



Kamtronix
Automation

Manual And Troubleshooting Booklet

Term & Conditions

- Warranty period: 12 months from the date of supply, warranty is void in case of accident / mishandling / service by unauthorized personnel.
- Our equipment's are manufactured as per the details provided in our quotation/catalogue, but due to the company's policy of continuous development and improvement, we reserve the right to change or modify the design or construction without notice. Hence the illustrations in our catalogue are not binding and may be changed without prior notice or obligation.
- We shall not be liable for any failure or delay in the performance of this agreement for the period that such failure or delay is due to causes beyond its reasonable control, including but not limited to acts of god, war, strikes or labor disputes, embargoes, government orders or any other force majeure event.
- Mini CNC Router are meant for Engraving on Soft metals(plastics, brass, copper, aluminum) and Carving on Wood And Stone , using it for the machining of any other material is a warranty void
- Engraving Machine series are built to engrave on any material, using it for milling is a warranty void.
- In case of wear and tear of mechanical parts due to improper lubrication and improper handling of lubrication system, of the parts is a warranty void.
- Burning of any electronic spare part due to over and under voltage would not be covered under Warranty terms.
- Damage to machine due to natural cause like earthquake, tsunami, flood, rat or any other animal attack, any natural disaster would not be entertained in warranty period.
- Burning of cutting oil, lubrication and water pump motor is not part of warranty coverage.
- Damage due to improper maintenance of essential fluids (like cutting oil, spindle coolant, lubrication oil) is a void of warranty.
- Machinery Colour may vary from pictures displayed

INDEX

Table of Contents

1. Installation	5
1.1 Software.....	5
Installing.....	5
Driver Setup.....	6
Configuration file installation	6
Macro code file installation.....	7
1.2 Hardware Setup.....	7
1.3 Earthing or Grounding.....	7
1.4 Spindle coolant & Cutting Oil	8
1.5 Referencing.....	8
1.6 Lubrication.....	9
2. Software Operations.....	10
2.1 Spindle On/Off.....	10
2.2 Jog Move	10
2.3 Go to Home of Machine.....	11
2.4 Go to Zero.....	11
2.5 Manual Input G Code.....	12
2.6 Load G Code.....	12
2.7 Start-Pause-Stop	13
2.8 Feed rate	13
3. Maintenance	14
3.1 Lubrication.....	14
3.2 Cleaning.....	14
3.3 Leakage	15
4 Troubleshooting	16
4.1 Machine is resetting itself	16
4.2 Axis Motor is not working.....	16
4.3 Spindle not working.....	16
4.4 Axis is crossing the limit or motor keeps running or limit switch active suddenly.....	16

4.5 Machine is not responding to the commands.....	17
4.6 Motor Jittering.....	17
4.7 Lubrication is not working.....	17
4.8 Spindle Coolant or Cutting oil System is faulty or not working	17
4.9 Machine hangs or losing steps or wrong dimensional cutting.....	17

1. Installation

Levelling the machine using an engineer's spirit level using table Adjustment Bolts

1.1 Software

There are various kinds of software for engraving machines and portable computer router's. For machines with fixed controllers the software is pre-installed into the controller and is pre-configured at the factory. For Engraving machines and portable computer routers, user can download the software from our website : www.kamtronixautomation.com/Downloads Download the software according to your computer configuration or can install the software from the CD ,provided with the machine.

Installing

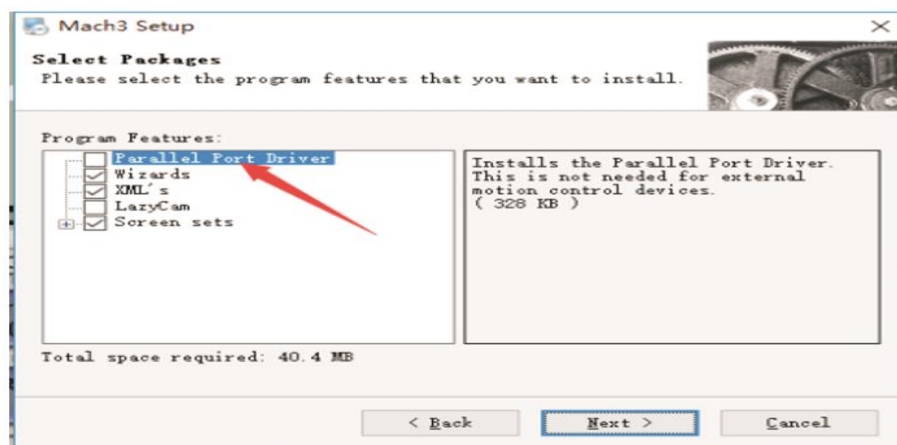
This section will guide you through the installation of the Mach3 software. If you already have a version of Mach3 installed on the computer, you can install the new version on top of it. You do not need to remove the old version first.

