

USER MANUAL

_AUDIOFUSE X8 OUT

ARTURIA

_The sound explorers

Special Thanks

DIRECTION

Frédéric Brun

Kévin Molcard

Jean-Gabriel Schoenhenz

PROJECT MANAGEMENT

Loïc Baum

Thierry Chatelain

HARDWARE DEVELOPMENT

Laurent Baret

Lionel Ferragut

Matthieu Ode

Valentin Depoisier

Nadine Lantheaume

INDUSTRIALIZATION

Jérôme Blanc

Yi-chun Hung

QUALITY

Emilie Jacuszin

DESIGN

Martin Dutasta

Axel Hartmann

Farès Mezdour

QUALITY ASSURANCE

Nicolas Naudin

Félix Roux

PRODUCTION TESTS

Anton Faugler

Yoann Lubiato

MANUAL

Mike Metlay

Charlotte Métais (French)

Minoru Koike (Japanese)

Jimmy Michon

Holger Steinbrink (German)

Ana Artalejo (Spanish)

BETA TESTING

Laurent Ballot

Perceval Carré

Sébastien Gros

Yoan Lubiato

Jérôme Blanc

Daniel Cayotte

Olivier Hudry

Aurélien Mortha

Sebastien Camhi

Olivier Collier

Godfrey Kirke

Vincent Travaglino

© ARTURIA SA - 2024 - All rights reserved.

26 avenue Jean Kuntzmann

38330 Montbonnot-Saint-Martin

FRANCE

arturia.com

Information contained in this manual is subject to change without notice and does not represent a commitment on the part of Arturia. The software described in this manual is provided under the terms of a license agreement or non-disclosure agreement. The software license agreement specifies the terms and conditions for its lawful use. No part of this manual may be reproduced or transmitted in any form or by any purpose other than purchaser's personal use, without the express written permission of ARTURIA S.A.

All other products, logos, or company names quoted in this manual are trademarks or registered trademarks of their respective owners.

Product version: 1.0.0

Revision date: 10 September 2024

Thank you for purchasing AudioFuse X8 OUT!

AudioFuse X8 OUT allows for easy expansion of your studio's output count, while retaining the same superior sound quality found in the entire Arturia Fuse lineup.

This manual covers the features and operation of the AudioFuse X8 OUT.

Important Safety Instructions

PRECAUTIONS INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:

1. Read and understand all the instructions.
2. Always follow the instructions on the device.
3. Before cleaning the device, always remove the USB and DC cable. When cleaning, use a soft and dry cloth. Do not use gasoline, alcohol, acetone, turpentine or any other organic solutions; do not use a liquid cleaner, spray or cloth that's too wet.
4. Do not use the device near water or moisture, such as a bathtub, sink, swimming pool or similar place.
5. Do not place the device in an unstable position where it might accidentally fall over.
6. Do not place heavy objects on the device. Do not block openings or vents of the device; these locations are used for air circulation to prevent the device from overheating. Do not place the device near a heat vent at any location with poor air circulation.
7. When rackmounting the device, allow air circulation space above and below it for heat dissipation, and use caution when installing in the rack to avoid damage to the rack ears and mounting screws.
8. Do not open or insert anything into the device that may cause a fire or electrical shock.
9. Do not spill any kind of liquid onto the device.
10. Always take the device to a qualified service center. You will invalidate your warranty if you open and remove the cover, and improper assembly may cause electrical shock or other malfunctions.
11. Do not use the device with thunder and lightning present; it may cause electrical shock.
12. Do not expose the device to hot sunlight.
13. Do not use the device when there is a gas leak nearby.
14. Arturia is not responsible for any damage or data loss caused by improper operation of the device.

Specifications subject to change:

The information contained in this manual is believed to be correct at the time of printing. However, Arturia reserves the right to change or modify any of the specifications without notice or obligation to update the hardware that has been purchased.

IMPORTANT:

The product, when used in combination with an amplifier, headphones or speakers, may be able to produce sound levels that could cause permanent hearing loss. DO NOT operate for long periods of time at a high level or at a level that is uncomfortable. If you encounter any hearing loss or ringing in the ears, you should consult an audiologist.

