Contents

Important Safety Instructions

These instructions pertain to E5000 Ultra. Use in countries other than the U.S.A. may require the use of a different line cord or attachment plug, or both. To reduce the risk of fire or electric shock, refer all servicing to qualified service personnel. Do not expose this product to rain or moisture. There are no user serviceable parts or adjustments inside the unit.

Grounding Instructions

This product must be grounded. If it should malfunction or break down, grounding provides a path of least resistance for electric current, reducing the risk of electric shock. This product is equipped with a cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet properly installed and grounded in accordance with all local codes and ordinances.

Danger!

Improper connection of the equipment's grounding conductor can result in the risk of electric shock. Check with a qualified electrician or service personnel if you are in doubt as to whether the product is properly grounded. Do not modify the plug provided with this product. If it will not fit the outlet, have a proper outlet installed by a qualified technician.

Caution!

If your E5000 Ultra is rack mounted, you must use a standard 19-inch open frame rack. Screw-on rack mount ears are provided for this purpose.

User Maintenance Instructions

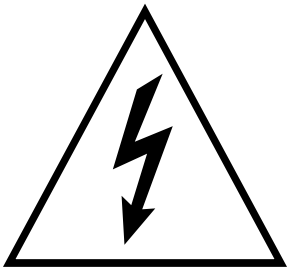
1. The E5000 Ultra should be kept clean and dust free. Periodically wipe the unit with a clean, lint free cloth. Do not use solvents or cleaners.
2. There are no user lubrication or adjustment requirements.

Caution -. *These servicing instructions are for use by qualified personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in these operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.*

INSTRUCTIONS PERTAINING TO A RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS.

READ THESE INSTRUCTIONS: When using electric products, basic precautions should always be adhered to, including the following:

This symbol is intended to alert you to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the unit.



This symbol is intended to alert you to the presence of uninsulated dangerous voltage within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

1. Read all instructions before using E5000 Ultra .
2. To reduce the risk of injury, close supervision is necessary when using the E5000 Ultra near children.
3. Do not use E5000 Ultra near water — for example near a bathtub, washbowl, kitchen sink, in a wet basement, on a wet bar, or near or in a swimming pool. Do not expose the unit to drips or splashes.
4. E5000 Ultra should be situated so that its location or position does not interfere with its proper ventilation.
5. E5000 Ultra should be located away from heat sources such as radiators, heat registers, fireplaces, stoves, or ovens.
6. E5000 Ultra should be connected only to a power supply of the type described in the operating instructions and marked on the product.
7. Care should be taken so that objects do not fall and liquids are not spilled into the enclosure of the E5000 Ultra through openings.
8. This E5000 Ultra may be equipped with a polarized line plug (one blade wider that the other). This is a safety feature. If you are unable to insert this plug into the outlet, do not defeat the safety purpose of the plug. Contact an electrician to replace your obsolete outlet.
9. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the unit.
10. Unplug E5000 Ultra from the power outlet during lightning storms or when left unused for a long period of time.
11. This product, in combination with an amplifier and headphones and speakers, may be capable of producing sound levels that could cause permanent hearing loss. Do not operate for a long period of time at a high volume level or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, consult an audiologist.
12. Only use attachments and accessories specified by E-mu Systems.
13. E5000 Ultra should be serviced by qualified service personnel when:
    A. The power supply cord has been damaged; or
    B. Objects have fallen, or liquid has been spilled into the unit; or
    C. The unit has been exposed to rain; or
    D. The unit has been dropped or the enclosure damaged; or
    E. The unit does not operate normally or exhibits a marked change in performance.
14. All servicing should be referred to qualified service personnel.

Save These Instructions

Radio and Television Interference

The equipment described in this manual generates and uses radio-frequency energy. If it is not installed and used properly —that is, in strict accordance with our instructions— it may cause interference with radio and television reception.

This equipment has been tested and complies with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of the FCC rules. These rules are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that the interference will not occur in a particular installation, especially if a “rabbit ear” TV antenna is used.

If the E5000 Ultra does cause interference to radio or television reception, you can try to correct the interference by using one or more of the following measures:

- Turn the television or radio antenna until the interference stops.
- Move the E5000 Ultra to one side or the other of the television or radio.
- Move the E5000 Ultra farther away from the television or radio.
- Plug the E5000 Ultra into an outlet on a different circuit than the television or radio.
- Consider installing a rooftop antenna with a coaxial lead-in between the antenna and television set.

Warnings - German

Wichtige Sicherheitsvorschriften

In Ländern ausserhalb den U.S.A. können andere Kabel oder Stecker notwendig werden. Zur Verminderung des Risikos von Feuer oder eines elektrischen Schlages übergebe man den Service an qualifizierte Fachleute. Das Gerät niemals Regen oder Nässe aussetzen.

Erdungsinstruktionen

Das Gerät muss geerdet sein. Bei einem Defekt oder Ausfall bietet Erdung dem elektrischen Strom den Weg des geringsten Widerstandes und reduziert das Risiko eines Schlages. Dieses Gerät ist mit einem geerdeten Kabel und Stecker ausgerüstet. Der Stecker muss in eine passende, einwandfrei montierte und geerdete Steckdose in Übereinstimmung mit den örtlichen Vorschriften eingeführt werden.

Gefahr

Unvorschriftsgemässer Anschluss des Gerätes kann zum Risiko eines elektrischen Schlages führen. Im Zweifelsfalle über die ordnungsgemässe Erdung soll ein qualifizierter Elektriker oder eine Serviecestelle beigezogen werden. Ändern Sie den mitgelieferten Stecker nicht. Sollte er nicht in die Steckdose passen, soll die einwandfreie Installation durch einen qualifizierten Techniker erfolgen.

Vorsicht

Wird der Ultra in einem Rackgestell montiert, muss ein offener 19-Zollrahmen verwendet werden.

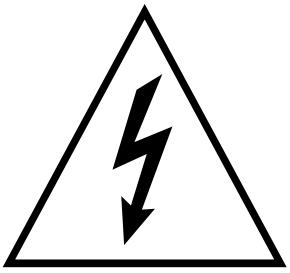
Unterhaltsinstruktionen für anwender

1. Ultra soll sauber und staubfrei gehalten werden. Das Gerät mit einem sauberen und säurefreien Tuch periodisch abreiben. Keine Lösungs- oder Reinigungsmittel anwenden.
2. Schmieren und Justieren sind nicht notwendig.
3. Bei weiteren Servicefragen wende man sich an eine qualifizierte Servicestelle.

Vorsicht

Diese Gebrauchsanweisungen sind nur für qualifizierte Techniker beabsichtigt. Um die Gefahr eines elektrischen Schlages zu vermeiden, sollen Sie keine Arbeit unternehmen, die nicht in diesen Instruktionen vorgeschrieben ist. Wenden Sie Sich bei weiteren Servicefragen an eine qualifizierte Servicestelle.

Dieses Symbol weist den Anwender auf wichtige Gebrauchs- und Service-Vorschriften in den beiliegenden Drucksachen.



Dieses Symbol verweist auf nicht-isolierte Stromspannungen im Geräte-Innern, welche zu einem elektrischen Schlag führen könnten.

INSTRUKTIONEN BETR. FEUERRISIKO, ELEKTROSCHOCK ODER VERLETZUNG VON PERSONEN

WARNUNG; Beim Einsatz elektrischer Geräte sollten folgende Vorsichtsmassregeln stets beachtet werden:

1. Lesen Sie vor dem Einschalten des Ultra alle Instruktionen.
2. Zur Vermeidung von Verletzungsrisiken müssen Kinder bei eingeschaltetem Ultra sorgfältig überwacht werden.
3. Ultra nicht in der Nähe von Wasser in Betrieb nehmen -- z.B. in der Nähe von Badewannen, Waschschüsseln, auf nassen Gestellen oder am Swimmingpool.
4. Ultra stets so aufstellen, dass seine Belüftung nicht beeinträchtigt wird.
5. Ultra nicht in der Nähe von Hitze aufstellen, wie Heizkörper, offenem Feuer, Öfen oder von Backöfen.
6. Ultra ausschliesslich mit einem Netzgerät gemäss Bedienungsanleitung und Gerätemarkierung verwenden.
7. Dieses Gerät kann bei Verwendung von Kopfhörern und Verstärkern hohe Lautpegel erzeugen, welche zu bleibenden Gehörschäden führen. Arbeiten Sie nicht während längerer Zeit mit voller Lautstärke oder hohem Lautpegel. Stellen Sie Gehörverlust oder Ohrenläuten fest, wenden Sie sich an einen Ohrenartz.
8. Ultra kann mit einem polarisierten Kabelstecker (mit ungleichen Stiften) ausgerüstet sein. Das geschieht für Ihre Sicherheit. Können Sie den Stecker nicht in die Steckdose einführen, ändern Sie nicht den Stecker ab, sondern wenden Sie sich an einen Elektriker.
9. Das Netzkabel des Ultra bei längerem Nichtgebrauch aus der Steckdose ziehen.
10. Vermeiden Sie sorgfältig das Eindringen von Gegenständen oder Flüssigkeiten durch die Gehäuseöffnungen.
11. Das Gerät soll durch qualifizierte Serviceleute gewartet werden, falls:
    A. das Netzkabel beschädigt wurde, oder
    B. Gegenstände oder Flüssigkeit in das Gerät gelangten,
    C. das Gerät Regen ausgesetzt war, oder
    D. das Gerät nicht normal oder einwandfrei arbeitet, oder
    E. das Gerät stürzte oder sein Gehäuse beschädigt wurde.
12. Servicearbeiten sollten nur qualifizierten Fachleuten anvertraut werden.

VORSICHT

Unvorschriftsgemässer einbau der Batterie kann zum Risiko einer Explosion führen. Ersetzen Sie die Batterie nur mit der gleichen oder einer von E-mu empfohlene Sorte. Werfen Sie die alten Batterien weg, wie es der Hersteller anweist.

DIESE INSTRUKTIONEN AUFBEWAHREN

Warnings - French

Instructions de Sécurité Importantes

Une utilisation dans des pays autres que les U.S.A. peut nécessiter l'usage d'un cordon d'alimentation différent. Afin de réduire les risques d'incendie ou d'électrocution, référez-vous à un personnel de service qualifié, et n'exposez pas cet appareil à la pluie ou à l'humidité.

Instructions de Mise à la Terre

Cet appareil doit être relié à la terre. Dans le cas d'une malfonction éventuelle, la terre fournit un passage de moindre résistance pour le courant électrique, réduisant ainsi les risques d'électrocution. L'Ultra est équipé d'un cordon muni d'un conducteur et d'une fiche devant être branchée dans une prise appropriée et reliée à la terre en conformité avec les normes locales.

Danger

Une connexion incorrecte peut résulter en des risques d'électrocution. Vérifiez avec un technicien qualifié si vous avez des doutes quant à la connexion. Ne modifiez pas vous-même le cordon d'alimentation livré avec cet appareil; s'il ne rentre pas dans la prise, faites-en installer un autre par un technicien qualifié.

Attention

Si l'Ultra est installé dans un rack, utilisez un rack standard ouvert de 48.25cm.

Instructions de Maintenance

1. L'Ultra doit être maintenu propre et sans poussière. Nettoyez-le périodiquement à l'aide d'un chiffon propre et non-pelucheux. N'utilisez pas de solvants, ou d'autres produits de nettoyage.
2. Aucune lubrification et aucun réglage ne sont nécessaires de votre part.
3. Pour tout autre service, référez-vous à un personnel qualifié.

Instructions Concernant les Risques d'Incendie, d'Electrocution, ou de Blessures Corporelles.

ATTENTION: Lorsque vous utilisez des appareils électriques, certaines précautions élémentaires doivent toujours être prises, incluant les suivantes:

Ces instructions de dépanage sont destinées uniquement aux personnes qualifiées. Afin d'éviter les risques d'électrocution, n'effectuez que les opérations décrites dans ce manuel, à moins que vous ne soyez qualifiê pour cela. Faites effectuer toute r'eparation par une personne qualifié.

