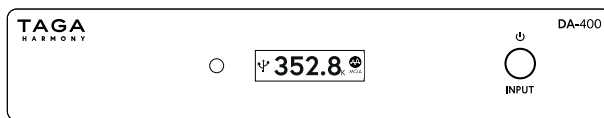




DA-400

DIGITAL TO ANALOG CONVERTER



Instruction Manual

Introduction

Thank you for purchasing this TAGA Harmony Digital to Analog Converter.

TAGA Harmony DA-400 is a Digital to Analog Converter, which converts digital audio signal from any digital source to high class analog audio with clearer, richer and more powerful sound.

The DA-400 can be quickly and easily connected to your existing audio system and transform it to a thrilling digital audio system!

KEY FEATURES:

- Support of digital audio files up to **32bit/768kHz** or up to **DSD512** to play music stored on computers, CD players, smartphones and other file storage devices.
- Support of **MQA** (Master Quality Authenticated) to provide studio audio quality.
- Extremely high quality sound utilizing the **critically acclaimed ESS SABRE ES9038Q2M Reference DAC** with Hyperstream™ II architecture and Time Domain Jitter Eliminator.
- Digital engine based on ultra-performance **32-bit 16-core XMOS microcontroller**.
- Support of a wide range of formats including high-resolution **lossless FLAC and ALAC**, and **uncompressed WAV** to get the most natural and detailed sound.
- **Outputs:** digital Optical and analog Line Output with gold-plated high-end solid machined brass RCA sockets ensures the best signal transfer.
- **Inputs:** USB, digital Optical and digital Coaxial with a gold-plated high-end solid machined brass RCA socket ensures the best signal transfer.
- Crystal clear **OLED display** to show information about the processing signal.
- Compact size and elegant design utilizing **aluminum housing** to match with any device.

The powerful, slim and elegant piece of art delivering best music directly from your digital source!

Introduction

Cleaning

Do not use strong or abrasive cleaners. Use a damp, soft cloth for cleaning.

Specifications and the latest instruction manual edition

Full technical specifications and the latest edition of the instruction manual are available on **www.TagHarmony.com**

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Safety Instructions

IMPORTANT

READ THIS SECTION CAREFULLY BEFORE PROCEEDING!



An exclamation mark in a triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS OR THE POWER ADAPTER TO RAIN OR MOISTURE, AND OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, SHOULD NOT BE PLACED ON THIS APPARATUS OR ON THE POWER ADAPTER.

CAUTION: TO PREVENT ELECTRIC SHOCK, FULLY AND SECURELY INSERT THE POWER PLUG INTO THE POWER OUTLET, AND THE POWER CABLE CONNECTORS INTO THE UNIT AND THE POWER ADAPTER SOCKETS (IF THE POWER ADAPTER IS NOT EQUIPPED WITH AN INTEGRATED [ATTACHED] POWER CORDS).

CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE THE FUSE (IF THE UNIT OR THE POWER ADAPTER IS EQUIPPED WITH A USER REPLACEABLE FUSE) ONLY WITH THE SAME AMPERAGE AND VOLTAGE TYPE. IN CASE WHEN THE UNIT OR THE POWER ADAPTER IS NOT EQUIPPED WITH A USER REPLACEABLE FUSE - REFER REPLACEMENT TO QUALIFIED SERVICE PERSONNEL.

WARNING: THE UNIT AND THE POWER ADAPTER MAY BECOME HOT. ALWAYS PROVIDE ADEQUATE VENTILATION TO ALLOW FOR COOLING. DO NOT PLACE THE UNIT AND THE POWER ADAPTER NEAR A HEAT SOURCE, OR IN SPACES THAT CAN RESTRICT VENTILATION.