If a machine tool is connected, disconnect it now.

You do not need a machine tool connected to install the software. In fact, if you are just starting it is probably better not to have one connected. If a machine tool is connected to your computer, note where the cable or cables from the machine tool are plugged into your PC. Turn off the PC, the machine tool, and its drives, and unplug the USB connector(s) from the back of the PC. Now switch the PC back on.

Setup

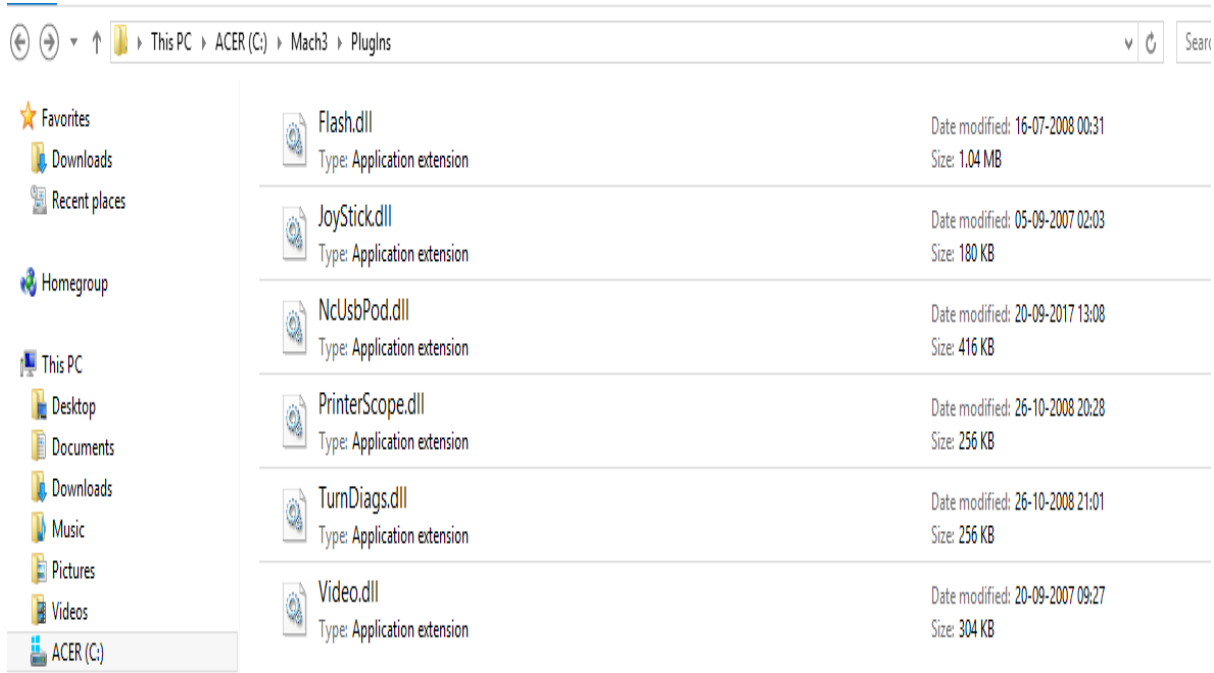
When you install it, please **cancel "Parallel Port Driver"** option.



After the software installation is completed, you need to copy '**Mach1Lic.dat**' file to "**C:/Mach3 folder**".

