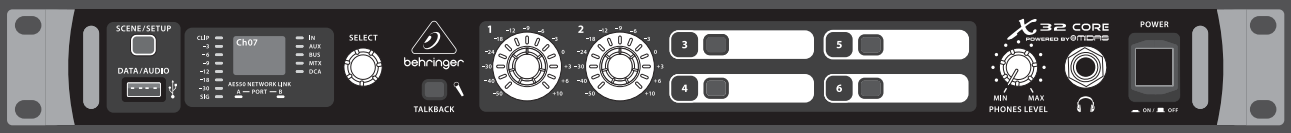

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User Manual

X32 CORE DIGITAL RACK MIXER

40-Input, 25-Bus Digital Rack Mixer with AES50 Networked Audio,
USB Audio Interface and iPad/iPhone Remote Control

behringer

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EN Important Safety Instructions

Terminals marked with this symbol carry electrical current of sufficient magnitude to constitute risk of electric shock. Use only high-quality professional speaker cables with ¼" TS or twist-locking plugs pre-installed. All other installation or modification should be performed only by qualified personnel.

This symbol, wherever it appears, alerts you to the presence of uninsulated dangerous voltage inside the enclosure - voltage that may be sufficient to constitute a risk of shock.

This symbol, wherever it appears, alerts you to important operating and maintenance instructions in the accompanying literature. Please read the manual.

Caution
To reduce the risk of electric shock, do not remove the top cover (or the rear section). No user serviceable parts inside. Refer servicing to qualified personnel.

Caution
To reduce the risk of fire or electric shock, do not expose this appliance to rain and moisture. The apparatus shall not be exposed to dripping or splashing liquids and no objects filled with liquids, such as vases, shall be placed on the apparatus.

Caution
These service instructions are for use by qualified service personnel only. To reduce the risk of electric shock do not perform any servicing other than that contained in the operation instructions. Repairs have to be performed by qualified service personnel.

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 dry cloth.

7. Do not block any ventilation openings. 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. If 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.

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

12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When 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 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. The apparatus shall be connected to a MAINS socket outlet with a protective earthing connection.

16. Where the MAINS plug or an appliance coupler is used as the disconnect device, the disconnect device shall remain readily operable.

17. Correct disposal of this product: This symbol indicates that this product must not be disposed of with household waste, according to the WEEE Directive (2002/96/EC) and your national law. This product should be taken to a collection center licensed for the recycling of waste electrical and electronic equipment (EEE). The mishandling of this type of waste could have a possible negative impact on the environment and human health due to potentially hazardous substances that are generally associated with EEE. At the same time, your cooperation in the correct disposal of this product will contribute to the efficient use of natural resources. For more information about where you can take your waste equipment for recycling, please contact your local city office, or your household waste collection service.

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LIMITED WARRANTY

For the applicable warranty terms and conditions and additional information regarding MUSIC Group's Limited Warranty, please see complete details online at music-group.com/warranty.

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Introduction

Welcome to the X32 CORE user manual! After years of intense development, we are proud to offer a mixer that combines tremendous power and flexibility with a very user-friendly layout and intuitive workflow that allow you to get up-and-running right away.

The X32 CORE is a robust-yet-streamlined mixer that features all of the basic functionality and processing of BEHRINGER's flagship X32 console in a smaller form factor. When paired with our S16 digital stagebox and either the X32-Mix iPad app or X32-Edit PC/Mac editor, the CORE becomes the centerpiece of a highly-flexible mixing system for both portable and fixed-install applications.

Dual AES50 Ethernet jacks that employ KLARK TEKNIK SuperMAC technology contribute 96 x 96 signals to the total count of 168 x 168 accessible sources and destinations. The ability to save and recall entire scenes makes set or program changes quick and simple. A front panel USB connector enables system data to be stored or a board mix to be recorded directly to external flash or hard drives.

A virtual FX rack offers 8 true-stereo (16 mono) multi-effects processors, with 39 FX models that eliminate the need for any additional outboard gear. 4 high-quality effects such as delay, chorus and reverb can run concurrently with 8 channels of 31-band graphic equalization.

The built-in USB interface card enables streaming of up to 32 tracks to and from a computer for recording, mixing and mastering purposes.

Continue through this user manual to learn all about the functionality that this powerful mixer has to offer! We also recommend that you check behringer.com to make sure you have the latest firmware installed as we release frequent updates.

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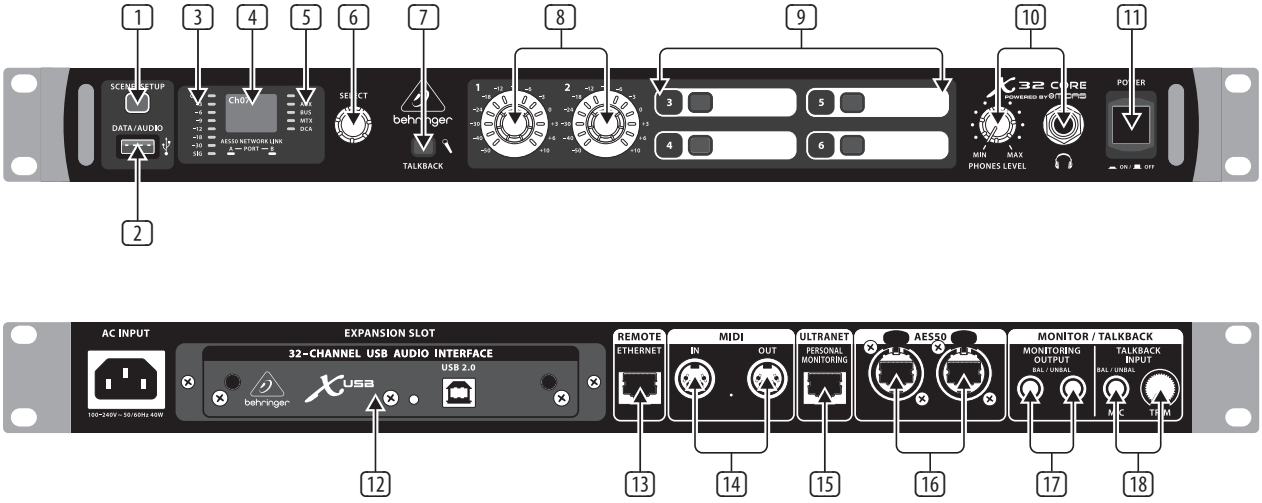
1. Callouts



1. SCENE/SETUP button toggles between Scenes Recall (green LED) and Channel Selector mode (LED off) with a short press. Hold the button to enter Setup Mode (green LED) and press the button again to exit Setup Mode. The LED turns red to indicate access on attached DATA/AUDIO USB media.
2. DATA/AUDIO input allows connection of USB flashdrives for firmware updates, loading/saving scenes and show files, and playing back or recording WAV files.
3. METER displays the input level of the selected channel.
4. DISPLAY shows the channel name and icon, scene name, or setup page information.
5. CHANNEL TYPE LEDs indicate which type of channel is currently selected.
6. SELECT knob navigates the display menus and edits setup parameters. See the SELECT Knob Functions section for details.
7. TALKBACK button engages the external Talkback mic input on the rear panel. Details of the routing and operation can be defined on the monitoring preferences page of the control software.
8. USER ASSIGNABLE ENCODERS adjusts a predefined variable parameter in the software. Function to be defined in the control software.
9. USER ASSIGNABLE BUTTONS toggles a predefined on/off parameter in the software. Function to be defined in the control software.
10. PHONES output and level allow audio to be monitored directly from the unit. Details of the audio content can be adjusted in the monitoring preferences page of the control software. While in Channel Select Mode, push the Select encoder to toggle Solo on and off.
11. POWER button turns the unit on and off.
12. X-USB interface card allows up to 32 channels of bidirectional audio to be transmitted to and from a computer.
13. ETHERNET connector allows full OSC-based remote control of the X32 CORE.
14. MIDI IN/OUT allows the unit to send and receive MIDI commands via standard 5-pin DIN cables.
15. ULTRANET connector sends 16 channels of audio to a P16 monitoring system.
16. AES50 A and B connectors allow 96 channels of bidirectional audio for connection to S16 digital snakes or other X32 family products. The front panel LEDs will light green to indicate proper sync, light red to indicate a sync error, and remain unlit when no connection is present. Shielded CAT-5e cable should always be used for AES50 connections between X32 and S16 units.
17. MONITORING OUTPUT jacks allow connection of monitor speakers via balanced or unbalanced ¼" cables.
18. TALKBACK input accepts a dynamic microphone via ¼" TRS jack. Adjust the gain with the adjacent TRIM knob.

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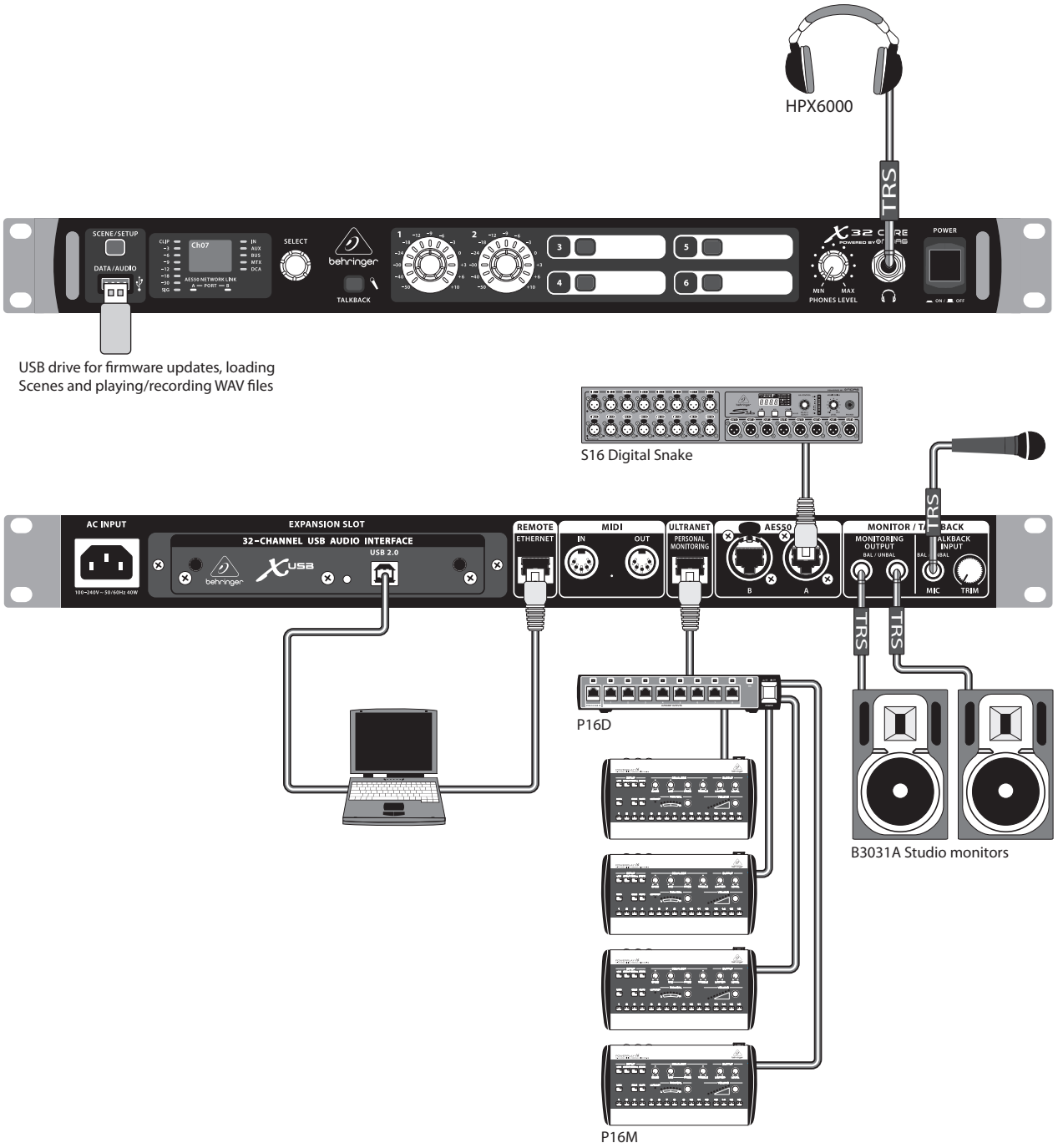
2. Hookup

