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. Caution: Visible and invisible laser radiation. When the cover is open, avoid exposure to the beam. This apparatus employs a laser. To prevent possible eye injury, only a qualified service person should remove the cover, or attempt to service this apparatus. Use of controls or adjustments or performance of procedures other than specified herein may result in hazardous laser radiation exposure.
11. The apparatus must be placed on a firm, level surface where it is not exposed to dripping or splashing.
12. The ventilation grids on the top of the apparatus and the space underneath it must be unobstructed at all times during operation. Do not place flammable material above or beneath the apparatus.
13. Before making connections to the CIPHER, 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.
14. THERE ARE NO USER SERVICEABLE PARTS INSIDE AN CIPHER SACD/CD PLAYER. Please contact Krell if you have questions not addressed in this guide.
Contents

List of Tables and Illustrations, page 4

A Letter from Krell Industries, LLC, page 5

SECTION ONE: CIPHER Features and Technology, page 6
   Features, Revolutionary Krell CAST Technology,
   Definition of Terms

SECTION TWO: Unpacking and Placement, page 11
   Opening the CIPHER Shipping Carton, Placement, AC Power Guidelines

SECTION THREE: Anatomy of the CIPHER, page 13
   Front Panel Description, Remote Control Description, Battery Installation and
   Removal, Back Panel Description

SECTION FOUR: Connecting the CIPHER to Your System, page 22
   Using Balanced Connections, Connection Steps

SECTION FIVE: CIPHER Operation, page 24
   Power On, How to Play a Disc, Disc Formats, Data Disc, Filter, Repeat Functions,
   12 VDC Trigger, RS-232 Port

WARRANTY, page 28

RETURN AUTHORIZATION PROCEDURE, page 30

SPECIFICATIONS, page 31
List of Illustrations and Tables

Figure 1, page 13
   CIPHER Front Panel

Figure 2, page 17
   CIPHER Remote Control

Figure 3, page 19
   CIPHER Back Panel

Table 1, page 22
   Analog and Digital Connections
A Letter from Krell Industries LLC

Dear Audio Enthusiast,

Thank you for your purchase of the Krell CIPHER SACD/CD Player. Source components are the first, vital link in the audio signal chain, and an audio system can perform no better than the source allows. For this reason, we have made every effort to include the best technology in the design of this new Krell product.

At the heart of the CIPHER are separate, linear power supplies that insure perfect operating conditions for the drive mechanism and audio circuits. Discrete, Class A gain stages are balanced and are utilized from input to output. Current Mode topologies enable wide bandwidth performance, while Current Audio Signal Transmission (CAST) transmitters insure the most robust connection to other Evolution components. All of these technologies are heard in the authentic and satisfying audio reproduction of the CIPHER.

We hope that you enjoy your new CIPHER source component.

Sincerely,

Krell Industries LLC
SECTION ONE

CIPHER Features and Technology

This section describes the innovative features and technology of the CIPHER SACD/CD Player, and defines CAST and other key terms used in this reference.

The CIPHER works to carefully transmit audio signals without damaging the ephemeral staging and dimensional components of the music. A combination of advanced technologies and inspired design elevate the CIPHER SACD/CD Player’s performance to the reference level.

Features

An advanced disc drive and coupled to the latest Krell digital and analog circuitry, the Krell Cipher delivers the ultimate performance from today’s highest resolution source material. Every performance enhancement is incorporated to retrieve the most accurate signal from SACD and CD music titles. Isolated mechanically from the underlying chassis, the drive mechanism utilizes composite mounts to minimize vibration induced errors. Special sound damping material is strategically placed inside the unit to minimize mechanical resonances even further. Krell customized disc drive firmware enhances reading accuracy, drive mechanics, and operational parameters. As an ultimate final step, the separate SACD and CD laser heads are individually calibrated by hand for the precise output levels required for reference quality SACD and CD playback.

