

2-BUS-XT USER GUIDE



SAFETY REVIEW

The Exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying this product.



Certain precautions should be taken when using electrical products. Please observe the safety hints by reading the manual and obtaining qualified help if necessary to adhere to the precautions.



1. Always use a properly grounded power supply cord with this product. Please do not defeat the ground pin on the mains plug. This connection provides earth to the chassis and signal grounds inside the device for clean and quiet operation.



2. Avoid high temperature operation in equipment racks by providing air circulation. The number one killer of electronic gear is HEAT. Vented rack panels may look like wasted space to an interior decorator, but they look like beauty to a technician or equipment designer! If the front panel is hot, it is roasting inside the box.



3. Avoid areas of high magnetic fields. The steel chassis is designed to shield the circuits from EMI and RFI (magnetic and radio interference). When installing equipment in racks, it is prudent to put power amplifiers and large power supplies at least several rack spaces, if not in a different rack, away from equipment that deals with low level signals. Separation of high level and low level equipment can pre-empt trouble caused by heat and EMI.



4. Care should be taken to avoid liquid spills around equipment. If a spill occurs, please shut off the gear and disconnect the mains. A qualified technician should investigate accidents to prevent further equipment damage or personnel hazards caused by spills.



5. If one is uncomfortable with opening gear and changing jumpers or making adjustments, please seek qualified help if necessary.



6. If adjustments or jumper changes are required, please disconnect the mains plug before opening the top. Dropped screws or tools on a live circuit board can manifest themselves as burn marks and smoked components. While we feel your pain, (been there) subsequent damage is not covered by the warranty.

Dangerous Music Group, LLC reserves the right to change the specifications or modify the designs of its equipment. Registering online is our way of keeping in touch with users of our equipment should this become necessary. Registration information is always kept confidential and never disclosed to third parties for any reason. Company contact information is on the last page of this manual.



The CE sign on this product signifies the fact that the **2-BUS-XT®** has been tested and verified to conform to the applicable standards of 89/336/EEC. EN55103-1 (emissions) EN61000-2 (immunity) and EN60065:2002 (safety requirements)



This product uses components of the types and quantities that comply with the EC RoHS standard 2002/95/EC. A list of suppliers and materials is available from DMG. We tightly control production to use top quality materials.

THANK YOU

||

Thank you for joining the Dangerous Music family! You will receive years of reliable pleasure from our gear due to careful design, construction, and component choices by recording industry veterans.

The **2-BUS-XT** is designed to inspire your musical genes. No matter if you're on the road or in studio, **2-BUS-XT** allows you to create with unparalleled accuracy, headroom, stereo separation and soundstage- propelling composition, performance, mixing and mastering to new heights like Mallory up Everest. (At the time of writing this manual, the search for his camera was ongoing.)

Though the box is overwhelmingly simple in appearance, there are comprehensive tips and application notes in this user's guide, so don't skip the read. Crack a beer and get listening-

marek stycos

President and Audio Outlaw



**DANGEROUS
MUSIC**

ABOUT DANGEROUS MUSIC

Dangerous Music is composed exclusively of musicians, studio owners, producers and engineers - the very same group of people for whom Dangerous products are designed. That's the magic: living the recording experience on both sides of the control room glass and constantly working to improve it. Without shareholders pimping profit at the expense of the artists (us!) using the gear.

From the inception, building to a "price point" was ignored in favor of: Audio Quality First. Our brain trust at Dangerous determines the product's function, feature set and how to make it sound as transparent, musical and versatile as humanly possible. We build the gear we want to use.

Sacrifice Nothing®. This is our founding credo. The results are products that resurrect dynamic range, punch, intelligibility and emotion. These high-fidelity, uncompromising signal paths are achieved by harnessing over 30 years of Chris Muth's design wizardry; creator of infamous custom black boxes for world class facilities like Hit Factory, Masterdisk, Absolute Audio and Sterling Sound Mastering. He leads our design team into the future and once in beta, the critical listening skills of golden-eared luminaries are applied, with the result being musical tools that fulfill the actual needs of today's flexible computer based studio.

TRACK · MIX · MASTER

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OVERVIEW

The **2-BUS-XT** is a single-rack-space, 16-channel analog summing mixer with DB25 inputs. Innovative features include two custom tone circuits that allow you to flexibly add real analog color while tracking and mixing.

COHERENCE progressively elevates the harmonic content by bringing up the detail as the levels are reduced, then blending this result with the source mix, parallel compression style. Punch it up on a drum kit, backup vocals, or ride it during the hooks to add excitement and dimensional asymmetry.

X-FORMER III was subjected to a juggernaut of intensive listening trials, then locked and loaded to deliver a tasteful hit of 2nd order harmonics for lower midrange warmth while preserving top-end articulation. Add complexity to sterile tracks to draw your listeners in deep. Both X-FORMER III and COHERENCE can be applied across the stereo mix together or separately or assigned to a pair of stems.



CONTENTS: Inside the box you'll discover the **2-BUS-XT**, this manual, a standard 3 Pin IEC power cable and a myriad of sonic sculpting opportunities.

Note: We recommend reading the entire manual before using the **2-BUS-XT** so that you can get the most out of its unique and powerful features right away- but... if you can't wait, we did cook up the following Quickstart Guide for you.



2-BUS-XT: Quickstart Guide

UNPACK AND POWER UP

Remove the **2-BUS-XT** from the box along with the included IEC power cable and plug the unit into AC mains power.

Turn on the power switch next to the AC cable socket on the back and confirm that the unit has powered up by checking that the front panel LEDs are illuminated.

Turn the unit off. Connections are always more safely made while powered off.

CONNECT THE **2-BUS-XT** TO YOUR STUDIO

Using high quality cables like Mogami®, connect the outputs of your digital-to-analog converter to the DB25 connectors on the back of the **2-BUS-XT**.

Connect the stereo MONITOR OUTS to a balanced input on your monitor controller. Do not hook the **2-BUS-XT** directly to speakers. Excellent monitor controller options include [The Dangerous SOURCE, D-BOX[±]](#) or [MONITOR-ST](#).

Connect the stereo MAIN OUTS to your final print path (back into your DAWs Interface, 2-Channel A/D converter or to an external digital or analog 2-track recorder-remember those? 📺).

Tip: 🖐️ If you're using a patch bay, make the same connections according to your bay's routing. Be sure to use high quality patch bays and cables (like Mogami) to assure the best connections for all the gear in your studio.

ZERO OUT THE **2-BUS-XT**

Power up the **2-BUS-XT**.

Set the SUM LEVEL TRIM to roughly 1 o'clock.

Disengage the X-FORMER III and COHERENCE buttons (light dim) and turn the knob fully counter-clockwise.

STEM OUT A MIX AND MAKE SOME SOUND

Assign track outputs or groups of track outputs (called "stems") from your DAW to the channels you want them to occupy on the **2-BUS-XT**. You might send all the drums out in stereo on channels 3-4, guitars on 5-6, etc... or individually (kick out 1, snare out 2...)

