CPU4BU

V1.0

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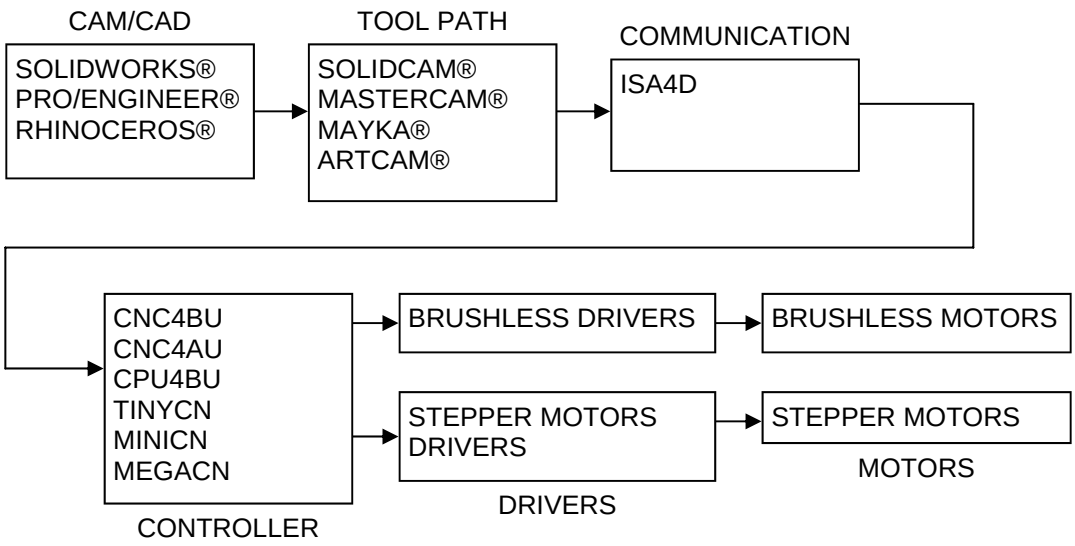
This new professionnal controller comes up with a 32 bits RISC processor and USB 1.1 (12 Mbits/s) for faster speeds on linear and circular interpolation. Compatible with **ISA4D** software. Very small size, only 75x80mm.

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 (6000 commands)
- Up to 256 Ko/s USB data transfert
- 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 (0/+10V) 12 Bits
- USB powered
- Software compatible with **ISA4D**

Typical application :