Safety Instructions

1. Read Instructions - All the safety and operating instructions should be read before the product is operated.
2. Retain Instructions - The safety and operating instructions should be retained for future reference.
3. Heed Warnings - All warnings on the product and in the operating instructions should be adhered to.
4. Follow Instructions - All operating and use instructions should be followed.
5. Cleaning - Unplug this product from the power outlet before cleaning. Do not use liquid cleaners or aerosol cleaners.
6. Water and Moisture - Do not use this product near water - for example, near a bath tub, wash bowl, kitchen sink or laundry tub; in a wet basement; or near a swimming pool; and the like. These precautions also apply to the power cords and power adapter.
7. Accessories - Do not place this product on an unstable cart, stand, tripod, bracket or table. The product may fall, causing serious injury to a child or adult and serious damage to the product. Use only with a cart, stand, tripod, bracket or table recommended by the manufacturer or sold with the product. Any mounting of the product should follow manufacturer's instructions and should use a mounting accessory recommended by the manufacturer.
8. Ventilation - This unit may be equipped with slots and openings in the cabinet (housing) which are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating and these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug or other similar surface. This product should be not placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to. For products equipped with separate power adapters, leave at least 5cm (2in.) of free space on all sides and the top of the power adapter.
9. Power Sources - This product should be operated only from the type of power source indicated on the marking label (placed on the product and / or, if applicable, on a separate power adapter unit). If you are not sure of the type of power supply in your home, consult your product dealer or local power company. For products intended to operate from battery power or other sources, refer to the operating instructions.
10. Grounding and Polarity - some units for proper operation or to take full advantage of their capabilities may require to be connected to a grounded power outlet – refer to the user manual for more information.
Some units or power adapters may have markings for the live (L) and neutral (N) conductors for power - in order to take full advantage of capabilities of such products, it is recommended to properly connect the polarity according to the markings on the unit - refer to the user manual for more information. Connecting the polarity not in accordance with the markings will not affect the durability and reliability of the device.
11. Power-cord Protection - Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles and the point where they exit from the product or the power adapter.
12. Lighting - For added protection for this product during a lighting storm or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or system cables. This will prevent damage to the product due to lighting and power-line surges.
13. Overloading - Do not overload wall outlets, extension cords or integral convenience receptacles as this can result in a risk of fire or electric shock.
14. Object and Liquid Entry - Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Do not expose this apparatus and the power adapter to dripping or splashing and ensure that no objects filled with water, such as vases are placed on the apparatus or on the power adapter.
15. Servicing - Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

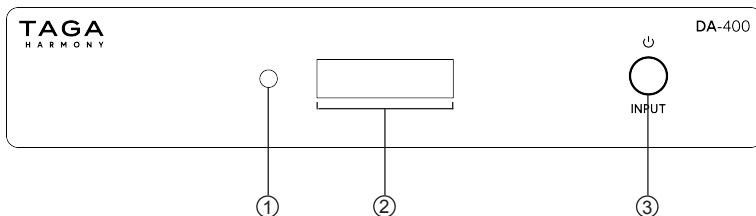
Safety Instructions

16. **Damage Requiring Service** - Unplug this product from wall outlet and refer servicing to qualified personnel under the following conditions:
 - when power supply cords or plugs are damaged;
 - if liquid has been spilled or objects have fallen into the product;
 - if the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will require extensive work by a qualified technician to restore the product to its normal operation;
 - if the product has been dropped or damaged in any way;
 - if the product exhibits a distinct change in performance - this indicates a need for a service.
17. **Replacement Parts** - when replacement parts are required, be sure the technician has used replacement parts specified by the manufacturer or with the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.
18. **Safety Check** - Upon completion of any service or repairs to this product, ask the service technician to perform safety check to determine that the products is in proper operating condition.
19. **Wall of ceiling mounting** - The product should be mounted to a wall or ceiling only as recommended by the manufacturer.
20. **Heat** - The power adapter should be situated away from heat sources such as radiators, heat registers, stoves or other products that produce heat.
21. [Refer to products equipped with vacuum tubes] **Tube Cage or cover** - For your safety and to protect the vacuum tubes this product may be equipped with the factory installed vacuum tube cage or cover.

