

# GENZ·BENZ



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## OWNERS MANUAL

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**PRODUCT DESCRIPTION** – The **Shenandoah Stereo Delux 200™** is a 2 channel – 4 input, 200 watt true stereo acoustic instrument amplifier with 2 separate Alesis™ digital effects engines, full stereo DSP algorithms and 2 x 10" speakers and compression tweeters on our unique flexed baffle.

Each channel is equipped with both a ¼" unbalanced line input and an XLR balanced microphone input (with phantom power). The 2 inputs on each channel are summed (mixed) together at a 1:1 ratio. Each channel then passes through independent 4 band equalizers with 2 sweep-able midrange frequency bands. This powerful equalizer circuitry was developed specifically for use with acoustic instruments and offers maximum flexibility in tone shaping.

Each channel also contains 2 individual send controls to the dual on-board Alesis 16 program digital effects circuit. Flexible signal routing allows full exploitation of the lush stereo programs. The channel signals are then summed and panned, mixed with the digital effects returns and passed on to the internal 200 watt stereo power amplifier. The back panel contains 4 direct balanced outputs with ground lift switch, 4 unbalanced line outputs, 2 effects loops, tuner out, effects cancel jack, and 4-1/4" speaker jacks.

**INPUTS** – The Shenandoah™ 200 is equipped with 2 types of input jacks. The ¼” input is unbalanced and “line/instrument level” with a useable sensitivity from 50 mV to 1 volt. The input impedance is 150 k ohms. The ¼” input will also accept most active balanced line sources, automatically unbalancing them by recognizing the tip portion of the balanced signal. Additionally, the precision input scaling preamp contains a 45 Hz, 12 dB/octave high pass filter (more effective and less intrusive than the more common 6 dB filters) and an “RFI” filter (radio frequency interference) to eliminate unwanted noise. The XLR input jack is balanced and “microphone level”, with a useable sensitivity from –60dBv to –30 dBv. It contains a precision full range differential microphone preamp with phantom power. For use with higher level sources (such as the balanced line level output from a keyboard), a balanced pad network will be necessary to use the balanced input. Phantom power is 13.6 volts, compatible with virtually all commonly used condenser microphones. Dynamic microphones can be used with no ill effect.

**PREAMP GAIN CONTROL** – This level control sets the amount of gain at the Input of the Preamp. Use this control to set the input level in conjunction with the overload LED indicator.

**INPUT O/L LED** – The Red Overload LED senses the input signal to the preamp section and warns of input overload. For the cleanest signal possible this LED should only flash with the strongest signal peaks. Adjust this sensitivity with the input gain control.

**PHASE SWITCH** – Each input is provided with a phase reverse switch. By reversing the phase of the input signal, feedback tendencies can be reduced if caused by sympathetic vibrations between the speaker and the instrument. Under some conditions, changing the phase can drastically improve the output from the amplifier and can improve the playability of some instruments.

**PAN CONTROL** – Each input channel is provided with a pan control, which adjusts the balance of the input signal between the left and right output amplifiers. This control does not affect the assignment of the effects send signals.

**COMBINING XLR & ¼” INPUTS** – A unique feature of the Shenandoah™ 200 is the ability to mix the XLR balanced and ¼” unbalanced inputs on each channel. In many situations, this effectively makes the amplifier function as a 4 channel amplifier. The most effective way to use this feature is to set the volume on the channel using the XLR microphone input and then adjusting the level control on the instrument itself (assuming that it has one) to blend levels between the 2 inputs. Equalization will be common to both inputs on the channel.

**ON-BOARD ALESIS™ STEREO DIGITAL EFFECTS** – The Shenandoah™ 200 contains 2 genuine Alesis® 16 program stereo digital effects processors. Unlike other amplifier manufacturer’s built-in digital effect units, we chose to use an industry leader in processing with an undisputed reputation for realistic, high quality stereo effects algorithms. Not all effects will be suitable for all types of instruments or playing styles, but everyone should find a good selection of solid, useable programs. Just keep in mind that a program that doesn’t work well for your quick acoustic guitar or mandolin work (long lush reverbs for example) may be the perfect program for jazz guitar, sax or flute. To accommodate the wide range of sum & difference effects in the stereo decay envelope software, effects volume differences are normal when switching between different effects programs. Adjust the effects send and master levels accordingly.

