BRYSTON

OWNERS MANUAL
3B / 4B CUBED 2.0



2.0

50 ANNIVERSARY

SAFETY INSTRUCTIONS



The lightning flash with arrowhead symbol within an equilateral triangle, is intended to alert the user to the presence of un-insulated “dangerous voltage “ within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

1. Read these instructions. 2. Keep these instructions. 3. Heed all warnings. 4. Follow all instructions.

5. Do not use this apparatus near water. 6. Clean only with dry cloth.

7. Do not block any ventilation openings. Install in accordance with the manufacturer’s instructions.

8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

11. Only use attachments/accessories specified by the manufacturer.

12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used use caution when moving the cart/apparatus combination to avoid injury from tip-over.

13 Any terminals marked with the preceding symbol are HAZARDOUS LIVE and any wiring connected to these terminals must be installed by an INSTRUCTED PERSON or with ready-made leads or cords.

14. Unplug this apparatus during lightning storms or when unused for long periods of time.

15. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE. DO NOT EXPOSE THIS EQUIPMENT TO DRIPPING OR SPLASHING AND ENSURE THAT NO OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, ARE PLACED ON THE EQUIPMENT. TO COMPLETELY DISCONNECT THIS EQUIPMENT FROM THE AC MAINS, DISCONNECT THE POWER SUPPLY CORD PLUG FROM THE AC RECEPTACLE. THE MAINS PLUG OF THE POWER SUPPLY CORD SHALL REMAIN READILY OPERABLE.

WELCOME

Thank you for your purchase of a Bryston 3B3 or 4B3 (Cubed) 2.0 amplifier! Decades of ongoing research and development have produced our highest performing amplifiers yet. Our customers are a tremendous resource to whom we look for a measure of success.

We welcome your feedback and hope you enjoy your new Bryston amplifier for many years to come.

BRYSTON FACTORY



OVERVIEW

The 3B3 and 4B3 2.0 are dual mono design audio power amplifiers with two channels capable of 200 watts and 300 watts each respectively intended for use in very high performance and professional audio systems. Robust yet beautiful machined steel enclosures house our proprietary industry-leading circuit designs resulting in exemplary performance observed both in the listening space and in the laboratory.

With refined colour and faceplate options, amplifiers can be tailored to harmonize beautifully with the listener's room, system, and personal style.

- Consumer faceplate no handles
- Consumer faceplate with integrated handles
- PRO faceplate with rackmount holes & integrated handles
- PRO faceplate with rackmount holes & no handles

An added benefit of the redesigned 2.0 amplifier is that it facilitates customization by enabling field replacement of the faceplate size or colour.

FEATURES

Bryston 3B3 and 4B3 features:

- Switchable gain: 23dB or 29dB
- Balanced (XLR or TRS) input.
- Pin 2 positive.
- Single ended (RCA) input.
- Soft-Start circuitry for managing inrush current upon initial power up.
- Wired remote control AC/DC trigger input and passthrough with supplied connector.
- Bridged output mode available.



SAVE BOX

Shipping Box and Packing Material

Please keep the original shipping box and all packing material. This will ensure the amplifier is protected in future transport. In the unlikely event you have a problem and must return it for service, you must use the proper packing material.

Ship the amplifier only in the original packing material, as the unit is not insurable by carriers otherwise. Replacement packing materials consisting of a shipping carton with plastic foam inserts is available from Bryston for a fee.

Installation and Usage

Bryston has deliberately chosen to omit fans from our amplifiers in an effort to minimize the noise level in your listening environment. Instead, we use only passive heat sinks which are fully capable of maintaining a safe operating temperature of the amplifier even under difficult playback conditions. For them to work most effectively, air must be permitted to pass freely through the heat sink fins and around the amplifier.

Maintain a minimum of 3.5 inches of space to each side, top and back of the amplifier when in use. Do not stack the amplifiers immediately on top of one another in an enclosed cabinet.

If you must stack the amps, you may need to utilize fans or another active cooling mechanism to ensure uninterrupted operation.

If you repeatedly experience channels shutting down due to heat, rearrange the amplifiers to have more surrounding free space, or employ an active cooling solution. Heat sinks may be up to 85° Celsius! Take caution to prevent burns! Never operate the amplifier in a vertical position

Connecting to A/C Power

Please check the Data Plate on the right rear of the amplifier to verify power requirements agree with your location.

Plug the IEC-320 C14 end of the power cord into the amplifier, then plug the other end into an approved and grounded A/C receptacle. The STATUS LED should flash green, then switch to red indicating A/C power is present in the unit. The amplifier is now ready to be powered on.

