



Congratulations on your purchase of 500ADAT and thank you for selecting Cranborne Audio to be a part of your music creation process.

What we set out to achieve with 500ADAT was putting control back into the hands of musicians and engineers. In a sea of products that rely on computer integration and a “virtual emulation” mentality, we set out to offer an alternative that places a true, customisable, and flexible analogue front-end at the forefront of music creation - after all, the feel and touch of a musician is analogue and that's where the music begins.

Working in harmony with 500ADAT's analogue stages is its high-performance digital stages. Each and every component inside 500ADAT has been carefully considered to ensure that every nuance of your 500 series module is translated into the best possible digital signal to be processed. We employ converters with specifications that rival that of the best standalone units whilst being governed by our master reference-grade clock featuring less than 0.5 picoseconds of jitter.

Cranborne Audio, for us, means so much more than metal boxes with components in them. These are our labours of love that embody and demonstrate our demand for excellence. By distilling what matters and putting our soul into these tools, we hope to help other people make magic and express themselves, and in some way, become part of our Cranborne Audio family.

So welcome to our family. We care for our family. And we care about making your tracks, albums, scores sound as good as they should.

Sean Karpowicz

Edward Holmes

Elliott Thomas

Andrew Pat

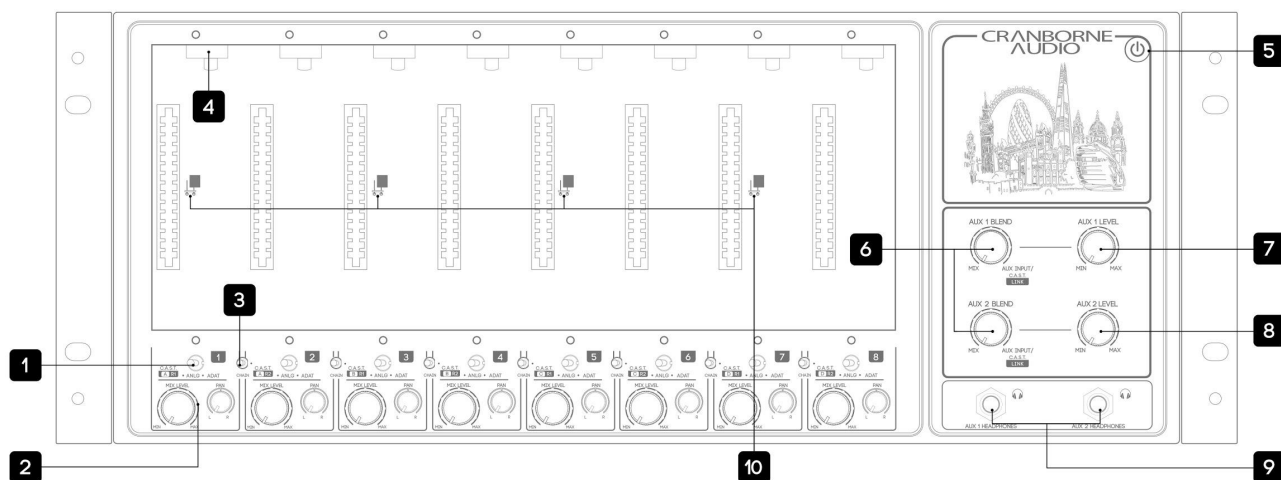
500ADAT Quick Start Guide

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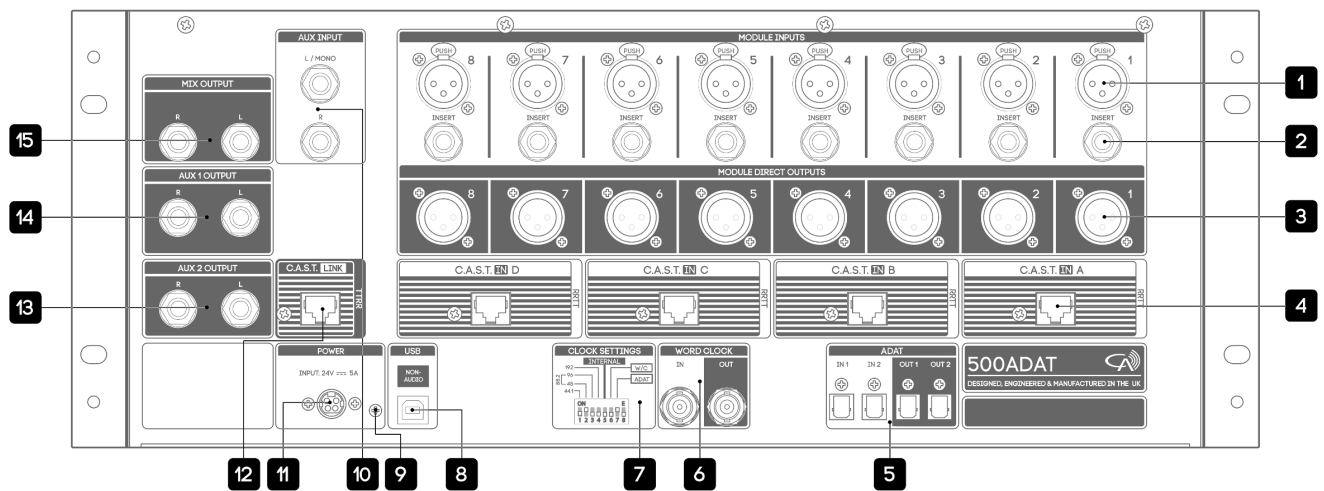
Please download the full User Manual from the 500ADAT product page on the Cranborne Audio website

www.cranborne-audio.com

Controls and Connectors



<p>[1] Source Switch: Toggles the input source of each 500 series slot between C.A.S.T., Analogue, and ADAT sources.</p>	<p>[6] Aux 1 & 2 Blend Controls: Blends the Summing Mixer and Aux Input together into the Aux 1 and 2 Busses independently.</p>
<p>[2] Mix Level & Pan Controls: Adjusts the level and pan position of each 500 series slot into the built-in Summing Mixer.</p>	<p>[7+8] Aux 1 & 2 Level Controls: Adjusts the main level of Aux 1 and 2 to their discrete headphones and Aux Output 1/4" jack outputs on the rear panel.</p>
<p>[3] Chain Switch: Sends the output of the preceding module into the input of the next. (1 into 2, 2 into 3, 3 into 4 etc).</p>	<p>[9] Aux 1 & 2 Headphones Outputs: Used for connecting Independent headphones to Auxes 1 and 2.</p>
<p>[4] Slot Bypass Switch: Bypasses the 500 series slot to enable recording without a module installed. All other features function normally when slot bypass is engaged.</p>	<p>[10] Stereo Link Jumper: Connects Pin 6 between two adjacent 500 series slots to enable the Stereo Link feature of supporting modules. Stereo Linking only available between modules 1-2, 3-4, 5-6, and 7-8.</p>
<p>[5] Power Switch: Safely powers on and off 500ADAT as well as any inserted 500 series module. Tap to power on, press and hold to power off.</p>	