It is not recommended to remove the cage or cover unless it is required to change the vacuum tubes.

When the cage or cover is removed - do not touch the vacuum tubes - they may be hot and burn the skin!
22. **Operating Environment** - Operating environment temperature and humidity of the unit: +5°C to +35°C (+41°F to +95°F); less than 85% RH (cooling slots not blocked).

Front and Rear Panel

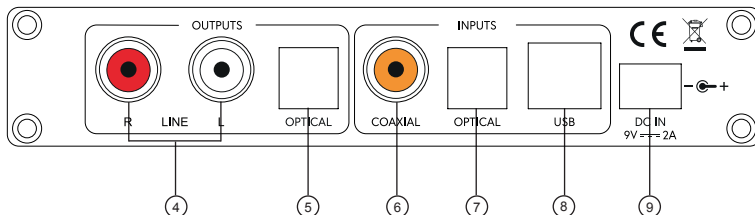


Front Panel:

1. Standby LED Indicator
2. Display
3. Touch 2-function Button:
 - Standby Button
To turn the unit ON (when it is OFF) - press once
To turn the unit OFF - long press
 - Input (Source) Selection Button - short press to select inputs
 - Installed firmware version - rapidly press 3 times to display

Note! The Touch 2-function Button is sensitive to electromagnetic radiation from external electrical appliances. If you encounter any problems with its operation: disconnect the power adapter and place the Converter away from potential sources of interferences.

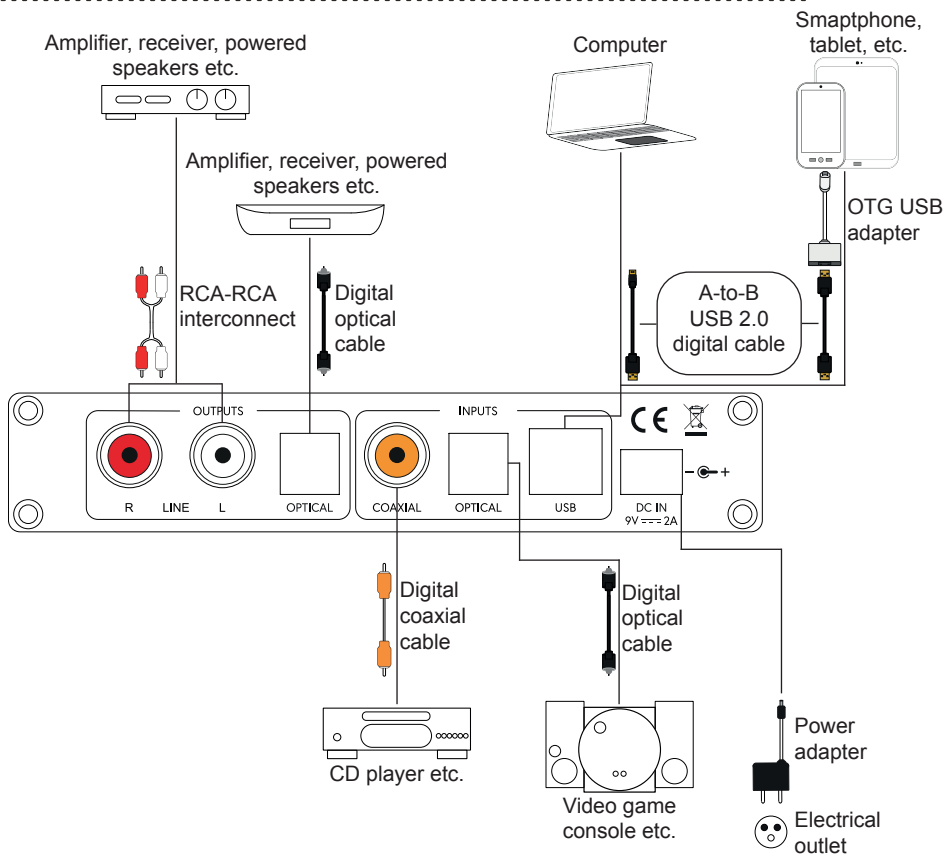
Front and Rear Panel



Rear Panel:

- 4. Analog Stereo RCA Output (R and L)
- 5. Digital Optical Output
- 6. Digital Coaxial Input
- 7. Digital Optical Input
- 8. USB Port
- 9. DC Power Input



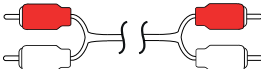
Hooking Up the Converter





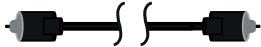


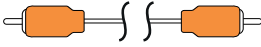


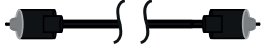


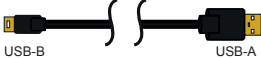

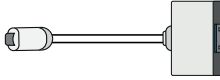
Hooking Up the Converter

1. Make sure the Converter is turned off (the power adapter is disconnected from the electrical outlet).
2. Make sure that external equipment which will be connected to the Converter is turned off.
3. To play music on your amplification equipment (amplifier, receiver, powered speakers etc.) depending on the input it is equipped with:
 - for the analog input: using an RCA-RCA interconnect connect it to the OUTPUTS → LINE R L in the Converter.
 - for the digital optical input: using a digital optical cable connect it to the OUTPUTS → OPTICAL in the Converter.
4. If you want to play a digital audio source (CD/DVD/Blu-ray player, video game console etc.) depending on a digital output your audio source is equipped with, connect it to one of digital inputs: OPTICAL or COAXIAL.
Use a digital optical cable for the OPTICAL input and a digital coaxial cable for the COAXIAL input.
5. If you want to play digital audio files from a computer: using a A-to-B USB 2.0 digital cable connect the computer to the USB Port.
Check “Connecting a Computer to the USB port” for more details.
6. If you want to play digital audio files from a mobile device (smartphone, tablet etc.): using an OTG USB adapter and a A-to-B USB 2.0 digital cable connect the mobile device to the USB Port.
Check “Connecting a Mobile Device to the USB port” for more details.

External audio equipment connection options:

Input / Output DA-400	Input / Output external equipment	Connection cable
LINE R L output 	Input – RCA sockets Amplification equipment 	RCA-RCA interconnect (supplied) 

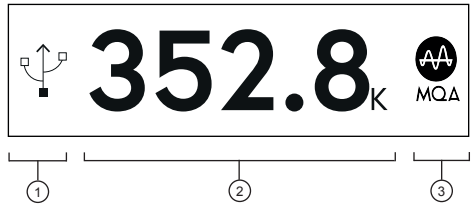
Hooking Up the Converter

<p>OPTICAL output</p> 	<p>Input - optical socket Amplification equipment</p> 	<p>Optical cable (not supplied)</p> 
<p>COAXIAL input</p> 	<p>Output – coaxial socket</p> 	<p>Coaxial cable (not supplied)</p> 
<p>OPTICAL input</p> 	<p>Output - optical socket</p> 	<p>Optical cable (not supplied)</p> 
<p>USB port - type B</p> 	<p>USB port – type A</p> 	<p>A-to-B USB 2.0 digital cable (supplied)</p>  <p>USB-B USB-A</p>
	<p>Mobile device socket ex.: USB type C</p> 	<p>OTG USB adapter (not supplied)</p>  <p>USB-C USB AF</p>

The sockets and ports shown for external equipment and connection options may differ depending on the device.




7. Your converter is ready for operation.

Display



1. INPUT

Currently selected input (source).

ICON			
INPUT	COAXIAL	OPTICAL	USB

2. INFORMATION ABOUT THE DIGITAL STREAM

Information about the incoming digital stream.