NOTICE:

Service charges incurred due to a lack of knowledge relating to how a function or feature works (when the product is operating as designed) are not covered by the manufacturer's warranty, and are therefore the owner's responsibility. Please study this manual carefully and consult your dealer before requesting service.

Introduction

Dear musician,

We'd like to thank you for purchasing the AudioFuse X8 OUT, a simple and affordable input expansion solution for your studio. Because the AudioFuse X8 OUT can be configured for tabletop or rackmount operation, it will serve you well whether you're just getting started or expanding your existing setup with the very best equipment. This manual will help you make the most of the AudioFuse X8 OUT.

As with the other interfaces in our Fuse lineup, the AudioFuse X8 OUT has been constructed using components of the utmost quality so as to achieve recordings of the utmost quality. It offers high-quality analog-to-digital (A/D) conversion and up to 24-bit/96 kHz audio transmission, with internal or external clock sync.

Be sure to visit arturia.com website for information about all of our other great hardware and software instruments. They have proven time and again to be the go-to solutions for musicians around the world.

Wishing you all the best in your musical endeavors,

The Arturia team

Table Of Contents

1. Welcome to the AudioFuse X8 OUT!.....	2
1.1. Features of AudioFuse X8 OUT:.....	3
1.2. Diving in (suggestions on using this manual).....	3
2. Hardware Setup and Registration	4
2.1. What's in the box?	4
2.2. Rackmounting the AudioFuse X8 OUT	4
2.3. Registration	5
3. Getting to Know the AudioFuse X8 OUT	6
3.1. The Front Panel.....	6
3.1.1. Power button.....	6
3.2. The Rear Panel.....	7
3.2.1. Power Input	7
3.2.2. ADAT Outputs.....	7
3.2.3. Word Clock Input.....	7
3.2.4. Outputs.....	7
4. Using the AudioFuse X8 OUT	8
4.1. Device connections	8
5. Synchronization	9
5.1. Why synchronize?	9
5.2. ADAT Sync	9
5.3. Word Clock Sync	10
5.3.1. Switching between ADAT and Word Clock	10
5.4. What the SMUX?	10
5.5. A final note.....	11
6. Specifications	12
7. Declaration of Conformity.....	13
7.1. FCC	13
7.2. CANADA.....	13
7.3. CE.....	13
7.4. ROHS.....	13
7.5. WEEE.....	14

1. WELCOME TO THE AUDIOFUSE X8 OUT!



The AudioFuse X8 OUT

When Arturia released the AudioFuse USB audio interface in 2017, its features and design were a revelation to the pro audio world. Every part of its analog and digital signal paths provided world-class quality, from high-performance preamps to premium A/D and D/A converters. Even with all these features, it fit into a compact, beautifully-engineered design that set a new price/performance standard.

Since then, Arturia has expanded its Fuse lineup with other rackmount and desktop interfaces – from specialized AudioFuse products to smaller MiniFuse interfaces perfect for smaller studios. All of these products continue our commitment to maximum features for the money, all with uncompromising sound quality.

The AudioFuse line is designed to grow with you as your interface needs change. Our newest Fuse units, the AudioFuse X8 IN and X8 OUT, have been created to help with one of the most common growing pains that electronic musicians face: running out of analog inputs and outputs. What do you do if you love your current interface (and if it's an AudioFuse, who *wouldn't*?) but you wish it had more ins or outs?

The AudioFuse X8 OUT is a half-rackspace unit with 8 balanced line-level outputs on 1/4" TRS, each with a world-class digital-to-analog (D/A) converter. Input is provided on a pair of Toslink optical ports using the ADAT digital audio standard, which run at 24-bit resolution and can operate at sample rates up to 96 kHz. These will accept audio data from any audio interface with ADAT outputs.

In addition to these features, the AudioFuse X8 OUT can use clock signals over the ADAT connectors or via a BNC Word Clock input with switchable termination. This lets you synchronize the AudioFuse X8 OUT to your interface with no added cables, or integrate it with a larger digital audio system using a common Word Clock.

