



# NVERTA

featuring CLIP GUARD™ technology

# **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 Incorporated reserves the right to change the specifications or modify the designs of its equipment. Sending in the registration card 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 this product 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 DMI. We tightly control production to use top quality materials.

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# THANK YOU

Thank you for choosing products from the exciting and innovative line of Dangerous Music recording equipment. Many years of reliable service can be expected from our gear. This is made possible through careful design, construction, and component choices by recording industry veterans.

If you have any suggestions for applications or future products, feel free to forward them. We are users like you.



### **ABOUT DANGEROUS MUSIC**

"Audio Integrity: non-negotiable." This is the credo upon which Dangerous Music is founded. Conceived and designed by end users—not by engineers in lab coats— the results are products that resurrect dynamic range, punch, intelligibility and emotion. These high-fidelity, uncompromising signal paths are achieved by harnessing over 3 decades 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, with the result being musical tools that fulfill the actual needs of today's flexible computer based studio.

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## **OVERVIEW**

D/A Conversion has been an integral part of the Dangerous Music legacy since 2002, when the MONITOR® set the standard for mastering engineers worldwide. Since then our D/As have been utilized in products like the D-BOX, DAC-ST, SOURCE and culminating in the CONVERT-2 and CONVERT-8 next generation converters. With this legacy firmly established, we sought to craft the ultimate A/D. Painstakingly designed without compromise, adhering only to the core philosophies of "transparent, yet musical" that have come to define Dangerous, the CONVERT-AD+ is profoundly detailed, to capture your sound with an unrestricted, potent low end and an unhyped clarity that holds true from the midrange through the open top end. (Pronounced \kän- v rt\ or KHAN-vert as in a person who has changed to a different religion, belief, etc...)



Unpack this auditory truth sayer and celebrate. Inside the box you'll find the CONVERT-AD+, this manual & a standard 3 Pin IEC power cable. Note: We recommend reading the entire manual (it's short- and so is life).

# **Convert-AD<sup>+</sup>: Front Panel Features & Benefits**

### 1. SAMPLE RATE SELECT



[SAMPLE RATE SELECT SECTION PICTURED ABOVE]

Feature: Adjustable Sample Rate via the select switch.

Benefit: Cycle through the 6 sample rates for universal compatibility with other devices.

Operation: For 88.2kHz both the 48kHz and 96kHz LEDs will light. For 176.4 both the 96kHz and 192kHz LEDs will light.

Tip: Lock Light is green. Red means there is no valid connection if slaving from an external word clock.

### 2. USB AUTO DETECT





TAUTOMATIC USB SAMPLE RATE DETECTION PICTURED ABOVE ON THE LEFT (192 LED WOULD BE BLINKING IF THIS WERE A VIDEO), OFF MODE PICTURED ON THE RIGHT. I

Feature: Automatic USB Sample Rate Detection

Benefit: Open a session and the sample rate will be selected automatically. This is especially useful when the CONVERT-AD<sup>+</sup> is part of an aggregate device group with CONVERT-2 or CONVERT-8 D/As, thus allowing users to create a system that will function like a singular, virtual interface.

Operation: **ON**- The selected sample rate LED will blink slowly, the other LEDs will all light solid, and sample rate selection from the front panel will be locked out.

**OFF-** The selected sample rate LED only will remain lit. Sample rate selection changes can be executed from the front panel manually.

Note: By default, the CONVERT-AD+ ships with this feature ON. To turn this feature OFF: press and hold the sample rate SELECT button for three seconds. To re-enable the automatic mode, plug in a valid USB connection to CoreAudio (Mac) or ASIO (Windows) and hold the sample rate SELECT button for three seconds.

This mode is only available in internal word clock mode (i.e. WORD CLOCK button is dimly lit). This mode will be overidden if the CONVERT-AD+ is clocked from the word clock input (brightly lit WORD CLOCK button) or used as the word clock master (blinking WORD CLOCK button).

In Internal Wordclock Mode (WORD CLOCK button dimly lit), the CONVERT-AD+ will generate and output word clock signal. This means it can be used as the word clock master while in the USB Auto Mode. Thus all devices connected to the word clock port or clocked from the digital output(s) can follow software prompted sample rate changes.

