

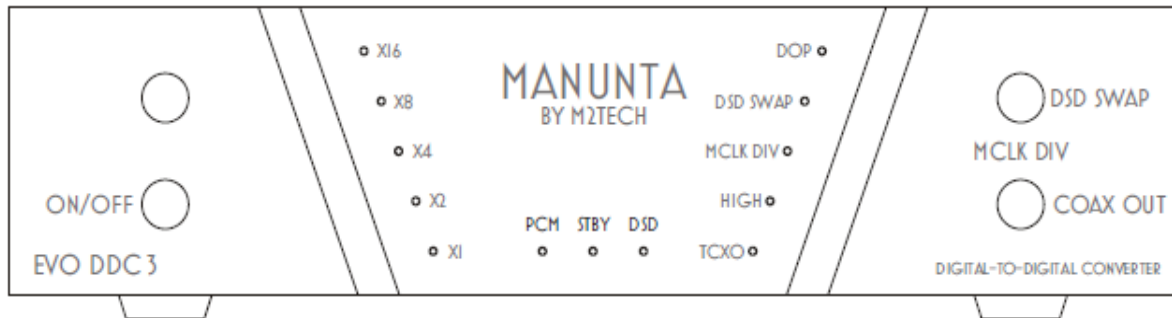
MANUNTA

BY M2TECH

EVO DDC 3

HIGHEST RESOLUTION DIGITAL-TO-DIGITAL CONVERTER

USER MANUAL



REV. 1.0 – 1/2023

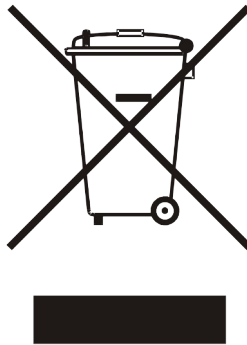
Warning!

Changes or modifications not authorized by the manufacturer can invalidate the compliance to CE regulations and cause the unit to be no more suitable to use. The manufacturer refuses every responsibility regarding damages to people or things due to the use of a unit which has been subject to unauthorized modifications or to misuse or to malfunction of a unit which has been subject to unauthorized modifications.



This unit is compliant with the following CE regulations: CEI EN 55022:2009 Class B (Radiated Emissions), CEI EN 55024:1999, CEI EN 55024:A2/2003, CEI EN 55024:IS1/2008 (Radio Frequency Electromagnetic Fields, 50Hz Magnetic Field Immunity Test and Electrostatic Discharges – ESD).

For a proper operation of this unit, all connections to other equipment in the system must be done when all equipment are off. Failing to comply with this advice may lead to damage to the Evo DDC 3.



The label above, printed on the product case, indicates that the product, when no more usable, can't be treated as generic garbage, but must be disposed of at a collection point for recycling of electrical and electronic equipment, in compliance with the WEEE regulation (Waste of Electrical and Electronic Equipment).

By making sure that this unit is correctly recycled, you will help preventing potential damages to environment and human health, which could be caused by a wrong treatment of this product as generic garbage.

Materials' recycling helps saving natural resources. For more in-depth information about recycling this product, please contact M2Tech Srl.

WARNING: the information contained in this manual are considered to be reliable and accurate. M2Tech reserves the right to change or modify the information any time, without prior advice. It's up to the customer to ensure that the manual being consulted is the latest version.

Dear customer,

Thank you for purchasing EVO DDC 3. You are the owner of a very high quality digital-to-digital converter with many unique features designed to obtain the best performance in every hi-fi system.

EVO DDC 3 implements a specific set of technological and functional solutions, from the asynchronous USB interface, to the selectable DSD/DoP support, to full control by free smartphone app via Bluetooth[®], ease of use and reliability.

EVO DDC 3 is provided with a complete set of digital outputs, to allow for using every kind of DAC or digital amplifier. The I²S output in PS-Audio standard makes high-rez music transfer in either PCM and DSD from your smartphone, tablet or computer to your system. The single-ended output's selectable voltage allows for driving long runs of cable even in coaxial mode.

