Manual KL-Series CNC

KL-6090 | KL-1212 | KL-1325 Versions

Welcome

Automation Technology Inc. is a supplier of motion control and CNC equipment. Featuring both the best of domestic American motion control brands, as well as high-value imported machine components. Automation Technology Inc. has the devices you need, in stock in America, and ready to ship. With in-house engineering expertise, amazing prices and our new online presence, we hope to be your first choice in motion control!

Table of Contents

1 *Mach3 CNC Control Software* *1*

Installation 1

Download Mach3 1

Install Mach3 1

Creating a Machine Profile 3

Configuring Mach3 3

Motor Tuning 4

Axis Calibration 4

1 Mach3 CNC Control Software

Mach3 turns a typical computer into a 6-axis CNC machine controller. It is very rich in features, works on most Windows PC's, and is customizable for many applications. Mach3 is the most intuitive CNC control software available.

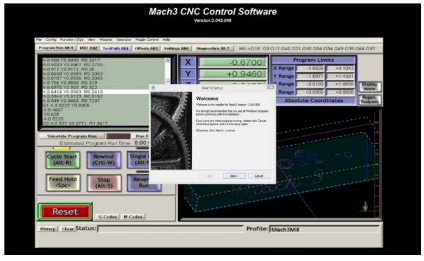
Download Mach3

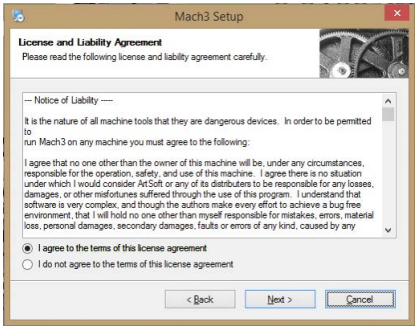
Go to Mach3 website and download the newest Mach3 version.

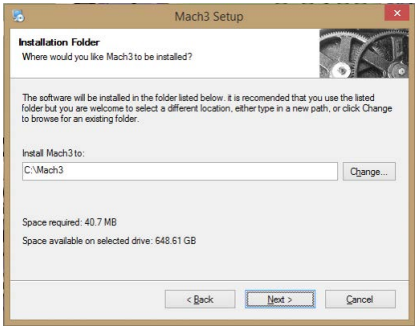
http://www.machsupport.com/software/downloads-updates/

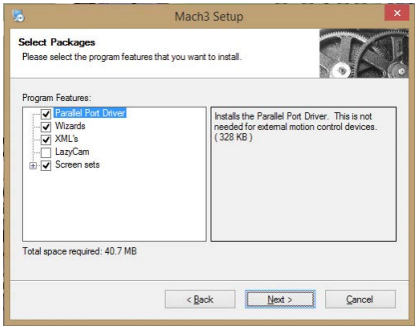
Install Mach3

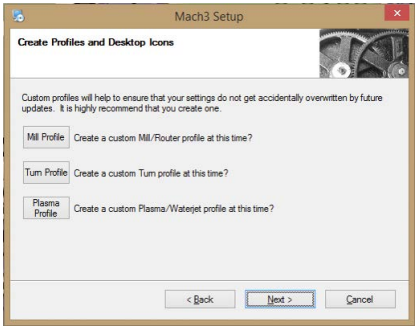
Once downloaded, run the installation of Mach3.



