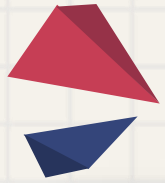


JAB3+ Connection Guide

BY SURE ELECTRONICS CO., LTD.





What is JAB3+?

JAB3+ is audio amplifier board **integrated with high performance Bluetooth 5.0 (Supporting various audio formats as apt-X, apt-X HD, apt-X LL, SBC & AAC) and ADAU1701 DSP**, supporting battery power, suitable for portable Bluetooth speakers, hotel audio, home audio, DIY applications and digital crossover applications.

JAB3+ supports both Bluetooth input and 3.5mm AUX IN. Signal would be mixed before being delivered to ADAU1701 for audio processing. **Besides speaker output, JAB3+ supports cascade with WONDOM standard amplifier boards to build audio 4.0/2.1 systems.**



Portable
Bluetooth Speaker



Home
Audio



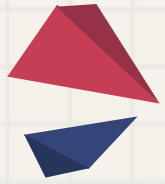
Hotel
Audio



DIY
Applications



Digital
Crossover



What is JAB3+?

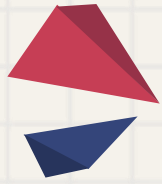
Four connectors for external potentiometers are pre-mounted on the board for easy control of audio system in case of you want to integrate JAB3+ in a cabinet. In addition to hardware control, with the connection of WONDOM ICP5 or higher versions, JAB3+ supports programming with SigmaStudio or remote control through APP or PC UI.

Signal Level Sensor System, Power Management Circuit and full protection are equipped in JAB3+ for lower power consumption, higher efficiency and stable operation.

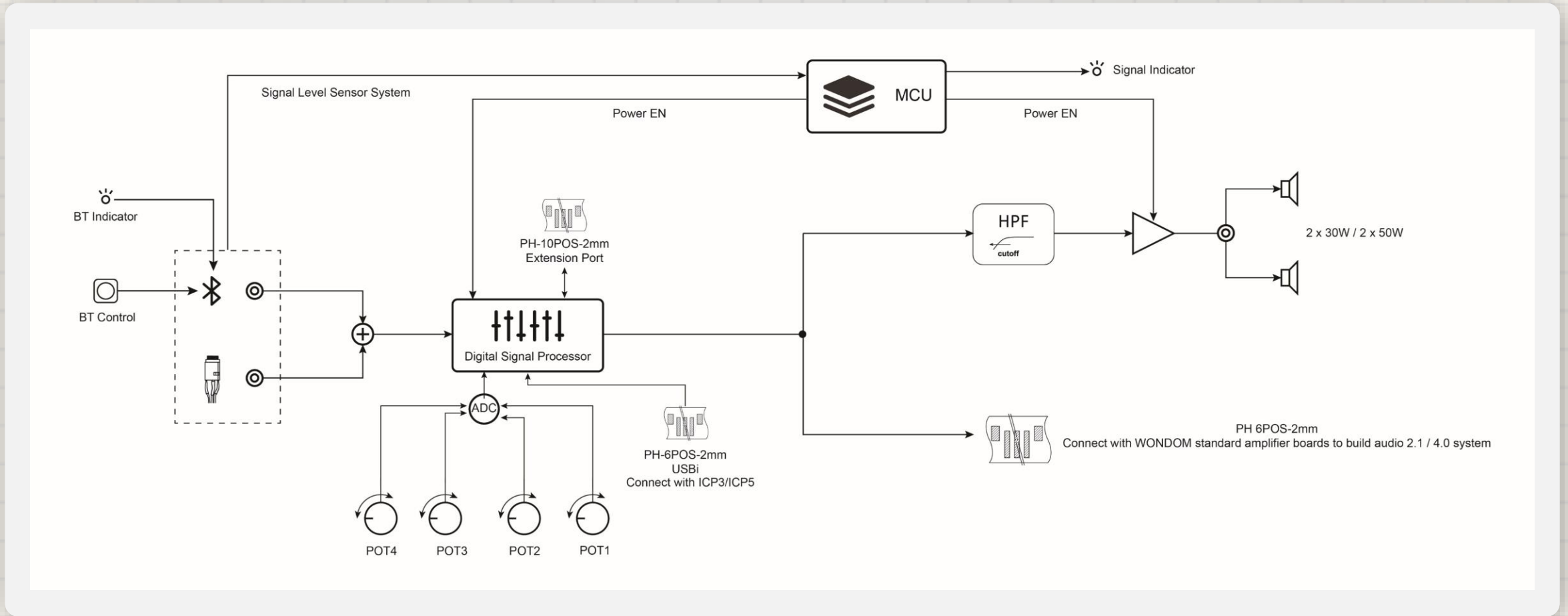
Key Features:

- **Integrated with Bluetooth V5.0 & ADAU1701 DSP**
- **Supporting programming with SigmaStudio or remote control via APP or PC UI**
- **Cascadable with Standard Amplifier Boards for Audio 4.0/2.1 System**
- **External potentiometers for hardware control**

