BRUSHLESS DC MOTOR DRIVER   C-1500-220
Special for For small CNC Milling and Drilling Machine with Mach 3 Software

Picture

Summarize

◆ AC220V power supply for
◆ Rated power 1500W
◆ rated speed to 6000RPM, speed range of 400-6000RPM, acceleration time 5S.
◆ PID closed-loop speed and current dual-loop regulator, speed-loop control accuracy of ± 1%
◆ has a limited flow, start-up failed, blocking switch, the module protection
◆ have the machine stop switch, protective masks, opening the door electronically controlled limit protection
◆ LCD display with the actual speed machine tool spindle and the work of the drive, and speed showed an accuracy of ± 2%
◆ regulating the use of key board drives the work of the state, operation is simple and convenient
◆ outside the user interface used to control the work of the drive, and easy to implement digital control of the working drive.

Feature

This series of Brushless DC Motor Drive Unit is designed as specific systems for some small milling machine.
Motor driver can control the start, stop, acceleration, deceleration, forward , reverse, tapping, current limiting protection, stop, open doors electronically controlled power-off protection and turn off the protection of protective masks, it can be outside the user interface control.
Overload protection: motor load of more than 1.5 times the rated load immediately 30S downtime, protect the code at the same time show that E5.

Safe Notice

Please read safety warning below carefully
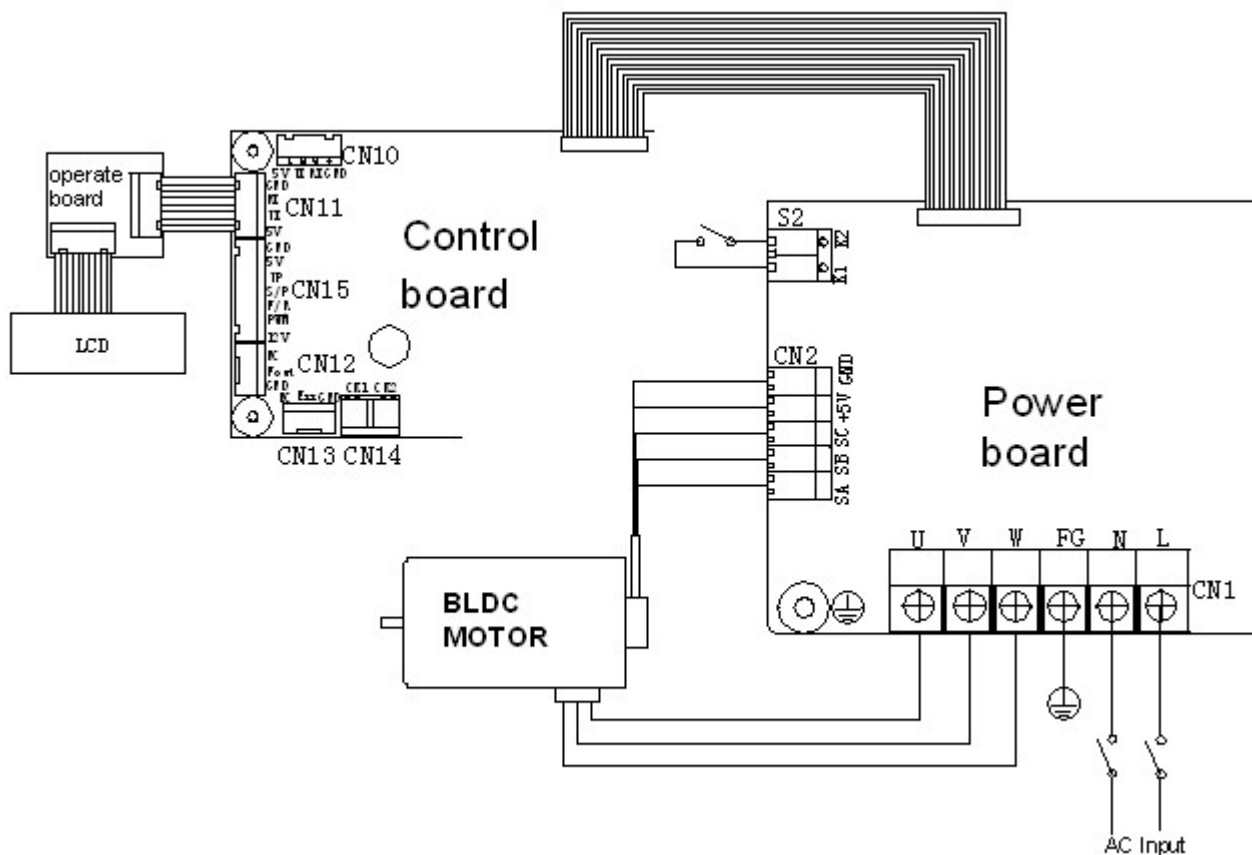
before Installing and operating this controller

