ZONESTAR

Auto leveling feaure user guide

Bed Leveling Sensor: PL-08N Proximity Sensor

Ver: 4.1

For Mainlin 2.0.x firmware only

Note:

1. **The print platform (hotbed) should be metal.**
2. **Before upgrading , you need to level hot bed manual .**
3. **It can only corrects small irregularities deformation of hot bed, usually error should be less than 0.8 mm.**

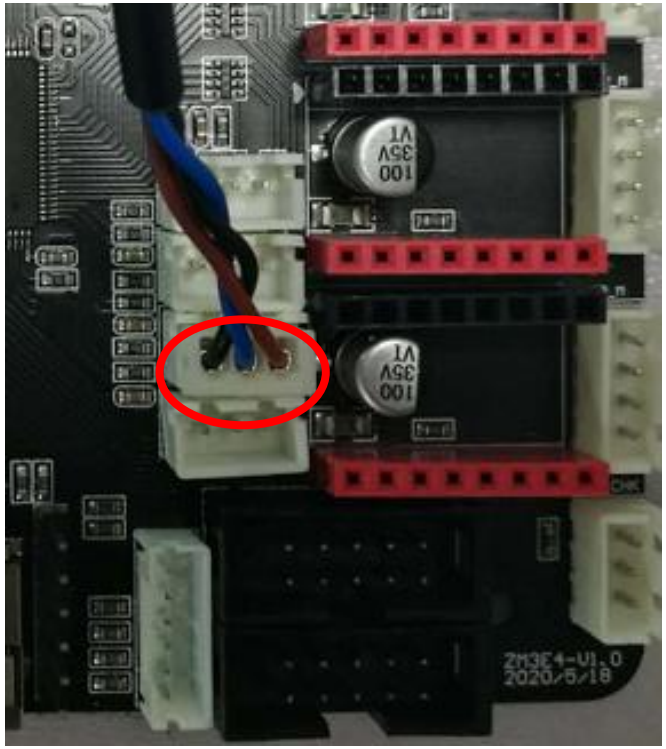
Step 1: Wiring

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 hot bed.

ZRIB V6.0

Near, light on

Far, light off



ZM3E4 V1.0

Note:
For ZM3E4 V1.0 control board, the proximity sensor must work in 3.3V.

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).

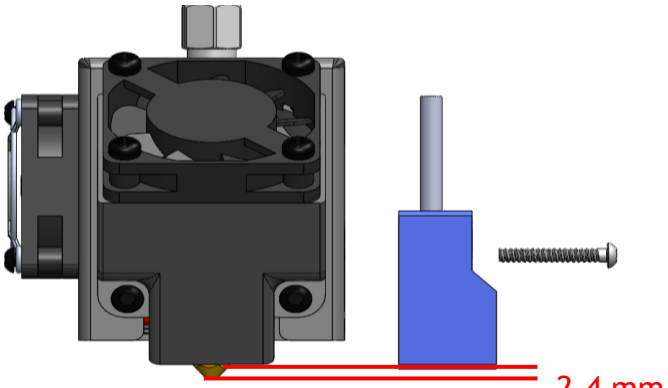


Fig1

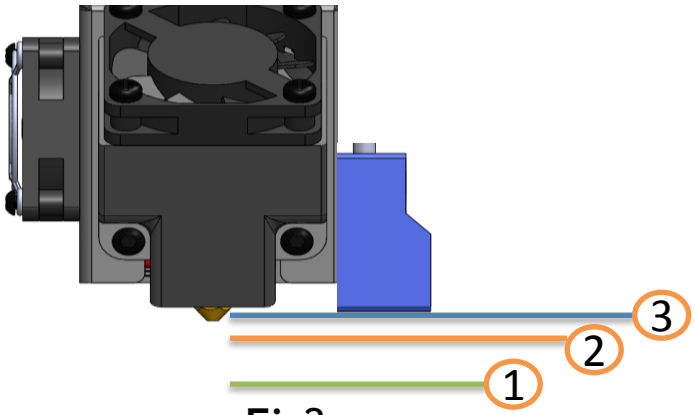


Fig2

① If the hotbed is at this height, the proimity sensor is released (LED turn off).
② If the hotbed is at this height, the proimity 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. Do *Montion>> Bed Leveling>> Level Corners(Fig2)..*
5. Adjust the screws under the hotend, let the nozzle almost to touch the hotend in the four corners (following the wizard)(Fig3).