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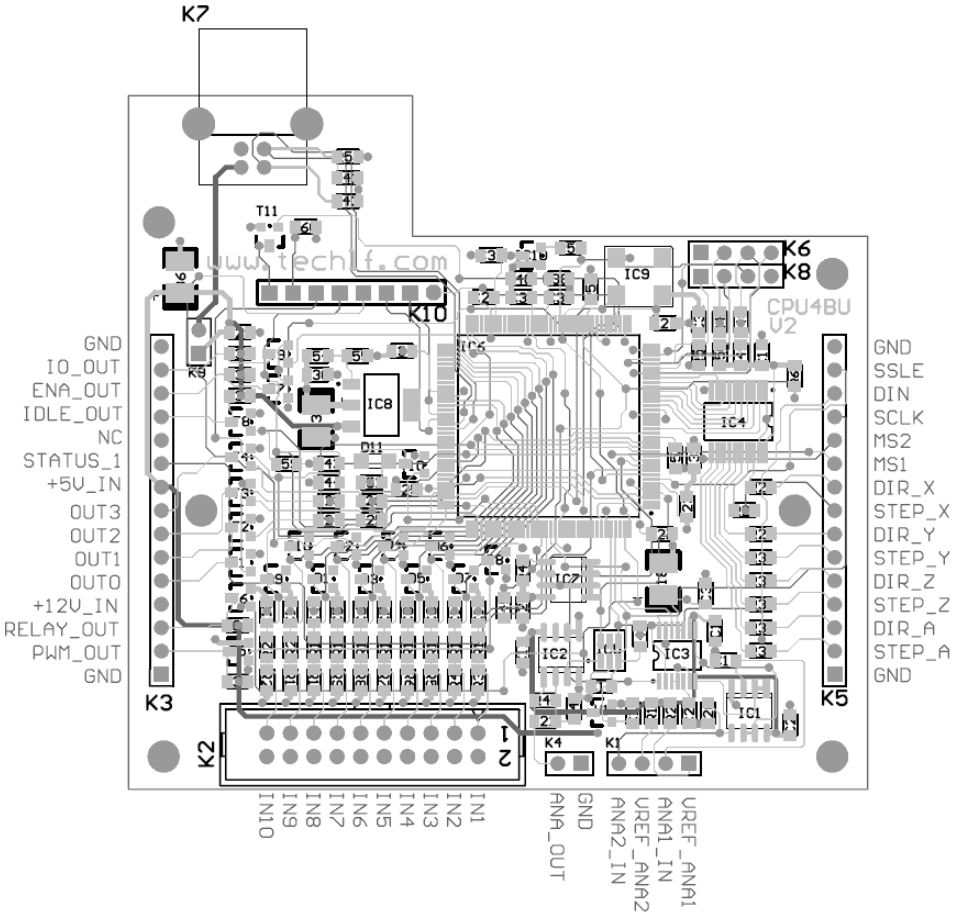
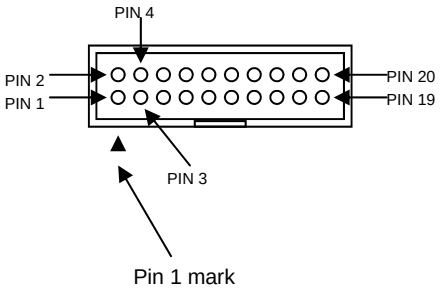
Electronique pour machine
à commande numérique

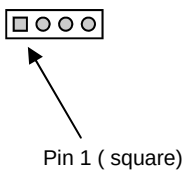
1 Interface and connections

Introduction

1.1 Board connectors







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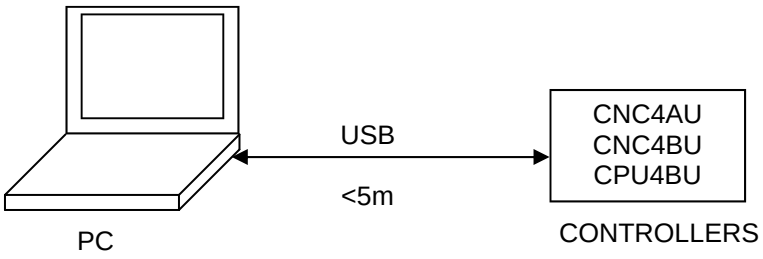
1.2 USB connector

