TRAMS Getting Started

TRAMS

TRINAMIC Reprap Arduino Mega Shield
Application specific Reference Design for 3D-Printers with TMC5130 Motor Controller / Driver for Two Phase Stepper Motors
Up to 4x 1.1A RMS/ +12V… 24V DC
SPI
2x Ref. Switch Input per Axis

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TRINAMIC
MOTION CONTROL

1 Step 1: Software

You will need the following software:

- The Arduino IDE (we used version 1.6.1)
- The TRAMS Firmware
- The Repetier-Host software (we used version 1.0.6)

2 Step 2: Installation

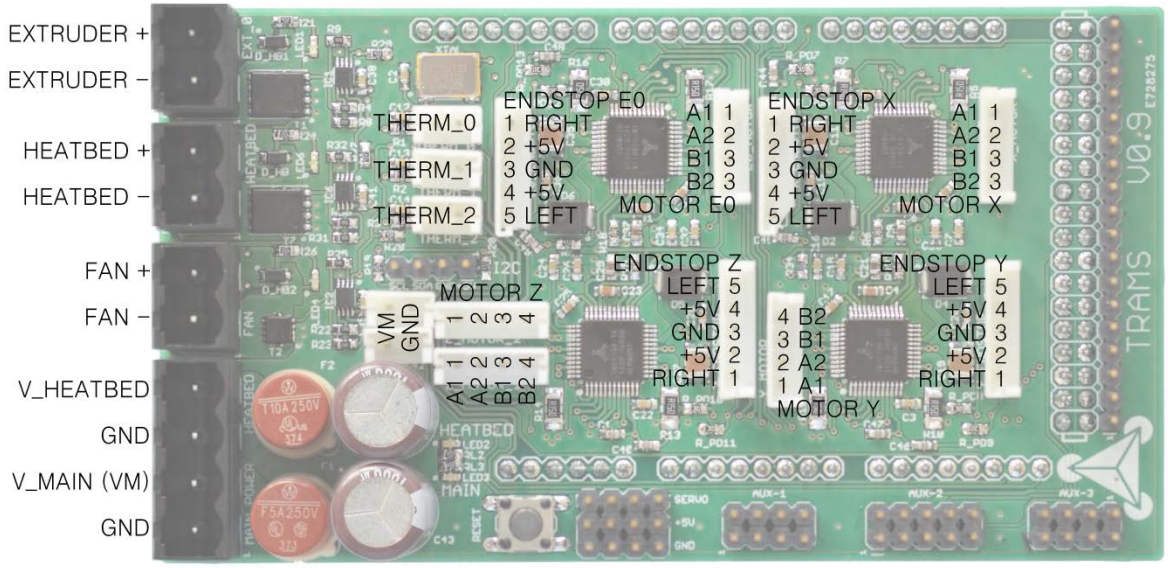
Install the Arduino IDE and the Arduino USB driver as shown in the official Arduino guide Arduino installation guide.
Install Repetier-Host.

3 Step 3: Firmware upload

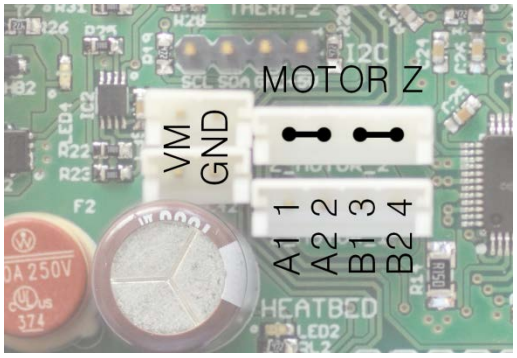
Connect the Arduino Mega without the TRAMS with the computer.
Open the "Marlin.ino" from the firmware folder with the Arduino IDE.
Select the Arduino Mega board and the correct USB port in the IDE and upload the firmware.
To test if the firmware was uploaded properly start Repetier-Host and press Strg+p.
Now choose your USB port and set the baud rate to 56000.
Click on "Connect". You should now see a similar text in the lower log window:

4 Step 5: Connect with the 3D printer

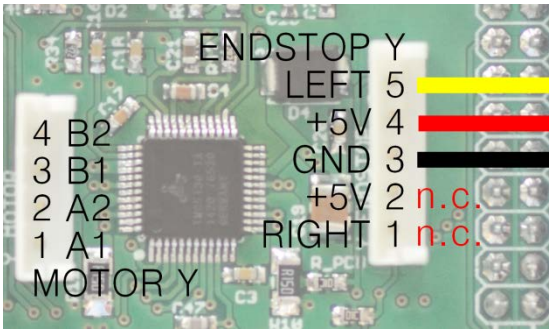
Unplug the Arduino from the USB port. It should not be connected to anything right now.
Put the TRAMS on the Arduino.



