DirectOut Technologies®

EXBOX.UMA

Manual

Version 1.1

Copyright

All rights reserved. Permission to reprint or electronically reproduce any document or graphic in whole or in part for any reason is expressly prohibited, unless prior written consent is obtained from the DirectOut GmbH.

All trademarks and registered trademarks belong to their respective owners. It cannot be guaranteed that all product names, products, trademarks, requisitions, regulations, guidelines, specifications and norms are free from trade mark rights of third parties.

All entries in this document have been thoroughly checked; however no guarantee for correctness can be given.

DirectOut GmbH cannot be held responsible for any misleading or incorrect information provided throughout this manual.

DirectOut GmbH reserves the right to change specifications at any time without notice.

DirectOut Technologies® and D.O.TEC® are registered trademarks of the DirectOut GmbH.

ADAT is a trademark of Alesis Corporation,
Windows® is a trademark of Microsoft Corporation,
OS X® is a trademark of Apple Inc..

© DirectOut GmbH, 2015

Table of contents

ABOUT THIS MANUAL **7**
How to Use This Manual 7
Conventions 7

CHAPTER 1: OVERVIEW **8**
Introduction 8
Applications 9
How it works 9
Feature Summary 10

CHAPTER 2: LEGAL ISSUES & FACTS **11**
Before Installing This Device 11
Defective Parts/Modules 12
First Aid
(in case of electric shock) 13
Contents 14
Updates 14
Intended Operation 15
Conditions of Warranty 15
Conformity & Certificates 16
Contact 17

CHAPTER 3: INSTALLATION **18**
Installing the Device 18

CHAPTER 4: OPERATION **23**
Introduction 23
Rear Panel - Power supply 23
Front Panel - Input / Output 24
Rear Panel - USB Audio 25

© 2015 DirectOut GmbH

CHAPTER 5 - EXBOX.UMA REMOTE 26
Remote Control 26
Connecting the device 27
ASIO Control Panel 30
Monitoring 31
System Setup 34
Routing Matrix 38
Mixer 41
Presets 50
Error Messages 53

CHAPTER 6: APPLICATION EXAMPLES 55
Introduction 55
Example 1: Mobile Recording 55
Example 2: Recording & Monitor Mixing 56
Example 3: Stand alone operation 57

CHAPTER 7: TROUBLESHOOTING AND MAINTENANCE 58
Troubleshooting 58
Maintenance 59

TECHNICAL DATA 60

APPENDIX A - WIRING SKETCHES 62
Hirose HR10 (DC PSU) 62

INDEX 64

© 2015
DirectOut GmbH

This page is left blank intentionally.

© 2015 DirectOut GmbH

About This Manual

How to Use This Manual

This manual guides you through the installation and operation of the EXBOX.UMA.

Use the Table of Contents at the beginning of the manual or Index Directory at the end of this document to locate help on a particular topic.

You can access more information and latest news by visiting on the DirectOut website at www.directout.eu.

Conventions

The following symbols are used to draw your attention to:

Tips – indicate useful tips and short cuts.

Notes – are used for important points of clarification or cross references.

Warning

Warnings – alert you when an action should always be observed.

© 2015
DirectOut GmbH

Chapter 1: Overview

Introduction

Welcome to the EXBOX.UMA, DirectOut's USB Audio Interface:

The EXBOX.UMA interfaces MADI and ADAT or S/PDIF signals with USB Audio to enable a connection with any audio software application on a computer system.

Appropriate USB audio drivers are available for Windows® and OS X®.

A remote control application is used to control system settings, signal routing and to operate an internal mixer with eight stereo busses.

The USB interface is capable of transmitting 32 channels (@1 FS) in both directions for simultaneous recording and playback.

Without USB connection the device can still be used as a stand-alone format converter between ADAT, S/PDIF and MADI signals. The routing is stored internally.

© 2015 DirectOut GmbH

Applications

The EXBOX.UMA can be used for recording, basic mixing, signal routing and format conversion.

Typical applications include:

- Mobile recording
- Monitor mixes (latency-free)
- Signal distribution
- Assembling a MADI stream
- Conversion between ADAT, S/PDIF and MADI

How it works

All physical inputs are organized by a FPGA. The signal processing is performed inside the device avoiding latency introduced by buffering.

The USB audio driver interfaces the device with the operating system - an audio device with MIDI port is supplied.

The device is controlled by MIDI data which is transmitted via the USB connection or via the MADI line (‘MIDI over MADI’). Using the MADI line allows for remote control over large distances.

MIDI over MADI - the process is compatible to the embedder used by RME.

Feature Summary

MADI port	1 x MADI (optical, SC multi/single mode)
TOSLink ports	8 x ADAT or S/PDIF/AES3 (S/MUX)
USB port	32 audio channels (@ 1 FS) and remote control USB 2.0
USB audio driver support	Windows® XP, Vista, 7, 8 (32 bit / 64 bit) - ASIO & WDM OS X® (10.4.11 to 10.9) - Core Audio
MADI formats	56/64 channel, 48k/96k Frame, S/MUX 2/4
Sample rates	44.1, 48, 88.2, 96, 176.4, 192 kHz +/-12.5%
Mix bus	8 (4) x stereo bus @1 FS & 2 FS (4 FS) internal
Power supply	external, 2 x Hirose connector (9-24 V)

© 2015
DirectOut GmbH

Chapter 2: Legal issues & facts

Before Installing This Device

Warning

Please read and observe ***ALL*** of the following notes before installing this product:

- Check the hardware device for transport damage.
- Any devices showing signs of mechanical damage or damage from the spillage of liquids ***MUST NOT*** be connected to the mains supply, or disconnected from the mains immediately by pulling out the power lead.
- All devices ***MUST*** be connected to the mains using the three-cord power leads supplied with the system. Only supply electrical interfaces with the voltages and signals described in these instructions.
- Do ***NOT*** use the device at extreme temperatures. Proper operation can only be guaranteed between temperatures of 5º C and 45º C and a maximum relative humidity of 80 %, non-condensing.
- The cabinet of the device will heat up. Do ***NOT*** place the device close to heat sources (e.g. heaters). Observe the environmental conditions.

Defective Parts/Modules

Warning

This device contains no user-serviceable parts. Therefore do NOT open the device.

In the event of a hardware defect, please send the device to your local service representative together with a detailed description of the fault.

We would like to remind you to please check carefully whether the failure is caused by erroneous configuration, operation or connection before sending parts in for repair. See *„Chapter 7: Troubleshooting and Maintenance“ on page 58* for assistance with troubleshooting.

© 2015 DirectOut GmbH

First Aid
(in case of electric shock)

Warning

- ***DO NOT*** touch the person or his/her clothing before power is turned off, otherwise you risk sustaining an electric shock yourself.
- Separate the person as quickly as possible from the electric power source as follows:
  - ✓ Switch off the equipment.
  - ✓ Unplug or disconnect the mains cable.
- Move the person away from the power source by using dry insulating material (such as wood or plastic).
- If the person is unconscious:
  - ✓ Check their pulse and reanimate if their respiration is poor.
  - ✓ Lay the body down and turn it to one side. Call for a doctor immediately.
- Having sustained an electric shock, ***ALWAYS*** consult a doctor.

