

User's Guide and Operating Information

bel canto



# REF1000

## e.One™ Series

**Mono Audio  
Power Amplifier**

Bel Canto Design, LTD.  
212 Third Avenue North  
Minneapolis, MN 55401  
Phone: (612) 317.4550  
Fax: (612) 359.9358  
[www.belcantodesign.com](http://www.belcantodesign.com)  
[Info@belcantodesign.com](mailto:Info@belcantodesign.com)  
©2005 Bel Canto Design, LTD

The Bel Canto Design e.One Series REF1000 is a perfect example of what can be accomplished when elegant engineering and depth of empirical knowledge are combined. All components are selected for high sound quality, precision, technical performance, and material quality. Bel Canto's circuit designs and component quality will provide superb performance and years of listening satisfaction.

# REF1000

## Mono Audio Power Amplifier

### TABLE OF CONTENTS

Bel Canto Design Statement .....	.3
Design Features .....	.4
Unpacking .....	.5
Initial Setup and Operation .....	.6 & 7
Specifications .....	.8

## Get Closer

Bel Canto Design audio products are designed to bring you closer to the power and beauty of your music. Our goal is simply to provide the most expressive and powerful musical experience outside of the live event and bring some of the greatest musicians and their performances into the intimacy of your home. We design equipment which is easy to own, use and live with. We fully expect that your enjoyment and appreciation of your Bel Canto purchase will grow as you live with it and experience all of the fine audio subtleties that emerge.

Bel Canto Design

## Design Features

The e.One Series REF1000 is a mono amplifier designed to deliver over 500 watts into 8 ohm loads and 1000 watts into 4 ohm loads. The REF1000 has current drive capability for virtually any loudspeaker load down to 2 ohms. This is achieved in a compact and elegant product through our adaptation of the latest analog switching amplifier and power supply technology from the ICEpower group.

This technology brings unprecedented performance gains in absolute musical performance. The regulated power supply and fully balanced

analog switching amplifier architecture liberates your loudspeakers to perform at their best. The ultra-low noise operation insures that the most subtle of musical expressions comes through with palpable clarity.

The superb measured performance insures that harmonic and intermodulation distortion don't interfere with the pristine beauty or raw power of the musical message.

The e.One series amplifiers from Bel Canto insure that you fully experience the musical intensity and beauty of your favorite artists.

### Warm Up

The REF1000's sonic performance will start to stabilize after approximately forty (40) hours of continuous power up. We recommend that the REF1000 remains powered for optimum performance.

## Unpacking

### Unpacking

The REF1000 box contains:

- 1 – REF1000 User's Guide
- 1 - Power Cable for connection to utility power [1.85m, 6' long]
- 1 – REF1000 Amplifier.
- 1 - Owner's Warranty / Registration Sheet

Carefully inspect your new unit and check for shipping damage. If there is any damage, or if any piece is missing, please contact your dealer, distributor or Bel Canto Design.

Save all packing materials as the packing is specially designed to protect the amplifier for shipping or transporting it. If you lose or damage the packing materials or carton, please contact your dealer or distributor before attempting to transport the preamplifier.

The REF1000's power supply is pre-set for the proper AC line voltage 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. This will void the warranty.**



### **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 preamplifier it is necessary to read and follow proper procedures concerning its setup and use.

**Any tampering of internal parts will immediately void your warranty.**

USA customers: For Warranty Coverage complete and mail the Owner's Registration Papers immediately.

## Rear Panel Connections



REF1000 Rear Panel

### **Never Connect Either the Positive or Negative Speaker Output to Any Ground Contact!**

Connecting any Speaker Output on the REF1000 to Ground will cause the amplifier to go into protection and could damage the amplifier and void the warranty.

