



## INTEGRIS ACTIVE 300B – Owner's Reference Guide

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## Important Safety Instructions



The lightning flash with an arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated '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.



**Warning: To reduce the risk of electric shock or fire, do not expose this apparatus to rain or moisture.**

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 Aurum Acoustics' 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 Aurum Acoustics.

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 when the 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.

15. The mains power switch is located on the rear panel of the apparatus (right hand side when viewed from the front). This switch must be accessible and operable at all times. Always position the apparatus so that the switch is readily accessible.

16. Only connect this apparatus to power sources of the types marked on the rear panel of the apparatus. Replace fuse with same type and value only.

## Introduction

Thank you for your purchase of the **Integrus Active 300B** active loudspeaker system. This Owner's Reference Guide contains information that will permit you to obtain maximum performance and utility from the system.

**The amplifier and loudspeakers of the Integrus Active 300B system are designed to work together. Neither component will work properly with other products. Do not connect other loudspeakers to this amplifier or other amplifiers to these loudspeakers.**

## Unpacking and Setup

The Integrus Active 300B was packaged with great care at the factory. To minimize the risk of injury or damage to the equipment we recommend that you read and follow the unpacking and setup instructions closely.

The Integrus Active 300B system is packed in three crates. If you ordered the Integrus System Rack, there will be a fourth crate and you should unpack and assemble the rack first.

**While an experienced assembler can manage virtually everything independently, many of the assembly and set-up tasks are most safely carried out by two people.**

### Crates and their Contents

- 1 Left Loudspeaker (and optional grille)
- 1 Right Loudspeaker (and optional grille)
- 1 Amplifier including a Cable Box kit and a Tube Box kit (and any optional system accessories)

### Cable Box Kit

In the amplifier crate

- 2x 2.4m/8ft mid/high cables with 4-pin XLR-style connectors
- 2x 2.0m/6.5ft low frequency cables with spade connectors
- 1x 0.6m/2ft 5VDC power trigger cable
- 8x Conical brass spikes c/w floor-protector discs
- 2x 0.75m/2.5ft Cardas Golden Reference Interconnect (optional)
- 1x Aurum Acoustics Power Cord (optional)
- 10x Grille mounting bolts, 2.5mm and 3mm hex keys (optional)

### Tube Box Kit

In the amplifier crate

- 6x matched 6SN7 vacuum tubes (5 required, 1 spare)
- 4x matched 300B vacuum tube set (all required)

### Speaker Base Kit (Optional)

All small parts are packed inside the **Cable Box**; the large rear plates are situated under the Cable Box in the amplifier crate.

- 2x Rear Plate
- 2x Front Plate
- 14x M6x25mm socket head bolts
- 14x M6 lock washers
- 14x M6 flat washers
- 1x 5mm hex key

### Other Optional Items

In the amplifier crate

- 2x 3-pce sets of Golden Sound ceramic cones

## Amplifier Crate Unpacking

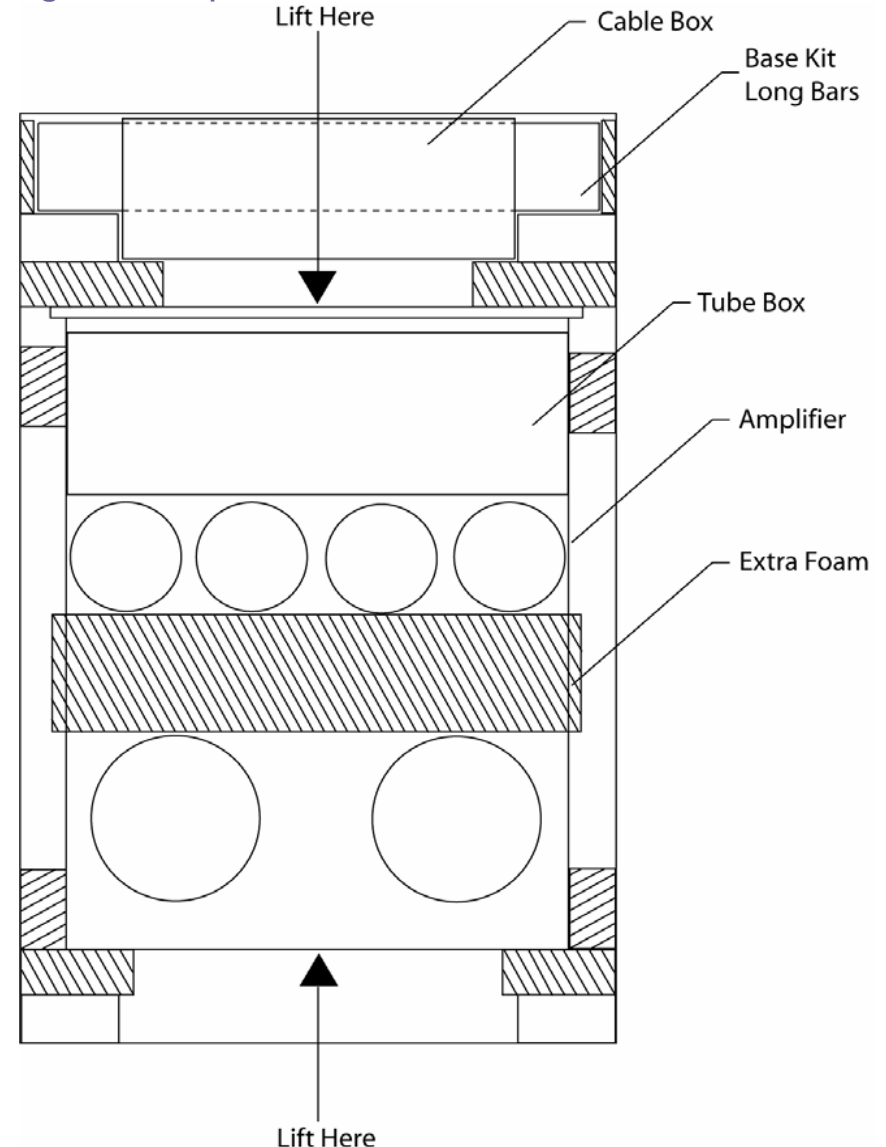
1. Remove the 12 screws from the top of the crate with a #2 Phillips screwdriver. Lift off the cover and place to one side.
2. Remove the **Tube Box** on top of the front of the amplifier and place aside; remove the **Cable Box** in front of the amplifier and place aside; remove any other supplied accessories and set aside. When unpacking these items, be careful not to destroy or lose any materials to ensure proper repacking if ever needed again.