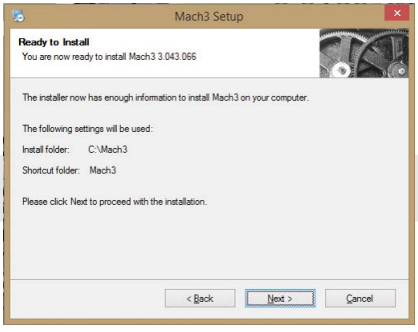




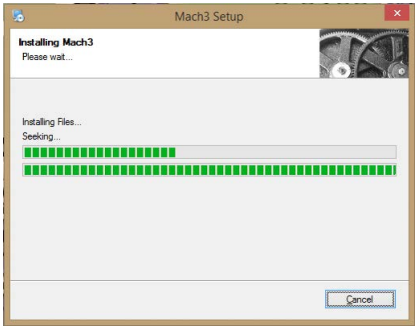


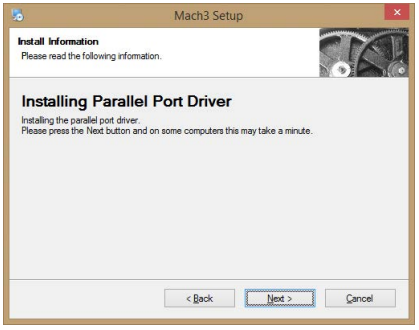


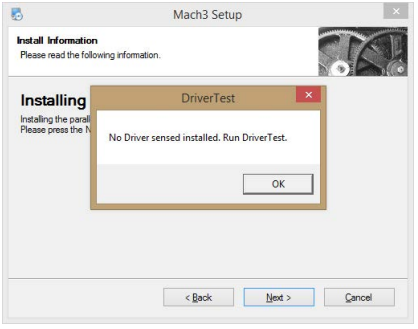
No need to set up a custom profile. We will set one up here in a few minutes.

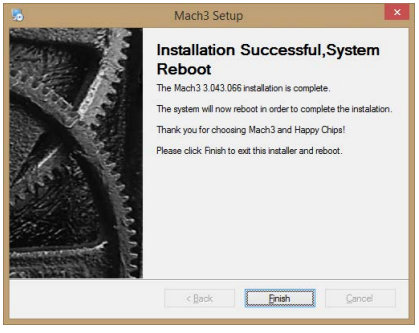


It is best to leave the default installation location.



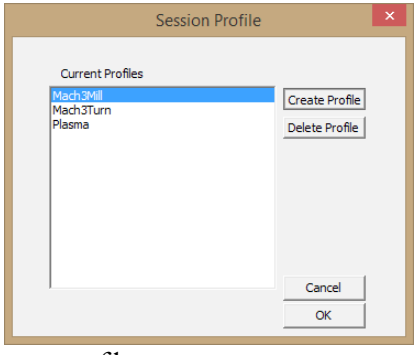




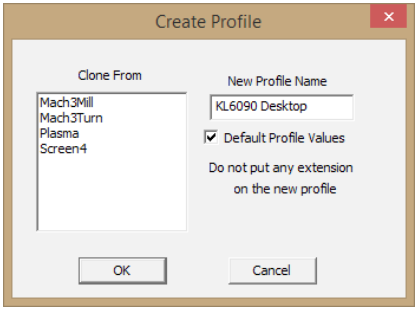


Creating a machine profile

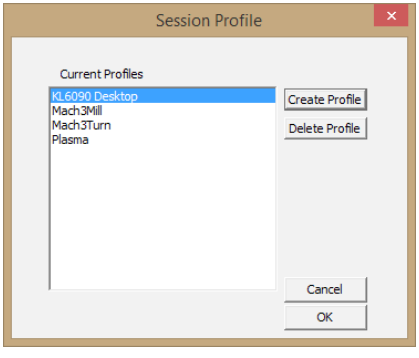
Open Mach3 Loader from your desktop. You're going to want to create a new profile and load the default settings to begin.

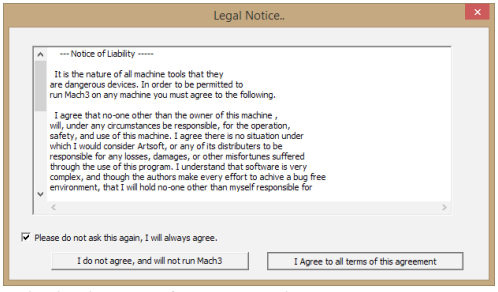


Click create profile.



Give your profile a name.