Connecting to Loudspeakers:

Stereo Channel Mode

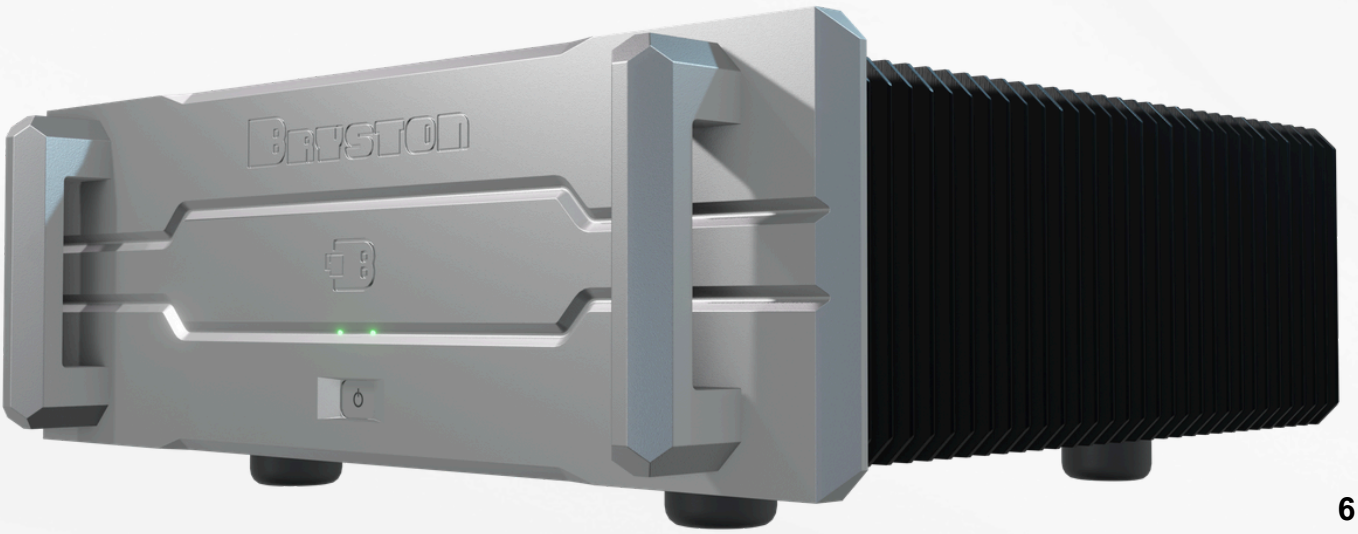
Connection to loudspeakers is accomplished by attaching high quality speaker cable to the Output Binding Posts per the following instructions.

The RED binding post is connected to the (+) terminal on the loudspeaker.

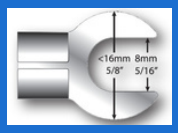
The BLACK binding post is connected to signal ground (-) terminal on the loudspeaker.

The output binding posts provide three different interconnect options. Combinations may be used when bi-wiring. Cables should be kept as short as practical and should never be terminated with connectors that may become confused for AC power connectors. Cables should be dressed away from input and power cables.

Banana plugs offer a quick disconnect option. Before inserting a banana plug into the binding post, be sure to tighten the post nut to avoid rattling and to provide full insertion of the banana plug.



Spade lugs provide high contact area and secure fastening. Lugs should be gold plated. Post diameter is 5/16” (8mm), lug width 5/8” (16 mm).



Stripped bare wire up to 3 gauge can be inserted through the hole in the binding post and held in place by tightening the post knob. Do not over tighten or the binding post may become damaged. Note that copper wire is malleable and may require further tightening after the initial installation.

To prevent the risk of equipment damage or personal harm, use only Class 2 rated loudspeaker wire properly terminated and connected securely to the binding posts.

INSTALLATION

Connecting Audio Inputs

The Bryston Cubed 2.0 amplifier can receive analog audio from any preamp or surround processor with volume controlled line-level outputs.

Balanced XLR and TRS as well as singled ended RCA inputs are both available and can be selected using the ‘Input Select’ switch on the rear panel of the amplifier.

Balanced vs. Single Ended Input

The balanced input requires a balanced pre-amp source. Balanced systems provide noise rejection from external electrical interference, so cable length can be very long - 50 meters or longer. The single ended or unbalanced input is provided for pre-amps without balanced output. Single-ended cables should be kept to 20 feet (6 meters) or less.

