BRYSTON

14BSST²

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 return shipping costs only for the full length of the specific product's warranty.
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.ca
E-MAIL BRYSTON DIRECTLY: cdnser@bryston.com
FAX BRYSTON DIRECTLY: 01-705-742-0882
PHONE BRYSTON DIRECTLY: 01-705-742-5325

TABLE of CONTENTS

Front view of 14BSST² with 19 inch C-type *Silver* Faceplate & Handles

INTRODUCTION

Thank you for choosing the 14BSST^2 Stereo 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 14BSST^2

The 14BSST^2 is a dual channel 600 Watt audio power amplifier. The 14BSST^2 can accept a balanced (3-pin XLR connector) or single ended input (RCA or phono connector) and can be set to a gain of 29dB (sensitivity = 1V) or 23dB (sensitivity = 2V). The 14BSST^2 includes 'soft start' power control circuitry to eliminate high inrush currents when A/C power is applied. The power up or turn-on of the 14BSST^2 may be activated by a remote control voltage 4v to 12v ac or dc.

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 use the proper packing material. Ship the amplifier only in the original packing material, as the unit is not insurable by carriers otherwise.

INSTALLATION & VENTILATION

The most important installation consideration is ventilation. The 14BSST^2 amplifier is convection cooled. Unrestricted airflow across the 14BSST^2 heat sinks is a must. For this reason do not install anything directly above it. Allow 3.5' (2u) to 5" (3u) inches of space above and to the sides of this amplifier. Do not install directly above other heat generating equipment. Should your instillation conditions be constricted, then additional forced air-cooling may be necessary. Bryston can provide an optional fan package if required. Thermal shut down during operation indicates insufficient air flow, and a remedy must be found for cooling the amplifier. Provide a minimum 6" space to the rear of the amplifier for ventilation and dressing cables to and from the amplifier.
Never operate the amplifier in a vertical position.

A/C POWER

Before plugging in the power cord be sure your 14BSST^2 amplifier is specified for the ***correct AC voltage*** for your locality. The voltage is listed on the label found at the upper right of the rear panel. The circuit feeding the 14BSST^2 should be sufficient so as not to cause the circuit breaker to trip (15 amp min.). Note: the 14BSST^2 when delivering maximum power into a 4 ohm load, will consume all the available power in a normal household circuit, therefore a dedicated electrical circuit may be necessary with this situation. Never lift the safety ground to the amplifier nor remove the ground pin from the plug.

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 'TORUS' 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

"14BSST^2" POWER SWITCH

The front panel label **14BSST^2** is the actuator of an alternate action push button switch (push ON, push OFF) used to apply or remove mains power to the *SoftStart* circuitry. Push in to initiate the power-up sequence. Push again and release to power down the amplifier. (Note: the rear circuit breaker must be on for the amplifier to power-up)

LED INDICATOR

The 14BSST^2 has 2 LED indicators to monitor the following conditions:

UNLIT	•	indicates the amplifier has no power.
RED	•	indicates the amplifier is muted (power-up)
GREEN	•	indicates the amplifier operation is normal.
FLASHING RED	•	indicates the amplifier clipping.
ORANGE	•	indicates channel thermal shutdown.

UNLIT LED (No power)

The 14BSST² LED when unlit indicates no A/C mains power is present and the amplifier probably needs only to powered on. Ensure that the rear panel circuit breaker is switched 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 the 14BSST² is driven into clipping the LED will change from green to red then back to green when the level is reduced (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 overload conditions persist. Any amplifier that is constantly operated into clipping indicates a more powerful amplifier is needed for that application.

THERMAL SHUTDOWN (orange)