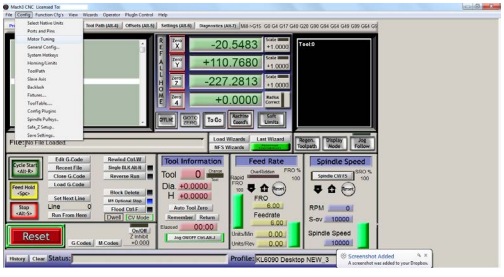


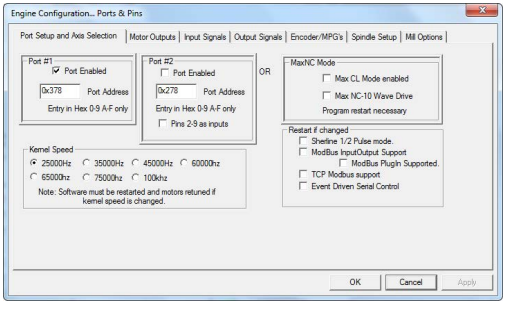
Check the box, and agree to the terms.

Configuring Mach3

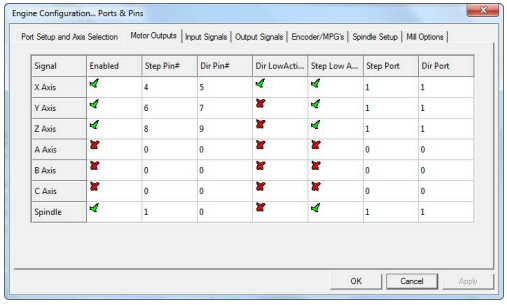
Most of the important settings you will be changing are in the Config tab. Make the nessary changes to match the screenshots below.

Click Config > Ports & Pins to start.

