

Operating Manual



MC-1.2

Content

Safety Instructions	4
Warranty Regulations	5
Introduction	
General Description	6
MC-1.2 Features	6
MC-1.2 Applications	6
Peripheral MUTEC Products	7
MS Windows Driver Support	7
Product Registration for Warranty and Support	7
Installation	
Content of the Box.....	8
Placing the Device.....	8
Wiring the Interfaces.....	8
General Recommendations for Interface Wirings	9
Control Elements and Terminals	
MC-1.2 Front Panel.....	10
MC-1.2 Rear Panel.....	10
USB Driver Installation & Windows Settings	
MUTEC USB Audio Class 2.0 Driver for Windows.....	12
Driver Download and Installation Procedure.....	13
Windows Settings	14
Operation	
General System Operation	16
Operation of the MC-1.2.....	16
Status Information	17
Appendix	
Status Information	18
Technical Data.....	18

Safety Instructions

General Instructions

To reduce the risk of fire or electrical shock, do not expose this appliance to rain or moisture, direct sunlight or excessive heat from sources such as radiators or spotlights. No user serviceable parts are inside. Repair and maintenance must be carried out by qualified personnel authorized by MUTECH GmbH! The unit has been designed for operation in a standard domestic environment. Do NOT expose the unit and its accessories to rain, moisture, direct sunlight or excessive heat produced by such heat sources as radiators or spotlights! The free flow of air inside and around the unit must always be ensured.

Initial Operation

Prior to the initial operation of the unit, the appliance, its accessories and packaging must be inspected for any signs of physical damage that may have occurred during transit. If the unit has been damaged mechanically or if liquids have been spilled inside the enclosure, the appliance may not be connected to the mains or must be disconnected from the mains immediately! If the unit is damaged, please do NOT return it to MUTECH GmbH, but notify your dealer and the shipping company immediately, otherwise claims for damage or replacement may not be granted.

If the device is left in a low-temperature environment for a long time and then is moved to a room-temperature environment, condensation may occur on the inside and the exterior. To avoid short-circuits and flashovers, be sure to wait one or two hours before putting the device into operation.

Power Supply


The device contains a self-adapting wide-range power supply supporting the majority of global standard line voltages within a range of 90...250 V, with no need for making adjustments. Make sure that your line-voltage source provides a supply voltage within the specified range. In addition, make sure that the device is properly grounded via the local electric installation.


Please use the enclosed power cord (see packaging) to connect the unit to the mains. Switch the unit off before you attempt to connect it to the mains. Connect the power cord to the unit, then to a standard 3-pin mains outlet. To draw the power cord, never pull on the cable but on the mains plug!

The unit must be grounded during operation!

For information on the power-inlet wiring, refer to the »Wiring of connectors« section in the appendix. Disconnect the device from the mains when not using it for an extended period!



 This symbol, a flash of lightning inside a triangle, alerts you to the presence of uninsulated dangerous voltage inside the enclosure - voltage that may be sufficient to constitute a risk of shock.

 This symbol, an exclamation mark inside a triangle, alerts you to important operating or safety instructions in this manual.

Declaration of Conformity

We herewith confirm that the product complies with the European Commission's standards on electromagnetic compatibility.

Interference emission: EN 50081-1, 1992
Resistance to interference: EN 50082-1, 1992

Presupposed as operation condition is that all clock outputs are connected with high-quality and good shielded BNC 75 ohms cable.



Warranty Regulations

§1 Warranty

MUTEC GmbH warrants the flawless performance of this product to the original buyer for a period of two (2) years from the date of purchase. If any failure occurs within the specified warranty period that is caused by defects in material and/or workmanship, MUTEC GmbH shall either repair or replace the product free of charge within 90 days. The purchaser is not entitled to claim an inspection of the device free of charge during the warranty period. If the warranty claim proves to be justified, the product will be returned freight prepaid by MUTEC GmbH within Germany. Outside Germany, the product will be returned with the additional international freight charges payable by the customer. Warranty claims other than those indicated above are expressly excluded.

§2 Warranty Transferability

This warranty is extended exclusively to the original buyer who bought the product from a MUTEC GmbH specialized dealer or distributor, and is not transferable to anyone who may subsequently purchase this product. No other person (retail dealer, distributor, etc.) shall be entitled to give any warranty promise on behalf of MUTEC GmbH.

§3 Warranty Regulations

The return of the completed registration card, or online registration on one of the websites specified below, is a condition of warranty. Failing to register the device before returning it for repair will void the extended warranty.

- The serial number on the returned device must match the one stated on the registration card or entered during online registration. Otherwise, the device will be returned to the sender at the sender's expense.
- Any returned device must be accompanied by a detailed error description and a copy of the original sales receipt issued by a MUTEC dealer or distributor.
- The device must be returned free of shipping expenses and in the original package, if possible; otherwise, the sender has to provide comparably protective packaging.
- The sender is fully responsible for any damage or loss of the product when shipping it to MUTEC GmbH.

§4 Limitation of Warranty

Damages caused by the following conditions are not covered by this warranty:

- Damages caused by every kind of normal wear and tear (e.g. displays, LEDs, potentiometers, faders, switches, buttons, connecting elements, printed labels, cover glasses, cover prints, and similar parts).
- Functional failure of the product caused by improper installation (please observe CMOS components handling instructions!), neglect or misuse of the product, e.g. failure to operate the unit in compliance with the instructions given in the user or service manuals.
- Damage caused by any form of external mechanical impact or modification.
- Damage caused by the user's failure to connect and operate the unit in compliance with local safety regulations.
- Damage caused by force majeure (fire, explosion, flood, lightning, war, vandalism, etc.).
- Consequential damages or defects in products from other manufacturers as well as any costs resulting from a loss of production.

