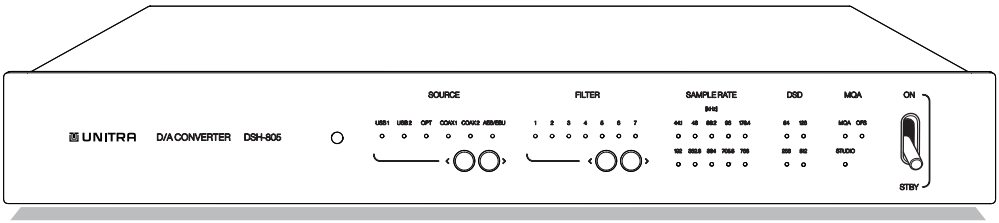
UNITRA

DSH-805

DIGITAL-TO-ANALOG CONVERTER

User Manual



Contents

Manufacturer

Unitra sp. z o.o.
Przejazdowa 2b,
02-496 Warsaw, Poland
website: www.unitra.com

UNITRA

About this document

Thank you for purchasing this Unitra product.

To ensure proper operation, read this manual carefully and operate the device in accordance with the instructions contained in it. Please keep this manual for future reference after reading it.

Symbols used in this manual

	**WARNING**	Describes precautions to be followed to avoid the possibility of serious injury or even death.
	**CAUTION**	Describes precautions to be followed to avoid injury.
	NOTICE	Describes precautions to be followed to avoid malfunction or damage to the product.
	NOTE	Describes supplemental information about the product.

Safety

WARNING

Carefully read the Safety Brochure before use and keep it for future reference.

Acronyms, abbreviations, and technical terms

AES/EBU	Audio Engineering Society/ European Broadcasting Union audio standard
D/A	Digital-to-analog
DAC	Digital-to-analog converter
DoP	Direct Stream Digital over Pulse Code Modulation
DSD	Direct Stream Digital
EMI	Electromagnetic interference
GND	Grounding
OFS	Original Frequency Spectrum
Ohm	Electrical resistance unit
MQA	Master Quality Authenticated, an audio file format
PCM	Pulse Code Modulation
RCA	Connector type introduced by the Radio Corporation of America
RMS	Root Mean Square
SACD	Super Audio Compact Disc
THD+N	Total Harmonic Distortion + Noise

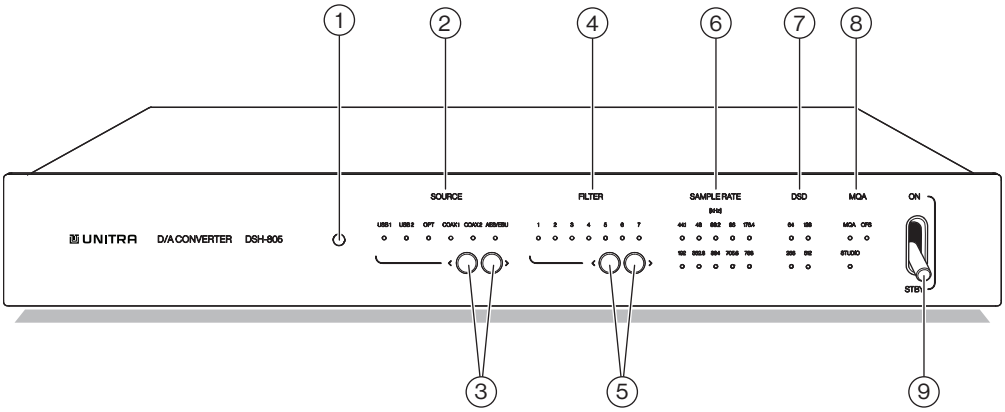
Description

Content of the package

Make sure that the following elements are included in the package:

- Device (DSH-805 Digital-to-Analog Converter)
- Power cord
- Other cables (if specified in your order)
- Remote control (battery type CR2032 included)
- User Manual (this book)
- Safety Brochure
- Version-Specific Card
- Warranty Card

Front panel overview



(1) Infrared signal receiver

To receive the infrared signal from the remote control.