<p>[1] Module Input: Connects balanced XLR analogue inputs into each 500 series slot. Input sensitivity varies depending on the type of module inserted.</p>	<p>[8] USB 2.0: Used for software updating and non-audio purposes only. Cannot be used as an audio interface.</p>
<p>[2] Insert: Connects external equipment in-line after the 500 series module but before the A/D of each 500 series slot. Utilises a standard Y-split or insert cable. (Tip=send, Ring=return).</p>	<p>[9] Grounding Post: Enables direct binding to chassis ground to help eliminate ground loops in specific setups.</p>
<p>[3] Module Direct Outputs: Sends balanced, line-level outputs of each 500 series slot for connection to external converters and equipment. Module Direct Outputs are positioned post-insert point, pre Mix Level.</p>	<p>[10] Aux Input: Connects analogue playback sources from external audio interfaces directly into 500ADAT's monitoring paths.</p>
<p>[4] C.A.S.T. A, B, C, & D Inputs: Enables I/O relocation and expansion via Cranborne Audio C.A.S.T. enabled breakout boxes.</p>	<p>[11] Power: Provides 500ADAT with power via the provided external 24v 5A DC power supply. No other power supply should be used.</p>
<p>[5] ADAT I/O: Interfaces 500ADAT's 8-in/8-out ADAT optical lightpipe channels directly into your audio interface of choice.</p>	<p>[12] C.A.S.T. Link: Enables linking of the Summing Mixers between 500ADAT and a 500R8. C.A.S.T. link transmits the Summing Mixer into the connected 500R8 for monitoring.</p>
<p>[6] Word Clock I/O: Enables sending and/or receiving word clock information to/from external digital devices.</p>	<p>[13+14] Aux 1 & 2 Outputs: Connects balanced line outputs of 500ADAT's Aux 1 and 2 Busses to external monitoring devices or similar via 1/4" jacks.</p>
<p>[10] Clock Settings: Adjusts 500ADAT's Clock Settings including Clock Source and Sample Rate.</p>	<p>[15] Mix Output: Connects line outputs of 500ADAT's built-in Summing Mixer directly to external converters or similar via 1/4" jacks.</p>

Package Contents

So now your 500ADAT is out of its packaging, you're probably itching to get it powered on and making music! But before you get started, please read the sections below that will help guide you through the process of getting 500ADAT setup, plugged in, and ready-to-record as quickly as possible!

The following items can be found in the packaging alongside 500ADAT:

- External power adapter
- IEC cable
- 16 module fixing screws (crosshead, 4-40 thread size)
- Allen key (2.5mm)
- Quickstart Guide

Rack Ear Orientations

There's more to 500ADAT's rack ears than meets the eye. 500ADAT's rack ears can be repositioned in 3 ways to suit particular applications and offer greater protection during transport.

Standard - Standard rack ear configuration where the rack ears are mounted flush to the front panel of 500ADAT.

Recessed - Protective rack ear configuration where 500ADAT is set backwards into its rack ears to protect front panel controls during travelling and location recording.

Handle - Portable rack ear configuration where 500ADAT's rack ears are removed, placed back-to-back, and attached to 500ADAT as a convenient carry-handle for travelling.

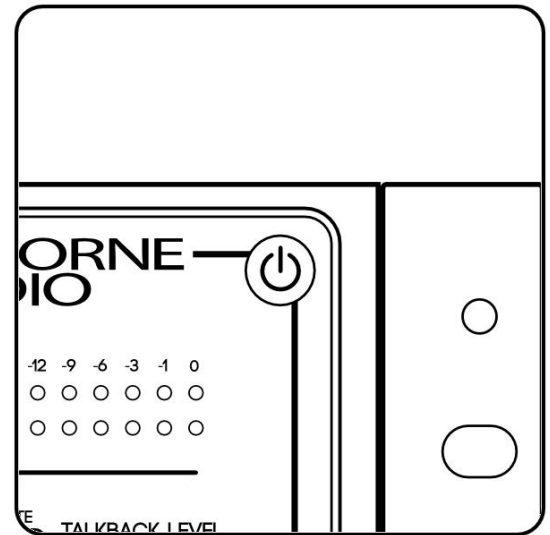
Depending on your desired use case, you may need to reorientate the rack ears and position the rubber feet to best suit your application by using the supplied 2.5mm allen key.

For more information regarding the rack ears and their possible orientations, please read the full instructions in 500ADAT's User Manual.

Powering Procedures

Powering On

First, make sure your speakers are switched off and any headphones are disconnected. Briefly tap the power button located on the top right of 500ADAT's front panel. The power icon will illuminate blue and you will hear soft 'clicking' as 500ADAT's internal relays actuate. You may now switch on your external equipment sequentially, leaving your speakers until last.



