

Alpha-Link MX 4-16 & MX 16-4

Alpha-Link MADI-AX / MADI-SX

MadiXtreme

XLogic I/O system for PC and Mac

Setup Guide

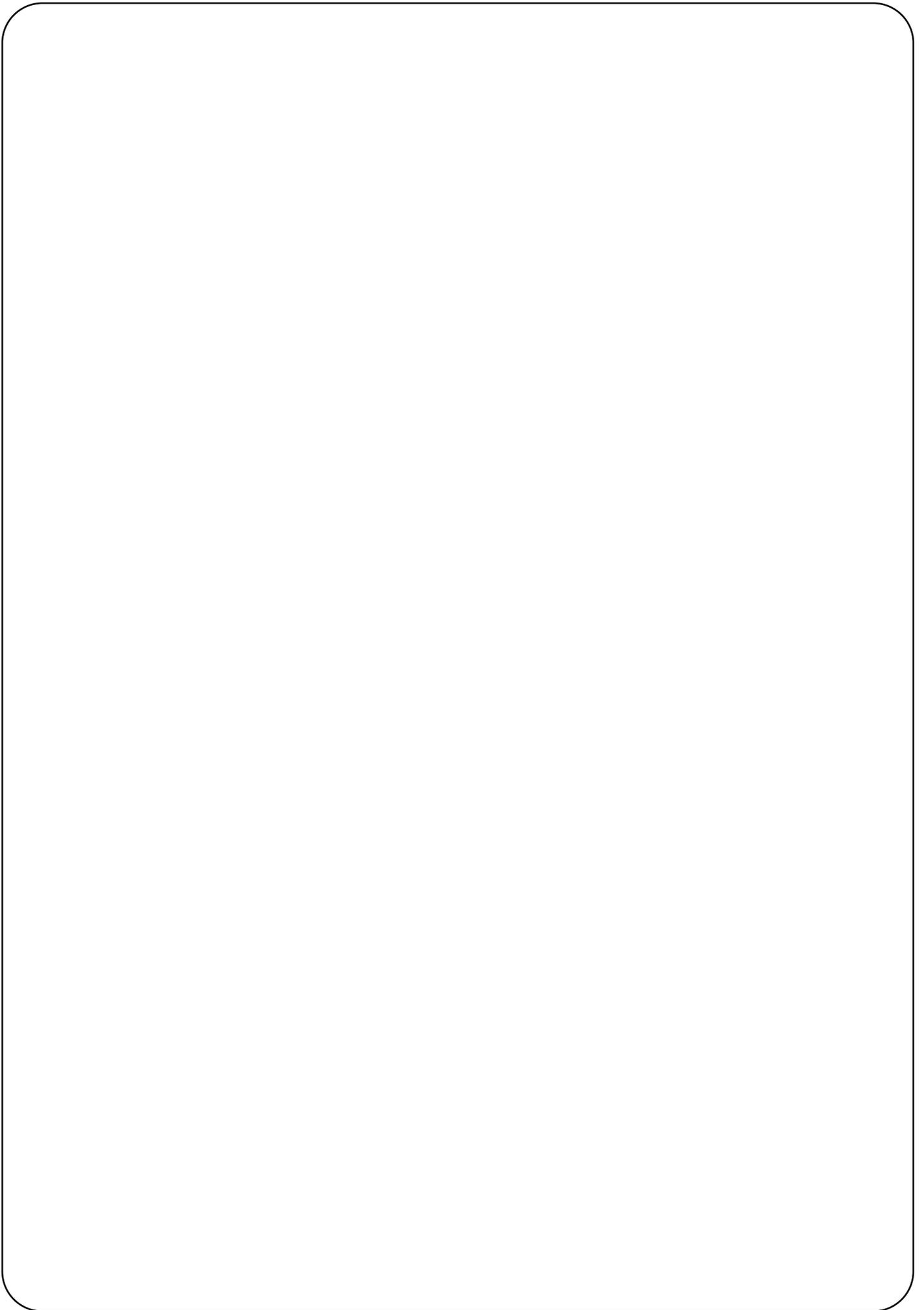
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Introduction

About this Setup Guide

The Alpha-Link MX 4-16 and Alpha-Link MX 16-4 are ideal partners for an Alpha-Link MADI-SX or Alpha-Link MADI-AX and MadiXtreme, allowing full use of the 64 MADI input and/or output channels available on these units (at 44.1 or 48 kHz).

The aim of this Setup Guide is to clarify the connections and settings required to maximize the I/O capabilities of an Alpha-Link MADI-SX (or MADI-AX) and MadiXtreme by the addition of an Alpha-Link MX 4-16 and an Alpha-Link MX16-4. This will be done through a step by step example.

We'll explain how to set up the MadiXtreme and Alpha-Links to provide a computer-based DAW with 40 analogue and 24 AES inputs and outputs at 48kHz, with the AES inputs routed to/from MADI channels 1 to 24 and the Analogue inputs and outputs routed to/from MADI channels 25 to 64.

We'll also suggest how to test the system, and add a word about using headphones.

Reading conventions

In this Setup Guide the Alpha-Link MX 4-16 and Alpha-Link MX 16-4 may both be referred to as "Alpha-Link MX". Our step by step setup example will refer to an Alpha-Link MADI-SX but that information is equally applicable to an Alpha-Link MADI-AX (except that "AES/EBU" or "AES" should be read as "ADAT" in the case of an Alpha-Link MADI-AX).

