



# **Blue Diamond**

## ***Multi-Channel Power Amplifier***

*[www.gemstoneaudio.com](http://www.gemstoneaudio.com)*

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## **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 the manufacturer's instructions.
- 8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatuses 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 is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- 10) Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- 11) Only use attachments/accessories specified by the manufacturer.
- 12) Use only with a cart, stand, 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) Power down and 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.

## **DOCUMENTATION CONVENTIONS**

This document contains general safety, installation, and operating instructions for the Gemstone Blue Diamond Power Amplifiers. It is important to read the user guide before attempting to use this product. Pay particular attention to safety instructions.

## **UNPACKING AND INSPECTION**

After unpacking the unit, save all packing materials in case this amplifier needs to be shipped again. Save **both** the outer and inner boxes as it is important to ship with both or damage will likely occur. Thoroughly inspect the amplifier and packing materials for signs of damage. Report any damage to the carrier at once as well as to Gemstone. Report equipment malfunction to the Gemstone Audio at 763-753-5700 (CST).

The Blue Diamond amplifier is large and heavy and if dropped, will likely result in damage so please remove it from its box with care. Be kind to your back and toes as we strongly advise that you ask another person to help lift the amplifier out of its box and place it in its final location. Inside the box you should have the following:

- AC power cable
- 7 removable XLR jumper plugs mounted in the rear panel.
- This owner's manual
- Receipt on the outer packing slip.
- In depth safety instruction page

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**WARNING!** To reduce the risk of fire or electric shock, do not expose this product to rain or moisture. Do not attempt to "lift the ground" by removing the ground pin from the AC cable. Make sure that your household electrical wiring supports proper AC grounding techniques before plugging in this product. Keep the heat sinks and top cover free of dust to allow for proper heat dissipation. Never expose this product to extreme temperatures. Always connect the audio signal path cables prior to connecting the AC mains.

**CAUTION!** No user-serviceable parts inside. Do not remove top cover, as severe electrical shock may result.

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**Gemstone's Blue Diamond 200 Watt x 7 Amplifier**

*Congratulations and Thank You for choosing Gemstone Audio's "Blue Diamond" Series power amplifier. We produce reference-quality sound because we use high-quality parts in combination with our smart design approach. Since we are a Factory Direct company, we were able to produce a higher quality amplifier direct to you the consumer, for a lot less. Your new Gemstone Audio amplifier was manufactured, engineered, and hand built with pride in North America.*

*The Blue Diamond is encased using a rigid forged aluminum chassis with a thick brushed aluminum face plate to minimize the effects of external vibrations while enhancing the beauty of the amplifier. The fully balanced differential circuit topology has six hand sorted output devices per channel and we use pure thick copper tracings that offer low impedance characteristics.*

*Like several of the most expensive reference amplifiers, we directly couple the signals into the amplifier stage without the use of capacitors. Signal capacitors color the top end by removing the "air" while reducing the bottom end tightness and depth. In order to avoid the capacitors in the signal path that are used to block DC voltages, our design electronically monitors the DC bias circuit on our auto protection controller board.*

*We encourage you to read this entire manual to learn all the features and capabilities of your new Gemstone Audio Blue Diamond amplifier. We're proud to offer you this exceptional product that will bring you many years of enjoyment and dependability.*

## Rear Panel Gemstone Blue Diamond Power Amplifier

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- A 12 Volt DC Trigger is included for those who want to remotely power-up the Blue Diamond with a home theater processor.
- The Blue Diamond speaker terminals accept speaker wires with banana plugs or spades.
- Each channel has a balanced input on an XLR connector and a single-ended (unbalanced) input on RCA.
- Replace the fuse with a 15 amp (or lower) fast blow fuse rating. Never use a value higher than 15 amps or a “slow blow” fuse design.

The balanced inputs of the Gemstone Blue Diamond uses XLR jacks that conform to the industry standard of:

Pin 1: Ground, Pin 2: Positive (+), Pin 3: Negative (-). The balanced outputs on some components use terminals with 3 screws instead of XLR jacks. These are compatible with the Blue Diamond as long as you match the bare wires to the corresponding pins on the XLR plug: + to pin 2, - to pin 3, and Ground to pin 1.

## Connecting Your Amplifier *Gemstone Blue Diamond Power Amplifier*

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BEFORE CONNECTING, Leave the Gemstone's AC cord disconnected until you have made all other connections to prevent any surprise burst of sound. **Important:** The number one reason for amplifier failures are shorting the + and – speaker terminal connections together. If you are bi-wiring, make sure you removed the shorting brackets on your speakers as this is a common way of shorting the amplifier out by accidentally inverting the + and -. It is always best to turn on your amp 1<sup>st</sup>, then your processor to prevent any surprise bursts of sound.

### ***RCA or Balanced:***

You can use either RCA (single ended) or Balanced (XLR) connections to hook-up the output signal from your preamp processor to the Gemstone amplifier. You may prefer to use some channels as balanced while others using RCA inputs.