Powering Off

First, make sure your speakers are switched off and any headphones are disconnected. Press and hold the power button for approximately 3 seconds. The power icon will deluminate and you will hear the soft 'clicking' of the relays indicating that the unit has been powered off.

Note:

Please follow these safe powering sequences carefully in order to prevent any unwanted pops and spikes causing damage to downstream audio components including speakers and headphones.

Installing and Removing 500 Series Modules

Installing Modules

1. Ensure 500ADAT is powered off and the power connector has been *removed*. Wait 30 seconds before continuing.
2. Firmly touch the metal chassis of 500ADAT to discharge any built-up static electricity.
3. Carefully pick up your 500 series module and locate its conductive edge into the backplane connector of 500ADAT.
4. Once located, push the module into place and secure the module into the rack using the supplied 4-40 screws - be careful not to over tighten and strip the screw or thread.

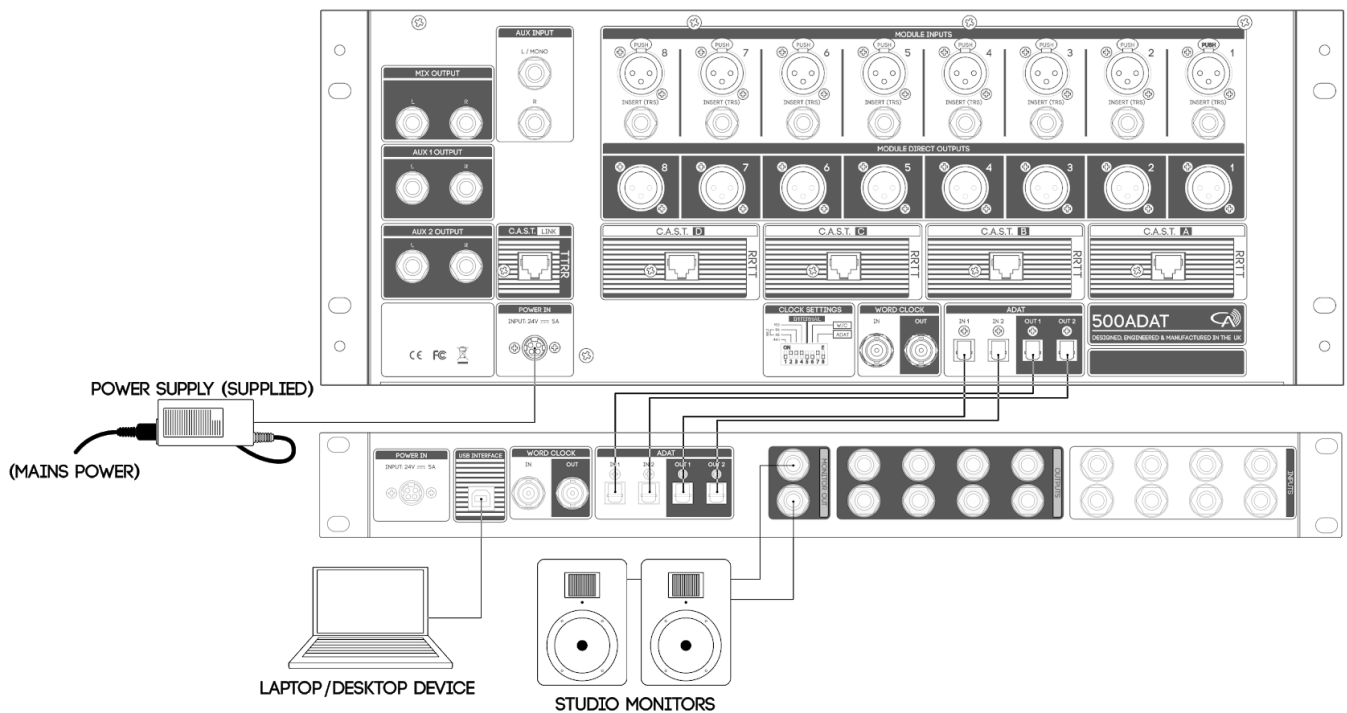
Removing Modules

1. Ensure 500ADAT is powered off and the power connector has been *removed*. Wait 30 seconds before continuing.
2. Firmly touch the metal chassis of 500ADAT to discharge any built-up static electricity.
3. Remove the 4-40 module fixing screws and store them in a safe place for future use.
4. Firmly pull the 500 series module to release the module from the backplane connector of 500ADAT and then carefully remove the module from the rack itself.

Note:

Removing or installing modules when any 500 series rack is powered on can cause irreparable damage to the backplane connector, supporting circuitry, and the 500 series module. Damage caused when "Hot Swapping" or installing/removing modules whilst 500ADAT is powered on is not covered under Cranborne Audio's Warranty.

Hardware Setup



This hardware setup diagram will get 500ADAT connected to your audio interface and ready for recording.

- 1) Connect mains power into the external PSU supplied in 500ADAT's packaging and connect the power connector into 500ADAT's power inlet.
