USER MANUAL

Genmitsu

3020-PRO MAX CNC Router

V1.0 Sept. 2021

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Welcome

Thank you for purchasing the Genmitsu 3020-PRO MAX CNC Router from SainSmart. Included in your package is a pre-loaded USB Stick, on this you will find:

- PDF version of this manual
- Windows USB Driver
- GrblControl/Candle software for Windows
- Sample files

Please visit the SainSmart Online Resource Center for help installing drivers and software for your CNC.

The driver and software can also be found on the included USB stick.

For technical support, please email us at ***support@sainsmart.com***.

Help and support is also available from our Facebook group.
(SainSmart Genmitsu CNC Users Group)

Scan QR code to join the group

Disclaimer

Please be careful when using your CNC machine. This machine is an electrical device with moving parts and dangerous areas.

- Genmitsu CNC Machines are for Indoor Use Only.
- You must be 18 years or older to operate this machine, unless supervised by a knowledgeable adult familiar with the machine.
- Wear the proper Personal Protection Equipment (Safety Glasses etc.).
- Always place the CNC Machine on a stable surface.
- The SainSmart Genmitsu CNC Machine is supplied with Switchable Power Supply 230VAC or 115VAC. Never use a different power supply; it may cause malfunctions or damage to the machine.
- The 3020-PRO MAX utilizes a high amp power supply. It is recommended that you do not plug the CNC Router into an extension cord, or power strip as it may damage the machine. (Need final confirmation）
- Ensure the Emergency stop button is easily accessible at all times.
- Never disassemble the Power Supply or Electrical Components. This will VOID the warranty.
- DO NOT TOUCH the machine spindle, or place any body part near the working area when the machine is operating. Serious injury may occur.
- DO NOT leave children unsupervised with the CNC Machine even when it’s not operating. Injury may occur.
- DO NOT leave the machine unattended while it's operating.
- Ensure your CNC Machine is in a well-ventilated area. Some Materials may discharge smoke or fumes during operation.

Specifications

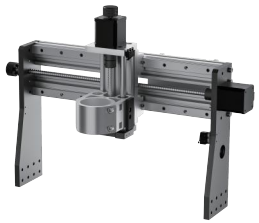
Work Area	300 x 200 x 72mm (11.81 x 7.87 x 2.83inch)
Drive System	Linear Rail Guide & T nut Screw
Control Board Compatibility	GRBL 1.1f
Stepper Driver	A4988
Stepper Motors	42 x 48mm
Spindle	300W/12000RPM
Accuracy	±0.1mm
Power Supply	48V/7.3A
CAM Software	Candle, Carveco Maker, Easel and more
Limit Switches	Yes
Emergency Stop	Yes
Offline Controller	Yes
Overall machine size	391 x 461 x 357mm (15.39 x 18.15 x 14.06inch)
Machine Weight	10.8kg
Rotary 4th axis	Coming Soon
Laser Module	Support laser module with 33mm width.
Support OS	Windows XP/7/8/10, Linux, Mac OS

Part 1 - Unboxing

Please make sure all the following parts are included. If you are missing any part or have any questions, please email us at ***support@sainsmart.com***

Mechanical Parts List

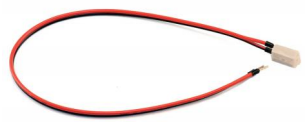
1 Base Assembly



2 X-axis/Z-axis Gantry

3 Spindle with ER11 Tail (300W/12000RPM)

Electrical Parts List



4 1 × Spindle Cable

5 3 × Stepper Motor Cable

6 Controller Board

7 USB Cable (1.5m)

8 USB Flash Disk (4G)

9 Power Supply (48V/7.3A)

10 Offline Controller

Tools/Accessories Parts List

11 Cable Protector (2m)

12 Allen Wrench Set
(1.5mm, 2mm, 2.5mm, 3mm, 4mm, 5mm)

13 Emergency Stop Button with Cable (60cm)

14 3 x Limit Switch (60cm)

15 4 x Clamp

16 Cleaning Brush

17 2 x Cable Tie
(14*87*2mm, 17*88*2mm)

18 Laser Mount (33mm)

19 10 × Engraving Bit Kit
20 Degree, 0.1mm Cutting area, 3.175 Diameter

20 4 x Rubber Feet

21 2 x Wrench
(17mm, 15mm)

22 Screwdriver

Screws/Other Parts List

23 4 x M5*10 Screw

24 16 x M5*16 Screw

25 4 x M4*10 Screw

26 4 x M4 T Slot Nut

27 4 x M5 T Slot Nut

28 16 x Spring Loaded M5 T Nut

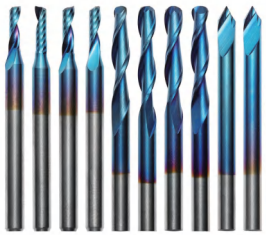
29 4 x M2.5*10 Screw

30 4 x M2.5*12 Screw

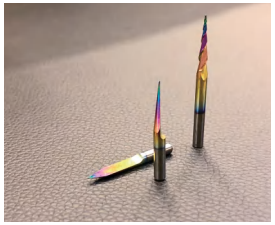
Optional Accessories (Not Included)

5.5W Fixed Focus
Laser Module

2PCS T-Track
Mini Hold Down
Clamp Kit



EM10B, 1/8" Shank,
Single Flute Ball Nose
V-Groove CNC Cutter



EM03A, 1/8" Shank,
Chromatic End Mill
Cutter Set

Scan QR codes to learn more

Part 2 - Mechanical Assembly

Before we begin, place your 3020-PRO MAX CNC Base on a flat and level surface.