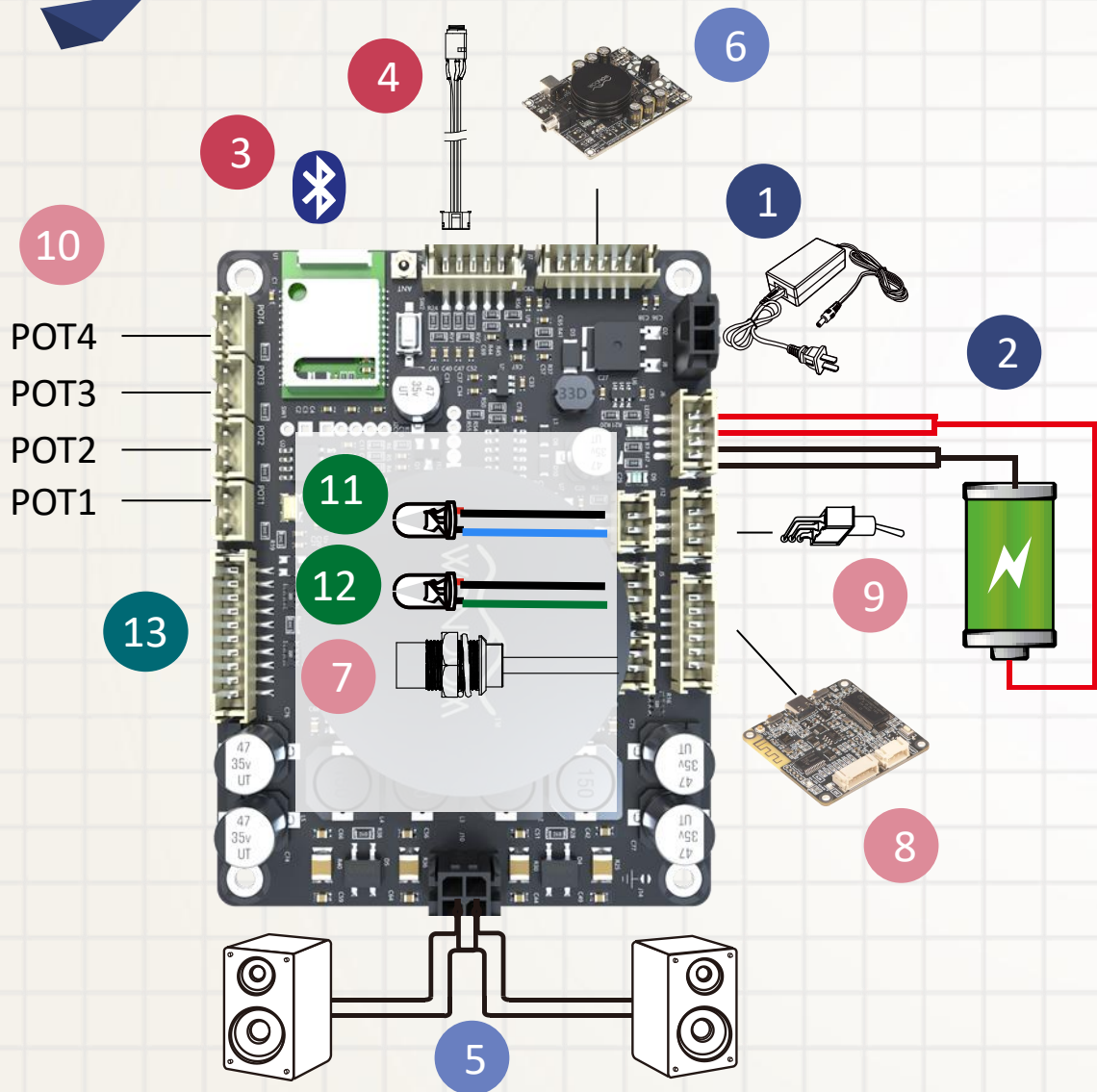




Block Diagram of JAB3+



Connection Diagram



Power Supply

- 1 12-26V power adapter
- 2 WONDOM BCPB series

Audio Input

- 3 Bluetooth 5.0 module
- 4 3.5mm AUX IN

Audio Output

- 5 Speaker Output
- 6 Line output for cascading with other board to build 2.1/4.0 systems

Control

- 7 BT Pairing Cancellation
- 8 Programming
- 9 Standby and mute
- 10 Potentiometers

LED Indicator

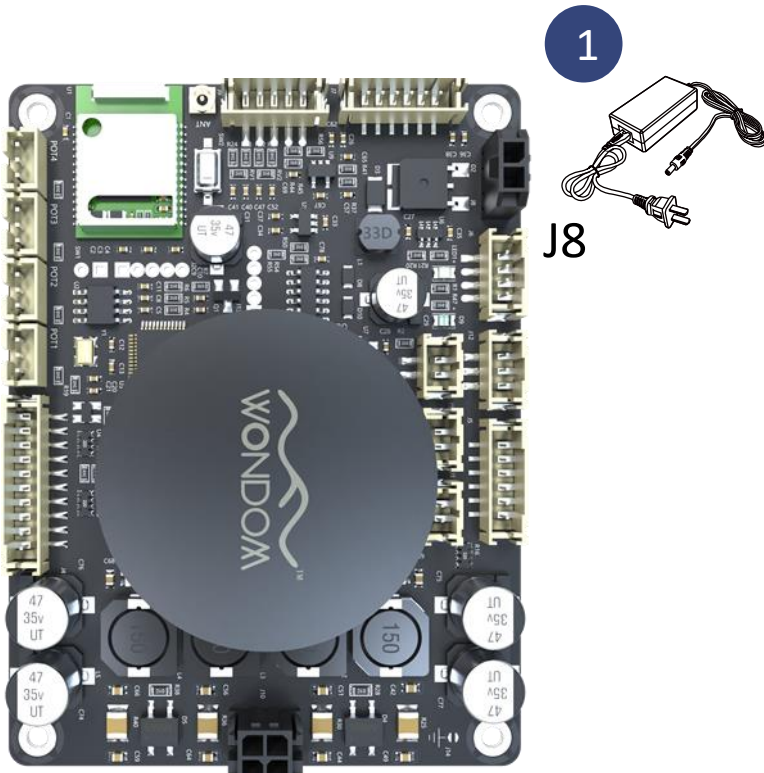
- 11 Bluetooth indicator
- 12 Signal detection indicator

Extension Function

- 13 Extension port

Power Supply

Power adapter

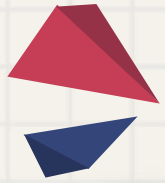


1, Power supply – J8

Suggested power supply should be 19V 2.1A. You can also use any power supply whose output voltage is within DC12-26V and current is higher than 1A. Please note power supply out of the recommended range may cause damage to the amplifier board.

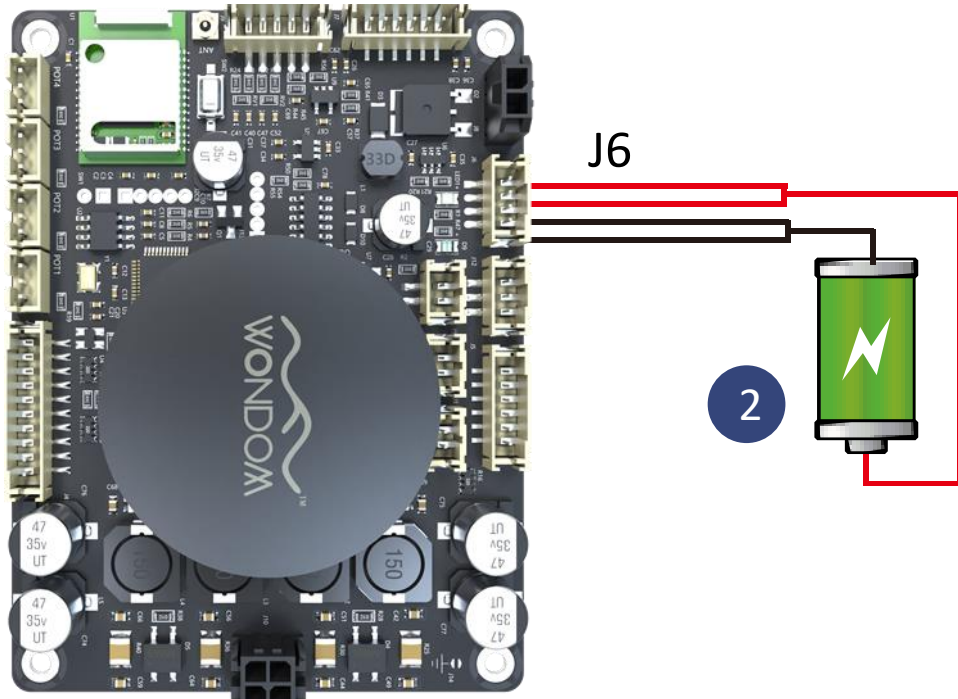
The terminal interface used for power supply is Molex MicroFit-2Pos-3mm.