The fully-loaded remote control allows for total control of both EVO DDC 3 and most audio players running on the computer attached to its USB input, as well as other MANUNTA BY M2TECH products.

We're sure that your expectations will be fulfilled by purchasing EVO DDC 3: you'll hear your favourite music as never before, so you can now prepare for a whole new listening experience!

Marco Manunta, CEO

Please note here your EVO DDC 3 serial number and purchase info for future reference:

S/N: _____ Date of Purchase: _____
Place of Purchase _____

Note: Proof of retail purchase, such as your purchase receipt, will be required in the unlikely event that any warranty service will be required.

TABLE OF CONTENTS

1. Unpacking and Placing the Unit.....	7
2. Front Panel.....	9
3. Back Panel.....	11
4. Remote Control.....	13
5. Connecting and Powering the Unit.....	15
6. Cleaning the Unit.....	17
7. Using the EVO DDC 3.....	19
7.1. Outputs Operation.....	19
7.2. DSD and DoP.....	19
7.3. DSD Channels Swapping.....	19
7.4. Coaxial S/PDIF Output Voltage.....	19
7.5. I ² S Output Master Clock Division by 2.....	20
7.6. Optional TCXO Board.....	20
7.7. Bluetooth® Operation.....	20
7.8. Restoring Default Settings.....	21
8. Using a Computer as Digital Source.....	23
8.1. Plug'n'Play Operation with Apple OSX.....	23
8.1.1. DSD files playback with OSX.....	23
8.2. Plug'n'Play Operation with Linux.....	23
8.2.1. DSD files playback with Linux.....	24
8.3. Using the EVO DDC 3 with Windows.....	24
9. Using the EVO DDC 3 I ² S Output.....	25
10. Controlling the Computer Player by Using the EVO DDC 3 Remote Control.....	27
11. Updating EVO DDC 3 Firmware.....	27
12. Controlling the EVO DDC 3 by the Bluetooth® Interface.....	27
13. Specifications.....	29

1. Unpacking and Placing the Unit

Lay the package on a table. Open the box by lifting the front wing. The following items are included:

- one EVO DDC 3;
- one wall wart (AC-to-DC adapter);
- one remote control;
- two AAA type batteries.

Should one or more item be missing, please contact your retail dealer.

Remove the EVO DDC 3 from the box and place it onto a stable base, far from heat sources. Avoid full sunlight on the unit. Allow for ample room around the unit for venting.

The EVO DDC 3 is a high efficiency device; therefore it doesn't produce relevant heat during its operation. Regardless, it's recommended to guarantee an adequate air flow around the unit. Moreover, every time it will mainly be operated by remote control, it's recommended to place it so as the remote control's infrared signals can easily reach its front panel.

Avoid smoke, moisture, dirt and liquids from reaching the unit. Please note that any signs of abuse will void warranty coverage.

Do not place the unit on thick carpets or inside a box or piece of furniture, not even close to curtains.

