PS Audio STL-GDAC-US-B

PS Audio Stellar Gain Cell DAC & Preamplifier

Model: STL-GDAC-US-B

User Instruction Manual

1. Introduction and Overview

The PS Audio Stellar GainCell DAC is a fully balanced analog preamplifier and a full-featured Digital-to-Analog Converter (DAC). It integrates years of research and innovation in Class A analog amplification and state-of-the-art digital reproduction to deliver a rich and full-bodied musical experience. This unit is designed to be the core of a high-fidelity audio system, accepting various analog and digital sources and providing high-quality output to a power amplifier and speakers.
Key functionalities include a Class A balanced analog preamplifier, a full-function DAC, a Class A headphone output, and remote control capabilities. It supports both fixed and variable DAC modes and includes 12-volt triggers for system integration.

2. Features

- **Analog Gain Cell:** This technology addresses volume control by varying its gain directly, eliminating the need for sonically degrading elements like potentiometers or relays in the signal path.
- **Digital to Analog Converter (DAC):** Integrated with industry-leading Sabre32 bit Hyperstream architecture, the Stellar DAC features a fully balanced Class A analog output stage, multiple power supplies, independent jitter-reduced inputs, DSD, I2S, and asynchronous USB support.
- **Robust Construction:** Each Stellar product is hand-built in PS Audio's Colorado facility, utilizing durable aluminum and cold-rolled steel for longevity and performance.
- **Comprehensive Controls:** Includes Volume Control, Balance Control, Home Theater Mode, Polarity (phase) Control, Filter Control, Trigger Output, and a full-function Remote Control.
- **Versatile Connectivity:** Features multiple digital inputs (I2S, Coax x2, Optical, USB Type B) and analog inputs (RCA x3, XLR x1), along with balanced XLR and unbalanced RCA analog outputs, and a 1/4" headphone jack.

3. Setup

3.1 Unpacking

Carefully remove the Stellar Gain Cell DAC from its packaging. Retain all packaging materials for future transport or servicing. Inspect the unit for any signs of physical damage. If damage is observed, contact your dealer immediately.

3.2 Placement

Place the unit on a stable, level surface away from direct sunlight, heat sources, and excessive moisture. Ensure adequate ventilation around the unit; do not block the ventilation slots on the top or sides. Allow at least 2 inches (5 cm) of clear space above and around the unit for proper airflow.

3.3 Connections

Before making any connections, ensure the Stellar Gain Cell DAC and all connected components are powered off and unplugged from the AC mains. Refer to the rear panel diagram below for connection points.

Figure 3.1: Rear Panel Connections of the Stellar Gain Cell DAC.

3.3.1 Digital Inputs

- **I2S:** Connect to compatible I2S sources for optimal digital audio transmission.
- **Coaxial (x2 PCM):** Use high-quality coaxial digital cables for connecting CD players, streamers, or other digital sources.
- **Optical:** Connect devices using optical (Toslink) digital cables.
- **USB "B" Type:** Connect to a computer for high-resolution audio playback. Ensure appropriate drivers are installed on your computer if required.

3.3.2 Analog Inputs

- **RCA (3 stereo pair):** Connect analog sources such as phono preamplifiers, tuners, or tape decks using RCA cables.
- **XLR (1 stereo pair):** For balanced analog connections from compatible sources, providing improved noise rejection.

3.3.3 Analog Audio Outputs

- **RCA (analog unbalanced) 1 stereo pair:** Connect to the unbalanced inputs of your power amplifier.
- **XLR (stereo balanced) 1 stereo pair:** Connect to the balanced inputs of your power amplifier for optimal signal integrity.
- **1/4" Headphone connector (front panel):** For direct headphone listening.

3.3.4 Power Connection

Connect the supplied AC power cord to the IEC inlet on the rear panel of the Stellar Gain Cell DAC and then to a suitable AC wall outlet. Ensure the voltage matches your region's requirements.

4. Operating Instructions

4.1 Power On/Off

After all connections are made, flip the power switch on the rear panel to the 'ON' position. The front panel display will illuminate. To power off, flip the switch back to 'OFF'.

Figure 4.1: Front Panel of the Stellar Gain Cell DAC.

4.2 Input Selection

Use the input selector buttons on the front panel or the remote control to cycle through the available digital and analog inputs. The selected input will be indicated on the front display.

4.3 Volume Control

Adjust the output volume using the large rotary knob on the front panel or the volume up/down buttons on the remote control. The volume level is displayed numerically on the front panel.