K6 USB type B

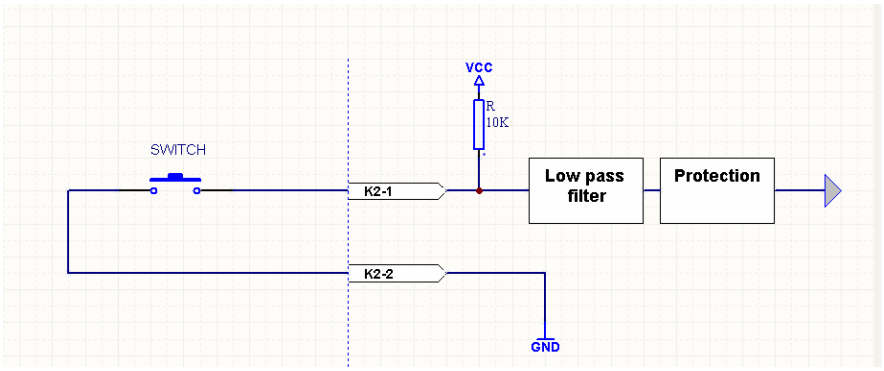


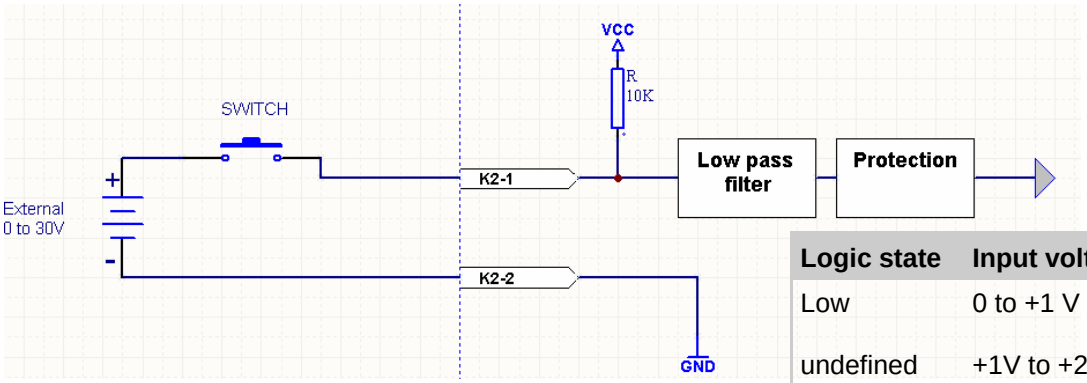
1.3 Inputs connections

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 trigerring 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.

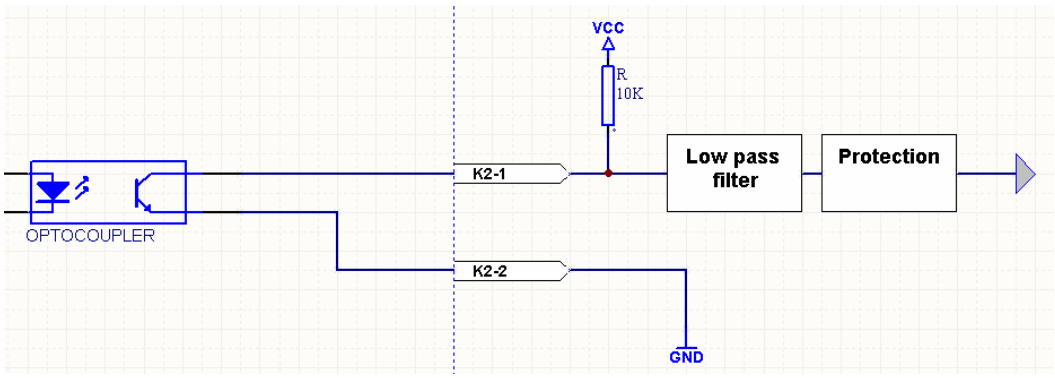
Pin	Description	Pin	Description
1	Input 1	11	Input 6
2	GND	12	GND
3	Input 2	13	Input 7
4	GND	14	GND
5	Input 3	15	Input 8
6	GND	16	GND
7	Input 4	17	Input 9
8	GND	18	GND
9	Input 5	19	Input 10
10	GND	20	GND

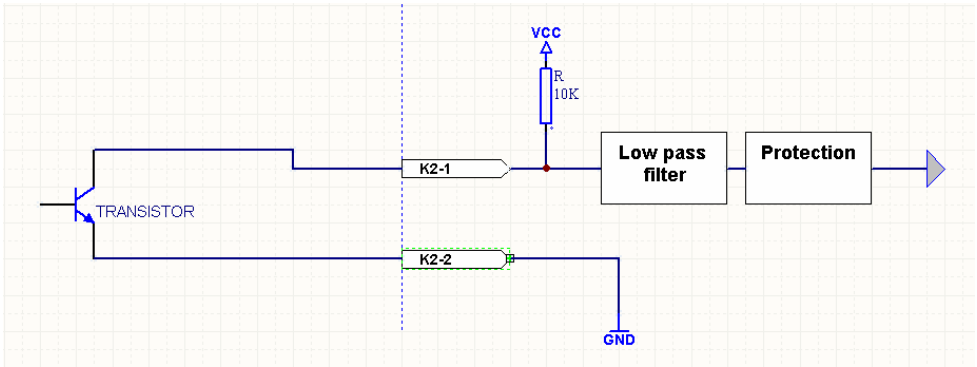
Connection examples :





