



TIME TO PRINT !

Printing check list

1. Basic setup before plugging in:

- a) Make sure that the Arduino/RAMPS circuit board isn't touching metal or water. Place it on paper or card board.
- b) Make sure the Power Supply Unit (PSU) is turned off
- c) Plug the USB cable into the Arduino (but not into the computer yet)
- d) Plug the PSU into the wall (but do not turn on the switch yet)

2. Power up the Printer

- a) Turn on the computer
- b) Plug the USB cable into the computer
- c) Turn the PSU switch to "ON"
- d) On your computer, open the software called "REPETIER"
- e) In REPETIER, select the "PRINT PANEL" tab
- f) Click "CONNECT" button
- g) Wait until the message in the top right corner changes from "Commands Waiting" to display "Idle"
- h) Look at the footer of the REPETIER screen to see if there's a temperature displayed for "Extruder" and "Heat Bed"
 - > If the temperatures are not displaying, then:
 - i. try clicking "Disconnect" and turning the power switch off on the PSU
 - ii. Turn the power switch on for the PSU and click Connect on REPETIER
 - > If that doesn't work and you can't see a temperature, then:
 - i. verify the configuration of the Hot End and Heat Bed thermistors
 - ii. The thermistor leads (wires) may be disconnected
 - iii. The thermistor may be burnt-out or defective

3. Test the mechanical & setting to (0,0,0)

- a) In the Print Panel, click on the "Z" +20 and then -10 and confirm that it's moving
- b) Click on the "X" +10 and then -10 and confirm that it's moving
- c) Click on the "Y" +10 and then -10 and confirm that it's moving
- d) Click on "Stop Motors"
- e) Using these manual controls, bring the Hot End back to (0,0,Z) ... keeping Z above Print Bed for now
- f) Place a sheet of paper on the Print Bed
- g) Lower the Hot End slowly using the "Z" buttons. As you get close to Print Bed start using -0.1 to avoid crashing into it
- h) try to move the sheet of paper with your hand, you are looking for some resistance without being very tight
 - > If too tight, click on "Z" +0.1
 - > If too loose, click on "Z" -0.1
- i) The Hot End is now at (0,0,0)

4. Leveling the Print Bed

- a) From the Print Panel, move the Hot End gradually in steps of "X" +10 from (0,0,0) to (X Max, 0, 0)
- b) try to move the sheet of paper with your hand, you are looking for some resistance without being very tight
 - > If too tight, then tighten the screw holding the corner of the Print Bed going through the spring
 - > If too loose, then tighten the screw holding the corner of the Print Bed going through the spring
- c) Now move the Hot End gradually in steps of "Y" +10 from (X Max, 0, 0) to (X Max, Y Max, 0)
- d) try to move the sheet of paper with your hand, you are looking for some resistance without being very tight
 - > If too tight, then tighten the screw holding the corner of the Print Bed going through the spring
 - > If too loose, then tighten the screw holding the corner of the Print Bed going through the spring
- e) Now move the Hot End gradually in steps of "X" -10 from (X Max, Y Max, 0) to (0, Y Max, 0)
- f) try to move the sheet of paper with your hand, you are looking for some resistance without being very tight
 - > If too tight, then tighten the screw holding the corner of the Print Bed going through the spring
 - > If too loose, then tighten the screw holding the corner of the Print Bed going through the spring
- e) Finally move the Hot End gradually in steps of "Y" -10 from (0, Y Max, 0) to (0, 0, 0)
- f) The Heat Bed is now level



5. Heat up the Printer

- a) Using a lightly damp cloth, wipe the Heat Bed surface to clear it from dust and particles
 - > Be careful not to touch the electronics with the damp cloth
 - > Make sure print bed is dry before attempting to print
- b) In REPETIER, in the PRINT PANEL tab, click on the "SET TO HOME" button
- c) Set the Heat Bed temperature to "65 celsius"
- d) Click the Heat Bed On button
- e) At the top of the REPETIER screen, click on the "TEMPURATURE" view
 - > If the Heat Bed doesn't turn on, or the temperature doesn't rise, then:
 - i. Turn the Heat Bed off
 - ii. Click "DISCONNECT"
 - iii. Turn the power switch to "OFF" on the PSU
 - iv. Count to 10
 - v. Turn the power switch to "ON" on the PSU
 - vi. Click "CONNECT"
 - vii. Wait for "IDLE" to appear in the top right
 - viii. Click on the Heat Bed On button again
 - > If this doesn't work, go back to (2) for potential trouble
- f) Set the Hot End Temperature to "195 Celsius"
- g) Turn the Hot End on by clicking the button
- h) Check to see if the Hot End Temperature is rising in the display
- i) Set the Extruder Speed to "100mm/min"

6. Load the G-Code File to Print

- a) Click on the "G-CODE" tab in REPETIER
- b) Open the G-CODE file that you want to print
- c) Make sure the G-CODE appears in the display
- d) Once the Hot End and the Heat Bed have reached their target temperatures, click on ">" the play button to start the print
 - > You don't need to wait for the temperatures before starting the print
- e) Keep an eye on the Print Bed as the Hot End starts to print, make sure the plastic is sticking
 - > If the plastic isn't sticking then:
 - i. While printing, attempt to manually rotated the Z Axis rods to get the Hot End closer to the Print bed
 - > If the plastic is getting too squished or too thin on the Print Bed, then:
 - i. While printing attempt to manually rotated the Z Axis rods to get the Hot End a little higher above the Print Bed
- f) From this point the Print can be left to be printed

7. Stopping while Printing

- a) If you want temporarily stop the Print, the click on the "PAUSE" button at the top of the screen
- b) If you want to stop the Print Job, then its best to click on the "STOP" button at the top of the screen
 - > This will stop the job as soon as the last few commands in memory are completed
- c) In case of trouble or to avoid damage ... hit "EMERGENCY STOP"
 - > This will stop the job dead in its tracks ... its brute force way to stop the print job