

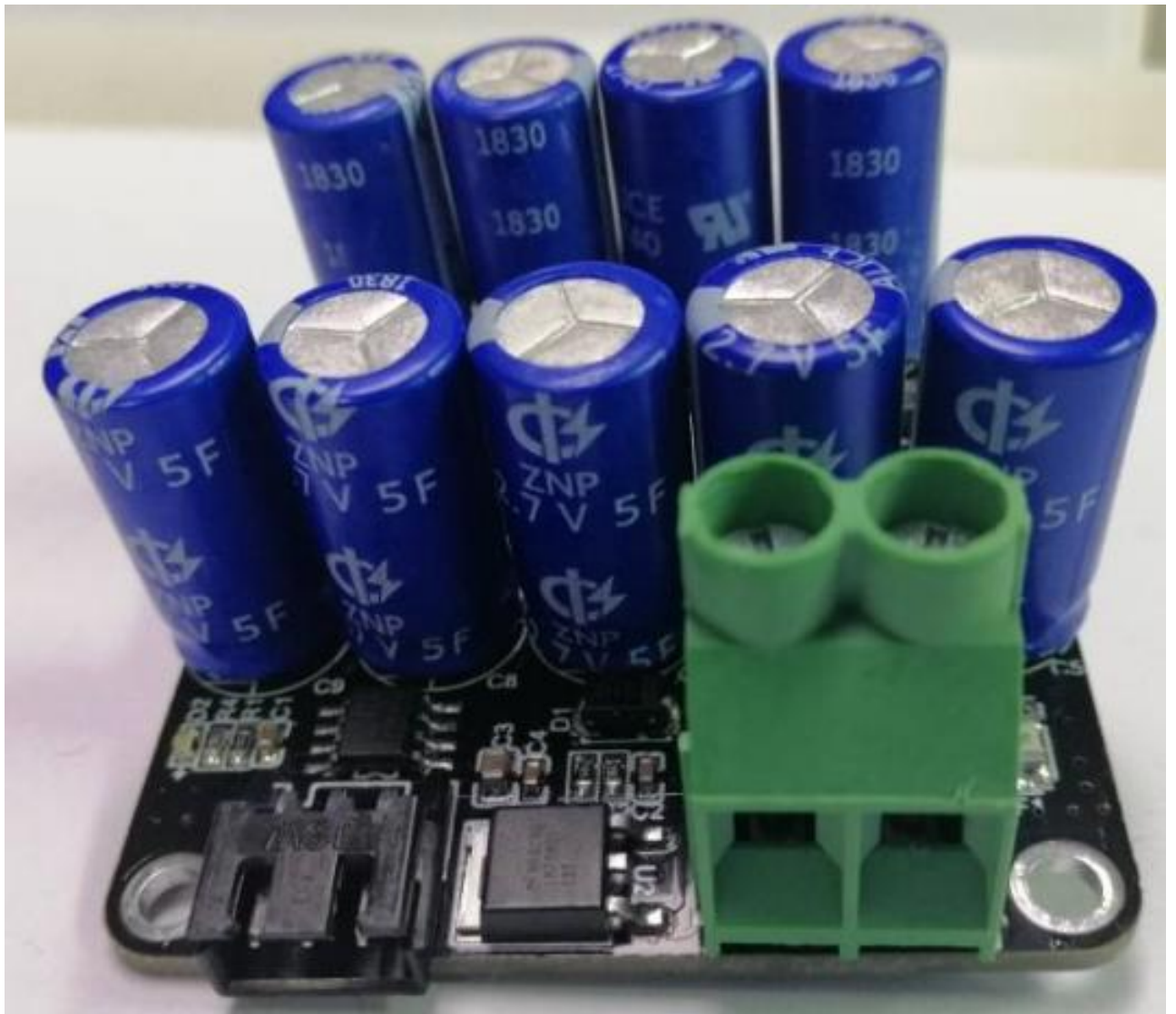
Shenzhen BIGTREE Technology co., LTD.  
BIG TREE TECH

---

# BIGTREETECH

## UPS 24V V1.0

### Module Instruction



## I 、 Introduction:

BTT UPS 24V V1.0 is an external module of 3D printer with the function of power off resume print, which was launched by 3D printing team of Shenzhen Big Tree Technology CO., LTD. It is applicable to all 3D printers powered by DC24V switch power, such as Ender 3 printer.