(2) SOURCE selector indicators

The indicator light for the selected input source goes on.

USB 1, USB 2	Selects the devices connected to USB 1/USB 2 ports as the input source.
OPT	Selects the device connected to the OPTICAL port as the input source.
COAX 1/COAX 2	Selects the device connected to the COAX1/COAX2 ports as the input source.
AES/EBU	Selects the device connected to the AES/EBU port as the input source.

(3) SOURCE selector buttons

To select the input source.

④ FILTER selector indicators

The indicator light for the selected filter goes on.

1	Minimum phase
2	Linear phase apodizing fast roll-off
3	Linear phase fast roll-off
4	Linear phase slow roll-off
5	Minimum phase fast roll-off
6	Minimum phase slow roll-off
7	Minimum phase slow roll-off low dispersion

For a more detailed description of the filters p. 15.

NOTE

The FILTER settings only apply to a PCM signal. For other signals, the indicator light does not go on.

⑤ FILTER selector buttons

To select the filter.

⑥ SAMPLE RATE indicators

The indicator light goes on when the Device receives a PCM or MQA signal. It indicates the sampling rate of the signal in kHz.

⑦ DSD indicators

The indicator light goes on when the Device receives a DSD signal (Native and DoP). It indicates the type of the signal.

⑧ MQA indicators

The indicator light goes on when the Device receives a MQA signal. It indicates the MQA signal mode.

For more information about the supported formats p. 14

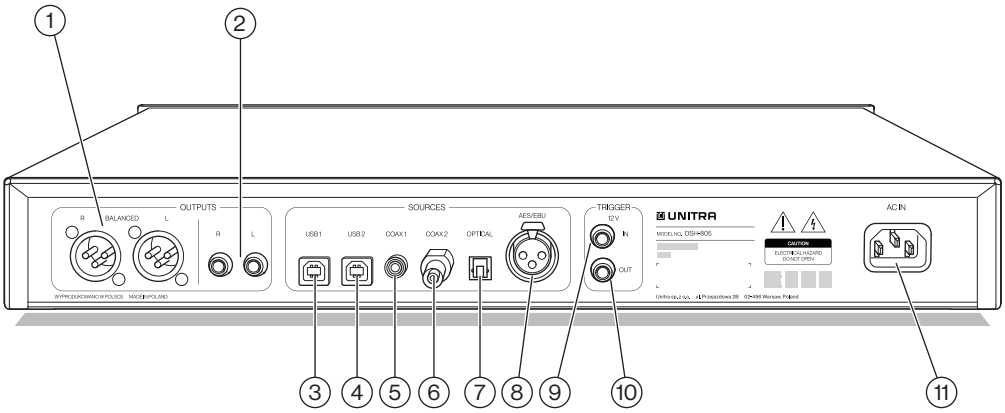
NOTE

If no indicator light is on for the SAMPLE RATE, DSD and MQA, it means that the Device does not receive a correct signal or the signal format is not supported. p. 20.

⑨ ON/STANDBY switch

Switch up	ON
Switch down	STANDBY

Rear panel overview



(1) BALANCED OUTPUTS jacks

To connect an amplifier or preamplifier that receive a balanced signal with XLR connectors.

(2) UNBALANCED OUTPUTS jacks

To connect an amplifier or preamplifier that receive an unbalanced signal with RCA connectors.

NOTICE

The output signal is constant (there is no volume control in the Device). Connect the Device to an amplifier or preamplifier that has volume control. Do not connect directly to a power amplifier. **p. 17.**

NOTE

The output signal is active in paralell on both output lines. You can use them both at the same time.

(3) USB1 port

To connect a computer or streaming device with USB Class 2.0 audio playback as an input source.

④ USB2 port

To connect a computer or streaming device with USB Class 2.0 audio playback as an input source.

NOTE

On Windows computers, the USB Audio driver must be installed. p. 22.