In general never use longer cables than necessary, never coil excess cable length, and keep signal wires away from AC power or speaker cables.

POWER CONDITIONERS

Bryston urges caution in choosing a power conditioner for your audio/video system.

Large power amplifiers can draw very substantial current from the wall plug, and many so-called power conditioners can in fact hinder the supply of current by inserting resistances in series with the line cord.

CONSUMER BLACK WITH HANDLES



CONSUMER SILVER NO HANDLES



External Control Voltage

To power-up the amplifier using an external control voltage, supply a 5V to 12V (AC or DC) control voltage to the 'IN' terminals of connector. Use paired wire of 22 to 18 gauge between the source device and the Bryston Cubed 2.0 series amplifier. The appropriate mating connector is supplied with each amplifier.

Set the External Turn-On switch to "External Remote Power Up:" Place the front panel switch in the ON position. The amplifier will now power-up only when the control voltage is present (on). Immediately following power-up, the control voltage will appear at the 'OUT' terminals of connector for the control of other equipment.

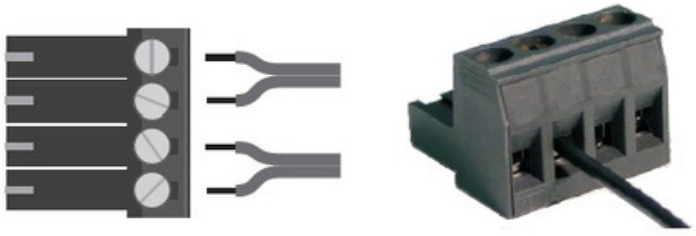
The removal of the control voltage (0v) causes the amplifier to turn 'off', and the control voltage at the 'OUT' terminals is interrupted. In the "Local" setting of the External Turn-On switch the amplifier will ignore the control voltage and power up only by using the front panel push-button power switch. If a control voltage is present at the 'IN' terminals, it will still be available at the 'OUT' terminals after the power-up sequence.

Note:

The 'OUT' terminals are connected to the 'IN' terminals once the amplifier has powered-up. The control current is determined by the source equipment. The carrying current of the 'OUT' relay is 2 amps. The amplifier's control circuitry itself draws less than 2 mA from the control current when operating.

Remote Turn-On Power

Insert stripped ends of insulated wires revealing approx. 1/4" of bare, stranded copper wire between 24 and 12 AWG (.5mm to 2mm dia.) into open elevator style wire clamps & tighten with a slot screw driver. Do not over tighten or wires may eventually come lose. Maximum tightening torque is 4.5 lb-in (0.5Nm)





Connecting to Loudspeakers: ‘Bridged Mode’

Bridged mode connects the individual channels in series to form a single amplifier channel. The primary reason for doing this is to achieve a single amplifier channel with much greater output power.

