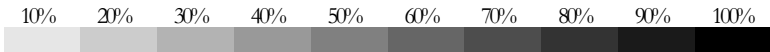


BITAMAN

Reference Manual

ALESIS

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Introduction

Welcome!

Thank you for making the Alesis Bitrman a part of your studio. Since 1984, we've been designing and building creative tools for the audio community. We believe in our products, because we've heard the results that creative people like you have achieved with them. One of Alesis' goals is to make high-quality studio equipment available to everyone, and this Reference Manual is an important part of that. After all, there's no point in making equipment with all kinds of capabilities if no one explains how to use them. So, we try to write our manuals as carefully as we build our products.

The goal of this manual is to get you the information you need as quickly as possible, with a minimum of hassle. We hope we've achieved that. If not, please drop us an email and give us your suggestions on how we could improve future editions of this manual.

We hope your investment will bring you many years of creative enjoyment and help you achieve your goals.

Sincerely,
The people of Alesis

For more effective service and product update notices, please register your Bitrman online at:

<http://www.alesis.com/support/warranty.htm>

Introduction

About the Bitrman

Your new Bitrman is a member of the Alesis ModFX family of performance effects boxes. This particular ModFX unit combines a compressor, a distortion effect, a dual phasor, plus one of six different “Bitrness” effects. The “Bitrness” effects are a comb filter, a decimator, a bit reducer, a frequency modulator, a ring modulator, and a frequency shifter.

Each box in the ModFX line provides a different set of sound effects and signal processing, and they are easy to arrange and connect to each other. With a uniform, friendly, uncomplicated user interface and high-resolution digital processing, the ModFX product line is perfect for keyboardists, guitarists, and any other studio or live performance artists.

Important features of your Bitrman

High Resolution Processing

The Bitrman internally uses 28-bit stereo digital signal processing. The digital-to-analog and analog-to-digital conversion is sampled at 48kHz with 24 bits of resolution. That means you can get the effect you want, without adding unwanted noise and distortion.

ModLink

If you’re using multiple ModFX boxes to make your own unique effects chain, ModLink makes it easy to hookup without needing patch cords within the chain. The nine-pin connectors built into each side of the case enable a ModFX box to transfer digital audio and word clock directly to another. Any number of units can be connected together.

Configurable Processing

In the tradition of multieffects boxes started by the famous Alesis Quadraverb, the Bitrman features four effects to process your audio signal. The fourth effect, “Bitrness” is user selectable. The order of the four effects in a chain is also selectable, with six possible configuration settings.

Bitrman Key Features

- Four simultaneous digital effects in one box, each with its own separate control: compression, distortion, dual phasor, and “Bitrness”
 - Six different “Bitrness” modes provide unique tone-bending effects: comb filter, decimator, bit reducer, FM (frequency modulation), ring modulation, and frequency shift
 - Effects can be configured in six different orders
 - Uniform, friendly, uncomplicated user interface—no fiddling with complicated menus or “hidden” knobs
 - Stereo processing via four 1/4” unbalanced connectors
 - ModLink port, a cable-free connection that transfers digital audio and word clock to other boxes in the ModFX family
 - Footswitch connection to control the bypass function
 - Ability to mount 3 ModFX boxes in the optional ModFX rack adapter
 - Input trim control to adjust input level
 - Internal 28-bit digital processing
 - 24-bit D/A and A/D conversion at 48kHz sampling rate for quiet, distortion-free effects
 - External 9VAC power supply included
-

Introduction

How to Use This Manual

A little technical knowledge will help you get the most out of your gear...it's really pretty simple. This manual is divided into the following sections describing the various functions and applications for the Bitrman. While it's a good idea to read through the entire manual once carefully, those having general knowledge about effect devices should use the table of contents to look up specific functions.

Chapter 1: Quick Start. If you're already experienced with effect boxes, this will get you started using the Bitrman right away. It's a short guide to the essential elements of hooking it up and using it for the first time. A brief tour of the front and rear panels also directs you to the chapters focused on individual features.


Chapter 2: Connections gives detailed instructions for connecting the Bitrman to a variety of typical audio systems. It also discusses the process of linking the Bitrman with other ModFX devices.

Chapter 3: Using the Bitrman explains the controls of the Bitrman and their functions.

Chapter 4: Sample Settings provides a selection of sound charts created by the sound designers at Alesis for you to try.

Near the end of the manual are troubleshooting tips, specifications, and an index to help you find what you're looking for.

Helpful tips and advice are highlighted in a shaded box like this



When something important appears in the manual, an exclamation mark (like the one shown at left) will appear with some explanatory text. This symbol indicates that this information is vital when operating the Bitrman.

Safety Instructions/Notices

Important Safety Instructions (English)

Safety symbols used in this product



This symbol alerts the user that there are important operating and maintenance instructions in the literature accompanying this unit.



This symbol warns the user of uninsulated voltage within the unit that can cause dangerous electric shocks.



This symbol warns the user that output connectors contain voltages that can cause dangerous electrical shock.

Please follow these precautions when using this product:



1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a damp cloth. Do not spray any liquid cleaner onto the faceplate, as this may damage the front panel controls or cause a dangerous condition.
7. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. When the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

Continued next page

Important Safety Instructions

11. Use only attachments or accessories specified by the manufacturer.



12. Use only with a cart, stand, bracket, or table designed for use with professional audio or music equipment. In any installation, make sure that injury or damage will not result from cables pulling on the apparatus and its mounting. If a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

13. Unplug this apparatus during lightning storms or when unused for long periods of time.



14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when the power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. This unit produces heat when operated normally. Operate in a well-ventilated area with at least six inches of clearance from peripheral equipment.
16. This product, in combination with an amplifier and headphones or 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, you should consult an audiologist.
17. Do not expose the apparatus to dripping or splashing. Do not place objects filled with liquids (flower vases, soft drink cans, coffee cups) on the apparatus.
18. **WARNING:** To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

CE Declaration Of Conformity

See our website at:

<http://www.alesis.com>

FCC Compliance Statement

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

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 the dealer or an experienced radio/TV technician for help.

Important Safety Instructions

Instructions de Sécurité Importantes (French)

Symboles utilisés dans ce produit



Ce symbole alerte l'utilisateur qu'il existe des instructions de fonctionnement et de maintenance dans la documentation jointe avec ce produit.



Ce symbole avertit l'utilisateur de la présence d'une tension non isolée à l'intérieur de l'appareil pouvant engendrer des chocs électriques.



Ce symbole prévient l'utilisateur de la présence de tensions sur les raccords de sorties, représentant un risque d'électrocution.

Veillez suivre ces précautions lors de l'utilisation de l'appareil:



1. Lisez ces instructions.
2. Gardez ces instructions.
3. Tenez compte de tous les avertissements.
4. Suivez toutes les instructions.
5. N'utilisez pas cet appareil à proximité de l'eau.
6. Ne nettoyez qu'avec un chiffon humide. Il est potentiellement dangereux d'utiliser des pulvérisateurs ou nettoyeurs liquides sur cet appareil.
7. Installez selon les recommandations du constructeur.
8. Ne pas installer à proximité de sources de chaleur comme radiateurs, cuisinière ou autres appareils (dont les amplificateurs) produisant de la chaleur.
9. Ne pas enlever la prise de terre du cordon secteur. Une prise murale avec terre deux broches et une troisième reliée à la terre. Cette dernière est présente pour votre sécurité. Si le cordon secteur ne rentre pas dans la prise de courant, demandez à un électricien qualifié de remplacer la prise.
10. Évitez de marcher sur le cordon secteur ou de le pincer, en particulier au niveau de la prise, et aux endroits où il sort de l'appareil.

Suite de la page suivante

11. N'utilisez que des accessoires spécifiés par le constructeur.



12. N'utilisez qu'avec un stand, ou table conçus pour l'utilisation d'audio professionnel ou instruments de musique. Dans toute installation, veillez de ne rien endommager à cause de câbles qui tirent sur des appareils et leur support.