NOTE

The USB connectors are galvanically isolated, which means that the ground of the device is separated from the ground of the USB connection. It reduces the interference from the source (e.g., a computer), and prevents ground loops.

⑤ COAX1 port

To connect devices with a digital output and RCA connector as the input source.

⑥ COAX2 port

To connect devices with a digital output and BNC connector as the input source.

⑦ OPTICAL port

To connect devices with a digital output as the input source.

⑧ AES/EBU port

To connect devices with a balanced digital output signal and XLR connector.

⑨ TRIGGER IN jack

Allows the Device to turn on automatically when it receives a 12 V trigger signal from another component in the audio system. The Device stays ON as long as the signal is received.

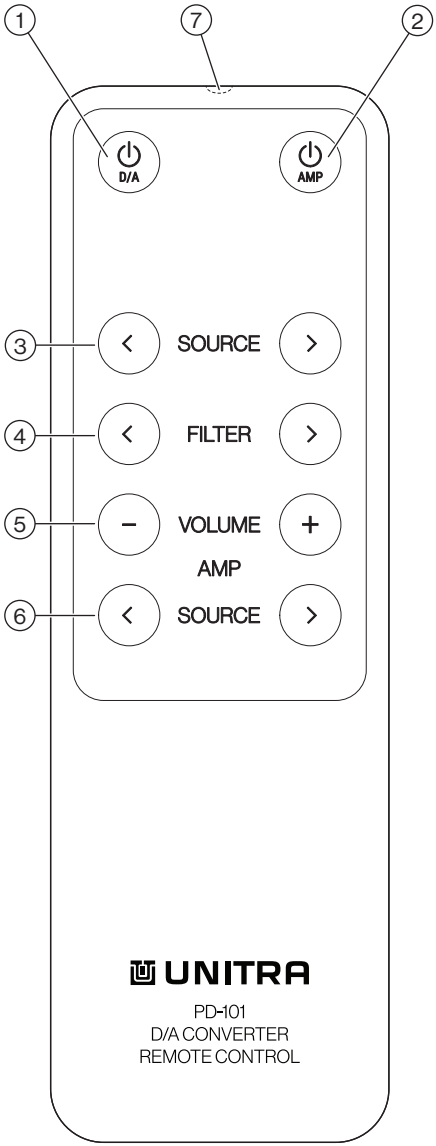
⑩ TRIGGER OUT jack

Sends a 12 V DC signal to power on other connected devices automatically when the Device is turned on.

For more information about the connections to TRIGGER IN/OUT jacks p. 18.

⑩ AC inlet

To connect the supplied power cord.



Remote control overview

(1) ON/STANDBY D/A key

To switch between ON and STANDBY modes of the Device. p. 7.

(2) ON/STANDBY AMP key

To switch between ON and STANDBY modes of a Unitra amplifier.

(3) SOURCE keys

To select the input source. Each push selects the previous or the next input source in line. The SOURCE indicator light for the selected input source goes on. p. 6.

(4) FILTER keys

To select the filter. Each push selects the previous or the next filter in line. The FILTER indicator light for the selected filter goes on. p. 7.

(5) VOLUME AMP –/+ keys

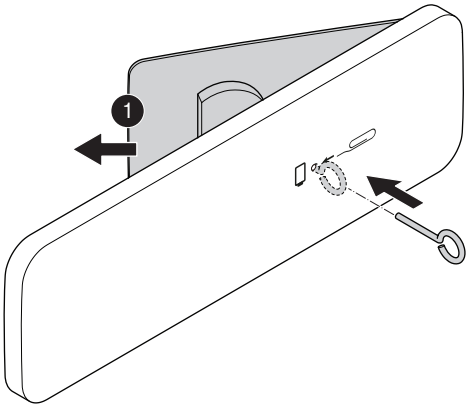
To adjust the volume level of a Unitra amplifier.