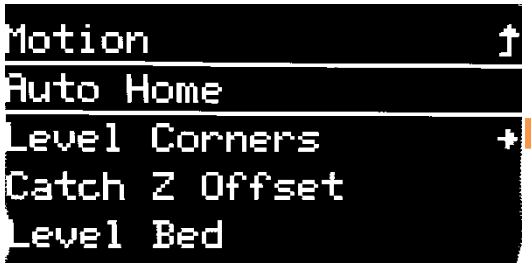


Fig1

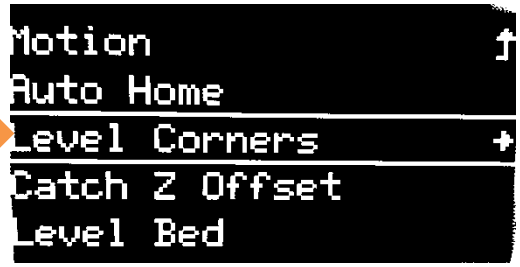


Fig2

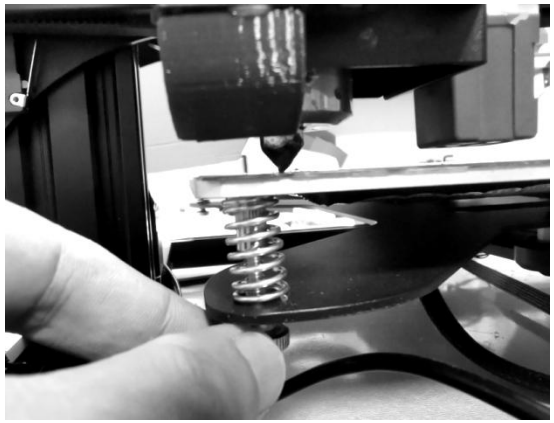


Fig3

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

Step 4: Catch Z offset

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).*
4. Save the Z offset value.

   Do *Montion>> Bed Leveling>> Store Settings(Fig4).*

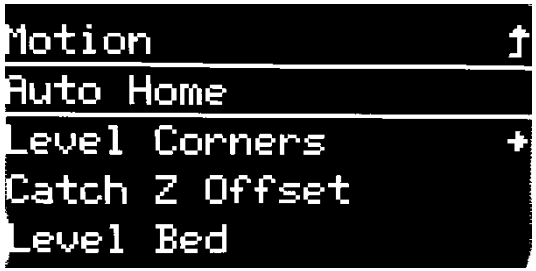


Fig1

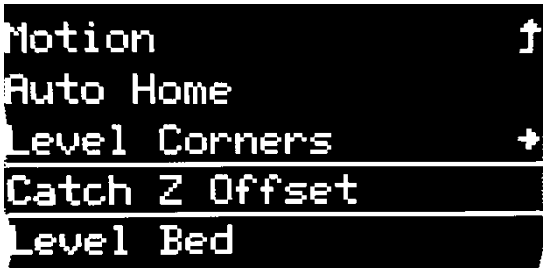


Fig2

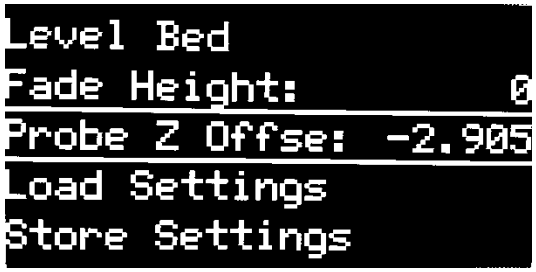


Fig3

Fig4

NOTE: Due to the deformation of the hot bed under heating and unheated conditions, we suggest heating the hot bed to about 60 ° for this test.

Step 5: Level Bed

1. Do *Montion>> Bed Leveling>> Auto HOME(Fig1).*
2. Do *Montion>> Bed Leveling>> Level Bed(Fig2).*
3. 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(Fig3).

