# M-DAC +
# User Instructions

audiolab

**CAUTION**

**RISK OF ELECTRIC SHOCK
DO NOT OPEN**

**AVIS: RISQUE DE CHOC ELECTRIQUE-NE PAS OUVRIR
WARNING: SHOCK HAZARD-DO NOT OPEN**

This lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of non-insulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock. Warning: to reduce the risk of electric shock, do not remove the cover (or back) as there are no user-serviceable parts inside. Refer servicing to qualified personnel. The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance instructions in the literature accompanying the appliance.

IMPORTANT SAFETY INFORMATION

Read these instructions.

Keep these instructions.

Heed all warnings.

Follow all instructions.

Do not use this apparatus near water.

Clean only with dry cloth.

Do not block any ventilation openings. Install in accordance with the manufacture's instructions.

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 plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

Protect the power cord from being walked on or pinched particularly at the plugs, convenience receptacles, and at the point where they exit from the apparatus.

Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart or rack is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

Unplug the 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.

CAUTION: These servicing 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 operating instructions unless you are qualified to do so.

Do not install this equipment in a confined or built-in space such as a bookcase or similar unit, and keep well ventilated in open space. The ventilation should not be impeded by covering the ventilation openings with items such as newspaper, table-cloths, curtains etc.

WARNING: Excessive sound pressure from earphones and headphones can cause hearing loss.

WARNING: Only use attachments/accessories specified or provided by the manufacturer (such as the exclusive adapter).

WARNING: Please refer to the information on the exterior panel of the enclosure for electrical and safety information before installing or operating the apparatus.

WARNING: For the terminals marked with symbol of " ⚡ " may be of sufficient magnitude to constitute a risk of electric shock. The external wiring connected to the terminals requires installation by an instructed person or the used of ready-made leads or cords.

Mains Supply: The mains operating voltage of M-DAC+ is shown on the rear panel. If this voltage does not match the mains voltage in your area, consult your Audiolab dealer about converting the unit.

The mains supply fuse on the rear panel is accessible when the IEC mains plug has been removed. In the rare event that it has broken, check for any obvious cause before replacing the fuse with one of the correct rating and type. The fuse values are:

220 – 240V (UK, EU, Korea, etc.) T1AL 250V 20mm Slow Blow

100 – 120V (USA, Japan, etc.) T1.6AL 250V 20mm Slow Blow

Protective earthing terminal. The apparatus should be connected to a mains socket outlet with a protective earthing connection.

Welcome to Audiolab's latest version of its award winning high-end DAC.

M-DAC+ enhances the performance of the original M-DAC in so many ways. Now capable of 24-bit/192kHz resolution for coaxial and optical inputs, 32bit/384kHz for USB input. M-DAC+ can also link directly to your Apple™ devices output to make the most of all your stored music via an A-type USB cable.

If you're a fan of DSD audio, M-DAC+ even encompasses that format too. And with its choice of 4 different decoding filters for DSD audio and 7 filters for PCM audio, you can select the right filter to get the best performance from each source right from the comfort of your listening seat.

In addition, Audiolab's engineers have dug into the depths of the digital decoding capabilities of the Sabre 32-bit DAC that is at the heart of M-DAC+, extracting every ounce of musical detail and displaying it in a stunningly realistic, rich and believable 3D acoustic.

Versatile in capability and alluring in performance, M-DAC+ will continue to delight you for many years to come.

Please read through this manual to obtain the very best performance from M-DAC+.

## Signal Input:

- One external SPDIF stereo LPCM coaxial digital input
- One external SPDIF stereo LPCM optical digital input
- One professional AES/EBU digital studio input
- USB 2.0 port for replaying stereo from a compatible host
- iOS docking for iPhone®/iPad®

## Signal Output:

- Balanced and Unbalanced stereo analogue outputs
- Optical and coaxial SPDIF digital output.

