

CNC4BU



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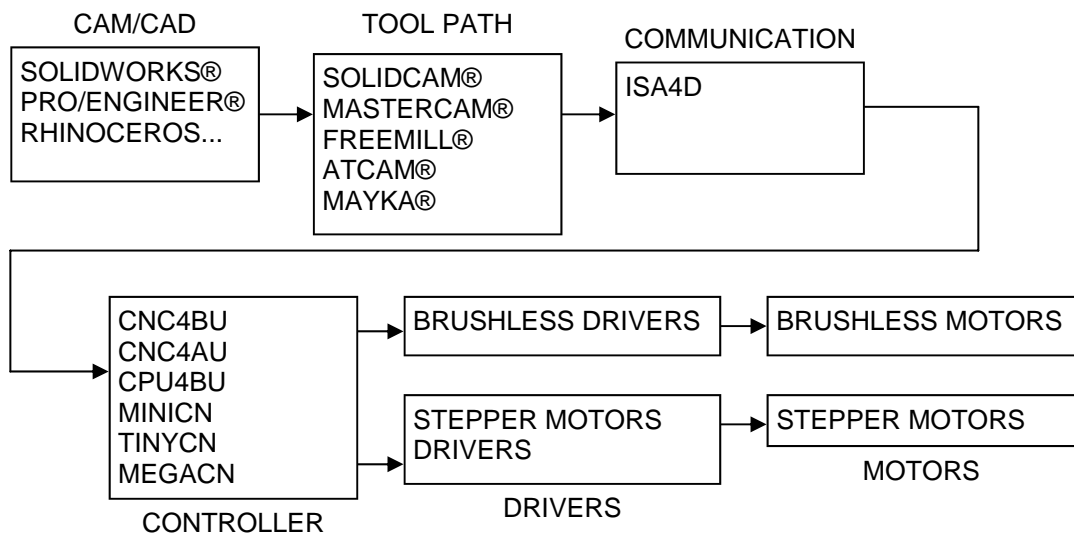


This new professional controller comes up with a 32 bits RISC processor and USB 1.1 (12 Mbits/s) for faster speeds on linear and circular interpolation. Compatible with ISA4D software. Very small size, only 160x150mm.

TECHNICAL FACTS :

- 4 axis linear and 2 axis circular interpolation
- Up to 40 000 steps/sec (4 axis interpolation)
- Up to 8 000 blocks/sec (GCODE command)
- USB 1.1 (12 Mbits/sec) with 32 Ko of local buffer
- Up to 256 Ko/s data transfert (PC <-> controller)
- Real time override
- Real time spindle control
- Read back all axis position in real time
- Continuous command execution
- 4 outputs (open collector, 100 mA max)
- 8 TTL outputs for CLOCK and DIR
- 1 PWM (0-5V) for spindle control
- 1 analog output (0-10V) for spindle control
- 10 inputs (0-30V) filtered
- 2 analog inputs (0V/+10V) 12 Bits
- USB powered
- Software compatible with ISA4D

