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1.0 FEATURES

Parallel port controlled CNC Stepper Control Box with microstepping.

4 Stepper Motor.

Suitable for a wide range of stepping motors of Nema 17 and 23.

Up to 5.6A per Phase.

RJ45 Interface for VFD control (Variable Analog Output and relay contact).

Relay Controlled Coolant/Vacuum AC Plug.

1 Probe input. (Probe not included)

RJ45 interface for easy Limits and encoder connection.

Works directly with Mach3.

2.0 SPECIFICATIONS

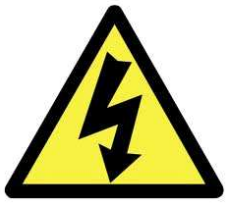
Main Voltage Input (VAC)	110V or 220V - Switch selectable
Main voltage for motors (VDC)	36V or 48V
Logic supply voltage (VDC)	5V and 12V
Peak Current per axis (A)	5.6 Amp per Phase
Step input frequency	0-100KHz
Digital inputs (LOW)	-0.5V - 0.8V
Digital inputs (HIGH)	2V-5V
Coolant/Vacuums output	110VAC@10A or 220VAC@10A
Cooling	1 DC fan
Dimensions (in) / (mm)	17x13.27x4.88/432x337x124
Weight (lbs) / (kg)	

3.0 SYSTEM REQUIREMENTS

Processor	1Ghz CPU
Memory	512

USB	1.1 or 2.0
Operating	Windows 2000, Windows XP, Windows Vista, or Windows 7
Software	Mach3 Version R3.042.040

4.0 WARNING



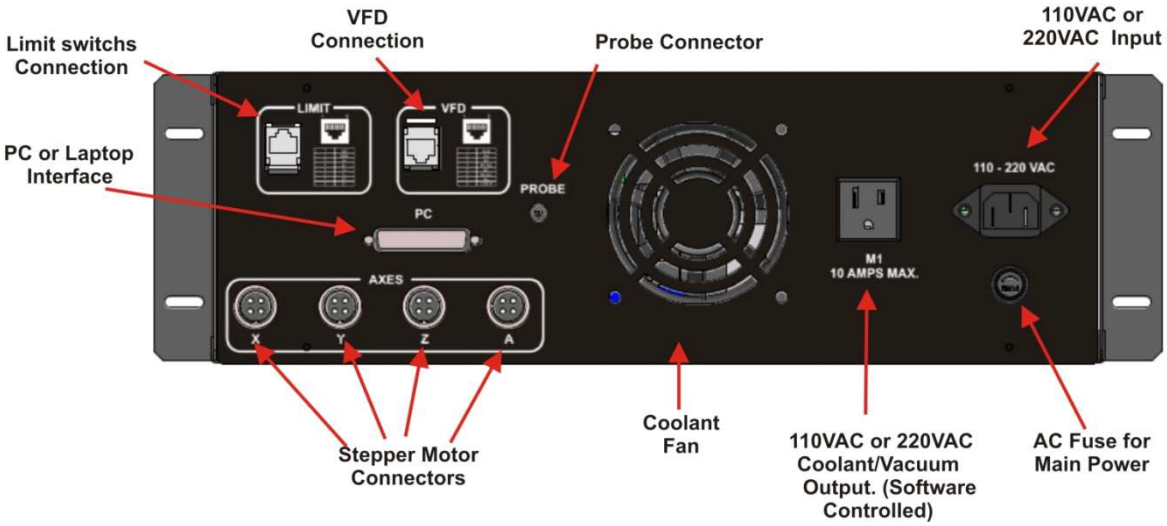
Electrical shock or serious physical injury could result due to misuse Control BOX.

Disconnect power cables while installing the Control Box.

Read and follow instructions on the manual.

