

2 x 300W Bluetooth v5.3 Enabled Audio Amplifier - TPA3255

The BRU5 audio amplifier module combines high-power output, Bluetooth v5.3 connectivity, user-friendly features like a volume control potentiometer and Bluetooth unpair button, along with LED indicators, utilizing the TPA3255 Amplifier IC and BP1048 Bluetooth IC to create a versatile audio amplification system suitable for a range of applications.

Features:

Bluetooth v5.3 Connectivity

- Built-in Bluetooth module with external antenna for reliable connectivity.
- Integrated with Bluetooth v5.3 module.

RCA Audio Input

- Connect external audio sources, such as CD players, MP3 players, or other devices.

PC UI Programming Port

- Conveniently connect the BRU5 to a computer for real-time tuning and adjustments.

Multi-Function Potentiometer

- Turn the potentiometer clockwise to turn on the BRU5.
- Turn the potentiometer anti-clockwise to turn off the BRU5.
- Knob Volume Adjustment: Rotate the potentiometer to adjust the volume.

Power Input

- DC18V - 48V power input for flexible power supply options.



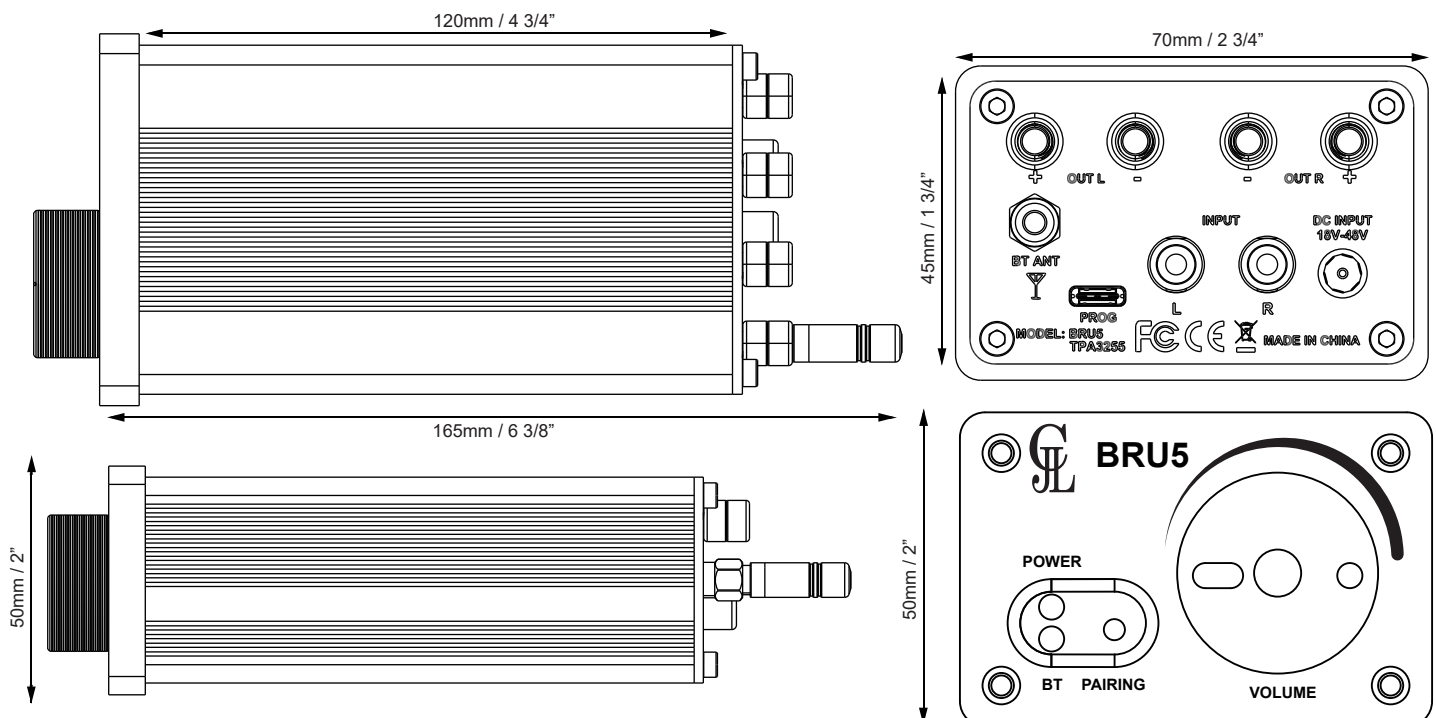
Specifications

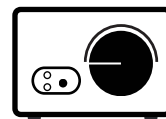
Bluetooth Version	: v5.3	Output Channel	: 2.0 Channel
Bluetooth Pairing Name	: CJL BRU5	Output Power	: 2x300W
Supply Voltage	: DC 18V - 48V	Product Size (mm)	: 47.50 x 120.00 x 45.00
Audio Input Source	: Bluetooth/ Line Input (RCA Connectors)	Weight	: 500g

**The product size does not include the Bluetooth antenna on the rear panel and the potentiometer knob on the front panel.*

Mechanical Drawing

(Nominal Dimensions, mm / inch)





Panel Layouts

Front panel



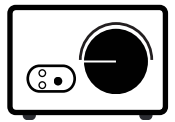
- (a) **LED Indicator**
Green: Indicates power status. When lit, it signifies that the unit is powered on.
Blue: Represents Bluetooth connectivity. If it's steadily on, Bluetooth is connected. If it blinks, it's searching for Bluetooth devices, and when it stops blinking, it means Bluetooth is successfully connected.