A power supply cable is the basic cable, which comes with JAB3+ in the package.



Power Supply

Battery board



2, Battery board – J6

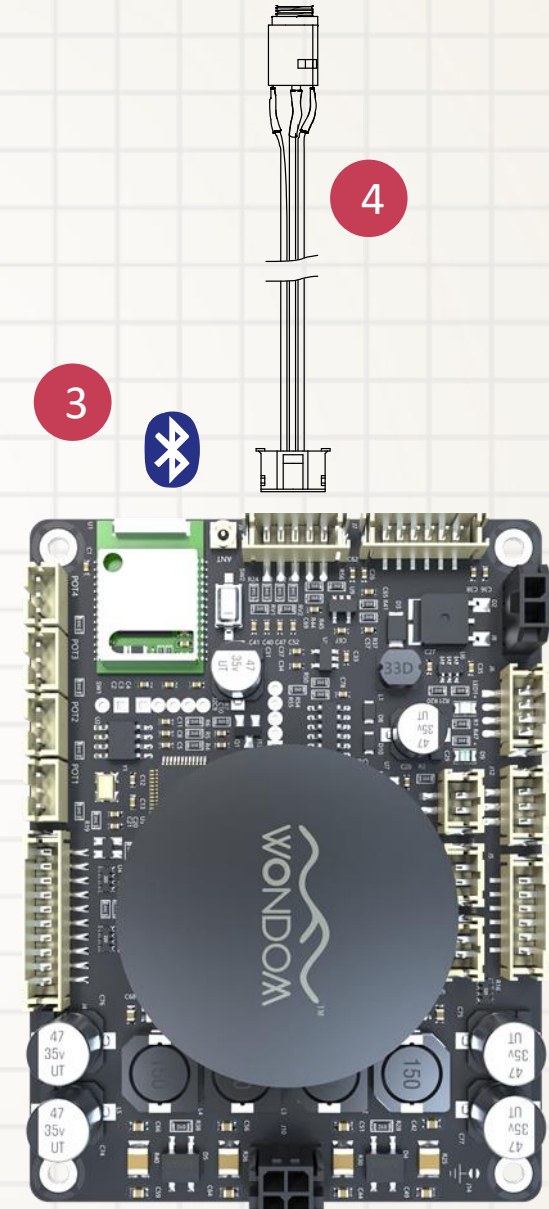
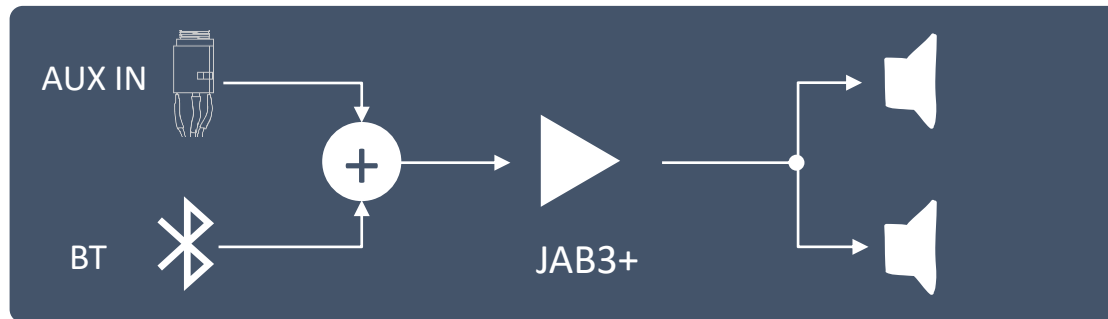
Besides power supply, JAB3+ supports battery power which greatly improves the portability.

There is no charging circuit equipped on JAB3+. If you want to power JAB3+ with battery power, it is suggested to use WONDOM BCPB series, which are integrated with charging circuit.

Audio Input

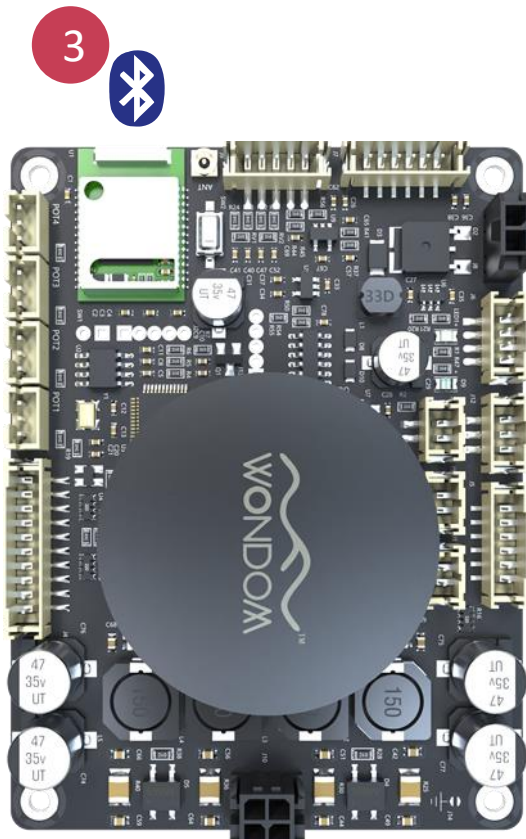
BT & 3.5mm AUX IN

JAB3+ supports both Bluetooth input and 3.5mm line input. Signals from the two input methods will be mixed before being transmitted to the amplification circuit.



