

PHANTOM II



PHANTOM II
STEREO PREAMPLIFIER

OWNER'S REFERENCE

KRELL
THE LEADER IN AUDIO ENGINEERING

Phantom II Stereo Preamp
Owner's Reference, v1.0

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This product complies with the EMC directive (89/336/EEC) and the low-voltage directive (73/23/EEC).

IMPORTANT SAFETY INSTRUCTIONS

1. *Read Instructions.*
2. *Keep these Instructions.*
3. *Heed all Warnings.*
4. *Follow all Instructions.*
5. *Do not use this apparatus near water.*
6. *Clean only with dry cloth.*
7. *Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.*
8. *Unplug this apparatus during lightning storms or when unused for long periods of time.*
9. *Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as a power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.*
10. *The Phantom II preamplifier must be placed on a firm, level surface where it is not exposed to dripping or splashing.*
11. *The ventilation grids on the top of the Phantom II preamplifier and the space underneath the Phantom II preamplifier must be unobstructed at all times during operation. Do not place flammable material above or beneath the preamplifier.*
12. *Before making connections to the Phantom II preamplifier, ensure that the power is off and other components are in mute or stand-by mode. Make sure all cable terminations are of the highest quality, free from frayed ends, short circuits, or cold solder joints.*
13. *Do not connect an RS-232 cable to the phono power port. Output from the phono power port can seriously damage your computer.*
14. *Do not connect the cable from a Krell KPE phono stage to the RS-232 port.*
15. **THERE ARE NO USER SERVICEABLE PARTS INSIDE AN PHANTOM II PREAMPLIFIER.**

Please contact Krell if you have questions not addressed in this guide.



This product is manufactured in the United States of America. Krell® is a registered trademark of Krell Industries, LLC., and is restricted for use by Krell Industries, LLC., its subsidiaries, and authorized agents. Evolution Bias™ is a trademark of Krell Industries, LLC. and is a Krell technology based on U.S. Patent No. 5,331,291. CAN Link™, CAST™, Evolution CAST™, and Krell Current Mode™ are trademarks of Krell Industries, LLC. All other trademarks are registered to their respective companies.

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A Letter from Krell Industries LLC

Dear Audio Enthusiast,

Thank you for your purchase of the Krell Phantom II preamplifier.

The preamplifier plays a vital role in audio playback by mediating the line-level output of a wide variety of source components in preparation for the amplifier's input. At no other point in the reproduction process is music so vulnerable to change, as the signal level is small, and susceptible to noise and distortion.

Having always valued the role of the preamplifier in fine audio systems, we take preamplifier design very seriously. We realize that, no matter how impressive an amplifier's performance; it can be no better than that of the preamplifier driving it.

Our new Phantom II preamplifier employs balanced Krell Current Mode gain stages from input to output, and Current Audio Signal Transmission (CAST) receivers and transmitters. Utilizing these powerful technologies, the Phantom II conveys the complete range of timbre and dynamics that comprise the foundation musical performance. Typical of our latest preamplifier designs, the Phantom II preamplifier includes a thoughtful suite of menu options, and can be customized for the greatest ease of operation.

We hope that you enjoy your new Phantom II preamplifier.

Sincerely,

Krell Industries LLC

SECTION **ONE**

Phantom II Features and Technology

This section describes the innovative features and technology of the Phantom II preamplifier, and defines CAST and other key terms used in this reference.

Circuitry highlights

Sharing the same audio circuitry as its bigger brother, the Phantom II preamplifier is a dual monaural circuit design with the left and right channels afforded their own power supply regulation and individual full chassis sized boards. All signals gain is realized in surface mount topology using proprietary multiple-output current mirrors with nearly 500 times the open loop linearity of other designs. Approaching 1 MHz of open loop bandwidth in a zero feedback, balanced, Krell Current Mode, the Phantom output stage terminates in Krell CAST. A Complete Krell system (source, preamp, and amplifier), connected using CAST interconnects reduces the number of voltage gain stages to the minimum, one. The resulting noise floor approaches the theoretical limit of technology. Negative feedback is not used anywhere in the preamp, nor is it necessary. Open-loop distortion is typically less than 0.003%. The volume control is realized with a balanced resistor ladder bandwidth and transient response of the circuitry are virtually unaffected by the volume setting.

Power Supply Highlights

The Phantom II audio circuits receive power from a Krell Current Mode analog power supply. The power supply avoids the common integrated circuit topology used in many preamplifiers and instead mimics the design topology of Krell Evolution e Series amplifiers. The circuitry is completely discrete giving it the ability to respond quickly to current demands and also be unaffected by AC voltage power fluctuations. Oversized for a preamplifier, the power supply features a 140 VA transformer and 35,000uF of capacitance.

Revolutionary Krell CAST Technology

Current Audio Signal Transmission, termed CAST, is a revolutionary method of connecting analog audio components for unparalleled sonic performance. Innovative engineering combines the new Krell CAST circuitry with existing Krell Current Mode technology to create entire CAST systems that reproduce music with incredible range, tonality, and precision.

The Voltage Signal Transmission and the Traditional Audio System

Traditionally, signal is transmitted in the voltage domain between two components. In an audio system, each component is a discrete entity with unique characteristics that act upon the musical signal independently. Each component is unaware of the other components in the system. The cables that connect the components also have their own electrical characteristics, which affect the sonic presentation of the entire system. CAST transmission unifies individual components and interconnects into an electrically-linked whole. The original signal remains unaltered from source to speaker.

CAST Basics

Here is how a CAST audio system works. Internally, each CAST source transfers, or amplifies, current using Krell Current Mode circuitry. This current signal is then output using CAST circuitry. When the signal is received by a CAST input, Krell Current Mode circuitry again takes over until the signal reaches the loudspeaker. By maintaining the musical signal in the current domain from beginning to end, an entire CAST system behaves as if it is one component. With CAST, circuit board properties and signal transmission aberrations between components are eliminated. Cable impedances and their effects on the transmitted signal are non-existent.

How CAST and Krell Current Mode Interact

While CAST is a new method of transferring the musical signal between components, its origin stems from Krell Current Mode, the technology developed to transfer the musical signal within a component. CAST combined with Krell Current Mode takes circuitry signal transmission to the next evolutionary level. In essence,

Krell Current Mode maintains the integrity of the signal within the component and CAST preserves the transmitted signal between components. Together, CAST and Krell Current Mode technologies unify separate Krell components into a *single global circuit*. Krell Current Mode technology enjoys bandwidth increases up to an order of magnitude greater than their voltage based counterparts. This dramatic increase in circuit bandwidth delivers near perfection in the audible band that typically suffers from phase distortions in voltage circuits.

CAST Cable Construction

A CAST system uses cables manufactured by Krell and other manufacturers specially licensed by Krell. Thin and flexible CAST cables are constructed with the same build quality as other Krell components and are aesthetically matched to the components that Krell manufactures. An all-metal body and locking connectors with gold contacts are part of the standard no-compromise specification developed for every CAST cable made.

Evolution CAST

By employing radical current mirror circuitry, the Phantom II components elevate the CAST technology to another level. This advanced use of the technology increases the linearity, transient speed, and bandwidth of the Evolution components while reducing the distortion by an order of magnitude.

The Best Musical Performance

When you operate a CAST system, you will hear significant improvements in every performance area: speed, precision, dynamic range, depth and width of the sound stage, transient impact, tonal balance, harmonic distortion, and more. The goal for CAST is the same company goal used for all Krell products. Krell strives for the delivery of the best performance of a musical event for you, using the full expression of technology to date.

Definition of Terms

The following are definitions of key terms used in this owner's reference:

Inputs and Outputs

Balanced

A symmetrical input or output circuit that has equal impedance from both input terminals to a common ground reference point. The industry standard for professional and sound recording installations, balanced connections have 6 dB more gain than single-ended connections and allow the use of long interconnect cables. Balanced connections are completely immune to induced noise from the system or the environment.