- (b) **Bluetooth Pairing Button**
The Bluetooth Pairing Button on BRU5 serves two functions: a long press of 5 seconds can cancel Bluetooth pairing, and it provides a way to switch input methods. For specific instructions on how to switch methods, please refer to the 'Connections Layout' section below.
- (c) **Multi-function Potentiometer**
This single potentiometer serves as both a power switch and a volume control knob, streamlining the user experience the user experience and providing effortless access to essential functions, making it a key component for an enjoyable audio journey with the BRU5.

Panel Layouts

Rear panel

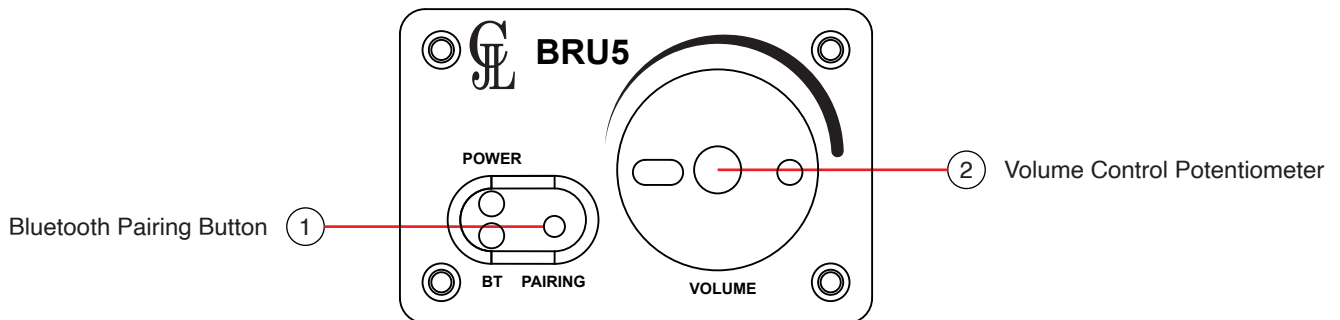


- (d) **Speaker Output 2x300W**
The BRU5 is equipped with a powerful speaker output, harnessing the impressive capabilities of the TPA3255 AMP IC, which delivers a total power of 2 x 300 Watts.
- (e) **Bluetooth Antenna**
The Bluetooth Antenna ensures an extended operating range, allowing you to enjoy uninterrupted audio streaming even from a distance, thereby expanding the Bluetooth connection range.
- (f) **PC UI Programming Port**
With the PC UI Programming port the BRU5 offers a personalized and tailored audio experience, delivering exceptional sound quality for any application, be it entertainment, professional audio or gaming.
- (g) **Line Input**
RCA Audio Input provides a versatile and reliable connection for various external audio devices. With this input, you can easily connect audio sources that do not have Bluetooth capabilities, such as CD players, MP3 players, audio interfaces, and more. However, if customers want a line input, please press the Bluetooth unpair button.
- (f) **DC Power Input 18V - 48V**
The BRU5 features a flexible and wide-ranging power input option, accepting direct current (DC) power supply within the voltage range of 18 Volts to 48 Volts and a minimum current requirement of 5 Amps.