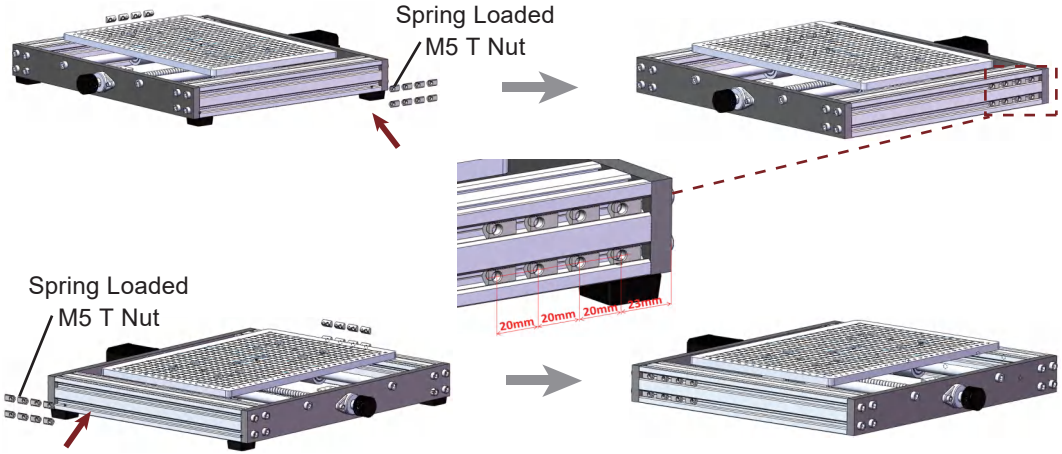
Step 1: Align the X / Z-axis Gantry Fixing Nuts

What you will need

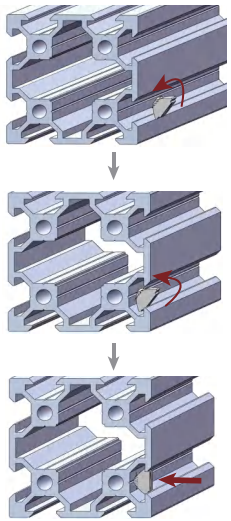
1 Base Assembly

28 16 x Spring Loaded M5 T Nut

Insert Spring loaded M5 T Nuts into the side of the profile. Do this by tilting the T Nut at an angle as shown in the diagram below with the tapered side into the slot, be sure the T Nuts are fully seated into the slot by pressing the T Nut flat. Then align the T Nuts to match on both sides of the Y-axis according to the Gantry holes (See Diagram).



Step diagram for putting the nuts into the profile:



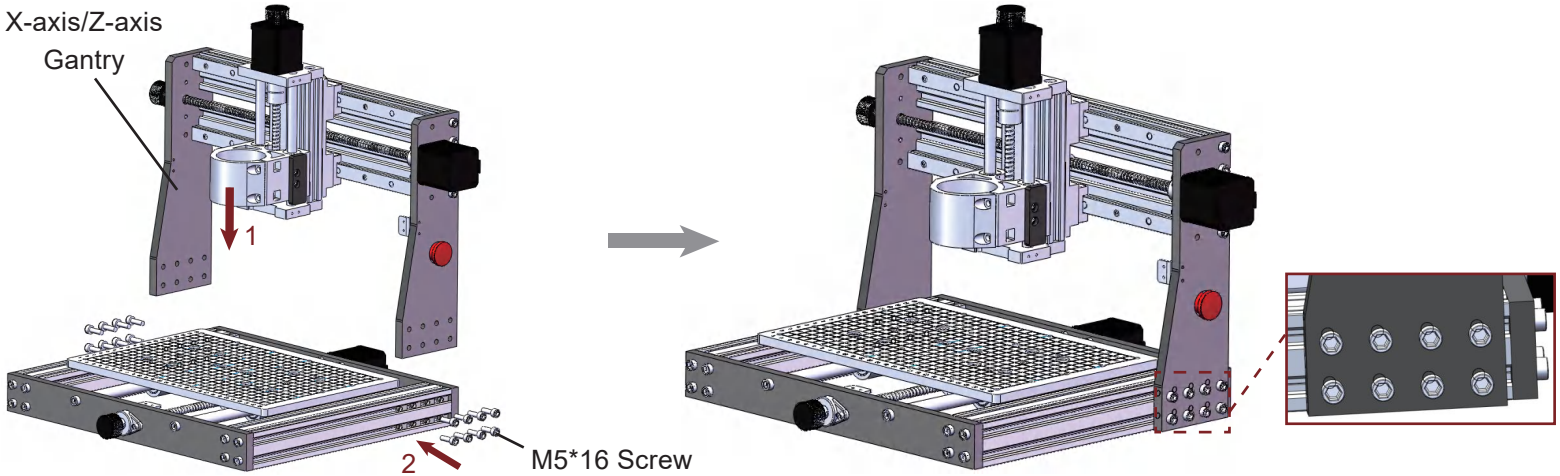
Step 2: Install the X / Z-axis Gantry

What you will need

2 X-axis/Z-axis Gantry

24 16 x M5*16 Screw

After you align the gantry with the nut holes, tighten the M5*16 Screws, before completely tightening, ensure the back of the gantry is spaced 13mm from the back of the machine frame on both sides (See Diagram Below).



Step 3：Install the Rubber Feet

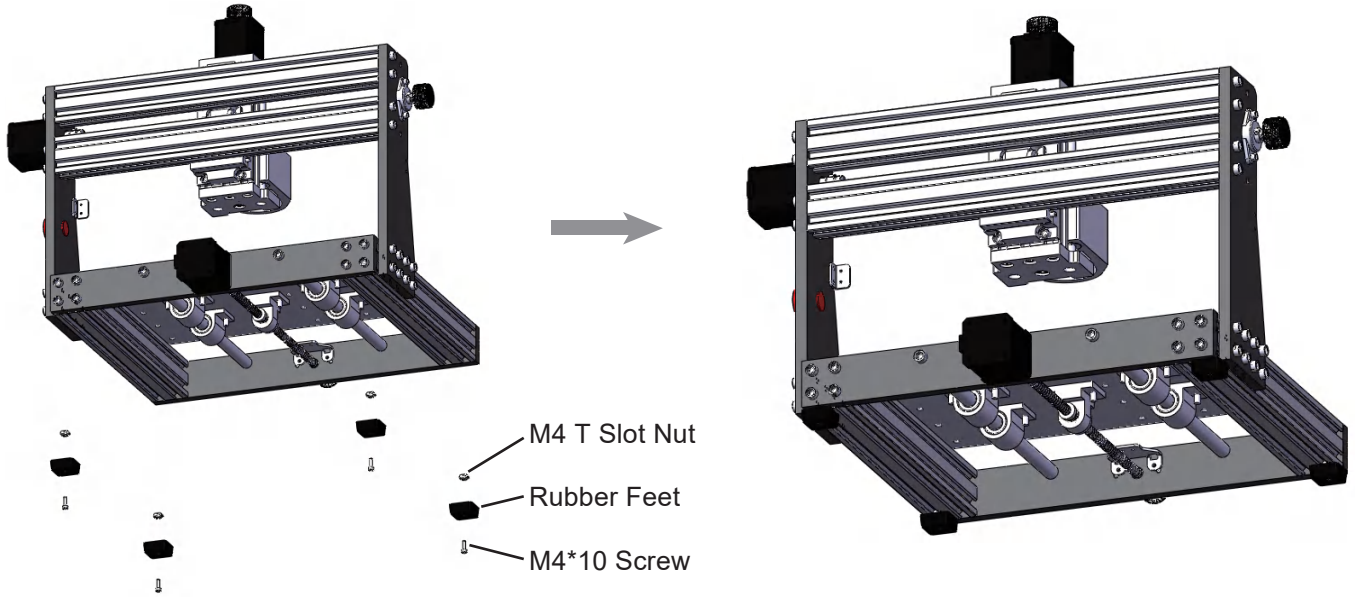
What you will need

20 4 x Rubber Feet

25 4 x M4*10 Screw

26 4 x M4 T Slot Nut

Place the M4 T Slot Nut into the profile, align the Rubber Feet with the screw hole, adjust the Rubber Feet position, and then tighten the M4*10 Screw.