The AudioFuse X8 OUT comes in a convenient half-rackspace chassis, complete with one rack ear and one connector plate. These stay out of the way when using the AudioFuse X8 OUT as a tabletop unit, and can be removed and put into use when attaching it to a second AudioFuse X8 OUT or an AudioFuse X8 IN 8-channel line-to-ADAT analog-to-digital (A/D) converter unit. The result is a conventional single-rackspace processor that can be added to any standard rackmount system.

Simple to set up and seamless to use, the AudioFuse X8 OUT is the easiest way to add more outputs to your audio interface setup – so you can set up multiple check monitors, or enjoy surround mixes with multiple output speakers!

1.1. Features of AudioFuse X8 OUT:

- 8 balanced line-level analog output channels on TRS
- Dual ADAT input ports for 8 channels of input at 44.1, 48, 88.2, or 96 kHz
- BNC Word Clock input with impedance switching
- Robust metal chassis in a single-space rack form factor
- built-in feet for tabletop use plus attached hardware for rackmount configuration
- Operates standalone with no computer needed

1.2. Diving in (suggestions on using this manual)

In this manual, you'll be introduced to all of the AudioFuse X8 OUT's functions, step by step. The Table of Contents is laid out by section, with some general information at the beginning and end. Inside each section, you can click on topic and page references to quickly find what you need.

This isn't a complex machine, but knowing its features ahead of time will help you set it up quickly and use it without headaches. Take some time to read through this manual so you know how to get what you need.

And above all: have fun! That's what music is all about.

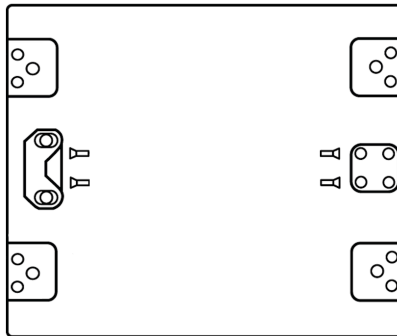
2. HARDWARE SETUP AND REGISTRATION

Setting up the AudioFuse X8 OUT isn't difficult, but there are a few instructions to follow, especially if you plan to rackmount it with another X8 OUT or with an X8 IN.

2.1. What's in the box?

- The AudioFuse X8 OUT
- Rack ear and connecting plate with screws (attached to the bottom of the unit)
- Power supply with adapters for worldwide use
- Registration card with serial number
- Quick Start Guide

2.2. Rackmounting the AudioFuse X8 OUT



Rackmounting components stored under the AudioFuse X8 OUT

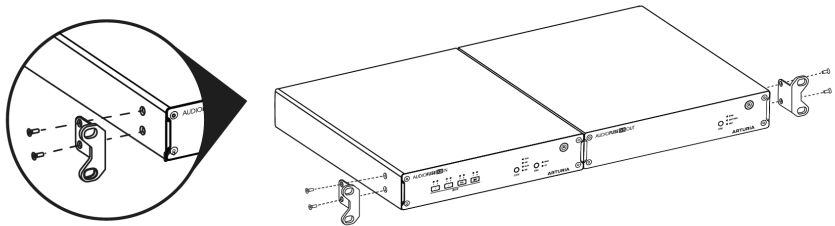
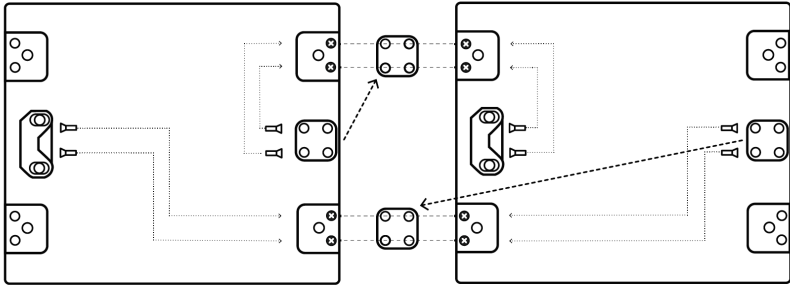
The bottom of the unit has a pair of recessed storage positions, one for a single orange rack ear and one for a square connecting plate. Each has two mounting screws of the appropriate size.



Note that the connecting plate has four screw holes but only two screws. The extra holes are used to connect to a second unit using its supplied screws.



The unit comes with mounting screws especially chosen for this purpose. Don't use other screws, and carefully follow the directions in this manual. You don't want your new converter to fall out of your rack, do you?