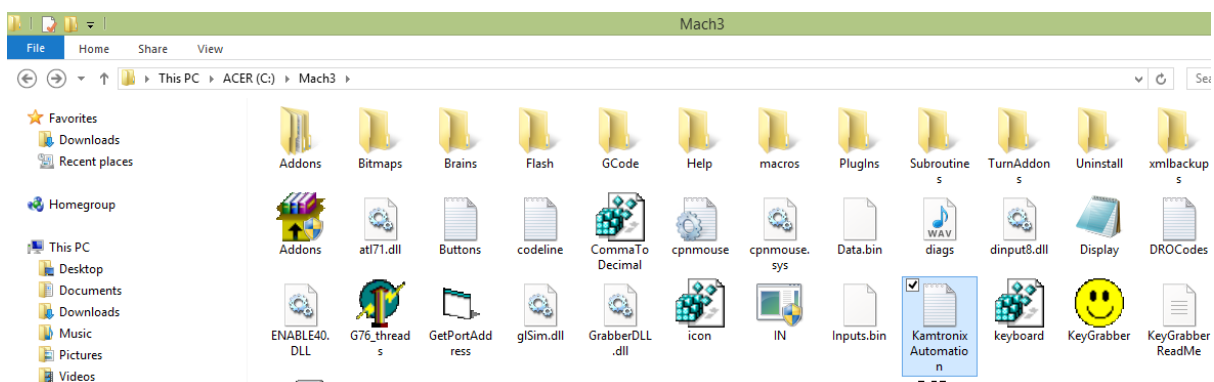
Driver Setup

Please copy the driver file after the software installation is complete. Open our Cd, and find the...**Driver file**>> **NcUsbPod.dll** .Then copy it to MACH3 software folder...**C:/Mach3**>> **PlugIns folder**



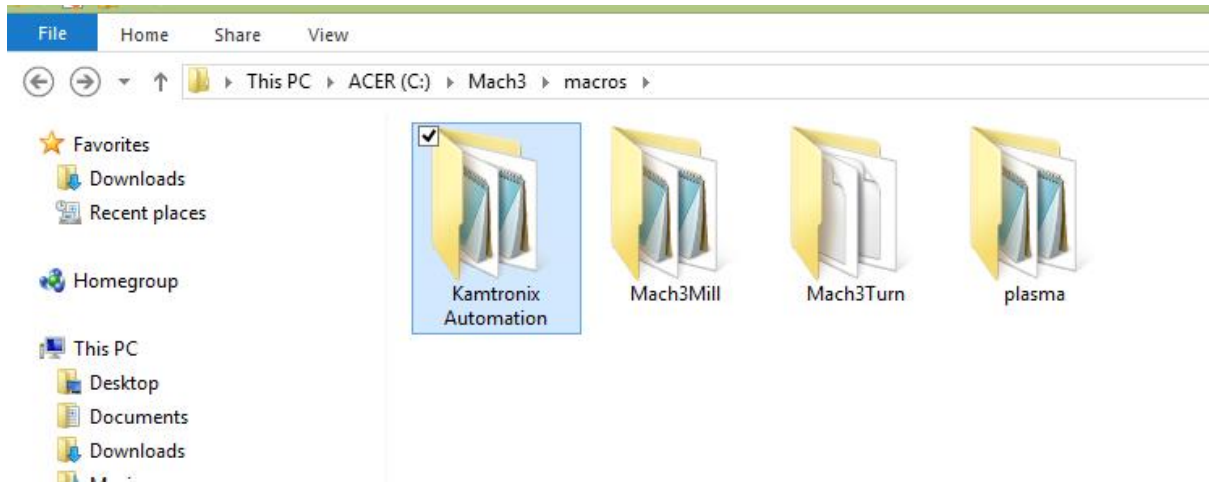
Configuration file installation

Open our CD and find the ...**Configuration file**>> **kamtronixautomation.xml** file , then copy it to **C:/MACH3** software folder..



Macro code file installation

To control the output port or other macro code functions, you must copy them to...**C:/MACH3>>macros> >Kamtronix Automation.**



1.2 Hardware Setup



Connect the computer and USB card with the USB cable. There is a work indicator light on the control card. If flashing means the connection is successful. Or **check your computer device manager>>Human body input device**, check whether there is new equipment added.

1.3 Earthing or Grounding

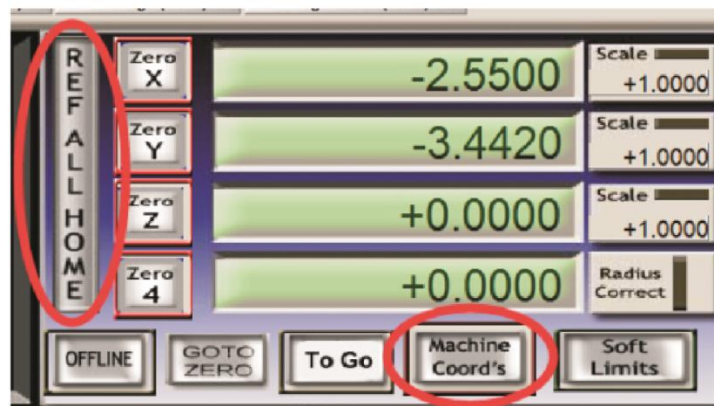
In an electrical installation, an earthing system or grounding system connects specific parts of that installation with the Earth's conductive surface for safety and functional purposes. The point of reference is the Earth's conductive surface. The choice of earthing system can affect the safety and electromagnetic compatibility of the installation. **Make sure the Earthing wire is well connected to the earthing system for proper functioning of machine.**