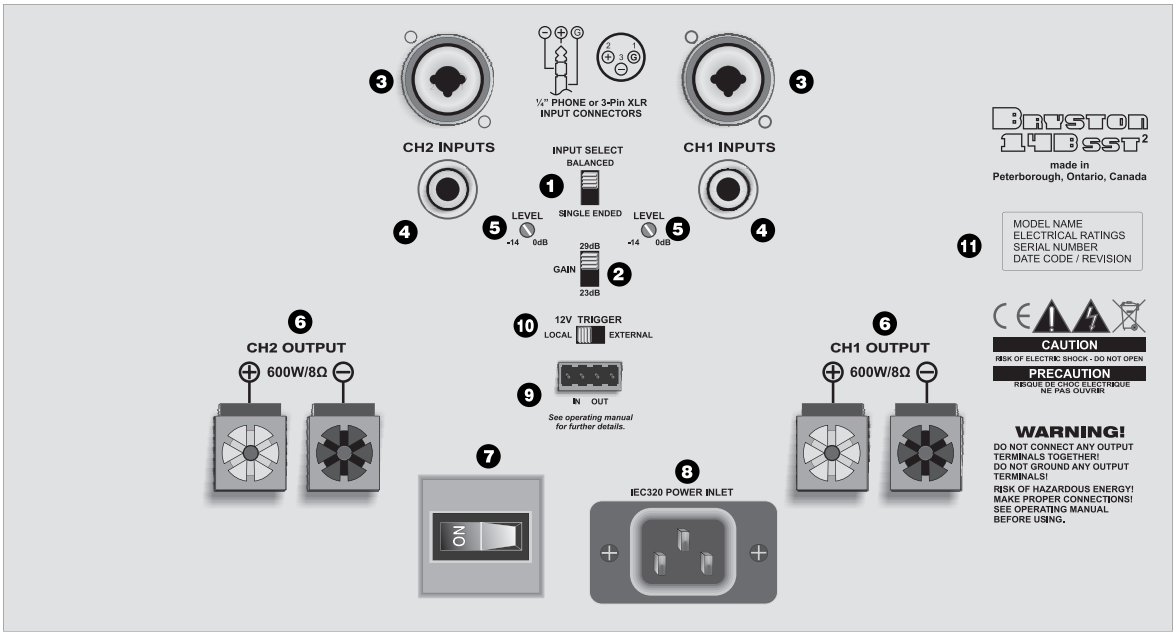
The 7BSST² has thermal shutdown circuitry to prevent damage due to overheating. Should thermal shutdown occur, the amplifier will mute, and the LED will turn orange indicating this condition. When the amplifier has cooled to a safe operating condition the 14BSST² will return to normal operation. Persistent Thermal shutdown indicates steps need to be taken to increase airflow across the heat sink.
Also see installation section on ventilation.

NORMAL POWER-UP SEQUENCE

After pushing the front panel power switch, the LED will turn from unlit to red (mute). When the power supply has stabilized the amplifier will come out of mute and the LED will change to green (normal operation).

N.B. 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



❶ INPUT SELECT SWITCH

The INPUT SELECT switch allows the user to choose between a balanced input (XLR jack) or single ended (RCA jack) input.

❷ INPUT SENSITIVITY SELECTION.

This switch changes the gain of the amplifier.

- The 29dB setting has a gain of 28.28 and a sensitivity of 1 V_{in} for 100 $Watts_{out}$ at 8Ω
- The 23dB setting has a gain of 14.14 and a sensitivity of 2 V_{in} for 100 $Watts_{out}$ at 8Ω

The optimum gain setting will depend upon the source pre-amp operating level, and or personal preference. Use the 2v setting with any systems where the volume control rotation is limited to the bottom half of the control or less.

❸ BALANCED INPUT CONNECTOR (INPUT IMP 58K EACH LEG)

This input connector accepts standard 'XLR' or 1/4" Phone jack (Tip-Ring-Sleeve). Use quality, 100% shielded cables with *gold plated* connectors.

❹ SINGLE ENDED INPUT*. (Un-balanced input) (Imp. 50K)*

This input connector accepts standard 'RCA' or 'Phono' connectors. Use quality, 100% shielded cables with *gold plated* connectors.

Balanced input 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 (50m or longer).
The single ended or unbalanced input is provided for pre-amps without balanced output. Single-ended cables should be kept to 20' (7m) 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.

❺ LEVEL CONTROL *(Pro models only)*

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

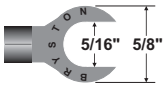
❻ OUTPUT BINDING POSTS

The RED binding post is the in-phase amplifier output. Connect to this post the (+) terminal on the loudspeaker.
The BLUE binding post is the inverted-phase amplifier output. Connect to this post the (-) terminal on the loudspeaker.

NOTE: At no time should either output be connected to a ground, or chassis. Failure of the amplifier may result.
Never connect either output in parallel with another amplifier.
The minimum recommended loudspeaker load is 4 ohms.

The Output binding posts provide three different interconnect options. Combinations may be used when bi-wiring. See figure 2 below. 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. See diagram for details. 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 gage 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 a **coin** in the slots of the 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.

SPEAKER WIRES should be as short as practical. Use quality wire, and if runs are more than 3 meters use at least 12 gage wire. The speaker binding posts will accept wire up to 3 gage in size. Bryston offers speaker cables and amp interconnects for your application. Check our website under products/cables (www.bryston.ca) for more information.