Step 4: Install the Limit Switches

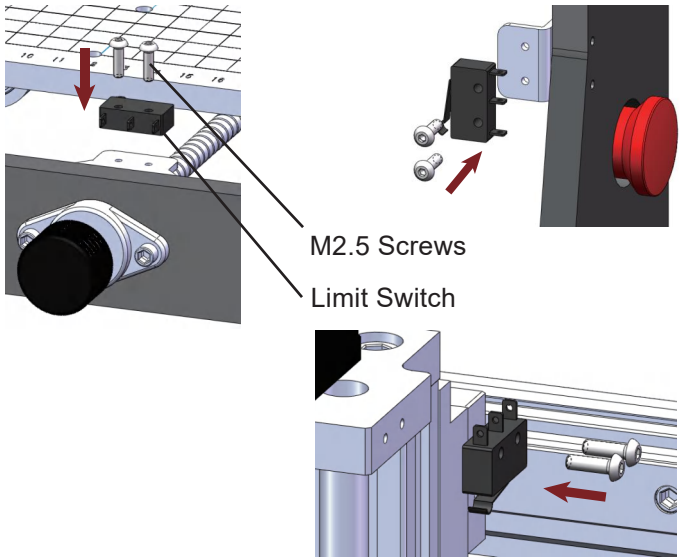
What you will need

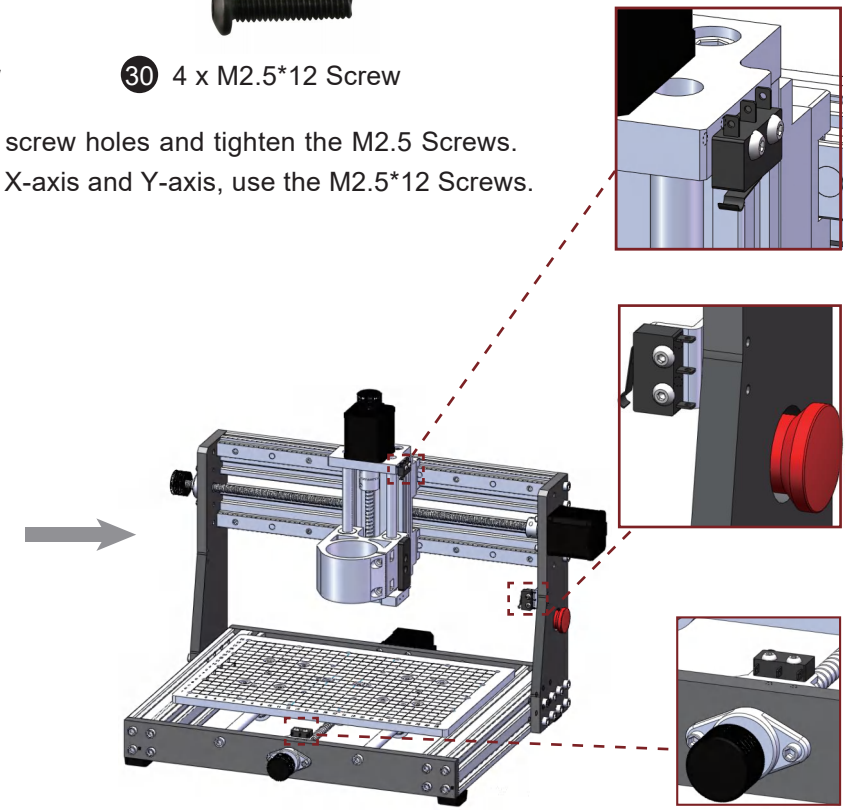
14 3 x Limit Switch (60cm)

29 4 x M2.5*10 Screw

30 4 x M2.5*12 Screw

Align the X-axis, Y-axis and Z-axis limit switches with the screw holes and tighten the M2.5 Screws.
For the Z-axis one, please use the M2.5*10 Screw, for the X-axis and Y-axis, use the M2.5*12 Screws.