1.4 Spindle coolant, Cutting & Lubrication Oil

Make sure that spindle coolant, cutting and lubrication oil tank is duly filled up to the level. Also, make sure that motor of the spindle coolant is well immersed into the liquid. Coolant, cutting and lubrication oil level should be well maintained for proper functioning of the machine. **Spindle coolant should always be kept cool or at a well maintained temperature of not more than 35deg Celsius. Spindle temperature should be well maintained and checked every 4 hours of continuous running.** In case of excessive spindle heating, change the spindle coolant or bring it to normal temperature as soon as possible by any means possible. **After ensuring the spindle coolant and cutting oil level, power up the machine.**

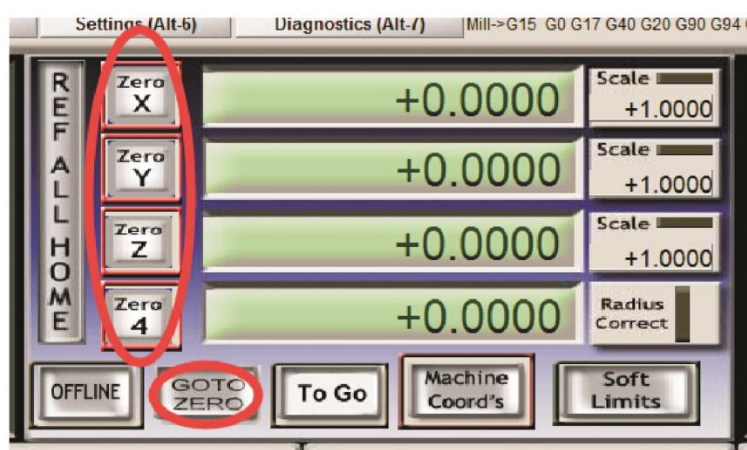
1.5 Referencing

After the above installation and hardware setup. Press **“REF ALL HOME”** button, all axis will go to home of machine and clearing all the coordinates. Click the **“Machine coord`s”** to see



machine coordinate.

Press the “Zero X” “Zero Y” “Zero Z” buttons, The workpiece coordinates are cleared and set to the Zero of the workpiece. **Click the “GOTO ZERO” button** go to zero of workpiece.



1.6 Lubrication

All the mechanical parts: ball screw rod and nut , linear bearings , LM guide, Bearings should be well lubricated . Lubrication should be done after every 4 hours of continuous run or 4 times a week. Good quality Engine oil or Bearing oil should be used for good life and smooth functioning of the machine. Use high pressure oil can to oil the complicated or hard to reach parts or bearings. In Case, you can't lubricate through oil hole, lubricate the screw rod or LM Guide. If the machine has auto lubrication system make sure that the tank is duly filled.



2. Software Operations

2.1 Spindle On/Off

You can press the "Spindle CW F5" button to open or close spindle.(see Figure), and you can manual input G code : M3(Spindle on),M5(Spindle off).

Spindle CW F5 :

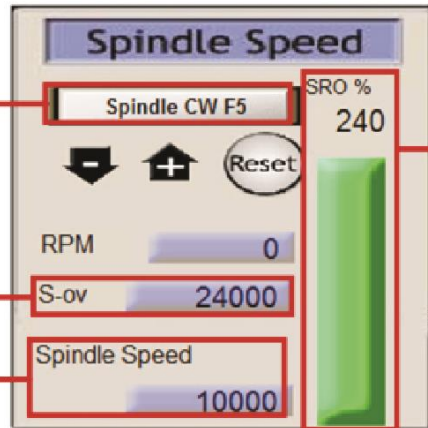
Press the button Spindle on or off.

S-oV :

Spindle current speed

Spindle speed :

Spindle initial speed



SRO% :

Spindle speed percentage,

2.2 Jog Move

Press the computer keyboard "Tab" key,

Cycle Jog Step :

press the button, chose Step value : 1mm'0.1mm' 0.01mm .etc.

