BRYSTON

D65Z
D130Z
D250Z

OWNER'S MANUAL

IMPORTANT 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.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

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

BRYSTON LIMITED WARRANTY

Bryston analog audio products are warranted to be free from manufacturing defects for twenty (20) years from the original date of manufacture. The warranty includes parts and labour.
Bryston Digital products and cables are warranted for five years from the original date of manufacture. The warranty includes parts and labour.
Bryston products having motorized moving parts, excluding motorized volume controls, are warranted for three years from the original date of manufacture. The warranty includes parts and labour.
Bryston will remedy the problem by repair or replacement, as we deem necessary, to restore the product to full performance. Bryston will pay shipping costs one way (usually the return portion) during the first three years of warranty coverage.
In the event of a defect or malfunction, contact Bryston's repair centers for return authorization. Products must be returned using original packaging material only. Packing material may be purchased from Bryston if necessary. This warranty is considered void if the defect, malfunction or failure of the product or any component part was caused by damage (not resulting from a defect or malfunction) or abuse while in the possession of the customer. Tampering by persons other than factory authorized service personnel or failure to fully comply with Bryston operating instructions voids the warranty. This warranty gives you specific legal rights and you may also have other rights which may vary from province to province and country to country.
As of 2006-02-22 Bryston will only warranty Bryston products purchased through authorized Bryston dealers. Bryston products with a date code of 0608 or higher (date code format is "yyww", where "yy" is the two least significant digits of the year and "ww" is the week of the year) must be accompanied by a copy of the bill-of-sale from a Bryston authorized dealer to qualify for warranty service. The warranty is transferable from the original owner to a subsequent owner as long as a copy of the bill-of-sale from the original authorized Bryston dealer accompanies the re-sale. The copy of the bill of sale to any subsequent owner need ONLY include the Name of the Bryston Authorized Dealer and the Model and Serial number of the Bryston product The warranty will only be honored in the country of the original purchase unless otherwise pre-authorized by Bryston.

BRYSTON SERVICE in CANADA:

Postal address: **P.O. BOX 2170, Stn. Main**
PETERBOROUGH, ONTARIO
CANADA K9J 7Y4

Courier address: **677 NEAL DRIVE**
PETERBOROUGH, ONTARIO
CANADA K9J 6X7

PHONE: 705-742-5325
FAX: 705-742-0882
E-mail: cdnser@bryston.com

BRYSTON SERVICE in the USA:

79 COVENTRY ST., Suite 5
NEWPORT, VERMONT
U.S.A. 05855-2100

PHONE: 802-334-1201
FAX: 802-334-6658
E-mail: usaser@bryston.com

BRYSTON SERVICE outside Canada and the USA:

contact your local distributor *or*

CHECK OUR WEB SITE: www.bryston.com
E-MAIL BRYSTON DIRECTLY: cdnser@bryston.com
FAX BRYSTON DIRECTLY: 01-705-742-0882
PHONE BRYSTON DIRECTLY: 01-705-742-5325

TABLE OF CONTENTS

Important Safety Instructions & Warranty ..... opposite

General Introduction ..... Page 1
- Introduction
- Description
- Shipping Box & Packing Materials
- Installation
- Wiring the D130/250Z
- AC Power & Power Conditioners

Front Panel ..... Page 2
- Power Switch
- LED Indicators

Rear Panel
- Fuses
- Power Inlet
- Remote Power Turn-On Connector ..... Page 3
- Remote Power Turn-On Switch
- Channel Level Control
- Channel Direct Inputs
- Input Selector Switches
- Output Binding Posts & Speaker Connectors
- External Zone Mutes ..... Page 4
- Stereo Bus Inputs

AC Power Control
- External Control Voltage Power Up
- AC Power Input

Technical Specifications ..... Page 5

INTRODUCTION

Thank you for choosing the **D65/130/250Z Eight Channel Power Amplifier**. Bryston welcomes any suggestions you may have, or comments regarding the operation of your amplifier. We consider you, our customer, to be Bryston's most important resource, and your opinion is very much appreciated.

