

# SeeMeCNC Guides

## Calibrating Your Printer (Non Duet)

This guide will show you how to calibrate your SeeMeCNC Printer Equipped with an HE280 or Eris Hotend.

Written By: geneb

### INTRODUCTION

You'll need to download and install MatterControl for your platform.

[Windows](#)

[Macintosh](#)

[Linux](#)

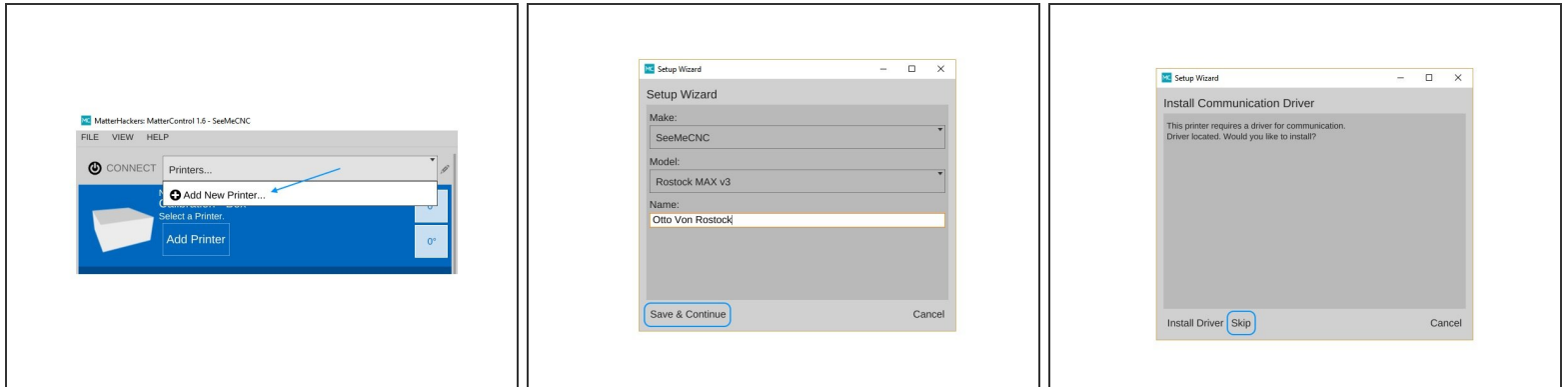
## Step 1 — Please use our Quick Start guide



**⚠ DO NOT USE THIS GUIDE if you have a DUET controlled SeeMeCNC 3D Printer.**

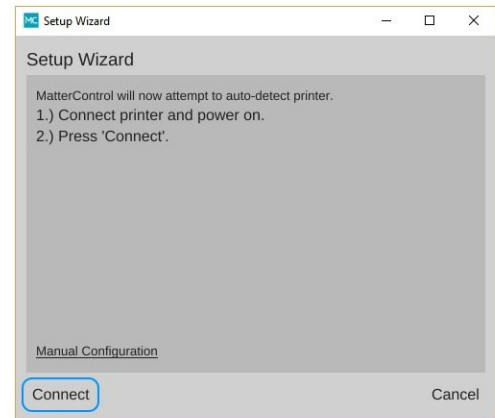
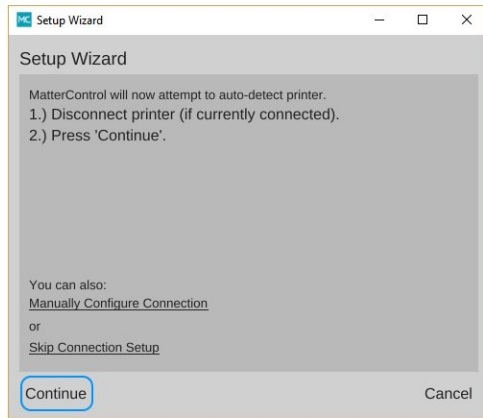
**i** Quick Start for all SeeMeCNC printers is now a link on our website menu item [SUPPORT > Quick Start](#)

