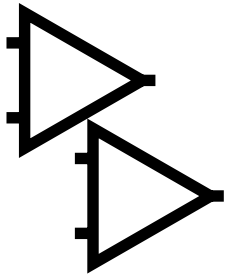

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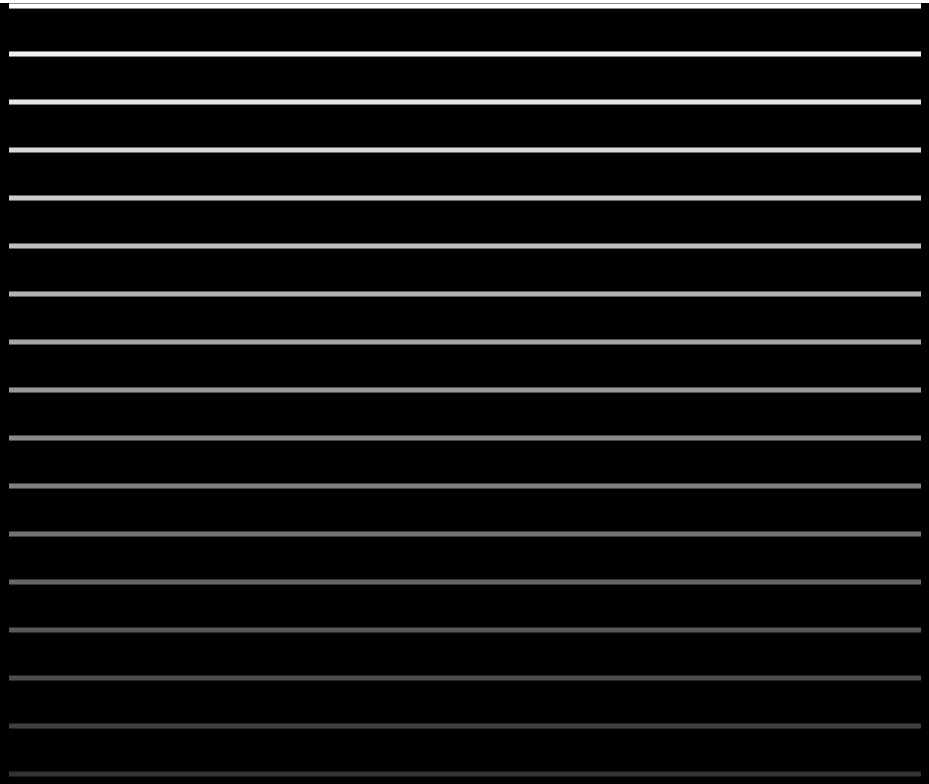

Cadence
Phono Stage
Owner's Manual

Introduction

Welcome to the Jeff Rowland Design Group "family" and congratulations on your purchase of what is unquestionably one of the world's finest phono preamplifiers. ► With its combination of industrial grade active and passive devices, precision electronic circuitry and accurately machined chassis components throughout, your Cadence Phono Stage will offer you many years of musically satisfying enjoyment. ► Please take a few moments to read the remainder of this Owner's Manual. ► A thorough understanding of the operational features will allow you to gain the maximum performance and ease of use for which this Phono Stage was designed. ► The serial number is located on the rear panel, and is also recorded below. The Cadence serial number begins with the letter R. Please include this number with any correspondence regarding your Cadence Phono Stage. It has been my joy to create an audio component of enduring value which will reflect a higher ideal of musical and artistic expression. It is my hope that these qualities will enrich your experience of ownership.

Enjoy the music!

Jeff Rowland

President

► Jeff Rowland Design Group, Inc.

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Product Features

- Balanced XLR inputs and outputs
- XLR to RCA adapters included for unbalanced (RCA type) phono interconnect cables.
- Ideal matching to all moving coil phono cartridges with four (4) position gain and load switching capability.
- High mass, non-resonant chassis, precision machined from 6061 aluminum plate, provides maximum isolation from distortion causing microphonics (vibration) in extremely low level circuitry.
- Operates in conjunction with the Synergy or Coherence Preamplifiers or with the optional Cadence AC Power Supply or BPS-1 Battery Power Supply.

The Cadence Phono Stage is designed to be used with all low to medium output moving coil phono cartridges. Use with high output moving coil cartridges (output level > 1.0 mV) is not recommended. Moving magnet cartridges cannot be used with this product.

