

The APERIO Electrostatic Headphone System

USER MANUAL

March 2020 | Version 1.0



COPYRIGHT

This document is copyright © 2020 Warwick Acoustics Ltd.

All rights reserved. No part of this material may be reproduced or transmitted in any form or by any means, electronic, mechanical, or otherwise, including photocopying and recording or in connection with any information storage or retrieval system, without written permission from Warwick Acoustics Ltd.

REVISION HISTORY

VERSION	DATE	DESCRIPTION
1.0	03/2020	First public release

CONTENTS PAGE 1

TRANSLATED WARNING AND CAUTION MESSAGES	4
REGULATORY COMPLIANCE STATEMENTS	10
CHAPTER 1	12
INTRODUCTION	12
THANK YOU	12
LIABILITY WAIVER	13
CHAPTER 2	14
INSTALLATION	14
SYSTEM CONTENTS	14
HEADBAND ADJUSTMENT	15
POSITIONING THE HEADPHONES	16
CONNECTING THE HEADPHONE CABLE	16
DETACHING THE HEADPHONE CABLE	17
CONNECTING THE HEADPHONES TO THE AMPLIFIER	17
CONNECTING INPUT SOURCES TO THE AMPLIFIER	18
CONNECTING THE POWER SUPPLY UNIT	19
POWERING THE UNIT ON	20
CHAPTER 3	21
OPERATION	21
SOURCE & OUTPUT SELECTION	21
CHAPTER 4	23
CARE AND MAINTENANCE	23
POWER DOWN	23
CLEANING	23
REPLACING EAR PADS	23
CHAPTER 5	24
TROUBLESHOOTING	24
CHAPTER 6	26
GLOSSARY	27
SPECIFICATIONS:	29
WARRANTY	31

TRANSLATED WARNING AND CAUTION MESSAGES

The following caution statements, warning conventions, and warning messages apply to the APERIO system and manual.



Warning Symbol



Hazard Symbol



Caution Symbol

BEFORE OPERATION PLEASE READ THESE INSTRUCTIONS



Warning! Read and follow all warning notices and instructions marked on the product or included in the documentation.

Avertissement! Lisez et conformez-vous à tous les avis et instructions d'avertissement indiqués sur le produit ou dans la documentation.

Warnung! Lesen und befolgen Sie die Warnhinweise und Anweisungen, die auf dem Produkt angebracht oder in der Dokumentation enthalten sind.

¡Advertencia! Lea y siga todas las instrucciones y advertencias marcadas en el producto o incluidas en la documentación.

Aviso! Leia e siga todos os avisos e instruções assinalados no produto ou incluídos na documentação.

Avviso! Leggere e seguire tutti gli avvisi e le istruzioni presenti sul prodotto o inclusi nella documentazione.



Warning! Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

Avertissement! Ne bloquez aucune ouverture de ventilation. Suivez les instructions du fabricant lors de l'installation.

Warnung! Die Lüftungsöffnungen dürfen nicht blockiert werden. Nur gemäß den Anweisungen des Herstellers installieren.

¡Advertencia! No bloquee ninguna de las aberturas de la ventilación. Instale de acuerdo con las instrucciones del fabricante.

Aviso! Não obstrua nenhuma das aberturas de ventilação. Instale de acordo com as instruções do fabricante.

Avviso! Non ostruire le aperture di ventilazione. Installare in conformità con le istruzioni del fornitore.



Warning! Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

Avertissement! N'installez pas l'appareil près d'une source de chaleur telle que des radiateurs, des bouches d'air de chauffage, des fourneaux ou d'autres appareils (amplificateurs compris) qui produisent de la chaleur.

Warnung! Nicht in der Nähe von Wärmequellen wie Heizkörpern, Heizregistern, Öfen oder anderen Wärme erzeugenden Geräten (einschließlich Verstärkern) aufstellen.

¡Advertencia! No instale cerca de fuentes de calor tales como radiadores, registros de calor, estufas u otros aparatos (incluidos amplificadores) que generan calor.

Aviso! Não instale perto de nenhuma fonte de calor tal como radiadores, saídas de calor, fogões ou outros aparelhos (incluindo amplificadores) que produzam calor.

Avviso! Non installare vicino a fonti di calore come termosifoni, diffusori di aria calda, stufe o altri apparecchi (amplificatori compresi) che emettono calore.



Warning! Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong.

The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

Avertissement! La sécurité de la prise polarisée ou de la prise de type mise à la terre ne doit en aucun cas être empêchée de fonctionner. Une prise polarisée a deux broches, l'une étant plus large que l'autre. Une prise de type mise à la terre a deux broches et une troisième broche pour la mise à la terre. La broche large ou la troisième broche sont fournies pour votre sécurité. Si la prise fournie ne s'insère pas dans votre prise femelle, consultez un électricien pour le remplacement de la prise femelle obsolète.

Warnung! Der Sicherheitszweck des gepolten bzw. Schukosteckers ist zu berücksichtigen. Ein gepolter Stecker verfügt über zwei Pole, von denen einer breiter als der andere ist. Ein Schukostecker verfügt neben den zwei Polen noch über einen dritten Pol zur Erdung. Der breite Pol bzw. der Erdungspol dienen der Sicherheit. Wenn der zur Verfügung gestellte Stecker nicht in Ihren Anschluss passt, konsultieren Sie einen Elektriker, um den veralteten Anschluss zu ersetzen.

¡Advertencia! No eche por tierra la finalidad del tipo de enchufe polarizado con conexión a tierra. Un enchufe polarizado tiene dos espigas, una más ancha que la otra. Un enchufe con conexión a tierra tiene dos espigas iguales y una tercera espiga que sirve para la conexión a tierra. La espiga ancha, o la tercera espiga, sirven para su seguridad. Si el enchufe suministrado no encaja en el tomacorriente, consulte con un electricista para reemplazar el tomacorriente obsoleto.

Aviso! Não anule a finalidade da segurança da ficha polarizada ou do tipo ligação terra. Uma ficha polarizada tem duas lâminas sendo uma mais larga do que a outra. Uma ficha do tipo de ligação à terra tem duas lâminas e um terceiro terminal de ligação à terra. A lâmina larga ou o terceiro terminal são fornecidos para sua segurança. Se a ficha fornecida não couber na sua tomada, consulte um electricista para a substituição da tomada obsoleta.

Avviso! Non compromettere la sicurezza della spina polarizzata o con messa a terra. Una spina polarizzata ha due spinotti, di cui uno più largo. Una spina con messa a terra ha due spinotti e un terzo

polo per la messa a terra. Lo spinotto largo o il terzo polo sono forniti per motivi di sicurezza. Se la spina fornita non si inserisce nella presa di corrente, contattare un elettricista per la sostituzione della presa obsoleta.



Warning! Since the Mains plug is used as the disconnection for the device, it must remain readily accessible and operable.

Avertissement! Puisque la prise principale est utilisée pour débrancher l'appareil, elle doit rester aisément accessible et fonctionnelle.