Slow Jog Rate :

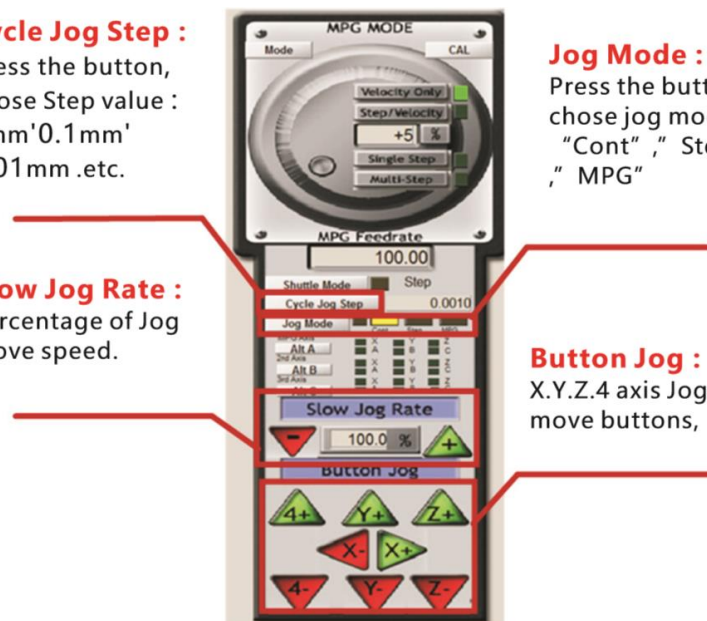
Percentage of Jog move speed.

Jog Mode :

Press the button, chose jog mode. "Cont" , " Step" , " MPG"

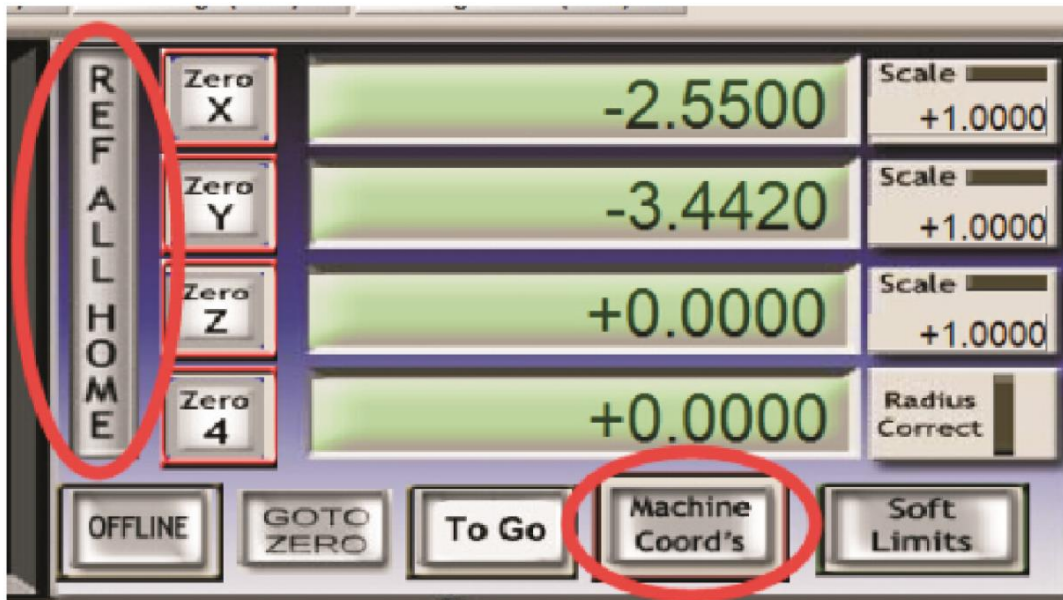
Button Jog :

