CORE AUDIO
KARUNA ULTIMATE USB/SPDIF converter

USERS MANUAL

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CONTENT

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1. INTRODUCTION

The development of products by Core Audio Co. Ltd. started almost 10 years ago. Our company started it's mission by perfecting the PC based audio playing. Our technicians and engineers in charge of the development discovered that a basic problem is that, in order to get the expanding of the bandwidth of the source through the sound reproduction chain to the listener, you have to make sure that the equipment connected the source are also ready to receive the increased level of information. When creating this product our goal was to create an ideal interface to make sure that the mass of digital signals arriving from the source are transferred to the digital-analog converter by our USB/SPDIF transformer with minimal loss of information or transformation. We believe our goals set when creating the products were necessary because the digital signal can only disconnect from the USB port and travel through a coax or AES/EBU connector towards the digital-analog converter when the audiofil ways are completely fulfilled.

The specialty of this product is that it is equipped with an i2s output which is differentially amplified. That way we can guarantee the highest level of technical standards to our customers.

This product was tested and developed by the Core Audio Co. Ltd. for many years and many costumers use it satisfied in their systems to this day. Our developments due to the latest technical inventions didn't stop and won't stop; we try to keep our product up to date and on the highest standard. The current product contains the 3rd generation 2018 converting panel - cooperating with the i2s output port.

It is really important for us and we really appreciate that you chose our product and that you put your trust in us. It ensures us that we are on the right track developing our products. Thank you for trusting us!

the Core Audio team

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2. **PRODUCT DESCRIPTION**

When we were creating the product our base was the USB/SPIDF converting (bridge) panel. This panel includes the necessary components that make the quality digital data transmitting possible. We based the whole product around this panel with the right sizing.

Our primary goal was to obtain maximum vibration absorbtion and leading the heat off in all of the components.

When designing the product we took into account what kind of parts each base components consist of, and how much heat should we dissipate from them, as well as which parts are extra sensitive to vibrations. We decided that the best solution to that problem is developing an aluminum monobloc case. That case should provide ideal vibration absorbtion and heat protection to the high-end parts with perfect balance. That aluminum monobloc case represents the design patterns of the typical Core Audio Ultimate High-End products.

The equipment operates with 230V/50Hz input voltage and it's power supply is completely separated for all stages with a low-noise analog power circuit. We use short and optimized PCB conduction bands. For the external power supply we use a high quality FURUTECH IEC standard socket. The internal cabling is made with the highest possible quality Siltech cables containing silver fiber.

The case of the device has a part specially made to actively take part in leading heat off from the power circuit. On the main panel, among other, the followings are placed: the clock signal controlling the XMOS XU2016 16 multicore microcontroller, the clock signal needed for operating the standard clock signals of 44.1KHz and 48KHz (and multiplied versions such as 88.2 kHz, 176.4 kHz, 96 kHz, 192 kHz), and a different one for operating the USB port. All clock signals are low jitter Crytek clock signals made uniquely for Core Audio. No matter the level or stage, there are extremely short signal pathways using high quality, low heat-dependent parts. The Core Audio Ultimate USB/SPDIF converter is also equipped with an i2S-HDMI output which makes you able to connect it with devices having the available latest standard port.

The central control panel contains the most recent XMOS XU216 chip, guaranteeing that the high definition contents sent through the signal pathway. To ensure the optimal operation we