## Operating Features:

- Automatic detection decoding of external digital input source.
- Selectable digital filter setting.
- Fully variable output in the digital domain - absolute fidelity with the straightest possible signal path.
- Mute and balance controls.
- Automatic standby on-off switching of connected equipment via 12V trigger output.
- Analogue output level selectable between fixed and variable.
- Three display brightness levels with on/off options.
- Auto standby function with on/off option.

Note: You can connect the analogue outputs of M-DAC+ directly to a power amplifier. If there are gain controls on the power amplifiers, set the gain to maximum and use the volume control on the M-DAC+ to alter the level. If you wish to connect the M-DAC+ to a pre-amplifier, you may disable the volume control in the digital domain.

## Unpacking

Unpack the product fully. The carton should contain:

- The Audiolab M-DAC+
- One M-DAC+ power cord suitable for your area.
- CD-ROM for USB driver
- This instruction manual.

Please note: The remote control requires a CR2025 type battery. Due to international shipping and courier regulations with Lithium Ion batteries, the remote controller battery is not included in this package.
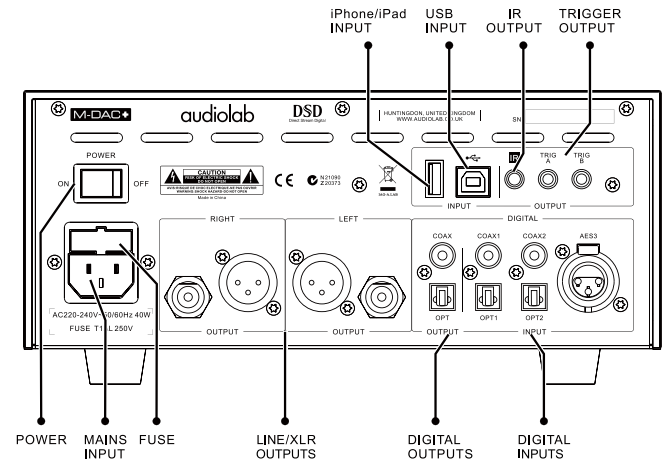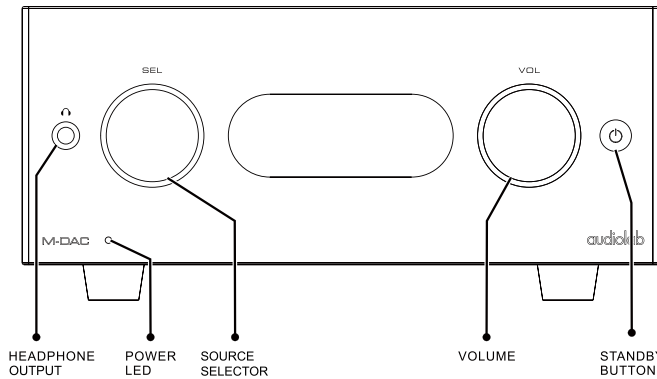
If an item is missing or damaged report this to your dealer as soon as possible. Retain the packing for safe transport of your unit. If you dispose of the packing, do so with regard to any recycling regulation in your area.
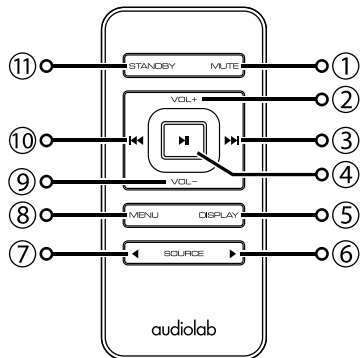
## Placement

The unit is designed to run warm during normal operation but ensure you do not block any ventilation openings.

Place the unit on a sturdy shelf or table. If you use an equipment rack ensure the unit has adequate ventilation and is on its own shelf.

Ensure your mains voltage corresponds to the rating plate on the rear of the product's power supply. If in doubt, consult your dealer. If you move to an area with a different mains voltage seek advice from an Audiolab appointed dealer or a competent service technician.