Contents

The contents of your EXBOX.UMA package should include:

- 1 x EXBOX.UMA
- 1 x external power supply unit (9-24 V)
- 1 x USB cable
- 1 x Manual

To complete the delivery please download from the DirectOut website:

- Installationguide '*USB Audio driver'*
- Installationguide *'EXBOX.UMA Remote'*
- USB Audio driver
- *'EXBOX.UMA Remote'* application

www.directout.eu/en/support/downloads/exbox.uma.html

Updates

DirectOut products are continually under development, and therefore the information in this manual may be superseded by new releases.

To access the latest documentation, drivers and software, please visit the DirectOut website:

www.directout.eu.

© 2015 DirectOut GmbH

Intended Operation

The **EXBOX.UMA** is designed for interfacing audio signals with certain computer systems via USB (2.0), MADI (AES10) and ADAT or S/PDIF or AES3. It can also be used for conversion between ADAT or S/PDIF or AES3 and MADI signals (AES10).

Warning

No compensation can be claimed for damages caused by operation of this unit other than for the intended use described above. Consecutive damages are also excluded explicitly. The general terms and conditions of business of DirectOut GmbH are applied.

Conditions of Warranty

This unit has been designed and examined carefully by the manufacturer and complies with actual norms and directives.

Warranty is granted by DirectOut GmbH over the period of two years for all components that are essential for proper and intended operation of the device. The date of purchase is applied for this period.

Warning

All claims of warranty will expire once the device has been opened or modified, or if instructions and warnings were ignored.

For warranty claims please contact the dealer where your device was acquired.

Conformity & Certificates

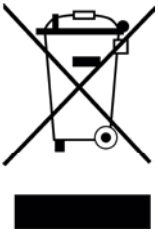
CE

This device complies with the basic requests of applicable EU guidelines. The appropriate procedure for approval has been carried out.

RoHS

(Restriction of the use of certain Hazardous Substances)

This device was constructed fulfilling the directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment 2002/95/EC.



WEEE

(Directive on Waste Electrical and Electronic Equipment)

Due to the directive 2002/96/EC for waste disposal this device must be recycled.

For correct recycling please dispatch the device to:

IMM Elektronik GmbH,

Leipziger Strasse 32

09648 Mittweida, Germany

Only stamped parcels will be accepted!

WEEE-Reg.-No. DE 93924963

© 2015 DirectOut GmbH

Contact

Sales:
DirectOut GmbH, Leipziger Strasse 32,
09648 Mittweida, Germany
Phone: +49 (0)3727 6205-333
Fax: +49 (0)3727 6205-56
www.directout.eu

Manufacturer:
IMM Elektronik GmbH, Leipziger Strasse 32,
09648 Mittweida, Germany
Phone: +49 (0)3727 6205-0
Fax: +49 (0)3727 6205-56
www.imm-gruppe.de

Chapter 3: Installation

Installing the Device

1. Open the packaging and check that the contents have been delivered complete and undamaged.
2. Place the device on a non-slip horizontal surface.

The delivered pads may be affixed to the bottom of the cabinet. Watch a clean and dry surface before affixing the pads.

Warning

The synthetics of the delivered pads might cause stains on damageable surfaces. To avoid staining of furniture surfaces it is recommended to place a protective plate under the device.

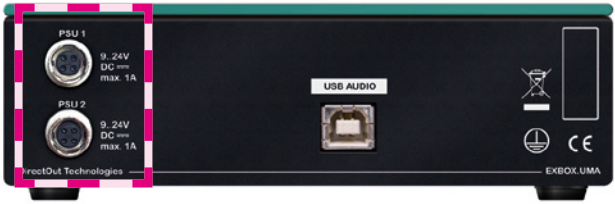
Warning

Avoid damage from condensation by waiting for the device to adapt to the environmental temperature. Proper operation can only be guaranteed between temperatures of 5º C and 45º C and a maximum relative humidity of 80%, non-condensing.

Ensure that the unit has sufficient air circulation for cooling.

© 2015 DirectOut GmbH

3. Using the power cord of the external power supply provided, connect the device to a matching power supply and connect the output of the power supply to the Hirose connectors at the rear panel.



This device may operate with only one power supply. To provide power supply redundancy, it is recommended to connect both PSU 1 and PSU 2 to independent power supplies with separate fuses.

The shipment includes one external power supply unit. Additional power supply units are available from your local DirectOut representative.

Warning

The external power supply ***MUST*** be connected to the mains using the three-cord power leads supplied with the device. Only supply the voltages and signals indicated (9 - 24 V DC) to the device.

Warning

The connected power supply must provide a current limiting to a maximum of 2.5 A.

4. Remove the protective cap from the optical MADI port before use:

Retain the protective cap if the optical port is unused. This will protect against soiling which can lead to malfunction.

5. Connect the ADAT or S/PDIF and MADI signals to the device:

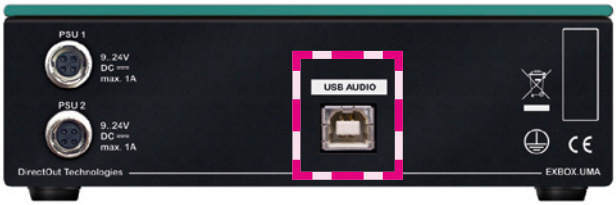
- MADI IN/OUT – optical connectors
- ADAT or S/PDIF IN/OUT - TOSLink connectors

© 2015 DirectOut GmbH

6. Setup your computer system:

- download the '*Installationguide USB Audio driver*' at www.directout.eu
- check the requirements first
- proceed with the installation of the USB audio driver.

7. If prompted, plug the delivered USB cable at the rear panel to connect the device with your computer system:



8. Installation of *'EXBOX.UMA Remote'*

- download the '*Installationguide EXBOX.UMA Remote'* at www.directout.eu
- download the *'EXBOX.UMA Remote'* application at www.directout.eu
- follow the instructions of the installation guide

9. Start the *'EXBOX.UMA Remote'* application

- Check selected MIDI I/O
- Click 'CONNECT'

See „Chapter 5 - EXBOX.UMA Remote" on page 26.

Keep any packaging in order to protect the device should it need to be dispatched for service.

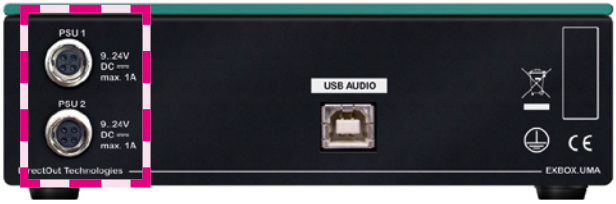
© 2015 DirectOut GmbH

Chapter 4: Operation

Introduction

This chapter describes the basic operation of the device.

Rear Panel - Power supply



PSU 1	**Hirose socket** Connect the power supply here (9 V - 24 V).
PSU 2	**Hirose socket** Connect the power supply here (9 V - 24 V).

The device does not provide a power switch. Connecting a working power supply to the device will power up the device immediately.

Front Panel - Input / Output

The EXBOX.UMA detects whether a valid signal is fed to the TOSLink / MADI inputs. A LED indicates the status of each input discretely.