If the **Aurum Acoustics System Isolation Rack** was supplied as part of a complete system, unpack and assemble it first! Follow the instructions included with the rack for amplifier placement. If a different rack is to be used, follow steps 3-6:

**CAUTION: The amplifier weighs 70lbs (32kg) with the weight concentrated near the rear of the chassis. Please exercise caution when lifting to avoid injury or damage.**

3. There is a rectangular piece of foam placed between the large and small transformers on top of the amplifier in the shipping crate. Place it on the floor a foot or more in front of the rack, with the long dimension parallel to the front.
4. Remove the amplifier from the shipping crate. The most convenient way to do this is with one hand under the center-back and one under the center-front. Place the amplifier on top of the foam piece from step 3 so it lies about one-third distance from the back of the amp – the amplifier will balance on the foam in this position. The foam will keep the amplifier far enough off the floor so that you do not pinch your fingers when unpacking and installing it.

Figure A: Amplifier Crate Detail



5. Remove the poly bag, starting by lifting the back end of the amp and pushing the bag as far forward as possible. Then put down the back end and lift the front to remove the bag entirely.

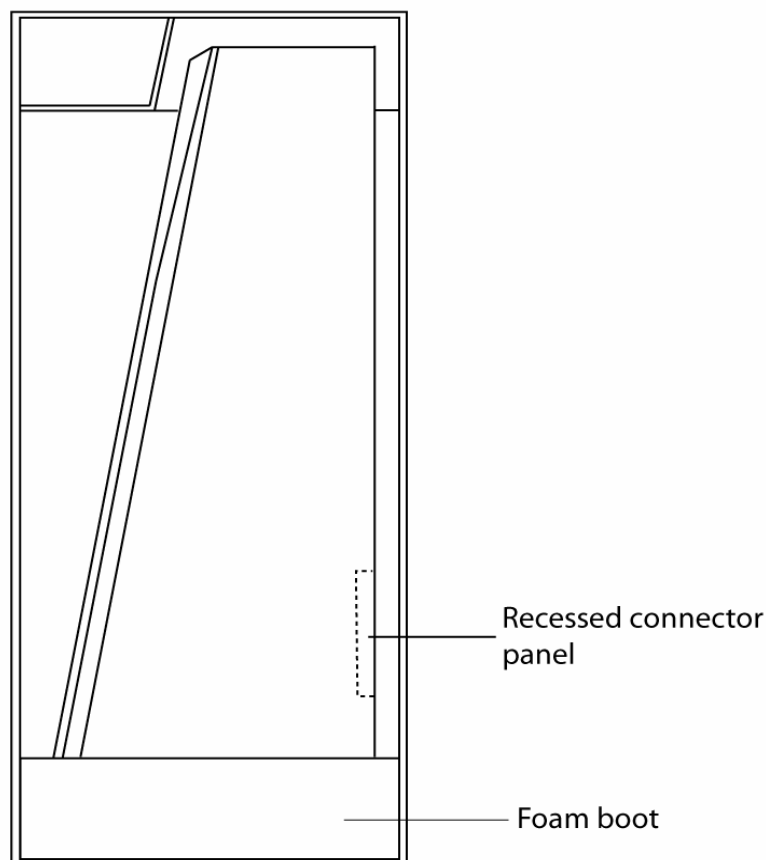
6. For one person to move the amplifier, face the amplifier's front panel and pick it up from the two sides, holding it just ahead of the two large power transformers near the back of the chassis (this is the amplifier's center of gravity).
7. When complete, place all materials back in the crate and reattach the cover with all screws.

**If you are installing the Integris Active 300B amplifier in a rack other than the Aurum Acoustics System Isolation rack, please ensure that the amplifier is adequately ventilated. We recommend using an open-sided rack.**

## Unpacking Loudspeakers

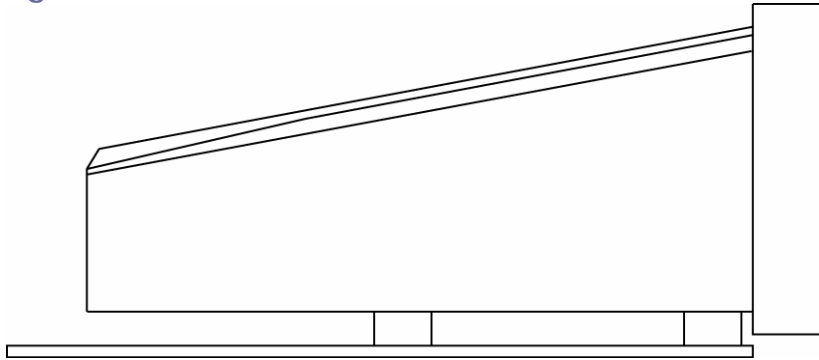
1. Place the loudspeaker crate in an upright position. Look for the cabinet orientation labels on the crate.
2. Locate the removable cover panel, as confirmed by the labels on the crate and remove the wood screws from this panel only, with a #2 Philips screwdriver.
3. The loudspeaker will be standing upright in the crate with the drivers facing one side as shown in **Figure B**. A protective foam 'boot' will slide out of the crate with the loudspeaker standing in it. Grasp the back of the cabinet at the recessed connector panel shown and by the front corner of the foam boot. Gently pull to avoid tearing the foam until completely out of the crate.