Assign mono tracks from the DAW that you'd like to have in the middle of your mix (perhaps bass and lead vocals) to channels 1-2 or 9-10 and then engage the MONO buttons to bring those channels to the center of the mix. Mono sounds more anchored (strong like bull 🐂) assigned on the **2-BUS-XT** than using mono in your DAW.

Press play and use your DAW to get a basic mix happening. Enjoy mixing in analog- it feels good!

Tip: 🖐️ Don't over think the routing. Just remember that sounds with loud transients should be spread out to take the stress off the DAW. Remember, there's no one right way to organize a mix. Every project is unique, and even different genres of music call for different approaches. Organizing the routing in effective ways is part of the craft of analog mixing. (See our website

or read the rest of this manual for routing examples, diagrams and helpful tips.)

START MIXES IN THE ANALOG ENVIRONMENT

Analog and digital mixing environments are very different, and what worked “in the box” might not hold up summed in analog. So if you need to rework a pre-existing digital mix, we strongly recommend making a copy, zeroing out the mix, removing the plug-ins and starting from scratch. You’ll mix faster, with deeper enjoyment and better results.

Begin all new mixing projects through the **2-BUS-XT** (Create a template in your DAW). That way you won’t have to re-do anything down the road. You’ll be surprised how quickly you can work in the analog environment.

Tip: 🎧 Try mixing without any plug-ins. Many mixing engineers used to working in the box depend on plug-ins to get their mixes to gel together, but when you mix in the analog realm some of those plug-ins may be constricting your original sonics. De-instantiate all of them and get a cool balance happening in the analog environment. Now see judiciously select where and when you’d like to change any of the original sounds with your plug-in processing. Many users find they use far fewer when mixing with the active summing amps in the **2-BUS-XT**.

TRY OUT SOME REAL ANALOG COLOR

Once you’ve got a decent balance together, go ahead and dial in some color with the unique on-board analog circuits.

Engage X-FORMER III by pressing the button so it lights up. Try COHERENCE by engaging the button and turning the knob clockwise to increase the effect. It’s in parallel, so the effected signal is turned up with the knob while the dry signal remains unchanged.

Try both color circuits together and experiment.

MEET THE TONE CIRCUITS

The transformers for X-FORMER III were subjected to a juggernaut of intensive listening trials, then locked and loaded to deliver a tasteful hit of 2nd order harmonics for lower midrange warmth while preserving top-end articulation. Add complexity to sterile tracks to draw your listeners in deep.

COHERENCE progressively elevates the harmonic content by bringing up the detail as the levels are reduced, then blending this result with the source mix, parallel compression style. Punch it up on a drum kit, backup vocals, or ride it during the hooks to add excitement and dimensional asymmetry.

TRY SOME INSTANT RE-PATCHING

Because Harmonics and Paralimit are instantly assignable (independently or together) to channels 15-16, you can choose to take them off the mix buss and use them on channel pairs.

RELAX AND ENJOY

With the **2-BUS-XT** you’re using the best analog summing mixer available. Your ears will thank you, and so will your clients. Take your time getting to know its high-fidelity sound, its powerful tone circuits, and most of all take time to enjoy mixing in the analog environment. Many claim that analog mixing takes the stress and fatigue out of digital work, that they are more relaxed and energized throughout even the longest mixing sessions. We think you’ll agree.

2-BUS-XT: Front Panel Features & Benefits

01. LED METERING



[SIGNAL PRESENT LEDS PICTURED ABOVE]

Feature: LED Metering.

Benefit: Verify audio is present on any of the 16 channel inputs- simplifies troubleshooting.

Tip: ✌ LEDs will either be dark when no audio is present or green when signal is present. They will not turn red for overload- because the 2-BUS-XT has more headroom built in than any D/A converter set to standard calibrations can output. Meaning you will clip in your DAW before you ever get close to clipping the 2-BUS-XT. The 2-BUS-XT provides 6dB of headroom above full-scale output of a converter calibrated to the industry standard of -18dBu per input.

02. MONO BUTTONS



[MONO BUTTONS PICTURED ABOVE]

Feature: Switch inputs 1&2 and/or 9&10 from stereo to mono.

Benefit: Center specific instruments straight up the middle of your mix.

Example: If you have the kick drum on input 1, the snare on input 2, the bass guitar on 9 and the lead vocal on 10, then the mono buttons could be engaged to send those four elements straight up the middle of the mix.

Tip: ✌ Want to drop your favorite EQ on the lead vocal? No problem. Simply patch it between your D/A (or interface) to the EQ and into input 10. Boom! You're processing in analog, which means no latency that can cause phasing and other issues while mixing. Many users are wiring the 2-BUS-XT into a patch bay or a Dangerous LIAISON® along with their converters to make for even easier integration of their outboard gear.



03. EFFECTS CONTROL: PARALLEL & SERIES PROCESSING



[PARALLEL & SERIES PROCESSING KNOBS PICTURED ABOVE]

- Feature:** X-FORMER III is in series and is either 100% on or completely bypassed. COHERENCE is controlled via the button and continuously variable potentiometer. This analog circuit is blended using parallel processing.
- Benefit:** Direct (non-effected, dry) is always fully on. Turning the knob adds the processed (effected, wet) signal to achieve the right balance of color for every mixing project without sacrificing transients. Instantly and simply achieve usually complicated parallel processing at the push of a button and twist of a knob.

04. EFFECTS CONTROL: ASSIGNMENT & ENGAGEMENT



[EFFECTS ASSIGNMENT & ENGAGEMENT CONTROLS PICTURED ABOVE]

- Feature:** Both color options may be assigned to the mix buss or to mix stems 15-16 individually or together.
- Benefit:** With the simple front panel buttons and knob, you are instantly creating complex patches and parallel processing configurations in a hassle-free way - all in the analog realm. Many engineers will confess to not trying out alternate configurations if it involves elaborately re-patching their mix, so now there's no excuse not to try a radically different configuration on the fly. Experimentation often leads to new discoveries and great results (just ask your partner). Assigning TRANSFORMER III or COHERENCE to stems 15-16 allows for quick analog processing of individual instrument pairs within the mix. Don't be afraid to print. All our [Platinum Legacy](#) superstars do and so should you.
- Use:** Simply press the buttons to engage the effects on the appropriate stem or the

mix buss.

Tip 1: 🖐️ Both color options employ True Hard Wired Bypass technology. When the effect is disengaged, the circuitry is completely out of the signal path, providing true A/B comparisons. This also allows you to use the **2-BUS-XT** in its purest form as the most transparent analog summing mixer available to (wo)mankind.

Tip 2: 🖐️ Automate your color circuits by assigning one to inputs 15-16. For COHERENCE, turn the parallel knob completely clockwise. Then create an Aux Send in your DAW and send the signal from any tracks or busses to this output. Bad ass, right?

05. EFFECTS CONTROL: X-FORMER III



[HARMONICS CONTROL PICTURED ABOVE]

Feature: Welcome to our third unique and handsomely tuned transformer based harmonic distortion series generator. (1 is in 2-BUS+ and 2 is in CONVERT-AD+.)