CAST and Evolution CAST

Krell Current Audio Signal Transmission, or CAST, is a proprietary Krell circuit technology for connecting analog components, transmitting the audio waveform between components in the current domain rather than in the voltage domain. The speed and bandwidth provided by Krell CAST and its circuitry update, Evolution CAST, yield accurate, realistic music reproduction, enabling connected components to perform as if they are all part of a single circuit.

Single-ended

A two-wire input or output circuit. Single-ended connections are not recommended for connections requiring long cable runs. Use care when using single-ended connections, because the ground connection is made last and broken first. Turn the system off/on prior to making or breaking single-ended connections.

Operation

Off

When the stand-by/power LED is not illuminated, the preamplifier is off.

Stand-by

A low-power-consumption status that keeps the audio and regulator circuits at idle. The stand-by/power LED is illuminated in red, when the preamplifier is in stand-by mode. Krell recommends leaving the preamplifier in stand-by mode when it is not playing music.

Operation

When the standby/power LED is illuminated in blue, the preamplifier is in operational mode and ready to play music.

Technology

Krell Current Mode

A proprietary Krell circuit topology in which the audio gain stages of a component operate in the current rather than voltage domain. This unique technology provides the component with exceptional speed, and a wide bandwidth.

SECTION **TWO**

Unpacking and Placement

This section describes the procedures for safely unpacking and placing your Phantom II Preamplifier. The Phantom II preamplifier and accessories are shipped in 1 carton.

Opening the Phantom II Shipping Carton

The Phantom II shipping carton measures 22.3 in. (56.6 cm) wide by 23.5 in. (59.7 cm) high by 16.2 in. (41.1 cm) deep.

Preamplifier Chassis. This measures 17.3 in. (43.8 cm) wide by 3.8 in. (9.7 cm) high by 18.3 in. (46.4 cm) deep, and weighs 22 lbs. (10 kg).

To Remove the Preamplifier from the Shipping Carton

1. Open the shipping carton and remove the top layer of foam. The carton contains these items:
 - 1 Preamplifier chassis
 - 1 IEC Connector (AC Power) cord
 - 1 Remote control
 - 2 AAA-size 1.5 Volt batteries for the remote
 - 1 T-10 Torx wrench for the remote control
 - 1 Owner's Reference
2. Carefully remove the preamplifier and accessories from the box.
3. Place the preamplifier in a safe location, and remove the protective plastic wrapping.

Placement

Before you install an Phantom II preamplifier into your system, please follow the guidelines in this section to select a location for your component. This will facilitate a clean, trouble-free installation.

The Phantom II preamplifier does not require a special rack or cabinet for installation. The preamplifier chassis measures 17.3 in. (43.8 cm) wide, 3.8 in. (9.7 cm) high, and 18.3 in. (46.4 cm) deep.

The Phantom II preamplifier requires at least two inches of clearance on each side, and at least two inches of clearance above the component to provide adequate ventilation. Installation inside cabinetry may require additional ventilation.

AC Power Guidelines

The Phantom II preamplifier has superb regulation and does not require a dedicated AC circuit. Avoid connections through extension cords or multiple AC adapters. High quality 15 amp AC strips are acceptable.

SECTION **THREE**

Quick Start

To access the full array of available functions for the Phantom II, please read this entire owner's reference manual. The abbreviated routine in this Quick Start section will allow you to connect and operate the Phantom II quickly and enjoy its basic functions.

The front and rear panels are shown in the diagrams on pages 15 and 22. Each button or feature is labeled with a callout number, and these numbers are shown in parentheses in the sections below. (In the following instructions, the word "button" refers to a front panel operation, and "key" refers to a remote control operation.)

Connecting the Phantom II to Your System

Position the preamplifier where you intend to use it in your system. Do not move the chassis after it is connected.

- 1.** Neatly arrange and organize wiring to and from the preamplifier and all components. Separate the AC wires from any audio cables to prevent hum or other unwanted noise from being introduced into the system.
- 2.** Connect the outputs of your source equipment to the appropriate CAST (18), balanced (15), single-ended (16), or tape inputs (17) on the Phantom II.
- 3.** Connect the main outputs (20) on the Phantom II to your amplifier's inputs.
- 4.** Connect the supplied AC power cord to the IEC power cord receptacle (27) of the preamplifier.
- 5.** Plug the AC power cord into AC power. The front panel display (3) scrolls through Phantom II SOFTWARE VERSION, and the red stand-by LEDs illuminate (7), indicating that the Phantom II preamplifier is in stand-by mode. The scrolling stops when the Phantom II is ready to be powered on.

Note

Use only the power cord provided or Krell vector HC power cable with the phantom preamplifier to make the connection to AC power. Operation with a power cord other than the one supplied by Krell could induce noise, limit current, or otherwise impair the ability of the preamplifier to perform optimally.

Operating the Phantom II

After the Phantom II is connected to your system and to AC power, and the front panel display has stopped scrolling, begin operation:

- 1.** Press the power button (1) on the front panel, or the remote control power key. The standby/power LED turns blue. The display shows the factory default input: S-1, and level: -INF. The Phantom II is now in the operational mode.
- 2.** With the preamplifier output muted, or the volume fully attenuated, select a source manually using the front panel input select buttons (8, 9, or 10) or the remote input select keys. Start playing the source. Use the level control knob (14) or the remote level keys to set the volume to a comfortable level.
- 3.** To return the preamplifier to the stand-by mode, press the power button (1) or remote power key.

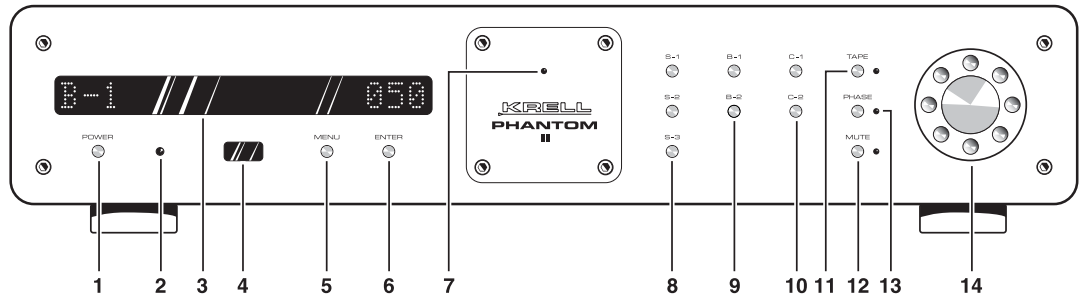
Krell recommends leaving the Phantom II in the stand-by mode when it is not playing music.

SECTION **FOUR**

Anatomy of the Phantom II

This section describes the Phantom II Preamplifier functions.

Figure 1 Phantom II Front Panel



- | | |
|---------------------------|--|
| Power | 1 Power Button |
| | 7 Stand-by/Power LED |
| Remote Functions | 2 Infrared Emitter |
| | 4 Infrared Sensor |
| Display | 3 Front Panel Display |
| Navigate/Customize | 5 Menu Button |
| | 6 Enter Button |
| | 7 Stand-by/Power LED |
| Input Selectors | 8 Single-ended Input Selection Buttons |
| | 9 Balanced Input Selection Buttons |
| | 10 CAST Input Selection Buttons |
| Mute | 11 Tape Button and LED |
| Phase | 12 Mute Button and LED |
| Level | 13 Phase Button and LED |
| | 14 Level Control Knob |

Front Panel Description

See Figure 1 on the previous page

The Phantom II Preamplifier front panel functions are described below:

Chassis

Preamplifier Chassis

The preamplifier front panel provides power on, input and zone selection, level control, menu functions, and status display.

Power Supply Chassis

Powerful transformers, high quality regulators, and extensive electrical and magnetic shielding are housed in a separate power supply.

Power

1 Power Button or Key

Use this button or key to switch the Phantom II between the stand-by and operational modes.

7 Stand-by/Power LED

The preamplifier LED illuminates red (stand-by) when the Phantom II is plugged into a standard AC wall receptacle. It illuminates blue (operational mode) when the power button (1) is pressed while the Phantom II is in stand-by mode.

Remote Functions on the Front Panel

2 Infrared Emitter

The stand-by/Power LED (7) flashes when the Phantom II sends signals via this infrared emitter to a programmable remote control. See **IR Out Control**, on page 37.