2. Front Panel

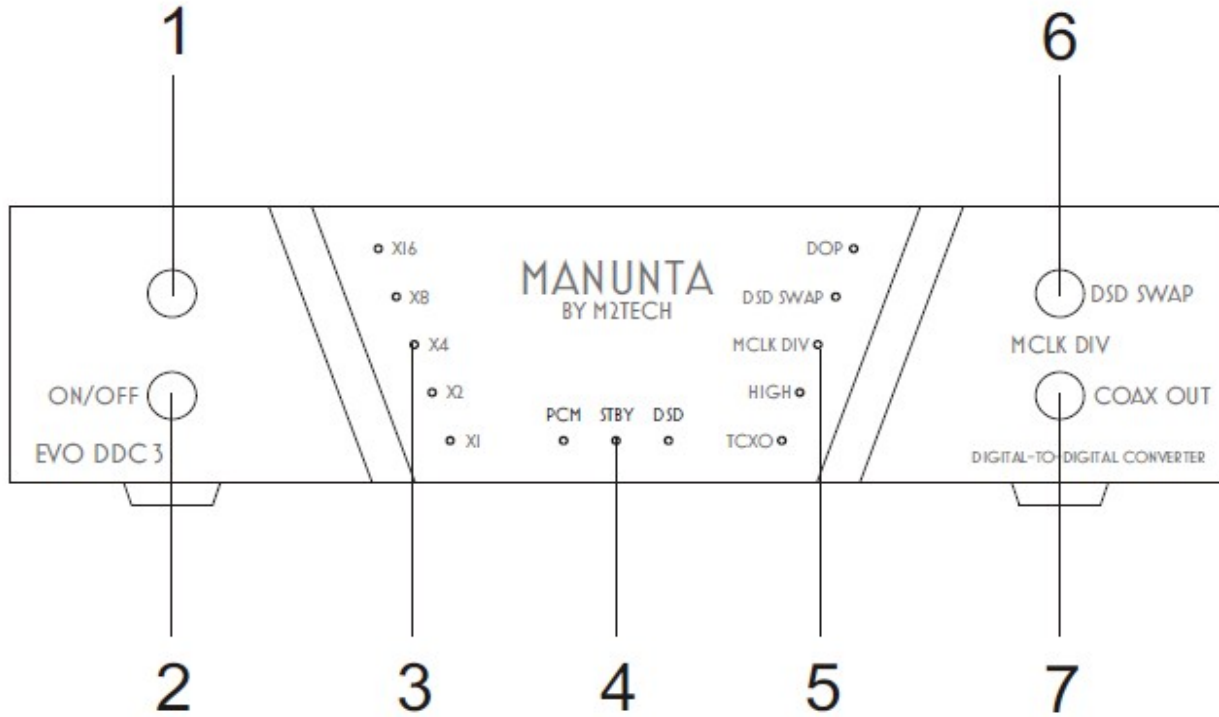


Figure 1

- 1) IR receiver.** Aim the remote control to this point to send commands to the EVO DDC 3.
- 2) Power on/power off button.** Press this button to toggle the EVO DDC 3 power or to activate it when it's in standby.
- 3) Sampling frequency indicator LED's.** These LED's indicate the active sampling frequency. Blue colour indicates that the sampling frequency is a multiple of 44.1kHz, green colour indicates that the sampling frequency is a multiple of 48kHz. Multiply the base sampling frequency for the multiply factor aside the lit LED to obtain the sampling frequency.
- 4) Format and standby indicator LED's.** Indicate the format of the file being reproduced. When the unit is in standby, the central LED will glow.
- 5) Status LED's.** Please read through the manual to learn about the various features the EVO DDC 3 implements and how they're indicated by these LED's.
- 6) DSD channels swap button.** Use this button to properly select the channel mappings for DSD according to your DAC specs. When pushing this button together with the "coax out" button, the master clock division by 2 feature is toggled.

7) Coax output voltage. Use this button to toggle the coaxial output voltage between 500mVpp (standard) and 1Vpp (double). The higher voltage allows the Evo DDC 3 to drive long runs of coaxial cable (up to 10m) without loss of quality, whereas the standard output voltage only ensures best performance within 2m. When pushing this button together with the “coax out” button, the master clock division by 2 feature is toggled.