Benefit: The X-FORMER III insert may be just the thing to fatten up a horn section, guitars, or vocals in a unique way compared to traditional EQs and compressors. Chosen to be clear and powerful while providing even harmonics and a slight top-end saturation when hit hard to soften spiky transients. Thicken up a pair of tracks or even an entire mix by introducing a controlled amount of analog distortion.

Operation: Select where to insert the effect (i.e. Buss 15-16 or the Master Buss).

Tip: 🖐️ Experiment on different material, like a solo kick, bass vs. synth pads or background vocals or an entire mix. Our ear is more forgiving to low frequency distortion (ie. on the kick vs. cymbals). Also try pushing it harder or gentler from your DAW. Remember, once you find a patina you love, print it and use the color circuit on something else next!

06. EFFECTS CONTROL: COHERENCE



[PARALIMIT CONTROL PICTURED ABOVE]

Feature: COHERENCE injects “dimensional asymmetry”- a Dangerous original design inspired by the imagination of marek stycos and borne into reality by Chris Muth. Subtly tighten up the source by pulling down spiky transients, gently widening and tilting the track forward without any phase skulduggery.

Benefit: Add as much or as little “dimensional asymmetry” to your individual tracks, stems or master buss as you choose. Subtly blend COHERENCE into stereo background vocals, strings and keyboard pads to gently tighten them up and push them outward. Bring it forward, but avoid sibilance on vocals, shrill guitars and harshness on loops all whilst maintaining a completely natural stereo balance.

Use: Select where to insert the effect (i.e. Buss 15-16 or the Master Buss) then starting with the knob fully counterclockwise (dry), turn it clockwise (wet) to introduce the effect.

Tip: 🤘 Assign 15-16 to an aux buss in your DAW and automate how much you’d like to introduce. Ride it in the hooks to add excitement and lay back on the verses to alternate the song’s tension and keep your listeners attention rapt.

07. SUM LEVEL TRIM



[OUTPUT LEVEL TRIM STEPPED ATTENUATOR PICTURED ABOVE]

Feature: Hand selected stereo potentiometer.

Benefit: The Sum Level Trim runs from minus infinity $[-\infty]$ fully counterclockwise to X wide open with 1:00 roughly representing unity.

Operation: Twist at will to compensate for any added or lost gain during mixing to get the perfect print levels for your mix, whether you’re printing to tape, back into your DAW or to an external digital recorder.

Tip: 🤘 If sending the Mix Output into outboard gear, it may be desirable to “drive” it by pushing the output of the 2-BUS-XT. For example, some vintage compressor / limiters (like a Gates Sta-Level) utilize a fixed ratio, so by cranking more level (i.e. voltage) into their input stage, the effect will be more dramatic and thus, audible. Pushing more level (voltage) into a tranformer (i.e. Manley Massive Passive) will change the EQ’s behaviour. Conversely, reducing the level to external gear will have the opposite effect (especially when attempting not to blow out A/D converters and plug-in limiters!).

2-BUS-XT: Rear Panel Connections

08. DB25 INPUTS



[REAR PANEL INPUTS PICTURED ABOVE]

Feature: High-Quality DB25 and XLR connectors.

Benefit: High-quality connectors assure proper connection of all your equipment in and out of the 2-BUS-XT. Cheap look alike connectors have unreliable tolerances and thus unpredictable performance just like substituting a doppelgängers with your significant other.

Note: DB25s wired per the Tascam-Avid standard. Please use high quality cables when connecting your beloved audio gear (i.e. Mogami®).

09. EXPANSION INPUTS



[EXPANSION INPUTS PICTURED ABOVE]

Feature: Expand your 2-BUS-XT by patching in another 2-BUS-XT, a 2-BUS⁺ or a D-BOX⁺ here.

Benefit: There are plenty of mix engineers out there with three or more Dangerous Music summing mixers linked together for even more channels of potent active analog summing.

Note: If combining the 2-BUS-XT with other models, determine where it should sit in order to apply colors. For example, if it's last you can apply the analog circuits to the entire mix.

Tip: 📌 Want to employ an external console? Take the master outs of your mixer and connect them to the Expansion Inputs of the 2-BUS-XT.

10. MAIN & MONITOR OUTPUT



[MAIN & MONITOR CONNECTIONS PICTURED ABOVE]

Feature: Use the MAIN OUTPUT to capture your mix. Feed it to a high end A to D converter like the [CONVERT-AD+](#), a pair of inputs on your interface and back into your DAW, an external digital recorder or analog tape machine (all say grace over the Studer A820). You could even cut direct to disc! (Call Jeff Powell.) These are all destinations for final mix prints.

Use the MONITOR OUTPUT to feed your monitor controller (for example, The [MONITOR-ST](#), The [SOURCE](#), [D-BOX[±]](#) etc...).

Benefit: The MAIN and MONITOR paths offer essential big-console functionality, executed here to the highest standards, so that true A/B comparisons before and after the print pass are effortless. What you hear is what you'll commit.

Operation: Patch accordingly in your studio, either directly or via a high-quality patch bay or Dangerous LIAISON.

11. POWER CABLE & FUSE



[AC INLET & FUSE HOLDER PICTURED ABOVE]

Feature: Utilizes a standard 3 pin IEC power cable.


Benefit: Easy to purchase or steal if lost.


Feature: Switching power supply auto detects voltage, but you must use the correct fuse value.

Benefit: Travel with your favorite gear anywhere in the world while spreading the audio gospel.

Operation: Unit ships with voltage appropriate fuse value. To change it, use a screwdriver to gently pry the mains inlet module's cover open and insert the correct fuse.

Fuses for the alternate voltage are included in the shipping box.

Tip:  The power switch is on the inlet module. Seat the AC cable completely and use properly grounded power mains for safe and quiet operation.

Tip:  If the **2-BUS-XT** will not power on and the power is known to be good, check the fuses under the inlet module's cover. Use 2 amp Slo-Blo for 90-120V (Americas) and 1 amp Slo-Blo for 200-240V (Europe). Switching fuses will not void your warranty. Switching to inferior summing mixers will.

2-BUS-XT: Routing Scenario

12. ROUTING IN PRO TOOLS (ONE OF MANY OPTIONS)



[SCREEN SHOT OF PRO TOOLS 11 ROUTING PICTURED ABOVE]

For this example, we assume you've:

01. Wired 16 analog outputs from your interface or D/A converter (like 2 CONVERT-8s) into the 16 inputs of the **2-BUS-XT**.

02. Connected the stereo MONITOR OUTS to a balanced input on your monitor controller (like a

MONITOR-ST) not directly to your speakers.

03. Plugged the stereo MAIN OUTS back into your A to D (like the CONVERT-AD+) or DAW interface

04. Sent the digital output to your monitor controller for the final mix. (Refer to the wiring diagram ahead).

Next, open your DAW and create 8 stereo aux tracks that correspond to their associated outputs. In other words, Aux 1-2 has Analog 1-2 of your interface as its output, and internal buss 1-2 as its input. Subsequent busses follow the same pattern (see picture above). You can name these aux tracks once you know what you will be sending to them (i.e. Drum Buss, Background Vocals, Effects, etc).