13. Débranchez l'appareil lors d'un orage ou lorsqu'il n'est pas utilisé pendant longtemps.

14. Faites réparer par un personnel qualifié. Une réparation est nécessaire lorsque l'appareil a été endommagé de quelque sorte que ce soit, par exemple lorsque le cordon secteur ou la prise sont endommagés, si du liquide a coulé ou des objets se sont introduits dans l'appareil, si celui-ci a été exposé à la pluie ou à l'humidité, ne fonctionne pas normalement ou est tombé.

15. Puisque son fonctionnement normale génère de la chaleur, placez cet appareil au moins 15cm. des équipements périphériques et assurez que l'emplacement permet la circulation de l'air.

16. Ce produit, utilisé avec un amplificateur et un casque ou des enceintes, est capable de produire des niveaux sonores pouvant engendrer une perte permanente de l'ouïe. Ne l'utilisez pas pendant longtemps à un niveau sonore élevé ou à un niveau non confortable. Si vous remarquez une perte de l'ouïe ou un bourdonnement dans les oreilles, consultez un spécialiste.

17. N'exposez pas l'appareil à l'égoutture ou à l'éclaboussement. Ne placez pas les objets remplis de liquides (vases à fleur, boîtes de boisson non alcoolique, tasses de café) sur l'appareil.

18. **AVERTISSEMENT:** Pour réduire le risque du feu ou de décharge électrique, n'exposez pas cet appareil à la pluie ou à l'humidité.

Important Safety Instructions

Lesen Sie bitte die folgende Sicherheitshinweise (German)

Sicherheit Symbole verwendet in diesem Produkt



Dieses Symbol alarmiert den Benutzer, daß es wichtige Funktionen und Wartung Anweisungen in der Literatur gibt, die diese Maßeinheit begleitet.



Dieses Symbol warnt den Benutzer der nicht isolierten Spannung innerhalb der Maßeinheit, die gefährliche elektrische Schläge verursachen kann.



Dieses Symbol warnt den Benutzer, dem Ausgabestecker Spannungen enthalten, die gefährlichen elektrischen Schlag verursachen können.

Folgen Sie bitte diesen Vorkehrungen, wenn dieses Produkt verwendet wird:



1. Lesen Sie die Hinweise.
2. Halten Sie sich an die Anleitung.
3. Beachten Sie alle Warnungen.
4. Beachten Sie alle Hinweise.
5. Bringen Sie das Gerät nie mit Wasser in Berührung.
6. Verwenden Sie zur Reinigung nur ein weiches Tuch. Verwenden Sie keine flüssigen Reinigungsmittel. Dies kann gefährliche Folgen haben.
7. Halten Sie sich beim Aufbau des Gerätes an die Angaben des Herstellers.
8. Stellen Sie das Gerät nicht in der Nähe von Heizkörpern, Heizungsklappen oder anderen Wärmequellen (einschließlich Verstärkern) auf.
9. Verfehlen Sie nicht den Zweck des grounding Terminals auf dem Netzstecker. Dieses Terminal wird für Ihre Sicherheit zur Verfügung gestellt.
10. Verlegen Sie das Netzkabel des Gerätes niemals so, daß man darüber stolpern kann oder daß es gequetscht wird.

Fortsetzung auf nächster Seite

Important Safety Instructions

11. Benutzen Sie nur das vom Hersteller empfohlene Zubehör.



12. Verwenden Sie ausschließlich Wagen, Ständer, oder Tische, die speziell für professionelle Audio- und Musikinstrumente geeignet sind. Achten Sie immer darauf, daß die jeweiligen Geräte sicher installiert sind, um Schäden und Verletzungen zu vermeiden. Wenn Sie einen Rollwagen benutzen, achten Sie darauf, das dieser nicht umkippt, um Verletzungen auszuschließen.

13. Ziehen Sie während eines Gewitters oder wenn Sie das Gerät über einen längeren Zeitraum nicht benutzen den Netzstecker aus der Steckdose.



14. Die Wartung sollte nur durch qualifiziertes Fachpersonal erfolgen. Die Wartung wird notwendig, wenn das Gerät beschädigt wurde oder aber das Stromkabel oder der Stecker, Gegenstände oder Flüssigkeit in das Gerät gelangt sind, das Gerät dem Regen oder Feuchtigkeit ausgesetzt war und deshalb nicht mehr normal arbeitet oder heruntergefallen ist.

15. Dieses Gerät produziert auch im normalen Betrieb Wärme. Achten Sie deshalb auf ausreichende Lüftung mit mindestens 15 cm Abstand von anderen Geräten.

16. Dieses Produkt kann in Verbindung mit einem Verstärker und Kopfhörern oder Lautsprechern Lautstärkepegel erzeugen, die anhaltende Gehörschäden verursachen. Betreiben Sie es nicht über längere Zeit mit hoher Lautstärke oder einem Pegel, der Ihnen unangenehm ist. Wenn Sie ein Nachlassen des Gehörs oder ein Klingeln in den Ohren feststellen, sollten Sie einen Ohrenarzt aufsuchen.

17. Setzen Sie den Apparat nicht Bratenfett oder dem Spritzen aus. Plazieren Sie die Nachrichten, die mit Flüssigkeiten (gefüllt werden Blumenvases, Getränkdosen, Kaffeetassen) nicht auf den Apparat.

18. **WARNING:** um die Gefahr des Feuers oder des elektrischen Schlages zu verringern, setzen Sie diesen Apparat nicht Regen oder Feuchtigkeit aus.

Important Safety Instructions

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1 Quick Start Guide

If you can't wait to get started

The Alesis Bitrman is a unique product, but its basic hookup and operation is similar to other effects units in most respects. If you're experienced with signal processors, this chapter is a "shorthand" guide for those who want to start using the Bitrman right away. If you have questions about any of the features, don't worry – later chapters will unveil the mysteries of the Bitrman's special features.

If you're new to signal processing...

start with the more detailed instructions for hookup and operation starting in the next chapter.

Hook it up to a synthesizer

1. First, make sure the power is off to all the components you're connecting to: amp, mixer, and instruments.
2. Pull the Bitrman and its power supply out of the package.
3. Using a pair of 1/4" instrument cables, plug the outputs of the synthesizer into the INPUTS on the back of the Bitrman.
4. Connect the OUTPUTS of the Bitrman to the inputs of a mixer, powered speakers, or instrument amplifier.
5. Insert the power jack of the Bitrman's power adapter into the POWER 9VAC input on the rear panel of the Bitrman and plug the power adapter into an AC outlet (preferably on a power strip with its switch off).

The Bitrman doesn't have a POWER switch of its own. The moment you plug in the power, its top panel LEDs will come on.

6. Turn the power on to the system: the keyboard, then the Bitrman's power strip (if it's not already on), then the mixer, then the amp.
7. Turn the INPUT TRIM knob on the back of the Bitrman while playing the keyboard to adjust the input level. The SIGNAL LED on the top panel will light green, not red, when the level is correct.
8. Experiment with the knob and button settings on the Bitrman to create different sounds.

For more detailed information on connecting the Bitrman, see chapter 2: Connections.

A quick overview of the controls

CONFIGURE switch

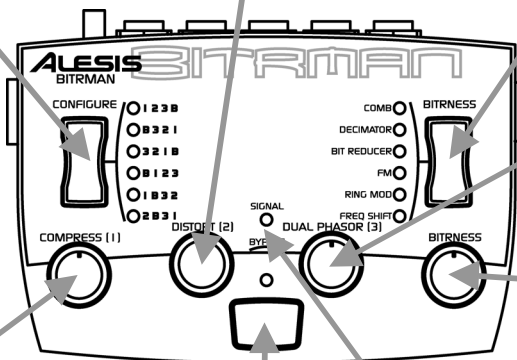
This chooses the order of the four internal effects, as shown by the LEDs next to the switch. See page 32.

