

bel canto

**FIDELIO™**

**PHONO**

**Low Noise Solid State Phono Preamplifier**

**User's Guide and  
Operating Information**

Bel Canto Design • 212 Third Avenue North – Suite 345 • Minneapolis, MN  
55401

Phone: (612) 317.4550 • Fax: (612) 317 4554 • Email: [Info@BelCantoDesign.com](mailto:Info@BelCantoDesign.com)

# FIDELIO™ PHONO

## Low Noise Solid State Phono Preamplifier

The Bel Canto Design **FIDELIO™ PHONO** is yet another example of what can be accomplished when elegantly simple engineering and a depth of empirical knowledge are amalgamated. All components are selected for high sound quality, precision, technical virtue, and material quality. Bel Canto's circuit designs and component quality will provide superb performance and years of listening satisfaction.

## Contents

Bel Canto Design Statement	3
Design Features	4
Unpacking	5
Cartridge Loading, Gain, Initial Setup, and Placement	6 & 7
Specifications and Warranty	8

# *Dedicated to Technical Virtuosity and Beauty of Music*

---

*Bel Canto Design grew from the quest to achieve the ultimate musical satisfaction from an audio system. This quest 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 circuit was developed for use as both a cornerstone for a modern audio system and as a reference tool to explore the reasons behind the single-ended triode amplifier's uniquely musical attributes.*

*For more than ten years this effort has continued and the result is a unique line of fine audio amplifiers and preamplifier that are designed to embody the unparalleled musical reproduction of the single-ended triode architecture. Bel Canto Design's goal is 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.*

*Bel Canto Design*

---

# Design Features

---

The gain stages and RIAA equalization use our zero loop-feedback, balanced single-ended design. They use a JFET differential gain stage with power MOS devices in a class A source follower buffer configuration. This circuit prevents the audio signal from modulating, and from being modulated by, the power supplies and ground. The audio signal information is effectively isolated from these sources of signal loss and degradation.

The power supplies use a current source driven shunt regulator for the gain stage. A separate power supply buffer is used for the output driver stage. This supply architecture provides the stability and isolation of battery power without the inconvenience and expense.

The power transformer is a custom design, it provides lower mechanical and electrical radiated noise than toroidal transformers with better isolation from noise on the power lines, mechanical isolation is provided through special elastomeric grommets. This allows the transformer to share the chassis with the audio circuitry without compromising performance. Extensive mechanical damping is used in the rigid chassis to minimize microphonic effects from coloring the signal outputs.

There is over 25,000  $\mu$  of capacitance filtering the raw DC. The first stage of filtering drives eight (8) individual regulators providing power

to the analog circuits, where audio grade electrolytic and film bypass capacitors complement the active regulation stages.

The input impedance, gain and relative noise levels can be optimized for virtually any cartridge available. This is achieved through the use of small daughter boards which contain the input devices, gain set resistors, and can have input impedance setting resistors and capacitors added. This modular construction insures that the preamplifier can be optimized for any cartridge that you may use now or in the future.

The RIAA equalization is achieved without feedback in a unique circuit that combines the dynamic advantages of passive EQ without the noise increase that accompanies a passive EQ circuit.

The elegant simplicity of the balanced single-ended signal path and gain stage allows the **FIDELIO™ Phono** to preserve all of the audio signal.

## Warm Up

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

# Unpacking

---

## Unpacking

The box containing your **FIDELIO™ Phono** contains the following parts:

- 1 - **FIDELIO™ Phono** User's Guide
- 1 - Power Cable for connection to utility power [1.85m, 6' long] (**External Box Version Only**)
- 1 – **FIDELIO™ Phono** preamplifier.
- 1 - Owner's Warranty / Registration Sheet

Carefully your new unit and check for shipping damage. If there is any damage, or if any piece is missing, please contact your

dealer or Bel Canto Design.