**Figure B: Loudspeaker Crate – Cover Removed**



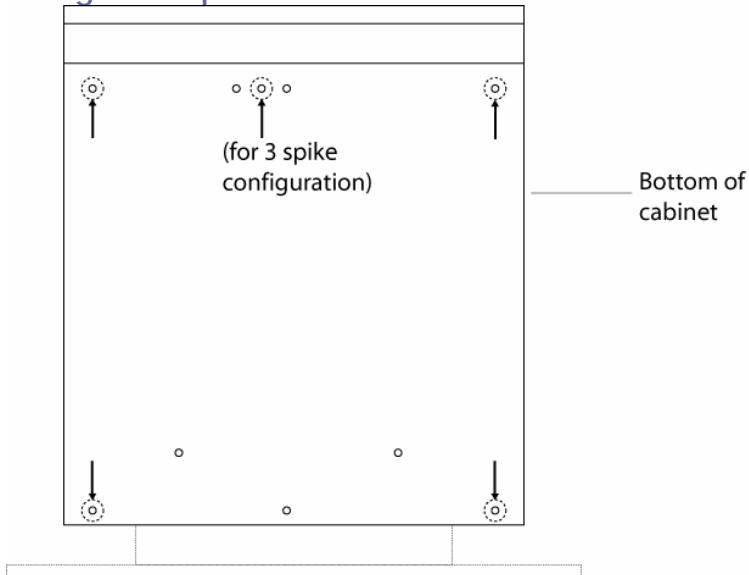
4. For installation of the aluminum supports and/or spike hardware, lay the crate cover on the floor with the foam blocks facing up. Turn the back of the cabinet towards the TOP end of the cover and carefully tilt the cabinet back down so that it rests on the foam blocks as shown in **Figure C**.
5. Remove the foam boot from the bottom of the cabinet and remove the tape on the polypropylene bag to fully expose the bottom of the cabinet.

**Figure C: Cabinet Position for Hardware Installation**



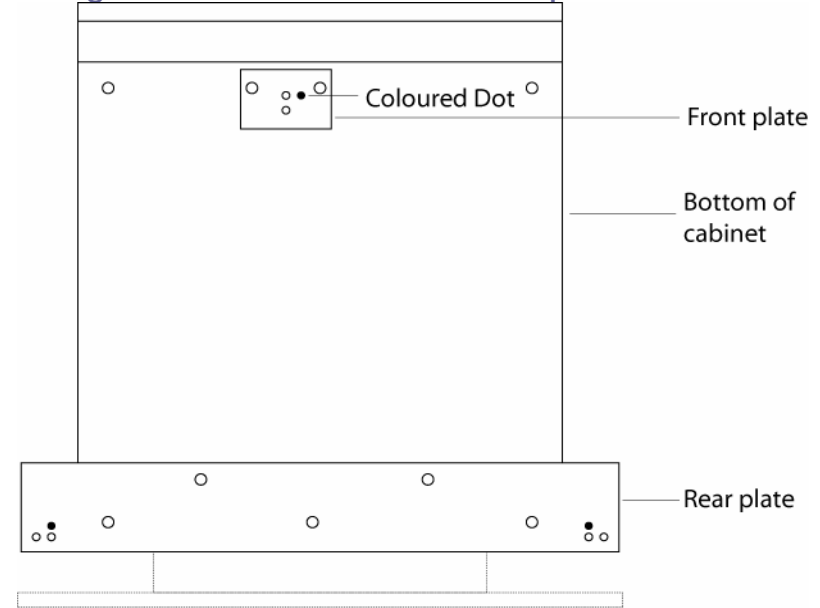
6. If you are not using the optional speaker base kit, you can screw three or four spikes directly into the 6mm-threaded inserts as shown in **Figure D**. The four corner locations offer superior stability to the three-point set up. The optional base kit provides three-point mounting with excellent stability.

**Figure D: Spike/Footer Locations without Base Kit**

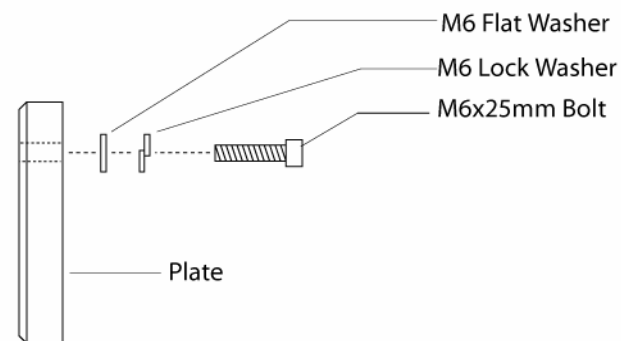


7. If you have the speaker base kit, shipped in the amplifier crate, install the front and rear plates as shown in **Figure E** using the supplied M6x25mm bolts, lock washers, flat washers, and 5mm hex key. Be sure to install the plates with the beveled edges facing the cabinet and the threaded holes facing the floor.