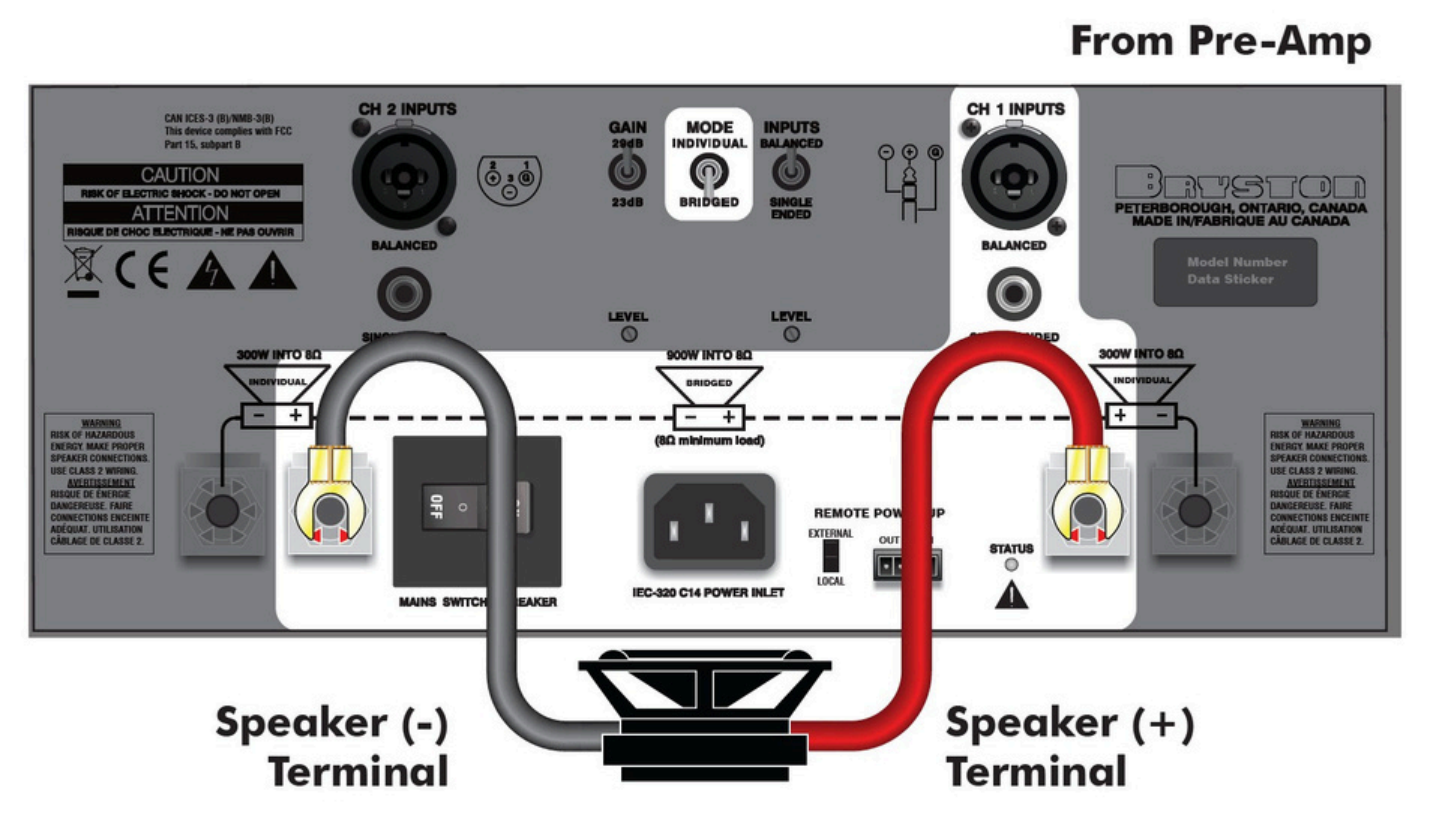
When two 3B3 channels or two 4B3 channels are bridged, the combined single channel will output up to two times the original voltage and therefore, theoretically, four times the power of a single individual channel. In practice, the actual output power achieved is limited by the capability of the power supply as well as the ability of the amplifier to dissipate the increased heat that is generated. It should noted that the usual minimum load connected to a pair of bridged 3B3 or 4B3 2.0 channels should in the range of 6 - 8 Ohms.

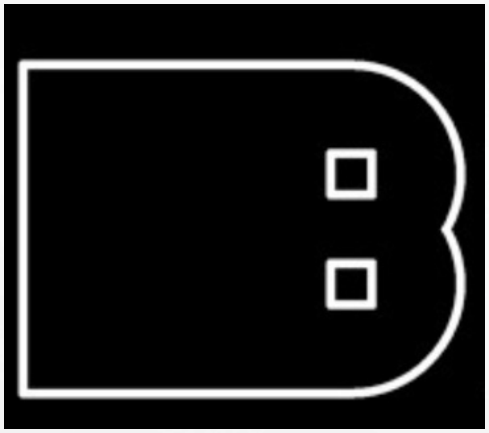
To prevent the risk of equipment damage or personal harm, use only Class 2 rated loudspeaker wire properly terminated and connected securely to the binding posts. Connections are only to be made in areas highlighted in the diagram on the next page. Only Channel #1 input is used. The input can be either balanced or unbalanced.

Only the two RED binding post connectors are used (i.e. the BLACK ones are NOT used and must have nothing connected). The Channel 1 RED binding post is the positive polarity and connected to (+) on the loudspeaker. Channel 2 RED binding post connector is negative polarity and connected to (-) on the loudspeaker. The bridged output is floating with respect to ground.

DO NOT CONNECT EITHER OUTPUT TERMINAL TO GROUND

To engage bridged mode, place the MODE switch, located on the rear panel, into the BRIDGED position, but before doing so, make sure all input and output connections are correct for bridged mode operation.





FRONT PANEL

1. POWER/STANDBY SWITCH:

The front panel features a push-on/push-off type latching power switch used to apply or remove A/C line power to the Soft-Start circuitry.

