Pro Tools® | MTRX Installation Guide

Legal Notices

Guide Part Number 9320-70091-00 REV A 08/18

Safety Instructions
Read and Keep these Instructions

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

The garbage bin with a cross is intended to alert the user that the product may not be disposed of by regular garbage, but as electronic equipment.

Warning

Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this equipment near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other equipment (including amplifiers) that produce heat.
9. Protect power cords from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the equipment.
10. Only use attachments/accessories specified by the manufacturer.
11. For products that are not rack-mountable: Use only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the equipment. When a cart is used, use caution when moving the cart/equipment combination to avoid injury from tip-over.

12 Unplug this equipment during lightning storms or when unused for long periods of time.

13 Refer all servicing to qualified service personnel. Servicing is required when the equipment has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the equipment, the equipment has been exposed to rain or moisture, does not operate normally, or has been dropped.

14 For products that are a Mains powered device:

The equipment shall not be exposed to dripping or splashing and no objects filled with liquids (such as vases) shall be placed on the equipment.

Warning! To reduce the risk of fire or electric shock, do not expose this equipment to rain or moisture.

Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

15 For products containing a lithium battery:

CAUTION! Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type.

16 For products with a power switch: It should remain accessible after installation.

17 The equipment shall be used at a maximum ambient temperature of 40° C.

18 This unit is provided with a power supply cord set suitable for 120V AC input only (for U.S.A. and Canada). For other than U.S.A. and Canada, a qualified person must provide for use with this unit, an appropriate, approved power supply cord set which is in compliance with the end use country requirements and has a minimum cross-sectional area of 1.0mm2.

19 For products with more than one power cord:

CAUTION: This unit has more than one power supply cord. Disconnect two power supply cords before servicing to avoid electrical shock.

ATTENTION: Cet appareil comporte plus d'un cordon d'alimentation. Afin de prévenir les chocs électriques, débrancher les deux cordons d'alimentation avant de faire le dépannage.

20 For products with an operator-accessible fuse:

CAUTION: For continued protection against risk of fire, replace only with same type and rating of fuse.

ATTENTION: Pour ne pas compromettre la protection contre les risques d'incendie, remplacer par un fusible de même type et de même caractéristiques nominales.

Rack-Mount Safety Instructions

1. Elevated Operating Ambient—If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment might be greater than room ambient. Therefore, consider installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.
2. Reduced Air Flow—Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised. Make allowances for cooling air to be available to the front panel surface and no restrictions at the rear.
3. Mechanical Loading—Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
4. Circuit Overloading—Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on over-current protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
5. Reliable Earthing—Reliable Earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (for example, use of power strips).

LED Safety Notices

Avid hardware might contain LED or Laser devices for communication use. These devices are compliant with the requirements for Class 1 LED and Laser Products and are safe in the intended use. In normal operation the output of these laser devices does not exceed the exposure limit of the eye and cannot cause harm.

Environmental Compliance

Proposition 65 Warning

This product contains chemicals, including lead, known to the State of California to cause cancer and birth defects or other reproductive harm. Wash hands after handling.

Perchlorate Notice

This product may contain a lithium coin battery. The State of California requires the following disclosure statement: “Perchlorate Material—special handling may apply, see www.dtsc.ca.gov/hazardous waste/perchlorate.”

Recycling Notice

EMC (Electromagnetic Compliance)

Avid declares that this product complies with the following standards:

- FCC Part 15 Class A
- EN 55032:2012, Class A
- EN 61000-3-2:2014, AC Mains Harmonic Current
- EN 61000-3-3:2013, AC Mains Voltage Variations and Flicker
- EN 55103-1:2009, Emissions Environment E4
- EN 55103-2:2009, Immunity Environment E1–E4

FCC Compliance for United States

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Cables: Connections to Avid hardware must be made with shielded cables with metallic RFI/EMI connector hoods in order to maintain compliance with FCC Rules and Regulations.

Any modifications to the unit, unless expressly approved by Avid, could void the user's authority to operate the equipment.

Safety Compliance

This equipment has been tested to comply with EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 +A2:2013

Power Safety Input Rating

Pro Tools | MTRX: 100–240VAC, 50/60Hz, 90VA Max.

CE Compliance

(EMC, Safety, and RoHS)

Avid is authorized to apply the CE (Conformite Europenne) mark on this compliant equipment thereby declaring conformity to EMC Directive 2014/30/EU, Low Voltage Directive 2014/35/EU and RoHS Recast Directive 2011/65/EU.