HEADPHONE OUTPUT  POWER LED  SOURCE SELECTOR  VOLUME  STANDBY BUTTON



iPhone/iPad INPUT  USB INPUT  IR OUTPUT  TRIGGER OUTPUT

POWER  MAINS INPUT  FUSE  LINE/XLR OUTPUTS  DIGITAL OUTPUTS  DIGITAL INPUTS

1 MUTE          Press to mute and unmute the sound

2 VOL+          Increase Volume

3 ▶▶|           Move to the next track of CD/USB

                Move to next page or setting in menu

4 ▶||           Press to start/pause CD/USB

                Press to confirm page or setting selected in menu

5 DISPLAY       Press to cycle through display options

6 ▶             Press to select next source

7 ◀             Press to select previous source

8 MENU          Press to enter or exit menu

9 VOL–          Decrease Volume

10 |◀◀          Press once to replay the current track of CD/USB

                Press again to move to the previous track of CD/USB

11 STANDBY      Press to bring the unit in/out of Standby

## Preparing the Handset

• Unpack the handset

• Invert the handset

• Remove the battery cover

• Place a new battery as shown

• Close the battery cover
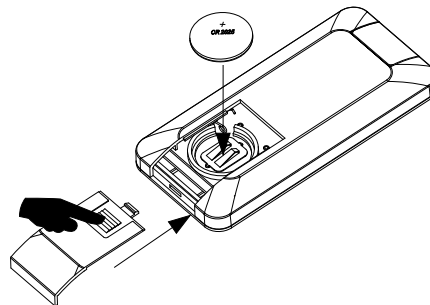


## Battery Caution

• The remote control requires a CR2025 type battery. Due to international shipping and courier regulations with Lithium Ion batteries, the remote controller batteries are not included in this package.

• There is a risk of fire and burns if the battery is handled improperly

• Do not disassemble, crush, puncture, short external contacts or dispose in fire or water.

• Do not attempt to open or service the battery. Replace only with a CR2025 battery.

• Discard used batteries in accordance with recycling regulations in force in your area

## Analogue Outputs
### Balanced Output

Balanced connections provide greater dynamic headroom and improved S/N ratio. If your amplifier has balanced inputs use the balanced connections. You need one XLR balanced cable per channel. The socket connects to the DAC and the plug normally connects to the amplifier.
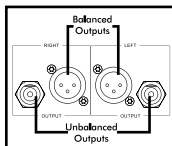
### Unbalanced Output

If you cannot use the balanced output, connect a high quality stereo screened RCA phono lead from the unbalanced output of the MDAC+ to a suitable input of the amplifier.

### Headphone Output

A stereo 6.3mm (1/4") jack is provided on the front panel to connect headphones. Connecting headphones mutes the audio signal. M-DAC+ headphone output is adjustable from -80dB to +3dB, users can select suitable output level based on their headphones.

Caution: When using headphones, playing music at very high volumes may permanently damage your hearing.
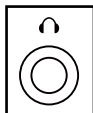
### Digital Outputs

One Coaxial and one Optical SPDIF digital output. Connect a suitable video or optical cable from the appropriate SPDIF output of the M-DAC+ to the input of the DAC or CD transport.
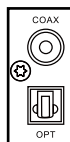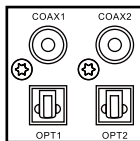
## Digital Inputs
### Coaxial and Optical Input

Four digital inputs (two Coaxial and two Optical) are provided to connect the M-DAC+ to an external SPDIF source. Connect a suitable video or optical cable from the SPDIF output of the source component to the appropriate input of the M-DAC+.

If you are connecting a multichannel source, access the menu of the source component and set SPDIF output to (L) PCM Stereo with the subwoofer OFF.
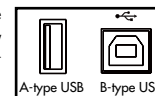
## AES/EBU Input

Professional digital studio input that accepts signals up to 192kHz
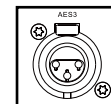
### USB Input

M-DAC+ has one B-type USB input and one A-type USB input. The B-type USB input lets you connect a Mac or PC to M-DAC+ to play audio files stored on a computer. The A-type USB input lets you connect Apple devices to M-DAC+ to play stored audio files.

