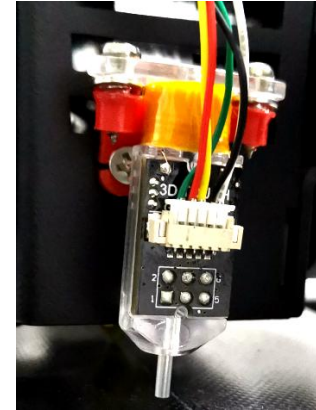# How to connect and debug Bltouch/3D Touch

Install the Bltouch module on the hotend housing, we make a print stl file, please print it and then install the Bltouch on the side of hotend.

Stl file name: BLtouch_Bracket

Please adjust the installation position of BLtouch, let its probe is lower than nozzle when Bloutch is deploy, and its probe is higher than nozzle when it is stow.

nozzle   BL touch

Probe is lower than nozzle
Deploy(DOWN)

nozzle   BL touch

Probe is higher than nozzle

Stow(UP)

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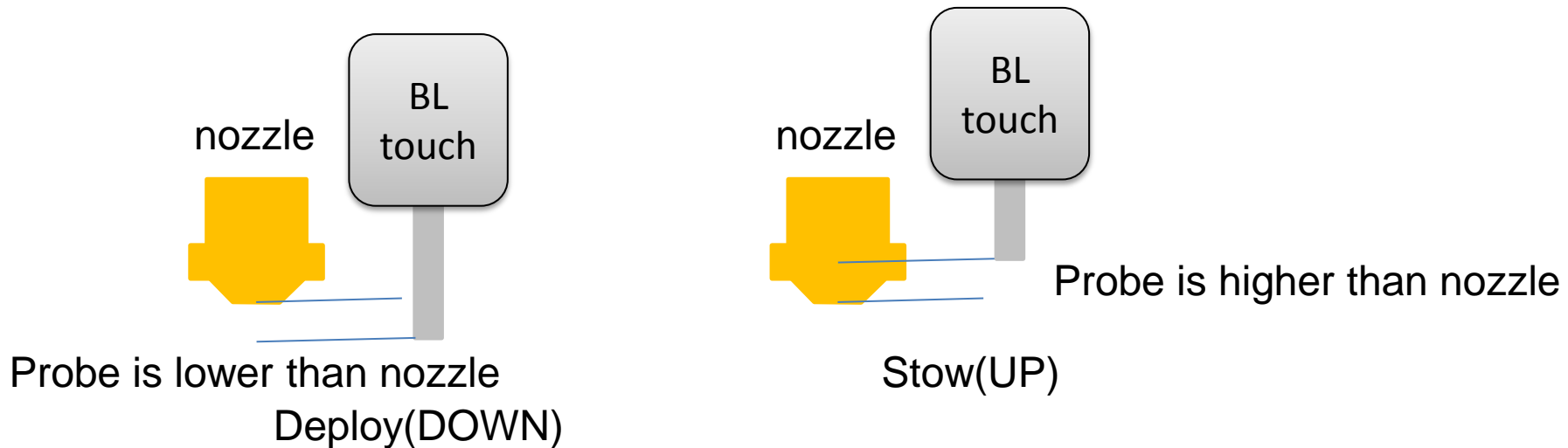
Firmware upgrade

If the firmware of the control board supports the BLtouch (3DTouch) sensor, "BLtouch" will appear on the display menu. If the display menu of your machine does not have this item, you need to upgrade the control board firmware.

Upload firmware steps:
1. Unzip the firmware upgrade tool "Firmware Upload tools.zip" to your computer.
2. Copy the firmware "HEX "to the extracted directory.
3. Connect the printer to your PC, making sure the driver is properly installed.
4. Refer to the "AVRUpdateTools userGuide_ZRIB.pdf" instructions in the upgrade tool to upload the firmware to the control board.

Note: For the download address of the firmware and its tools, please note the instructions in the sales link or documentation. If you find a download link, please contact our sales staff.

