



Auto leveling feaure user guide

Ver: 4.2

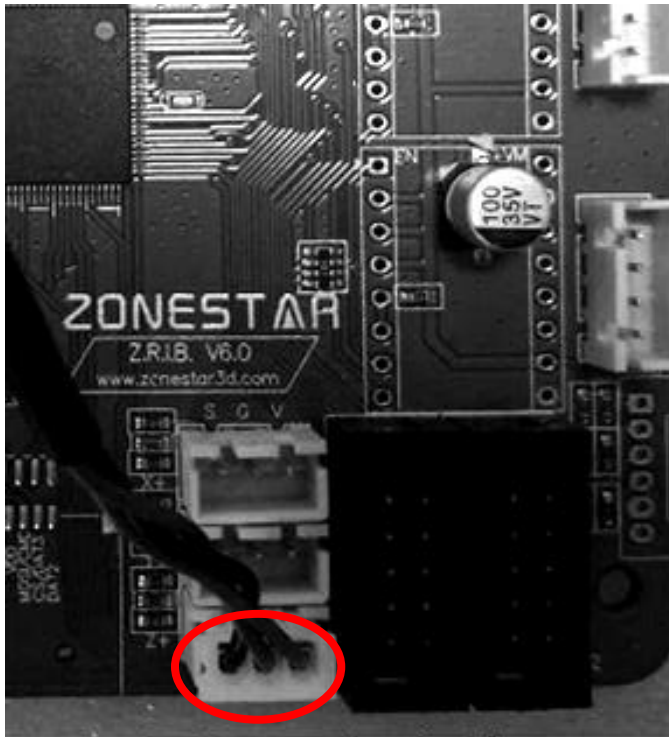
For firmware V2.0.x or last

NOTE:

We suggest you upload the newest firmware, about where to download firmwarer and how to upload to the printer, please refer to the “firmware” directory in SD card.

Step 1: Wiring

1. Connect the Proximity Sensor to the Z+(ZRIB) or Z1+(ZM3E4) connector on the control board.
2. Power on the control board.
3. When Proximity Sensor is close to the hot bed, the LED will light up and the LED is off when it is far away from the hotbed.



