



*"The delicacy of tubes.
The authority of transistors."*

Concerto™ Modular Preamplifier Owner's Manual

Introduction:

Thank you for purchasing Sonogy's Concerto™ preamplifier system. It represents some of the most unique and advanced thinking on how to combine unrivalled sound quality with practicality and ease of use. If you take the time to read this manual, we believe that you will enjoy your Concerto all the more.

Don't Blow Up Speakers!!!

CARELESS USE CAN RESULT IN SPEAKER DAMAGE. PLEASE READ THIS MANUAL CAREFULLY. IN PARTICULAR READ THE FOLLOWING:

When preamps are turned on and off, the electronics are momentarily unsettled, and can produce a "thump". If your amplifier is on, it will make this thump 20-100 times louder, and could damage, or destroy, your speakers. Only turn this product on or off, or connect wires, with speakers disconnected or with your power amplifier off.

Caution! Install Power Supply with CARE

The power supply for the Concerto is detachable from the preamplifier chassis for your convenience. However, if misused, you can seriously **damage** the power supply, the preamplifier, or both. NEVER connect the power supply to preamp with the power supply on and plugged in. If you are in doubt, make the DC connection BEFORE plugging the power supply into the wall.

Warm-up (important!):

The Concerto requires extensive warm-up in order to sound its best. We strongly recommend that you plug in the Concerto, turn it on, and let it warm up for 24 hours before expecting excellent performance. We also strongly recommend that you always leave it on - 24 hours a day - except to move or service the preamplifier.

Product Description:

Sonogy's Concerto is a modular preamplifier. Both phono and the common "line" stages, are provided on plug-in circuitry so that they may be easily installed, removed, replaced, and upgraded. The phono circuit card is optional.

We don't feel that in order to enjoy superb sound you should give up convenience and flexibility. While the circuitry and layout are simple and optimized for extraordinary sound, we included many convenient features which make the Concerto a truly enjoyable product to own and use. We think that this combination of performance and convenience is rare, and hope you find it as enjoyable as we do.

Circuitry

All of the line stage and phonograph circuitry in the Concerto is discrete; that is, made up of independent transistors, capacitors, and resistors. No IC operational amplifiers are used in these signal paths. All of our circuits are as simple as possible, in order to minimize distortion. Each and every circuit is class-A, and free of negative feedback loops (except benign degenerative feedback - see our white paper for the difference). All passive components are selected for their outstanding sonic quality and reliability. These include polypropylene capacitors, 1% metal film resistors, gold plated RCA jacks, and gold plated, mil-spec, bifurcated gas-tight connectors.

Line Stage

The line stage provides just over 4X, or 12 dB, of gain. The input to the line stage is unbalanced, the output is balanced. The unbalanced output is taken from the non-inverting output. No additional circuitry is required to produce balanced signals from your Cantata. Therefore, the balanced outputs are every bit as pure sounding as the unbalanced outputs. This is often not true, even with expensive preamplifiers.

Power supplies

We have found that power supplies are a fundamental determinant of superb sound. Given a reasonably well designed circuit, the power supply design and execution will ultimately determine how well music is re-created. We also feel that a power supply must be designed to the specific needs of different circuits; there is no one "best". The power supply configurations in the two stages of our Cantata amplifier, and the two major circuits in the Concerto, are all at least slightly different in conception. This is the result of hundreds of hours of listening, and correlating designs to the most musically faithful sound. All power supplies in the Concerto are locally regulated using discrete components.

Plug-in circuitry

Both the line stage, and the optional phono (RIAA & gain) stages are provided on plug-in circuit boards.

Since its circuitry is contained on plug-in boards, your Concerto may be upgraded or customized easily and cost effectively. You need purchase only those circuit boards which you wish to use, and can make cost-effective upgrades as your needs changes, or as our research and development yields significant breakthroughs in the future.