1. Lisez bien toutes les instructions avant d'utiliser l'Ultra .
2. Afin de réduire les risques de blessures, une attention particulière est nécessaire en la présence d'enfants en bas âge.
3. N'utilisez pas l'Ultra dans ou près d'endroits humides - par exemple près d'une baignoire, d'un lavabo, dans les toilettes, dans une cave humide, sur un bar fréquenté, en présence d'un bull-dog en rut, ou dans une piscine pleine. Protégez cet appareil de tout liquide, éclaboussure ou fuite.
4. L'Ultra doit être placé de façon à ce que sa position n'interfére pas avec sa propre ventilation.
5. L'Ultra doit être placé loin de sources de chaleur telles que des radiateurs, cheminées, fours, ou groupies en chaleur.
6. L'Ultra doit uniquement être connecté à une alimentation du type décrit dans les instructions d'opération et tel qu'indiqué sur l'appareil.
7. Une attention particulière doit être observée quant aux objets pouvant tomber et aux liquides pouvant être versés sur et à l'intérieur de l'Ultra .
8. L'Ultra peut être équipé d'une fiche secteur polarisée (avec une broche plus large que l'autre). C'est une mesure de sécurité. Si vous ne pouvez pas brancher cette fiche dans une prise, ne neutralisez pas cette sécurité. Contactez plutôt un électricien pour remplacer la prise obsolète.
9. Evitez de marcher sur le cordon d'alimentation ou de le coincer, particulièrement prês des prises de courant, des boitiers 'electriques dt du point de sortie de l'appareil.
10. Le cordon d'alimentation de l'Ultra doit être débranché lorsque ce dernier n'est pas utilisé pendant une longue période.
11. Cet appareil, combiné avec un amplificateur, des haut-parleurs, et/ou un casque, est capable de générer des niveaux sonores pouvant occasionner une perte de l'ouïe permanente. Ne travaillez pas trop longtemps à un volume trop élevé ou même inconfortable. Si vous observez une perte de l'audition ou un bourdonnement dans les oreilles, consultez un O.R.L.
12. N'utilisez que les accessoires sp'ecifi'es par E-mu Systems.
13. Cet appareil doit être examiné par un personnel qualifié lorsque:
    A. Le cordon d'alimentation a été endommagé, ou
    B. Des objets sont tombés, ou du liquide a été versé sur/à l'intérieur de l'appareil, ou
    C. L'Ultra a été exposé à la pluie, ou
    D. L'Ultra est tombé, ou
    E. L'Ultra ne fonctionne pas normalement, ou affiche un changement radical de performance.
14. Tout service doit être effectué par un personnel qualifié.

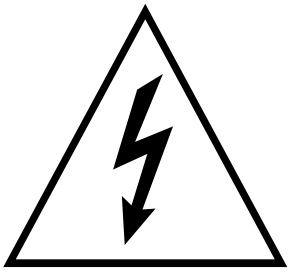
Attention

Danger d'explosion si la etterie n'est pas correctement remplacée. Pour remplacer la batterie, utilisez une batterie de meme type, ou d'un type 'equivalent recommand'e par E-mu. Suivez les instructions du faricant pour vous d'earrasser de la etterie usée.

SAUVEGARDEZ CES INSTRUCTIONS

Interférences Radio et Télévision

Ce symbole vous alerte de la présence d'instructions importantes d'opération et de maintenance dans la notice accompagnant



Ce symbole vous alerte de la présence d'un voltage non-isolé dangereux à l'intérieur de l'appareil, pouvant être d'une magnitude suffisante pour constituer un risque d'électrocution.

L'appareil décrit dans cette notice génére et utilise une énergie de fréquence-radio. S'il n'est pas installé et utilisé correctement - c'est à dire en suivant strictement nos instructions - il peut occasionner des interférences avec la réception d'une radio ou d'une télévision.

Cet appareil a été testé et est conforme aux normes de Classe A en accord avec les spécifications du paragraphe J de la section 15 des lois FCC. Ces lois sont désignées pour fournir une protection raisonnable contre de telles interférences dans une installation résidentielle. Toutefois, il n'est pas garanti qu'aucune interférence n'apparaisse dans des installations particulières, et plus spécialement lorsqu'une antenne de télévision en «oreilles de lapin» est utilisée.

Si l'Ultra occasionne des interférences , vous pouvez essayer de les corriger en utilisant une ou plusieurs des mesures suivantes:

- Tournez l'antenne de la télé ou de la radio jusqu'à ce que les interférences disparaissent.
- Déplacez l'Ultra d'un côté ou de l'autre de la télé ou de la radio.
- Eloignez l'Ultra de la télé ou de la radio.
- Branchez l'Ultra sur une prise différente que la télé ou la radio.
- Installez une antenne sur le toit munie d'une connexion coaxiale entre elle et le poste de télévision.

About this Manual

This is the "Getting Started" manual for the E5000 Ultra synthesizer. It is not intended to be a complete reference. Its purpose is to give you a few basics to get you playing in the shortest amount of time. The complete EOS software manual, provided in PDF format on the supplied CD-ROM, contains everything you'll need to know about your E5000.

Note: This manual just scratches the surface of this powerful and complex instrument. You'll need to read the EOS software manual in order to really know your way around the E5000.

If you are unfamiliar with samplers and synthesizers in general, you may need more information than provided in either of these two manuals. We suggest that you read some of the many books and magazines on the subject of music synthesis. This will help you to get the most out of this extremely powerful instrument.

Your E5000 is a special purpose sound computer and like all computers, can be thought of as having two main components:

1. The physical machine with the buttons, keys, gadgets, that generates sound.

   This "Getting Started" manual describes the electrical connections and physical hardware of the E-mu E5000 Digital Sampler/Synthesizer.

2. The EOS software that tells the hardware what to do. The Ultra Series software is called EOS (for Emulator Operating System) and is used on several E-MU products including the Emulator IV, e-64, e-6400, E4K, E4X, all the Ultra series, and now E5000 Ultra.

   The EOS software manual, included on the included CD-ROM, contains detailed operating instructions for the software.

Important Upgrade Information

The Ultra Series samplers are software-based devices. The features and functions of the Ultra Series may be enhanced and upgraded periodically. Please take a moment now to read the Emu warranty and to fill out and send in your warranty registration card. We NEED your mailing address in order to keep you advised of upgrades and manual revisions.

Introduction

Thank you for purchasing the E5000 Ultra. The E5000 Ultra provides almost all the features and expandability of the other Ultra series samplers at a greatly reduced price. This is an Ultra powerful instrument with the impeccable audio quality that has made E-MU famous. You are going to love this machine. We strive to exceed your expectations!

State of the Art Software

E5000's powerful EOS (Emulator Operating System) incorporates a graphic user interface to make operating and programming your sampler easy and intuitive. Advanced digital signal processing features like: auto-truncation, auto-normalization and crossfade looping make sampling a breeze!

EOS utilizes "Digital Modular Synthesis", which gives you the ultimate flexibility to connect any of 56 modulations sources to 53 destination using 24 virtual patchcords. Modulation sources include three multi-stage envelope generators and two multi-wave LFOs per channel, as well as full MIDI modulation control over virtually every parameter. The digital patchbay also contains a set of arithmetic modifiers which allow you to create complex synthesis models. Check out the EOS Operation Manual on the CD-ROM that came with your unit for detailed information on all of the EOS features and how to get the most from your new E-MU product!

State of the Art Hardware

The Ultra Series' digital hardware implements 64 "analog-sounding" Z-plane filters. Twenty one different filter types are implemented.

- 12, 24, or 36 dB/octave lowpass filters with resonance
- 2nd & 4th order highpass filters with resonance
- 2nd & 4th order bandpass filters with resonance
- Contrary bandpass filter
- Three types of swept EQ filters
- Three phasers and one flanger with resonance
- Six powerful morphing filters

The E5000 features a powerful new 32-bit RISC processor, for blazing fast MIDI response, quicker editing, and improved SCSI and SMDI transfers.

The modular design of E5000 lets you add hardware features as you need without paying for features you don't. For starters, the E5000 contains an incredible 64 channels of polyphony (32 stereo).

The E5000 Ultra sampler is 16 part multi-timbral, for complex sequencing and sound effects creation, and can be remote controlled by an external computer using SMDI. The optional 2nd MIDI port will allow E5000 to receive 32 MIDI channels instead of the normal sixteen channels.

Built-in Digital Effects

A high quality internal effects processor adds reverb and chorus effects while keeping the sound in the digital domain. 76 different effects are implemented and there are several controllable parameters for each effect. Sounds with effects applied can easily be resampled and then saved as an entirely new sound with ambience and effects included.

Sound Libraries

All the Ultra Series samplers have full access to the huge library of sounds available from E-mu and many other sources. It is fully compatible with the legendary Ultra, E-IV, e-64, EIII, EIIIX and ESI libraries, and can transparently read Emax II, Akai S1000/S1100/S3000 and Roland S-760 banks without awkward conversion routines.

Sounds and Sampling

The E5000 comes standard with 16 Megabytes of sample RAM. Sampling is a standard feature with selectable sample rates of 22.05 kHz, 24 kHz, 44.1 kHz, and 48 kHz. The D/A converters and the stereo Sigma-Delta A/D converter are 20-bit linear. Sampling can be performed in either mono or true stereo. Sample RAM can be expanded up to 128 MB using standard SIMM modules. With fully expanded memory, the E5000 Ultra provides over 24 minutes of sampling time! An internal expansion socket allows you to install up to 32 MB of sample ROM, which is instantly ready to use.

Resampling: E5000 Ultra can resample its own output in the digital domain for layering and the creation of new and exciting effects.

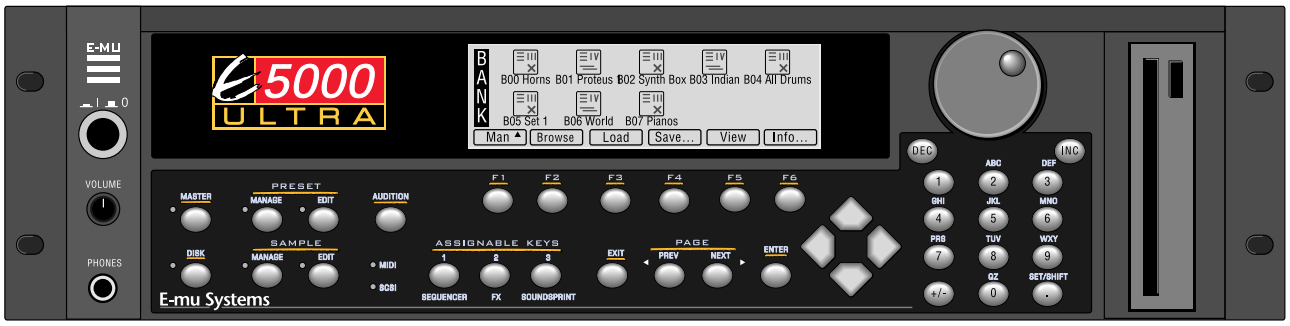
Transposition: The E5000 Ultra is based on the latest G-chip and H-chip digital hardware. The G-chip allows smooth sample transposition over a 10-octave range while the H-chips retain the warm, musical character of traditional analog filters.

Your E5000 Ultra sampler is an extremely powerful and reliable tenth generation instrument. We at Emu sincerely hope it will help you realize and further your musical aspirations.

Available Hardware Options…

- Eight Channel Output Expander adds eight additional polyphonic output channels for a total of 12.
- The “DWAM” option adds an AES/EBU Digital Interface in order to transfer stereo digital audio between the E5000 and digital recorders, mixers, etc. An ASCII keyboard interface is also included with this option. The keyboard can control all Ultra Series front panel operations including naming and browsing.
- 32 MIDI Channel Expander option adds another MIDI In, Out and Thru port to allow 32 MIDI channel capability.
- ADAT I/O option adds 16 digital outputs and 8 digital inputs using the Alesis ADAT™ optical digital format.
- Internal Hard Disk option lets you add an internal hard disk to Ultra Series for convenient storage and retrieval of sounds.
- Several Flash/ROM options add a 8, 16, or 32 Megabyte ROM or a Flash ROM SIMM. ROM SIMMs add permanent onboard sound banks. The Flash option allows you to create your own custom sample bank.

Main Controls



Volume Control

This is the master volume control for all outputs, including digital I/O and the headphone output. The master volume is a digital control. For maximum dynamic range, set this control at or near maximum level.

Stereo Headphone Output

The stereo headphone output is taken from the stereo main outputs. This is a high quality headphone amplifier with an output level compatible with professional grade headphones.

Module Select Keys

The functions of your E5000 Ultra are grouped into six modules. The Sample Manage and Sample Edit modules deal with operations at the sample level. The Preset Manage and Preset Edit modules deal with operations at the preset level. The Master module contains functions that affect the entire machine. Any function that has to do with the disk, such as loading, saving and the like is accessed through the Disk module.

MIDI & SCSI Indicator LEDs

The LEDs illuminate to show activity on the SCSI bus and incoming MIDI data.