Prerequisites

For the purpose of this Setup Guide, it is assumed that:

- You have installed a MadiXtreme in your PC or Mac according to the MadiXtreme documentation, installed the driver and if necessary, updated the firmware.
- You are already familiar with the clock synchronization requirements of digital audio and have read the relevant sections about this in the MadiXtreme, Alpha-Link and Alpha-Link MX documentation.
- Preferably, you are already familiar with the more advanced settings of the MadiXtreme and Alpha-Link. If you are not yet familiar with them, please consider reading the MadiXtreme & Alpha-Link Setup Guide, and following the step by step "Quick Start" section of that document.
- You are equipped with all necessary cabling (4 simplex MADI cables, or two duplex MADI cables that can be split will be needed).
- You are already reasonably familiar with your chosen computer platform (PC or Mac) and in particular with your chosen DAW software.

The MadiXtreme receives its power from the computer. The Alpha-Link MADI-SX and the two Alpha-Link MX should be connected to the mains according to their respective documentation. Mains power connections will not be discussed in this Setup Guide, which is focused on clarifying an audio configuration.

Warning: In normal use the Alpha-Link outputs will be connected to your console and/or monitoring system. You are advised to keep the the monitoring system powered off, at least until appropriate clock settings have been selected for the MadiXtreme and Alpha-Links.

Audio connections

Analogue and AES/EBU audio connections

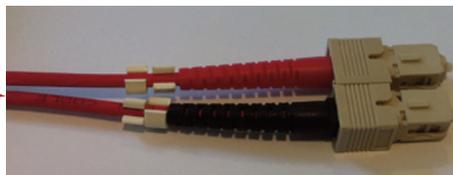
The Alpha-Link MADI-SX analogue and AES/EBU inputs and outputs, Alpha-Link MX 4-16 analogue outputs and Alpha-Link MX 16-4 analogue inputs should be connected to your sound sources, processors and console/monitoring system according to the respective documentation and your personal requirements. The Alpha-Link MX 4-16 analogue inputs and Alpha-Link MX 16-4 analogue outputs will not be used and therefore do not need to be connected.

MADI audio connections

MADI cables are usually supplied as duplex (paired) cables, which is ideal for a bidirectional audio connection between two devices. A typical example is when an Alpha-Link MADI-SX or MADI-AX serves as a converter for a digital console's inputs and outputs: a single duplex cable is needed between the console and the Alpha-Link.

The configuration described in this Setup Guide is somewhat different, as it involves four MADI devices in a loop arrangement. You will need to use simplex MADI cables. Note that duplex cables can usually be split easily along their length to make simplex cables. Note also that the duplex cables' connector pairs will need to be split (by sliding the connectors alongside each other in opposite directions), and that new connector pairs should be made between simplex cables, so that they can fit together into the same MADI I/O port.

Duplex cable (notice the red sleeves around both conductors)



The duplex cable connectors are slid apart



Two simplex cables (notice the red and grey sleeves), with their connectors paired



The MADI connections should be as follows:

Madixtreme MADI output → Alpha-Link MX 4-16 MADI input.

Alpha-Link MX 4-16 MADI output → Alpha-Link MADI-SX MADI input.

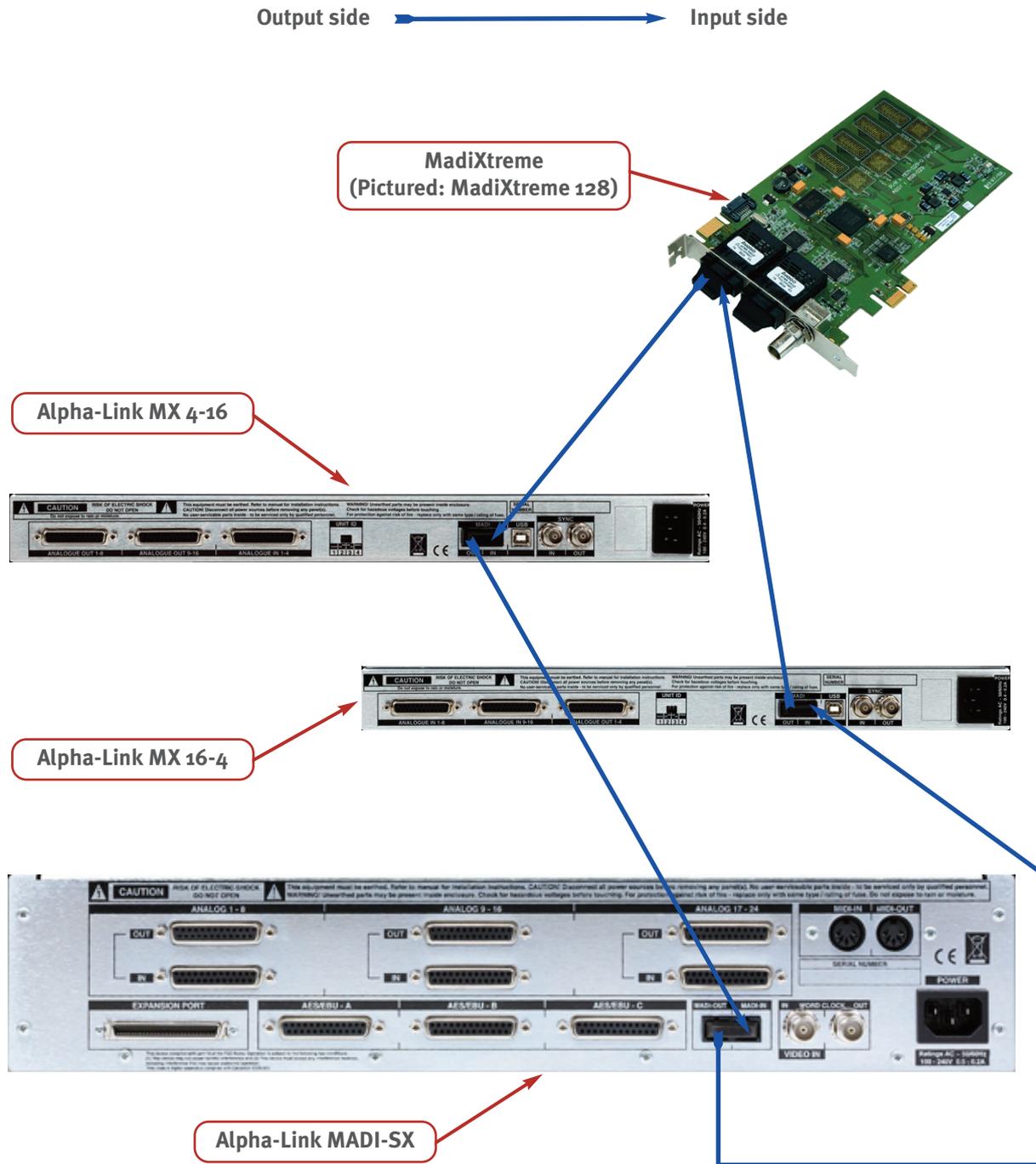
Alpha-Link MADI-SX MADI output → Alpha-Link MX 16-4 MADI input.