Balance

Two adjustment knobs are provided which attenuate each channel independently. This arrangement is the purest we know of: it adds only a single metal film resistor to the signal path, as apposed to the carbon or plastic potentiometers used by almost everyone else. Each trim selector provides twelve settings. The first setting is a direct connection or "by-pass". Successive counter-clockwise settings attenuate the signal in the following steps:

#1	-0.0 dB (Full On)
#2	-0.5 dB
#3	-1.0 dB
#4	-1.5 dB
#5	-2.0 dB
#6	-3.0 dB
#7	-6.0 dB
#8	-9.0 dB
#9	-12.0 dB
#10	-15.0 dB
#11	-18.0 dB
#12	-24.0 dB

Input Selector

The input selector determines which input you will listen to, and/or record on tape. Much research, listening, and evaluation has gone into the selection of this critical component. We tested, listened to, and ranked nearly a dozen of the best rotary switches available before discovering these swiss jewels with silver contacts. This switch, the first in the critical signal path, uses self wiping silver contacts to provide a clean, sonically excellent connection every time.

The five line inputs are labeled "CD", "Tuner", "AUX 1", "AUX 2", and "AUX 3". These labels are for convenience only, all "line" inputs are standard and can accept most low-level audio signals from tuners, VCRs, televisions, tape decks, etc. The maximum gain (amplification) from these inputs to the amplifier outputs is 12 dB unbalanced, 18 dB balanced. The overload level is greater than 5V r.m.s.

In addition to the line inputs, there is provision for a turntable to be connected. The "Phono" input can only be used if you install a phono circuit card.

RIAA phonograph plug-in circuitry (optional)

The RIAA, or Phono, circuitry provides the substantial amplification and equalization needed to play records. Only one card is offered. It can be configured, at your request, for either moving magnet or moving coil type cartridges. The maximum gain that this circuit can provide is 66 dB (2000x) at 1 kHz.

A socket is also provided for you to customize the MC loading for optimal sound with your cartridge.

WARNING!!! NEVER OPEN THE CONCERTO, OR REMOVE A PLUG-IN BOARD, OR TOUCH ANY PORTION OF THE INSIDE WITH THE CONCERTO TURNED ON!!!! YOU MAY DAMAGE THE CONCERTO, YOUR SPEAKERS, OR EVEN GIVE YOURSELF AN ELECTRIC SHOCK!!!! SONOGY WILL BE HAPPY TO PERFORM ANY LOADING MODIFICATION FOR A MODEST HANDLING AND SHIPPING CHARGE.

Our RIAA circuitry, unlike most others, does not utilize negative feedback to perform RIAA equalization. All equalization is performed passively.

RIAA (Phono) Loading

The RIAA board can be "loaded" to best match your type and brand of cartridge. Most moving magnet type cartridges are designed for a 47K-ohm loading in parallel with a small amount of capacitance.

Moving coil type cartridges typically require 100 ohm loading, but this varies greatly from a low of about 10 ohms to a high of several hundred ohms.

Sonogy will customize your RIAA board when it is shipped from the factory, and will be happy to re-configure it to any cartridge manufacturer's specifications. The only charge for this service is a small shipping and packaging allowance to cover our costs.

In addition, sockets are provided so that you may experiment with various values, and obtain the sound which is best in your system. Be careful to perform this only with the preamplifier turned off. Also keep in mind that any resistor you insert in this socket is in parallel with the existing soldered-in load resistor, and that this will affect the actual match to your cartridge.

Mono/Stereo

A mono/stereo switch is provided to minimize distortion when playing old mono phonographs. These records were not cut anticipating stereo playback equipment, and may sound better in true mono.

Our stereo/mono circuit is extremely simple, in order to preserve sonic purity. It simply shorts the left and right signals together via a high quality, coin silver switch.

Absolute polarity

The absolute polarity (also called absolute phase) switch is combined with the manual mute. Many records are cut without regard to signal polarity. By using this switch, you may insure that playback occurs as did the original performance. The effect is subtle, but many find it worthwhile. We do.