Warnung! Da der Netzstecker als Trennvorrichtung dient, muss er stets zugänglich und funktionsfähig sein.

¡Advertencia! Puesto que el enchufe de la red eléctrica se utiliza como dispositivo de desconexión, debe seguir siendo fácilmente accesible y operable.

Aviso! Dado que a ficha principal é utilizada como a desconexão para o dispositivo, esta deve manter-se prontamente acessível e funcional.

Avviso! Poiché il cavo di alimentazione viene usato come dispositivo di sconnessione, deve rimanere prontamente accessibile e operabile.



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

Avertissement! Protégez le cordon d'alimentation pour que l'on ne marche pas dessus ou qu'on le pince, en particulier au niveau des prises mâles, des réceptacles de convenance, et à l'endroit où il sort de l'appareil.

Warnung! Vermeiden Sie, dass auf das Netzkabel getreten oder das Kabel geknickt wird, insbesondere an den Steckern, den Steckdosen und am Kabelausgang am Gerät.

¡Advertencia! Proteja el cable de energía para que no se le pise ni apriete, en especial cerca del enchufe, los receptáculos de conveniencia y el punto del que salen del equipo.

Aviso! Proteja o cabo de alimentação de ser pisado ou de ser comprimido particularmente nas fichas, em tomadas de parede de conveniência e no ponto de onde sai do dispositivo.

Avviso! Proteggere il cavo di alimentazione in modo che nessuno ci cammini sopra e che non venga schiacciato soprattutto in corrispondenza delle spine e del punto in cui esce dal dispositivo.



Warning! Unplug this device during lightning storms or when unused for long periods of time.

Avertissement! Débranchez cet appareil pendant les orages avec éclairso s'il est inutilisé pendant de longues périodes.

Warnung! Das Gerät ist bei Gewitterstürmen oder wenn es über lange Zeiträume ungenutzt bleibt vom Netz zu trennen.

¡Advertencia! Desenchufe este dispositivo durante tormentas eléctricas o cuando no se lo utilice por largos periodos del tiempo.

Aviso! Desconecte este dispositivo da tomada durante trovoadas ou quando não é utilizado durante longos períodos de tempo.

Avviso! Utilizzare soltanto i collegamenti e gli accessori specificati e/o venduti dal produttore, quali il treppiedi e l'esoscheletro.



Warning! Do not open the chassis. There are no user-serviceable parts inside. Opening the chassis will void the warranty unless performed by a Warwick Acoustics service center or licensed facility.

Avertissement! Ne pas ouvrir le châssis. Aucun élément à l'intérieur du châssis ne peut être réparé par l'utilisateur. La garantie sera annulée si le châssis est ouvert par toute autre personne qu'un technicien d'un centre de service ou d'un établissement agréé Warwick Acoustics.

Warnung! Öffnen Sie das Gehäuse nicht. Keine der Geräteteile können vom Benutzer gewartet werden. Durch das Öffnen des Gehäuses wird die Garantie hinfällig, es sei denn, solche Wartungsarbeiten werden in einem Warwick-Acoustics-Service-Center oder einem lizenzierten Betrieb vorgenommen.

¡Advertencia! No abra el chasis. El interior no contiene piezas reparables por el usuario. El abrir el chasis anulará la garantía a menos que se lo haga en un centro de servicio Warwick Acoustics o en un local autorizado.

Advertência! Não abra o chassi. Não há internamente nenhuma peça que permita manutenção pelo usuário. Abrir o chassi anula a garantia, a menos que a abertura seja realizada por uma central de serviços da Warwick Acoustics ou por um local autorizado.

Avvertenza! Non aprire lo chassis. All'interno non ci sono parti riparabili dall'utente. L'apertura dello chassis invaliderà la garanzia se non viene effettuata da un centro ufficiale o autorizzato Warwick Acoustics.



Warning! Disconnect the external AC power supply line cord(s) from the mains power before moving the unit.

Avertissement! Retirez le ou les cordons d'alimentation en CA de la source d'alimentation principale lorsque vous déplacez l'appareil.

Warnung! Trennen Sie die Wechselstrom-Versorgungskabel vom Netzstrom, bevor Sie das Gerät verschieben.

¡Advertencia! Cuando mueva la unidad desenchufe de la red eléctrica el/los cable(s) de la fuente de alimentación CA tipo brick.

Advertência! Remova os cabos CA de alimentação brick da rede elétrica ao mover a unidade.

Avvertenza! Scollegare il cavo dell'alimentatore quando si sposta l'unità.



Warning! Only use attachments and accessories specified and/or sold by the manufacturer.

Avertissement! Utilisez seulement les attaches et accessoires spécifiés et/ou vendus par le fabricant.

Warnung! Verwenden Sie nur Zusatzgeräte und Zubehör angegeben und/oder verkauft wurde durch den Hersteller.

¡Advertencia! Utilice solamente los accesorios y conexiones especificados y/o vendidos por el fabricante.

Aviso! Utilize apenas equipamentos/acessórios especificados e/ou vendidos pelo fabricante.

Avviso! Utilizzare soltanto i collegamenti e gli accessori specificati e/o venduti dal produttore.



Warning! The APERIO has no user-serviceable parts. To remove power from the unit, remove the power connector to ensure disconnection. Refer all servicing to qualified service personnel. Servicing is required when the device 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 device, the device has been exposed to rain or moisture, does not operate normally, or has been dropped.

Avertissement! Aucun des composants du APERIO ne peut être remplacé par l'utilisateur. Pour mettre l'unité hors tension, déconnectez-la en débranchant le connecteur électrique. Confiez l'entretien à du personnel de maintenance qualifié. Il faut effectuer une révision lorsque l'appareil a été endommagé de quelque façon que ce soit, par exemple lorsque le câble d'alimentation ou le connecteur est endommagé, lorsque du liquide a été renversé ou que des objets sont tombés sur l'appareil, lorsque ce dernier a été exposé à la pluie ou à l'humidité, lorsqu'il ne fonctionne pas normalement ou lorsqu'il a subi une chute.

Achtung! Der APERIO besitzt keine vom Anwender zu wartenden Teile. Um die Einheit stromlos zu schalten, den Stromanschluss abziehen, um Abschaltung sicherzustellen. Wartung darf nur von qualifiziertem Wartungspersonal vorgenommen werden. Wartung ist erforderlich, falls das Gerät auf irgendeine Weise beschädigt worden ist, z.B. wenn das Netzkabel oder der Stecker beschädigt wurde,

Flüssigkeit in das Gerät verschüttet wurde oder Gegenstände in das Gerät gefallen sind, das Gerät Regen oder Feuchtigkeit ausgesetzt wurde, es nicht auf normale Weise funktioniert oder fallengelassen wurde.