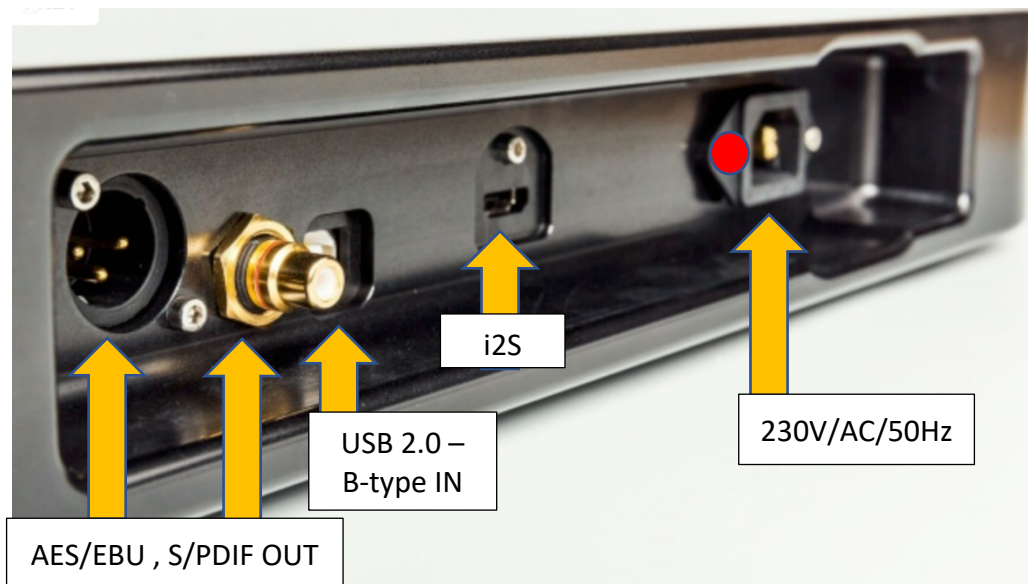# CORE AUDIO

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had to modify the original XMOS chip as well, so we diverged from the referenced XMOS design when creating the product, it operates in different principles than the original.

Front and top of the device:

On the front panel of the device there is the On/off switch with a LED indicator. To turn the converter on you have to press the button until it clicks. When it is on the LED indicator will glow in a blue circle.

POWER ON/OFF

Back panel:

i2S

USB 2.0 – B-type IN

230V/AC/50Hz

AES/EBU , S/PDIF OUT

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On the back panel you can find the following ports:

- IEC socket: the power supply cord has to be connected here

  A colored dot shows the correct polarity.

- USB in: suitable to connect a standard USB 2.0 cable, the device will receive the signal coming from the source through this cable.

- AES/EBU output: symmetric output suitable to connect 110 ohm cable

- S/PDIF-RCA output: output suitable for connecting 75 ohm cable

- i2S-HDMI output: suitable to receive differentially amplified i2S cable

3. CONTENT OF THE PACKAGE

a., Core Audio KARUNA ULTIMATE USB/SPDIF converter in black or in limited liquid-metal color

b., User manual

c., Installing pen-drive containing the XMOS driver (USB 2.0) or can download from www.coreaudio.eu webpage.

d., plush protection cover, wood traveling box

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4. TECHNICAL SPECIFICATIONS

General product specifications
Aluminum monobloc case
Passive cooling
Black or limited liquid metal color
The use of SMD panel technique
Full vibration absorbtion on SMD panel and power circuit
Siltech high-end interior cabling
Full analogue power supply

| General Technical Specifications	
Voltage	220-240 V (50Hz)
Power consumption	max. 10 W
Digital Outputs	AES/EBU-XLR, S/PDIF-RCA, i2S-HDMI
Digital Inputs	USB 2.0 (type B)
Clock signals (3)	1db (44,1 kHz, 48 kHz), 1db (USB), 1db (XMOS) CRYSTEK
Supported resolutions	
USB:	16bit / 44,1 - 48 kHz
	24bit / 44,1 - 48 - 88,2 - 96 - 176,4 - 192 kHz

Managing .dsd, .dsf content	The device is equipped with the latest xCORE XU216-512 modified chip, it takes part in converting dsf and dsd files
	    to PCM 24bit / 96kHz resolution or
	    to PCM 24bit / 192kHz resolution
	    Handling foo_dsd_asio és Kernel Streaming
	    DSD512 native files can be sent through the i2S port

Weight	21kg (netto)
Dimensions:	487 x 315 x 60 mm
Optimal operation temperature	+10 °C - +40 °C
Software support	Windows 10, MacOS, Linux Plug&Play supported XMOS installing driver attached on pendrive

5. INSTALLATION GUIDE - DRIVER

Only use the device if you already installed the proper driver on your computer before the first use. (On the included pen-drive, or on our webpage at the product's page you can download the latest drivers)

Although the latest versions of Windows 10 HOME, MacOS 10.13, Linux distributions already contain the necessary XMOS drivers to connect the USB, we recommend that you use the device with the driver provided by us, that way we can guarantee the problem free operation of the device.