- 1) Power Switch: Power is on when the switch is toggled to the I position and off in the O position.
- 2) Input Connections and RCA/XLR switch: When using RCA cables for the input insure that the RCA/XLR switch is pressed in to the RCA position. When using XLR cables insure that the switch is out in the XLR position. This will generally insure ideal grounding and minimize ground noise from interfering with the audio signal.
- 3) Output Connections: Attach your loudspeaker to the output connectors, insure that the polarity of each speaker is correct and the same so that no phase inversion can occur. **Never Connect Either the Positive or Negative Speaker Output to Any Ground Contact!**
- 4) IEC power cord jack: Connect a heavy gauge power cord from this jack to the wall power supply. Note the power setting indicated on the back of the amplifier before connecting the power.

When all connections to and from the amplifier have been made then double check everything, insure that the pre-amplifier is powered on and set to a Mute setting and power on the REF1000.

## What to do if there is hum or ground noise:

- 1) Check that the RCA/XLR switch is in the correct position for the type of connection being used.
- 2) Insure that the preamplifier or any source components are not producing hum by setting the preamplifier to a MUTE or Standby setting.
- 3) The design of the REF1000 reduces the chance for ground loop induced hum but we still recommend that you use shorter interconnect cables to the preamplifier and connect all power cables to a common outlet box or power conditioner unit to reduce the

possibility for ground current noise being induced into the audio signal path. If you choose to power your source and preamplifier components from a different AC supply than used for the REF1000 amplifiers, we recommend that you use a high quality balanced XLR cable driven from a true balanced XLR preamplifier output. We do not recommend that you resort to 'cheater plugs' or some other means to disconnect the power ground from the REF1000 as this may lead to dangerous operation and void the warranty.

## Front Panel Indicator Lamp

The small blue LED lamp indicates that the power is connected to the REF1000 and that the power switch is in the ON position. If the amplifier detects a fault or short circuit in the output connections then it will go into a protection mode and stop playing. If this occurs toggle the power switch to the OFF position and check the speaker cabling to insure that no speaker output is either shorted together or connected to a ground. When you are certain that the loudspeaker cabling is correct, power the unit ON again and insure that the Blue lamp is lit and that music will play.

## Fuse Protection

There is an internal fuse protection on the REF1000. If the power switch is in the ON position, the power cable is connected to a functioning power outlet at the correct voltage and the Blue lamp is not lit, this indicates that the internal fuse may have blown. If this occurs contact your dealer, distributor or Bel Canto for service. There are no user replaceable fuses or other parts. Opening the chassis will void your warranty.

## Specifications

Power Output:	>1000W into 4 ohms, >500W into 8 ohms
Minimum Load:	2 ohms
Frequency Response:	+/-0.5dB 20Hz-20KHz, all loads
THD+N:	0.007% 1W, 1KHz, 4 ohms
IMD (CCIF):	0.0007%, 1W, 14:15KHz, 4 ohms
Output noise:	90uVRMS A-weighted 10Hz-20KHz
Voltage gain:	27dB (single ended or balanced input)
Damping factor:	>1000
Output Impedance at 100Hz	<8 milliohms
Dynamic Range:	120dB
Input Voltage for Max Output	.3Vrms
Input connections:	Single-ended RCA or balanced XLR
RCA input impedance:	10Kohms
Balanced input impedance:	.20Kohms
Output connections:	1-set WBT 5-way safety binding posts
Standby Power:	15W
Size:	8.5x3x12[inches], 216x76x305[mm] (WxHxD)
Weight:	13lbs, 6Kg

Features and specifications are subject to improvements and changes without prior notice.



**Bel Canto Design, LTD.  
212 Third Avenue North  
Minneapolis, MN 55401  
Phone: (612) 317.4550  
Fax: (612) 359.9358  
[www.belcantodesign.com](http://www.belcantodesign.com)  
[Info@belcantodesign.com](mailto:Info@belcantodesign.com)  
©2005 Bel Canto Design, LTD  
e.One™ is a trademark of Bel Canto Design, LTD**