Repairs carried out by personnel which is not authorized from MUTEC GmbH

§5 Repairs

To obtain warranty service, the buyer must call or write to MUTEC GmbH before returning the unit. All inquiries must be accompanied by a description of the problem and the original buyer's invoice. Devices shipped to MUTEC GmbH for repair without prior notice will be returned to the sender at the sender's expense. In case of a functional failure please contact:

MUTEC Gesellschaft fuer Systementwicklung und Komponentenvertrieb mbH

Siekeweg 6/8 • 12309 Berlin • Germany • Fon 030-746880-0 • Fax 030-746880-99 • tecsupport@mutec-net.com • www.mutec-net.com

Introduction

Thank you very much for buying the MC-1.2, a bi-directional USB & Digital Audio Interface, from MUTEC!

General Description

The MC-1.2 is a high-performance USB audio interface which converts between USB, AES3, AES3id and S/P-DIF signals. It enables for the first time bi-directional conversions between USB audio streams, AES3, AES3id and S/P-DIF signals. Using latest USB streaming technologies, low jitter audio clocks, ultra-low noise power supplies and circuit designs, the MC-1.2 regenerates and improves USB audio streams with embedded clock rates up to 192.0kHz.

Various operation modes enable the use of the unique MC-1.2 in many applications. Signals received at the USB port are converted to five digital audio outputs simultaneously, which allows the connection of multiple receivers at your computer. When selecting one of the digital audio inputs, the signal received is converted to an USB audio stream and sent into your computer. Both signal paths can work at the same time. This enables e.g. the simple connection of effect processors to your computer.

The MC-1.2 also works as isolator to decouple noisy computers or music servers from your audio equipment. Based on the ability to work not only USB bus-powered, but also to use its own internal power supply, an isolation between the different power supplies for the digital audio and the USB part of the circuit is the result. To further improve this separation, the different areas of the circuit are supplied independently from each other by ultra-low noise power sources with carefully dimensioned external circuitries. Thereby, the transfer of distortions from the USB stream into the digital audio part can be reduced to an absolute minimum. That helps to improve the audio performance of the converted digital signals significantly.

The already unbeatable flexibility of the MC-1.2 is increased by operating the unit with its internal power supply for stationary use or alternatively powered through the USB port during e.g. mobile events.

MC-1.2 Features

- Uni- and bi-directional signal conversions
- Asynchronous USB operation
- USB audio stream isolation and conversion to 5 digital audio interfaces
- Low jitter audio clocks combined with ultra-low noise power supplies and PCB design
- Regenerates and improves USB audio streams
- High-compatible USB Audio Class 2.0 Driver for Windows supports ASIO, MME, DirectSound, WASAPI, Kernel Streaming
- Driver-free operation with Apple Macintosh computers
- Supports type 1 formats PCM 16 Bit, 24 Bit, 32 Bit and Float 32 Bit for USB 1.0 and USB 2.0
- Individual lock indicators for USB and the digital audio inputs
- USB, AES/EBU, AES/EBUid and S/P-DIF interfaces in one box
- Status bit analysis for the S/P-DIF inputs
- S/P-DIF interconnections via BNC, RCA and optical interfaces
- Input sampling rate indicators, separated for USB and the digital audio inputs
- Bus-powered operation for mobile use
- Built-in, international power supply
- Available with aluminum- or black-colored front panel
- Compatible with Apple Macintosh and Windows PCs

MC-1.2 Applications

- Interconnection of computers and professional or consumer digital audio devices
- Bidirectional signal exchange between computers and effect processors
- Improvement of USB audio streams
- Isolation of USB audio streams to digital audio devices

Introduction

Peripheral MUTEC Products

- Optical cables in different lengths from 0.5 m to 20 m for S/P-DIF and ADAT™ transfers.
- MW-02/19, Mounting plate to install two MC products side by side into one unit of a 19" rack.
- MW-03/19, Set of two rack mounting angles to install one MC product on the rear side of a 19" rack.
- MW-05/19, Set of two rack mounting angles to install one MC product frontally into one unit of a 19" rack.

For all peripheral products please have a look on our website:
www.mutec-net.com

MS Windows Driver Support

When connecting your MC-1.2 to a Windows computer, you have to use our special USB Audio Class 2.0 Driver for Windows available on our website. Install the driver first before connecting the MC-1.2 to your computer!

Please go to:

www.mutec-net.com > Products > USB Interfaces > MC-1.2 > Downloads

Or for direct access type in the following URL into your browser:

http://www.mutec-net.com/product_mc-12.php?lng=en#download

After the successful download double click on the driver symbol and follow the instructions during installation procedure.

Attention

No driver installation is necessary when using the MC-1.2 with Apple Macintosh computers.

Product Registration for Warranty and Support

We ask you to be so kind to register your MUTEC product through our website immediately after buying. This ensures full warranty services over a period of two years after purchasing the product. More-over, for all registered products we offer to our customers technical support. We also will inform you about product updates and new products which may of interest for you (on voluntary base, of course).

Please register your product at:

www.mutec-net.com > Service > Product Registration

Or for direct access type in the following URL into your browser:

<http://www.mutec-net.com/produktregistrierung.php?lng=en>

Installation

Content of the Box

Your MC-1.2 was packed carefully. Nevertheless we recommend to check the content directly after opening the package:

- 1 x MC-1.2
- 1 x Power cable
- 1 x USB cable
- 1 x Manual

If there are any damages visible, please refer to Safety Instructions and Warranty Regulations for further details.

