

Platform motion control card QLC-420CUT hardware wiring manual V220520

catal ogue

I. Introduction to platform control card	3
2. Hardware interface description	5
1. 24V power input	5
2. status lamp	5
3. Motor control port (Driver1-4)	6
4. Extreme signal port (1-4)	7
5. Input port	8
6. output port	9
7. Laser Control Interface Description (LASER) 1	'0
8. A_OUT Analog output port	11
9. EtherNET Network port	11
10. EtherCAT Bus expansion ports	'2
3. Common problems and handling 1	13

I. Introduction to platform control card



QLC-420 control card is a high-end platform control card independently developed by Qianli Intelligence / using powerful CPU computing, mainly used in platforms with multi-axis motion and laser processing applications.

Using dual-core ARM CPU computing, super computing power, very short servo cycle, suitable for high speed, high precision digital control; configuration of large memory, can handle large data at one time, very suitable for the vibration mirror control system with large data throughput;

Using 100/ 1000M Ethernet, no need to install drivers, the control system can run independently, not affected by the failure of the industrial computer, the machine tool equipment system motion is more stable;

Main interface description:

- Power supply: 24V power supply, it is recommended to be powered by independent power supply/isolated from input and output;
- 2. Status indicator: indicates whether the power supply of the

controller is normal, whether there is an alarm, and whether the system is normal;

3. 16 path input /16 path output: the input is compatible with NPN and PNP types, high and low levels can be switched through the common terminal, the output is a Darlington tube, low level is effective, and the load capacity is strong; 4. 1 LASER fiber laser interface: output 5V or 24V PWM modulation signal, can be controlled

Manufacturing of general lasers such as CO2, ultraviolet, green light and picosecond;

5. 4 motion axis control and independent limit interface: support 4 points with encoder shaft, interpolation and other movements

Control, support linear motor, servo motor, stepper motor, etc.; 4 independent positive, negative, origin limit signals for the axis, compatible with NPN, PNP type photoelectric switch;

6. 1 EtherNET network port: Gigabit network port, which can be connected to the upper computer quickly and stably, and can run offline;

7. 1 EtherCAT port: expand axis control and 10 through EtherCAT bus; 8. 216-bit \pm 10V analog signal output, which can be used to control the power of the laser, etc.;

9. 1 RS232 serial port: supports communication extension to touch screen or other devices.

2. Hardware interface description

Warning: Do not plug or unplug with power on! Otherwise, the board may be damaged! The loss caused by this is borne by the user!

1. 24V power input



Power supply 24V current is not less than 1A, please pay attention to the direction and order!

Suggestion: Use a separate 24V power supply to ensure that the board power supply is isolated from input and output.

Pin	Name	Explain
1	+24V	+24V input, current greater than 1A
2	GND	+24V input ground
3	PG	The shell is large (do not recommend connecting)

2. status lamp



PWR ALM RUN

PWR: 24V power supply state, the green light is always on, the power supply is normal, if not, please check the 24V power signal

ALM: alarm signal light, this light does not indicate no fault, but indicates system fault

RUN: Run the signal light. After power on, it will blink for about 20s. If the system starts normally, it will blink; otherwise, there is a fault

3. Motor control port (Driver1-4)



Pin	Name	Explain
1,9	PUL+/PUL-	Pulse signal output
2, 10	DIR+/DIR-	Pulse direction signal output
3, 11	A+/A-	Encoder A+/ Encoder A-
4, 12	B+/B-	Encoder B+/encoder B-
5,13	Z+/Z-	Encoder Z+/encoder Z-
6	SON	The driver outputs the enable signal
7	CLR	Remove the driver alarm signal output
8	OVCC	External supply 24V power output
14	ALM	Driver alarm signal input
15	OGND	External supply 24V, power ground

4. Extreme signal ports (1-4)



Pin	Name	Explain
1	LIM-1+	Positive limit signal
2	LIM-1-	Negative limit limit signal
3	HOME1	Zero point limit signal
4	COM1	common port

Note: The number in the name is the axis number; it is compatible with PNP and NPN photoelectric switches by using the COM public end as a level reference.