All signals are fed into a custom designed Krell anti-jitter module that reduces jitter to a virtually inmeasurable level. From there signals are fed to a 24 bit/192 KHz digital filter and then to a pair of balanced 24-bit/192 KHz digital to analog converters (DACs). Conventional players use one DAC for both channels and convert the current output of the DAC to voltage, a process that invariably causes signal distortion. Instead, the Cipher uses one DAC per channel and feeds the native balanced current output directly to Krell Current Mode circuitry. Removing the typical current to voltage stage found in conventional players eliminates distortions associated with this conversion. Balanced DACs maintain a dual differential balanced signal from the output of the DACs to the output connections. This lowers distortion and improves signal to noise ratio to their maximum levels. Cor Krell technologies of discrete, complementary, direct coupled circuitry are employed throughout the surface mount based output stage. Evolution CAST and balanced connections are included for optimal stereo playback. A complete Evolution (source, pre-amp, amplifier) system, connected in CAST, reduces the number of voltage gain stages to the minimum: one. The resulting noise floor approaches the theoretical limit of technology. Output are also included for Multichannel SACD playback.
The backbone of all audio components is the power supply which is often mini-
mized in leser players. The Cipher includes independent power supplies for the
drive mechanism, digital, and analog sections to maintain signal isolation between
these circuit areas. The Cipher’s linear power supply is sourced directly from the
design used in Krell Evolution e Series amplifiers. A custom wound toroidal power
transformer, 10 times larger than those found in typical players, provides tremen-
duous current reserves and assures low noise analog stage operation. Extensive
mut-regulation delivers rock steady power to all gain stages, ensuring maximum
dynamic impact that can get muted in players using switchin or digital power sup-
plies.
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 MMF 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 CIPHER 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 back panel power switch (34) is in the down (0) position, or the AC power supply cord is disconnected, the component is off, and the stand-by/power LED is not illuminated.

Stand-by
A low-power-consumption status that keeps the audio and regulator circuits at idle. The stand-by/power LED (2) is illuminated in red when the component is in stand-by mode. Krell recommends leaving the component in stand-by mode when it is not playing music.

Operation
When the power button (1) or key is pressed, the standby/power LED (2) is illuminated in blue, and the component 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 the voltage domain. This unique technology provides the component with exceptional speed and a wide bandwidth.

SACD Disc
A Super Audio Compact Disc (SACD) is an audio disc that provides exceptional high quality sound. Based on the new Direct Stream Digital (DSD) technology, a format that comprises a 1-bit system, a SACD has a sampling frequency 64 times higher than that of a conventional audio CD. With a frequency response of over 50 kHz, and a dynamic range of 120 dB over the entire audible spectrum, the results are spectacular: There is no better audio disc reproduction.

You will recognize a SACD by the super audio compact disc logo. There are three SACD disc types:

1. A single layer disc consists of one high density (HD) layer.
2. A dual layer disc consists of two HD layers, and can store twice as much information as a single layer disc.
3. A hybrid disc consists of one standard compact disc layer with conventional two-channel audio compact disc information, and one HD layer.

SACD Disc: Hybrid Disc Type
Each SACD disc type may contain two areas of recorded information: a high-quality two-channel area and a high-quality multi-channel area. Recorded information may vary per area. Refer to the disc inlay for more information.

The hybrid SACD disc type has the most versatile disc playback options, with two areas of recorded information for SACD playback as well as backward compatibility with existing standard CD and DVD players via the standard compact disc layer.

On a hybrid SACD disc, the two layers are read from the same side of the disc. The HD layer is read by a DVD laser. The reflective conventional compact disc layer is read by the CD laser through the second, semi-transmissive HD layer.

CDDA
This is the digital audio file type utilized for standard CD’s. CDDA stands for a Compact Disc Digital Audio system.

Data Disc
This is a disc composed of digital audio files of a type other than CDDA. The most widely recognized non-CDDA digital audio file type is MP3.
Unpacking and Placement

This section describes the procedures for safely unpacking and placing your CIPHER SACD/CD Player. The CIPHER is shipped in 1 carton consisting of the SACD/CD Player and an accessory box.

Opening the CIPHER Shipping Carton

The CIPHER shipping carton measures 22 in. (55.9 cm) wide by 12 in. (30.5 cm) high by 22 in. (55.9 cm) deep.

**CIPHER Chassis.** This measures 17.3 in. (43.8 cm) wide by 6 in. (15.3 cm) high by 17.3 in. (43.8 cm) deep, and weighs 29 lbs. (13.2 kg).