1. This product should be installed and serviced by a qualified technician , electrician ,or electrical maintenance person familiar with its operation and the hazards involved
2. Insulated adjustment tools must be used when working under power .Do not touch the PCB board and junctions when working under power
3. All output and input terminals are NOT isolated from the incoming supply

Application

CNC Lathe, CNC milling machine, Drilling machine , spindle motor , controlled by Mach 3
Matched motor : D925, D1235 Model

Controller wiring diagram

A complete Brushless DC motor control system contains Brushless motor, driver, power supplier , the following is standard connection diagram

Power board - Function of Terminal block

CN1						CN2					S2	
Electrical Wiring			Power Supply			Hall sensor					Function switch line	
U	V	W	FG	N	L	SA	SB	SC	+5V	GND	K1	K2
Motor phase			Earth	Zero line	fire	Hall sensor lines					the threshold switch, stop switch, such as the protective effect, as long as the K1, K2 short circuit, the controller immediately stop working	

| Control Board – Function of Terminal block											
CN10				CN11				CN12			
485 Serial communication port				TTL Serial communication port				Speed signal output			
5V	TR	RX	GND	5V	TR	RX	GND	NC	Fout	GND	

CN10—485 Serial communication port   Can be easily prepared with the realization of other high-line, so that intelligent controller, to facilitate better operation of more simple

CN11—Ordinary TTL serial port

**CN12**-speed signal output can be used to detect the motor speed, a pulse for 1RPM

转速脉冲输出口，每转一个脉冲
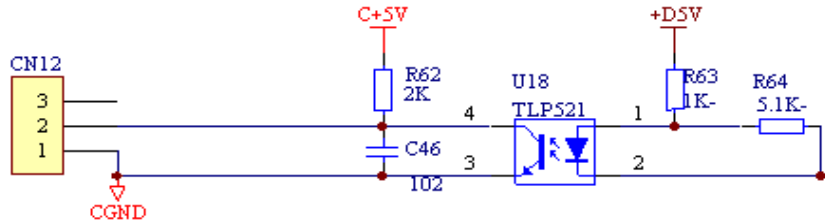
| CN13	CN14	CN15						
Errorsignal output	Outside the user interface to enable port	Outside the user interface board						
NC	Err	GND	Short CK1，CK2 outside interface enabled	12V	PWM	F/R	S/P	TP	5V	GND

CN13-error signal output when there is under-voltage, over-current, stall, start-up failure, the output high

错误输出时高电平
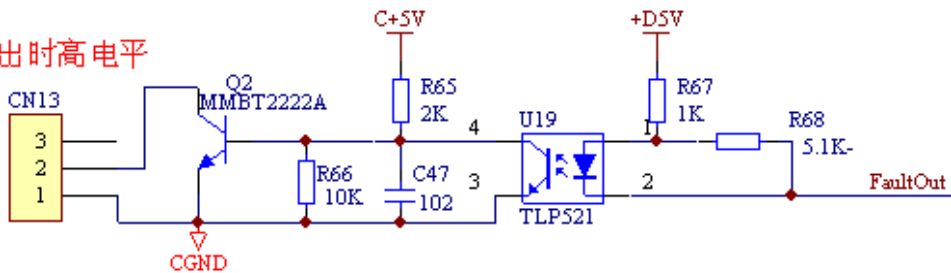
CN14-serial / external user interface to choose the port when the port open, use serial communication to achieve control of the controller, when the port short-circuit, serial failure, CN15 effect.