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





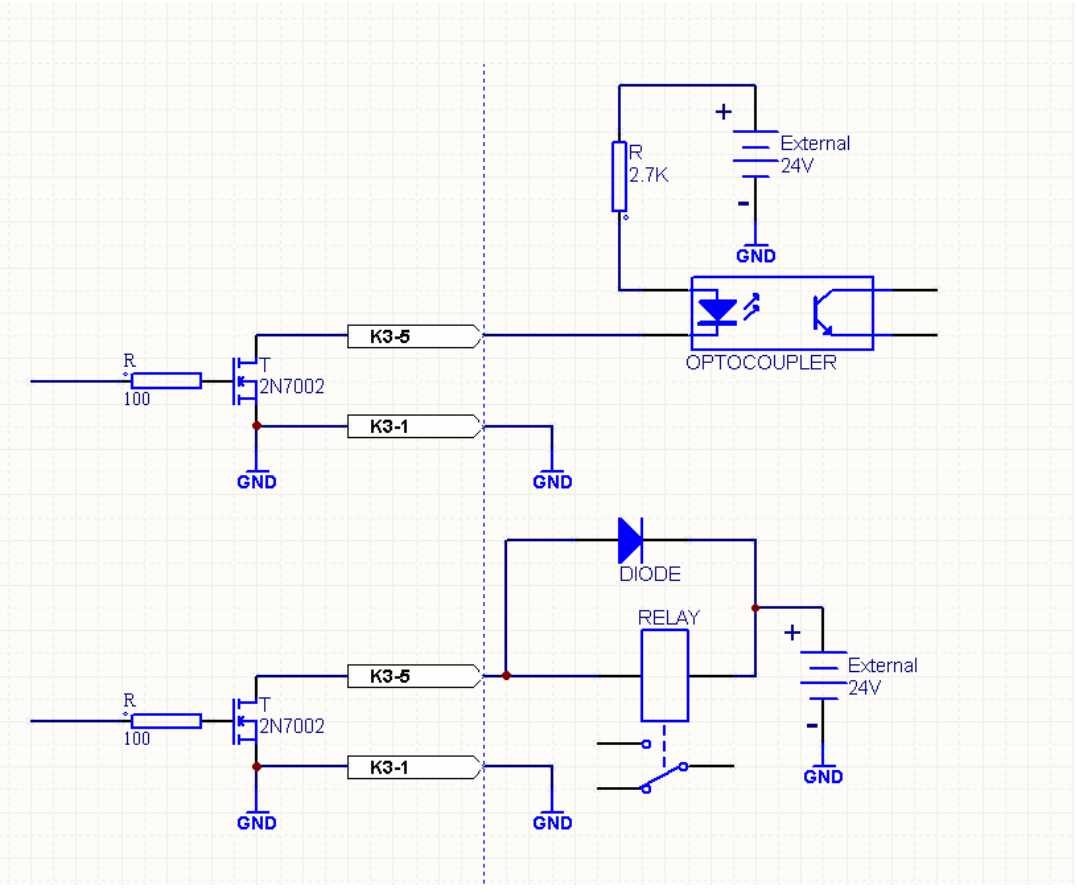
1.4 Outputs connections

K3 Connector 1x15 pts

All outputs are open collector (100 mA max). Each of the outputs is software programmables. At power on reset all the outputs are in undifined state during 0.5 second.