3. Back Panel

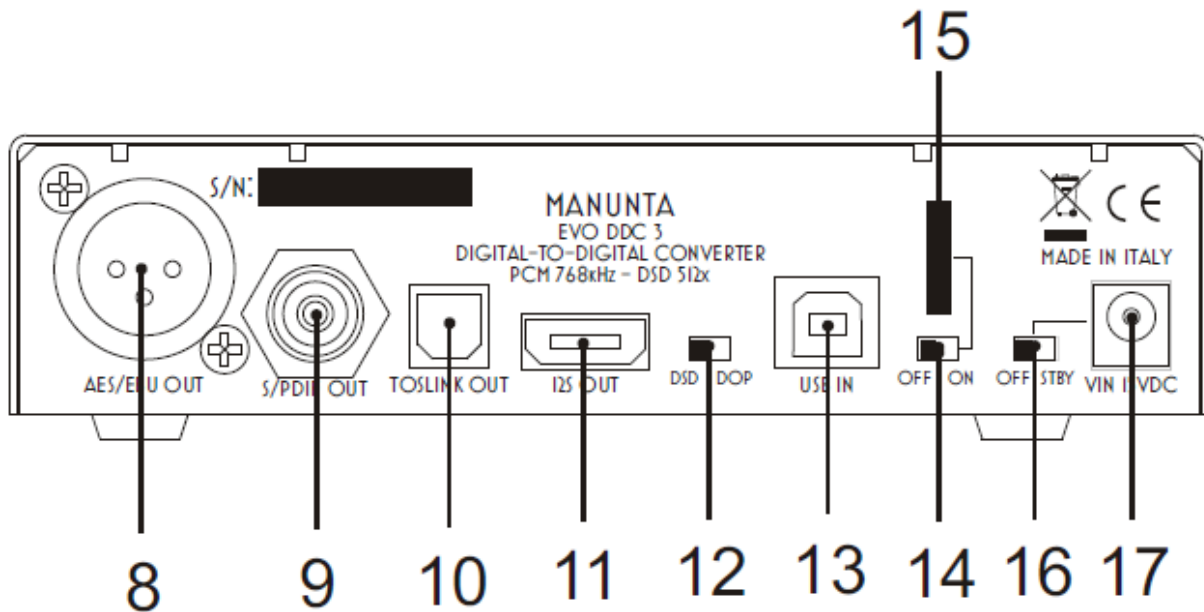


Figure 2

8) Balanced AES/EBU output. Connect the EVO DDC 3 to your DAC or digital amplifier with AES/EBU input using a 110-Ohms coaxial cable terminated with XLR connectors. Male XLR socket.

9) Coaxial S/PDIF output. Connect the EVO DDC 3 to your DAC or digital amplifier with S/PDIF input using a 75-Ohms coaxial cable terminated with RCA connectors. Gold-plated female RCA socket.

NOTE: the output voltage on this output can be set to either 500mVpp (standard) or 1Vpp (double than standard). If you use a cable within 2m or you are not sure that your DAC's coaxial input can accept such a voltage, then please do not select the double output voltage.

10) Toslink™ optical digital output. Connect to a DAC or digital amplifier provided with a Toslink™ digital input. Toslink™ type connector.

11) I²S connector. Connect to the PS Audio compliant I²S input of a DAC, digital amplifier or other I²S digital device using a standard HDMI cable. Female HDMI connector.

12) DSD processing switch. The EVO DDC 3 is able to process DoP to provide DSD at its I²S output. When this feature is not desired, user should set this switch to the “DOP” position.

13) USB connector. Connect to the USB 2.0 port of a computer using the stock USB cable. Type “B” female USB connector.

14) Bluetooth® enable switch. The EVO DDC 3 is provided with a Bluetooth® module to interface with smartphones for control. When this feature is not needed, or when in search for the ultimate performance, it might be desirable to disable the Bluetooth® module. Use this switch to this purpose.

15) Bluetooth® module. When in use, don't cover or shield with metal cases or plates..

16) Power mode switch. The EVO DDC 3 can be totally switched off when operating the ON/OFF front panel button, or it can just be into standby, depending on this switch setting.

17) Power supply input. Connect the connector from the stock 15V adaptor or from the EVO SUPPLY 3 or M2TECH VAN DER GRAAF MKII. 5.5/2.1mm jack with positive on tip.