DESCRIPTION

The **D65/130/250Z** are modular multi-channel audio power amplifiers of 65, 130 or 250 Watts/channel into 4Ω. While each of the eight channels in the **D65/130/250Z** can operate completely independently, with its own input, output and level control, each channel is also assigned to one of 4 *Zones.* Each Zone is comprised of two adjacent channels and each zone can be remotely muted independently of the other zones. Each channel can select from its own discrete input (RCA or phono jack) or from a common stereo input (stereo bus inputs, also RCA or phono jacks). The inputs are single ended with a gain of 29dB.

The *power up sequence* of the **D65/130/250Z** may be controlled from a 4 to 12v (AC or DC) control voltage. The **D65/130/250Z** uses 'soft start' power control circuitry to eliminate high inrush currents when A/C power is applied.

SHIPPING BOX & 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 as your unit may not be insurable the carrier if it is not shipped in the original packing material.

INSTALLATION & VENTILATION

The most important installation consideration is **ventilation**. The D65/130/250Z amplifiers are onvection cooled. Unrestricted air-flow across its heat sinks is a must. For this reason do not install anything directly above it. Allow at least 3.5" inches (2u) of space above, 1.75 inches (1u) of space below and at least 1 inch to either side of this amplifier. Do not install directly above other heat generating equipment. If installed in a cabinet it should have an open front and back. Should your installation conditions be constricted, then additional forced air-cooling may be necessary. Any D65/130/250Z channels thermally shutting down during operation indicates insufficient cooling and a remedy must be found for cooling the amplifier. Provide a minimum 6" space to the rear of the D65/130/250Z for ventilation and dressing cables to and from the amplifier.

Never operate the D65/130/250Z in a vertical position.

WIRING THE D65/130/250Z *(also see rear panel description)*

S*peaker wires* should be as short as practical. Use quality wire, and if runs are more than 3 meters use at least 12 gauge wire. The speaker binding posts will accept wire up to 3 gauge in size. Bryston can custom build cables for your application.

AC POWER

Before plugging in the power cord be sure your D65/130/250Z is specified for the ***correct A/C voltage*** for your locality. The voltage is listed by the power input connector. Never lift the safety ground to the amplifier or remove the ground pin from the plug.

AC 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. However, there are now power conditioners that can reduce or eliminate RF and 'hash' from the AC supply and may actually improve current delivery to your system. This type of power conditioner (exemplified by Bryston B•I•T Power Conditioners) uses the energy storage in a large toroidal tranformer to provide high instantaneous power and reduce the substantial AC output resistance of the wall socket and house wiring. This resistance can be in the range of 0.5 to 1 Ohm and is typically reduced to only a few milliOhms by the Power Conditioner. That in turn considerably reduces Voltage drop in the power line on high current surges and quite substantially increases the stability of the power line improving audio (and video) focus, precision and clarity.

FRONT PANEL

Although a D130Z is shown above, all front panel features are identical for the D65Z, D130Z & D250Z except for the model name on the power switch

POWER SWITCH

The front panel label "D65", "D130" or "D250" and the on/off symbol ⏻ is a switch used to apply or remove A/C line power to the D65/130/250Z soft start circuitry. Push the switch and the D65/130/250Z will initiate the start up sequence. The switch button remains depressed when circuits are on. Push the switch again the D65/130/250Z will initiate the power off sequence.

LED INDICATORS

Each D65/130/250Z channel has a single multi-colour LED indicator to monitor the following conditions:

- **Unlit LED:** ***no power***
  The D65/130/250Z channel LED, when unlit, indicates no A/C mains power is present at the channel. If all channel LED indicators are unlit the D65/130/250Z probably needs only to be powered on. A group of 4 LEDs not lighting possibly indicates a blown group fuse (there are 2 fuses, one for each group of 4 channels). When checking fuses turn off the unit and unplug the power cord. Use only the specified fuses for your operating voltage.
  See FUSES *section below and* Replacement Fuses *label on rear panel.*