Pin	Description
5	Output 0
6	Output 1
7	Output 2
8	Output 3

Connection examples :

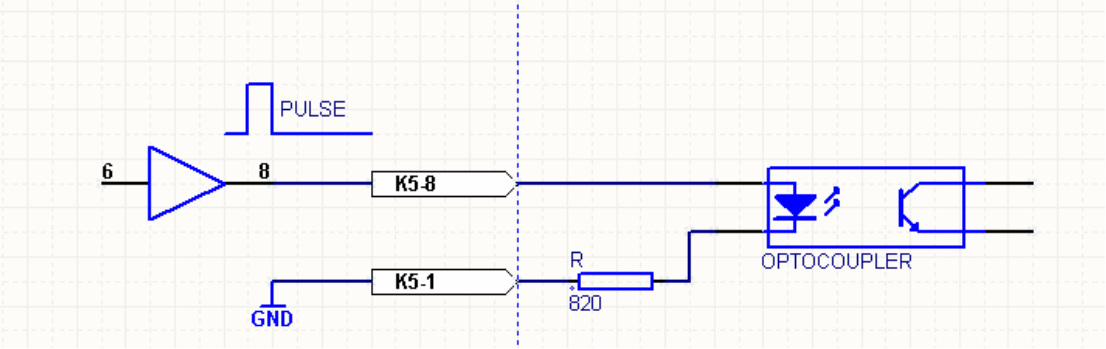


1.5 Clock and Dir connections

K5 Connector 1x15 pts
All outputs are TTL 3.3V/100mA. The logic polarity of all outputs is software programmable.

Pin	Description
9	Direction X
8	Step X
7	Direction Y
6	Step Y
5	Direction Z
4	Step Z
3	Direction A
2	Step A

Connection examples :