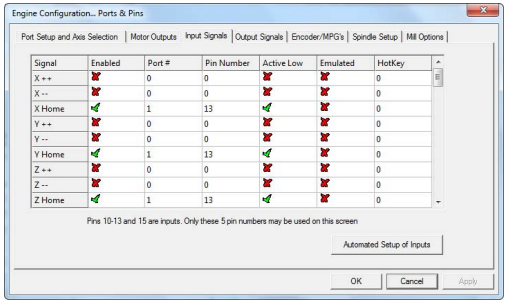


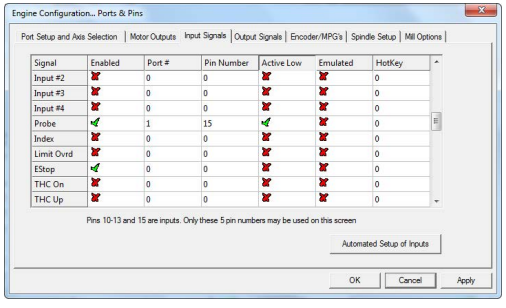


Set Motor Output pins

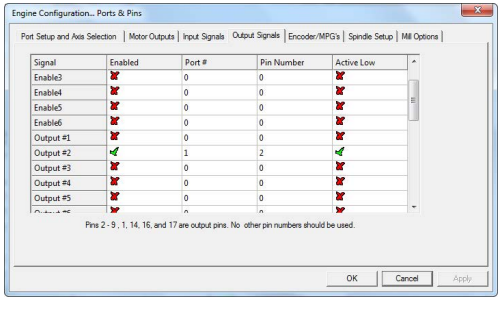


Set Input Signals, Probe, Estop

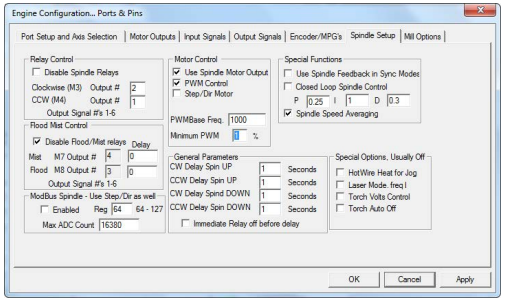




Set Output pins



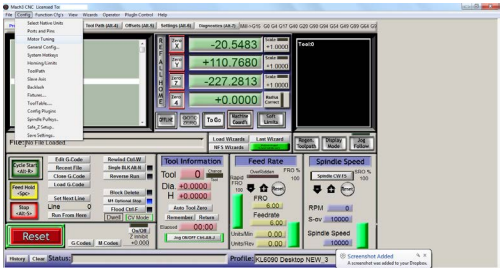
Spindle Setup

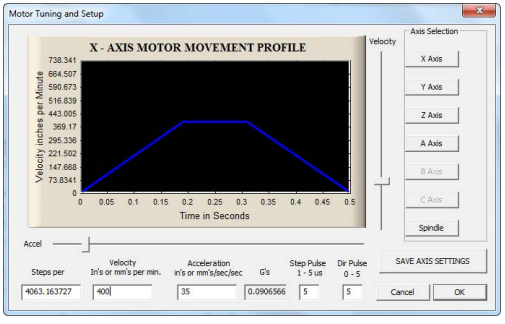


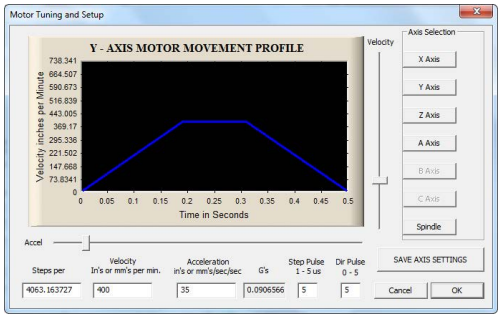
Motor Tuning

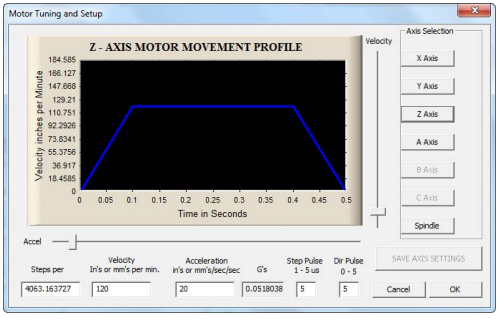
The next settings to set up are in Motor Tuning. These are ballpark values and you will be calibrating them in a littlw while. Make the nessary changes to match the screenshots below.

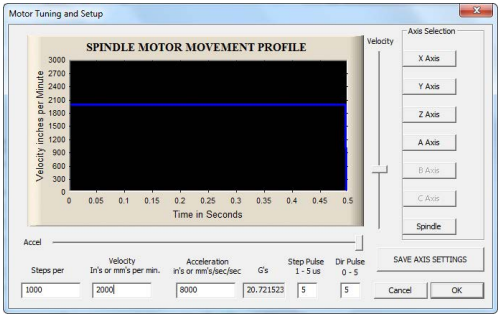
Click Config > Motor Tuning to start.











Movement Test

At this point you've got almost all settings defined. You should now be able to jog the machine around using the arrow keys along with Page Up and Page Down.

Right Arrow = Jogs X+

Left Arrow = Jogs X-

Up Arrow = Jogs Y+

Down Arrow= Jogs Y-

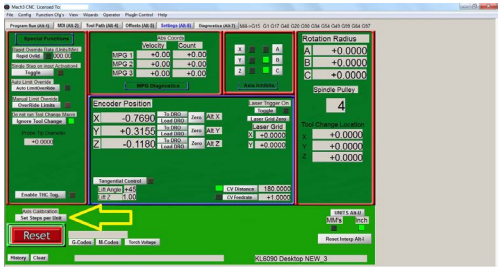
Page Up = Jogs Z+

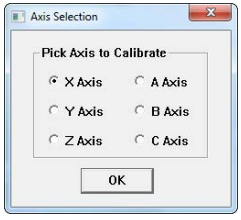
Page Down = Jogs Z-

Axis Calibration

Next up, you are going to really dial in the tuning of the machines' axis. You're going to need a ruler, tape measure, or other precision measuring device. You will be doing this for all axes. And it's best to do a few times. And remember decimal places are very important.