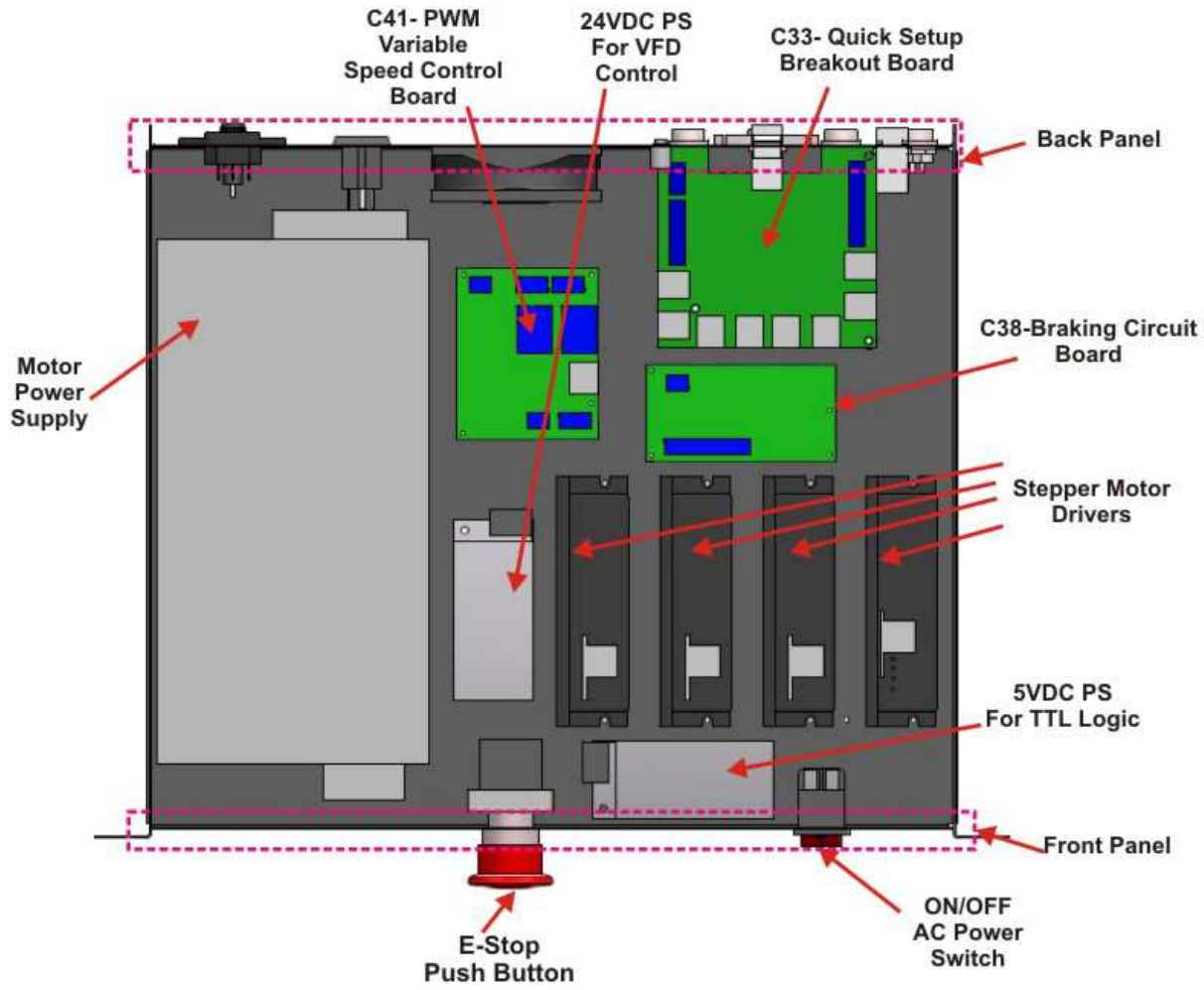
5.0 CONTROL BOX DESCRIPTION

5.1 Back Panel Description



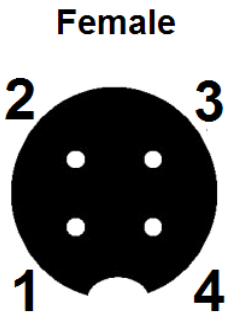
Back Panel.