Step 5: Install the Control Board

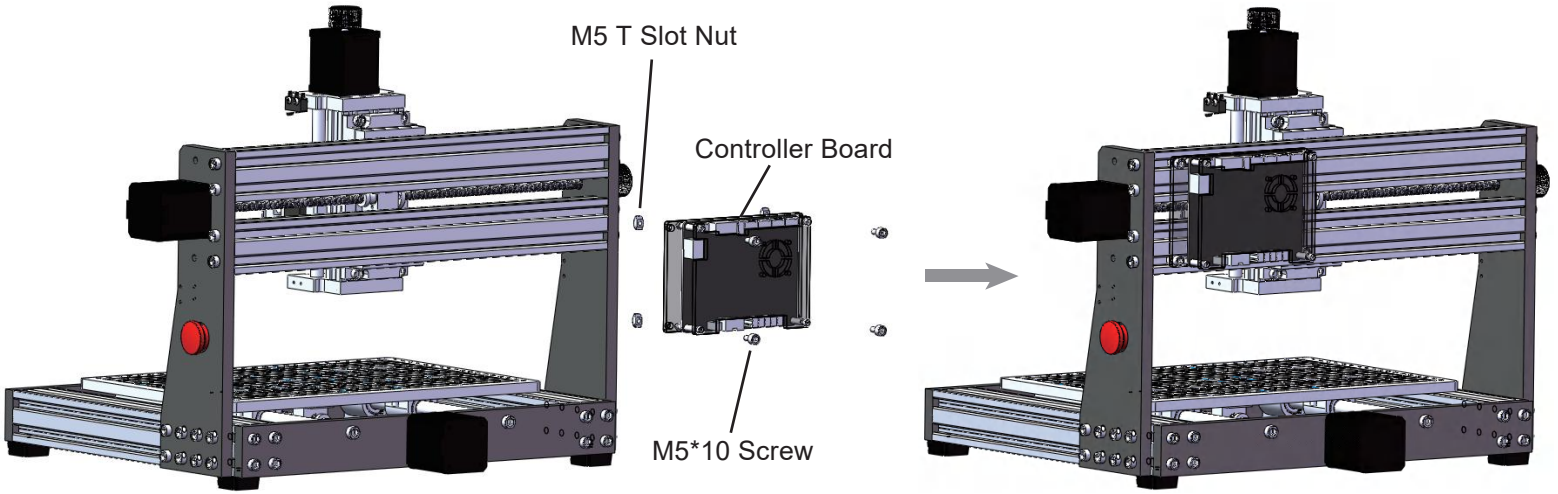
What you will need

6 Controller Board

23 4 x M5*10 Screw

27 4 x M5 T Slot Nut

1. Place the M5 T Slot Nut into the Y-axis profile.
2. Align the Control Board with the nut hole, tighten the M5*10 Screw into the hole and adjust the control board position, then tighten the screw.

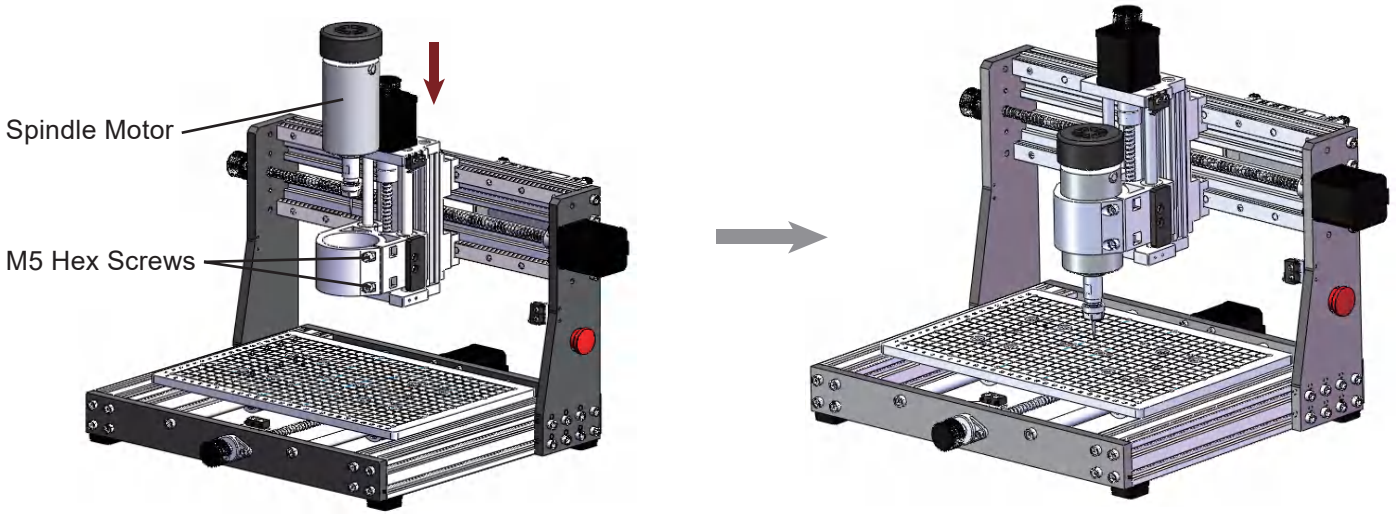


STEP 6：Install the Spindle

What you will need

❸ Spindle with ER11 Tail (300W/12000RPM)

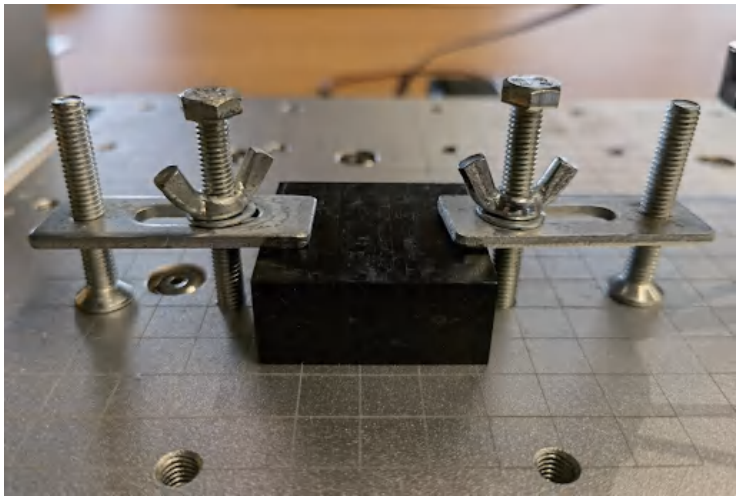
1. Loosen the M5 Hex Screws of the spindle motor holder.
2. Insert the spindle into the spindle motor holder, tighten the M5 Hex Screws, adjust the spindle height so it sits about centered in the holder, and then tighten the screws.