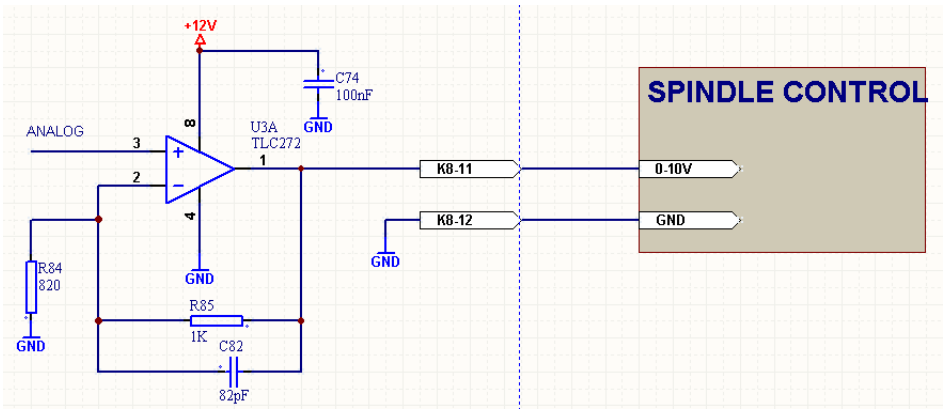


1.6 Analog inputs, outputs and PWM

K4 Connector 1x2 pts
1 analog output 0 to +10V

Pin	Description
1	GND
2	Analog output

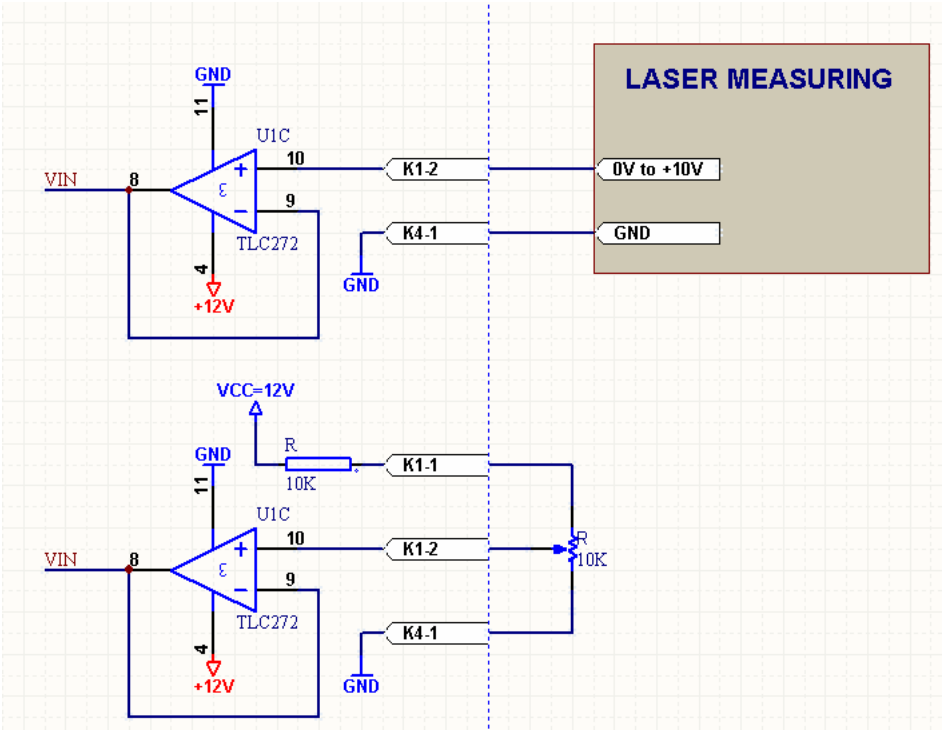
Analog output connection examples :



K1 Connector 1x4 pts
2 analog inputs, 0V to +10V

Pin	Description
1	Vref analog 1
2	Analog 1 input
3	Vref analog 2
4	Analog 2 input

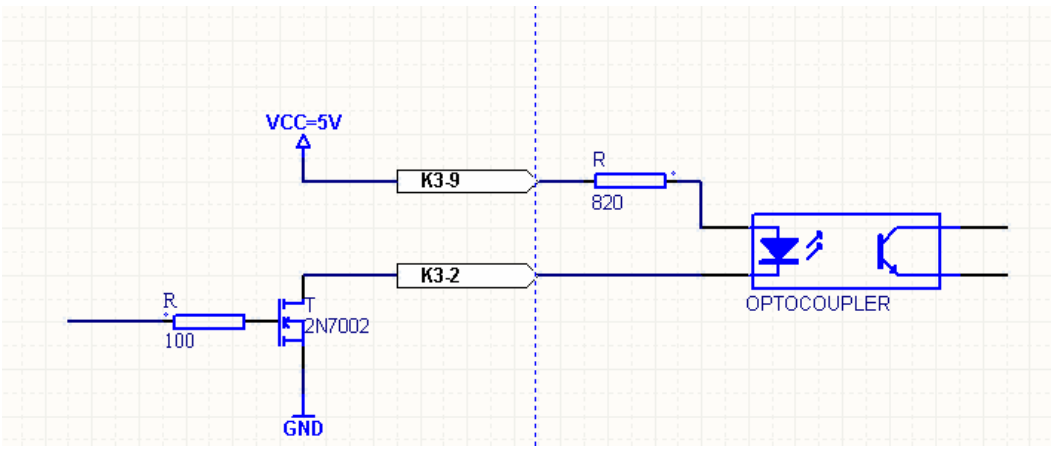
Analog inputs connection examples :



K3 Connector 1x15 pts
PWM ouput (0-5 Volts / 100mA)