DISTORT (2) adds distortion and "crunch" to the signal.

Turn clockwise for more distortion, counter-clockwise for less.

BITRNESS MODE switch

selects one of the six kinds of Bitrness effects, as shown by the LEDs next to the switch.



DUAL PHASOR (3) adjusts the phasor's speed.

Turn counter-clockwise to turn off.

BITRNESS controls different things, depending on the mode.

See page 27.

COMPRESS (1) is a single-knob compressor/limiter.

Turn left for less compression, to the right for a totally compressed sound.

BYPASS lets signal pass through without any effects.

Signal LED

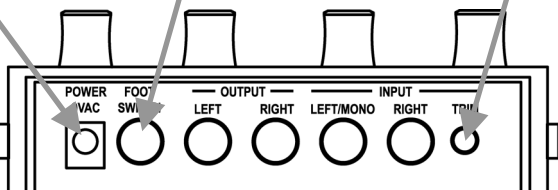
When this lights green, the Bitrman is getting an input signal. When it's red, it's seeing too much level...so turn down the instrument...

...or the **TRIM** control here on the back panel.

Rear Panel

Plug the power adapter in here.

The **FOOT SWITCH** may be connected to any momentary pedal, to engage the **BYPASS** function.



The **ModLink** connectors let you connect ModFX boxes in a chain, without having to use input and output cables within the chain.

INPUTS and OUTPUTS are standard 1/4" line-level jacks.

If you're using a ModLink chain, you only need to connect to the first unit's input, and the last unit's output.

2 Connections

Unpacking and Inspection

Your Bitrman was packed carefully at the factory. The shipping carton was designed to protect the unit during shipping. Please retain this container in the highly unlikely event that you need to return the Bitrman for servicing.

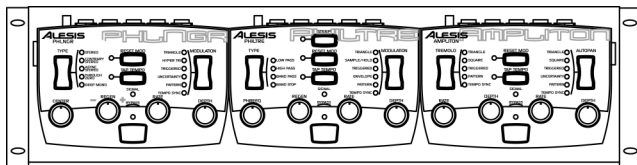
The shipping carton should contain the following items:

- Bitrman with the same serial number as shown on the shipping carton
- Power Adapter
- This instruction manual

To register your purchase, go to the Alesis website at www.alesis.com.

Installing in a Rack

The Bitrman is designed for tabletop use, but can also be installed in a standard 19" audio equipment rack. For rack mounting, contact your Alesis dealer for the ModFX Rack. This rack shelf holds three ModFX units in a 3-space high 19" rack.



Power

The Bitrman comes with an AC power adapter that transforms the voltage from a standard wall outlet down to 9 volts AC (830 mA). Plug the small end of the power adapter cord into the Bitrman's POWER INPUT socket and then plug the adapter itself into a good quality, noise-free AC power source of the proper rating.

The supplied AC line adapter is designed only for the country or region to which the unit is shipped. To use the Bitrman in another country, contact your Alesis dealer for an Alesis P3 adapter suitable for the electrical system in the country you are traveling to.

! Make sure you read the initial Important Safety Instructions chapter at the front of this manual.

Avoid "popping":
Don't plug the power adapter into the Bitrman until all other audio cables have been hooked up. Make sure your amplifier or powered speakers are switched off when plugging in the Bitrman to avoid damage.

Connecting audio

The Bitrman will work in many different applications, whether you are connecting an instrument directly into it, or routing signals to it from a mixing console. But since the Bitrman is a stereo effect unit, it's important to know whether the source will be stereo or mono.

Mono In, Mono or Stereo Out

If you're connecting a guitar or bass directly to the Bitrman, hook it up this way:

1. Connect a 1/4" phone cord to the [L/MONO INPUT] of the Bitrman from a mono source. (The Left input will then feed both inputs of the effect.)
2. Connect another 1/4" phone cord from the [L OUTPUT] of the Bitrman to an amplification system or mixer input.
3. **If the amp or mixer is stereo**, connect a second 1/4" phone cord from the [RIGHT OUTPUT] of the Bitrman to the other input of the stereo amplification system, or the next mixer input.
4. If you're connecting directly to a stereo mixer, pan the two channels hard left and hard right to get the maximum effect.

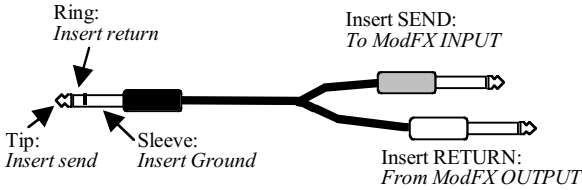
When connecting audio cables and/or turning power on and off, make sure that all devices in your system are turned off and the volume controls are turned down.

Turn up the trim...

Most guitars and basses have relatively low output levels. For the quietest effect, turn up the volume on the guitar to full, then crank up the [TRIM] control on the back of the Bitrman until the SIGNAL LED on its top panel flashes red while you play, then back it off a bit.

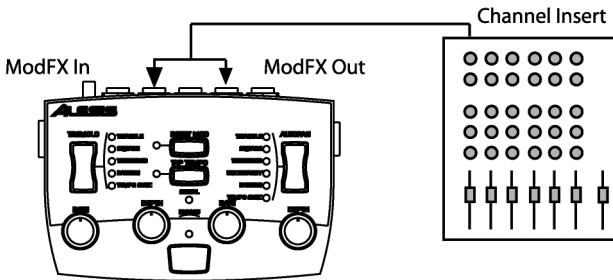
Connecting to the Channel Inserts of a mixing console:

Most recording consoles have a jack near the mic and line inputs labeled "Insert". This is typically a TRS jack with the send and return on the same jack. To use the Bitrman as a channel insert, you will need an insert cable (not included).



This cable splits the TRS insert jack into two unbalanced mono connectors. Usually, the tip is connected to the INPUT of the Bitrman and the ring is connected to the OUTPUT of the Bitrman. However, this may be reversed on some recording consoles. Check your mixer's Reference Manual to be sure or just try it both ways – this won't damage the Bitrman.

For stereo operation, you would use two insert cables, inserted into two adjacent channels of the mixer. One would send and receive signal to the left channel of the Bitrman, and the pan pot of that mixer channel would normally be panned to the left. Pan the next mixer channel, for the right side of the Bitrman, to the right.



Connecting to the Main Outputs of a mixing console:

In addition to channel inserts, most mixing consoles have main insert jacks near the main outputs. You can use insert cables to connect the Bitrman to the main L/R bus the same way you connect it to a pair of channels. Simply connect one insert cable to the left main insert of the mixer, and connect the two mono jacks to the left INPUT and OUTPUT of the Bitrman. Use another insert cable to connect the right main insert to the right INPUT and OUTPUT of the Bitrman.

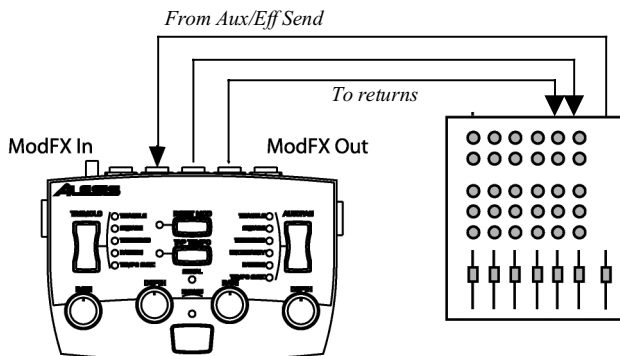
Another method would be to plug the main outputs of the mixing console to the inputs of the Bitrman, then feed the outputs of the Bitrman to your monitor amps or mixdown recorder. However, if you fade down the volume at the end of the song, the sound quality may change as you fade. This is why it's better to use the insert jacks, if available.