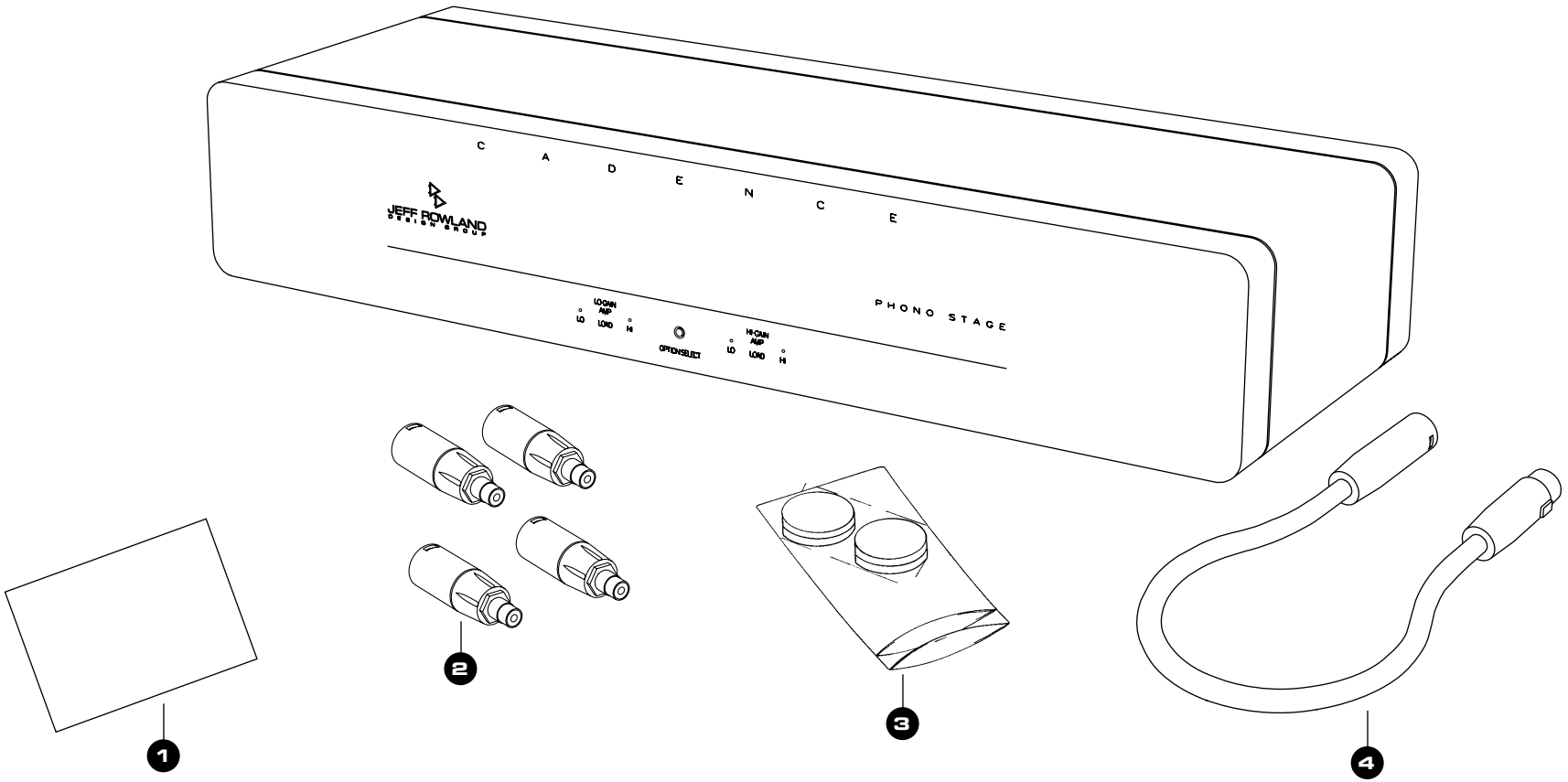
The Cadence is unique among all phono preamplifiers offered in the market. A specially designed phono step-up transformer, the heart of the unit, provides the ideal interface between a moving coil phono cartridge and carefully engineered low noise circuitry. The performance parameters offered by this complement of electronic components far exceeds any other phono preamplifier/equalizer offering to date.