X.Y.Z.4 axis Jog move buttons,



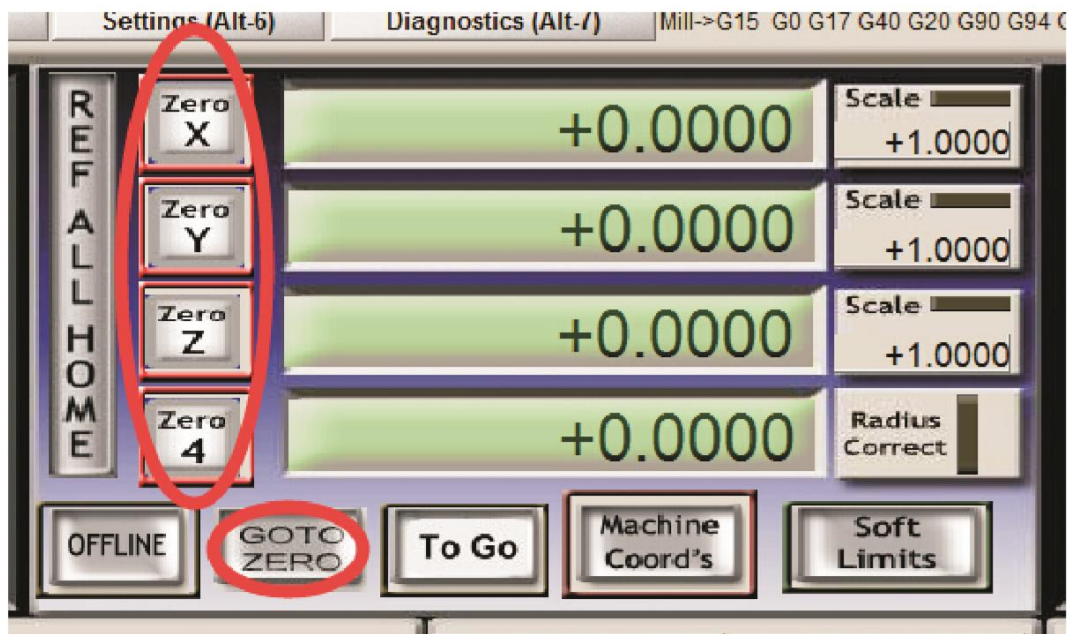
2.3 Go to Home of Machine

Press "REF ALL HOME" button, all axis will go to home of machine and coordinates will clear. Click the "Machine coord's" to see machine coordinate.



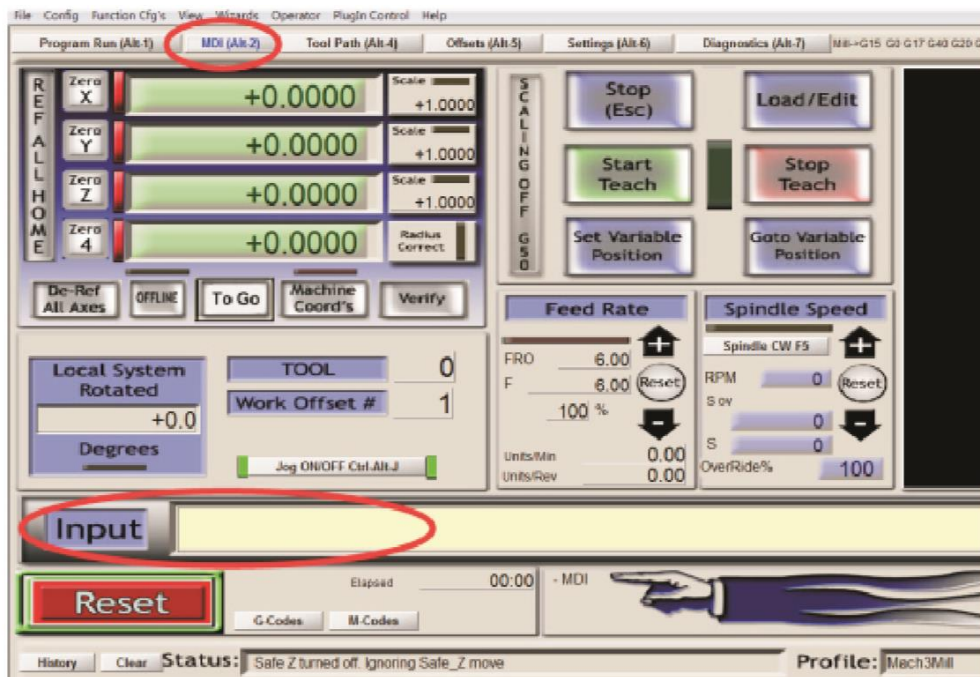
2.4 Go to Zero

Press the "Zero X" "Zero Y" "Zero Z" buttons, The workpiece coordinates are cleared and set to the Zero of the workpiece. Click the "GOTO ZERO" button to go to zero of workpiece.