**To Remove the CIPHER from the Shipping Carton**

1. Open the shipping carton and open the top flaps. The carton contains these items:
   - 1 CIPHER SACD Player
   - 1 Accessory box containing the following:
     - 1 IEC Connector (AC Power) cord
     - 1 12 VDC (12 V trigger) cable
     - 1 Remote control
     - 2 AAA-size 1.5 Volt batteries for the remote
     - 1 T-10 Torx wrench for the remote control
     - 1 Packet containing the Quick Setup Guide and the Warranty Registration Card
   - 2. Remove the accessory box and place to one side.
   - 3. Lift out the removable front piece of foam.
   - 4. Carefully lift out the CIPHER SACD/CD Player. It is quite heavy, so get a firm grip on it before lifting, or ask a friend to help.
   - 5. Place the CIPHER in a safe location, and remove the protective plastic wrapping.

**Notes**
If any of these items are not included in the shipping box, please contact your authorized Krell dealer, distributor, or Krell for assistance.

Save all packing materials. If you ship your CIPHER in the future, repack the unit in its original packaging to prevent transit damage. See Return Authorization Procedure, on page 30, for more information.
Placement

Before you install an CIPHER 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 CIPHER does not require a special rack or cabinet for installation. The preamplifier chassis measures 17.3 in. (43.8 cm) wide, 6 in. (15.3 cm) high, and 17.3 in. (43.8 cm) deep.

Place the CIPHER on a firm, level surface, away from excessive heat, humidity or moisture. The CIPHER requires at least two inches (5 cm) of clearance on each side, and at least two inches (5 cm) of clearance above the component to provide adequate ventilation. Installation inside cabinetry may require additional ventilation.

Do not place the CIPHER near hum sensitive components such as preamplifier phono stages or turntables. Although the CIPHER is well shielded, placing it near these components could create interference and cause hum.

Note
The CIPHER incorporates an advanced suspension system and does not require additional mass coupling or isolation. You may experiment with feet or cones as long as they are not permanently affixed to the unit. Any unauthorized modifications to the unit or electronics will void the warranty.

IMPORTANT
Do not attach enhancement accessories such as rings, mats, or dampers to individual discs. These accessories may interfere with the disc transport, resulting in erratic playback and/or poor sound.

AC Power Guidelines

The CIPHER 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. The use of AC line conditioning devices or filters may be used if they are grounded and meet or exceed the unit’s power supply rating of 100 VA. The switch and receptacle should remain unobstructed for ease of operation and in case of an emergency.

IMPORTANT
When the internal line fuse needs to be replaced, contact your dealer, distributor or Krell. The line fuse is not intended to be replaced by the user.
SECTION THREE

Anatomy of the CIPHER

This section describes the CIPHER functions.

Figure 1 CIPHER Front Panel

Power
1. Power Button
2. Stand-by/Power LED

Remote IR
3. Infrared Sensor

Transport Functions
4. Pause
5. Stop
6. Play
7. Open/Close
8. Track Skip
9. Search forward and back

Menu Navigation Functions
10. Menu
11. Enter
12. Menu Navigation
13. Title
14. Program
15. Clear
16. Direct Track Select Numbers

Filter
17. Filter Select

CD Transport
18. CD Transport

Display Functions
19. Display
20. Dim
21. Display Select

Not Used
Setup and Disc

continued
Front Panel Description

Power, transport, and display features are described below (see Figure 1 on the previous page). Most front panel features can be activated using the remote control keys. Descriptions of special operational features are outlined on page 24.

Power

1. **Power Button or Key**
   - Use this button or key to switch the CIPHER between the stand-by and operational modes.

2. **Stand-by/Power LED**
   - This LED illuminates red (stand-by) when the CIPHER is plugged into a standard live AC wall receptacle and the rear panel power switch is turned on. The LED will illuminate blue (operational mode) when the power button (1) or key is pressed while the CIPHER is in stand-by mode.

Remote Functions on the Front Panel

3. **Infrared Sensor**
   - The infrared sensor receives commands from the CIPHER remote control. For proper remote control operation, make sure the infrared sensor is not covered or obstructed.

Transport Functions

4. **Pause Button or Key**
   - Temporarily suspends playback of a track. To resume playback at the point pause was engaged, press play.

5. **Stop Button or Key**
   - Stops disc playback.

6. **Play Button or Key**
   - Starts playback from the beginning of the disc. See also *How to Play a Disc*, page 16.