High frequency damping, which compensates for mechanical and reactive resonances common to all moving coil cartridges, is extremely important at the input circuitry of all phono preamplifiers. In conventional phono preamplifiers, damping is provided by load resistors. As a result, a significant amount of signal energy is wasted when converted to heat within the loading resistors. Conversely, the Cadence input transformer has been carefully engineered to effectively damp resonant energy occurring at high frequencies while transferring the maximum amount of useful lower frequency energy to the active input stage. This results in significant increases in dynamic range with no penalties of increasing noise.

Traditional step-up transformers fall short in many performance areas such as frequency response, phase linearity (group delay), distortion, susceptibility to external hum fields, and poor common mode noise rejection. This is largely due to design and manufacturing limitations of the past as well as the need for high step-up voltage ratios to meet the requirements of a high input impedance (47K ohms) input stage. The Cadence input transformer, co-designed in conjunction with an innovative low noise input stage which, in itself, provides a noise figure approaching that of a 50 ohm resistor, over-comes all of the aforementioned problems. A reduced step-up ratio and use of high permeability transformer core material allow dramatic improvements in frequency response (4 Hz to 180 KHz), phase linearity (deviation from linear phase less than +3˚, 50 Hz to 20 KHz), and distortion (less than 0.001% at 1 KHz). Multiple layer MU-metal electro-magnetic shielding and modern, computer controlled coil winding techniques offer a noise immunity of 60 dB and common mode rejection ratio of 145 dB at 60 Hz. The transformer also provides excellent rejection of radio frequency interference (above 200 kHz), thus preventing contamination of the audio band by RF inter-modulation products.

Following the transformer, a split active/passive RIAA equalizer, composed of 1% tolerance parts, assures RIAA accuracy within 0.05 dB from 20 Hz to 20 KHz with distortion and noise components -110 dB below nominal operating levels.

Contents


C A D E N C E
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PHONO STAGE
LO GAIN AMP
LO
LOAD
HI
OPTION SELECT
HI GAIN AMP
LO
LOAD
HI
1
2
3
4

Initial Inspection

Inspect the shipping container for damage. If the shipping container, packing material, amplifier or accessories are damaged or missing, notify your dealer and the shipper (if a claim is to be made). Note: Many shippers require notification and an inspection within twenty-four (24) hours of delivery to ascertain the nature of damages incurred.

Your Cadence Phono Stage has undergone extensive performance evaluations, listening tests, quality control inspections and a minimum seventy-two (72) hour burn-in period prior to shipment and should be in a perfect operational condition upon receipt. If the Phono Stage does not operate correctly, please notify your dealer immediately.

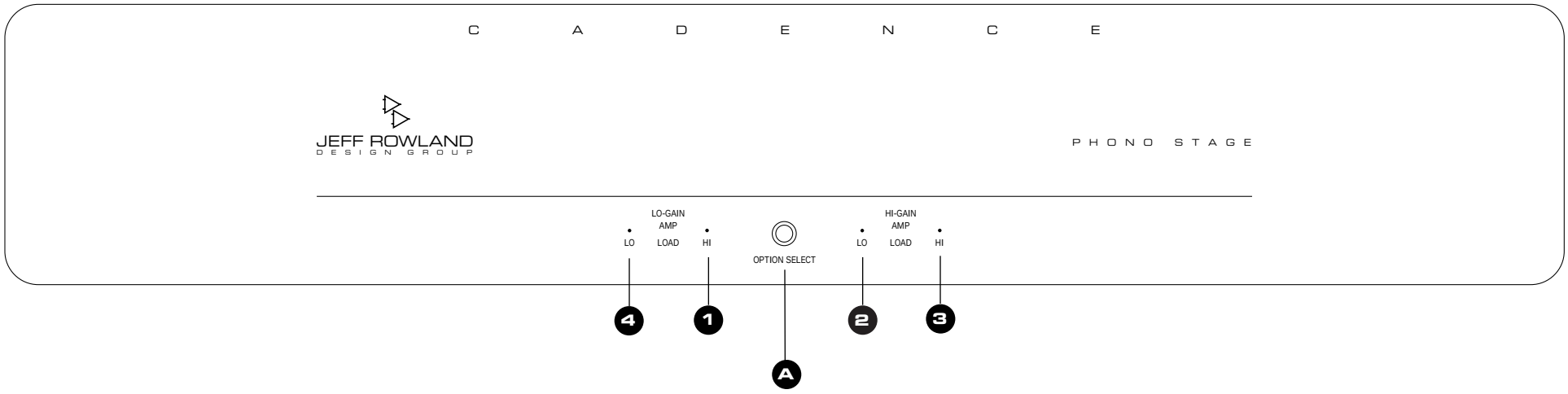
We strongly suggest that you save all packing materials. If the Phono Stage is returned to your dealer or Jeff Rowland Design Group, the original packing materials must be used for shipment. Neither Jeff Rowland Design Group nor the shipper can be held responsible for damages incurred during transit if the original factory packing is not used. All factory returns require that a Return Authorization number be issued by Jeff Rowland Design Group prior to shipment.