Audio Input

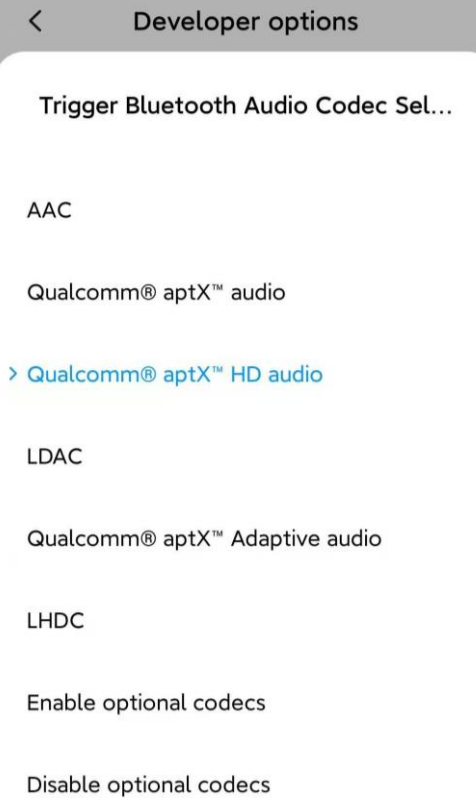
BT & 3.5mm AUX IN



3, Bluetooth input

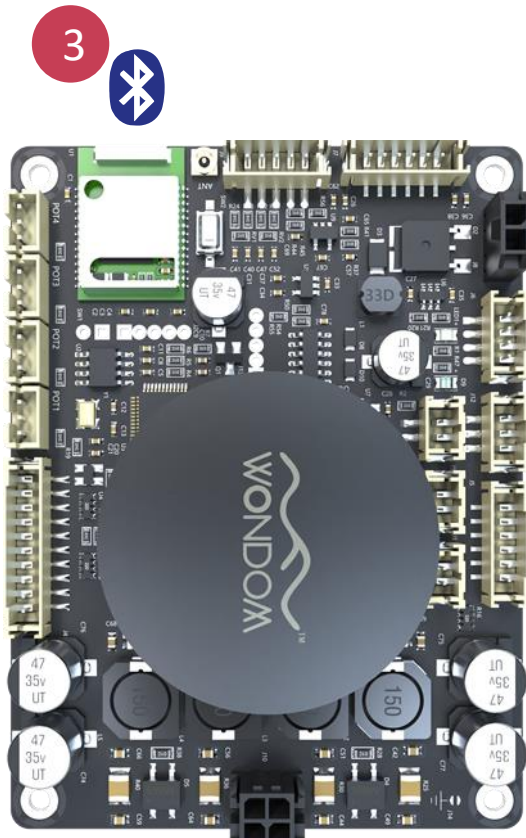
JAB3+ is integrated with Bluetooth 5.0 module, supporting various audio formats as apt-X, aptX HD, apt-X LL, SBC & AAC .

There is a built-in Bluetooth antenna on the board for stable connection. So you can directly use JAB3+ for audio playback.



Audio Input

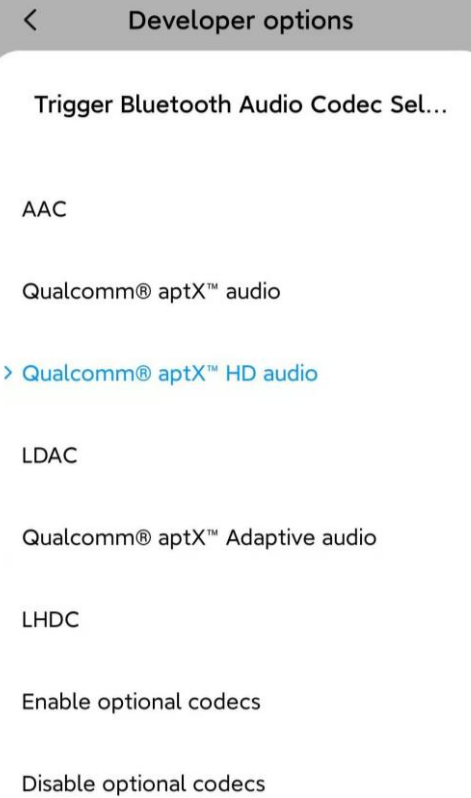
BT & 3.5mm AUX IN

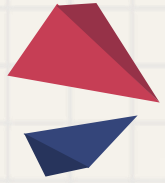


3, Bluetooth input

JAB3+ is integrated with Bluetooth 5.0 module, supporting various audio formats as apt-X, aptX HD, apt-X LL, SBC & AAC .

An external Bluetooth antenna port is also provided, which ensures the stability even if JAB3+ is installed in a cabinet.