TOSLink IN (ports 1 to 4)	**TOSLink sockets** Connect here ADAT or S/PDIF input signals.
TOSLink OUT (ports 1 to 4)	**TOSLink sockets** Connect here ADAT or S/PDIF output signals.
LED SYNC (ports 1 to 4)	**This LED indicates the use of the TOSLink input and its lock status.** LED OFF = no signal LED blinking = signal present (LOCK) LED ON = signal is in sync (SYNC)

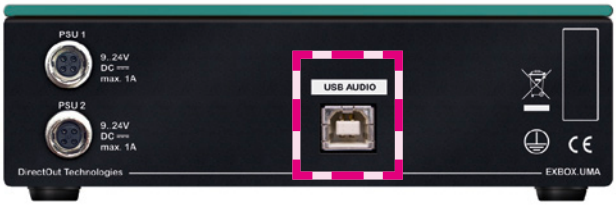
If no signal is connected to any of the TOSLink inputs, the ‘SYNC’ LEDs show a running light to indicate that the device is in operation.

A S/PDIF input signal is recognized automatically. The output has to be defined in the remote software - see „Parameter <TOSLink Output Format>“ on page 36.

© 2015 DirectOut GmbH

MADI OUT	**SC socket (optical)** MADI output - connect here MADI output signal
MADI IN	**SC socket (optical)** MADI input - connect here MADI input signal
LED SYNC (MADI)	**This LED indicates the use of the MADI input and its lock status.** LED OFF = no signal LED blinking = signal present (LOCK) LED ON = signal is in sync

Rear Panel - USB Audio



USB Audio	**USB socket (2.0, type B)** USB port - connect here for transmission of USB audio and remote control

Needs USB audio driver to be installed.

Chapter 5 - EXBOX.UMA Remote

Remote Control

The EXBOX.UMA is configured and controlled by a remote software application - EXBOX.UMA Remote. Supported OS versions are Windows® XP, Vista, 7 and 8.

The device is controlled by MIDI data. Two connection methods are available:

a) USB

b) Remote over MADI (embedded MIDI data)

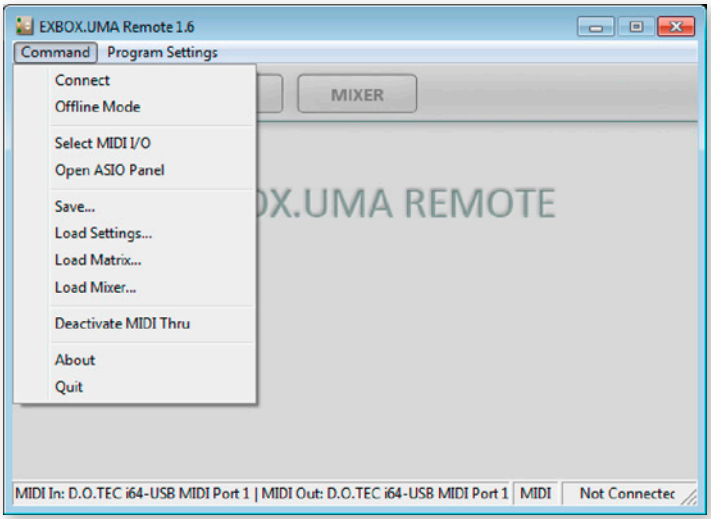
The system settings and routing matrix are stored internally. So the device can be operated ‘stand-alone’.

The settings of the mixer are not stored internally.

© 2015 DirectOut GmbH

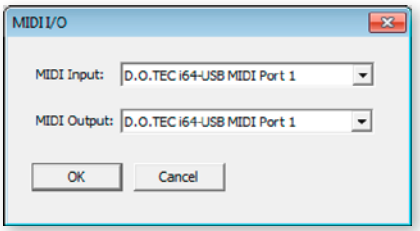
Connecting the device

To connect with the device the method and the MIDI /O must be selected.



Method a) requires:

- USB connection to the device
- installed USB Audio driver



To connect:

- Select MIDI I/O
- Click ‘CONNECT’

© 2015
DirectOut GmbH

The driver and the installation instructions are available at www.directout.eu.

Method b) requires:

- MADI connection to the device
- an embedder / de-embedder
- <Remote over MADI> enabled in system settings - see *page 37.*

Suitable embedder devices:

- PRODUCER.COM
- EXBOX.MIDICOM
- M1.k2
- Third-party devices with built in embedder / de-embedder

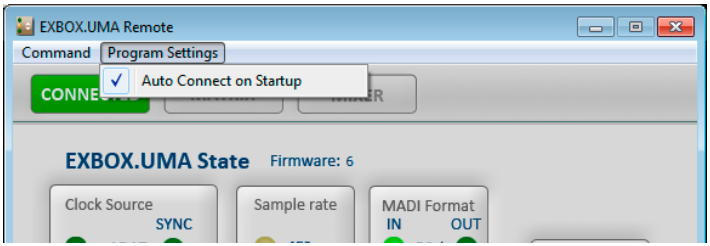
To connect:

- Select MIDI I/O
- Click ‘CONNECT’

To ensure proper operation using embedded MIDI data a bit transparent bidirectional link of the MADI signal is required.

© 2015 DirectOut GmbH

Auto Connect



‘Auto Connect‘ - if enabled - establishes a connection to the device at start of the application.

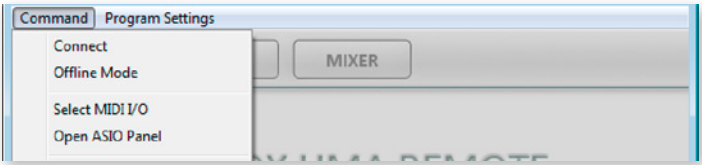
MIDI thru

This setting allows other applications to use the MIDI port of the UMA. The device will pass through all MIDI data onto the MADI output and acts as a MIDI-over-MADI Embedder/De-Embedder. Use “Deactivate MIDI Thru’ to regain control over the UMA.

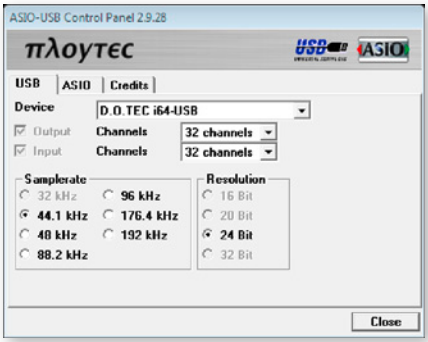
© 2015
DirectOut GmbH

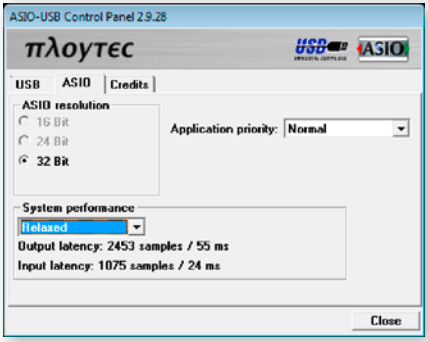
ASIO Control Panel[1]

To adjust the parameters of the ASIO driver use ‘Command - Open ASIO Panel’.



The control panel will open.