### 3. CALIBRATION

Note:

Tip:



[CALIBRATION SELECT SECTION PICTURED ABOVE]

Feature: Selectable Calibration Level via the Select Switch.

Benefit: Cycle through the three calibration levels for compatibility with other devices. For example, while Avid is generally -18dBFS,

### CONVERT-AD+

Apogee is generally -16dBFS and much of the mastering community prefer -14dBFS. If AD and DA converters are not calibrated to the same level there is no baseline for comparative A/B listening. Louder always wins. (Search "equal-loudness contours" for more on this topic).

### 4. ANALOG INPUT



[INPUT SOURCE SELECT SECTION PICTURED ABOVE]

Feature: Toggle between two, selectable stereo inputs.

Benefit: Two switchable stereo input paths. (See Diagrams at the end of this manual).

Examples: Use **INPUT 1** for tracking- connect two mono or one stereo mic preamp and **INPUT 2** for mixing- connect your final mix buss here post outboard processing and then send it back in to your DAW for capture.

Use **INPUT 1** and **INPUT 2** for tracking A/B auditions. Connect 2 stereo or 4 mono mic preamps.

Use **INPUT 1** to send your individual tracks back into the session after outboard processing (committing, to avoid recall settings in the future) and **INPUT 2** for mixing- connect your final mix buss here post outboard processing and then send it back in to your DAW for capture.

Come up with your own scenarios and get creative-

Note: These inputs cannot be selected simultaneously (that's called a "mixer", folks).

All connections wired pin 2 hot as per AES standards.

### 5. CLIP GUARD



[CLIP GUARD BUTTON PICTURED ABOVE]

Feature: Do you dig pushing the A/D beyond OdBFS, into clipping, for specific sonics? **CLIP GUARD** will turn off the red light LED at your destination (i.e. DAW).

Benefit: Now pesky clients worried about a red LED here and there won't harangue you and the majority of the digital upload sites will not reject your opus, since the red light overs will not appear.

Tip: When engaged, the CLIP GUARD button will light bright red and the OdBFS meter segment will turn solid green. When CLIP GUARD is actively eliminating the clipping at your destination (for example, turning off the red LED in Pro Tools), the OdBFS segment will turn red. The OVER INDICATOR (the last LED) functions the same regardless of CLIP GUARD's status. Thus, it will still turn yellow at 3 consecutive overs to provide visual feedback that you are clipping.

Tip: If you can hear clipping and engage **CLIP GUARD**, it will sound identical. It simply disables the clip LED in your DAW or destination device, but you will still be audibly clipping. <u>Proceed with caution</u>, too many overs will sound remarkably unpleasant. The historical "CD pressing plant" standard was no more than 3 consecutive overs.

Tip: Unlike "turning down the master fade level", Clip Guard does not alter the unclipped audio in any way.

### 6. CUSTOM METERING



[DIGITAL LED METER PICTURED ABOVE]

Feature: Premium custom crafted digital meter.

Benefit: Simultaneously view PEAK OVER AVERAGE. This reveals the audio's CREST FACTOR by supplying both RMS (average) information and PEAK (transient) information, aiding the quest to retain dynamics and music's emotive properties.

Tip: The meters change from green to yellow at the user determined calibration point. In other words, -14dBFS, -16dBFS or -18dBFS depending on the calibration selected (see CALIBRATION in section 2).

ip: 🎽 At -6dBFS, the LEDs turn red and the scale changes: instead of 1dB steps per LED, they are very refined 0.5dB steps.

Tip: When the 3 word **OVER INDICATOR** turns the last LED from green to yellow, this signifies that three consecutive samples have clipped. This is the limit of tolerance for a CD pressing to reject the project and a warning- cease flirting with digital overs, unless you choose to for sonic purposes (see **CLIP GUARD** in section 4).

### 7. PEAK HOLD / RESET



[PEAK HOLD/RESET BUTTON PICTURED ABOVE]

Feature: Meter Versatility. There are two modes, NORMAL and PEAK HOLD.

Benefit: Option 1. The peaks will be continually and automatically refreshed.

Option 2. The highest peak is permanently visible until the **RESET** button is pressed.

Operation: Press once to engage **PEAK HOLD** mode.

Press again to clear the stored peak.

Press and hold to exit **PEAK HOLD** mode and enter **NORMAL** mode.