Audition Key

The audition key allows you to play notes directly from the front panel without having a MIDI keyboard connected. Select the note you want to play from the “Tune” submenu in the Master module. If you have an external hard disk connected to the E5000, the Audition key lets you play samples directly from the hard disk before loading them when browsing samples (Disk, Sample Browser).

Assignable Keys

These are user-assigned keys which can cause a jump to any screen. To link an assignable key to the current screen:

1. Press and hold one of the assignable keys.
2. After two seconds, a pop up window appears informing you that the assignable key has been programmed for the current screen.

For additional information, see Assignable Keys in chapter three of the EOS software manual.

Function Keys

The lower line of the display usually contains a row of up to six "soft key" buttons. These soft-key buttons indicate the function of the function keys directly below them.

Exit Button

The Exit button backs out of a module one menu at a time each time the button is pressed. Use the Exit button anytime you do not want to execute a particular function. In the Sample Manage module, the Exit button also terminates the sampling process.

Page Select Keys (Previous & Next)

The previous and next Page Keys are used to move back and forth between pages when multiple pages of options exist. Each button has an associated LED arrow which illuminates when there is more information on the previous or next page. Arrows in the top corners of the display also indicate there are more available pages. Use the Page Select keys in the preset selection screen to select the previous or next preset.

Enter Key

Use the Enter button to confirm a particular operation. You can use Enter in place of an affirmative function key response such as "OK" or "Go".

Pressing the Enter key from the Disk Browser advances the selection from: **Drives -> Folders -> Banks -> Presets -> Samples -> Sequences.**
(The Exit key reverses the progression.)

Cursor Keys

The left, right, up, and down Cursor Keys are primarily used to move the cursor around in the display. The Cursor is a reversed-out section in the display which indicates the currently selected parameter. You can use the left and right Cursor Keys in the preset selection screen to select the previous or next preset.

Data Entry Control

The Data Entry Control is a stepped, variable control used to change parameter values. The control increments or decrements the current value one unit each click. This control incorporates acceleration (values advance faster if the control is quickly turned).

Inc/Dec Keys

The Increment and Decrement keys are used to duplicate the function of the data entry control when a finer degree of control is required. In the preset selection screen the inc/dec keys select the previous or next preset.

Numeric Keys

Use the Numeric Keys to quickly select a particular preset or to enter data in precise amounts.

Entering Data - The Numeric Keys can be used anytime the data to be entered is a number, such as selecting samples and presets when you know the exact number. You could simply enter the number without the leading zero as in "10", In this case, after entering the number, you will be asked to confirm the value by pressing "Go". The +/- key can be used to indicate if the value is positive or negative. The numeric keys can also be used for naming as some of the keys are labeled "telephone-style" with 3 characters above the key.

Number Lock Feature

The Lock Key is used to select presets using just one or two key presses instead of three. Pressing the Lock key repeatedly cycles through the three lock modes - Lock Off, Lock 1 digit and Lock 2 digits. Locked digits are shown in reverse video (white letters on black background) as shown below. When you lock digits, you are limiting the size of the group so that fewer key presses are required for preset selection.

Set/Shift Key

The Set/Shift key is used for several functions.

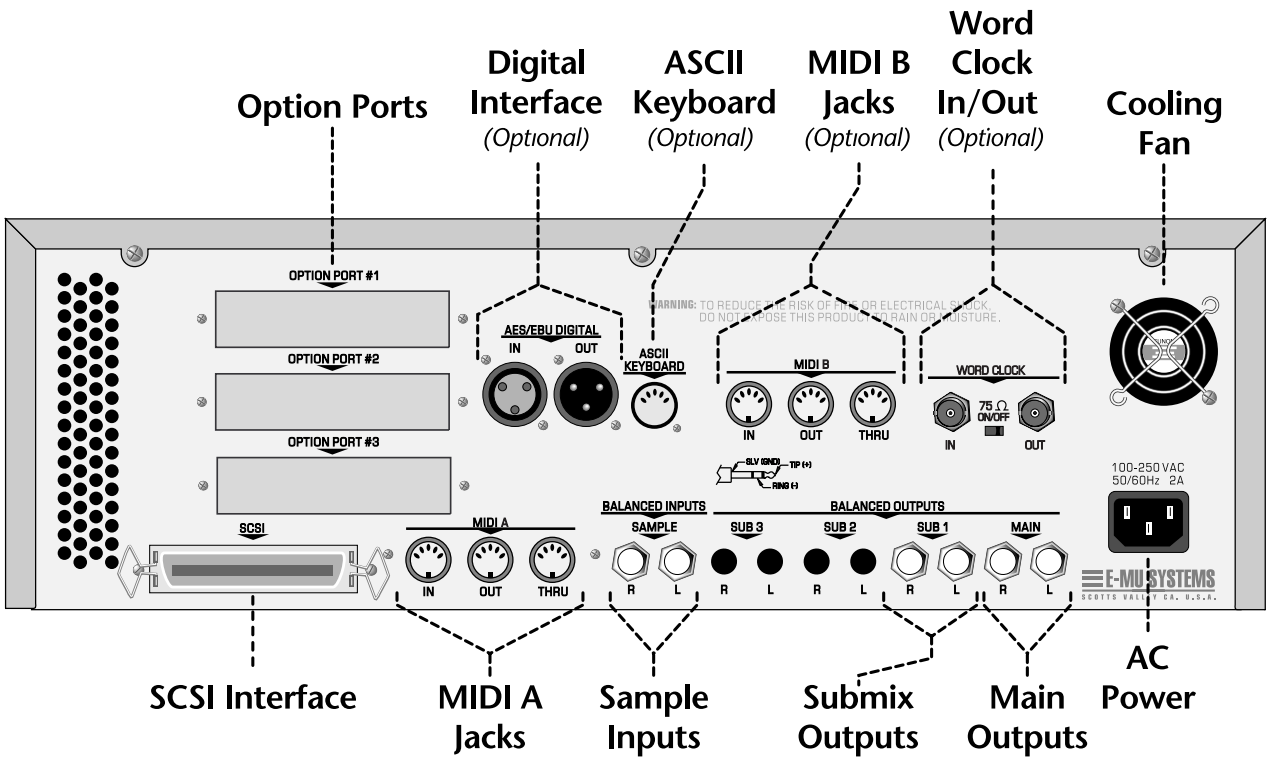
- When Set/Shift is held, the Assignable Keys assume the functions which are labelled beneath them, taking you instantly to the Sequencer, FX or Soundsprint screens.
- It can also be used to set a "Bookmark" in SoundSprint mode.
  To Set a Bookmark: Press and hold the Set key while in SoundSprint mode, then press one of the numeric keys. The current preset will be stored under that numeric key and can be selected by pressing the numeric key while in SoundSprint mode.
- **To Save All Bookmarks to Flash RAM:** (retained even after the power has been turned off) Press and hold the Set/Shift key and press the +/- key.
- Last and also least, the Set/Shift key functions as a decimal point key.

Floppy Disk Drive

The Floppy Disk Drive is used primarily to update software, but can also be used to store and transfer sound banks in a pinch. Due to the low capacity of floppy disks, they are not practical for backing up sound data. However, floppy disks are very useful for storing MIDI sequence files and one floppy disk can store many sequences.

The E5000 can also save samples as .WAV or AIFF files to the floppy disk. Floppy disks are a convenient medium for transferring sound files between the E5000 and your personal computer.

Connections



In order for you to hear sounds from the unit, you need to connect it to audio equipment. This could be headphones, a computer with speakers, or a stereo.

This section provides descriptions of the ports and connectors on the back of the unit and describes how to use them.

SCSI Port

SCSI is a high-speed parallel interface which is normally used to interface with an external mass storage device such as a hard disk or CD-ROM. The 50-pin SCSI port can also be used to link the E5000 with an external computer for extremely fast file transfers. Ultra Series synthesizers contain advanced SCSI links to facilitate multiple “master” devices on the SCSI bus, such as multiple Ultra Series units or a computer and an the Ultra.

For more information on SCSI installation, see the EOS Software Manual. Also refer to the manual that accompanies your external SCSI device.

Option Ports

The option ports let you add additional hardware options such as the Eight Channel Output expander - which adds eight analog output channels, or the ADAT Interface which allows you to send sixteen eight channels and receive eight channels of digital data to and from another digital device using the Alesis ADAT® Optical digital interface.

MIDI Connection

You can add an additional MIDI In, Out, and Thru port as a option to provide 32 MIDI channel operation.

E5000 Ultra provides a MIDI In, MIDI Out, and a MIDI Thru port.

- Connect Ultra's MIDI In port to the MIDI Out port of your external MIDI controller; this could be a keyboard, a sequencer, MIDI drum kit or whatever.
  Note: E5000 Ultra can only respond to information that your controller transmits. (i.e. If your MIDI keyboard does not have velocity and pressure sensitivity, Ultra will not respond to velocity and pressure.)
- Connect E5000 Ultra's MIDI Out to another MIDI instrument or computer. The MIDI Out ports transmit preset change information or filtered performance data to a sequencer or other instruments, or can be used to transfer MIDI sample dump information (sample data).
- MIDI Thru simply re-transmits any information received at the MIDI In port.

The MIDI In and Out ports can also be used for communication with a computer running Editor/Librarian applications.

Digital Interface/ASCII Keyboard Option Port

The optional digital interface allows E5000 Ultra to transfer digital audio back and forth to other digital devices equipped with AES/EBU digital I/O. Digital transfer keeps the signal in the digital domain which is desirable in order to keep the signal to noise ratio as high as possible and avoid distortion caused by D/A and A/D conversion.

The AES digital input lets you sample in stereo directly from a DAT recorder or other digital device. The digital output reflects the data at the stereo outputs of Ultra. See the Sample Manage module and Output Format (located under Output in the Master menu of the EOS Software manual) for more information.

Sample Inputs

The two electronically balanced sample input jacks accept any signal level from microphone to line level. Input impedance is 10KΩ.

Use a stereo plug if you want the sample inputs to be balanced (tip +, ring -).

The gain of the sample input preamplifiers is set using the ADC Gain parameter in the "New" screen which is located in the Sample Manage module. Whenever the Sample Manage module is enabled, the sample inputs are normally routed to the main outputs for monitoring. (Sample Monitor can be turned On or Off in the Sample Manage, New screen.)

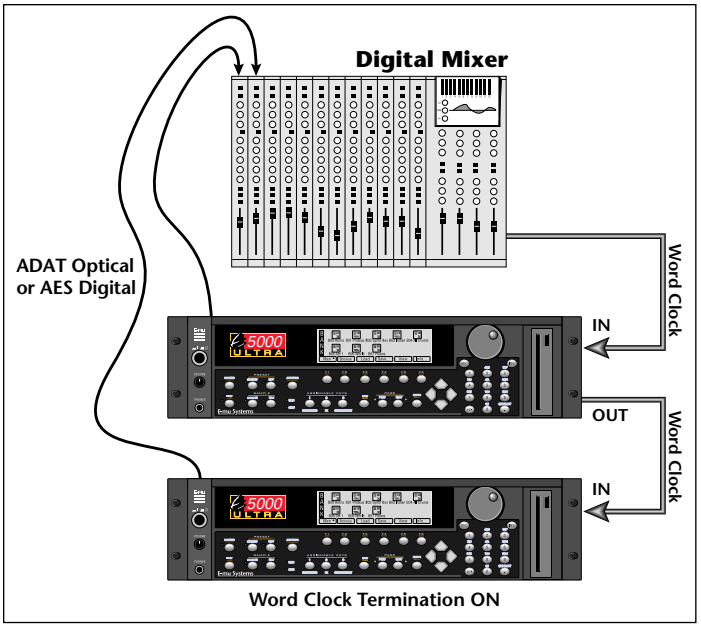
Word Clock In/Out (optional)

The optional word clock provides a means of synchronizing multiple digital audio devices so that data can be transferred digitally. All digital devices in a system should run off the same master clock. Devices can be connected in daisy chain fashion (word clock out connected to the next unit's word clock in) in a small system, but a digital studio will normally use a master word clock generator or "House Sync" with a distribution system so that every device receives a phase-coherent and jitter-free word clock.

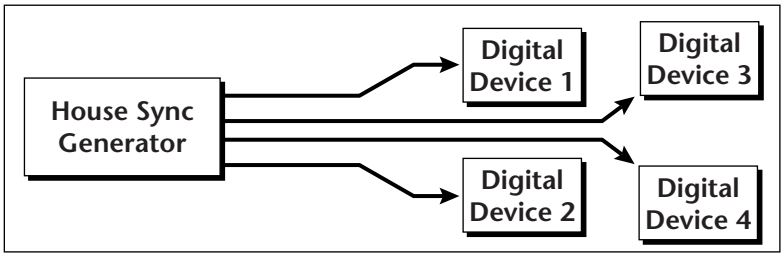
Word Clock In: Receives word clock (sample clock) from another digital device such as a digital video deck, digital recorder or digital mixer.