An AudioFuse X8 OUT and an AudioFuse X8 IN configured for rackmounting

Attach the rack ears and connection plates in the configuration shown above, and the AudioFuse X8 OUT and its companion X8 OUT or X8 IN are ready to slot into your rack.



We recommend rackmounting the AudioFuse X8 units with an open rackspace above or below them, to assist with keeping them cool during operation.

2.3. Registration

Once you've set up your hardware, the next part of the process is to register it with Arturia. Registration will help you if you should need technical support; it's always a good idea to take a moment and do this before you get started.

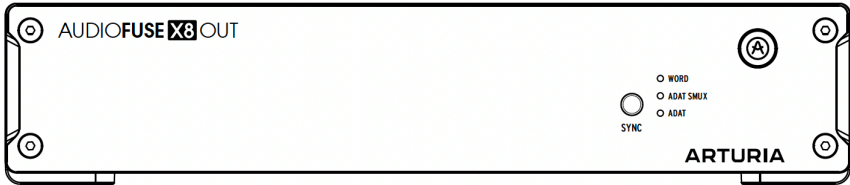
Follow the instructions you'll find in the box with your unit to log onto the Arturia website and register it. You will need a serial number and unlock code, which you will find on the bottom of the unit.

Registering your AudioFuse X8 OUT gives you access to current documentation (including this User Manual).

3. GETTING TO KNOW THE AUDIOFUSE X8 OUT

Before we get started using it, let's take a tour around the AudioFuse X8 OUT.

3.1. The Front Panel



The AudioFuse X8 OUT front panel

The front panel has the following features:

- **SYNC:** selects whether the AudioFuse X8 will accept BNC Word Clock on the rear panel (**WORD**) or use incoming ADAT sync, either in conventional mode (**ADAT**) for 44.1 or 48 kHz input or in SMUX mode (**ADAT SMUX**) for 88.2 or 96 kHz input.



When neither an ADAT nor Word Clock sync signal is detected, the **ADAT** LED blinks, indicating that the AudioFuse X8 OUT is not properly synchronized.

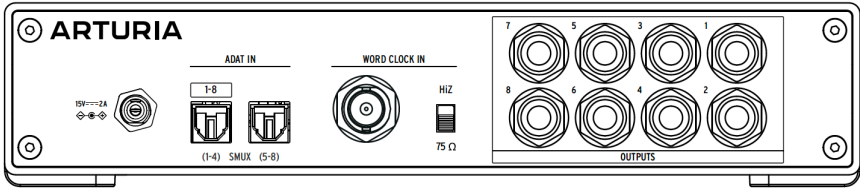
3.1.1. Power button

The round button with the Arturia logo at the far right powers the unit on or off when held for two seconds. It glows white when the unit is on.



When you power the unit on, all of the front panel LEDs will cycle in a top-down manner. This is the unit's bootstrap sequence, and should only take one or two seconds.

3.2. The Rear Panel



The AudioFuse X8 OUT rear panel

The AudioFuse X8 OUT's rear panel has the following sets of connections.

3.2.1. Power Input

The AudioFuse X8 OUT has a locking power connector for the provided 15V / 2A DC power supply.

i Use only the provided supply! Other supplies might damage or destroy the unit, and will void your warranty.

3.2.2. ADAT Outputs

The two Toslink ADAT optical inputs are used to accept 8 channels of digital audio from your interface.

- When running at 44.1 or 48 kHz, the left port carries data for all 8 channels as well as sync data.
- When running at 88.2 or 96 kHz, each port carries data for four channels, 1-4 and 5-8, as well as SMUX sync data.

3.2.3. Word Clock Input

This is a standard BNC connector for Word Clock data provided by an external clock source. The **HiZ** switch determines the termination of the connection.