## Step 2 — Adding your printer to MatterControl



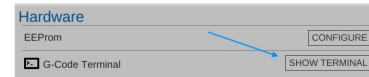
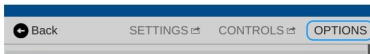
- Open MatterControl and click the "Printers..." button and then click on the **Add New Printer** button.
- You'll be presented with a Setup Wizard that will allow you to enter the Make & Model of the printer you're adding. In this case, you'll chose the one that best describes your printer.
- ❗ Note that if you're using the SeeMeCNC branded version of MatterControl, SeeMeCNC will be the only Make available.
- If you have an H2 printer, it has not yet been added to MatterControl as an option. Choose Orion instead. You will need to change the bed size in the Printer > Print Area settings of MatterControl.
  - For the 178mm arms your bed size is: 140 x 140
  - For the 290mm arms your bed size is: 200 x 200
- The next page of the Setup Wizard will ask to install a Communications Driver. If you installed one during the MatterControl install process, you don't need to install a driver here. For Mac & Linux users, no driver is required.

## Step 3 — Adding your printer to MatterControl, Continued



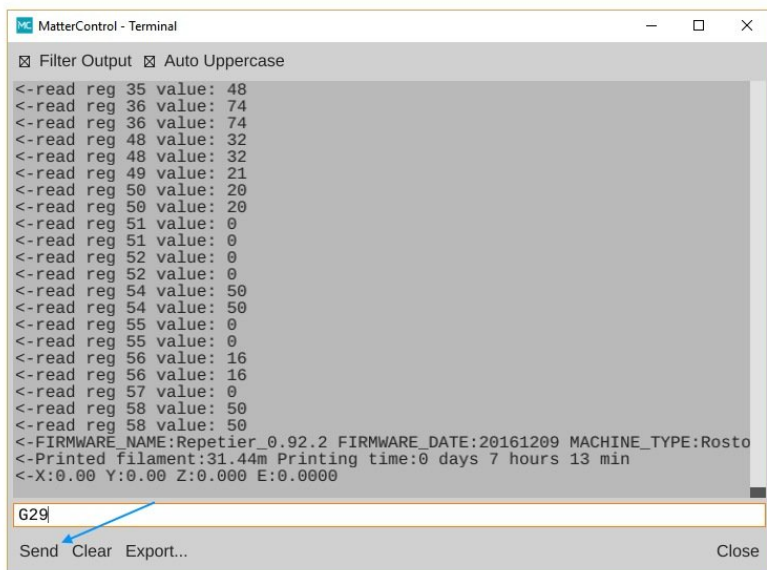
- The next Setup Wizard page will instruct you to disconnect your printer to allow it to detect what port it's attached to.
- Once the Setup Wizard has detect the port your printer is connected to, you can click the **Connect** button in order to complete the configuration process.

## Step 4 — Initial Calibration



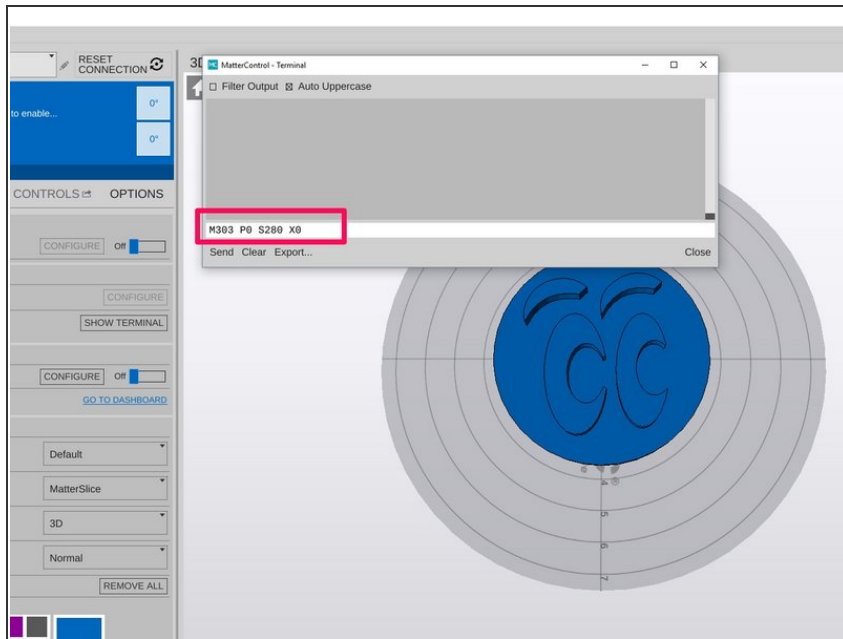
- The next task is to perform the initial calibration of the printer. This is done by sending a "G29" command to the Rostock MAX v3.
- Click on the **Settings & Controls** button as indicated.
- Click on the **Options** button and then click on the **Show Terminal** button. This will open up a serial terminal that you'll use to talk to your Rostock MAX v3.