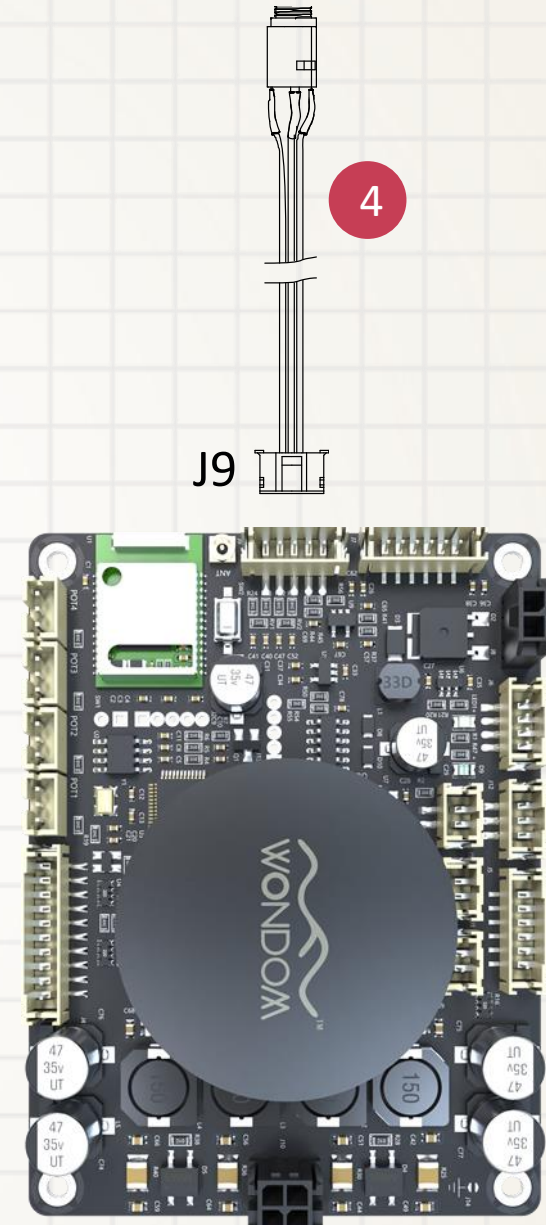


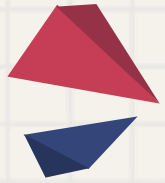
Audio Input

3.5mm AUX IN

4, 3.5mm AUX IN – J9

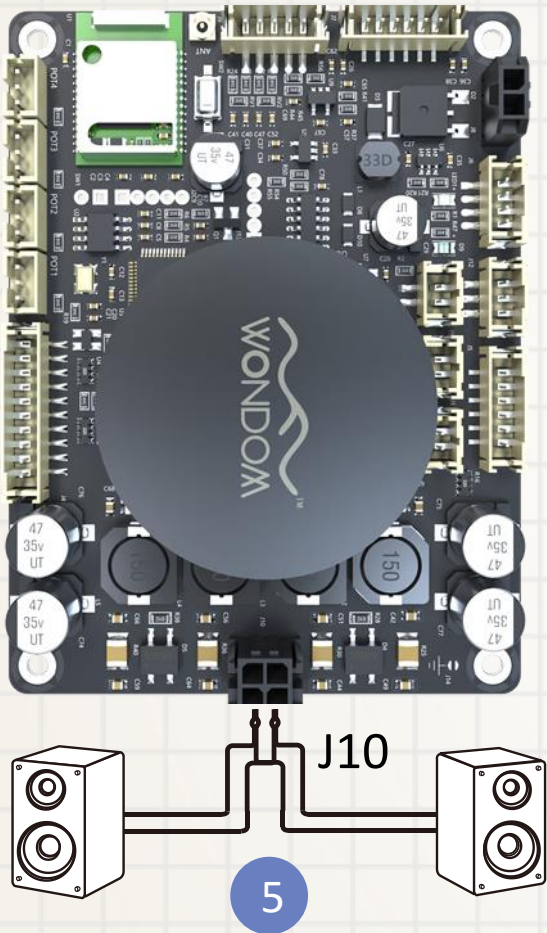
JAB3+ supports line input and J9 is used for 3.5mm AUX IN. You can get the 3.5mm AUX-IN cable in the Functional cables kit for JAB3+ (AA-JA11117).





Audio Output

Speaker output & Cascade output

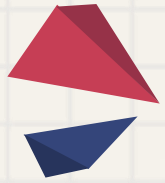


5, Speaker Output – J10

JAB3+ includes four models, 2 x 50W, 2 x 30W, 1 x 100W and 1 x 60W. 2 x 30W and 1 x 60W do not have the heatsink and their amplifier chip is different from that of the 2 x 50W and 1 x 100W.

Speaker output connector is a Molex-MicroFit-4Pos-2x2 3mm. Take care of the connector polarity definition, if connected incorrectly, you might damage your speaker, cannot get sound output, or get incorrect audio phase.

A speaker cable comes with JAB3+ in the package for easy connection.



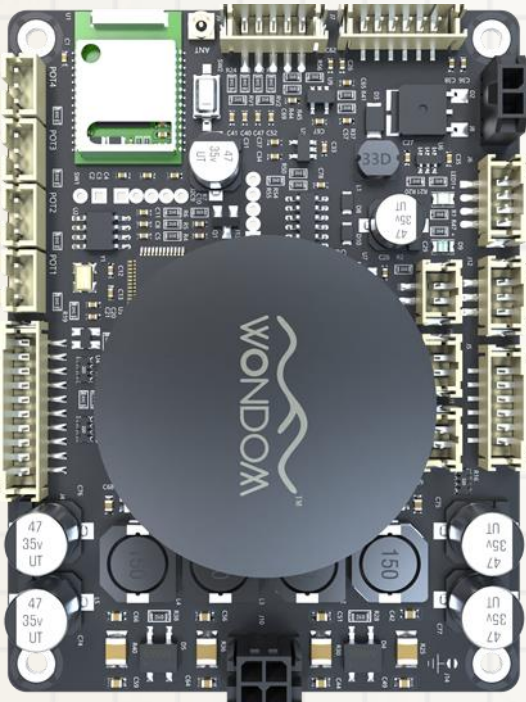
Audio Output

Cascade output



6

J7|



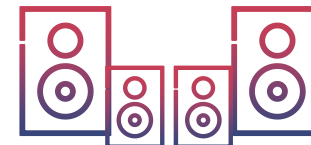
6, Line output – J7

JAB3+ provides a line output signal to connect with other WONDOM standard amplifier boards to build audio 2.1/4.0 system.

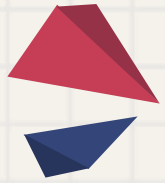
The output mode of this line output (stereo or mono) can be configured by customers through SigmaStudio or APP according to the connected board.



