ZONESTAR

How to upgrade and debug bed auto leveling

Bed Leveling Sensor: PL-08N Proximity Sensor

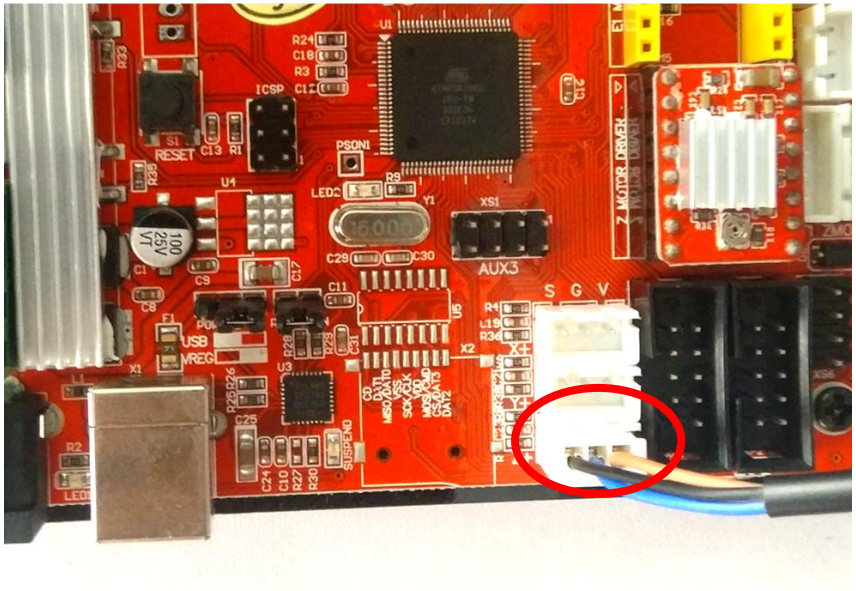
Ver: 1.0

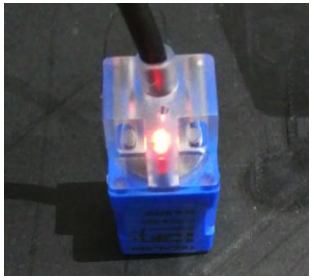
Note:

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 0.5 mm.**

Wiring

1. Connect the Proximity Sensor to the Z+ 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.





Near, light on

Far, light off

Installation

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 side of 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 (the printer which Z-axis limit switches is removable, such as Z5, Z6, Z8S, etc.) or adjust the "Z height adjustment screw" (the printer which Z-axis limit switches is fixed but there is a screw to adjust the Z height, such as P802N, Z9, etc.), and let their position to meet the following conditions (Fig 2).

① If hot bed is at this height, the sensor is released (LED turn off).
② If hot bed is at this height, the sensor is triggered (LED light up).
③ If hot bed is at this height, Z ENDSTOP is triggered.

