

*Acoustic
Image*®

**Musical Amplification:
Setting The Standard**

*Owner's
Manual*



**Integrated
Amplifiers**

Contents

IMPORTANT SAFETY INSTRUCTIONS

- 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 a dry cloth.
- 7) Do not block any ventilation openings. Install in accordance with 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 pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- 11) Use only 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.
- 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.

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Welcome to Acoustic Image!

You have purchased a state-of-the-art musical instrument amplifier, combining purity, power and portability in a package that sets a new standard in high fidelity amplification.

Each of our designs is engineered to accurately reproduce the sound of acoustic and electric instruments, delivering flat frequency response across the entire musical spectrum; extended, tight, well-controlled bass; and complete clarity of sound reproduction.

This manual provides operating information for your Acoustic Image Clarus 1 and Clarus+ integrated amplifiers.

The Basics

All Acoustic Image integrated amplifiers are based on the same superb class-D power amp that delivers 400-watts into 4 ohms (Clarus 1) or 800-watts into 4 ohms (Clarus+) and on a sophisticated, sensitive preamplifier. The features of the preamp and the power amp rating define the specific amplifier model.

The power amp is a high efficiency design that requires no external heat sinks or cooling fans and is capable of driving loads as low as 2 ohms. AC power and output speaker jacks are located on the rear of the chassis. A standard, three-prong detachable AC power cord is used to provide power to the unit, while an AC voltage selection switch allows the unit to operate at 115V/60 Hz or 230V/50 Hz. Japan models operate at 100V, 50/60 Hz only. See the rear panel of your amp to verify the AC voltage capability.

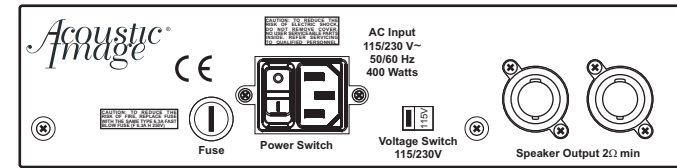
The Clarus 1 is equipped with a one-channel preamp, the Clarus+ adds a second, identical channel and a six-program effects unit. The input channels of both preamp types incorporate combo jack interfaces that allow either a high impedance instrument input (to optimize the sound of piezo-type pickups) or a mic input (the Clarus+ mic inputs have a switchable 10 dB pad), a three-band EQ, an effects loop with return level control, a selectable notch/low cut filter (Clarus 1) or low cut filter and phase reverse switch (Clarus+) for reduction of feedback and low frequency boominess, a direct out capability with ground lift and pre/post EQ switch, a master level control and a mute switch. The two-channel preamp has a switch that allows the second channel to be disconnected from the main amp and connected to a satellite power amp to create a stereo system.

The Clarus+ is compatible with our Cabrio Docking System used in some of our combo amps. If you have the appropriate speaker cabinet, you can dock it in the cabinet.

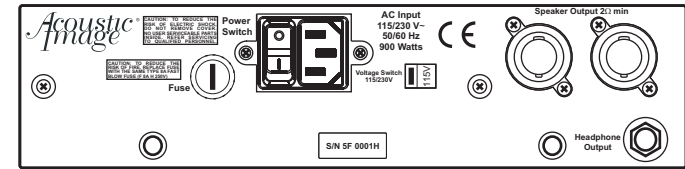
Yours is a high fidelity amplifier with full-range frequency response and low distortion and noise that will accurately amplify your sound. Onboard EQ is sufficient to overcome room acoustics and subtly shape the sound of your instrument. However, you should note that our amps are not designed to play at tonal extremes or to allow an overdriven distorted output. To achieve these, use an external effects box.

Operation

Power



Clarus 1 Rear Panel



Clarus+ Rear Panel

Plug the detachable AC power cord into the receptacle on the back of the amp and into a wall receptacle. A power switch next to the AC connector turns on power to the pre- and power amps, illuminating a "power on" indicator on the front panel of the amp. A 6.3-amp fast blow fuse (Clarus 1) or 8-amp fast blow fuse (Clarus+) is mounted on the back panel. To replace the fuse, turn off the amp, remove the AC cord and use a small screwdriver to remove the fuse from the fuse holder. A spare fuse is included with this manual.

