

# PLINIUS

THE HEART OF MUSIC

## INSTRUCTION MANUAL

SB-301  
POWER  
AMPLIFIER



**CONGRATULATIONS** on your decision to become the proud owner of this  
Plinius SB-301 Power Amplifier.

This manual has been prepared to help you understand the operation of your amplifier, and to provide information about its design and the variety of ways it may be used.

We have designed and manufactured this amplifier to reproduce faithfully and accurately, your favourite music. With a little care and a full understanding of the operating recommendations in this manual, your Plinius SB-301 Power Amplifier will provide years of high-quality, trouble-free performance.

Serial Number: .....

Final Test Certified By: .....

**IMPORTANT:** PLEASE TAKE THE TIME TO READ THIS MANUAL  
THOROUGHLY BEFORE USING YOUR AMPLIFIER.

## DESIGN PHILOSOPHY

From a distance you can see that the design of the Plinius products is more than an applied styling exercise to the front panel. We have started from the ground up to produce a casing for our electronics that is unrivalled in its physical strength and visual simplicity. Wherever possible we have reduced the number of parts needed and then invested massively in refining and producing the remaining parts to the highest quality achievable with state of the art computer controlled machines allied with expert craftsman. Examples of this approach include the hydraulically formed corners on the amplifiers giving much greater strength and the one piece housing for the remote control unit that eliminates large joints and potential creaks.

The very process of holding the remote tells you that you are controlling both a powerful and precise product. It is designed specifically for the act of listening to music, not channel surfing on a television or changing the room temperature. The distinction is important because we believe that listening to music is a highly selective and emotional experience that requires a much greater level of concentration and precision to fully appreciate and enjoy.

As with music that you are not familiar with, truly innovative new designs can take time to understand and enjoy. How often have you heard music that you were first unsure of, that over repeated listening, has become a firm favourite. Our designs are fundamentally different to many other companies, and we hope that you will take the time to explore their unique character and qualities because we have not made them different simply to be different. We genuinely believe that their visual and tactile qualities do improve the experience of listening to music and that is our design goal!

Ross Stevens  
Design Director.



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# PRECAUTIONS

Please take special note of the following precautions before operating your new amplifier:

- The Plinius SB-301 Power Amplifier may deliver in excess of 300 watts into 8 ohms. This amplifier is also capable of a very large peak current delivery.
- The Plinius SB-301 Power Amplifier is capable of generating temperatures that could have an adverse effect on other equipment, furniture etc. DO NOT leave flammable material on the amplifier whilst running, as this could pose a serious fire risk.
- The Plinius SB-301 Power Amplifier is of direct-coupled design, and offers no protection from preamplifiers that have a high DC component at their outputs.
- This amplifier operates at hazardous voltage levels. We recommend that any work requiring removal of the lid or base of this amplifier be referred to a suitably qualified and experienced service technician.
- DO NOT attempt to connect any input of this amplifier to it's own outputs.
- DO NOT earth any output terminal or connect any of these terminals together without following the instructions in this manual or seeking qualified assistance.
- DO NOT place this amplifier in any position where liquids or any foreign material may accidentally enter it.
- DO NOT connect any voltage source, short circuit, earth/ground or appliance (other than suitable high fidelity loudspeakers) to the amplifier output terminals.
- Some preamplifiers, processors, CD players' etc. produce large switching pulses when switched on causing a loud click through the loudspeakers. For this reason, turn on all other equipment in your system before turning on your Plinius SB-301, or ensure that the amplifier is in MUTE. You will not experience this phenomenon with Plinius Preamplifiers.

# AMPLIFIER FEATURES – FRONT PANEL

STANDBY



ERROR



*FRONT PANEL LAYOUT SHOWING STANDBY AND ERROR LEDS*

## ***STANDBY LED***

The Standby LED indicates when the amplifier has been put into standby mode by an external processor (connected to the remote trigger terminals described later). When the Standby LED is on, the external processor has muted the SB-301 and put the amplifier into power saving low bias mode.