Pin	Description
9	+5 Volts
2	PWM output

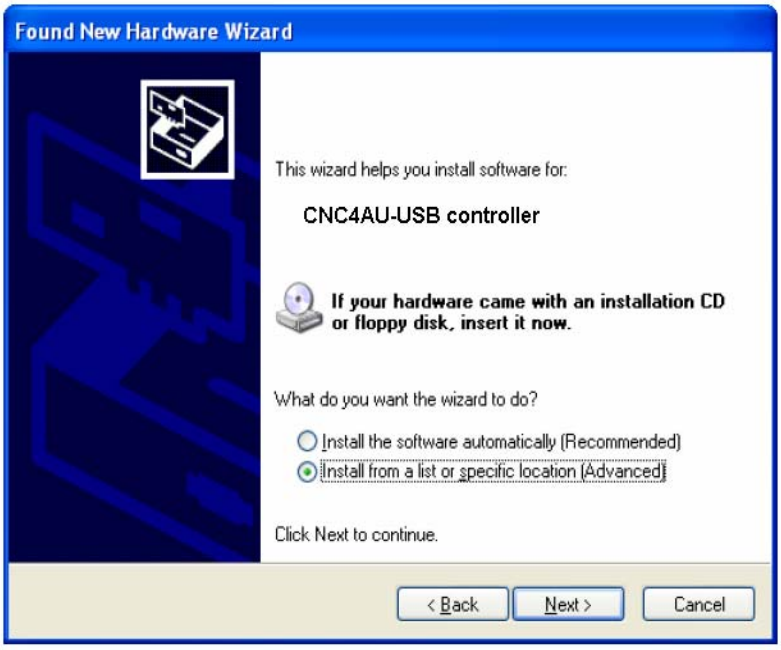
PWM output connection examples :



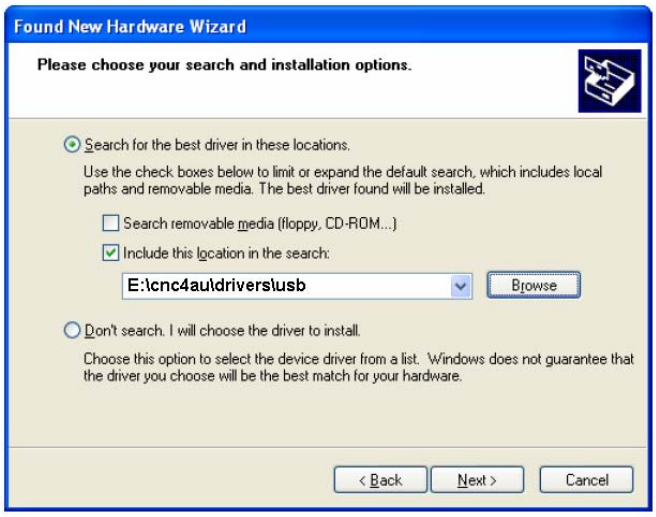
2.0 Drivers installation :

USB drivers are compatible with windows 9X, 2000 and XP.
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".

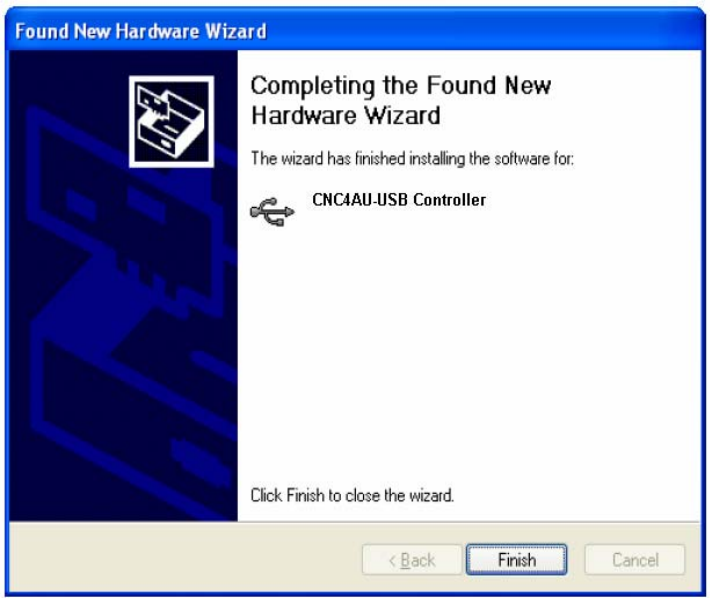


Select "Search for the best driver in these locations" and enter the file path in the combo-box ("E:\cnc4bu\drivers\usb" in the example below) or browse to it by clicking the browse button. Once the file path has been entered in the box, click next to proceed.



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.