Avvertenza! Il APERIO non contiene parti su cui l'utente possa intervenire. Per spegnere il dispositivo, rimuovere il connettore di alimentazione. Per qualsiasi intervento rivolgersi a personale di manutenzione qualificato. È necessario intervenire sul dispositivo se questo è stato danneggiato in un modo qualsiasi, ad esempio la spina o il cavo di alimentazione ha subito danni, è stato versato liquido o sono caduti oggetti sul dispositivo oppure se il dispositivo è stato esposto alla pioggia o a umidità, non funziona normalmente o è caduto.

Aviso! O APERIO não tem partes de manutenção pelo utilizador. Para retirar a energia da unidade, retire o conector de energia, para assegurar a desconexão. Indique toda a manutenção para pessoal de manutenção qualificado. A manutenção é necessária quando o dispositivo tiver sido danificado sob qualquer forma, como, por exemplo, se o cabo eléctrico ou de alimentação foi danificado, líquido foi derramado ou objectos caíram sobre o dispositivo, o dispositivo foi exposto a chuva ou humidade, não funciona normalmente ou se tiver caído.

¡Advertencia! APERIO no tiene piezas que el usuario pueda reparar. Para eliminar el potencia de la unidad, retire el conector de alimentación de para asegurar la desconexión. Diríjase a un personal calificado de servicio para toda reparación. Se requiere servicio cuando el aparato ha sido dañado de cualquier forma, por ejemplo el cable de alimentación o el enchufe está dañado, se ha derramado líquido u objetos han caído en el dispositivo, el dispositivo ha sido expuesto a la lluvia o humedad, no funciona normalmente o se ha caído.

REGULATORY COMPLIANCE STATEMENTS

FEDERAL COMMUNICATIONS COMMISSION (FCC) COMPLIANCE NOTICES

Class B Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15, Subpart B of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CANADIAN ICES STATEMENTS:

Canadian Department of Communications Radio Interference Regulations. This digital apparatus does not exceed the Class B limits for radio-noise emissions from a digital apparatus as set out in the Radio Interference Regulations of the Canadian Department of Communications. This Class B digital apparatus complies with Canadian ICES-003.

Règlement sur le brouillage radioélectrique du ministère des Communications. Cet appareil numérique respecte les limites de bruits radioélectriques visant les appareils numériques de classe B prescrites dans le Règlement sur le brouillage radioélectrique du ministère des Communications du Canada. Cet appareil numérique de la Classe B est conforme à la norme NMB-003 du Canada.

EUROPEAN UNION AND EUROPEAN FAIR TRADE ASSOCIATION (EFTA) REGULATORY COMPLIANCE:

This equipment may be operated in the countries that comprise the member countries of the European Union and the European Fair Trade Association. These countries, listed below, are referred to as The European Community throughout this document:

AUSTRIA, BELGIUM, BULGARIA, CYPRUS, CZECH REPUBLIC, DENMARK, ESTONIA, FINLAND, FRANCE, GERMANY, GREECE, HUNGARY, IRELAND, ITALY, LATVIA, LITHUANIA, LUXEMBOURG, MALTA, NETHERLANDS, POLAND, PORTUGAL, ROMANIA, SLOVAKIA, SLOVENIA, SPAIN, SWEDEN, UNITED KINGDOM, ICELAND, LICHTEINSTEIN, NORWAY, SWITZERLAND.

Declaration of Conformity



Marking by this symbol indicates compliance with the Essential Requirements of the EMC Directive of the European Union (2014/30/EU). This equipment meets the following conformance standards:

Safety:

EN 60065: 2002 + A1: 2006 + A11: 2008 + A2: 2010 + A12: 2011 (GS License)

IEC 60065: 2001 + A1: 2005 + A2: 2010, (CB Scheme Report/Certificate)

EN 50332-1: 2013, EN 50332-2: 2013

Emissions:

EN 55032: 2012, CISPR 22: 2008, EN 61000-3-2: 2014, EN 61000-3-3: 2013

Immunity:

EN 55103-2: 2009, EN 61000-4-2: 2009, EN 61000-4-3: 2006 + A1: 2008 + A2: 2010

EN 61000-4-4: 2004 + A1: 2010, EN 61000-4-5: 2006, EN 61000-4-6: 2009, EN 61000-4-11: 2004

Environments: E2, E3 and E4

The products are licensed, as required, for additional country specific standards for the International Marketplace. Additional issued licenses available upon request.

Environmental:

Low Voltage Directive 2014/35/EU, RoHS 2011/65/EU, REACH 2006/1907/EC, WEEE 2012/19/EU and Packaging 94/62/EC

Warning!

This is a Class B product. In a domestic environment, this product may cause radio interference, in which case, the user may be required to take appropriate measures.

Achtung!

Dieses ist ein Gerät der Funkstörgrenzwertklasse B. In Wohnbereichen können bei Betrieb dieses Gerätes Rundfunkstörungen auftreten, in welchen Fällen der Benutzer für entsprechende Gegenmaßnahmen verantwortlich ist.

Attention!

Ceci est un produit de Classe B. Dans un environnement domestique, ce produit risque de créer des interférences radioélectriques, il appartiendra alors à l'utilisateur de prendre les mesures spécifiques appropriées.



This symbol on the product or its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste for recycling, please contact your local authority, or where you purchased your product.

Please visit the following URL for a complete copy of the declaration of conformity and user manual:

www.warwickacoustics.com/headphones/support

CHAPTER 1

INTRODUCTION

THANK YOU

Dear APERIO Customer,

Congratulations on the purchase of your APERIO Headphone System from Warwick Acoustics! We urge you to take the time to study this user manual because with proper operation and maintenance your APERIO system will provide you with many years of unparalleled listening pleasure. Built around the revolutionary Balanced-Drive High-Precision Electrostatic Laminate (BD-HPEL) transducer, the APERIO has been designed from the ground up to be optimised for playing today's hi-res music formats. These features are key to delivering its extraordinary sonic quality and comfort:

1. Revolutionary lightweight High-Precision Electrostatic Laminate (HPEL) transducer
2. Injected magnesium ear cups for strength and lightness
3. Handmade 'Cabretta' sheepskin ear and headband pads
4. Custom low-capacitance headphone cable
5. Discrete FET Class-A energizing amplifier
6. 32-bit/384 kHz ESS SABRE Reference DACs
7. 32-bit/384 kHz AKM Premium ADCs
8. Custom 64-bit fixed-point double-precision Digital Signal Processing
9. Ultra-low phase-noise master oscillator (± 80 femtoseconds of jitter at 100 MHz)
10. Superior USB cable
11. Precision-machined aluminium case
12. Custom case, fixed-frequency universal power supply unit

In developing the APERIO, our paramount goal was to stay true to the precedent for uncompromised audio quality. We value your thoughts so please let us know if you think we have achieved our goal. www.warwickacoustics.com/headphones/support/

Thank You!

The Team at Warwick Acoustics

LIABILITY WAIVER

The APERIO Headphone System has been designed for home use only. Warwick Acoustics Ltd. will not accept liability for any damage or injury arising from improper use / misuse of this product.