- **Green LED:** ***operating normally***

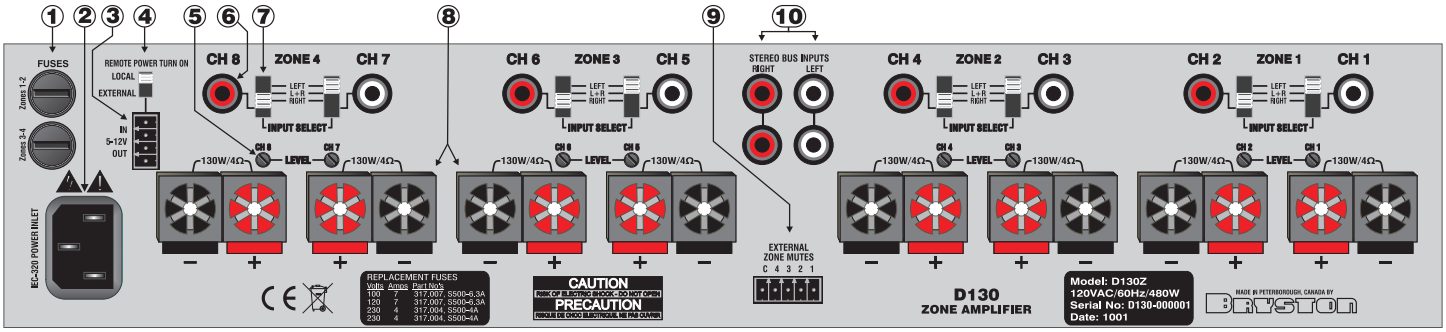
- **Red LED:**
  - **During Power-Up =** ***mute***
    Each channel normally mutes momentarily during power up and power down sequences.
  - **After Power-Up =** ***Thermal Shutdown or Clipping***
    THERMAL SHUTDOWN: The D65/130/250Z channel has thermal shutdown circuitry to prevent damage due to over heating. Should thermal shutdown occur, the both stereo channels in the affected zone will mute and the channel LEDs will turn red. When the channels have cooled to a safe operating condition the channels will return to normal operation. Persistent thermal shutdown indicates steps need to be taken to increase airflow across the channels heat sink. (*See installation section on ventilation on page 1)*
    CLIPPING occurs when the channel output level no longer can follow the level increase at the input (Over driven input condition). When a D65/130/250Z channel is driven into clipping the channel LED will change from green to red then back to green when the level is reduced (will appear to be intermittent or flashing red). Momentary clipping can be tolerated, however it indicates that maximum un-distorted power has been surpassed and potential speaker damage may result if over load conditions persist. Any amplifier that is constantly operated into clipping indicates a more powerful amplifier is needed for that application. Note that a steady red LED may indicate either continuous clipping (overload) or thermal shutdown.

REAR PANEL • CONNECTORS • SWITCHES

① FUSES

External fuses: There are two fuse holders located at the rear panel (see illustration on next page). One fuse is for channels numbered 1 through 4 which comprise zones 1 & 2. The second fuse is for channels 5 through 8 which comprise zones 3 & 4. When checking fuses, power down the unit and disconnect the power cord. Use only the specified fuses as indicated on the fuse specification label located on the rear panel.

Internal fuses: There are two additional fuses located inside the unit, on the *SoftStart* (power inlet) board. These fuses have a slightly higher melting point, compared to the external fuses, so they are unlikely to blow. If, however, they should need replacing, they should only be replaced by qualified service personel. The appropriate fuse values are indicated on a label next to the fuse holders.



Although a D130Z is shown above, all rear panel features are identical for the D65Z, D130Z & D250Z except for power ratings and fuse values

② POWER INLET:

Primary or mains power cord input connector (IEC 320 C14 inlet, mates with an IEC 320 C13 plug). Connect the supplied power cord to this connector only after checking the unit label and verifying that the amplifier is rated for your local power requirements for A/C voltage and line frequency.

③ REMOTE POWER TURN-ON CONNECTOR:

When an external 12v control signal is applied between the 2 'IN' pins on the connector, the amplifier will power up. When the D65/130/250Z has powered up the incoming 12v is handed to the 'OUT' terminals to turn on other equipment. This circuit draws 2 mA to turn the D65/130/250Z on.