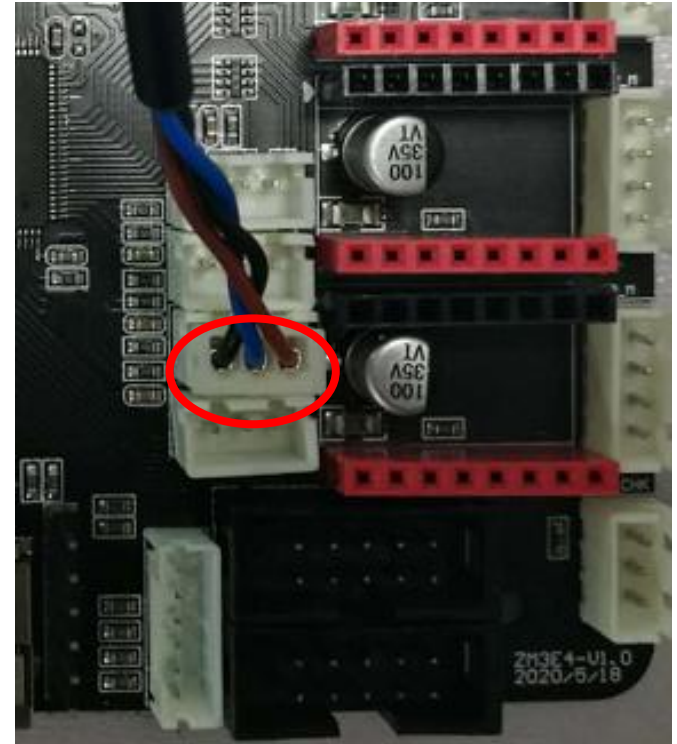
ZRIB V6.0



Near, light on



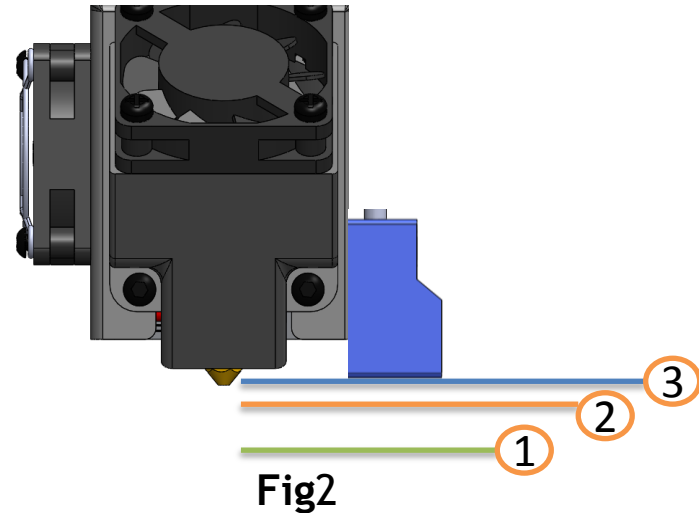
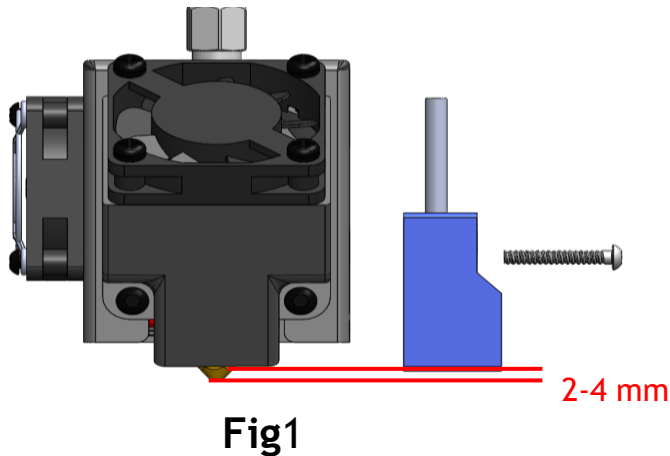
Far, light off



ZM3E4

Step 2: Install the proximity sensor

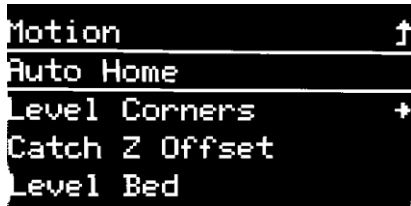
1. Move HOTEND to the middle of hot bed and adjust height of HOTEND or print platform, let the nozzle almost touched hot bed.
2. Install the Proximity sensor on the HOTEND. The bottom of the sensor should be approximately 2-4 mm above the nozzle (Fig 1).
3. Adjust the position of Z-axis limit switch, and let their position to meet the following conditions (Fig 2).



- ① If the hotbed is at this height, the proximity sensor is released (LED turn off).
- ② If the hotbed is at this height, the proximity sensor is triggered (LED light on).
- ③ If the hotbed is at this height, Z ENDSTOP is triggered.

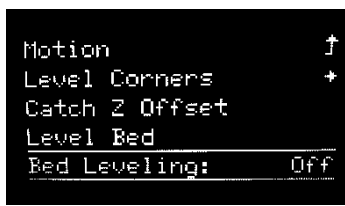
Step 3: Level Corners

1. Make sure the hotbed and nozzle are cool, clean the filament on the nozzle.
2. Turn on the 3d printer.
3. Do *Montion>> Bed Leveling>> Auto HOME(Fig1).*
4. See *Montion>> Bed Leveling>> Bed Leveling: OFF, if it is ON, set to OFF(Fig2).*
5. Do *Montion>> Bed Leveling>> Level Corners(Fig3).*
6. Adjust the screws under the hotend, let the nozzle almost to touch the hotend in the four corners (following the wizard)(Fig4).