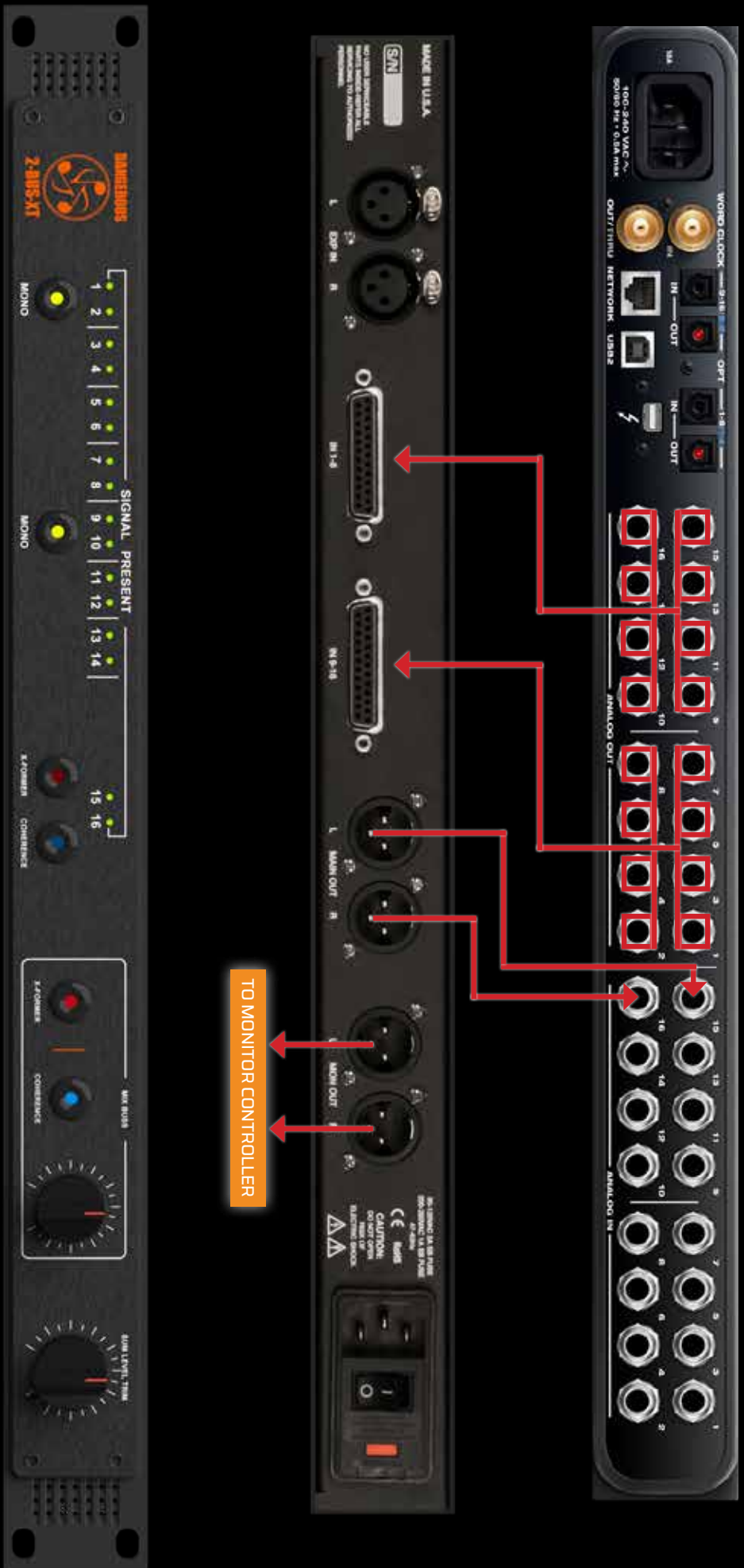
Assign tracks from your session to these busses according to how you would like to split up your stems (i.e. all guitar tracks are bussed to 3-4, all percussion tracks are bussed to 5-6). For important mono tracks such as kick drum, snare drum, lead vocal, or bass guitar, you can utilize the mono buttons on the 2-BUS-XT by sending these tracks to the busses or directly out 1, 2, 9, or 10.

Note the return to your DAW (in this example 17-18) is on an AUX because you may want to instantiate a plug-in here. That AUX is assigned to the stereo track named "Mixdown". This will be your final printed master.