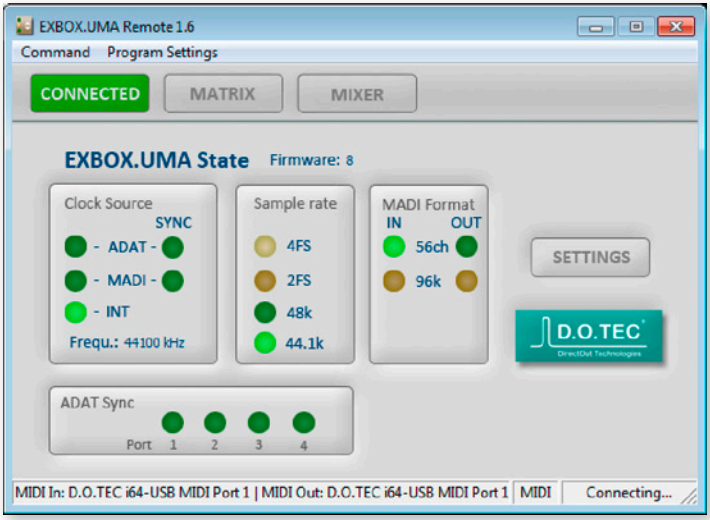


1 Windows only

© 2015 DirectOut GmbH

Monitoring

The standard view monitors the system state and informs about the system settings. The bottom bar monitors the connection state with the device.



Click ‘SETTINGS’ to open the system setup dialog.

Click ‘MATRIX’ to toggle the routing matrix view.

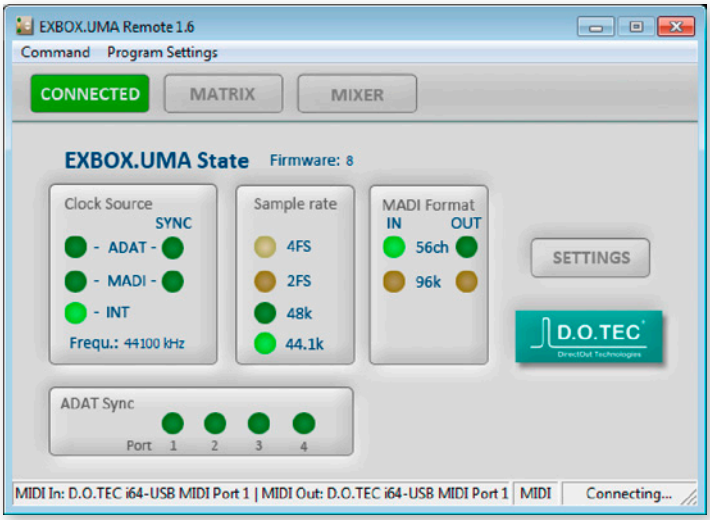
Click ‘MIXER’ to toggle the mixer view.

Click ‘DISCONNECT’ to close the connection (the button ‘CONNECTED’ will change at mouse over).

EXBOX.UMA State

Firmware	Indicates the current firmware version of the device.
Clock Source	**LEDs left column:** Indicate the selected clock source for the system clock. **LEDs right column:** Indicate the sync state of the inputs (TOSLink, MADI) LED ON = sync LED blinking = lock, but not in sync LED OFF = no input signal detected
ADAT Sync	**LEDs - indicate sync state of each TOSLink port individually.** LED ON = sync LED blinking = lock, but not in sync LED OFF = no input signal detected
Sample rate	**LEDs - indicate sample rate and scaling factor of system clock** *Scaling factor (LEDs 2 FS / 4 FS):* LEDs OFF = 1 FS = 44.1 kHz or 48 kHz LED 2 FS ON = 88.2 kHz or 96 kHz LED 2 FS blinking = 96k Frame signal at MADI input detected LED 4 FS ON = 176,4 kHz or 192 kHz *Sample rate (LEDs 44.1k / 48k)* LED 44.1k ON = 44.1 kHz (@ 1FS) LED 48k ON = 48 kHz (@ 1FS)

© 2015 DirectOut GmbH



MADI Format	**Indicates the signal format of the MADI input and output signal.** *LEDs left column (IN)* LED 56 ch ON = 56 ch input signal detected LED 96k ON = 96k Frame input signal detected *LEDs right column (OUT)* LED 56 ch ON = output set to 56 channel LED 96k ON = output set to 96k Frame

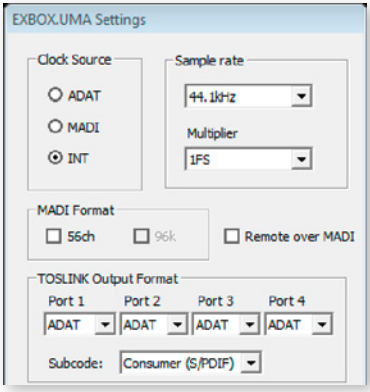
96k Frame is available with 2 FS only.

If a 96k Frame signal is detected at the MADI input and the device is not set to 2 FS operation the LED 2 FS will blink.

© 2015
DirectOut GmbH

System Setup

All system settings of the device are controlled by the remote application. The settings are stored internally - except the mixer setting. Additionally presets can be stored to a file for later use - see *page 50*..



To adust the settings either click the buttons, check-boxes or use the pull down menus.

Parameter <Clock Source>

Defines the clock source for the system clock.

Three different sources: TOSLink, MADI, INT

INT = internal allows for changing the <Sample rate>.

Selection pattern in ascending order, when using TOSLink as clock source:

lowest input port receiving a valid signal

Parameter <MADI Format>

The channel format (56 ch or 64 ch) and the frame format (48k Frame or 96k Frame) of the MADI output can be adjusted.

This setting does not affect the input signal.

© 2015 DirectOut GmbH

Parameter <Sample rate>

Two base sample rates: 44.1 kHz and 48 kHz

The setting of the base sample rate only affects the system clock with the clock source set to INT. If the clock source is set to TOSLink or MADI input no adjustment is possible - the measured frequency of the clock source is indicated then.

Parameter <Multiplier>

Two scaling factors: 1 FS, 2 FS, 4 FS

Note that throughout this manual, the abbreviation FS refers to sample rate or sample frequency. So, when dealing with scaling factors, the following sample rates can be written as:

- *44.1 kHz = 1 FS; 88.2 kHz = 2 FS; 176.4 kHz = 4 FS*

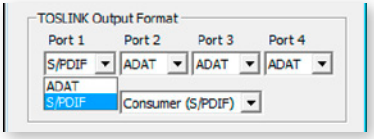
or

- *48 kHz = 1 FS; 96 kHz = 2 FS; 192 kHz = 4 FS*

The number of channels per I/O is reduced at higher sample rates:

Sample Rate / Port	MADI	ADAT	USB
1 FS	56 ch / 64 ch	8 ch per port (32 in total)	32 ch
2 FS	28 ch / 32 ch	4 ch per port (16 in total)	16 ch
4 FS	14 ch / 16 ch	2 ch per port (8 in total)	8 ch

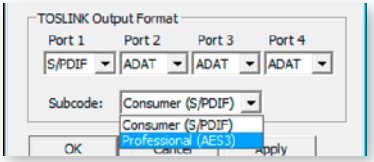
Firmware 8 (released Q4/2014) introduces individual configuration of each TOSLink port.



Parameter <TOSLink Output Format>

Select <ADAT> for ADAT signals with eight channels.

Select S/PDIF for S/PDIF or AES3 signals with two channels.



Parameter <Subcode>

The subcode can be defined between S/PDIF and AES3 format. This setting affects all TOSLink ports that are set to ‘S/PDIF’.

© 2015 DirectOut GmbH

Parameter <Remote over MADI>

This check box needs to be enabled to activate remote control using the MADI line (method b). Uncheck to de-activate remote control via MADI.