Connections Layout

Front Panel



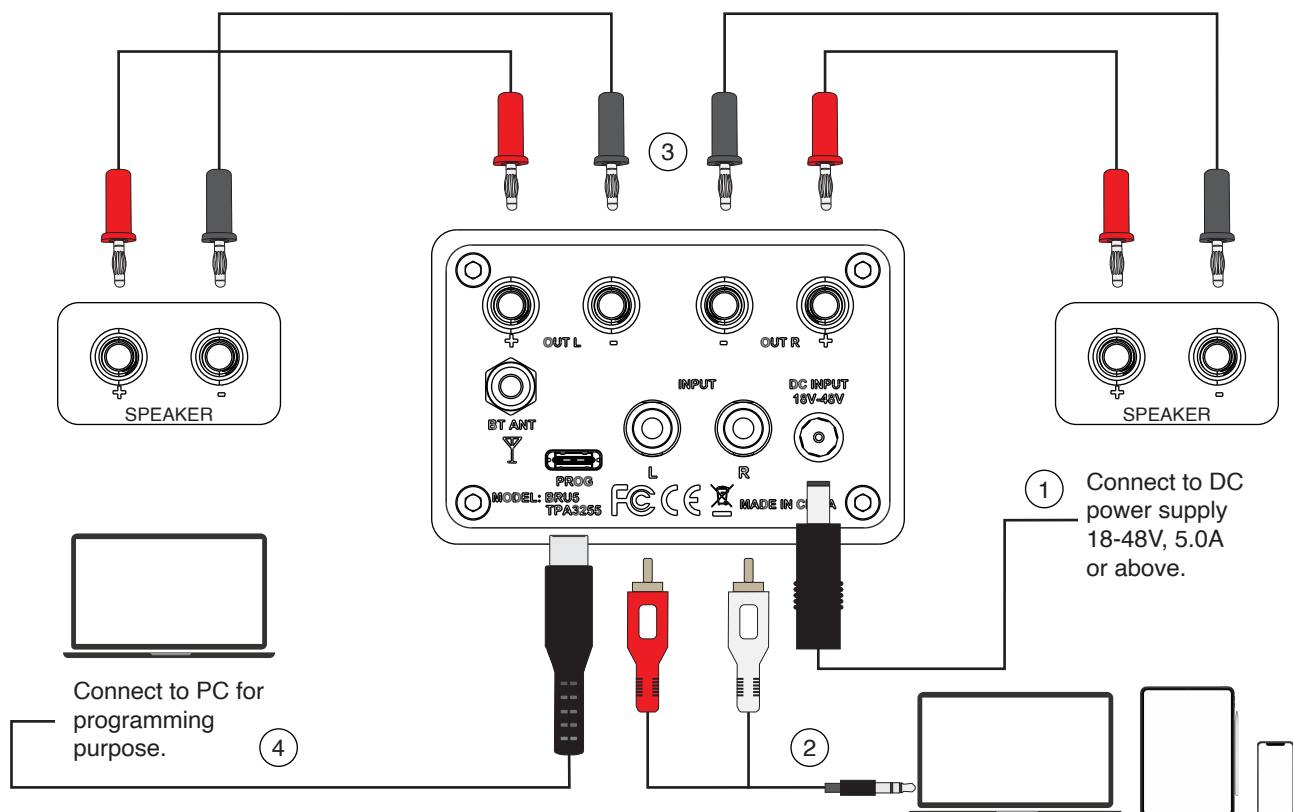
BRU5 has two input methods: Bluetooth and RCA. By clicking the button (1) once, you can switch between these two input methods. However, when you restart BRU5, the input method will be restored to the default input method. If you want to modify the default input method, please follow the steps below:

1. Power off (by rotating the knob) (2).
2. Press and hold the 'PAIRING' button (1) without releasing it.
3. After holding the 'PAIRING' button (1), power on the device (by rotating the knob) and continue holding the button for 10 seconds.
4. Release the 'PAIRING' button (1), power off the device again, and then power it on.
5. The default input method will be successfully changed upon startup.