4 Infrared Sensor

The infrared sensor receives commands from the Phantom II remote control. For proper remote control operation, make sure the infrared sensor is not covered or obstructed.

Display

3 Front Panel Display

The front panel display provides preamplifier channel status messages, including input status, tape output status, volume level, balance offset, and menu selections.

Navigate/Customize

5 Menu Button or Key

Use this button or key to access the menu functions of the Phantom II. *For more information, see **Customizing the Phantom II**, on page 30.*

6 Enter Button or Key

Use this button or key to configure the menu functions of the Phantom II. *For more information, see **Customizing the Phantom II**, on page 30.*

Preamplifier Functions

8, 9, 10 Input Select Buttons or Keys

Use these buttons to select the corresponding rear panel input that is connected to a CAST (C-1, C-2), balanced (B-1, B-2), or single-ended (S-1, S-2, S-3) analog source. The front panel display shows the selected input and volume level.

11 Tape Button and LED, or Key

Use this button or key to select the tape input that is connected to an analog tape source. The red tape LED illuminates when the tape input is selected. The front panel display (3) shows: TAPE and the main volume level.

12 Mute Button and LED, or Key

Use this button or key to mute the preamplifier output. To unmute, press the mute button again. The red mute LED illuminates when mute is selected. *To customize mute operation see **Mute**, on page 38.*

13 Phase Button and LED, or Key

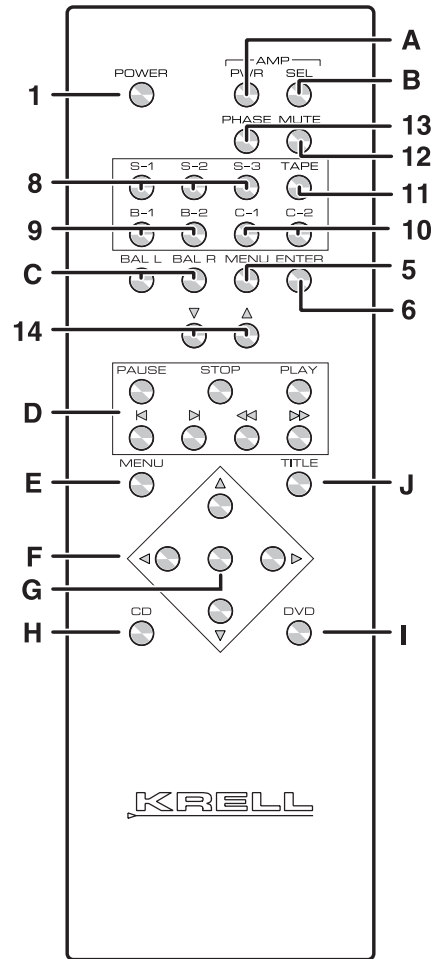
Use this button or key to invert the absolute polarity of the main output by 180 degrees. The red phase LED illuminates, when phase is selected.

Level Control

14 Level Control Knob or Level Keys

Use this knob or keys to increase or decrease system volume level or, with the balance key (C), to adjust balance. The level control knob or keys also select menu options that customize the Phantom II. See ***Customizing the Phantom II***, on page 30.

Figure 2 Phantom II Remote Control



- | | |
|---------------------------------|--|
| Power | 1 Power Key |
| Navigate/
Customize | 5 Menu Key
6 Enter Key |
| Input
Selectors | 8 Single-ended Input
Selection Keys
9 Balanced Input
Selection Keys
10 CAST Input Selection
Keys
11 Tape Selection Key |
| Mute | 12 Mute Key |
| Phase | 13 Phase Key |
| Level | 14 Level Keys |
| Amplifier
Functions | A Amp Pwr Key
B Amp Sel Key |
| Balance | C Bal(ance) Keys |
| CD and DVD
Functions | D Transport Keys
E Menu Key
F Direction Keys
G Select Key
H CD Key
I DVD Key
J Title Key |

Remote Control Description

See Figure 2 on the previous page

The Phantom II remote provides the same power, preamplifier, level control, and navigate/customize functions as the preamplifier's front panel. In addition, the remote has CD and DVD functions, and menu configuration functions.

Keys Labeled 1 to 14

These remote keys have the same function (and callout number) as the corresponding front panel controls described in the preceding pages.

Keys Labeled A to J

These remote keys have functions that are unique to the remote control, and are described below.

Battery Installation and Removal

The remote control uses 2 AAA-size 1.5 Volt batteries. Batteries are included with the shipment. To install the batteries:

1. Remove the remote control backplate, using the supplied T-10 Torx wrench.
2. Install the batteries, following the battery position diagram on the plastic battery receptacle.
3. Replace and secure the backplate.

Notes

Replace batteries when remote control function becomes intermittent.

Remove batteries if the remote control is not used for a long period of time. Battery leakage can damage the remote control.

Amplifier Functions

A Amp Pwr Key

Use this key to activate Krell amplifiers connected to your system.

B Sel (Meter Select) Key

Use this key to select the meter range of the power meter scale on the front of a Krell Evolution One power amplifier. Please refer to the **Evolution One Owner's Reference**, for more information.

Balance Functions

C Bal(ance) Keys

Use these with the level keys (14) to adjust the left and right channel balance.

Compact Disc and DVD Functions

The compact disc and DVD dual-purpose keys of the remote control are functional with all Krell compact disc and DVD players.

D Transport Keys:

Pause Key

Use this key to temporarily suspend playing the current compact disc track. Press pause again or press the play key, to resume playing the track at the point when pause was engaged.

Play Key

Use this key to begin compact disc playback.

Stop Key

Use this key to end compact disc playback.

Track Forward and Back Keys

Use these keys to select and begin playing the track that follows or precedes the current track.

Search Forward and Back Keys

Press and hold these keys to scroll forward or backward through the current track.

E Menu Key

Use this key to enter CD or DVD player menus.

F Direction Keys

Use these keys to navigate CD and DVD menus.

G Select Key

Use this keys to make selections from CD and DVD menus.

H CD Key

Use this to activate CD functions.

I DVD Key

Use this to activate DVD functions.

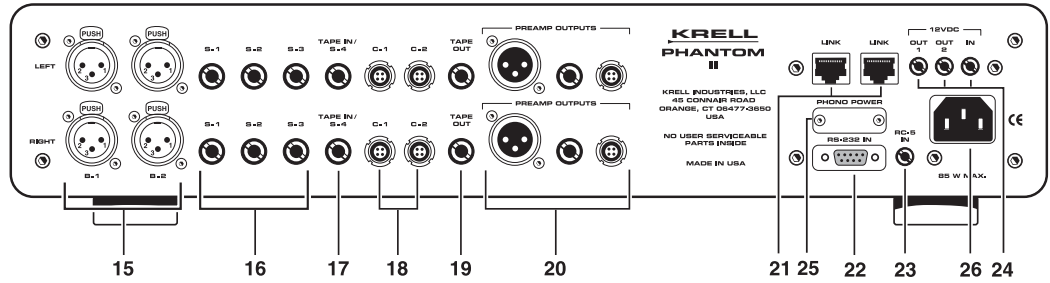
J Title Key

Use this with CD or DVD player menus.

Note

For information on track programming functions, refer to the owner's reference of your Krell compact disc player.

Figure 3 Phantom II Back Panel



Inputs	15 Balanced Inputs: B-1, B-2
	16 Single-ended Inputs: S-1, S-2, S-3
	17 Tape Input
	18 CAST Inputs: C-1, C-2
Outputs	19 Tape Output
	20 Main Outputs: Single-ended Main Output Balanced Main Output CAST Outputs
Configurations	21 CAN Link In/Out
Remote	22 RS-232 Port
	23 RC-5 In
	24 12 VDC In/Out
Power	25 Phono Power Port for Krell KPE phono stage
Phono	26 IEC Power Cord Receptacle

Back Panel Description

See Figure 3 on the previous page

The preamplifier back panel provides all input and output connections, remote control inputs and outputs, and the power connection. Back panel features and their descriptions follow.