Audio 2.1 System

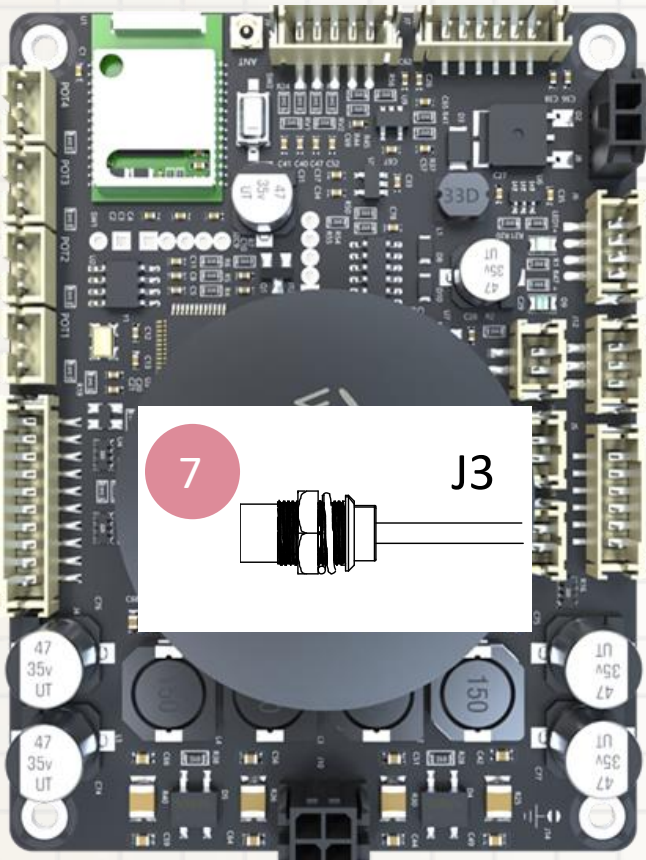


Audio 4.0 System



Control

Bluetooth pairing cancellation



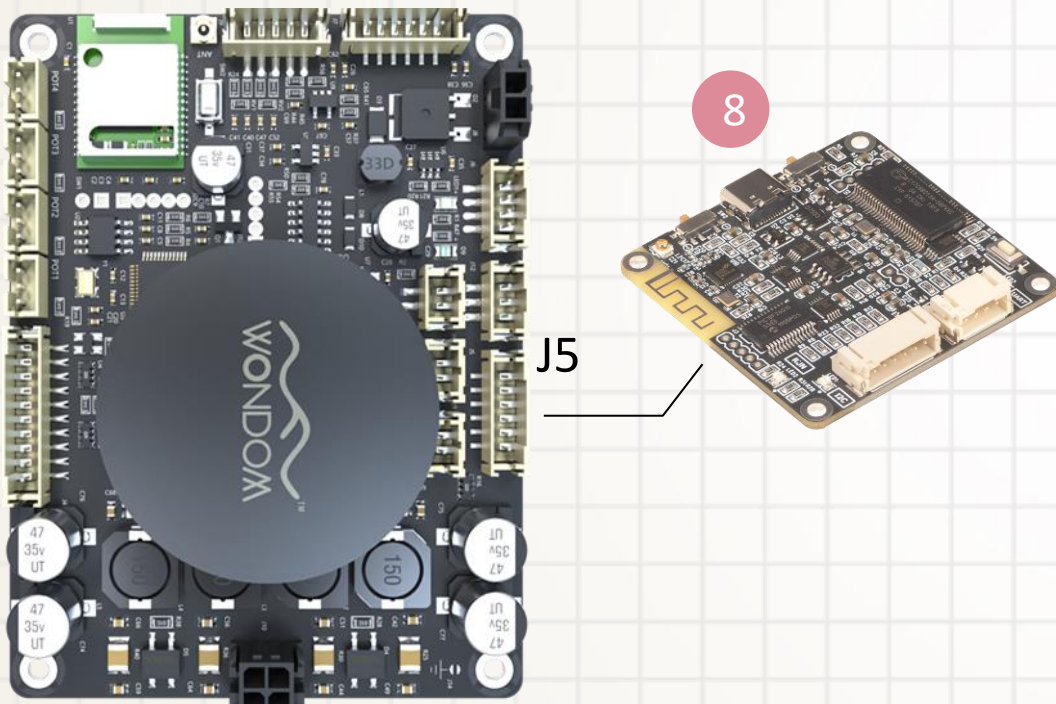
7, Bluetooth pairing cancellation – J3

When Bluetooth is paired, short circuit J3 to cancel pairing.

After cancellation, please release short circuit.

You can find the Bluetooth pairing cancellation cable with a button in the Functional cables kit for JAB3+ (AA-JA11117).

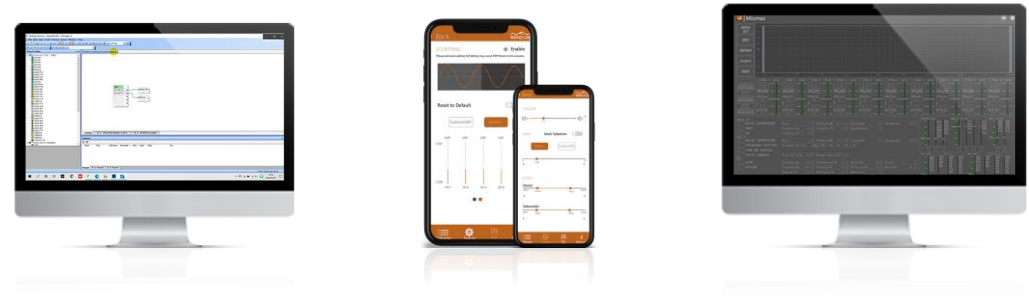
When Bluetooth is paired, press the button for cancellation.



8, Programming – J5

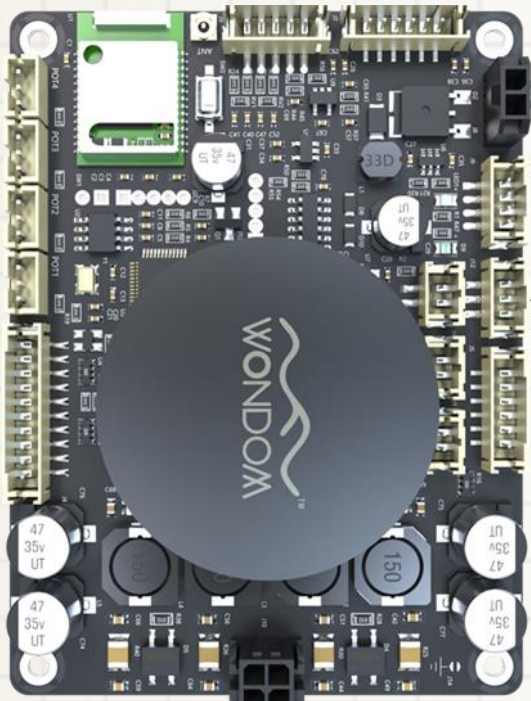
Based on integrated ADAU1701 DSP, you can connect JAB3+ with ICP5 or higher version(s) to get PC UI control, SigmaStudio Control or Bluetooth LE control.

You can adjust parameters of the audio system to customize your audio by any of the three methods.