- 2) Connect 500ADAT to your audio interface using Optical Cables with Toslink connectors:
 - a) 500ADAT's ADAT *outputs* should be connected to your audio interface's ADAT *Inputs*.
 - b) 500ADAT's ADAT *inputs* should be connected to your audio interface's ADAT *outputs*.
- 2) Configure 500ADAT's rear panel Clock Settings DIP switches:
 - a) Select your desired Sample Rate using DIP switches 1-4.
 - b) Configure DIP switch 5 into its UP/ON position.
 - c) All other DIP switches should be DOWN/OFF.
- 3) Power On 500ADAT using a brief tap of the Power button.
- 4) Configure your audio interface to clock from via ADAT and ensure your project's Sample Rate matches the Sample Rate set on 500ADAT's Clock Settings DIP switch.
 - a) Consult the manufacturer of your audio interface for instructions on how to clock externally via ADAT.

Note:

To achieve 500ADAT's best performance, 500ADAT should be set as the clock master of your system and the project sample rate should match 500ADAT's.

Configuring Clock Source

500ADAT can be integrated into your studio as either a master or slave device by configuring its Clock Settings DIP switches. These DIP switches allow for direct control over 500ADAT's internal clock and are divided into Sample Rate selection (switches 1-4) and Clock Source selection (switches 5-8).

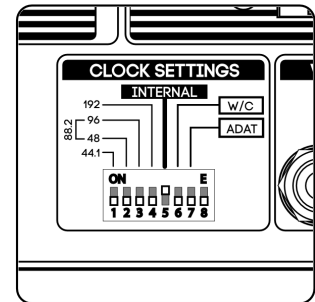
The clock source can be assigned to 3 different options to allow for maximum integration into your studio space.

Internal Clock (default, recommended)

Configures 500ADAT to generate its own ultra-low jitter clock. This setting should be used when 500ADAT is set as the clock master of your system. This setting guarantees the best performance from 500ADAT's converters.

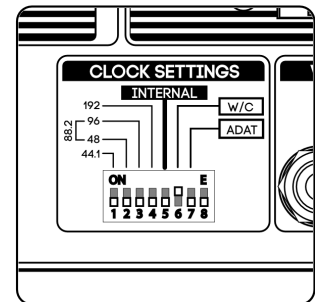
Note:

When using 500ADAT as the clock master and clocking using it's Internal Clock, the connected audio interface must be configured to receive it's clock via it's ADAT input.



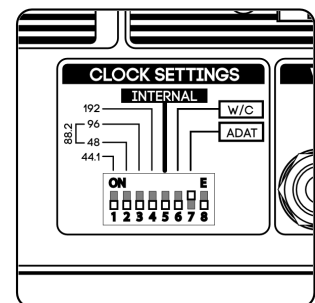
Word Clock

Configures 500ADAT to slave from a device connected to its Word Clock Input connector. This setting should be used if you need 500ADAT to slave off of your audio interface via word clock.