Inputs

15 Balanced Inputs: B-1, B-2

These are balanced analog source inputs with XLR connectors.

16 Single-ended Inputs: S-1, S-2, S-3

These are single-ended analog source inputs with RCA connectors.

17 Tape Input

This is a single-ended tape input, for use with a tape source.

18 C-1 and C-2 CAST Inputs

These are CAST inputs with 4-pin bayonet connectors, for use with Krell CAST-equipped input devices.

Outputs

19 Tape Output

This single-ended analog output is used for recording the selected input source.

20 Main Outputs

The Phantom II is equipped with one single-ended output with RCA connectors, one balanced output with XLR connectors, and two CAST preamplifier outputs with 4-pin bayonet connectors, for use with Krell CAST-equipped amplifiers.

Configurations

21 CAN Link

These RJ-45 link connectors are connected in parallel. They are used to connect the Phantom II preamplifier to other CAN Link-enabled Krell products.

Remote Connections on the Back Panel

22 RS-232

The RS-232 port receives messages from a computer-based control system, providing integrated control of all preamplifier functions. The RS-232 input uses a 9-pin D-subminiature connector. See the *Phantom II developer's reference*.

23 RC-5 In

The RC-5 remote connector is used with a third party remote control system that provides RC-5 (IR) data with the carrier intact, via a wired connection. A stereo tip, ring, sleeve 1/8-inch mini connector is used in the following configuration: Tip = RC-5 data, Ring = +5 V, Sleeve = GND.

24 12 VDC In/Out (12 V Trigger)

The preamplifier has 2 outputs that send, and one input that receives 12 VDC power on/off (12 V trigger) signals to and from other Krell components and other devices that incorporate a 12 V trigger. This allows you to turn other components on or off, or to and from stand-by, through the remote control. When the Phantom II is switched to operational mode and is connected to other components through the 12 V trigger, it sends a signal that will switch other components, allowing whole systems or parts of systems to be easily coordinated. For more information on customizing the 12 V trigger, see **Input Trigger**, on page 35. Mono 1/8-inch mini connectors are used in the following configuration: Tip = +12 V, Sleeve = GND.

Notes

When the Phantom II is in the operational mode, the 12 V trigger provides 12 Volts of DC output. When the component is in the stand-by mode or off, the DC output is 0 Volts.

A minimum of 30 mA is required to operate the 12 V trigger.

Consult the owner's reference of the components used in a custom installation to take full advantage of the remote capabilities of the Phantom II.

Phono Stage Connector

25 Phono Power Port

This port is used for connecting the preamplifier to a Krell KPE phono stage.

Power

26 IEC Power Cord Receptacle

The IEC power connector is for use with the provided IEC standard 15 amp AC power cord. This connector and power cord must remain unobstructed for easy removal in case of an emergency.

SECTION **FIVE**

Connecting the Phantom II to Your System

This section describes Phantom II Preamplifier connections.

Input and Output Connections

Krell recommends using its proprietary Krell CAST system for unparalleled sonic performance for connections between the Phantom II preamplifier and other CAST-equipped components. Krell CAST uses flexible interconnecting cables that can be drawn through tight spaces and concealed.

The Phantom II also offers balanced operation. The circuitry and connections associated with balanced operation not only can minimize sonic loss but also are immune to induced noise, especially for installations using long cables.

XLR Pin Configuration

Pin 1	Ground
Pin 2	Non-inverting (0°)
Pin 3	Inverting (180°)

Inputs and outputs are located on the Phantom II back panels. Maintain the correct left/right orientation, when hooking up your system.

Connection Steps

Position the preamplifier where you intend to use it in your system.

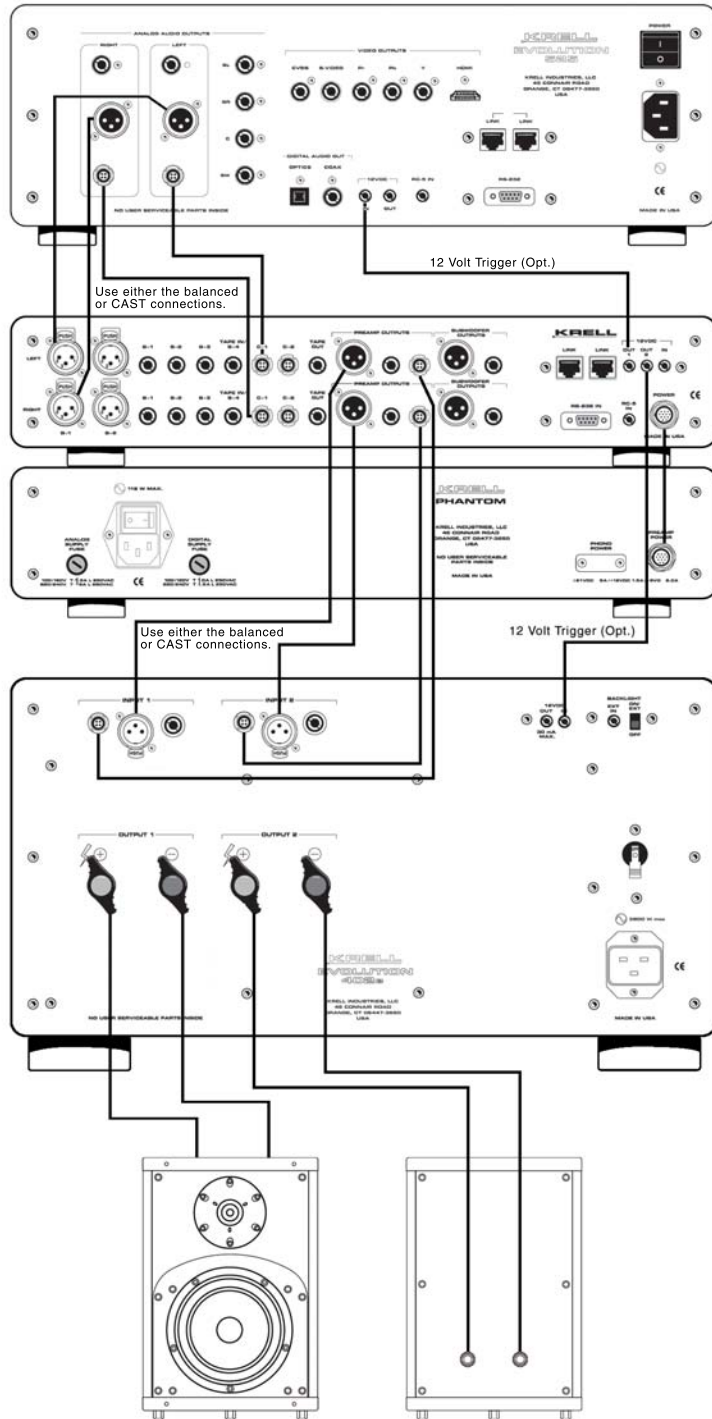
The following steps describe how to connect an Phantom II preamplifier to your system:

- 1.** Neatly arrange and organize wiring to and from the Phantom II preamplifier and all components. Separate AC wires from audio cables to prevent hum or other unwanted noise from being introduced into the system.
- 2.** Connect the outputs of your source equipment to the appropriate CAST (18), balanced (15), single-ended (16), or tape inputs (17) on the Phantom II.
- 3.** Connect the appropriate main outputs (20) on the Phantom II to your amplifier.
- 4.** Connect the supplied AC power cord to the IEC power cord receptacle (27).
- 5.** Plug the AC power cord into AC power. The front panel display (3) scrolls through Phantom II SOFTWARE VERSION, and the red stand-by LEDs illuminate (7), indicating that the Phantom II preamplifier is in stand-by mode. The scrolling stops when the Phantom II is ready to be powered on.

Note

Use only the power cord provided or Krell Vector HC power cable with the preamplifier to make the connection to AC power. Operation with a power cord other than the one supplied by Krell could induce noise, limit current, or otherwise impair the ability of the preamplifier to perform optimally.

Figure 3 Connection Diagram



SECTION **SIX**

Phantom II Operation

The Phantom II Preamplifier is easy to operate. Instructions follow for on/off and stand-by operation.