Placing the Device

The unit should be set up as closely as possible to the devices to which it will be connected with to avoid excessive cable lengths. The four custom-designed case feet include a rubber ring to protect the ground's surface from being damaged.

The device can be mounted into a standard 19" rack and will require one unit. Therefore, we offer an optional rack mounting kit, called MW-05/19. This includes two rack angles which need to be screwed at each side of the device's case. Before mounting the device into a 19" rack, please unscrew the four rubber feet with a suitable screwdriver. Install the device so that one unit of rack space is left free both above and below the device to allow for sufficient ventilation! Additional slide-in rails on the rack inside are recommended for safe installation. This will also avoid long-term mechanical deformation of the housing.

Attention

Before installing the unit the section Safety Instructions located at the beginning of this manual should be read carefully!

Never expose the device and accessories to rain, moisture, direct sunlight, or excessive heat produced by radiators, heaters, or spot lights! Sufficient air circulation in the environment of the device must be ensured!

Wiring the Interfaces

AES/EBU

Connect the AES/EBU interfaces with the help of balanced electrical cables equipped with XLR connectors on both ends. The specifications stipulate a specific cable impedance of 110Ω (ask your retailer for a confirmation of this value when buying the cables).

Word Clock & AES/EBUId

Connect the coaxial Word Clock and AES/EBUId interfaces with help of unbalanced electrical cables equipped with BNC connectors on both ends. The specifications stipulate a specific cable impedance of 75Ω . Typically, such cables are marked with »RG-59U, RG59B/U«. Ask your retailer for his confirmation when buying the cables.

S/P-DIF

Two coaxial S/P-DIF interfaces are available, one based on standard RCA, the other one based on BNC connectors. Connect these interfaces with help of unbalanced electrical cables equipped with RCA respectively BNC connectors on both ends. The specifications stipulate a specific cable impedance of 75Ω for both. Ask your retailer for a confirmation of this value when buying the cables.

Connect the optical S/P-DIF interface with the help of Toshiba TOSLINK™ compliant optical fiber cables. You can use both plastic and glass fiber-based cables.

Installation

General Recommendations for Interface Wirings

Word Clock Interconnection

To allow for the synchronization of digital audio devices, all interfaces must be connected properly to each other to ensure a logical signal flow. Always be sure to connect the Word Clock output(s) to the corresponding input(s) of the device(s) you wish to synchronize. Cable lengths should be kept as short as possible to minimize signal losses and/or interferences!

If a cable with a different impedance than $75\ \Omega$ is used, a dramatic deterioration of the signal quality is the result! In this case, the sound quality and synchronization of all devices involved can be impaired. We recommend using high-grade cables with a good shielding. A length of max. 10 meters (approx. 30 feet) should not be exceeded, if possible!

Additionally, make sure that the Word Clock input(s) has/have got a $75\ \Omega$ terminating resistor! Most Word Clock inputs allow for enabling/disabling the termination with a so-called »termination-switch«, which may be located on the outside or inside of the device. For devices which have no termination of the Word Clock input, e.g. RME Hammerfall with Word Clock i/o, Alesis BRC or M-Audio ProFire Light bridge, you can use an additional BNC-T piece to terminate the input. Plug the T piece with its center connector into the input of the receiving device. Connect the cable coming from the Word Clock output to one of the lateral connectors, and the other connector of the BNC-T piece to a $75\ \Omega$ resistor forming the BNC termination.

Basically, you should avoid »looping through« Word Clock leads by means of passive BNC-T pieces to preserve the signal quality, as level drops will be the result. If there is no other way to wire your set-up, please make sure that all Word Clock inputs (except for the last device in the chain) have their terminations disabled! In a serial Word Clock chain only the last clock input should have a termination! Never connect more than three devices in series to one output!

AES/EBU & S/P-DIF Interconnection

When working with high sampling rates for XLR-based AES3/-11 or RCA-based S/P-DIF, well shielded electrical cables are imperative to avoid increased radiation! Standard cables are normally useable for sampling rates up to 50.0kHz. Special shielded cables should be used for transfer of higher sampling rates.

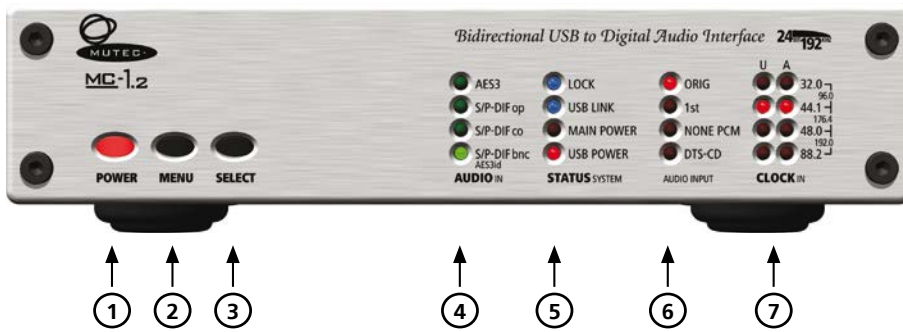
Interconnecting the optical S/P-DIF interfaces with plastic fiber cables, lengths of 10 meters should not be exceeded, to ensure the reliable transmission of your digital audio signals. Glass fiber cables can transfer data reliably even over greater distances while keeping the signal's performance on a much higher level than plastic fibre cables can do during transmission!

Information

MUTEC offers optical cables of various lengths that have been specifically tested for the transmission of ADAT™ and S/P-DIF signals. Ask your local dealer for such cables!

Control Elements and Terminals

MC-1.2 Front Panel



1 »POWER«

This red LED lights up when the unit is switched on with the rear panel power switch.