5.2 Internal Layout


C41- PWM
Variable
Speed Control
Board
24VDC PS
For VFD
Control
C33- Quick Setup
Breakout Board
Back Panel
Motor
Power
Supply
C38-Braking Circuit
Board
Stepper Motor
Drivers
5VDC PS
For TTL Logic
Front Panel
E-Stop
Push Button
ON/OFF
AC Power
Switch

6.0 QUICK START (STEP BY STEP)

6.1 Step 1. Connecting Motor Armature cables.

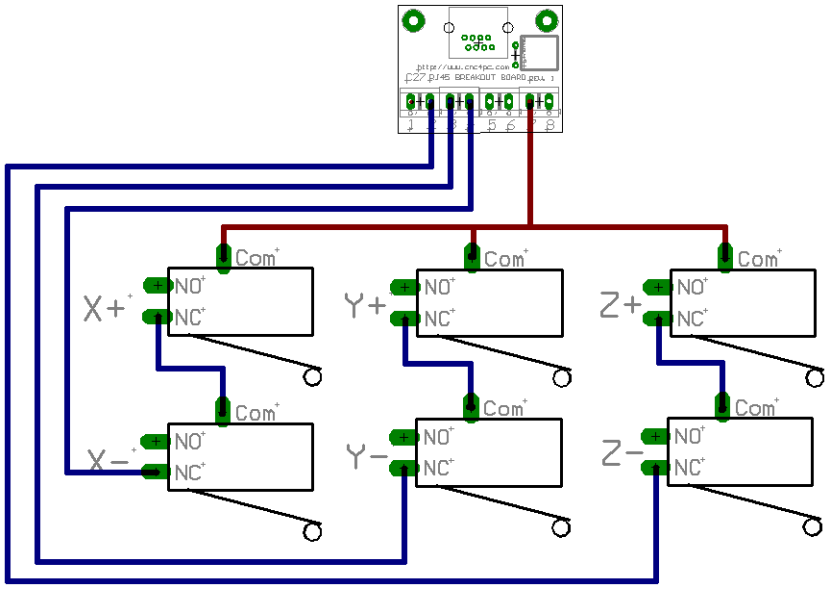


P	DESCRIPTI	WIRE

1	A+	RED
2	A-	WHITE
3	B+	BLACK
4	B-	GREEN

6.2 Step 3. Connecting Limit switches Board.

LIMIT RJ45	DESCRIPTIO
1	GND
2	Z HOME/LIMIT
3	Y
4	X
5	NOT USED
6	NOT USED
7	5V
8	NOT USED



Sample Wiring.

Wiring is made to work with an A32 Switch Assembly, C16 – Photo and Limit Board or a C45 LIMIT AND HOME UNIVERSAL, which could take any kind of switches, including

inductive, capacitive, hall effect, optical, or mechanical.

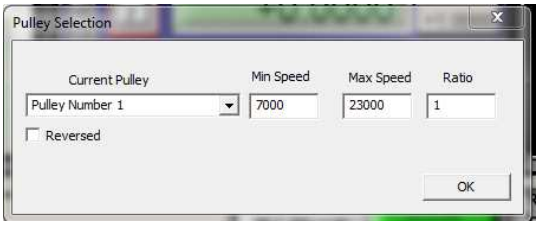
6.3 Step 3. Connecting VFD

This RJ45 handle signals coming from the C41R1.1 board.