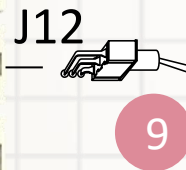
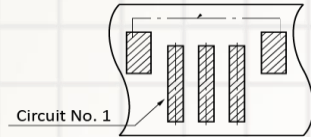


Control

Standby & Mute control



Top View of PH Connector



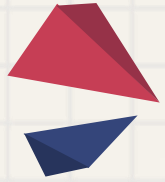
9, Standby & Mute control – J12

The pin definition of J12 is as follows:

Pin	Definition
1	STBY
2	GND
3	MUTE

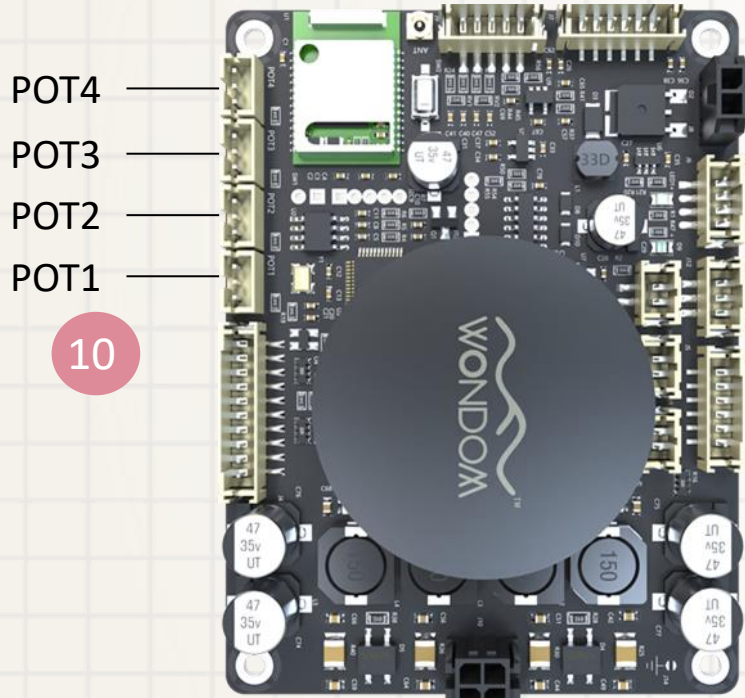
Short circuit “STBY” and “GND” to enter into standby mode. Release for normal playback.

“Mute” is for control synchronization with the cascading amplifier board so that their control logic can be consistent. Do not short circuit “Mute” and “GND” when using JAB3+ separately.



Control

Potentiometers of JAB3



9, Potentiometers Control

Four ports for external potentiometers are provided on JAB3+ for hardware control of the whole system. You can find the cables along with potentiometers in the Functional cables kit for JAB3+ (AA-JA11117).

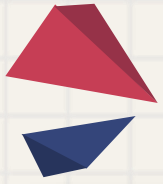
POT4: Overall Volume

POT3: High-pass filter or Band-pass filter of power stage channel

POT2: High-pass filter of signal output channel

POT1: Gain of signal output channel

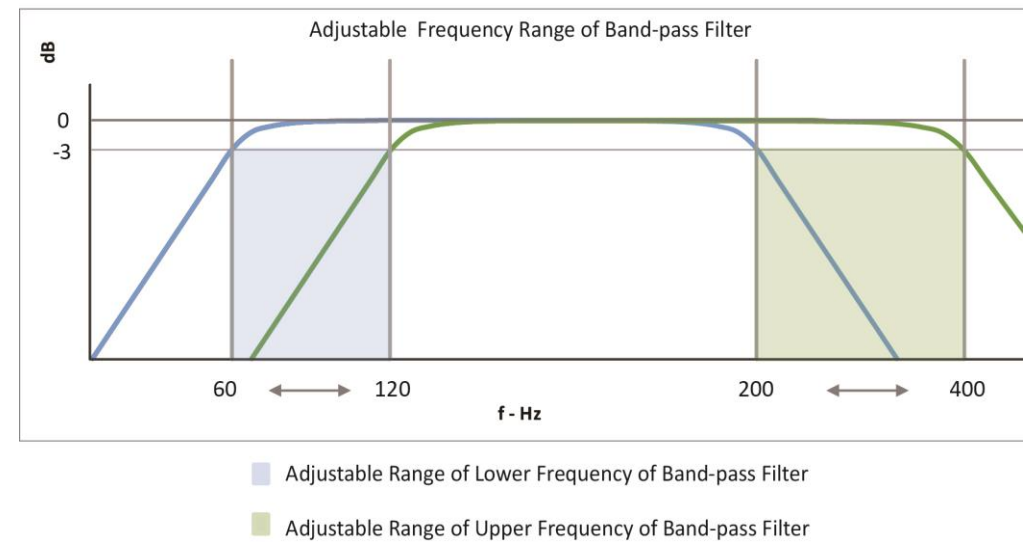
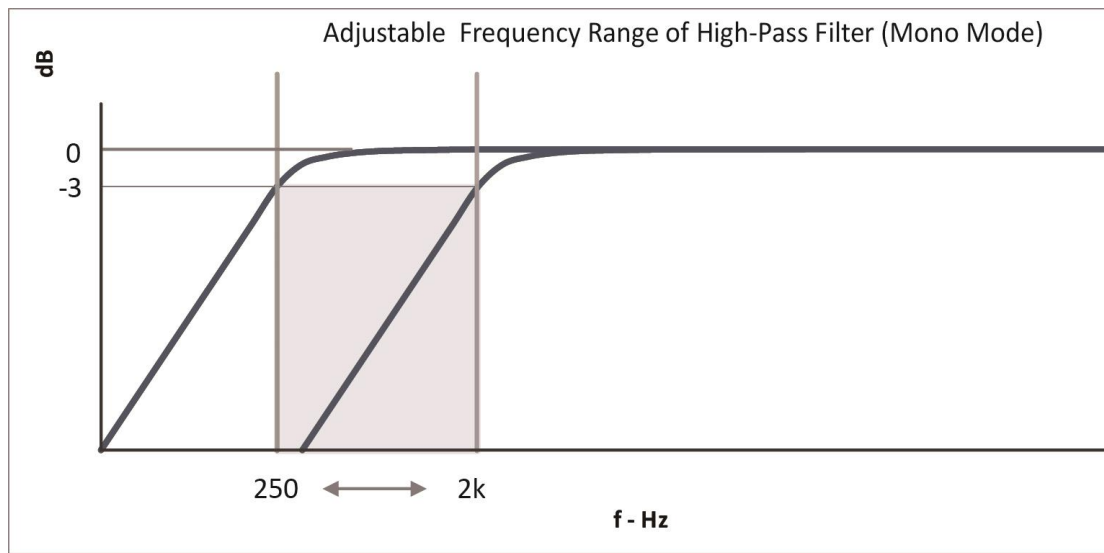
* As for the details, please refer to the datasheet.