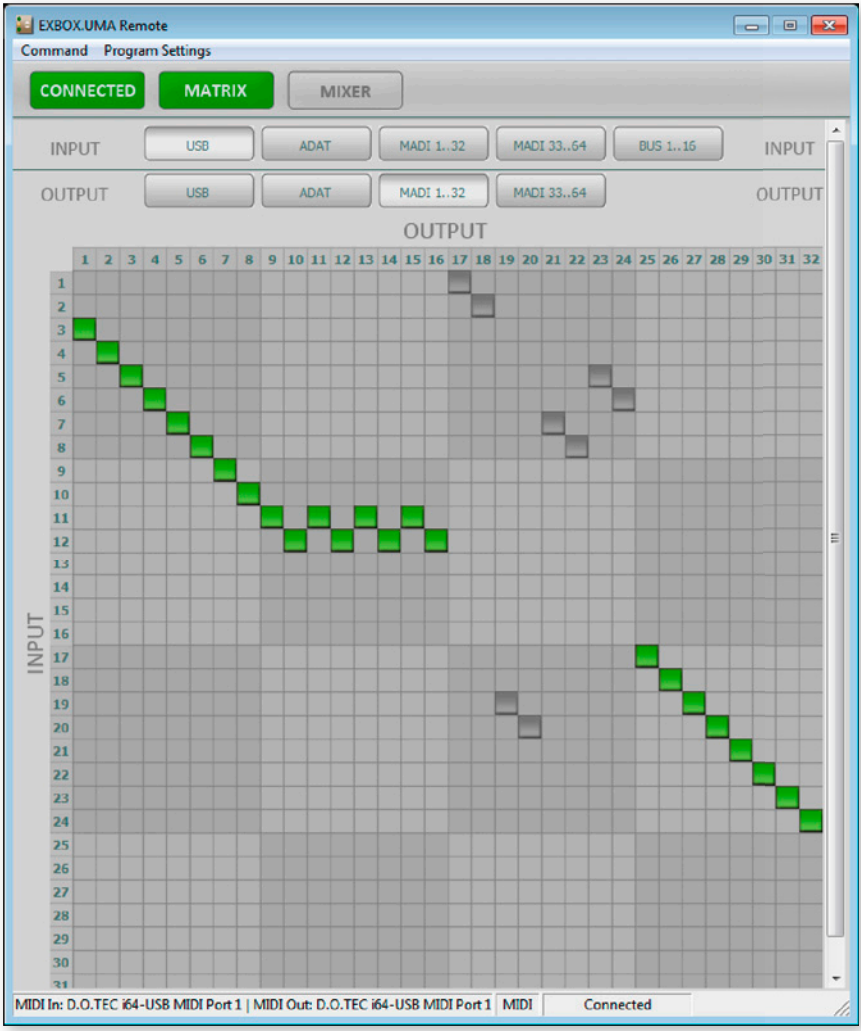
This setting does not affect method a.

Click ‘OK’ to close the dialog applying all changes.

Click ‘Cancel’ to close the dialog discarding all changes.

Click ‘Apply’ to transmit all changes without closing the dialog.

Routing Matrix



The matrix shows 32 inputs (horizontal) by 32 outputs (vertical).

© 2015 DirectOut GmbH

There are five input pages (sources) and four output pages (destinations):

USB	USB audio (input / output)
ADAT	4 x ADAT or S/PDIF (input / output)
MADI 1..32	MADI channel 01-32 (input / output)
MADI 33..64	MADI channel 33-64 (input / output)
BUS 1..16	8 x mix bus (stereo - internal)

Click the buttons to change the view of sources / destinations.

Input page ‘Bus 1..16’:

- bus output signals of the integrated mixer - *see „Mixer“ on page 41.*
- only input source 01 to 16 of the matrix active

Routing at higher sample rates

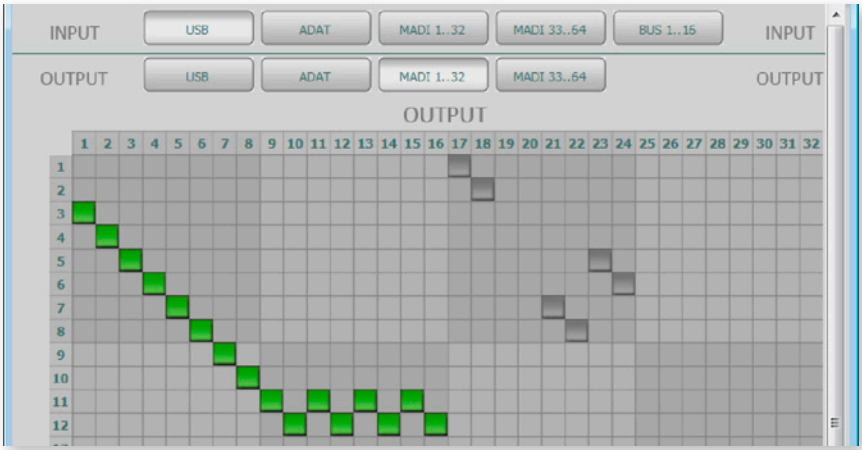
The number of audio channels is reduced at higher sample rates - see *„Parameter <Sample rate>“ on page 35.*

At 4 FS the number of stereo mix busses is limited to four.

The signal routing in the matrix refers to the available audio channel count (<> transmission channels - S/MUX).

Setting / deleting crosspoints

- move the cursor to the desired position - a small green square and transparent bars point the active position
- click into the square to set / delete the crosspoint



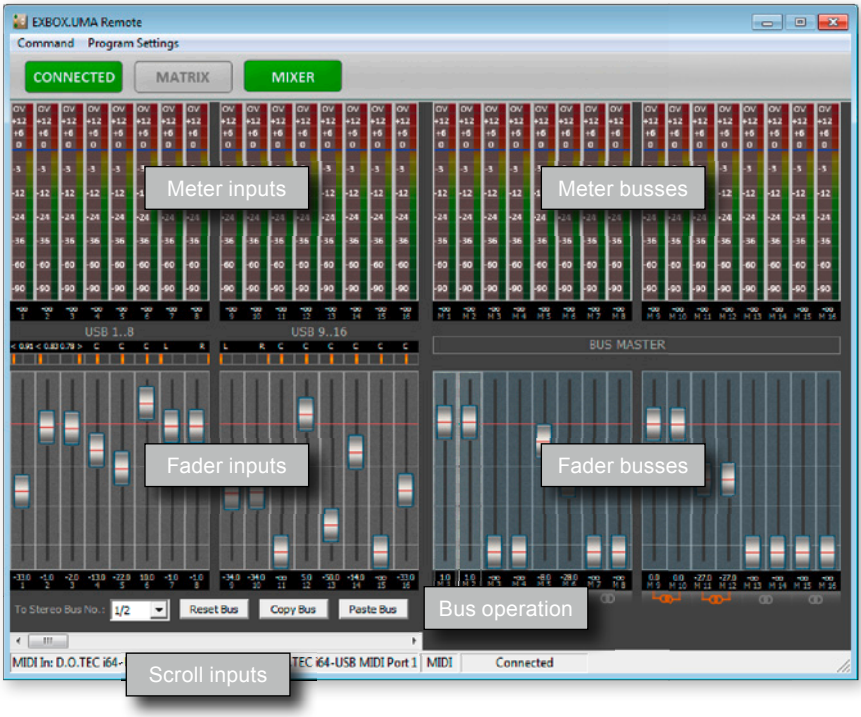
To set more than one crosspoint you may click and hold the left mouse button and move the cursor. The pointed crosspoints will be set upon release of the mouse button.

	crosspoint - output is set on the selected input page.
	crosspoint - output is set on a non-selected input page.