**Figure E: Base Kit Installation and Spike/Footer Locations**



**Fastener Details**



8. Install the conical spikes in the front and rear plates. The provided spikes have 6mm threads. The 6mm holes are marked on the plates by adjacent coloured dots. An additional set of threaded holes accommodate ¼-20 threaded hardware to allow alternate footers to be fitted.
9. If near the ultimate destination for set-up, raise the cabinet to vertical by lifting the top end and carefully guiding it off the end of the crate-back and onto the floor. If the preliminary set-up is happening elsewhere, two people may carry the loudspeaker horizontally to the destination area and set it upright there. **Be careful around the spikes!**
10. Remove the poly bag. Place the bag and the foam boot back in the crate for possible future use and reattach the cover panel with all screws.
11. The cabinets may be moved into their intended set-up position either by two people carrying them or one person may “walk” the cabinet by tipping it from spike to spike and turning it as necessary to progress towards the intended position.
12. Placement on floors requiring the floor protector discs may require different handling procedures to avoid damage. Users and installers may prefer to choose an alternate footer such as the flat-bottomed Soundcare Superspikes.

## Grille Installation

The optional grilles are not recommended to be used for optimal sonic performance. The product will sound its best without the grille’s frame and fabric interfering with the output of the loudspeaker’s drivers.

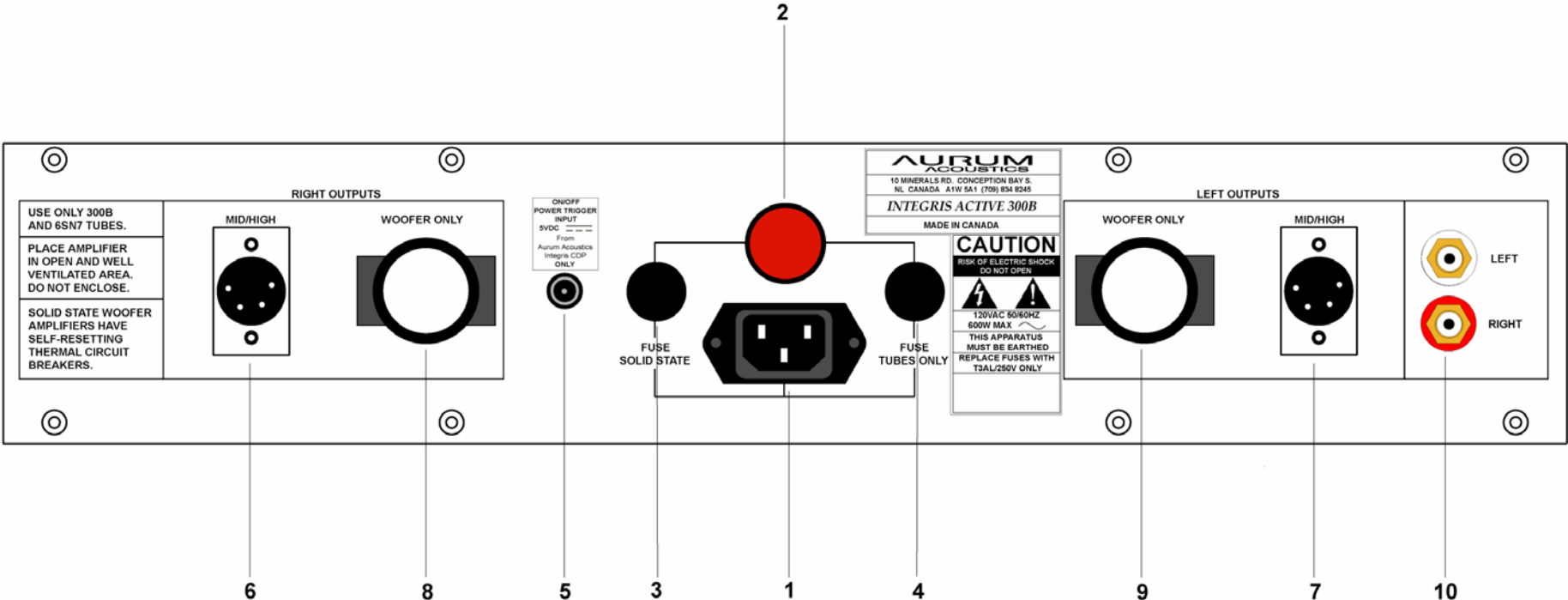
**Be careful handling the grille; the thin edges near the sides of the woofer and midrange holes are very fragile!**

1. Obtain the packet of 10 special grille mounting bolts with long round heads that is enclosed within the **Cable Box** in the Amplifier Crate. 5 driver bolts per cabinet must be removed and substituted with these special bolts.
2. Observe the socket locations on the inner side of the grille and exchange the cabinet bolts to match. A 3mm hex key is enclosed in the grille bolt packet for removal of the standard bolts; a 2.5mm hex key is supplied for installing the special grille bolts. Tighten the replacement bolts firmly. Save the removed bolts for possible future use.
3. Place the grille onto the bolt heads by gently lining it up and pressing it into place. It should attach easily.

## Repacking

Do not discard any packing materials! You will need them to transport the system, should that be necessary. Shipping without all proper packaging materials may result in damage to the equipment. To repackage the system, follow the unpacking instructions in reverse.

# Rear Panel Features and Definitions





## Rear Panel Features and Definitions

### 1-5. AC Power Group

The mains voltage is set for your region at the factory. The mains voltage can be changed with the service of your retailer or Aurum Acoustics.

#### 1. Mains Power Inlet

A power cord with an IEC 10-15Amp female plug is required to connect AC power to the Integris Active 300B. We recommend quality certified aftermarket power cords and direct connection to a quality AC outlet for best performance. We generally do not recommend the use of additional power conditioning.

#### 2. Power Switch

This is the main power switch for the Integris 300B amplifier. It illuminates when switched on. It remains illuminated when the amplifier is switched off with the standby trigger from the Integris CDP – see #5 below.