## 12V Trigger Outputs

A trigger circuit is a "daisy chain" in which one unified command from the master unit (M-DAC+) can bring all the connected "slave" units into or out of standby. The slave equipment is left powered on but is flipped in and out of standby in synchronism with the master. When the M-DAC+ is powered on or off, a trigger pulse switches all the slave equipment on/off in tandem.

Two trigger outputs are provided and they are both enabled as supplied though you may fully or partially disable them as required.
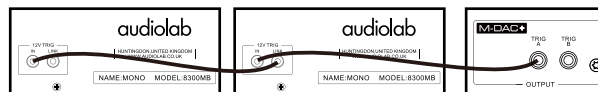
Trigger operation of the M-DAC+ with two 8300MB power amplifiers.

## IR Output

A 3.5mm remote control bus facilitates connection to suitable equipped Audiolab components and to multi-room controllers etc. By connecting suitably equipped units in a "daisy chain" you can establish control over an entire system with one handset.

## Mains Input

Before connecting the M-DAC+ to the mains supply make sure that all the other connections to your system have been properly and securely made. Make sure the ON/OFF switch on the M-DAC+ real panel is switched off, switch the mains supply off at the wall socket, and then, using the cable supplied, connect the socket on the back of your M-DAC+ to an AC supply outlet. The DAC is now ready for operation.
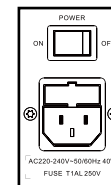
## Switching On and Off

Connect power to all system units, switch the mains on. Switch on all the source units including M-DAC+, and then switch on the power amplifier.

When switching on: The power LED illuminates.

When switching off: Switch off any power amplifiers, unless they are trigger enabled, and then the source units including M-DAC.

## Standby Mode

Audiolab M-DAC+ will be in standby mode when powered on. Press the ⏻ button to bring M-DAC+ out of standby, the power indicator LED becomes brighter and the display shows the welcome screen. You can activate the "auto standby" function by holding the ⏻ button for 3 seconds. Using this "auto standby" function, M-DAC+ will automatically go into standby mode when there is no signal input or operation for 20 minutes, when the power indicator LED becomes dim.

## Source Select

Rotate the SEL knob on the front panel to select different source inputs. M-DAC+ has COAX1, COAX2, OPT1, OPT2, AES3, iPod docking and PC USB - in total 7 signal inputs available.
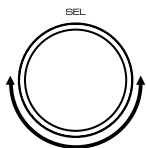
## Altering the Volume Level

Rotate the VOL knob on front panel to alter the volume level.

The range is -80dB to +3dB, the factory default volume is -20dB. If the volume is set to lower than -20dB when unit is shut down, the default volume will be the last used value when the unit next starts up. If the volume is set to higher than -20dB, the default volume will be -20dB when the unit next starts up.
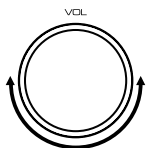
Pressing the VOL knob on the front panel or the MUTE button on the remote control can toggle the sound on/off.

SEL

VOL

## Switching the display on and off

Press the DISPLAY button on the remote control to cycle through the display settings.

Press the DISPLAY button to select between Display High, Display Low and Display Off. Each press of the DISPLAY button will select the next display setting.

When the display is set to OFF: Pressing any key will bring the display on. After a few moments the display will again switch off.

Note: Switching the M-DAC+ off and on again restores the display settings to high.

Display High

Display Low

Display Off

## Footnotes on the Display

The M-DAC+ provides a true reading of the digital input frequency. For example when a stable 44.1kHz input is present you may see the display vary between 44.100k and 44.1001k. This indicates an error of 1Hz in 44.100kHz and is insignificant. A less stable source may vary more. This option may be disabled in the menu if you prefer.

When the digital input is off, M-DAC+ display always shows the nominal value.

## Playing a USB input

Install the Audiolab Audio Driver from the CD-ROM provided as an accessory. The installation instructions are burnt on the CD-ROM, please refer to the file when installing the software. Connect your computer to M-DAC+ via USB cable (type A to Type B), change the Play mode to USB input using the handset or the button on the front panel.