© 2015 DirectOut GmbH

Mixer

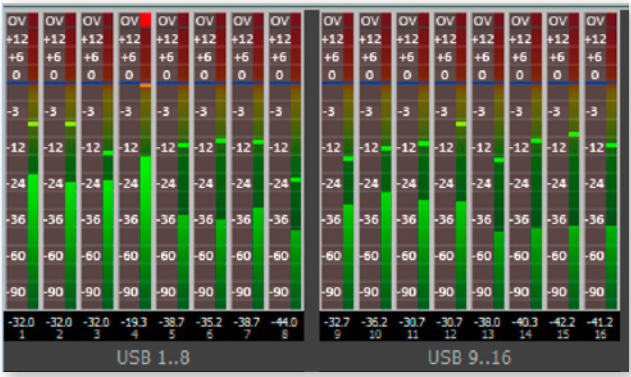
Monitoring of signal level and mixer settings.



Meter inputs	level meter of all physical inputs (USB, ADAT, MADI) and mix bus
Fader inputs	level and panorama set-ting of inputs for mix bus
Meter busses	level meter of mix busses
Fader busses	level of bus output signal
Bus operation	selection of mix bus for mixing / copy & paste & reset bus settings
Scroll inputs	scrollbar for input navigation

© 2015
DirectOut GmbH

Meter - Inputs & Busses



Display:

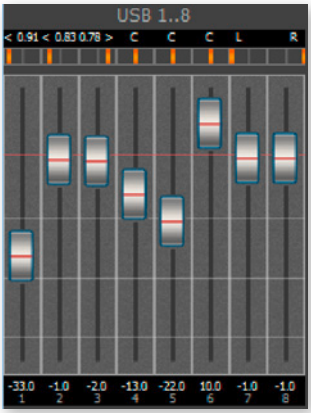
- Bargraphs indicate signal input level (pre fader) or bus master output level (post fader)
- Numerical metering of signal level
- Numerical label of channel or bus
- Input label - groups of eight channels

Functions:

- To reset the peak hold click into the bargraph of a channel.
- To reset all input level meters double-click in the bargraph of any channel.

© 2015 DirectOut GmbH

Fader - Inputs



Display:

- Input label - groups of eight channels
- Alphanumerical indication of panorama
- Orange bar to indicate panorama
- Fader monitoring gain setting of channel
- Fader - horizontal lines @ -60 / -40 / -20 / 0 dB_{FS}
- Numerical monitoring of channel gain
- Numerical label of channel

Functions:

- Move orange bar to alter panorama
- Move fader element or use arrow keys (up / down) to alter channel gain
- Double-click fader or hit ‘ENTER’ to toggle gain setting between unity (0 dB) and previous value.

© 2015
DirectOut GmbH

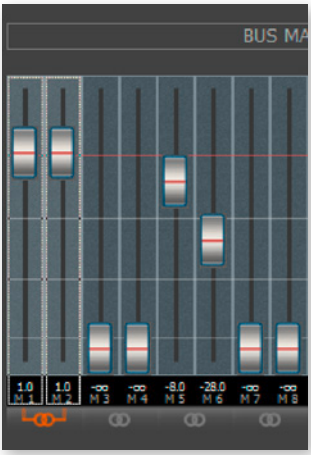
- Use arrow keys (left / right) to navigate between channels
- Hit ‘0’ key at numerical block to set the channel gain to -∞ dB.

Shortcuts Mixer

← / →	navigate channel strips - left / right
↑ / ↓	change gain setting - up / down
ENTER	toggle gain setting between unity (0 dB) and previous value
0 (Num block)	set channel gain to -∞ dB

© 2015 DirectOut GmbH

Fader - Busses



Display:

- Fader monitoring gain setting of bus
- Fader - horizontal lines @ -60 / -40 / -20 / 0 dB_{FS}
- Numerical monitoring of channel gain
- Numerical label of channel or bus
- Link symbol of bus faders (orange = linked)

Functions:

- Move fader element or use arrow keys (up / down) to alter channel gain
- Double-click fader or hit ‘ENTER’ to toggle gain setting between unity (0 dB) and previous value.
- Use arrow keys (left / right) to navigate between channels
- Hit ‘0’ key at numerical block to set the channel gain to -∞ dB.

© 2015
DirectOut GmbH

- Click bus fader strip to select mix bus layer
- Click link symbol to toggle link state

Bus link active = both faders will move in parallel

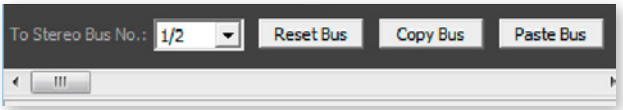
Bus Master: odd channels relate to LEFT
even channels relate to RIGHT

Shortcuts Mixer

← / →	navigate channel strips - left / right
↑ / ↓	change gain setting - up / down
ENTER	toggle gain setting between unity (0 dB) and previous value
0 (Num block)	set channel gain to -∞ dB

© 2015 DirectOut GmbH

Bus operation



Display:

- Active mix bus layer
- Horizontal position of mixer

Functions:

- Click pull down menu to select mix bus layer
- Click ‘Reset Bus’ to reset channel gains of active mix bus layer to -∞ dB. You will be prompted for confirmation before execution.
- Click ‘Copy Bus’ to copy all input channel settings (fader & panorama) to the clipboard.
- Click ‘Paste Bus’ to overwrite all input channel settings (fader & panorama) from the clipboard.
- Move scroll bar to navigate display of input channels.

The mix bus layer can also be selected by clicking the bus fader.

The bus fader settings are not copied.

If the clipboard is empty the button ‘Paste Bus’ is greyed out.

© 2015
DirectOut GmbH

Mixing notes

- Each input source is available to active mix bus
- Each mix bus may be used as input source for a different mix bus - except the active one.
- Each mix bus can be assigned to any physical output - see *„Routing Matrix“ on page 38.*
- Internal signal processing - no latency introduced by mix bus.
- Latency free monitor mixes during recording are possible.
- Each mix bus is a stereo bus; i.e. bus master: odd channels relate to LEFT, even channels relate to RIGHT
- Mix busses (8 x stereo) are organized in layers.
- At 4 FS the number of stereo mix busses is limited to four.

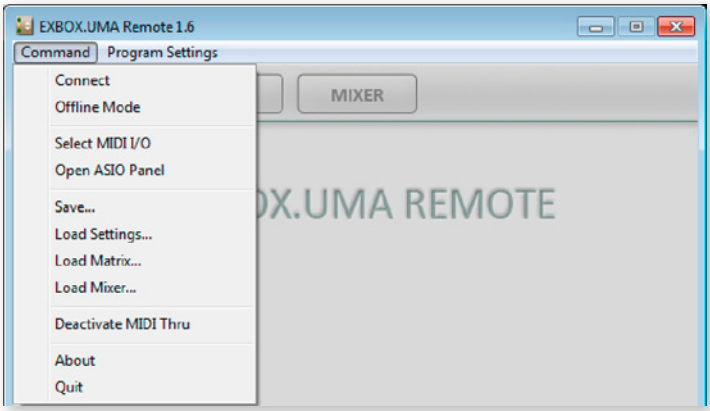
© 2015 DirectOut GmbH

This page is left blank intentionally.