Basic Connections



Cabling for all AES50 connections between X32 and S16 stageboxes:

- Shielded CAT-5e cable
- Ethercon terminated cable ends
- Maximum cable length 100 meters (330 feet)

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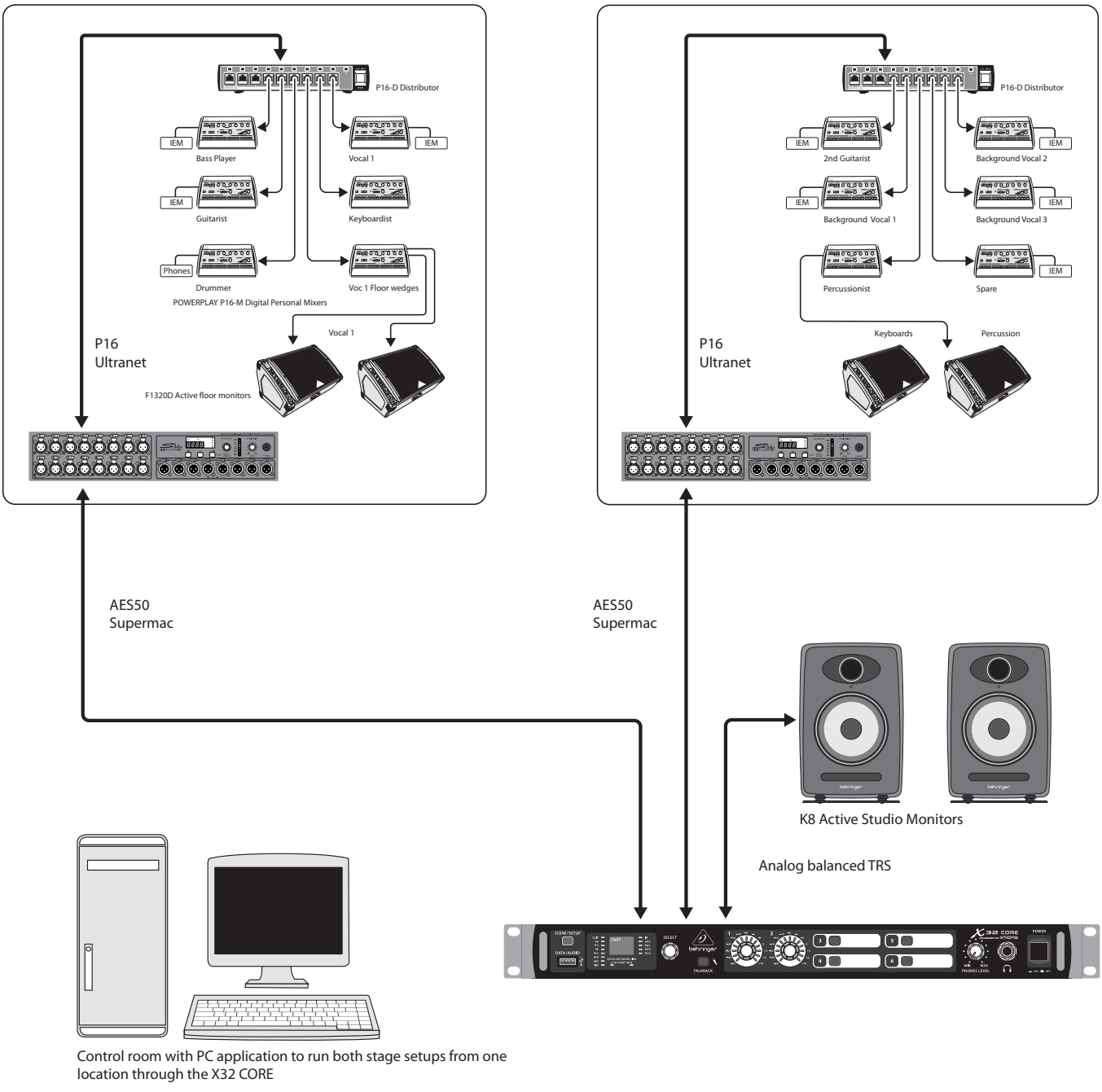
Multiple Stage Setup with X32 CORE, S16 Snake and P16 Personal Monitor System



Control room with PC application to run both stage setups from one location through the X32 CORE

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3. Select Knob Functions

The SELECT knob serves several functions on the X32 CORE. The following table describes the SELECT knob behavior in each of the available scenarios.

Action	Functional Description
Channel Select Mode (SCENE/SETUP button LED is off)	
Display	>Selected channel number >Input source >Channel icon and color >Nickname
Short press	Toggles the selected channel to SOLO on/off > Channel signal will be sent to Monitoring L/R outputs on rear panel and Phones output on front panel > Exact behavior depends on settings in Monitoring page (remote controlled via editing software)
Rotate	Immediately selects the desired channel (input, aux in, FX return, bus, matrix, main or DCA) >The Channel Type LEDs [5] will follow the selection. > Note that the X32 CORE Channel Selector will skip all channels, setting the display color to 'black' or 'off'.
Long press	Clears all active channel solos
Scene Select Mode (accessed by pressing the SCENE/SETUP button so that the LED is green)	
Display	>"Scene" in bold >Current scene number >Next scene number and name (small) to be loaded on GO
Short press	Recalls the selected Scene from X32 internal memory "GO" > behavior depends on Scene settings/preferences (remote controlled via editing software) > Scene safes can only be set/reset remotely > Scenes/Shows from USB drives can only be accessed remotely >A complete show can be loaded from an attached USB drive into the internal memory using Setup Mode
Rotate	Preselects the next Scene
Setup Mode (accessed by pressing and holding the SCENE/SETUP button so that the LED is green)	
Rotate and press	Select and enter the Setup pages: 1. Load Show 2. Contrast 3. LEDs 4. Clock Rate 5. Sync 6. IP Address 7. IP (Subnet) Mask 8. IP Gateway 9. Lock
1. Load Show	Load show from root directory of attached USB drive >display 3 rows: -Load Show -Exit -Show Files >Exit leads back to Setup Mode root level >Turn clockwise to scroll through a list of show files found in USB root directory, push to load selected show and return to Setup Mode root level
2. Contrast	LCD contrast > Rotate to adjust 0-100 > Press to confirm and exit

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Action	Functional Description
3. LEDs	LED brightness > Rotate to adjust 0-100 > Press to confirm and exit
4. Clock Rate	Select the internal Sample Clock Rate > Rotate to adjust 44.1 or 48 kHz (change requires to reboot the X32 CORE) > Press to confirm and exit
5. Sync	Choose Clock Synchronization source > Rotate to select INT (internal), AES50 (Port) A, or AES50 (Port) B > Press to confirm and exit
6. IP Address	Select the IP Address for X32 CORE > Rotate to adjust the **first** triplet (0-255) > Press to confirm > Rotate to adjust the **second** triplet (0-255) > Press to confirm > Rotate to adjust the **third** triplet (0-255) > Press to confirm > Rotate to adjust the **fourth** triplet (0-255) > Press to confirm and exit
7. IP Mask	Select the IP Subnet Mask for X32 CORE > Rotate to adjust the **first** triplet (0-255) > Press to confirm > Rotate to adjust the **second** triplet (0-255) > Press to confirm > Rotate to adjust the **third** triplet (0-255) > Press to confirm > Rotate to adjust the **fourth** triplet (0-255) > Press to confirm and exit
8. IP Gateway	Select the IP Gateway for X32 CORE > Rotate to adjust the **first** triplet (0-255) > Press to confirm > Rotate to adjust the **second** triplet (0-255) > Press to confirm > Rotate to adjust the **third** triplet (0-255) > Press to confirm > Rotate to adjust the **fourth** triplet (0-255) > Press to confirm and exit
9. Lock	Locks the X32 CORE >Display “Lock Cancel” >Press to cancel locking > Rotating clockwise turns the display from Green to Red backlight and shows “LOCKED” > Press and hold the SCENE/SETUP button for 5 seconds in order to exit Locked mode and get back to the standard Channel Select mode (showing the last selected channel)

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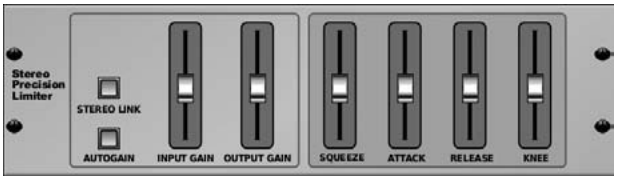
4. FX Descriptions

FX Descriptions

Here is a list and brief description of the effects available on the X32 CORE. When Stereo and Dual versions of an effect are offered, use the Stereo version when the left and right signal are to be altered together (e.g. on linked stereo channels or buses), or Dual when you want to dial different settings for the left and right signal. Assignment and editing of effects parameters is done via the X32-Edit or X32-Mix applications.

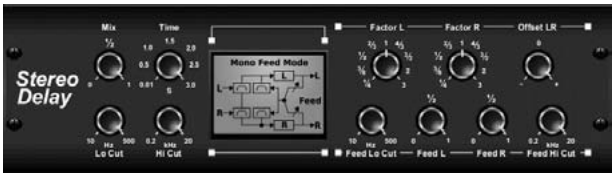
Stereo Precision Limiter



Stereo Precision Limiter allows you to set a precise volume limit, ensuring distortion-free, optimal signal integrity. Use X32's Stereo Precision Limiter to boost quiet signals or preventing clipping while preserving the level of "hot" signals.

AUTOGAIN activates an additional long-term gain correction, allowing automatic gain scaling of varying input level ranges. STEREO LINK applies limiting to both channels equally when activated. INPUT GAIN provides up to 18 dB of gain to the input signal prior to limiting. OUTPUT GAIN sets the final gain level of the processed signal. SQUEEZE adds compression to the signal to add punch and a slight distortion depending on the amount you dial in. ATTACK sets the attack time, ranging from 0.05 mS to 1 mS. RELEASE adjusts the release time from 0.05 mS to 1.04 seconds. KNEE adjusts the soft limiting threshold point from hard limiting (0 dB) to maximum soft limiting (10 dB).