#### 3. Solid-State Fuse

This fuse protects the solid-state circuitry in the Integris Active 300B amplifier. The fuse is a 0.25 x 1.25" slow-blow type rated at 3A/250V.

#### 4. Tube Fuse

This fuse protects the tube circuitry in the Integris Active 300B amplifier. The fuse is a 0.25 x 1.25" slow-blow type rated at 3A/250V.

Replace fuses with T3AL/250V only. If fuses should repetitively fail, consult your retailer or Aurum Acoustics for service or advice.

### 5. On/Off Power Trigger Input

This feature allows the amp to be turned on and off via the **Standby** switch on the **Integris CDP** or its remote control. A 0.6m length DC connecting cable is supplied to connect the two components. When the Trigger option is used, the mains power switch can be left in the on position where it will remain illuminated whether the amplifier is in Operate or Standby mode.

The Trigger will only operate properly with the Integris CDP. Do not connect any other device to it – other products are unlikely to use the same voltage and control logic.

### 6-10. Amplifier Input/Output Group

#### 6-7. Left and Right Mid/High Outputs

These are the tube amplifier outputs for the midrange and tweeter to each speaker cabinet. These are 4-pin XLR-style connectors chosen for their ease of use and superior performance to conventional binding posts in this application. A matching connector is on each loudspeaker.

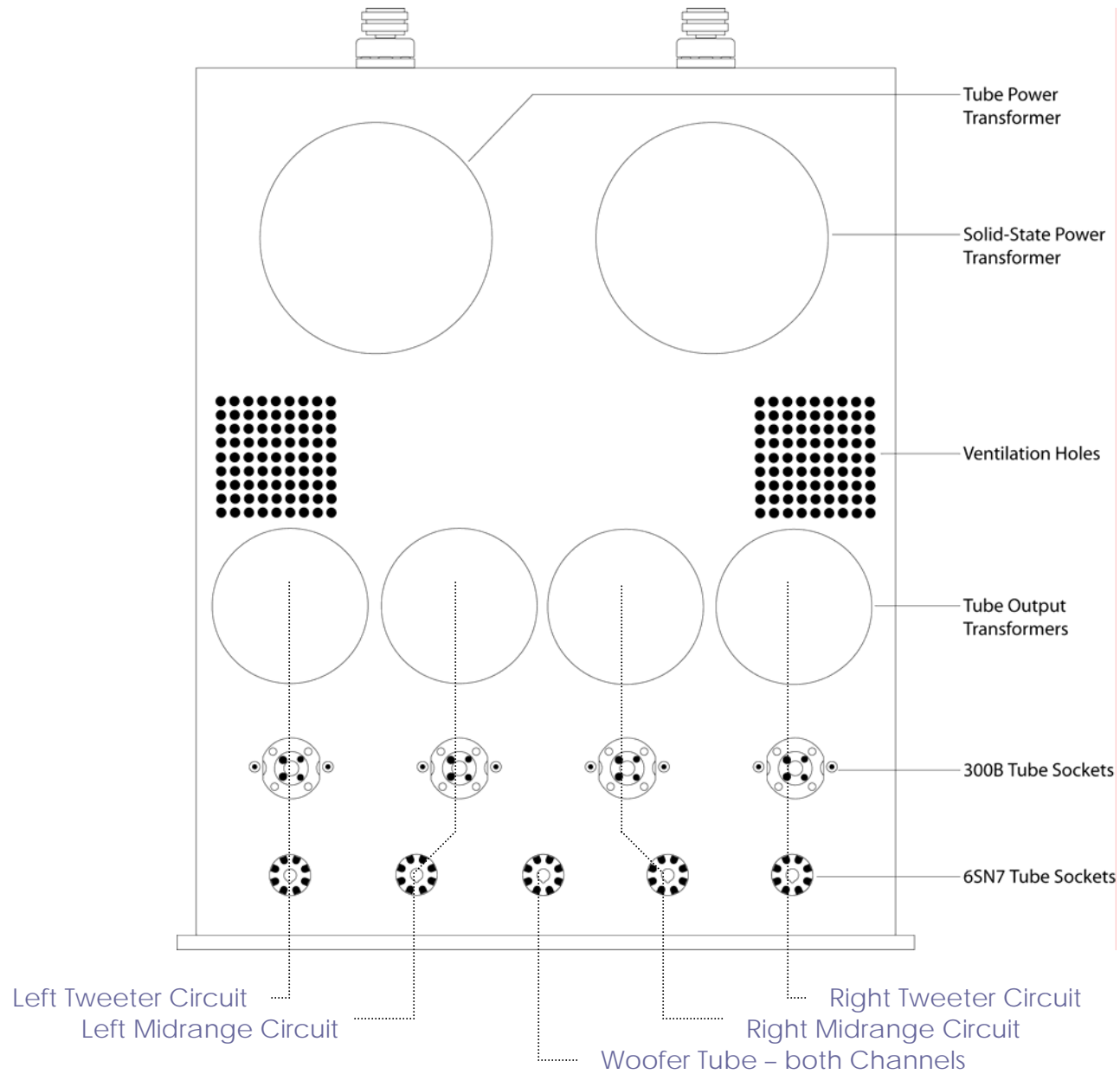
#### 8-9. Left and Right Woofer Outputs

These are the solid-state amplifier output connectors to the woofer in the right speaker cabinet. It accepts only conventional spades of ¼" width. These binding posts have been chosen for their ease of use, and superior performance in this application.