CHAPTER 2

INSTALLATION

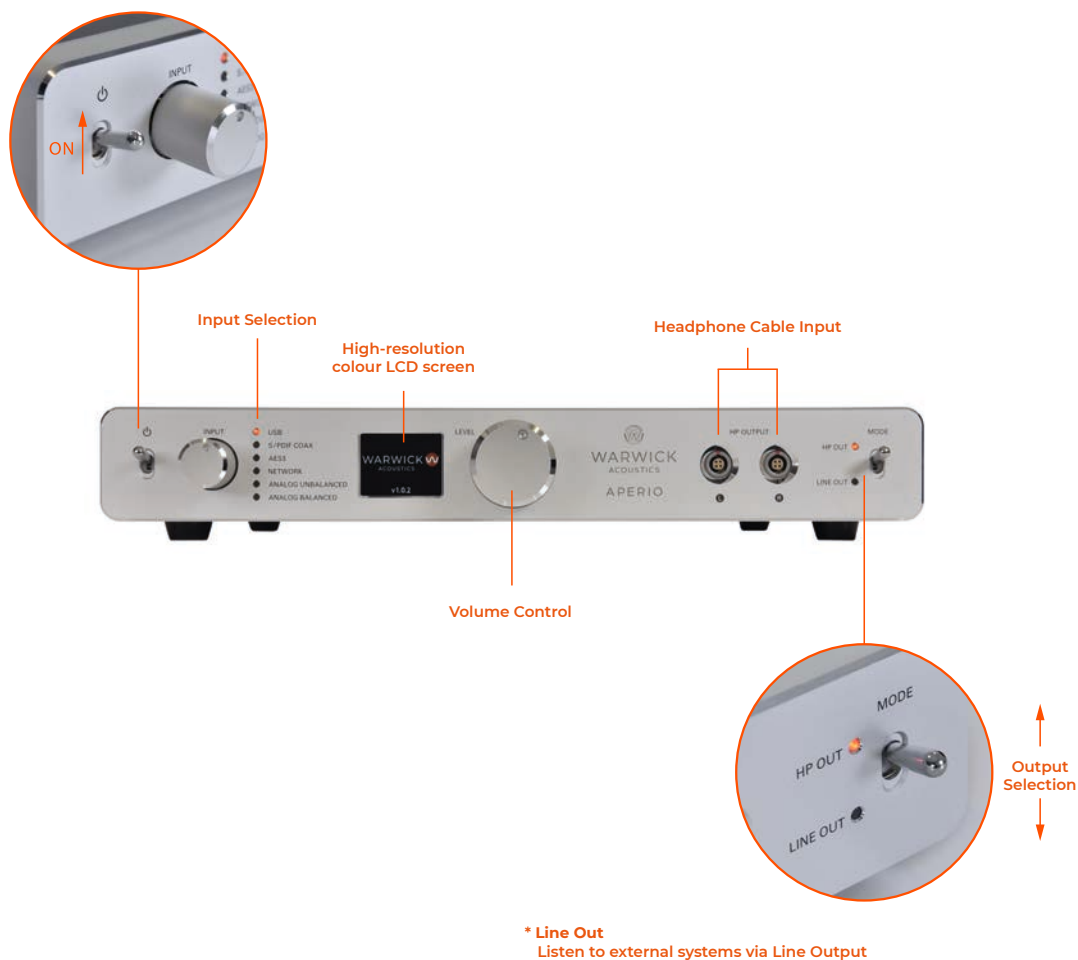
SYSTEM CONTENTS

The APERIO system comprises two parts, a headphone and an associated energizing amplifier / digital-to-analog converter (DAC). The complete system including all the accessories is packaged into a watertight, crushproof and dustproof Pelican case.

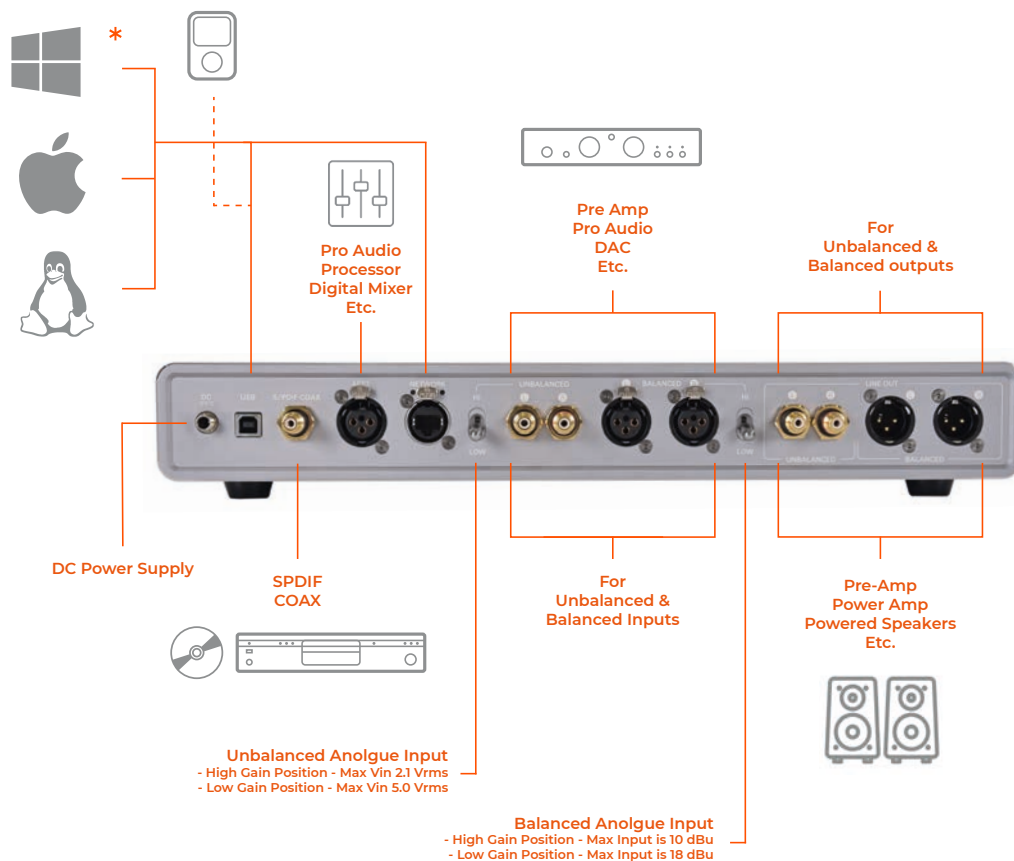
The following items can be found inside

- 1x APERIO headphone
- 1x headphone cable
- 1x Complete APERIO Quick Start Guide
- 1x APERIO energizing amplifier / DAC unit
- 1x Universal power supply unit
- 1x IEC power cord (region-specific)
- 1x USB cable
- 1x Ethernet cable

FRONT PANEL CONTROLS



REAR PANEL CONNECTIONS / CONTROLS



HEADBAND ADJUSTMENT

To get the best from your APERIO headphones, it is important to ensure that they are correctly adjusted to fit your head, and that they are properly positioned on your head.