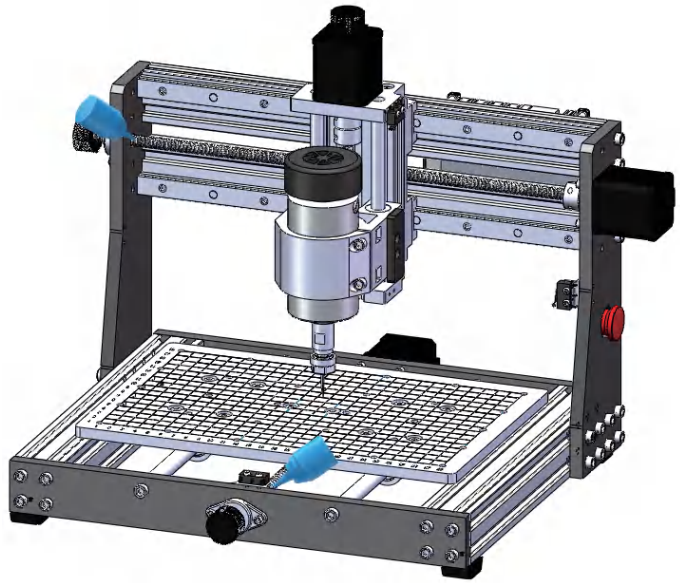
Completed View

Tips

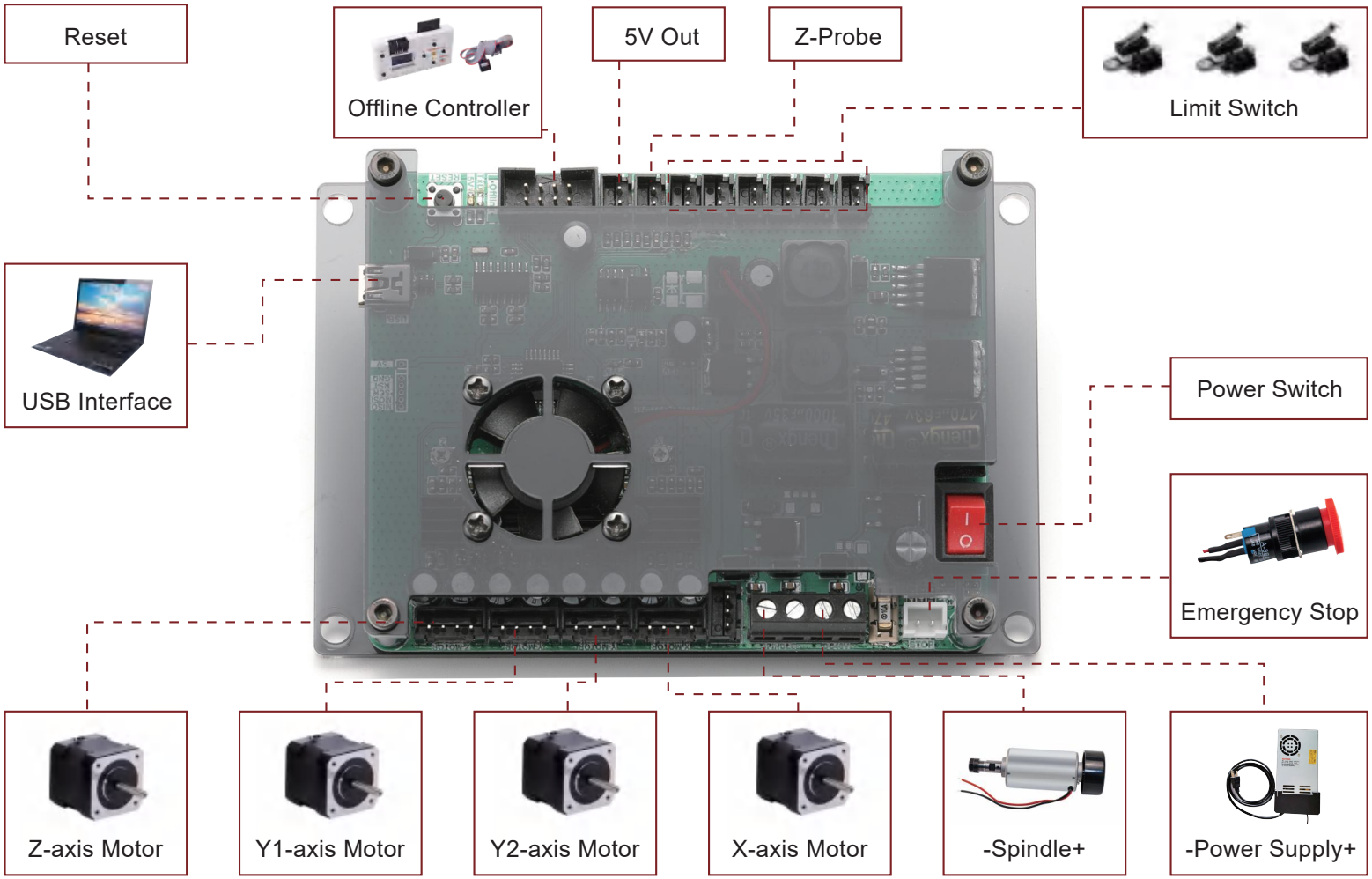
Clamps Installation View



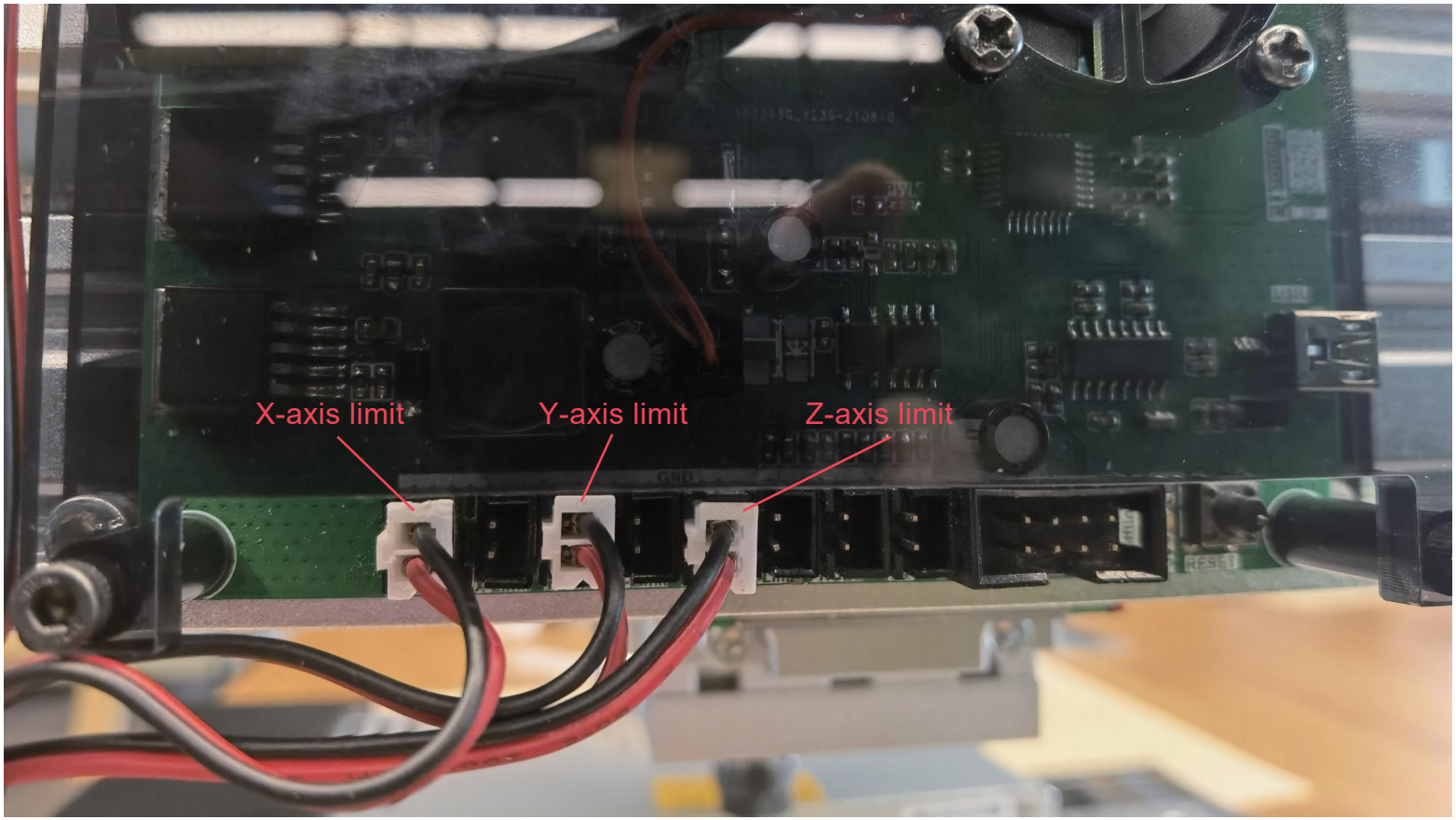
For good measure, lubricate the lead screws and guide rails for each axis. This will reduce running noise and extends the lifespan of your CNC.