### 1. Feature:

- 1) Adopt voltage comparator LM393 chip, which can detect power failure sensitively;
- 2) Equipped with 9 2.7V 5F super capacitors to store electricity, so that there is sufficient power supply after detecting the power failure, then the printer can successfully complete the corresponding operation.
- 3) An anti-reverse protection circuit is added at the power interface to prevent irreversible damage caused by the reverse power supply, which greatly protects the circuit board;
- 4) The module is small and easy to install;
- 5) Main function: realize the power off resume print function;

### 2. Module parameters:

External dimension: 52.53\*50mm

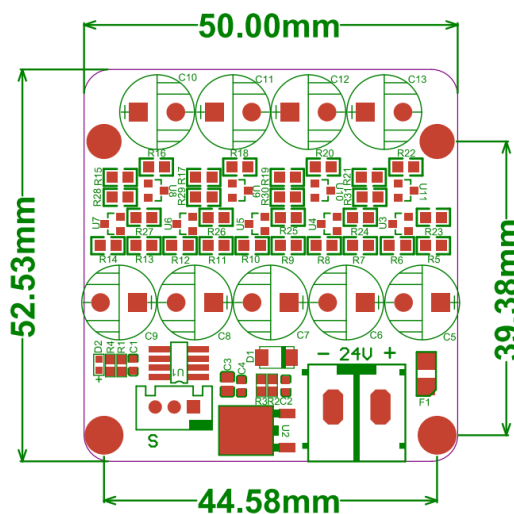
Installation dimensions: 44.58mm\*39.38mm

Power input: DC24V

Logic voltage: 3.3V or 5V

Support model: All DC24V powered 3D printers are available (like Ender3)

Item drawing:



## II、Module power-on

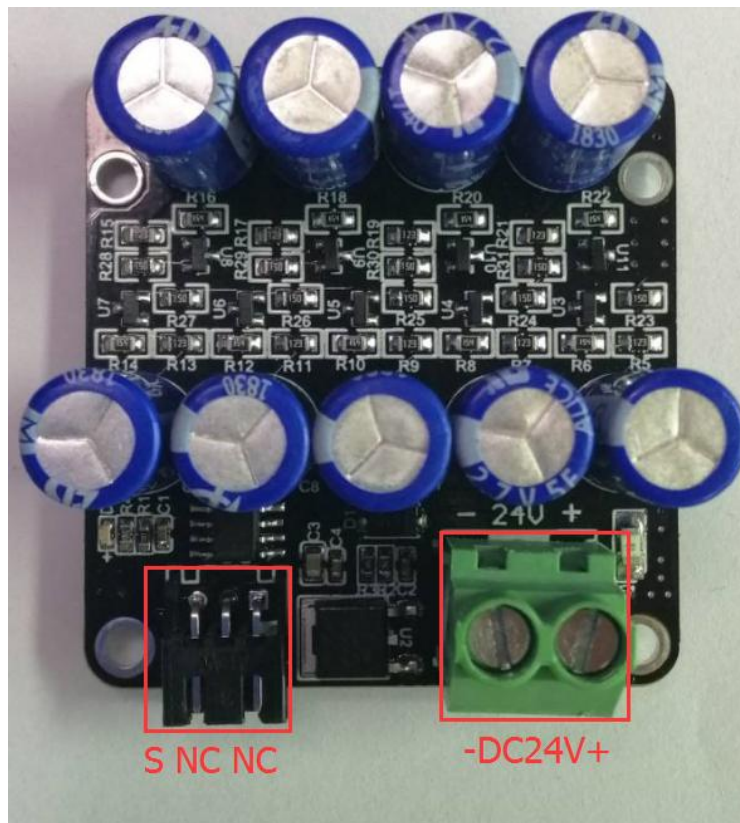
After BTT UPS 24V V1.0 power on, D2 red light in the lower left corner will go on, indicating normal power supply.

Note: The input power only supports DC24V. Please pay attention to distinguish the positive and negative poles when wiring. The wiring process must be carried out in the state of power failure and confirm the wiring is correct before power on. Our company will not be responsible for any loss caused by wiring.

## III、Module communicates with the printer's motherboard

BTT UPS 24V V1.0 communicates with the motherboard through XH2.54mm 3P plug-in wire. Please identify the position of signal line "S" when wiring. Only when the signal line and the motherboard signal line interface are properly connected can the power off resume print function be realized.