The headband can be adjusted by means of an inner band that can be lengthened/shortened as needed. To adjust the band, hold the headband with one hand, and carefully pull or push the ear-cup with the other. When new, the inner band may be a little stiff.

Ensure that the same length of inner band is visible on both sides of the headphone, so that they sit level on your head. There should be no gap between the top of your head and the underside of the headband.

POSITIONING THE HEADPHONES



The headphones should be positioned on your head such that the headband is vertical. When you have the correct adjustment and orientation, you will have a good seal of the ear-cup pad around your ear which is essential for correct bass response. You can check whether you have a good seal by carefully pushing on the ear-cup. This should result in a crackling sound as the trapped air in the ear-cup moves the electrostatic transducer, causing it to work like a microphone

CONNECTING THE HEADPHONE CABLE



As soon as you have properly adjusted the headband, it will be time to connect the headphone cable to the headphones.

The headphone cable connects to the headphone via high precision, self-latching connectors. The cable is colour coded, and a small red band at the end of the strain-relief indicates the right-hand channel. Locate the ear-cup with the letter R indicated above it, and insert the cable with the red band until it latches.

When the right-hand cable has been attached, connect the other cable to the left-hand ear-cup in the same way.

DETACHING THE HEADPHONE CABLE



Should you need to detach the cable for any reason, grasp the barrel of the cable and carefully pull backwards until the cable disconnects. You can then release the barrel and it will return to its usual position.

CONNECTING THE HEADPHONES TO THE AMPLIFIER

NOTE; It is recommended that the amplifier is switched OFF before connecting / disconnecting the headphone cables.

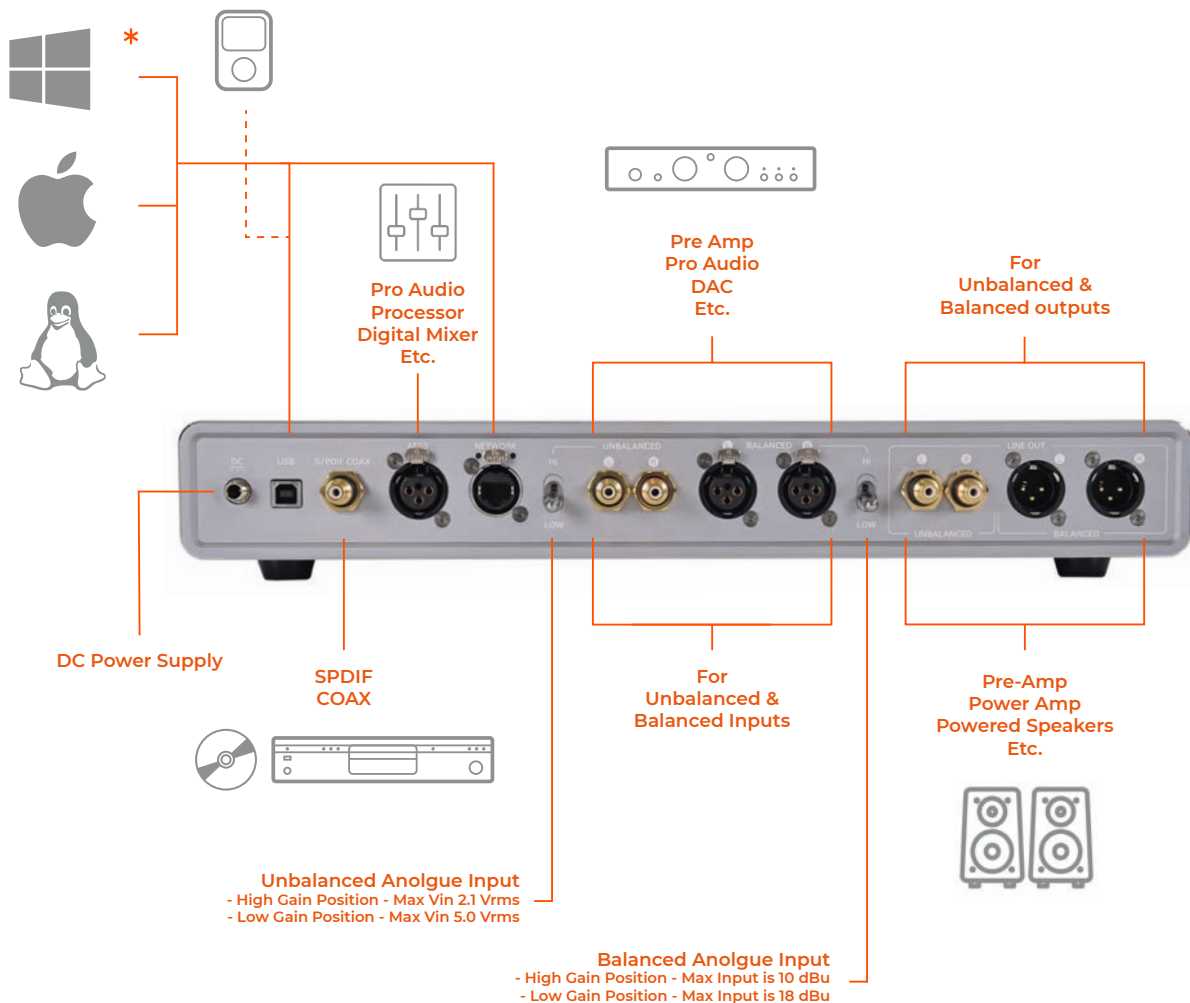


With the cable connected to both ear-cups, connect the headphone to the amplifier/DAC unit by inserting the cables into the headphone sockets. Be sure to align the red dots on each connector and the chassis. Push the cables into the sockets until it latches.

If you need to detach the cables, grasp the barrel of the connectors and carefully pull backwards until the cables disconnect, as shown above.

CONNECTING INPUT SOURCES TO THE AMPLIFIER

NOTE: It is recommended that the amplifier/DAC unit's power is switched OFF before connecting/disconnecting input sources to the amplifier.



Connect a digital audio player or computer to the USB digital input using the supplied USB cable, or any similar high-quality USB cable up to 2 meters in length. Avoid using longer USB cables or USB hubs. NOTE: Windows PC users please refer to the section [Driver Installation for Windows Users](#) before attempting to use a PC with this product.

Connect the coaxial digital (S/PDIF) stereo output of a digital audio disc player (CD/DVD/SACD/BD) to the coaxial S/PDIF digital input. Use a digital interlink fitted with RCA connectors. Push the jack until it makes a firm connection. To remove, simply pull on the connector (not the cable!).

Connect the output of professional audio devices to the AES3/EBU input via the single high-quality XLR socket marked AES3/EBU. Push the connector until it makes a firm connection. To remove, simply unlatch then pull on the connector.