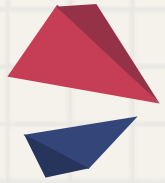


Control

Hardware Control

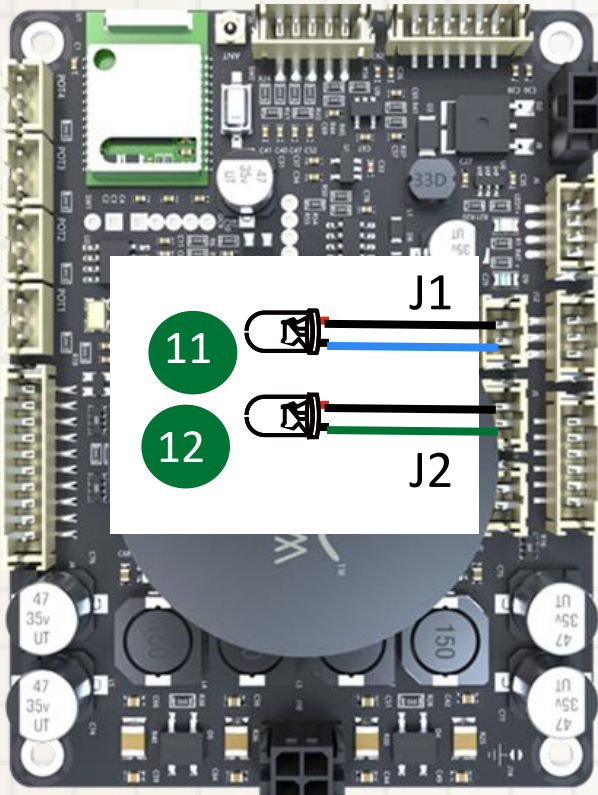
Function	Range of Frequency
High-pass Filter (Stereo Mode)	20Hz- 2kHz
High-pass Filter (Mono Mode)	250Hz- 2kHz
Band-pass Filter	60HZ-120Hz (High-pass)
	200Hz-400Hz (Low-pass)





External LED Indicator

Bluetooth & Signal detection



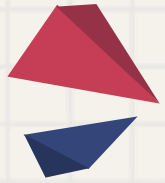
11, External Bluetooth LED indicator – J1

When Bluetooth is paired, the LED will be ON;
When Bluetooth is searching, the LED will BLINK.

12, External Signal Detection LED indicator – J11

Signal level sensor system is employed in JAB3+ for lower power consumption. Therefore, JAB3+ provides an indicator for signal detection.

When there is signal detected, the LED will be ON;
When there is no signal detected, the LED will be OFF.

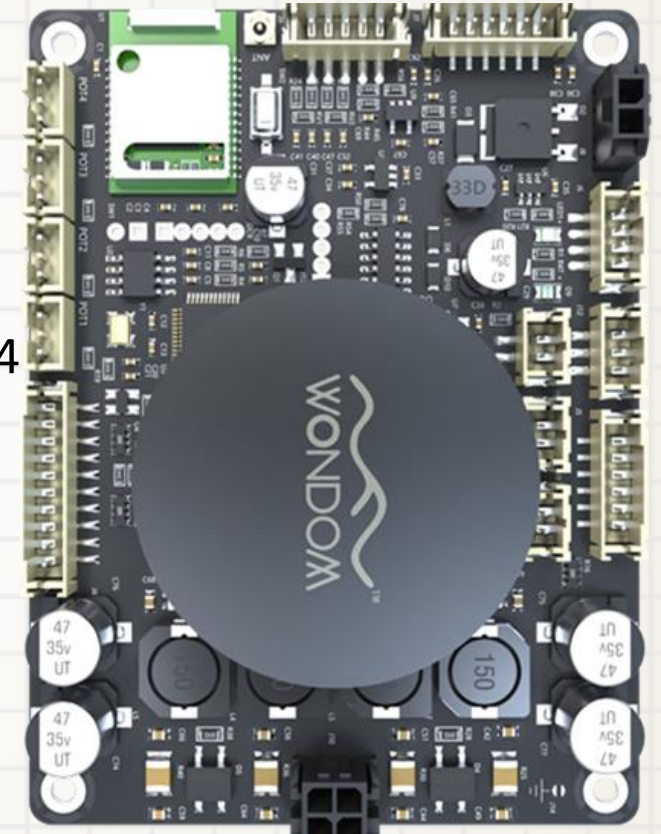
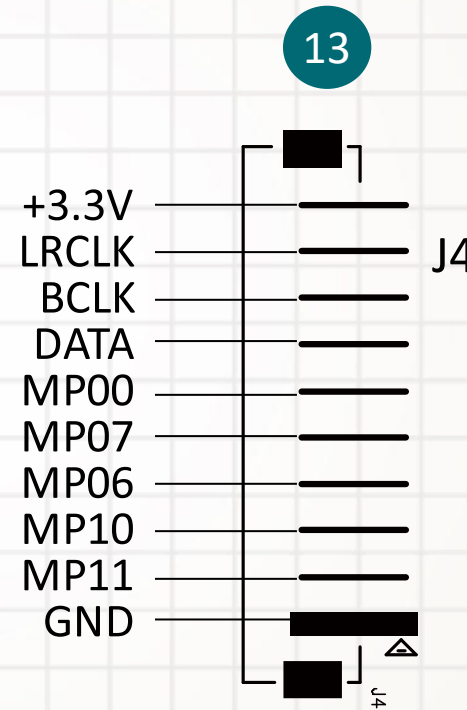


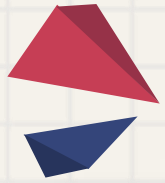
Extension Function

Extension port

13, Extension Port– J4

To provide customers with more playability and expandability, we extended several pins of ADAU1701 as J4, through which port, you can develop more functions with JAB3+, such as I2S input and output.





Extension Function

Mapping

Mapping of ADAU1701

Pin of J4	ADAU1701
1, GND	AGND
2, MP11	MP11
3, MP10	MP10
4, MP06	MP6
5, MP07	MP7
6, MP00	MP0
7, DATA	MP1
8, BCLK	MP5
9, LRCLK	MP4

J4 can be used for I2S input and I2S output. JAB3+ is set as master mode as default when using I2S. Please refer to the below table for reference.

For I2S input:

Pin	I2S Input	ADAU1701
6	I2S DATA0	MP0
7	I2S DATA1	MP1
8	I2S BCLK	MP5
9	I2S LRCLK	MP4

For I2S output:

Pin	I2S Output	ADAU1701
2	I2S BCLK	MP11
3	I2S LRCLK	MP10
4	I2S DATA00	MP6
5	I2S DATA01	MP7

Note:

1. Program setting with SigmaStudio is required for running.
2. If you want to develop more functions, you can make use of Pin 4, 5, 6 of J4. Other positions are not available.

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