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Wiring
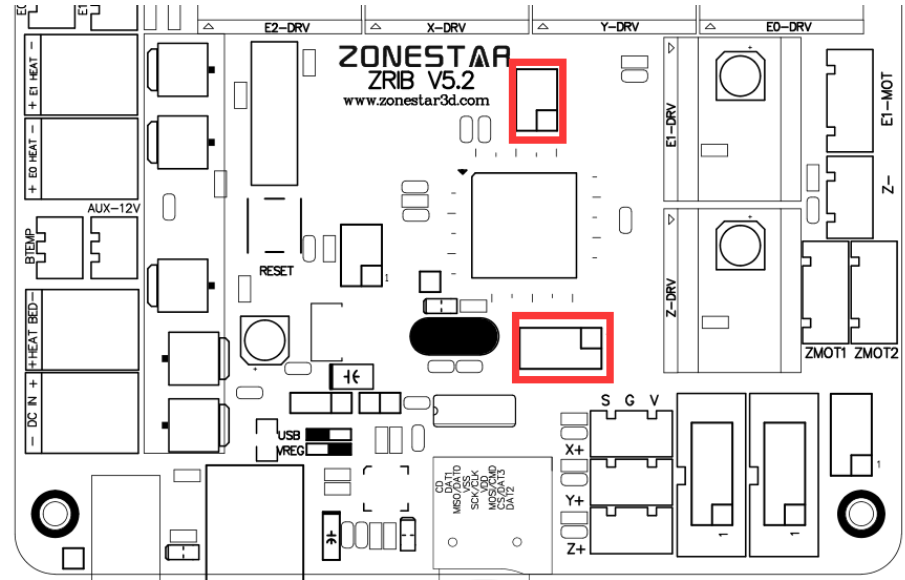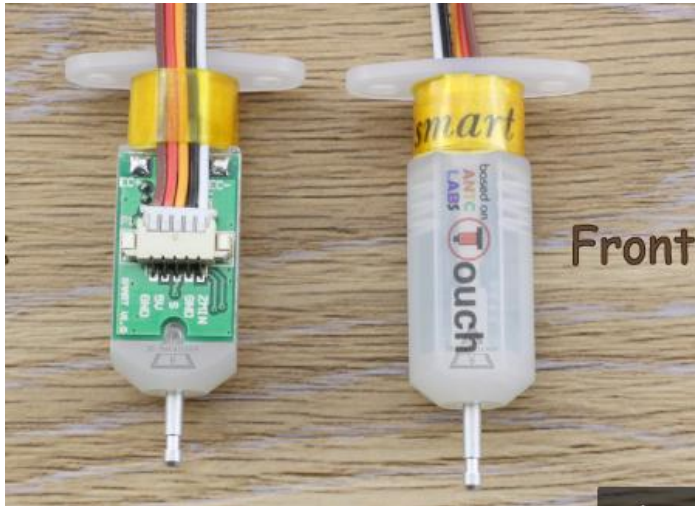
	Bltouch wire color	3D touch (1) wire color	3D touch(2) wire color	Signal	ZRIB Pins	Melzi Board
3 PIN connector for driver	Brown	Green	Black	GND	GND	GND(-)
	RED	RED	RED	+5V	+5V	5V
	Yellow	Yellow	Blue	Drive (SERVO)	D42	A4(D27)
2PIN connector for sensor	White	White	Yellow	Sensor	D65	S of Z STOP
	Black	Black	Black	GND	GND	- of Z STOP

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Wiring (for ZRIB control board)

			D42
		GND	+5V

GND

Drive

+5V

GND

Sensor

+5V	+5V
GND	GND
D65	D66

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ZRIB V5.2
www.zonestar3d.com

