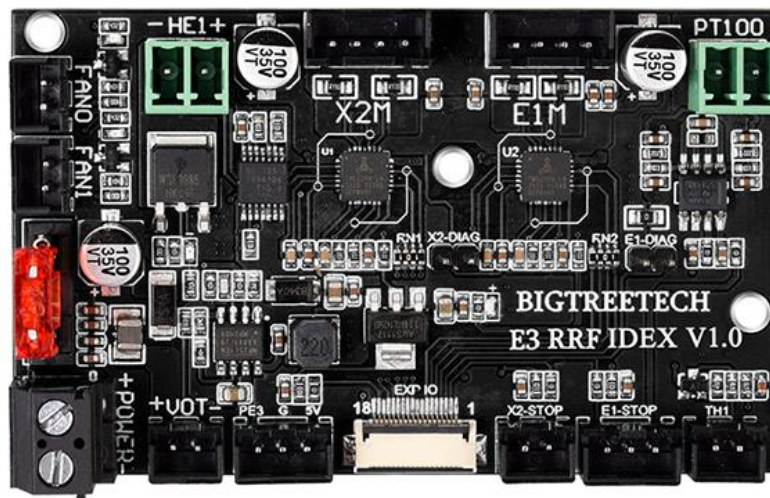# BIGTREETECH

E3 RRF IDEX V1.0

Expansion board user manual

I. Introduction to the motherboard

E3 RRF IDEX V1.0 is an expansion board specially tailored for the E3 RRF V1.1 motherboard launched by the 3D printing team of Shenzhen Biqu Technology Co., Ltd., which enables the Ende3 series of machines to realize the function of independent dual nozzles.

1. Expansion board features

1）Additional protection circuit: The on-board power supply anti-reverse design and plug-in fuse effectively protect the motherboard from being burned; the thermistor interface is equipped with a protection circuit, even if there is a 24V leakage phenomenon, the chip pins will not be burned;

2）Onboard Sensorless homing function, plug in the jumper to use this function;

3) Reserve material break detection and an unused expansion interface;

4) Reserve PT100 interface;

5) Compatible with Marlin and RepRapFirmware firmware;

6) Let the Ender3 series printers realize independent dual-nozzle printing.

2.Expansion board parameters：

Appearance size: 80mm48.5mm
Installation size: see E3 RRF IDEX V1.0-SIZE.pdf for details
Layer: 2 layers
power input：DC 12/24V
Logic voltage: 3.3V
Motor driver: UART mode of onboard TMC2209;
Motor drive interface: X2M, E1M
Temperature sensor interface: TH1, PT100
Fan interface: 2 channels of numerical control fans, one way normally open fan
Heating rod: E1

II. Main board indicator light description

After the motherboard is powered on:

D6 red light is the power indicator: the red light is on, indicating that the power supply is normal;

D1 green light is heating rod E0 status indicator: always on when heating, and off when not heating;

The green light of D2 is the FAN0 status indicator of the CNC fan: it lights up when it is turned on, and goes out when it is turned off;