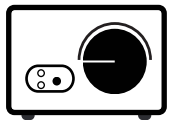
All operations need to be performed when the power is connected. If you have any questions, please contact customer service.

Connections Layout

Rear Panel



- (1) Users have the flexibility to provide power to the device using a DC voltage range from 18V to 48V, allowing them to select a power source that best suits their needs.
- (2) Users can also connect the BRU5 to devices like a DVD player or others using an RCA to RCA cable. Simply use this cable to link the BRU5 to the chosen device through the RCA connectors, enabling audio transmission without the need for Bluetooth.
- (3) When connecting the BRU5 to a speaker, utilize banana cables. These cables provide a reliable and secure link between the amplifier and the user's speaker, ensuring high-quality audio transmission.
- (4) Users can easily connect the BRU5 audio amplifier unit to their computer through this port, allowing for real-time adjustments and tuning as needed.



Launch ACP Workbench



Figure 1: Connect the BRU5 to a personal computer or laptop and ensure that you have installed the ACP Workbench application.

When ACPWorkbench.exe is launched, it will automatically find and connect the BRU5 audio amplifier via the connected UART (serial) or USB (HID) port. Once connected, ACPWorkbench.exe will read all the configurations in the chip and update its GUI controls accordingly. Please ensure the BRU5 audio amplifier is connected to the PC and powered on. Whenever the BRU5 audio amplifier is powered on/off, ACPWorkbench will always try to re-connect it.

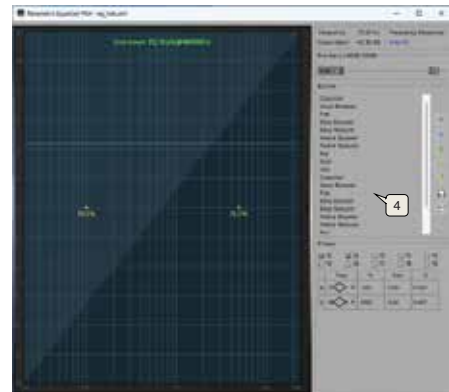


Figure 4: Preset EQ list.

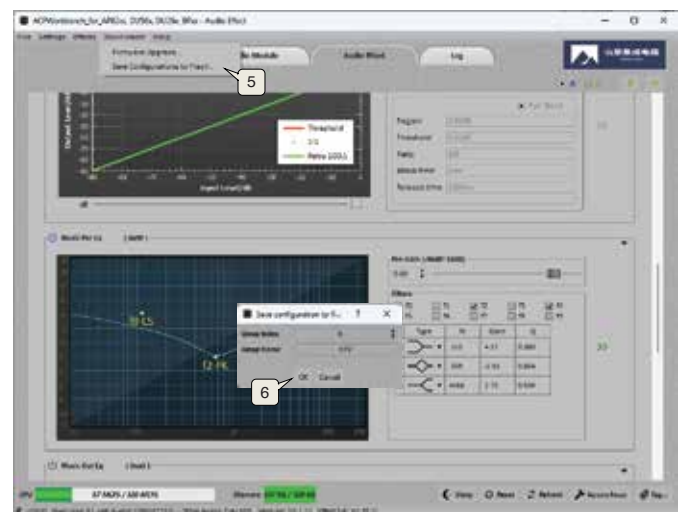


Figure 5: Save operation.