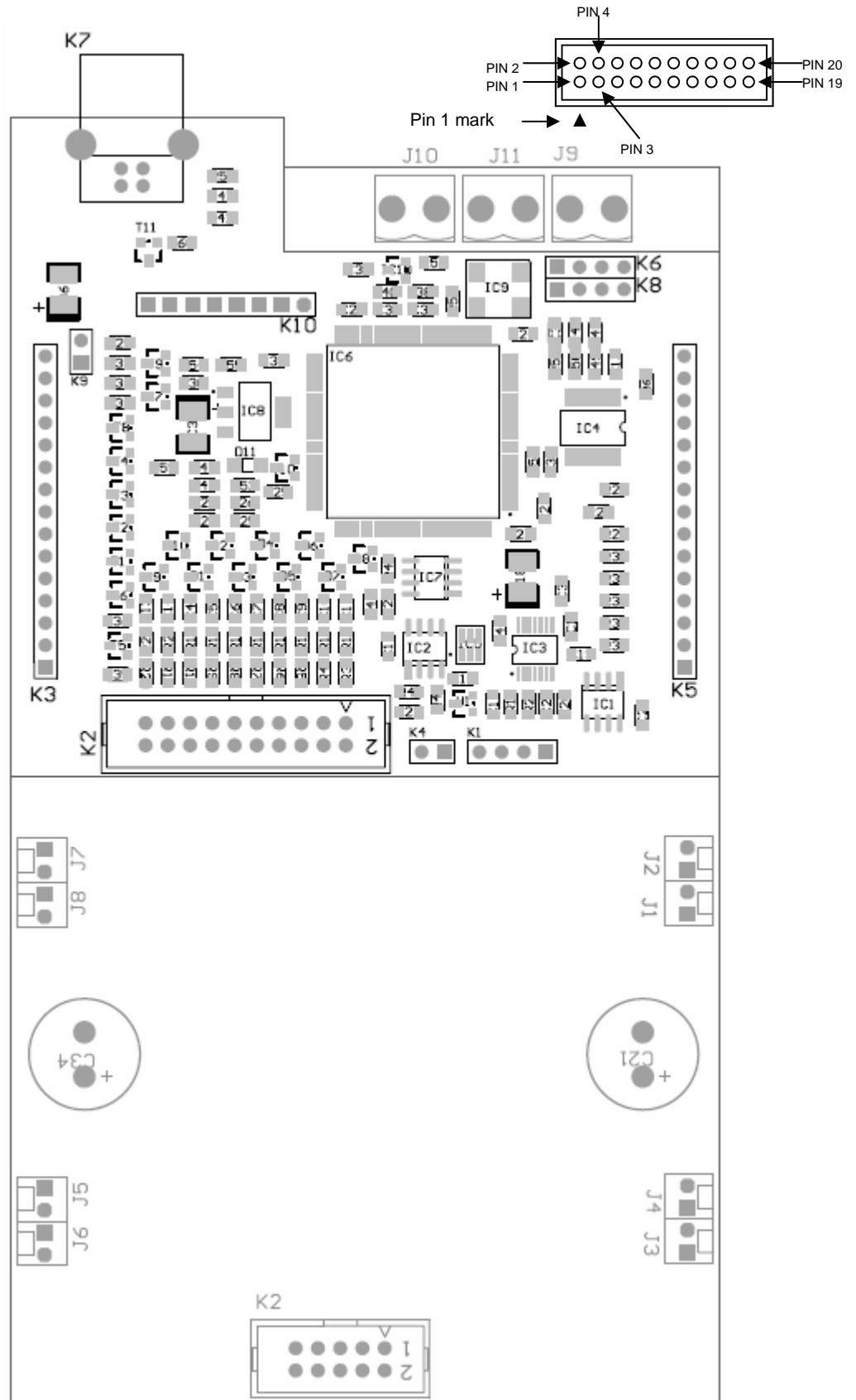
Typical application :



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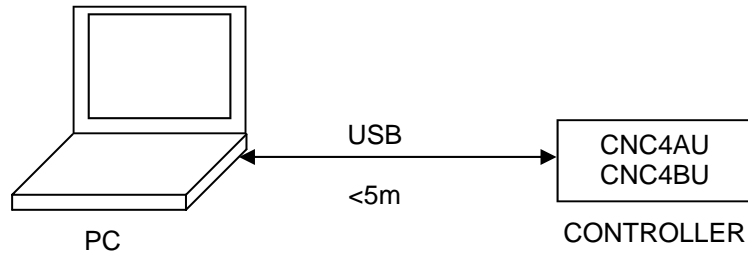
1 Interface and connections