Contents

Chapter 1: Introduction

Pro Tools | MTRX AD/DA Converter

Welcome to the Pro Tools® | MTRX Converter System. MTRX is an extremely capable multi-channel audio converter and microphone preamplifier for independent simultaneous analog-to-digital (A/D), and digital-to-analog (D/A) conversion as well as digital-to-digital (D/D) format conversion and signal routing.

MTRX can provide up to 48 analog input and output channels depending on the configuration of the unit, and has built-in eight stereo AES3 inputs and outputs (for up to 16 channels of I/O), two DigiLink™ Mini ports for up to 64 input and output channels with Pro Tools | HDX or HD Native, and one coaxial 64-channel MADI input and output connection. MTRX can be fitted with up to six analog I/O cards, providing up to 48 channels of analog I/O. Digital interface options include the MTRX Dual MADI I/O Card for an additional 64 channels of MADI input and output, and a 64-channel IP audio interface powered by Dante™. MTRX is equipped with two power supplies.

This installation guide provides basic information about the installation and use of the MTRX. For more detailed information please refer to the Pro Tools | MTRX Guide available on the Avid website at http://www.avid.com.

System Requirements and Compatibility Information

Avid can only assure compatibility and provide support for hardware and software it has tested and approved.

Avid recommends using a grounded, switchable power supply with MTRX (such as a power strip or UPS) for powering the unit on and off.

For complete system requirements and a list of qualified computers, operating systems, hard drives, and third-party devices, visit http://www.avid.com/compatibility.

Conventions Used in Pro Tools Documentation

Pro Tools documentation uses the following conventions to indicate menu choices, keyboard commands, and mouse commands:

Convention	Action
File > Save	Choose Save from the File menu
Control+N	Hold down the Control key and press the N key
Control-click	Hold down the Control key and click the mouse button
Right-click	Click with the right mouse button

The names of Commands, Options, and Settings that appear on-screen are in a different font.

The following symbols are used to highlight important information:

User Tips are helpful hints for getting the most from your Pro Tools system.

Important Notices include information that could affect your Pro Tools session data or the performance of your Pro Tools system.

Shortcuts show you useful keyboard or mouse shortcuts.

Cross References point to related sections in this guide and other Avid documentation.

Chapter 2: Before You Start

Place your MTRX on a hard and dry surface or mount it into a 19-inch rack, and leave plenty of room for ventilation.

In order to meet EMC requirements and in order to obtain the highest performance of MTRX, use high-quality, properly shielded cables for all external connections when installing MTRX. For the power connection, a normal unshielded power cable with a proper protective earth conductor can be used.

⚠ *Ensure that your sound system is turned down to a safe volume level.*

Mechanical Installation and Low Fan Noise

MTRX is fitted with two ultra-quiet fans to ensure optimum operating temperature. The fans are temperature-controlled, so the rotation speed, and thereby noise, is dependent on the temperature inside the MTRX. The fans should be hardly audible during normal operation, assuming MTRX is correctly installed.

The optimal air flow is from the front holes in the bottom of the unit to the rear holes in the rear and top plate. When the unit is installed, considerations have to be made to ensure proper air circulation from the bottom to the rear. It is recommended that you leave one rack unit of space free under unit, and do not block the back and top panel vent holes. The speed of the two low-noise fans will increase automatically to keep the internal temperature low if there is insufficient airflow. If the internal temperature exceeds 60ºC / 140ºF a temperature alarm appears in the display.

Refer to the mechanical specifications section for more details regarding installation.

Accessing MTRX Cards

It is not necessary to open MTRX during installation, unless you need to add any I/O cards. MTRX cards and module options can be accessed by removing the lid of the MTRX chassis. The chassis provides eight card slot positions, six of which can be used for analog AD/DA cards. It is important that the placement of the cards are maintained since they correspond to the configuration of the unit. The mini I/O module and the IP Audio option are mounted on the main board of the converter.

For information on installing optional digital and analog I/O cards, refer to "Installing I/O Expansion Cards" on page 25.

Network Configuration

MTRX is equipped with two GigaBit Ethernet connectors and an internal Ethernet switch, a controller port and a port for the optional IP Audio option powered by Dante. The network connectors can operate as two “parallel” connectors for the internal switch, or as dual connectors for redundant IP audio operation. In this case controlling the unit is done using Net port 1. MTRX has one to three different IP addresses. One for the unit control using DADman software and one or two for the IP audio in single or redundant mode respectively. The network configuration is managed separately for the controlling interface and for the IP audio interface, and can have different configuration. The controlling interface is used for controlling MTRX from DADman, and the IP audio interface (one or two if installed) is used for interfacing IP audio in a network. The factory default setting of the IP address of the controller port of the MTRX is 10.0.7.20. The IP address can be changed manually using DADman or it can be set to be automatically assigned by a DHCP server/router in the network. If needed, MTRX can be set in recovery mode with the fixed factory defined IP address (10.0.7.20) and IP discovery using DHCP. This is described in the Reconfiguration section of this guide. For a more detailed description of the network functionality, configuration, and behavior, please refer to the separate *Pro Tools | MTRX Guide*.