4. Remote Control

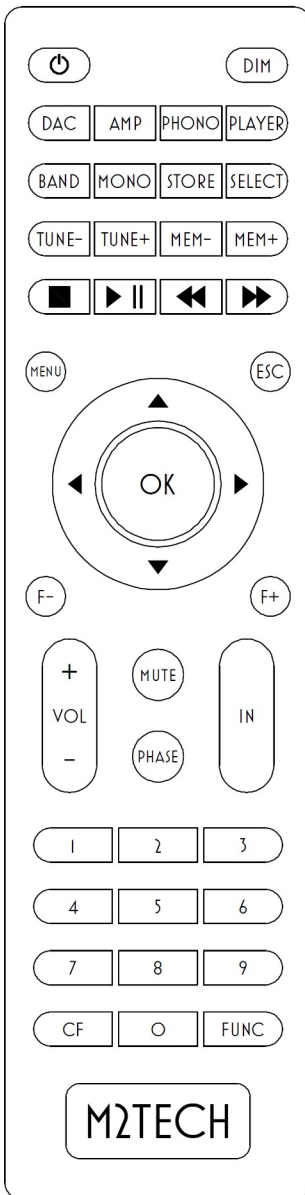


Figure 3

The EVO DDC 3 comes with a fully-loaded remote control which allows for setting all of its controls, as well as for controlling other M2TECH Rockstars series products.

Please note when a command is sent to the EVO DDC 3 the “DAC” key blinks in green. If any of the other key “AMP”, “PHONO” or “PLAYER” blinks instead, the EVO DDC 3 will not receive the command. In this case, press the “DAC” key to select the right commands codes for the EVO DDC 3.

Below is a brief description of the relevant keys for the EVO DDC 3.

Standby key: This allows for putting the EVO DDC 3 in standby mode (prolonged push) and for awakening it.

DIM: Display dimming.

DAC: Instructs the remote to send commands using the DDC system code.

Player Controls: these buttons are dedicated to the control of an audio player running on the computer attached to the EVO DDC 3. The following commands can be sent: Play/pause, stop, next, track, previous track

5. Connecting and Powering the Unit

WARNING: All connections between the EVO DDC 3 and other equipment must be made when all units are turned off and completely powered down or unplugged. Failing to do so may cause damage to the EVO DDC 3 and/or other units.

Please refer to chapter 3, "Back Panel".

Connect the DAC or digital amplifier to one of the outputs (Figure 2, 8-11). More than one DAC at a time can be connected to different outputs if needed. The Bluetooth® connection will be done after powering the unit.

Connect your computer to the EVO DDC 3 USB input (Figure 2, 13).

Properly set the various rear panel switches (Figure 2, 12, 14 and 16).

Connect the plug from the stock wall wart or from the EVO SUPPLY 3 to the EVO DDC 3 power input (Figure 2, 17).

Connect the wall wart or the EVO SUPPLY 3 to a mains outlet. The former will automatically accept any voltage from 90V_{AC} to 265V_{AC}.

Switch the EVO DDC 3 on by pushing the left front panel button (Figure 1, 2). If you're using the EVO SUPPLY 3, you have to activate the output used to power the EVO DDC 3 first.

NOTE: it is possible to use a dedicated low noise power supply in place of the wall wart, to increase the sonic performance. MANUNTA BY M2TECH provides a device for this purpose, the EVO SUPPLY 3. M2TECH's VAN DER GRAAF MkII can also be used. Should the user opt for use of power supply not provided by either MANUNTA BY M2TECH or M2TECH, we reserve the right to void the EVO DDC 3 warranty.

6. Cleaning the Unit

The EVO DDC 3 should be cleaned with a soft, slightly damp cloth. Do not use alcohol or any other types of cleaning fluids as they could damage the unit.

Avoid fluids from dropping or leaking inside the unit. Fluids of any type poured into the unit will void your warranty.

7. Using the EVO DDC 3

At activation, the EVO DDC 3 performs a routinary check for all indicators, then it sets idle ready for commands.