1.1 Board connectors



1.2 USB connector

K6 USB type B



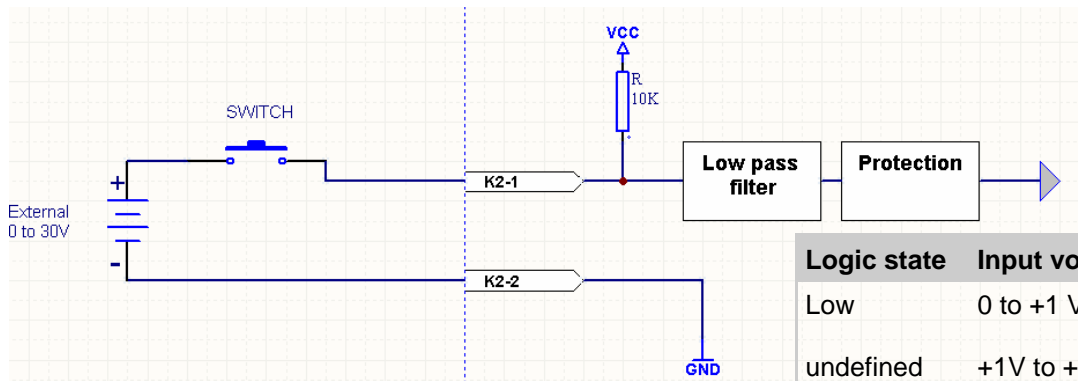
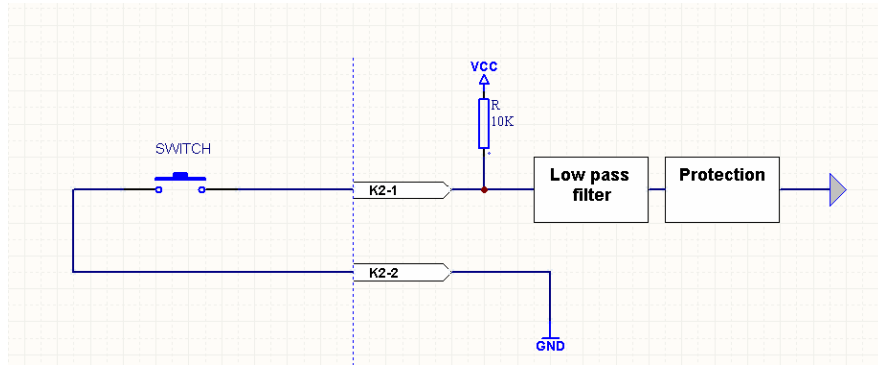
1.3 Inputs connections

K2 HE10 connector 2x10 pts

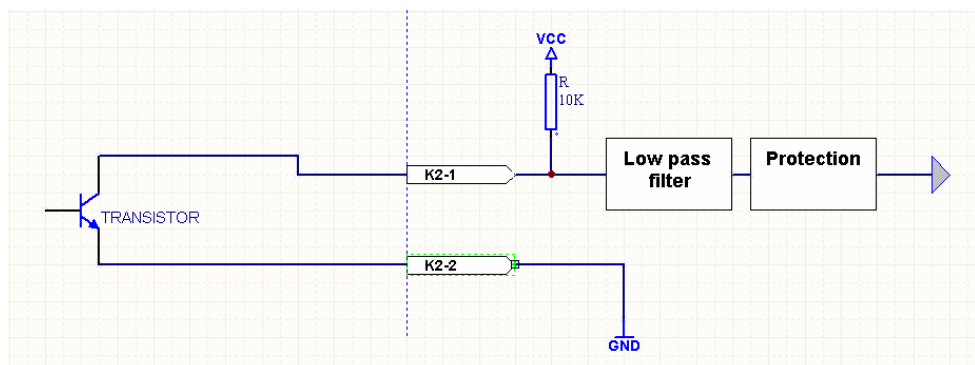
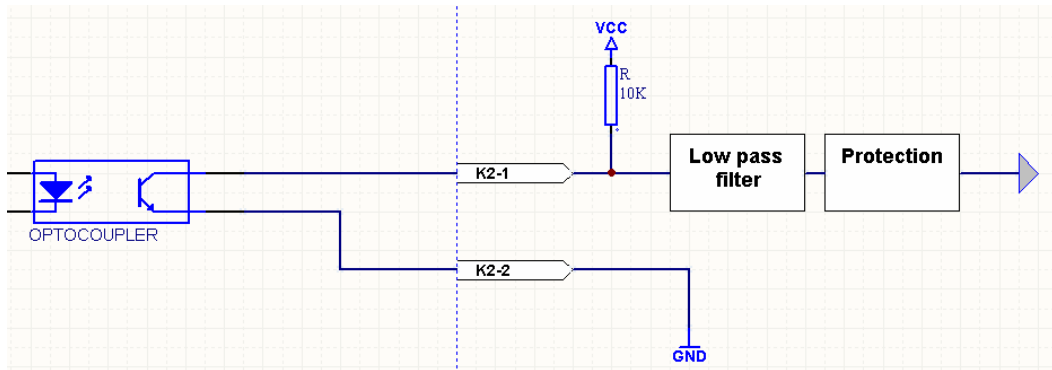
All inputs are protected against over voltage (30 Volts max), and filtered with a low pass filter (cut off frequency of 1000 Hz) to prevent false triggering from noise. Each of the inputs is read every 10ms. All inputs are enable or disable by software. The logic polarity of all inputs is also software programmable.