Chapter 3: Installing and Configuring DADman Software

Register Pro Tools | MTRX and Activate your Avid Master Account

Your Pro Tools | MTRX includes an activation card with a code that lets you register the unit, and access software, firmware, documentation downloads.

To register your MTRX and access MTRX-related downloads through your Avid Master Account:

1. Locate the Activation Card with the code that came with your MTRX.
2. Visit www.avid.com/redemption and log into your Avid Master Account (if you don't already have an Avid account, click "Create Your Account").
3. Follow the on-screen instructions.

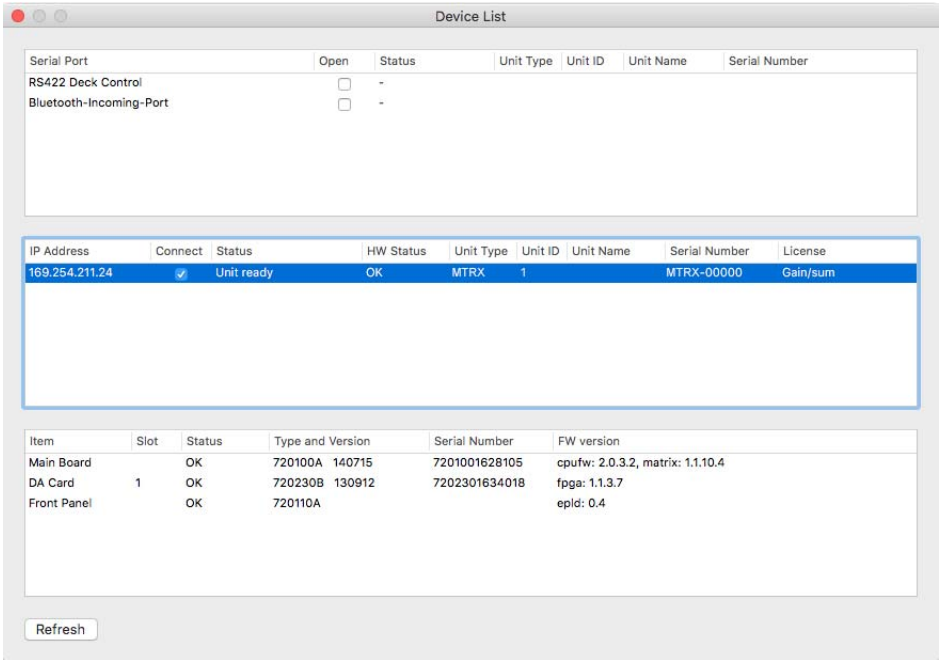
Installing DADman Software

MTRX is controlled over a network connection by DADman software on your computer. Your computer and all MTRX units must be connected on the same subnet.

To install DADman Software:

1. Download the DADman Software installer for your operating system (Mac OS X or Windows) from your Avid Master Account.
2. Once the download is complete, launch the installer and follow the on-screen instructions to complete the installation.
3. If desired, create a shortcut for DADman on the Desktop, or in the Dock (Mac) or in the Start menu (Windows).
4. Launch DADman.
5. Choose Settings > Device List.

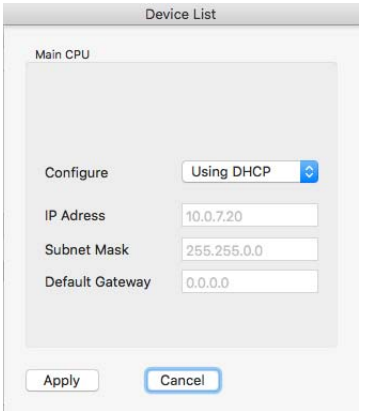
6 Click Refresh to discover the MTRX on the network.



Device List dialog

7 Right-click the MTRX and choose Network Settings.

8 Configure the Network Settings accordingly (see “Assigning the IP Address for your Computer and Pro Tools | MTRX” on page 7).



Network Settings

Assigning the IP Address for your Computer and Pro Tools | MTRX

When DADman is installed you can finalize the network configuration of the MTRX by connecting each MTRX one by one. You have the option of using fixed IP addresses or IP addresses assigned via DHCP.