Mute

Mute is used to fully attenuate (turn off) the sound, while leaving your preamp on. The mute shorts the outputs to ground. However, this should not be relied upon to protect your speakers in extreme circumstances. In those cases, always turn off your amplifier(s).

Power indicator

The power LED is located at the far left of the faceplate, and indicates that the power supply in your Concerto is operating.

External Power supply

The Concerto is powered from an external power supply. This box contains a 75VA power transformer, fuse, and a complete discrete regulator circuit to purify the incoming power. It provides +/- 22 volts DC to the Concerto, via a detachable umbilical cord. The maximum continuous output is 500 mA per 22V rail.

Tape Monitor / loop

A tape loop is provided for the connection of either an analog or digital (DAT) tape recorder. The tape outputs are fed with a copy of whatever input you select with the front panel input selector.

The "Tape Monitor" selects between the tape deck and the regular input selection, and affects listening only. If you own a 3-head tape recorder, this feature can be used to compare the original ("source") with the copy in progress ("tape").

Ground and Grounding

The Concerto and its metal chassis are always connected to earth ground via the 3-prong AC plug. Always ground this for safety. If your system "hums", a ground loop is likely present, and one of the other components may be improperly grounded. Contact your dealer or other electronic professional for assistance.

Proper grounding dictates that the preamplifier circuitry is grounded, and that all other components are grounded (via their interconnect cables) to the preamplifier. All components other than the preamplifier should be grounded for safety, but their circuitry should be floating. If you experience a hum, please check with your dealer or the manufacturers of associated equipment to insure that they follow this grounding convention.

Unbalanced Outputs

Two pairs of unbalanced outputs are provided. These can drive amplifiers, crossovers, or anything else which must be controlled by the volume, trim, and polarity settings of the preamplifier.

One set of outputs is "non-inverting", the other set is "inverting". In most situations, these may be used interchangeably. For example, one set could drive one amplifier, the other could drive a second amplifier in another room.

Balanced Outputs

The balanced outputs are provided on EIA standard "XLR" jacks.

The balanced outputs will drive Cantata amplifiers in their 300 watt balanced monoblock mode.

On/Off switch

No power switch is provided on the main preamp chassis; it is intended to stay on at all times. The Concerto will not run hot or consume much power, nor will constant use cause wear or deterioration.

Like most fine audio equipment, as it "warms up", the Concerto will sound slightly better. Thus, we recommend that it is only turned off for service or to be moved.

A power switch is located on the rear panel of the power supply box. "Down" is off, "up" is on.

Headphone jack and headphone amplifier

The headphone amplifier circuitry is very low output impedance / high current, designed especially for Grado Signature™ headphones. This circuit will easily drive all headphones that we know.

Fuse

A 1/4 amp (1/8 amp for 220V models) slow blow type fuse is located on the rear panel of the power supply box. This fuse should not blow in normal use. If it blows, it is a sign that something is incorrectly connected, or that your preamp requires service.

NEVER REPLACE THIS FUSE WITH ONE OF HIGHER VALUE. IT IS DESIGNED TO PROTECT YOU FROM ELECTRICAL DANGER AND/OR FIRE HAZARD.

Specifications

Most specification are meaningless. We provide the following specifications which we feel are useful.

Dimensions

preamp chassis:	19" x 14" x 3.75"
power supply:	8" x 8" x 4"

Weight

preamp chassis	5 lbs
power supply	7 lbs

Input impedance

line inputs	40 k Ω minimum
RIAA (MM)	47 k Ω / 300 pF
RIAA (MC)	100 Ω / 300 pF
RIAA (all)	custom values

Output Impedance

unbalanced outputs	200 Ω maximum
balanced outputs	400 Ω maximum
headphone amplifier	10 Ω maximum

Power Consumption

	10 W maximum
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Signal ground = Chassis ground

Power Supply Current

	4 amp continuous
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Gain

line stage	12 dB (4x)
RIAA (MM)	46 dB (200x)
RIAA (MC)	66 dB (2000x)
RIAA (all)	custom available
headphone amplifier	12 dB (4x)

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