2 »MENU«

Use this key to access the different menus.

3 »SELECT«

Use this key to select a function within a specific menu.

4 »AUDIO IN«

This menu allows to select the one of the four, respectively five digital audio inputs/formats for converting into an USB audio stream to send it to your computer or laptop.

5 »STATUS SYSTEM«

This menu indicates various signal lock conditions of the incoming reference signals and the power supply status of the whole device.

6 »STATUS AUDIO INPUT«

This menu informs about the status bit settings within a received digital audio signal.

7 »CLOCK IN«

This menu indicates the clock rates of the incoming USB audio stream (»U«) and the the digital audio signal (»A«).

MC-1.2 Rear Panel



1 »S/P-DIF OUT«

These two S/P-DIF outputs, available as optical and coaxial interfaces, transmit an optical (»OP«) and unbalanced electrical (»CO«) S/P-DIF digital audio or blank frame signal in compliance with the IEC 60958 standard. The coaxial interface impedance is 75Ω. (RCA connector), the optical interface offers a Toshiba Toslink™ connector, EIAJ standard.

Control Elements and Terminals

2 »AES3id OUT & S/P-DIF OUT«

The AES/EBU output on the top transmits an unbalanced electrical digital audio or blank-frame signal in compliance with AES3id-2001 (revision of 1995) or AES11-2003 (revision of 1997). The S/P-DIF output below transmits an unbalanced electrical S/P-DIF digital audio or blank frame signal in compliance with the IEC 60958 standard. The interface impedance of both outputs is 75 Ω (BNC connectors, female).

3 »AES3 OUT«

This AES/EBU output transmits a transformer-balanced electrical digital audio or blank-frame signal in compliance with AES3-1997 (revision of 1992) or AES11-2003 (revision of 1997). The output impedance is 110 Ω (XLR connector, male).

4 »S/P-DIF IN«

These two S/P-DIF inputs, available with optical (»OP«) and coaxial (»CO«) interfaces, receive an optical and an unbalanced electrical S/P-DIF digital audio or blank frame signal in compliance with the IEC 60958 standard. The coaxial interface impedance is 75 Ω . (RCA connector), the optical interface offers a Toshiba Toslink™ connector, EIAJ standard.

5 »AES3id + S/P-DIF IN«

This input receives either an unbalanced electrical digital audio or blank-frame signal in compliance with AES3id-2001 (revision of 1995) or AES11-2003 (revision of 1997), or an unbalanced electrical digital audio or blank-frame signal in compliance with the IEC 60958 standard. The input impedance is 75 Ω (BNC connector, female).

6 »AES3/11 IN«

This AES/EBU input receives a balanced electrical digital audio or blank-frame signal in compliance with AES3-1997 (revision of 1992) or AES11-2003 (revision of 1997). The input impedance is 110 Ω (XLR connector, female).

7 »USB I/O«

This USB (Universal Serial Bus) interface receives or sends data streams in compliance with USB2.0 (USB-B connector). When connecting the MC-1.2 to a MS Windows PC, please install the provided USB2.0 Audio Class Driver for Windows at first on your computer. Refer to the »Installation of the USB2.0 Audio Class Driver for Windows« section on page ??? for further details.

8 »MAINS IN«, Power Switch + Mains connector (IEC)

This is the main switch for switching the device on and off. Connect the supplied IEC power cable to the device's mains connector. Make sure that the power switch is turned off before connecting the device to your power source finally. Line voltages within the range of 90...260V with a frequency of 50 or 60 Hz can be applied. The internal power supply will automatically make all necessary adjustments.

Read the Safety Instructions at the beginning of this manual!

Attention

For detailed specifications of all interfaces, please refer to the »Pin Assignment of the Connectors« and »Technical Data« sections in the Appendix chapter.

USB Driver Installation & Windows Settings

MUTEC USB Audio Class 2.0 Driver for Windows

General Description

When connecting your MC-1.2 to a Windows computer, you have to install the USB Audio Class 2.0 Driver for Windows available on our website. This must be carried out regardless of the sampling rates of the transferred audio streams.

Attention

- *Install the driver first before connecting the MC-1.2 to your Windows computer!*
- *No driver installation is necessary when using the MC-1.2 with Apple Macintosh computers.*

The following MS Windows operating systems are supported:

- Windows 8.1 at 32 bit (x86) and 64 bit (x64)
- Windows 8 at 32 bit (x86) and 64 bit (x64)
- Windows 7 at 32 bit (x86) and 64 bit (x64)
- Windows Vista at 32 bit (x86) and 64 bit (x64)
- Windows XP at 32 bit (x86) only

The MUTEC USB Audio Class 2.0 Driver for Windows is designed for professional use as well as audiophile High-End applications and thus compatible to most of the well-known software music players. It supports devices which are compliant to the USB Audio Class 1.0 or USB Audio Class 2.0 device specifications. The driver provides an ASIO 2.2 compliant software interface and interacts with Windows as a standard WDM/DirectX compatible sound device. Optimized for low latency and low CPU load, the driver implements a transparent, bit-perfect playback and recording data path.