Word Clock Out: Sends word clock (sample clock) to another digital recorder. Word clock is always output, whether it is generated by the internal crystal or passed through from the word clock input.

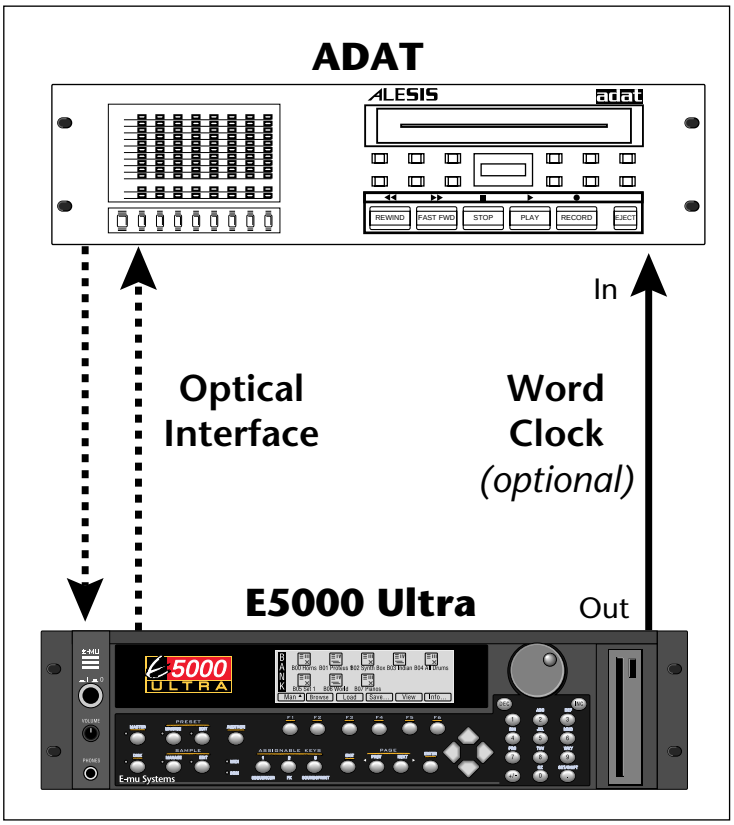
75Ω On/Off: Termination for the word clock input can be switched on or off. Like SCSI, the LAST device in a serial word clock chain should have termination turned **On**.



The last device in a Word Clock chain should have Termination ON.



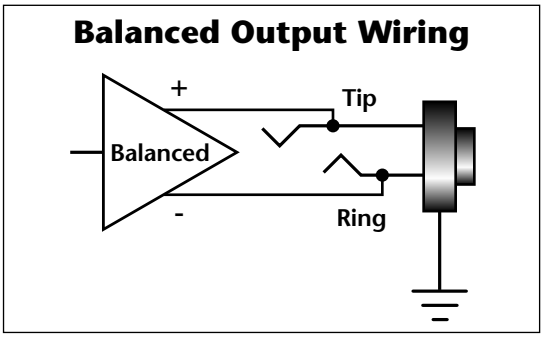
A master word clock generator is preferable for larger digital setups.



This diagram shows how to connect an E5000 to an Alesis ADAT™ using the optional ADAT interface card. The Word Clock connection is option, but provides a slightly more stable clock source.

Main Outputs

E5000 Ultra has provisions for a variety of output connection schemes. The most common hookup is using the main stereo outputs. The electronically balanced main outputs are available at 1/4" stereo phone jacks. Output impedance is 600 ohms.



Submix Outputs

In addition to the main stereo outputs, there is another pair of balanced submix outputs which can be used when you want individual processing on specific instruments. You can program any combination of MIDI channels or Voices to appear at this submix output pair. MIDI channels can be assigned to the submix pair in the Multimode screen. Voices can be assigned to output channels in the Amplifier screen of the Preset Edit menu. The submix outputs are stereo jacks (TRS). When a standard mono jack is inserted, the jack serves as an unbalanced output. Output impedance is 600 ohms.

Note: Two other submix output pairs (Sub2 & Sub3) are shown in the Multimode and Amplifier screens. These are not used in the E5000 and any signals routed to Sub2 or Sub3 will be automatically re-routed to the main outputs.

Nominal Output Levels

Unbalanced - - 0 dBV (1V RMS)

Balanced - - - - +6 dBV (2V RMS)

AC Power Connection

E5000 Ultra may be used in environments ranging from 100 volts to 240 volts at either 50 Hz or 60 Hz. You do not need to change voltage settings.

Ultra automatically switches itself for the proper line voltage.

ASCII Keyboard Interface

The Digital Interface/ASCII Keyboard option lets you connect a standard IBM PC style ASCII keyboard to the synth. The ASCII keyboard allows all front panel controls to be accessed and is a real time saver when naming samples, presets, banks and sequences. The keyboard must be connected before power is applied in order for the E5000 to recognize it.

Ultra Function	ASCII Keyboard
Exit	Esc
Ten Key Pad	Ten Key Pad
Cursor Keys	Cursor Keys, Ten Key Pad
Page Keys	Ten Key Pad 3, 9
Numeric Selection	[Num Lock, Ten Key Pad]
Inc/Dec	+/-
F1-F6	[F1-F6]
Preset Edit	[Alt, A], [Alt, F], [Ctrl, E]
Sample Manage	[Alt, S]
Sample Edit	Alt, D], [Ctrl, G]
Preset Manage	[Alt, P]
Master	[Alt, M]
Multimode	[Alt, Z]
Disk	[Ctrl, D]
Load Bank	[Ctrl, L], [Alt,]]
Save Bank	[Ctrl, S], [Alt, [ ]
Search Dialog	[Ctrl, F] in Browser
Rename Dialog	[Ctrl, R] in Browser
Audition Preset	[Ctrl, A] Preset related modules
Audition Sample	[Ctrl, A] Sample related modules

Disk Drive Options

Internal Drives

A disk drive is a memory storage device that stores banks of sound and preset data. Ultra can be fitted with an internal hard disk or can be connected to an external hard disk drive via SCSI. The floppy drive on the Ultra is used mainly to update the operating system software. *(The operating system of a computer consists of the instructions that tell the computer what to do.)* The floppy drive is also handy for transferring sequences to and from a computer-based sequencer. Because of the large bank size of Ultra (4-128 MB) the floppy disk is impractical for backing up sound data, although it can be used to save or transfer small sound banks in a pinch. Other types of disk drives, as described below, can connect to your E5000 to provide efficient sound storage.

Floppy Disk Drive (Drive 8): The floppy disk drive accommodates 3.5", double-sided, high-density (1.4 MB) floppy disks. Primarily, the floppy drive is a convenient way to update the operating system software. As new enhancements are developed, the new software is distributed on floppy disks. This software can be copied into Flash RAM and made a permanent part of your E5000.

> ☞ **To Update Ultra's EOS Software**
>
> 1. Turn off power to the unit.
> 2. Insert the floppy disk into the drive with the label side towards the center of the unit.
> 3. Turn on power to the unit.
> 4. Press Enter to update the software or Exit to cancel.
> 5. Wait for E5000 Ultra to update its firmware. When the software update has finished, the display will inform you.

Internal Hard Disk Drive: A hard disk provides the advantages of much higher memory capacity and far faster access time. However, an internal hard disk cannot be removed and its data must be backed up to another medium for safekeeping.

IDE Drives: *Ultra Series Emulators can use an internal IDE hard disk. IDE drives have several advantages such as low cost, high capacity, low noise and they don't use up a precious SCSI ID number.*

• Order IDE installation kit number 6303. This kit includes everything necessary except the IDE drive.

External Drives

E5000 contains a SCSI (Small Computer Systems Interface) connector on the rear panel. This interface is commonly used in the computer industry, so many devices made to work with computers—particularly mass storage devices—will also work with Ultra. Here are some of the types of mass storage devices that can plug into the SCSI connectors.

Hard Disk Drive: A hard disk provides the advantages of much higher memory capacity and far faster access time. Transferring data to and from E5000 is quite straightforward. However, you cannot remove a hard disk and replace it with another one—the disk is a permanent part of the drive. There are three main cautions involved with hard disks:

1. Hard disks are sensitive to extreme mechanical shocks. If your hard disk falls off a keyboard stand, chances are the hard disk will be damaged.
2. Make sure power is not interrupted when you write data to the hard disk.
3. Hard disks have reached a very high level of reliability. However, they can fail from time to time (as can any part of a computer), so any data should be backed up periodically on some other medium.

Removable-media Hard Disk Drives: These are similar to normal hard disk drives except that the disk itself can be removed and replaced with another disk. Disk densities can range from 44 Mbytes to well over 1 Gigabyte per platter. Removable-media hard disk drives allow you to build a sound library of unlimited size and are quite handy for transferring sounds between machines. They're also perfect for backups.

CD-ROM Drive: A CD-ROM is a playback-only (data cannot be written to it) mass storage memory device whose capacity is approximately 660 Megabytes. Quality CD-ROM libraries are available from several companies (E-MU, InVision, Northstar, Q-Up Arts). These can be loaded into the bank as easily as you would load from a hard disk.

Magneto-Optical Drive: Basically a read/writable CD, these high speed, high density storage devices are great for storing large amounts of sound data. Typically a magneto-optical drive can hold upwards of 300 Mb per side and the removable cartridges can be used over and over. Disk access time is comparable to a normal hard disk.

☞ To Connect the E5000 to an Unformatted Hard Disk

If the hard disk is already formatted with another file system, you can use the "Format" function instead of the time consuming "LL Format". See Disk Utilities.

1. Position the SCSI device and the E5000 in a stable location. Hard disk drives are particularly susceptible to shock and vibration. Make sure that you position your hard disk where it won't get bumped or moved while in use.
2. **Important:** Make sure that all power to the E5000 and the SCSI device is turned OFF.
3. **Connect the SCSI device** to your E5000 using a quality SCSI cable. Make sure that the connectors are firmly mated and that the wire "keepers" are locked in place. There are two type of SCSI cables in common use: the 50-pin Centronics type and the 25-pin DB connector type. The E5000 uses the 50-pin Centronics type connector. If your drive the DB-25 connector, you can connect them using an adapter cable.

The ID numbers of all connected drives are shown in the Disk Browser.

4. **Set the SCSI ID** of your external SCSI device to any number other than **6.** (6 is the default ID of the E5000). Consult the operation manual of your SCSI device for this procedure.
5. Turn on the external SCSI device and the E5000.
6. Make sure your hard disk really is unformatted since formatting a hard disk erases all data on it. Press the **Disk** button. If the display does not show the external hard disk icon, try mounting the drives (Utilities, in the Disk Browser). Also check that the SCSI ID is not set to 6 (E5000's default). If the disk icon still doesn't appear, the drive is probably unformatted.
7. **Format the hard disk** - While in the Disk Browser, press the **Utils** soft key. A new line of options will appear.
8. Select **Format**. The display will warn that formatting erases everything on the hard disk. Press **OK** to continue.
9. The E5000 will format the hard disk drive. Formatting takes a few minutes. The time will vary depending of the capacity of the disk.
10. After formatting, the hard disk will appear in the disk browser and is now ready to accept data. Use the left/right cursor keys or the data entry control to select the newly formatted hard drive. Use the **Info…** function key to get information about the new drive.