Pin	Description	Pin	Description
1	Input 1	11	Input 6
2	GND	12	GND
3	Input 2	13	Input 7
4	GND	14	GND
5	Input 3	15	Input 8
6	GND	16	GND
7	Input 4	17	Input 9
8	GND	18	GND
9	Input 5	19	Input 10
10	GND	20	GND

Connection examples :



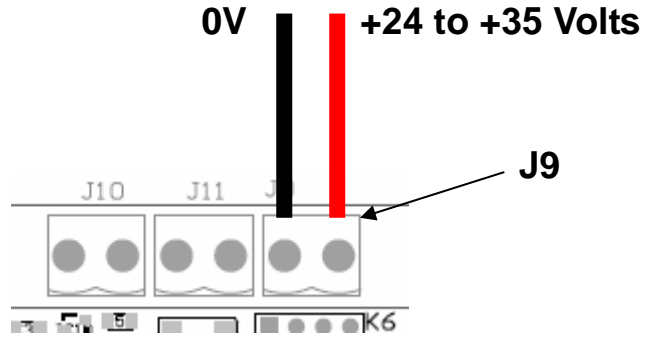
Logic state	Input voltage
Low	0 to +1 V
undefined	+1V to +2 V
High	+2 V to +30 V



1.4 Power supply connections

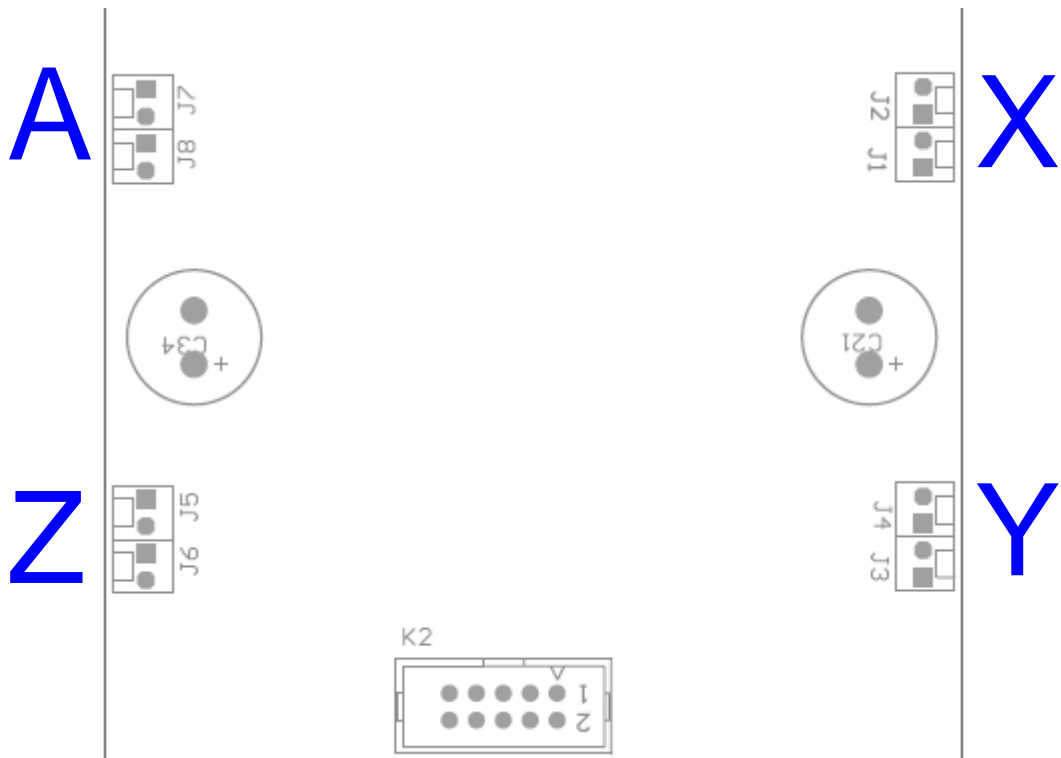
J9 connector 2 pts

Use a stabilised power supply, 24 volts or 35 volts max, with a power of 200 Watts to 280 watts.

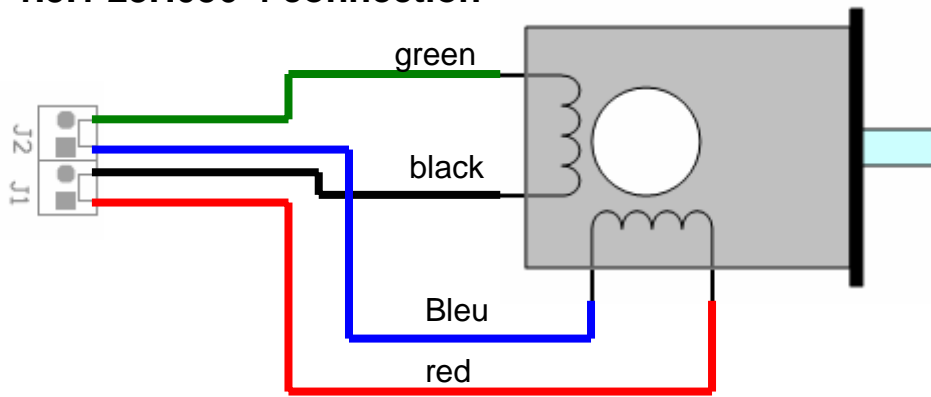


1.5 Motors connections

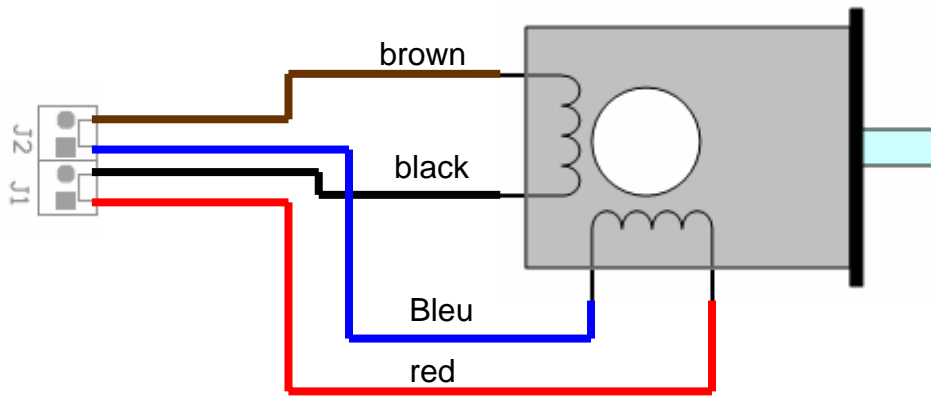
- J1,J2 X motor
- J3,J4 Y motor
- J5,J6 Z motor
- J7,J8 A motor



