

# Auto leveling feaure user guide (Z9V5Pro)

Bed Leveling Sensor: **PL-08N**

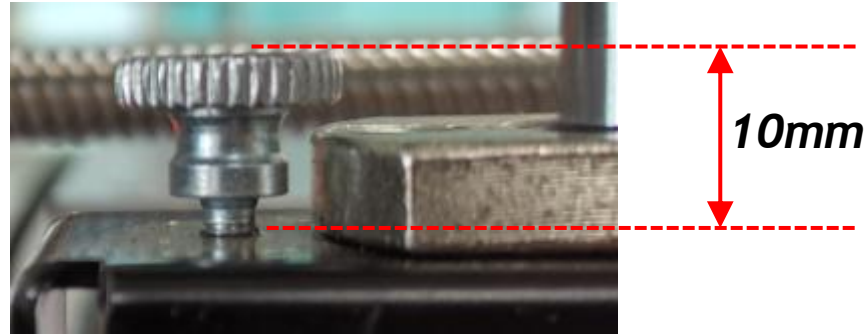
Firmware Version V1.0.9 or last

**Note:**

If the hot bed is enough level without auto leveling, don't use bed auto leveling feature, Bed automatic leveling will slightly reduce the printing quality and increase the printing time.

# Prepare

Adjust the hotbed adjusting screws on the Z carrier, height is about 10mm



Set the **HOME Z OFFSET**, MENU>>Config>>Configure>>**HOME Z Offset**: x.xx

*For SuperGlass, set to 3.5mm*

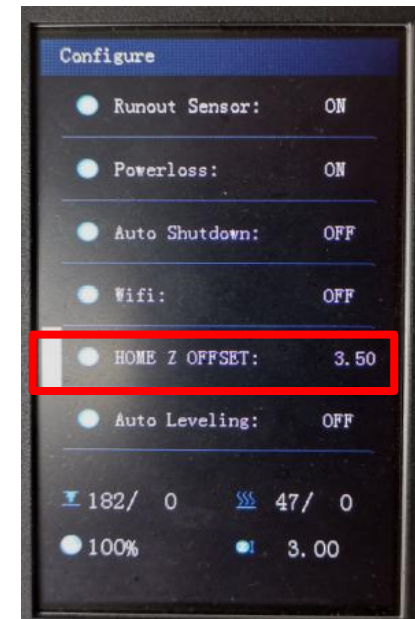
*Speical hotbed sticker, set to 0.4mm*

*Magnetic hotbed sticker: set to 1.0 mm*

## !ATTENTION!

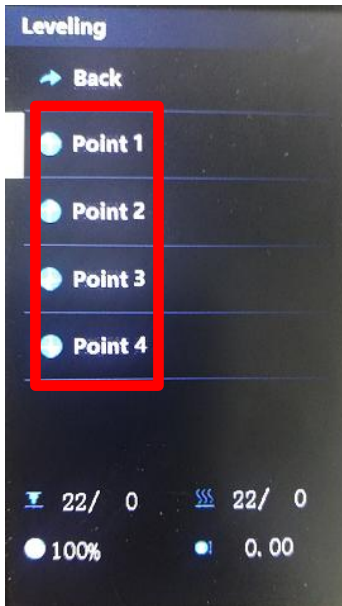
**HOME Z OFFSET** is tell the printer the distance between the actual printing plane and the sensing plane. If you use different sensors and hotbed materials, you need to set this value. For example, if you use bltouch or ZL-Sensor, you need to set it to 0

**PS:** do “Config>>Store settings” to store it after changed it.



# Level Corners

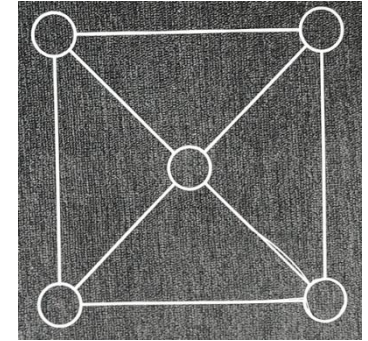
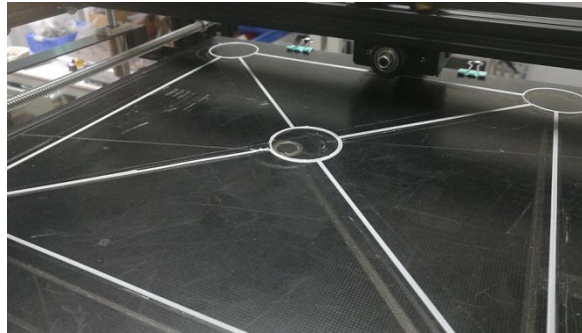
1. Make sure the hotbed and nozzle are cool, clean the filament on the nozzle.
2. Turn on the 3d printer.
3. Do *Prepare>> Bed Leveling>> Point 1~4.*
4. Adjust the screws under the hotend, let the nozzle almost to touch the hotend in the four corners.