Depending on the type of the signal:

- Sample rate for PCM and MQA formats
- DSD sample rate: 64x, 128x, 256x, 512x

3. FORMAT

Information about the incoming digital stream format.

- PCM, DSD, MQA (Master Quality Authenticated).

MQA

'MQA' or 'MQA Studio' indicates that the product is decoding and playing an MQA stream or file, and denotes provenance to ensure that the sound is identical to that of the source material.

'MQA Studio' indicates it is playing an MQA Studio file, which has either been approved in the studio by the artist/producer or has been verified by the copyright owner.

'OFS' confirms that the product is receiving an MQA stream or file. This delivers the final unfold of the MQA file and displays the original sample rate.

Note! 'OFS' is indicated as CORE on the display.

Display

If there is no incoming digital stream, the display shows “NO SIGNAL” message.

Note!

- Depending on the digital stream, the information on the display may not be complete or may be simplified.
- The Converter operates only with the supported file formats.
- The displayed sample rate is calculated by the internal clock engine and is accurate.
- Some external equipment may provide signal information to the Converter, even when the playback is not active or paused, then the “NO SIGNAL” message will not be displayed.

Operation

Standby Mode

When you connect the Converter to the electrical outlet for the first time, it will start in the Standby mode.

Turn ON – press once the Standby Button

Turn OFF – long press the Standby Button - Standby LED Indicator will be illuminated

Note! The Converter will start in the last selected input before it was turned off (The USB input is default for a new unit).

Input (Source) Selection

When the Converter is turned on.

Short press the Input (Source) Selector Button to select one of the inputs (sources): COAXIAL, OPTICAL or USB.

The selected input (source) is indicated by an icon on the Display.

Connecting a Computer to the USB port



Computer devices generate a significant amount of noise and interference which can get through USB ports to this Converter and further to the amplification equipment.

If you hear disturbing noise and interference in speakers or headphones when using the USB input then it may mean that your computer device is tend to the above mentioned problem.

In such a case we recommend to use a USB data and power noise filter (not supplied with this product) which should be plugged between the computer device and the A-to-B USB 2.0 digital cable, which is connected to the Converter.

Connect the Connector with a computer using the A-to-B USB 2.0 digital cable and select the USB input on the Converter.

Computers with Windows®

1. We recommend installing the TAGA Harmony USB Audio device driver.

Note! For lower sample rates and for some Windows® operating system versions the driver may be not required.

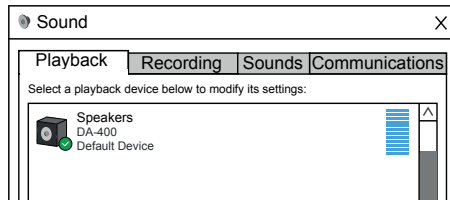
System requirements: Windows® 10 or later.

Minimum hardware requirements: Intel Core 2 Duo 2 GHz processor, 4GB RAM, USB 2.0 port

- The driver is available for download on www.TagaHarmony.com on a page of this product, or by e-mail after contacting us at support@tagaharmony.com
 - After downloading run the installation file and follow the installation instructions on the screen.
 - When the installation finishes an icon of the TAGA Harmony USB Audio will be created.
2. The computer should recognize the Converter as “DA-400” and automatically apply it as the audio output device.

You can check the setting through the Control Panel → Hardware and Sound → Sound → Manage Audio Devices.

Connecting a Computer to the USB port



If the “DA-400” is not selected then locate and highlight it and click “Set Default”.

To enjoy the best sound quality, we suggest to change a default format (bit and sample rate) to the highest available.

