M Prime One first print guide

Connect the printer to your computer

Download and install Cura, the software that we use to control the M Prime One (available for Windows, Mac and Linux).

You have to download the 15.04.6 version (under the download button) because it has a control panel that let's you calibrate and configure your printer. After this first setup (after hot tightening and probe calibration) you can use Cura 2 or above for printing.

Download Cura

You can also use Repetier Host to control your printer (also available for Windows, Mac and Linux).

Connect the M Prime One to your computer for the first time by following this steps with the help of the video on the left.

- Download the M Prime One Cura profile (right click on the button below, click on Save As and choose a download folder):

M Prime One Cura profile

- Download and load the calibration semicube in Cura

Calibration Semicube

- Open Cura and in the setup wizard create a new RepRap.
- Change the machine settings to the M Prime One values. If in any of these steps you experience bugs, you may have to restart Cura to fix them. The recommended values are:

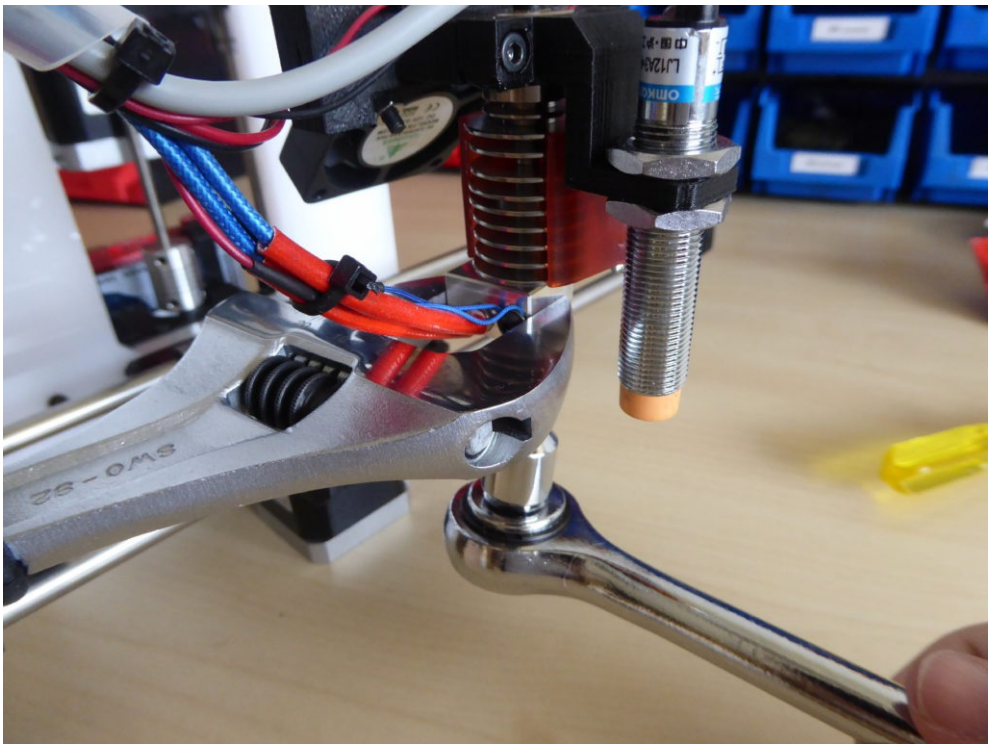
Setting	Value
E-Steps per 1mm filament	0
Maximum width (mm)	200
Maximum depth (mm)	150
Maximum height (mm)	150
Extruder count	1
Heated bed	Unchecked
Bed center at 0,0	Unchecked
Build area shape	Square
GCode Flavor	RepRap (Marlin/Sprinter)
Head size towards X min (mm)	55
Head size towards Y min (mm)	62
Head size towards X max (mm)	32
Head size towards Y max (mm)	40
Printer gantry height (mm)	65

Serial port	AUTO
Baudrate	AUTO

- Disable “Print All at once” setting
- Load the M Prime One Cura profile
- Load the semicube
- Change the printing window type to “Pronterface UI” under Preferences, to have a complete control panel for your printer.
- Connect you printer with USB, the print to USB option will appear
- Click on the “Print with USB button” to open the control interface and connect to the printer for the first time

You have connected to your printer. Don’t hit Print yet, we have to calibrate a couple of things before!