IMPORTANT

Always mute or fully attenuate the preamplifier level when switching sources.

Do not change input connections to the amplifier when the amplifier is on.

Use care when setting high playback levels. Always lower the volume level at the first sign of loudspeaker distress.

On/Off and Stand-by Operation

When powering on any system, turn on amplifiers last. When powering down, turn off amplifiers first.

After the Phantom II is connected to your system and to AC power, and the front panel display (3) has stopped scrolling, begin operation:

- 1.** Press the power button on the preamplifier front panel or the pwr key (1) on the remote control. The stand-by/power LED (7) turns blue, and the front panel displays read INITIALIZING. The front panel display shows the factory default input: S-1, and level: -INF. The Phantom II is now in the operational mode.
- 2.** With the preamplifier output muted or the volume fully attenuated, select a source manually using the input select buttons or the remote keys (8, 9, 10, 11). Start playing the source. Use the level control knob or level keys (14) to set the volume to a comfortable listening level.
- 3.** To return to the stand-by mode, press the power button or pwr key.

Krell recommends leaving the Phantom II in the stand-by mode when it is not playing music. Turn the Phantom II off when the system is not being used for an extended period of time.

To Turn Off The System

- 1.** Place the amplifiers in the stand-by mode.
- 2.** Press the front panel power button or the remote control pwr key (3) to switch the Phantom II to the stand-by mode.
- 3.** Turn off the amplifiers using the back panel power switch or by disconnecting them from AC power.
- 4.** Turn off the Phantom II by unplugging the AC power cord from AC power.

SECTION **SEVEN**

Customizing the Phantom II

The Phantom II Preamplifier easy-to-use menu allows you to configure the following functions. You can also use the menu to review version information about the software, hardware, and firmware installed in the Phantom II:

AC Mains, <i>page 31</i>	Input Phase, <i>page 36</i>	Recall, <i>page 40</i>
Balance (channel) <i>page 32</i>	Input Trigger, <i>page 36</i>	RS-232 Control, <i>page 41</i>
Balance (input trim), <i>page 32</i>	IR Out Control, <i>page 37</i>	Save, <i>page 41</i>
Display, <i>page 33</i>	Link Control, <i>page 38</i>	Theater Mode, <i>page 42</i>
Info, <i>page 34</i>	Mute, <i>page 38</i>	Volume Display, <i>page 43</i>
Input Level Trim, <i>page 35</i>	Output Trigger, <i>page 39</i>	Tape, <i>page 43</i>
Input Name, <i>page 35</i>	RC-5 Control, <i>page 40</i>	

Navigation Conventions

Navigating the Phantom II menu is straightforward and consistent throughout, using four functions and the menu option **BACK**.

5 Menu Button or Key

To enter the menu, press the menu button on the preamplifier front panel or the menu key on the remote control. Once you are in the menu, you can press the menu button or key to exit the menu.

14 Volume Knob or Level Keys

Use the volume knob on the preamplifier front panel or the up and down keys on the remote control to scroll forward and backward through the menu hierarchy. Each menu list is a continuous loop.

6 Enter Button or Key

Press the enter button on the preamplifier front panel or the enter key on the remote control to select a function or a configuration option, and to confirm a selection.

3 Front Panel Display

The display shows the active function and configurable options.

BACK

Select back to scroll backwards up the menu hierarchy, or to exit a menu option without confirming it.

The first list you see in the menu is the list of configurable functions. Select a configurable function to view a submenu: the list of options that configure the function. You can configure some options as well, using a second submenu.

Menu Functions

AC Mains

This function enables you to operate the Phantom II from a switched AC outlet. If AC Mains is set to ON, the preamplifier turns on immediately, by-passing stand-by. Thereafter, you may switch the preamplifier to and from stand-by, using the power button or pwr key (1). The options are: OFF, ON.

Enter the menu, then:

- 1.** Use the level control knob on the preamplifier front panel or up and down keys (14) on the remote control to select: AC MAINS.
- 2.** Press the enter button on the preamplifier front panel or the enter key (6) on the remote control. The front panel display (3) shows the default mode: OFF.
- 3.** Use the level control knob or the up and down keys to select the desired option: OFF or ON.
- 4.** Press the enter button or key to confirm the selection. The front panel display reads: AC MAINS.

OFF

The Phantom II switches to stand-by mode, when it detects AC power.

ON

The Phantom II turns on immediately, bypassing the stand-by mode, when it detects AC power.

Balance (channel)

This function enables you to adjust the balance between the left and right output channels. The options are: CENTER, L .5-5 dB <, R .5-5 dB >.

Enter the menu, then:

1. Use the level control knob on the preamplifier front panel or up and down keys (14) on the remote control to select: BALANCE.
2. Press the enter button on the preamplifier front panel or the enter key (6) on the remote control. The front panel display (3) shows the default mode: CENTER.
3. Use the level control knob or the up and down keys to select the desired balance option from 0 to +5 dB, in .5 dB increments, left or right.
4. Press the enter button or key to confirm the selection. The front panel display reads: BALANCE.

Balance (input trim)

This function enables you to adjust the balance between the left and right channels for each input. The options are: CENTER, L .5-5 dB <, R .5-5 dB >.

Enter the menu, then:

1. Use the level control knob on the preamplifier front panel or up and down keys (14) on the remote control to select: INPUT BALANCE TRIM.
2. Press the enter button on the preamplifier front panel or the enter key (6) on the remote control. The front panel display (3) shows the default mode: B-1.
3. Use the level control knob or the up and down keys to select the desired input: B-1, B-2, S-1, S-2, S-3, C-1, C-2, or TAPE.
4. Press the enter button or key. The display (3) shows the default mode: CENTER.
5. Use the level control knob or the up and down keys to select the desired balance option from 0 to +5 dB, in .5 dB increments, left or right.
6. Press the enter button or key to confirm the selection. The front panel display reads: INPUT BALANCE TRIM.

5 Menu Button or Key

Enter or exit the menu.

14 Volume Knob or Level Keys

Navigate the menu hierarchy;
review functions and configuration options.

6 Enter Button or Key

Select a configuration option;
confirm a selection.

BACK

Scroll backwards through the
menu hierarchy; exit a menu
option without confirming it.

Display

This function enables you to turn on the front panel display (3) all the time, or turn it off after a time out. The options are: ON, TIMED.

Enter the menu, then:

1. Use the level control knob on the preamplifier front panel or the up and down keys on the remote control (14) to select: DISPLAY.
2. Press the enter button on the preamplifier front panel or the enter key (6) on the remote control. The front panel display (3) reads: MODE.
3. Press the enter button or key (6) again. The front panel display shows the default mode: ON.
4. Use the level control knob or the up and down keys to select the desired option: ON OR TIMED.
5. Press the enter button or key to confirm the selection. The front panel display reads: MODE.
6. Use the level control knob or the up and down keys to select: BRIGHTNESS.
7. Press the enter button or key. The front panel display shows the default mode: HIGH.
8. Use the level control knob or the up and down keys to select the desired brightness: OFF, LOW (25%), MED (50%), OR HIGH (100%).
9. Press the enter button or key to confirm the selection. The front panel display reads: BRIGHTNESS.

ON

The front panel display is always on.

TIMED

The front panel display times out after 5 seconds.

BRIGHTNESS

Controls the brightness of the display. When the brightness setting is OFF, the display is at 50% of brightness when in menu mode, and turns completely off when you leave the menu mode.

5 Menu Button or Key

Enter or exit the menu.

14 Volume Knob or Level Keys

Navigate the menu hierarchy; review functions and configuration options.

6 Enter Button or Key

Select a configuration option; confirm a selection.

BACK

Scroll backwards through the menu hierarchy; exit a menu option without confirming it.

Info

This function enables you to access information about the preamplifier software, EEPROM, and PC Boards. The PC Boards are listed in the left margin, on this page.