ADAT Recovered

Configures 500ADAT to slave from a device connected to its ADAT IN 1 connector. This setting should be used if you need 500ADAT to slave off of your audio interface via ADAT.









Note:

Please take care to mute your ADAT connections on your audio interface before configuring 500ADAT's clock source as sync noises can be present on the ADAT outputs when the recovery clock is reconfiguring and resyncing. This process takes approximately 3-5 seconds.

If the Sample Rate selected on 500ADAT's DIP switches does not match the Sample Rate of the connected audio interface, 500ADAT's ADAT outputs are automatically muted until the Sample Rate is matched between 500ADAT and the connected audio interface.

Configuring Sample Rate

The Clock Settings DIP switches are also used to assign 500ADAT's operating Sample Rate. DIP switches 1-4 can be configured in up to 6 ways to achieve the major Sample Rates from 44.1kHz to 192kHz. The Sample Rate selected on the Clock Settings DIP switches needs to match the Sample Rate selected on the connected audio interface to prevent clocking errors, dropouts, and audio artefacts.

Sample Rate	DIP switch
44.1kHz	
48kHz	
88.2kHz	
96kHz	
176.4kHz	
192kHz	

ADAT, SMUX II, & SMUX IV

500ADAT implements an in-depth integration of ADAT with SMUX II and IV to allow recording at higher sample rates.

2 ADAT Input and 2 ADAT Output ports enable expansion of up to 8 channels at 44.1 to 96kHz, or 4 channels at 176.4 to 192kHz.

The below table details the routing of ADAT I/O between the 4 ADAT ports and 500ADAT's 500 series slots including the tradeoffs between high sample rates and the available I/O count:

Sample Rate	<u>In 1</u>	<u>In 2</u>	<u>Out 1</u>	<u>Out 2</u>
44.1/48kHz	Slot Input 1 - 8	N/A	Slot Output 1 - 8	N/A
88.2/96kHz	Slot Input 1 - 4	Slot Input 5 - 8	Slot Output 1 - 4	Slot Output 5 - 8
176.4/192kHz	Slot Input 1 - 2	Slot Input 3 - 4	Slot Output 1 - 2	Slot Output 3 - 4

Note:

In order to achieve the full channel count at the highest sample rates, the audio interface connected to 500ADAT needs to be compatible with SMUX II and IV protocols and both ADAT I/O ports need to be connected.

Safety Information

General Safety

- Read these instructions carefully
- Keep these instructions
- Heed all warnings
- Follow all instructions
- Do not use this apparatus near water
- Clean only with a dry cloth
- Do not block any ventilation openings and install in accordance with the manufacturer's instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves or other apparatus (including amplifiers) that produce heat.
- Do not defeat the safety purpose or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades with a third grounding prong. The wide blade or the 3rd prong are provided for your safety. If the provided plug does not fit your outlet, consult an electrician for replacement of the obsolete outlet.
- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- Only use attachments/accessories recommended by the manufacturer.
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- 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.
- Do NOT modify this unit, alterations may affect performance, safety and/or international compliance standards.
- Cranborne Audio does not accept liability for damage caused by maintenance, repair or modification by unauthorized personnel.

Installation notes

- When installing the apparatus either fit it into a standard 19" rack or place it on a secure level surface.
- If the unit is rack mounted, fit all rack screws.
- When rack mounting, allow a 1U gap above and below the unit for cooling.
- Ensure that no strain is placed on any cables connected to this apparatus. Ensure that all such cables are not placed where they can be stepped on, pulled, or tripped over.



WARNING: To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

ATTENTION: Afin de réduire les risques de choc électrique, ne pas exposer cet appareil à l'humidité ou à la pluie.