### 8. METER SCALING



[METER SCALING SELECT BUTTON PICTURED ABOVE]

Feature: Zoom View.

Benefit: Select **ZOOM** to view only the top 10dB of your signal level, for a finer, magnified resolution.

Note: The outer scales are **STANDARD** and the inner scale notates **ZOOM**. (**STD** or **ZOOM** LED indicator will light).

Гір: 峰

The difference between the PEAK and the AVERAGE is the CREST FACTOR. Arguably, this dynamic range is where the music packs it's emotional punch. Thus this magnification setting is where 90% of the life of the music resides.

### 9. WORD CLOCK



[WORD CLOCK SELECT SECTION PICTURED ABOVE]

Feature: 3 Modes: Internal, External and Master.

Benefit: Normal: With the button de-selected (dim light) the AD+ will send out sync via all digital outputs including Word Clock.

External: Selecting this button (bright LED) will make the AD<sup>+</sup> slave to an external word clock source. For example, if utilizing a master studio clock, this would distribute WC to the AD<sup>+</sup>. The **SAMPLE RATE** LEDs will cycle through until the **LOCK LIGHT** turns from Red to Green indicating that sync has been achieved.

Master: Depress the button for 5 seconds. The LED will blink. Now the AD+ is the master studio clock, outputting Word

Clock and other digital sources will slave to it.



Try utilizing the CONVERT-AD+ as the master clock. Our high profile beta testers found it "remarkably revealing & detailed" and "...this is the best sounding clock auditioned to date- and we've tried everything."

Footnote: The CONVERT-AD+ leverages JetPLL technology and surround it with analog genius, thus executing it flawlessly. (JetPLL, JET and Jitter Elimination Technology are trademarks of TC Applied Technologies Ltd. JET is patented technology used under sublicense from TC Applied Technologies, & is the intellectual property of Sonopsis Ltd. blah, blah INGSOC corporate speak...)

### **10. X-FORMER INSERT**



[X-FORMER INSERT SECTION PICTURED ABOVE]

Feature: Click the **X-FORMER INSERT** button and engage some of Chris Muth's sonic wizardry via a pair of customized HAMMOND™ transformers (100 years of Canadian design); another of our unique approaches to generating real analog artifacts with legitimate character.

Benefit: The transformer tightens up the low end with a gentle roll off starting at 100Hz and 1/2dB down at 40Hz and 1dB down around 10Hz or so. Simultaneously, the energy removed by that curve is folded up an octave. Translation? The bass is more powerful on earbuds and small speakers. Subtle, yet pleasing.

On the top end side, there is a gentle rise starting at 3k to 1/2dB up at about 13k and 1dB up at 20k at nominal levels. During loud average levels (like "SSS" in a loud lead vocal) CORE SATURATION kicks in and the top end compresses gently. The outcome is heightened articulation, while softening the sheering at peaks.

Note: The **X-FORMER** is engaged even when the knob is <u>fully</u> counterclockwise (It is in series, not parallel). The button utilizes a TRUE HARDWIRE BYPASS- when it's bypassed, <u>none</u> of the **X-FORMER** or **EMPHASIS** circuitry is in the audio path.

Use: Insert the effect by selecting the **X-FORMER** Insert button with the knob fully counterclockwise (dry).

Tip: The subtle tightening of the bottom will often lessen the need for compression to low end content, like bass and kick drums. Many vocal tracks will also pick up a hint of interest from the subtle effects of running your mix through our transformers.

### 11. EMPHASIS KNOB



[EMPHASIS KNOB PICTURED ABOVE]

Feature: Add the perfect amount of **EMPHASIS** on a wet/dry knob.

Benefit: **EMPHASIS** is a shelving EQ/Compressor with a low turnover frequency that induces 2nd order harmonic distortion. The EQ starts boosting at 300Hz. (Imagine a BAX-EQ with a top shelf that goes down to 300Hz instead of 1.8kHz and boosts 1dB when the emphasis knob is at 12:00 and 2dB full on.) Blend in a bit of mid warmth and sparkle. **EMPHASIS** turns up the level gently by adding frequencies between the notes of your source. The compressor lowers the gain blended back into the transformer with a turnover point at about -14dBFS and reaching unity right at full scale.

Use: Click the **X-FORMER INSERT** button and engage some of Chris Muth's sonic wizardry via a pair of customized HAMMOND™ transformers and twist the **EMPHASIS** knob to the right to taste.