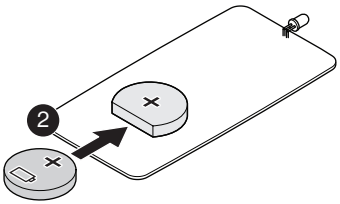
(6) SOURCE AMP

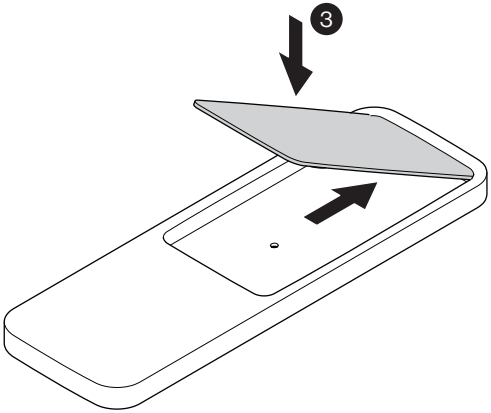
To select the input source of a Unitra amplifier.

(7) Infrared signal transmitter

To send the signal to the infrared signal receiver on the front panel.







Installation of batteries in the remote control

Step 1

Insert a pin (e. g. a paper clip) into the hole on the back surface to remove the plate with the battery holder.

Step 2

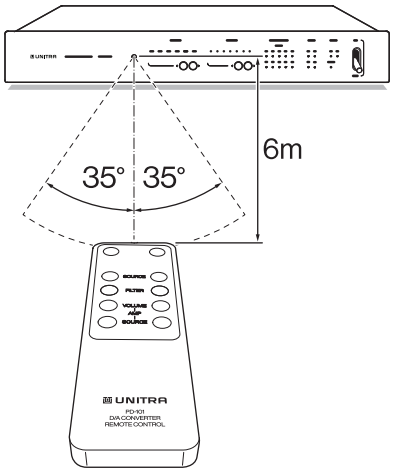
Insert one battery (CR2032) according to the polarity markings (+ and –) on the battery holder.

Step 3

Install the plate with the battery holder on the remote control.

NOTE

Before first use, remove the plate as in **Step 1** and make sure there is no foil between the battery and the battery holder.



Operation of the remote control

Operate the remote control in the range shown in the illustration by pointing it toward the remote control signal receiver on the front panel of the Device.

Recommendations for use

NOTICE

If you plan not to use the Device for a long period of time, make sure that the Device is disconnected from the AC power source. Be aware that when the Device is in standby mode the electric current is still flowing through the unit.

- When frequent transient states and impulse distractions in the power line happen, distractions on output connectors may occur. Those interferences may impact audio signal amplification quality and can generate sound distortions. When distractions on the power line end, the device returns to normal operation.
- For the proper operation of the device, it is not recommended to use connection cables longer than 3 m.

Supported formats

The device supports a wide range of digital formats, ensuring compatibility with modern sources and superior sound quality for a variety of applications.

Below is an overview of maximum values for supported formats for each input source.

Format	USB1, USB2	OPT	COAX1, COAX2	AES/EBU
PCM	768 kHz 32 bit	192 kHz 24 bit	192 kHz 24 bit	192 kHz 24 bit
DSD	DSD512 (Native) DSD256 (DoP)	DSD64 (DoP)	DSD64 (DoP)	DSD64 (DoP)
MQA	Yes	Yes	Yes	Yes

PCM

The Device supports high-resolution PCM (Pulse Code Modulation) audio on all source inputs. PCM is the standard format used in most digital recordings, including CDs and high-resolution audio files. The Device can process PCM signals up to 32-bit/768 kHz, preserving audio detail and clarity across a wide range of sample rates and bit depths.

DSD

The Device also supports DSD (Direct Stream Digital), a high-resolution audio format commonly used for SACD and audiophile downloads. The Device accepts native DSD streams up to DSD512 and DoP (DSD over PCM) up to DSD256 , depending on the input source. DSD offers an alternative to PCM with a different sonic character preferred by some listeners.

MQA

MQA is an award-winning British technology that delivers the sound of the original master recording. The master MQA file is fully authenticated and is small enough to stream or download. Visit mqalabs.com for more information.