USB      -28dB
Unlocked

"Unlocked" will be displayed if there is no input signal to the USB input. When you play a file the digital inputs will lock onto the input data as soon as there is an input signal for USB. The display screen will then indicate the presence of a digital signal and show the output sampling frequency of the music file in your computer.

If the input sampling frequency is 384kHz, the display shows PCM384 kHz.

If the format of the music file is DSD64, the display shows DSD2.8MHz.

If the format of the music file is DSD128, the display shows DSD5.6MHz.

If the format of the music file is DSD256, the display shows DSD11.2MHz.

USB      -28dB
Unlocked

## Playing Music via Apple™ Docking

Connect an Apple™ device as shown in the following list via a specified Apple™ USB cable to the iPhone/iPad input on M-DAC+'s rear panel. Rotate the SEL knob to turn source to USB A. Click Play in the music player software on the Apple™ unit to start playing. Only use M-DAC+ to control the volume level - the volume control function on the Apple™ device will be disabled.

M-DAC+ Apple™ docking is compatible with following Apple™ models:

•Made for iPhone 6

•Made for iPhone 6 Plus

•Made for iPhone 5S

.Made for iPhone 5C

•Made for iPhone 5

•Made for iPad Air (2nd generation)

•Made for iPad Air

•Made for iPad Mini (3rd generation)

•Made for iPad Mini (2nd generation)

•Note: Models not listed here may be supported by M-DAC+ despite not having undergone compatibility testing. iPhone and iPad models will charge their battery continuously when docked if M-DAC+ is connected to mains power.

Made for
☐ iPhone ☐ iPad
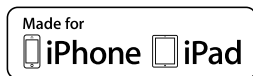
"Made for iPhone" and "Made for iPad" mean that an electronic accessory has been designed to connect specifically to iPhone and iPad respectively, and has been certified by the developer to meet Apple™ performance standards. Apple™ is not responsible for the operation of this device or its compliance with safety and regulatory standards. Please note that the use of this accessory with iPhone and iPad may or may not affect wireless performance.

## Selecting a Digital Filter

M-DAC+ has 7 filters available for PCM audio. Press the remote control MENU key to enter menu mode, press ⏮ or ⏭ to access the "Digital Filter" menu page, press ⏯ to enter the filter page, press ⏮ or ⏭ again to select a different filters, press ⏯ again to confirm the chosen filter. Pressing the MODE knob on the front panel can also enter the menu mode, rotating this knob turns the menu page to "Digital Filter ", press the MODE knob again to enter this page and then rotate the knob to change filters, press the MODE knob again to select a filter.

The "Optimal Transient" filters exhibit no ringing – the transient nature of the music is preserved. Although exhibiting poorer performance in technical measurements, sound from this type of filter has a purity and "naturalness" that more than compensates for the lack of the technical specifications. There are three Optimal Transient Filters. They exhibit identical frequency and time domain response but the internal structure of the filters varies resulting in small but the perceptibly different sonic nuances.

The "Sharp Rolloff" filter typifies industrial standard characteristics (-6dB at 1/2 Fs with significant time-domain ringing ) and is included here for comparison purposes.

The "Slow Rolloff" filter starts rolling off at a lower frequency than the Sharp Rolloff filter but has a gentle rate of attenuation and significantly less "time-domain ringing". It is not recommended to use this in normal operation, unless the digital signal from a source is very poor and cannot play with other filters.

The "Minimum Phase" filter has a gentle attenuation slope similar to the Slow Rolloff option, however it exhibits no pre-ringing in the time domain. It can be likened to an analogue filter applied in the digital domain.

The "Optimal Spectrum" filter implements optimum sampling theory and is designed for near perfect technical response in the frequency domain. This filter also has time-domain pre-ringing which may be associated with listener fatigue. It is, however, a 'smoother' alternative to the Optimal Transient filter.