The green light of D4 is the status indicator of the CNC fan FAN1: it lights up when it is turned on, and goes out when it is turned off.
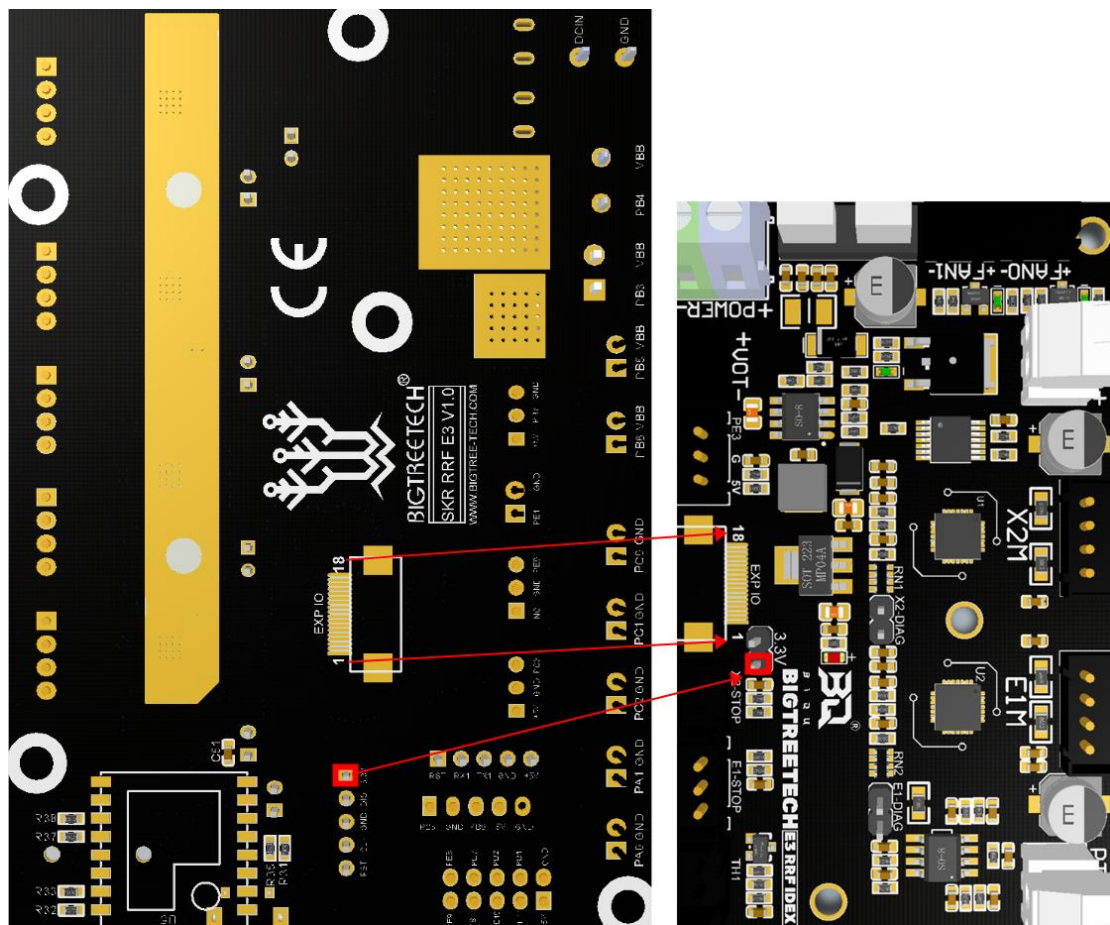
III. Motherboard interface description

1. Motherboard size drawing: please refer to the file BTT E3 RRF IDEX V1.0-SIZE.pdf;

2. Connection with RRF E3 V1.0:

1) Use FPC cable to connect RRF E3 V1.0 and E3 RRF IDEX V1.0 according to Pin To Pin;

2) Connect RRF E3 V1.0 to 3.3V of E3 RRF IDEX V1.0 with a DuPont cable, as shown in the figure below
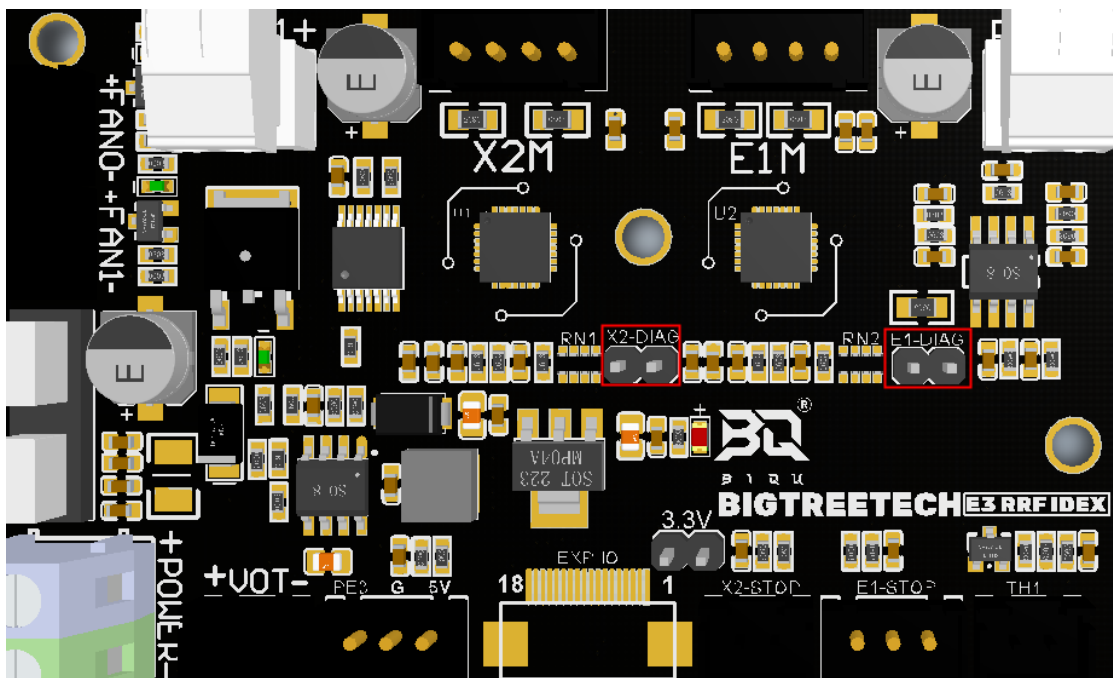
3. Connection with E3 RRF V1.1:

    1) Use FPC cable to connect E3 RRF V1.1 and E3 RRF IDEX V1.0 according to Pin To Pin;

    2) Insert the jumper cap into the "3.3V" position of E3 RRF IDEX V1.0 as shown in the figure below.
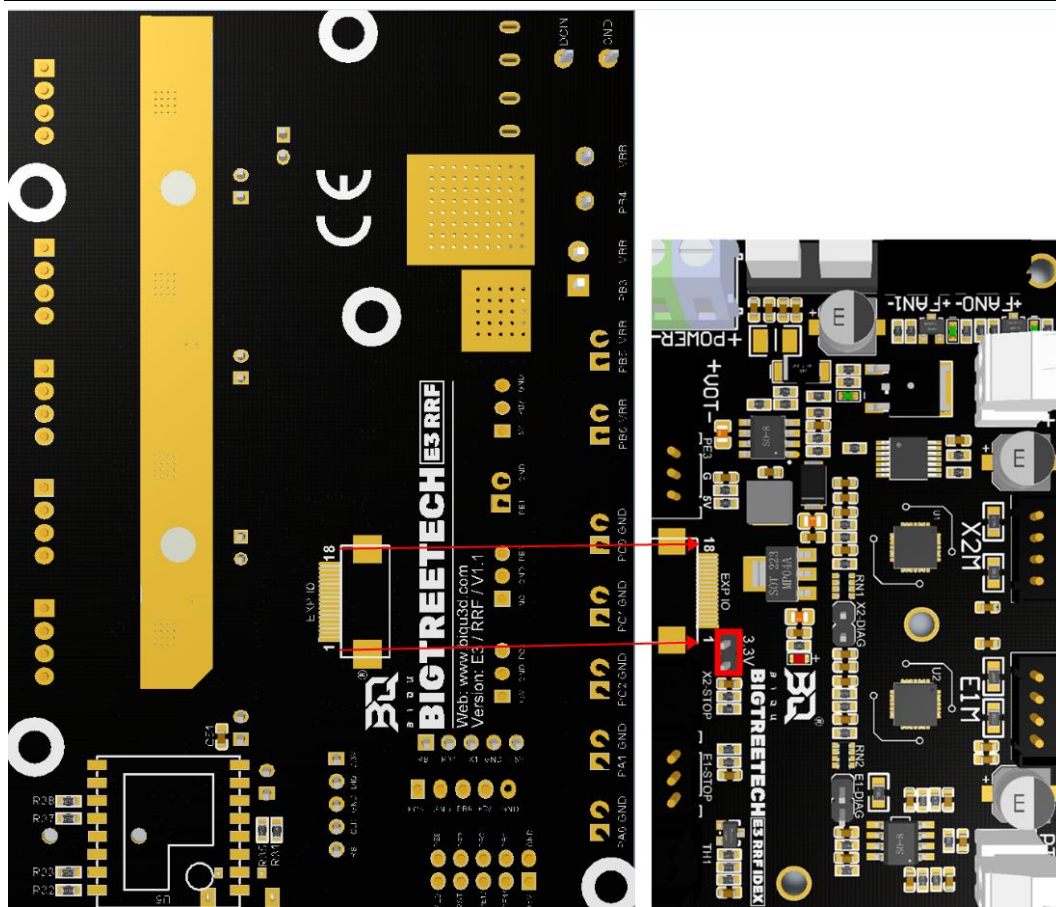
4. Sensorless homing function selection:

Use a jumper to connect the corresponding axis as shown in the figure to use the Sensorless homing function;

Note: If you select this function, you cannot use external ENDSTOP! ! !

IV. Attention

    1.When connecting with E3 RRF V1.1, the FPC cable sequence must be correctly connected before it can be powered on. The detailed wiring method is as above;

    2. When connecting with RRF E3 V1.0, the FPC cable sequence must be correctly connected before powering on. The detailed wiring method is as above;

    If you still encounter other problems during use, please contact us and we will be happy to answer you;

    If you have any good comments or suggestions on our products, you are also welcome to give us feedback,

    We will also carefully consider your comments or suggestions, thank you for choosing BIGTREETECH products, thank you!