2. LED INDICATORS:

Each amplifier channel has an LED indicator to monitor the following conditions:

- **Unlit Amplifier not powered on (OFF MODE)**
- **Red Channel is muted during power up**
- **Green Channel operation is normal**
- **Flashing Red Channel is clipping - Reduce input level!**
- **Orange Thermal protection mode**



POWER UP SEQUENCE

After pushing the power switch, each channel LED will turn from unlit to red (mute). When the power supplies have stabilized, the channel will come out of mute and the LED will change to green (normal operation).

UNLIT LED (no power)

The amplifier channel LED when unlit indicates no A/C mains power is present at the channel power transformer. If both channel LEDs are unlit, the amplifier probably needs only to be powered on.

CLIPPING (flashing red)

Clipping occurs when the channel output level no longer can follow the level increase at the input (over driven input condition). When a channel is driven into clipping, the channel LED will change from green to red then back to green when the level is reduced. Momentary clipping can be tolerated, however it indicates that maximum undistorted power has been surpassed and potential speaker damage may result if overload conditions persist. Any amplifier that is constantly operated into clipping indicates a more powerful amplifier is needed for that application.

THERMAL SHUTDOWN (orange)

Each channel has thermal shutdown circuitry, to prevent damage due to overheating. Should thermal shutdown occur, the channel will mute, and the channel LED will turn orange. When the channel has cooled to a safe operating condition, the channel will return to normal operation. Persistent thermal shutdown indicates steps need to be taken to increase airflow across the channel or channels heatsink. In some markets the LED indicators, which are normally red/green, may be red/blue instead. When red/blue LEDs are supplied green is replaced with blue and orange is replaced with magenta in the above descriptions.

REAR PANEL

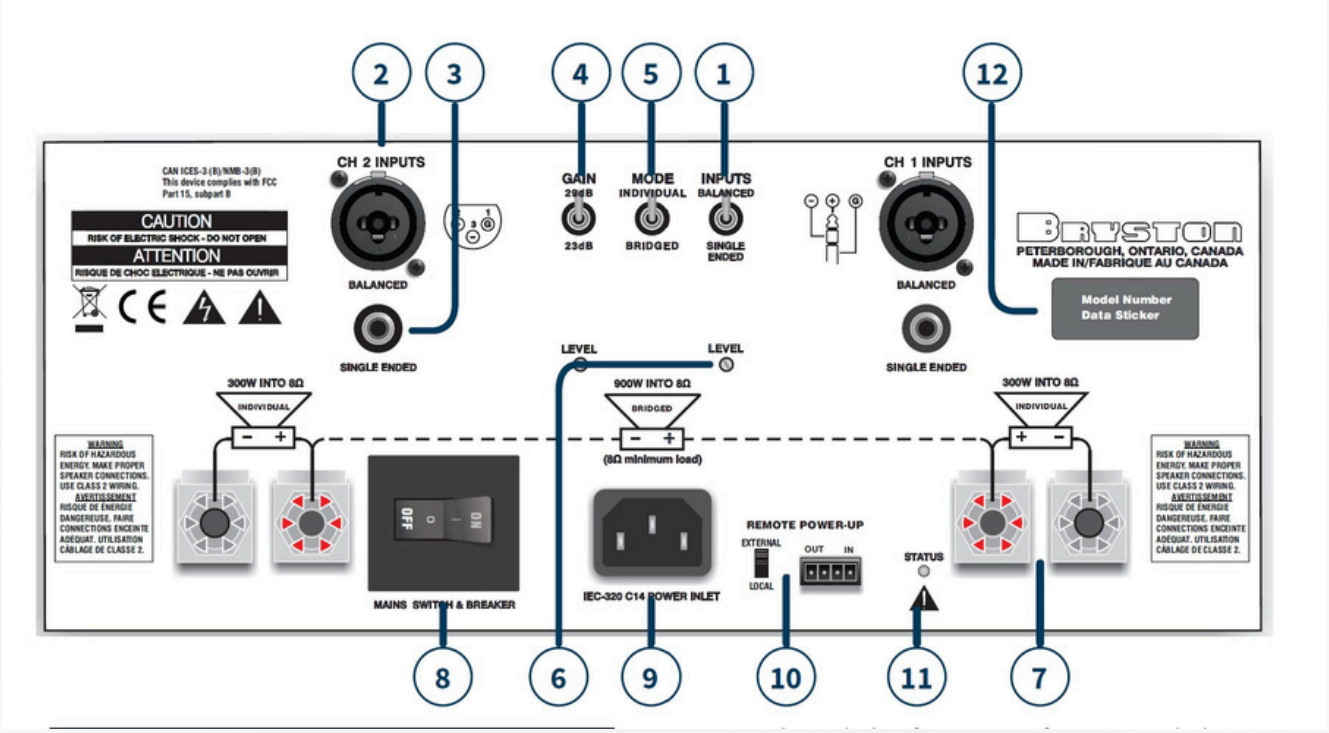
1. Input Select Switch: Select either Balanced or Single Ended audio input.