IMPORTANT: when starting the installation do not have the device and the source connected with a USB cable. and close all other applications !

a., First step: copy the installing file from the pen-drive or downloaded from the webpage (XMOS-Stereo-USB-Audio-Class2-Driver-2023_v3.34.0.exe) to a folder selected by you.

b., Double click on the installing file

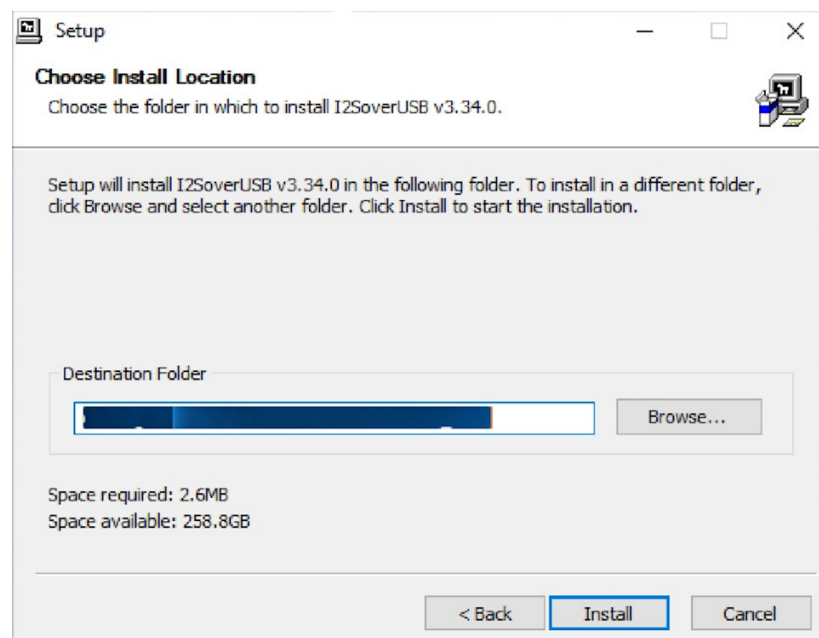c., The following window will appear after starting the installation:
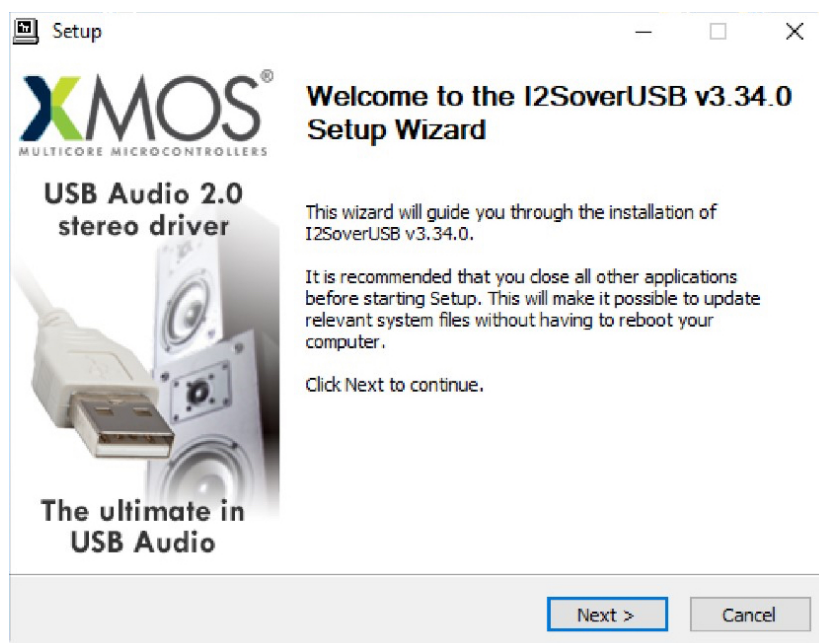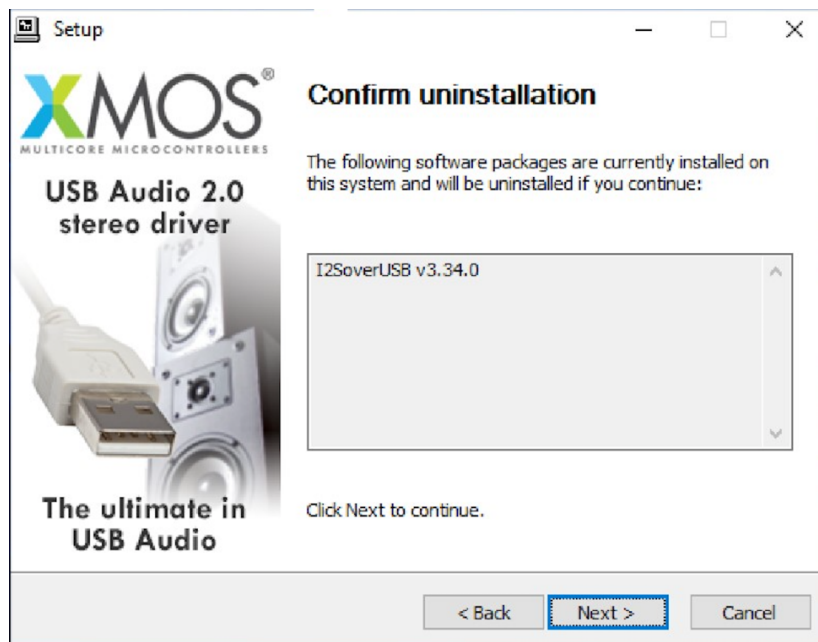
CORE AUDIO KARUNA ULTIMATE USB/SPDIF converter
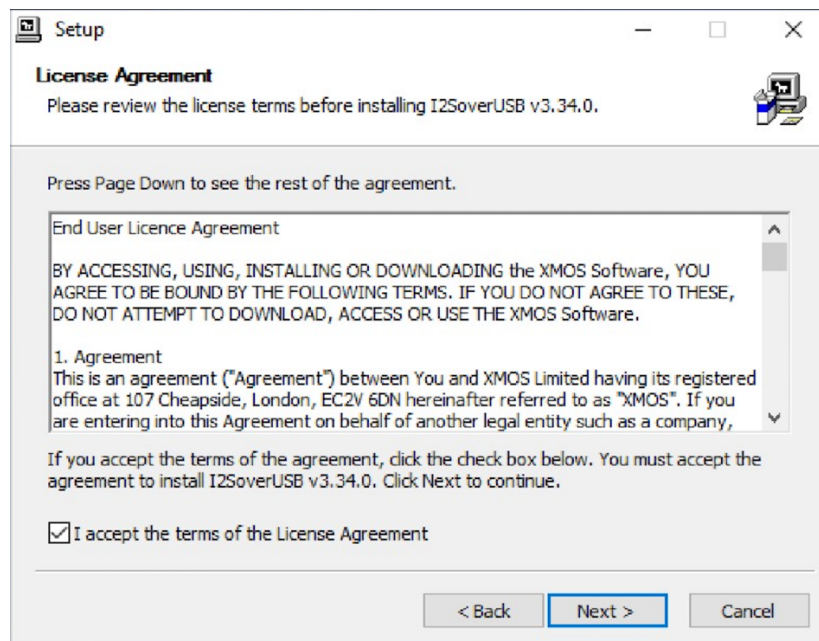
d., Accept Terms and Conditions, tick the square and click Next
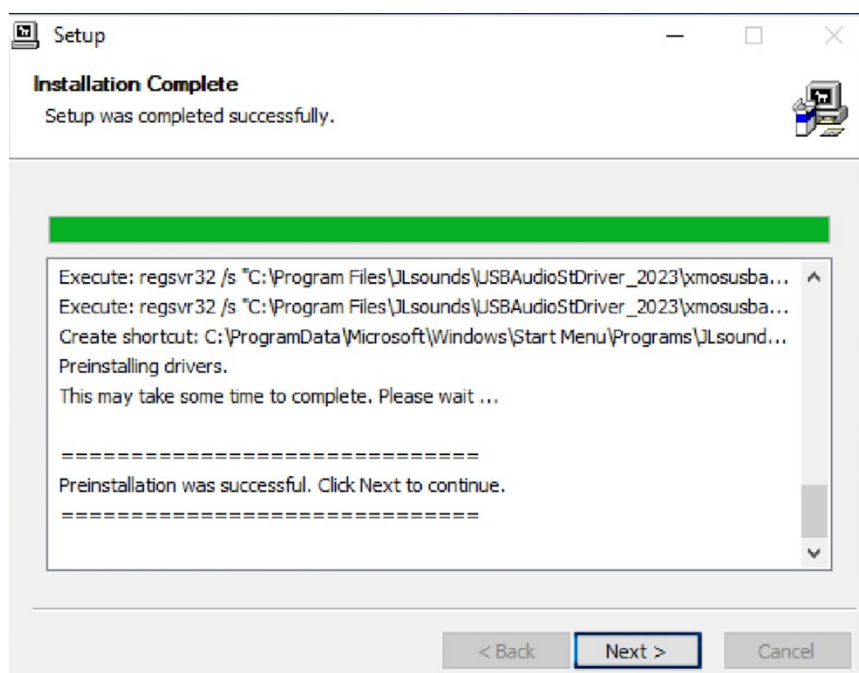
e., Selecting the Installation folder:

![CORE AUDIO logo]
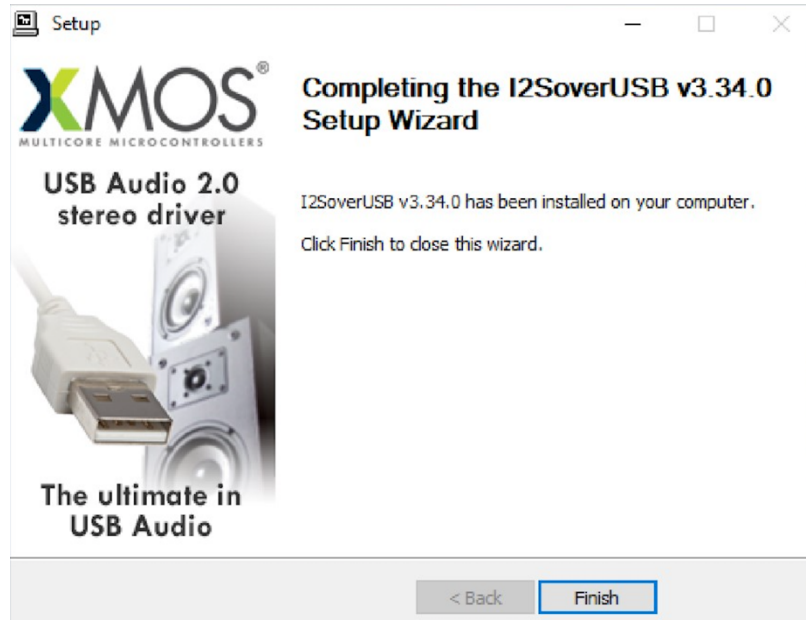
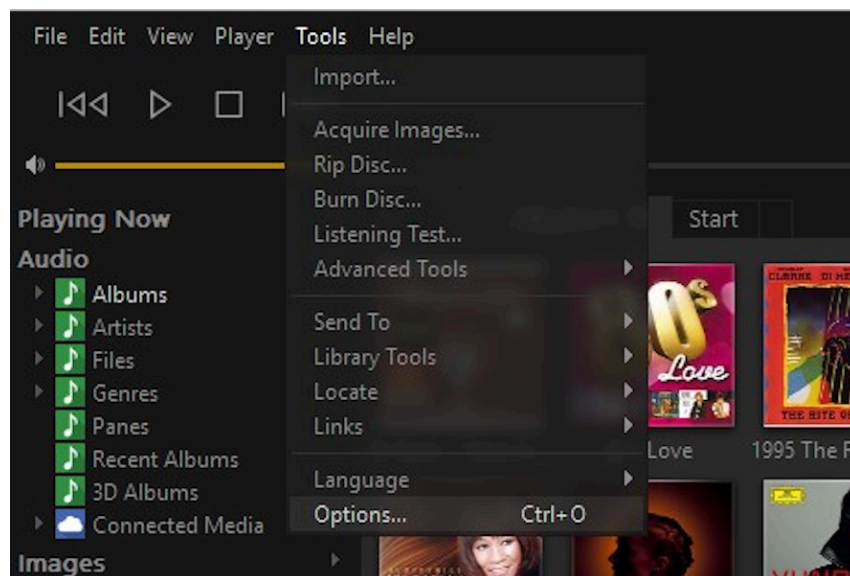**CORE AUDIO KARUNA ULTIMATE USB/SPDIF converter**