7. **Open/Close Button or Key**
   - Opens or closes the disc transport.

8. **Track Skip Forward and Back Buttons or Keys**
   - Track forward selects the track that follows the current track. Track back selects the track that precedes the current track. Press repeatedly (do not hold) to skip multiple tracks.

9. **Search Forward and Back Buttons or Keys**
   - Press and hold to scroll forward or backward in the current track. Press play to return to normal playback.
10 **Menu Button or Key**
Accesses three menu choices: track number, disc mode, and sample rate.

11 **Enter Button or Key**
Press to view track number, disc mode, and sample rate.

12 **Menu Navigation Buttons or Keys**
Press the up or down arrows to navigate the three menu choices.

13 **Title Button or Key**
Selects the format: conventional CD (CD), two-channel SACD (SACD STEREO), or multi-channel SACD (SACD MULTI). The default format is SACD MULTI. The currently selected format appears in the front panel display (19).

14 **Prog Button or Key**
Press to begin programming a sequence of tracks. If a disc is playing, press stop (5) and then press prog.

**To set up a program:**
Press prog (14), then enter a track number using the Direct Track Access buttons (16) and press enter (11). Select another track and press enter, and repeat until all desired tracks are chosen. Press play (6) to begin the program.

**To stop the program:**
Press open/close (7) to open the transport, or press stop (5) once and prog twice.

15 **Clear Button or Key**
Press to delete an unwanted entry in a program sequence.

16 **Direct Track Access Buttons or Keys**
Buttons 0 through 9 access each track in a compact disc directly. If tracks consist of 2 digits, the buttons or keys must be pressed within 2 seconds of each other.

17 **Filter Select Button or Key, and LEDs**
Select filter responses for all disc formats. The LED shows which filter is selected. See page 26 for more details.

18 **Compact Disc Transport**
This holds the disc. Open and close it using the open/close button or key (7).
Display

19 Front Panel Display
   Shows disc type and format, and the current status of the CIPHER. See page 27 for more details.

20 Dim Button or Key
   This reduces the brightness of the front panel display.

21 Display Button or Key
   This cycles the display between three choices: remaining track time, elapsed disc time, and remaining disc time.

The following front panel buttons are not operational:
   setup and disc.
Figure 2 CIPHER Remote Control

<table>
<thead>
<tr>
<th>Power</th>
<th>Transport Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Power Button</td>
</tr>
<tr>
<td>4</td>
<td>Pause</td>
</tr>
<tr>
<td>5</td>
<td>Stop</td>
</tr>
<tr>
<td>6</td>
<td>Play</td>
</tr>
<tr>
<td>7</td>
<td>Open/Close</td>
</tr>
<tr>
<td>8</td>
<td>Track Skip</td>
</tr>
<tr>
<td>9</td>
<td>Search forward and back</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Menu Navigation Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
</tr>
<tr>
<td>11</td>
</tr>
<tr>
<td>12</td>
</tr>
<tr>
<td>13</td>
</tr>
<tr>
<td>14</td>
</tr>
<tr>
<td>15</td>
</tr>
<tr>
<td>16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Filter Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Display Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Repeat Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
</tr>
<tr>
<td>23</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Not Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setup, Disc, Subt, Angle, Ret</td>
</tr>
</tbody>
</table>
Remote Control Description

See Figure 2 on the previous page

The CIPHER remote control provides the same functions as the front panel. In addition, there are three keys that are unique to the remote control, and these are described below.

22 Repeat Key

Replays selected track until new feature is selected. See also, Using the Repeat Key, on page 27.

23 Repeat A-B Key

Creates a loop between two pre-determined points within a single track or sequential tracks. Press once to select the start of the repeat loop (A), and press again to select the end of the loop (B). See also, Using the Repeat A/B Key, on page 27.

24 Audio Key

Cycles between the stereo and multi-channel layers of an SACD disc.

The following remote control keys are not operational:

- setup, disc, subt, angle, and ret.

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.

