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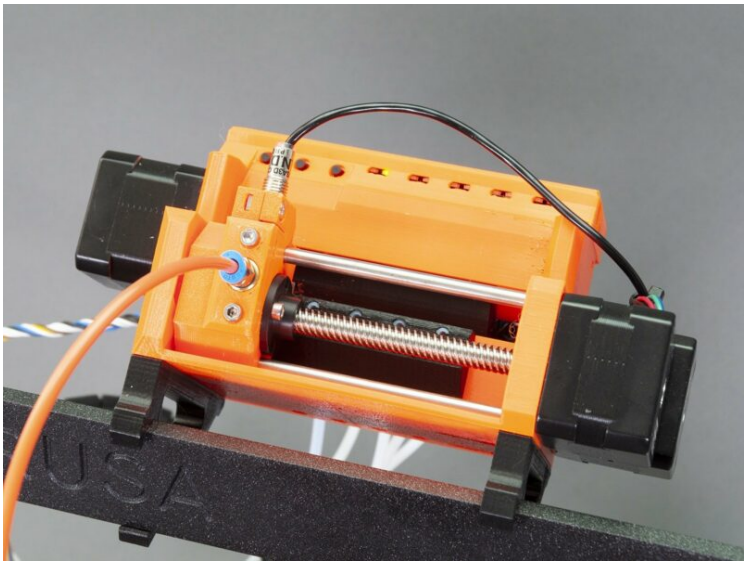
Service menu - Individual Filament Calibration



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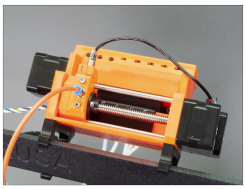
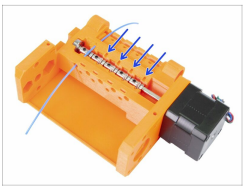
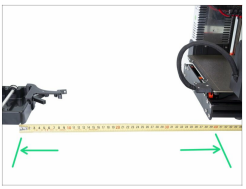
Scan the QR code to display the latest version of this chapter.

STEP 1 Introduction

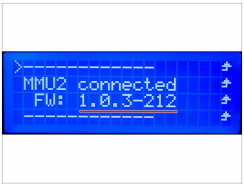
- This guide will take you through the calibration of the MMU to Printer **PTFE tube length on the MMU2 for all 5 filaments**.

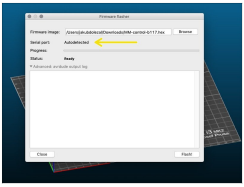
  ⚠ The later MMU2**S** doesn't require this procedure in its stock setup. It may improve MMU2S performance when using a 3rd party non-standard length Bowden PTFE tube.

  ⚠ MMU3 (FW2.1.9 and up) doesn't have this calibration feature as it's not necessary for it.

- **Read the entire guide first** to know, what is needed in order to get a successful calibration.
- Make sure the MMU2 unit is assembled according to the manual (alignment of the pulleys is very important). Also make sure the screws with springs are tightened properly (slightly below the surface)
- All five spool holders should be at least 40 cm (15.75 inches) behind the back plate of the printer. Check each filament can unspool easily.

STEP 2 Flashing the latest firmware (MMU2 unit)

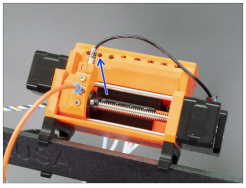
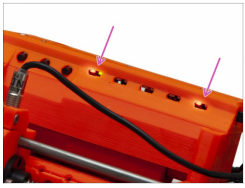
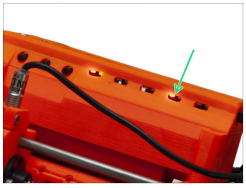




⚠ **Before you start, ensure you have the latest firmware** (1.0.3 or latest) in the MMU2 unit. Keep in mind this is a separate firmware and is **flashed directly to the MMU2 board**, not to the Einsy board.

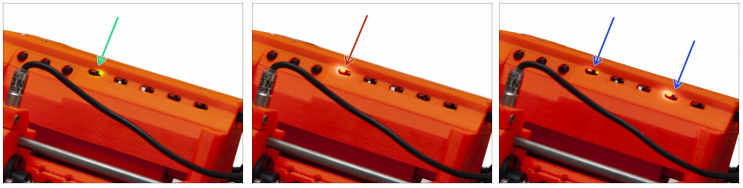
- To check the firmware version, turn the printer on and press the knob to enter the menu, then go to **Support** and scroll down until you find the MMU2 section.
- The firmware for the MMU2 unit is available for download on our site together with the firmware for the printer: prusa3d.com/drivers
- Flash the firmware using Slic3r PE (Slic3r PE v1.41.0 or latest) and Micro USB cable connected directly to the MMU2 unit. Slic3r will recognise the unit and select the port automatically.
- Turn the printer off and back on. Ensure the correct version of the firmware is shown on the printer's screen.