外用户控制输入
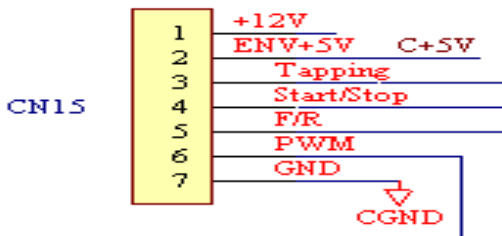
CN15—Outside the user interface control port when the short-circuit CN14, launching the user control signal

① External +12 V power supply
② External +5 V power supply
③**Tapping** external low-level functions, the tapping function of effective motor to 1000RPM / m; high power or open invalid
④Start / stop in the shutdown state to a negative pulse start, turned down in a negative pulse stopped, a negative pulse every time a status change
⑤Positive / negative inversion pulse every time a status change
⑥PWM control input-pin 500-5KHz of the PWM control signal 10% - 90% of the minimum speed can be controlled to the highest (Recommended frequency: 1KHz)
⑦External power supply ground

Keyboard Setting
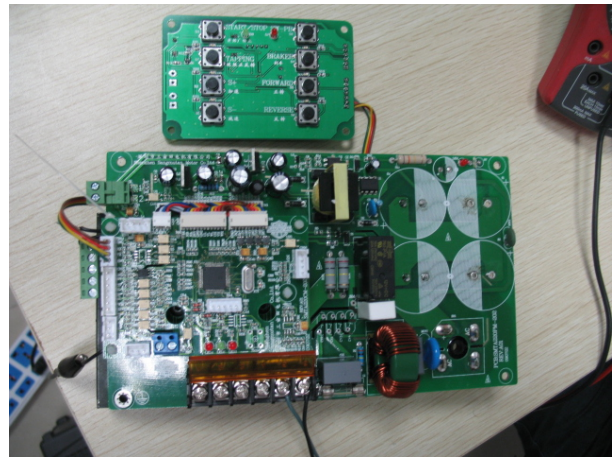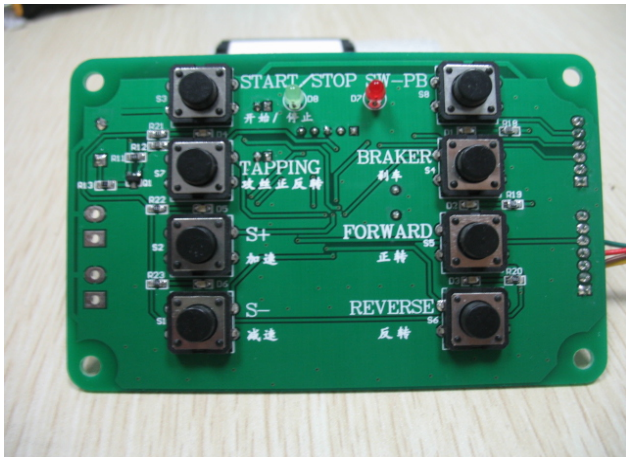
1. System in accordance with the wiring diagram to connect after a good line, or if the SA at this time SQ1, SB1 are closed to disconnect SQ2. The buzzer sounded a "drop", LCD display "0000, FOR, STOP", key board "FORWARD, REVERST, TAPPING, START" keys are valid, machine tool spindle and the spindle motor speed ratio of 1:1, indicating Speed is a motor speed of 1:1.

2. Press "START" key to switch the drive motor is displayed is the lowest speed to 400RPM ± 10% runs, start-up time. For the most high-speed motor 6000RPM ± 1%.

3. Every move the "+" allows a driver to increase motor speed 20RPM, long press "+" key to drive fast so that motor speed to 6000RPM. Every time "-" button allows drive motor speed decreased when the rules and to accelerate the contrary.

4. "FORWARD" for the motor drive control keys are run. "REVERST" motor-driven reverse run control button. Switching the direction of each motor deceleration to 1000 before the first switch, switch automatically after the completion of the restoration to the original speed of the speed.

5. **"TAPPING"** for tapping keys with non-tap switch. Every time a state switch. Tapping into the light when the LED diode. 1000-6000RPM when tapping the state can directly switch to the non-tapping, and tapping the state of non-state switch to tapping speed switch automatically dropped from 1000RPM to keep upon completion, the drive will speed 1000-6000RPM add to switch positive / negative when , allows drive motor speed can be automatically dropped from 1000RPM to accelerate the switch to after the completion of 1000RPM rotational speed and maintain. Tapping keys on the board when the "FORWARD, REVERST" invalid, use the CN2 terminal on the drive external button switch S2 is / reverse, each point is a movement to switch / reverse.

6. Drive in any state by the "STOP" to enter the stop state, and the current state of memory, when the key board "FORWARD, REVERST, START" effective ,"+,-, TAPPING "null and void. The next by the "START" button to stop the automatic recovery when the rotational speed before.

7. Overload protection: motor load of more than 1.5 times the rated load down immediately 30S, also showed protection code E5

8、Drive in any state as long as the work of "SQ1, SB1" one disconnect switch, drive off immediately. At the same time, work lost state drive.