2.5 Manual Input G Code

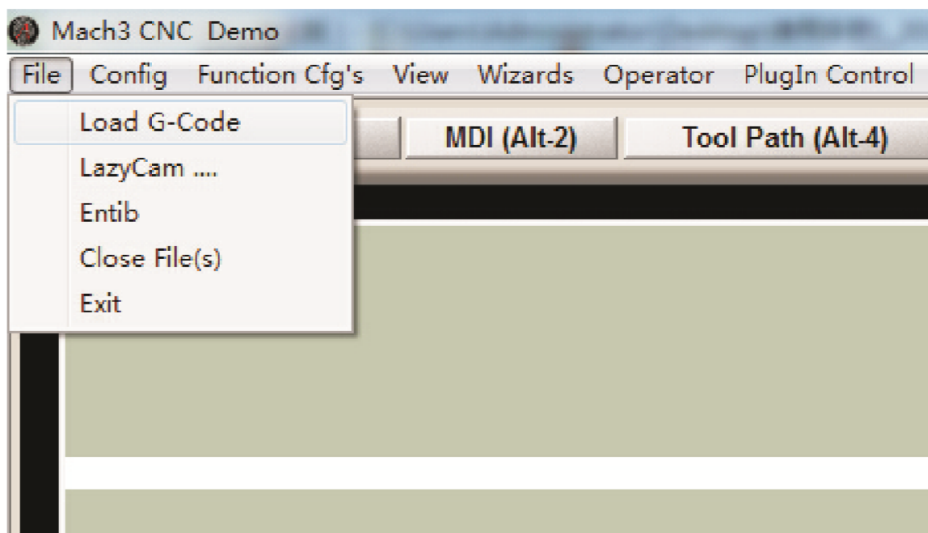
When you need to input G code, please click the “MDI(Alt-2)” ,then click the “Input” and input G code.



2.6 Load G Code

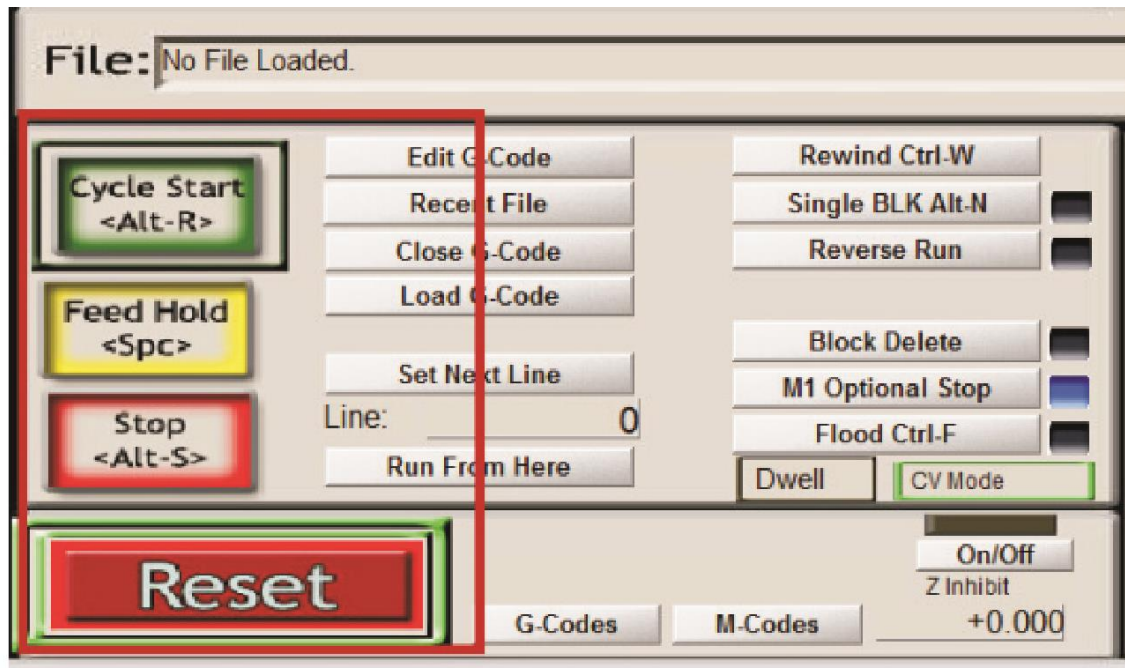
MACH3 software only supports G code files.

Please choose "File">>"Load G-code", and choose your processing file.



2.7 Start-Pause-Stop

After the program is loaded, click “Cycle Start” and the program starts running. Click “Feed Hold” and program will pause. Click “Reset” and software emergency stop.