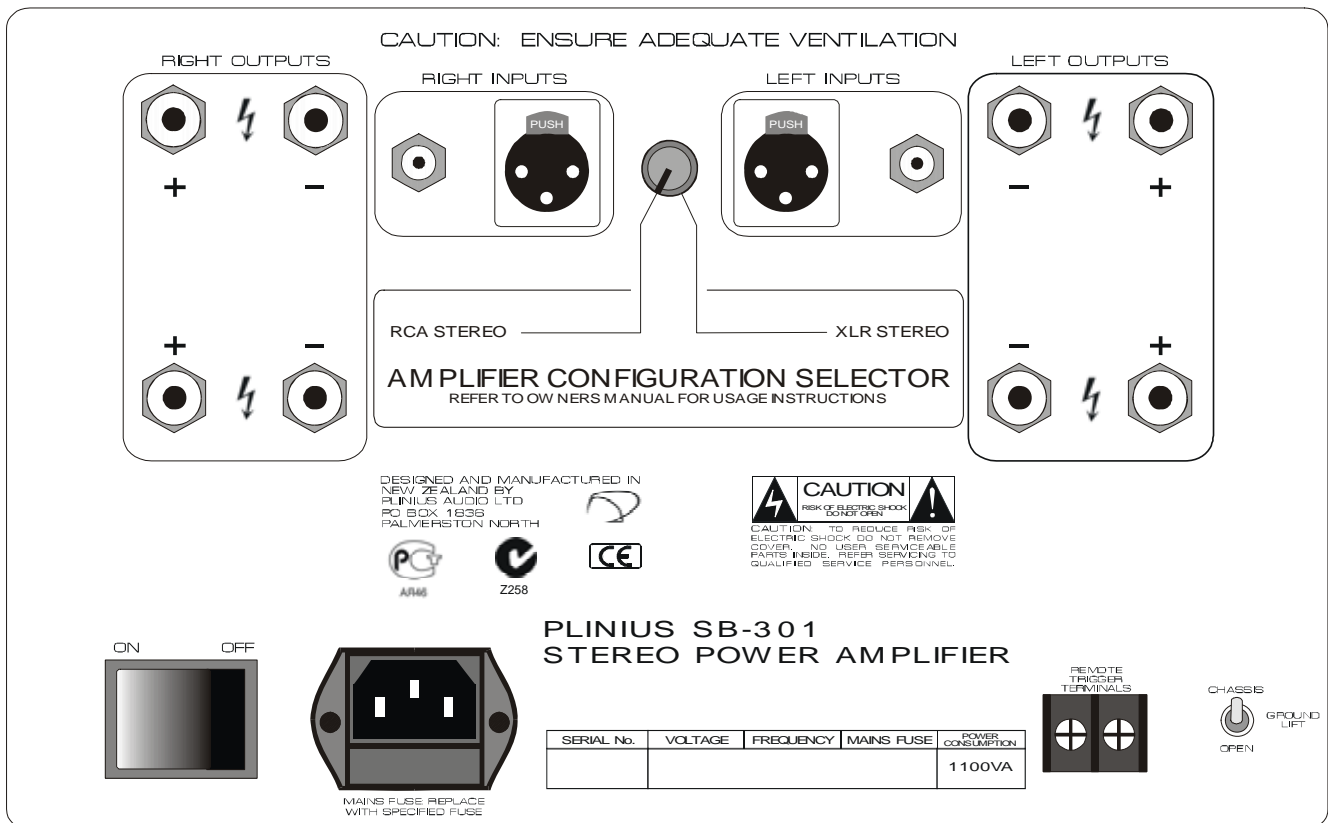
## ***ERROR LED***

This LED on the right of the panel will flash only when an error condition has been detected by the SB-301 microcontroller.

# AMPLIFIER FEATURES – REAR PANEL

This panel incorporates all the terminals for connecting the input signals from your processor, and output to the loudspeakers, and mains supply. A reasonable understanding of this amplifier and a logical approach should ensure that you are listening to this amplifier without any difficulties at all.

Please remember that your Plinius SB-301 Power Amplifier is a high quality electronic instrument capable of an exceptional level of performance. Be sure that you understand your system's requirements fully before you make any connection to this amplifier or adjust the ACS (Amplifier Configuration Selector).



*REAR PANEL OF THE PLINIUS SB-301 SHOWING ALL OF THE AVAILABLE FACILITIES INCLUDING INPUT AND OUTPUT TERMINALS, ACS (AMPLIFIER CONFIGURATION SELECTOR), MAINS INPUT, REMOTE TRIGGER AND GROUND LIFT.*

## ***INPUT TERMINALS***

Input terminals for your Plinius SB-301 Power Amplifier are easily accessible and fitted to the top centre area of the rear panel. A brief summary of connection possibilities is listed below, while a more detailed explanation follows later in this instruction manual.