General Features

- Supports Audio Class 1.0 and Audio Class 2.0 devices
- Supported standard sampling rates (depending on device capabilities):
 - Class 1.0: 44.1 kHz, 48.0 kHz
 - Class 2.0: 44.1 kHz, 48.0 kHz, 88.2 kHz, 96.0 kHz, 176.4 kHz, 192.0 kHz
- Supports USB Type I formats and sampling resolutions:
 - PCM 16 bit, PCM 24 bit, PCM 32 bit, Float 32 bit

ASIO Features

- ASIO 2.2 compliant driver DLL
- Supported type 1 formats and sampling resolutions: PCM 24 bit, PCM 32 bit, Float 32 bit (depending on device capabilities)
- Bit-perfect playback and recording through ASIO
- Playback mix, simultaneous ASIO and WDM playback
- Supports 32bit and 64bit ASIO host applications
- Multi-client support (multiple ASIO applications in parallel)
- Configuration of ASIO buffer depth via driver control panel

WDM/DirectX Features

- Supported Windows sound interfaces: MME, DirectSound, WASAPI
- Stereo and multi-channel playback and recording sound devices (depending on device capabilities)
- Flexible sound device configuration, for example:
 - Bit-perfect playback and recording through WASAPI
 - Volume and mute control through Windows standard GUI (depending on device capabilities)
 - Jack sensing (depending on device capabilities)
- Supports PCM 16 bit, 24 bit and 32 bit sampling resolutions (depending on device capabilities)

USB Driver Installation & Windows Settings

Driver Download and Installation Procedure

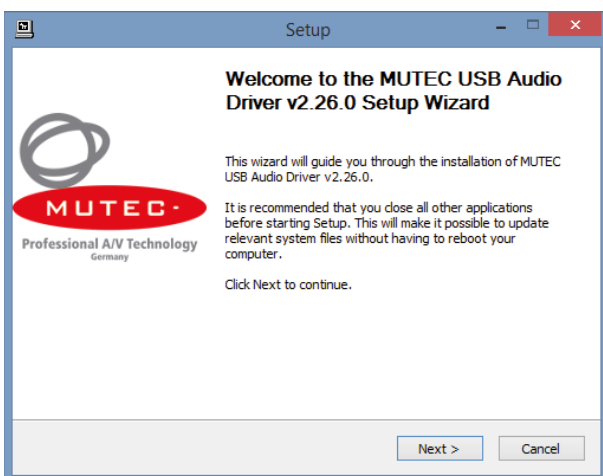
Please go to our website to download the MUTEC USB Audio Class 2.0 Driver for Windows as follows:

www.mutec-net.com > Products > USB Interfaces > MC-1.2 > Downloads

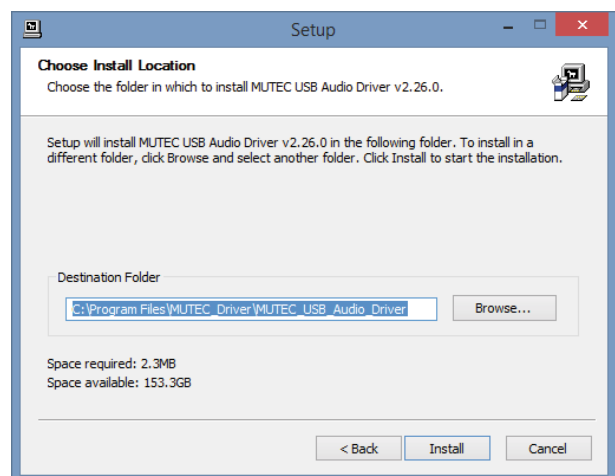
Or for direct access type in the following URL into your browser:

http://www.mutec-net.com/product_mc-12.php?lng=en#download

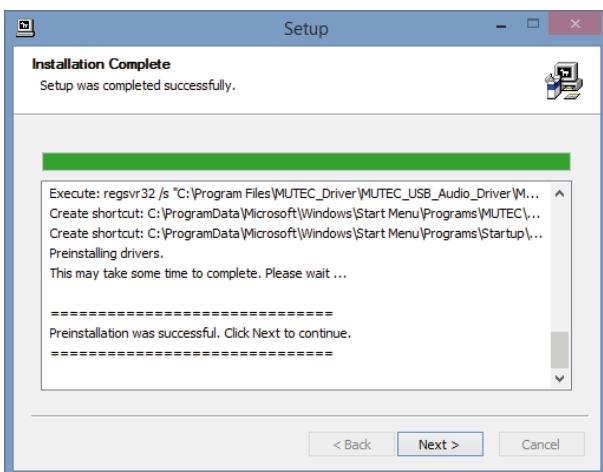
After successful download double click on the ZIP file for unpacking and follow the instructions during installation procedure:



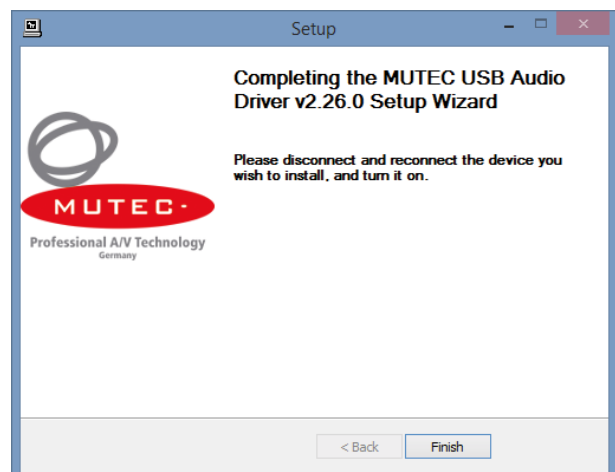
Setup-welcome-window, click »Next« to start unpacking procedure.



Select destination folder for driver files, if not the right one is suggested and click »Install«.



After successful preinstallation click »Next« to finish the installation.



Installation finalized, click »Finish«.