One of the most powerful features of the Alesis™ DSP engine is its ability to process a large amount of audio data in real-time. This allows us to take advantage of several important concepts in generating a believable stereo image. By delaying a portion of the signal by an “early reflection ratio”, applying DSP processing in stereo to this signal, then summing it back with the original signal and returning the mix to the program bus, the resulting stereo image is big, lush and exceptionally stable.

The “Effects Send A” control on each channel adjusts the send level to digital effects processor “A” and the “Effects Send B” control on each channel adjusts the send level to digital effects processor “B”. The “Digital Effects Level” control in the master section adjusts the effects return level from the corresponding processor. The effects return signals are summed and routed directly to the left and right amplifiers.

A ¼” TRS effects cancel jack is provided on the back panel to mute the internal effects via footswitch. Any standard 2 button latching footswitch may be used. Ring controls Effects Return A and Tip controls Effects Return B. The effects signal is muted when the switch is open. LED’s show when the effects are active.

Name	Description
Hall 1	Bright hall reverb
Hall 2	Warm hall reverb
Room 1	Hardwood studio reverb
Room 2	Ambient room reverb
Room 3	Warm room reverb for guitars and rhythm instruments.
Plate 1	Classic plate reverb for lead vocals and instruments.
Plate 2	Sizzling bright plate reverb for vocals.
Plate 3	Short "vintage" plate reverb
Chorus	Stereo chorus (Tonal variations in pitch and volume)
Flange	Stereo flanger for jet wash effects.
Delay 1	125ms slapback delay
Delay 2	190ms slapback delay
Chorus/Plate	Chorus with reverb plate
Chorus/Room	Auto-wah guitar effect with reverb
Reverse Scoop	Mid-range scoop tone
Rotary Speaker	Rotary speaker emulation

**ACTIVE 4 BAND EQUALIZATION** – Each channel of the Shenandoah 200 contains a separate 4 band (with 2 sweepable mids) active equalizer. These equalizers, similar to those found on professional sound consoles, are very useful tools when used correctly.

**LOW FREQUENCY EQ** - The corner frequency of the low frequency section is 85 Hz, with a shelving curve type. This frequency is particularly handy when dealing with low frequency feedback from a big dreadnaught guitar, cello or upright bass. With a “boomy” instrument on a small stage, a combination of volume reduction and turning down the low frequency control will generally get good results. The low frequency control is also handy for adding some “bottom” to a baritone sax and “chunk” to many stringed instruments.

**HIGH FREQUENCY EQ** - The corner frequency of the high frequency section is 8 kHz, shelving curve type. This frequency is especially useful for taming the bright harshness of some mandolins, violins, brass and reeds. It can also be used to help acoustic guitars, cellos and flutes cut through other players in loud club situations, or where drums are present.

**MIDRANGE EQ** - The “sweep mid” section features 2 independent midrange equalizers, peaking curve type, with over 12 dB of cut or boost and a bandwidth approximately 1 octave wide. The center frequencies of these equalization filters are continuously user adjustable from 100 Hz to 1.8kHz (LOW MID) and 350 Hz to 5 kHz (HIGH MID) with the corresponding frequency control. These filters are typically (but not always) used to reduce or remove offending frequencies in the instrument’s pick-up response. Removing only the minimum amount necessary will yield the most acoustically rewarding results. The easiest and most repeatable way to determine the offending frequency range is to boost the mid level somewhat (but not to the point of feedback) and while playing, sweep the frequency control slowly across its range. You may need a third hand until it becomes second nature, but soon you will find out just how quick it can be. You will hear a clear and obvious accentuation of the “ugliness” you wish to remove. Then, reduce the gain control until the sound you desire is attained. The ear is a most sensitive and discriminating piece of test equipment when used in this manner, another good reason to protect them! This is the way many touring sound engineers equalize, since it is quick, accurate and repeatable. Occasionally, you will find need to use the mid section in “boost” mode, particularly common when adding higher midrange (bite) to an otherwise dull instrument, or adding low mid “body” to an otherwise thin sound. Spend some time experimenting so that the process becomes creative as well as corrective.

**AUXILIARY INPUT LEVEL CONTROL** – The Shenandoah™ 200 is equipped with both ¼” and dual RCA aux input jacks and aux level control. These rear panel jacks are internally summed, and feed the stereo mix via the aux level control. Both aux inputs are line level, for use with drum machines, CD, MP3 and tape players.

**MASTER VOLUME** – The stereo master volume control adjusts the overall volume of the mix of channel 1, channel 2, effects return 1 and effects return 2. Typically, best results are obtained when this control is operated between the 9:00 and 3:00 positions.