Presets

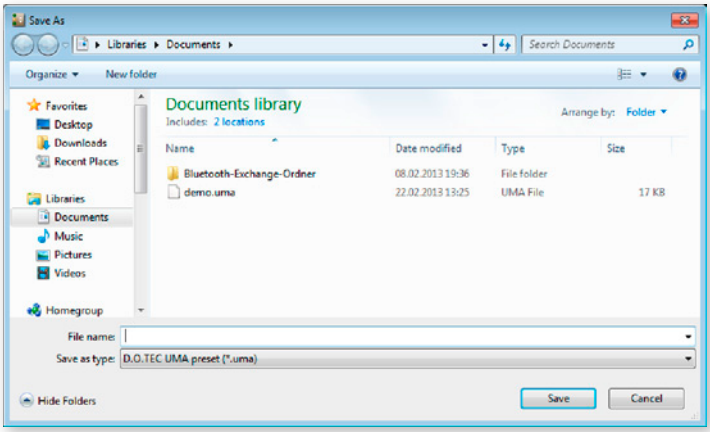
The settings of the system, routing matrix and mixer can be stored to a single file. The settings are reloaded separately from the same file. This allows to use each setting independently from each other; e.g. you may reload another routing setup without changing the clock source.

Storing a preset



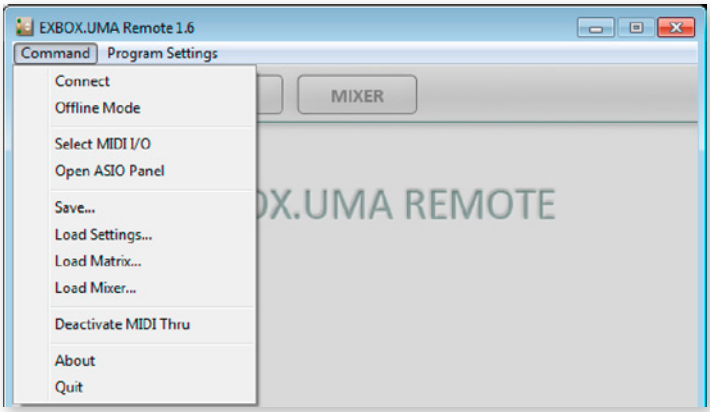
Go to ‘Command - Save’

© 2015 DirectOut GmbH

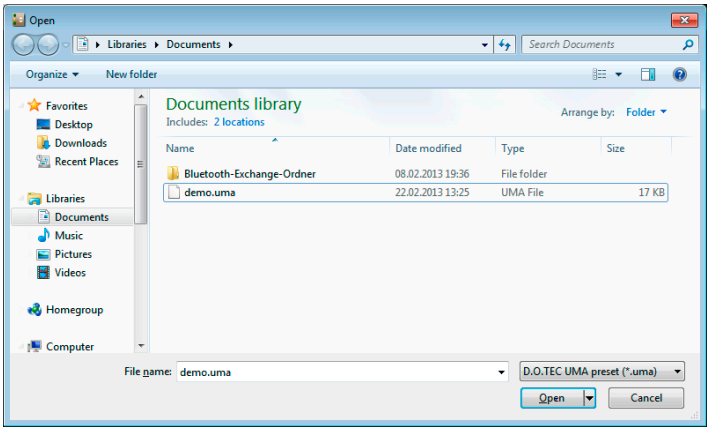


Enter name and click ‘Save’ to close the dialog.

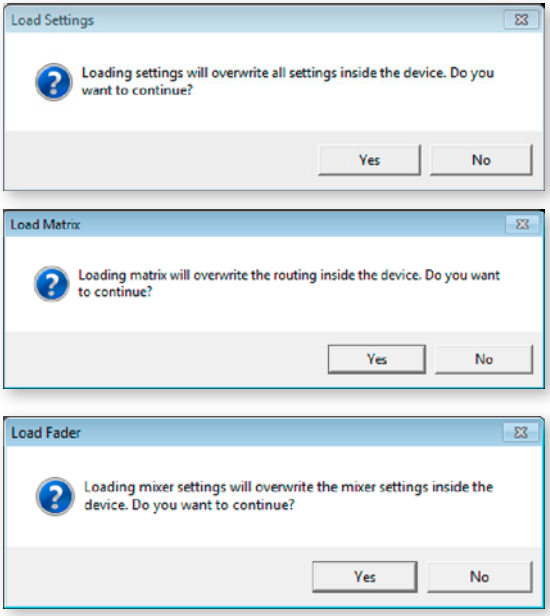
Reloading Presets



Load Settings	affects system settings (sample rate, clock source, MADI format)
Load Matrix	affects audio signal routing
Load Mixer	affects mixer setup - monitor mixes



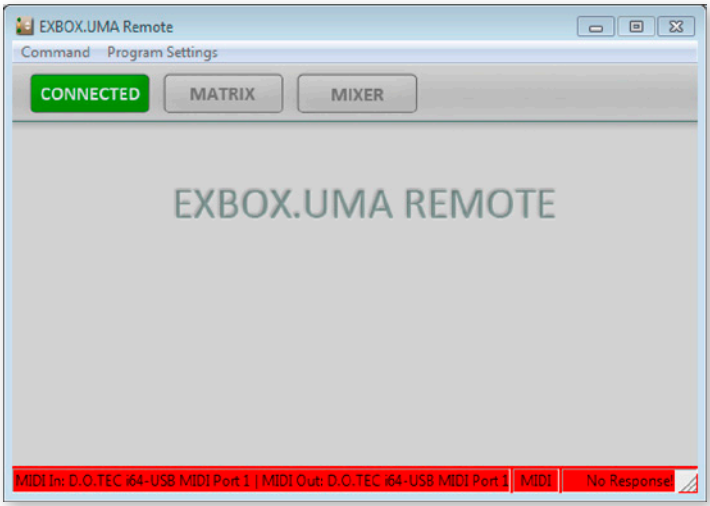
Select the file (.uma) and click ‘open’ to close the dialog and proceed.



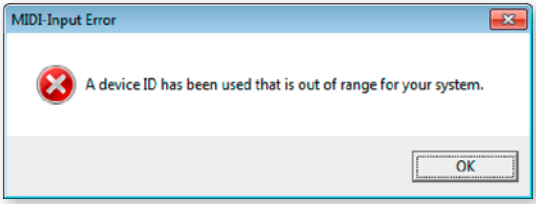
Before reload a prompt asks for confirmation.

© 2015 DirectOut GmbH

Error Messages

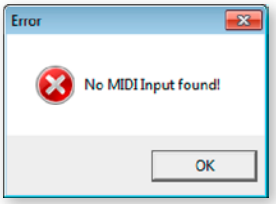


The selected MIDI I/O has lost connection with the device. ‘Disconnect’ and check the connection (cabling, selection of MIDI device).



The selected MIDI I/O cannot be used to connect with the device. Check the connection (cabling, selection of MIDI device).

© 2015
DirectOut GmbH



The operating system does not detect an installed MIDI device.

Check USB cabling and make sure that the USB Audio driver has been installed properly.