STEP 3 Entering the service menu

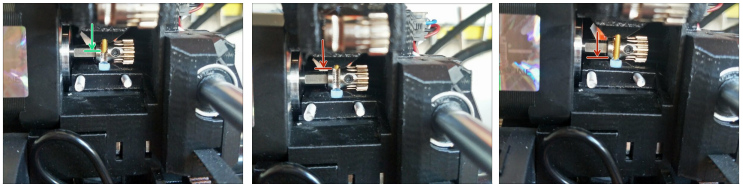
- **How to enter the secret service menu:**
  - Start with the printer TURNED OFF.
  - **TURN** the printer **ON** and let it boot all the way. Then, reset the printer using the "X button" next to screen and immediately press the middle button on the MMU2 unit and hold until all LEDs turn red.
- After the sequence is finished, following LEDs will light up:
  - LED 1 - both LEDs are on
  - LED 5 - only red LED is on
- Using the **left/right button** move between LEDs and select LED 4, confirm your selection by pressing the **middle button**.

STEP 4 Loading the filament into the printer



- When the system is ready to initiate Bowden calibration at current filament, the LED turns green.
- Press the **middle button** for 1-2 seconds to initiate the calibration. LED turns red and the printer starts loading the filament. Make sure the filament can unspool from the spool without significant resistance.
- Filament passes through the MMU2 unit into the Bowden and down to the extruder. As soon as the MMU2 unit loads the predefined length, the first and fourth LED will start flashing.

STEP 5 Setting the first "Bowden" length



- Open the idler on the extruder (release the M3 screws with springs on the other side). Using buttons move the filament until reaching the Bondtech gear **Left button is down, Right is up.**

ⓘ To reach the optimal position, move the filament down, up then down again to the desired position. This will calibrate the length and also release tension in the filament.

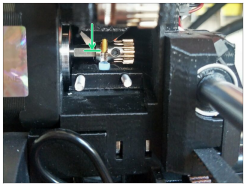
- **Correct alignment** is slightly above the middle of the gear (the filament is slightly "touching" the teeth on the Bondtech).
- **Incorrect alignment** (the second and third picture)
- After you finish the alignment, press the **middle button** for 1-2 seconds on the MMU2 unit. The filament will unload and this will save the filament position (length).

⚠ **To ensure the length was set properly**, press the **middle button** again to load the filament back to the extruder.

- **Is the tip of the filament in the previously saved position?** (tolerance +/-1 mm) Great, press the middle button again to unload the filament and go to the next step.
- **Is the filament loaded to a different position?** Adjust it again using the left/right button. Unload, reload and check. Repeat this until the filament returns to the same position (tolerance +/-1 mm). Then proceed to the next step.

STEP 6 Calibrating length for the 2. - 5. filament



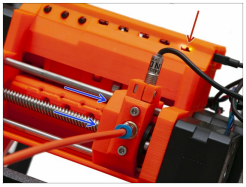
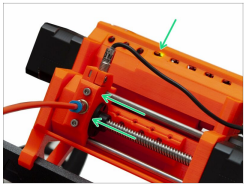
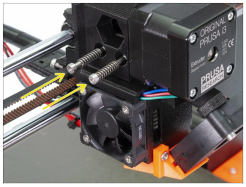


- Successful calibration of the first Bowden will result in the first LED being green, **press the right button** to move the selector to the next filament.
- **Press the middle button** to load the filament. The LED will turn red.
- Set the correct length **using the left/right button**. Remember the trick (down/up down) to release the tension. Use the last picture as a reference. When ready, **press the middle button** to save and unload.

⚠ **Press the middle button again** to load the filament back to the extruder. Ensure the position is correct, if not adjust, save and check again.

- Repeat this procedure for all remaining filaments. In other words **Load - Adjust - Unload - Repeat ;)**

STEP 7 Finishing the calibration and exiting

- When you finish calibrating the bowden length for all individual filaments, move the selector using the **right button** all the way to the right (past the 5th filament position).
- The fifth LED near the right edge will start flashing. Press the **middle button** to confirm all filaments are set and you want to exit the service menu.
- The selector will automatically move all the way to the left and the first LED will turn green.
- Return to the extruder, close the idler and tighten two screws on the springs.
- **That's it!!! Happy printing ;)**

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