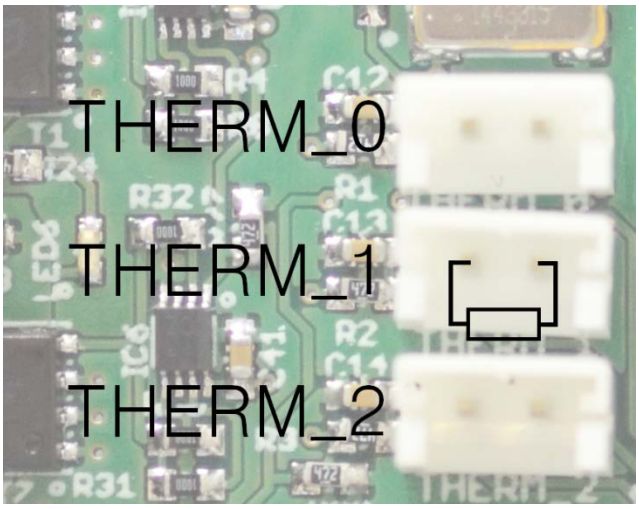
1. Make sure that the main power (VM) and the heat bed power (V_HEATBEAD) are NOT connected to a power supply! You can damage the board if you connect/disconnect parts (e.g. motors) while under power.
2. Connect the motors to the corresponding connector.
   If you are using only one motor for the Z-Axis you need to connect pin 1 to 2 and pin 3 to 4 at one of the connectors.



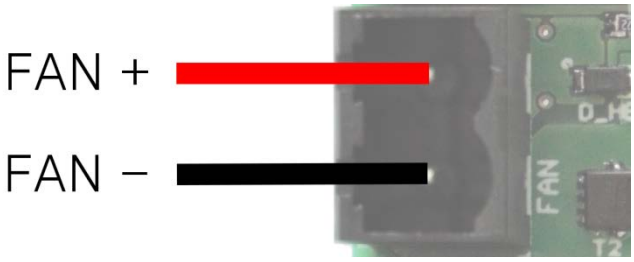
3. Connect the end stops for the X-, Y- and Z-Axis. The Extruder normally doesn't need an end stop.
   IMPORTANT:
   Right now, the firmware only supports using one end stop per axis which needs to be the left one. Connect the end stops as shown here:



4. Connect the extruder thermistor to THERM_0 and the heatbed thermistor to THERM_1. (We used 100k thermistors for testing). If you don't use a heatbed you still need to connect a 110k "dummy" resistor to the THERM_1 port.



5. Connect the extruder heating cartridge to the EXT_0 connector.
6. If you have a controlled fan for cooling the printed filament you can connect it to the FAN connector. Watch out for the right polarity.

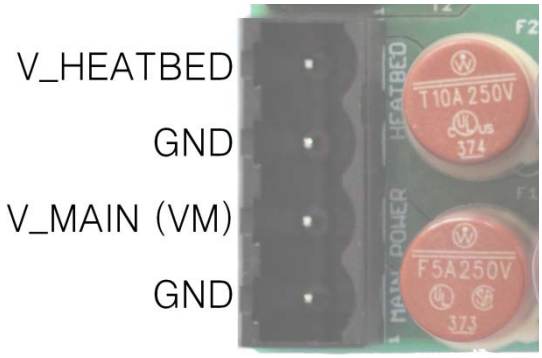


7. If you have a fan or lights which needs to be powered all the time you can connect them to the two VM ports:

8. If you have a heatbed connect it to the HEATBED port.

5 Step 6: Powering up

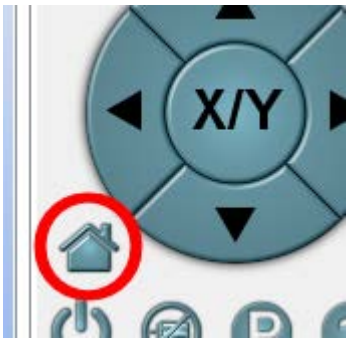
1. Make sure that both fuses are working properly.
2. Connect VM to 12-24V.



3. If you have a heatbed you need to connect V_HEATBED to 12-24V, too.
4. Connect the Arduino with the computer.

6 Step 7: Printing

Start Repetier-Host and click on "Connect".
Click the homing button:



Your printer should now home.
You are now ready to print.

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8 Revision History

8.1 Document Revision

Version	Date	Author	Description
1.00	2015-OCT-26	JP	Initial version

Table 8.1 Document revision

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