Stereo Delay



Stereo Delay provides independent control of left and right delay (echo) times and features high and low pass filters for enhanced tone shaping of the delayed signals. Use the Stereo Delay to give your mono signals a wide presence in the stereo field.

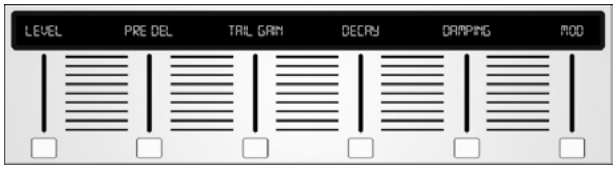
The MIX control lets you blend the source signal and the delayed signal. TIME adjusts the master delay time up to three seconds. LO CUT adjusts the low frequency cut, allowing lower frequencies to remain unaffected by the delay. HI CUT adjusts the high frequency cut, allowing higher frequencies to remain unaffected by the delay. FACTOR L sets the delay on the left channel to rhythmic fractions of the master delay time. FACTOR R sets the delay on the right channel to rhythmic fractions of the master delay time. OFFSET LR adds a delay difference between the left and right delayed signals. The FEED LO CUT/HI CUT adjusts filters in the feedback paths. FEED L and FEED R control the amount of feedback for the left and right channels. MODE sets the feedback mode: Mode ST sets normal feedback for both channels, X crosses feedbacks between left and right channels. M creates a mono mix within the feedback chain.

Triple Delay

Sometimes called a 3-Tap Delay, the Triple Delay provides three delay stages with independent frequency, gain, and pan controls. Create time-based echo effects with the Triple Delay to increase the sense of stereo separation.

TIME BASE sets the master delay time, which is also the delay time for the first stage. GAIN BASE sets the gain level of the first stage of the delay. PAN BASE sets the position of the first delay stage in the stereo field. LO CUT sets the frequency at which the source signal can begin passing through the delay. HI CUT sets the frequency at which the source signal no longer passes through the delay. X-FEED indicates that stereo cross-feedback of the delays is active. MONO activates a mono mix of both channels for the delay input. FEED adjusts the amount of feedback. FACTOR A controls the amount of delay time in the second stage of the delay. GAIN A controls the gain level of the second delay stage. PAN A sets the position of the second delay stage in the stereo field. FACTOR B controls the amount of delay time in the third stage of the delay. GAIN B controls the gain level of the third delay stage. PAN B sets the position of the third gain stage in the stereo field.

Ambience



Ambience creates a customizable virtual acoustic space in which to place the elements of a mix. Use Ambience to add warmth and depth without coloring the direct sound. (Inspired by the Lexicon Ambience Algorithm)

PRE DELAY sets the time before the reverb follows the source signal. DECAY adjusts the time it takes for the reverb to completely dissipate. SIZE controls the room size emulation. DAMPING controls the high frequency decay within the reverb tail. DIFFUSE controls the initial echo density. Level sets the volume output of the affected signal. LO CUT adjusts the low frequency cut, allowing lower frequencies to remain unaffected by the reverb. HI CUT adjusts the high frequency cut, allowing higher frequencies to remain unaffected by the reverb. MOD adjusts the level of reverb decay modulation. TAIL GAIN adjusts the volume of the reverb tail.

Reverse Reverb

Reverse Reverb takes the trail of a reverb, turns it around, and places it in front of the sound source. Use the swelling crescendo of the Reverse Reverb to add an ethereal quality to vocal and snare tracks. (Inspired by the Lexicon 300/480L)

Adjusting the PRE DELAY knob adds up to 200 milliseconds of time before the reverb follows the source signal. The DECAY knob adjusts the time it takes for the reverb to completely dissipate. RISE controls how quickly the effect builds up. DIFF(USION) controls the initial reflection density. SPREAD controls how the reflection is distributed through the envelope of the reverb. The LO CUT knob sets a low frequency beneath which the source signal will not pass through the reverb. The HiSvFr/HiSvGn knobs adjust a Hi-Shelving filter at the input of the reverb effect.

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Gated Reverb

This effect was originally achieved by combining a reverb with a noise gate. Our gated reverb creates the same impression by a special shaping of the reverb tail.

Gated Reverb is especially effective for creating a 1980s-style snare sound or to enlarge the presence of a kick drum. (Inspired by the Lexicon 300/480L)

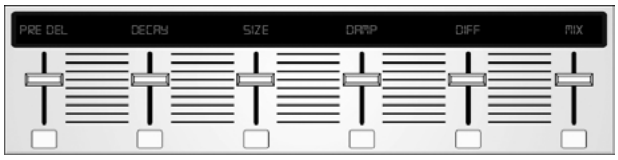
PRE DELAY controls the amount of time before the reverberation is heard following the source signal. DECAY controls the amount of time it takes for the reverb to dissipate. ATTACK controls how fast the reflection density builds up. DENSITY shapes the reverb decay tail. The higher the density, the greater the number of sound reflections. SPREAD controls how the reflection is distributed through the envelope of the reverb. The LO CUT knob sets the frequency beneath which the source signal will not pass through the reverb. The HiSvFr/ HiSvGn knobs adjust a Hi-Shelving filter at the input of the reverb effect. DIFF(USION) controls the initial reflection density.

Plate Reverb

A plate reverb was originally created by sending a signal through a transducer to create vibrations on a plate of sheet metal which were then picked up as an audio signal. Our algorithm simulates that sound with high initial diffusion and a bright colored sound. X32's Plate Reverb will give your tracks the sound heard on countless hit records since the late 1950s. (Inspired by the Lexicon PCM-70)

PRE DELAY controls the amount of time before the reverberation is heard following the source signal. DECAY controls the amount of time it takes for the reverb to dissipate. SIZE adjusts the size of the virtual room created by the reverb effect. The DAMP knob adjusts the decay of high frequencies within the reverb tail. DIFF(USION) controls the initial reflection density. The LO CUT knob sets the frequency beneath which the source signal will not pass through the reverb. The HI CUT knob sets the frequency above which the source signal will not pass through the reverb. The BASS MULT(IPLIER) knob adjusts the decay time of the bass frequencies. XOVER controls the crossover point for bass. MOD DEPTH and SPEED control the intensity and speed of the reverb tail modulation.

Hall Reverb



Classic Hall Reverb simulates the reverberation that occurs w hen sound is recorded in medium to large-sized concert halls. Use the Hall Reverb to give your mix a lush, three-dimensional quality that will make your performance sound larger than life. (Inspired by the Lexicon Hall)

The PRE DELAY slider controls the amount of time before the reverberation is heard following the source signal. DECAY controls the amount of time it takes for the reverb to dissipate. SIZE controls the perceived size of the space being created by the reverb effect. The DAMP slider adjusts the decay of high frequencies within the reverb tail. DIFF(usion) controls the initial reflection density. SHAPE adjusts the contour of the reverberation envelope.

Vintage Room

Vintage Room simulates the reverberation that occurs when sound is recorded in a small room. When you want to add a bit of warmth and just a touch of reverb, X32's Vintage Room breathes life into close-miced guitar and drum tracks. (Inspired by the Quantec QRS)

The VU meter displays the input and output levels. Set the early reflection times for the left and right channel with ER DELAY L and ER DELAY R. ER LEVEL sets the loudness of the early reflection level. REV DELAY controls the amount of time before the reverberation is heard following the source signal. HI/LOW MULTIPLY adjusts the decay time of the high and bass frequencies. TIME shows the duration of the reverb effect. ROOM SIZE adjusts the size of the room effect being created incrementally from small to large. HIGH CUT sets the frequency above which the source signal does not pass through the reverb. DENSITY manipulates the reflection density in the simulated room. (This slightly changes the reverb decay time). LOW CUT sets the frequency below which the source signal does not pass through the reverb.

Vintage Reverb

Based on the legendary EMT250, X32's Vintage Reverb delivers shimmering bright reverb that won't drown out or overpower your live or recorded tracks. Use Vintage Reverb to sweeten vocals and snare drums without sacrificing clarity.

When layer 1 is selected, the first slider on the left sets the reverb time from 4 milliseconds to 4.5 seconds. Slider 2 controls the low frequency multiplier decay time. Slider 3 controls the high frequency multiplier decay time. Slider 4 controls the amount of modulation in the reverb tail. When layer two is selected, slider 1 adjusts the pre delay. Slider 2 selects the low cut frequency. Slider 3 selects the Hi Cut frequency. Slider 4 adjusts the output level of the reverb.

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When Layer 1 is selected, the far left encoder push button allows you to select between virtual front and rear outputs. Rear is suitable for drums due to it being less reflective. Front is well-suited for vocals and other dynamic instruments. The Vintage button enables the simulation of the input transformers.

Stereo/Dual Tube Stage/Overdrive

Tube Stage/Overdrive is a versatile effect capable of emulating a variety of modern and classic tube preamps. Available in stereo and dual-mono versions, use Tube Stage/Overdrive to dial in warm and fuzzy sounds from subtle to fully saturated.

DRIVE adjusts the amount of harmonics being driven by the effect. EVEN and ODD adjust the amount of even and odd harmonics. GAIN adjusts the output gain of the effect. LO CUT sets the input frequency below which the source signal will not pass through the effect. HI CUT sets the input frequency above which the input signal will not pass through the effect. BASS GAIN/FREQ adjust a low shelving filter at the output of the effect. TREBLE GAIN/FREQ adjust a high shelving filter at the output of the effect.

Stereo Imager

A Stereo Imager is typically used to control the placement of a signal within the stereo field during mixdown or mastering. Modeled after the BEHRINGER Edison rack unit, X32's Stereo Imager will lend a professional quality to your live and recording performances.

The BALANCE knob allows you to emphasize the mono or stereo components of the input signal. The mono and stereo signals can be panned independently with the MONO PAN and STEREO PAN knobs. OUT GAIN is used to compensate for level changes resulting from the effect. The phase can also be shifted using the shelving knobs. Select the frequency and bandwidth (Q) using the corresponding knobs, then adjust the gain with the SHV GAIN knob.

Rotary Speaker

Rotary Speaker emulates the sound of a Leslie rotating speaker. X32's Rotary Speaker provides more flexibility than its electro-mechanical counterpart, and can be used with a variety of instruments, and even vocals, to create a whirling, psychedelic effect.

The LO SPEED and HI SPEED knobs adjust the rotational speed of the SLOW and FAST Speed selection, and can be toggled with the FAST button. The ACCEL(eration) knob adjusts how quickly the speed increases and decreases from the Slow mode to the Fast mode. The rotation effect can also be disengaged with the STOP button, which will stop the movement of the speakers.

DISTANCE adjusts the distance between the Rotary speakers and the virtual microphone.

Chorus / Stereo Chorus

Chorus samples the input, slightly detunes it and mixes it with the original signal to produce a somewhat thicker, shimmering sound. Use it to thicken up background vocals, or to double the sound of brass and woodwind instruments.