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

# Print test file

After level coners, please try to print "level\_test\_310.gcode" from SD card, and check if the hotbed is enough level.



Press the knob twice within one second to open the babysteps menu, and then rotate the knob to fine tune the distance from nozzle to hotbed.



**NOTICE:** if the hot bed is enough level, Don't need to use bed auto leveling feature. You can ignore the below steps and start to print

# Auto Leveling >>> Catch Z offset

Step 1. Do *Control>> Configure>> Auto Leveling*(*From OFF to ON*) to turn on “Auto leveling” menu



Step 2. Do *Prepare>> Bed Leveling>> Catch Z-Offset*.



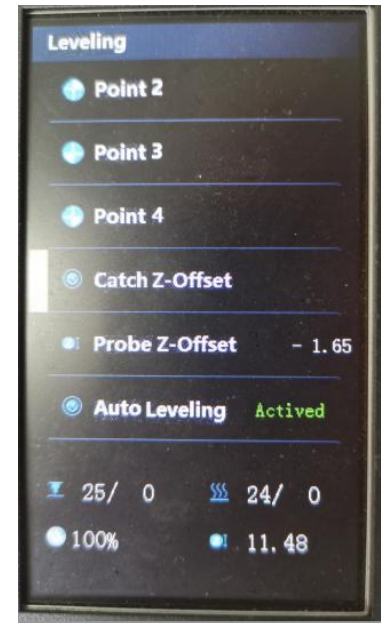
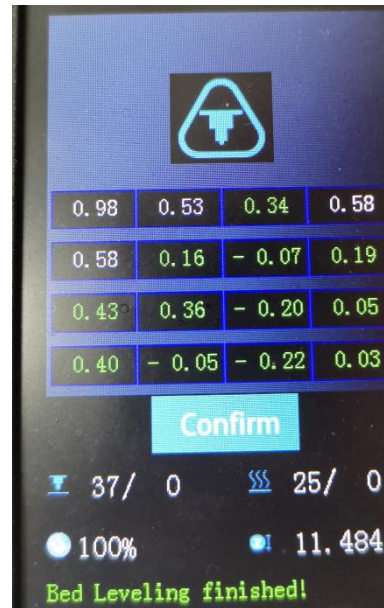
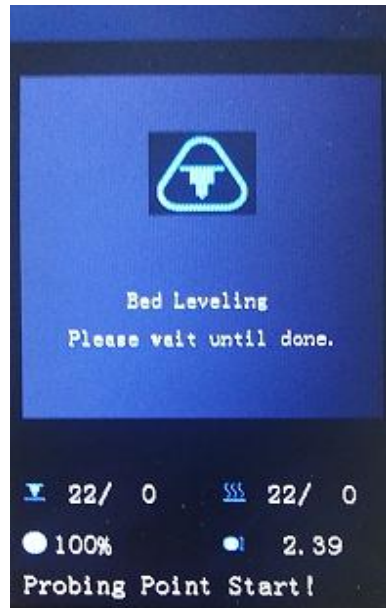
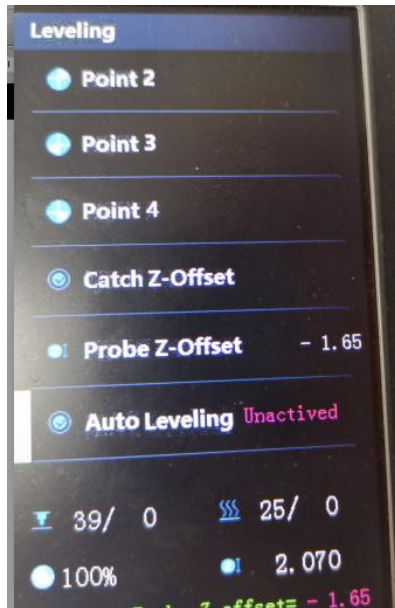
**PS: if the HOME Z OFFSET is over( $\geq$ ) 2mm, it will remind to remove the glass first. If you doesn't use a glass bed, please check the settings of HOME Z OFFSET.**



# Auto Leveling >>> Leveling measure

Step 3. Do *Prepare>> Bed Leveling>>Auto Leveling*.