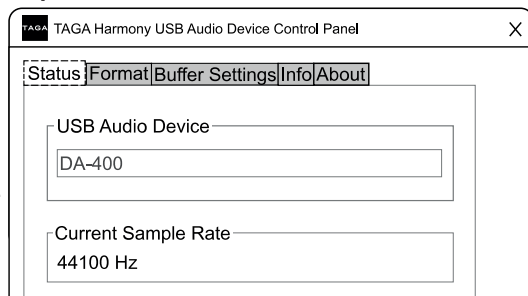
Note! If there is a problem with the playback - lower the default format – right-click on the “DA-400” device, choose Properties and then Advanced tab and change Default Format.

Note! If there is any problem with recognizing the Converter by the computer disconnect and reconnect the A-to-B USB 2.0 digital cable.

TAGA Harmony USB Audio Device control panel

(based on driver version 5.30.0)

- Launch the TAGA Harmony USB Audio Device control panel from the icon or the program menu.
- If the Converter is turned on and connected to the computer, information about the device status will be displayed.



Connecting a Computer to the USB port

Control panel menu

Status		Format		Buffer Settings	
USB Audio Device	Current audio output device	Output	Select the current output format (channels and bits)	Preferred ASIO Buffer Size	Select number of samples
				Safe Mode	Tick to turn on
Current Sample Rate				ASIO Status	Current Sample Rate Input Latency Output Latency ASIO status

Info - Device information

About - Driver information

Preferred ASIO Buffer Size

The ASIO buffer is used to exchange sample data between the driver and an application which is used for playback.

In most cases, the default settings are sufficient for playback.

However, you can additionally configure the driver for the best quality of your system.

Each of the sample modes increases the USB buffer and is indicated in number of samples and milliseconds (ms) in the ASIO Status (both for latency on input and output).

Note! Depending on the digital stream format, the information about the sample rate may not be displayed correctly.

Installation and Setup to play 32bit / 768kHz, DSD and MQA files (Windows®)

There are different programs available that allow to play music from high-resolution files.

You can use a freeware PC music player for Windows® to play files using, for instance “foobar2000”.

Connecting a Computer to the USB port

1. Download “foobar2000” from <https://www.foobar2000.org/> and install it.
2. Download the newest versions of the following components and install them in the **Preferences** → **Components**
Follow the installation instructions.

Components:

ASIO support - `foo_out_asio`

Super Audio CD Decoder - `foo_input_sacd`

The components are available on:

<https://www.foobar2000.org/components>

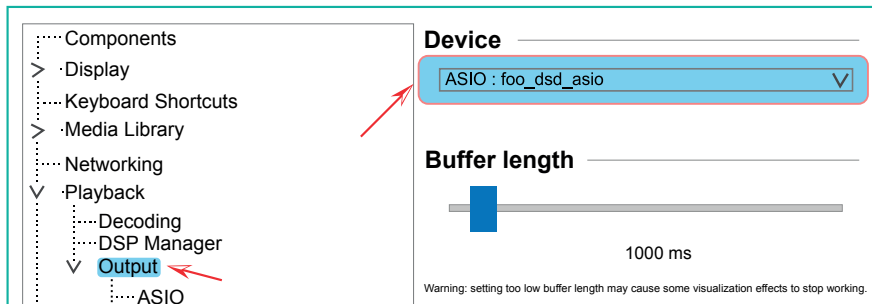
<https://sourceforge.net/projects/sacddecoder/files/>

Separately install the `foo_dsd_asio` component using the

„ASIOProxyInstall - `foo_dsd_asio`” installer available on:

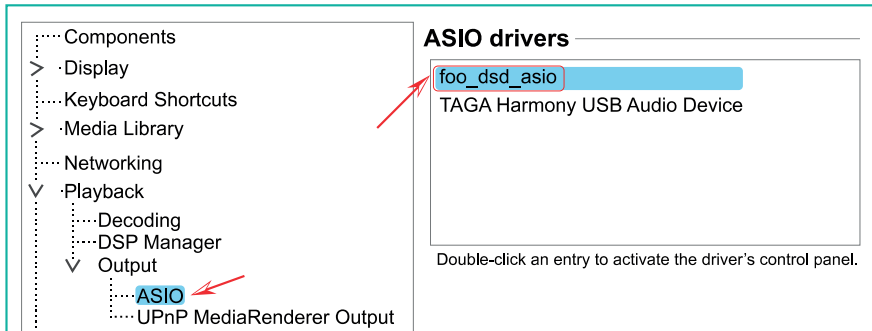
https://sourceforge.net/projects/sacddecoder/files/foo_dsd_asio/