Connect fully networkable products to the network input via the supplied ethernet (LAN) cable. For best results, we recommend using networkable products that exceed typical DLNA limitations and support native or DoP 256 fs DSD and higher sample rate PCM formats to 384kHz

Connect the output of any analogue device to either unbalanced or balanced input via Phono/RCA (unbalanced) and XLR (balanced) connectors and cable. The balanced connection is the higher quality option. An XLR connector is wired Pin 1 – Ground; Pin 2 – Hot (in-phase); Pin 3 – Cold (phase-inverted).

The APERIO's DAC and pre-amp can also be utilised with other power amplification and audio distribution components. Connect other electronics and sound reproduction components to the unbalanced (Phono/RCA) or balanced (XLR) line out connectors.

CONNECTING THE POWER SUPPLY UNIT



Firmly insert the supplied IEC mains cable into the power supply unit.

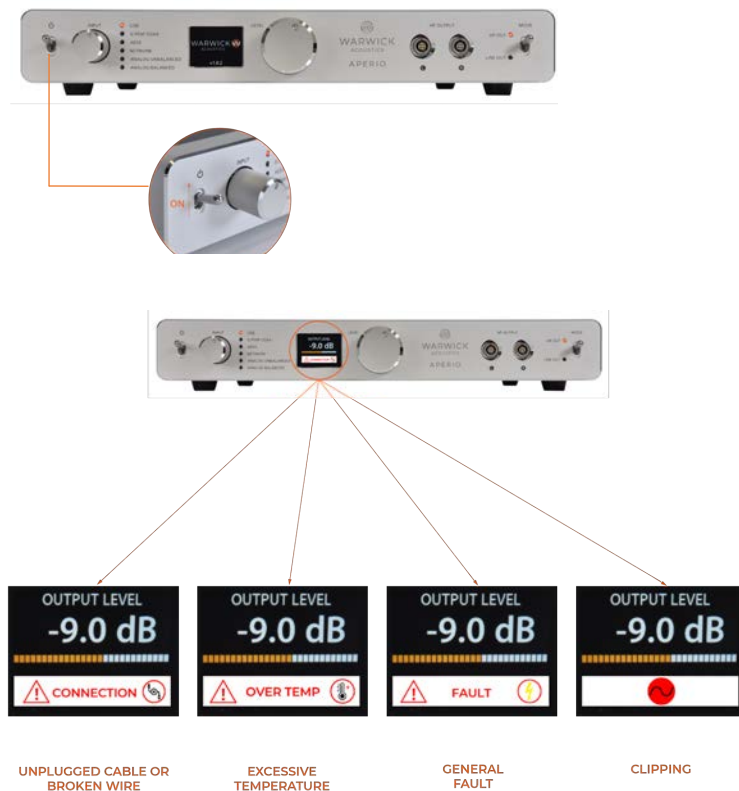
When all audio sources and the headphones have been connected to the amplifier/DAC unit, it will be time to connect the power supply unit. Before beginning, it is recommended that the volume control is turned to its lowest position as shown.

Carefully insert the cable from the power supply unit into the power connector on the back of the amplifier/DAC unit. Then lock the connector in place by turning the threaded connector clockwise. To remove, first unscrew the connector (by turning it counter-clockwise) and then carefully pull on it.

When the power supply unit has been assembled and connected to the amplifier/DAC, insert the mains plug into a GROUNDED mains socket!

PLEASE NOTE: your product has been supplied with the correct mains cable for your geographic location, and may differ in pin configuration from the model illustrated.

POWERING THE UNIT ON



When all connections have been securely made, power the amplifier/DAC unit ON by flipping the rear panel power switch to the up position. To power OFF simply depress the switch to the down position.

Your APERIO system is then ready to use.

If the amplifier/DAC detects a fault condition, the screen will state the error / fault. In this case, first power the unit OFF and re-check all the connections. If the problem persists, please refer to the [Troubleshooting](#) section.

CHAPTER 3

OPERATION

SOURCE & OUTPUT SELECTION

The APERIO features a wide range of inputs, including balanced and unbalanced analogue, AES3 (AES/EBU), S/PDIF Coaxial, USB and Ethernet (LAN). Use the rotational switch on the front panel to select your preferred source of input. The orange input indicator lamp will confirm your choice.



In addition to using the APERIO with the supplied Electrostatic Headphones, it also features an exceptional Line Output section for driving other electronic components that include outboard amplifiers and loudspeakers. The output mode needs to be selected on the front panel switch. The orange input indicator lamp will confirm your choice.

ANALOGUE INPUT SELECTION

UNBALANCED

Choose between 'Low' and 'Hi' on the unbalanced analogue input by means of the rear panel switch. The inputs will accept the following maximum signal input levels:

- Hi Gain Position, Max Vin 2.1 V_{rms}
- 'Low Gain Position, Max Vin 5.0 V_{rms}

BALANCED

Choose between 'Low' and 'Hi' on the balanced analogue input by means of the rear panel switch. The inputs will accept the following maximum signal input levels:

- Hi Gain Position, Max Input is 10 dBu
- 'Low Gain Position, Max Input is 18 dBu



VOLUME CONTROL & DISPLAY

The APERIO indicates its output level in precise 0.1 db increments via a front panel full-colour, high-resolution display.

Use the front panel level control to increase / decrease volume. Turn the control clockwise to increase level, and counter-clockwise to decrease it. As a precaution, we recommend always powering ON/OFF with the volume control at its minimum position!



The display alerts the user if an audio input signal exceeds the maximum permitted levels. In this case, the Clipping light is shown on the display and the volume should be reduced. Note that clipping may occur simply as a result of variations in original source recording levels. Clipping will not damage your product but will reduce the quality of the reproduction you experience.

CHAPTER 4

CARE AND MAINTENANCE

POWER DOWN

The APERIO amplifier / DAC generates high-voltages and runs warm in normal use. Given this, it should be powered down when not in use for extended periods or left unattended.

CLEANING

The amplifier / DAC unit should be cleaned with a soft, dry cloth. Never use anything abrasive as this may damage the metal finish. Do NOT use liquid / aerosol cleaners.

The headphones should be cleaned with a soft, dry, micro-fiber cloth. This is also the case for the leather parts. Do NOT use any liquid / aerosol cleaners as they may damage the leather and cause failure of the pads.

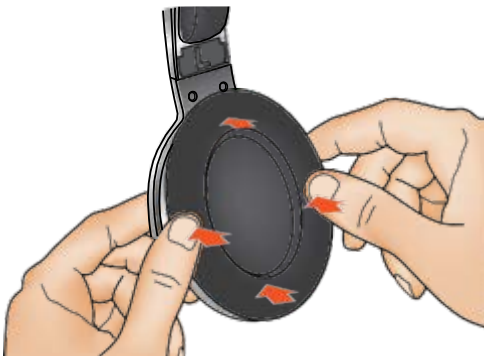
Failure to follow these instructions will invalidate your warranty.

REPLACING EAR PADS



Ear pads may need replacement after years of extended use or if inadvertently damaged. Replacement pads are available from your dealer or via the Warwick Acoustics website.