④ REMOTE POWER TURN-ON SWITCH:

When in the LOCAL position the amplifier power up sequence is initiated by the front panel power switch only. When in the EXTERNAL position, and witht he front panel power switch OFF (in the out position) the amplifier will power up when a control voltage of between 4 and 12 volts (AC or DC) is present across the pair of "IN" pins of the Remote Power Turn-On Connector. *See "AC Power Control" section on page 4 for more information.*

⑤ CHANNEL LEVEL CONTROL:

Normal or maximum is fully clockwise (approximately 5 o'clock). Minimum is fully counter clockwise (approximately 7 o'clock) which fully attenuates the input signal.

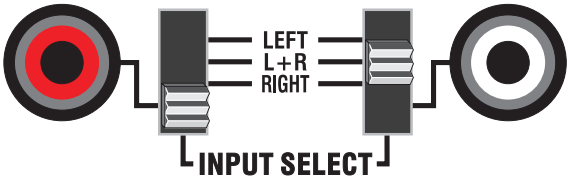
⑥ CHANNEL DIRECT INPUT CONNECTORS:

Gold plated RCA/phono jacks. Input impedance ≈ 20K Ohms

⑦ INPUT SELECTOR SWITCHES:

These four position slide switches select the input signals for each channel independantly:

Position	Description
• 1st (top)	Left bus from STEREO BUS INPUTS (item #10)
• 2nd:	sum of left and right STEREO BUS INPUTS (item #10)
• 3rd:	Right bus from STEREO BUS INPUTS (item #10)
• 4th (bottom):	direct input from RCA jack.



⑧ OUTPUT BINDING POSTS

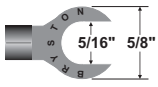
The **RED** binding post is connected to the ***amplifier output***. Connect to this post the (+) terminal on the loudspeaker.

The **BLACK** binding post is connected to ***signal ground***. Connect to this post the (-) 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. Gold plated locking banana plugs are available from Bryston.

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). Gold plated spade lugs are available from Bryston.



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. Additional tightening pressure can be achieved using the wrench provided in the slots of the knob. Do not over tighten or the binding post may become damaged. Note that copper wire is malleable and should not be initially over-tightened or the connection may eventually become lose and require further tightening.

⑨ EXTERNAL ZONE MUTE CONNECTOR:

When any or all of the 4 zone mute pins (labelled "1", "2", "3" & "4") are connected to the common pin (Labelled "C") the corresponding Zone will be muted.

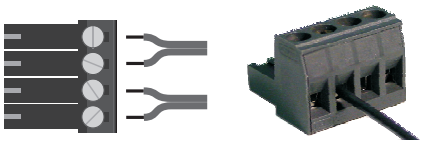
⑩ STEREO BUS INPUTS:

There are two pair of daisy-chained RCA connectors for single-ended *bus* inputs. An input signal connected to one Left input will appear at the other Left input connector. Likewise, an input signal connected to either Right Stereo Bus Input will be present on the other Right Stereo Bus Input. This input has 20K Ohms input impedance.

A/C POWER CONTROL

REMOTE POWER TURN-ON (LOCAL/EXTERNAL SWITCH)

To power-up the D65/130/250Z using an external control voltage supply a 4v to 12v AC or DC control voltage (at approximately 2mA minimum) to the 'IN' terminals of the "Power-Up" connector. The front panel 'Power' switch needs to be off for remote operation.
Use paired wire of 22 gauge to 18 gauge between the source device and the D65/130/250Z. The amplifier will now power-up when the control voltage is present.
Immediately following power up, the control voltage will appear at the 'OUT' terminals of the "Power-Up" connector for the control of other equipment.
Removal of the control voltage causes the D65/130/250Z to turn 'off' and the control voltage at the 'OUT' terminals is interrupted.



REMOTE POWER TURN-ON PLUG-IN CONNECTOR

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)

NOTE: The 'OUT' terminals of the "Power-Up" connector are connected to the 'IN' terminals once the D65/130/250Z has powered-up.