Outcome: **X-FORMER** adds a bit of sheen while gently smoothing out the harsh artifacts (not dramatically like a D-Esser) and the **EMPHASIS** knob drives a bit of compressed "warm n edge".

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## **Convert-AD<sup>+</sup>: Rear Panel Connections**

### 12. ANALOG INPUTS



[REAR PANEL ANALOG INPUTS PICTURED ABOVE]

Feature: Toggle between two selectable stereo inputs.

Benefit: Two switchable stereo input paths. (See Diagrams at the end of this manual).

Examples: Use **INPUT 1** for tracking- connect two mono or one stereo mic preamp and **INPUT 2** for mixing- connect your final mix buss here post outboard processing and then send it back in to your DAW for capture.

Use INPUT 1 and INPUT 2 for tracking A/B auditions. Connect 2 stereo or 4 mono mic preamps.

Use **INPUT 1** to send your individual tracks back into the session after outboard processing (committing, to avoid recall settings in the future) and **INPUT 2** for mixing- connect your final mix buss here post outboard processing and then send it back in to your DAW for capture.

Come up with your own scenarios and get creative-

Note: These inputs cannot be selected simultaneously (that's called a "mixer", folks).

All connections wired pin 2 hot as per AES standards.

### **13. AES OUTPUTS**



[REAR PANEL AES OUTPUT CONNECTORS 1 & 2 PICTURED ABOVE]

Feature: Dual AES Outputs.

Benefit: Send the digital signal to two different AES inputs. When connecting AES, use a high quality 110 ohm cable. (Jumperz

Audio Cables and Redco both manufacture these).

Note: All digital outputs are live at all times (most advantageous).

### CONVERT-AD+

### 14. ADAT OPTICAL OUTPUT



[REAR PANEL ADAT OPTICAL OUTPUT CONNECTOR PICTURED ABOVE]

Feature: ADAT Optical Output.

Benefit: Leverage that unused ADAT input on your interface. Utilizes channels 1 & 2 only.

### 15. SPDIF OPTICAL OUTPUT

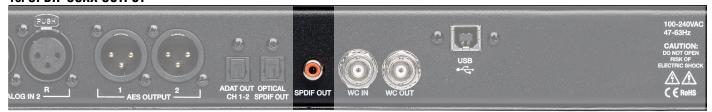


[REAR PANEL SPDIF OPTICAL OUTPUT CONNECTOR PICTURED ABOVE]

Feature: SPDIF Optical Output.

Benefit: For use with devices that have a SPDIF optical input.

### **16. SPDIF COAX OUTPUT**



[REAR PANEL SPDIF COAXIAL OUTPUT CONNECTOR PICTURED ABOVE]

Feature: SPDIF COAX output.

 $\label{eq:Benefit: Another digital output option, more common on many interfaces than the AES format.$ 

Tip: We a high quality, 75 ohm RCA-RCA cable (like those made by Jumperz and Redco)

### 17. WORD CLOCK IN & OUT



[WORD CLOCK INPUT AND OUTPUT CONNECTORS PICTURED ABOVE]

Feature: 3 Modes: Internal, External and Master.

Benefit: Normal: With the button de-selected (dim light) the AD+ will send out sync via all digital outputs including Word Clock.

External: Selecting this button (bright LED) will make the AD<sup>+</sup> slave to an external word clock source. For example, if utilizing a master studio clock, this would distribute WC to the AD<sup>+</sup>. The **SAMPLE RATE** LEDs will cycle through until the **LOCK LIGHT** turns from Red to Green indicating that sync has been achieved.

Master: Depress the button for 5 seconds. The LED will blink. Now the AD<sup>+</sup> is the master studio clock, outputting Word Clock and other digital sources will slave to it.

Note: When in Master clock mode, the sample rate must be manually selected and the destination devices must be set to the identical sample rate (i.e. all units at 192kHz).

Tip: Try utilizing the CONVERT-AD+ as the master clock. Our high profile beta testers found it "remarkably revealing & detailed" and "...this is the best sounding clock auditioned to date- and we've tried everything."