All amps will work with either 115 volt, 60 Hz AC or 230 volt, 50 Hz AC power. A switch located on the rear panel selects the appropriate voltage. Note that the correct AC power cord must be used for connection to the appropriate wall plug. If you do not have the right cord, you can buy one from an electronics or computer store. Be sure the switch is in the correct position for the intended application. **Operation at 230 volts with the switch in the 115 volt position will damage the unit.**

Please note that units sold in Japan operate at 100 volts only. The above mentioned voltage switch is not available for these units. **Operation of a 100 volt amp at any other voltage than 100 volts will damage the unit.**

Preamp

Refer to the signal flow diagram and the control panel drawings (page 4).

Inputs

These amps use combo jacks for the input to each channel of their preamp. Either an XLR or 1/4 inch connector can be plugged into this type of jack. The 1/4 inch input has a 1 megohm input impedance that is optimized to get the best sound from piezo pickups. The XLR input is a low impedance balanced input with sufficient gain to allow microphones to be plugged into it. A switchable 10 dB pad is provided in the Clarus+ to attenuate the output of microphones that are too "hot" for the mic input. Phantom power is available through the connector for powering a mic or outboard preamp and can be activated using

the push button switch located next to the connector. To avoid an audible “pop”, set the mic input level control all the way off when switching on the phantom power. An LED indicates when phantom power is on. The two channels of the Clarus+ can be blended to mix two instruments, 2 microphones or a mic and an instrument thereby performing much like a small PA system.

Controls

The preamp has the following controls in each channel: input level, bass, mid, treble and effects level. In addition, there is a variable frequency notch/low cut filter in each channel (low cut and phase reverse in Clarus+) and a master level control that affects both channels.

Level

The input level controls the level of the signal at the input stage of the preamp. The master volume controls the level of the signal at the output of the preamp (at the input of the power amp). Set the master control at “12 o’clock” and the input level at zero. The input level should then be used to control the overall output of the unit. The two controls are provided to allow independent control of “house” volume and “stage” volume when the unit is used on stage with a connection to a house PA. See the discussion under “Direct Out” below.

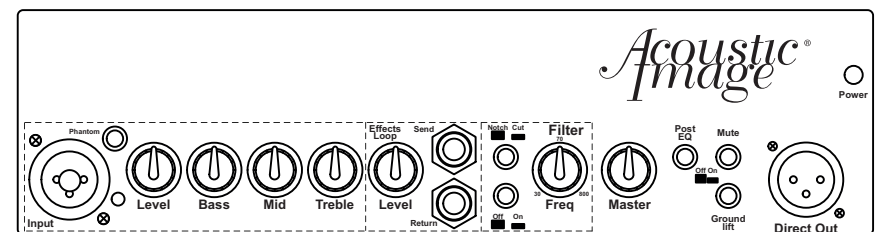
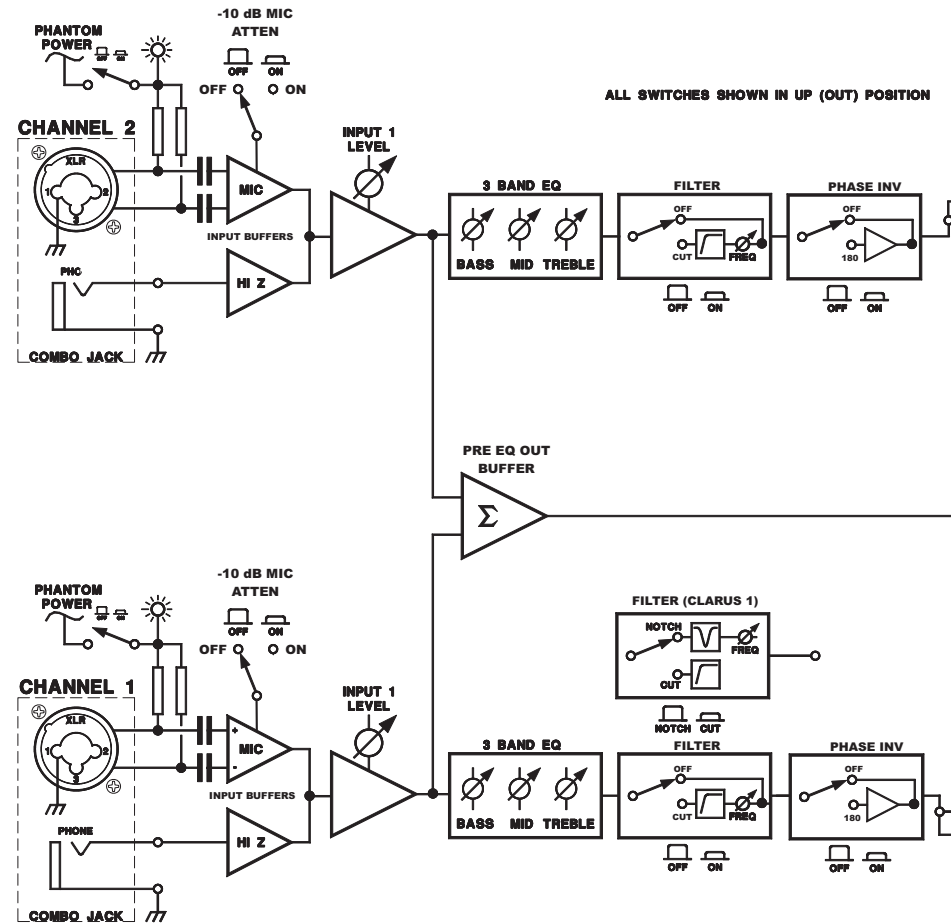
Tone