Alpha-Link MX 16-4 MADI output → MadiXtreme MADI input.

On the Alpha-Link MADI-SX (or MADI-AX) and Alpha-Link MX, the input and output sides of the MADI port are labelled on the chassis. On a MadiXtreme MADI port there is no labelling, so please note that the input side is closest to the BNC connector, with the output side farthest. If you are using a MadiXtreme 128, MADI port A (which is the one used in our example) is the farthest from the BNC connector.

MADI connection diagram

The blue arrows in the following diagram represent MADI connections made via simplex cables:

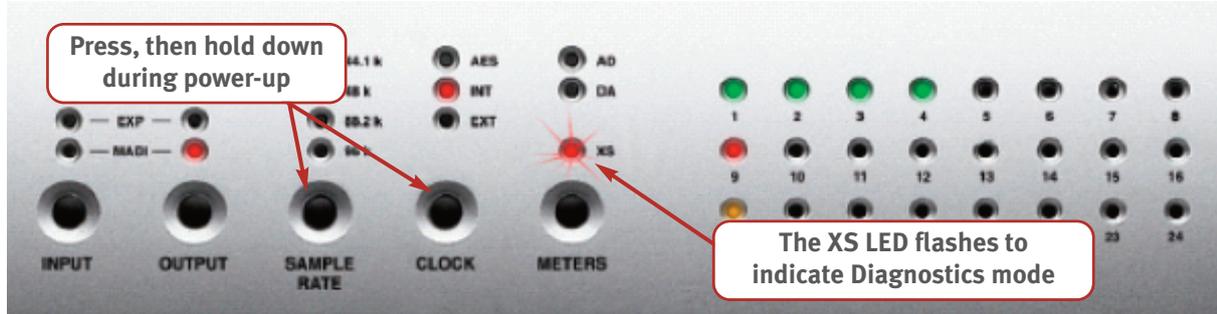


The MadiXtreme and Alpha-Links are originally delivered with rubber dustcaps inserted in the MADI ports to keep them clean (as shown in the diagram pictures). Pull these dustcaps out to gain access to the ports. We recommend keeping these dustcaps, and replacing them whenever the ports are not in use.

Alpha-Link MADI-AX Diagnostics mode settings

Starting the Alpha-Link in Diagnostics mode

Press and hold down the SAMPLE RATE and CLOCK buttons before powering up the Alpha-Link to start in Diagnostics mode. Do not release them until the XS LED starts flashing.



Changing the 64/56 channel MADI mode

We have set out to provide a computer-based DAW with 40 Analogue inputs and outputs and 24 AES/EBU inputs and outputs at 48kHz. By default, the Alpha-Link is set to provide only 56 MADI I/O channels at 48 kHz. So we need to change it to 64 channel MADI mode.

The 56/64 channel MADI mode selection is Option 1 of Page 1, so you will only need one button-press to switch to 64 channels.

As you have already started the Alpha-Link in Diagnostics mode, follow the steps below:

- 1) By default, Page 1 will be selected (indicated by LED 17 being lit in the Metering section). Keep that selection.
- 2) By default, Option 1 will be selected (indicated by LED 9 being lit in the Metering section). Keep that selection.
- 3) Press the INPUT button. LED 1 will go OFF, indicating that the Alpha-Link is now in 64 channel MADI mode.



Selecting MADI High Speed/Non-SMUX² mode

Whether to use SMUX² mode or High Speed (a.k.a non- SMUX²) mode when working at high sample rates is not critical, as long as both devices have the same setting. For our example configuration we could leave the MadiXtreme and Alpha-Link set to their default, which is SMUX².

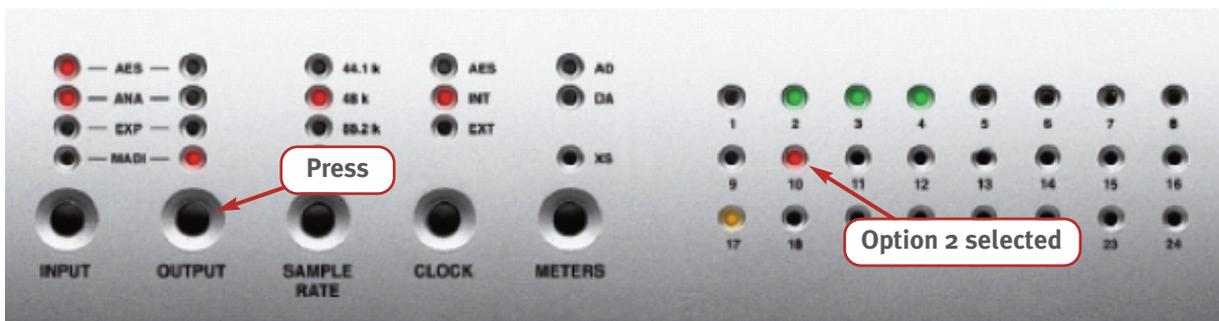
However, setting both of them to High Speed is preferable, as it will allow the Alpha-Link to correctly interpret changes in the Sample Rate made from the DAW computer, in the TRack software (PC) or in the MadiXtreme Preferences (Mac), when a low sample rate is selected.