Contents

Ensure that all of the auxiliary components listed below are enclosed within the accessory box. Refer to the diagrams illustrated above and verify the components included.

1. One (1) warranty card (in some countries warranties are provided by the respective importer)
2. Four (4) XLR/RCA adapters (one pair male input adapters and one pair female output adapters)
3. Four (4) compliant isolation interface supports
4. DC power cable

Front Panel Function Controls



Before attempting any system interconnection, please familiarize yourself with the front panel controls of the Cadence Phono Stage. The descriptions below refer to the numbers & letters associated with the features in the diagram above.

To properly match your phono cartridge to the Cadence, the DC coil resistance of the phono cartridge must be known. This value may be obtained from the cartridge technical specifications. The recommended cartridge load resistance, i.e. 100 ohms, 47K ohms, does not refer to this value. The value required will be listed, if specified, as DC coil resistance, a value within the range of 2 to 80 ohms. If this value cannot be obtained, then the resistance can be measured directly. Simply unplug the phono interconnect cable (connected to the turntable). With a handheld ohmmeter (multimeter), measure the resistance between the signal contacts (tip and ground on RCA terminated interconnects, Pin #2 and Pin #3 on XLR terminated interconnects) or measure directly on the phono cartridge terminals themselves. If this value cannot be ascertained, then select the LO-GAIN AMP, HI-LOAD position with the OPTION SELECT push button. Although this position may not be optimum for your particular cartridge, it will not create any frequency response errors with any moving coil cartridge.

Front Panel

A OPTION SELECT push button: Momentarily pressing this button changes the Phono Stage Gain or Load.

The Cadence will automatically select the LO-GAIN AMP/HI-LOAD position when power is initially applied (default position), LAMP **1** will be illuminated. This setting will be used for the majority of moving coil cartridges available in the market. Use this position for cartridges whose output ranges from 0.3 mV to 0.8 mV and DC coil resistance ranging from 30 ohms to 80 ohms. The Cadence will load the cartridge at 400 ohms and provide an overall gain of 64 dB.

Pressing the OPTION SELECT button (A) will select the HI-GAIN AMP/LO-LOAD position (Lamp **2** will be illuminated.) Use this position only with cartridges having a known DC coil resistance of 2 to 3 ohms. These cartridges will usually have a very low output (less than 0.2 mV). The Cadence will load the cartridge at 30 ohms and provide an overall gain of 74 dB without an increase in noise, despite the increase in gain. Note: Use of cartridges other than those specified above in this position will result in a significant decrease in high-frequency response.