Hot tighten the hotend

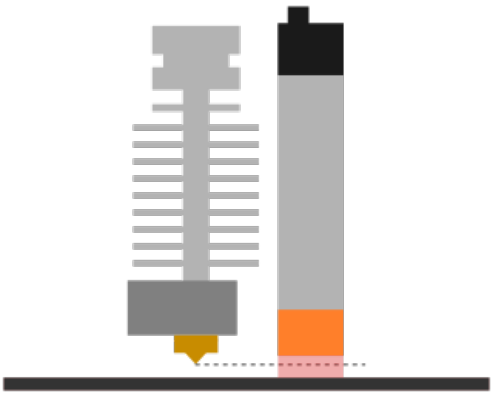


The hotend block and tip have to be tightened at a high temperature to prevent the plastic leaking through the threads.

- Heat the hotend to 245° using Cura control panel. When the temperature has been reached, wait one minute to allow all components to heat up evenly.
- Using two spanners, hold the heating block and gently tighten the nozzle tip. You want to aim for 3Nm of torque on the hot nozzle – this is about as much pressure as you can apply with one finger on a small spanner.

That’s it, your hotend is properly hot tightened.

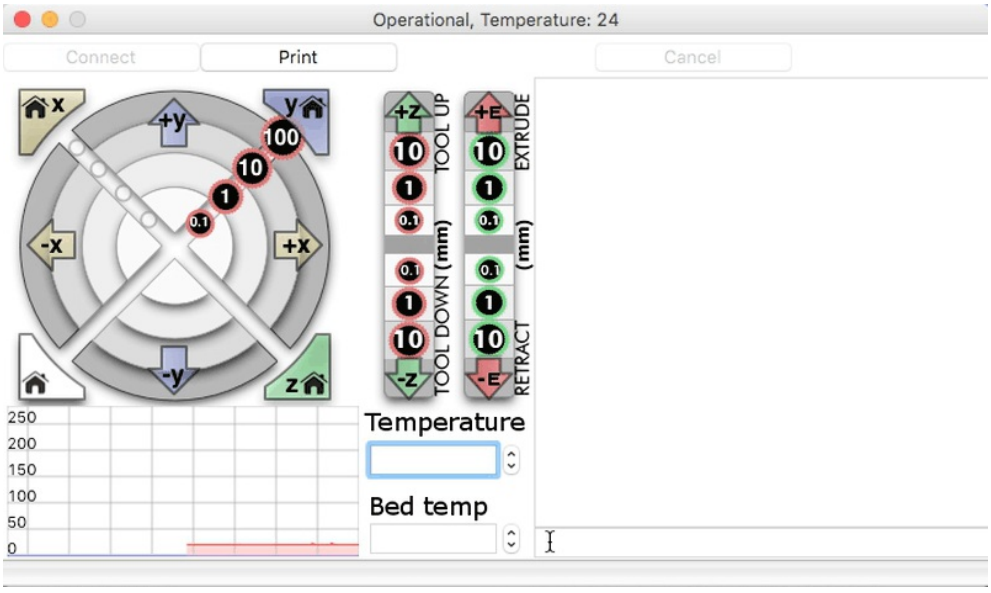
Adjusting the probe height



Every time you print a part the printer performs an autoleveling sequence: the printer head descends several times to probe the printing surface. You have to adjust the height of the inductive sensor tip so it is low enough to detect the bed before the hotend tip crashes into it and high enough to avoid touching the parts being printed. The sensor has 4 mm range (the red area in the figure on the left) and the hotend nozzle has to stay in the zone between the tip of the sensor and the sensor maximum range, as it is shown in the image. The exact position is not important since it will be calibrated in a later step.

The best way to get an acceptable sensor height is to lower the printer head until the tip of the hotend is 1 o 2mm above the printing surface. Then lower the sensor tip until the red light on its top turns off (that means that is already detecting the bed) and tighten the probe nuts in that position.