For DSD mode, there are four filters "Normal", "50K", "60K" and "70K" with cutoffs at 47k, 50K, 60k, 70k. The user can adjust the IIR bandwidth by selecting different filters to get particular sonic nuances.
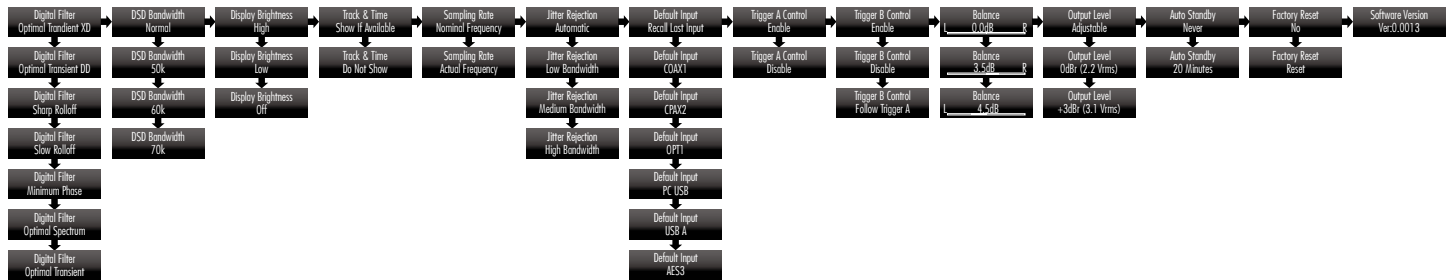
The M-DAC+ uniquely offers you a wide choice of filters to suit your listening preferences.

The menu enables you to customize the unit and optimize the interface with other equipment in your system.

M-DAC+ has 14 different menu pages. Press the MENU key on the remote control to enter menu mode, and then press ⏮ or ⏭ to turn to different menu pages, press ▶❙ to enter any menu page, press ⏮ or ⏭ again to select different settings, press ▶❙ again to confirm the chosen setting and exit the menu mode. Pressing the MODE knob on the front panel can also enter the menu mode, rotating this knob turns through the menu pages; press the MODE knob again to enter any menu page and rotate the knob to change the setting, press the MODE knob again to select a setting. No operation for 5 seconds will also exit menu mode automatically. The setting will not take effect if ▶❙ or the MODE knob is not pressed.

## The Menu Tree

The chart shows the menu options. The default settings are at the top.

| Digital Filter | DSD Bandwidth | Display Brightness | Track & Time | Sampling Rate | Jitter Rejection | Default Input | Trigger A Control | Trigger B Control | Balance | Output Level | Auto Standby | Factory Reset | Software Version |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Optimal Transient XD | Normal | High | Show If Available | Nominal Frequency | Automatic | Recall Last Input | Enable | Enable | 0.0dB | Adjustable | Never | No | Ver:0.0013 |
| Optimal Transient DD | 50k | Low | Do Not Show | Actual Frequency | Low Bandwidth | COAX1 | Disable | Disable | 3.5dB | 0dBr (2.2 Vrms) | 20 Minutes | Reset | |
| Sharp Rolloff | 60k | Off | | | Medium Bandwidth | COAX2 | | Follow Trigger A | 4.5dB | +3dBr (3.1 Vrms) | | | |
| Slow Rolloff | 70k | | | | High Bandwidth | OPT1 | | | | | | | |
| Minimum Phase | | | | | | PC USB | | | | | | | |
| Optimal Spectrum | | | | | | USB A | | | | | | | |
| Optimal Transient | | | | | | AES3 | | | | | | | |

Audiolab Ltd. warrants this product, subject to the terms and conditions below, to be free from defects in materials and workmanship. During the warranty period Audiolab will repair or replace (at Audiolab's option) this product, or any defective part in this product, if it is found to be defective due to faulty materials, workmanship or function. The warranty period may vary from country to country.

## Terms and conditions

The warranty starts on the date of purchase (or the date of delivery if this is later).

You must provide proof of purchase/delivery before work can be carried out. Without this proof, any work carried out will be chargeable to you.