Enter the menu, then:

- 1.** Use the level control knob on the preamplifier front panel or up and down keys (14) on the remote control to select: INFO.
- 2.** Press the enter button on the preamplifier front panel or the enter key (6) on the remote control. The front panel display (3) shows the software version number.
- 3.** Rotate the level control knob clockwise or press the up key. The front panel display shows the EEPROM version number.
- 4.** Rotate the level control knob clockwise or press the up key again. The front panel display shows the PC board version number.
- 5.** Press the enter button or key. Use the level control knob or the up and down keys to scroll through the version numbers of PC boards, from the PC Boards listed at left.

PC Boards

CONTROL
DISPLAY
ENCODER
MAIN L
MAIN R
POWER CONN
POWER SUPP
DIG CONN

EEPROM

Electrically erasable programmable read-only memory. An erasable memory chip used in the Phantom II to store menu selection information.

Input Level Trim

This function enables you to select an input offset for a particular input. The options are: +/-6 dB, in 1 dB increments.

Enter the menu, then:

1. Use the level control knob on the preamplifier front panel or the up and down keys (14) on the remote control to select: INPUT LEVEL TRIM.
2. Press the enter button on the preamplifier front panel or the enter key (6) on the remote control. The front panel display (3) shows the default mode: B-1.
3. Use the level control knob or the up and down keys to select the desired input: B-1, B-2, S-1, S-2, S-3, C-1, C-2, or TAPE.
4. Press the enter button or key. The front panel display shows the default mode: 0 dB.
5. Use the level control knob or the up and down keys to select the desired trim option: +/-6 dB, in 1 dB increments.
6. Press the enter button or key to confirm the selection. The front panel display shows the selected input.

Input Name

This function enables you to select an input name for each input. The input name options are listed in the left margin, on this page.

Enter the menu, then:

1. Use the level control knob on the preamplifier front panel or up and down keys (14) on the remote control to select: INPUT NAME.
2. Press the enter button on the preamplifier front panel or the enter key (6) on the remote control. The front panel display (3) shows the default mode: B-1.
3. Use the level control knob or the up and down keys to select the desired input: B-1, B-2, S-1, S-2, S-3, C-1, C-2, or TAPE.
4. Press the enter button or key. The front panel display shows no characters.
5. Use the level control knob or the up and down keys to select the desired input name, from the input name options listed at left.
6. Press the enter button or key to confirm the selection and return to the input list, in Step 3. The front panel display shows the input name.

To select input names for other inputs, repeat Steps 3 and 4.

Input Name Options

AUX, AUX1, AUX2, AUX3
B-1, B-2, B-3, BYPC-1
C-2, C-3, CABLE, CD, CD1,
CD2, CD-R, COMP
DAC, DAT, DCC, DISC, DISC 1,
DISC 2, DISC 3, DSS, DVD,
DVD1, DVD2, DVD3, DVD-A
EQ, GAME, HI-8
LD, LD1, LD2, LINE 1, LINE 2,
LINE 3, LINE
MDISC, MIXER, MON
PHONO, PHON1, PHON2,
PROC
S-1, S-2, S-3, S-4, SACD, SAT,
SRC1, SRC2, SRC3, SURR,
S-VID
TAPE1, TAPE2, TAPE3, TAPE,
TEST, THR, TUNER, TUNR1,
TUNR2, TV,
VCR, VCR1, VCR2, VCR3,
VDISC, VIDEO, VID1, VID2,
VID3
8MM, 8TRK

Input Phase

This function enables you to invert the absolute polarity of the selected input 180 degrees. The selections are: NORMAL, INVERT.

Enter the menu, then:

1. Use the level control knob on the preamplifier front panel or the up and down keys (14) on the remote control to select: INPUT PHASE.
2. Press the enter button on the preamplifier front panel or the enter key (6) on the remote control. The front panel display (3) shows the default mode: B-1.
3. Use the level control knob or the up and down keys to select the desired input from the list: B-1, B-2, S-1, S-2, S-3, C-1, C-2, or TAPE.
4. Press the enter button or key. The front panel display shows the default mode: NORMAL.
5. Use the level control knob or the up and down keys to select: NORMAL or INVERT.
6. Press the enter button or key to confirm the selection. The front panel display shows the selected input.

NORMAL

The phase of the selected input is unaffected.

INVERT

The phase of the selected input is inverted 180 degrees.

Input Trigger

This function enables you to configure the input trigger. The options are: OFF, NORMAL, THEATER.

Enter the menu, then:

1. Use the level control knob on the preamplifier front panel or the up and down keys on the remote control to select: INPUT TRIGGER.
2. Press the enter button on the preamplifier front panel or the or enter key (6) on the remote control. The front panel display (3) shows the default mode: NORMAL.
3. Use the level control knob or the up and down keys to select the desired option: OFF, NORMAL, or THEATER.
4. Press the enter button or key to confirm the selection. The front panel display reads: INPUT TRIGGER.

5 Menu Button or Key

Enter or exit the menu.

14 Volume Knob or Level Keys

Navigate the menu hierarchy; review functions and configuration options.

6 Enter Button or Key

Select a configuration option; confirm a selection.

BACK

Scroll backwards through the menu hierarchy; exit a menu option without confirming it.

(Input Trigger continued)

OFF

The Phantom II does not respond to 12 V input trigger commands.

NORMAL

The Phantom II responds to 12 V input trigger commands.

THEATER

The Phantom II responds to 12 V input trigger commands, and the theater mode enabled input is selected automatically. See **Theater Mode**, on page 41.

IR Out Control

This function enables you to access Phantom II IR commands and program a learning remote control.

Enter the menu, then:

1. Use the level control knob on the preamplifier front panel or up and down keys (14) on the remote control to select: IR OUT.
2. Press the enter button on the preamplifier front panel or the enter key (6) on the remote control. The front panel display (3) shows the default mode: B-1 MAIN.
3. Use the level control knob or the up and down keys to select the desired IR command from the list.
4. Press the enter button or key to send the command out via the preamplifier front panel IR transmitter (2). The stand-by LED (7) on the preamplifier chassis flashes, indicating that the command has been sent.
5. Repeat Steps 2-4 for each of the commands you wish to transmit.
6. Press the enter button or key to confirm the selection. The front panel display reads: IR OUT.

5 Menu Button or Key

Enter or exit the menu.

14 Volume Knob or Level Keys

Navigate the menu hierarchy; review functions and configuration options.

6 Enter Button or Key

Select a configuration option; confirm a selection.

BACK

Scroll backwards through the menu hierarchy; exit a menu option without confirming it.

*For a listing of IR codes, see the Phantom II developer's reference entitled **RS-232 Port: Sending Commands and Interpreting Data**.*

Link Control (CAN Link)

This function enables you to link and unlink CAN Link-enabled Krell products. The options are: LINKED, UNLINKED.

Enter the menu, then:

1. Use the level control knob on the preamplifier front panel or the up and down keys (14) on the remote control to select: LINK CONTROL.
2. Press the enter button on the preamplifier front panel or the enter key (6) on the remote control. The front panel display (3) shows the default mode: LINKED.
3. Use the level control knob or the up and down keys to select the desired option: LINKED, OR UNLINKED.
4. Press the enter button or key to confirm the selection. The front panel reads: LINKED.

LINKED

When preamplifier channels are linked, power, volume, balance, phase, tape, mute, and input selections are automatically communicated between linked preamplifier channels. All other settings remain local.

UNLINKED

When a preamplifier channel is unlinked, it does not respond to commands from any other linked preamplifier channels. After the preamplifier channel is unlinked, settings can be changed, independent of other preamplifier channels.

Mute

This function enables you to control the mute mode. Options are: FULL, -20 dB, BACK.

Enter the menu, then:

1. Use the level control knob, or the up and down keys (14) to select: MUTE.
2. Press the enter button on the preamplifier front panel or the or enter key (6) on the remote control. The front panel display (3) shows the default mode: FULL.
3. Use the level control knob, or the up and down keys to select the desired option: FULL OR -20 dB.
4. Press the enter button or key to confirm the selection. The front panel display reads: MUTE.

FULL

The output of the Phantom II is completely silenced.

-20dB

The output of the Phantom II is reduced by 20 dB and may still be audible.