3. After restarting the foobar2000:
 - a. Go to Preferences → **Playback** → **Output** and select **ASIO : `foo_dsd_asio`** in the **Device** section.

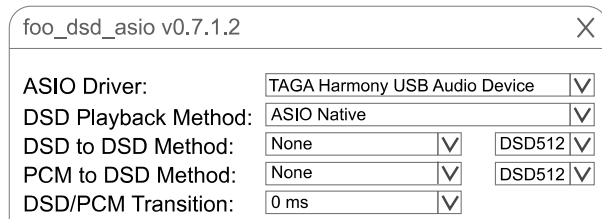


Connecting a Computer to the USB port

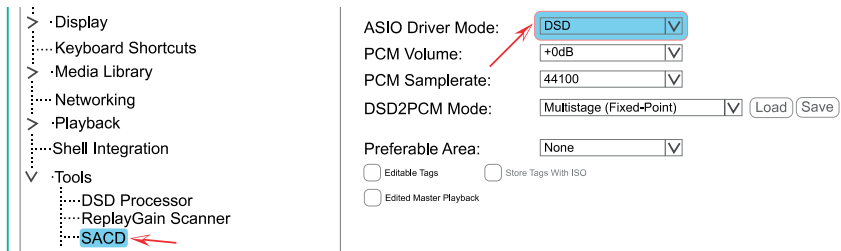
- b. Go to Preferences → **Playback** → **Output** → **ASIO** and double click on **foo_dsd_asio** in the **ASIO drivers** section.



The driver configuration window will pop up - configure as shown below:



- c. Go to Preferences → **Tools** → **SACD** and select **DSD** in the **ASIO Driver Mode** section.



Connecting a Computer to the USB port

Note! foobar2000 was tested with the following versions of components:

foo_out_asio version 2.1.2

foo_input_sacd version 0.7.3

ASIO Proxy for foobar2000 version 0.7.1.2

Note! Operation and user interface may vary depending on your Windows® and other software versions.

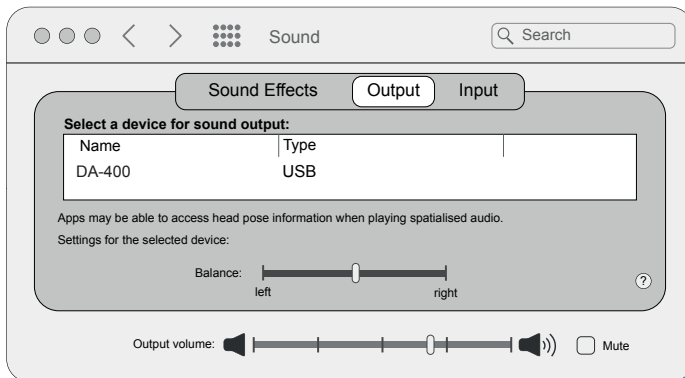
Computers with MacOS®

At the time of writing this instruction manual, the driver was not required for computers with the MacOS® operating system.

1. Go to System Preferences → Sound → Output and set Speaker to USB.
2. Set the output volume to Maximum.

Note! You may also need to adjust the volume in your music player.

Note! If there is any problem with recognizing the Converter by the computer disconnect and reconnect the A-to-B USB 2.0 digital cable.



Connecting a Mobile Device to the USB port

Some mobile devices, compatible with the OTG (on the go) feature, may be compatible with this Converter.