**Save all packing materials** as the packing is specially designed to protect the preamplifier 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 FIDELIO™ Phono's power supply is preset for the proper national voltages before you receive it. The power cable (External Unit Only) 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 preamplifier yet!**

***This preamplifier, 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, other than for Moving Coil / Moving Magnet (MM/MC) setup, will immediately void your warranty.***

***For Warranty Coverage complete and mail the Owner's Registration Papers immediately.***

# Gain Settings, Initial Setup, and Placement

---

**\* Though we do not offer any cables ourselves, Bel Canto highly recommends the use of quality interconnect, speaker, and power cables. All cables do sound different due to the inherent electrical properties of the cable design and materials used. Please contact your Bel Canto dealer for an explanation and demonstration of what good cables can do in your system.**

## • Cartridge Loading

Cartridge loading settings should directly correspond to the cartridge manufacturers recommended loading figure, if you don't know the recommended loading of your cartridge please contact the manufacturer or your dealer for this information.

Loading settings can be done using the dip switches seen through the opening near the RCA inputs of your phono stage. For the normal settings seen on the panel below the dip switch opening use a pen or small pointed object to switch down the corresponding dip switch, all other switches should be in the up position.

***-Please refer to the following chart for a complete listing of loading settings possible to correctly match your cartridge:***

## • Internal Gain Settings (Hi & Low.)

**Note: Gain settings can only be accessed when the MM/MC jumpers, located inside the phono stage, are in the Moving Coil (MC) jumper position.**

Bel Canto recommends that you consult your turntable consultant / dealer to ascertain the exact setting to use with your particular system.

In the lack of specific system information the following can be used as a guide:

- Use the Hi gain/MC setting when the output of your cartridge has less than .5mv output.
- Use the Low gain setting when your cartridge has more than .5mv output.

Measured Gain of MM & MC Selections:	
1) MM –	34db
2) MC Low –	48db
3) MC Hi –	54db

## • Input Panel Connections

- The input connection panel includes one pair of RCA type inputs to be used for connection of your tone-arm wires from your turntable.
- The ground connection located on the input panel should only be used if necessary, you should first try to hook up your turntable without the use of this grounding plug. In the case that hum is heard through your speakers when the phono stage is connected, you can easily ground your turntable by connecting the turntable ground to the input panel ground terminal. If grounding your turntable does not alleviate the hum problems please contact your dealer for further information specific to your system setup.

## • RCA Main Output Jacks for Left and Right Channels (*External Box*)

These connectors are found on the opposite side as the RCA inputs, ground connector, and loading switches.

The FIDELIO™ Phono has one pair of RCA type outputs which can be run into any input of any preamplifier with RCA type connectors.

Do not run your phono preamplifier into the phono input of a preamplifier that already has a phono preamplifier built in to it. In this case you can use any RCA auxiliary input other than the phono input.

## Placement of the FIDELIO™ Phono Within Your System (*External Box*):

The FIDELIO™ Phono may be situated within your system in any convenient manner desired.

The most typical arrangement places the FIDELIO™ Phono near or behind the turntable

in order to make a short a connection between the tonearm and phono stage. By eliminating as much tonearm interconnect wire as possible you will reduce the systems susceptibility to RF interference and sonic impact of long wires.

It is recommended to use a high quality type stand or isolation platform capable of dissipating / isolating vibration and resonance.

# Specifications

---

Class of operation •

Bandwidth Into >20K Ohms •

Signal to Noise Ratio • >

Distortion at 3 Volts rms • <

Input configuration and impedance •

Output Options • 1 Pair RCA

Output Impedance •

Maximum Output Level •

Balanced Gain •

Power Requirements • 115/230 VAC; 50-60 Hz 15 watts

Size •

Weight •

## **Warranty Information**

Completion and return, by fax or mail, of your warranty papers along with a copy of the original sales receipt is the only way to receive **ANY** extended warranty coverage. Please return the requested documentation to Bel Canto within 15 days of original purchase.

***Bel Canto Design offers a 90-day warranty that can be extended to a 5-year limited warranty by simply returning, by fax or mail, your fully-completed warranty paper along with a copy of your original sales receipt.***

Warranty coverage includes all parts and workmanship. Warranty is void if damage is due to abuse, neglect or unauthorized modification. All warranty work must be done by Bel Canto or authorized Bel Canto international distributor.

Bel Canto Design products are uniquely identified with a serial number on the back panel or the bottom plate of each unit. This number is required to validate your warranty, please reference 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.

Bel Canto Design  
212 Third Avenue North, Suite 345  
Minneapolis, MN 55401  
Phone: 612 317.4550  
Fax: 612 317.4554  
Email: Info@BelCantoDesign.com