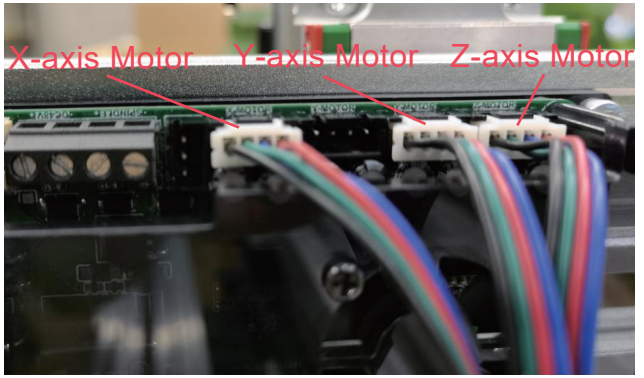
Part 3 - Wiring

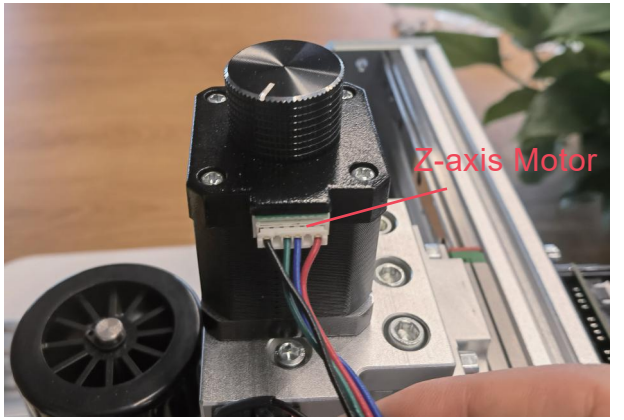


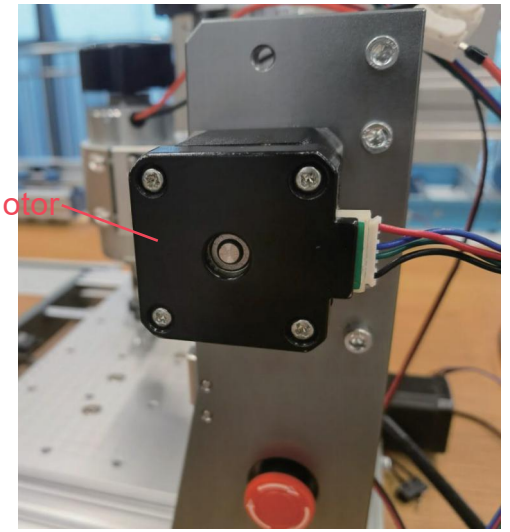
1. Connect the Limit Switches: Plug the X, Y, Z limit switch cable into X-, Y-, Z- port of the control board. There is a spare Z-limit switch for replacement.

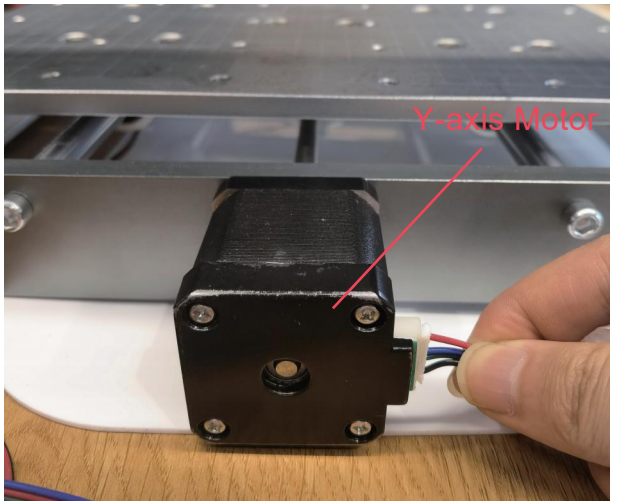


2. Connect the Stepper Motors: Plug the X, Y, Z motor cables into the X- Motor, Y-Motor and Z-Motor port. (There are two ports for connecting the Y axis motor, one is reserved for a Rotary 4th axis, you can plug into either Y axis port.)