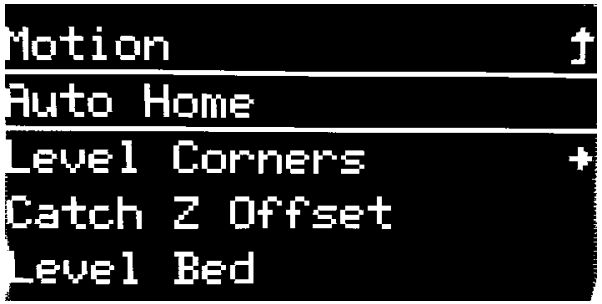


Fig1

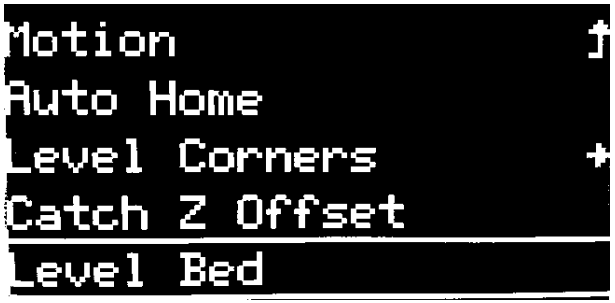


Fig2

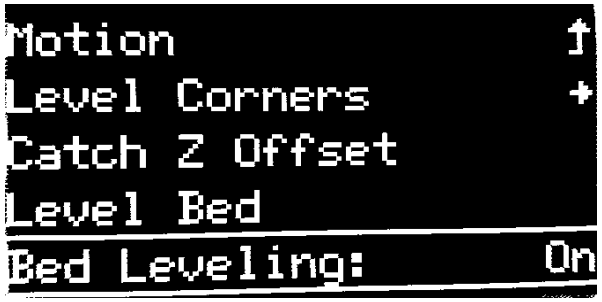


Fig3

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

Step 6: Updata Z Offset

When all the previous steps are complete, we provide a gcode file (level_YYY.gcode) to verify the auto leveling.

1. Copy "***level_YYY.gcode***" file (YYY is the size of hotbed, for example, Z9,Z8,Z5X is 300) to SD card and insert the SD card to printer.
2. Print above file from SD card.
3. After starting to print the first layer, double-click the knob to open *the "babystep Z "* menu, then rotate the knob to fine tune the nozzle to appropriate height**, remember this value (e.g.: 0.2mm). If you do not need to fine tune Z offset, you can stop printing directly.**
4. Open *Motion>> Bed Leveling>> Probe Z offset,* add above vale to ths Probe Z offset, for exmaple, before the *"**Probe Z offset**" is **-2.905**, new value is **-2.905-0.2 = -3.105mm.***
5. Do *Motion>> Bed Leveling>> Store settings.*
6. **Repeat step 4 and step 5**, to check whether the distance from nozzle to hotbed is appropriate when printing.

Apply auto leveling feature

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

- **Appling it by manually:**

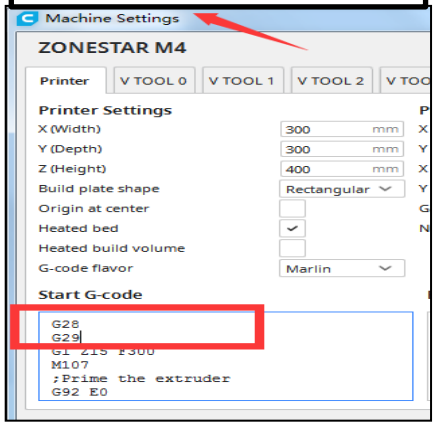
1. *Motion>> Bed Leveling>> Level Bed >>Auto Home*
2. *Motion>> Bed Leveling>> Level Bed >>bed leveling: OFF* →**Change to** *ON*

NOTE: After do these 2 steps, the printer will apply the hotbed auto leveling correction by using the stored parameters in the last time.

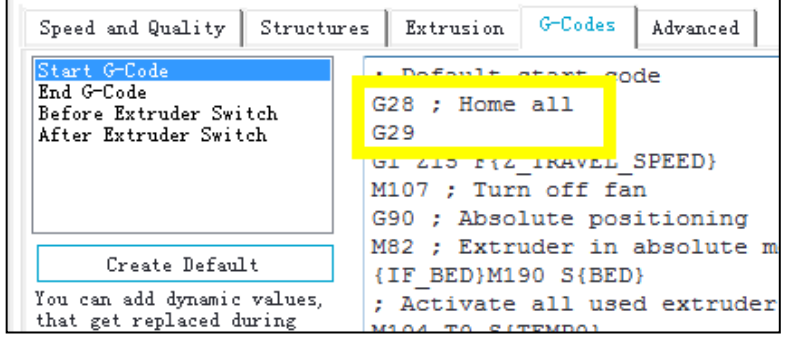
- ***Leveling the hotbed at each printing from SD card:***

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