal, ⑭-2: single-ended DIR3 signal, ⑭-3: single-ended PWM4 signal, ⑭-4: single-ended DIR4 signal

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Figure 2-2 Control card interface labeling diagram (2)

Internal terminal definition:

No.	Terminal	Functions	Cables order
①	Boost terminal	Provide 24V voltage for external output	①-1 and ①-2 jumpers are short-circuited to provide 24V external output voltage.
②	Switch 1	Switching of external output 5V voltage or 24V voltage	The jumper cap is connected to ②-1 and ②-2 to output 5V voltage, and the jumper

			cap is connected to ②-3 and ②-2 to output 24V voltage.
③	Program interface	Program download interface	③-1: 3.3V， ③-2: SWCLK， ③-3: SWDIO， ③-4: GND
④	Stepper motor 4	Switch PWM4 single-ended output or differential output	Connect ④-1 to ④-2 for single-ended output, connect ④-3 to ④-2 for differential output.
⑤	Stepper motor 4	Switch DIR4 single-ended output or differential output	Connect ⑤-1 to ⑤-2 for single-ended output, and connect ⑤-3 to ⑤-2 for differential output.
⑥	Stepper motor 3	Switch PWM3 single-ended output or differential output	Connect ⑥-1 to ⑥-2 for differential output, connect ⑥-3 to ⑥-2 for single-ended output.
⑦	Stepper motor 3	Switch DIR3 single-ended output or differential output	Connect ⑦-1 to ⑦-2 for differential output, connect ⑦-3 to ⑦-2 for single-ended output.
⑧	Stepper motor 2	Switch PWM2 single-ended output or differential output	Connect ⑧-1 to ⑧-2 for single-ended output, and connect ⑧-3 to ⑧-2 for differential output.
⑨	Stepper motor 2	Switch DIR2 single-ended output or differential output	Connect ⑨-1 to ⑨-2 for single-ended output, connect ⑨-3 to ⑨-2 for differential output.
⑩	Stepper motor 1	Switch PWM1 single-ended output or differential output	Connect ⑩-1 to ⑩-2 for differential output, connect ⑩-3 to ⑩-2 for single-ended output.
⑪	Stepper motor 1	Switch DIR1 single-ended output or differential output	Connect ⑪-1 to ⑪-2 for differential output, connect ⑪-3 to ⑪-2 for single-ended output.
⑫	Switch 2	Select the source of the 5V voltage at the input detection terminal	⑫-1 is internal 5V, ⑫-3 is external 5V, ⑫-1 and ⑫-2 are short-circuited to use

			internal 5V, ⑫-2 and ⑫-3 are short-circuited to use external 5V

3. Main Functions

CYSTECV12 control card is used to control multiple stepper motors. It can be controlled through serial port protocol instructions and used with the company's CYLMBPV10, CYLMOPV10, CYLMBPV12, CYLMOPV12, CYLMBPV22, CYLMOPV22, CYLMOPV30 and other boards.

● Control 4-way stepper motors and support single-ended and differential methods

● 7 pulse outputs, the pulse output time can be set and the output voltage can be switched between 5V or 24V

● 7-channel input control, with buttons to control the operation and termination of stepper motors

● Two-way serial communication

● One way AD conversion

Note:

This product supports secondary development. We can provide a serial communication protocol for controlling stepper motors, which can control the subdivision parameters, acceleration (deceleration) speed ratio, control axis radius, moving distance, acceleration, deceleration and maximum of the stepper motor. Parameters such as speed can be modified to control single or multiple stepper motors through serial communication.

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

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