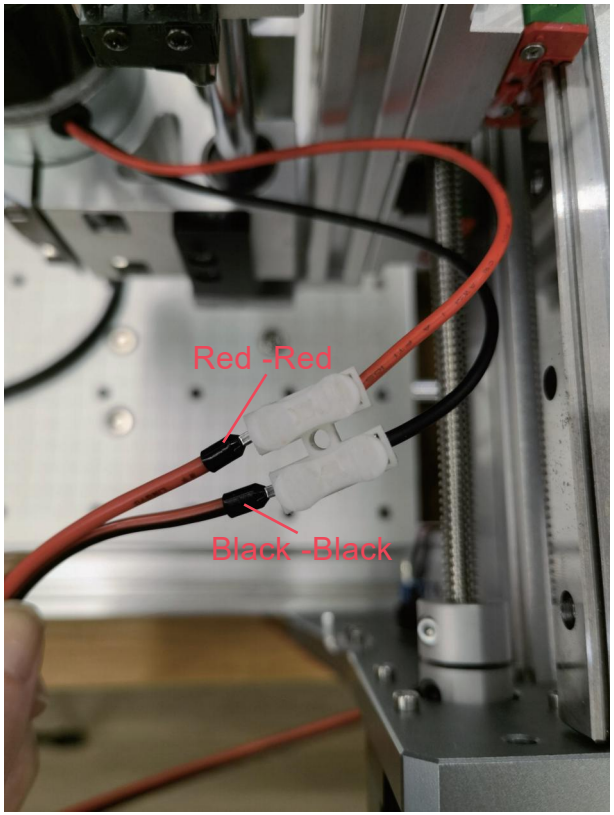


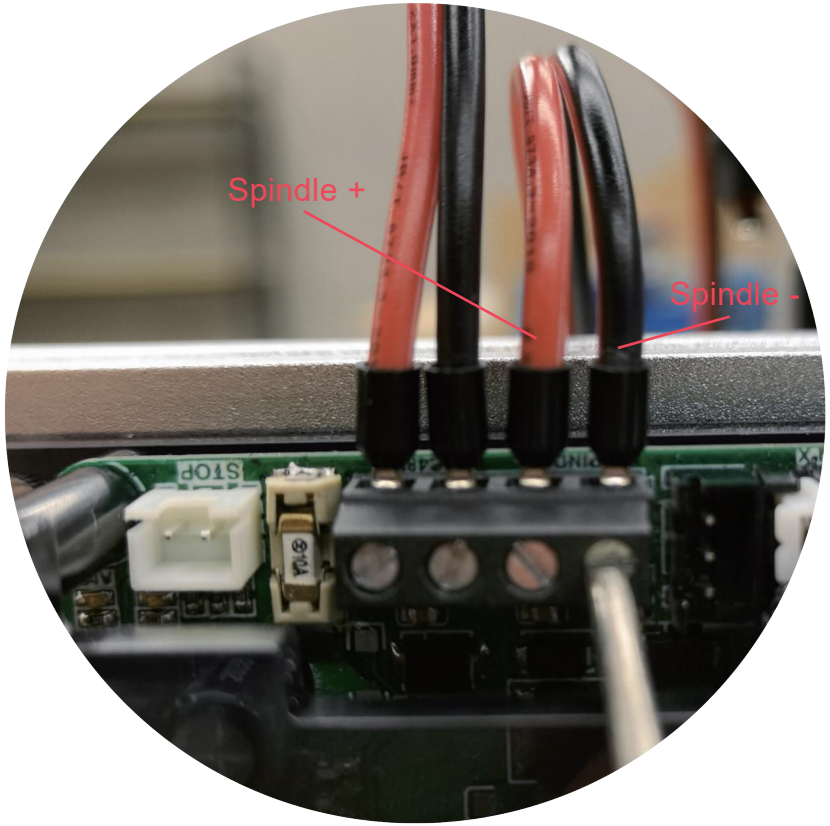






3. Connect the Spindle Motor: Connect the Z-axis motor cable to the extension cable, and then plug the other end of the extension cable into the Spindle+ and Spindle- and then tighten the screws.



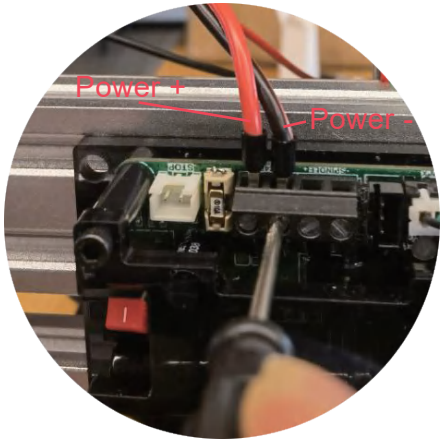


4. Connect the Emergency Stop Switch: Insert the emergency switch cable into the E-stop port of the motherboard and check whether the emergency stop switch is in the disconnected state. (Note: Pushing the button will trigger an emergency stop. The button will stay engaged once pushed. The button can only be released when twisted clockwise. This prevents double pushing the button from releasing the trigger.)

5. Connect the Power Supply: Connect the power red cable to the Power+ port and the black cable to the Power- port. Then lock the screws with a screwdriver. (Note: You can check whether the switching power supply is in the correct voltage range by checking the small window on the side of the power supply. We have adjusted your PSU to match your country's corresponding voltage range by default at the factory. However, we suggest you have a second check. If that is not the correct voltage range, you could use tweezers or a small flathead screwdriver to adjust the paddle left and right.)

6. Install the Cable Protector: After finishing all the wiring, use the cable protector to wrap all the cable together and cut the excess part of the wrap.