2. Balanced Audio Input: This input connector accepts standard XLR (pin 1 = Ground, pin 2 = Positive, pin 3 = Negative) or 1/4" Phone plugs (sleeve = Ground, tip = Positive, ring = Negative). Use quality, 100% shielded cables with gold plated connectors.

3. Single Ended Audio Input:
This input connector accepts standard 'RCA' or 'Phono' connectors. Use quality, 100% shielded cables with gold plated connectors.

4. Gain Select Switch: The optimum gain setting will depend upon the source pre-amp operating level, and or personal preference. The 29dB setting is used when the source is single-ended or from a transformer coupled balanced source. This is the typical for single ended or un-balanced operation. The 29dB setting provides the most amplifier gain and equates to 100w @ 8 ohms output for a 1V input. The 23dB setting is used when the source output is actively balanced. This is the typical setting for balanced operation. Or use this setting whenever less gain is required. The 23dB setting equates to an output of 100w @ 8 ohms for 2V input. The noise is referenced in dB below rated output. Different input configurations result in slightly different noise readings. The above noise ratings represent minimum readings. Actual readings may be better.

5. Mode Switch: The individual setting is for two channel operation. Bridged mode is for single channel operation.



REAR PANEL

6. Channel Level Attenuators (NO LONGER AVAILABLE):

The level control will attenuate the input signal level from 0dB through -14dB.

7. Output Binding Posts:

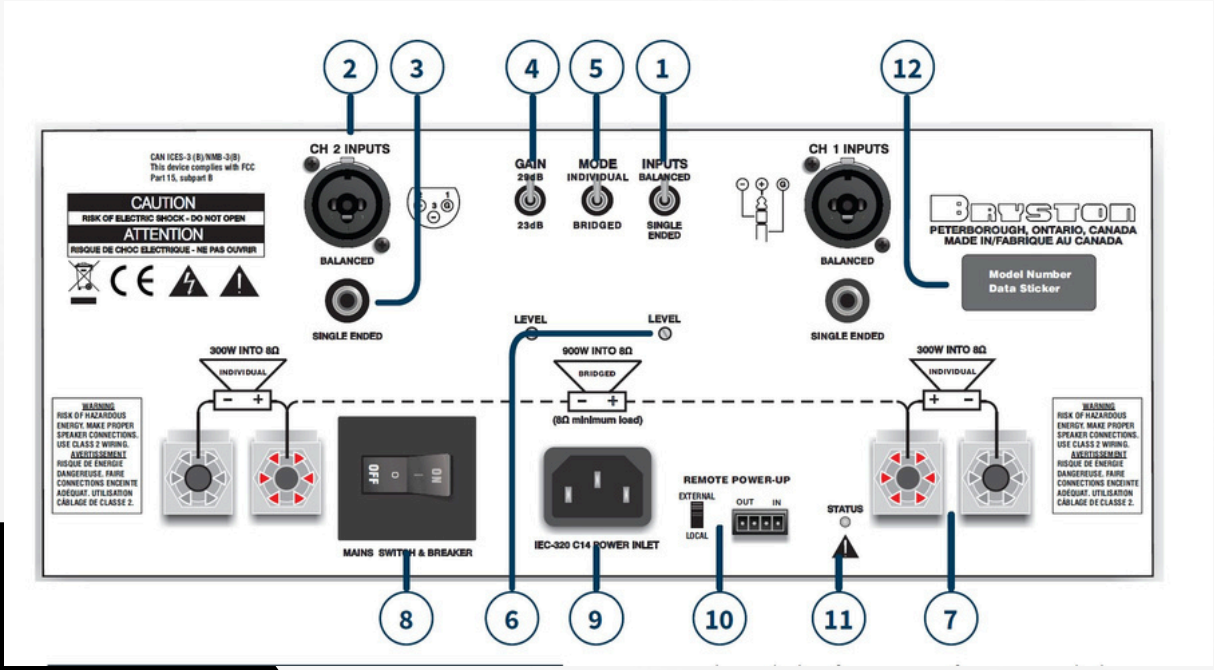
The RED binding post is connected to theamplifier output. Connect to this post the (+) terminal on the loudspeaker for normal, non bridged or individual operation. The BLACK binding post is connected to signal ground. Connect to this post the (-) terminal on the loudspeaker for normal (non-bridged or individual) operation. Only use Class 2 Rated Wiring. No other wiring is permitted for use. The output binding posts provide three different interconnect options: banana plugs, spade lugs, and bare wire. Combinations may be used when bi-wiring. Cables should be kept as short as practical and should never be terminated with connectors that may become confused for AC power connectors. Cables should be dressed away from input and power cables.