## Step 5 — Initial Calibration, Continued.



- Once the Serial Terminal window is open, type **G29** into the input line as indicated and press Enter, or click the **Send** button.
- Sending **G29** starts off the built-in calibration process that is needed to get the Rostock MAX v3 to a state where a more accurate calibration can be performed.

## Step 6 — PID Tuning the Hot End



- Next you need to PID Tune your hot end. This will ensure that the algorithm that controls the power to the heating element is working at optimal performance.
- Send the following command via the terminal: M303 P0 S235 X0
  - ⚠ After you have run the PID tune via MatterControl you should disconnect from MatterControl and then re-connect before performing any further operations.
- Auto-Tuning is an iterative process, so run the routine again via the terminal, sending: M303 P0 S235 X0
  - ❗ Full explanation: M303 is the instruction to start the Autotune Process, P0 instructs it to perform the test for the hotend, S235 sets the temperature to run the test to, and X0 is the instruction to save the results to EEPROM.
  - ❗ If you plan to print high temperature materials you should run a PID Auto-Tune at a higher temperature at the target temp that you plan to be printing at.

## Step 7 — Advanced Calibration

### DELTA CALIBRATION WIZARD

Special thanks to Dave Crocker (DC42) for permission to use his code for this calibration wizard. The wizard and code have been modified to work specifically with Repetier Firmware modified for our machines. If you are NOT using our firmware/hardware please visit [www.escher3d.com](http://www.escher3d.com) and take a look at the original wizard to see if it will work non-stock SeeMeCNC 3D printer.

### THIS IS A WORK IN PROGRESS

This wizard will help you calibrate your SeeMeCNC 3D printer using the HE280 accelerometer probe to detect and identify deviations and calculate the corrections needed. The majority of our 3D printer kits have no issues with first layer calibration using just the probe itself. However there can be variations in the assembly of the kits as well as other factors can mean that getting that perfect .1mm or less deviation on the first layer is harder to achieve. That's where this calibration tool will help get your first layer calibration better than ever. If your machine has a firmware date OLDER than 20161209 you will have to download the firmware from our [Github](#) page then upload the new firmware\*\*\*. Make sure you edit the configuration.h file and select your printer model and board type. Once you've got the new firmware loaded (if you needed it) you're all set to run through this calibration wizard.

\*\*\* If you have an Eris® we have a quick instructional page for updating firmware easily using a simple program called XLoader. You don't have to download arduino or configure firmware etc... It's much easier especially for beginners. Click [HERE](#) to go to the [Eris Firmware Update Instructions](#)

### INSTRUCTIONS

Please read the instructions first then start the calibration process

1. Connect your machine to MatterControl via the USB cable
2. Go to Settings & Controls>Options and click on Show Terminal
3. Make sure the Filter Output and Auto Uppercase boxes are checked at the top of the terminal window
4. Verify your firmware date is 20161209 or later by either turning the LCD control knob to view the printer status screen or in the terminal screen type M115 and look for "FIRMWARE\_DATE:xxxxxxx"
5. Home your printer by typing G28 and press Send or hit the enter key
6. Now make sure the nozzle and bed are clean and ready to start the calibration. Remember to always calibrate your machine with the

- If your first layer is not as level as you wish you can run an advanced calibration. To do this, you'll need to open a web browser to [SeeMeCNC's Delta Calibration Wizard](#). This web site will guide you through the remaining steps required to finish the calibration of your SeeMeCNC Delta 3D Printer!

## Step 8 — MatterControl & Your 1st Print



### SeeMeCNC Delta 3D Printer Manual

First Edition

v1.00 – September 23rd, 2016

MatterControl v1.5

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Official support is available through [support@seemecnc.com](mailto:support@seemecnc.com)

As a new SeeMeCNC printer owner, you'll also find a ton of great resources on the forums at [forum.seemecnc.com](http://forum.seemecnc.com)

- Now that the printer is assembled and calibrated, it is time to get better acquainted with MatterControl and running your first prints.
- Here is the [Getting Started User Manual](#)