

BelCantoDesign

eVo200.2

**Digital Power Processor
Audio Power Amplifier**

User's Guide and Operating Information

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eVo200.2 Digital Power Processor, Audio Power Amplifier

The **eVo200.2** is a dual configuration, stereo/mono power audio amplifier using a unique Bel Canto Design, eVo Digital Power Processor circuit architecture.

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Bel Canto grew from the quest to achieve the ultimate musical satisfaction from an audio system. This goal began with the discovery of the inherent sonic qualities and musical performance potential of a nearly forgotten technology, the single-ended triode amplifier. The ability of this type of amplifier to recreate the musical experience and evoke a powerful emotional response in the listener, much like the live event, inspired the development of the SET line of amplifiers through the ultimate expression of this technology. The SET amplifier was developed as both a cornerstone for a modern audio system and as a reference tool to explore newer technologies that delivered the single-ended triode amplifier's uniquely musical presentation.

For the better part of a decade this quest continued and has resulted in the birth of a line of fine audio components in Bel Canto's eVo digital amplifiers and matching components. These components share the inherent musical qualities of the reference amplifier, while achieving a new level of value and performance using the latest analog and digital technologies. The eVo200.2 is the first digital amplifier in this new line and represents a significant advancement in home entertainment technology.

*The **eVo200.2** presented in the following pages is designed to maintain very high value because of both the quality of design and manufacturing and also the timelessness of each component's musical performance.*

Bel Canto Design

Design Features

- High efficiency Digital Power Processing output stage for cool operation
- Small signal analog processing
- > 800 watts short term continuous power output capability in Mono mode
- Optimized balanced and single-ended input stage
- THD and IMD <0.01%
- Damping Factor >100
- High thermal stability in all stages
- Fully regulated, low noise supplies for all analog stages
- Audio Grade decoupling capacitors and resistors used throughout
- Soft clipping performance with uncompromised low level distortion performance
- Anti-phase dual channel operation.
- High efficiency for 'green' amplification
- Protection circuitry outside signal path

The eVo Digital Output Stage and Digital Power Processor

The Bel Canto Design eVo digital output stage is of unique simplicity. The output uses 2 N channel MOSFET switches which are switched between the power supply rails. These switches turn on and off within 30 billionths of a second and provide an on resistance path to the supply of less than 65 thousandths of an ohm. These switches switch alternately between the supplies at a rate over 600,000 cycles per second (600 kHz). When no audio signal is present, the ratio between the time at the positive supply and the negative is balanced to provide no audio frequency output. The switching stage is isolated from the loudspeaker by a single Inductor/Capacitor. This 80kHz

second order low pass filter is used to reject high frequency energy and optimize phase response – while preserving high frequency information.

Furthermore, the digital power processor adds small levels of high frequency dither to insure that an inherently linear output stage characteristic is maintained from very low to very high output levels. The audio frequency information modulates the output stage by changing the time relationship between the positive and negative supply rails. The critical timing information is controlled by the digital power processor and the effective switching frequency is changed over a 200 kHz to 1500 kHz range. This spreads the digital energy created by the amplifier over a wide bandwidth, greatly reducing the energy at any one frequency. This permits using a simple LC filter to remove the digital energy and maintains excellent phase response. Feedback is taken from the common node of the output switches before the LC filter and fed back to the digital power processor. This feedback is used to insure that any variations in the switching speed of each output device are compensated for, optimizing the linearity of the output stage.

Warm-Up

The **eVo200.2's** sonic performance will start to stabilize after approximately forty (40) hours of continuous power up.

Unpacking

Unpacking

The box containing your **eVo200.2** contains the following parts:

- 1 - **eVo200.2** audio power amplifier
- 1 - **eVo200.2** User's Guide
- 1 - Power Cable for connection to utility power [6' 7" - 2 meters long]

Carefully unpack each piece and check for shipping damage. If there is any damage, or if

a piece is missing, please contact your dealer or Bel Canto Design, Ltd. **Save all packing materials** as the packing is specially designed to protect the amplifier for shipping or transporting. If you lose or damage the packing materials or carton, please contact your dealer or distributor before attempting to transport the amplifiers.

The eVo200.2's power supply is preset for the proper national voltages before you receive it. The power cable will have the correct plug for your local power system. If you believe this is not true, please contact your dealer immediately. Do not attempt to alter or change power settings yourself!

Warning

Do not connect power to this amplifier yet!

This amplifier, like any electrical component, can be dangerous and cause injury unless correct handling procedures are observed and used. Before powering this amplifier it is necessary to read and follow proper setup and use procedures.

Do not open up your eVo200.2 (do not remove the chassis cover). There are no user serviceable parts inside. Any tampering of internal parts will immediately void your warranty.

Complete and mail the Owner's Registration Card immediately in order to activate your warranty.