While the Alpha-Link is still in Diagnostics mode, follow the steps below:

- 1) Page 1 should already be selected (LED 17 lit). Keep that selection.



- 2) Press the OUTPUT button to select Option 2 (indicated by LED 10 being lit in the Metering section).



- 3) Press the INPUT button to change the connection mode (LED 2 will be turned off).

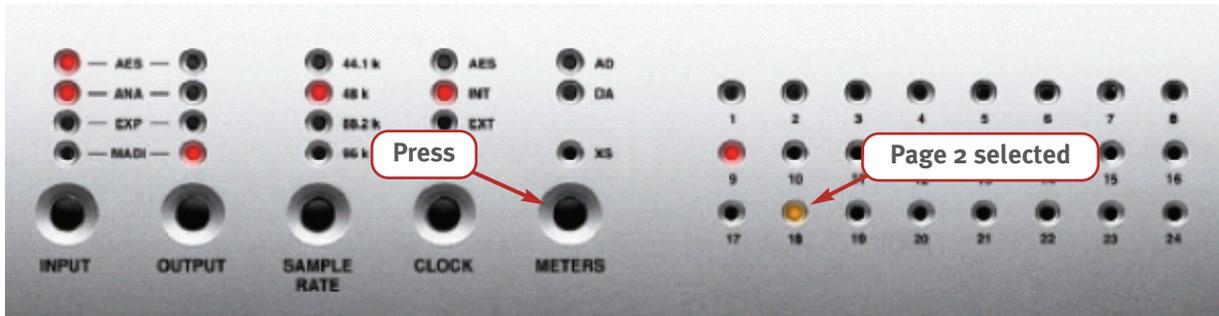


Selecting MADI as the EXT clock source

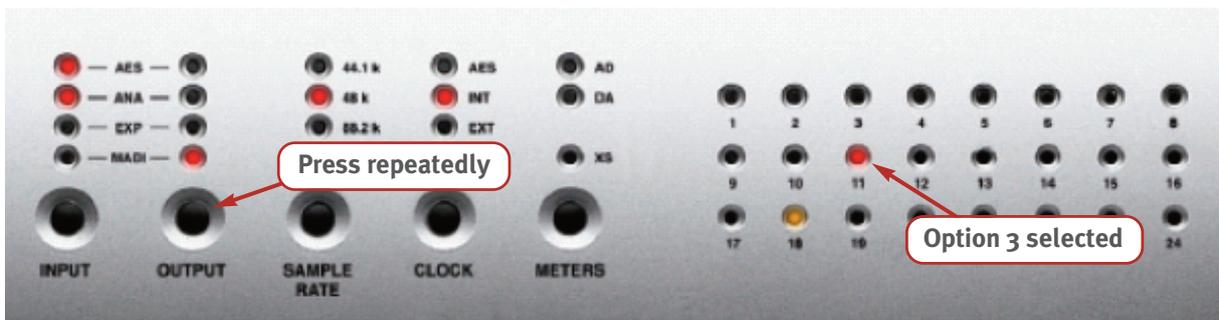
We have decided that the MadiXtreme will be used as clock master, with the Alpha-Link being synchronized to the embedded MADI clock signal from the MadiXtreme. By default, the external clock source selection (active when the EXT LED is lit on the front panel) is set to WordClock. We must change this to MADI.

With the Alpha-Link still in Diagnostics mode, follow the steps below:

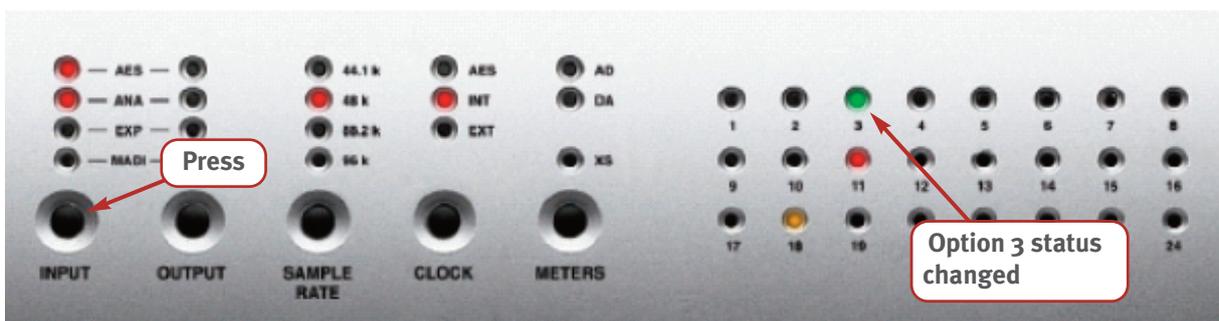
- 1) The External Clock Source Selection is Option 3 of Page 2. Therefore, press the METERS button to select page 2 (indicated by LED 18 being lit in the Metering section, instead of LED 17).



- 2) Press the OUTPUT button repeatedly to select Option 3 (indicated by LED 11 being lit in the Metering section).