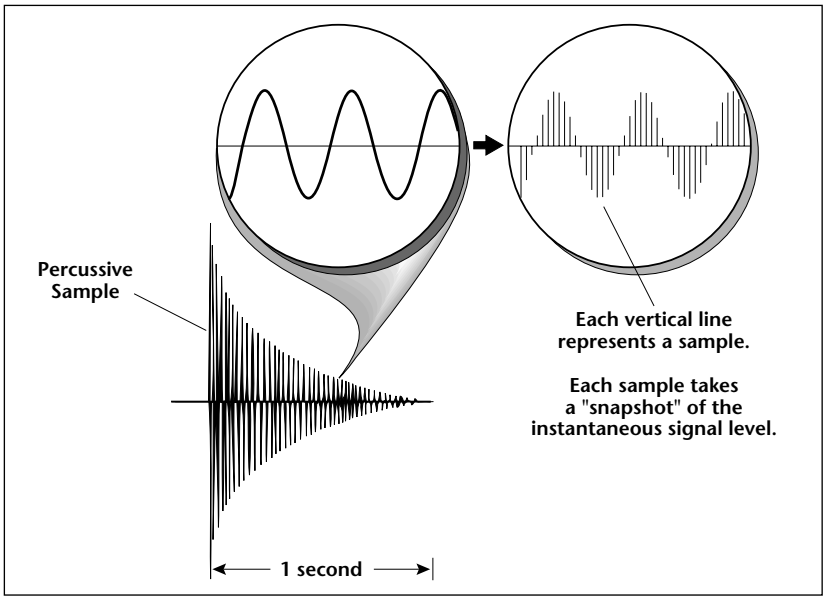
☞ To Connect the E5000 to a Formatted SCSI Device

E5000 will recognize and load from SCSI devices formatted for Ultra, E-Synth, E-IV, e6400, E4X, E4K, EIIIX, Emax II, EIII, ESI-32, ESI-4000, Roland S700™ and Akai S1000/S1100/S3000™.

1. Position the SCSI device and the E5000 in a stable location.
2. **Important:** Make sure that all power to the E5000 and the SCSI device is turned OFF before you connect or disconnect the SCSI cable.
3. **Connect the SCSI device** to your E5000 using a quality SCSI cable. Make sure that the connectors are firmly mated and that the wire "keepers" are locked in place. The E5000 uses a 50-pin Centronics type connector.
4. **Set the SCSI ID** of your external SCSI device to any number other than 6. (6 is the default ID of E5000, although this number is user selectable. Master, Misc). Consult the operation manual of your SCSI device for this procedure.
5. Turn on the external SCSI device and the E5000.
6. The SCSI device will appear as a new icon in the disk browser screen.

If the hard disk is already formatted with another file system, you can use the Install File System function instead of formatting the disk. See Disk Utilities.

About Sampling



Conceptually, sampling is like a tape recorder. However, the recording process is different since the E5000 records into its computer memory digitally. Samples can be loaded via removable-media hard disk, magneto-optical disk or CD-ROM using the SCSI interface. They can be sampled through the analog inputs or the AES/EBU digital interface, or even through the MIDI interface using MIDI Sample Dump or SMDI.

Computers can accept information only in the form of numbers, so the E5000 works with audio signals coded into binary numbers. Sampling works by examining (sampling) the incoming signal level at a very high rate (44,100 times a second for compact disc rate), and sequentially recording these different levels in memory. Once stored, these samples may be played back (in the proper sequence, of course) to reconstruct the original signal. For instance, if a two-second sound were being sampled at 44.1 kHz, it would require 2 x 44,100 or 88,200 samples to be recorded.

Once a sound has been recorded, it can be manipulated. Playing back the samples in reverse order from which they were stored plays the sound backwards. Playing back the samples at a faster rate than the rate at which they were stored raises the pitch. Playing back at a slower rate lowers the pitch, much like a tape recorder's variable speed control.

Advanced onboard sample editing processors such as Time Compression/ Expansion, Doppler and Beat Munging allow you to manipulate the sound in both time and audio space. Other processors provide standard studio functions such as parametric equalization, compression and exciter. Far more radical transformations are possible using our exclusive Transform Multiplication and Beat Munging processes. Sounds can also be manipulated in real-time by filtering or by modulating amplitude and pitch.

Instant Gratification

This section is designed to get you playing sounds in the shortest amount of time and provides only a partial explanation of disk operations. For more complete instructions, see Disk in the EOS Software Manual.

Power Up!

- Turn on the Emulator and wait for the following screen to appear.

If you had the ROM bank added, you could select presets immediately using the Data Entry Control, INC/DEC buttons, Left/Right cursor buttons or the numeric keypad to change presets. Without the ROM bank installed, you must load a bank into the unit. See the next page for instructions.

Before you Begin…

☞ Do you have a Hard Disk or CD-ROM drive connected to the external SCSI port?

You NEED one. Sample and preset data must be loaded into the E5000's internal RAM before it can make sound. A hard disk drive is also necessary in order to SAVE your valuable work.

A hard disk drive and a CD-ROM drive are the keys to building a sample library. Once you have these two important necessities, you'll have access to a universe of sounds. The beauty of a sampling-synthesizer is that it can never become obsolete. You can have ANY sound simply by sampling it or loading a new bank of presets. The entry fee is a CD-ROM and HD drive.

• If you don't have a hard disk or CD-ROM drive yet, you can still start exploring your E5000. See "Loading from Floppy Disk" on page 29 or "A Practice Sampling Session" on page 32.

Loading a Bank from Hard Disk or CD-ROM

Loading a bank of sounds makes an entire collection of different presets immediately available.(Of course you have to have a hard disk or CD-ROM connected before you can load a bank. See page 25 for information on connecting a hard disk.)

The SCSI ID number of the drive precedes the Drive Name. In the screen at right, the Quantum FIREBALL is on SCSI ID #1. The Floppy drive is always Drive 8.

☞ To Load a Bank from the Hard Disk or CD-ROM:

1. Press the **Load** function key (F4) from the main screen shown above. The following screen appears. **Select the desired Drive.**

The display shows the hard disk drive information, the folders contained on the drive, and the individual banks contained in the displayed folder.

2. **Select the Folder** containing the desired bank. Using the Arrow cursor buttons, move the cursor to the Folder field and select the Combos folder.
3. **Select the Bank**. Move the cursor down to the Bank field and choose the General MIDI bank using the Data Entry Control, the INC/DEC buttons or the numeric keypad.
4. Press **OK** to load the bank. The bank is loaded and the first preset in the bank appears.

Loading from Floppy Disk

If you don't have a hard disk or CD-ROM drive yet, you can load the stereo piano contained on one of the floppy disks that came with your E5000. Storing sounds on floppy disk is NOT recommend due to their small size.

☞ To Load a Bank from the Floppy Disk:

1. Insert the Stereo Piano floppy disk with the label toward the display. Press the **Load** function key (F4) from the main screen. If you don't have a hard disk connected, the following screen appears.

2. **Select the Drive.** (If you have a hard disk or CD-ROM connected otherwise skip this step.) Using the Arrow cursor buttons, move the cursor to the Drive field and select, "D8 Floppy Disk".
3. **Select the Folder** containing the desired bank. Using the Arrow cursor buttons, move the cursor to the Folder field and select the F000 Floppy folder. (Since the Piano floppy only has one folder, skip this step.)
4. **Select the Bank**. Move the cursor down to the Bank field and choose the Stereo Piano bank using the Data Entry Control, the INC/DEC buttons or the numeric keypad. (If you're loading the Piano you can skip this step too since the Piano floppy only has one Bank.)
5. Press **OK** to load the bank. The bank is loaded and the first preset in the bank appears.

Selecting Presets

The currently selected preset is displayed on the main screen showing the preset number (as it appears in the currently loaded Bank) and its name. EOS provides several methods for selecting presets.

☞ **To Select a Preset:**

- Use the Data Entry Control to quickly scroll through the presets.
- Use the Left and Right cursor buttons or the INC and DEC buttons to scroll through them one at a time.
- The Page buttons to scroll through them ten at a time.
- The numeric keypad to punch in the preset number and then press the "Go" button to confirm the selection.

When using the numeric keypad to select presets, you select a preset by entering a 1, 2 or 3 digit number. If fewer than three digits are entered, you must press the Enter or Go button after selecting the number. For example, you could select preset number 3 in any one of three ways:

1. Type "3." A window pops up asking you to confirm the preset number. Press the "Enter" button or "Go" button.
2. Type "03." A window pops up asking you to confirm the preset number. Press the "Enter" button or "Go" button.

3. Type “003.” (You do not need to press the “Enter” button or “Go” button when entering all three digits of the preset number. Because there are only three possible digits, EOS knows that you’re done.)

The more sound RAM you have in the unit, the larger the bank size can be and the more presets you can have in the bank at once.

Presets are contained in the bank you loaded earlier so they are instantly accessible when selected, unlike SoundSprint presets, which take a second or two to load from the hard disk.

The next and previous presets are displayed in the upper corners of the screen. The next preset is displayed in the upper right hand corner, the previous preset is shown in the upper left hand corner.

Saving

When presets are loaded into the bank, you are free to edit any parameter in any preset. When you have everything the way you want it, SAVE the entire bank to the hard disk. Since nothing is made permanent until you Save it, you can play around with the presets to your heart’s content without worrying about ruining something.

Save to an Empty Bank location if you have edited presets and want to save the old bank as well as the edited bank.

When you get something you want to keep, then it's time to Save. If you don't save the bank, **all changes will be lost** as soon as you switch off power or load another bank.

☞ **To Save a Bank:**

1. From the Main screen shown above, press the button directly under “**Save...**” on the screen (F5). The following screen appears.

2. **Select the Bank location**. The bank field defaults to the bank currently loaded. Press **OK** to overwrite the bank or select an empty bank if you want to save the bank as a new bank.

To save a single preset to a bank see "Export Preset" in the Preset Manage module.

You can also save the bank to another folder or disk drive (if connected). Use the up/down cursor buttons to advance the cursor to the Folder or Drive field, then select the new destination.

3. Remember that Saving is permanent, so think twice before pressing OK. Press **OK** to Save the bank or Cancel to abort the operation and return to the main screen.

A Practice Sampling Session

Sampling lets you play ANY SOUND! In this session, you will sample your own voice. Although there is much more to the art of sampling than just sampling your voice, this lesson will give you a good start.

In preparation for this sampling session, please read over Chapter 5, Sample Management in the EOS software manual.

☞ Connections…

1. Connect a microphone to the left sample input jack on the rear panel of your EOS instrument. If you don't have a microphone you can use another signal source such as a CD player. Connect a CD player to both the left and right sample inputs or just the left input if you want to sample in mono.

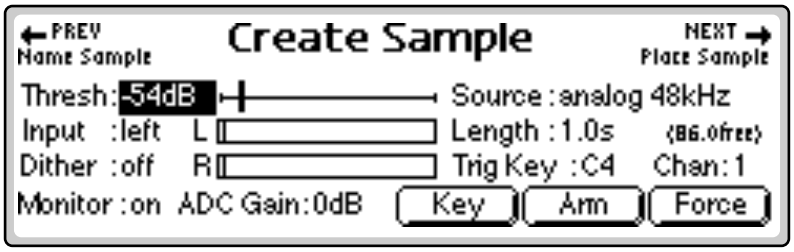
☞ Erase the Bank

This step "cleans the slate" for your experiments.

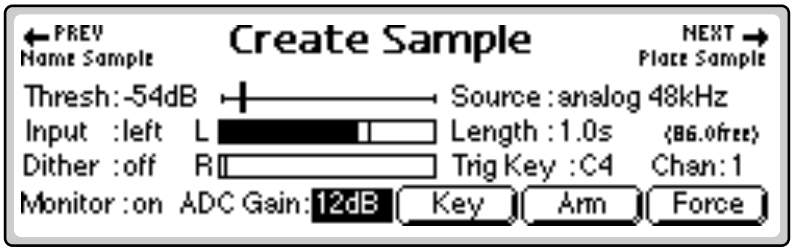
2. Press the **Master** button to enter the Master module.
3. Press the **Bank** function key (F2).
4. Press **Erase** (F1). A popup dialog box appears asking you if you want to erase Preset, Samples and Sequences.
5. Don't worry, be happy! Press **OK** (F6).

☞ Sample Setup

6. Press the **Sample Manage** button.
7. Press the **New** function key (F3). The following screen appears.



8. If you are sampling in mono, select the Left channel only. The Threshold sample trigger only reads the Left channel.
9. Set the **Source** to **analog 44.1 kHz or analog 22.05 kHz.** To select the 48kHz (or 24kHz) sampling rate, you must change the "Default Clock" located in the MASTER menu under "In/Out" to 48kHz.



10. Set **Length** to **2 seconds**.
11. Move the cursor to **ADC Gain**.
12. **Sing "Ahhh"** into the microphone. (This is an easy sound to loop.) You should see the VU meter moving.
13. Still singing "Ahhh", adjust the **ADC Gain** using the Data Entry Control or INC/DEC buttons so that the peak bar of the VU meter comes close to the extreme right side without actually reaching it.
14. Set the **Threshold** to **-54 dB**. When the input sound exceeds this level, sampling will start.

☞ Sampling!

15. Press the **Arm** function key (F5). This arms the sampling process.
16. **Sing Ahhhh!** The display says "Sampling".
17. When you are out of breath, press **Stop** (F1), Exit or Enter to stop sampling. The following screen appears.