USB Driver Installation & Windows Settings

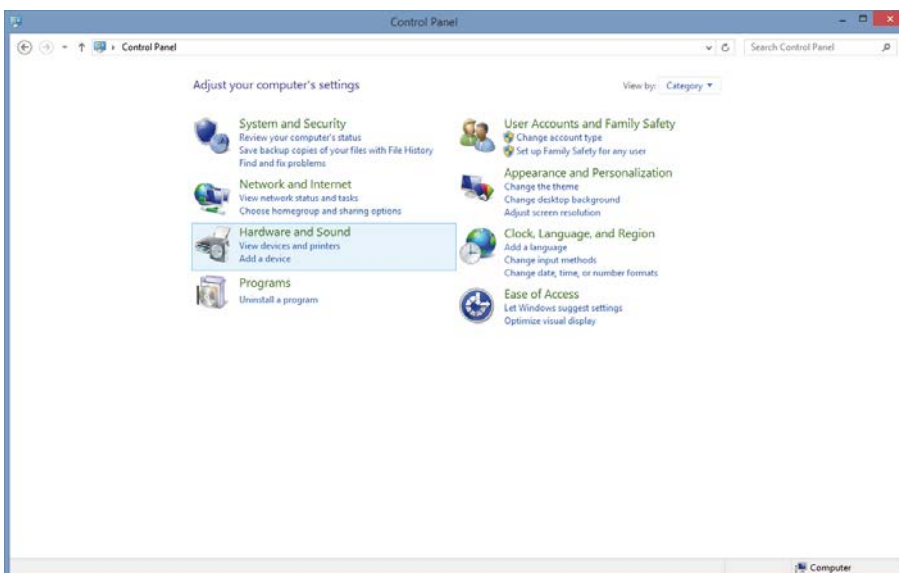
Windows Settings

After installation of the MUTEK USB Audio Class 2.0 Driver for Windows is successfully completed, you can connect your MC-1.2 to one of your computer's USB ports by using the USB cable included in the scope of delivery. Switch on your MC-1.2 and it should be automatically recognized by your computer's operating system.

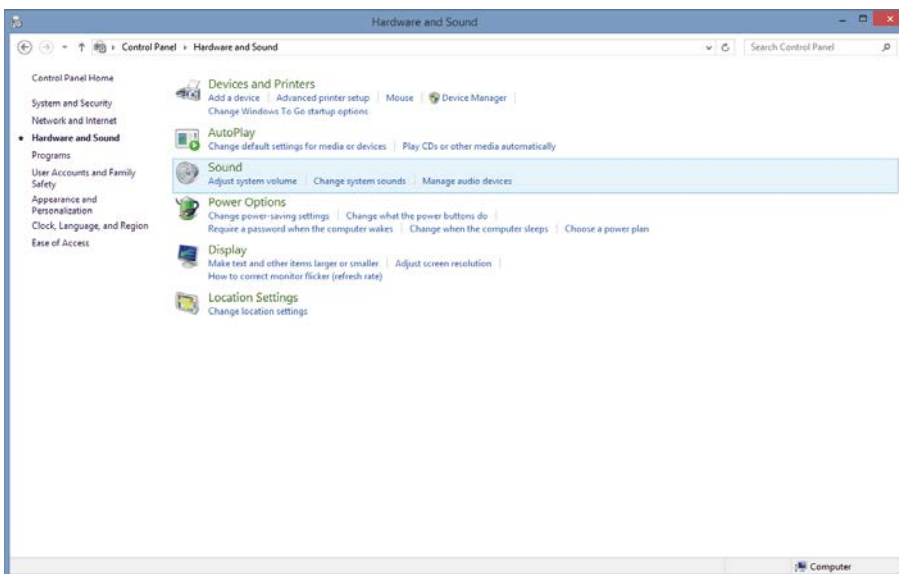
Attention

The direct interconnection between your MC-1.2 and your computer is best with regards to signal performance. We recommend to not use USB hubs within the signal chain.

You now have to set your MC-1.2 as standard sound device. Click on the »Start Menu« button and select »Control Panel«.

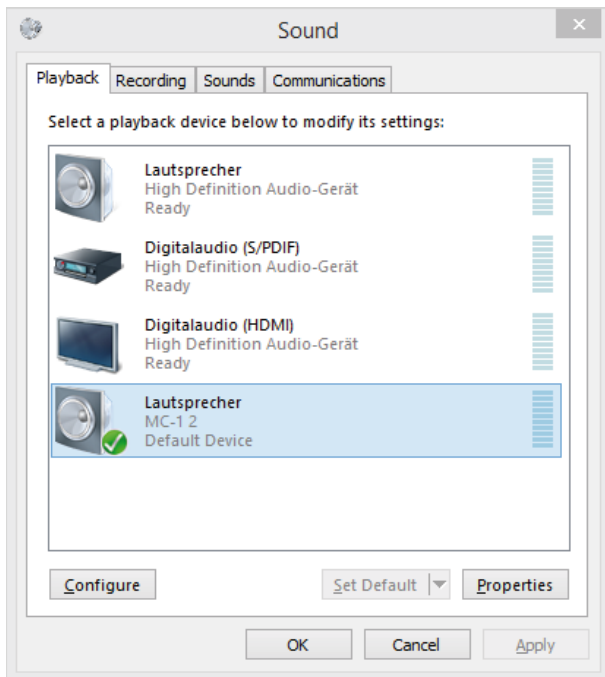


In Control Panel select »Hardware and Sound«.

