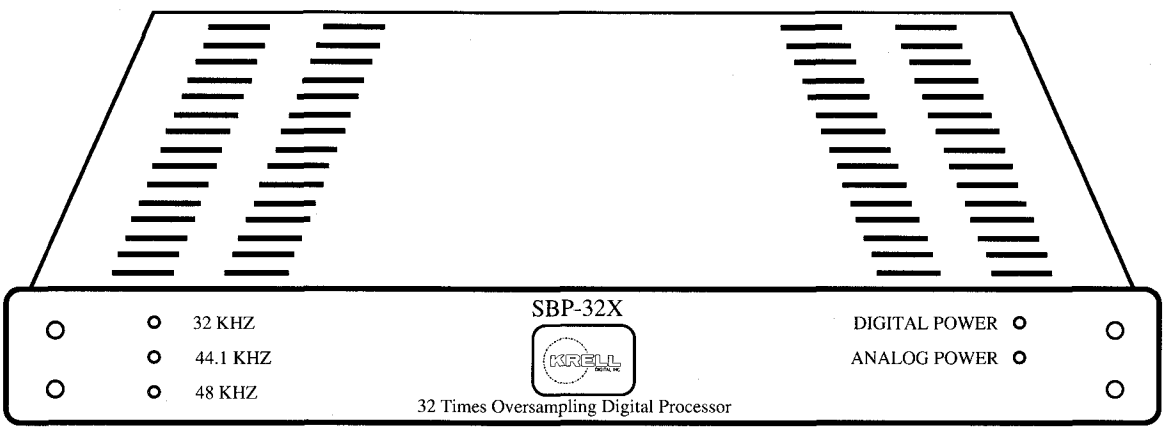
KRELL SBP-32X



SOFTWARE BASED PROCESSOR

OWNER'S REFERENCE

A. INTRODUCTION

Welcome to the Krell family of audio components. You have joined a select group of discriminating listeners who enjoy the finest in music reproduction. Krell Digital (KDI) is dedicated to the development of technologically advanced components for the reproduction of digitally recorded music. These designs continue the Krell tradition of uncompromising performance through leading-edge technology.

In the unlikely event that your SBP-32X should require service you will be pleased to know that it is backed by a comprehensive Customer Satisfaction policy and one of the most advanced service facilities in the industry. For detailed information on the terms and conditions of service please consult your warranty registration card or your authorized KRELL Distributor.

This Owner's Reference is divided into several sections, each designed to perform a different function. A Question and Answer section and a Technical Assistance Glossary are included where answers to common questions are provided. Should you have any questions or suggestions please feel free to contact your authorized dealer or the KRELL staff for assistance.

B. TABLE OF CONTENTS

C. FCC COMPLIANCE STATEMENT

WARNING: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult your dealer or an experienced radio/TV technician for help.

The user may find the following booklet prepared by the Federal Communications Commission helpful:
"Television Interference Handbook"
This booklet is available from the U.S. Government Printing Office, Washington DC 20402.
Stock No. 004-000-00450-7

WARNING: The use of non-shielded analog output cables and non-shielded digital input cables if coax is used for the digital input (fibre optic interconnect need not be shielded) will invalidate the FCC Certification of this device and may cause interference levels which exceed the limits established by the FCC for this type of device.

D. UNPACKING AND ASSEMBLY

1. Open the box and remove the top layer of protective foam. The following items will now be visible:

1 SBP-32X processor
1 AC power cord
1 Packet containing the Owners Reference and warranty card

Note: If any of these items are not included please contact your authorized dealer immediately for assistance. Save all packing materials. If you must ship your SBP-32X in the future repack the unit in its original packaging to prevent transit damage.

E. BASIC INSTALLATION AND CONNECTIONS

Before you install the SBP-32X into your system we recommend following these guidelines in choosing the location. This will facilitate a clean, trouble-free installation.

CAUTION: When making connections to this component or any other, make sure the power amplifier is OFF and the preamplifier is in the MUTE or STANDBY mode.

1. Although well shielded, the processor should not be placed in close proximity to hum-sensitive components (i.e. PREAMPS, TURNTABLES, TUNERS, etc.)

2. As with any high quality component, ensure that the vent openings in the chassis are free from obstruction, allowing the processor to dissipate heat created by its highly regulated power supply and high bias class "A" output stage.

3. Run the male end of the AC cord from the processor location to a nearby wall socket. This will be easier to accomplish now, as the component itself is not in the way. Do not plug the AC cord into the wall socket at this time!

NOTE: While the SBP-32X has superb regulation and does not require a dedicated AC circuit, we strongly advise against any connections through extension cords or multiple AC adaptors. High quality 15 amp grounded AC strips are acceptable.

CAUTION: Do not remove or bypass the ground pin on the end of the AC cord. This may cause RFI (radio frequency interference) to be induced into your playback system.