**RCA INPUTS LEFT & RIGHT:** These standard RCA terminals are for use with unbalanced signals from most signal sources such as audio preamplifiers or home theatre processors.

**XLR BALANCED INPUTS LEFT & RIGHT:** XLR connectors fitted to this amplifier are for use with balanced line signals from audio preamplifiers or home theatre processors. Balanced signals are carried via a three way cable that connects all three pins at each end of the interconnect cable.

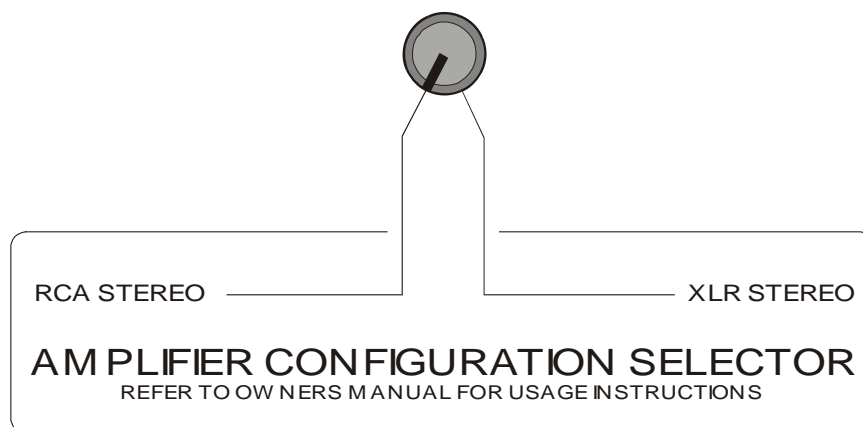
The XLR pin configuration used in all Plinius product is:

- PIN 1 to GND**
- PIN 2 to +Signal**
- PIN 3 to -Signal**

**NOTE:** Because of the way our XLR and balanced inputs are configured it is not possible to connect both XLR and RCA at the same time.

## ***AMPLIFIER CONFIGURATION SELECTOR (ACS)***

The Amplifier Configuration Selector (ACS) is a unique switching method that exploits all of the operational features of your Plinius SB-301 Power Amplifier. By using this switch it is possible to operate your amplifier with either balanced or unbalanced signals.



## ***AMPLIFIER CONFIGURATION SELECTOR***



The ACS switch options are:

**RCA STEREO:** This option provides a stereo output via both left and right output channels from a stereo signal connected to both left and right input RCA inputs.

**XLR STEREO:** This option provides a stereo output signal from a balanced stereo input signal connected to both the left and right XLR inputs. All the advantages of balanced line transmission will be realised with good rejection of noise and some freedom from earth or ground loops (hum).

### ***BALANCED/UNBALANCED SIGNALS***

Balanced or unbalanced input options will depend on the type of signal available from your processor or other equipment. The Plinius SB-301 provides both options to allow you to choose the most suitable processor for your purposes.

**BALANCED LINE** is normally used to transmit signals in a professional environment. Because balanced line effectively reduces or eliminates noise pick-up by the system cabling, it has become increasingly more important in high-quality domestic high fidelity systems.

**UNBALANCED** leads such as single ended, RCA or coaxial are common and are used in the majority of audio signal systems. The terminal plug and socket are most commonly called RCA and can be found on your Plinius SB-301 for use as the standard input terminals for both left and right inputs.

### ***OUTPUT TERMINALS***

Output connections for the loudspeakers are provided on the left and right hand side of the rear panel. Two parallel pairs of binding posts for each channel are fitted – these provide ease of use with bi-wiring and multiple cables requiring a large contact area.

### ***MAINS SWITCH***

This heavy-duty rocker switch on the rear panel turns the Mains/Line Power to the amplifier ON or OFF. An LED in the centre of the front panel indicates that the power is on. When first switched on the power LED will vary in brightness for ten seconds - this is an initialisation sequence, after which the power LED remains lit. The amplifier draws a moderately high current when switched on. Despite the "Soft Start Circuit" within the amplifier reducing current demand on the mains as the amplifier is switched on, it is not good practice to rapidly turn the Mains switch on and off repeatedly.