Power Safety

- The unit is supplied with an external power supply and suitable mains lead. Only use the supplied external power supply, however if you decide to use a mains lead of your choice, bear in mind the following:
 - Refer to the rating label of the unit and always use a suitable mains cords.
 - The unit should ALWAYS be earthed with the earth on the IEC socket.
 - Please use compliant 60320 C13 TYPE SOCKET. When connecting to supply outlets ensure that appropriate sized conductors and plugs are used to suit local electrical requirements.
 - Maximum cord length should be 4.5m (15')
 - The cord should bear the approval mark of the country it is to be used.
- Connect only to an AC power source that contains a protective earthing (PE) conductor.
- Only connect unit to single phase supplies with the neutral conductor at earth potential.

GB The apparatus shall be connected to mains socket outlets with a protective earthing connection.

DEN Apparatets stikprop skal tilsluttes en stikkontakt med jord, som giver forbindelse til stikproppens jord.

FIN Laite on liitettävä sojamaadoituskoskettimilla varustettuun pistorasiaan.

NOR Apparatet må tilkoples jordet stikkontakt.

SWE Apparaten skall anslutas till jordat uttag.



ATTENTION: Un-earthed metal parts may be present inside the enclosure. No user serviceable parts inside - to be serviced only by qualified personnel. When servicing, disconnect all power sources before removing any panels.

CE Certification



This unit is CE compliant. Note that any cables supplied with Cranborne Audio equipment may be fitted with ferrite rings at each end. This is to comply with the current regulations and these ferrites should not be removed.

FCC Certification

- Do not modify this unit! This product, when installed as indicated in the instructions contained in the installation manual, meets FCC requirements.
- Important: this product satisfies FCC regulations when high quality shielded cables are used to connect with other equipment. Failure to use high quality shielded cables or to follow the installation instructions may cause magnetic interference appliances such as radios televisions and will void your FCC authorisation to use this product in the USA.
- This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

RoHS Notice

Cranborne Audio complies with and this product conforms to European Union's directive 2011/165/EU on Restrictions of Hazardous Substances (RoHS) as well as the following sections of California law which refer to RoHS, namely sections 25214.10, 25214.10.2, and 58012, Health and Safety Code Section 42475.2, Public Resources Code.

Instructions for disposal of WEEE by end users in the European Union



The symbol shown here, which is on the product or on its packaging indicates that this product must not be disposed of with other waste. It is the user's responsibility to dispose of their waste equipment by handing it over to a designated collection point for recycling waste electrical equipment and electronic equipment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or where you purchased the product.



WARNING: cancer and reproductive harm - www.P65Warnings.ca.gov



Evaluation of apparatus based on altitude not exceeding 2000m. There may be some potential safety hazard if the apparatus is operated at altitude exceeding 2000m.



Evaluation of apparatus based on the temperate climate conditions only. There may be some potential safety hazard if the apparatus is operated in tropical climate conditions.

Electromagnetic Compatibility

EN 55032:2015, Class B, EN 55016-2-1:2009 A1 2011, EN 55016-2-3:2010 A1 2010, EN 55035:2017, EN 61000-4-2:2009, EN 61000-4-3:2006 A1 2008 A2 2010, EN 61000-4-4:2012, EN 61000-4-5:2014 A1 2017, EN 61000-4-6:2014, EN 6100-4-11:2004 A1 2017, EN 61000-3-2:2014, EN 61000-3-2:2013, FCC Part 15B Class B, ANSI C63.4:2014, ICES-003 Issue 6: Class B

Audio input and output ports are screened cable ports and any connections to them should be made using braid-screened cable and metal conductor shells in order to provide a low impedance connection between the cable screen and the equipment.

WARNING: Operation of this equipment in a residential environment could cause radio interference.

Environmental

- Operating Temperature: +1 to 30 degrees Celsius.
- Storage: -20 to 50 degrees Celsius.

For more information and guidance, please read your devices' User Manual or visit the Cranborne Audio website:

www.cranborne-audio.com