9、Key board drives the four positioning holes to be fixed with the lathe cutting insulation to increase the Insulation strength of tablets. Button plate and fixed parts lathe preferred plastic material.

SMT-LCD

LCD digital display through four of the actual motor speed (fixed speed than the spindle speed), "FOR" that is being transferred, "REV" said inversion, "STOP" to stop that. Instruction-driven work.

Mechanical Dimensions
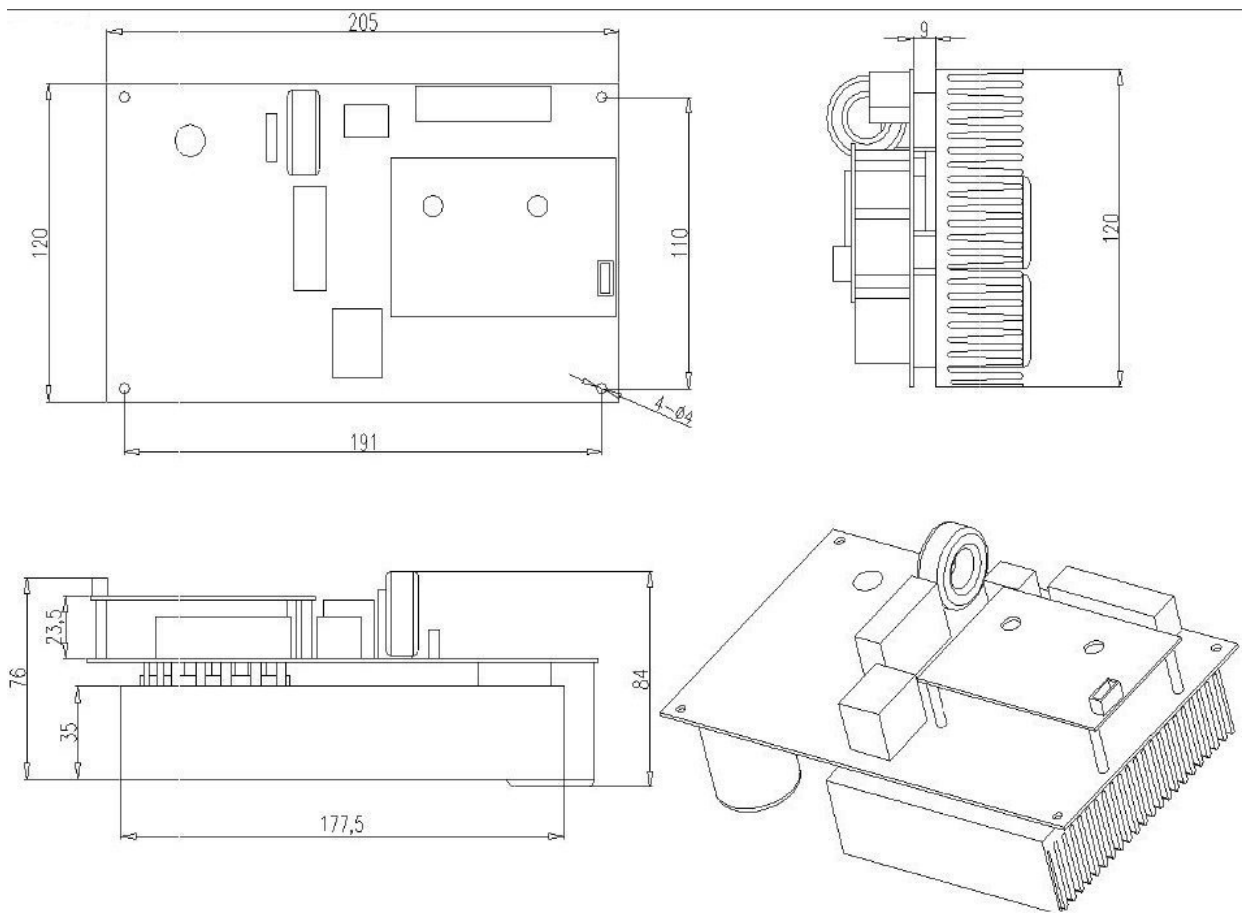
Running Condition

Cooling mode		Nature cooling and fan cooling
Running condition	place	Avoiding dust,oil smog and corrosive gas
	temperature	0℃ ~ +50℃
	humidity	40~90%RH
	vibration	5.9 m/s2 Max
Store temperature		-20℃ ~ +65℃
Weight		Approx. 600g