

## TECHLF

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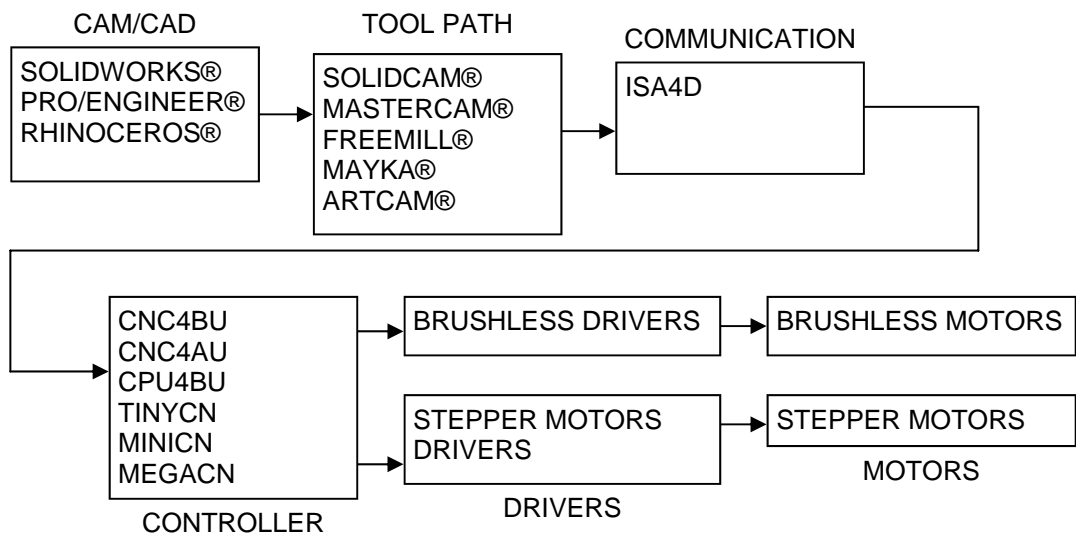


This new professional controller comes up with a 32 bits RISC processor and USB 1.1 (12 Mb/s) for faster speeds on linear and circular interpolation. Compatible with **ISA4D** software. Very small size, only 160x150mm.

### TECHNICAL FACTS :

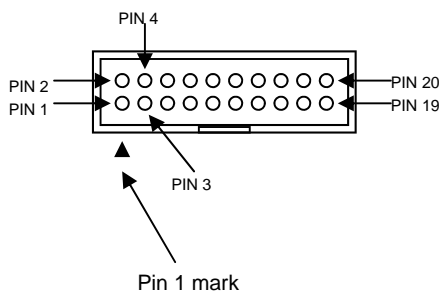
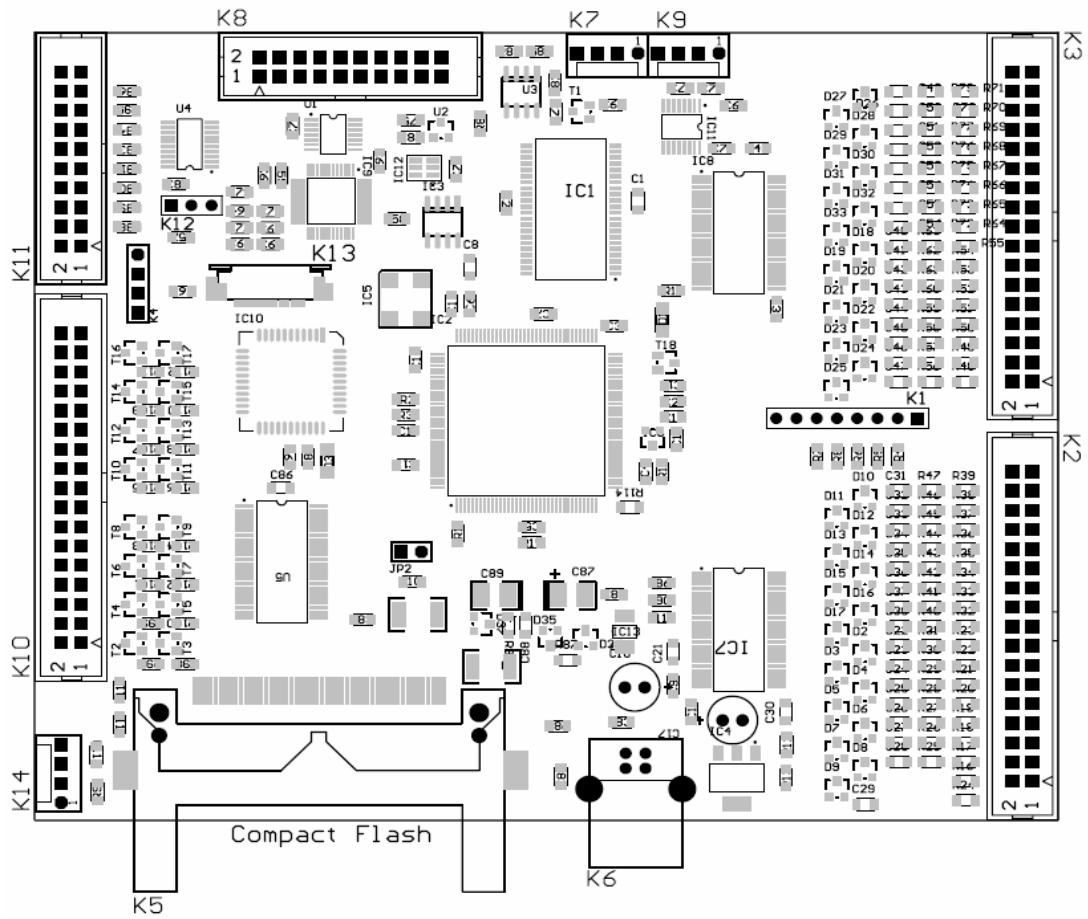
- 4 axis linear and 2 axis circular interpolation
- Up to 40 000 steps/sec ( 4 axis interpolation )
- Up to 8 000 blocks/sec (GCODE command)
- USB 1.1 ( 12 Mb/s ) with 32 Ko of local buffer
- Up to 256 Ko/s data transfert
- Real time override
- Real time spindle control
- Read back all axis position in real time
- Continuous command execution
- 16 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
- 32 inputs ( 0-30V) filtered
- 4 analog inputs (-10V/+10V) 12 Bits / 1Mps analog to digital converter
- USB powered
- Software compatible with **ISA4D**