LIMIT RJ45	DESCRIPTION
1	ANALOG OUTPUT COMMON (AI)
2	ANALOG OUTPUT (ACM)
3	NOT USED
4	RELAY 1 NO (Normally Open) CONTACT (CW) or (ON/OFF)
5	NOT USED
6	RELAY 2 NO (Normally Open) CONTACT (CCW) or (CW/CCW)
7	NOT USED
8	RELAYS COMMON CONTACTS (DCM)

The box is prewired for US VFD Mode, if using on International mode, open the box and move the jumper on the C41.

The true max and min speeds of the spindle must be set:



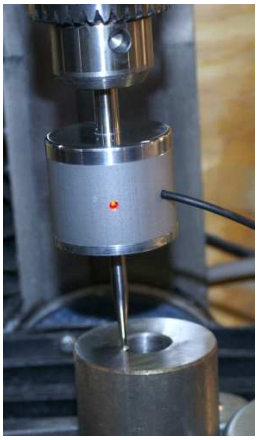
For addtional information, please refer to the documentation for the C41 board:
http://www.cnc4pc.com/Store/osc/product_info.php?products_id=236.

6.4 Step 4. Vacuum/ Coolant.

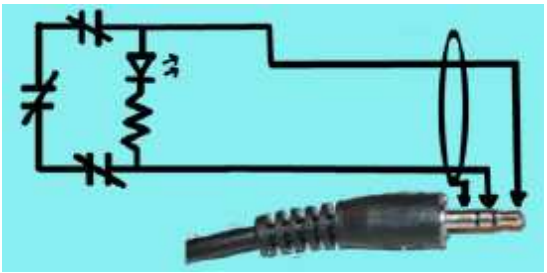
This output is controlled by an electromechanical Relay.

6.5 Step 5. Connecting Probe.

Touch probes are wired and preconfigured and just needs to be connected to the back panel. CNC4PC offers this unit: http://www.cnc4pc.com/Store/osc/product_info.php?cPath=69&products_id=323, but other may be used as long as the wiring is compatible,



3.5mm Jack

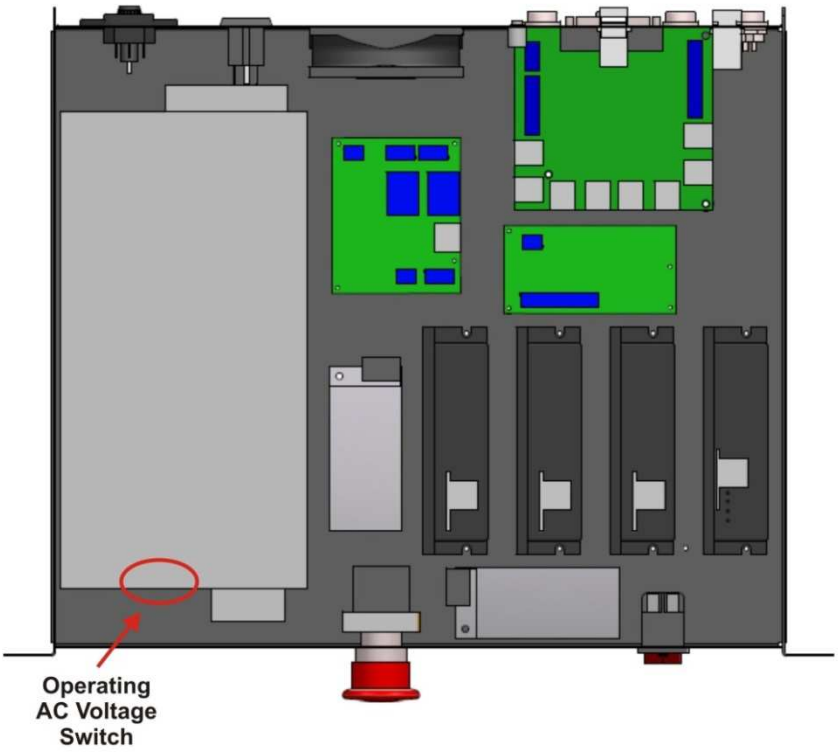


Refer to the product's documentation for additional information:
http://cnc4pc.com/Tech_Docs/TP1.pdf

6.6 Step 6. Selecting the AC operting voltage

Select the AC operating voltage by using the switch in the lower side of the box.