**MASTER STATUS LED INDICATORS** - Output status LED's are provided to indicate Signal present and Clipping. The Green LED monitors the pre Master Volume output signal from the preamp before the power amp section. The Red LED indicates Clip/Limit and indicates that the maximum power threshold has been crossed and the internal "soft-clip" limiter is active. Driving the amp 6db beyond this point will cause gradual clipping.

**CHANNEL INSERTS / EFFECTS LOOP** – The Shenandoah™ 200 is equipped with insert points on each channel AND on the left and right main signal paths. These points are handy for inserting compressors and dedicated digital effects processors. Signal is line level and unbalanced.

**DIRECT OUTPUTS** – The Shenandoah™ 200 contains the most comprehensive direct output section available on any acoustic instrument amplifier. The XLR balanced and ¼" unbalanced outputs make "real world sense" when connecting with other equipment. The ¼" unbalanced outputs are true professional line level (+4 dbv) with an output impedance of 1k ohm, and can drive virtually any line level input, including power amplifiers. The XLR balanced output is "hot" Mic level, rated at –30 dBv. This configuration allows the Shenandoah™ 200 to drive very long cable lengths (250+ feet) without problems or added noise and is compatible with all commonly encountered mixing consoles. The XLR balanced direct outputs can be "ground lifted" with the global ground lift switch. This switch lifts pin 1 on all of the XLR balanced outputs to break ground any loops between the Shenandoah™ 200 and a PA system (or recording) console Direct outputs are provided for each channel, pre eq, pre effects, post channel volume (to take advantage of the dual summing inputs on each channel), and for left and right mixed outputs, post channel eq, post effects, and post master volume (to aid in sending a "finished" mixed signal to a PA system, power amplifier or powered speaker.

**POWER AMPLIFIER** – The Shenandoah™ 200 is equipped with dual advanced monolithic power amplifier circuits that are completely protected against overloads, short circuits and thermal faults. Output is rated at 100 watts per channel into 4 ohms, with excellent overload recovery characteristics. A unique feature of this amplifier is the "on silicon" temperature sensor that automatically tracks and adjusts the amplifier's operating and protection parameters, a very cool feature that increases product reliability 10-fold over conventional designs. An internal cooling fan is provided for maximum heat exhaust through the front panel vents.

**TUNER OUT** – This jack is provided for use with all tuners that accept a ¼" input. The signal from this jack is always present and works well with all known tuners.

**EFFECTS JACK** – This jack is provided for use with the 2 button DSP footswitch with comes standard with the Shenandoah™ 200. This footswitch turns both DSP A and B programs ON and OFF. This is a useful tool for pre-selecting programs and then turning them on or off when desired.

**SPEAKER OUTPUT JACKS** – The Shenandoah 200 provides 2 sets of parallel ¼" speaker output jacks. Minimum total load is 4 ohms (2 x 8 ohm loudspeakers) on each output channel. The combo is equipped with a 10" - 8 ohm loudspeaker and compression tweeter per side and may drive an additional 8 ohm extension speaker cabinet per side. We offer the Shen-200 EXT L/R speaker enclosures that are a matched pair of Left and Right imaged extension speakers that offer the same compliment of 10" woofer and compression tweeters like those in the Shenandoah™ 200.

**POWER INPUT** – The Shenandoah™ 200 is shipped from the factory with a standard IEC type power inlet connector and the appropriate power cable for the market the amplifier was shipped to. The power transformer is universal input (115/230 volt, 50/60 Hz) with a voltage selector switch located above the inlet connector. Be sure that this switch is in the correct position (matching your local power system) BEFORE connecting the Shenandoah™ to the power source. There is an AC mains fuse (with a spare fuse included!) located in the small slide out tray on the IEC power inlet connector. Always replace with the correct value fuse as indicated on the fuse chart located on the back of the amplifier.

**TWEETER LEVEL CONTROLS** – A Tweeter Level Control is provided on each side of the speaker enclosure for maximum tone flexibility. The "rocker switch" control offers FULL tweeter output, - 6db level or a tweeter OFF position. Experiment with different settings to find the best position for your personal taste.