### Typical application :



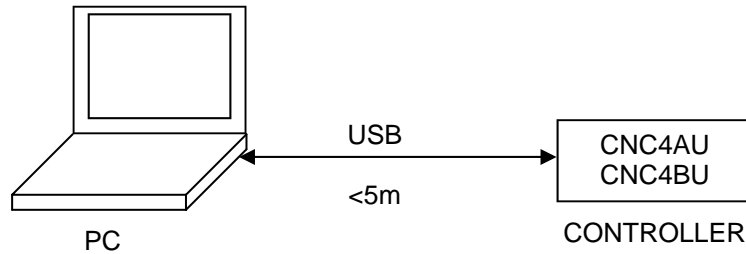
## 1 Interface and connections

### 1.1 Board connectors



## 1.2 USB connector

### K6 USB type B



## 1.3 Inputs connections

### K2 HE10 connector 2x17 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.

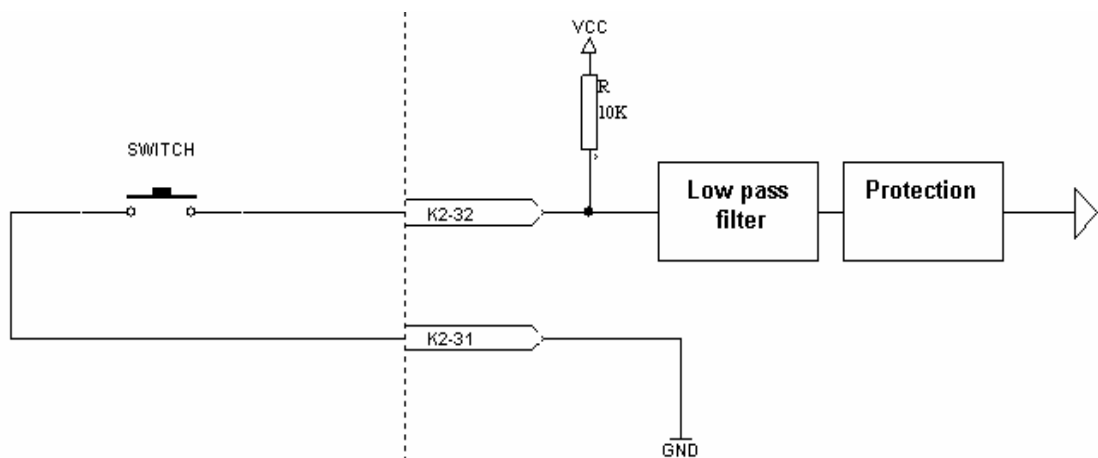
Pin	Description	Pin	Description
1	GND	18	Input 8
2	Input 16	19	GND
3	GND	20	Input 7
4	Input 15	21	GND
5	GND	22	Input 6
6	Input 14	23	GND
7	GND	24	Input 5
8	Input 13	25	GND
9	GND	26	Input 4
10	Input 12	27	GND
11	GND	28	Input 3
12	Input 11	29	GND
13	GND	30	Input 2
14	Input 10	31	GND
15	GND	32	Input 1
16	Input 9	33	GND
17	GND	34	NC