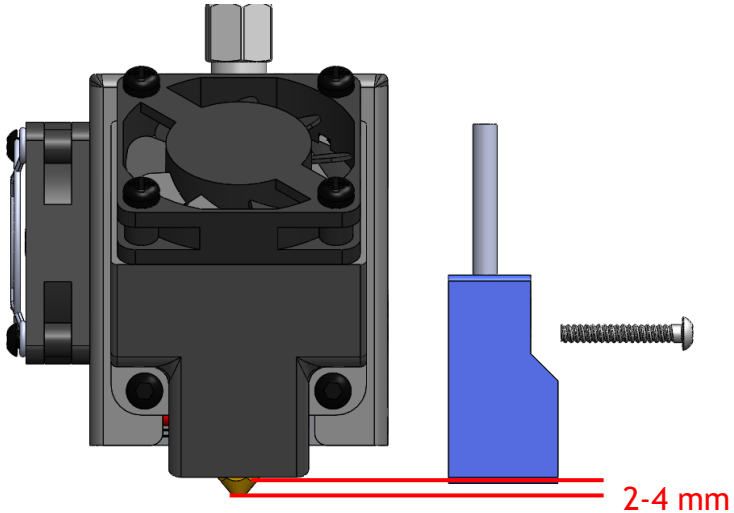


Fig1

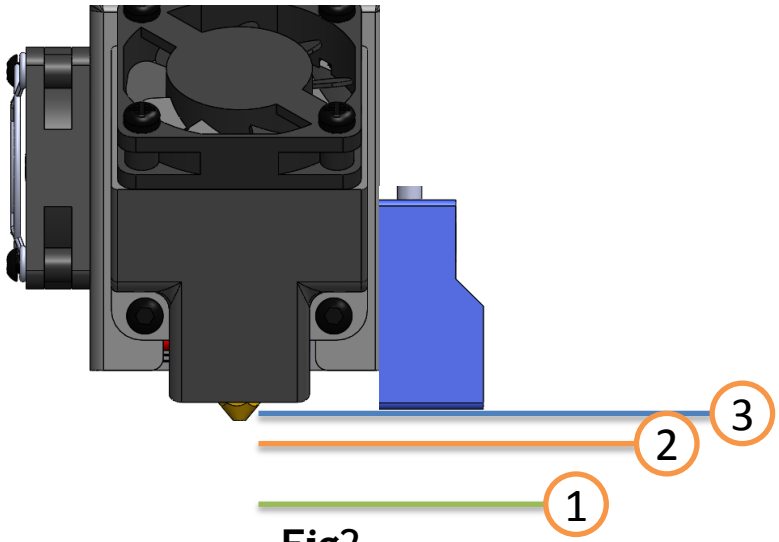


Fig2

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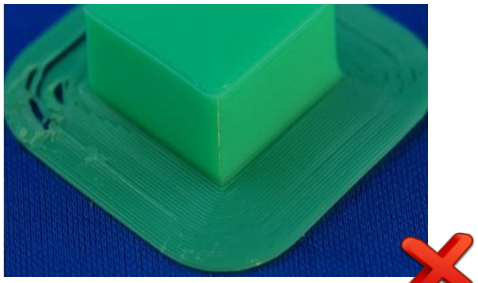
Verification and set Z OFFSET

1. First, manually level the hot bed to ensure that the height error of each point of the hot bed is within 0.5mm.
2. *"Prepare>> Auto Home"*, wait for it done.
3. *"Prepare >> bed leveling"*, it will start measuring the hot bed height error. Note if the sensor works properly when observing each test point. If it works properly, continue the steps below, otherwise check the installation and wiring again.
4. Copy *"Bed auto leveling test.gcode"* file to a SD card and insert it to printer, print this gcode file.
5. After starting to print the first layer, double-click the knob to open *the " babystep Z "* menu, then rotate the knob to adjust the nozzle to appropriate height, remember this value (e.g.: 0.25mm).
6. Open the *"Z offset"* menu and modify its value to the above value and save it.

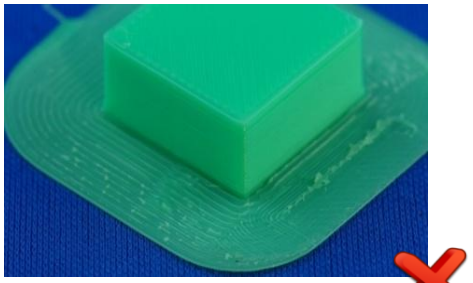
*Control>Motion>Z Offset: **-0.25*** (Note it is an opposite)

*Control>Store settings>>**Press to save***

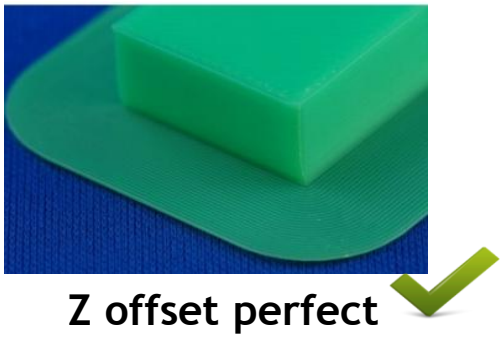
7. Print *"Bed auto leveling test.gcode"* again , check if the distance is appropriate.



Z offset too small



Z offset too big



Z offset perfect

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SD card automatic leveling hot bed

In order to apply “bed auto leveling” automatically when printing from SD card , add a G29 command behind of the G28 command in the ***Start G-Code*** of slicing software.