

Other 3d printer Mis Questions

Q1 -> How do I wire 6 wire motors ?

Wiring for Nema 17 motors (6 wire)

On six-wire motors you'll find two groups of three wires in which all three wires are electrically connected to each other. These wires are connected to the same coil, one in the center of the coil, two at their ends. Accordingly, two of the possible pairings have a lower resistance, one pair has a higher one. Take the pair with the higher resistance and ignore the third wire.

In our case ignore wire No 2 and No 5

Then wire the following to ramps board

A (Ramps) - connection 1 (Motor)

B (Ramps) - connection 3 (Motor)

C (Ramps) - connection 4 (Motor)

D (Ramps) - connection 6 (Motor)

Q2 -> What software do I need to install on my computer ?

You will need to install the following softwares with version nos on your computer. These are open source softwares and available on the internet.

1. arduino-0022

Download from

<http://arduino.cc/en/Main/OldSoftwareReleases>

Install Instructions

<http://arduino.cc/en/guide/windows>

2. Printron-Win-Slic3r-10Mar2014

Download from

<http://koti.kapsi.fi/~kliment/printrun/>

Install Instructions

<http://www.nextdayreprap.co.uk/pronterface-installation-reprap-prusa-mendel-computer-setup/>

3. Marlin

Configured and provided to our customers.

See attached images for reference

Q3 -> How Do I assemble my Prusa I3

Here is the most useful link for assembling your Prusa I3

http://reprap.org/wiki/Prusa_i3_Rework_Introduction

The version to search for more online support or specific queries is Prusa I3 Rework.

How do I connect the connections to my Ramps board ?

Here is the most detailed link for connecting the electronic connections.

http://reprap.org/wiki/Prusa_i3_Rework_Electronics_and_wiring

A few tips that I must add are

1. Ensure there are no short circuits.
2. That can be done with a voltmeter.
3. Also ensure that you are getting close to 5 ohms resistance in the power resistor for the hotend and close to 2 ohms in the heatbed.
4. All wires are connected can be done with a connection test with your voltmeter.

How should I test my board connections ?

How do I avoid a short circuit ?

1. Usually if the motor connections are loose any where the motor will not move or vibrate.
2. Heat bed check - It is important to check that there is no short in the heat bed. To check that you must use a multimeter to check for connectivity between the two ends of the heat bed on the ramps board that is pins (D8 + and D8 -). Also you must ensure the resistance between them as per the heat bed specifications - should be in the range of 1 to 3 ohms.
3. Hotend check - similar to heat bed where you check connectivity between 2 ends and resistance of 5 ohms.

These 2 - 3 checks are very important and will ensure safety of your electronic boards.

Where can I find parts to calibrate the printer ?

Here is the link to download the calibration blocks.

<http://www.thingiverse.com/thing:5573>

Q4 -> How should one avoid hot end jamming issues ?

a. One could be due to contaminated filament material. Dust accumulates on the filament and dust fused with hot plastic forms a blob which does not allow the filament to go through the tip of the hotend. So make sure you wipe the filament with a wet cloth to eliminate any dust accumulated. In our case we had coiled the filament with cello tape and the remains of the cello tape glue fused with the filament and under high temperature formed a hot clogging blob.

b. A perfect calibration with regard to PLA - Pla as a material prints good quality prints but is difficult to calibrate. The reason being that PLA expands on heating. Once expanded if there is back flow in the hotend it would jam the nozzle where the PTFE lining is there. So avoid overheating the hotend. The temperature should be just appropriate. To investigate a good working temperature - Heat the hot end up to the required temperature and push the filament by hand at an approximate speed of the extruder and see the extrusion. It should flow continuously and not stop.

c. Calibration settings of the hotend and extruder system. Setting high extrusion speeds are possible only for highly calibrated systems. In the initial settings go for slow extrusion speeds like 10 - 15 mm / s. Increase the speed as you become comfortable with the printer.

d. Another point of consideration is cooling of the hotend upper region. A strong cooling is required in the upper region of the hot end particularly in the case of PLA since it expands. That's where your fan and fan duct comes into place.

My suggestion to you would be to investigate whether it is a calibration issue or hotend temperature issue.

At an optimum temperature - the filament should flow freely without any jamming through the hot end. This can be done by hand push.

Then work on the calibration of the extrusion system. Increase the speed of the extrusion system till you reach a comfortable limit.