4. Connect the Digital Output from a Krell CD Turntable or any digital source to the Digital Input on the back panel of your processor. Your SBP-32X will accommodate digital input from either the coaxial or fibre optic outputs of any CD, DAT or Satellite broadcast source.

Note: Care should be taken in selecting the type of cable used to link the digital source to your processor. If coaxial cable is to be used it should be non-capacitive and have a bandwidth in excess of 10MHz to prevent drop-out errors.

Note: If a fibre optic cable is selected we strongly recommend that it be a high quality quartz fibre cable. An additional benefit of fibre optic cable is a reduction of ground loop problems that often occur in audio systems.

5. Connect the appropriate OUTPUT of the SBP-32X to the line level INPUT of your preamplifier. The red banded connector indicates the right channel and the white indicates the left.

The SBP-32X is equipped with two output configurations: Single-ended via RCA connectors and Balanced via XLR connectors. If your preamplifier has high level balanced inputs we recommend the balanced outputs of the processor be used. There are considerable sonic benefits associated with balanced operation.

NOTE: both outputs can be used to simultaneously feed two different systems.

F. OPERATION

1. Plug the processor's AC cord into the wall socket.

2. Turn ON your digital signal source. Whether it is CD, DAT or Satellite is not important. The following should occur in this particular sequence :

A. The two LED's designating Digital and Analog power will illuminate simultaneously. This is your assurance that the individual power supplies are operating and stable.

B. After a period of 5 to 20 seconds the digital input circuits will stabilize and the LED indicating the input source frequency will be illuminated.

NOTE: The input source component must be turned "ON" in order for the processor to indicate the input source frequency.

CAUTION: Should you have any major deviation from this sequence do not attempt to play the unit. Disconnect it prior to powering up any other components and contact your Krell dealer immediately.

3. Be sure that your preamplifier's volume control is completely turned to the OFF (lowest volume) position.

4. Turn ON your components, remembering that the last component to be energized should be your amplifier. The amplifier should only be turned ON after all other components in the system have been on for at least two (2) minutes.

5. Switch the Input selector of your preamp to the position correlating to your chosen input connection for the SBP-32X.

6. You may now start playing your DAT, CD or satellite.

7. Slowly turn the volume control up to the lowest level you can hear. Check to see that both channels are working correctly before advancing the volume.

Note: While your SBP-32X will perform beautifully from the moment you turn it on, it requires a minimum warm-up period of 8 hours before it will reach its full sonic potential. Discrete components are utilized in the analog output stage and the warm up period allows them to reach thermal equilibrium.

Your installation is now complete. Should you have any further questions which are not covered in the remainder of this manual contact your authorized Krell dealer. We wish you many hours of listening fulfillment.

G. QUESTIONS AND ANSWERS

Q. My CD player has both fiber optic and coaxial outputs. Which one should I use?
A. Given a choice, we prefer the optical link due to its ability to completely isolate the grounds between the digital source component and the processor. This minimizes the possibility of ground loops in the digital components.

Q. I own both a CD and DAT player. Do I have to change my cables every time I listen to a different digital source?
A. No. Your SBP-32X will accommodate both the fiber optic link and coaxial input. Simply connect both sources using the separate inputs.

NOTE: When the SBP-32X senses two live inputs simultaneously, it will default to the fibre optic link. Therefore, when you wish to listen to the source linked with coaxial cable, you must turn the other (optically linked) source off.

Q. Will I damage my SBP-32X if I leave the power "ON" all the time?
A. No. The Class"A" discrete analog circuits perform more consistently once they reach thermal equilibrium. The processor has been designed to be left on at all times. The SBP-32X draws less than 25 watts out of the AC mains socket.

NOTE: For the protection of your processor we recommend disconnecting the AC cord from the wall outlet before any electrical storms or if you plan on being away from your home for prolonged periods of time.

Q. Do I have to switch the Sampling Frequency when I go between my CD and DAT?
A. No. Your SBP-32X automatically senses the input frequency and does all necessary switching.

Q. Sometimes while listening to my DAT the 44.1kHz LED is illuminated. I thought DAT used 48kHz. Is my processor malfunctioning?
A. Some Digital Audio Tape recorders can record and playback in either 44.1kHz or 48kHz depending on the source the tape was recorded from. The SBP-32X's LED's are informing you of the frequency it is receiving, and as a consequence, the sampling frequency at which the tape was recorded in.

Q. I am not getting any sound through the processor.
A. Most likely there has been a simple mistake in installation. Check all connections IN and OUT from the processor. Check all power connections. Have you selected the correct source on your preamp? Check the front panel LED's for power supply stability. If you still have no sound, turn off the power and contact your dealer.

Q. I have some very fine audiophile interconnect cable which has superior sonic characteristics. Can I use this for my coaxial digital input?
A. You may experiment with any high quality cable. Do note, however, that most audio interconnect cable is not designed to carry the ultra high frequency information of the digital bit stream.