Connecting to the Effect Send/Return of a mixing console:

Since the ModFX boxes don't have a wet/dry mix control, they're designed more for in-line processing than the send/receive kind of processing typically used for reverb units. However, plugging the Bitrman into a mixer's effect send/return loop will allow you to add effects to a mix of several instruments, from any mixer channel that has its effect send raised.

To do this, connect a single cable from the Effect Send Out (sometimes labeled "Aux Out") to the [L/MONO INPUT] of the Bitrman. Use two separate cables to connect the [L OUTPUT] and [R OUTPUT] of the Bitrman to the left and right inputs of a Stereo Effect Return, or to two adjacent mixer channels panned to left and right.

If you use mixer channels for the returns from the Bitrman, be sure the Effect Sends for those channels are turned all the way off to avoid feedback.



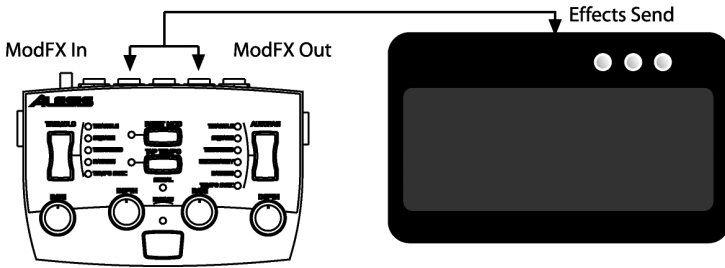
Connecting to the inserts on an instrument amplifier:

The insert send on a guitar or bass amp is usually labeled "effects send and return" or "insert send and return". This allows you to preamplify your instrument before processing it and sending it to the power amp.

Most guitar amps are single channel, so connect a single insert cable from the amp to the [L/MONO INPUT] and [LEFT OUTPUT] of the Bitrman. Some amps have separate "effect send" and "effect return" jacks; for these, use standard cables. Check the manual of your amplifier for details.

Never connect the Bitrman between the power amp and the speaker!

The high power levels created by the power amp will destroy the circuitry of the Bitrman.



If you are using a dedicated rack-mount preamplifier, another method would be to insert the Bitrman between the preamp and the input(s) of the power amp.

Connecting to equipment with XLR inputs and outputs:

If you are connecting the Bitrman to a product with XLR balanced inputs and outputs, you will need to convert this signal to a 1/4" unbalanced connector. Make sure that **Pin 2** of the XLR connector is connected to the **Tip** of the 1/4" adapter or cable.

Watch out for high levels, however: some XLR sources put out levels close to the maximum the Bitrman can accept (about +12 dBu) even when its trim is at minimum. Lower the level of the source if the [SIGNAL] LED flashes red.

About audio cables

The connections between the Bitrman and your studio are your music's lifeline, so use only high quality cables. These should be low-capacitance shielded cables with a stranded (not solid) internal conductor and a low-resistance shield. Although quality cables cost more, they do make a difference.

Route cables to the Bitrman correctly by observing the following precautions:

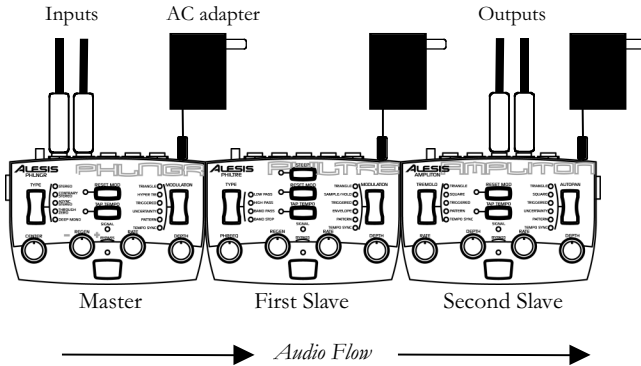
- Do not bundle audio cables with AC power cords.
- Avoid running audio cables near sources of electromagnetic interference such as transformers, monitors, computers, etc.
- Do not place cables where they can be stepped on. Stepping on a cable may not cause immediate damage, but it can compress the insulation between the center conductor and shield (degrading performance) or reduce the cable's reliability.
- Avoid twisting the cable or having it make sharp, right angle turns.
- Never unplug a cable by pulling on the wire itself. Always unplug by firmly grasping the body of the plug and pulling directly outward.

Don't use line transformers:

Many XLR-to-1/4" adapters sold at electronics stores are NOT adapters, but transformers (and very low quality transformers at that). Don't use these on the output of the Bitrman—they're unnecessary and generally sound awful because they don't have the headroom to handle the Bitrman's output. Get a hard-wired adapter or cable from your professional audio dealer, or make one yourself from components.

Using the ModLink

The Bitrman can be connected to other effect boxes in the ModFX family via the ModLink. The ModLink is a cable-free connection between two ModFX units that transfers digital audio and word clock. The 9-pin male connector on the left side of the unit is the ModLink IN port. The 9-pin female connector on the right side is the ModLink OUT port. By directly connecting two ModFX units via the ModLink, audio will pass from the left-most unit to the right-most unit.



The audio signal flows from left to right. The Master will send its digital audio output to the First Slave, and the First Slave will, in turn, send its output to the Second Slave.

What about the 1/4" jacks on the slave units?

When a unit is a slave to another unit, its audio input jacks are disabled; it will get its audio input digitally from its ModLink port. The output jacks, however, are always active; so an audio output can be tapped from any linked unit, without interrupting the flow to the rest of the chain.

2 Connections

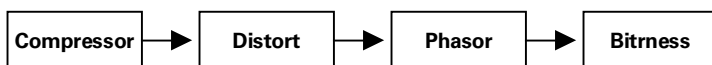
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3 Using the Bitrman

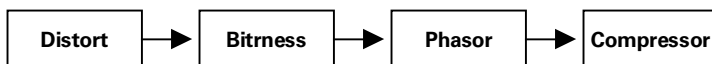
This section will explain how the effects work, and explains the functions of the Bitrman's controls in greater detail.

About multieffects

Think of the Bitrman as being four different effect boxes in one. If you hooked up separate “stomp boxes” with cables, you'd find that the same four boxes will produce radically different sounds when they're connected in different orders. Take, for example, this chain of devices:



The input is compressed first, then distorted, then phased, then modulated. The resulting sound of the above will be very different from this chain:



The fact that the compressor is last in this chain, after all the other effects have taken place, can have a dramatic effect...especially if the input is a dynamic source like a guitar, with sudden transients on the attacks that are much louder. In this chain, the distortion will be more dynamic on those attacks; in the first chain, the compressor (if it's turned up) “squeezes” the attacks down to the same levels, so the distortion is more even.

In the Bitrman, you can “rearrange the order of the stomp boxes” by using the CONFIGURE switch.

After the order of effects has been set, the basic operation of the Bitrman couldn't be simpler. Each of the effects has a single knob, controlling how much the signal will be affected by that particular part of the chain. First, let us explain what each individual effect is designed to do.

About the effects

What is Compression?

Compression makes things sound louder and more sustained. It reduces the difference between loud sounds and soft sounds. When it “hears” a soft sound, it increases the gain. When it “hears” a loud peak, it instantly lowers the gain. It’s an automatic volume control, with a constant “hand on the fader” regulating the output level faster than any real engineer could. Compression is used in the recording of almost every vocal, guitar, and bass.

What is Distortion?

Distortion occurs naturally when an amplifier or speaker is driven beyond its capability. When electronics are pushed beyond their limits, they generate frequencies that weren’t in the original signal. When the “new” frequencies are an even multiple of the input frequencies, it’s called *harmonic distortion*. An amp that’s driven into clipping also generates *nonharmonic distortions*, i.e., noise.

The [DISTORT] feature of the Bitrman is designed to emulate the classic sound of overdriven electronics: nonlinear, soft clipping with a blend of harmonic and nonharmonic distortion, but without blowing up speakers or amps.