When using MTRX units in Pro Tools systems with EUCON peripherals (such as S6), use a dedicated Network Interface for EUCON peripherals and connect all other network devices to a separate Network Interface (for MTRX/DADman, DANTE audio, local network, internet, and so on). Using separate Network Interfaces is especially important when streaming audio over DANTE.

In order for MTRX to function properly, the router and sample rate must be correctly configured in DADman software.

Fixed IP Address

You must have a preferred range of IP addresses, and a network mask for the computer network and the connected MTRX units.

To use a fixed IP address:

1. Configure your computer IP address and network mask using the Mac System Preferences or the Windows Control Panel to 10.0.7.25 | 255.255.255.0.
2. Choose Settings > Device List, then right-click the MTRX and choose Network Settings.
3. Configure each MTRX unit in turn with a unique IP address and the preferred network mask, for example 10.0.7.21 | 255.255.255.0. In this window you can also configure the IP audio network settings.
4. When you are done you can connect more than one MTRX to the network, and each one appears in the DADman Device List.

Automatic IP address

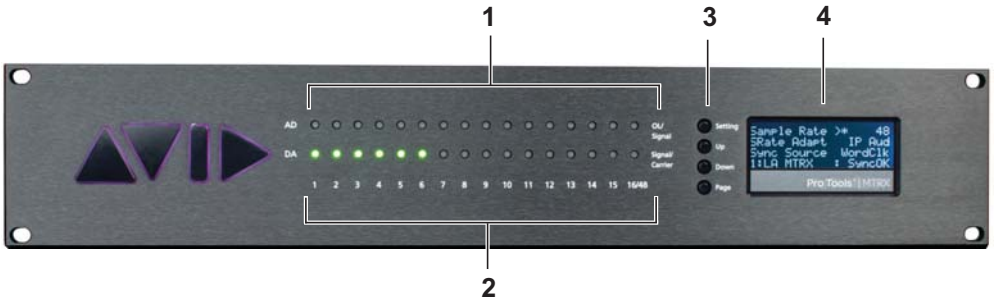
You must have a network with a DHCP server to allocate the IP addresses.

To use an automatic IP address:

1. Configure your computer IP address to DHCP using the Mac System Preferences or the Windows Control Panel.
2. Choose Settings > Device List, then right-click the MTRX and choose Network Settings.
3. Configure each MTRX in turn to use DCHP.
4. When you are done, you can connect more than one MTRX to the network, and they will all appear in the DADman Device List.

Chapter 4: Pro Tools | MTRX Front and Back Panels

Pro Tools | MTRX Front Panel



Pro Tools | MTRX front panel

1 16 LED indicators indicating signal level of analog input.

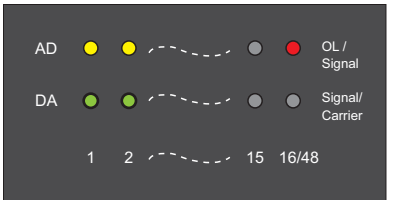
2 16 LED indicators indicating signal level of analog output.

3 4 buttons for operating the status display.

4 Status display.

Front Panel LEDs

MTRX has two rows of 16 LED indicators on the front panel showing the signal status for the AD inputs and DA outputs.



AD OL/Signal Signal of AD channels 1–16. Yellow indicates signal input above –42 dB FS, and red indicates signal level above –0.5 dB FS.

DA Signal/Carrier Signal of DA channels 1–16. Yellow indicates signal input above –42 dB FS. Green indicates signal below –42 dB FS and a valid digital input source/carrier.

Front Panel Status Display

The display of the MTRX has four rows for displaying information and four buttons for entering and scrolling information. The display can show more pages and each page can consist of rows where settings can be changed, and with rows for just showing status information. The display functions for the basic page are described below. More pages are available depending on the firmware version of the MTRX. For more information on these pages, refer to the *Pro Tools | MTRX Guide*.

Operating Buttons

Setting Pushing the Setting button scrolls trough the settings rows. The > cursor marks the selected row/function.

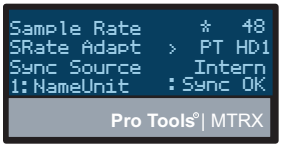
Up Pushing the Up button scrolls up the value/setting of the selected function.

Down Pushing the Down button scrolls down the value/setting of the selected function.

Page Pushing the Page button scrolls trough the available display pages.