If the device does not connect, you may try the command ‘De-Activate MIDI thru’ - see *„MIDI thru“ on page 29.*

© 2015 DirectOut GmbH

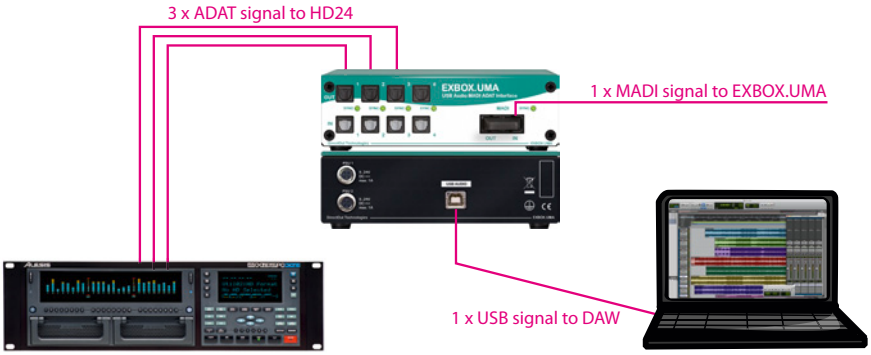
Chapter 6: Application Examples

Introduction

This chapter shows a few application examples of the EXBOX.UMA.

Example 1: Mobile Recording

Up to 32 channels of an incoming MADI stream can be recorded on a laptop via USB. An external recorder is fed by the TOSLink outputs recording the same signal as a backup machine.



Example 2: Recording & Monitor Mixing

The signals from ANDIAMO.MC are transmitted via MADI to EXBOX.UMA. The MADI signal is recorded via USB audio by the laptop.

Using the integrated mixer a monitor mix can be assembled ‘before’ the recording - so there is no latency introduced.

The monitor mix is routed to a channel pair of the MADI output and transmitted to a MA2CHBOX.

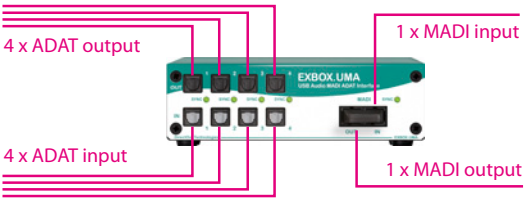
The number of different monitor mixes can be extended by using another mix bus which itself is routed to another MADI output channel pair. Several MA2CHBOXes can be daisy-chained extending the number of monitors.

© 2015 DirectOut GmbH

Example 3: Stand alone operation

The signal routing and system settings (clock, sample rate, MADI format) are stored internally.

So the device can be used without remote control connection for signal conversion, signal distribution, format conversion ...



The settings of the mixer are not stored internally.

Chapter 7: Troubleshooting and Maintenance

Troubleshooting

To identify a possible defect with the device please consult the following table. If the fault cannot be resolved using these instructions, please contact your local DirectOut representative or visit support.directout.eu.

Issue	Possible reason	Solution
Device doesn't work.	Power supply is broken.	Check that the device is connected to the power supply and that the socket is working. Defective fuses must be exchanged by qualified service personal only.
Optical port does not work.	Optic is dirty.	Use an air supply to carefully remove any dust. Never use objects for cleaning.
No signal at the output port.	Connections (input / output) are mixed up.	Check the connections and change the cables if necessary. Check the LEDs 'lock' for MADI.
No signal at the output port.	Cable defective.	Exchange the cable.
No signal at the output port.	Connectors of the signal cable are dirty.	Use an air supply to carefully remove any dust. Never use objects for cleaning. or Exchange the signal cable. Always use protecting caps.

© 2015 DirectOut GmbH

Issue	Possible reason	Solution
MADI signal at the input is not stable.	Signal source is defective or bad signal condition (Jitter > 1 ns) - e.g. due to exceeded length or bad screening attenuation of signal cable.	Change the source or use appropriate cables (see *„Technical Data“ on page 60*).
No remote connection via the MADI line	Remote over MADI is disabled	Enable ‘Remote over MADI’ (Settings)
No remote connection	Wrong MIDI I/O selected or cabling issue	Check MIDI I/O setting and cabling
No remote connection	‘MIDI thru’ active	Use ‘Command - De-Active MIDI Thru’.

Maintenance

To clean the device, use a soft, dry cloth. To protect the surface, avoid using cleaning agents.

The device should be disconnected from the power supply during the cleaning process.

Technical Data

Dimensions

- Width 140 mm
- Height 42 mm
- Depth 146 mm

Weight

- 0.8 kg

Power consumption

- 5 watts, standby power < 0.5 watts (efficiency level V)

Power supply

- 2 x Hirose socket (HR10)
- 9 V - 24 V DC (external)

Warning

The connected power supply must provide a current limiting to a maximum of 2.5 A.

Environmental conditions

- Operating temperature +5°C up to +45°C
- Relative humidity: 10% - 80%, non-condensing

© 2015 DirectOut GmbH

MADI Port - optical

- 1 x SC socket FDDI (input/output)
- ISO/IEC 9314-3
- Wave length 1310 nm
- Multi-Mode 62.5/125 or 50/125

TOSLink Ports - optical

- 8 x TOSLink socket (4 x input / 4 x output)
- configurable to ADAT or S/PDIF

USB Port

- 32 channels audio (@1 FS) (input/output)
- remote control
- USB 2.0, type B

Cable Specifications

- TOSLink - max. cable length 10 m

© 2015
DirectOut GmbH

Appendix A - Wiring Sketches

Hirose HR10 (DC PSU)

Pin	Signal
1	DC +
2	DC +
3	DC -
4	DC -

To ensure proper operation all pins should be connected.

Ground is connected with the chassis of the plug (safety class 1).

© 2015 DirectOut GmbH

This page is left blank intentionally.

Index

A

ADAT ____ 61
- Clock Source 34

ASIO Control Panel ____ 30

B

Bus
- Copy 47
- Layer 47
- Number of 10
- Paste 47
- Reset 47

C

Cable Specifications ____ 61

CE ____ 16

Conditions of Warranty *see Warranty*

Conformity & Certificates
- WEEE *see WEEE*

Contact ____ 17

Contents ____ 14

Conventions ____ 7

Crosspoints ____ 40

D

Defective parts ____ 12

Dimensions ____ 60

E

Environmental conditions ____ 60

Error Messages ____ 53

© 2015 DirectOut GmbH

F

Feature summary ____ 10
Firmware ____ 32
First Aid ____ 13

G

H

I

Intended operation ____ 15

J

K

L

M

MADI formats ____ 10
Matrix *see Routing*
MIDI ____ 26
Mix bus *see Bus*
Mixing ____ 48
Monitoring
Device state 32
Mixer 41
Routing Matrix 38
Multiplier *see Scaling factor*

N

O

P

Pinout *see Sketch*
Power supply ____ 10
Presets ____ 50

Q

R

Remote Control
- Auto Connect 29
- Connect 27
- Remote over MADI 37

RoHS 16

Routing 38
- at higher sample rates 39

S

Sample rates 10, 35

Scaling Factor 35

Servicing 12

Sketch
- Hirose 62

S/PDIF 36

Stand alone operation 57

T

Technical data 60

TOSLink
- Output Format 36
- Port Configuration 36
- Subcode 36

Troubleshooting 58

U

Updates 14

USB 61

© 2015 DirectOut GmbH

V

W

Warnings _____ 7
Warranty _____ 15
WEEE _____ 16

X

Y

Z