Note

Replace batteries when remote control function becomes intermittent.
Do not use a knife or other sharp object to remove the backplate, as this may damage the remote control finish.
Remove batteries if the remote control is not used for a long period of time. Battery leakage can damage the remote control.
Figure 3 CIPHER Back Panel

Analog Outputs
- 25 Balanced Outputs
- 26 Single-ended Outputs
- 28 CAST Outputs

Digital Outputs
- 29 Optical Digital Output
- 30 Coaxial Digital Output

12 V Trigger
- 31 12 VDC (Trigger) In and Out

Remote IR
- 33 RC-5 Input

Serial Port
- 32 RS-232 Communication Port

CAN Link
- 27 CAN Link Connectors

AC Power
- 34 AC Power Switch

Functions
- 35 IEC Power Cord Receptacle

continued
Back Panel Description

See Figure 3 on the previous page

The back panel provides all the output connections, remote control inputs and outputs, and the AC power connection. The back panel features are described below.

Analog Audio Outputs

25 Balanced Outputs
   One pair of balanced outputs with XLR connectors.

26 Single-ended Outputs
   For connection to a multi-channel receiver, with unbalanced RCA connectors:
   L, R = left and right channel connections.
   C = center channel connection.
   SW = subwoofer connection.
   SL, SR = left and right surround channel connections.

28 CAST Outputs
   The CIPHER is equipped with two CAST outputs with 4-pin bayonet connectors, for use with Krell CAST-equipped preamplifiers.

Digital Audio Outputs (CD format only)

29 Optical Digital Output
   One EIAJ fiber optical digital output with a TosLink connector.

30 Coaxial Digital Output
   One S/PDIF coaxial digital output with an RCA connector.
Remote Connections on the Back Panel

31 12 VDC (Trigger) In and Out
   The output sends 12 VDC power on/off signals to other Krell components and
   other devices that incorporate a 12 V trigger.
   The input receives 12 VDC power on/off signals from other components and
   devices that incorporate a 12 V trigger.

33 RC-5 Input
   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 config-
   uration: Tip = RC-5 data, Ring = +5 V, Sleeve = GND.

27 CAN Link
   These RJ-45 link connectors are connected in parallel. They are used to con-
   nect the CIPHER in link mode, to other CAN Link-enabled Krell products.

32 RS-232 Communication Port
   This port allows you to send operational instructions to the CIPHER using an
   external computer control system. The RS-232 port uses a 9-pin D-
   subminiature connector.

Power

34 AC Power Switch
   Use this switch to change the CIPHER from off to stand-by.

35 IEC Power Cord Receptacle
   Use the provided IEC standard 15 amp power cord or Krell Vector HC Power
   Cable.
**SECTION FOUR**

**Connecting the CIPHER to Your System**

**Using Balanced Connections**

Krell recommends Krell CAST MMF interconnect cable when connecting your Cipher to a CAST equipped Krell preamplifier. The next best option is using balanced interconnect cables. Balanced interconnect cables not only minimize sonic loss, but are also immune to induced noise, especially with installations using long cables. Balanced connections have 6 dB more gain than single-ended connections. When level matching is critical, keep this gain value in mind.

*Table 1* Analog and Digital Connections

<table>
<thead>
<tr>
<th>CD Format</th>
<th>Analog Output</th>
<th>Digital Output</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Balanced</td>
<td>Single-ended</td>
</tr>
<tr>
<td></td>
<td>L + R MULTI</td>
<td></td>
</tr>
<tr>
<td>Conventional CD</td>
<td>YES YES NO</td>
<td>YES</td>
</tr>
<tr>
<td>Two-channel SACD</td>
<td>YES YES NO</td>
<td>NO</td>
</tr>
<tr>
<td>Multi-channel SACD</td>
<td>YES YES YES</td>
<td>NO</td>
</tr>
</tbody>
</table>
Connection Steps

Follow these steps to connect the CIPHER to your system.

1. Make sure all power sources and components are off before connecting inputs and outputs.

2. Neatly organize the wiring between the CIPHER and all system components. Separate AC wires from audio cables to prevent hum or other unwanted noises from being introduced into the system.

3. Remember that balanced outputs use three-pin XLR connectors. Single-ended outputs use RCA connectors. Maintain the correct left/right orientation of these outputs.

4. To play an SACD, you need to use the analog audio outputs. Digital audio outputs are only available for conventional compact discs.