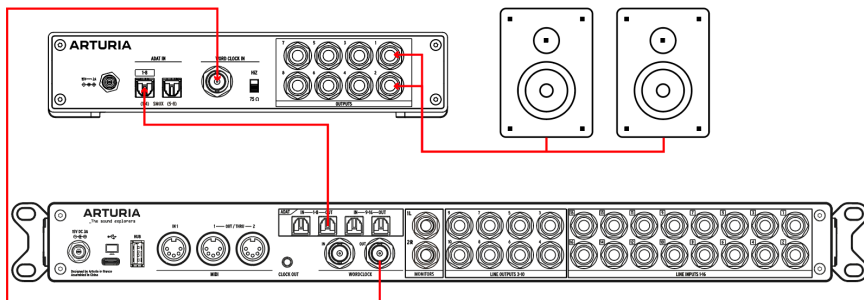
3.2.4. Outputs

These eight 1/4" TRS jacks carry balanced line-level signals from the AudioFuse X8 OUT.

4. USING THE AUDIOFUSE X8 OUT

Hooking up your AudioFuse X8 OUT and configuring its inputs is a simple process.

4.1. Device connections



Hooking up the AudioFuse X8 OUT to your system

1. Connect your analog devices to the rear-panel outputs.
2. Connect your ADAT optical cables to the ADAT outputs on your audio interface.
3. If you're using external Word Clock, attach the BNC cable from your master clock source. Set the HiZ switch accordingly, as explained in the chapter on [synchronization \[p.9\]](#).
4. Make sure your interface recognizes the presence of the ADAT outputs and their chosen clock/sync settings. Consult your device's user manual if things don't seem to be connecting properly, and don't forget to verify the type of [sync \[p.9\]](#) you're using.
5. Use your interface to determine which signals from your DAW are routed to which outputs. This is where you'll set up alternate sets of check monitors, a surround mix, a subwoofer output, or whatever other application you might have in mind.

You're now ready to go! That wasn't so hard, was it?

5. SYNCHRONIZATION

The **SYNC** button is used to determine how the AudioFuse X8 OUT is synchronized with other digital audio devices in your studio.

5.1. Why synchronize?

If you've never used two or more devices with digital inputs or outputs before, you might not understand why sync is such an important issue. Actually, good sync is of critical importance to good sound.

Every digital audio device has an internal clock that determines where certain audio events occur in time. The clock runs much faster than the sample rate of the audio you're recording or playing back, and its precision is vital to the quality of the audio signal. If a clock isn't very precise, an audible artifact called *jitter* will become part of the signal. Every digital audio clock network strives to have the lowest jitter.

When multiple clocked devices are connected, only one can be the master clock generator, and the other devices must tightly follow its clock signals. It is vital to make sure that all digital audio devices in a studio are clocked from the same source, so you don't introduce clicks, pops, and other audio artifacts that can arise from slightly mismatched and competing clocks. Generally you'll choose whichever device has the most stable clock signals to control the others.

When connecting only two devices (e.g. the AudioFuse X8 OUT and your interface), the clock signals can be sent over the ADAT cable connecting them. If more than two devices are in a network, they must share a high-precision Word Clock signal that is transmitted between them on a BNC cable with a locking connector.

BNC cables can be chained from unit to unit in various ways, but they are very sensitive to pulses that reflect back down the cable from its far end. To prevent this, clock cables must be *terminated* with a proper resistance value.

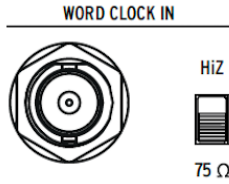
5.2. ADAT Sync

When there is no Word Clock cable connected, the AudioFuse X8 OUT will synchronize to the incoming ADAT signal. In this case, the **SYNC** button will be set to either **ADAT** or **ADAT SMUX** (indicated with a white LED).



When neither an ADAT nor Word Clock sync signal is detected, the **ADAT** LED blinks, indicating that the AudioFuse X8 OUT is not properly synchronized.

5.3. Word Clock Sync



The rear panel BNC **WCLOCK** port is used to connect the AudioFuse X8 OUT to multiple devices in a digital audio network.

i If no BNC cable is connected to the rear panel **WCLOCK** input, the **SYNC** button will only select between **ADAT** and **ADAT SMUX**. And again, if no ADAT sync signal is detected, the **ADAT** LED will blink, indicating that the AudioFuse X8 OUT is not properly synchronized.

The **HiZ** switch determines how the connection is "seen" by other devices that are cabled together.