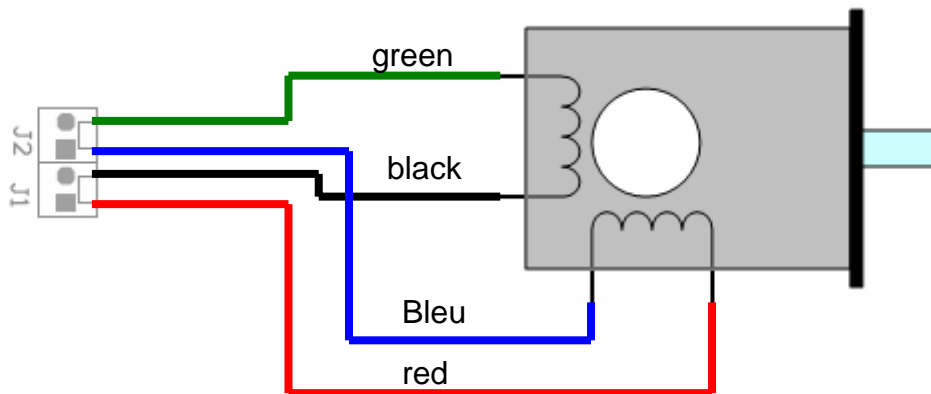
1.5.1 23H056-4 connection



1.5.2 23H056-8 connection



1.5.3 23H076 connection

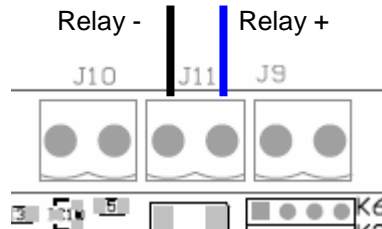


1.6 Outputs connections

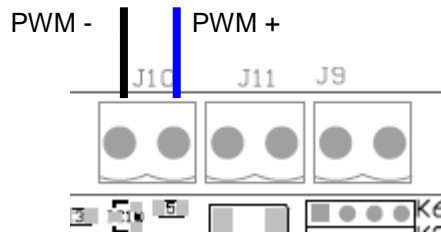
K2 HE10 connector 2x5 pts
 This connector is on the power stage (see page 2)
 Outputs 1 to 4 are of open drain type with a tension max of 30 volts and an intensity max of 100 mA.
 Enable input make it possible to disable the power stage (all motors off). To do this put on this input a switch, normally open .

Pin	Description	Pin	Description
1	Ouput 1	6	+12V
2	+12V	7	Ouput 4
3	Ouput 2	8	VCC (3V3)
4	+12V	9	Enable input
5	Ouput 3	10	GND

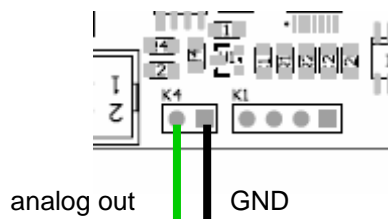
J11 Connector 2 pts
 24 volts 4 amp. relay ouput