Wiring

5V				
GND	A4			

5V

GND

Drive

Sensor

GND

S	-	+

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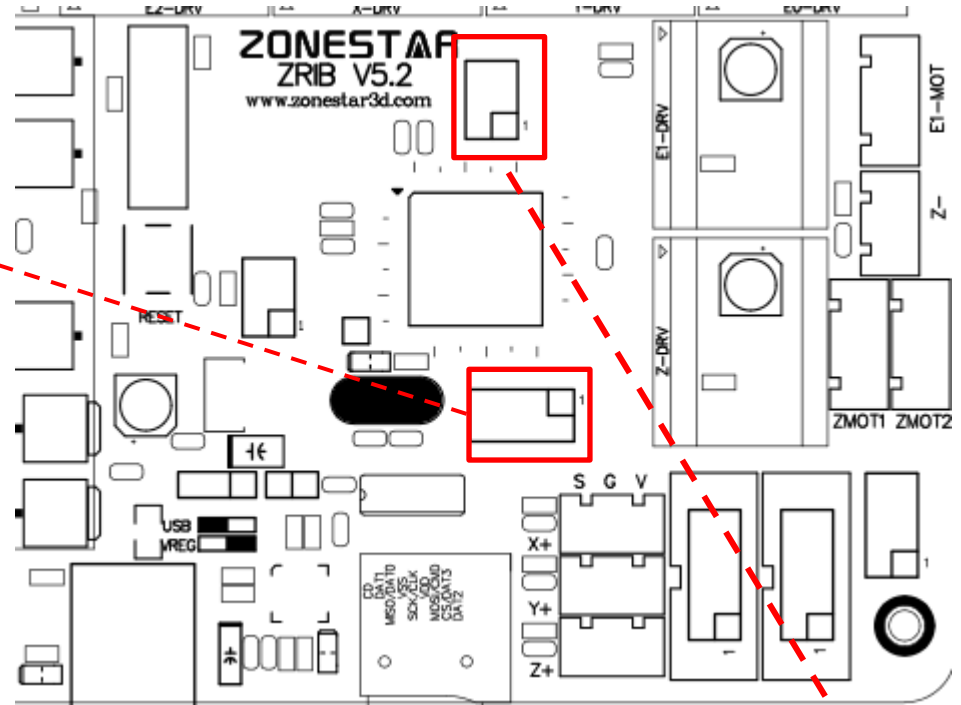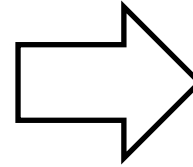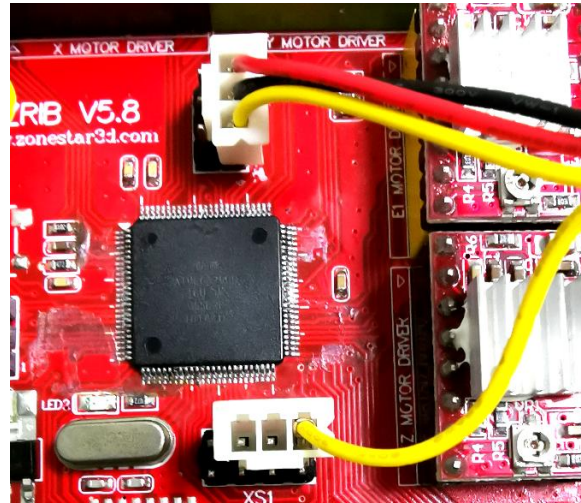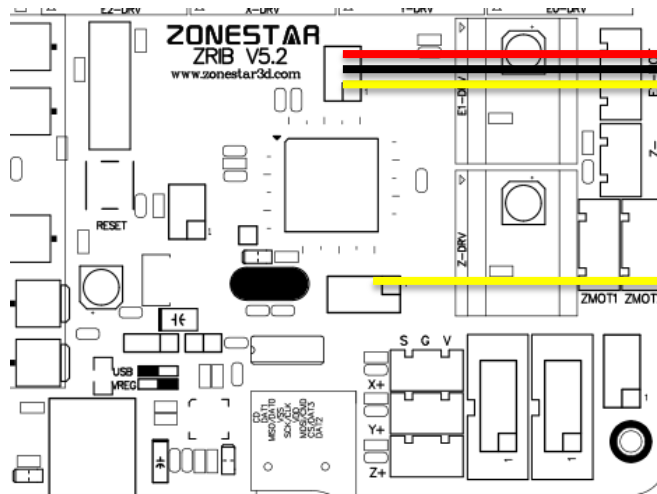
Wiring for Z10