Each tone control has a center detent at the flat position. Experiment with settings to achieve the frequency balance that sounds best to you. In general, small values of boost and cut are best. The amp is designed with flat frequency response so only minor corrections should be required to compensate for room effects or “peaky” pickups in order to maintain the balanced response desired for acoustic instrument amplification. To minimize electronic noise, avoid operating all controls simultaneously at their maximum settings.

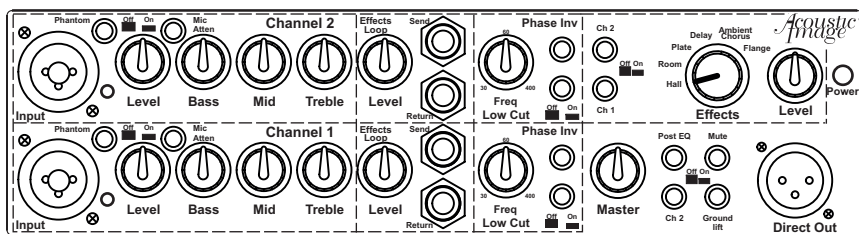
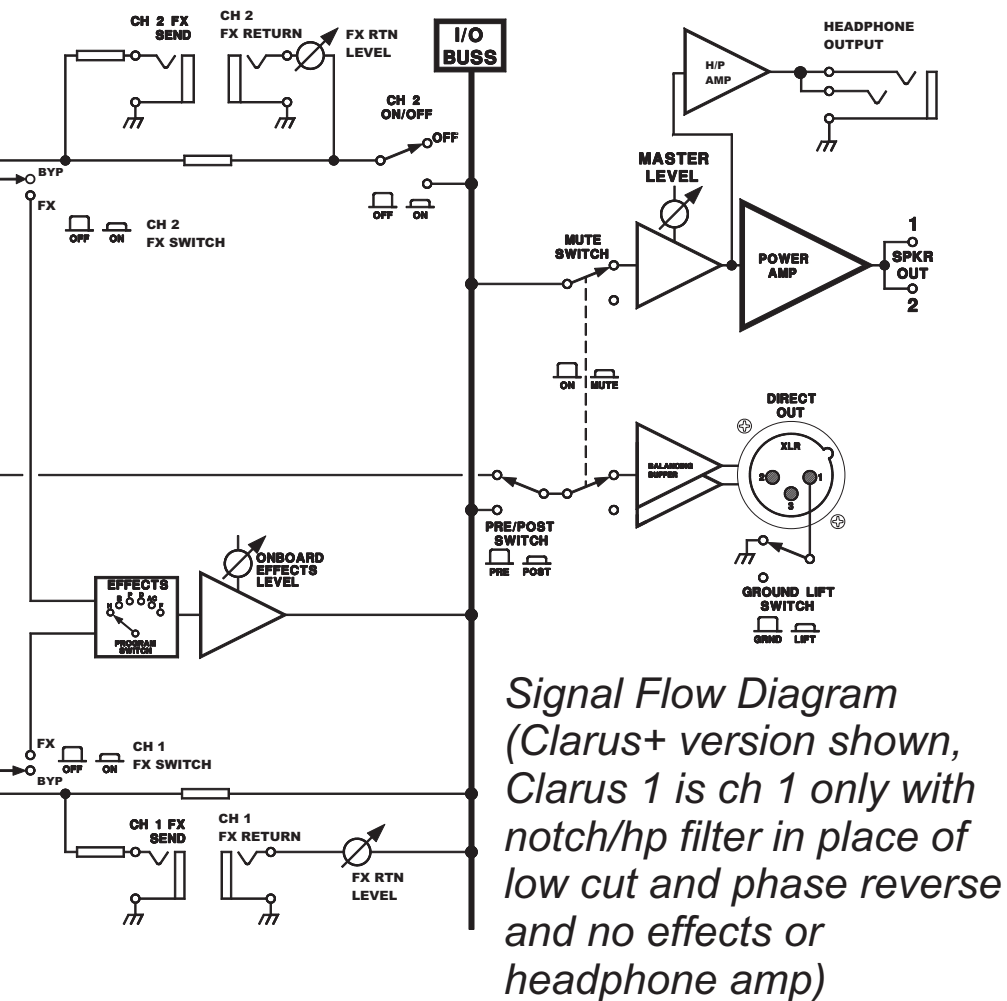
The bass control is a shelving-type that affects frequencies below 250 Hz and with a maximum boost/cut of 15 dB. The mid control affects frequencies between 300 Hz and 2000 Hz and has a maximum boost/cut of 15 dB. The treble control is also a shelving-type that affects frequencies above 1000 Hz with a maximum boost/cut of 15 dB.

Notch/Low Cut Filter/Phase Reverse

The Clarus 1 has a notch/low cut filter, the Clarus+ has low cut filter and phase reverse switch. The notch/low cut filter in the Clarus 1 is a fixed amplitude, variable frequency type that inserts either an 18 dB cut or a 12 dB per octave rolloff at frequencies between 30 and 400 Hz, depending on the position of the control. The low cut filter in the Clarus+ is the same as the one in the Clarus 1. Approximate frequency settings are noted on the frequency control. Note that the first half of the control’s rotation affects frequencies from 30 to 60 Hz, the last half of the rotation affects frequencies between 60 and 400 Hz. This is done so that there is plenty of control in the critical low frequency range. The notch filter is used to remove a given feedback frequency to reduce feedback “howl”. The low cut filter is used to reduce the bass output in cases where room location or instrument/pickup combination results in “boomy” sound. Press the



Clarus 1 Control Panel



Clarus+ Control Panel

on/off switch to turn on the filter. Start with the control fully counterclockwise and gradually turn it clockwise until the desired effect is achieved. Experiment with the position of the control to give you the sound you like best.

The phase reverse switch is used to reduce feedback and to control phase interactions between the two channels. If you are using two pickups or a mic and a pickup, you will find the phase reverse switch to come in handy. Mic feedback can be reduced by reversing the phase of the signal. Phase related interactions between a mic and a pickup or two pickups can be cleared up by reversing the phase of one of the channels. You should experiment with the phase reverse switch to see if the effect is one that you like.

Effects Loop

Acoustic Image preamps have output ("Send") and input ("Return") capability in each channel to allow you to use effects boxes. The send output is affected by the input volume and tone controls and can also be used as a preamp output for driving other power amplifiers. The Return input can be used to directly connect an external preamp to the unit's power amp. The effects level control in each channel controls the volume of the returned ("wet") signal relative to the original ("dry") signal. Because the effects loop is a parallel type, plugging something into the send output does not interrupt the signal path. So, a tuner can be plugged into the send output without affecting the signal going through the amp. When the effects loops are not used, the level controls should be set at zero.