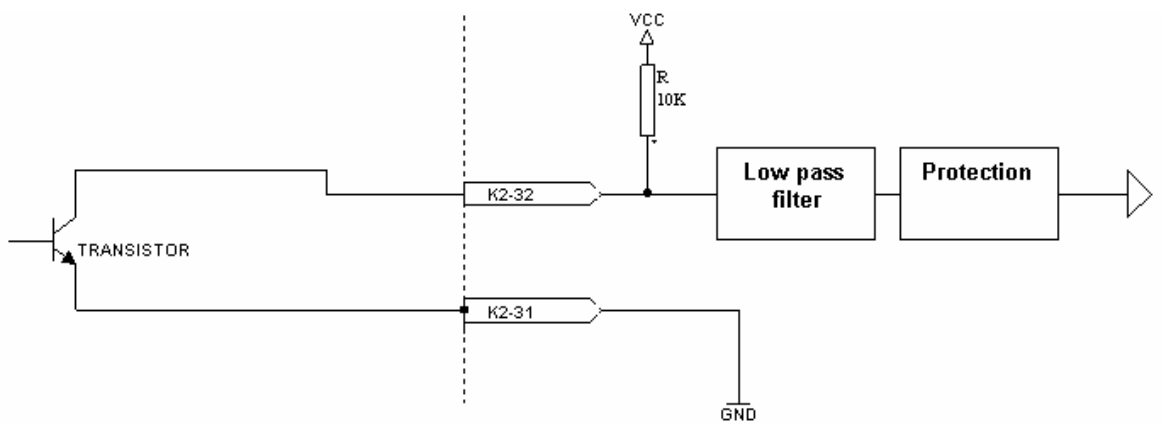
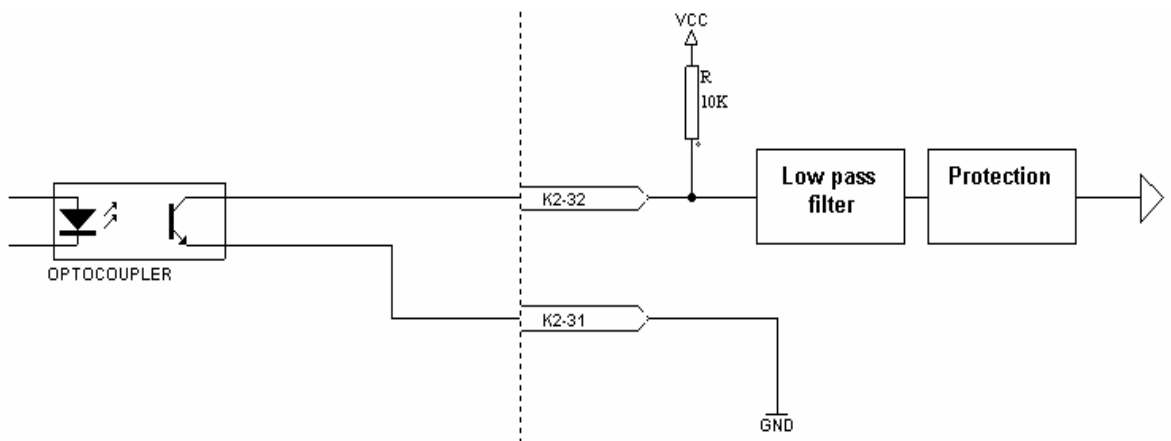
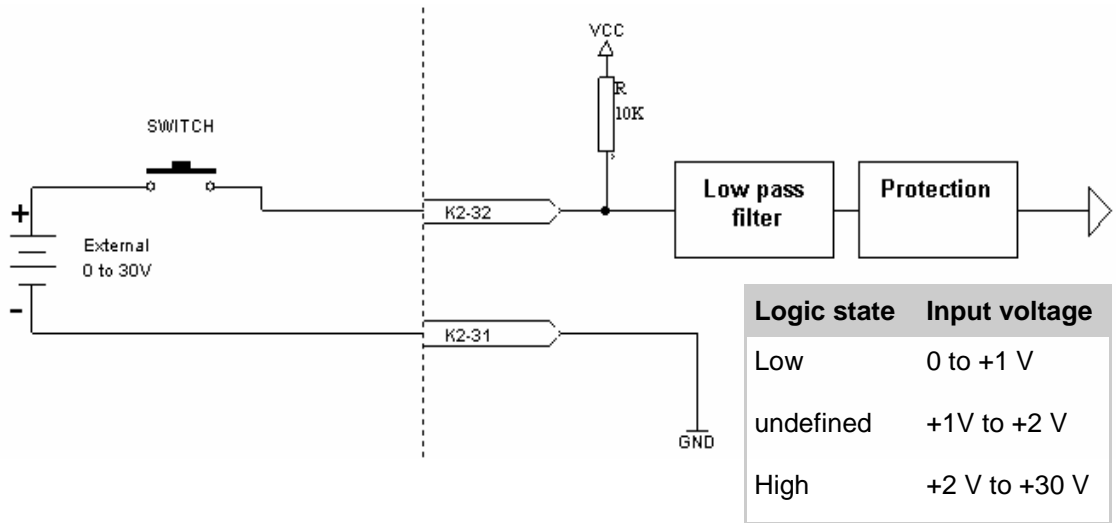
**K3** HE10 connector 2x17 pts  
 All inputs are protected against over voltage ( 30 Volts max ), and filtered with a low pass filter (cut off frequency of 1000 Hz) to prevent false triggering from noise.  
 Each of the inputs is read every 10ms. All inputs are enable or disable by software. The logic polarity of all inputs is also software programmable.