- When the **HiZ** switch is in the down position, the connection's input impedance is 75 Ohms. This is used when the AudioFuse X8 OUT is at the end of a chain of word clock cables.
- When the **HiZ** switch is in the up position, the connection has a very high impedance, which prevents reflections in all other hookup configurations.

5.3.1. Switching between ADAT and Word Clock

If the AudioFuse X8 OUT is receiving Word Clock over a BNC cable connection, you can switch between it and the ADAT clock with the **SYNC** button.

5.4. What the SMUX?

SMUX (*Sample Multiplexing*, often written **S/MUX**) is a subset of the ADAT optical audio specification that allows for an ADAT connection to carry data at higher sample rates by sacrificing channel count.

An ADAT connection can carry 8 channels of 24-bit data at either 44.1 kHz or 48 kHz. Using SMUX, that same connection can carry 4 channels of data at up to 96 kHz, or 2 channels of data at up to 192 kHz.

i The highest sample rate provided by the AudioFuse X8 OUT (or the X8 IN) is 96 kHz. If it's fed a sample rate higher than that, the **ADAT** LED will blink to indicate that the clock isn't usable.

The two ADAT inputs on the AudioFuse X8 OUT allow for 8 channels of conventional ADAT over one port or 8 channels of ADAT SMUX over two ports. When using SMUX, channels 1-4 are available at the first port and channels 5-8 are available at the second port, as indicated on the rear panel labels.

Either the **ADAT** or **ADAT SMUX** LED will light, depending upon the type of sync signal received. It will automatically be recognized by the AudioFuse X8 OUT.



Some third-party digital devices don't send the proper information to set SMUX automatically when connected. In that case, the AudioFuse X8 OUT lets you force it to recognize SMUX clocking by long-pressing the **SYNC** button. In Force SMUX mode, both the ADAT and ADAT SMUX LEDs will be lit.

5.5. A final note

If all this seems a bit overwhelming, just remember that using multiple Word Clock devices is a scenario you won't run into very often... at least until your studio has grown to the point where you'll have experience with these issues. For most small studios, a simple ADAT connection between the AudioFuse X8 OUT and your audio interface, using ADAT or ADAT SMUX sync, will do the job just fine. Consult your interface's user manual to determine how to sync it to the AudioFuse X8 OUT.

6. SPECIFICATIONS

Line Outputs (DC Coupled)	
Type	Balanced TRS, unbalanced TS
Maximum Output Level	+24 dBu
Frequency Response (D/A) 20 Hz to 20 kHz	±0.04 dB
Dynamic Range	120.5 dB (A-weighted)
THD+N	-105 dB (A-weighted)
Output Impedance	240 Ω (balanced), 120 Ω (unbalanced)

Clock	
Supported Frequency Rates	44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz

Power Supply	
Connector Type	IEC 60320 C14
Power Input	100 V to 240 V AC, 50 or 60 Hz
Power Output	15 V DC, 2.0 A, 30 W

7. DECLARATION OF CONFORMITY

7.1. FCC

WARNING: DO NOT MODIFY THE UNIT!

Any modifications or other changes to this unit not approved by the party responsible for compliance could void the user's authority to operate this equipment.

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.

Responsible Party in USA: Zedra, 185 Alewife Brook Parkway, #210, Cambridge, MA 02138, United States T: +1 857 285 5953

Trade Name: ARTURIA, Model Number: AudioFuse X8 OUT

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 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.

7.2. CANADA

This class B digital apparatus meets and complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada

7.3. CE

This device has been tested and found to comply with the limits of the European Council Directive on the approximation of the laws of the member states relating to Electromagnetic Compatibility according to 2014/30/EU.

7.4. ROHS

This device has been produced with lead free solder and fulfills the requirements of the ROHS directive 2011/65/EU.

7.5. WEEE



This symbol indicates that the electrical and electronic equipment should not be disposed of as general household waste at its end-of-life. Instead, the products should be handed over to the applicable collection points for the recycling of electrical and electronic equipment for proper treatment, recovery, and recycling in accordance with your national legislation and the Directive 2012/19/EU (WEEE - Directive on Waste Electrical and Electronic Equipment). For more information about collection points and recycling of these products, please contact your local municipal office, your household waste disposal service, or the shop where you purchased the product.