f., Finish Installation:

g., Close Installing Wizard:

h., At the Settings menu of the media-player applications you can choose what audio device you want to use. Since the USB cable is not connected yet there won't be any changes:
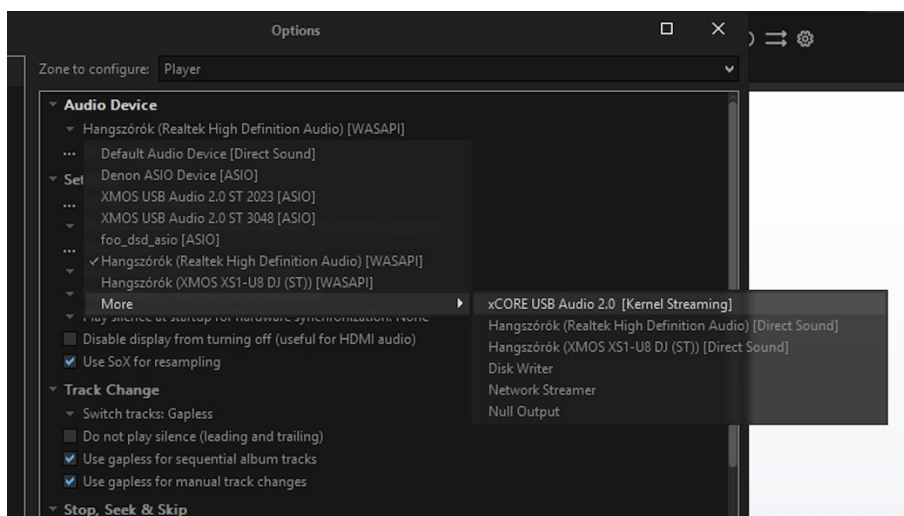
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i., Connect the USB cable from the source to the device and turn it on. The following text will pop up in the bottom right corner of the screen:
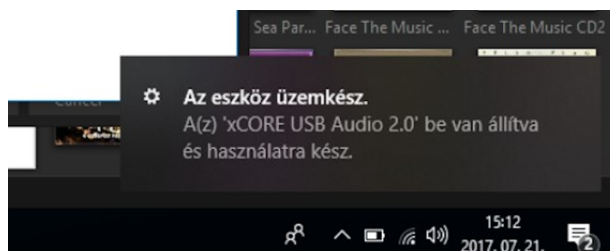
j., At this point you can select „xCore USB Audio 2.0 (Kernel Streaming) in the Settings of the Media-player application. The device is ready to use.

6. CONNECTING THE DEVICE:

Only turn on the device with the „on" button when you already connected the necessary cables (power cord, USB Input, AES/EBU, SPIDF, i2S output) to the right in or outputs of all devices.