The Device supports full MQA Renderer technology. When paired with a Core Decoder (e.g. apps like nugs.net and Roon), the Device completes the final MQA unfold to restore the original sound.

The Device recognizes the following MQA signal modes. Signal modes are indicated on the front panel.

MQA

The Device is receiving and rendering an MQA stream or file. This confirms the signal is authentic and that playback matches the original master. The Device completes the final unfold of the MQA process to deliver high-resolution audio with verified source integrity.

MQA Studio

The Device is rendering an MQA Studio file, which has been approved in the studio by the artist or producer, or verified by the copyright owner. This ensures the playback reflects the original studio sound exactly as intended.

OFS

The Device displays OFS as a valid MQA indication when it receives an MQA signal that has already been decoded by upstream hardware or software. Since authentication occurs during this initial stage, the Device relies on upstream verification and displays. OFS (Original Frequency Spectrum) to confirm that it's receiving a valid MQA stream and is being played at the correct original sample rate.

NOTE

Some source devices or apps that decode MQA (e.g. Roon) allow you to disable decoding and send the original MQA stream directly to the Device.

Filters

In digital-to-analog conversion, filters play a crucial role in shaping the sound by controlling how the audio signal is processed. Different filter types influence the tonal character, transient response, and overall listening experience. By selecting the appropriate filter, listeners can tailor the sound to better suit their music preferences and listening environment.

Below is an overview of the available filter options, their sonic characteristics, technical behavior, and recommended music genres to help you choose the best setting for your taste.

	Filter	Sound	Technical characteristics	Recommended music genre
1	Minumum phase	Soft, natural	Low delay, slightly rounded transients	Jazz, soul, accoustic
2	Linear phase apodizing fast roll-off	Clean, smooth	Reduction digital artifacts, good separation	Classic, vocal, ambient
3	Linear phase fast roll-off	Precise, fast	Clear transients, accurate reproduction	Electronic, techno, EDM
4	Linear phase slow roll-off	Softer, but still precise	Less digital, but still with details	Pop, indie, alternative
5	Minimum phase fast roll-off	Dynamic, vivid	Fast attacks, light warming	Rock, funk, fusion
6	Minimum phase slow roll-off	Soft, warm	A calmer, rounded sound	Ballads, lo-fi, folk
7	Minimum phase slow roll-off low dispersion	Most analog, musical	Very time consistent, low spread	Vinyl-rip, jazz, classic live recordings

NOTE

The FILTER settings only apply to a PCM signal. For other signals, the indicator light does not go on.

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Connections

CAUTION

Do the input and output connections before connecting the Device to the AC power source. **p. 19.**

Connecting devices with digital output

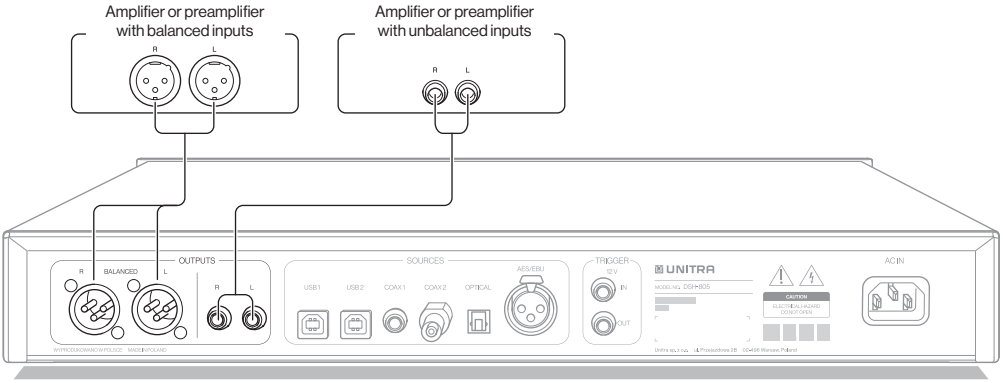
SOURCE	Connector type	Cable type	Supported device	Notes
USB1 USB2	USB-B	USB 2.0 cable	Computer or streaming device with USB Class 2.0 audio playback output.	Supports a full range of audio formats. Requires drivers (Windows). Best choice for highest sound quality. p. 13.
COAX1	RCA	75 Ω digital audio cable	Devices with coaxial SPDIF output (e.g. CD transport, streaming transport)	Common consumer-grade connector. Easy integration and good signal quality, but more sensitive to EMI and cable quality.
COAX2	BNC	75 Ω digital audio cable	Devices with coaxial SPDIF output (e.g. CD transport, streaming transport)	Professional-grade connector with locking mechanism. Better impedance matching (75 Ω) and more stable transmission than RCA.
OPTICAL	Toslink	Toslink optical cable	Devices with optical SPDIF output (e.g. TV, game console, Apple TV, CD transport)	Immune to EMI thanks to fiber optics. No ground loop risk. Bandwidth and cable length are more limited compared to coaxial connections.
AES/EBU	XLR	110 Ω balanced XLR cable	Devices with AES/EBU output on XLR connectors	Professional balanced digital interface. High stability and noise immunity.