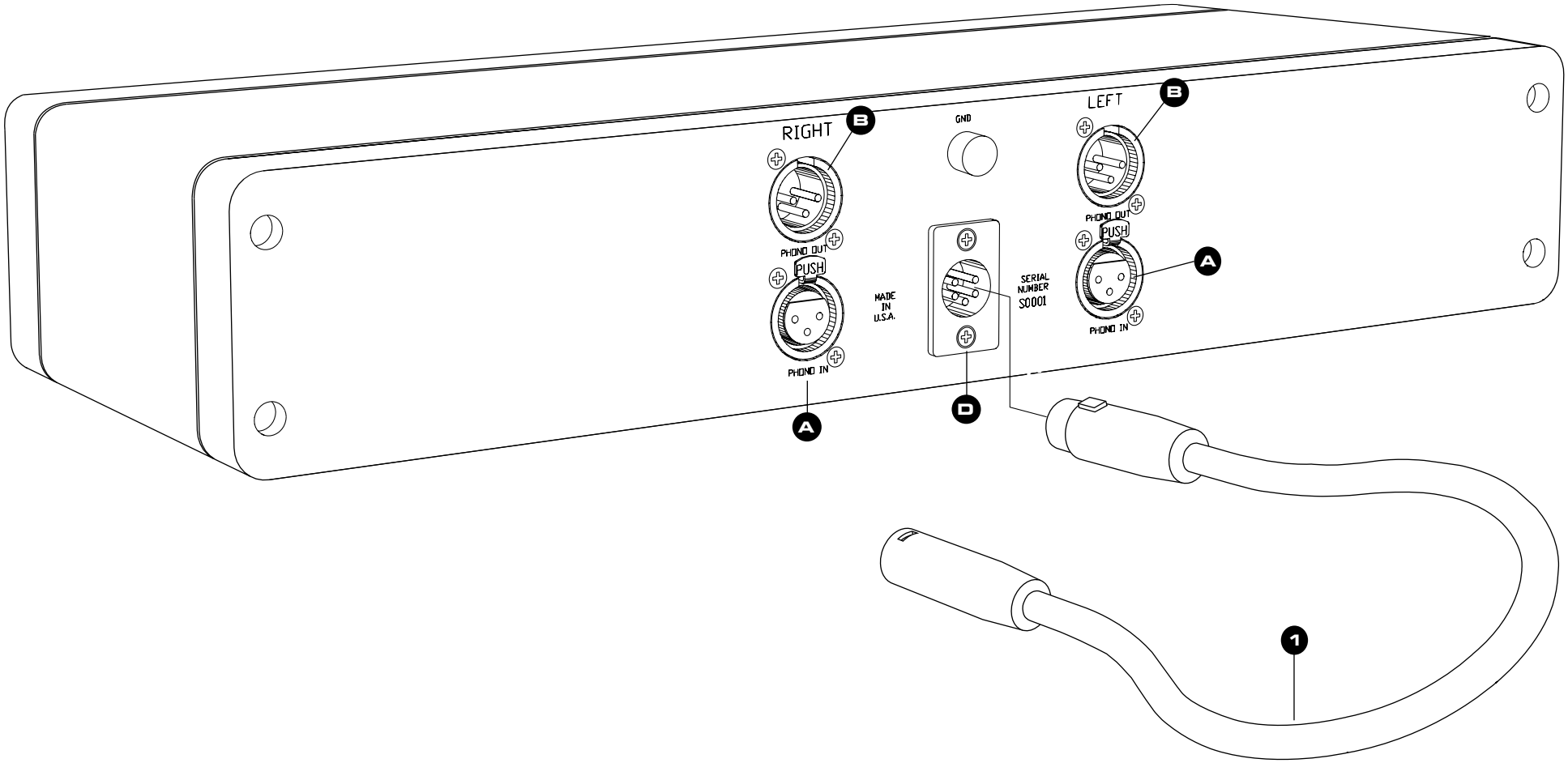
Pressing the OPTION SELECT button **A** a second time will select the HI-GAIN AMP/HI-LOAD position (Lamp **3** will be illuminated.) Use this position only with cartridges having a known DC coil resistance of 4 to 6 ohms. These cartridges will usually have a very low output (less than 0.2 mV). The Cadence will load the cartridge at 50 ohms and provide an overall gain of 74 dB without an increase in noise, despite the increase in gain. Note: Use of cartridges other than those specified above in this position will result in a significant decrease in high-frequency response.

Pressing the OPTION SELECT button **A** a third time will select the LO-GAIN AMP/LO-LOAD position(Lamp **4** will be illuminated.). Use this position only with cartridges having a known DC coil resistance of 7 to 30 ohms. The Cadence will load the cartridge at 250 ohms and provide an overall gain of 64 dB.

Note: Various manufacturers of moving coil phono cartridges recommend a load resistance of 47K ohms, thereby allowing the particular cartridge to have a perceived compatibility with a wide range of phono preamplifiers, many of which do not have a convenient means of selecting a lower, more optimal value of load resistance. For ideal frequency response and optimal performance, all moving coil cartridges must be properly loaded, preferably with a value which is approximately ten times the source resistance (DC coil resistance).

WARNING: It is unlikely that the OPTION SELECT push button would be pressed once the correct GAIN/LOAD setting has been chosen. However, changing a GAIN/LOAD setting during listening may result in a large increase in volume (up to 10 dB) with the potential of damaging equipment elsewhere in the system.