To remove the old pads, carefully insert a finger into the ear cup so that it is behind the ear pad as much as possible. Take care not to damage the webbing or electrostatic panel! Then, with your thumb, firmly grasp the ear pad, and pull it away from the ear cup.



Place the new pad on the ear cup with the seam in the leather at the BOTTOM of the ear cup. Then, carefully, press firmly all around the pad to attach it. Check that the ear pad is firmly seated and tight to the ear cup all around its perimeter. This is essential to ensure an air-tight seal and correct bass response.

Note: If your headphones are under warranty, we are more than happy for you to send your headphones back to us and we will replace the pads and return to you within an agreed timeframe.

CHAPTER 5

TROUBLESHOOTING

If you are encountering problems with using your APERIO system, please consult the following checklist initially and perform only the specific remedy for a particular symptom. If the remedy does not resolve your problem, please contact our Customer Service team to assist you further. There are no user-serviceable parts inside, and any attempt at repair will invalidate the warranty.

SYMPTOM	REMEDY
Error / Fault message on screen	Read the message error / fault on your screen and follow the appropriate instructions.
No sound via analog connection	First check whether the analog/digital source selector is in the analog position. If it is, then check that the Hi/Low rear panel selector switch is in the appropriate position. If it is, then check your source component to ensure it is operating correctly (is the volume set to mute on a portable audio player, for example?).
No sound via S/PDIF digital input	First check whether the analog/digital source selector is in the S/PDIF position. If it is, then check whether the S/ PDIF digital output of your source has NOT been turned off via a menu function. If not, try a different S/PDIF cable to eliminate breakages/connection issues.
No sound via USB input	First check whether the analog/digital source selector is in the USB position. If it is, check whether the appropriate USB driver has been selected on your computer and in your playback software. Check also whether the output has been muted within your playback software.
Stuttering/glitching in USB playback	Is the USB connection made via a USB hub? We have found that some inexpensive or poor quality hubs can introduce playback issues. Try connecting the APERIO directly to your computer. Very long USB cables (> 2 meter) and some poor quality USB cables can also compromise USB connectivity, and should be avoided. If no hub is used, check the activity level/number of open programs on your computer, it could be that something else needs computer resources which interrupts playback.
No sound via Networking input	First check whether the analogue/digital source selector is in the Networking position. If it is, then check that the ethernet cable is properly connected. Check that your sound source can see the APERIO as a DLNA client. If possible, check also that the APERIO has been assigned an IP address by your DHCP server and that the device can be pinged. Check whether your DLNA source is correctly streaming a single to the APERIO. Check also whether the output has been muted within your playback software

Headphone Fit is poor/bass response is weak	Check the headband for any deformation by fully retracting (shortening) the metal inner bands. If the junctions at each end of the headband are tight without any large uneven gaps and the arc of the headband is smooth and continuous to each ear cup the inner bands are correct. If this is not the case, carefully push the ear cup assemblies inward until the gaps are minimised and even, and the headband arc becomes continuous and properly oriented.
Distortion is present on some source material	Check the volume control setting and also the presence of the clipping indicator on the front display. It is possible to overdrive the electrostatic panels at high volume settings with excessively bass-heavy source material or material with original recording levels set higher than normal. When listening to these types of source material it may be necessary to reduce the volume setting slightly.
Output level too low when using analog inputs	Check that the correct input level is selected for the type of source device being used. The unbalanced RCA inputs should be driven by source devices with up to $2.1 V_{rms}$ maximum output with the unbalanced input level switch on the back panel at the LOW switch position, and $5V_{rms}$ on the HIGH position. The balanced XLR inputs should be driven by source devices with up to 10dBu maximum output with the balanced input level switch on the back panel set to the LOW switch position and 18dBu on the HIGH position. If a low level source is connected to either balanced or unbalanced inputs when the input level switch is set to HIGH, there may not be enough gain available. The level switch should be set to LOW when low level source devices are used for best sound quality.
Output is distorted when using the analog inputs	Check that the correct input is selected for the type of source device being used and that the input level does not exceed the maximum levels allowed at the selected input level switch position. The unbalanced RCA inputs should be driven by source devices with up to $2.1 V_{rms}$ maximum output with the unbalanced input level switch on the back panel at the LOW switch position, and $5V_{rms}$ on the HIGH position. The balanced XLR inputs should be driven by source devices with up to 10dBu maximum output with the balanced input level switch on the back panel set to the LOW switch position and 18dBu on the HIGH position. Higher maximum output source devices can be used for these inputs, but levels will need to be reduced to avoid over-driving the analog inputs. If distortion is heard when driving the correct input, try reducing the output level from the source device until the distortion subsides or the clipping light goes off. This should be checked on the most dynamic, high level material one expects to play from the source device.

CHAPTER 6

CUSTOMER SERVICE

If the product fails to work for any reason, or you want to purchase replacement parts, please contact our Customer Service team via one of the following methods. Please provide as much detail as you can about the problem and your specific configuration. Be sure to leave your name and contact details too!

E-mail: support@warwickacoustics.com

Online: www.warwickacoustics.com/headphones/support/

GLOSSARY

AC	Alternating Current
ADC	Analog-to-Digital Converter
ASIO	Audio Stream Input / Output
BD	Blu-Ray Disc
CD	Compact Disc
CEN	Comité Européen de Normalisation/European Committee for Standardization
CNC	Computer Numerical Control
D	Depth
DAC	Digital-to-Analog Converter
DC	Direct Current
DoP	DSD Over PCM
DSD	Direct Stream Digital
DSP	Digital Signal Processing/Digital Signal Processor
DVD	Digital Versatile Disc
EN	European Norm/European Standard as developed by CEN
FET	Field-Effect Transistor
H	Height
HPEL	High-Precision Electrostatic Laminate
Hz	Hertz (aka cycles/second)
IEC	International Electro-technical Commission
in	Inch
kg	Kilogram
kHz	Kilohertz
lb	Pound (weight)
M1	Model One
MHz	Megahertz
mm	Millimetre
mV	Millivolt
OFHC	Oxygen-free High-purity Copper
oz	Ounce
PC	Personal Computer
PCM	Pulse Code Modulation
PE	Polyethylene
RCA	Radio Corporation of America
RMA	Return Merchandise Authorization

GLOSSARY

(Continued)

rms	Root Mean Square
SACD	Super Audio Compact Disc
SMPS	Switched-mode Power Supply
S/PDIF	Sony/Philips Digital Interface Format
USB	Universal Serial Bus
V	Volt
VA	Volt-Ampere
W	Width
WASAPI	Windows Audio Session Application Programming Interface

SPECIFICATIONS

HEADPHONE SPECIFICATIONS:

Configuration	Open-back; circumaural type
Transducer	Balanced-Drive High Precision Electrostatic Laminate (BD-HPEL)
Effective Diaphragm Area	3570 mm ²
Frequency Response	10 Hz – 60 kHz
Output Level (SPL)	Compliant with EN 60065/A12:2011 (EN50332) when driven by APERIO electronics (for all inputs); digital input: ~ 104 dB; analog input: ≥ 106 dB (continuous, est.)
Ear and Headband Cushions	“Cabretta” top-grain, sheepskin leather; perforated surface on ear cushions
Input	Polarized, 4-pin, self-latching connectors for left and right channels
Drive Cable	Dual mono, shielded, ultra-low capacitance; silver-plated OFHC ultra-fine stranded copper, with silicone insulation and Kevlar reinforcement; 2 meter length
Weight	399 grams (14 oz.), without cable

AMPLIFIER SPECIFICATIONS:

Balanced Analog Inputs	Dual (female) XLR jacks; switchable (high / low) input range; 18 dBu / 10 dBu
Unbalanced Analog Inputs	Dual RCA jacks; switchable (high / low) input range; 5.0 V _{rms} / 2.1 V _{rms}
USB Digital Input	Type B jack; USB 2.0; accepts digital audio formats up to 32-bit / 384 kHz PCM and DSD (DSD64/DSD128/DSD256) via DoP or Native
Network (Ethernet LAN) Digital Input	RJ45 jack; DLNA-compatible; accepts digital audio formats up to 32-bit / 384 kHz PCM and DSD (DSD64/DSD128/DSD256) via DoP or Native
AES3 (AES/EBU) Digital Input	XLR (female) jack; accepts digital audio formats up to 24-bit/192 kHz PCM
S/PDIF Coaxial Digital Input	RCA jack; accepts digital audio formats up to 24-bit/192 kHz PCM
Line Outputs	Balanced and unbalanced, high current outputs; +5 dB gain; switchable
Digital Formats	PCM: 16-32 bit / up to 384 kHz; DSD: up to 256 f _s DoP and Native
Equalization	HP only: digital EQ (DSP) for PCM sources; analog EQ for analog and DSD sources
Digital Signal Processing (DSP)	64-bit (double-precision) fixed-point processing at native sample rates
Switchable Gain	Rear panel switch; high level / low level selection for balanced analog input (professional audio and consumer levels) and unbalance analog input

Source Selection	Multi-position front panel selector with indicator LEDs for all sources
Level Control	Front panel, 31-position; digital and analog domain volume control (HP & Line Out)
Status Display	Front panel, 51 mm, full colour, QVGA, TFT LCD (240 x 320 pixels)
Display Functions	Digital readout and bar graph of volume control setting; display of digital audio data format; display of rear panel analog input (gain) settings; display of Ethernet and USB data link transmission lock; display of detected fault modes and output clipping
Auto Fault Detection	Automatic detection, display and protection for: output amplifier clipping, unplugged connections and malfunctioning wiring, over-temperature conditions and internal electrical faults
DACs	2 x dual mono, 32-bit / 384 kHz DACs with balanced outputs, for PCM & DSD inputs
Amplifier/Energizer	Balanced, discrete MOSFET, high-bias, single-ended Class A output; dual mono topology, including power supply; 1800 V _{DC} bias (charge) voltage
Distortion + Noise	< 0.001%
Bandwidth	> 65 kHz
Enclosure	CNC-machined 6063 aluminium
Power Supply	External: world voltage compatible (90-264 Volt AC, 50-60 Hz); 24 Volt DC, 200 VA (8.333 A), fixed frequency, class B-compliant SMPS; Internal: isolated, dual mono; switching and ultra-low-noise linear regulation
AC Mains	Types B, G, F, I; IEC-60320 C14, earth- grounded power cable; 1.5 meter length
Dimensions	H x W x D: 68 mm (2.68 in.) x 413 mm (16.26 in.) x 351 mm (13.82 in.)
Weight	7.4 kg (16.28 lbs.), without Power Supply

WARRANTY

LIMITED WARRANTY

Warwick Acoustics Limited is a company registered in England and Wales under company registration number is 04451674 having its registered office at MIRA Technology Park, Suite 1.02, NW05, Watling Street, Nuneaton, CV10 OTU ("Warwick Acoustics"). Warwick Acoustics extends the following warranty periods for the individual parts of the APERIO system.

The periods indicated begin on the date of purchase as specified on the original sales invoice and this limited warranty is in addition to any statutory rights available to you under law.

Details of your statutory rights can be found in our online terms and conditions of sale; (<https://warwickacoustics.com/headphones/terms-and-conditions/>)

HPEL Transducers/Headphones*/Energizer-DAC	2 Years
--	---------

Ear Pads/Headband Pad/Cables	1 Year
------------------------------	--------

* 2 Year warranty excludes ear pads and cables

WHAT IS COVERED:

Warwick Acoustics warrants that its products will be free of all defects related to manufacturing, parts, materials, and / or workmanship under normal and accepted use. The conditions under which this warranty ceases to be applicable are detailed in the next section.

WHAT IS NOT COVERED:

This warranty does not cover fair wear and tear, defects resulting from improper or unreasonable use or maintenance; cosmetic damage including, but not limited to, scratches, dents and broken parts caused by the owner; failure to follow all operating instructions; accident; excess moisture; excess temperature; power surges; connections to improper voltage supply or any non-APERIO energizer; unauthorized alteration or modification of original condition; 'Acts of God'; products purchased from unauthorized dealers; or defects incurred during transportation for which claims must be presented to the carrier. This includes any superficial damage to the boxes and packaging incurred during shipment.

As the APERIO uses natural leather, variations in texture and colour are inherent and natural characteristics of the material. These variations are normal and considered acceptable by Warwick Acoustics and are not covered by this warranty.

WHAT WE WILL DO:

Warwick Acoustics will, at its sole discretion, replace (using new or refurbished parts/products) or repair APERIO products that are within the stated warranty periods from the date of original purchase.

WARRANTY REPLACEMENTS:

Warwick Acoustics strives to improve the performance of its products, and, therefore, reserves the right to make changes to designs / specifications / materials at any time without notification. Warwick Acoustics may, at its discretion, choose to replace the APERIO product completely with a new or remanufactured product.

WARRANTY TRANSFER:

The terms of this warranty can be transferred to a subsequent owner provided the new owner is able to provide proof of original purchase, or the original purchaser has registered the product with Warwick Acoustics.

WARRANTY PERIOD FOR REPAIRS/REPLACEMENTS:

All warranty repairs/replacements are guaranteed for 90 days or until the original warranty end date, whichever is longer.

SHIPPING TO WARWICK ACOUSTICS:

Following submission of a [Warranty Claim](#), a customer will be issued a Return Merchandise Authorization (RMA) and a return shipping label. Warwick Acoustics will pay for ground shipping to its local service centre for all warranty returns. Customers should include the RMA with their returned product(s) and indicate the RMA number on the shipping box.

SHIPPING FROM WARWICK ACOUSTICS:

Warwick Acoustics will pay for ground shipping to return all products repaired/replaced under warranty. Customers will receive tracking confirmation from Warwick, and signature authorization will be required to receive your shipment.