Pin	Description	Pin	Description
1	GND	18	Input 24
2	Input 32*	19	GND
3	GND	20	Input 23
4	Input 31*	21	GND
5	GND	22	Input 22
6	Input 30	23	GND
7	GND	24	Input 21
8	Input 29	25	GND
9	GND	26	Input 20
10	Input 28	27	GND
11	GND	28	Input 19
12	Input 27	29	GND
13	GND	30	Input 18
14	Input 26	31	GND
15	GND	32	Input 17
16	Input 25	33	GND
17	GND	34	NC

\* do not connect

**Connection examples :**



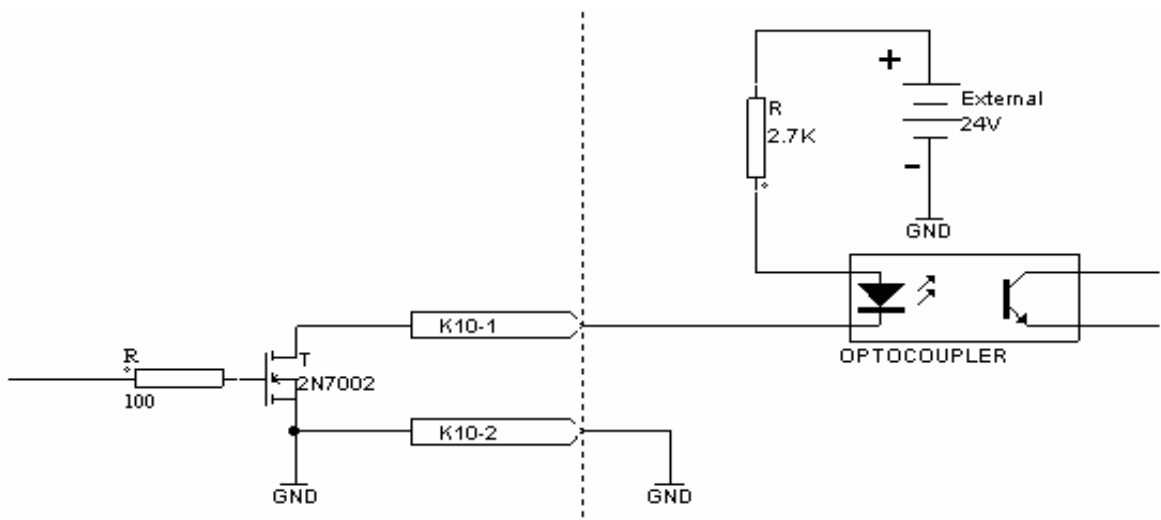


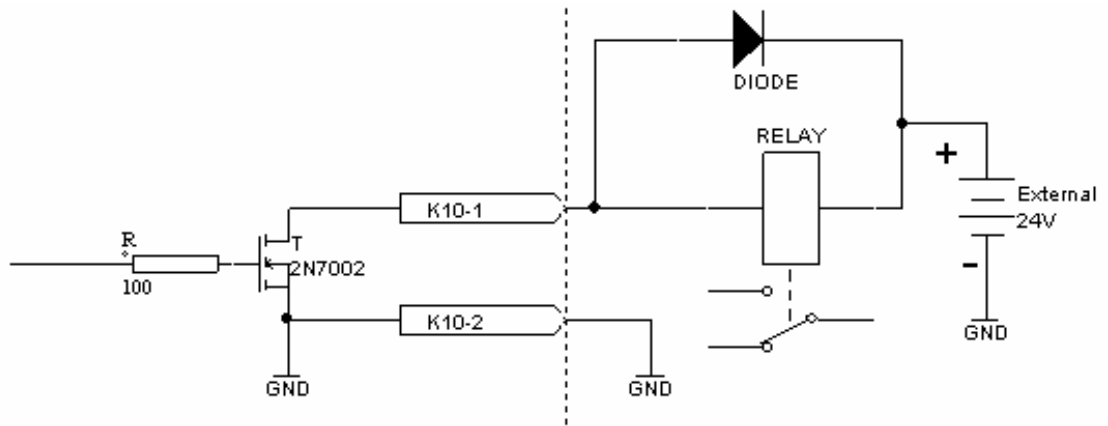
## 1.4 Outputs connections

**K10** HE10 connector 2x17 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	Pin	Description
1	Output 1	18	GND
2	GND	19	Output 10
3	Output 2	20	GND
4	GND	21	Output 11
5	Output 3	22	GND
6	GND	23	Output 12
7	Output 4	24	GND
8	GND	25	Output 13
9	Output 5	26	GND
10	GND	27	Output 14
11	Output 6	28	GND
12	GND	29	Output 15
13	Output 7	30	GND
14	GND	31	Output 16
15	Output 8	32	GND
16	GND	33	Output 17
17	Output 9	34	GND

Connection examples :





## 1.5 Clock and Dir connections

**K11** HE10 connector 2x10 pts  
All outputs are TTL 5V/10mA. The logic polarity of all outputs is software programmable.

Pin	Description	Pin	Description
1	GND or +5V *	11	Dir Z
2	GND or +5V *	12	GND or +5V *
3	Dir X	13	Pulse Z
4	GND or +5V *	14	GND or +5V *
5	Pulse X	15	Dir A
6	GND or +5V *	16	GND or +5V *
7	Dir Y	17	Pulse A
8	GND or +5V *	18	GND or +5V *
9	Pulse Y	19	GND or +5V *
10	GND or +5V *	20	GND or +5V *

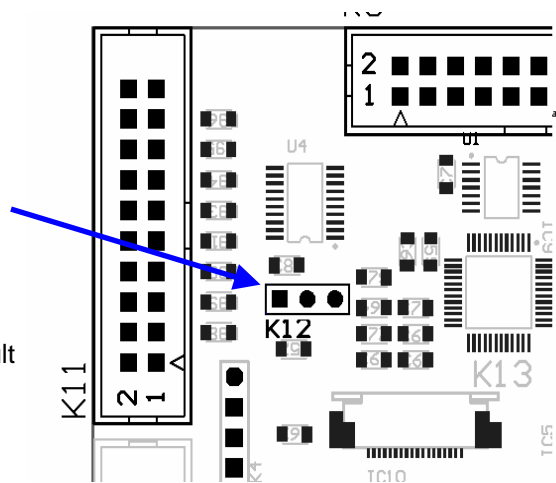
\* select power supply for outputs ( K12 settings )