When connected to a mobile device, the Converter will work as earphones (usually the sample rate for the output is 44.1khz PCM).

In order to play high resolution files ex.: DSD or MQA, you need to download and install a relevant application on your mobile device.

Note! To ensure a proper operation of the Converter with a mobile device, make sure you use a good quality OTG USB adapter.

Trademark Notice

All trademarks and trade names used in this manuals are those of their respective owners.

- Windows® is a registered trademark of Microsoft Corporation in the United States and / or other countries.
- MacOS® is a trademark of Apple Inc., registered in the U.S. and other countries and regions.
- MQA and the Sound Wave Device are registered trade marks of MQA Limited © 2016

Third-party applications and software recommended in this manual are provided for your convenience only and should be used at your own risk.

TAGA Harmony does not provide technical support for third party software and does not guarantee their proper operation.

Kit Content

Converter	1 EA
RCA-RCA stereo interconnect	1 EA
A-to-B USB 2.0 digital cable	1 EA
AC-DC Power Adapter	1 EA
Instruction Manual	1 EA

Serial Number

Product serial number and additional information are located on the bottom of the Converter.

Specifications

We strongly advise to contact a professional installer or dealer in order to install TAGA Harmony products.

We recommend using high quality TAGA Harmony cables and other installation accessories.

We reserve the right to change the technical data and the design of the product without notice as a result of further development.

Specifications

DA converter	<p>ESS SABRE ES9038Q2M, XMOS XU216-512-TQ128</p> <p>Inputs: USB PCM asynchronous up to 32bit / 44.1kHz - 768kHz DSD up to DSD512* MQA</p> <p>* Windows® supports DSD Native and DoP. * MacOS® supports DSD DoP (up to DSD256).</p> <p>Optical & Coaxial: up to 24bit / 192kHz, DoP64</p>
Digital inputs	USB (type B port), Optical, Coaxial
Digital outputs	Optical [up to 24bit / 192kHz]
Analog outputs	<p>LINE OUT (RCA)</p> <p>[max output level (unbalanced) 2.0V rms]</p>
Frequency response	20Hz to 20kHz (±1dB)
Total Harmonic Distortions	<0.005% (A-Weighted) @1kHz 0DBFS < 0.005% (2.0V 1kHz)
Signal/Noise ratio	>115dB (A-Weighted)
Crosstalk	<-100dB @1kHz
AC power / power consumption	<p>AC-DC Power Adapter 100-240V 50/60Hz [DC output 9V 2A]</p> <p>Standby <0.5W</p> <p>Operation max 12W</p>
Dimensions (H x W x D)	2.4 x 12.9 x 9.4(incl. rear sockets) cm
Weight	0.3 kg / pc.

EU declaration of conformity



Your product is marked with the symbol shown on the left.
As its manufacturer, hereby we declare that the product is in compliance with the following EU directives and regulations:
2014/30/EU (EMC) & 2014/35/EU (LVD) & 1275/2008/EC (ErP) & 2015/863/EU (RoHS).

The full text of the EU declaration of conformity is available from the manufacturer.

Disposal of the product



Disposal of old electrical & electronic equipment (applicable in the European Union and other countries with separate collection systems)

This symbol on the product or on its literature and packaging indicates that this product shall not be treated as household waste. Instead it shall be handed over to the appropriate collection point for the recycling of electrical and electronic equipment. By ensuring that this product is disposed of correctly, you will help to prevent potential negative consequences for the environment and human health, which could be caused by inappropriate waste handling of this product.

The recycling of materials will help to conserve natural resources. For more detailed information about recycling of this product, please contact your local government office, your household waste disposal service or the shop where you purchased the product.

TAGA EUROPE

POLPAK POLAND Sp. z o.o.

AL.JEROZOLIMSKIE 331A

05-816 REGUŁY k/WARSZAWY, POLAND

Email: Sales@TagaHarmony.com

www.TagaHarmony.com

Notes

Notes