J10 Connector 2 pts
 24 volts 4 amp. PWM ouput

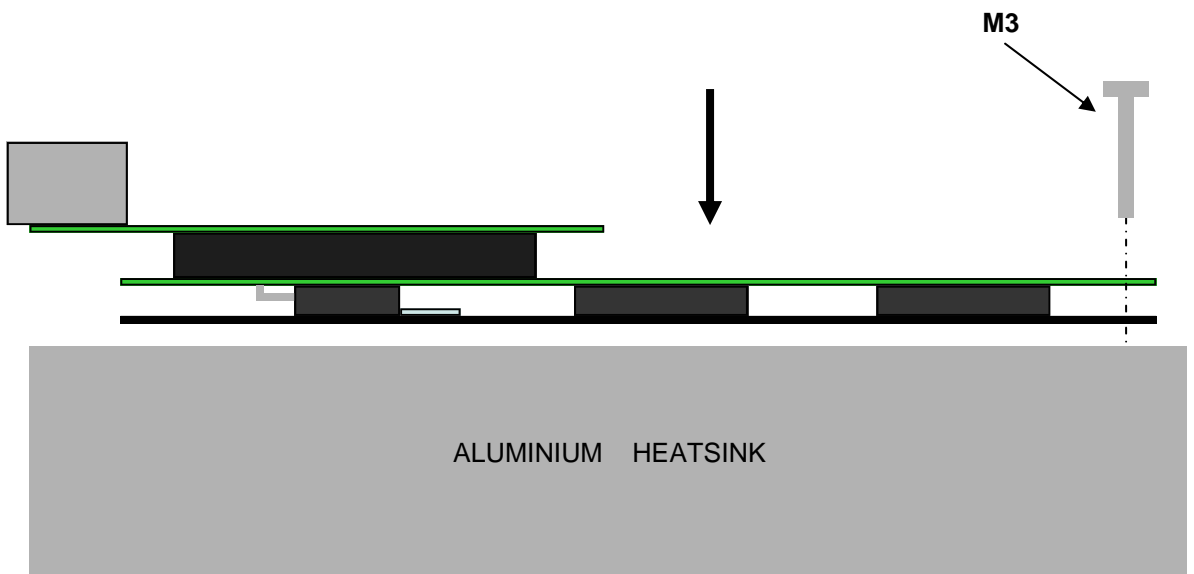
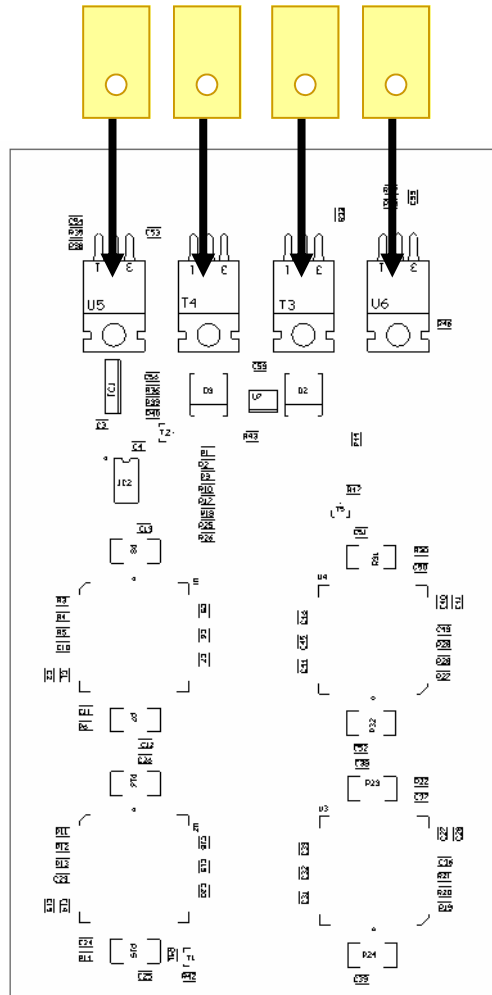


K4 Connector 2 pts
 0-10V (10 mA) analog ouput



1.7 Assembly

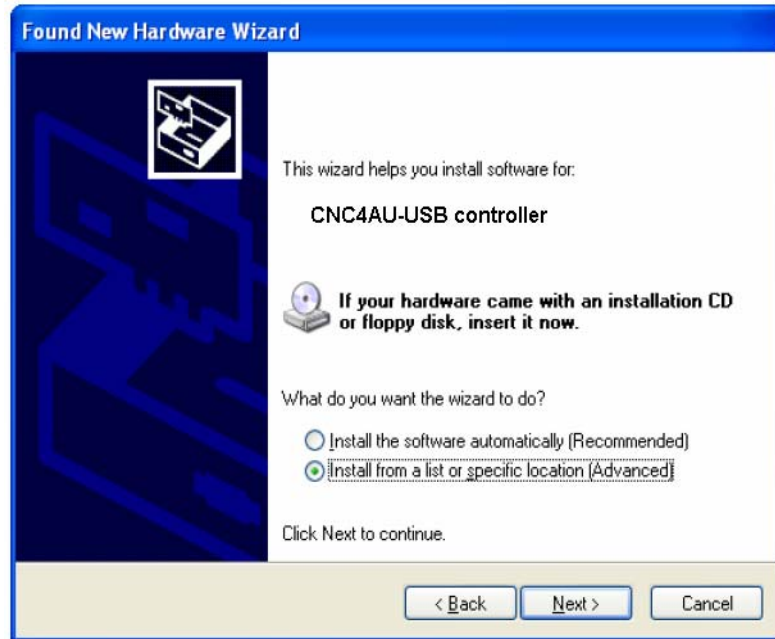
Put the 4 TO220 insulators on the 4 transistors. Then put the black (anodised) aluminium heatsink on the 4 insulators and on the 4 stepper motor drivers (Allegro A3977). Use M3 screw to fix all the controller on a large aluminum heatsink.