7.1. Outputs operation

All outputs are operative for PCM within 192kHz. As well, DoP file playback up to 128x will work when the DSD processing button is set to "DOP".

When a PCM file is played with sampling frequency over 192kHz, or a DoP file over 128x, only the I²S output will work. As well, DSD files will only be provided at the I²S output.

7.2. DSD and DoP

The EVO DDC 3 supports DSD. When a DSD file is sent to it, it may either provide it at its I²S output or not, according to the DSD processing switch setting. As well, when a DoP file is sent to it, the Evo DDC 3 may process it into DSD and provide it at its I²S output or leave it as is, providing DoP at all its outputs (64x and 128x) or at its I²S output only (256x and 512x).

DSD processing should be inhibited with using any output other than the I²S output, to forward DoP to the DAC for local processing.

DSD processing is enabled by the related button (Figure 2, 12) and its setting is indicated by one of the status LED's (Figure 1, 5).

7.3. DSD Channels Swapping

I2S is not a true inter-device standard. As such, different manufacturers might use it in different modes. One major difference between usages is the channel mapping. Depending on it, the connection between the EVO DDC 3 and a DAC might result in reversed channels. The EVO DDC 3 allows for swapping the channels for DSD only on its I2S output in order to restore the right channel mapping. To this purpose, please use the related button (Figure 1, 6). The status of this setting is indicated by one of the status LED's (Figure 1, 5).

7.4. Coaxial S/PDIF Output Voltage

S/PDIF standard was conceived to provide connection between devices on a coaxial cable with a maximum length of 2 meters. When longer cables must be used, the quality of the data transmission is not granted. To cope with this situation, the EVO DDC 3 allows for doubling the S/PDIF output voltage to endure correct transfer up to 10m. Use the related

button (Figure 1, 7) to toggle this feature. The status of this setting is indicated by one of the status LED's (Figure 1,5).

WARNING: while usually all S/PDIF inputs accept voltages up to 2Vpp, this is not a general rule and user should ask the DAC manufacturer to avoid the DAC's input being damaged by the excessive voltage provided by the 1Vpp setting.

NOTE: even when the DAC's S/PDIF input absolute settings allow for 1Vpp to be applied, this doesn't automatically means that performance will be better with the higher voltage, as the excessive voltage, while not damaging the receiver, could saturate it reducing the PLL performance and increasing jitter. User should try both settings and evaluate the performance of each subjectively.

7.5. I²S Output Master Clock Division by 2

As stated in paragraph 7.3, I²S is not really a standard when it comes to connecting devices. One parameter which can vary from one DAC to another is the maximum master clock accepted along with the audio data on the I²S connection. While the EVO DDC 3 provides up to 49.152MHz master clock with 48kHz-based files and 45.1584MHz with 44.1kHz-based and DSD files, it might happen that the DAC used with it only accepts up to 24.576MHz and 22.5792MHz respectively. When it's the case, the EVO DDC 3 can be set to divide the master clock output on the I²S connection by 2. To this purpose, use the "DSD SWAP" (Figure 1, 6) and "COAX OUT" (Figure 1, 7) buttons jointly to toggle this feature. The setting status is indicated by one of the status LED's (Figure 1,5).

7.6. Optional TCXO board

It might be desired to improve the EVO DDC 3 internal clocks performance to reduce jitter and increase the quality of higher sampling frequencies transfers on the I²S output. This can be accomplished by installing an optional board inside the EVO DDC 3, also provided by MANUNTA BY M2TECH, which hosts two very low jitter TCXO's (Temperature-Compensated Xtal Oscillators) with performance same as the much famous Femtoclock[®] oscillators.

While the installation can be easily be made by the user, this will require opening the unit, therefore invalidating the warranty, unless the user has it done by a technician previously authorized by MANUNTA BY M2TECH. Therefore, it's better to ask the factory installation of this board at purchase.

The presence of the board is indicated by one of the status LED's (Figure 1,5).