Where as DELAY L/R set the total amount of delay for the left and right channel, WIDTH determines the amount of modulated delay. SPEED sets the modulation speed. MIX adjusts the balance of the dry and wet signals. You can further sculpt the sound by trimming some of the low and high end from the effected signal with the LO and HI CUT knobs. Additionally, the PHASE knob can tweak the phase offset of the LFO between left and right channel and the SPREAD knob adjusts how much of the left channel is mixed into the right and vice versa. Finally, the WAVE knob blends between the "Danish-style" digital triangular chorus sound and the classic analog sine wave.

Flanger / Stereo Flanger

The Flanger emulates the phase-shifting sound (comb-filtering) originally created by applying pressure against the flange of the reel on a tape recorder. This effect creates a unique "wobbly" sound that is quite dramatic when used on vocals and instruments.

The controls of this effect are nearly identical to the Chorus effect block. Additionally, the FEEDBACK can be adjusted with positive and negative amounts and also band-limited with the FEED HC (high-cut) and FEED LC (low-cut) knobs.

Stereo Phaser

A Stereo Phaser, or phase shifter, applies multiple STAGES of modulated filters to the input signal to create a "notch" in the frequency response, and then applies a MIX with the original for a "swirling" effect. Use X32's Stereo Phaser to add a "spaced-out" sound to vocal or instrument tracks.

SPEED adjusts the LFO rate and DEPTH sets the LFO modulation depth.

The BASE knob adjusts the frequency range of the modulated filters. The resonance is adjusted with the RESO knob. The WAVE knob shapes the symmetry of the LFO waveform and PHASE dials in an LFO phase difference between the left and right channel. The modulation source can also be the signal envelope, which produces vowel-like opening and closing tones. The ENV MOD knob adjusts how much this effect takes place (positive and negative modulation is possible), and the ATTACK, HOLD and RELEASE knobs all tailor the response of this feature.

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Tremolo / Panner

Stereo Tremolo creates an up and down volume change at a constant and even tempo just like the guitar amps of yesteryear. Use X32's Stereo Tremolo to add a unique "surf-music" texture to a vocal or instrument track.

SPEED adjusts the LFO rate and DEPTH sets the amount of modulation. PHASE can be used to set an LFO phase difference between the left and right channel, which can be used for panning effects. The WAVE knob blends the LFO waveform between triangular and square shape. The signal envelope, shaped by ATTACK, HOLD and RELEASE, can be used to modulate the LFO speed (ENV SPEED) and the LFO modulation depth (ENV DEPTH).

Stereo / Dual Pitch

Pitch shifting is often used in two different ways. One is to set the Mix knob lower and only use the Cent knob to make a small offset in pitch between the wet and dry tones. This results in a "voice doubling" effect that thickens the overall sound in a more subtle way. The extreme use of the effect is to turn the Mix knob fully-clockwise so the entire signal is effected. This way, the signal can be shifted into other keys up to an octave above or below the original. When used on a voice, this results in a "chipmunk" sound or a low Darth Vader effect.

When the SEMI and CENT knobs are set at 12:00, the pitch is not altered. Making adjustments by semitone will have a very pronounced effect, whereas changes to the CENT knob will be very minor. The DELAY knob creates a time difference between the wet and dry sound. The LO and HI CUT knobs allow the effected signal to be band-limited. The Dual Pitch effect allows the left and right channels to be adjusted independently, and allows GAIN compensation and panning of the two channels.

Stereo / Dual Guitar Amp

Modeled after the Tech 21 SansAmp, the Stereo / Dual Guitar Amp simulates the sound of plugging into a real guitar amp. From shimmering cleans to saturated crunch, X32's Stereo / Dual Guitar Amp allows an electric guitar player to sound great without using an amp on stage.

The PREAMP knob adjusts the amount of input gain prior to the band-specific distortion adjustment. BUZZ adjusts the low-end breakup, PUNCH adjusts the midrange distortion, and CRUNCH tailors the high-frequency content and distortion for smooth or cutting notes. The DRIVE knob simulates the amount of power amp distortion from a tube amp. The LOW and HIGH knobs allow EQ adjustment independent of distortion content, and the overall output is controlled by the LEVEL knob. The CABINET simulation can be bypassed if the guitarist is already using a real cab, which allows the effect to function like a boost or distortion pedal. The Dual Guitar Amp allows the left and right channels to be adjusted independently.

Wave Designer

Wave Designer is a powerful tool for adjusting signal transients and dynamics, such as attack and sustain. Use it to make a snare drum really "crack" in the mix or level out volume inconsistencies of slap bass tracks. (Inspired by the SPL Transient Designer)

Adjusting the ATTACK knob can add punch or tame overly dynamic signals. Increasing the SUSTAIN knob acts in a similar way as a compressor, allowing the peaks to carry longer before decay. The effect can also be used to reduce the sustain for a more staccato sound. The GAIN knob compensates for level changes caused by the effect.

Stereo Exciter / Dual Exciter

Exciters increase presence and intelligibility in live sound applications, and are indispensable for adding clarity, air and harmonic overtones in the recording studio. This effect is particularly useful for filling out the sound in difficult rooms and for producing a more natural live/recorded sound. (Inspired by the famous Aphex Aural Exciter)

Set the frequency of the side-chain filter with the TUNE knob, and further shape the filter slope with the PEAK and ZERO FILL knobs. Turning the TIMBRE knob left of center adds more odd harmonics, while turning it right of center adds more even harmonics. Adjust the harmonic content added to the signal with the HARMONICS knob, and blend in the effected signal with the MIX knob. Engage the SOLO MODE to isolate only the audio resulting from the effect so you can hear exactly what you're adding to the mix.

Stereo Enhancer / Dual Enhancer

X32's Enhancers are so called "Psycho EQs". They can enhance the signal spectrum in bass, midrange and high frequencies but they differ from traditional equalizers. When you need to generate maximum punch, clarity and detail, without turning up the overall volume, our enhancers are the solution. (Inspired by the SPL Vitalizer)

Adjust the BASS, MID and HI GAIN knobs to add or reduce content in those spectrums. The BASS and HI FREQuencies can be specifically selected, while the MID Q (bandwidth) can be adjusted instead. The OUT GAIN knob compensates for changes in level resulting from the effect, and the SPREAD knob (Stereo version only) emphasizes the stereo content for a wider mix. Engage the SOLO MODE to isolate only the audio resulting from the effect so you can hear exactly what you're adding to the mix.

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Mood Filter

The Mood Filter uses an LFO generator and an auto-envelope generator to control a VCF (voltage-controlled filter), as well as a side chain function where the channel B signal controls the envelope of channel A. When applied to electronic instruments, the Mood Filter can be used to emulate the natural sound of acoustic instruments. (Inspired by the MiniMoog)

This filter can be modulated with the signal's envelope using the ENV MOD (with positive and negative amounts), ATTACK and RELEASE knobs, or the LFO can modulate the filter. The WAVE knob selects between 7 different wave forms – triangular, sine, saw plus, saw minus, ramp, square, and random. The PHASE can be offset by up to 180 degrees. The SPEED knob adjusts the rate of the LFO and the DEPTH adjusts the amount of LFO modulation. Adjust the resonance of the filter until self-oscillation with the RESO(nance) knob. BASE adjusts the range of the filter from 20 Hz to 15 kHz. The MODE switch selects between low pass (LP), high-pass (HP), band-pass (BP) and Notch. Use the MIX knob to blend the effected signal with the dry sound. With the 4 POLE switch engaged, there will be a steeper slope than the OFF (2 pole) setting. The DRIVE knob adjusts the level and can also introduce an overdrive effect (as with real analogue filters) if pushed hard. In Sidechain mode, only the left input signal is processed and fed to both outputs. The envelope of the right input signal can be used as a modulation source.

Delay + Chamber

Here we have combined Delay and Chamber reverb, so a single device can provide a variety of delay settings, plus add just the right type and amount of reverb to the selected signal. This device only uses one FX slot. (The Reverb is Inspired by the Lexicon PCM 70)

Use the BALANCE knob to adjust the ratio between delay and reverb.
Low frequencies can be excluded with the LO CUT knob, and the MIX adjusts how much of the effect is added to the signal. The TIME knob adjusts the delay time for the left channel delay, and the PATTERN sets the delay ratio for the right channel delay. Adjust the FEEDBACK and trim some high frequencies with the FEED HC (high-cut) knob. The XFEED knob allows you to send the delay sound to the reverb effect, so instead of running completely parallel, the reverb effects the echos to a selected degree. The PREDELAY knob determines the hesitation before the reverb affects the signal. The DECAY knob adjusts how quickly the reverb fades. The SIZE controls how large or small the simulated space is (room, cathedral, etc.). The DAMPING knob determines the decay of high frequencies within the reverb tail.

Chorus + Chamber

Taking up only one FX slot, the Chorus + Chamber effect combines the shimmer and doubling characteristics of a studio-grade Chorus with the sweet sound of a traditional Chamber reverb. (Reverb is Inspired by the Lexicon PCM 70)

The BALANCE knob adjusts the balance between chorus and reverb.
Low frequencies can be excluded with the LO CUT knob, and the MIX knob adjusts how much of the effect is added to the signal. SPEED, DELAY and DEPTH adjust the rate, delay, and modulation depth of the chorus. The LFO PHASE between left and right channel can be offset by up to 180 degrees, and WAVE adjusts the LFO waveform from a sine wave to triangular wave. The PREDELAY knob determines the hesitation before the reverb affects the signal. The DECAY knob adjusts how quickly the reverb fades. The SIZE controls how large or small the simulated space is (room, cathedral, etc.). The DAMPING knob determines the decay of high frequencies within the reverb tail.

Flanger + Chamber

Add the mind-bending, filter-sweeping effect of a state-of-the-art Flanger to the elegant sweetening of a traditional Chamber reverb—all in one FX slot. (Reverb is Inspired by the Lexicon PCM 70)

The BALANCE knob adjusts the ratio between flanger and reverb. Low frequencies can be excluded with the LO CUT knob, and the MIX knob adjusts how much of the effect is added to the signal. SPEED, DELAY and DEPTH adjust the rate, delay, and modulation depth of the flanger. FEEDback can be adjusted with positive and negative amounts. The PHASE can be offset by up to 180 degrees. The PREDELAY knob determines the hesitation before the reverb affects the signal. The DECAY knob adjusts how quickly the reverb fades. The SIZE controls how large or small the simulated space is (room, cathedral, etc.). The DAMPING knob determines the decay of high frequencies within the reverb tail.

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Delay + Chorus

This combination effect merges a user-definable Delay (echo) with a studio-quality Chorus sure to fatten up even the "skinniest" track. Uses only one FX slot. (Inspired by the TC Electronic D-Two)

The TIME knob adjusts the delay time, and the PATTERN knob sets the delay ratio for the right channel and negative values activate a cross feedback between the two channels. The FEEDHC knob adjusts the delay high-cut frequency, while the FEEDBACK knob adjusts the number of repeats. The X-FEED knob allows you to send the delay sound to the chorus effect. The BALANCE knob adjusts the ratio between delay and chorus. SPEED, DELAY and DEPTH adjust the rate, delay, and modulation depth of the chorus. The right channel LFO PHASE can be offset by up to 180 degrees, and WAVE adjusts the chorus character by shaping the LFO waveform from sine wave to triangular wave. Use the MIX knob to blend the effected signal with the "dry" sound.