What is a Dual Phasor?

Phasing is a swimming, vibrato-like effect that is similar to (but not the same as) flanging or the effect of a rotating speaker (i.e., a Leslie™). It changes the phase of the signal at different frequencies, with multiple filters sweeping across the spectrum. It’s useful on guitars, electric pianos, and other keyboard sounds.

The Dual Phasor of the Bitrman is a stereo effect: the left channel and right channel phasors are separate and offset from each other, giving a unique stereo sound (if the outputs are connected to a stereo system).

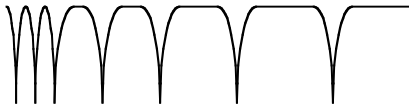
Bitrness Effects

Because of the unique digital signal processing used inside the Bitrman, Alesis engineers were able to include a family of effects that take effects processing to a whole new level. These effects process the input in unique, striking ways that have to be heard to be understood. So, we put them under the common control [BITRNESS], and you can select any of these following effects using the Bitrness rocker switch.

What is Comb Filtering?

A comb filter is a kind of equalizer with several steep notches or nodes in its frequency response. If you've ever mixed a slightly-delayed signal with an original, you've heard a comb filter. The [BITRNESS] control sweeps this comb filter across the frequency band so you can lock it in any part of the spectrum you want. As you turn the knob, the notches also spread apart from each other.

Unlike the other effects, however, when the Bitrman is in COMB mode, the **filter is always in the path**—the [BITRNESS] control affects the frequency of the filter only, not the amount of filtering applied to the signal.



What is Decimation?

The Decimator is a unique kind of distortion/modulation that can twist any input signal into something else entirely...i.e., decimate it. It adds weird multi-frequency nonharmonic aliasing distortions to the signal, somewhat like Ring Modulation (see below), but more as a distortion effect than a harmonic effect. But while the [DISTORT] feature sounds like overdriven electronics, DECIMATOR sounds like digital satellite or cell phone distortion. The [BITRNESS] control increases the amount of decimation; at high settings there are so many distortions the original signal disappears into the effect.

Technically, the DECIMATOR lowers the signal's sampling frequency without lowering the antialiasing filter. This means that mirror reflections of the original frequency ("aliases") are created in the signal, adding crunch and buzz. Try this with a drum machine for a special effect.

What is Bit Reduction?

The BIT REDUCER is an extreme combination of limiting and distortion that's not for wimps. By intentionally reducing the digital resolution (or word length) of the signal, distortion and noise increase, and dynamic range decreases. At high settings of the [BITRNESS] knob, as the input signal fades, the noise in the signal will become more apparent, so watch out! This is the ultimate low-rez effect.

The [BITRNESS] knob is quantized in Bit Reduction mode to provide 24-bit (bypass), 10-, 8-, 6-, 4-, 2-, and 1-bit resolutions, with according jumps in after-stage gain to compensate.

What is Frequency Modulation (FM)?

At low speeds, FM (Frequency Modulation) mode simply adds vibrato (up and down pitch change) to any signal. The vibrato speed is controlled by the [BITRNESS] knob, and the vibrato depth is fixed.

When the speed of FM is increased, so that the “vibrato” frequency is as high or higher than the input signal, the effect becomes more extreme. At high settings of the [BITRNESS] control, the output can sound like signals from a touch-tone phone (because FM is how those tones are created) or outputs from a video game.

The dark side of digital audio

The Bitrman takes advantage of the down side of digital audio. First, for every bit you lose, the signal-to-noise ratio goes down 6 dB. Second, as you lose digital resolution, the resulting wave becomes “squared off”, just as if it was clipping from overdrive (This distortion would sound less, however, if it were dithered.)

If you want a less dramatic modulation

than FM Mod mode, try low settings of the RING MOD mode.

What is Ring Modulation?

Ring Modulation was first used in modular synthesizers. Ring modulation happens when two signals are multiplied by each other, creating sum and difference frequencies that aren't in the original source. The resulting sound is sort of like an electronic tubular bell, noise, or metal bars being hit, depending on the difference between the two frequencies.

When the Bitrman's in RING MOD mode, an internal digital sine wave oscillator is used to amplitude-modulate the incoming input signal. The [BITRNESS] knob controls this modulating frequency, from off at full counter-clockwise to several thousand Hertz at full clockwise. Low settings of [BITRNESS] in RING MOD mode result in a tremolo effect, made into an autopan effect in stereo because the modulator's phase is shifted 90° between channels. As you raise the control while playing a single tone, you'll hear the original tone, plus another one going up, and another one going down. As the ring mod frequency increases, it will sound distorted in a "signals from outer space" kind of way. At a full clockwise setting, the Ring Mod source is very high, resulting in a spaced-out metallic whistling sound, since the sum and difference signals are so far from the original signal. Inbetween those two extremes, RING MOD produces a unique synthesized distortion effect worth exploring.

If you have your Bitrman connected in stereo, you'll notice that RING MOD produces some interesting stereo effects.

What is Frequency Shifting?

Frequency Shifting is a relative of Ring Modulation. But instead of giving you the sum and difference frequencies in the output, it gives only the sum (higher frequencies), and eliminates the original pitch entirely.

In FREQ SHIFT mode, the [BITRNESS] knob multiplies the incoming audio by a higher and higher frequency as you turn the knob clockwise.

The setting of the [BITRNESS] knob in Ring Mod mode sets the modulating frequency. If it's only 2 Hz, the result will be a slight tremolo/autopan sound. If it's 100 Hz, and you play a 400 Hz note, Ring Mod will add two nonharmonic sidebands at 300 Hz + 500 Hz to the output.

Frequency Shifting is NOT pitch shifting (you can't use this to add an interval of a fifth or octave above the input). The pitch output in FREQ SHIFT mode is not harmonic.

Description of Controls

Compress [1]

Turn the [COMPRESS] control clockwise for more compression. At high settings, you'll get a lot of sustain, but less dynamic range. When the control's all the way up, you'll find that soft and loud inputs both come out at almost the same loudness. Depending on the input signal, you may also hear an increase in noise; but this is normal for all compressor/limiters with high output gain. As you turn it down, the loud inputs will still be loud, but the soft inputs will become softer. Turn [COMPRESS] full counter-clockwise for no compression at all.

Distort [2]

Turn the [DISTORT] control clockwise for more distortion, and full counter-clockwise for no distortion at all.

Dual Phasor [3]

The [DUAL PHASOR] control primarily controls the speed of the phasing effect, from slow to fast. But the full counter-clockwise position turns the phasing effect off entirely.

Bitrness Knob

See page 27 for complete descriptions of each Bitrness effect.

The [BITRNESS] knob does different things depending on what Bitrness effect is chosen by the BITRNESS rocker switch.

Mode	[BITRNESS] controls:
COMB	Frequency of comb filter (always in path).
DECIMATOR	Adds aliasing distortion
BIT REDUCER	Digital word length reduction (clockwise for more noise, distortion, and compression)
FM	Increases modulation frequency
RING MOD	Increases the ring modulation frequency
FREQ SHIFT	Increases the amount of frequency shift

Threshold compression

If you're used to compressors with multiple controls (like the Alesis NanoCompressor and 3630), understand that turning up the COMPRESS control does two things simultaneously: lowers the threshold, and increases the output gain by the same amount. The compression ratio is fixed at about 6:1, and attack and release times are set at the most useful for instrumental playing.

Modulation depends on the octave you're playing in

When a setting uses FM, RING MOD, or FREQ SHIFT, the setting of the [BITRNESS] control must be varied depending how high or low in the musical scale the input is. For example, the setting for a bass player and a guitarist will be totally different.

BITRNESS select switch

The up/down rocker switch above the [BITRNESS] knob on the right side of the unit selects the type of Bitrness effect. The LEDs next to the switch light up to indicate the current mode. There are six kinds of Bitrness effects available, explained previously.