THIS SECTION LEFT INTENTIONALLY BLANK FOR YOUR MIND TO RUMINATE

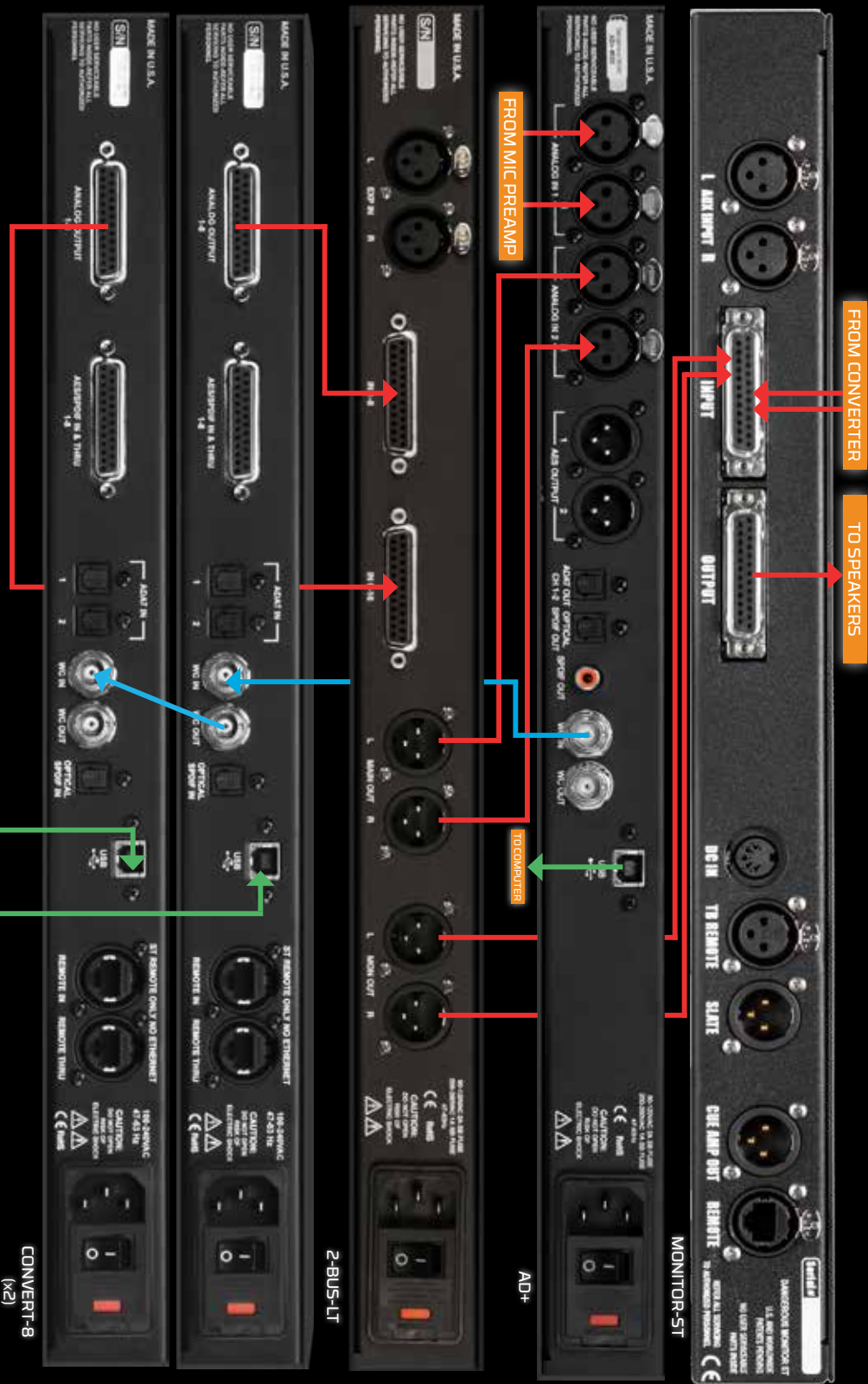
Dangerous 2-BUS-XT

INTERFACE INTEGRATION



DANGEROUS 2-BUS-XT

MONITOR-ST INTEGRATION



ANALOG CABLE:
DIGITAL CABLE:
USB CABLE:

www.dangerousmusic.com • 845.202.5100 • info@dangerousmusic.com

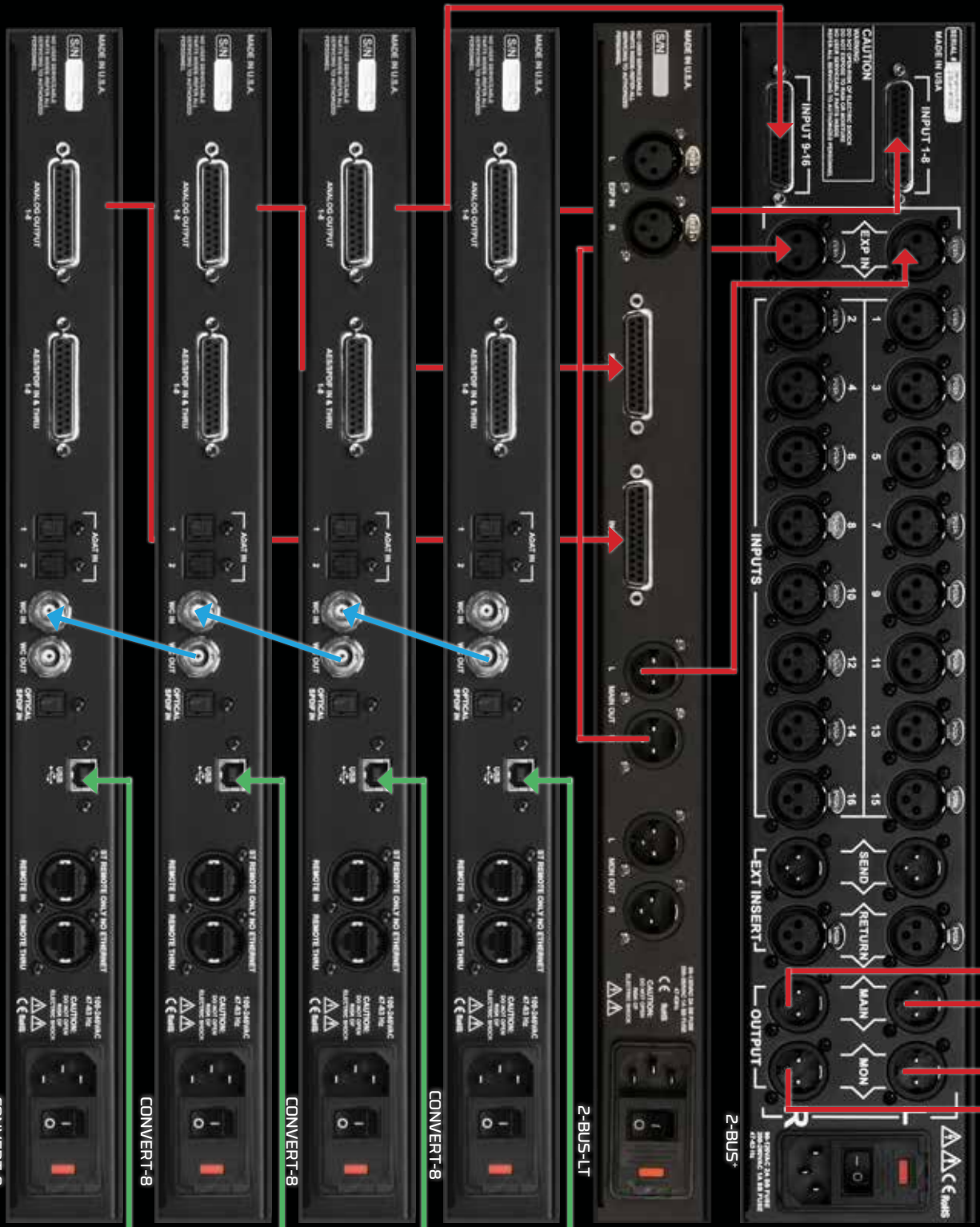
2-BUS-XT EXPANDED

2-BUS + INTEGRATION



TO AD CONVERTER

TO MONITOR CONTROLLER



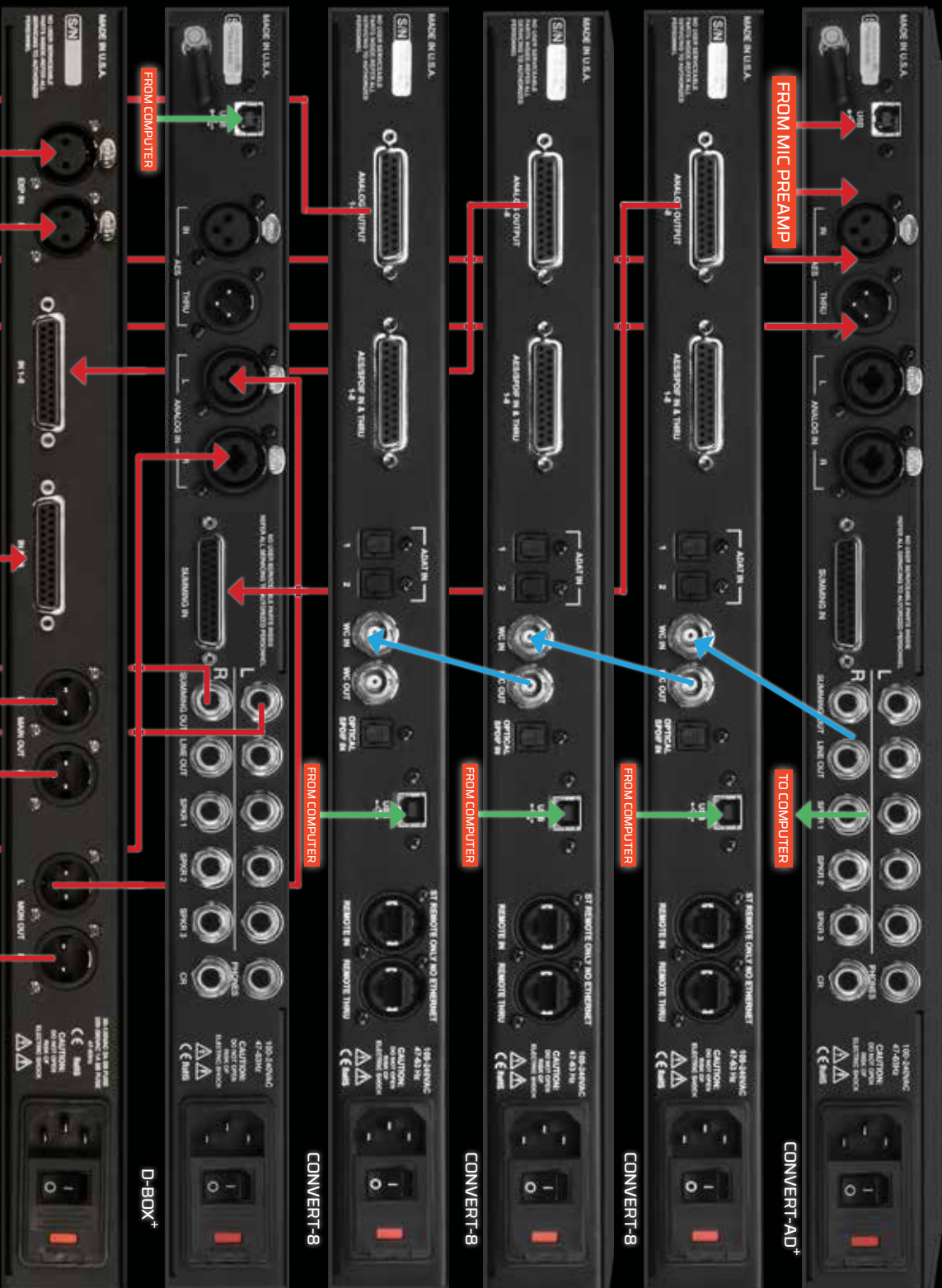
ANALOG CABLE: —

DIGITAL CABLE: —

USB CABLE: —

2-BUS-XT EXPANDED

D-BOX+ INTEGRATION



ANALOG CABLE:
 DIGITAL CABLE:
 USB CABLE:

WARRANTY

Free 2 year extended warranty with online registration.

Standard warranty: 90 days parts and labor, subject to inspection.

Does not include damage incurred through shipping damage, abusive operation or modifications/ attempted repair by unauthorized technicians.

USA	EUROPE
Dangerous Music Group, LLC	Dangerous Music Europe
New City, NY 10956	Raderbergerstr.175
USA	50968 Cologne, Germany
Phone: 845.202.5100	Fon: +49 2236 393731
Fax: 845.818.4109	Fax: + 49 2236 393732
Email: support@dangerousmusic.com	E-mail: info@dangerousmusic.de

Dangerous Music Group, LLC reserves the right to alter the software and design of their equipment.

If after reading the manual more information for an application is needed, please contact us via email for the quickest response.

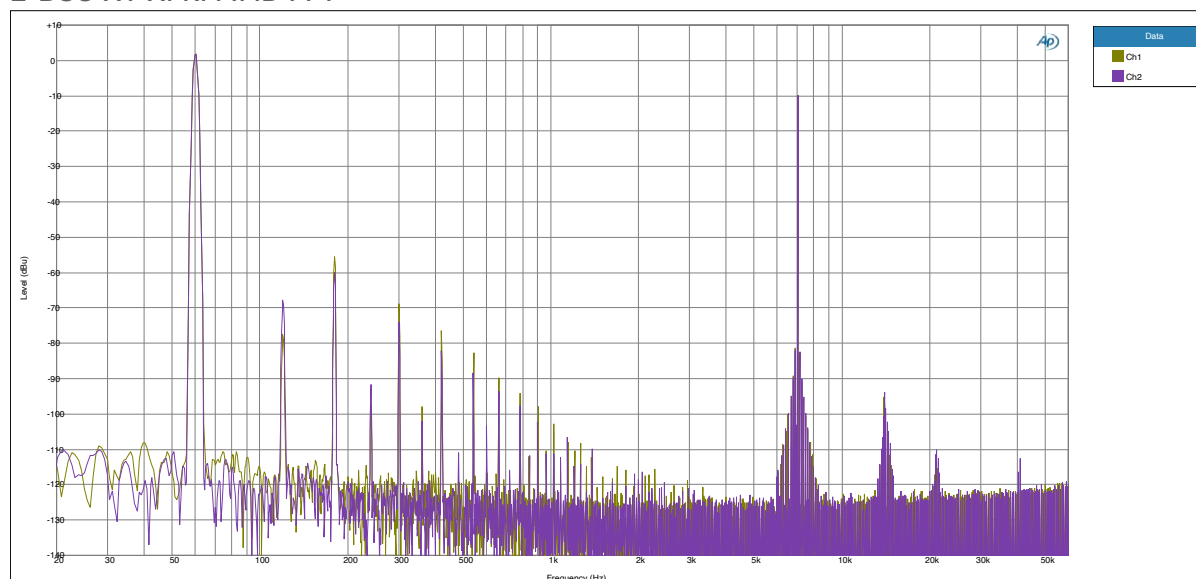
- Factory contact for RA# must occur before shipping a unit to us for service.
- Please keep the original cartons in case storage or transportation of units is required.
- Always insure shipment as these damages are not covered by the warranty.
- Thank you for actually reading the manual. Now go make some dangerous music!