Truncation trims the silence off the beginning and end of the sample.

Normalize boosts the signal to its optimum level.

18. The screen shown above gives you the option to Dispose, Keep or place the sample you just took. It also contains the Automatic Sampling parameters. Set the **Automatic Truncate, Normalize** and **Loop** parameters as shown above (both, relative, off).
19. Press the **Place** function key (F6).

20. Popup dialog boxes will inform you that the sample is being Truncated and Normalized. **Play the keyboard**. Your voice will play up and down the entire keyboard. You will probably notice that the original key sounds the most natural.

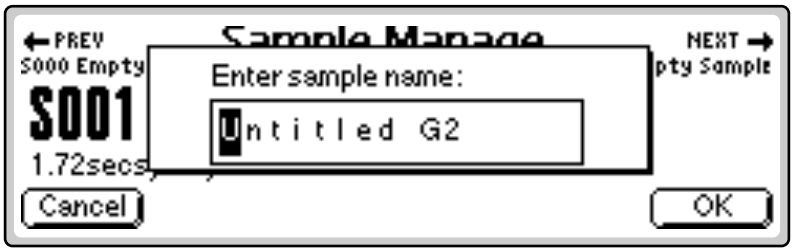
Congratulations! You've just taken your first sample.

☞ Name the Sample

Name everything! It saves valuable time when you're trying to find a certain Sample or Preset you created earlier.

Tip: If you name the current preset BEFORE taking the sample, EOS will automatically name the sample for you. If you happen to be sampling another synthesizer and have MIDI connected, EOS will even add the original key to the sample name!

21. Press the **Exit** button to go to the main Sample Manage screen.
22. Press the **Name** function key (F2). The following screen appears.



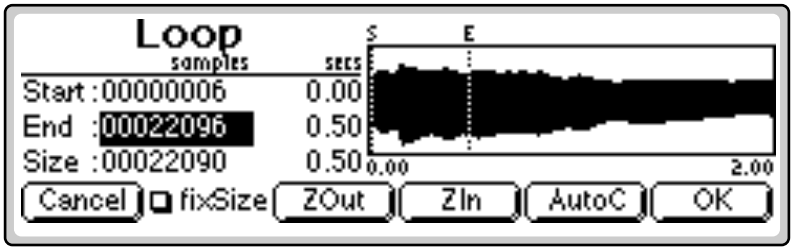
23. **Change letters** using the Data Entry Control, INC/DEC buttons or numeric keypad. Move the cursor using the left/right cursor buttons. The up cursor adds a space. The down cursor button deletes a space.
24. Press **OK** (F6) when you're finished naming your sample.

☞ Looping

Looping has gained a reputation for being something of a black art. In actuality, it's really not that difficult to loop most sounds, especially with all the looping tools provided by EOS. Let's go ahead and loop the sample you just created.

25. Press the **Sample Edit** button.
26. Press the **Tools1** key (F3). Another row of function keys appears.
27. Press **Loop** (F1). The following screen appears.

The Attack portion of the sound is the large part of the waveform. The attack contains changing harmonics and is difficult to loop. Move the loop start and end points into a portion of the wave where the level looks steady.



28. Turn the **"fixSize"** parameter **Off** by pressing the F2 key so there is no check mark in the box.

29. Move the cursor down to the third line and **adjust the Loop Size** so that it is about half a second or less. As you do so, you'll see the dotted line marked “E” move toward the left.
30. **Play a key**. You'll hear your voice being looped… badly.
31. Move the cursor back up to the Start field. **Play a key as you adjust the Loop Start** using the Data Entry Control. As you move the start point out of the “attack” portion of the sound, you’ll notice the loop improve. Find a location where the loop sounds best. Don't worry if it's not that great.
32. Press the **AutoC** function key (F5 Autocorrelate). This advanced control examines the waveform for similarities and adjusts the loop points for you.
33. **Play a key**. Did the loop improve? If the volume wavers excessively, try reducing the loop start. Autocorrelate again.
34. **Continue adjusting** the loop size and start times. Autocorrelate the sample after each adjustment until you get a good loop. It takes a little practice, but you'll get it.
35. **Press OK** when you've found a good loop. The Loop Parameters screen appears. This screen contains three other looping tools. Press **OK** to continue.
36. Read about the other looping tools in Chapter 5, Sample Edit of the EOS software manual and, by all means, feel free to try them out. The best way to learn about looping is to experiment with a wide variety of signals.

- Practice sampling and looping using the Audio CD that came with your E5000. Looping drum beats and grooves is usually much easier than looping instruments.
- Be sure to try out ‘“Beat Munging” on your samples from the Audio CD.
- Learn how to set the keyboard ranges of samples and do a whole bunch more by reading “Voices-Key Window” in the EOS software manual.

☞ Steps in Sampling

These are the basic steps you will go through every time you have a sampling session.

- **Take the sample**
- **Truncate the sample**
- **Loop the sample (if desired)**
- **Assign the sample to a keyboard position**
- **Continue to refine and make presets**

Of course, you will probably develop your own order and style of sampling techniques. It’s not hard, it just takes a little practice.

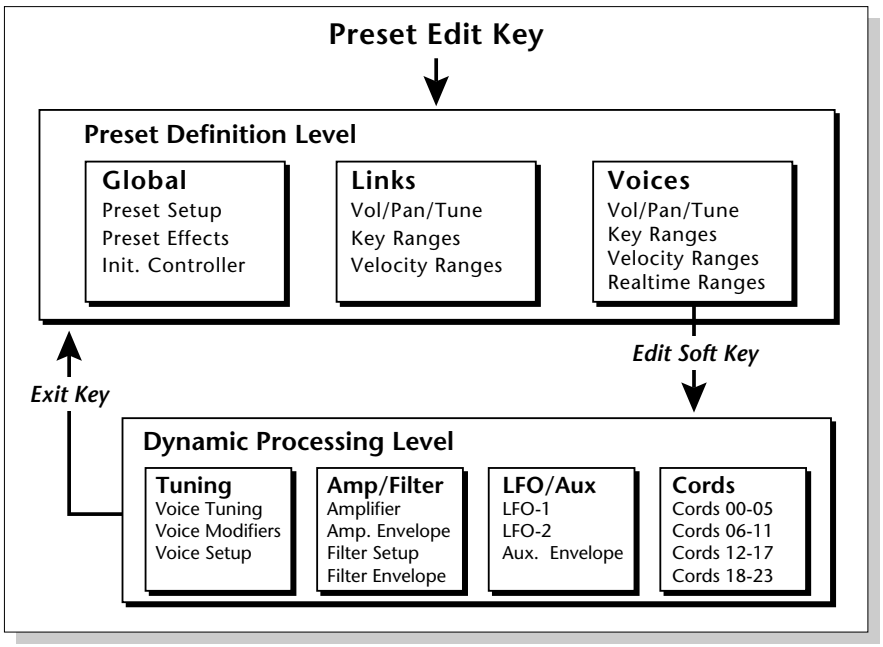
Exploring the Preset

The Preset Edit module is where everything comes together into a complete keyboard setup. It's a huge module and can be initially confusing. The first thing you need to know is that there are **two main levels** to the Preset Edit module.

Preset Definition is used for arranging voices and samples on the keyboard, editing global preset parameters and linking presets, as well as setting effects and initial controller values.

*Use the **EXIT** button to back out of the Preset Edit module if you get lost.*

Dynamic Processing is the lower level which is used to perform more detailed editing of voices such as envelope shaping of the amplifier and filter as well as the modulation parameters. This is the "synthesizer" section of EOS.



The Preset Definition layer contains three main pages.

Global Editor. Preset Transpose, Volume and Preset Effects.

Links. Create stacked preset layers or splits.

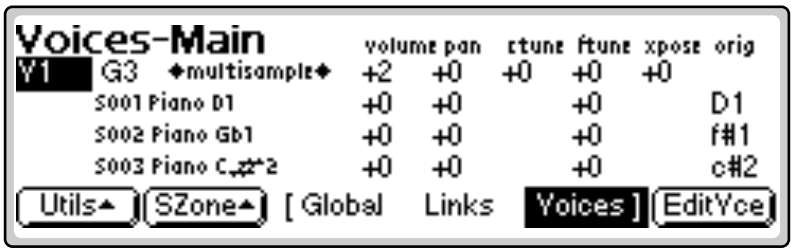
Voice Editor. Allows you place voices and samples on the keyboard and crossfade or switch between them according to key position, velocity range and realtime controls. Also contains voice tuning, volume and pan controls.

The **Dynamic Processing** parameters are accessed by pressing the Edit button while in one of the Preset Edit, Voice screen parameters.

Which Voices are Assigned to the Keyboard?

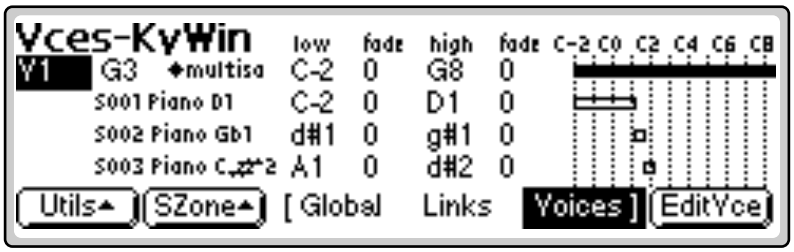
Good question. You'll often want to know how samples and voices are assigned in existing presets or you may want to build your own presets.

1. **Select a preset** to examine.
2. Press the **Preset Edit** button. The following screen appears.



   In this preset, Voice 1 is a multisample. The samples contained in the multisample are listed below it. The volume, pan position, coarse and fine tuning, transpose and original keys can be adjusted from this screen.

3. Press the **Next Page** button. The arrow next to it is illuminated, indicating that there is another page of information. The Key Window appears.



   The keyboard assignments of the multisample and the samples it contains are shown graphically.

   Press the **Down cursor** button repeatedly to view the keyboard assignment of the other voices.

4. Press the **Next Page** button to go to the Velocity Window. The velocity window allows you to switch or fade samples and voices according to key velocity.

   See “Voices - Velocity Window” in the EOS software manual for detailed information about the Velocity Window.

5. Press the **Next Page** button again to go to the Realtime Window. The realtime window allows you to switch or fade samples and voices according to a realtime control such as a modulation wheel or an LFO.

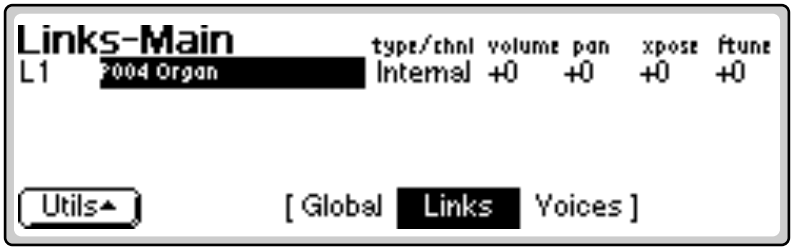
   See “Voices - Realtime Window” in the EOS Software manual for detailed information about the Realtime Window.

Creating a Link

Linking presets is a quick and easy way to create huge stacked presets, split keyboard presets and create new sounds.

1. Press the **Links** function key (F4). The preset link page appears. The screen should appear as below with "No Links in Preset". If not, choose another preset and return to Preset Links.

2. Press the **Utils** function key (F1). Another row of function keys appears.
3. Press **New...** (F1). The following screen appears.



4. Move the cursor to the preset field and **select a preset** using the Data Entry Control, INC/DEC buttons, or the numeric keypad.
5. **Play the keyboard**. Both presets will be heard.

Add another link if you want. Also, be sure to check out all the other link options. See "PRESET EDIT - Links", in the EOS software manual for more information.

Arpeggiator

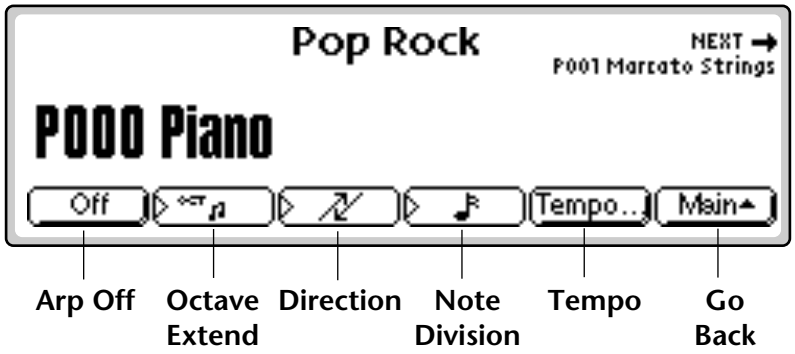
The arpeggiated notes can be recorded into the sequencer and are transmitted on the MIDI Out port.