❼ CIRCUIT BREAKER / POWER SWITCH

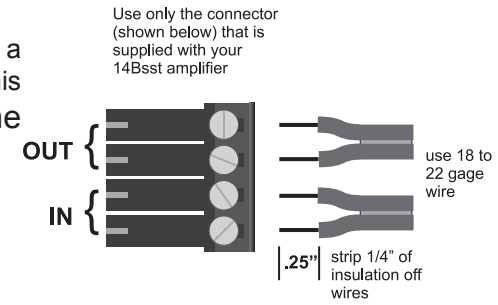
The 14B$_{SST}^2$ amplifier uses a magnetic-trip circuit breaker to protect the amplifier. This circuit breaker is integrated with a rocker style power switch which not only connects or disconnects the amplifier from mains power but is also used to reset the circuit breaker should it trip. This switch should be 'OFF' during installation so that all power is removed from the amplifier. After installation, this switch should be turned on and left on. Use the front panel "14B$_{SST}^2$" power switch or an external control voltage to Power-up or Power-down the amplifier.
Should the breaker trip, lower or remove the amplifier input signal (also see section 9 below). Switch the breaker to the 'ON' position. Then power the unit up normally.
The circuit breaker must be 'ON' at all times for the 14B$_{SST}^2$ amplifier to operate.

❽ AC POWER INLET

This IEC-320 C14 mates with power cords terminated with C13 plugs. Before connecting any power cord to the amplifier, check that the voltage rating on the label (item 11 in the rear panel illustraion on page 2) conforms with your locality. With the circuit breaker 'OFF' insert the power cord into the 14BSST2 amplifier, then plug the other end to an appropriate A/C power outlet. Switch the circuit breaker.

❾ "12V TRIGGER" CONNECTOR

To power-up the SST amplifier using an external control voltage, connect a DC control signal of between 4 and 12 volts A/C or D/C to the IN pins of this connector (which is supplied with the 14BSST2) and then plug it into the "12V TRIGGER" port.



❿ "12V TRIGGER" SWITCH

- When this slide switch is set to "**EXTERNAL**" the amplifier will power-up only when the control voltage is present (on). Immediately following power up, the control voltage will appear at the 'OUT' terminals of the interface connector (item 9) 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 removed.
- In the **"LOCAL**" setting the 14BSST2 amplifier will ignore the control voltage and power up only by using the front panel 'SST POWER' switch (assuming the circuit breaker/power switch ,#7, is turned ON). 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 14BSST2 amplifier has powered-up. The control current is determined by the **source** equipment. The carrying current of the 'OUT' relay is 2 amps. The 14BSST2 control circuitry itself draws less than 2 mA from the control current when operating.

⓫ DATA PLATE

Contains the model name, electrical ratings, serial number, date code and revision number. The Date code shows the date of manufacture as a four digit code wherein the first two digits are the two least significant digits of the year (e.g. 2010 will be 10) and the last two digits are the week of the year (from 01 to 52).

14BSST² POWER AMPLIFIER

TECHNICAL SPECIFICATIONS

POWER OUTPUT ..... 600 watts per channel into 8Ω
900 watts per channel into 4Ω

SENSITIVITY ..... At 29 dB gain: $1V_{in}$ = 100 Watts/8Ω
At 23 dB gain: $2V_{in}$ = 100 Watts/8Ω

INPUT IMPEDANCE ..... 50K ohms single ended
58K ohms each leg, balanced

THD+N or IMD ..... < 0.005% 20Hz to 20kHz at 600 Watts/8Ω
< 0.007% 20Hz to 20kHz at 900 watts/4Ω

NOISE ..... Measured with input shorted, 20Hz to 20kHz
>110dB below rated output 29dB gain (-75dBu)
>113dB below rated output 23dB gain (-78dBu)

SLEW RATE ..... >60 volts per microsecond

POWER BANDWIDTH <1 Hz to >100 kHz

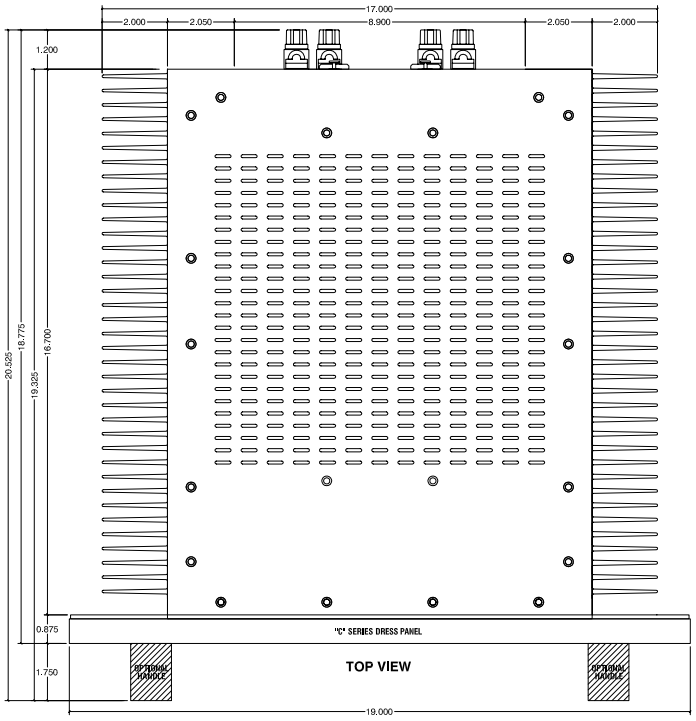
DAMPING FACTOR ..... >300 at 20 Hz, ref. 8 ohms