2.8 Feed rate

Press the “+” or “-” button to increase or decrease the feed rate of the current program. Feed Rate won't exceed the maximum feed of the machine. Press “Reset” to reset the feed rate to 100%.



3. Maintenance

3.1 Lubrication

All the mechanical parts: ball screw rod and nut , linear bearings , LM guide, Bearings should be well lubricated . Lubrication should be done after every 12 hours of continuous run or 4 times a week. Good quality **Engine oil or Bearing oil** should be used for good life and smooth functioning of the machine. Use high pressure oil can to oil the complicated or hard to reach parts or bearings. In Case, you can't lubricate through oil hole, lubricate the screw rod or LM Guide. **If the machine has auto lubrication system make sure that the tank is duly filled.**



3.2 Cleaning

The machine should be well cleaned after every use, all the workpiece chip should be duly collected and be well disposed. Machine cleaning is important to prevent the machine from rusting and to increase its working life. The spindle coolant tank, cutting oil tank and lubrication oil tank should be cleaned well in every 3 month. Also, ensure that dust doesn't accumulate on the parts like ball screw rod, LM Guide or bearing shafts. Clean the machine bed regularly after every use with a cloth gently to maintain the flatness of the bed (as machine bed will lost its precision with time due to wear and tear of the bed or scratching of workpiece chip on the bed).

3.3 Leakage

Check for Leakage in the lubrication, cutting oil and spindle coolant system.in case of any leakage kindly repair the defective area or pipe. If necessary replace the pie with the new one. If the repair is beyond your reach, kindly contact our technician or our customer care cell.

4 Troubleshooting

4.1 Machine is resetting itself

- Check the connection to the ground or earthing cable.
- Check the power supply, voltage.
- Check the USB cable is well plugged in to your PC and to the controller.
- Check the USB Cable is not broken.
- Check the power cables.
- Check the motor driver, look for a blinking red light in any of the driver, if not driver is good.
- Check the limit switches, take a piece of metal and bring it near to the sensor to activate the sensor, Open the “Diagnostic” window and look for the yellow indicator light next to the each axis limit switch with accordance to your axis checking.
- Call the technician if the problem still persists.

4.2 Axis Motor is not working

- Check the power supply, voltage.
- Check the motor driver, look for a blinking red light in any of the driver, if not, driver is good.
- If the problem still persists, switch the motor wire and encoder feedback wire with another axis motor driver and the drive the motor. If the problem still exists then the motor is faulty..
- If the motor works fine then the motor driver is fine.
- Check the driver connectors, ensure that all the wires are well plugged and neatly .connected to the driver.
- Check the motor wiring for any faulty wire.
- Check the power supply voltage.
- Call the technician if the problem still persists.

4.3 Spindle not working

- Check the earthing or grounding cable and connection.
- Check the VFD(spindle controller).
- Check for voltage fluctuation.
- Check for thermal relay.
- Call the technician if the problem still persists.

4.4 Axis is crossing the limit or motor keeps running or limit switch active suddenly

- Check the power supply, voltage.
- Check the grounding or earthing wire connection.

- Check the limit switches, take a piece of metal and bring it near to the sensor to activate the sensor, Open the “Diagnostic” window and look for the yellow indicator light next to the each axis limit switch with accordance to your axis checking.
- Check the sensor wire.
- Check that sensor is well connected to the machine control drive.
- Call the technician if the problem still persists.

4.5 Machine is not responding to the commands

- Check the power supply, voltage.
- Check the USB Cable.
- Check the USB Cable is well plugged into your system and the controller.
- Check the emergency stop button.
- Call the technician if the problem still persists.

4.6 Motor Jittering

- Check the power supply, voltage.
- If only one motor is jittering look for a fault or any bend in wire or connections.
- Look for bad or loose connections.
- Call the technician if the problem still persists.

4.7 Lubrication is not working

- Look for a loose or bad connection.
- Clean the pump and then restart it.
- Call the technician if the problem still persists.

4.8 Spindle Coolant or Cutting oil System is faulty or not working

- Look for a loose or bad connection.
- Clean the pump and then restart it.
- Call the technician if the problem still persists.

4.9 Machine hangs or losing steps or wrong dimensional cutting

- If the machine hangs while working, then re-install the software and clear the other background running applications or software.
- Look for bad connections from machine controller
- Check the motor drives
- Replace USB Cable