NOTE: Each channel normally mutes momentarily during power up and power down sequences.

AC POWER INPUT

This is a high current plug for the power cord receptacle. Check that the voltage rating at the right of the connector conforms with your locality. With the front panel power switch in the off position, insert the power cord into the D65/130/250Z, then plug the other end to an appropriate A/C power outlet.
The control current across the "OUT" terminals is determined by the **source** equipment. The carrying current of the 'OUT' relay is 2 amps. The D65/130/250Z itself draws less than 3 mA from the control current when operating. The D65/130/250Z channel LED, when unlit, indicates no A/C mains power is present at the channel. If all channel LED indicaors are unlit the D65/130/250Z probably needs only to be powered on. A group of 4 LEDs not lighting possibly indicates a blown group fuse. When checking fuses, unplug the power cord. Use on the specified fuses for your operating voltage. *See FUSES section on page 2.*

TECHNICAL SPECIFICATIONS

PARAMETER	CONDITIONS	D65Z	D130Z	D250Z
GAIN	decibels of gain,	**29 dB**	**29 dB**	**29 dB**
SENSITIVITY	input volts (RMS) required for nominal power output	**0.570 V**	**0.710 V**	**.744 V**
INPUT IMPEDANCE	Individual channel inputs Stereo bus inputs	**50K Ohms** **20K Ohms**	**50K Ohms** **20K Ohms**	**50K Ohms** **20K Ohms**
IMD or THD+noise	max. at nominal power output into 4Ω, 20-20K Hz, 1 ch driven max. at nominal power output into 4Ω, 20-20K Hz, 8 ch's driven	**0.1%** **1.0%**	**0.1%** **1.0%**	**0.1%** **1.0%**
POWER BANDWIDTH	±0.1dB	**20-20K Hz**	**20-20K Hz**	**20-20K Hz**
NOMINAL OUTPUT POWER[1]	per ch with all 8 channels driven into 4 Ohm loads	**65 Watts** [2]	**100 Watts** [3]	**110 Watts** [4]
	all 8 channels nominal power output @ 1K Hz	**695 Watts**	**1000 Watts**	**1100 Watts**
	at 1/8 nominal output power @ 1K Hz.	**144 Watts**	**210 Watts**	**230 Watts**
	all inputs open	**38 Watts**	**66 Watts**	**110 Watts**
	at idle ~ Standby[5]	**.65 Watts**	**.65 Watts**	**.65 Watts**
DIMENSIONS	including rubber feet and output connectors (W•D •H)	48.26x40.8x11.02 cm 19x15.78x4.34 in	48.26x40.8x11.02 cm 19x15.78x4.34 in	48.26x40.8x11.02 cm 19x15.78x4.34 in
WEIGHT	excluding box & packing foam	**13.9 Kg** (30.5 Lbs)	**18.76 Kg** (41.4 Lbs)	**21.08 Kg** (46.5 Lbs)

1: Output Power: Nominal output power levels are limited by the amount of current the D130/D250 is allowed to draw form a residential branch circuit. Power output from individual channels or from groups of channels can be much higher when only some channels are driven to high power levels. Note that each of the two zones, of 4 channels each, has its own power supply. Therefore, if two or more channels are going to be driven harder than the others, it is wise to try to balance the power demand across the two zones and thus the two power supplies.

2: D65: Although the nominal output power per channel of the D65 is 65 Watts per channel with all channels driven, actual power output can reach 90 Watts even when all 8 channels are driven.

3: D130: Although the nominal output power per channel of the D130 is 100 Watts per channel with all channels driven, actual power output can exceed 140 Watts per channel when only 6 channels are driven.

4: D250: Although the nominal output power per channel of the D250 is 110 Watts per channel with all channels driven, actual power output can exceed 150 Watts when 6 channels are driven, 230 Watts per channel when only 4 channels are driven or 290 Watts per channel when 3 channels are driven.

5: Standby: Unit is plugged in but power switch is deactivated.