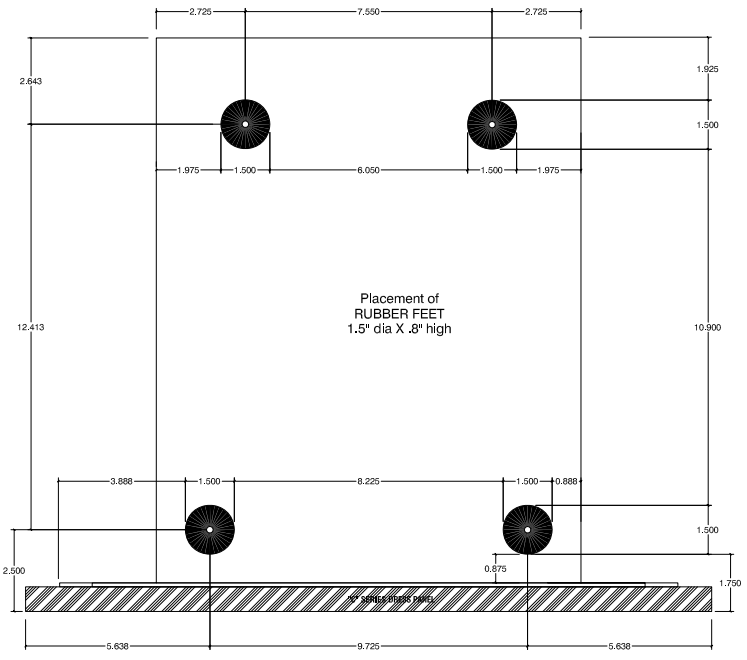
DIMENSIONS ..... 19" version with handles (L•H•D)
48.3•20.5•52.1 cm (19•8.05•20.525 in.)

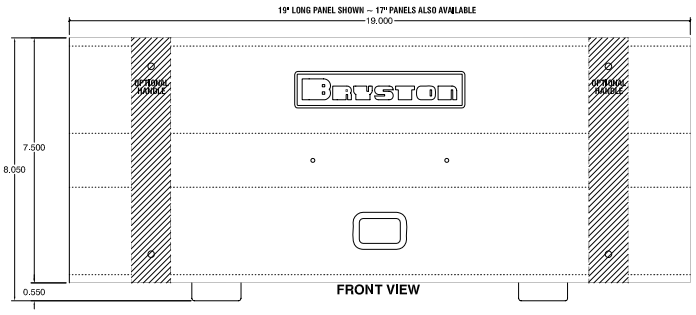
WEIGHT ..... approx. 41.3kg (91 lbs)

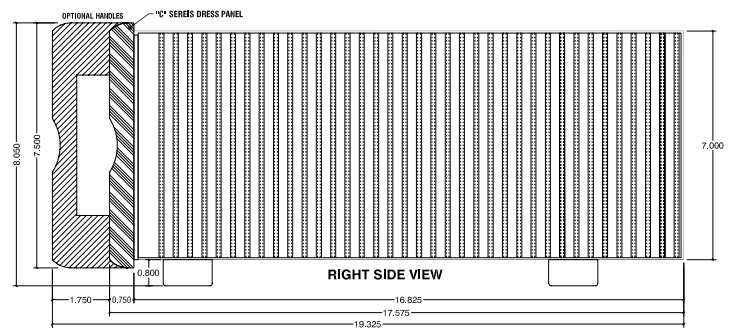
POWER CONSUMPTION & HEAT LOAD

At Idle	215 Watts
Maximum heat dissipation	733 Btu/Hr.
At 600W/8 ohms	1284 Watts
Maximum heat dissipation	2333 Btu/Hr.
At 900W/4 ohms	1980 Watts
Maximum heat dissipation	3684 Btu/Hr.









14B-SST "C" Series POWER AMPLIFIER
EXTERIOR DIMENSIONS for NON-RACK-MOUNT MODELS
ALL DIMENSIONS IN INCHES

File: 14Bsst-EXTERIOR-DIMENSIONS-NON-RACK-17+19
PART No: -
REVISION: 0
Revised: 2006-10-23
Created: 2006-10-17
BY:

BRYSTON LTD
P.O. BOX 2170, 677 NEAL DRIVE, PETERBOROUGH, ONTARIO, CANADA K9J 7Y4
PHONE: 705-742-5325 FAX: 705-742-0882 INTERNET: www.bryston.ca