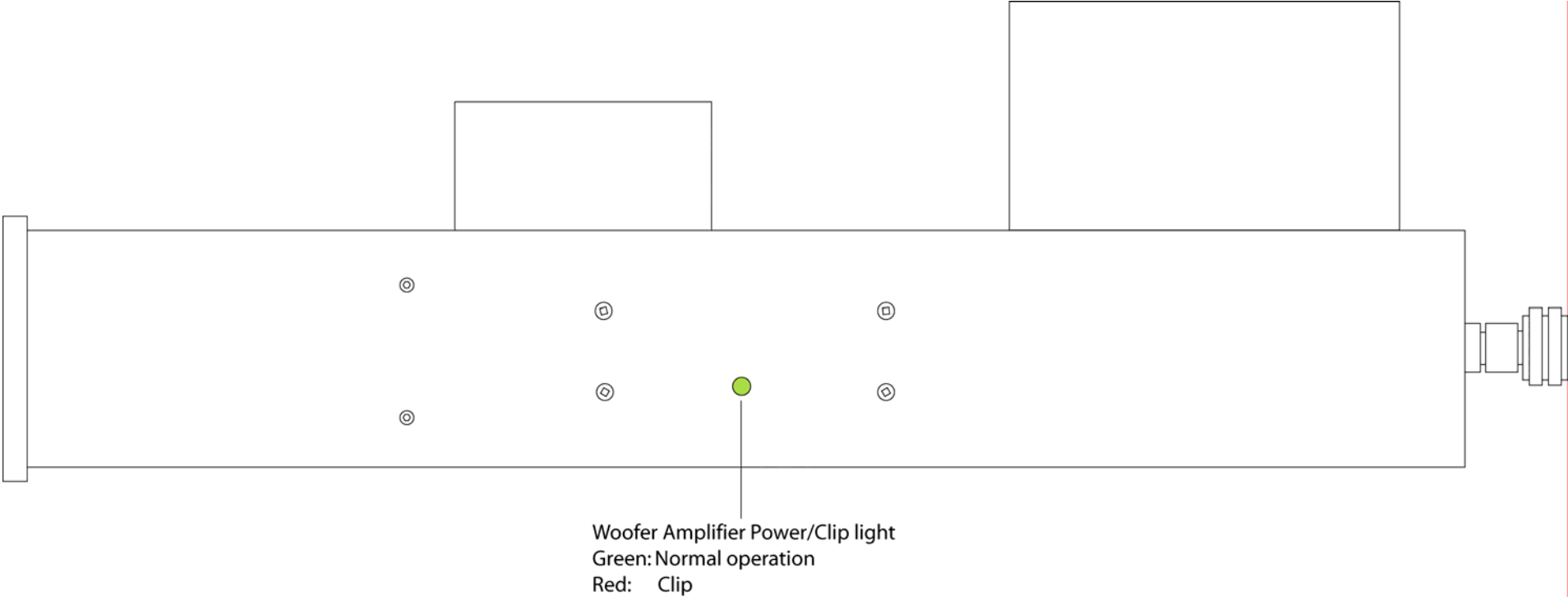
#### 10. Left and Right Signal Inputs

The inputs accept only single-ended cables with male RCA connectors. A signal input from the Integris CDP or any quality preamplifier is compatible.

# Top Panel Features



# Side Panel Features



## System Connection

The supplied Aurum Acoustics loudspeaker cables were carefully designed and proven in exhaustive listening analyses to yield maximum performance from the Integris Active 300B. Identical cabling product is also used internally in the amplifier and in the loudspeakers. Substitution of other aftermarket cabling is highly unlikely to yield any improvement and would likely decrease overall sonic quality.

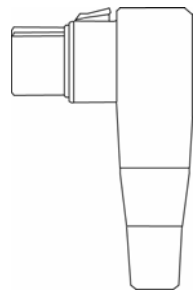
The loudspeaker cables are produced using cable materials from leading audio cable company **Cardas Audio**. Aurum Acoustics and its retailers can optionally supply customized and matching power cables and interconnects for optimal performance.

### Mid/High Loudspeaker Cable Connection

The Mid/High cables are terminated with 4-pin XLR style locking connectors. Each cable contains a pair of discrete two-conductor inner cables – one each for tweeter and midrange connection. This cable is optimized for use with the low-power single-ended tube amplifiers. After connection, this cable may be massaged to reposition the conductors inside the jacketing to have it lie flatter on a floor if preferred.



Amplifier End



Loudspeaker End

The 90-degree connectors are intended to attach to the loudspeakers; the straight connectors to the amplifier.

Line the connectors up so the pins will engage and push it in. The connector should engage easily and make an audible click when fully inserted and locked. To disconnect, push the button on the top of the barrel to release the locking mechanism and then pull the connector straight out.

### Woofers Cable Connection

Turn the knob on the binding post to open it until there is enough space to get the spades onto the posts. The red spade should be on the right post of each pairing. Hold the cable in place and tighten the knob by hand only.

The woofer cable is a high-current design optimized for use with solid-state amplifiers. While there is no set directionality to the cables, we have placed an Aurum Acoustics logo on one end of the cable only. We suggest connecting this end to the loudspeaker as a consistent reference.

### Source Component Interconnects

After the loudspeaker connections are completed, connect your source component/preamp outputs to the signal inputs on the amplifier with single-ended RCA terminated cables.

### Power Trigger Cable

If you have an **Integris CDP** as your source component, you may also connect the 5V Power Trigger output on the CDP to the 5V Power Trigger input on the amplifier with the supplied cable.

## Tube Installation

All of the tubes in the Integris Active 300B amplifier run at conservative levels, with plate dissipation well below maximum. This ensures that the tubes will have long service lives. How long the tubes may last is dependent on how much the amplifier is used. Under regular usage the tubes are expected to last many years.