Step 4



Step 5

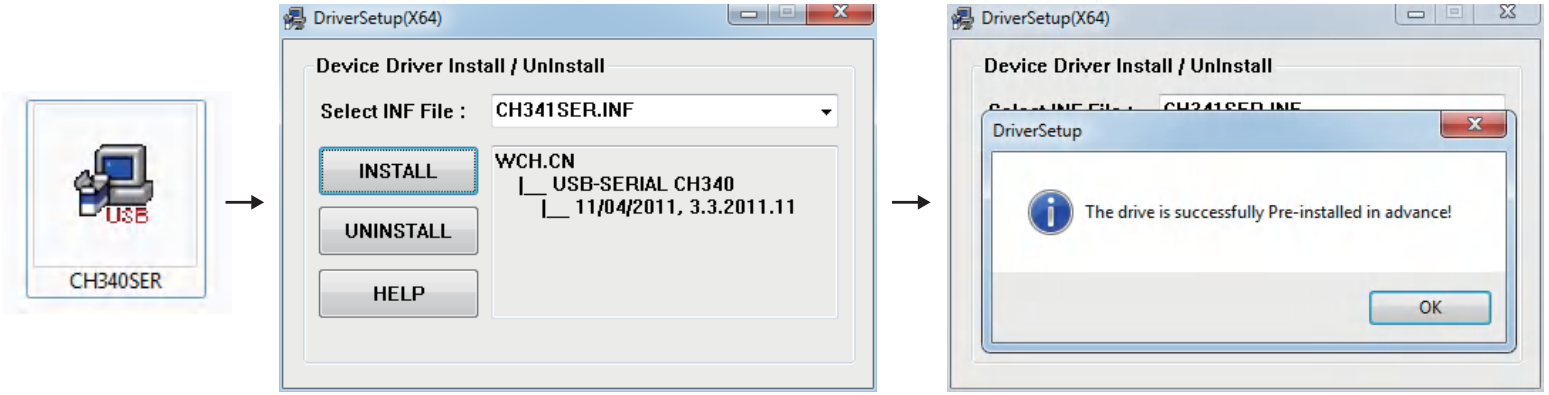
Step 6

Part 4 - Software Setup

Driver Installation

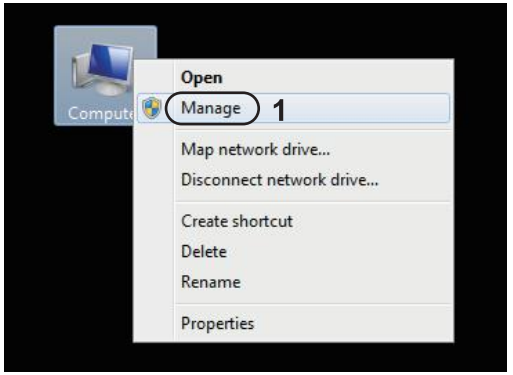
1. Driver Installation

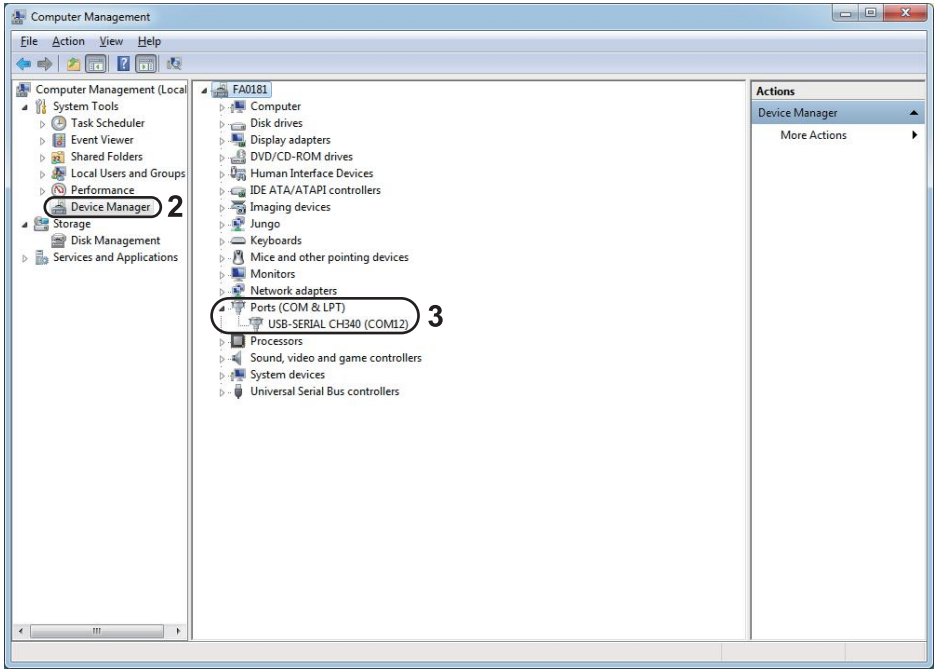
Install drivers (software Driver CH340SER.exe)



2. To Determine your Machine's COM port:

- Windows XP: Right click on "My Computer", select "Manage", select "Device Manager".
  Windows 7, 8 and 10: Click "Start", Right click "Computer", Select "Manage", Select "Device Manager" from left pane.
- In the tree, expand "Ports (COM & LPT)"
- Your machine will be the USB Serial Port (COMX), where the “X” represents the COM number, for example COM12.
- If there are multiple USB serial ports, right click each one and check the manufacturer, the machine will be "CH340".





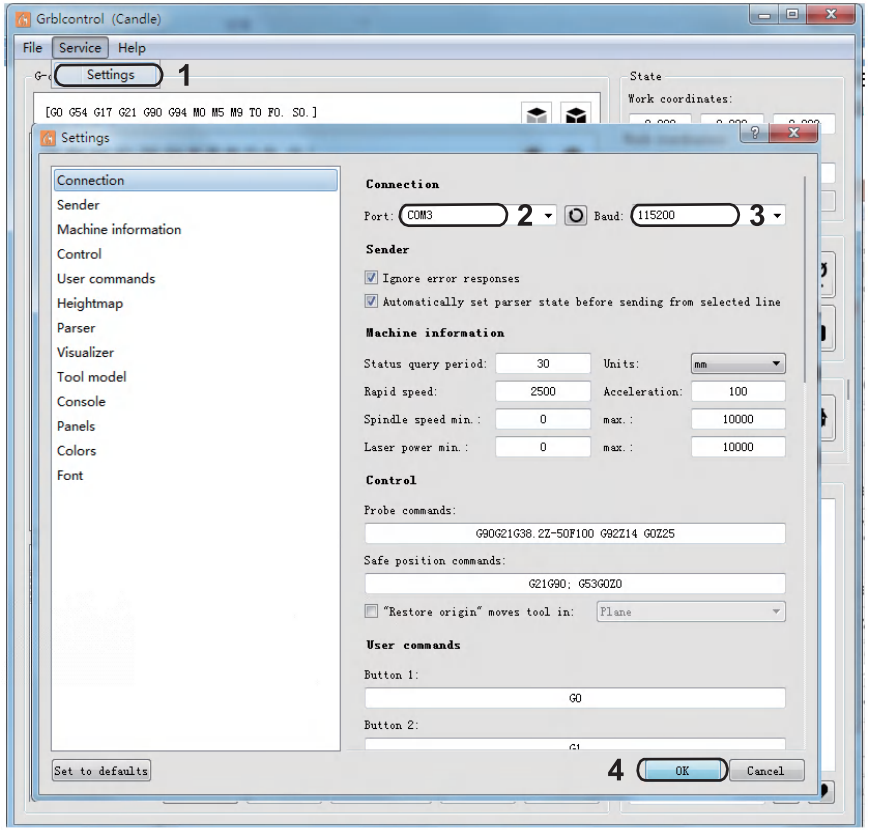
3. Grblcontrol (Candle) Connecting to the Controller

First time use will require you setup the appropriate COM PORT and Baud rate.

Step 1: Software should automatically select the port number.

Step 2: If it does not recognize automatically, select the “Baud” drop down menu and select 115200.

Step 3: Click “OK” to save.



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