**K12 settings :**

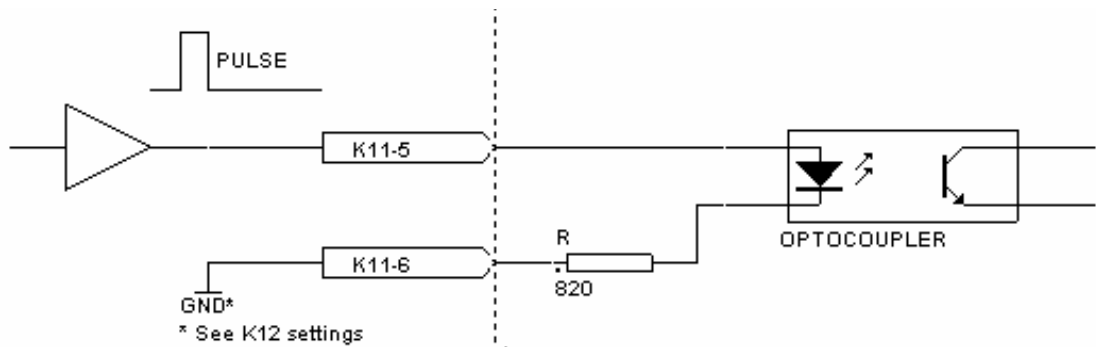
1 2 3

Jumper 1-2 : +5V

Jumper 2-3 : GND default



**Connection examples :**

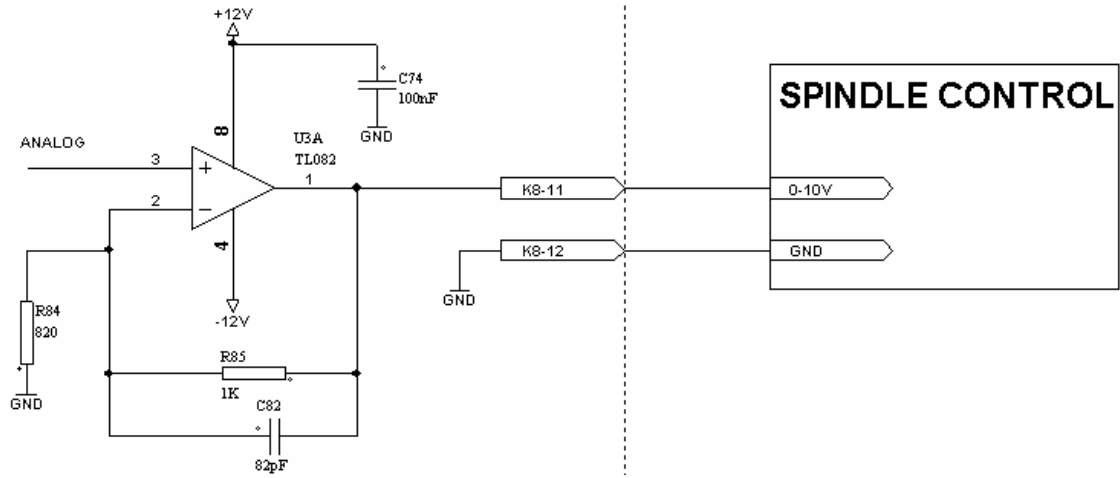


## 1.6 Analog inputs, outputs and PWM

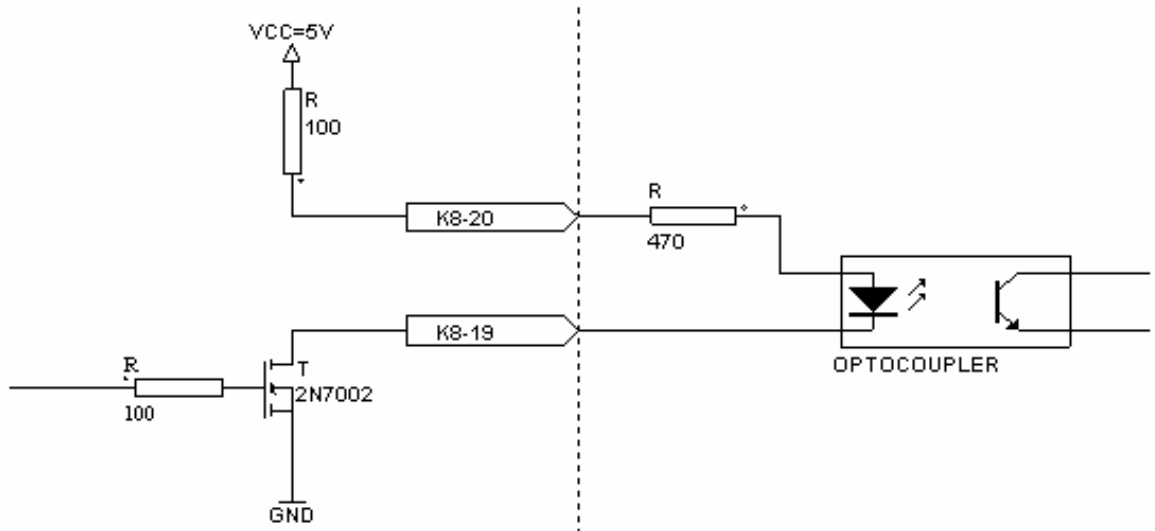
- K8** HE10 connector 2x10 pts  
 4 analog inputs, -10V to +10V, fast 12 bits ADC convertor.  
 1 analog output 0 to 10V, fast 12 bits DAC convertor.  
 1 PWM output 0-5V ( 10mA ), duty cycle 0 to 100%

Pin	Description	Pin	Description
1	Analog 1 input	11	Analog output
2	GND	12	GND
3	Analog 2 input	13	GND
4	GND	14	GND
5	Analog 3 input	15	NC
6	GND	16	GND
7	Analog 4 input	17	GND
8	GND	18	GND
9	GND	19	PWM output
10	GND	20	PWM return