Use the SOURCE selector buttons to select a digital device as the input source. p. 6.

NOTE

All digital inputs are reclocked using the Device's internal master clock to minimize jitter and ensure optimal timing accuracy. The Device always operates as clock master.

Connecting an amplifier or preamplifier

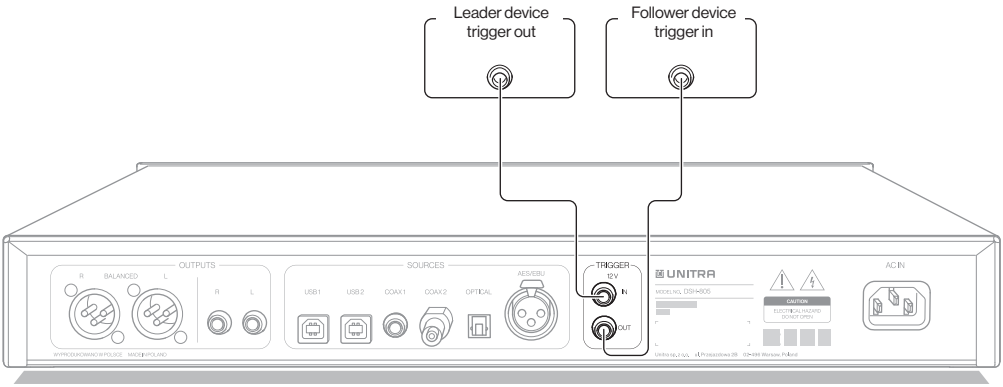


The BALANCED and UNBALANCED outputs are active in parallel at all times when the Device is set to ON.

NOTICE

The output signal is constant (there is no volume control in the Device). Connect the Device to an amplifier or preamplifier that has volume control. Do not connect directly to a power amplifier.

Connecting a device to TRIGGER IN/OUT jacks



You can set your audio system to turn on other devices when one of them is turned on.

To turn on the Device when another device (leader) is on, connect the trigger out jack of the leader device to the TRIGGER IN jack of the Device. When the Leader is on, a 12 V DC signal is sent to the Device. The Device stays ON as long as the signal is present.

The Device goes to STANDBY when the signal from the leader device is no longer present.

To turn on another device (follower) when the Device is ON, connect the TRIGGER OUTjack to the trigger in jack of the follower device.

When the Device is ON, it sends a 12 V DC signal to the connected follower device.

NOTE

The supported voltage range for the signal received by the TRIGGER IN jack is 5 – 24 V DC.

Connecting the AC power cable

CAUTION

Install the Device in accordance with the Safety Brochure (section Installation) enclosed to this product.

