KODAK 3D Printer
CALIBRATION PROCEDURE

Before calibrating your 3D printer, make sure the glass print plate is perfectly clean.

Z Offset calibration

The Z Offset is what determines the distance between the print surface and each nozzle. A well-calibrated Z offset will yield great first layer adhesion and your models will be printed accurately. A poorly-calibrated Z offset may cause warping (when the model doesn't stick well because the nozzle is too far away from the print surface), elephant foot (when the nozzle is too close to the print surface and could cause clogging of the nozzle) or other defects.

1. Load **PLA Tough** in **Extruder I** (PLA Tough is required for the pre-installed calibration test prints).
2. Load **PLA+** in **Extruder II** (PLA + is required for the pre-installed calibration test prints).
   Use a different color than the one loaded in Extruder I if you want to do an XY (dual nozzle) calibration later.
3. On the touch screen, go to **Setup** » **Calibration** » **Z Offset Calibration**.
4. Adjust the Z Offset of Nozzle I by pressing the **up or down arrow** while sliding the provided calibration card between the nozzle and the print surface. (You should aim for the tightest setting allowing the calibration card to slide between the nozzle and the print surface without any obstructions.)
5. When you're done calibrating Hotend I, do the same for **Nozzle II**.
6. Press **Done** and allow it to save your settings. You will be returned to the main calibration menu when it's done.
7. Reboot the printer. Turn off and wait 15 seconds before turning the printer ON again.
8. To check the results of the calibration you'll need to do some test prints. Go to **Print** » **Print from local file** » **Calibration files**.
9. Print **Z Offset T0.gcode** for Hotend I and **Z Offset T1.gcode** for Hotend II. If results are good, you're done. If not, start over from step 3.

Bed leveling

Bed Leveling sets the distance between the nozzle and three (3) different points on the print surface. This allows the printer to extrude material evenly across the entire print surface.

1. Load **PLA Tough** in **Extruder I** (PLA Tough is required for the pre-installed calibration test prints).
2. On the touch screen, go to **Setup** » **Calibration** » **Build plate Calibration**.
3. Press the **big crosshair** button under **P1** (Point 1) **offset** to start calibrating the **P1** offset.
4. Adjust the offset by pressing the **up or down arrow** next to the big crosshair button under **P1 Offset** while sliding the provided calibration card between the nozzle and the print surface. (You should aim for the tightest setting allowing the calibration card to slide between the nozzle and the print surface without getting stuck.)
5. Repeat step 3 for **P2** and **P3**.
6. Press **Done** and allow it to save your settings. You will be returned to the main calibration menu when it's done.
7. Reboot the printer. Turn off and wait 15 seconds before turning the printer ON again.
8. To check the results of the calibration you'll need to do some test prints. Go to **Print** » **Print from local file** » **Calibration files**.
9. Print **5 Points.gcode**. If results are good, you're done. If not, start over from step 2.

Dual nozzle calibration

It's important to calibrate the X and Y directions of your nozzles if you're using a dual-extrusion printer like the Portrait 3D. If the printer is not properly calibrated, gaps and/or overlapping between the printed sections may be visible when printing using both nozzles.

1. Load **PLA Tough** in **Extruder I** (PLA Tough is required for the pre-installed calibration test prints).
2. Load **PLA+** in **Extruder II** (PLA + is required for the pre-installed calibration test prints).
   Use a different color than the one loaded in Extruder I.
3. The first step is to see if you need to calibrate your printer. **Press Print** » **Print from local file** » **Calibration files**.
4. Print **XY Offset.gcode**.
5. Once the printer is done printing the calibration test, examine the result.
6. Go to **Setup** > **Calibration** > **Nozzle Offset Calibration**.
7. Adjust the XY offset values based on the test print so both layers are perfectly aligned by pressing the **arrow keys** for each axis.
8. Press **Done** and allow it to save your settings. You will be returned to the main calibration menu when it's done.
9. Reboot the printer. Turn off and wait 15 seconds before turning the printer ON again.
10. To check the results of the calibration you'll need to do a test print. Go to Print » Print from local file » Calibration files.
11. Now go and print another **XY Offset.gcode** and examine the results. If results are good, you're done. If not, start over from step 3.