In Control box

Wiring diagram

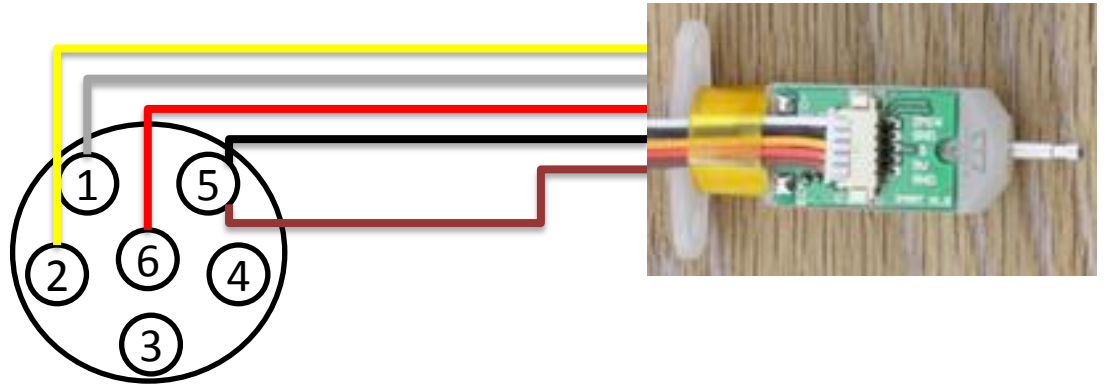
AUX connector

Pin1: D65
Pin2: D42
Pin5: GND
Pin6: +5V

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Wire for Z10

BItouch sensor with connector

BItouch sensor wiring diagram

Pin1: Sensor
Pin2: Drive
Pin5: GND
Pin6: +5V

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1. Power on the printer, and watch the LED on the Bltouch, Blue LED will light if wires is connected well and Power on. Red LED will light if the probe is triggered.
2. Operate the control panel, *Control>>Bltouch>>Reset Bltouch*.
3. Operate the control panel, *Control>>Bltouch>>Bltouch Self-test*, Bltouch will deploy and stow automatically, you can check if the installation height of BLtouch is OK by using this function.
4. Operate the control panel, *Control>>Bltouch>>Reset Bltouch*.
5. Operate the control panel, *Control>>Bltouch>>Deploy*, the probe will up;
6. Operate the control panel, *Control>>Bltouch>>Stow*, the probe will down;
7. Operate the control panel to level the bed first manually.

Prepare>>Auto Home, *Waiting for it to complete*

Prepare>>Level coners

8. Operate the control panel to start bed auto leveling.

Prepare>>Auto Home , *Waiting for it to complete*

Prepare>>Leveling Bed

The printer will start bed auto leveling, you can observe the height of the Z-axis on the LCD screen (when finished to test one point and the BLtouch is raise) to know error of the hot bed.

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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"*, Waiting for it to complete.

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).

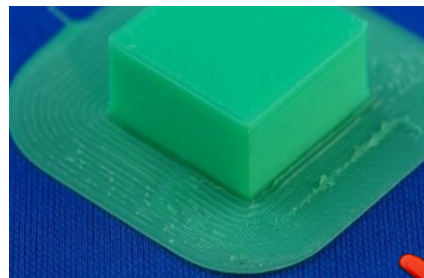6. Open the *"Z offset"* menu and modify its value to the above value and save it.

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.