SPECIFICATIONS

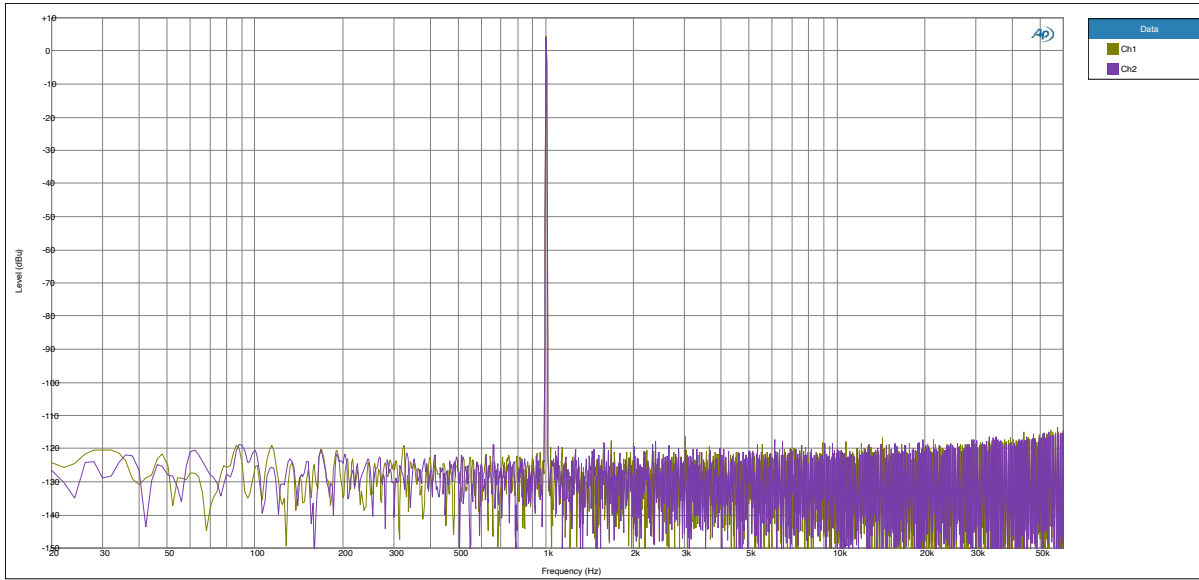
Note: Dangerous Music, Inc. publishes actual measured specifications, not theoretical numbers derived from data sheets published by chip manufacturers.

THD @ nominal mix setting [+10dBu in, -6dB gain]	1KHz, unweighted, 22Hz to 22kHz < 0.0018%
IMD @ nominal mix setting	< 0.0018%
Crosstalk rejection	> 109dBu @ 1KHz
Noise at Unity Gain	22Hz to 22KHz: < -86dBu
Noise at Nominal Mix Setting	22Hz to 22KHz: < -90dBu
Frequency Response	Flat within 0.1dB from 10Hz -50kHz
Input Impedance	25K Ohms Balanced
Output Impedance	50 Ohms Balanced
Maximum Input Level	+27dBu
Replacement Fuses:	AMERICAS 90-120VAC 2 Amp Slo-Blo fuse EUROPE 200-260VAC 1 Amp Slo-Blo fuse