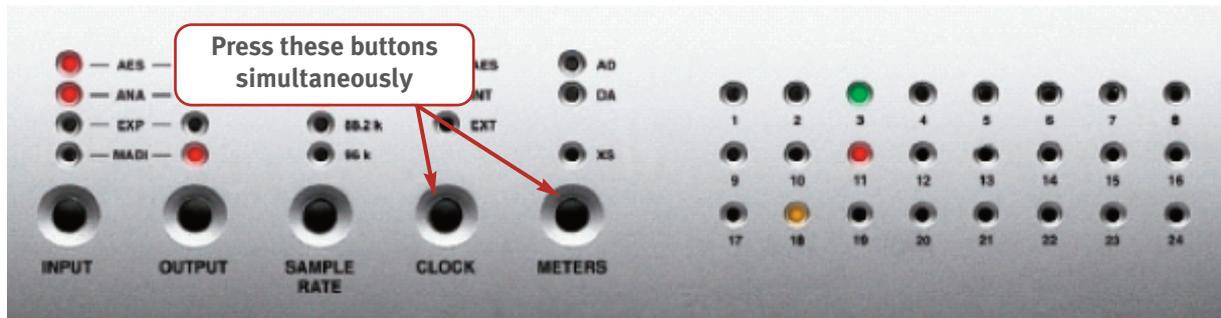


- 3) Press the INPUT button to change the external clock source selection from WordClock (default) to MADI (LED 3 will be turned ON).



Leaving Diagnostics mode and saving the settings

Press the SAMPLE RATE and CLOCK buttons again to return to normal operation. This will also save the settings you have just selected.



The unit should not be powered off while in Diagnostics mode, otherwise the new settings will not be stored.

Setting up the Alpha-Link as clock slave

Press the CLOCK button on the Alpha-Link's front panel, repeatedly if necessary, until the EXT LED is lit. The Alpha-Link will now lock itself to the MADI-embedded clock reference signal received from the MadiXtreme, and follow sample rate changes made in the TRack software (PC) or in the MadiXtreme Preferences (Mac).



The CLOCK LED should be lit solid to confirm lock. It will initially flash to indicate that the Alpha-Link MADI-SX is not receiving a valid clock reference, until the MadiXtreme is correctly set as clock master, or after that if incorrect settings have been selected for one of the devices. If it continues after all devices have been set up, try retracing your steps to identify the problem. Do not switch on your monitoring system before you have rectified it.

Setting up Alpha-Link routing

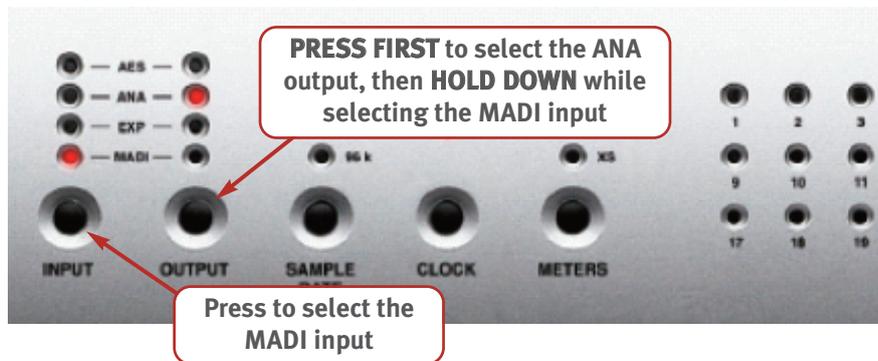
Our objective is to provide a computer-based DAW with 24 AES/EBU and 40 Analogue inputs and outputs at 48kHz, with the AES/EBU inputs and outputs routed to/from MADI channels 1 to 24, and the Analogue inputs and outputs routed to/from MADI channels 25 to 48 (Alpha-Link MADI-SX) and 49 to 64 (Alpha-Link MX).

On the Alpha-Link, we need to set up the following internal routing:

- For playback, the MADI Input (receiving audio from the MadiXtreme/DAW) needs to be routed to the AES/EBU and Analogue outputs (connected to the monitoring system, a console, external processors, etc).
- For recording, the AES/EBU and Analogue inputs (connected to sound sources) need to be routed to the MADI Output (connected to the MadiXtreme/DAW computer).

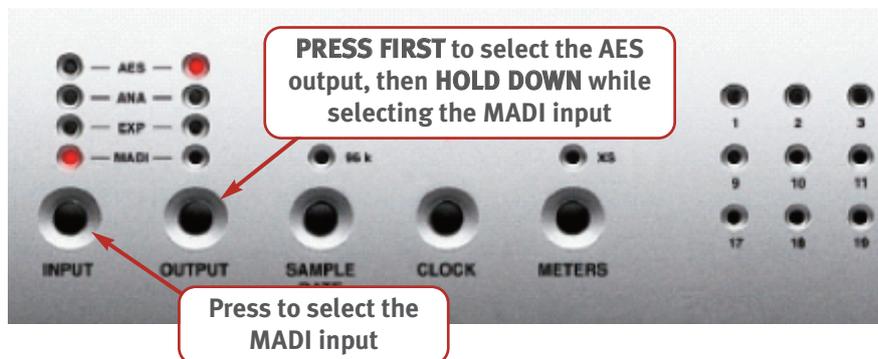
Routing MADI In to ANA Out (for playback)

- 1) Press the OUTPUT button, repeatedly if necessary, until the ANA Output LED is lit. Then hold down the OUTPUT button.
- 2) While holding down the OUTPUT button, press the INPUT button, repeatedly if necessary, until the MADI Input LED is lit.
- 3) Release the buttons. MADI In is now routed to ANA Out.