### ***GROUND LIFT SWITCH***

This switch is located adjacent to the Mains Input Socket, and allows the signal ground to be disconnected from the chassis. In some installations a hum loop may exist due to duplicate ground paths from different equipment. Use this switch to remove the connection from 0V to ground thus allowing some flexibility in your particular set-up.

### ***MAINS POWER CORD IEC CONNECTOR***

This connector is where the mains supply cable from your wall connects to the amplifier. You will notice that a fuse holder is mounted within this connection, and it holds a mains fuse to provide surge and overload protection for your amplifier.

### ***REMOTE TRIGGER TERMINALS***

In order to integrate more effectively into a home theatre system, the Plinius SA-301 has remote trigger terminals fitted to the rear panel. By connecting a processor with a remote trigger signal to these terminals, the SA-301 can be put in and out of Standby/mute by the processor to which it is connected. When in Standby/mute the amplifier draws less current and will operate at minimum temperature. The output relays are also open, disconnecting the loudspeakers. This may be of advantage in a multi-amplifier and/or remote installations. The Standby/mute mode can only be activated via the remote trigger terminals. Polarity of the connections to the remote trigger is not important.

# INSTALLATION AND OPERATION

## *PLACEMENT AND VENTILATION*

Your Plinius SB-301 is designed to operate at a moderately high temperature, even more so when used in Class A. The ideal location is on a rigid stand or floor mounted away from direct contact with any temperature sensitive materials or deep pile carpets. The flow of air around the amplifier should also be kept unimpeded, so ensure that the heat sinks (cooling fins) are not covered or restricted in any way to ensure adequate ventilation.

The Plinius SB-301 design incorporates a very high level of mechanical decoupling of the input and output. It can however still be influenced by acoustical feedback in the operating environment. The use of acoustic cones or a suitably spiked amplifier stand or table may further enhance the performance of this amplifier. Consult your PLINIUS dealer for further advice if required.

## *MAINS VOLTAGE CONNECTION*

Firstly check that the mains supply voltage printed on the rear of this amplifier is similar to the mains supply voltage in your area. If in doubt, please consult your PLINIUS dealer.

Mains supply power connection is via the supplied plug-in lead. A standard IEC socket connects the mains power at the amplifier end while a local mains plug is required at the wall end.

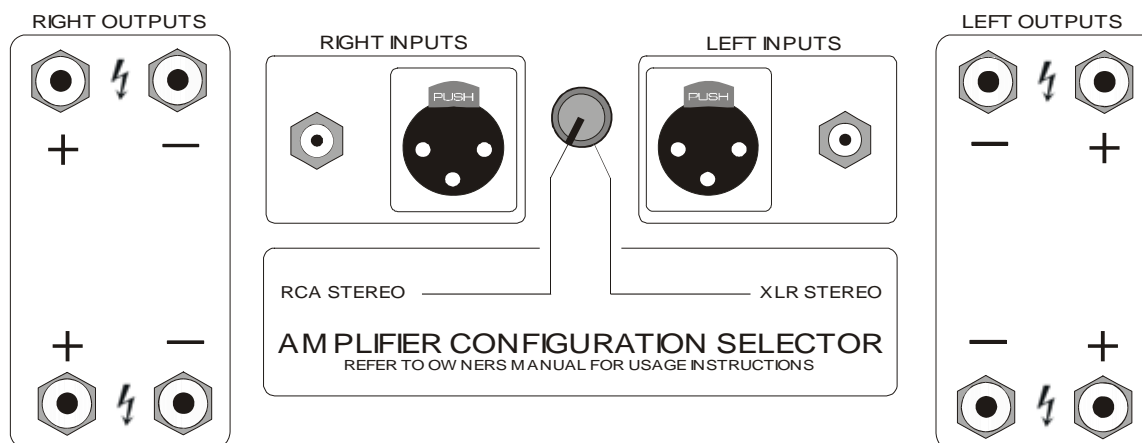
The wiring code used inside all Plinius product is:

**Green to Earth/Ground**  
**Blue to Neutral**  
**Brown to Phase/Live**

Should a 'local' plug need fitting to the wall end of the lead, ensure that a suitably qualified or experienced service technician wires the plug correctly.