Output Trigger

This function enables you to turn the two 12 Volt output triggers (25) on or off, or configure them with independent delays of up to 20 seconds. The options are: ON, OFF, DELAY.

Enter the menu, then:

1. Use the level control knob on the preamplifier front panel or up and down keys (14) on the remote control to select: OUTPUT TRIGGER.
2. Press the enter button on the preamplifier front panel or the enter key (6) on the remote control. The display (3) shows the default mode: TRIGGER 1.
3. Press the enter button or key again. The display shows the default mode: OFF.
4. Use the level control knob or up and down keys to select: OFF, ON, or DELAY.
5. Select DELAY. You are prompted to enter a delay time of 0-20 seconds.
6. Enter the delay time.
7. Press enter to confirm the selection. The display reads: DELAY.
8. Use the level control knob or up and down keys to scroll to: BACK.
9. Press the enter button or key to return to: TRIGGER 1.
10. Use the level control knob or the up and down keys to scroll to: TRIGGER 2.
11. Repeat Steps 3-7 to set Trigger 2.

ON

The 12 Volt trigger output is enabled at power on for the selected trigger (Trigger 1 or 2).

OFF

The 12 Volt trigger output is disabled at power on for the selected trigger (Trigger 1 or 2).

DELAY

The 12 volt trigger output is enabled at power on for the selected trigger (Trigger 1 or 2), and the delayed for a period of time (0-20 seconds).

5 Menu Button or Key

Enter or exit the menu.

14 Volume Knob or Level Keys

Navigate the menu hierarchy; review functions and configuration options.

6 Enter Button or Key

Select a configuration option; confirm a selection.

BACK

Scroll backwards through the menu hierarchy; exit a menu option without confirming it.

RC-5 Control

This function enables you to change the link transmit status of the Phantom II. The options are: LINK TRANSMIT, LINK RECEIVE.

Enter the menu, then:

1. Use the level control knob on the preamplifier front panel or up and down keys (14) on the remote control to select: RC-5 CONTROL.
2. Press the enter button on the preamplifier front panel or the enter key (6) on the remote control. The front panel display (3) shows the default mode: LINK TRANSMIT.
3. Use the level control knob or the up and down keys to select the desired option: LINK TRANSMIT or LINK RECEIVE.
4. Press the enter button or key to confirm the selection. The front panel display reads: RC-5 CONTROL.

Recall

This function enables you to access factory default settings or your own saved settings. The options are: FACTORY, SAVED.

Enter the menu, then:

1. Use the level control knob on the preamplifier channel front panel or up and down keys (14) on the remote control to select: RECALL.
2. Press the enter button on the preamplifier channel front panel or the or enter key (6) on the remote control. The front panel display (3) shows the default mode: FACTORY.
3. Use the level control knob or the up and down keys to select the desired option: FACTORY, or SAVED.
4. Press the enter button or key to confirm the selection. The front panel display reads: RECALL.

FACTORY

Recalls the factory settings.

SAVED

Recalls settings previously stored in memory using the SAVE function. See also *Save, on the next page.*

RS-232 Control

This function enables you to change the link transmit status of the Phantom II. The options are LINK TRANSMIT, LINK RECEIVE.

Enter the menu, then:

1. Use the level control knob on the preamplifier channel front panel or up and down keys (14) on the remote control to select: RS-232 CONTROL.
2. Press the enter button on the preamplifier channel front panel or the enter key (6) on the remote control. The front panel display (3) shows the default mode: LINK TRANSMIT.
3. Use the level control knob or the up and down keys to select the desired option: LINK TRANSMIT, OR LINK RECEIVE.
4. Press the enter button or key to confirm the selection. The front panel display reads: RS-232 CONTROL.

Save

This function enables you to save a copy of the current settings. The options are: GO, BACK.

Enter the menu, then:

1. Use the level control knob on the preamplifier channel front panel or up and down keys (14) on the remote control to select: SAVE.
2. Press the enter button on the preamplifier channel front panel or the or enter key (6) on the remote control. The front panel display (3) shows the default mode: GO.
3. Press the enter button or key to save the settings The front panel display reads: SAVE.

GO

Saves a copy of current settings to memory, overwriting previously saved settings.

5 Menu Button or Key

Enter or exit the menu.

14 Volume Knob or Level Keys

Navigate the menu hierarchy;
review functions and configuration options.

6 Enter Button or Key

Select a configuration option;
confirm a selection.

BACK

Scroll backwards through the
menu hierarchy; exit a menu
option without confirming it.

Theater Mode

This function enables you to select theater mode volume for a particular input. Use this function when connecting the output of a preamp/processor to the Phantom II for home theater applications. Configuring an input for theater mode sets that input for unity gain and suspends the level control of the Phantom II. Volume adjustments are then made through the preamp/processor connected to the input configured for theater mode on the Phantom II. The options are: ON, OFF.

Enter the menu, then:

1. Use the level control knob on the preamplifier front panel or the up and down keys (14) on the remote control to select THEATER.
2. Press the enter button on the preamplifier front panel or the enter key (6) on the remote control. The front panel display (3) shows the default input: B-1.
3. Use the level control knob or the up and down keys to select the desired input: B-1, B-2, S-1, S-2, S-3, C-1, C-2, OR TAPE.
4. Press the enter button or key. The front panel display shows the default mode: OFF.
5. Use the level control knob or the up or down keys to select ON or OFF.
6. Press the enter button or key to confirm the selection and return to the selected input.

ON

The selected input is set to THEATER and the volume control for the theater input is disengaged on the Phantom II.

OFF

The selected input is configured normally and the volume control for the normal input is engaged on the Phantom II.

Note

Only one input on the Phantom II can be in theater mode at a time. When theater mode is set for an input, theater mode is cleared automatically from other inputs.

*The Phantom II selects the theater input automatically upon power on, if the input trigger is configured for THEATER. See **Input Trigger**, on pages 35-36.*

Volume Display

This function enables you to select the numeric mode for the volume display, displaying values from softest to loudest: 0 to 151. Alternatively, you can select the dB mode for the volume display, displaying values from softest to loudest: -inf to +12 dB. The options are: NUMERIC, dB.

Enter the menu, then:

1. Use the level control knob on the preamplifier front panel or up and down keys (14) on the remote control to select: VOLUME DISPLAY.
2. Press the enter button on the preamplifier front panel or the enter key (6) on the remote control. The front panel display (3) shows the default mode: dB.
3. Use the level control knob or the up and down keys to select the desired option: NUMERIC or dB.
4. Press the enter button or key to confirm the selection. The front panel display reads: VOLUME DISPLAY.

Tape

This function enables you to configure the tape input as a standard input labeled S-4. The options are: TAPE, S-4.

Enter the menu, then:

1. Use the level control knob on the preamplifier front panel or up and down keys (14) on the remote control to select: TAPE.
2. Press the enter button on the preamplifier front panel or the enter key (6) on the remote control. The front panel display (3) shows the default mode: TAPE.
3. Use the level control knob or the up and down keys to select the desired option: TAPE or S-4.
4. Press the enter button or key to confirm the selection. The front panel display reads: TAPE.

The TAPE setting maintains standard tape loop functionality with the tape output.

The S-4 input behaves as an additional single-ended input. Incoming signals sent to tape output.

5 Menu Button or Key

Enter or exit the menu.

14 Volume Knob or Level Keys

Navigate the menu hierarchy; review functions and configuration options.

6 Enter Button or Key

Select a configuration option; confirm a selection.

BACK

Scroll backwards through the menu hierarchy; exit a menu option without confirming it.

SECTION **EIGHT**

Troubleshooting System Noise

When you mix and match high-performance audio components, each with its own ground potential, a low frequency hum may occur in one or both loudspeakers.

If this happens when you place the Phantom II preamplifier into your system, follow these simple troubleshooting steps.

- 1.** Check that all input and output connections are of sound construction.
- 2.** With the preamplifier channel off, remove the interconnect cables, then turn the preamplifier channel on. If the hum disappears, turn the preamplifier channel off and reinsert one of the interconnect cables. Turn the preamplifier channel back on. Repeat this process for each cable.
- 3.** If the hum reappears with one or both interconnect cables reinserted, the cable needs to be replaced.
- 4.** If the interconnect cables are sound, you may be experiencing a ground loop. Please contact your authorized Krell dealer, distributor, or Krell for suggestions on how to eliminate the ground loop.