8. Fuses: ⚡

The key advantage of using fuses to protect electronic equipment is their ability to disconnect dangerously high current faster and more cleanly than most other protection devices. This speed and simplicity make them ideal for safeguarding sensitive circuits. Extremely fast response time During a severe short circuit, a fuse can clear the fault in 2–4 milliseconds, compared to 20–100 milliseconds for a typical circuit breaker. That speed difference is critical for delicate components such as processors, memory chips, and power supplies, where even a few extra milliseconds of excess current can cause permanent damage.

9. A/C Power Input:

An IEC-320 C14 power inlet provides for connection of an IEC-320 C13 equipped power cord. Before connecting the power cord to the amplifier, check that the voltage rating on the data plate or ratings label conforms with your locality. With the circuit breaker 'ON' insert the power cord into the Cubed series amplifier, then plug the other end to an appropriate A/C power outlet.



REAR PANEL

10. Remote Power Up:

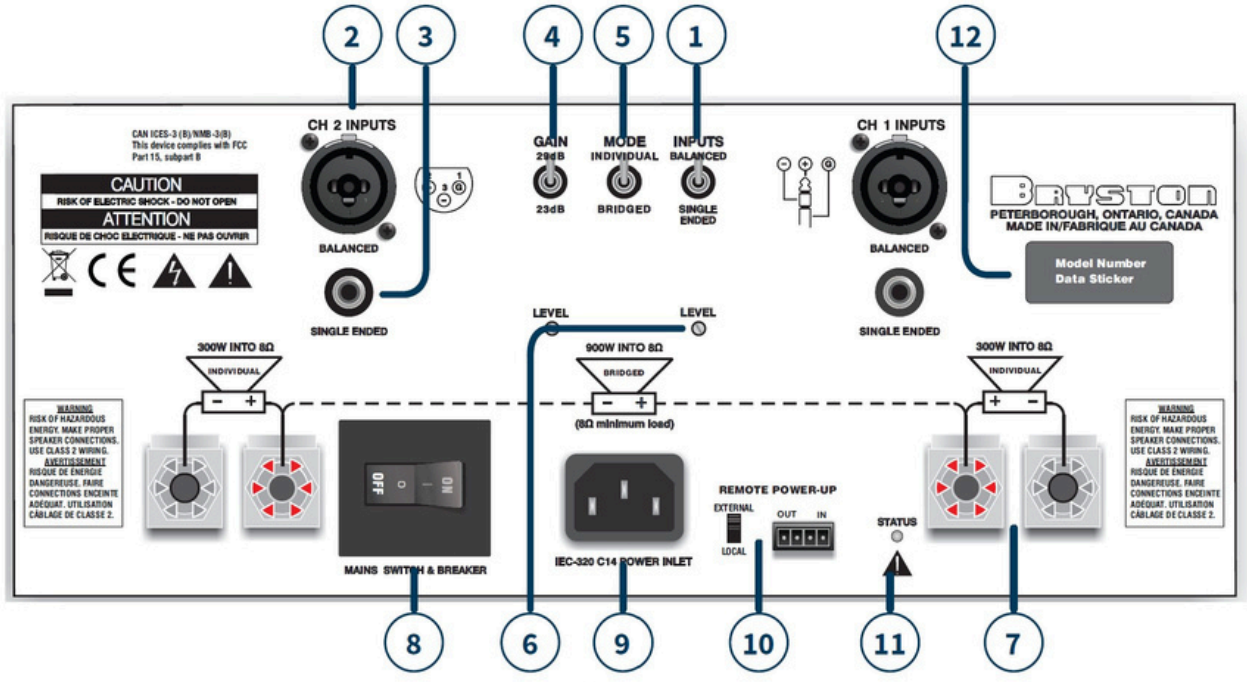
When in External position, the Power On state is governed by voltage applied to IN terminals of the Remote Power Up connector. The front panel power switch must remain in the 'ON' position. "External Control Voltage"

11. Power Status Indicator:

Plugging in the power cord applies power to the amplifier. The status indicator will initially flash green. The number of flashes indicates the revision of the soft start circuit software. This puts the amplifier in Standby mode and the LED turns red indicating power is present. Engaging the front panel on/off switch initializes the startup sequence. During the soft start ramp up, operation the status led will turn orange when connected to 60Hz power or red when connected to 50Hz power. The Status LED switches to green when the ramp up sequence ends. Turning off the front panel on/off switch returns the amplifier to the Standby mode.