**IMPORTANT: DO NOT POWER UP YOUR AMPLIFIER UNTIL YOU HAVE CONNECTED YOUR INPUT/OUTPUTS CORRECTLY FOR YOUR SYSTEM, (AS EXPLAINED IN THE NEXT SECTION).**

# INPUT/OUTPUT CONNECTION



## *REAR PANEL SHOWING LOCATION OF INPUT/OUTPUT TERMINALS*

It is important that you connect your loudspeakers (outputs) and preamplifier or processor (inputs) to the Plinius SB-301 Power Amplifier correctly to ensure the amplifier is not damaged, and sounds it's best with your system. Now that you have read and familiarised yourself with the connections on the back of the amplifier as covered in the previous section, we will describe in detail the different ways in which you can connect the amplifier to your system.

There are essentially two different ways that you can connect your system components to the Plinius SB-301 Power Amplifier:

1. RCA STEREO
2. XLR STEREO

### **RCA STEREO**

Connect your processor or input signal to the two RCA inputs at the top of the amplifier back panel. Make sure you connect the red coded cable to the red RIGHT RCA input and the black (or white) cable to the black LEFT RCA input. Also make sure the RCA connectors are a snug fit and are inserted all the way in.

Next connect your loudspeaker wires to the output posts on either side of the rear panel. Connect your right loudspeaker (ie the one on the right of you when seated in your normal listening position) to the right output terminals, ensuring that the red positive (+) terminal is connected to the red terminal on your loudspeaker. Do the same with the black or negative (-) terminals.

Now turn the ACS switch clockwise so that it is in the RCA Stereo position. It is now safe to switch on your amplifier.

## ***XLR STEREO***

Connect your processor or input signal to the two XLR inputs at the top of the amplifier back panel. Make sure you connect the RIGHT XLR input and LEFT XLR inputs to the right and left outputs from your processor respectively. Also make sure the XLR connectors click into place.

Next connect your loudspeaker wires to the output posts on either side of the rear panel. Connect your right loudspeaker (ie the one on the right of you when seated in your normal listening position) to the right output terminals, ensuring that the red positive (+) terminal is connected to the red terminal on your loudspeaker. Do the same with the black or negative (-) terminals.

Now turn the ACS switch anti-clockwise so that it is in the XLR Stereo position. It is now safe to switch on your amplifier.

## ***TERMINATION QUALITY***

Quality of the connections must be examined to ensure that high performance trouble free operation is enjoyed. Check that the connections are tight but do not over tighten. If bare wires are used make sure that no loose strands of wire short across the other terminals or the amplifier chassis. When using plugs such as bananas, be sure to use good quality plugs with a firm fit.

## ***BI-WIRING***

Bi-wiring uses two pairs of loudspeaker cables for each channel loudspeaker. You will notice that the rear panel of your Plinius SB-301 has two pairs of output terminals for this purpose. When using bi-wires, connect each wire pair to a corresponding pair of binding posts (one cable to the top pair, one cable to the bottom) paying special attention to positive (+) red and negative (-) black polarity.

## ***PHASING (OR POLARITY)***

It is important to achieve good stereo imaging in your listening room. By observing the wiring instructions above, each Power Amplifier/loudspeaker combination should be in phase. If you experience poor stereo image and/or a lack of bass, check that the loudspeaker wiring has been connected correctly. We recommend that you use one of the easily obtainable 'test discs' to help you ensure both phasing and channel orientation are correct. If in doubt, consult your PLINIUS dealer for advice.

To achieve a sound performance that is correctly aligned to your room, make sure all of the leads carrying signals for the RIGHT channel loudspeaker are connected to the RIGHT input to the amplifier from your processor or CD player etc. Signals for the LEFT channel should be wired in a similar fashion.

### ***CONNECTING THE MAINS SUPPLY***

Now that your Plinius SB-301 Power Amplifier is configured to your system correctly, the mains cable can be plugged into the IEC connector on the back of the amplifier. Once the power is connected, flick the main power switch on the front panel to the right. The power LED will pulse until the circuitry within the amplifier has stabilised. Once the amplifier has stabilised the power LED will stay lit, and the amplifier will be out of standby, ready for you to enjoy your new Plinius SB-301 Power Amplifier.

### ***WARM-UP PERIOD***

You will find that the Plinius SB-301 will sound its best after being on for a period of time. We usually recommend waiting at least 24 hours before expecting the best quality of sound reproduction from your amplifier. Also, as the Plinius SB-301 uses very little power while on, we suggest leaving the unit turned on so that it will always be at its sonic best.