Warranty

Krell products have a limited warranty. Amplifiers, preamplifiers, preamps/processors, and receivers carry a limited warranty of five years from date of purchase or six years from date of manufacture for parts and labor circuitry. Loudspeakers carry a limited warranty of five years from date of purchase or six years from date of manufacture for parts and labor. CD and DVD players carry a limited warranty of five years from date of purchase or six years from date of manufacture for parts and labor on circuitry, and three years for parts and labor on mechanical parts.

Should the product fail to perform at any time during the warranty, Krell will repair it at no cost to the owner, except as set forth in this warranty.

This warranty does not apply to damage caused by acts of God or nature.

This warranty shall be in lieu of any other warranty, expressed or implied, including, but not limited to, any implied warranty of merchantability or fitness for a particular purpose. There are no warranties which exceed beyond those described in this document, if the product does not perform as warranted herein, the owner's sole remedy shall be repair. In no event will Krell be liable for incidental or consequential damages arising from purchase, use, or inability to use the product, even if Krell has been advised of the possibility of such damages.

Proof of purchase in the form of a bill of sale or receipted invoice substantiating that the product is within the warranty period must be presented to obtain warranty service. The warranty begins on the date of the original retail purchase, as noted on the bill of sale or receipted invoice from an authorized Krell dealer or distributor. Previously owned equipment, when re-purchased from an authorized Krell dealer or distributor, has the balance of the original warranty, based on the original date of manufacture. Krell dealers and distributors are not authorized to sell current products on the Internet. Current products purchased via the Internet do not have any transferrable warranty.

The warranty for a Krell product is valid only in the country to which it was originally shipped, through the authorized Krell distributor for that country, and at the factory. There may be restrictions on or changes to Krell's warranty because of regulations within a specific country. Please check with your distributor for a complete understanding of the warranty in your country.

If the product is serviced by a distributor who did not import the unit, there may be a charge for service, even if the product is within the warranty period.

Freight to the factory is your responsibility. Return freight within the United States (U.S.A.) is included in the warranty. If you have purchased your Krell product outside the U.S.A. and wish to have it serviced at the factory, all freight and associated charges to the factory are your responsibility. Krell will pay return freight to the U.S.A.-based freight forwarder of your choice. Freight and other charges to ship the product from the freight forwarder to you are also your responsibility.

Krell is not responsible for any damage incurred in transit. Krell will file claims for damages as necessary for a product damaged in transit to the factory. You are responsible for filing claims for shipping damages during the return shipment.

Krell does not supply replacement parts and/or products to the owner of the product. Replacement parts and/or products will be furnished only to the distributor performing service on this product on an exchange basis only; any parts and/or products returned to Krell for exchange become the property of Krell.

No expressed or implied warranty is made for any Krell product damaged by accident, abuse, misuse, natural or personal disaster, or unauthorized modification.

Any unauthorized voltage conversion, disassembly, component replacement, perforation of chassis, updates, or modifications performed to the product will void the warranty.

The operating voltage of the product is determined by the factory and can only be changed by an authorized Krell distributor or at the factory.

In the event that Krell receives a product for warranty service that has been modified in any way without Krell authorization, all warranties on that product will be void. The product will be returned to original factory layout specifications at the owner's expense before it is repaired. All repairs required after the product has been returned to original factory specifications will be charged to the customer, at current parts and labor rates.

All operational features, functions, and specifications and policies are subject to change without notification.

To register your product for warranty benefits, please complete and return the Warranty Registration Card enclosed in the shipping box within 15 days of purchase. Thank you.

Return Authorization Procedure

If you believe there is a problem with your component, please contact your dealer, distributor, or the Krell factory to discuss the problem before you return the component for repair. To expedite service, you may wish to complete and e-mail the Service Request Form in the Service Section of our website at:

<http://www.krellonline.com>

To contact the Krell Service Department

TEL	203-298-4020, Monday-Friday 9:00 AM to 5:00 PM EST
FAX	203-795-2287
E-MAIL	service@krellonline.com
WEBSITE	http://www.krellonline.com

Phantom II

PRODUCT

MODEL NUMBER

SERIAL NUMBER

To return a product to Krell, please follow this procedure so that we may serve you better.

1. Obtain a Return Authorization Number (R/A number) and shipping address from the Krell Service Department.
2. Insure and accept all liability for loss or damage to the product during shipment to the Krell factory and ensure all freight (shipping) charges are prepaid.

The product may also be hand delivered if arrangements with the Service Department have been made in advance. Proof of purchase will be required for warranty validation at the time of hand delivery.

IMPORTANT

Use the original packaging to ensure the safe transit of the product to the factory, dealer, or distributor. Krell may, at its discretion, return a product in new packaging and bill the owner for such packaging if the product received by Krell was boxed in nonstandard packaging or if the original packaging was so damaged that it was unusable. If Krell determines that new packaging is required, the owner will be notified before the product is returned.

To purchase additional packaging, please contact your authorized Krell dealer, distributor, or the Krell Service Department for assistance.

Specifications

Inputs

- 2 pr. CAST via 4-pin bayonet connectors
- 2 pr. balanced via XLR connectors
- 3 pr. single-ended via RCA connectors

Tape input

- 1 pr. single-ended via RCA connector

Main outputs

- 1 pr. CAST via 4-pin bayonet connectors
- 1 pr. balanced via XLR connector
- 1 pr. single-ended via RCA connector

Subwoofer outputs

- 1 pr. balanced via XLR connector
- 1 pr. single-ended via RCA connector

Tape outputs

- 1 pr. single-ended via RCA connector, buffered

Control inputs

- 1 RS-232 input via a 9-pin D-subminiature connector
- 1 remote IR detector input via a 3-conductor 3.5 mm connector
- 1 12 VDC trigger input via a 2-conductor 3.5 mm connector
- 1 preamplifier link via an RJ-45 connector

Control outputs

- 2 individually programmable 12 VDC trigger outputs via 2-conductor 3.5 mm connectors (500 milliamps maximum per output)
- 1 preamplifier link via an RJ-45 connector

Power output

- 1 phono power output (± 20 VDC) for KPE via a 9-pin D-subminiature connector

Input impedance

- CAST: 25 Ohms
- Balanced: 40 k Ohms
- Single-ended: 20 k Ohms

Output impedance

- CAST: >1 M Ohms
- Balanced: 250 Ohms
- Single-ended: 125 Ohms

Gain

- 12 dB (CAST or balanced output)
- 6 dB (single-ended output)

Volume control

- Balanced, current-mode, 16-bit, discrete R-2R ladder

Input overload

- CAST: 12 mA RMS
- Balanced: 10 V RMS
- Single-ended: 6.5 V RMS

Output overload

- CAST: 16 mA RMS
- Balanced: 16 V RMS
- Single-ended: 8 V RMS

Frequency response

- 20 Hz to 20 kHz ± 0.02 dB
- 0.35 Hz to 720 MHz +0, -3 dB

Total harmonic distortion plus noise

- Balanced Output: <0.003%, 20 Hz to 20 kHz, 4 V RMS or 4 mA RMS

Signal-to-noise ratio

- 4 V RMS balanced or 4 mA RMS CAST output**
- Wideband, unweighted: >100 dB
- "A" weighted: >109 dB

Power consumption

- Standby: 60 W
- Power on: 65 W
- Power on, with KPE: 75 W

Dimensions

- 17.3 in.W x 3.8 in. H x 18.25 in. D
- 43.82 cm W x 9.7 cm H x 46.4 cm D

Weight

- Shipped: 38 lbs., 17.2 kg
- Preamplifier only: 23 lbs., 10.2 kg

Note

All operational features, functions, specifications, and policies are subject to change without notification.

Phantom II
STEREO PREAMPLIFIER

OWNER'S REFERENCE
V1.0

KRELL INDUSTRIES, LLC.
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ORANGE, CT 06477-3650 USA

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