An arpeggiator moves a pattern of notes sequentially over a range of the keyboard. EOS provides a performance-oriented arpeggiator which is powerful, yet quick and easy to use. It has several features including tap tempo, octave extension, note value divisor and control over how the extensions are played (up, down, or up *and* down or random). The arpeggiator plays on the Basic Channel and remembers the order of played notes.

☞ To Access the Arpeggiator:

1. From the main preset selection screen, press the **Mode** function key (F6). A new set of function keys appears.
2. Press the **Arp** function key (F5). The arpeggiator will be enabled and the function keys now control the arpeggiator functions.

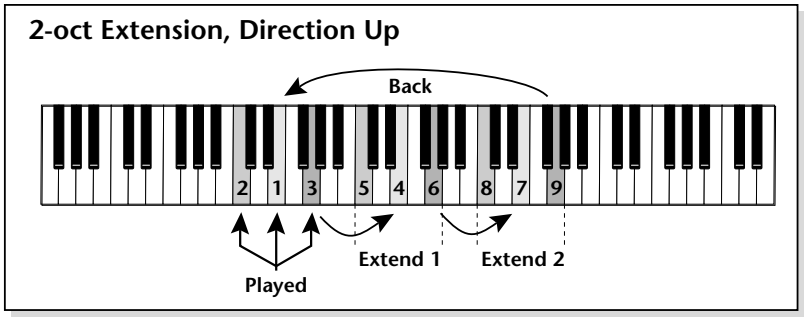
The arpeggiator continues playing on the current MIDI channel if you switch to Multi mode.



Octave Extension. The extension control shifts the arpeggio up the specified number of octaves each time the pattern is repeated. For example, suppose you played C2 with an Octave Extension value of 2. The arpeggiator advances the pattern 2 octaves in the direction specified. The extension can be set from 0-3 octaves.

☞ To Set the Octave Extension:

- Press the **Octave Extension** button (F2) to toggle between values.



Arpeggiator Direction

Up

Down

Up/Down

Random

Direction. The Direction parameter determines the direction or pattern of the arpeggiated notes. The held notes can be played forward, backward in an alternating forward/backward order or randomly. This setting also affects the order of the octave extensions.

☞ To Set the Arpeggiator Direction:

- Press the **Direction** button (F3) repeatedly until the desired direction is displayed on the screen. See the illustration at left for a description of the direction display.

Division. The speed of the arpeggiator is determined by both the tempo and the tempo divisor. The following divisors are available: 1/2 note, 1/2 note triplet, 1/4 note, 1/4 note triplet, 1/8 note, 1/8 note triplet, 1/16 note, 1/16th note triplet, 1/32 note, 1/32 note triplet. The division is particularly useful if you are synced to an external MIDI clock.

Triplets. Access the arpeggiator from **Multimode** and turn Triplets **On**. Triplets will remain on even if you switch back to Omni or Poly modes.

Tempo. The Tempo parameter, used with the Division parameter, determines the speed of the arpeggiator. There are two ways of defining the arpeggiator tempo; by entering it numerically or by using the Tap Tempo feature.

☞ To Enter the Tempo Numerically:

1. Press the **Tempo** function key (F5) to access the Arpeggiator Tempo screen.
2. Place the cursor over the tempo field and **enter the desired tempo** using the Data Entry Control, INC/DEC buttons or the Numeric Keypad.
3. Press **Done** (F1) or **OK** (F6) to return to the main Arpeggiator menu from the Tempo submenu. If you changed the status of the Sync function, it will be saved to EEPROM.

☞ To use the Tap Tempo function:

1. Press the **Tempo** function key (F5) to access the Arpeggiator Tempo screen.

2. **Tap the F4 button** at the desired tempo at least four times to define a new tempo. After the first four taps, the tempo updates the average tempo with each subsequent tap.
3. Press **Done** (F1) or **OK** (F6) to return to the main Arpeggiator menu from the Tempo submenu. If you changed the status of the Sync function, it will be saved to EEPROM.

You can control the arpeggiator using an external MIDI Clock by setting the sequencer to an external clock (Sequencer, Global, Setup).

ReSync! Resets the Arpeggiator clock at the exact moment the Resync button is pressed. This lets you synchronize with another beat as you play, even if the two clocks are not locked together.

Key Sync/Free Run. The Sync parameter defines when a note is played in relation to when the key is pressed. When set to Key Sync, the note sounds the instant a key is pressed. When set to Free Run, the note will not sound until the next arpeggiator clock cycle. The new Sync value is saved to the internal EEPROM.

The arpeggiator and sequencer use the SAME CLOCK and tempo. Changes in either menu will affect both functions.

☞ To Arpeggiate:

1. Press the **Mode** function key (F6) from the preset selection screen. A new row of function keys appears.
2. Press the **Arp** function key (F5). The arpeggiator is enabled and the function keys now control the arpeggiator functions.
3. **Play a chord**. The notes you are holding should now be arpeggiating. Change the note division or go to the tempo submenu to change the speed. Explore all the arpeggiator controls. Have fun!
4. Press **ArpOff** (F1) to turn off the Arpeggiator.

   Note: You can leave the Arpeggiator menu with the Arpeggiator on. Simply return to the Arp menu to turn it off again.
5. Press **Run** to start and **Stop** to stop arpeggiating. Press **Done**, **OK**, **Exit** or **Enter** to leave the Arpeggiator.

The arpeggiated notes can be recorded into the sequencer and are transmitted on the MIDI Out port.

From Multi mode, the Arpeggiator window appears as shown below. The functions are identical.

Keyboard Modes

The keyboard modes are receiver functions, processing MIDI and are designed as easy-to-use performance features.

☞ To Access the Keyboard Modes:

1. Press the **Mode** function key (F6). A new set of function keys appears.

Whole

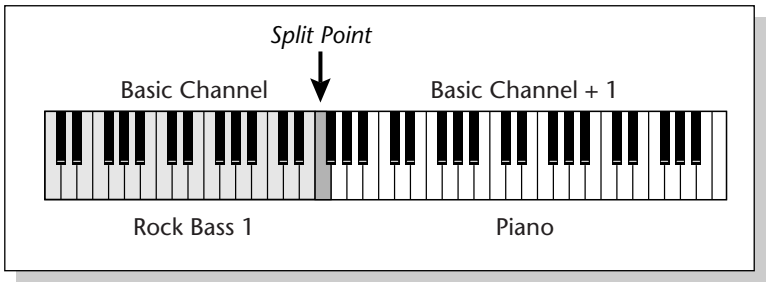
Normal mode where the keyboard is not split or layered. This button puts EOS in Omni or Poly Mode.

Layer

This mode places both presets across the entire keyboard at once. Selection and Transpose operate exactly the same as in Split mode. *See Split.*

Split

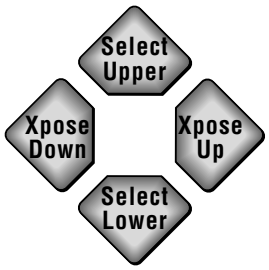
The preset assigned to the MIDI Basic channel is placed on the lower half of the keyboard and the preset assigned to the Basic channel + 1 is placed on the upper split (for details about the Basic Channel and how to set it, see "Basic Channel" in the EOS Software Manual).



☞ To Set the Keyboard Split Point:

1. Press the **Mode** button (F6) from the main preset screen. The Keyboard submenu appears.
2. Press the **SetSplit** function key (F4). The display asks you to play a key.
3. **Play a key** on the keyboard you want to be the first key of the upper preset.

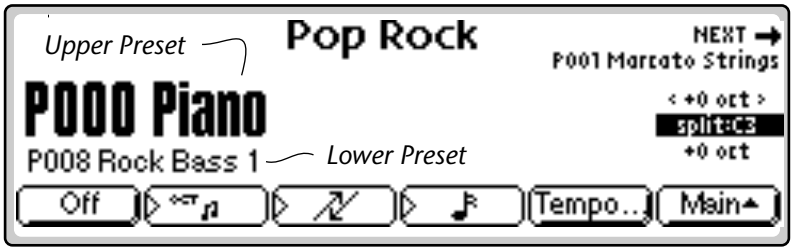
On a split keyboard, the Arpeggiator will play on the preset that was selected when the arpeggiator was turned on



☞ To Change and Transpose Presets in Split Mode:

When in Split mode, the display appears as shown below, with both split presets shown (upper is always on top). The currently selected preset is ALWAYS shown in large **bold** type.

1. Use the Data Entry Control or INC/DEC buttons to change the **Preset** shown in **Bold**.



2. Use the left and right cursor buttons to **transpose** the selected **Preset** up or down.

The Upper Preset is *ALWAYS* on top of the lower preset in the display.

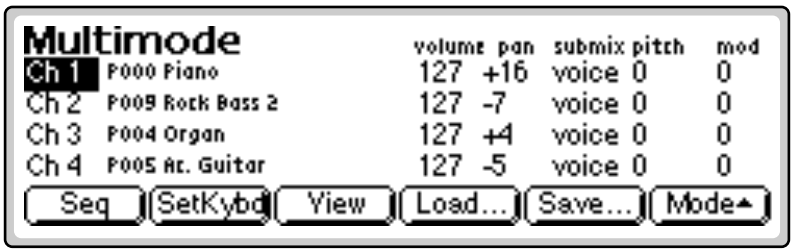
Multi

Multimode allows the Emulator to respond to multiple MIDI channels at once allowing you to play multiple MIDI channels simultaneously. For detailed information and instructions on operating in Multimode, see Multimode in the EOS Software Manual.

☞ Selecting Multi Mode:

- Press the **Mode** function key (F6) to turn on Multimode and display the Multi mode screen. See the following illustration.

Pan ADDS to the pan setting made in the voice and is not an absolute pan setting.



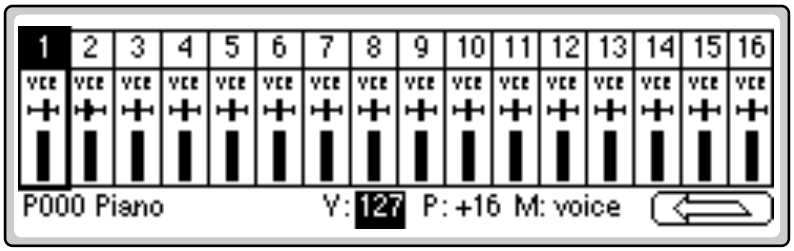
The optional MIDI channel expander card allows 32 channel operation on older EOS machines having a single MIDI input port.

☞ To Change Channel Settings in Multimode:

1. Press the **View** function key to select MIDI Mix view. The MIDI Mix screen displays and defines the preset, volume, pan settings and output assignments for up to 32 MIDI channels.

   This is useful for fine tuning multi-timbral sequences. This screen also lets you override the output channel programmed in the voice. Any volume, pan and preset changes made over MIDI are reflected in this display.

   - Volume = MIDI continuous controller channel #7
   - Pan = MIDI continuous controller channel #10



Omni mode plays only the currently selected preset from any MIDI channel.

2. **Select the desired MIDI channel** using the up/down cursor buttons.
3. Select preset, volume, pan or the output assignment using the left/right cursor buttons. **Change the parameter values** using the Data Entry Control, the INC/DEC buttons, or the numeric keypad.

☞ To Return to Omni or Poly Mode:

1. Press the **Arrow** function key (F6).
2. Press the **Mode** function key (F6).
3. Press the **Whole** function key (F1).

There's Always More

There's LOTS more, all contained in the EOS software manual. Use it as a reference manual, looking up subjects as you need to know them. Most important of all is that you actually TRY OUT the various functions.Once you actually perform a function, you'll remember how it's done.