Wiring picture:



## IV、Firmware description

Firmware acquisition mode:

1. Ask customer service or technical staff to get it;
2. Log in the original website of our company to download :

<https://github.com/bigtreotech>

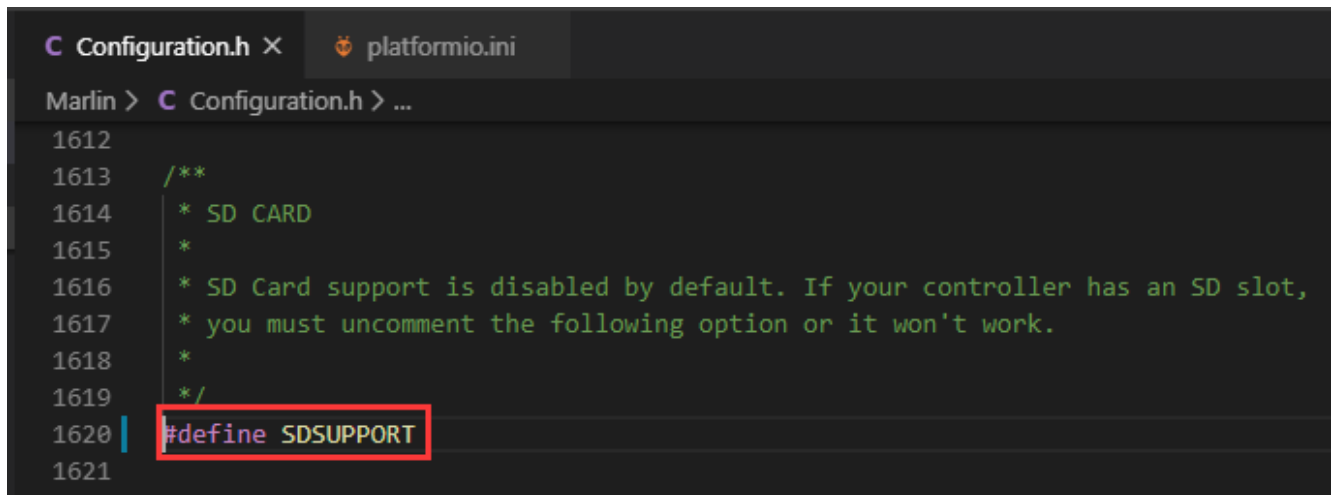
The firmware modification is consistent with MINI UPS V2.0:

Download the Marlin 2.0:

<https://github.com/MarlinFirmware/Marlin/tree/bugfix-2.0.x>

Please modify the parameters according to the printer and then add the function of this power failure module.