Footnote: The CONVERT-AD+ leverages JetPLL technology and surrounds it with analog genius, thus executing it flawlessly. (JetPLL, JET and Jitter Elimination Technology are trademarks of TC Applied Technologies Ltd. JET is patented technology used under sublicense from TC Applied Technologies, & is the intellectual property of Sonopsis Ltd. blah, blah INGSOC corporate speak...)

### **18. USB AUTO DETECT**



**TREAR PANEL USB OUTPUT CONNECTOR PICTURED ABOVE** 

Feature: Compatible with Apple and PC. CoreAudio in OS X and ASIO in Windows.

Benefit: Connect the CONVERT-AD<sup>+</sup> to any USB 2.0 or above compliant computer to receive output of the AD<sup>+</sup>. Apple is driverless and built into the OS X. For PC you must download the driver from www.dangerousmusic.com.

Feature: Automatic USB Sample Rate Detection

Benefit: Open a session and the sample rate will be selected automatically. This is especially useful when the CONVERT-AD<sup>+</sup> is part of an aggregate device group with CONVERT-2 or CONVERT-8 D/As, thus allowing users to create a system that will function like a singular, virtual interface.

Operation: **ON**- The selected sample rate LED will blink slowly, the other LEDs will all light solid, and sample rate selection from the front panel will be locked out.

**OFF-** The selected sample rate LED only will remain lit. Sample rate selection changes can be executed from the front panel manually.

Note: By default, the CONVERT-AD+ ships with this feature ON. To turn this feature OFF: press and hold the sample rate SELECT button for three seconds. To re-enable the automatic mode, plug in a valid USB connection to CoreAudio (Mac) or ASIO (Windows) and hold the sample rate SELECT button for three seconds.

Note: This mode is only available in internal word clock mode (i.e. WORD CLOCK button is dimly lit). This mode will be overidden if the CONVERT-AD+ is clocked from the word clock input (brightly lit WORD CLOCK button) or used as the word clock master (blinking WORD CLOCK button).



In Internal Wordclock Mode (WORD CLOCK button dimly lit), the CONVERT-AD+ will generate and output word clock signal. This means it can be used as the word clock master while in the USB Auto Mode. Thus all devices connected to the word clock port or clocked from the digital output(s) can follow software prompted sample rate changes.

### 19. POWER & SWITCHING



[REAR PANEL 3 PIN IEC CONNECTOR PICTURED ABOVE]

Feature: Three pin IEC cable.

Benefit: Simple to replace if lost.

Feature: Switching power supply auto detects voltage.

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

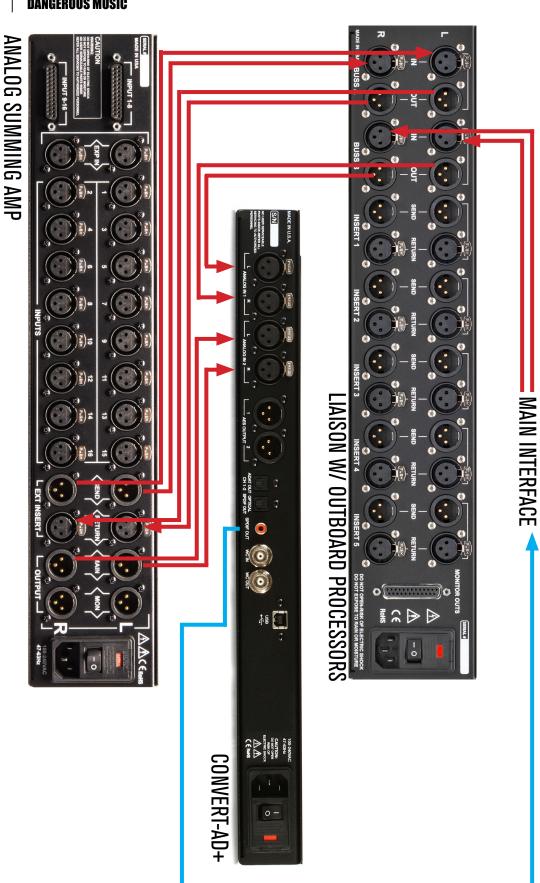
Operation: Unit ships with voltage appropriate fuse value. To change it, use a screwdriver to gently pry the mains inlet module's cover open and insert the correct value. Fuses for the alternate voltage are included in the shipping box.

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 CONVERT-AD+ will not power on and the power is known to be good, check the fuses under the inlet module's cover. Use 500 milliamp fast blow for 120V (America) and 250 milliamp fast blow for 240V (Europe).