CONFIGURE switch

As explained on page 25, this switch controls the order of the four effects of the Bitrman, from input to output. Whatever LED is lit to the left of the switch shows the current order, with “1” standing for the COMPRESS effect, “2” standing for the DISTORT effect, “3” standing for the DUAL PHASOR effect, and the letter “B” standing for the BITRNESS effect.

What configuration should you use?

There’s no “ideal setting” here; the difference between one order of effects and another depends very much on the individual knob settings for each. Typically, the last effect in a chain will be the most clearly heard, but when you’re setting out to make a unique sound, it’s not always true. The location of the compressor is crucial for distortion-based effects: do you want things to clip first, then be compressed, or should the input to the distortion module already be compressed? The position of the Dual Phasor in the chain is also sensitive relative to the DISTORT and BITRNESS modules; if the Phasor comes before them, its effect can be somewhat lost if the distortion or modulation is dramatic. The Bitrness Mode is another “wild card” in selecting the configuration: having a comb filter last in a chain is very different from having a Bit Reducer last in a chain. The only answer is to experiment for yourself and try lots of configurations with different settings.

Relating Bitrness to other effects

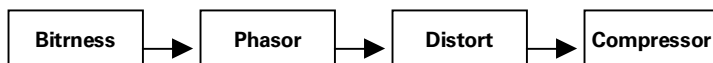
Certain Bitrness effects are relatives to the other effects. For example, COMB and the Phasor are both filter-phase notch effects, so in certain orders they’ll add together in interesting ways. The BIT REDUCER combines distortion and compression together. Experiment with different configurations where the COMPRESS block is before or after the BIT REDUCER block, and you’ll get much more power than either one alone.

About the six configurations

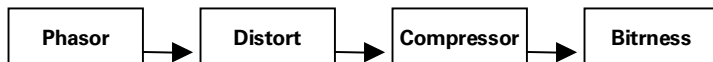
When the top CONFIGURE LED is lit, the effects are in the same order they're in on the top panel, from left to right. This compresses the signal before distorting it.



The second configuration (B 3 2 1) puts the effects in reverse order, with the compressor last in the chain. This typically gives a smoother sound if the DISTORT control is high.



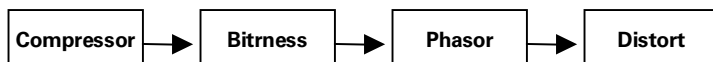
The third configuration (3 2 1 B) is like the above, but with Bitness last in the chain.



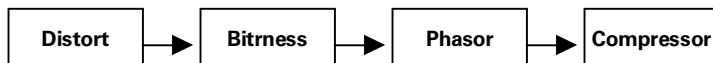
The “B 1 2 3” configuration puts the phasor last, so the overtones of the preceding distortion or modulation blocks will get phased. Use this when you want the sweeping phase shift to be dominant.



In “1 B 3 2”, the input is gain-leveled before it hits any other effect, just as in the first configuration, but in this case the DISTORT block comes last, so its effects aren't masked by anything. This is like putting effects before a clipping guitar amp:



Finally, the last configuration (2 B 3 1) puts the compressor last, as in the second configuration, to smooth out whatever came before. In theory, this is like putting a microphone on a guitar cabinet, then putting phasing and compression on the mixing console.



Bypass

This button sends the signal directly from the input to the output without any effect. Press [BYPASS] to check the sound of the source without any effect from the Bitrman. When the red BYPASS LED is lit, all effects are off. Bypass can also be activated by the foot switch.

Since the Bitrman is a digital effect, signal always passes through the digital A/D–D/A conversion process, so that digital signal will flow through to other effects in a ModLink chain even when [BYPASS] is on. So, unlike old analog effects, this is not a “hardwire” bypass switch—the Bitrman must be powered on to pass signal through, even in bypass mode. Similarly, the [TRIM] control is always active, since it’s an analog control regulating the level feeding the analog-to-digital converters.

Using the Foot Switch

If you need to bypass the effect totally but your hands aren’t free, simply connect any momentary footswitch (such as those used for keyboard sustain pedals, either NC normally closed or NO normally open) to the [FOOT SWITCH] jack on the rear panel. The footswitch will turn the BYPASS LED on and off.

To bypass any of the internal effects

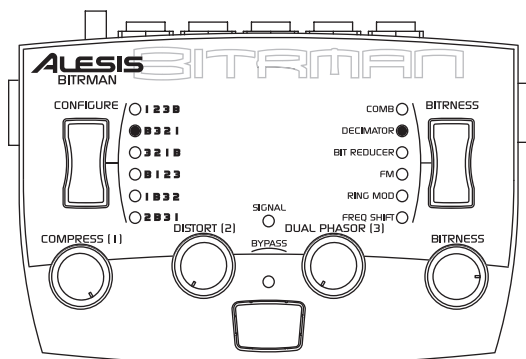
Simply turn its knob all the way counter-clockwise. The only exception is if BITRNESS is in COMB mode; to bypass this select any other mode and turn the knob all the way down.

3 Using the Bitrman

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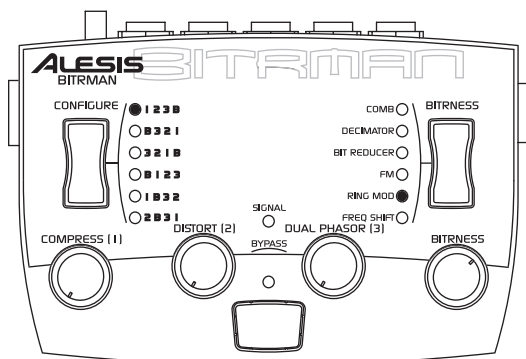
4 Sample Settings

While there's nothing like discovering new sounds for yourself, here are some sample settings for the Bitrman to help get you started. Simply set the knobs on your Bitrman so they're at the positions shown in the mode shown by the LEDs. Feel free to modify these any way you want to suit your particular playing style.



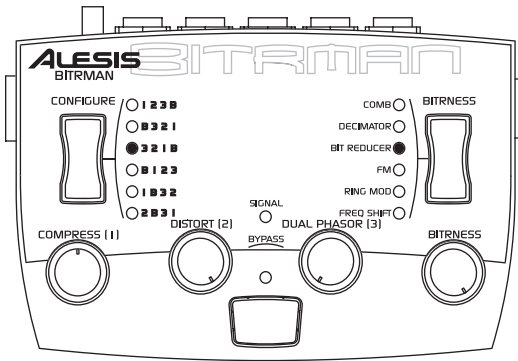
Decimator

Simple decimation with compression for a full sound.



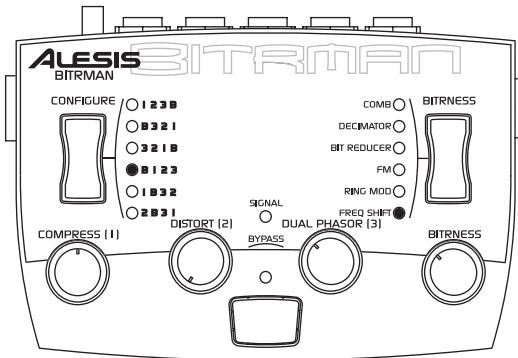
Tubular

This setting will give you the classic ring modulation sound with most kinds of input.



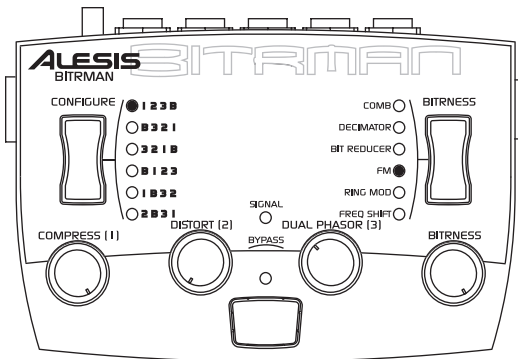
Twin Distortion

This combines compression with distortion and bit reduction to get a nasty distortion.