It is requiered that the box is opened to verify this, otherwise the power supply and the electronics can get damaged.



6.7 Step 7. Software Installation:

Before connecting the box to power install the basic software and configuration files:

1. Download and install Mach3 : ftp://machsupport.com/Mach/Mach3Version3.042.040.exe.

2. Install the Mach3 License.

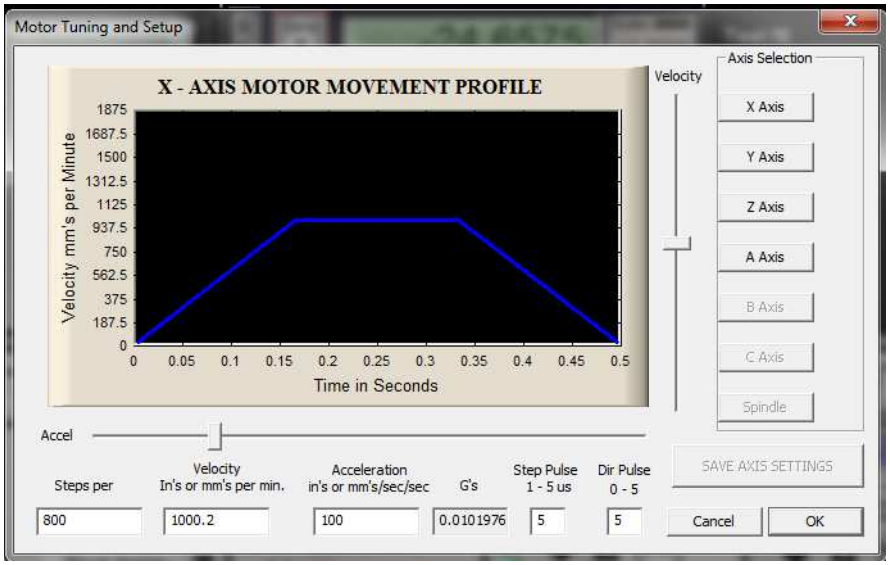
3. Download and copy XML and configuration files: http://cnc4pc.com/Files/CS4PA0-2.zip Make sure to copy each file in the specific directory.