The tubes are carefully tested and gain-matched at the factory to a maximum 0.1dB tolerance. They do not need to be installed in any particular order. If you require replacement tubes please contact your retailer or Aurum Acoustics for a properly tested and matched tube-set.

The tubes supplied are of a brand and type that has been carefully selected for optimum sonic performance. Tube substitutions are highly unlikely to yield superior performance and may result in inconsistent gain characteristics and altered tonal balance.

All of the tubes in the Integris Active 300B amplifier are cathode biased and operate completely in Class A. There is no user bias adjustment available or necessary.

Allow the tubes five minutes to cool before removing them from the amp: tube elements are most fragile when hot.

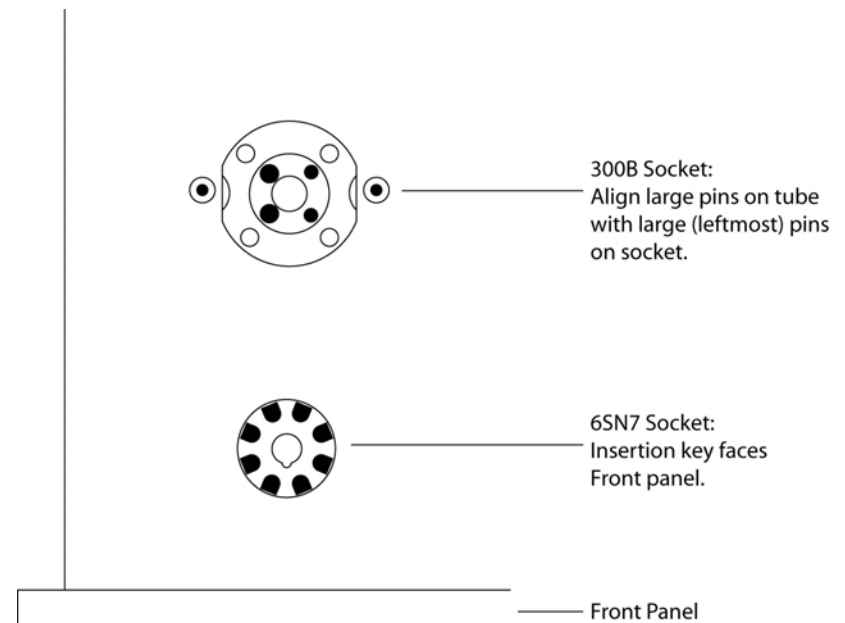
### 6SN7 Installation

The 6SN7 tubes fit into the five octal sockets at the front of the amplifier chassis. They have keyed bases that will fit into the sockets only one way: when the tube is properly aligned, it will drop part way into the socket. Gripping the base, not the glass, apply a moderately firm push downward until the base fully contacts the top panel of the amplifier.

### 300B Installation

The 300B tubes fit into the four large 4-pin sockets behind the row of 6SN7 sockets. The bases of the tubes are not keyed, so caution should be exercised when installing them. Both tubes and sockets have a pair of larger pins/holes and a pair of smaller ones to aid in proper installation. However, it is possible to install them incorrectly despite this feature if excessively forced. Look carefully at each tube and socket before attempting installation.

Handle these tubes only by their bases – do not push, pull or twist the glass envelope. When viewed from the front, the larger pins must fit into the left side of each socket – see the Tube Socket Detail below:



## System Operation

**Caution:** The loudspeakers supplied with the Integris Active 300B system are designed to work with the Integris Active 300B amplifier **only**. There are no internal crossovers or electronics of any kind inside the loudspeakers. They will not work correctly with any other amplifier and there is a risk of damage to the drivers if another amplifier is used.

### No-Load Operation

Do not operate this amplifier without speaker loads connected. Operation without connected loads stress the tube section output transformers and power tubes.

### Powering the System On/Off

#### 1. Soft-Start Circuit

When the amplifier is first energized a soft-start circuit is engaged. The circuit damps the high inrush current drawn by the two large toroidal power transformers and their related supplies at startup. This avoids tripping a circuit breaker or blowing a fuse in your electrical panel. The circuit also lessens the stress on the power supplies and audio circuits from a cold startup. The soft-start circuit is completely bypassed after 5 seconds. There is a small audible click from the bypass relay inside the amplifier chassis when the circuit disengages.

#### 2. Woofer Delay Circuit

From dead cold the 6SN7 tube circuits need about 10 seconds for their filaments to heat up and for the circuits to begin passing signal. To avoid large transient voltage surges that naturally occur during tube warmup, the solid-state woofer circuits are disconnected from the tube circuits until

20 seconds after switching on. The woofer signal relay will make a small audible click and a very small transient will be heard from the woofers as the circuits are engaged.

The amplifier is fully operational and on-spec immediately following this brief warm-up period.

### 3. Power-Off Characteristics

Upon switching off the power a slight transient will be heard from the woofers as the signal relay promptly disengages the inputs to the solid-state amplifier modules. This avoids much larger modulations.

### Thermal Behavior

The tube circuits in the amplifier operate in class A and generate a continuous amount of heat. In addition, two solid-state amplifier modules within the chassis also generate a moderate amount of heat. Therefore the chassis of the amplifier will be warm to the touch under normal operation.

Typically, most of the chassis will reach +20° C greater than ambient temperature while the tube section power transformer will reach about +25° C. Due to its mass, it takes several hours for the amplifier to reach these temperatures. These are moderate temperature rises compared to many amplifiers. Temperature rise does not vary significantly with power demand.

The solid-state woofer amplifier modules have self-resetting thermal-activated circuit breakers that will trip when their internal heatsinks reach 75° C. Under anything near normal ambient temperature conditions it should be almost impossible to trip these breakers. If they do trip, this is an indication of blocked or inadequate ventilation or a possible problem with the amplifier.