Calibrate probe offset



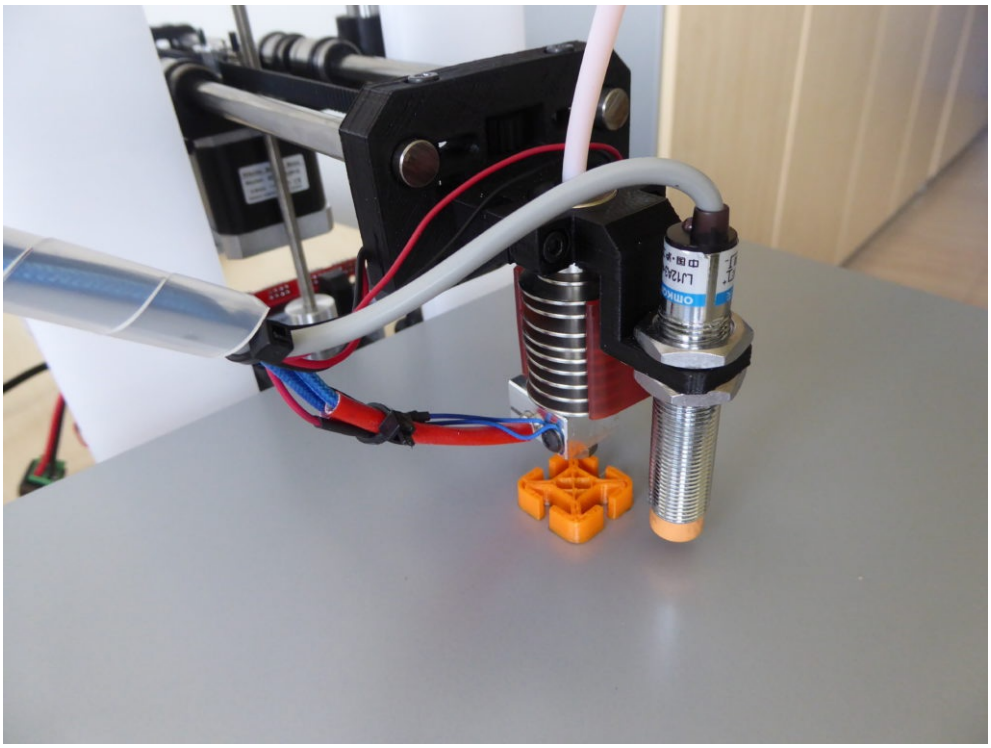
We have to calibrate the probe offset to adjust the height where the printers starts the first layer. To calibrate the printer you have to open the Cura control panel and connect to your printer, we will send some GCODE commands to the M Prime One:

- Home the printer using the G28 command. For doing this, once you are connected to the printer, write `G28` in the text bar in the lower right corner of the Cura control panel window and press Enter. The print will perform a homing sequence.
- Move the head to the Z origin (Z=0) by sending the command `G0 Z0`. The hotend tip will be above the printing surface, the distance between the nozzle and the bed is the offset that we have to compensate so the hotend will start printing just above the printing surface.
- To get the approximate distance between the tip of the hotend and the bed, start lowering the tip in 0.1mm increments using the “Tool down” buttons. Place a paper sheet below the tip and lower your printer head until the hotend starts touching it. At this point, send an `M114` command to your printer to get your current position and write down the Z coordinate. Your Z position will be negative and it indicates your probe offset.

- We will take the Z coordinate that we have obtained before and set it as the probe offset. If your Z coordinate was -0.5mm, that indicates that your real Z origin is 0.5mm below the sensor detection point, and we have to compensate that offset. Send an M851 command to set your offset. In our example, you should send the command `M851 Z-0.5` (notice the minus sign) to set your printer offset.
- Store your settings in the printer memory by sending the `M500` command.

This first offset can sometimes not yield the best result and you may have to adjust it manually to a value that gives you the best first layer quality. If your first part isn't good because the tip is too low, crashing into the bed, choose a smaller offset (for example, -0.4mm instead of -0.5mm); if the tip is too high, depositing the plastic in the air, try a larger offset (for example, -0.6mm instead of -0.5mm). Take into account that this offset will always be negative.

Print your first part!



You have taken all the necessary steps to setup your M Prime One, so it's time to print your first part!

Our semicube is already loaded in Cura, you only need to apply a layer of hairspray to your printing surface (or use the adhesion method of your choice) and click on the "Print" button.

Your M Prime One is printing it's first part! We wish it is the first of many!

Any problem with your first print?

Ask your question in our support forum and get help from our team and the community

Go to the support forum

M Prime - We design and sell open 3D printers.

CONTACT US

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