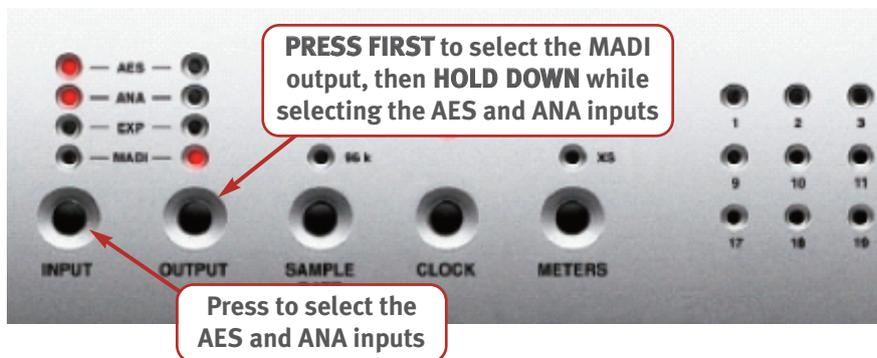
Routing MADI In to AES Out (for playback)

- 1) Press the OUTPUT button, repeatedly if necessary, until the AES Output LED is lit. Then hold down the OUTPUT button.
- 2) While holding down the OUTPUT button, press the INPUT button, repeatedly if necessary, until the MADI Input LED is lit.
- 3) Release the buttons. MADI In is now routed to AES Out.



Routing ANA In and AES In to MADI Out (for recording)

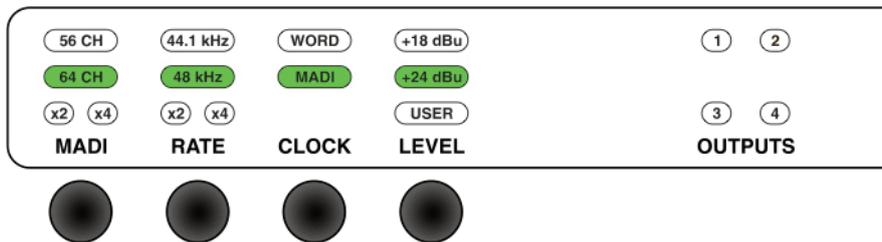
- 1) Press the OUTPUT button, repeatedly if necessary, until the MADI Output LED is lit. Then hold down the OUTPUT button.
- 2) While holding down the OUTPUT button, press the INPUT button, repeatedly if necessary, until the ANA Input LED and the AES input LED are both lit.
- 3) Release the buttons. ANA In and AES In are now routed to MADI Out.



The Alpha-Link needs up to 20 seconds to store new settings. Powering it off too quickly after selecting new settings would cause them to be lost. This does not apply to Diagnostics mode settings, which are stored instantly when leaving Diagnostics mode by pressing the SAMPLE RATE and CLOCK buttons.

Setting up the Alpha-Link MX 4-16 and Alpha-Link MX 16-4

Press the Power button on the left of the front panel to start the Alpha-Link MX.



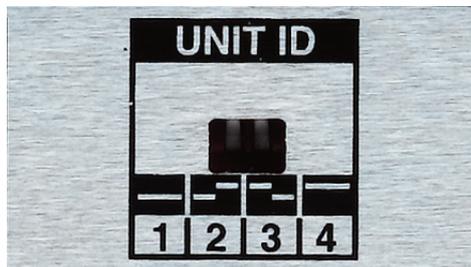
The same settings should be applied to both Alpha-Link MX.

On the front panel of the two Alpha-Link MX units:

- 1) Press the MADI button, repeatedly if necessary, until 64 CH is selected. The MADI X2 and X4 indicators should be off.
- 2) Press the RATE button, repeatedly if necessary, until 48 kHz is selected. The RATE X2 and X4 indicators should be off.
- 3) Press the CLOCK button if necessary, so that MADI is selected.

The level setting is not relevant to the present document. See the User Guide for details about level.

On the rear panel of the two Alpha-Link MX units:



Using an appropriate tool such as a very small flat screwdriver, set the two recessed Unit ID switches to the UP position so that both Alpha-Link MX will operate as Unit 4.

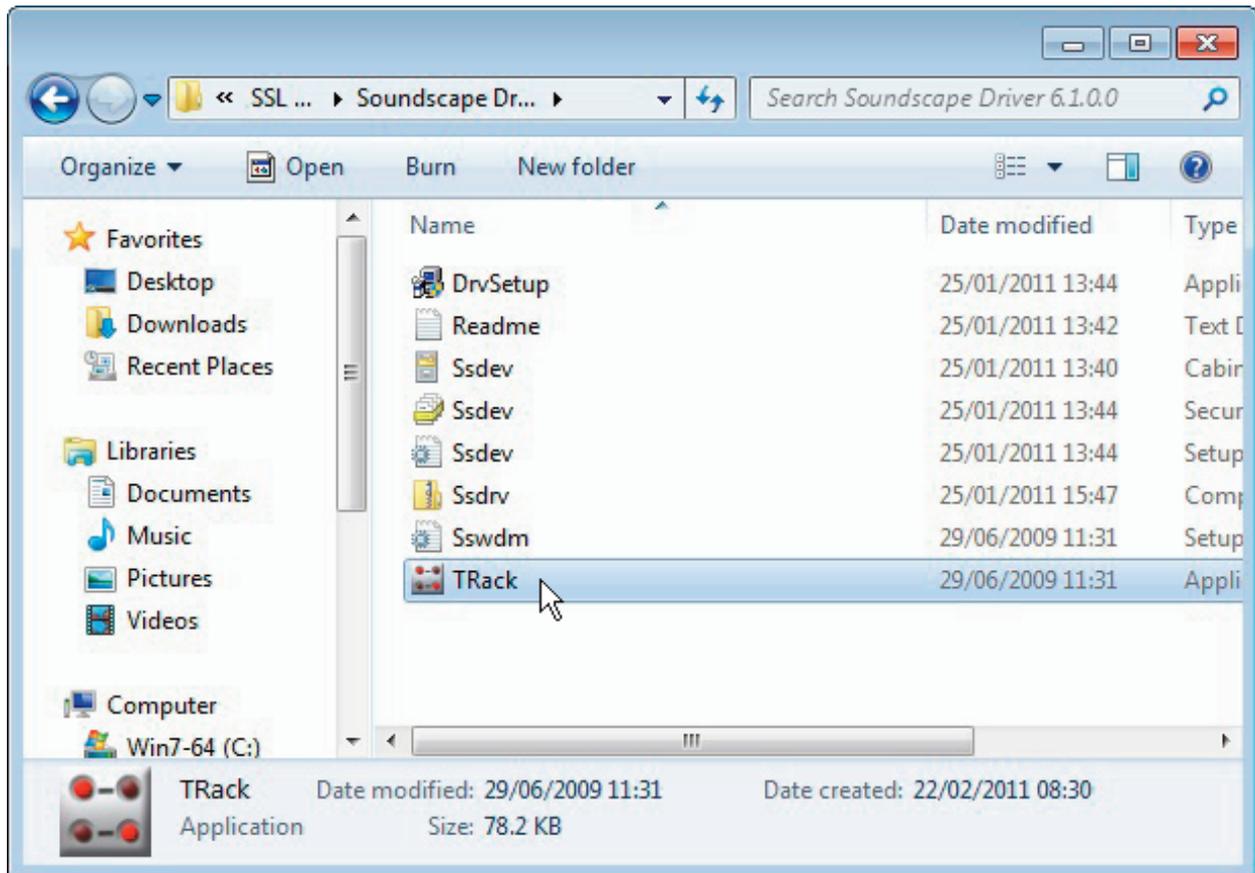
Two Alpha-Link MX units would not share the same unit ID in a typical Alpha-Link MX cascade configuration. In our example they should, because they operate independently of each other with regards to audio signal flow, both of them carrying signals in one direction only on MADI channels 49 to 64 (“from the MadiXtreme” or “to the MadiXtreme”), while the Alpha-Link MADI-SX carries signals in both directions on MADI channels 1 to 48 (“to and from the MadiXtreme”).