## Loudspeaker/Room Setup Guidelines

Optimizing the positioning of loudspeakers for sonic performance is highly unpredictable and largely achieved through trial and error and subjective preference. There are an infinite variety of room conditions and secondary constraints on loudspeaker and listener locations – we cannot accurately suggest any exact placements but we can provide a little background and some suggestions.

The acoustic radiation patterns of the Integris Active 300B have been finely tuned to achieve good performance in the widest possible range of circumstances.

The system is designed with very flat and extended frequency response and broad and even matching horizontal coverage: the sound reflecting from walls will tonally integrate with the direct unreflected sound. Very good results may be achievable with minimal acoustic treatments in the room.

The acoustic crossovers between drivers is carefully tuned to match the idealized Linkwitz-Riley 4<sup>th</sup> order functions. Each driver hands off to the next in phase and amplitude coherent fashion to render the physical loudspeaker as acoustically invisible as possible. The 4<sup>th</sup> order filters minimize vertical plane acoustic anomalies compared to lower order designs as well as eliminating the distortion typical of drivers being pushed well beyond their useful bandwidth.

The loudspeaker design features only one driver per bandwidth to eliminate further multi-driver confusion and acoustic anomalies. The simple driver layout provides greater flexibility in choosing locations than loudspeakers with multiple drivers per band and multidirectionally-placed drivers.

## A Few Suggestions

In large rectangular rooms, please review the loudspeaker set-up suggestions of **Cardas Audio**, available at [www.cardas.com/pdf/roomsetup.pdf](http://www.cardas.com/pdf/roomsetup.pdf). If unable to fully implement the set-up method, we suggest trying to implement at least part of the suggested ratio analysis to define some locations as a starting point.

Greatest realism and accuracy is often achieved in a relatively nearfield listening set-up. To implement this, the speaker-to-ear distance should be a little less than the smallest dimension of the room (typically ceiling height).

In some rooms, conventional parallel-to-wall setups yield terrible standing waves and are generally an acoustic mess. We suggest realigning system set-up at about 15° from the rear wall so that the loudspeakers and the listening position are in asymmetrical positions relative to the walls.

Listening position placement near a boundary behind the listener is often quite preferable to placing loudspeakers near a wall, resulting in more articulately defined dynamics and well-imaged sound. To their advantage, the Integris loudspeakers have substantially extended low frequencies needing little boundary reinforcement.

Separation of only around half the room width (as measured between the midrange center phase-plugs) is often ideal for achieving solid lifelike center images with great depth.

Angle the loudspeakers partially inward toward the listener: each should aim approximately 10° to the outside of the listening position. Carefully measure and verify that each speaker is symmetrically placed with respect to the listening position.

# Amplifier Specifications

## Dimensions and Weight

Front panel width	483mm	19.0"
Main body width	458mm	18.0"
Overall Depth	584mm	23.0"
Overall Height (tubes installed)	254mm	10.0"
Net weight	32kg	70 lbs
Shipping Weight	45kg	100 lbs

## AC Power Requirements

Voltage	100/120/220-240VAC <b>(Not user selectable)</b>
Frequency	50/60Hz
Power Consumption	280W idle/600W max
Fuse ratings	120V: 3A slow blow 240V: 1.5A slow blow

## Maximum Power Output

Woofer	100W/Ch. <1% THD
Mid	5W/Ch. 1% THD
Tweeter	5W/Ch. 1% THD

## Damping Factor

Woofer amp	500
Mid/Tweeter amps	5 / 4

## Voltage Sensitivity

Minimum input signal for rated full power output

Woofer amplifier	450mV (25Hz)
Mid amplifier	900mV (530Hz)
Tweeter amplifier	475mV (13kHz)

## Voltage Gain

Maximum gain at specified frequencies only

Woofer amplifier	16dB@25Hz
Mid amplifier	16dB@530Hz
Tweeter amplifier	22dB@13kHz

## Input Impedance

68k $\Omega$ @ 20Hz
48k $\Omega$ @ 20kHz

## Signal/Noise Ratio (unweighted)

2.83V RMS (all channels)	80dB
Full power (mid/tweeter)	86dB
Full power (woofer)	100dB



# Loudspeaker Specifications

## Dimensions and Weight

Height	1100mm	43.25"
Bottom width	400mm	15.75"
Bottom depth	445mm	17.5"
Top width	240mm	9.5"
Top depth	210mm	8.25"
Net weight	48kg	105lb
Shipping Weight	70kg	155lb

With optional base kit:

Height	1140mm	44.75"
Bottom width	500mm	19.5"
Net weight	52kg	115lb

## Driver Complement

Woofer	Seas 254mm (10") treated paper low mass cone, large motor structure, low Q sealed enclosure, nominal sensitivity: 90dB, 2.83V/1M
Midrange	B&C 152mm (6") treated paper low mass cone, phase plug, flat surround, large motor structure, nominal sensitivity: 98dB, 2.83V/1M
Tweeter	Seas Excel 25mm (1") treated fabric dome, ferrofluidless, contoured aluminum faceplate, nominal sensitivity: 91dB, 2.83V/1M

## Acoustic Crossovers

Combination of electrical filter and unfiltered driver response when driven by the power amplifier unit

Woofer-midrange: 330Hz, 4<sup>th</sup> order Linkwitz-Riley  
Midrange-tweeter: 1900Hz, 4<sup>th</sup> order Linkwitz-Riley

## System Frequency Response (Quasi-Anechoic)

On axis: 50-20,000Hz, primarily +/-0.5dB  
Off axis: even and smooth responses

LF Extension with standard supplied tuning:  
-3dB 35Hz; -6dB 25 Hz; -9dB 20Hz  
Alternate tunings available