6.8 Step 8. Configuring the Stepper Motor Drivers.

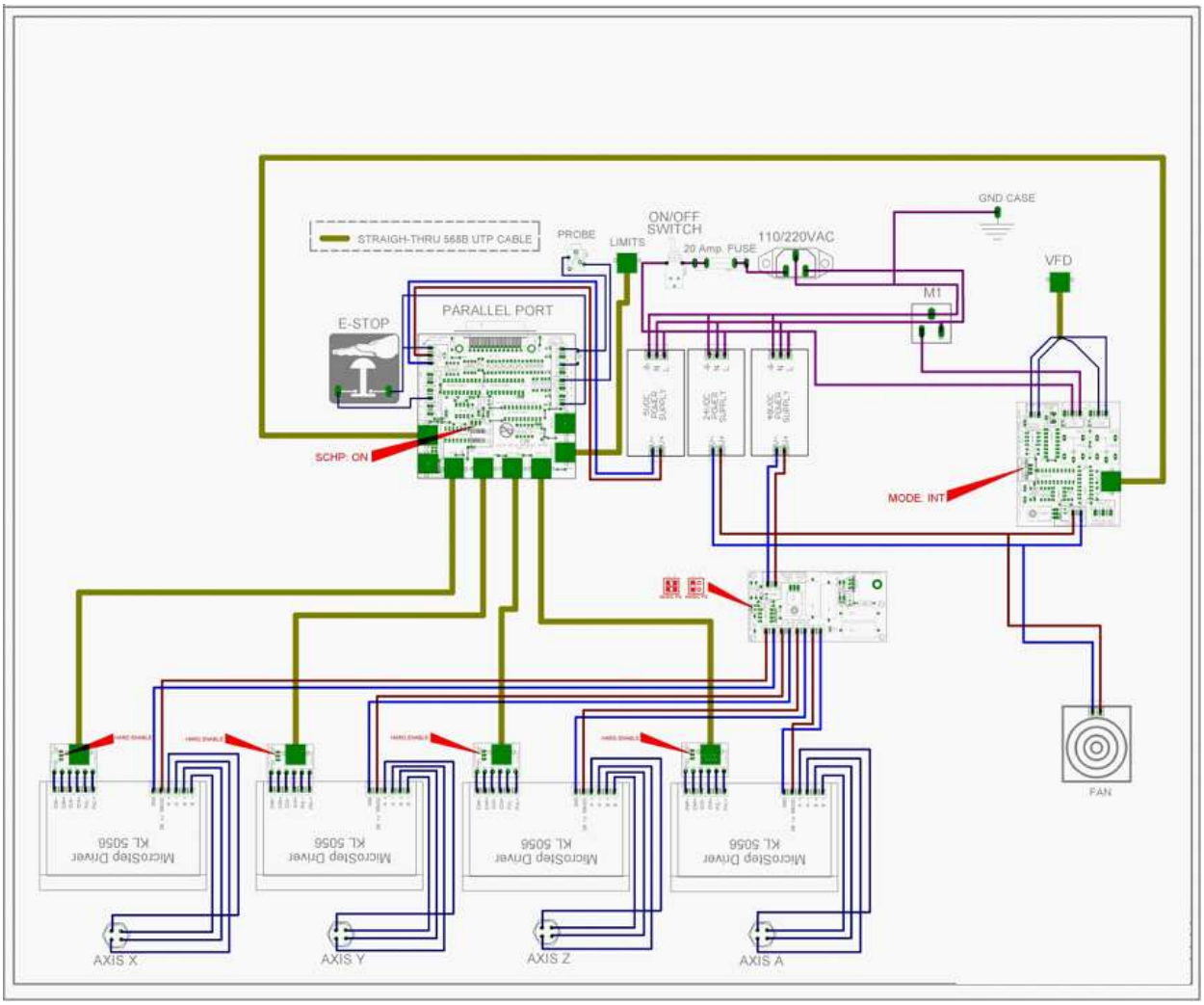
The Stepper Motor Driver used are KL-5056D or KL- 4030:
Check the drivers included the Box and refer to the drivers documentation for configuring them:

http://kelinginc.net/KL-5056D.pdf
http://kelinginc.net/KL-4030.pdf

Go to the Motor Tuning window and mach3 and configure the motors to the performance of your table:



7.0 WIRING DIAGRAMS



8.0 PART LIST

QUANTI	COMPONENT
1	5VDC@3A Regulated Switching Power Supply
1	24VDC@1.3A Regulated Switching Power Supply
1	Latch Twist-Release E-Stop Button
1	C35 – QUICK SETUP BREAKOUT BOARD
1	C41 - PWM Variable Speed Control Board
1	C38-Braking Circuit Board
4	KL-5056D Driver or
1	KL-600-48 48V/12.5A Power Supply or
1	A1-Parallel cable
1	A39 - 6 FT Power Cord- Standard System
1	A26 - 1 FT Booted Cat5e Network Patch Cable - Orange
	A27 - 3 FT Booted Cat5e Network Patch Cable - Orange
	5VDC@3A Regulated Switching Power Supply

9.0 DISCLAIMER:

Use caution. CNC machines could be dangerous machines. Seller or manufacture are not liable for any accidents resulting from the improper use of these devices. This product is not fail-safe device, and it should not be used in life support systems or in other devices where its failure or possible erratic operation could cause property damage, bodily injury or loss of life.