The MADI clock indicator should be lit solid to confirm lock. It will initially flash to indicate that the Alpha-Link MX is not receiving a valid clock reference, until the MadiXtreme is correctly set as clock master, or after that if incorrect settings have been selected for one of the devices. If it continues after all devices have been set up, try retracing your steps to identify the problem. Do not switch on your monitoring system before you have rectified it.

Setting up the MadiXtreme on PC

The best way to control MadiXtreme settings on PC is to use the TRack utility, which is included in the driver download files. TRack does not require an installation procedure. Just double-click its icon to run it directly from the folder it resides in. You may want to create a shortcut to TRack on your desktop or in your Start menu, as you are likely to use it often.

TRack refers to already installed driver files in order to run. If you have just installed or updated the driver, reboot the computer before using TRack.



In TRack, double-click the MadiXtreme's name to access its Properties window (or right-click its name and click "Properties").

Select the following settings in the MadiXtreme Properties window.

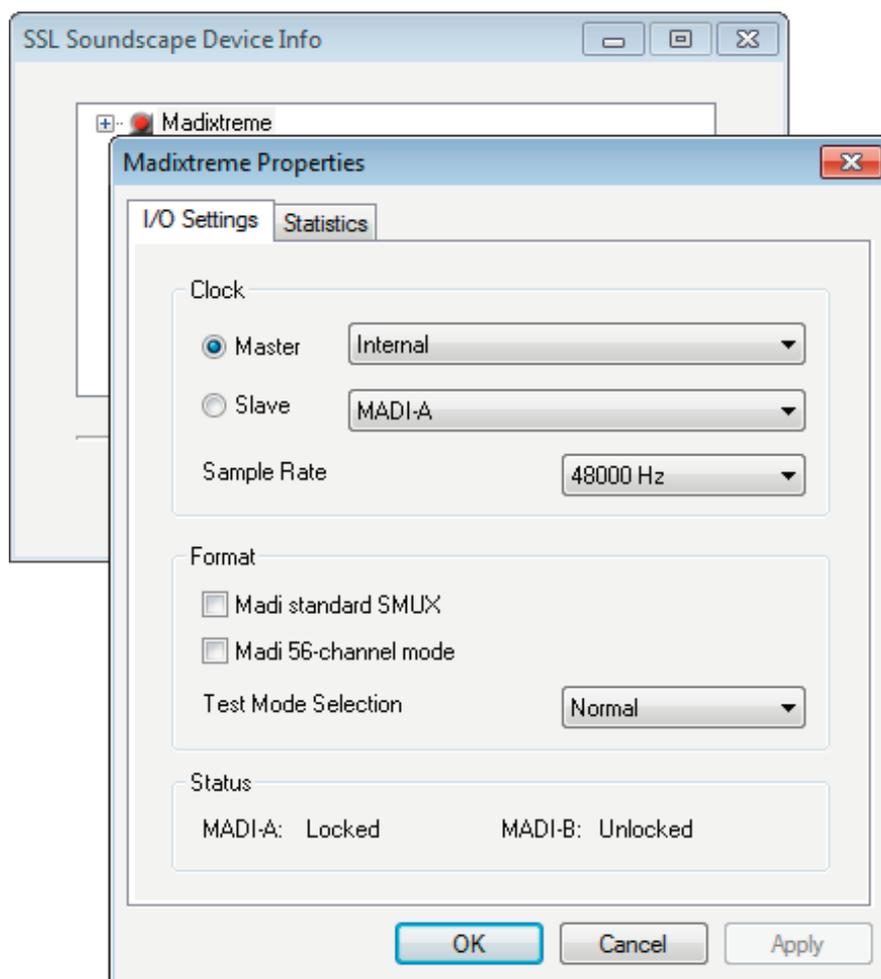
In the Clock section:

- Click the "Master" radio button (note that this does not mean the MadiXtreme becomes the clock master, see the MadiXtreme manual for details).
- "Internal" must be selected in the Master menu (the menu at the top of the section).
- "48000 Hz" must be selected in the Sample Rate menu.
- The Slave menu in the middle of this section can be ignored.