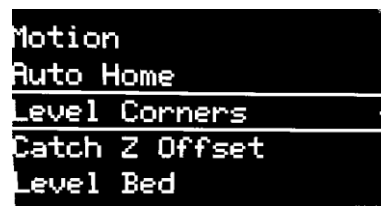
```
Motion ↑
Auto Home →
Level Corners
Catch Z Offset
Level Bed
```

Fig1



```
Motion ↑
Level Corners →
Catch Z Offset
Level Bed
Bed Leveling: Off
```

Fig2



```
Motion ↑
Auto Home →
Level Corners
Catch Z Offset
Level Bed
```

Fig3

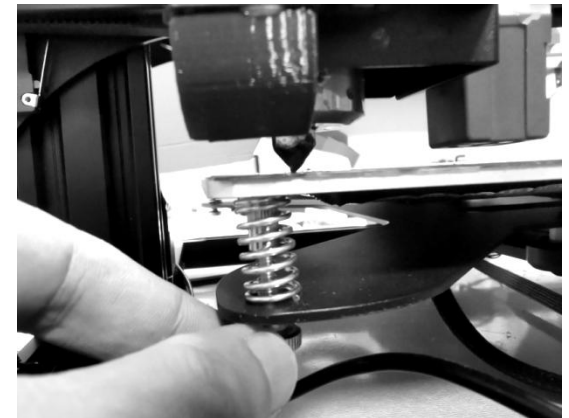


Fig4

NOTE: If the nozzle or Z ENDSTOP is moved, you need to do this step again.

Step 4: Catch Z offset

NOTE: It is recommended that the hot bed be heated to about 60 ° for this test.

1. Do *Montion>> Bed Leveling>> Auto HOME(Fig1)*.
2. Do *Montion>> Bed Leveling>> Catch Z Offset(Fig2)*.
3. Wait the catching done, check the Z offset:
Do *Montion>> Bed Leveling>> Probe Z Offset(Fig3)*.

```
Motion          ↑
Auto Home
Level Corners    +
Catch Z Offset
Level Bed
```

Fig1

```
Motion          ↑
Auto Home
Level Corners    +
Catch Z Offset
Level Bed
```

Fig2

```
Level Bed
Fade Height:      0
Probe Z Offse: -2.905
Load Settings
Store Settings
```

Fig3

Step 5: Level Bed

1. Do *Montion>> Bed Leveling>> Auto HOME*(Fig1).
2. Do *Montion>> Bed Leveling>> Level Bed*(Fig2).
3. Watch the measure value, if all of these values are less than 0, it means the “probe Z offset” is too small. (Fig3)
4. Try to add “probe Z offset” (Fig4) a little and then store settings (Fig5).
5. Do 1 and 2 again. **(MUST DO AUTO HOME after changed Probe Z offset)**
6. After fine tune, the value should be within -0.3mm~0.3mm, and most of the value should be within - 0.1mm~0.1mm.
7. Wait for the end of the test. Operate Auto Home again, the auto leveling will change from **off** to **on**. It indicates that the automatic leveling feature is working(Fig7).

```
Motion ↑
Auto Home
Level Corners +
Catch Z Offset
Level Bed
```

Fig1

```
Motion ↑
Auto Home
Level Corners +
Catch Z Offset
Level Bed
```

Fig2

```
100 0 0 0° 0°
VT00L:0 36° 30°
X 96 Y 275 Z 12.63
100% 00:00
Probing 32/36=-0.43
```

Fig3

```
Probe Z Offset:
-2.610
```

Fig4

```
Bed Leveling:
Probe Z Offset
Fade Height:
Load Settings
Store Settings
```

Fig5

```
Main
Move Axis
Auto Home
Home X
Home Y
```

Fig6

```
Motion ↑
Level Corners +
Catch Z Offset
Level Bed
Bed Leveling: On
```

Fig7

Step 6: Verification

Now you can try to print a test file to verify the bed auto leveling result

1. Copy level_test_310.gcode to SD card.
2. Print it from SD card.
3. *When printing started, double click (click twice in one second) the knob to open Probe Z offset menu (fig1)*
4. *Rotate the knob and watch the nozzle, let the nozzle is higher than the hotbed about 0.3mm (fig2).*
5. *Do on the MENU>>Configuration>>Store settings (fig3)*