Delay + Flanger

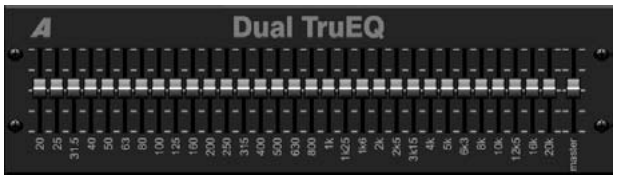
This handy dynamic duo blends the "woosh" of soaring jet planes with classic Delay, and can be adjusted from mild to wild. This combination effect only takes up one FX slot. (Inspired by the TC Electronic D-Two)

The TIME knob adjusts the delay time, and the PATTERN knob sets the delay ratio for the right channel and negative values activate a cross feedback between the two channels. The FEEDHC knob adjusts the delay high-cut frequency, while the FEEDBACK knob adjusts the number of repeats. The X-FEED knob allows you to send the delay sound to the flanger effect. The BALANCE knob adjusts the ratio between delay and flanger. SPEED, DELAY and DEPTH adjust the rate, delay, and modulation depth of the flanger. The right channel LFO PHASE can be offset by up to 180 degrees, and FEED (positive and negative amounts) adjusts the feedback effect. Use the MIX knob to blend the effected signal with the "dry" sound.

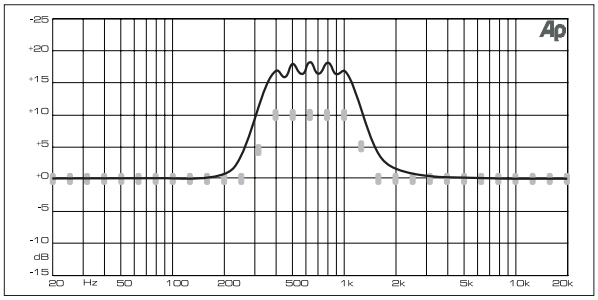
Dual / Stereo GEQ

These are standard graphic equalizers that provide 31 bands of adjustment between 20 Hz and 20 kHz. A master volume slider compensates for changes in volume caused by the equalization. A maximum boost or cut of 15 dB is available for each band.

Dual / Stereo TruEQ

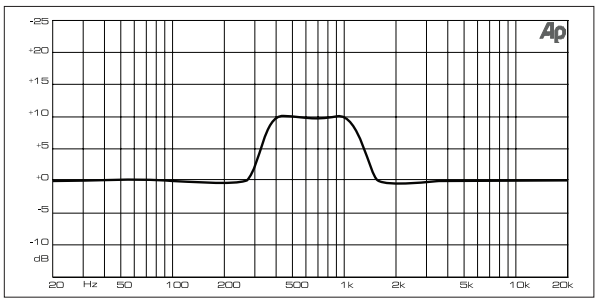


The TruEQ incorporates a special algorithm that compensates for the gain adjustment overlapping effect that adjacent frequency bands have on one another. On a standard EQ, when neighboring bands are boosted together, the resulting effect is magnified beyond what is visible from the positioning of the sliders.



Graphic equalizer without frequency response correction.

This compensated EQ will produce an adjustment that is identical to the actual positioning of the sliders.



Graphic equalizer with frequency response correction.

Dual / Stereo DeEsser

Rotate the 1st and 2nd encoder to adjust the low and high-band reduction respectively. Press the 1st encoder to select male or female to optimize the frequency for the vocalists range. Repeat the steps for the B channel using the 3rd and 4th encoders. If using the Stereo DeEsser, press the 5th encoder to select between Stereo or Mono/Stereo, which allows the left and right channels to be adjusted independently.

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5. Topic Guide

5.1 Firmware updates

The X32 CORE firmware can easily be updated by performing the following steps:

- Download the new console firmware from the X32 CORE product page onto the root level of a USB thumb drive
- Plug the USB thumb drive into the front panel USB connector while the console is turned off
- Hold the SCENE/SETUP button depressed while switching the console on. While booting, the X32 CORE will run a fully automatic firmware update, which will take 2-3 minutes longer than the regular boot sequence

When no update file is available on the USB drive, or when it is corrupted, the update mode will remain active, preventing the X32 from booting regularly. Switch the console off and back on without holding the SCENE/SETUP button to boot the console with the existing firmware.

5.2 Remote control

The X32 CORE hosts an Ethernet port on its rear panel which can be used to connect and remote control it over a network via the X32-Mix on an iPad or the X32-Edit application on a PC. To be able to do this the X32 CORE has to be set up properly.

- Enter Setup Mode by pressing and holding the SCENE/SETUP button until the LED turns green.
- Rotate the Select knob to select “6. IP Address.” Press the Select knob to confirm.
- Set an IP address which fits your network, normally 192.168.0.X. Rotate the Select knob to adjust the 1st triplet (0-255), then press to confirm. Repeat this to enter the 2nd, 3rd and 4th triplet in the address. The final press will exit.
- Set your subnet mask according to your network, normally 255.255.255.0. Select setup page “7. IP Mask” and follow the same procedure as the IP address.
- Set your gateway, if required, by selecting Setup page “8. IP Gateway” and following the same procedure described above.

Now get your iPad or remote PC into the same network and open the X32-Edit.

PC:

- On the X32-Edit, choose setup on the right side and the network tab. Enter the IP address of the X32 in the network and press connect.
- If the software has connected to the X32 you can also synchronize them in 2 directions. Console -> PC means all settings in the X32 will be loaded into the X32-Edit. PC -> Console means that all settings in the X32-Edit will be written to the console.

X32-Mix

- For the X32-Mix remote, open the program on your iPad (make sure the iPad is connected to the same network as the console).
- On the startup screen, a popup should appear. Enter the IP of the console, press “Go Online”, et voilà: you are connected and can control the X32 CORE with your iPad.

5.3 Recording a 2-track directly with the console

The X32 CORE offers the possibility to record a 2-track of your mix (or any other selection of signals) directly onto a USB-stick/external USB hard disk:

- Plug a FAT-formatted (FAT12, FAT16, FAT32) USB stick into the USB port on the front panel.
- In your X32-Mix or X32-Edit software, navigate to the Recorder screen.
- On the config tab you can select the source for the recording, default is main L and R.
- Press RECORD (encoder #5) to record your mix.
- To adjust the volume during playback, use the virtual faders for Aux 7 and 8, which are assigned to USB playback by default.

Remarks:

Due to the FAT format of the stick, the file size will be limited to 2 GB, which is about 3 hours of stereo recording. Please test the recording capability of your USB device before you do the “real stuff” as some sticks may not be supported or be too slow. We also recommend you defragment your USB device prior to recording. The recording will be done as 16-bit WAV file with the selected sample frequency of the console.

Please also note that it is possible that the specifications of USB storage devices may be changed by the manufacturer without any change in physical appearance or notification.

5.4 Saving and recalling scenes

Follow the steps below to save and recall scenes in the console, allowing different configurations to be recalled at a later time.

- Adjust all settings of the console so that all elements of the mix are as desired.
- Select the Scenes menu in your remote software. The display will show various controls for saving and recalling console scenes.
- Press the rotary control labeled “Save Settings” to save the console’s current configuration to the next available empty scene and label it with a custom name.
- Adjust the console to the next desired configuration, and repeat the process above as needed, saving additional scenes to additional empty slots.
- To recall a scene, scroll through the list of saved scenes. A gray box will indicate which item is currently selected. When the desired scene is selected, press the "GO" button and the console will switch to that scene. All console parameters will switch to the state they were in when saved to the scene that was just recalled.

5.5 How do I add one of the 8 internal effects to the sound?

There are two types of effects that are commonly used:

- "Effects Loop" (side chain) style effects, where multiple channels all send varying amounts of their signal to a common effect, such as a reverb, delay, or chorus.
- "Insert" style effects that are inserted in to the signal path of a single channel of audio. Examples would be a graphic EQ, filter, exciter, or tube emulator.

To apply an "Effects Loop" style effect:

- Select the "Effects" menu in either the X32-Mix or X-32 Edit software. The main screen will show the FX home screen where different effects processors are assigned to the 8 processing slots.
- Adjust rotary encoder #6 to highlight the first effects processor; it will be surrounded by an orange outline. You may also click or tap directly on the desired processor to select.
- Select your desired bus as the source for both the left and right inputs of the first effect processor.
- Select a specific effect processor, such as "Ambience".
- Adjust FX1L and FX1R up to 0 dB.
- With the desired effect highlighted, select the 'Edit' button beneath the 6th encoder to adjust the effect parameters.
- Press the Home button again and tab over to the 'sends' page. Raise the virtual faders for the channels to which you want to add the effect. The higher you raise the fader, the more of that channel's signal will be sent to the processor.

To apply an "insert" style effect:

- Select the "Effects" menu in either the X32-Mix or X-32 Edit software.
- As the effects on the left side are also able to handle complex send effects like reverb, the slots on the right side shall be used for insert effects like limiter, graphic EQ, etc. You can also use insert effects on the left side, but this will limit your use of reverbs and other processor-intensive effects.
- Select one of the effects processors on the right side; it will be surrounded by an orange outline.
- Select a channel or bus to assign to the processor, then select "Ins" to assign as an insert effect.
- Select a specific effect processor, such as "precision limiter".
- Navigate to the Home -> Config screen.
- Select the specific processor you have applied the effect to, in this case "Ins FX 5L". Press the encoder to connect the selected insert effect.
- The Precision Limiter is now applied as an insert on the selected channel. Sending more than one channel through the same insert effect is, of course, prohibited. There will be a warning when you try to insert an effect slot that has already been used as an insert on any other channel. Both sides of a dual type effect can be used as inserts on different channels or buses.

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6. USB Interface Operation Guide

Host system requirements for X-USB interface expansion card

Check the BEHRINGER website at behringer.com for updates of X-USB firmware or system requirements. Please find the recommended hardware/software minimum configurations in the specifications section.

The BEHRINGER X-USB High-Performance 32-Channel 24-Bit USB Audio Interface

The X-USB card provides 32 channel, bi-directional audio I/O via USB 2.0 to Mac or Windows PC. The simultaneous 32-in, 32-out audio channels enable extremely powerful studio and live applications. You can run virtual live sound checks or 32-track high-quality studio recordings, while at the same time remote operating your DAW via HUI/MackieControl emulation. The high speed 24-bit signal transmission and ultra-low latency ASIO drivers and CoreAudio compatibility even allow inserting audio plugins on your PC to perform advanced outboard processing.

Configuration

After the console has fully booted up, you can access the Setup/Card screen in your remote software to view the current channel count configuration. Depending on your application, you may want to select an option other than the maximum 32 x 32 channel count to preserve system resources.