All work will be carried out by Audiolab or its authorized agents or distributors.

Any unauthorized repair or modification will void this warranty.

If any part is no longer available it will replaced with a functional replacement part.

Any parts that are replaced will become the property of Audiolab.

Any repair or replacement under this warranty will not extend the period of warranty.

This warranty is valid only in the county of purchase, applies only to the first purchaser and is not transferable.

## The following are not covered:

1. Products which the serial number have been removed, altered or otherwise made illegible.

2. Normal wear tear and cosmetic damage.

3. Transportation or installation of the product.

Accidental damage, fault caused by commercial use, acts of God, incorrect installation, connection or packing, misuse, neglect or careless operation or handling of the product which is not in accordance with Audiolab's user instructions.

1. Repairs or alterations carried out by parties other than Audiolab or its authorized agents or distributors.

2. Products not purchased from an Audiolab authorized dealer.

3. Products that were not new at the time of original purchase.

4. Products sold 'as is', 'as seen' or 'with all faults'.

Repairs or replacements as provided under this warranty are the exclusive remedy of the consumer. Audiolab shall not be liable for any incidental or consequential damages for breach of any express or implied warranty in this product. Except to the extent prohibited by law, this warranty is exclusive and in lieu of all other warranties whatsoever, both express and implied, including, but not limit to, the warranty of merchantability and fitness for a practical purpose.

This warranty provides benefits that are additional to and do not affect your statutory rights as a consumer.

Some countries and U.S. states do not allow the exclusion or limitation of incidental or consequential damages or implied warranties so the exclusions in the paragraph above may not apply to you. This warranty gives you specific legal rights, and you may have other statutory rights, which vary from state to state or county to county.

## How to claim:

To obtain warranty service contact the Audiolab authorized dealer from which you purchased this product. Do not dispatch goods without the prior agreement of the dealer, Audiolab or their authorized distributors.

If asked to return products for inspection and/or repair, pack carefully, preferably in the original cartons or packing affording an equal degree of protection, and return prepaid. If unsuitable packaging is used, Audiolab may make a charge for the supply of new packaging.

Insurance is recommended and goods are returned at owner's risk. Audiolab or their authorized distributors cannot be held liable for loss or damage in transit.

(Measurement made with 230V power supply)

| | |
|---|---|
| DAC | ESS Sabre32 9018 |
| Resolution | 32 bit |
| Sampling Rate | 24 bit - 192kHz (Optical, Coaxial, AES) |
| | 32 bit - 384kHz (USB, PCM) |
| | 2.8M for DSD64, 5.6M for DSD128, 11.2M for DSD256 (USB, DSD) |
| Output Voltage | 4.5Vrms ±0.1 (Balanced) |
| | 2.25Vrms ±0.1 (Unbalanced) |
| Output Impedance | 10Ω |
| Total Harmonic Distortion (THD) | <0.002% (1kHz, 0dB, 20Hz - 20kHz A weighted) |
| Frequency Response | +/-0.2dB (20Hz - 20kHz, Ref. 1kHz) |
| Signal-to-Noise ratio (S/N) | >115dB (Unbalanced, A weighted) |
| | >120dB (Balanced, A weighted) |
| Dynamic Range | >115dB (Unbalanced, A weighted) |
| | >120dB (Balanced, A weighted) |
| Crosstalk | <-120dB (Unbalanced, @ 1kHz) |
| | <-130dB (Balanced, @ 1kHz) |
| Standby Power Consumption | <0.5W |
| Dimensions (W x H x D) | 247 x 114 x 292mm |
| Carton size ( W x H x D) | 396 X 202 X 400mm |
| Net Weight | 3.7kg. |
| Gross Weight | 4.8kg. |
| Power Requirements | 220 - 234V (50 ~ 60Hz) |
| (depending on region) | 100 - 120V (50 ~ 60Hz) |

Correct disposal of this product. This marking indicates that this product should not be disposed with other household wastes throughout the EU. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmental safe recycling.

**audiolab**

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