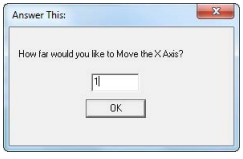
What you need to do is take your measuring device and lay it on the table parallel to the axis you are going to calibrate. Jog the machine to line up an edge to a number on the measuring device. (you may need to switch tabs to Program Run to jog the machine)Lets start with X. Click the Settings tab in Mach3 and navigate down to the button, Set Steps per Unit.

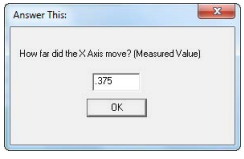




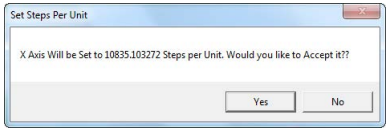
Pick the axis you are calibrating.

Input a small value, like 2. Once you press OK, the machine will jog to what it thinks is 2 inches.





Measure the amount the machine actually moved and input here.



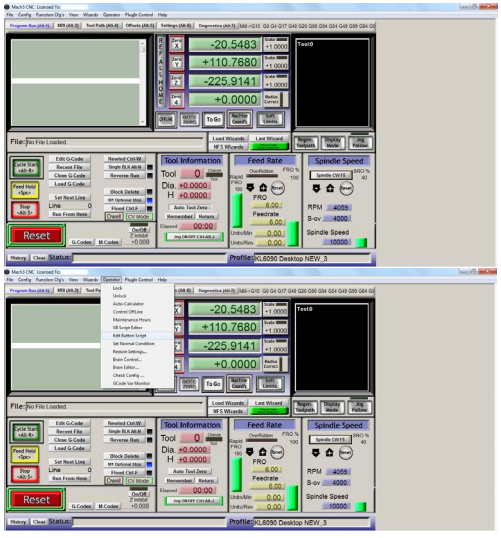
The machine will then automatically calculate the correct steps per unit you saw back in Motor Tuning.

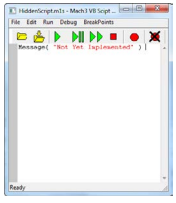
You're going to want to run through this process multiple times per axis, each time increasing the distance. We usually suggest three or four times.

Alternatively, if you would like a video explaining please visit the following link.
https://www.youtube.com/watch?v=EVrqObwaAF4

AutoTool Height Settings

In order for the auto tool height setting device to work (If equiped) we need to write a macro for it. Follow the following screenshots.





As you can see, this button is not yet programmed to work. The following page will have the code that needs to be typed in. (The whole left side of page)

```
Dim Zprobe, Zretract, ZfeedRate


'Note: TouchPlateHeight represents the actual height of the
'  Auto Z Touch Plate from the work surface.
'  Minor adjustments can be made for calibration purposes (use caution)
TouchPlateHeight = 0.57  '.57 inch for CNC Router Parts Touch Plate


Message( "Auto Tool Zeroing..." )


If IsSuchSignal (22) Then
        isMetric = GetOEMLED(801)
        Zprobe = -3
        Zretract = 1.5
        ZfeedRate = 10
        If isMetric = 0 Then
                Zprobe = Zprobe * 25.4
                Zretract = Zretract * 25.4
                ZfeedRate = ZfeedRate *25.4
                TouchPlateHeight = TouchPlate-
Height * 25.4
        End If
        Call SetDRO( 2, 0.00 )
        code "G31 Z" & Zprobe & " F" & ZfeedRate
        While IsMoving()
        Wend
        Call SetDRO( 2, TouchPlateHeight )
        code "G1 Z" & Zretract
End If
```

The code shown below will need to be carefully measured by you and modified. You're going to measure the middle distance of the tool touch plate from bottom to the plate that the tool will be touching. Take the value of 0.57 and replace it with the value that you measured. Best if measured by precision digital calibers.

TouchPlateHeight = **0.57** '.57 inch for CNC Router Parts Touch Plate

For more assistance please visit us at,
www.automationtechnologiesinc.com

Or give us a call at 1 (847) 882-2208