7.7. Bluetooth[®] Operation

The EVO DDC 3 is provided with a Bluetooth[®] module used to connect it to a smartphone running the free control and setting app provided by MANUNTA BY M2TECH on either Apple Store and Google Play.

Sometimes it might be desirable to disable this interface. This can be done using the related switch on the back panel (Figure 2, 14). No indication is given for this setting on the front panel.

7.8. Restoring Default Settings

It's possible to restore the EVO DDC 3 settings to factory default if needed. This is accomplished by keeping the DSD SWAP and COAX OUT buttons pressed while powering the unit.

8. Using a Computer as Digital Source

The connection to the computer by the USB port to the EVO DDC 3 requires a few configuration steps by the user.

Fortunately, the EVO DDC 3 is provided with an USB 2.0 interface which is compatible with USB Audio Device Class 2. Therefore, Apple and Linux computers natively support the EVO DDC 3, that is they do not need a driver and immediately recognize the DDC in a plug'n'play fashion. A PC running Windows 10 or Windows 11 offers a limited native support to UAC2 devices (up to 192kHz sampling rate and no DSD). Older Windows versions offer no support at all. Therefore, a computer provided with a Microsoft operating system requires a suitable driver which can be downloaded from MANUNTA BY M2TECH website (www.manunta-audio.com), from EVO DDC 3 page.

8.1. Plug'n'Play Operation with Apple OSX

As explained in the introductory paragraph to the present chapter, the EVO DDC 3 is provided with an USB interface compatible with USB Audio Device Class 2 which is natively supported by Apple OSX since the 10.6.4 release, without the need for any driver: It is sufficient to connect the EVO DDC 3 to the Mac with the stock USB cable to have it recognized by the Mac, which will then include it in the audio output device list

8.1.1. DSD files playback with OSX

The EVO DDC 3 is able to play music files recorded with the DSD format in both native and DoP formats. OSX doesn't support native DSD, while it does support DoP. A player able to send DSD data to the EVO DDC 3 in DoP must be used.

8.2. Plug'n'Play Operation with Linux

As explained in the introductory paragraph to the present chapter, the EVO DDC 3 is provided with an USB interface compatible with USB Audio device Class 2 which is natively supported by Linux with ALSA since its 1.0.24 release.

NOTE: given the wide availability of different Linux distributions, often heavily customized, it may be necessary to check that both kernel and ALSA versions are suitable for native USB Audio Device Class support. When in doubt, ask the creator of your Linux distribution for more information.

As with Apple OSX, with Linux it is necessary to choose the EVO DDC 3 as the output device. This can be done accessing the audio management window and setting the various parameters.

8.2.1. DSD files playback with Linux

The availability of DSD audio files is quite recent, therefore it's possible that your player is not able to play DSD files, or maybe its most current release it is, but not the one you have installed on your computer. For example, MPD player, by far the most used under Linux, only supports DSD since its 0.17 release. Be sure that your player supports DSD and refer to the instructions provided by the player creator, or install a player which you're sure supports DSD.

8.3. Using the EVO DDC 3 with Windows

As explained in the introductory paragraph to the present chapter, at the moment only Windows 10 offers a limited support to USB Audio Device Class 2. To listen to music files with the EVO DDC 3 connected to a computer running Windows it is therefore strongly suggested (Windows 10 and Windows 11) or necessary (Windows 8.1 and older versions) to install a driver. Please read the related Application Note on M2TECH website for details about driver installation.

The Windows driver is compliant to ASIO, therefore it supports native DSD.

9. Using the EVO DDC 3 I²S Output

I²S is a standard designed for inter-IC audio transfer. It communicates digital audio over 3 wires or signals: SDATA, LRCK and SCLK. A fourth wire carrying the master clock (MCLK), is also usually necessary, unless the audio signal is sent to a sample rate converter provided with its local master clock.