Initial Setup

Line Level Inputs

Two inputs per channel are provided. The RCA jack is a standard input that accepts single-ended sources. The female XLR jack allows true balanced hookup operation using the standard pin configuration:

- Pin 1 Ground
- Pin 2 Input +
- Pin 3 Input -

If there is a problem with noise or hum at the amplifier outputs when using a single-ended source, this may be due to the ground side of the RCA jack is not connected to the circuit ground of the amplifier. To connect this to the ground depress the RCA/XLR switch button. This should be adequate to correctly ground most systems with stereo preamplifiers.

Loudspeaker Connection and Power Output Options

Connect loudspeakers to the outputs of the eVo amplifier using the 5-way binding posts located the rear of the amplifier. The red or black center plug in the output post can be removed for use with banana type connectors. Unscrew binding post until the gold pin in the bare wire hole is visible. Remove the center pin by first pushing one end in, and then, using serrated needle nose pliers, pull the center pin out from the other side. Do not connect speaker terminals to a chassis or earth ground connection. The Anti-Phase operation of the outputs would result in one of the red (positive) outputs being connected to ground and cause the amplifier to go into protection mode and shut itself off. Also when connecting the amplifier in balanced-mode mono operation both terminals are driven actively and can not be grounded. *Make certain that any output terminal is not connected to a chassis or earth ground.*

Mono mode operation

Mono power delivery can be obtained with the simple push of a button. Connect one input cable to any of the 4 input jacks and depress the RCA/XLR button to select the appropriate input. Then, depress the mono/stereo mode button. The loudspeakers are then connected to the output terminals indicated for mono-mode operation on the back panel.

Power On and Operation

The rear panel has a master power switch for the **eVo200.2**. The **eVo200.2** has been designed to remain powered up at all times. The blue front panel LED is on when the **eVo200.2** is in normal operating mode. When the amplifier shuts down in protection mode a small red LED lights next to the blue LED. If this occurs, turn off the main power switch and insure that no output terminal is connected to ground or to another terminal. Restore power and the amplifier should return to normal operation. If not then there may be an internal fault and the amplifier should be returned to an authorized service center. Contact your dealer, distributor or Bel Canto Design.

Amplifier Placement

eVo200.2 Placement Within Your System

The most typical arrangement places the **eVo200.2** on the lower shelf of a rack or shelf unit; some users prefer to have the **eVo200.2** on its own stand.

Whichever method is preferred, it is recommended to use a high quality type stand capable of dissipating vibration and resonance into the floor area.

Because the **eVo200.2** runs so cool it can be placed in many system locations without compromise.

We do not recommend placing weights or other objects directly on the **eVo200.2**. This may mar or scratch the chassis finish. Dampen a soft cotton cloth with warm water for cleaning the outer surfaces.

Specifications

Power output per channel into 8 ohms • 120 watts <1% THD+N

Power output per channel into 4 ohms • 200 watts <1% THD+N

800 watts short term continuous Mono

Bandwidth: + or - 3dB • 1Hz-80KHz

Input level for full stereo output • 2 Volts RMS

Signal to Noise Ratio @ 1 watt out • >96 dB A weighted, 20 kHz

Distortion @ 1 watt / 1kHz • <0.05%

Damping Factor • >100

Input configuration and impedance • single-ended/balanced 100Kohm

Stereo Mode Gain • 26 dB

Power Requirements • 100-120 VAC 50-60 Hz or 220-240 VAC 50-60 Hz

30-1000 Watts

Dimensions • 17.5" W x 14.5" D x 4.5" H (445 mm x 368 mm x 114 mm)

Weight • 30 lbs. (13 kg)

Warranty Information

Please take a moment to fill out your warranty registration sheet. Returning this registration validates your warranty and allows us to send you information on product updates and new product development. This information will be filed with your amplifier's build documents and will not be used for any other purposes. This information will not be sold or released outside Bel Canto Design. Your comments and suggestions help us continue to improve upon our products and services.

Bel Canto Design products are automatically covered by a 90 day factory warranty. With no additional cost, you have the option to extend your warranty to a 5-year limited warranty by completing and returning the enclosed warranty registration form within 30 days of purchase, along with a copy of the original sales receipt from an authorized Bel Canto Design dealer. This will ensure prompt warranty coverage. This warranty is only valid to the original owner who has returned the warranty sheet along with a copy of the original sales receipt, covering all internal parts and workmanship. This warranty is void if damage is due to abuse, neglect, or unauthorized modification. The cost associated with the return of this unit is the sole responsibility of the owner.

Bel Canto Design products are uniquely identified with a serial number on the back panel of each unit. This number is required to validate your warranty. Please reference the serial number if service is required. If you have any questions, comments, or if we can be of service, please contact us Monday through Friday 9:00 a.m. - 5:00 p.m. central time.

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