Installation / Rear Panel Connection



Installation

The Cadence Phono Stage is normally installed directly on top of its companion Preamplifier. Be sure to install the supplied compliant isolation interface supports underneath the Phono Stage to avoid damage to chassis components and provide maximum mechanical isolation and decoupling from the supporting structure.

First, connect the supplied DC Power Cable **1** between the Phono Stage and Power Supply, as illustrated above. Then connect the AC mains to the Preamplifier Power Supply using the supplied AC Power Cable. If desired, the Preamplifier can be located up to twenty (20) inches (one half (0.5) meter) above or below the Power Supply. The use of custom length DC cables longer than four meters is not recommended.

The Cadence Phono Stage utilizes circuit technologies which require a much longer "break-in" period than other preamplifier designs. It is recommended that a period of at least eight (8) days (200 hours) of continuous operation be allowed before full sonic performance potential can be expected.

Rear Panel Connections

A PHONO INPUT (Female XLR): XLR fully balanced or single-ended inputs (via supplied XLR/RCA adapters) are provided for phono level signals only. Each INPUT connector conforms to a Pin #1 ground, Pin #2 negative, Pin # 3 positive standard. Both positive and negative terminals of each INPUT connector are isolated from ground by several megohms which eliminates the possibility of ground loops and restores maximum common mode rejection ratio.

An RCA connector terminated phono interconnect cable can be reterminated to achieve a fully balanced interface. Please refer this procedure to qualified technical service personnel.

1. Remove existing RCA plugs. Most phono interconnects utilize an internal twisted conductor pair enclosed within the cable shield, for a total of three conductors. (For unbalanced RCA use, the negative conductor is soldered to the RCA shell along with the cable shield.)
2. For each cable (left and right), separate the three conductors and solder the shield to Pin #1 (ground) of the respective XLR connectors.
3. Determine which conductor within each cable is connected to the positive output from the cartridge and solder to Pin #3 of the respective XLR connectors. The cartridge positive outputs are red (right) and white (left).
4. For each cable, solder the remaining conductor to Pin #2 of the respective XLR connectors. This connects the cartridge negative outputs, green (right) and blue (left).

B PHONO OUTPUT (male XLR): Provides balanced impedance for each output phase. However, signal is only present on Pin #3. Pin #2 is not signal active and returns to ground (Pin #1) through a small resistance.

C GND: When using the phono option, this thumbscrew provides a convenient ground connection for turntable grounding. To use, unscrew the knurled knob several turns, insert the uninsulated or spade terminal end of the ground wire from the turntable underneath the thumbscrew and firmly re-tighten.

D POWER SUPPLY INPUT (male XLR): Interconnects the Preamplifier to the Power Supply via the supplied DC power cable. Caution: Use only the supplied DC power cable and connect only to the Power Supply from either the Coherence or Synergy Preamplifier or use the BPS-1 Battery Power Supply or the Cadence AC Power Supply.

Cadence Performance Specifications

Overall Gain (@ 1 kHz)	
Lo-Gain	64dB
Hi-Gain	74dB
RIAA Accuracy	± .03 dB, 20 Hz to 20 kHz
Frequency Response	- 3 dB @ 0.5 Hz and 180 kHz
Common Mode Rejection Ratio	130 dB (@ 60 Hz)
Total Harmonic Distortion (THD)	< .015, 20 Hz to 20 kHz, 5 V output level
Output Noise (IEC A Weighted)	
Lo-Gain	< 59 Microvolts
Hi-Gain	< 60 Microvolts
Cartridge Loading Equivalent Resistance	
Lo-Gain, Lo-Impedance	250 ohms
Lo-Gain, Hi-Impedance	400 ohms
Hi-Gain, Lo-Impedance	30 ohms
Hi-Gain, Hi-Impedance	50 ohms
Power Requirements	± 12-14 Volts DC, 40 Milliamps
Input/Output Connections	
Balanced	1 per channel (XLR)
Unbalanced	1 Pair XLR to RCA adapters included
Dimensions	17.5 in (W) x 5.1 in (D) x 3.15 in (H) 44.5 cm (W) x 13.0 cm (D) x 8.0 cm (H)
Weight	27 lbs (12 kg)

Because Jeff Rowland Design Group is constantly analyzing new design improvements, we reserve the right to change or modify product specifications without notice or obligation.

If you have any additional questions regarding installation or operation, please contact your authorized Jeff Rowland Design Group Dealer.

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