1. The audio effect page features four distinct Effect Lists, catering to various sources: Effect List 0 for Microphone, Effect List 1 for Music Pre EQ, Effect List 2 for Guitar Amplifier, and Effect List 3 for recorded audio.
2. Equalization (Pre-EQ) serves the purpose of shaping the overall frequency response of the music input.
3. To access more details about shaping the overall frequency response, click on the right arrow button.
4. Users have the option to select from a range of Preset EQ lists, including Classical, Jazz, Vocal Booster, and more, allowing for convenient customization of the audio experience.
5. To save your configurations, click on "Downloader" and then select "Save Configurations to Flash." This action ensures that your settings are stored for future use.
6. Click "OK" in the pop-up window. This action ensures that the process will continue to run even if the device is powered off.

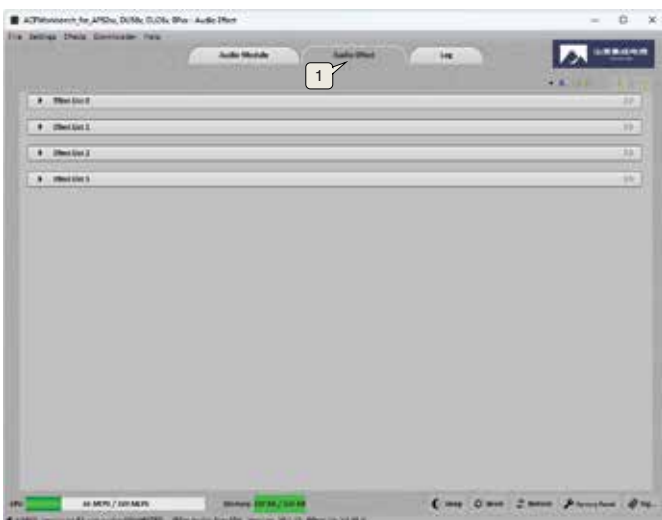


Figure 2: Audio effect page.



Figure 3: Effect list 1 for Music Pre EQ.

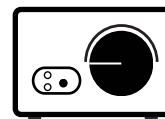
Where can you get ACPWorkbench.exe?

You can download (ACPWorkbench.exe) at link below:

http://files.sure-electronics.com/download/BDM&BRU_PCUi.zip

You can watch PC UI Control Tutorial Series at link below:

<https://www.youtube.com/watch?v=GRIUdU670HI>



Electrical Specifications

Specifications typical @ +25°C, powered by 36V DC, unless otherwise noted. Specifications subject to change without notice.

Parameter	Conditions	Min.	Typ.	Max.	Units
Number of Channels	-	-	2	-	-
Minimum Load Impedance	-	-	4	8	Ω
Nominal Power Requirement	@4 Ω , 48V	-	2x300	-	W
Operating Voltage	@1kHz, 4 Ω	-	48	-	V
Idle Power	Signal defected @ 24V	-	3.62	-	W
Efficiency	-	-	90	-	%
Switching Frequency	@24V	-	450	-	kHz

Audio Performance

Specifications typical @ +25°C, powered by 36V DC, unless otherwise noted. Specifications subject to change without notice.

Parameter	Conditions		Min.	Typ.	Max.	Units
Amp Gain	Line In	L&R	-	31	-	dB
SNR	Line In 2x300W @ 4Ω, 48V, A-weighting	L&R	-	101.05	-	dB
THD + N	Line In 1W @ 4Ω, 1kHz	L&R	-	0.053	-	%
Output Noise Level	Line In @ 12V A-weighting, Input Connect GND	L&R	-	230	-	uV
Input Impedance	Line In @ 8Ω, 1kHz		-	10	-	kΩ
Input Sensitivity	@ 4Ω, 48V		-	1	-	Vrms
Bandwidth ±3dB	2x5W @ 4Ω, 24V		20	-	20k	Hz
DC Offset	4Ω, 24V		-	10	-	mV

BRU5 Audio Parameters & Performance Graph

The frequency response of the circuit with VDD=24V, Pout=2x5W, and Rload=4Ohm is being analyzed, while concurrently, the THD+N ratio is being measured for the circuit with VDD=24V, Pout=2x1W, and Rload=4 Ohm.