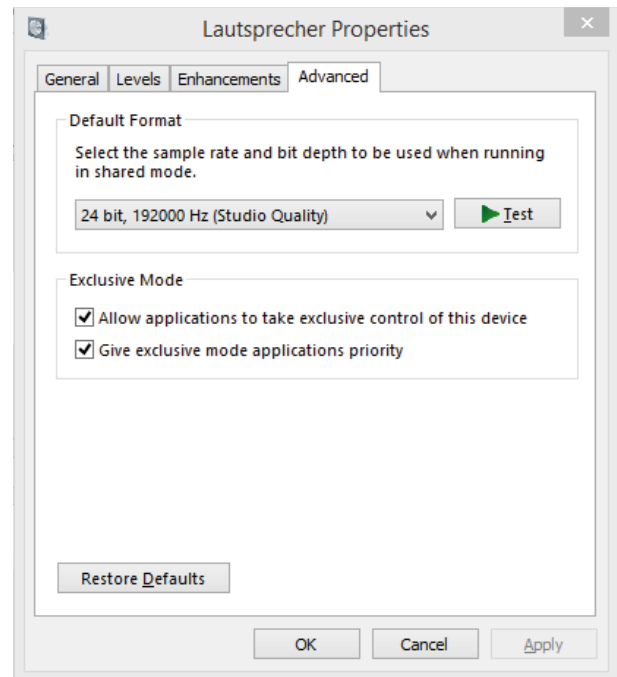


Click on »Sound«.

USB Driver Installation & Windows Settings



In the »Playback« tab select »MC-1.2« from the list of available devices and click »Properties«.



Click on the »Advanced« tab and select under »Default Format« the entry »24 Bit, 19200 Hz (Studio Quality)«. Under »Exclusive Mode« check that the two tik boxes are selected. Click »OK« to store your settings.

Operation

General System Operation

Operating the MC-1.2 is very easy! The device is fully operated using the two keys on the front panel.

»MENU« Key

Pressing the »MENU« key toggles between different basic function menus, usually between the vertical LED rows.

»SELECT« Key

Pressing the »SELECT« key activates individual functions within one menu by toggling between the LEDs of one vertical LED row.

First press on »MENU« or »SELECT« key enables the last selected function within the last selected menu. The appropriate LED starts flashing. Every press on »SELECT« key will select a new function within the menu and the LED flashes accordingly. After a period of approx. 4 seconds the LED of the selected function stops flashing and the function is activated.

The »STATUS« and »CLOCK IN« menus are not accessible for adjustments. For further descriptions see next page under Status Information.

Attention

In the special case of the MC-1.2, its operation with help of the »MENU« and »SELECT« keys on the front panel is limited to the selection of the digital audio input only. Thus, the keys have got the same function. It makes no difference for selecting the digital audio input which one of both keys is used.

Operation of the MC-1.2

USB Operation

After connecting the USB cable coming from your computer, laptop or music server to the MC-1.2's USB port, an audio stream sent from the source will be received and converted straightforward to all digital audio outputs. No further adjustments are necessary for that general operation of your MC-1.2. That even works if the device is not connected to the mains supply, called: USB bus-powered operation. During that, the »USB LINK« LED lights in the »STATUS SYSTEM« menu and indicates the reception of a valid USB audio stream, as well as the »USB POWER« LED lights. When changing to mains supply, the »USB POWER« LED dies down and the »MAIN POWER« LED starts lighting.

In the »CLOCK IN« menu, the LED row marked with »U« (U = USB) shows the audio clock rate embedded in the incoming USB audio stream.

Attention

When connecting your MC-1.2 to a Windows computer, you have to use our special USB2.0 Audio Class Driver for Windows available for download on our website. Refer to the USB Driver Installation section on page 13 for further details.

Changes from USB bus-powered to mains-powered operation may cause interruptions in the output signals!

When switching on the power switch at the rear, the MC-1.2 changes automatically to mains supply and interrupts the USB bus supply.

Selecting a digital Audio Input

Press the »MENU« or »SELECT« key repeatedly to select your preferred digital audio input within the »AUDIO IN« menu. The last position of this menu enables to receive either an AES3id or a S/P-DIF signal at the (same) BNC input connector marked at the rear with »AES3id + S/P-DIF IN«. The digital audio signal received at the selected input will be converted into an USB audio stream and send through the USB port into your computer, laptop or music server. During that, the »LOCK« LED lights in the »STATUS SYSTEM« menu and indicates the reception of a valid digital audio signal. According to the status bit coding of the digital audio signal received, the appropriate LED in the »STATUS AUDIO INPUT« menu lights. Additionally, in the »CLOCK IN« menu, the LED row marked with »A« (A = Audio) shows the sampling rate embedded in the incoming digital audio signal.

Operation

Attention

When receiving an USB audio stream and a digital audio signal simultaneously for bi-directional conversion, make sure that both signal streams are of equal sampling rates.

When receiving a digital audio signal at one of the appropriate inputs, it will be converted into an USB audio stream only. A format conversion to the digital audio outputs is not carried out.

All user-specific function settings are available furthermore when power is restored.

Status Information

The »STATUS SYSTEM«, the »STATUS AUDIO INPUT« and the »CLOCK IN« menus are for control of the MC-1.2's operation status only. They are not accessible for adjustments with help of the keys.

STATUS SYSTEM

»LOCK«

This LED indicates system lock to a valid incoming digital audio signal at the selected audio input.

»USB LINK«

This LED indicates system lock to a valid USB stream at the USB port.

»MAIN POWER«

This LED indicates mains supply operation of the MC-1.2 after the power switch at the rear is switched on.

»USB POWER«

This LED indicates USB bus-powered operation of the MC-1.2.

STATUS AUDIO INPUT

»ORIG«

This LED indicates the SCMS-encoded status of a received S/P-DIF audio signal as »original source«.

»1st«

This LED indicates the SCMS-encoded status of a received S/P-DIF audio signal as »1st copy«.