The maximum lenght of the USB cable cannot exceed 3 meters! We recommend a cable between 1 and 2 meters. With the AES/EBU and SPDIF cables we recommend maximum 3 meters. i2S cables we don't recommend using longer than 0.6 meters.

Never use cables with damaged cover or damaged plugs or with faulty connections

Proper order of turning on equipments:
- o Speaker devices
- o USB/SPIDF converter
- o Digital/analog converter
- o Source device

The turning on of the USB/SPIDF converter should ALWAYS be performed before the turning on of the source device - otherwise the source device might not recognize the converter or it's operation system might crash.

Never unplug the device from the source or the DAC during playing because the device can be physically damaged

Wrecking or taking off the cover of the device while it is connected to electricity is Forbidden and can result in death.

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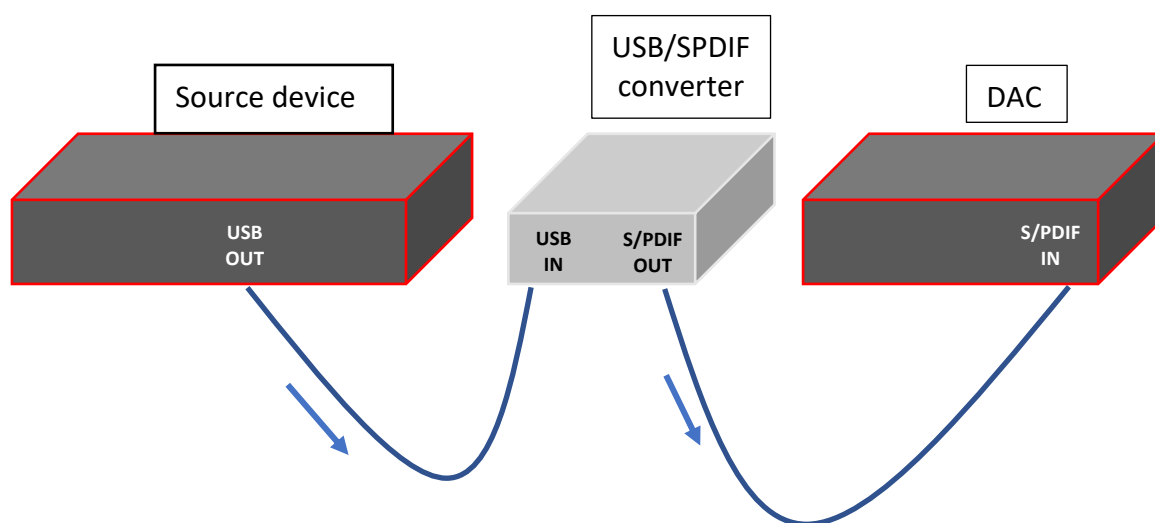
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⚠️ We recommend continuous operation of this device for a maximum of 10 hours- in order to conserve the lifespan of the built in clock signal generators.

Symmetric connection: with AES/EBU cables
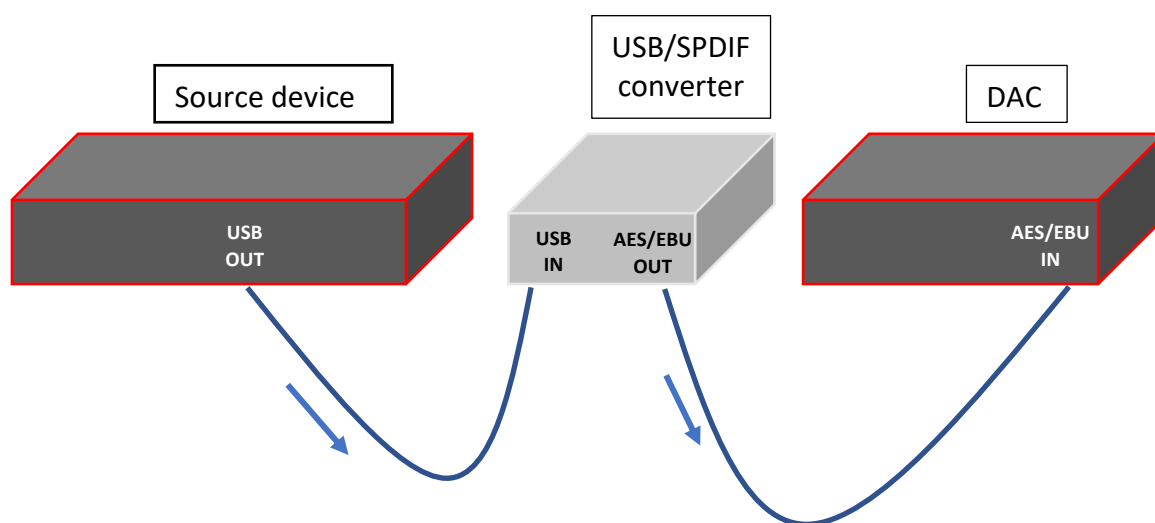
Digital coax connection: with S/PDIF connecting cables