The EVO DDC 3 delivers I²S in differential LVDS physical format on an HDMI connector (PS Audio standard). Both PCM and DSD can be transferred over this connection. Some constraints apply to both SCLK and MCLK.

LRCK is the PCM sampling rate, it can be 44.1kHz to 768kHz.

SCLK must be 64 x LRCK and can be as high as 49.152MHz.

MCLK is always be present. It can be 22.5792MHz or 45.1584MHz for 44.1kHz-based files (that is, files which sampling frequency is 44.1kHz or a multiple) and 24.576MHz or 49.152MHz for 48kHz-based files.

When DSD is transferred over I²S, SCLK becomes the DSDCLK and can be 2.8224MHz to 22.5792MHz unless DSD swapping is enabled. MCLK is present with DSD, too.

As no constraints are indicated for MCLK in the PS Audio standard, it might happen that a certain I²S DAC accepts lower master clocks than those provided by the EVO DDC 3. In this case, it is possible to halve the master clock frequency by enabling the related feature.

10. Controlling the Computer Player by Using the EVO DDC 3 Remote Control

The USB interface of the EVO DDC 3 implements the HID protocol, which allows for sending commands to the player running on the computer to which the EVO DDC 3 is connected. This feature is very useful whenever the computer is placed close to an audio system, therefore away from the user, who can now conveniently use the EVO DDC 3 remote control.

Three keys are present on the remote control (Fig. 3) which allow to start, pause and stop playback, as well as to skip to the next or previous track.

This feature is not available with all players nor with all operating systems, or with all versions of a certain operating system. Therefore, it is up to the user to check whether or not the chosen player and the operating system in use are HID ready.

11. Updating EVO DDC 3 Firmware

User may, if needed, update the firmware of the EVO DDC 3 USB interface. In case, please contact MANUNTA BY M2TECH support for details.

Other EVO DDC 3 controllers firmware can only be updated in-factory. Should MANUNTA BY M2TECH launch a global call for update, please ask MANUNTA BY M2TECH for instructions.

WARNING: never try to update the EVO DDC 3 USB controller's firmware using any firmware found on the Internet! Unauthorized updates may lead to EVO DDC 3 misoperation and damages and will void warranty!

12. Controlling the EVO DDC 3 by the Bluetooth® Interface

User can control the EVO DDC 3, as well as set all operative parameters, by any iOS and Android smartphone thanks to the apps developed by MANUNTA BY M2TECH which are available for free on App Store and Google Play.

Please visit Google Play and App Store and search for M2TECH apps.

The following parameters can be set by the app. User can have a detail of each parameter usage by tapping the parameter name on the app.

13. Specifications

Inputs:	Async USB compatible with USB Audio Device Class 2/1 "B" type female USB connector
Outputs:	AES/EBU on 3-pin male XLR socket S/PDIF on female RCA socket Optical on Toslink™ connector I2S on HDMI connector (PS Audio standard)
Power input:	5.5/2.1mm jack with positive on tip
Output voltage:	0.5Vpp (S/PDIF, "normal") 1.0Vpp (S/PDIF, "high") Differential 2.0Vpp (AES/EBU) Differential 0.5Vpp (I ² S)
Output impedance:	75 Ohms (S/PDIF) 110 Ohms (AES/EBU) 100 Ohms (I ² S)
Sampling frequency PCM:	44.1, 48, 88.2, 96, 176.4, 192, 352.8*, 384*, 705.6*, 768*kHz
DSD formats:	64x*, 128x*, 256x*, 512x*
DoP formats:	64x, 128x, 256x*
PCM resolution:	16 to 32 bit (USB and I ² S) 16 to 24 bit (other inputs)
Automatic switch-off:	10 to 240 minutes in 10 minutes steps, plus disabled
Supply:	15V _{DC} 300mA
Power consumption:	5.5VA 0.15VA standby
Size:	150x35x160mm (w x h x d)
Weight:	0.7kg (device and ancillaries) 1kg (packed)

* I²S Only