»NONE-PCM«

This LED indicates that the received S/P-DIF audio signal is of »none-standard PCM« coding, like e.g. AC-3, MPEG, etc.

»DTS-CD«

This LED indicates that the received S/P-DIF audio signal is coded as DTS-CD bitstream (DTS = Digital Theatre System).

CLOCK IN

Two rows of LEDs show the clock rates of the clocks embedded in the USB audio stream and the digital audio signal received. there are two markings of the individual LED rows:

»U« = USB

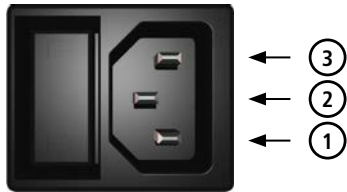
»A« = Audio

Seven different audio-related clock, respectively sampling rates between 32.0 kHz and 192.0 kHz, as mentioned at the right hand side of the LEDs, may be analyzed and display through each LED row.

Appendix

Pin Assignment of the Connectors

Mains



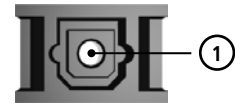
- 1 Live, phase (brown; USA: black)
- 2 Protective earth (green/yellow; USA: green)
- 3 Neutral (blue; USA: white)

BNC Input/Output for AES3id, S/P-DIF



- 1 Signal
- 2 Ground

Optical TOSLINK Input/Output for S/P-DIF



- 1 Optical signal

AES/EBU, XLR, Input for AES3



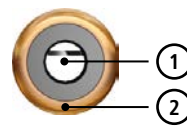
- 1 Audio ground
- 2 a conductor (hot / +)

AES/EBU, XLR, Output for AES3



- 1 Ground
- 2 a conductor (hot / +)
- 3 Ground

RCA, Input/Output for S/P-DIF



- 1 Audio signal
- 2 Audio ground

NOTE:
The RCA-based S/P-DIF inputs and outputs are not galvanically isolated, due to IEC 60958.

Technical Data

USB Input & Output

Interface	1 x USB-B connector
Formats & Resolutions	Type 1 formats: PCM 16 bit, PCM 24 bit, PCM 32 bit, FLOAT 32 bit for USB 1.0 & USB 2.0
Supported Sampling Rates	USB 1.0: 44.1 kHz & 48.0 kHz, USB 2.0: 44.1 kHz to 192.0 kHz

AES3 Audio Input

Interface	1 x XLR female, transformer balanced, input impedance 110 Ω, 200 mV–7.0 V
Format, Resolution	AES3-1992/2003, AES11-1997/2003, IEC 60958, 16–24 bits
Supported Sampling Rates	32.0 kHz to 192.0 kHz

S/P-DIF Optical Audio Input (OP)

Interface	1 x Toslink™, EIAJ RC-5720
Format, Resolution	IEC 60958, 16–24 bits
Supported Sampling Rates	32.0 kHz to 192.0 kHz

S/P-DIF RCA Audio Input (CO)

Interface	1 x Coaxial (RCA female), unbalanced, 0.5–1.0 Vpp @ 75 Ω, output impedance 75 Ω
Format, Resolution	IEC 60958, 16–24 bits
Supported Sampling Rates	32.0 kHz to 192.0 kHz

Appendix

S/P-DIF & AES3id Audio Input

Interface	1 x BNC, 200 mV–7 V, unbalanced, input impedance 75 Ω
Format, Resolution	S/P-DIF: IEC 60958, 16–24 bits, AES3id: AES3id-2001 (rev. 1995) or AES11-2003 (rev. 1997)
Supported Sampling Rates	32.0kHz to 192.0kHz

AES3 Output

Interface	1 x XLR male, transformer balanced, 3.5Vpp @ 110Ω, output impedance 110Ω, buffered
Format, Resolution	AES3-1992/2003, AES11-1997/2003, IEC 60958, 16–24 bits
Supported Sampling Rates	44.1 kHz to 192.0 kHz

AES3id Output

Interface	1 x BNC, 1 V, unbalanced, input impedance 75 Ω, buffered
Format, Resolution	AES3id: AES3id-2001 (rev. 1995) or AES11-2003 (rev. 1997), 16-24 bits
Supported Sampling Rates	44.1 kHz to 192.0 kHz

S/P-DIF Optical Audio Output (OP)

Interface	1 x Toslink™, EIAJ RC-5720
Format, Resolution	IEC 60958, 16–24 bits
Supported Sampling Rates	44.1 kHz to 192.0 kHz

S/P-DIF RCA Audio Output (CO)

Interface	1 x Coaxial (RCA female), unbalanced, 0.5 Vpp @ 75 Ω, output impedance 75 Ω, buffered
Format, Resolution	IEC 60958, 16–24 bits
Supported Sampling Rates	44.1 kHz to 192.0 kHz

S/P-DIF BNC Audio Output

Interface	1 x BNC, 0.5 V, unbalanced, input impedance 75 Ω, buffered
Format, Resolution	IEC 60958, 16–24 bits
Supported Sampling Rates	44.1 kHz to 192.0 kHz

Power Supply

Type	Internal, switching power supply
Input Voltage	85 V–264 V (automatic adjustment), 47 Hz–440 Hz
Power Consumption	max. 10 W

System Unit Cover

Cover Size / Material / Color	196 x 42 x 156 mm without connectors (W x H x D), steel sheet 1 mm, black
Front Panel Size / Material	198 x 44 x 4 mm (W x H x D), aluminum, aluminum- or black-colored
Weight	~ 1170 g

MC-1.2 Order Information

Front aluminum-colored	Item no. 8015-053, EAN code: 4260342460993
Front black-colored	Item no. 8015-054, EAN code: 4260342461013