1. Enable “SDSUPPORT” in “Configuration.h” file

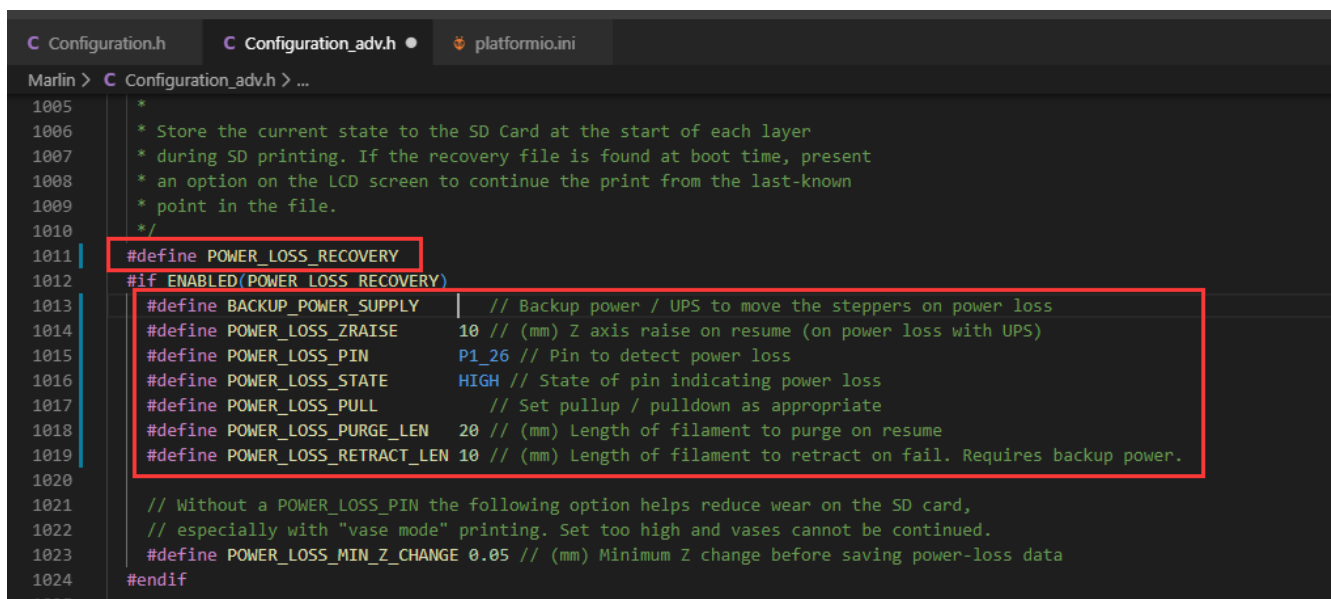


The screenshot shows a code editor with two tabs: 'Configuration.h' and 'platformio.ini'. The 'Configuration.h' tab is active, showing a code snippet from line 1612 to 1621. The code is as follows:

```
1612
1613 /**
1614  * SD CARD
1615  *
1616  * SD Card support is disabled by default. If your controller has an SD slot,
1617  * you must uncomment the following option or it won't work.
1618  *
1619  */
1620 #define SDSUPPORT
1621
```

The line `#define SDSUPPORT` is highlighted with a red box.

2. Enable “POWER\_LOSS\_RECOVERY” in “Configuration\_adv.h” file



The screenshot shows a code editor with three tabs: 'Configuration.h', 'Configuration\_adv.h', and 'platformio.ini'. The 'Configuration\_adv.h' tab is active, showing a code snippet from line 1005 to 1024. The code is as follows:

```
1005 *
1006 * Store the current state to the SD Card at the start of each layer
1007 * during SD printing. If the recovery file is found at boot time, present
1008 * an option on the LCD screen to continue the print from the last-known
1009 * point in the file.
1010 */
1011 #define POWER_LOSS_RECOVERY
1012 #if ENABLED(POWER_LOSS_RECOVERY)
1013 #define BACKUP_POWER_SUPPLY // Backup power / UPS to move the steppers on power loss
1014 #define POWER_LOSS_ZRAISE 10 // (mm) Z axis raise on resume (on power loss with UPS)
1015 #define POWER_LOSS_PIN P1_26 // Pin to detect power loss
1016 #define POWER_LOSS_STATE HIGH // State of pin indicating power loss
1017 #define POWER_LOSS_PULL // Set pullup / pulldown as appropriate
1018 #define POWER_LOSS_PURGE_LEN 20 // (mm) Length of filament to purge on resume
1019 #define POWER_LOSS_RETRACT_LEN 10 // (mm) Length of filament to retract on fail. Requires backup power.
1020
1021 // Without a POWER_LOSS_PIN the following option helps reduce wear on the SD card,
1022 // especially with "vase mode" printing. Set too high and vases cannot be continued.
1023 #define POWER_LOSS_MIN_Z_CHANGE 0.05 // (mm) Minimum Z change before saving power-loss data
1024 #endif
```

The lines `#define POWER_LOSS_RECOVERY` and the entire `#if ENABLED(POWER_LOSS_RECOVERY)` block are highlighted with a red box.

Enable “BACKUP\_POWER\_SUPPLY” means that we have a backup power supply for

**Shenzhen BIGTREE Technology co., LTD.**  
**BIG TREE TECH**

---

the stepper so that the hotend can leave the printed model when power failed.  
"POWER\_LOSS\_ZRAISE" is the height of Z-axis rise when power failed.  
"POWER\_LOSS\_PIN" is the GPIO port to which the module is connected, Modify  
"P1\_26" to the GPIO to which the module is actually connected.

## V、Notes

1. This module only supports DC24V power supply.

Please confirm that your printer is powered by DC24V power supply before installation;

2. When connecting the power cord, please distinguish the positive and negative poles; when connecting the signal line "S", connect the signal lines on the motherboard correctly. ;

3. All wiring must be done in case of power failure. Only after all wiring is confirmed to be correct can power on.

If you encounter other problems, please contact us, we will definitely answer your questions patiently; If you have any good suggestions on our products, please give feedback to us, we will consider them. Thank you for choosing BIGTREETECH products!