For the best sonic performance, it is recommended to use XLR or balanced cables. To use balanced, remove the shorting pins from the channels that you are going to use with the balanced cable. Put the removed shorting clips in a safe spot for future use. Always properly replace the shorting pins if you switch back to RCA style connections to reduce the noise floor. There is no switch to toggle from balanced to RCA. You can use either one, but of course, only one style of input at a time (per channel) or the amplifier will be damaged. In other words, do not hook up both balanced and RCA to the same channel.

If your pre-processor controller does not have Balanced (XLR) connections, some sonic performance gains can also be realized using RCA-XLR adapters given the inherited noise cancellation/reduction characteristics of the balanced circuitry within the Gemstone.

Please note that you will have to adjust preamp levels up about 6db for RCA inputs if you are mixing some channels balanced and some RCA.

### ***12 Volt Trigger:***

Gemstone has a 12 volt DC trigger feature to remotely turn on and off the Blue Diamond using a preamp processor. (We do not recommend using the Gemstone with a Monster type power switching device that mechanically removes the AC power for sequencing.)

Small performance gains occur when the amp is warmed-up which can take as long as 4 hours. While the Gemstone was designed to operate with a 12 volt trigger, for the best sonic performance, we recommend not using the 12 volt trigger and leaving the amplifier on all the time. If you will be away for an extended period of time, it is recommended to power down the unit.

If you chose to use the 12 Volt trigger, the Gemstone uses a standard 3.5mm mini-mono plug (not included) but easily had at Radio Shack. The Impedance is 1800 Ohms and the drive current is about 5 mA. Most preamp processors will meet these specifications.

### ***Surround Channels Versus Front Channels:***

Your Gemstone amplifier was designed to perform for both home theater as well as in stereo. All of the channels are identical but the signal path is shorter for the center channels (inputs 3, 4 and 5). Therefore, we recommend using your surrounds on the outside amplifier channels (1,2, 6, and 7) and using channels 3,4, and 5 for the center, left and right.

## *Turning On Your Amplifier Gemstone Blue Diamond Power Amplifier*

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For the best sonic performance, we recommend leaving the Gemstone amplifier on all the time. We encourage the powering up sequence be conducted in this order.

Power-up the Gemstone amplifier first, and then power-up your pre-processor controller.

If you are using the 12 Volt trigger or manually powering on the Gemstone, make sure that the volume level on your pre-processor controller is set to its minimum output level setting or the mute function is enabled. This step in the sequence affords the Gemstone adequate time for its start up electronic monitoring system to complete its test/start-up routine. This step also allows the Gemstone amplifier capacitance reservoirs to be fully energized/charged prior to a demanding output load.

Push the front button to turn on the amplifier. The blue LED will light (solid) and you will hear a relay click about 3 seconds later after the amplifier goes through diagnostics. The amplifier is ready.

Like several very high end multi-channel amplifiers, the Blue Diamond uses no capacitors in the signal path and therefore needs to test for DC levels. Removing capacitors in the signal path allows for a more "airy" top end and a more powerful and tight bottom end.

This auto detection circuitry monitors the input signals and will shut down if the DC input levels are high. The front blue LED will begin to blink if this occurs. If this happens, it is possible that your processor or source is generating a DC voltage. To verify that this is happening, power down and disconnect the cables from the amp to the processor. Power-up and if the amp LED is solid, you have a DC bias in one of your sources or preamp. Call Gemstone for additional diagnostic techniques to locate the problem component.

*\*Specifications Gemstone Blue Diamond Power Amplifier*

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Specifications:

Number of Channels 7  
Mode of Operation Class A/AB  
True Balanced Differential Design Inputs (also with RCA)  
Thick, very Low impedance pure copper tracing

Generous Power Supply

1.55kVA High Efficiency Toroidal using a 129,000uF for 7 Channels (with 3000uF On-Board Capacitance per channel)

Input Sensitivity 1000mV

Output Device Type High Power 250 Watt Bipolars - 6 per channel and hand precision matched

Input Impedance Nominally at 23,000 Ohms

Power Output at 8 Ohms 200 Watts

Power Output at 4 Ohms 400 Watts (Doubles Down)

Frequency Response 10Hz - 90kHz +/-3dB

Output Impedance 0.006 Ohms

Signal-to-Noise Ratio >100dB @ full power

Maximum Output Voltage 42 Volts

Damping Factor (static 8 Ohms) >900

Gain 29dB via XLR, 35db via RCA

Slew Rate 75V/μs

Maximum Peak-Peak Current - 75 amperes

Crosstalk @ 1kHz > -96dB

Design Methodology True Balanced Differential Design Utilizing DC Servo Direct Coupled Inputs (No capacitors in-line)

THD (1KHZ) < 0.0015 %

THD (20Hz - 20kHz @ 200 watts) < 0.05 %

Power Consumption @ idle 40 Watts

AC Power Requirements 120V / 60Hz (Single voltage Supply)

Fuse Replacement Long fast blow - 10A / 15A

Dimensions (W x H x D, inches) 19 x 8.9 x 21.5 (body width is 16.5 while the face plate is 19" Standard)

Weight 88 Pounds with 7 channels, 100 pounds shipped.

Balanced Input Pin Assignment:

Pin 1 Ground

Pin 2 Positive

Pin 3 Negative

*\*Specifications subject to change*