



TYPE A MACHINES

# Series 1 Pro Auto-Level Upgrade

## Included

Sensor, Mount, Jumper Cable, Mini-USB Cable

## Software Downloads

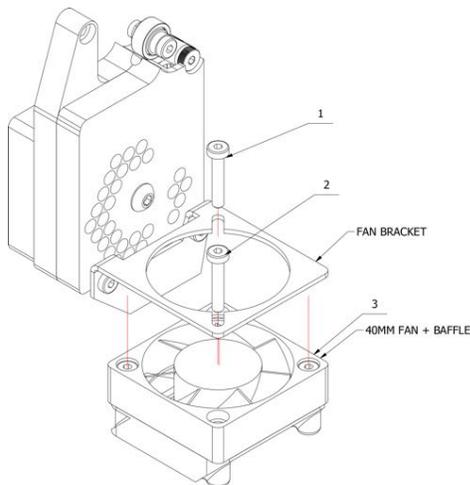
Printer Firmware & Test Model: [goo.gl/wwKVC1](http://goo.gl/wwKVC1)

Arduino IDE (for firmware upload): <https://www.arduino.cc/en/main/software>

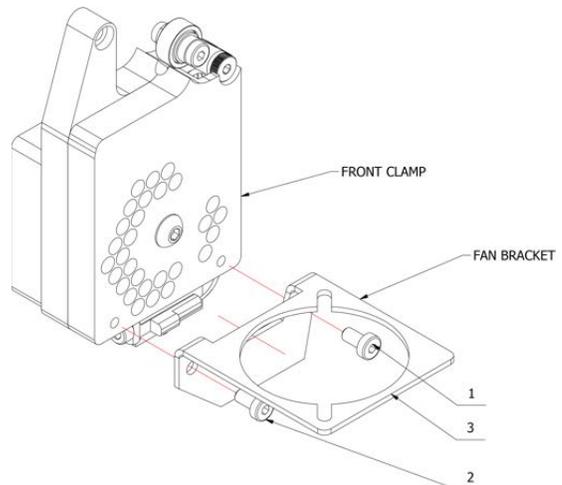
Attach included BuildTak Flex Plate System following the instructions included in its packaging if you haven't already done so.

## 1 Sensor and Mount

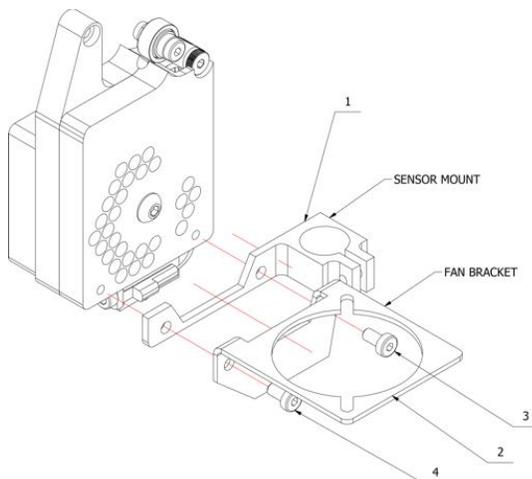
1. Unscrew bolts (1, 2) to remove fan and baffle (3).



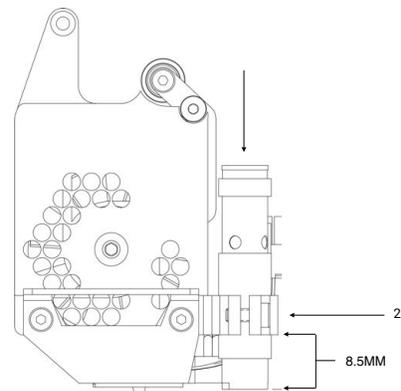
2. Unscrew bolts (1, 2) to remove bracket (3).



3. Bolt on with sensor mount (1) between fan bracket (2) and extruder.



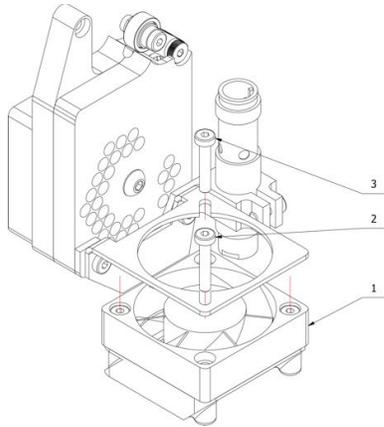
4. Screw sensor into mount (1), then tighten retaining screw (2). Distance between bottom edge of mount to tip of sensor should be 8.5mm.