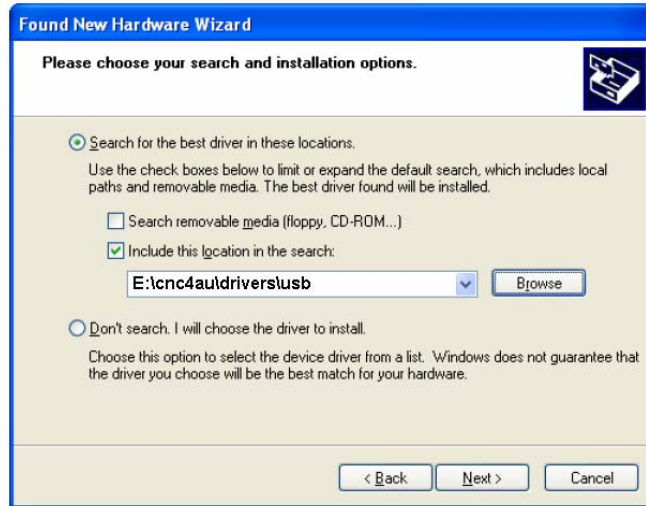
2.0 Drivers installation :

USB drivers are compatible with windows XP and VISTA
Drivers are included in the package.

Connect the USB cable to your PC. Once the controller has been connected Windows Found New Hardware Wizard will launch.
Select "Install from a list or specific location (Advanced)" as shown below and then click "Next".



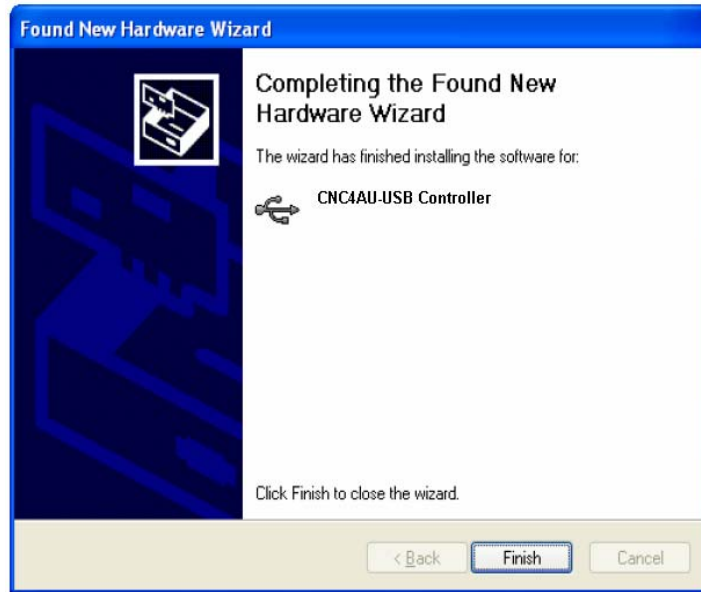
Select "Search for the best driver in these locations" and enter the file path in the combo-box ("E:\cnc4bu\drivers\usb" in the example below) or browse to it by clicking the browse button. Once the file path has been entered in the box, click next to proceed.



If Windows XP is configured to warn when unsigned (non-WHQL certified) drivers are about to be installed, the following screen will be displayed unless installing a Microsoft WHQL certified driver. Click on "Continue Anyway" to continue with the installation. If Windows XP is configured to ignore file signature warnings, no message will appear.



Windows should then display a message indicating that the installation was successful. Click "Finish" to complete the installation.



Controller is now configured the be driven by ISA4D software.