Specifications

Number of Voices:	64
Sound Memory:	16 MB standard, expandable to 128 MB
Output Sample Rate:	44.1 kHz, 48 kHz
Main Outputs:	2 balanced 1/4” stereo jacks, TRS
Submix Outputs:	2 balanced 1/4" stereo jacks, (expandable to 10 outputs)
Output Level:	0 dBV nominal unbalanced, +6 dBV balanced
Output Impedance:	600Ω
Analog Inputs:	2 balanced 1/4" jacks, TRS
Input Impedance:	10KΩ
Input Gain Scaling:	-16 to +30 dB
Data Encoding:	Input: 16-bit, ∑Δ, 128x oversampling Output: 20-bits
Digital I/O:	AES/EBU, XLR connectors, (optional)
ASCII Keyboard:	ASCII keyboard connector (optional)
MIDI:	In, Out, Thru (optional 32 MIDI channels)
SCSI:	50-pin connector, active termination
Sample Rates:	Analog: 48, 44.1, 24, 22.05 kHz; Digital: 48, 44.1, 32 kHz.
Pitch Shift Range:	+4/-6 octaves, constant sample rate technology
Frequency Response:	20 Hz to 20 kHz, +1/-1 dB
Dynamic Range:	>100 dB
Signal/Quiescent Noise:	>95 dB
THD:	0.02% (1 kHz sine wave, A-weighting)
Stereo Phase:	Phase Coherent ±1° at 1 kHz
Weight:	17.75 pounds (8 kg)
Dimensions:	W - 17.125" (43.5 cm) H - 5.25" (13.3 cm) L - 13.25" (33.6 cm)
Power:	100-240 VAC, 50/60 Hz, auto-select, < 50 watts

Sound RAM Memory Expansion

Caution: *No more than 64 MB of sample RAM can be used together with Sound ROM. More memory CAN be installed however, and a special function (Master, Setup, Misc) can be used to temporarily disable the Sound ROM when more than 64 MB is needed.*

Ultra's sample RAM is user-expandable and consists of either one or two SIMM RAM memory modules. There are also four sockets are for E-MU Sound modules. Do not plug RAM SIMMs into the sockets marked ROM!

The requirements for the RAM SIMM modules are as follows:

- 72-pin SIMM (4 MB 16 MB or 64MB)
- 8 or 9 bits (Mac or IBM)
- 70 nS or faster

The following diagram shows the allowable combinations of SIMMs. The standard E5000 comes with (1) 16 MB SIMM installed. When only one SIMM is installed, use the **RAM B** socket.

Fig. 1

If the SIMMs are of different size, the smaller SIMM will be divided in half. That is, you will get only half of the memory of the smaller SIMM. You MUST install the larger SIMM in the **RAM A** socket. *(Otherwise the larger SIMM will be divided in half.)*

BEFORE YOU BEGIN, determine the proper locations of the SIMMs you plan to install.

Installing Memory

Before you begin, find a clean, well lit work place.

UNPLUG THE AC POWER CORD BEFORE WORKING ON E5000

Ground Work

Installing memory requires that you periodically "Ground" yourself, by touching a grounded object such as a water pipe or a grounded piece of equipment. Grounding yourself prevents the static charge in your body from damaging the sensitive memory chips. When you are asked to "Ground" yourself, simply reach over and touch the metal on the water faucet. Do not walk across the room or across a rug, as this will defeat the purpose of grounding.

☞ Remove the Cover

1. To gain access to the interior of the E5000, the top panel must first be removed. The top panel is attached to the main chassis by means of (7) Phillips head screws There are three screws along the top back of the unit and two in the recesses on both sides.
2. When the screws are removed, lift the metal top FROM THE REAR and lift off. Set the top cover aside in a safe place and put the screws into a cup so they will not get lost. The switching power supply is covered by a metal box. Do not remove this metal cover!

☞ Remove the Old Memory SIMMs (if necessary)

With the front of the E5000 facing you, the memory SIMMs are located near the left front of the main board. To remove a SIMM:

3. Ground yourself by touching a grounded object.
4. On each end of the SIMM socket there is a silver or plastic tab. Use a screwdriver or a ball point pen to squeeze the tabs toward the outside of the socket while gently pushing the SIMM toward the right side of the unit. The old SIMM should "hinge" to the right and can now be removed.

☞ Install the New Memory SIMMs

5. Ground yourself by touching a grounded object, then remove the memory SIMM modules from the static protected packaging. Install the SIMM closest to the LEFT side first.

6. Gently set the SIMM deep into the SIMM socket at a 45º angle with the notch toward the back of the unit as shown in figure 2. Without forcing the insertion, let the board rest in the socket as deep as it will go. The chips mounted on the board should face the rear of the unit. See the following diagrams.

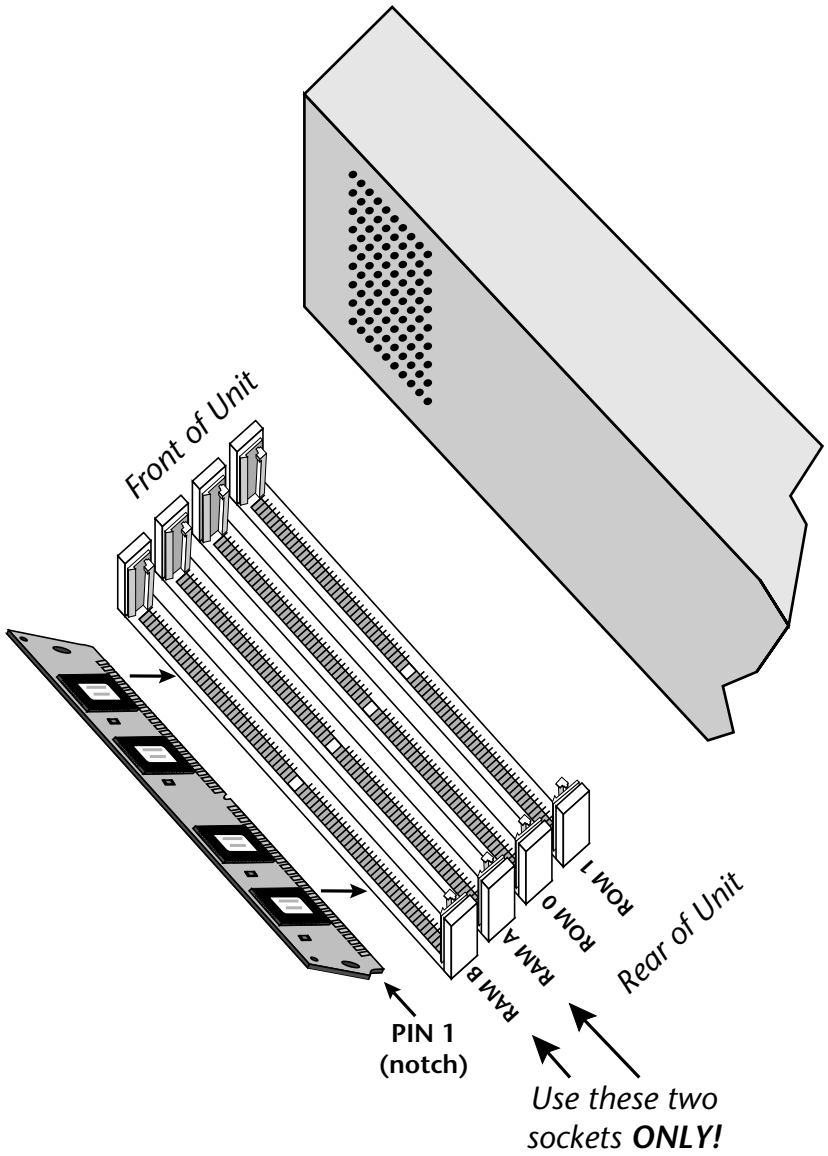


Fig. 2

7. While applying a slight downward pressure on the top of the SIMM to keep it from popping out of the socket, tilt the SIMM board into a vertical position as shown in figure 3. You should hear an audible click. Make sure both sides of the silver tabs have latched.

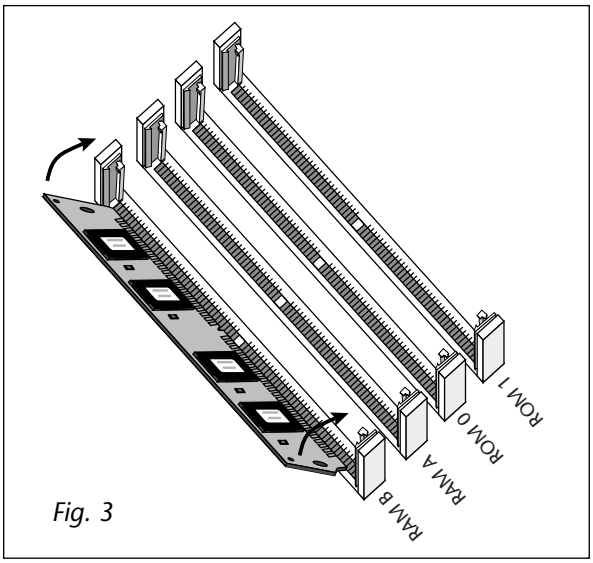


Fig. 3

☞ Reassemble the Unit

8. Tilt the rear of the top cover up a little and slide the front of the top panel under the front panel lip. Lower the rear of the top panel into place.
9. Replace the seven screws. The screws are all identical.

☞ Test It

At this point, the installation is almost finished. Plug in the power cord and turn on power to the E5000. If the display shows the new memory size during boot up, everything is probably OK. It's always a good idea to test the memory anyway. If the unit comes up without showing the proper memory size, you may have installed the SIMMs incorrectly.

10. Activate the **Master** module.
11. Select **Utilities**.
12. Select **Tests.** A pop up window appears asking you to enter the Diagnostics Password. Ah, you've got us now. We'll have to reveal the secret password. Enter the secret password: **1-3-5-8**, then press **OK**. Another row of soft keys appears.
13. Press the **RAM soft key** to begin testing memory. The display may warn you that the test destroys any data currently residing in RAM. Don't worry, this test does NOT affect your hard disk data. Press **OK** to continue.

14. CPU memory will be tested first (cRAM). After four cycles, the sound memory (gRAM) will be tested. Allow this test to run through at least four complete cycles or longer if you want. (This time will vary with the amount of RAM installed.)
15. Press EXIT to abort the test. Any errors will be displayed. If the memory tests bad, you may have incorrectly installed the SIMMs.

A Word of Warning…
Now that you know how to get into the hidden diagnostics, DO NOT run the Automatic or Hard Disk tests which could erase your hard disk!

Problems?

Disconnect power, open the unit, and try re-seating the SIMMs. Make sure that the RAM SIMMs are installed in the sockets labelled RAM, not ROM. If all else fails, return the E5000 to its original configuration and call E-MU/ENSONIQ Customer Service at (831) 438-1921. Telephone support hours are 8:00-5:00 PST, Monday through Friday.

Warranty

Please read this warranty, as it gives you specific legal rights.

Length of Warranty

This warranty covers all defects in materials and workmanship:

- Two years from the date of purchase, from E-MU/ENSONIQ, by an authorized dealer for all floorstock units.
- One year from the date of purchase by the original customer, from an authorized dealer, provided that the Warranty Registration Card is filled out and returned to E-MU/ENSONIQ within 14 days from the date of purchase. E-MU/ENSONIQ's Service Department or one of E-MU/ENSONIQ's authorized service centers will ask for a copy of a customers sales receipt to facilitate warranty service.

E-MU/ENSONIQ does not cover:

- Damages due to improper or inadequate maintenance, accident, abuse, misuse, alteration, unauthorized repairs, tampering, or failure to follow normal operating procedures as outlined in the owner's manual.
- Deterioration or damage of the cabinet.
- Damages occurring during any shipment of the E5000 for any reason.
- An E5000 that has in any way been modified by anyone other than E-MU/ENSONIQ.

Limitation of Implied Warranties

No warranty is expressed or implied. E-MU-ENSONIQ specifically disclaims the implied warranties of merchantibility and fitness for a particular purpose.

Exclusion of Certain Damages

EMU/ENSONIQ's liability for an E5000 found defective is limited to repair or replacement of the unit at E-MU/ENSONIQ's option. In no event shall E-MU/ENSONIQ be liable for damages based on inconvenience, whether incidental or consequential, loss of use of the unit, loss of time, interrupted operation or commercial loss, or any other consequential damages.

Some states do not allow limitation of the duration of implied warranties or the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply.

How To Obtain Warranty Service

All E-MU/ENSONIQ products are manufactured with the highest standards of quality. If you find that your instrument does require service, it may be done by any authorized E-MU/ENSONIQ service center. If you are unable to locate a service center in your area, please contact E-MU/ENSONIQ Service

Department at (831) 438-1921. They will either refer you to an authorized service center or ask that you return your E5000 to the factory. When returning an E5000 to the factory, you will be issued a Return Merchandise Authorization number (RMA). Please label all cartons, shipping documents and correspondence with this number.

E-MU/ENSONIQ suggests you carefully and securely pack your E5000 for return to the factory. (Do not send the power cord or operation manual.) Mark the outside of the shipping carton clearly with your RMA number. and send to:

E-MU/ENSONIQ
1600 Green Hills Road
Scotts Valley, California 95066.

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