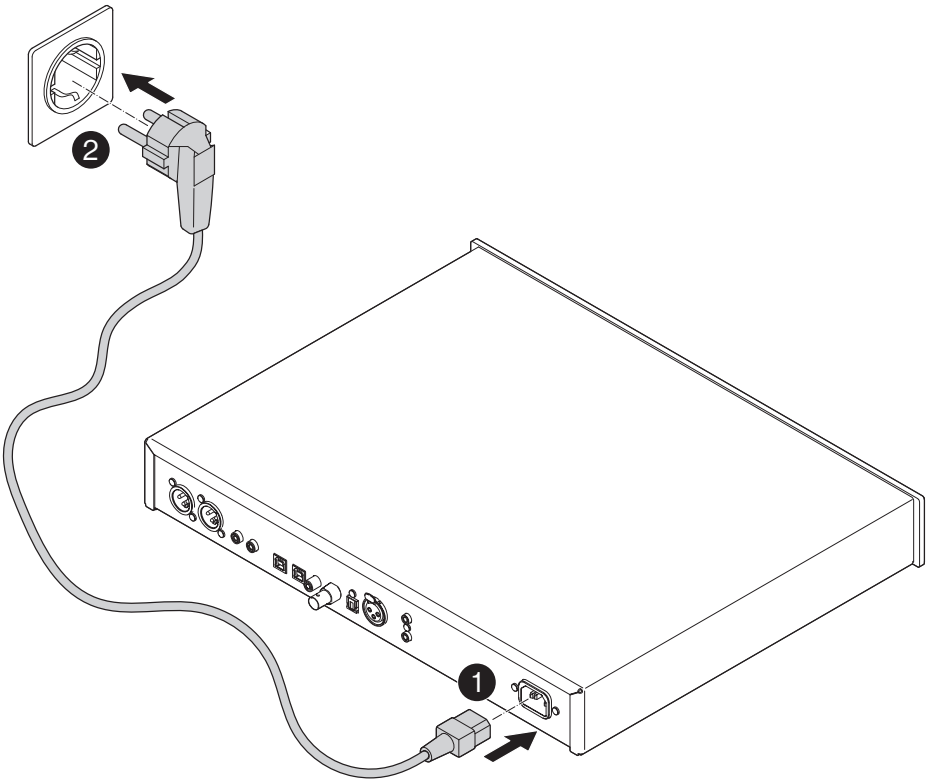
After all connections are ready, you can connect the Device to the AC power source.

Step 1

Connect the power cord to the AC inlet.

Step 2

Connect the power cord to the AC power source with earthing.



USB driver installation

Windows

For USB communication to work properly on Windows computers, a driver must be installed. The driver should be downloaded from the Unitra website (unitra.com/downloads).

MacOs

MacOS devices are compatible with the Device without the need to install drivers.

Linux

Linux distrubutions usually support USB Audio Class 2.0 without the need to install drivers, however the Manufacturer cannot guarantee it.

Troubleshooting

Most difficulties in audio systems are the result of incorrect connections, or improper control settings. If you encounter problems, isolate the area of the difficulty, check the control settings, determine the cause of the fault and make the necessary changes. If you are unable to get sound from the Device, refer to the suggestions for the following conditions:

Problem	Cause	Remedy
The ON/STANDBY switch on the front panel is set to ON, but none of the SOURCE indicators goes on.	The power cable is not connected to the AC inlet on the rear panel or is not connected to an AC power source.	Make sure that the power cord is properly connected to the power source. After that, disconnect the power cord from the power source, wait for at least 10 seconds and connect the power cord again. p. 19.
The SAMPLE RATE and DSD indicators are off.	Incorrect signal source is selected.	Check if the correct signal source is selected on the SOURCE indicators on the front panel.
	The connected device is not functioning properly.	Make sure that the device selected as the input source is providing sound.
	The cable is damaged.	Check if the cable used to connect the device selected as the input source is damaged. Replace the cable, if necessary.