NOTE: For the SBP-32X, we recommend non-capacitive coaxial cable which has a bandwidth in excess of 10MHz and excellent shielding properties.

Q. While listening to my SBP-32X I experience occasional periods of silence through my speakers. Is my processor malfunctioning?
A. Drop-outs can be caused by two primary reasons, both of which have to do with the corruption of data received by the processor. This corruption in the data may be due to a poor input connection, damaged or dirty source material, or interconnects which do not have a wide enough bandwidth. The second item that causes the processor to reset is the presence of a transient spike on the incoming AC power line. The processor is resetting all of its digital processing circuits so that it can be assured that all its circuits are properly synchronized. Try changing your source material and check your connections. If these are not the cause, speak with your dealer about obtaining different cabling. If you are using fibre optics, and source material and connections are not the problem, speak with your authorized dealer.

Q. Since I installed the processor in my system I have a low level hum that increases as I turn up the volume. There was no hum in my system until I added the processor. Is the processor malfunctioning?
A. The fact that there was no hum in your system until you added the processor indicates that you have a ground-loop problem. Often changing the interconnect to a fibre optic cable will eliminate this problem. The way the digital processor and digital source are connected to the AC mains often can be the cause of grounding problems. Consult your dealer or Krell if this hum persists.

H. TECHNICAL ASSISTANCE GLOSSARY

The following glossary provides definitions or explanations of key words and phrases encountered in the course of this manual.

32.0 KHz The sampling frequency of Satellite broadcast.

44.1 KHz The sampling frequency of Compact Discs.

48.0 KHz The sampling frequency of Digital Audio Tape.

BIT
The fundamental building block of digital information. The term, expressing the smallest part of a digital word, is derived from the words BInary DigiT.

BOOT
Booting is a term loosely referring to initializing the startup sequence in a computer.

BYTE
A group of 8 bits. The primary component in a digital word.

CLOCK SPEED
The speed at which the processor operates, usually expressed in MHz.

COAXIAL
A type of cable design where a center conductor is surrounded by an insulator which is then wrapped with a full metallic shield.

D/A
Digital to Analog conversion.

DAC
Digital to Analog converter. The device which converts the digital information into an analog signal for playback in your audio system.

DISCRETE
In this text, Discrete circuit design utilizes individual components (i.e. FETs, Transistors...) as opposed to integrated circuits or op-amps. It is generally accepted that correctly executed discrete circuits are superior sonically in performance to the less expensive ICs.

DROP-OUT
In this usage, drop-out is a term referring to periods of silence during digital audio playback.

DYNAMIC HEADROOM
The ability of a component to correctly duplicate high speed, high level transient signals in excess of those normally encountered in audio playback. If a component does not have sufficient Dynamic Headroom, it will either fall short of the actual intensity and accuracy of the transient, or possibly distort it.

FIBRE OPTIC
An interconnecting link through which digital data is transmitted via a beam of light.

INSTRUCTION CYCLE
A period of time in which a processor completes a single or series of operations.

OVERSAMPLING
A method by which additional samples are plotted in between the original recorded samples in order to increase the time domain resolution of the playback waveform.

QUANTIZATION
The process by which analog music is converted into digital data.

RFI
Radio-frequency interference. This equipment generates, uses, and can radiate radio frequency energy which can cause interference to radio communications.

SAMPLES
A digital sample is a quantized coordinate representing a specific amplitude at a specific time. Thousands of samples per second are quantized during recording to digitally represent the original music.

SAMPLING RATE
The frequency at which analog data is sampled in the recording process (ex. a Sampling Rate of 44.1KHz which is used in recording CD's represents 44,100 quantized samples per second).

I. SPECIFICATIONS

Outputs Analog	Single ended via RCA Balanced via male XLR
Inputs Digital	1 via female RCA connector 1 industry standard fibre optic input auto switching between inputs (defaults to fibre optic)
Processors	2 Motorola DSP-56001, one per channel
DACs	18 bit, one for each channel, individually trimmed.
Software	WAVEFORM DUPLICATOR updatable in socketed EPROMs
Dimensions	19" wide, 14.25" deep, 2.5" high with feet
Weight	26 pounds in shipping carton 22 pounds without packing

J. WARRANTY AND SERVICE INFORMATION

There are no user-serviceable parts inside the SBP-32X. The SBP-32X has a limited warranty of five years parts and labor on electronic parts. Return freight is included in the warranty. The warranty period begins on the date of purchase and is activated with the return of the enclosed Warranty Card and a copy of the Sales receipt. Please return the warranty card immediately after successful installation and operation are completed.

The warranty for Krell products is valid **only** in the country to which they were originally shipped and at the factory. If you think there are problems with your unit please contact your dealer, distributor or the factory immediately.

Please do not return any unit to KRELL for repair without first calling to discuss the problem and to obtain a Return Authorization number. Freight to the factory or distributor is your responsibility. Return freight to you will be paid by the factory or distributor.

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