12. Data Plate:

Unit specific information is printed here including model number, operating voltage,frequency, and serial number.



3B & 4B

FACEPLATE COLOUR OPTIONS



SPECIFICATIONS
3B & 4B CUBED 2.0

3B³ Specifications

Power Output Per Channel (Watts)	8Ω Load:	200
	4Ω Load:	300
	Bridged Mono 8Ω Load:	500
Gain	High: 29dB	28.28 V/V
	Low: 23dB	14.14 V/V
Sensitivity (into 8Ω)	High: 1.00V	100W
	High: 1.41V	200W
	Low: 2.00V	100W
	Low: 2.82V	200W
Input Impedance	Individual Mode	
	Single Ended	≈30kΩ
	Balanced +	≈30kΩ
	Balanced -	≈6kΩ
	Bridged Mode	
	Single Ended	≈7.5kΩ
	Balanced +	≈5kΩ
	Balanced -	≈5kΩ
IMD	≤0.005%, Typ. ≤0.002%	
THD+N	20Hz-20kHz @ 200W, 8Ω	≤0.005%
Noise SE input shorted, Balanced open Weighted, filter: 22Hz-22kHz	SE: High: 29dB	<-104dB
	SE: Low: 23dB	<-110dB
	Bal: High: 29dB	<-105dB
	Bal: Low: 23dB	<-111dB
Slew Rate	Individual Mode	>60V / µS
	Bridged Mode	>120V / µS
Bandwidth	0-3dB	<1Hz to >100kHz
Frequency Response	0±0.1dB	20Hz - 20kHz
Damping	20Hz, 8Ω	>500
Weight	Pounds:	34.4
	Kilograms:	15.6
Power Consumption (Watts)	Standby:	<0.5
	Idle:	≤60
	200W 8Ω:	700
	Bridged: 500W 8Ω:	1300
Heat Load (BTU/Hour)	Idle:	205
	2 Ch. 200W 8Ω:	2388
	Bridged: 500W 8Ω:	4435

4B³ Specifications

Power Output Per Channel (Watts)	8Ω Load:	300
	4Ω Load:	500
	Bridged Mono 8Ω Load:	900
Gain	High: 29dB	28.28 V/V
	Low: 23dB	14.14 V/V
Sensitivity (into 8Ω)	High: 1.00V	100W
	High: 1.73V	300W
	Low: 2.00V	100W
	Low: 3.46V	300W
Input Impedance	Individual Mode	
	Single Ended	≈30kΩ
	Balanced +	≈30kΩ
	Balanced -	≈6kΩ
	Bridged Mode	
	Single Ended	≈7.5kΩ
	Balanced +	≈5kΩ
	Balanced -	≈5kΩ
IMD	≤0.005%, Typ. ≤0.002%	
THD+N	20Hz-20kHz @ 300W, 8Ω	≤0.005%
Noise SE input shorted, Balanced open Weighted, filter: 22Hz-22kHz	SE: High: 29dB	<-111dB
	SE: Low: 23dB	<-116dB
	Bal: High: 29dB	<-112dB
	Bal: Low: 23dB	<-118dB
Slew Rate	Individual Mode	>60V / µS
	Bridged Mode	>120 / µS
Bandwidth	0-3dB	<1Hz to >100kHz
Frequency Response	0±0.1dB	20Hz - 20kHz
Damping	20Hz, 8Ω	>500
Weight	Pounds:	42.1
	Kilograms:	19.1
Power Consumption (Watts)	Standby:	<0.5
	Idle:	≤80
	300W 8Ω:	1000
	Bridged: 900W 8Ω:	1700
Heat Load (BTU/Hour)	Idle:	273
	2 Ch. 300W 8Ω:	3412
	Bridged: 900W 8Ω:	5801

10 YEAR LIMITED WARRANTY

SHIPPING ONE WAY

Contact Information

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