5. Input port



1 1 1 1	Name	Explain
0-15	INO-15	Input signal O to signal 15

Note: High and low levels are switched as reference levels through IN-COM to P24V or N24V.

6. output port







Pin	Name	Explain
0-15	OUT0-15	Output signal O to signal 15, low
		level is valid
		P24V input must be connected to
OVCC	Power is positive	
		form a circuit with 10
	The power supply is	N24V input must be connected to
OGND		
	negative	form a circuit with IO

Note: The output is NPN Darlington tube output, low level effective, the load can directly drive three-color lights, electromagnetic valves within 500mA, etc., for loads exceeding, please add a relay transfer. It is recommended that OVCC and OGND use a separate 24V power supply powered by independent board power supply to ensure that the board power supply and output are isolated from each other.

7. Laser control interface description (LASER)

lead	meaning	Introduction
1043	PWM_24V+⇔	24V · modulation · PWM · signal output +
114	PWM_5V+⇔	5V · modulation · PWM signal output +
1-843	LOUT1-84	24V · high effective output
124	GND₽	External Supply · 24v · Power Source
134	GND⇔	External Supply 24v · Power Source
14、150	1DAC, 2DAC∉	2. Road analog voltage
9⇔	OGND⇔	External Supply 24 V - Power Source

Note: LOUT1-8 output is 24V high level output, the maximum load current of each channel is 0.5A;

11 And 12 groups form a circuit for laser state detection;

 $PWM_$ 24V+ and $PWM_$ 5V+, for simultaneous output signals, please connect the corresponding line according to the type of laser;

8A_OUT Analog output port



Pin	Name	Expl ai n
		Control card RS232, receiving
2	RXDO	
		signal end
		Control card RS232, signal
3	TXDO	
		sending end
5	GND	Grounding feet
6	1DAC+	Analog output 1
8	2DAC+	Analog output 2
1, 9	OGND	Analog output location
4,7		Hang in the air

9EtherNET Network port

According to TCP/IP protocol, the real-time data can be transmitted safely, reliably and quickly with the upper computer software; the default IP address of this controller is: 192.6.6.6

10EtherCAT Bus expansion ports

Supports EtherCAT protocol to extend axis control or IO.

Currently adapted to:

ServoTronix High creation: CDHD series 1, CDHD2 second generation driver;

Copley Xenus Plus: XEL series;

Hiwin D1 Bus series;

Gongdu Sichuang EtherCAT bus driver;

Panasonic Panasonic: A6B_EtherCAT;

Inovance Huichuan: SV630N series;

Wuhan Maixin: EP3E series;

Note: The Ethercat function needs to be supported. It is not included by default. Please order the E series when ordering. Other manufacturers are not suitable for it yet. Please provide the adaptation test in advance and confirm;

3. Common problems and treatment

1. All indicators are not on

First, use the multimeter to measure the 24V plug of the board card to confirm that there is 24V voltage; after confirmation, if the PWR power indicator light is still not on, the fuse on the board may be burned out. Please contact our after-sales engineer for guidance or authorization to open the cover and replace it.

2. The computer cannot connect to the board card

Please confirm that the network cable is correctly connected to the EtherNET port of the board and the computer network port, please connect correctly; please confirm the computer

The IP address is set correctly, please set it correctly. Generally recommended to set: IP address: 192.6.6.20, subnet mask: 255.255.255.0, default gateway: not selected;

Please confirm that the PWR light is always on, the ALM light is off, and the RUN light is flashing; if the PWR light is not on, refer to the first point for handling; if the ALM light is always on, there is a fault, please contact our after-sales engineer for handling; if the RUN light does not flash, wait for about 20 seconds, then observe again; if it still does not flash, please contact our after-sales engineer for handling;

If the above status is correct but still cannot be connected, please use the ping command on the computer to test whether the network communication is normal: click Start-> Search for programs and files, enter cmd, Enter-> Enter ping 192.6.6.6, Enter



If the network is not available, please contact our after-sales engineer for handling;