# SHENANDOAH™ STEREO DELUX 200

## ENGINEERING SPECIFICATIONS

### INPUTS

XLR Balanced channel input impedance:	2.2 k ohms
XLR Balanced channel input sensitivity:	-60 to -30 dBV
¼" Unbalanced channel input impedance:	150 k ohms
¼" Unbalanced channel input sensitivity:	30 to +4 dBV
¼" Unbalanced aux input impedance:	10 k ohms
¼" Unbalanced aux input sensitivity:	-20 to +4 dBV
Phantom power (XLR Inputs)	+13.6V

### AMPLIFIER OUTPUT (each channel)

Power at 8 ohm load:	70 watts RMS
Power at 4 ohm load:	100 watts RMS
THD + N (preamp):	<0.02% typ.
THD + N (power amp):	<0.05% typ.
Frequency response:	20 Hz – 20 kHz +/- 1dB

### CHANNEL EQUALIZATION

Low frequency:	85 Hz shelving, +/-15dB
Low-Mid frequency (sweep):	100 Hz – 1.8 kHz , peaking, +/-12dB
High-Mid frequency (sweep):	350 Hz – 5 kHz , peaking, +/-12dB
High frequency:	8 kHz shelving, +/-15dB

### DIRECT OUTPUTS

XLR balanced output level:	-30 dBV nominal
XLR balanced output impedance:	150 ohms
¼" unbalanced output level:	+4 dBv nominal
¼" unbalanced output impedance:	1 k ohm

### EFFECTS LOOP

¼" unbalanced output level:	-10 dBV
¼" unbalanced output impedance:	1 k ohm
¼" unbalanced input level:	-10 dBV
¼" unbalanced input impedance:	47 k ohm
¼" effects cancel jack:	short T-S or R-S cancels returns

### DIGITAL EFFECTS

Processor type:	Alesis® DSP engine (twin stereo processors)
Internal processing:	24 bit
A/D converter:	24 bit – 64X over-sampling
D/A converter:	24 bit – 128X over-sampling
Dynamic Range:	80 dB
THD + N (1 kHz):	<0.01%
Sampling rate:	48 kHz

### INTERNAL PRESET STEREO EFFECTS PROGRAMS:

3 – Plate Reverbs	1 – Chorus/Plate
3 – Room Reverbs	1 – Chorus
2 – Hall Reverbs	1 – Flange
1 – Rotary Effect	2 – Delays (long and short)
1 – Chorus/Room	1 – Reverse Scoop

Due to continuing product improvements and changes, all specifications are subject to change without notice

## CAUTION!

- Never set an amplifier on anything that will tip over or collapse under its weight.
- These amplifiers are capable of producing sound pressure levels that may cause hearing loss.
- There are no user serviceable parts inside these units. Always consult a qualified repair facility for service.

## WARNING!

- The use and operation of this device constitutes an agreement of full release of any and all liability connected with its use. Only persons familiar with the operation of high powered audio equipment should attempt to operate this device.
- In addition, by use of this device, the user agrees to hold Genz Benz Enclosures, Inc. and its designers, sales agents and all other affiliates and related parties harmless in the event of any accident, injury, damage or loss resulting from such use.
- Manufacturer's sole responsibility is to provide a warranty on the specified performance of the product under normal operating conditions for a period of 3 years.

## WARRANTY:

- Genz Benz Enclosures, Inc. warrants the model Shenandoah 200 to be free from defects in materials and workmanship for a period of 3 years from the date of purchase, when purchased from an authorized Genz Benz dealer.
- This warranty does not cover normal wear and tear incurred from the normally designed use of the product.
- This warranty is effective only if a copy of the original sales receipt is presented at the time of warranty service.
- This limited warranty is completely transferable to any subsequent buyer as long as the original sales receipt is also transferred to such subsequent buyer.
- All warranty service must be performed by a Genz Benz authorized service center.
- Before returning any unit for service, a returned merchandise authorization number (RMA#) must be obtained by calling 480-941-0705.

### Declaration of Conformity (89/336 EEC-EMC Directive)

Manufacturer's Name: Genz Benz, a division of Kaman Music  
Manufacturer's Address: 7811 East Pierce Street  
Scottsdale, AZ 85287, U.S.A.

Product Type: Audio Amplifier  
Model Number: Shenandoah Stereo Delux 200™  
Operating Power Condition: 115/230 V, 50/60 Hz  
Effective Date: 01-01-2006

Conforms to the Following Standards:

- EN 55013: 2001 + A1: 2003
- EN 55020: 2002 + A1: 2003
- EN 60065
- IEC 61000-3.3: 1994 + A1: 2001
- IEC 61000-4.2
- IEC 61000-4.3
- IEC 61000-4.4
- FCC 47CFR Part 15-B, Class B
- RoHS Directive 2002/95/EC
- WEEE Directive 2002/96/EC
- CE Mark LV Directive 73/23 EEC

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