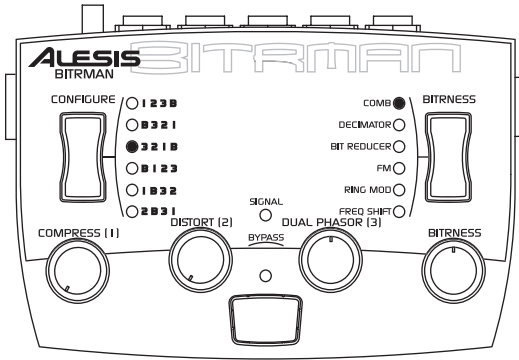
Bell Worship

The frequency shifting here makes inharmonic bell sounds from the input.



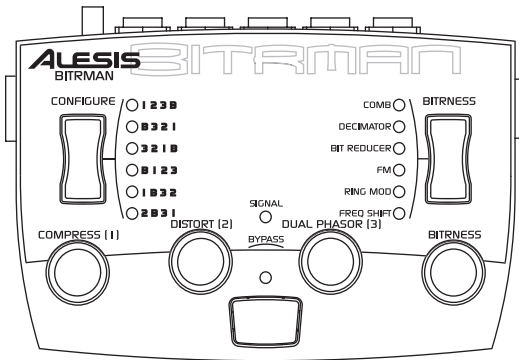
Metallic FM

Here, the frequency modulation generates inharmonic frequencies.



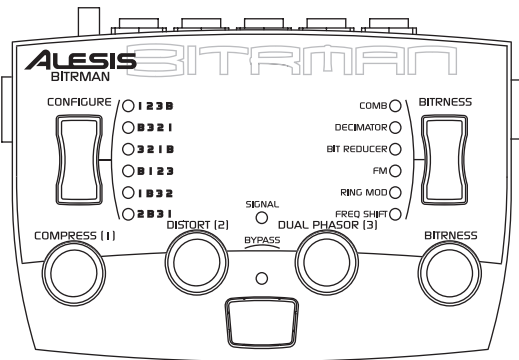
Hollowgram

The comb filter makes it sound like you are listening through a hollow tube and the phasor gives it some motion.

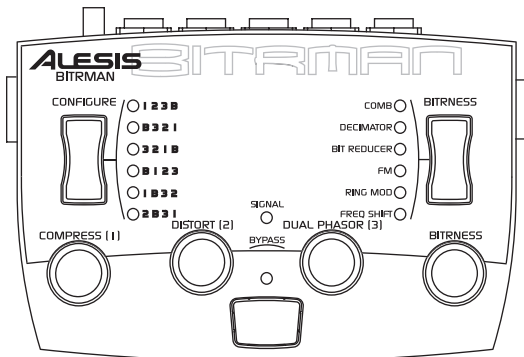
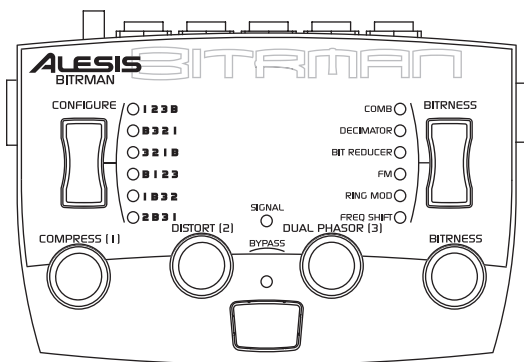
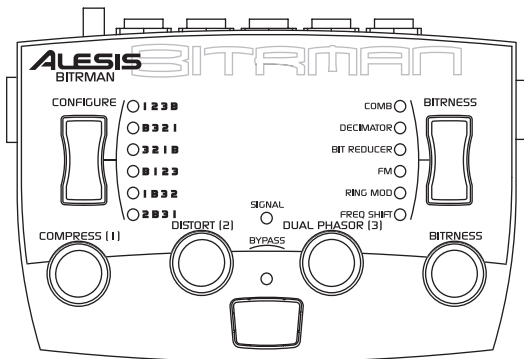


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Blank settings templates



5 Troubleshooting

Troubleshooting Index

If you experience problems while operating your Bitrman, please use the following table to locate possible causes and solutions before contacting Alesis Product Support for assistance.

Symptoms	Cause	Solution
No audio outputs.	No input audio (SIGNAL LED doesn't flash). Bad cables. Destination is turned down.	Test with a known good input. Replace the cables. Check the connections and the level of the mixer or amp that the Bitrman is connected to.
ModLinked units are not working properly	[INPUT TRIM] knob is turned down	Adjust the knob to the proper level.
Distorted sound	Input cables are connected to a linked unit Power is not connected	Connect the input cables to the Master of the link chain Go take a walk
Noise rises during the decay of each note.	Power dropout to one of the units in the chain	Plug in a power supply to each unit in a chain.
Buzz or hum from outputs	Input level too high (SIGNAL LED on front panel flashes red) [DISTORT] or [BITRNESS] up [COMPRESS] knob is set high, adding gain to a noisy signal	Turn down the source, or the TRIM control on the Bitrman's back panel. Turn them down, if you want a clean sound Reduce the noise coming from the source, or lower the [COMPRESS] control
	Audio cables are crossing a power cable or a power adapter.	Make sure that the Bitrman and its audio cables are kept away from power cables and wall warts. Don't wrap cable in tight bundles.
	BITRNESS is in BIT REDUCER mode	Turn down the [BITRNESS] knob, or select a different mode, or, just enjoy it.
	Bad cables	Replace the cables

Symptoms	Cause	Solution
AC hum	Problem with the source Ground loop	Try bypassing the Bitrman by connecting the input cables to the output cables and see if the problem remains. Place all equipment in the studio on a common ground (see next page).

Avoiding ground loop noise

In today's studio, where it seems every piece of equipment has its own computer chip inside, there are many opportunities for ground loop problems to occur. These show up as hums, buzzes or sometimes radio reception and can occur if a piece of equipment "sees" two or more different paths to ground. While there are methods to virtually eliminate ground loops and stray radio frequency interference, most of the professional methods are expensive and involve installing a separate power source just for the sound system. Alternatively, here are some helpful hints that professional studio installers use to keep those stray hums and buzzes to a minimum.

KEEP ALL ELECTRONICS OF THE SOUND SYSTEM ON THE SAME AC ELECTRICAL CIRCUIT.

Most stray hums and buzzes happen as a result of different parts of the sound system being plugged into outlets of different AC circuits. If any noise generating devices such as air conditioners, refrigerators, neon lights, etc., are already plugged into one of these circuits, you then have a perfect condition for stray buzzes. Since most electronic devices of a sound system don't require a lot of current (except for power amplifiers), it's usually safe to run a multi-outlet box or two from a SINGLE wall outlet and plug in all of the components of your system there.

KEEP AUDIO WIRING AS FAR AWAY FROM AC WIRING AS POSSIBLE.

Many hums come from audio cabling being too near AC wiring. If a hum occurs, try moving the audio wiring around to see if the hum ceases or diminishes. If it's not possible to separate the audio and AC wiring in some instances, make sure that the audio wires don't run parallel to any AC wire (they should only cross at right angles, if possible).

TO ELIMINATE HUM IF THE ABOVE HAS FAILED:

1. Disconnect the power from all outboard devices and tape machines except for the Bitrman, the mixer and control room monitor power amp.
2. Plug in each tape machine and outboard effects device one at a time. If possible, flip the polarity of the plug of each device (turn it around in the socket) until the quietest position is found.
3. Make sure that all of the audio cables are in good working order. Cables with a detached ground wire will cause a very loud hum!!