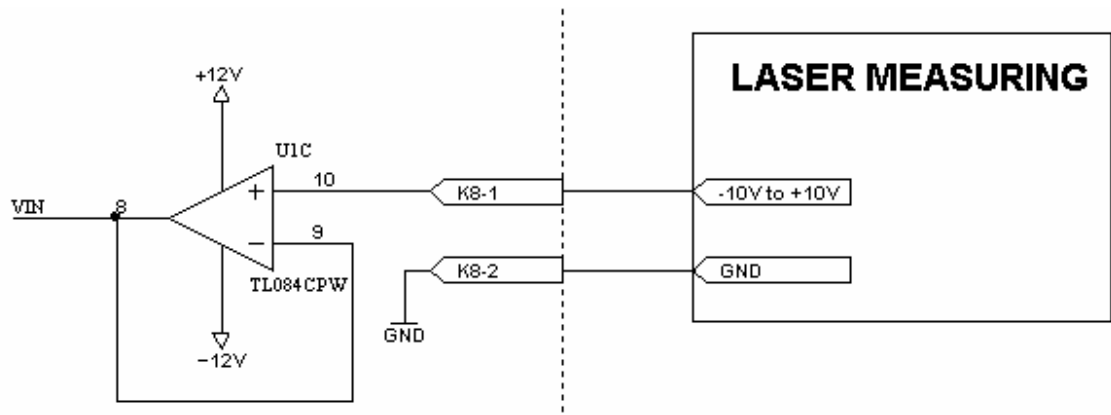
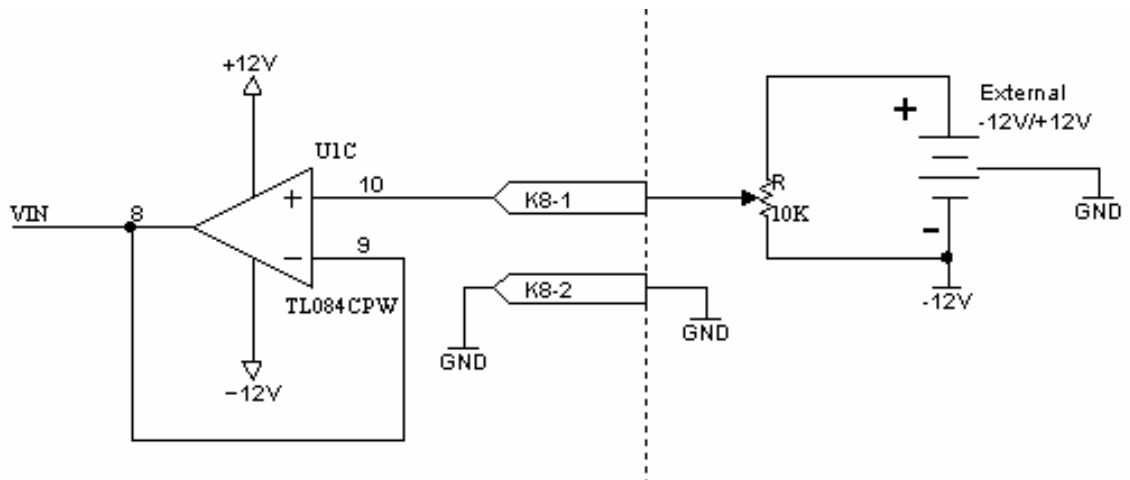
## Analog output connection examples :