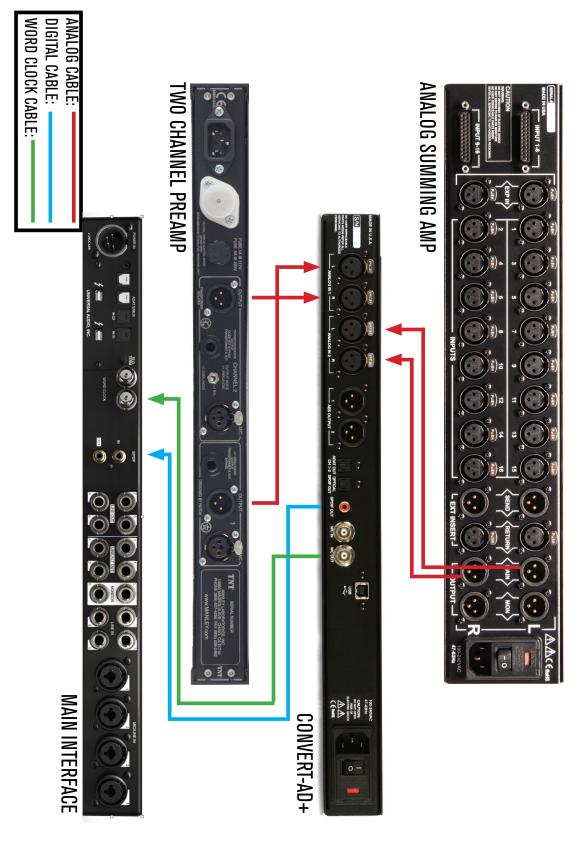
# Mixing: Convert-AD+



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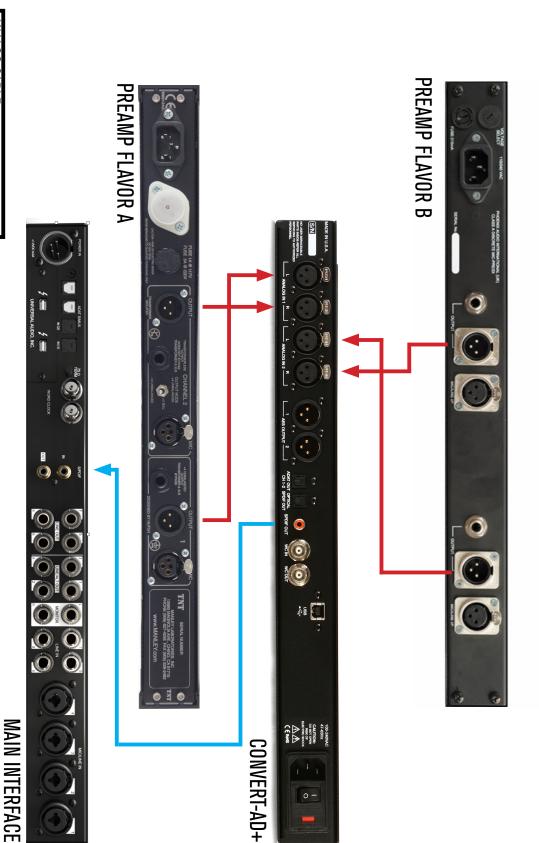
ANALOG CABLE: DIGITAL CABLE:

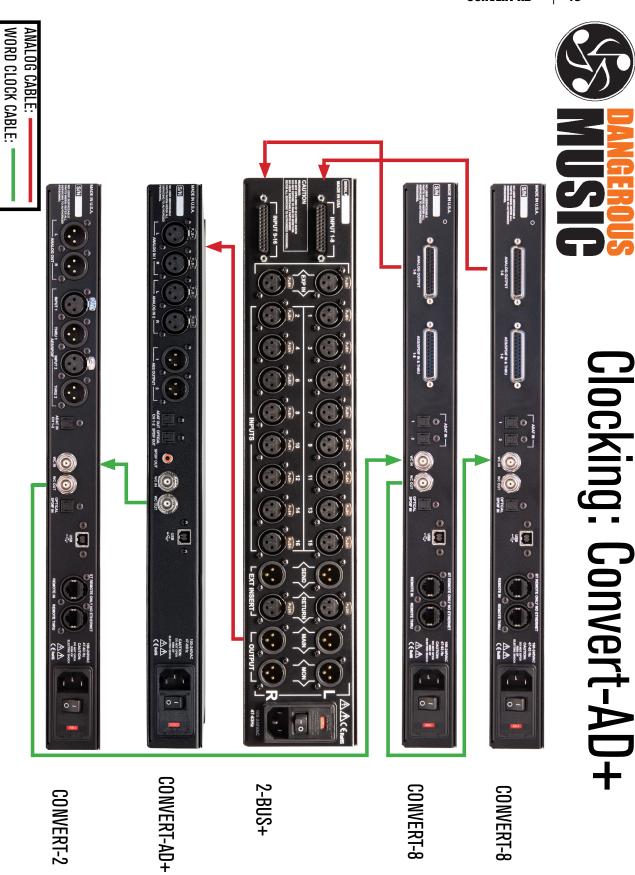


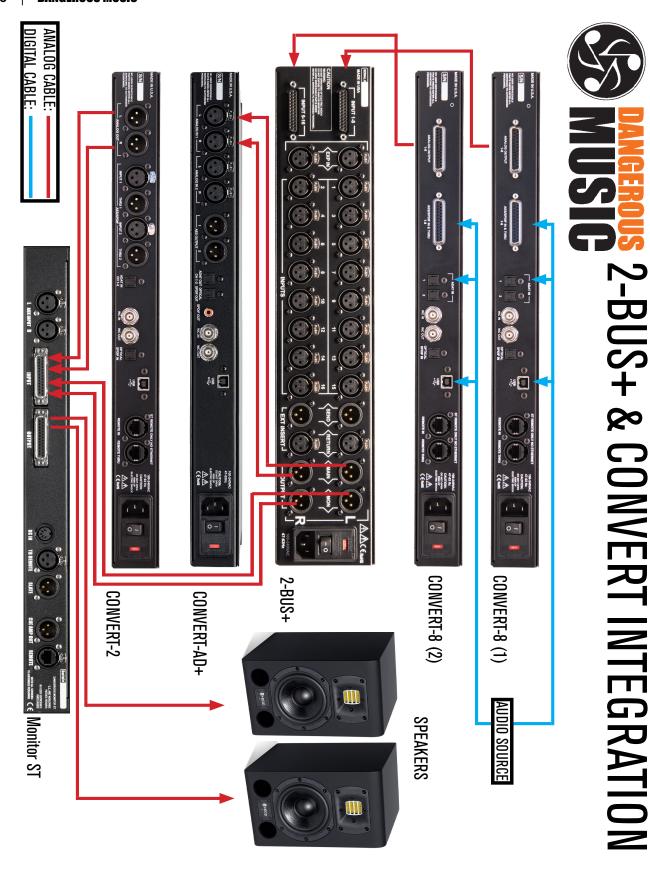




# Tracking: Convert-AD+







# **SPECIFICATIONS**

Signal to Noise Ratio A-weighted, 20Hz to 20KHz: < 121dB

Signal to Noise Ratio Unweighted, 20Hz to 20KHz: < 118dB

Dynamic Range A-weighted, 20Hz to 20KHz: < 121dB

Dynamic Range Unweighted, 20Hz to 20KHz: < 118dB

THD+N, 1kHz, unweighted, 20Hz to 20kHz, +4dBu in: < 0.0011%

THD+N, 1kHz, unweighted, 20Hz to 20kHz, +22dBu in: < 0.00035%

IMD, 60Hz / 7kHz, +4 dBu in: <0.0012%

Frequency Response @ 96KHz sample rate 20Hz to 40KHz: +0, -0.035dB

Jitter 16ps (100Hz to 40KHz), 18ps (100Hz to 1MHz)

Crosstalk rejection > 118dBu @ 15 Hz - 40kHz, +/- 0.04 dB

# **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 Inc.	Dangerous Music Europe	
231 Stevens Road	Stieleichenweg 55	
Edmeston, NY 13335	50999 Cologne, Germany	
Phone: (845) 202-5100	Fon: +49 2236 393731	
	Fax: + 49 2236 393732	
Email: info@dangerousmusic.com	E-mail: info@dangerousmusic.de	

Dangerous Music, Inc. 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!