6.1 Configuring the X-USB card for use in the console

The console will automatically detect the X-USB card during the regular boot cycle, and it will display the card's presence in several instances.

The green square in front of "C: X-USB" indicates that the card is installed and working properly.

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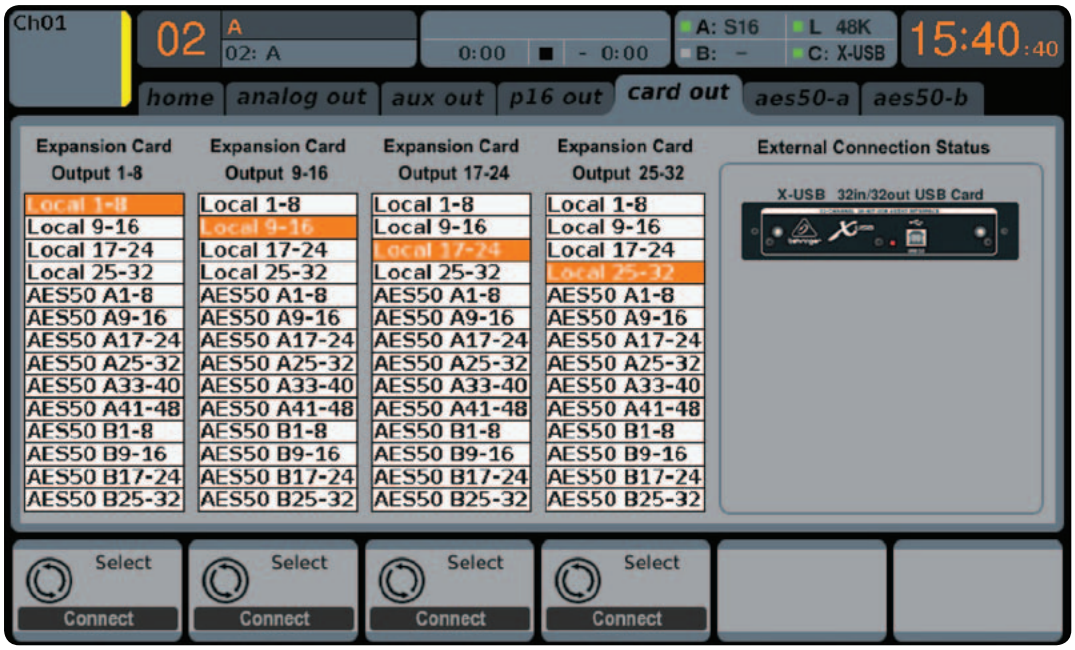
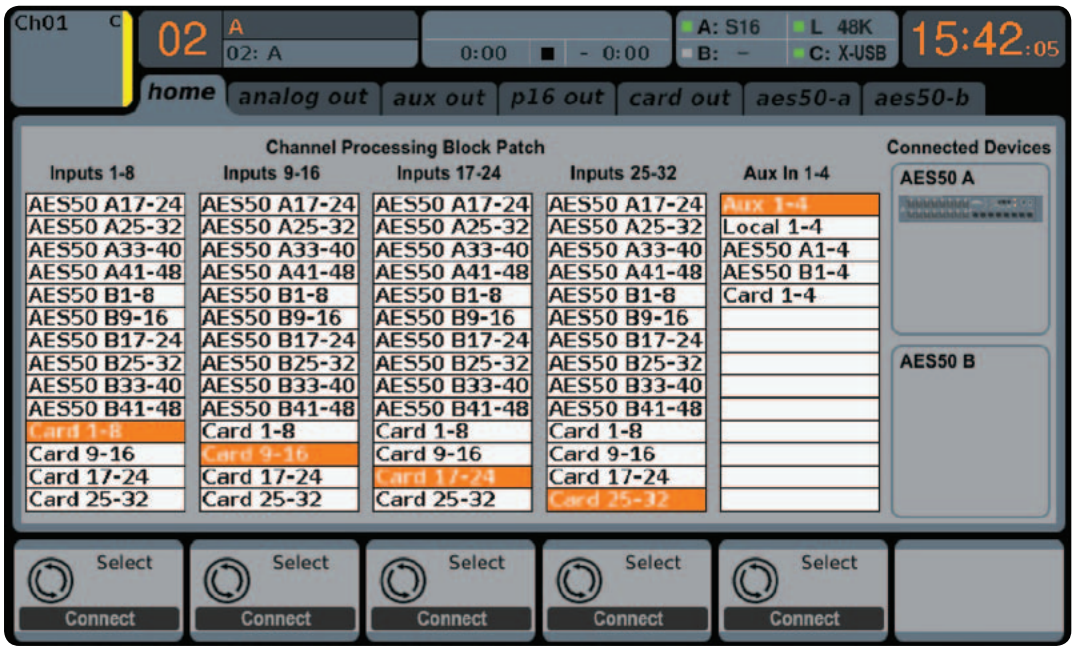
32 in / 32 out

This mode obviously allows the full potential of the interface to be tapped. Note that the computer needs to be able to handle that amount of concurrent I/O stream without any glitches. Depending on its speed and memory configuration, some optimization for audio recording might be required.

It is also possible to run a virtual sound check of all 32 input channels by recording them directly to a computer during a brief line check. The performers can leave the stage while you play back the recorded instruments from the hard drive and tweak the sound accordingly.





Generally, the Card outputs may use any of the available signal sources in the console (local or AES50) for recording independently. When the X32 CORE is used in a quasi in-line mode, the card with connected computer represents a classic tape machine. In this case, the connected S16 mic inputs would be selected to feed the card outputs (see graphic), and all signals are run from the S16's preamps directly to the multi-track recording machine (PC) and from there 1:1 back into the console's input channels.

When the console channel inputs are set to Card, the channel Gain control will be a +/- 12 dB digital trim for the interface card signal, without direct access to any head amp - which is great for mixdown but would be an issue for recording. So, mixing and monitoring can be done using the X32 CORE input channel controls, but the actual mic preamps must now be controlled from the Setup/preamps page, which gives remote control to every one of the available preamps in the system. Use the Setup/preamps page to make sure that phantom power is set as needed, and that there is a reasonable amount of headroom for recording the preamp signals.

TIP: Sometimes it is more convenient to run the sound check while the preamps are still connected to the X32 CORE input channels. Once you are confident about the fundamental settings, you can switch the channel inputs to the X-USB Card inputs for laying the tracks and monitoring the DAW outputs.

If you wish to switch back and forth between the two modes more frequently, you could consider storing 2 routing scenes, 'DAW' and 'preamps'. Make sure Scene Safes are set in a way that all other parameters remain unchanged.

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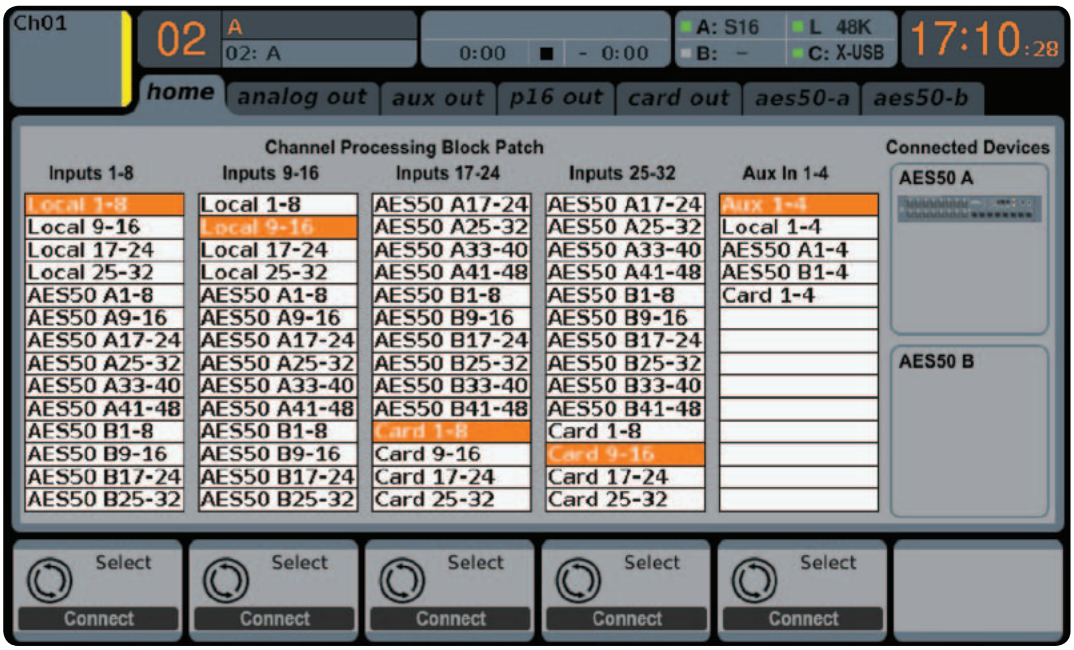
16 in / 16 out

If you don't actually need more than 16 concurrent input and output tracks to be exchanged between the console and your PC, then this mode might be more appropriate for you. First, it will slow the required bandwidth on the interface down. Second, there will be no excessive I/O tracks in your DAW configuration that might clutter your setup. Third, it allows you to run a fully-featured zero-latency overdub setup, which would be impossible if signals were run through the computer. In this case, the 16 input signals are put on channels 1-16, while the tape (card) returns are put on channels 17-32. The monitoring is directly fed from Ch1-16 as usual, including all processing and effects. It remains independent from any computer audio latency, even though you can hear back all the recorded tracks without any repatching.



32 in / 8 out

This mode is tailored to suit a typical studio and overdub recording situation, with many input channels but only a few output channels for monitoring of previously recorded takes.

8 in / 8 out and 2 in / 2 out

For very small recording sessions or overdubs with single sources like vocals, reducing the channel I/O frees up more processing power and ensures stable operation with small latency settings.

8 in / 32 out

This is a useful mode for utilizing the excellent audio engine and effects processing of the console during final mixdown of your project. All 32 tracks would be fed from your DAW into the console where all the magic happens. Then only 2-8 tracks of the complete mixdown would be sent back to the DAW.

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6.2 Configuring the PC to Interface with the X-USB Card

Please watch behringer.com for further advice on the software configuration of X-USB interface card.

Windows: There is an ASIO high-performance driver available for download, which is essential for low-latency audio on Windows computers.

MacOS: The X-USB is CoreAudio compatible and thus works with low-latency on Mac computers without any additional driver installation.