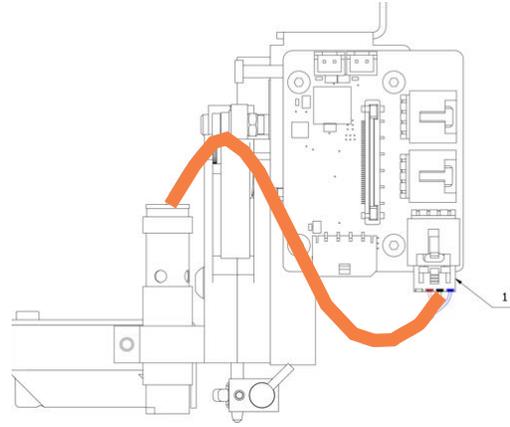
# Auto-Level Installation

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5. Re-attach fan and baffle (1) to bracket using bolts (2, 3).

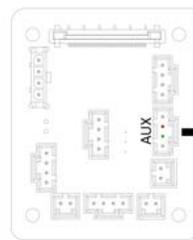
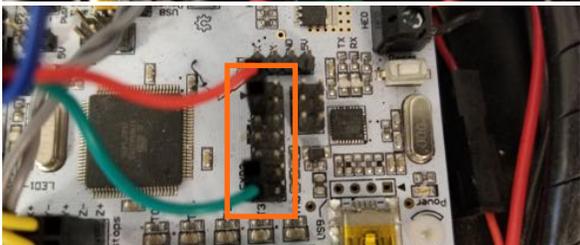
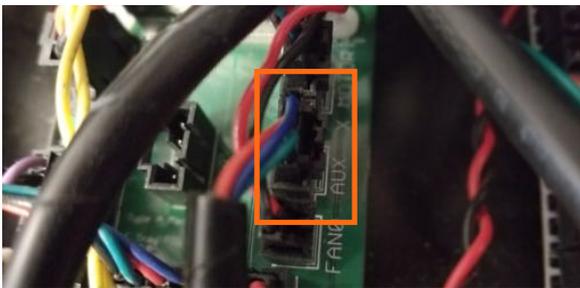
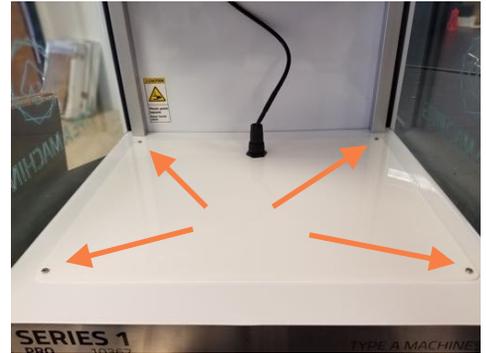


6. Attach cable to connector on bottom of printhead PCB (1).

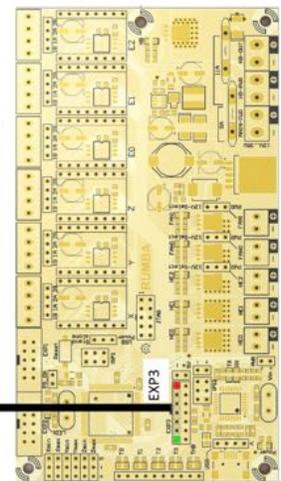


## 2 Jumper Cable

1. Turn Printer off, then unplug power cable.
2. Remove E Tray cover by removing screws at each corner.
3. Attach small end of included jumper cable to "AUX" connector on E Tray PCB.
4. Attach large end to RUMBA "EXP3" with green wire located at the front, see image.



E-TRAY PCB



RUMBA



## 3 Firmware Update

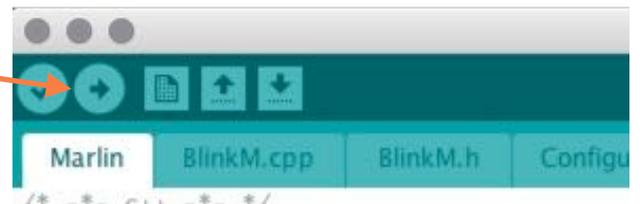
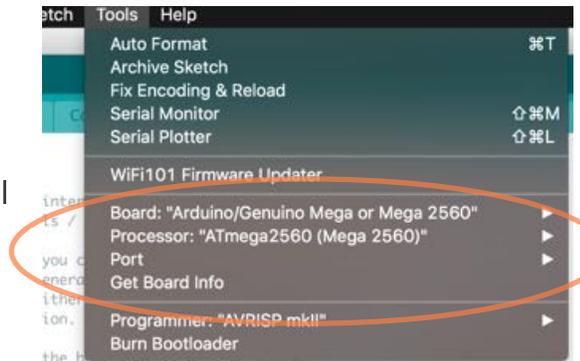
1. Download
  1. Printer Firmware & Test Model: [goo.gl/wwKVC1](http://goo.gl/wwKVC1)
  2. Arduino IDE (for firmware upload): <https://www.arduino.cc/en/main/software>
2. Open Arduino IDE, then open the "Marlin.ino" file
3. Verify settings in the Tools tab:

**Board :** Mega 2560

**Port :** Your COM port. Connected RUMBA required.

If the settings are not correct, click on them to set them as the new default. The Port will need to be selected which will show up once you connect to the rumba successfully.

3. Use the Mini-USB cable to the port on the front of the RUMBA directly to your computer.
4. Turn on the printer, then select your port in the settings within the Arduino IDE application.
5. Finally, click the Upload button to upload the firmware to your printer.



## Auto-Level Installation

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### 4 Sensor Calibration

1. Open the Series 1 Pro interface and click the Terminal tab. (Refer to Quick Start Guide for info on getting to the onboard interface.)
2. Check the two check boxes with "Suppress M105" and "Suppress M27" to the right.
3. Enter the Gcode commands below in the text field. **Note:** Commands are case sensitive and must in order.

**G28** (homes X & Y axis), Enter

**G29 P4** (starts Auto Level sequence), Enter

**G1 Z0** (raises surface to needle to ensure proper distance .2mm - .3mm)

4. Print the "SensorTest" Gcode file. This may take a couple tries to get it just right.
5. If the first layer is not successful, cancel the print, then adjust the sensor.

Loosen the retaining screw for the sensors then:

**If filament isn't sticking:** rotate sensor 1/4 turn counterclockwise.

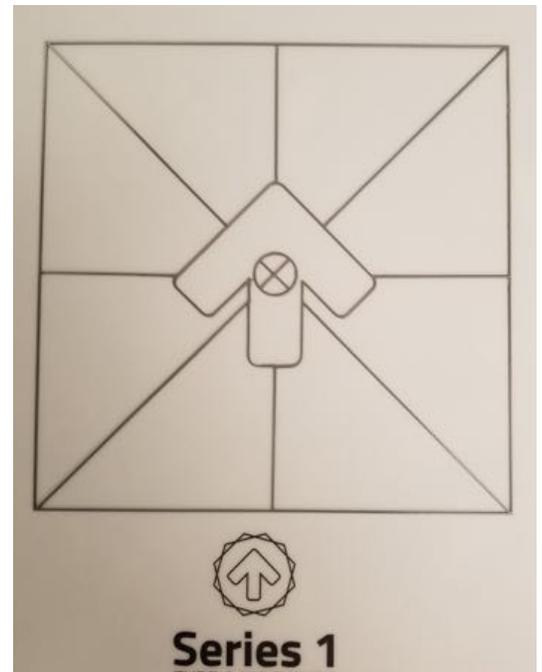
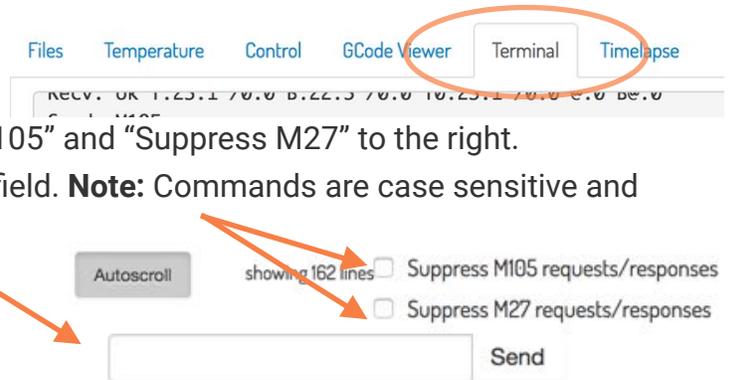
**If filament is smushed or extruder is clicking:** Rotate sensor 1/4 turn clockwise.

6. A successful test print indicates the sensor is properly calibrated.

**Tip:** If first layer is not adhering well to surface, check to see if BuildTak needs to be replaced. Spare sheets are included.

#### Upgrade Complete

Your upgrade is complete. Your Series 1 Pro will error map the print surface prior to printing, then perform real-time error correction throughout the print, ensuring a successful first layer and accurate results from the first layer to the last.



Successful Test Print