4.4 DAC Modes (Fixed or Variable)

The Stellar Gain Cell DAC can operate in either fixed or variable DAC mode. In fixed mode, the DAC output level is constant, and volume control is handled by a downstream preamplifier or integrated amplifier. In variable mode, the Gain Cell DAC acts as a preamplifier, controlling the volume directly. Consult the full user manual for instructions on switching between these modes.

4.5 Headphone Output

Plug your 1/4" headphones into the jack on the front panel. The headphone output is a Class A design, providing high-quality audio for personal listening. Connecting headphones typically mutes the main analog outputs.

4.6 Remote Control Functions

The included remote control provides convenient access to all primary functions, including power, input selection, volume adjustment, balance control, polarity inversion, filter selection, and activation of Home Theater Mode. Refer to the remote control's specific diagram in the comprehensive manual for button layouts.

5. Maintenance

5.1 Cleaning

To clean the exterior of the unit, use a soft, dry, lint-free cloth. For stubborn marks, slightly dampen the cloth with water. Avoid using abrasive cleaners, solvents, or chemical sprays, as these can damage the finish and internal components.

5.2 Ventilation

Regularly check that the ventilation slots on the top and sides of the unit are not obstructed by dust or other objects. Proper airflow is essential for maintaining optimal operating temperature and ensuring the longevity of the components.

6. Troubleshooting

If you experience issues with your Stellar Gain Cell DAC, please refer to the following common troubleshooting steps before contacting support.

Problem		Possible Cause	Solution
No power	Power cord disconnected; Power switch off; Blown fuse	Ensure power cord is securely connected. Check rear panel power switch. If unit still does not power on, contact support; do not attempt to replace fuse yourself.	
No sound output	Incorrect input selected; Volume too low; Mute engaged; Output cables disconnected; Downstream component issues	Verify correct input is selected. Increase volume. Check if mute is active on unit or remote. Ensure all audio cables are securely connected. Check power and input selection on your power amplifier.	
Distorted or noisy sound	Poor cable connections; Ground loop; Source quality; Digital input format mismatch	Check all cable connections for tightness and proper seating. Try disconnecting other components to isolate a ground loop. Verify the quality of the source audio. Ensure the digital input format (PCM, DSD) is compatible with the source and unit settings.	
Remote control not working	Dead batteries; Obstruction; Remote sensor blocked	Replace batteries. Ensure no objects are blocking the line of sight between the remote and the unit's front panel sensor.	

If the problem persists after attempting these solutions, please contact PS Audio customer support for further assistance.

7. Specifications

General	
Manufacturer	PS Audio
Model Number	STL-GDAC-US-B
Dimensions (W x H x D)	17" x 3" x 12" (43.18 x 7.62 x 30.48 cm)
Weight	13.5 lbs (7.71 kg)
UPC	810283014294
Digital Inputs	
Types	I2S, Coax (x2 PCM), Optical, USB "B" Type
Formats	PCM, DSD
Analog Inputs	
RCA	3 stereo pair
XLR	1 stereo pair
Analog Audio Outputs	
RCA (unbalanced)	1 stereo pair
XLR (balanced)	1 stereo pair

General	
Headphone	1/4" connector (front panel)
Analog Performance	
Gain	12dB +/-0.5dB
Maximum Output	20 Vrms
Sensitivity	5.3Vrms
Input Impedance	47KΩ single ended RCA, 100KΩ Balanced XLR
Output Impedance	100Ω single ended RCA, 200Ω balanced XLR
Frequency Response	20Hz – 20KHz +0/- 0.25dB, 10Hz – 100KHz +0.1/-3.0dB
S/N Ratio (1KHz)	>110dB (max output)
Headphone Performance	
Output Power @1% THD	300Ω: 300mW, 16Ω: 3.25W
S/N Ratio (1kHz Noise)	>95dB (max output), <-80dBV
Output Impedance	<4Ω

8. Warranty and Support

8.1 Manufacturer's Warranty

All PS Audio products, including the Stellar Gain Cell DAC, come with a three-year warranty from the date of purchase. This warranty covers defects in materials and workmanship under normal use. Please retain your proof of purchase for warranty claims.

8.2 Customer Support

For technical assistance, troubleshooting beyond this manual, or warranty service, please contact PS Audio customer support. Visit the official PS Audio website for contact information, FAQs, and additional resources.
Note: Do not attempt to service the unit yourself. Refer all servicing to qualified service personnel.