The return input can also be used as an auxiliary input for connecting other line level signals such as a CD player.

Direct Out

An XLR jack is provided for a Direct Out connection that allows the system's output to be fed to mixing boards of house PA systems or recording studios. As a result, the instrument amplified by the unit can be recorded or further amplified by the house PA system. In the Clarus+ amp, the Direct Out signal is the combined output of the two channels. A switch is provided to allow you to select whether the output from the Direct Out jack is affected by the tone controls (post EQ) or not (pre EQ).

The input level control affects the level of the Direct Out signal, the master level does not. This allows independent adjustment of the "stage" volume (the volume coming from the amp and speaker on stage) and the "house" volume (the volume in the house PA system) when the unit is used as a stage monitor. Once the level has been set for the house, if more volume is needed on stage, the master level can be increased. This will increase the stage volume but not the volume in the house PA.

A ground lift switch is available to "lift" the ground from the output of the direct out--reducing noise should a ground loop create hum when the unit is connected to a mixing board.

Mute Switch

A switch is provided to allow you to mute the output of the amplifier without having to turn the amp off. This will allow you to tune your instrument on stage without being heard. The amp output and direct out signals are both muted by the switch. The mute switch has a red button on it to remind you that it is an important switch. **If you are not getting any sound out of the amp, check to make sure that the mute switch is off.**

Stereo Operation (Clarus+)

The two-channel preamp of the Clarus+ can be operated in stereo mode. When it is in the "on" position, the switch labeled "Ch 2" connects the channel to the internal power amp. When it is in the "off" position, it is disconnected from the internal amp but is accessible from the channel 2 send output. By connecting the send output to a satellite power amplifier, and putting the switch in the off position, the preamp operates in stereo mode. Note that channel 2 remains in the direct out signal even when the switch is in the off position. This is done since stereo operation is typically a "Stage" mode but not a "house" mode (house systems are typically not stereo). The Ch 2 switch has a red button to remind you that it is an important switch. **Note that channel 2 will not be heard through the speaker system connected to the amplifier unless the Ch 2 switch is in the depressed or on position. If you are not hearing channel 2 in the output, check to be sure that the switch is on.**

Effects (Clarus+)

Our high-quality effects units offer 6 program selections: 3 reverb programs (Hall, Room and Plate), a delay, an ambient chorus and a flanger. There are switches to select which of the two channels are processed by the effects unit. Either channel can be connected to the effects unit. If both switches are engaged, the selected program appears in both channels. A level control affects the level of the reverb signal that is mixed with the "dry" signal to control the overall effect of the selected program. You should experiment with both the program selection and the level control to find the sound that you prefer. When effects are not used, the switches for both channels should be off and the level control should be turned fully counterclockwise. Note that the flange effect is noisy, it is normal to hear the modulation of the flanger when no signal is present.

Headphone Output (Clarus+)

There is a headphone output on the rear panel of the Clarus+. You can plug a standard 1/4 inch stereo plug into this output to connect a headphone for private listening. If your headphone has a 1/8th inch plug, you can buy an adapter to allow you to use the 1/4 inch output jack.

When you plug into the jack, the amp is muted. Sound will only be heard through the headphones. The headphone is connected to the output of the preamp so all of the controls on the preamp, including effects, will affect the signal heard through the headphone. When the headphone plug is removed from the jack, the amp will come back on. **There is about a 5 second delay between removal of the plug and the amp coming back on, so expect a**

pause before you will hear anything from the amp after the headphone is removed. Anytime anything is plugged into the headphone output jack, the amp will be muted so make sure that nothing is plugged into the jack when you want to use the amp normally.

Power Amp

Speakers are connected to the amps via Neutrik Speakon connectors ("twist lock" type). These connectors are used because of their low contact resistance and non-shorting operation. The output of each Speakon connector is wired to pole "1." Make sure the cables you use to connect a speaker are similarly wired.