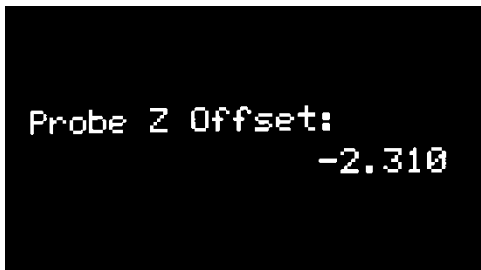


Fig1

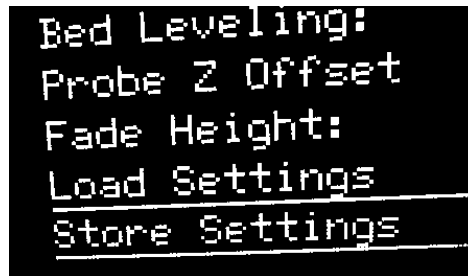
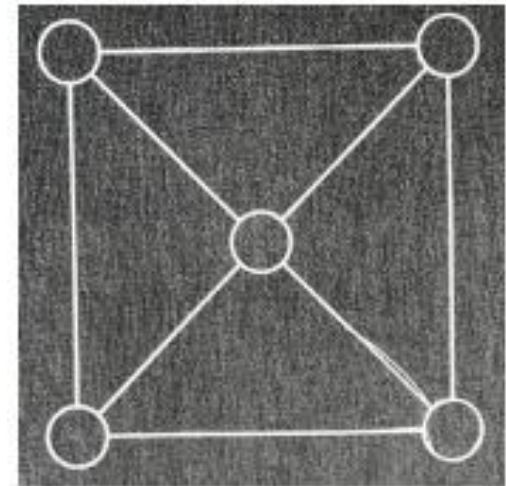


Fig3



Fig2



Print result

Apply auto leveling feature

Auto leveling feature will be disabled automatically when the printer reset, you can turn it on manually or let it do automatically every time when printing from SD card.

- Applying it by manually:

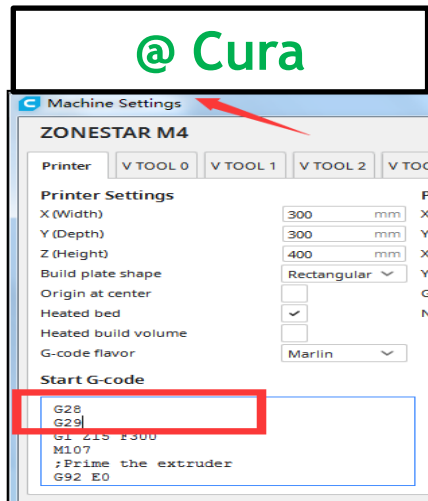
1. *Motion>> Bed Leveling>> Level Bed >>Auto Home*
2. *Motion>> Bed Leveling>> Level Bed >>bed leveling: OFF →Change to ON*

ATTENTION: After do these 2 steps, the printer will apply the hotbed auto leveling correction by using the stored parameters in the last time, it may be incorrect.

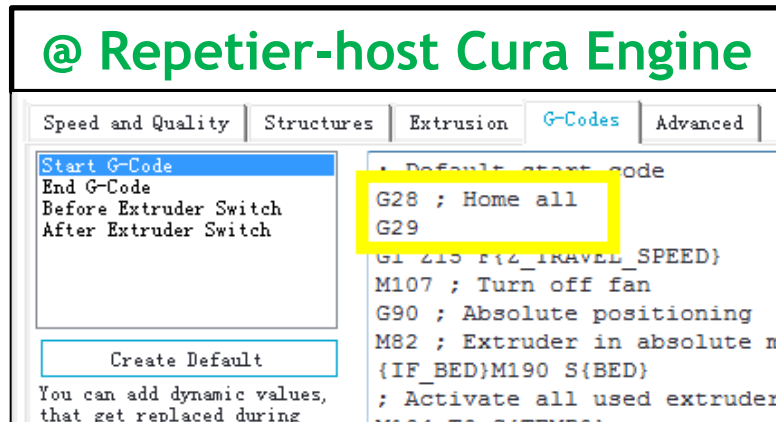
- *Leveling the hotbed at each printing from SD card(Recommend):*

You can also add a G29 command to the “start gcode” of slicing software, it will level the bed in the star of printing.

@ Cura



@ Repetier-host Cura Engine



@ Simplify3D