## PWM output connection examples :



## Analog inputs connection examples :



## 1.7 RS232

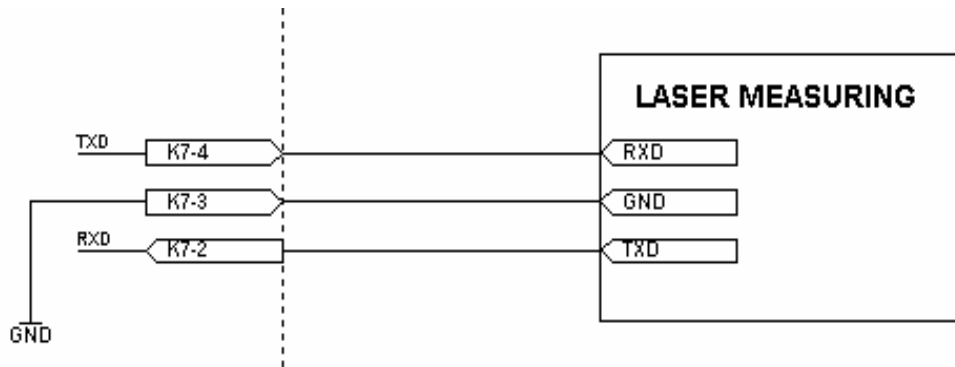
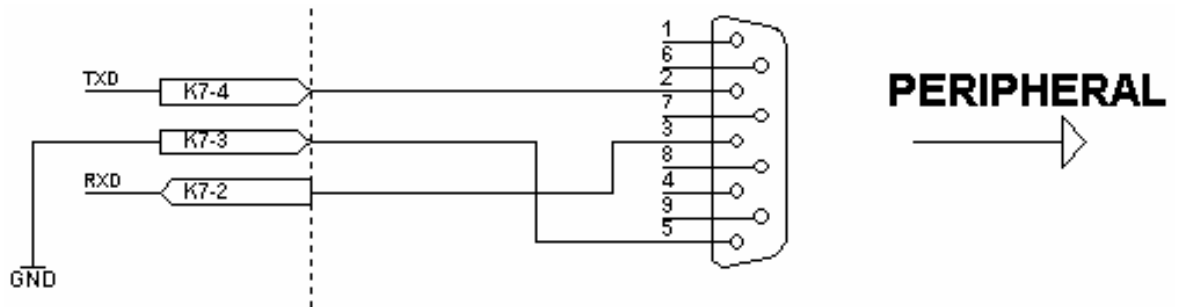
### K7, K9 SIP connectors 4 pts

Two serial RS232 ports are available to connect serial devices.  
The serials ports are software programmable.

K7	
Pin	Description
1	GND
2	RXD
3	GND
4	TXD

K9	
Pin	Description
1	GND
2	RXD
3	GND
4	TXD

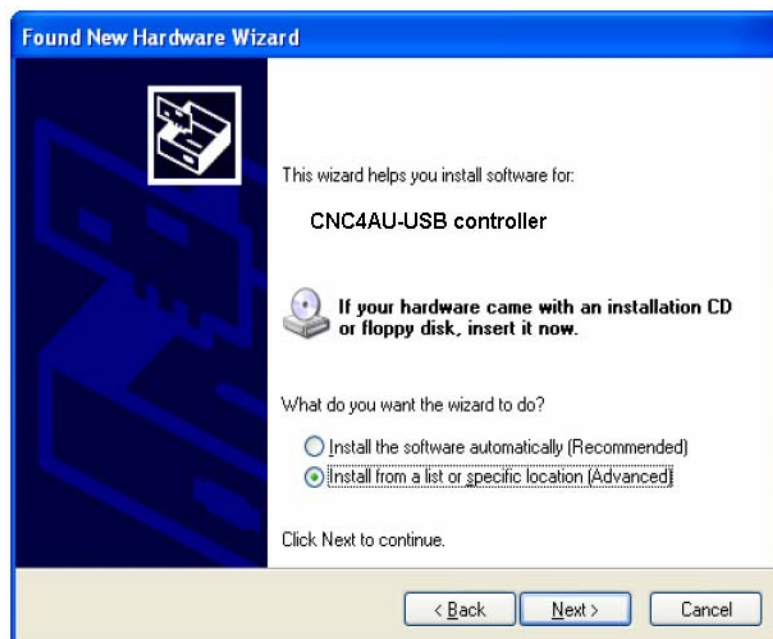
## RS232 connection examples :



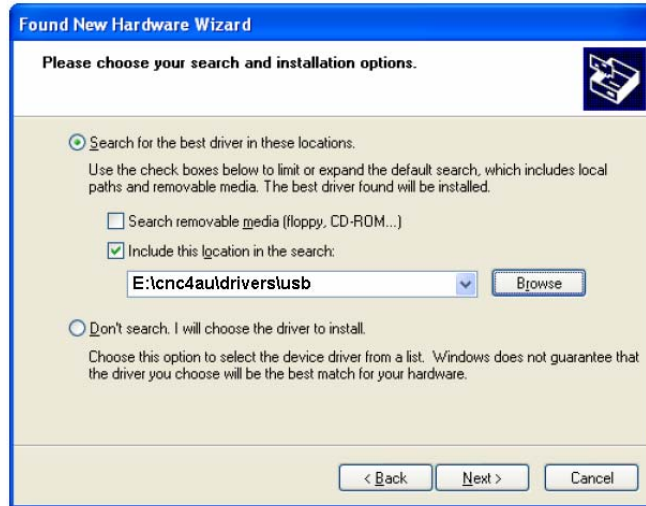
## 2.0 Drivers installation :

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:\cnc4au\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.

## 2.0 Mecanical drawing :