   For multi-channel SACD (SACD MULTI), two-channel SACD (SACD STEREO), and conventional compact disc playback, connect the CIPHER multi-channel analog audio outputs to the surround preamp/processor multi-channel inputs. All multi-channel analog audio outputs are available in the SACD MULTI format. The center (C), subwoofer (SW) and surround (SL, SR) multi-channel outputs are not available in the CD or SACD formats. The left (L) and right (R) multi-channel outputs are always active.

5. For two-channel and conventional compact disc playback only, connect the CIPHER balanced analog audio outputs or the left (L) and right (R) multi-channel outputs to the preamplifier balanced or single-ended analog audio inputs.

6. For conventional compact disc playback only, connect the CIPHER digital coaxial output or digital optics output to the corresponding preamp/processor digital input.

7. Plug the AC power cord into the IEC power connector on the back panel. Then plug the AC power cord into the wall socket.
Figure 4 Connection Diagram
CIPHER Operation

This section provides information about operating the CIPHER. See Front Panel
/Remote Control Description, on pages 13-21, for more CIPHER playback fea-
tures.

Power On

Press the back panel power switch (34) labeled “1”. When the CIPHER is initialized
and in the stand-by mode, the red stand-by LED (2) on the front panel illuminates. Then
press the power button (1) on the front panel or the power key on the remote
control, to place the CIPHER in the operational mode. When the blue stand-by
LED (2) illuminates, the CIPHER is in the operational mode and ready to play a
SACD or a conventional compact disc.

How to Play a Disc

1. Press the open/close button (7) or key, to open the disc transport.
2. Place the disc on the transport.
3. Press the open/close button or key again to close the disc transport. The front
   panel display reads the total tracks and time on the disc.
4. Press the play button (6) or key. The format type is seen in the front panel dis-
   play. The format type disappears, and the front panel display reads TRACK 1 and
   the track time as the disc begins playing.
5. Press the stop button (5) or key, and then the title button (13) or key in order to
   select another disc format and view available tracks.
6. Adjust the volume level through your system volume control.
7. Press the stop button or key to end disc playback.
8. Press the play button or key to begin playback again, from the first track.
9. To return the CIPHER to the stand-by mode, press the power button (1) or key.
Using the Title Button or Key (13)

Use the title button (13) or key to select one of the three disc formats that the CIPHER plays: CD (conventional CD), SACD STEREO (two-channel SACD) and SACD MULTI (multi-channel SACD). The currently selected format is shown in the front panel display (18). The default format for all SACD discs is SACD MULTI.

The tracks on the selected disc format are the only tracks that can be played. To access tracks on alternate disc format, press the title button or key again. If there are no tracks in a particular format, that format does not appear in the front panel display.

Perform the following steps in order to access the different formats on a hybrid SACD:

1. Press the stop button (5) or key. The front panel display reads the total tracks and time on the disc.

2. Press the title button (13) or key until the desired format is seen in the front panel display. The format name disappears and the front panel display reads the total tracks and time on the disc. Press the play (6) button or key to begin playing the selected format.

Note
The front panel display reads “CHANGING LAYER” whenever you move between the conventional CD and SACD layers.

Navigating a Data Disc

The CIPHER is capable of reading MP3 audio files from data discs that you prepare on a personal computer. The front panel display indicates ROOT when you are at the beginning of the disc, F corresponds to a closed folder, and TOP designates an open folder.

Use the following buttons and keys to navigate within a data disc:

1. Press the enter button (11) or key to open a folder or move back to a previous folder, or to play a track.

2. Press the up and down arrow buttons (12) or keys to move among tracks in a folder.
Using the Filter Button or Key (17)

Four filters make subtle changes to the high frequencies at ultrasonic levels, altering the sonic presentation from your loudspeakers. Once a filter setting has been selected, it is held in memory even if the CIPHER is turned off and then returned to operational status.

Filter 1, 2, 3, and 4 are available in any SACD format. Only Filters 1 and 2 are available in the conventional CD format. All filters have a different output gain, higher bandwidth, and a more gradual rolloff in the SACD format, compared to Filter 1 and 2 in the CD format.

Filter 1 and 2 are designed to eliminate aliasing artifacts that are the result of the D/A re-construction process.

Conventional Compact Disc Format Filters

Filter 1 operates flat from 20 Hz to 20 kHz, with a very steep roll-off characteristic above 20 kHz (21.5 kHz, -3 dB).