# SB-301 FEATURES

## *ERROR DETECTION*

The Plinius SB-301 Power Amplifier has in-built error detection. This will function under the following conditions:

- When the amplifier is overdriven/clipped
- If any internal fuse is damaged

Should either of these circumstances arise the amplifier will disconnect both channels and mute the input. This condition will remain until the input signal level is reduced or the damaged fuse replaced. When error detection is triggered the error LED will flash, and the power LED will go out.

## *FUSE PROTECTION*

When any internal fuse is damaged one or more fuse warning LEDs will light. These LEDs are under the amplifier lid located near the centre of the main circuit board with the rail fuse holders. If any of the internal fuse LEDs are glowing, the lid of the amplifier will need to be removed and the fuse adjacent to the lit LED should be replaced. Replace them with the same type (15 amp normal blow).

***IMPORTANT: DO NOT FIT A FUSE WITH A HIGHER RATING.***

Please note that fuse failure may indicate a severe problem. Check all speakers and speaker cables for damage/short circuit etc. Should the amplifier continue to exhibit rail fuse failure contact your PLINIUS dealer.

## *LED BRIGHTNESS CONTROL*

Your Plinius SB-301 has an internal LED brightness control that will adjust all three front panel LEDs. A small flat bladed screwdriver can be used to adjust the brightness. The LED brightness control is a small multi turn potentiometer and is located on the front of the main circuit board within the top cavity of the amplifier, and is labelled VR7. Make sure you adjust the correct potentiometer, and remember to remove the mains supply from the amplifier before making any adjustments.

### ***MAINS/LINE FUSE***

A Mains/Line fuse is fitted within the IEC Mains/Line socket on the rear of the amplifier. A small drawer at the bottom of this socket may be removed (after the IEC plug is removed) by levering it out with a flat blade screwdriver. The fuse fitted should be rated as specified on the rear panel.

In the unusual event that this fuse should blow, you must first establish the cause of this failure (such as power surges, damaged mains cable etc.) before replacing the fuse with one of the same rating and type.

***IMPORTANT:      DO NOT FIT A FUSE WITH A HIGHER RATING.***



## *LOUDSPEAKER SELECTION*

Your Plinius SB-301 Power Amplifier is designed for use with high fidelity loudspeakers. It should not be used to operate any other type of appliance or equipment.

Choice of loudspeakers is one of personal taste, providing the chosen loudspeakers are suitable for use with your amplifier. Be certain that your loudspeakers can handle most of the rated output power of this amplifier. You may find loudspeaker specifications confusing or misleading so you should discuss this with your audio dealer prior to purchase. As a general rule, the use of high power (200 watt RMS or greater) loudspeakers is recommended and desirable. However, our experience indicates that medium to low power loudspeakers (100 to 200 watt RMS) are quite often suitable for use on this amplifier provided the volume is maintained at a level where no distortion is audible.

Impedance of the loudspeaker load is important to ensure the rated performance of this amplifier. Any combination of loudspeakers may be used but the total average impedance load for each channel should be within a range of 4 to 8 ohms. Again, if you have doubts about the impedance of your loudspeaker configuration, we recommend you speak to your PLINIUS dealer.

# *SPECIFICATIONS*

**310-WATTS CONTINUOUS PER CHANNEL INTO 8 OHMS.  
BOTH CHANNELS DRIVEN FROM 20Hz TO 20kHz.**

- FREQUENCY RESPONSE: 20Hz to 20kHz  $\pm 0.2$ dB. -3dB at 1Hz and -3dB at 70kHz.
- DISTORTION: Typically <0.05% THD at rated power. 0.1% THD and IM worst case prior to clipping.
- CURRENT OUTPUT: 50A short duration peak per channel. Fuse protected.
- RISE TIME: Typically 5 $\mu$ s.
- PHASE RESPONSE: +0° at 20Hz and -14° at 20kHz.
- HUM & NOISE: 100dB below rated output 20Hz to 20kHz A-weighted.
- INPUT IMPEDANCE: 47k $\Omega$ .
- GAIN ON RCA INPUTS: 32dB
- GAIN ON BALANCED INPUTS: 38dB
- HEIGHT: 220mm (8 3/4")
- WIDTH: 500mm (19 3/4")
- DEPTH: 455mm (18")
- WEIGHT: 38kg (83lbs)

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# CONTACT DETAILS

All operational, technical and descriptive material published here is subject to change at any time without notice. For further product information or queries, please contact us at the address below.

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