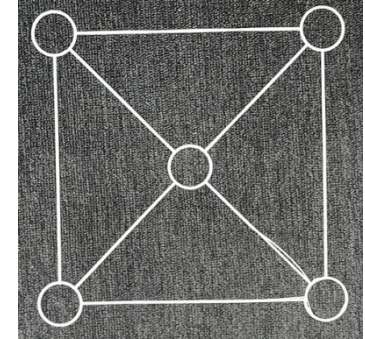
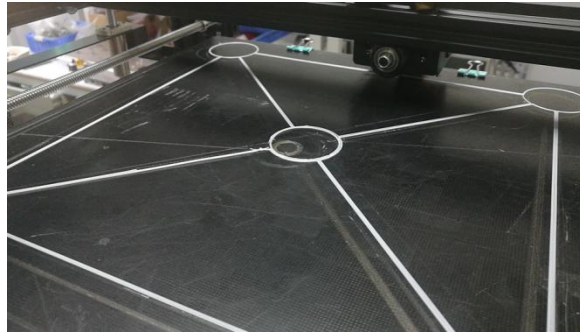
After measure done, the state of Auto leveling on Leveling menu will change from **Unactivated** to **Activated**.



1. The measurement result should be between -1.0 to 1.0 mm. If it exceeds, it is recommended that you try to fine tune the printer or improve the flatness of the hotbed, because it may affect the printing quality.
2. If it is found that there is a large deviation in data arrangement between the Left/Right sides or the Front/Back sides, please adjust the bottom screw of the hotbed (**when the data is + turn down the hotbed, when the data is - turn up the hotbed**).

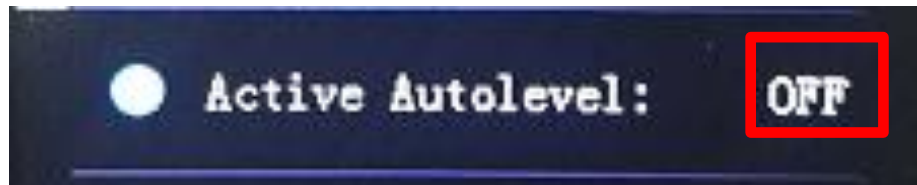
# Active auto leveling after printer reset

Step 4. Print the test file again refer to the page 4



Step 5. Do *Prepare>> Bed Leveling>>Active Autolevel*

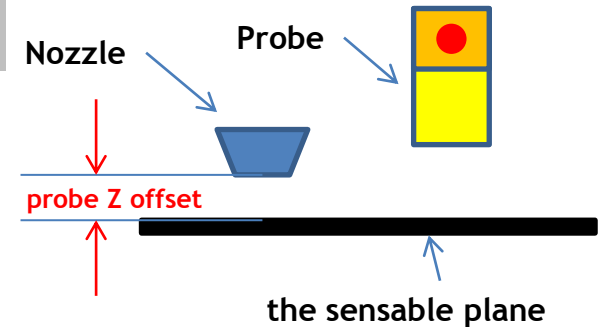
Once power off, the bed autolevel feature will auto unactive, you need to turn on it on LCD menu.



# Supplement

## • What is “Probe Z offset ”and “HOME Z offset”

“probe Z offset”: it means the distace from the nozzle to the **the sensing plane** while the probe is triggered. “Catch Z Offset” function will get an average of “probe Z offset” automatically. **We MUST** manual level the bed by using “Point1~ Point4” before doing “Catch Z Offset”, otherwise the printer can’t get “probe Z offset” correctly.



“HOME Z OFFSET”: For PL-08N bed auto leveling sensor, because it only can sensing a metal object, so **“the sensing plane”** is the surface of aluminum heatbed, but not the glass. We need to tell the printer the distance from the “real printing plane” to **“the sensing plane”**, that’s why we need to set the “HOME Z OFFST” to 3.5mm for a glass print plane like Z9V5Pro. By the same token, if we use a magnetic hot bed stickers, we must set “HOME Z OFFST” to 0.8mm ~ 1mm.

## • How to correct “Probe Z offset ” and “HOME Z offset”

For various reasons, the settings of “home Z offset” and “probe Z offset” may not be accurate, so you can manually adjust them to be more accurate.

1. When doing > > bed leveling > > auto leveling,
  - if most of the obtained data showed in the table are shifted to the **Positive**, you can **decrease** the “Probe Z offset” and do "auto leveling" again ,
  - if most of the obtained data showed in the table are shifted to the **Negative**, you can **increase** the “probe Z offset” and do auto leveling again.

**PS: Ignore the datas at the 4 corners, it will be optimized in the firmware.**

2. If you find that the nozzle is too **close** / **far** away from the printing plane when printing the first layer, you can **in cease** / **decrease** home Z offset then print it again.