In the Format section:

- Ensure that "Madi Standard SMUX" is unticked.
- Ensure that "Madi 56-channel mode" is unticked.

If all settings are correct on all devices, the MADI A port should show as being "locked".



Click "OK" to close the MadiXtreme Properties window, then "Done" if you want to close TRack.

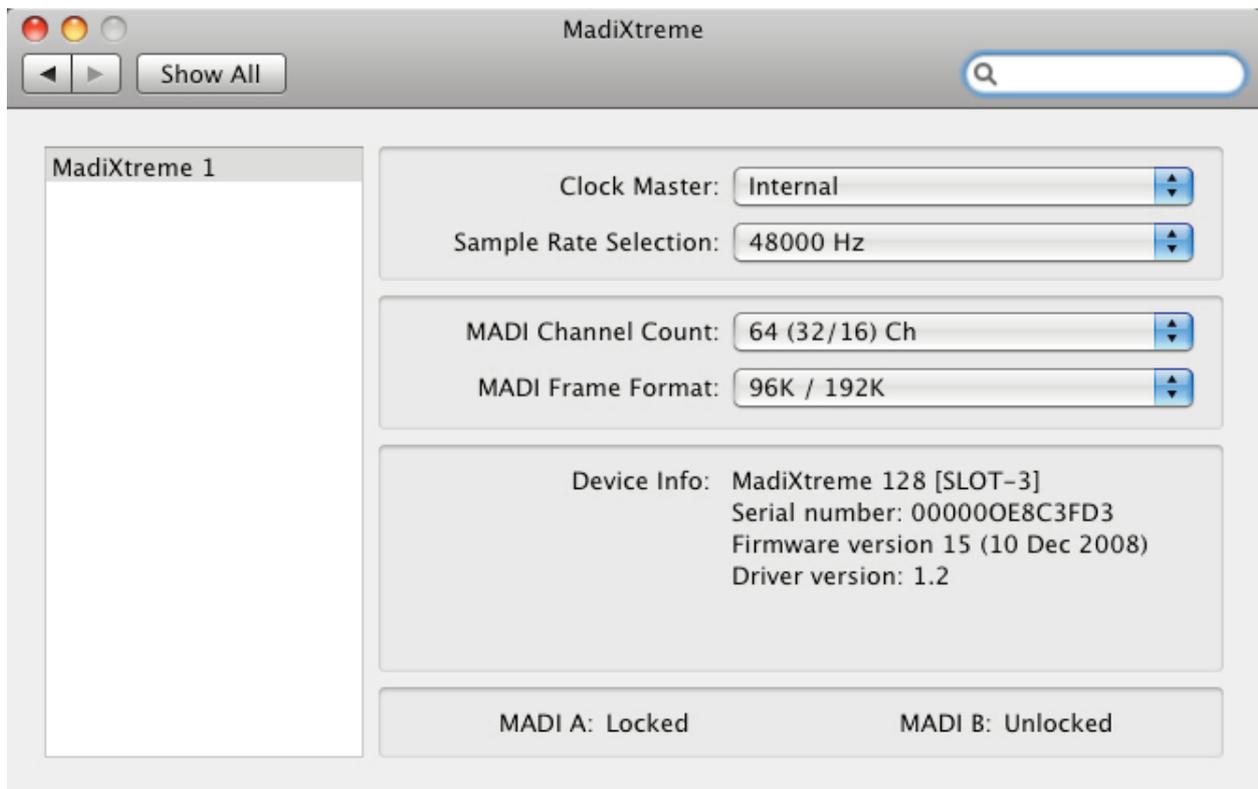
Setting up the MadiXtreme on Mac

On the Mac, click the Apple menu → System Preferences → MadiXtreme.

Select the following settings for the MadiXtreme using the selection menus:

- Clock Master: Internal
- Sample Rate Selection: 48000 Hz
- MADI Channel Count: 64 (32/16) Ch
- MADI Frame Format: 96K / 192K

If all settings are correct on all devices, the MADI A port should show as being “locked”.



Testing the system

If you have correctly followed this step by step example, and connected your external sound sources and monitoring system, you should now be able to use 40 Analogue and 24 AES/EBU inputs and outputs to record and play back audio to/from your DAW.

If you open an existing project/session in your DAW software, ensure that the project/session sample rate is 48 kHz.

If needed, please refer to your DAW manual to learn how to select inputs and outputs.

Alternatively, chapter 21 of the the MadiXtreme Reference Guide includes short, step by step Nuendo, Sonar, Samplitude and Logic Pro recording setup examples.

In your DAW software:

MadiXtreme inputs 1 to 24 receive signals from the AES/EBU inputs of the Alpha-Link MADI-SX.

MadiXtreme outputs 1 to 24 transmit signals to the AES/EBU outputs of the Alpha-Link MADI-SX.

MadiXtreme inputs 25 to 48 receive signals from the Analogue inputs of the Alpha-Link MADI-SX.

MadiXtreme outputs 25 to 48 transmit signals to the Analogue outputs of the Alpha-Link MADI-SX.

MadiXtreme inputs 49 to 64 receive signals from the Analogue inputs of the Alpha-Link MX 16-4.

MadiXtreme outputs 49 to 64 transmit signals to the Analogue outputs of the Alpha-Link MX 4-16.

If you wish to use the headphones output on the front of the Alpha-Link to listen to a test signal, please note that it duplicates Analogue outputs 23 and 24 of the Alpha-Link MADI-SX. In your DAW, select MadiXtreme outputs 47-48 to send signals to the headphones output. Also, in order to protect your ears, turn down the volume in the DAW before putting the headphones on, and only increase it slowly up to a comfortable level as you listen to the headphones.

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