Problem	Cause	Remedy
There is no sound even though the SAMPLE RATE or the DSD indicator is on.	The cable between the Device and the amplifier or preamplifier is not connected properly.	Make sure the connectors are installed properly.
	The cable is damaged.	Check if the cable used to connect the Device to the amplifier or preamplifier is damaged. Replace the cable, if necessary.
The Device is not detected by computer when connected via USB.	There is a problem with the USB cable.	Make sure that USB cable is not damaged.
	There is a problem with drivers.	In the case of a Windows computer, make sure you have the correct driver installed on your computer (from unitra.com/downloads).
The sound is intermittent.	The cables are not connected properly.	Make sure that the connectors are installed properly.
	The impedance of the cables is not correct.	Make sure that the cables used to connect the Device have an impedance that complies with the specifications. p. 16.
	The cable is damaged.	Check if the cables used to connect the Device to other devices are damaged. Replace the cables, if necessary.
The remote control doesn't work properly.	There is a problem with the battery.	Make sure that the battery is installed with the correct polarity (+/–). Replace the battery with a new one. p. 11.
	The distance between the remote control and the Device is too high or there is an obstacle between them.	• Make sure that the distance between the remote control and the Device is less than 6m away. • Make sure that there are no obstacles between the remote control and the Device (e.g. cabinet doors).

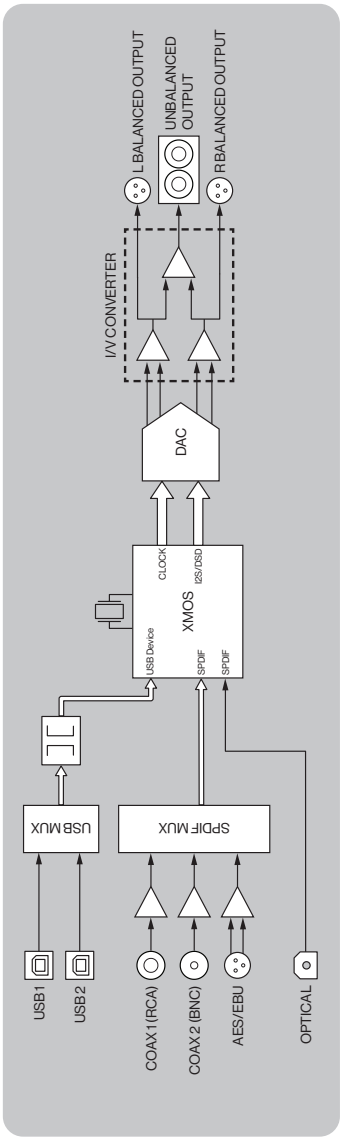
UNITRA

Technical specifications

DAC	ES9039MSPRO (4 D/A converters per audio channel)		
Supported digital audio format (max. values)	PCM	USB1, USB2	768 kHz 32 bit
		COAX1, COAX2, OPT, AES/EBU	192 kHz 24 bit
	DSD	USB1, USB2	DSD512 (Native) DSD256 (DoP)
		COAX1, COAX2, OPT, AES/EBU	DSD64 (DoP)
	MQA		Full MQA Decoder + Renderer
PCM filters	7 selectable filters		
Reclocking	All inputs reclocked to internal master clock.		
Frequency Response	+/– 0.1 dB point		1 Hz – 20 kHz
	+/– 1 dB point		1 Hz – 65 kHz
Total Harmonic Distortion plus Noise (1 kHz, 0 dBFS)	BALANCED		< 0.001 %
	UNBALANCED		< 0.00015 %
Signal-to-Noise Ratio (SNR) (1 kHz, 0 dBFS)	>125 dB		
Channel Separation	>115 dB		
Rated output voltage impedance	BALANCED		2.3 V_{RMS}
	UNBALANCED		2.3 V_{RMS}
Dimensions (Width × Depth × Height)	440 × 369 × 65 mm		
Mass	5.81 kg		
Indoor/outdoor use	Indoor use only		
Insulation category	Class I		
EMC environment	Group 1 class B		

Appendices

Block diagram



UNITRA

Revision 1 (2025-08-21)

For more information go to:
https://www.unitra.com/
or scan QR code below.