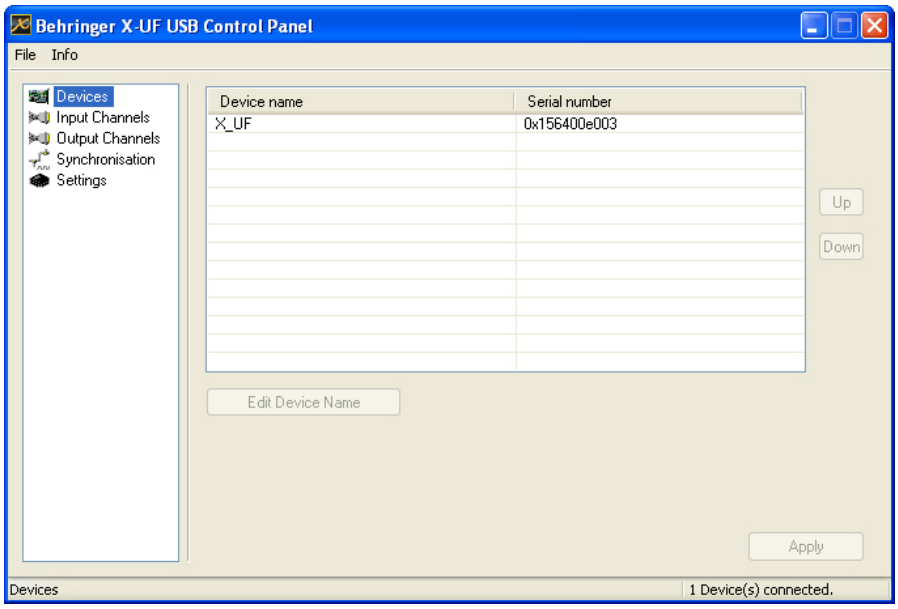
Windows ASIO Driver

Download the X32 ASIO driver installer files from behringer.com. Double-click on Setup.exe in the corresponding unpacked folder and follow the instructions on the screen.

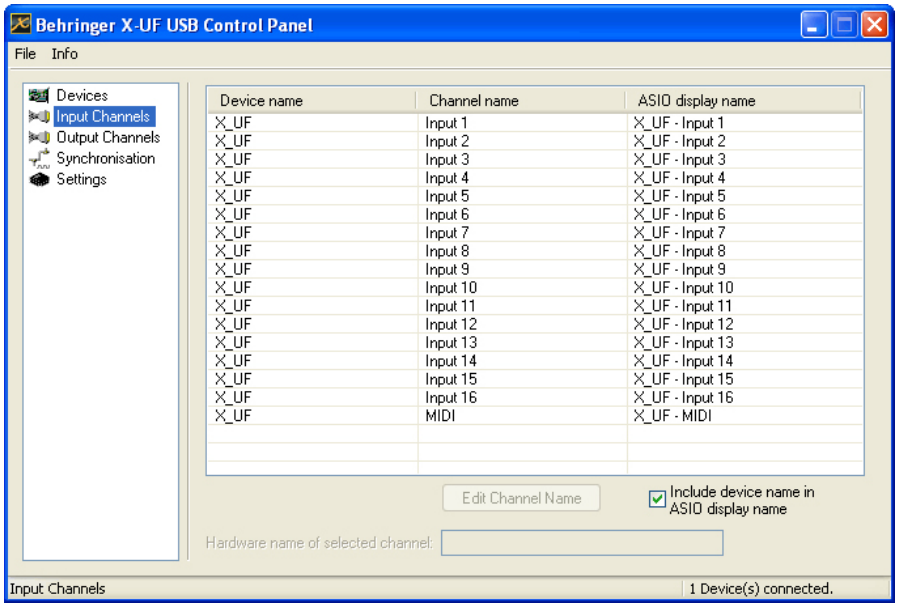
Driver Control Panels

Once the driver is installed, you can open the control panel by double-clicking on the small tray icon. These screens will allow configuring the X-USB expansion card in the X32 CORE as an audio interface for your computer.

The 'Devices' screen displays the card name and serial number. You can rename the card if necessary.



The 'Input Channels' screen allows you to name each input channel for more organized mixing.



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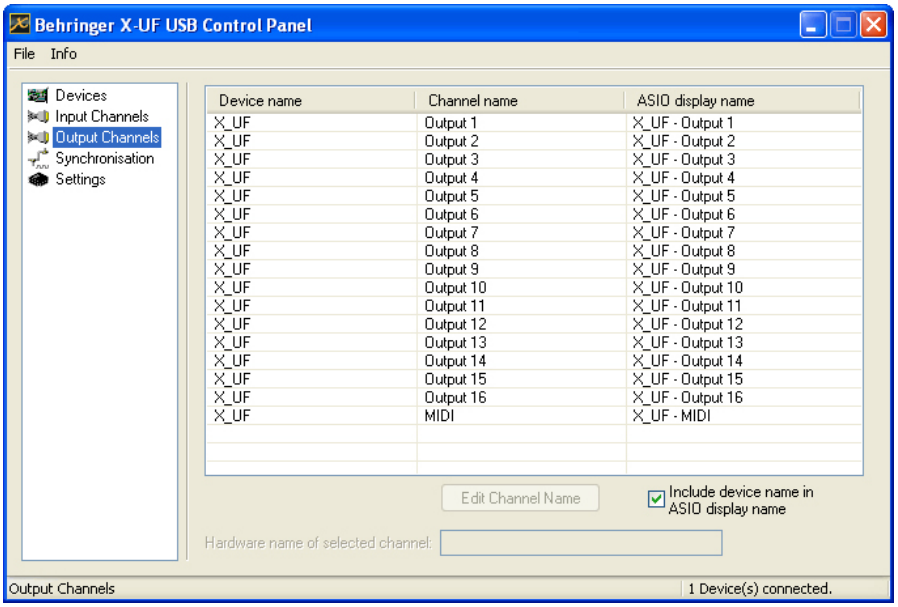
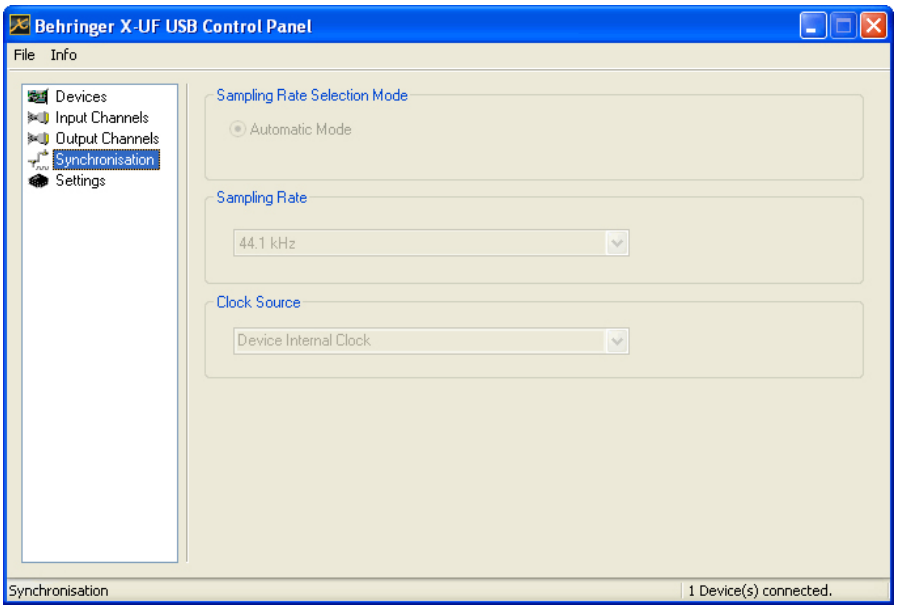
The 'Output Channels' screen allows you to name each output channel for more organized mixing.



The 'Synchronisation' screen allows manual selection of the sample rate and clock source.



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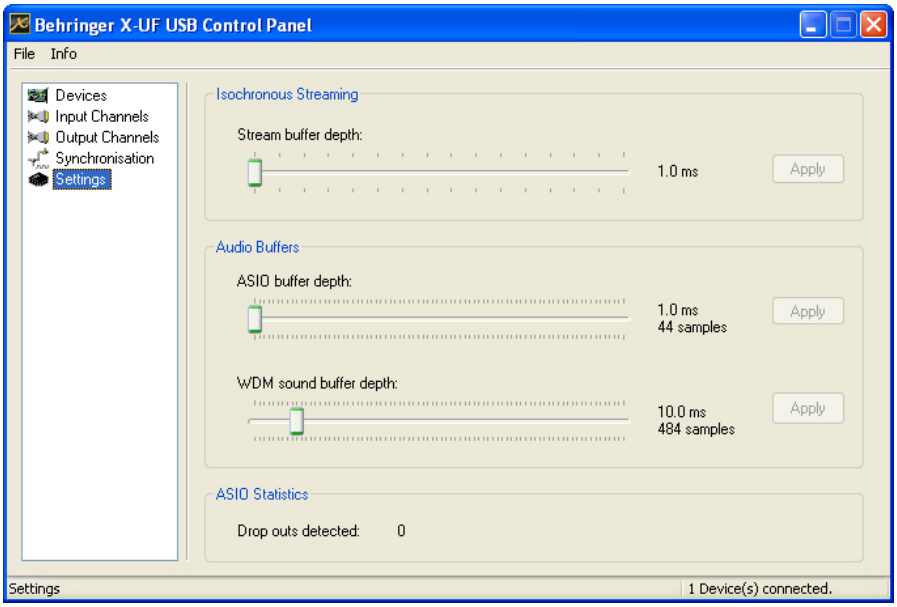
The 'Settings' screen allows the stream, ASIO, and WDM sound buffers to be set. Any detected drop outs will be documented as well, in which case a larger buffer should be selected.



6.3 X-USB Specifications

Expansion Card Features:			
Interface	**MIDI**	**Audio input channels 24-Bit, 44.1/48 kHz**	**Audio output channels 24-Bit, 44.1/48 kHz**
HighSpeed USB 2.0	1 in x 1 out	32, 16, 8 or 2	32, 16, 8 or 2
DAW remote control	Generic, HUI and Mackie Control emulation		

Expansion Card Performance:	
Interface	**Typical round-trip latency**
HighSpeed USB 2.0	~14 ms

* depends on system performance and application

Recommended Minimum Hardware:

Windows PC - Core 2 Duo CPU, 2 GHz
- USB 2.0 port
- 1 GB RAM

Mac - 1.5 GHz CPU
- USB 2.0 port
- 512 MB RAM

Recommended Operating Systems:

Windows: XP 32-Bit SP2 or higher, Win7 32-bit, Win7 64-bit, Win8 64-bit (X-USB ASIO drivers supplied)

MacOSX: 10.5 Leopard, 10.6 Snow Leopard, 10.7 Lion, 10.8 Mountain Lion (CoreAudio compatible)

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7. Specifications

Processing	
Number of processing channels	32 input channels, 8 aux channels, 8 FX return channels, 16 aux buses, 6 matrices, main LRC
Internal effects engines, true stereo / mono	8 / 16
Internal total recall scenes (incl. preamp and fader)	100
Signal processing	40-bit floating point
Network I/O latency (stagebox in > console processing* > stagebox out)	1.1 ms
Connectors	
Talkback mic input, TRS	1 external (no phantom power)
Monitoring outputs ¼" TRS balanced	2
Phones outputs, ¼" TRS	1 stereo (front)
AES50 ports, SuperMAC	2
Expansion card slot	32 channel audio input/output, various standards
P-16 connector, Ultranet (no power supplied)	1
MIDI inputs / outputs	1/1
Ethernet, RJ45, rear panel, for remote control	1
USB Type A, front panel, for audio and data export/import	1
Indicators	
LCD screen	128 x 64, LCD with RGB color backlight
Main meter	AES50 Port A/B status, Signal, 7-segment level (-30 dB to clip)
Power	
Switch-mode power supply	Autorange 100-240 V (50/60 Hz)
Power consumption	40 W
Physical	
Standard operating temperature range	5°C – 40°C (41°F – 104°F)
Dimensions	483 x 307 x 43.8 mm (19 x 12 x 1.7")
Weight	3.6 kg (7.9 lbs)