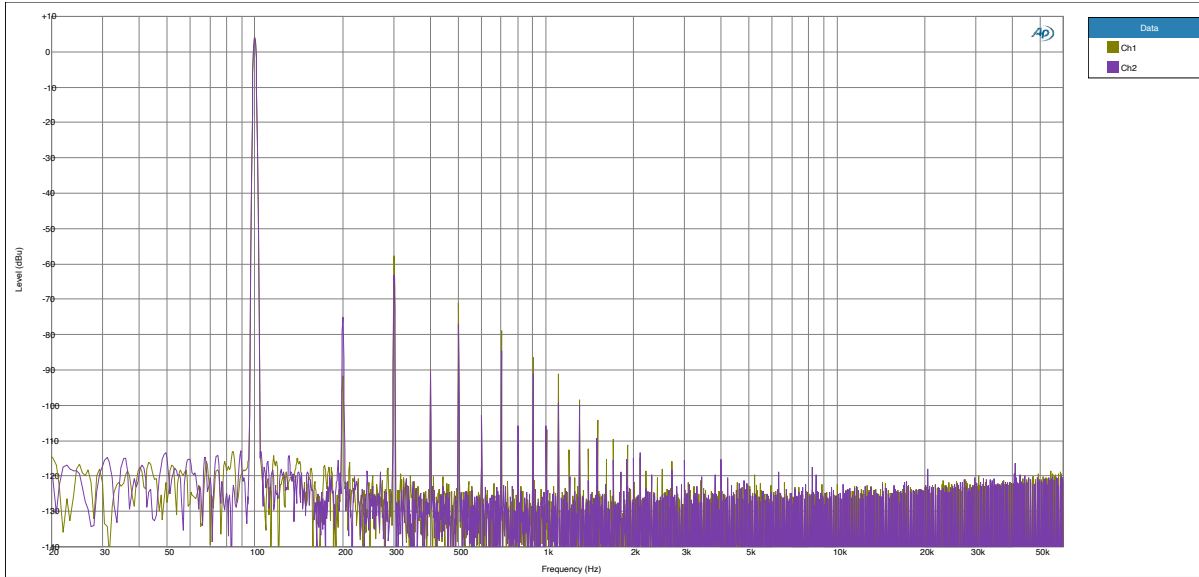
2-BUS-XT XFRM IMD FFT



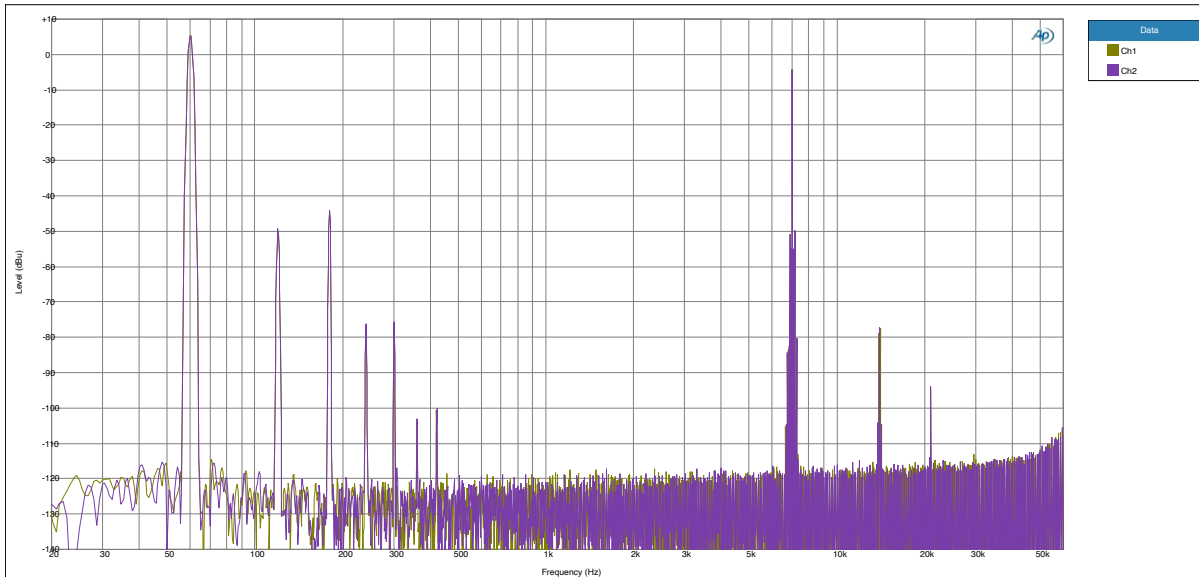
2-BUS-XT 1K FFT



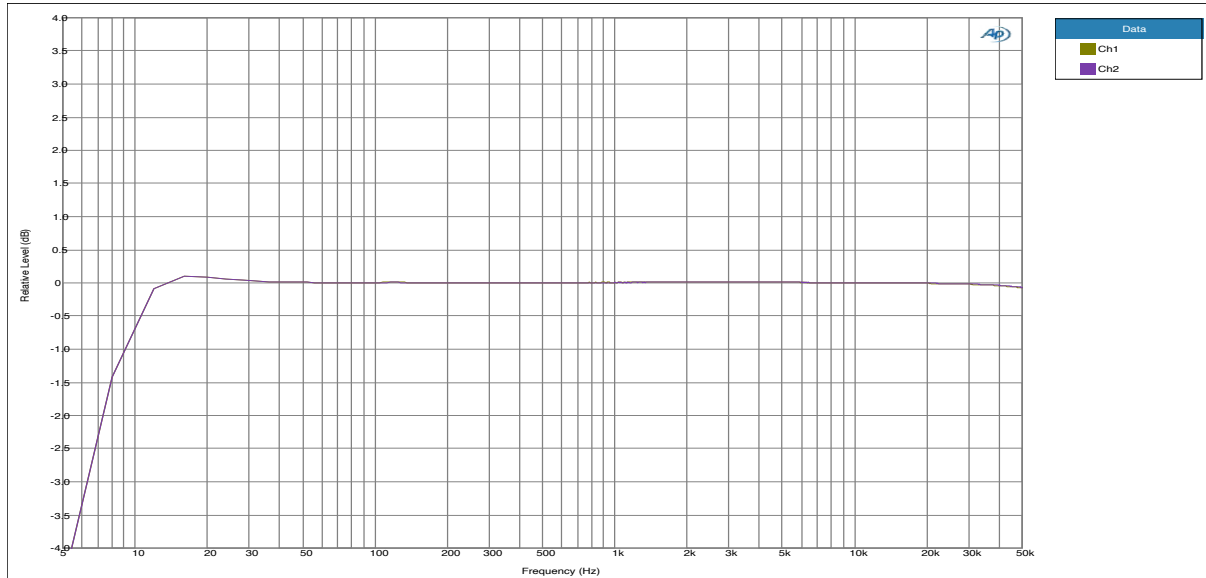
2-BUS-XT 100HZ XFORMER FFT



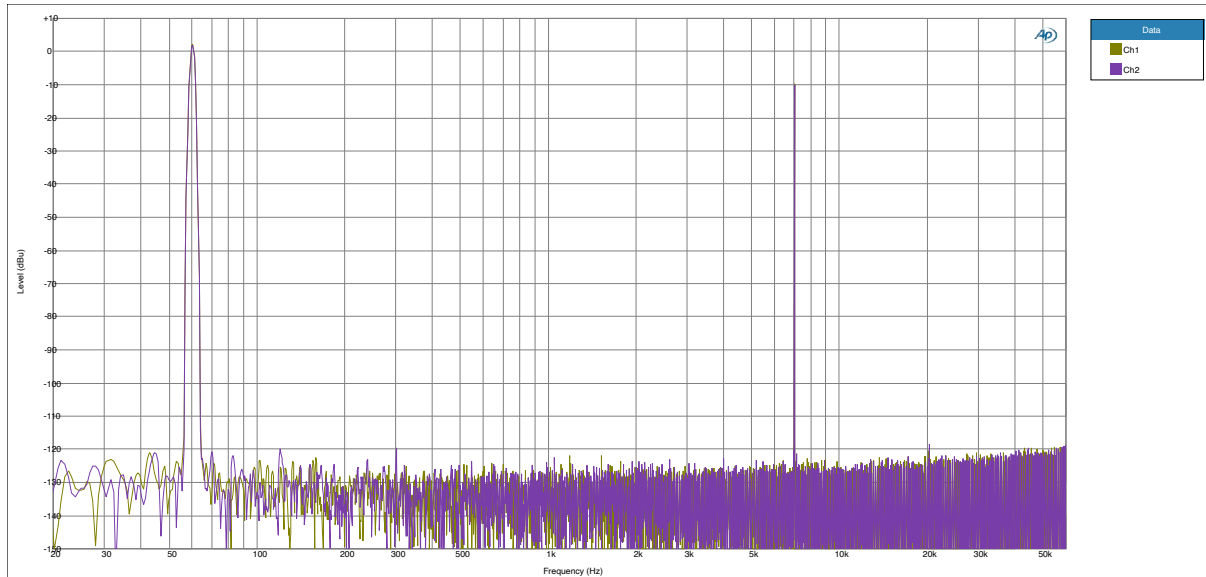
2-BUS-XT COHE IMD FFT



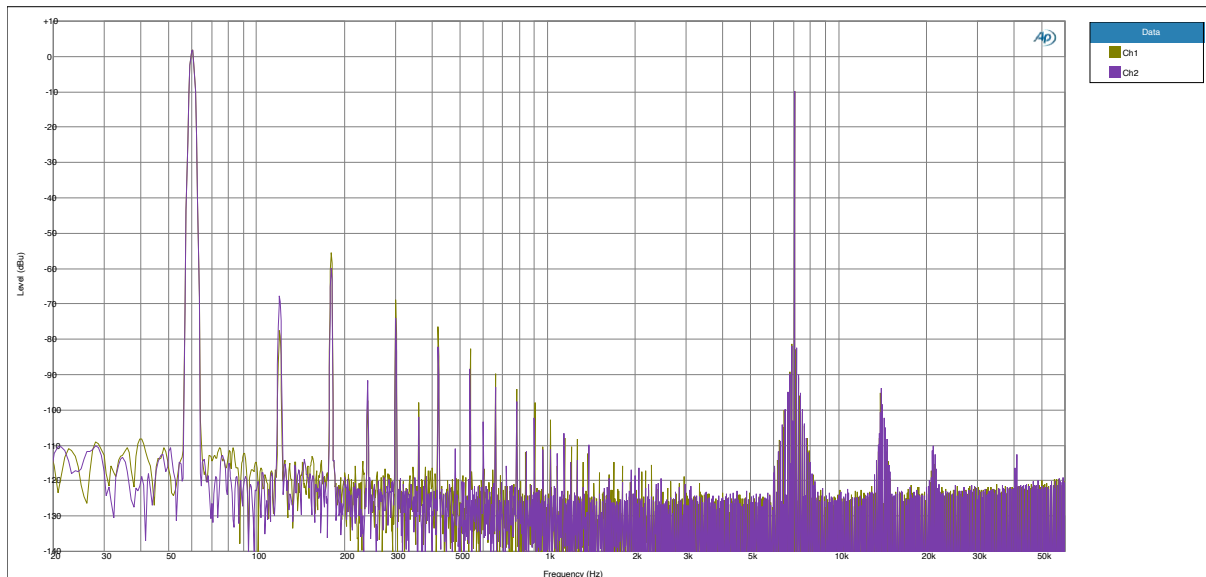
2-BUS-XT FREQ-RESPONSE SWEEP



2-BUS-XT IMD FFT



2-BUS-XT XFRM IMD FFT



HEAR EVERYTHING[®]



SACRIFICE NOTHING[®]