7. WARRANTY TERMS AND CONDITIONS:

Core Audio Co. Ltd. provides a 1 year warranty for all the products made or sold by them from the day of the purchase.

The warranty only applies if the defect appeared during the proper use of the product.

The panel, the case and the power supply contains marked parts which indicate if the cover of the device was moved or damaged. If during the time of the warranty the cover of the device was opened or components are changed, any modifications are made and it results in a change compared to the original state of the device the warranty is immediately terminated. The Core Audio Co. Ltd. company will refuse to repair it, take it back or switch it to a new one.

The Core Audio Co. Ltd. will not take responsibility for any defects or damage resulting from accident, falling, dropping it or during transportation.

If the repair takes over 3 weeks and it is included in the Core Audio Co. Ltd. will provide you with a substitute one for the costumer. The costumer must take care of the substitute device, any damage done to it must be paid for by the costumer.

8. TROUBLESHOOTING:

a., *The device won't turn on after turning it on*

Check if the power cord is connected to 230V connector on the back of the device and if the cable is connected also on the other end to the plug correctly. If using an adapter check if it is turned on.

It is also possible that you didn't press the On button right and it jumped back to it's natural position. If turned on right there will be white LED lightning around the power button.

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b., *It won't connect to the source or PC*

Check the USB cable if it's working fine. (it's not broken, doesn't have any damage on it, plugs are intact.) check if the cables are plugged in correctly and to the correct in and outputs. Check if the USB/SPIDF converter is connected to electricity and is turned on.

Check if the latest installation driver is installed on your source device and if you have the xCORE USB 2.0 Audio set as your primary audio device.

c., *Device doesn't connect to DAC*

Check if USB/SPIDF device is connected to electricity and is turned on. Check the DAC if it is connected to electricity and is turned on.

Check if S/PDIF is cable if it's working fine. (it's not broken, doesn't have any damage on it, plugs are intact.)

Check if both of the ends of the S/PDIF cable are correctly connected to their places and make sure if the directions are correct.

If you use AES/EBU cable make sure if it's working fine. (it's not broken, doesn't have any damage on it, plugs are intact.)

If you couldn't find a solution after checking the ones above please contact Core Audio Co. Ltd.. service on the product support part of the www.coreaudio.eu web page.

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9. FITTING THE ELECTRICAL STANDARDS

Core Audio Co.Ltd as the manufacturer of this product declares that

KARUNA ULTIMATE USB/SPDIF converter

product meets the requirements of the following standards:

MSZ EN 55014-1 (2017) – CISPR 14-1:2016

MSZ EN 55014-2 (2012) - CISPR 14-2:2016

MSZ EN 55020 (2004) – CISPR:2002

MSZ EN 55024 (2011) – CISPR 24:2010

IEC 61000-3-2 (2014)

IEC 61000-3-3 (2013)

Harmonized with the # 2006/95/EC Directive (12.12.2006)

19.05. 2019. Budapest

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managing director

Core Audio Co. Ltd.

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