*including all channel and bus processing, excluding insert effects and line delays

Block Diagram

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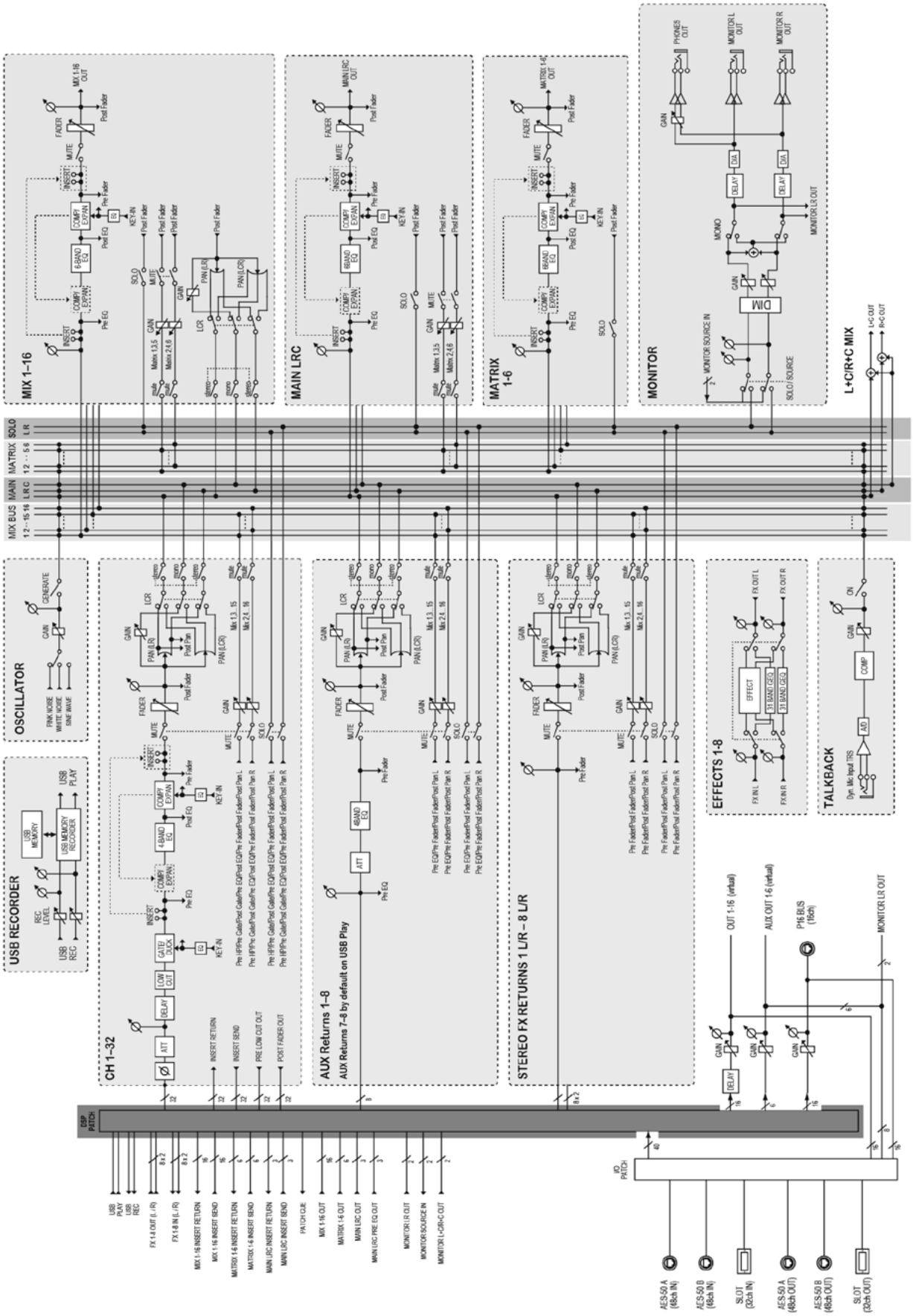

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X32 MIDI Implementation

MIDI RX > SCENES

Whenever program change messages in the range 1-100 are received on MIDI CH01, the corresponding scene of the X32 internal show memory will be loaded.

This requires the following preconditions:

- Setup / remote

  > MIDI In/Out check marks must be set according to the connection on which MIDI input will be accepted (via physical MIDI connectors on X32 or S16, or via XUF Card)
  > MIDI In/Out check mark must be set for "Enable MIDI Scene Recall"

- Setup / global

  > when tick mark "Confirm Pop-Ups" / "Scene Load" is active, also MIDI scene recalls will only become active after manual confirmation
  > if you prefer activating scenes via MIDI program changes immediately, un-check the "Confirm Pop-Ups" / "Scene Load" tick mark

- Scenes View / home

  > valid scenes must be stored in the internal X32 show file. It is not possible to recall empty scenes.
  > the scope of changes applied by a MIDI scene recall depends on the Scene Safes, Parameter Safes and Channel Safes settings, same as with recalling the scene locally.

MIDI TX > SCENES

Every scene can be assigned one specific MIDI command/event. Each time the scene is loaded the MIDI command will be sent out once. Possible choices for MIDI commands/events to be found on Scenes View/MIDI page:

- Off > no message will be sent upon scene load
- Program Change > select the MIDI Channel and the Program Number (using knobs 4/5 at the main display)
- Control Change > select the MIDI Channel, Controller number and value (using knobs 4-6 at the main display)
- Note > select the MIDI Channel, Note number and velocity (using knobs 4-6 at the main display) > will send out a Note On command directly followed by the same Note Off command

MIDI RX > ASSIGN

Whenever assignable controls are set up for transmitting MIDI commands, reception of that same command (status or continuous) will be reflected on the respective assignable control element (button light, encoder LED collar).

MIDI TX > ASSIGN

We restricted the user assignable MIDI commands to some generic elements, in order to keep things simple enough:

- **Encoders 1-4** > can be assigned to sending control changes, program changes or notes

  > parameters are currently 'Channel' and 'Value'
  > for CC and Note commands 'Value' = controller number/note number, and the encoder rotation determines the controller value/note-on velocity
  > for Program Changes only the channel is specified, and the encoder rotation determines the program number

- **Buttons 5-12** > can be operated in two modes, '**MIDI Push**' (non-latching) for momentary commands, or '**MIDI Toggle**' (latching) for static commands

  MIDI Push:

  > can be assigned to sending control changes, program changes or notes
  > parameters are currently 'Channel' and 'Value'
  > for CC and Note commands 'Value' 0...127 = controller number/note number, and the button momentarily toggles the controller value/note-on velocity to 127 (depressed)à0 (released]
  > for Program Changes 'Value' 0...127 = program/preset number, that will be sent upon pressing the button

  MIDI Toggle:

  > can be assigned to sending control changes or notes
  > parameters are currently 'Channel' and 'Value'
  > for CC and Note commands 'Value' 0...127 = controller number/note number, and the button toggles the controller value/note-on velocity between value/velocity 127 and 0 with every operation

- n.b.1) The ASSIGN section also reflects/displays reception of the same MIDI commands that are selected for transmission
- n.b.2) The MIDI commands assigned to the ASSIGN controls can be transferred to and from stage via AES50 using the S16 stage box MIDI I/O

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MIDI RX/TX > REMOTE

Enables a specific form of bi-directional MIDI communication for remote controlling a computer DAW application using control elements of the X32 console. REMOTE can be used in 3 modes, **Mackie Control, HU**I and raw **MIDI CC (raw)** controllers (see Setup/remote)

- **MIDI CC (raw)** selected and Remote is enabled+active, the group section buttons

  > will emit the following messages on Channel 01:
  Group 1-8 SELECT = Note 64-71, on(127)/off(0), push non-latching
  Group 1-8 SOLO = CC 32-39, on(127)/off(0), toggle latching
  Group 1-8 MUTE = CC 40-47, on(127)/off(0), toggle latching
  Sends On Fader = CC 48, on(127)/off(0), toggle latching
  Group DCA 1-8 = Note 72, on(127)/off(0), push non-latching
  BUS 1-8 = Note 73, on(127)/off(0), push non-latching
  BUS 9-16 = Note 74, on(127)/off(0), push non-latching
  MTX 1-6 = Note 75, on(127)/off(0), push non-latching
  MIDI CC (raw) selected and Remote is enabled+active, then group section faders 1-8
  > will emit CC #0-7, value 0. . .127 messages on Channel 01

- **HUI** selected and Remote is enabled+active, then the group fader section and buttons will emulate the HUI control surface protocol, i.e. for ProTools.

  > SELECT/SOLO 1-8 buttons will select or solo the corresponding track in the DAW, in banks of 8 tracks
  > Sends On Fader = enables touch-writing a fader automation on selected track, track automation mode in DAW must be 'touch', (latching)
  > use the layer buttons to determine the function assigned to the MUTE 1-8 buttons, the LED displays indicate that function

  - Group DCA 1-8 = allows to move the bank selection of tracks in a DAW, (push non-latching)
  - BUS 1-8 = allows to set DAW tracks to 'Record Ready', (push non-latching)
  - BUS 9-16 = enables using the MUTE buttons for track mute in the DAW, (latching)
  - MTX 1-6 = enables using the MUTE buttons for transport controls in the DAW, (latching)

- **MACKIE CTRL** selected and Remote is enabled+active, then the group fader section and buttons will emulate the Mackie Control Universal protocol

  > SELECT/SOLO 1-8 buttons will select or solo the corresponding track in the DAW, in banks of 8 tracks
  > Sends On Fader = enables touch-writing a fader automation on selected track, track automation mode in DAW must be 'touch' or 'latch', (latching)
  > use the layer buttons to determine the function assigned to the MUTE 1-8 buttons, the LED displays indicate that function

  - Group DCA 1-8 = allows to move the bank selection of tracks in a DAW, (push non-latching)
  - BUS 1-8 = allows to set DAW tracks to 'Record Ready', (push non-latching)
  - BUS 9-16 = enables using the MUTE buttons for track mute in the DAW, (latching)
  - MTX 1-6 = enables using the MUTE buttons for transport controls in the DAW, (latching)

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FEDERAL COMMUNICATIONS COMMISSION COMPLIANCE INFORMATION

BEHRINGER

X32 CORE DIGITAL RACK MIXER

Responsible Party Name:	**MUSIC Group Services NV Inc.**
Address:	**5270 Procyon Street** **Las Vegas, NV 89118** **USA**
Phone Number:	**+1 702 800 8290**

X32 CORE DIGITAL RACK MIXER

complies with the FCC rules as mentioned in the following paragraph:

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.

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.

Important information:

Changes or modifications to the equipment not expressly approved by MUSIC Group can void the user's authority to use the equipment.

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