The power amp of both amps is capable of driving speaker loads as low as 2 ohms. Use a high quality speaker system in order to get the maximum performance from the amp. The Acoustic Image Contra EX or Corus EX are excellent choices.

The power amp is short circuit protected. If a short is connected to one of the speaker jacks, the output signal will be interrupted until the short is removed. If a short is present, you will hear a ticking sound at 3 to 4 second intervals which indicates that the short circuit protection is working. **To be on the safe side, you should shut off the power to the amp before connecting or disconnecting speakers from the unit.**

We highly recommend the use of Speakon connectors at both the amp and speaker ends of the connecting cable. If you use these connectors, you will get the highest possible performance and reliability from your amp. Conversion of your speaker to Speakon connectors is a simple job. Contact your local repair shop or Acoustic Image for more information. A Speakon to 1/4 inch adapter is included with the amp to be used in emergency situations when you cannot find a Speakon to Speakon cable.

All Acoustic Image amps can be operated without a speaker load if required. **When operating without a speaker attached, turn the master level to zero (all the way counterclockwise). This will prevent the power amp section of the amp from being driven and protect it from damage.**

Amp Placement

The small size and light weight of the amps allow them to be placed almost anywhere that is convenient for the performer. The best results will be achieved from the amp/speaker combination if the resistance of the speaker cable is kept as low as possible. That means that a shorter cable is better.

Care

The amp chassis is made of powder coated aluminum. A little caution in how it is handled will keep it looking new for years to come. Use a clean, dry cloth to wipe the surfaces of the amplifier. Note that there are no user-serviceable parts inside the amp. Refer servicing to qualified Acoustic Image or other technicians.

Warranty and Repair

We stand behind our products with a full warranty of five years from the date of purchase. Should a problem arise, please call us before returning your amplifier or enclosure. Naturally, our warranty does not cover products that have been damaged through misuse. Be sure to check our web site regularly, we have an FAQ section and we post helpful information for getting the most out of your Acoustic Image product.

Specifications

System

Frequency Response	20 Hz - 20 kHz, ± 0.5 dB
Distortion	<0.5%, full output, <0.1%, typical
Hum and Noise	-85 dB or better
AC Power	115V/60 Hz or 230V/50 Hz, switchable Japan version is 100V, 50/60 Hz only
Size	10x8x3.5 inches
Weight	4 lbs

Preamp (Mic and Instrument Inputs through combo jack)

Mic Input	600 ohm balanced, XLR connector, switchable 10 dB pad
Phantom Power	47 volts, on/off switch w/LED indicator
Instrument Input	1 M Ω impedance, 1/4 inch jack
Direct Out	+4 dB, balanced, XLR connector, ground lift, pre/post EQ selector
Effects Loop	Parallel type with return level control
Bass Control	Shelving type, ± 15 dB at 60 Hz
Mid Control	± 15 dB at 650 Hz
Treble Control	Shelving type, ± 15 dB at 10 kHz
Notch Filter (C1)	>-18 dB sweepable from 30 to 400 Hz
Low Cut Filter (C1 & C+)	-12 dB/octave sweepable from 30 to 400 Hz
Phase Reverse (C+)	Switchable 180 degree phase reverse

Effects (Clarus+)

Type	Digital with 6 presets and level control
Program Presets	3 reverb (hall, room, plate), delay, ambient chorus, flange

Power Amp (all models)

Topology	Class D (PWM)
Switching Frequency	250 kHz
Output Power-Clarus 1	>250W (8 Ω), >400 W (4 Ω), >500W (2 Ω)
Output Power-Clarus+	>450W (8 Ω), >800 W (4 Ω), >1000W (2 Ω)
Minimum Load	2 Ω
Output Connectors	Neutrik Speakon type (pole 1)

Included Accessories	Gig bag with shoulder strap, Speakon to 1/4 inch adapter
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Contact Information

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FCC Compliance Notice

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CAUTION: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiated radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.



CLARUS 1™
SERIES III
Model 500 IA

CLARUS+™
Model 550 IA

Acoustic
Image® *Musical Amplification:*
Setting The Standard