4. Keep all cables as short as possible, especially in unbalanced circuits.

If the basic experiments don't uncover the source of the problem, consult your dealer or technician trained in proper studio grounding techniques. In some cases, a "star grounding" scheme must be used, with the mixer at the center of the star providing the shield ground on telescoping shields, which do NOT connect to the chassis ground of other equipment in the system.

Line conditioners and spike protectors

Although the Bitrman is designed to tolerate typical voltage variations, in today's world the voltage coming from the AC line may contain spikes or transients. These can cause audible noises, and they can stress your gear and, over time, possibly cause a failure. There are three main ways to protect against this, listed in ascending order of cost and complexity:

- **Line spike/surge protectors.** Relatively inexpensive, these are designed to protect against strong surges and spikes, acting somewhat like fuses in that they need to be replaced if they've been hit by an extremely strong spike.
- **Line filters.** These generally combine spike/surge protection with filters that remove some line noise (dimmer hash, transients from other appliances, etc.). A good example is the Isobar™ series from Tripp Lite.
- **Uninterruptible power supply (UPS).** This is the most sophisticated option. A UPS provides power even if the AC power line fails completely. Intended for computer applications, a UPS allows you to complete an orderly shutdown of a computer system in the event of a power outage. In addition, the isolation it provides from the power line minimizes all forms of interference—spikes, noise, etc.

Care and Maintenance

Cleaning

Disconnect the AC cord, then use a damp cloth to clean the Bitrman's metal and plastic surfaces. For heavy dirt, use a non-abrasive household cleaner such as Formula 409™ or Fantastik™. **DO NOT SPRAY THE CLEANER DIRECTLY ONTO THE FRONT OF THE UNIT AS IT MAY DESTROY THE LUBRICANTS USED IN THE SWITCHES AND CONTROLS!** Spray onto a cloth, then use cloth to clean the unit.

Refer all servicing to Alesis

We believe that the Bitrman is one of the best signal processors that can be made using current technology, and should provide years of trouble-free use. However, should problems occur, **DO NOT** attempt to service the unit yourself unless you have training and experience. Service on this product should be performed only by qualified technicians. **NO USER-SERVICEABLE PARTS INSIDE.**

Obtaining repair service

Before contacting Alesis, check over all your connections, and make sure you've read the manual.

Customers in the USA and Canada:

If the problem persists, contact Alesis and request the Product Support department. Make sure you have the unit's serial number with you. Talk the problem over with one of our technicians; if necessary, you will be given a return order (RO) number and instructions on how to return the unit. All units must be shipped prepaid and COD shipments will not be accepted.

For prompt service, indicate the RO number on the shipping label. **Units without an RO will not be accepted.** If you do not have the original packing, ship the unit in a sturdy carton, with shock-absorbing materials such as Styrofoam pellets (the kind without CFCs, please) or "bubble-pack" surrounding the unit. Shipping damage caused by inadequate packing is not covered by the Alesis warranty.

Tape a note to the top of the unit describing the problem, include your name and a phone number where Alesis can contact you if necessary, as well as instructions on where you want the product returned. Alesis will pay for standard one-way shipping back to you on any repair covered under the terms of this warranty. Field repairs are not authorized during the warranty period, and repair attempts by unqualified personnel may invalidate the warranty.

Customers outside the USA and Canada:

Contact your local Alesis distributor for any warranty assistance. The Alesis Limited Warranty applies only to products sold to users in the USA and Canada. Customers outside of the USA and Canada are not covered by this Limited Warranty and may or may not be covered by an independent distributor warranty in the country of sale. Do not return products to the factory unless you have been given specific instructions to do so.

Specifications

Audio Input

Input Connectors:	2 unbalanced 1/4" jacks
Maximum Input Level:	+10 dBV
Nominal Level:	-10 dBV
Input Impedance:	470k Ω
Input Converter Resolution:	24-bit, 48 kHz sampling

All measurements done over a 22Hz – 22kHz range with a 1kHz sine wave at -1dBFS input. Impedances are measured at 1kHz.

Audio Output

Output Connectors:	2 unbalanced 1/4" jacks
Maximum Output Level:	+9 dBV
Output Impedance:	500 Ω
Output Converter Resolution:	24-bit, 48 kHz sampling

Audio Performance

(Analog In to Analog Out)

Signal To Noise Ratio:	>100 dB A-weighted
THD+N:	< 0.005%
Frequency Response:	\pm 1dB from 22Hz to 22kHz
Internal DSP Resolution:	28-bit
Power Consumption:	7 Watts max (9VAC Alesis P3)

Mechanical

Size:	2.1" H x 5.8" W x 3.9" D (53mm H x 148mm W x 98mm D)
Weight:	12.6oz. (357 g)

6 Specifications

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Warranty / Contact Alesis

Alesis Limited Warranty

ALESIS CORPORATION ("ALESIS") warrants this product to be free of defects in material and workmanship for a period of one (1) year for parts and for a period of one (1) year for labor from the date of original retail purchase. This warranty is enforceable only by the original retail purchaser and cannot be transferred or assigned. For the most effective service, the purchaser should register the purchase on the ALESIS website at <http://www.alesis.com/support/warranty.htm>.

During the warranty period ALESIS shall, at its sole and absolute option, either repair or replace free of charge any product that proves to be defective on inspection by ALESIS or its authorized service representative. In all cases disputes concerning this warranty shall be resolved as prescribed by law.

To obtain warranty service, the purchaser must first call or write ALESIS at the address and telephone number available on the Alesis Website to obtain a Return Authorization Number and instructions concerning where to return the unit for service. All inquiries must be accompanied by a description of the problem. All authorized returns must be sent to ALESIS or an authorized ALESIS repair facility postage prepaid, insured and properly packaged. Proof of purchase must be presented in the form of a bill of sale, canceled check or some other positive proof that the product is within the warranty period. ALESIS reserves the right to update any unit returned for repair. ALESIS reserves the right to change or improve design of the product at any time without prior notice.

This warranty does not cover claims for damage due to abuse, neglect, alteration or attempted repair by unauthorized personnel, and is limited to failures arising during normal use that are due to defects in material or workmanship in the product.

THE ABOVE WARRANTIES ARE IN LIEU OF ANY OTHER WARRANTIES OR REPRESENTATIONS WHETHER EXPRESS OR IMPLIED OR OTHERWISE, WITH RESPECT TO THE PRODUCT, AND SPECIFICALLY EXCLUDE ANY IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY OR OTHER IMPLIED WARRANTIES. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. IN NO EVENT WILL ALESIS BE LIABLE FOR INCIDENTAL, CONSEQUENTIAL, INDIRECT OR OTHER DAMAGES RESULTING FROM THE BREACH OF ANY EXPRESS OR IMPLIED WARRANTY, INCLUDING, AMONG OTHER THINGS, DAMAGE TO PROPERTY, DAMAGE BASED ON INCONVENIENCE OR ON LOSS OF USE OF THE PRODUCT, AND, TO THE EXTENT PERMITTED BY LAW, DAMAGES FOR PERSONAL INJURY. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

THIS CONTRACT SHALL BE GOVERNED BY THE INTERNAL LAWS OF THE STATE OF CALIFORNIA WITHOUT REFERENCE TO CONFLICTS OF LAWS. This warranty gives you specific legal rights, and you may also have other rights required by law which vary from state to state.

This warranty only applies to products sold to purchasers in the United States of America or Canada. The terms of this warranty and any obligations of Alesis under this warranty shall apply only within the country of sale. Without limiting the foregoing, repairs under this warranty shall be made only by a duly authorized Alesis service representative in the country of sale. For warranty information in all other countries please refer to your local distributor.

For more effective service and product update notices, please register your Bitrman online at:

<http://www.alesis.com/support/warranty.htm>

Alesis Contact Information

Alesis Studio Electronics
Los Angeles, CA USA

E-mail: support@alesis.com
Website: <http://www.alesis.com>

Alesis Bitrman Reference Manual
Version 1.0 by Alex Souppa & Dan Tinen

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