Filter 2 operates up to 20 kHz (-3 dB) with a more gradual roll-off characteristic when compared to Filter 1.

SACD Format Filters

Filter 1 in the SACD format, has the same relative output gain as Filter 1 and 2 in the CD format, and it has the highest bandwidth of the four SACD filters. Filters 2, 3 and 4 in the SACD format, operate at reduced bandwidth with steeper slope filtering and different output gain.

Filter 1 operates up to 180 kHz (highest bandwidth) and has the slowest roll-off characteristic with no change in output gain.

Filter 2 operates up to 75 kHz and has the steepest roll-off characteristic. It has a +0.5 dB increase in output gain over the entire audio pass band compared to Filter 1.

Filter 3 operates up to 80 kHz and has the 2nd steepest roll-off characteristic. It has a +5.5 dB increase in output gain over the entire audio pass band compared to Filter 1.

Filter 4 operates up to 90 kHz and has the 3rd steepest roll-off characteristic. It has a +3.5 dB increase in output gain over the entire audio pass band compared to Filter 1.
Using the Repeat Key (22)
Press the repeat key once to repeat the current track. The front panel display (19) reads REPEAT SINGLE. Press the repeat key twice to repeat the whole disc. The front panel display reads REPEAT ALL. Press the repeat key a third time to cancel this function.

Using the Repeat A/B Key (23)
To create an A/B loop, start by playing a track. When you hear the part that you want as the beginning of the loop, press A/B to insert the start position. Press A/B again to insert the finish position. A/B playback will automatically begin and will continue indefinitely. To delete, press A/B again, or press the stop button (5) or key.

Using the Front Panel Display (19)
The front panel display shows the disc type, the elapsed time of the track, and the feature that has been selected, for example: REPEAT ALL or REPEAT SINGLE. Press the display button (21) or key to show track time remaining, disc elapsed time, or disc time remaining. Press the dim button (20) or key to reduce the brightness of the display.

Using the 12 V Trigger (31)
This function allows you to turn other components on or off, or to and from stand-by, from the CIPHER. When the CIPHER is switched between stand-by and the operational mode, the 12 V trigger sends a signal from the 12 VDC Out that will switch other components, allowing whole systems or parts of systems to be easily coordinated.

The 12 VDC input allows you to turn the CIPHER on or off, or to and from stand-by, from other components.

Note
When the component is in the operational mode, the 12 VDC Out provides 12 V of DC output. When the component is in the stand-by mode or off, the DC output is 0 V. The 12 VDC output current is limited to 30 mA. Consult the owner’s reference of the components used in a custom installation to take full advantage of the remote capability of the CIPHER.

Using the RS-232 Port (32)
For more information on using the RS-232 communications port, see the Cipher developer’s reference.
Warranty

Krell products have a limited warranty. Amplifiers, preamplifiers, preampprocessors, and receivers carry a limited warranty of five years for parts and labor on circuitry. Loudspeakers carry a limited warranty of five years for parts and labor. CD and DVD players carry a limited warranty of five years 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.

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. The voltage for this product in the U.S.A. cannot be changed until six months from the original purchase date.

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 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

**Frequency response**
20 Hz to 20 kHz +0.0, -0.5 dB

**Signal to noise ratio**
“A” weighted 105 dB

**THD**
20 Hz to 20 kHz, -82 dB

**Power Consumption**
61 W

**Analog Audio outputs**
1 pr. CAST via 4-pin bayonet connectors
1 pr. balanced via XLR connector
6 single-ended via RCA connector

**Digital Audio outputs**
1 S/PDIF via RCA, 1 EIAJ optical via TosLink

**Remote Control**
1 Wireless IR Remote
1 Remote IR sensor input via
   a 3-conductor 3.5 mm connector

**Control inputs**
1 RS-232 port via a 9-pin D-subminiature connector
1 12 VDC trigger input via 3.5 mm connector
1 Krell CAN Link via an RJ-45 connector

**Control outputs**
1 12 VDC trigger output via 3.5 mm connectors
1 Krell CAN Link via an RJ-45 connector

**Dimensions**
17.3 in. W x 6 in. H x 17.3 in. D
43.8 cm W x 15.3 cm H x 43.8 cm D

**Weight**
Shipped: 37 lbs., 16.8 kg
Unit only: 29 lbs., 13.2 kg

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