Basic Display Page

(Sample Rate, Synchronization, ID, and Alarms)



Sample Rate Shows the sample rate of the MTRX. If an asterisk * is shown, the sample rate is controlled by an external digital audio interface.

SRate Adapt Shows which external digital audio interface controls the sample rate, or it shows Intern for internal sample rate control.

Sync Source Shows the external synchronization clock source, or shows Intern when the MTRX is using the internal clock.

Unit ID /Name Shows the unit ID number and unit name. This is configured using DADman software.

Alarm/status Shows the alarm status:

Sync OK = Clock sync is OK.

SyncErr = Clock sync failure.

TempErr = temperature inside MTRX is above 60ºC/140ºF. Check that the MTRX is properly installed to allow airflow.

Fan Err = One of the two fans is not working correctly. Contact an Avid representative.

CardErr = Fault in one of the A/D or D/A cards. Contact an Avid representative.

Psu Err = Power supply failure. Contact an Avid representative.

Reconfig Button

The Reconfig button on the back of the MTRX should not be used during normal installation. It is generally intended as an ultimate recovery function in case something goes wrong during programming of IP addresses, a software upgrade, or an unintended power loss. It allows the MTRX to start in various “basic” modes so it can be restored without having to be returned to Avid.

The Reconfig button is accessed through a hole in the rear panel using a pen or a similar pointed item. A green Status LED is visible through the hole. When the Reconfig button is activated, the LED lights up indicating the two reconfig modes of the MTRX.

Reconfig button on the back panel

Recovery Mode

To enter Recovery mode, push and hold the Reconfig button for approximately 10 seconds while powering up the unit. The Status LED turns green. In this mode only a basic boot software is operative in the unit, and new software can be downloaded using DADman software. This mode is used if the software in the MTRX is not operational or is otherwise malfunctioning.

The IP address settings of the unit keeps the last used settings.

To set the unit to use DHCP, push and release the Reconfig button while the unit is in recovery mode and the Status LED is lit green. The Status LED turns off, but the unit remains in recovery mode, and the IP address settings of the unit is set to DHCP. If there is no DHCP server on the network, the MTRX defaults to IP address 10.0.7.20 / 255.255.0.0 after approximately two minutes.

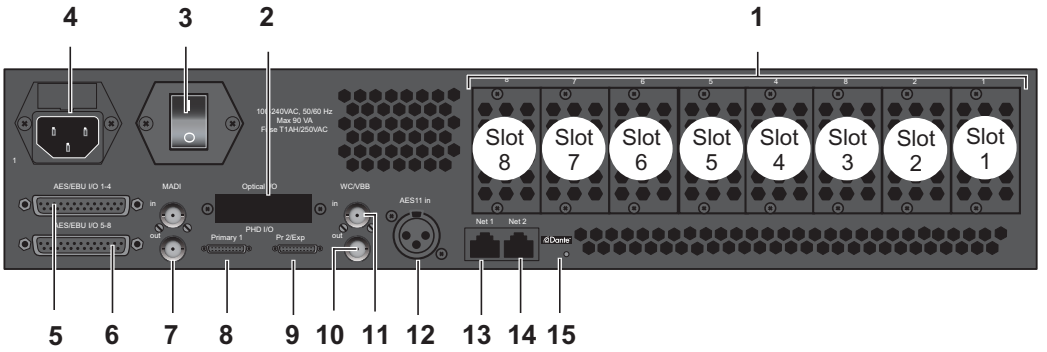
The selection of either of the two recovery modes are fixed after selection. The MTRX starts with a basic boot software and IP configuration. The MTRX will not be operational until a proper firmware has been downloaded using DADman software and it has been power cycled. By enabling recovery mode with default IP address and network configuration the unit can always be identified on a network with the default setup.

⚠ *Note that the IP address referred to is the IP address of the controller/management interface of the unit. This is not the IP address of the IP audio interface if one is installed. This IP address can not be accessed in recovery or restore defaults mode.*

Restore Defaults

To restore the default settings for the MTRX, push the Reconfig button and hold for approximately 10 seconds while the unit is on and operating normally, then release. The Status LED turns off, the firmware restarts with the factory default settings and automatically enters normal operation. However, the IP address settings of the unit remain unchanged and do not return to the factory default.

Pro Tools | MTRX Back Panel



Pro Tools | MTRX back panel

1 Card slots 1 to 8 (right to left). Up to six optional analog I/O expansion cards can be installed, as well as several optional digital format expansion cards. All eight card slots can be used. For more information, see “Installing I/O Expansion Cards” on page 25.

2 Mini module slot for optional MTRX Dual MADI I/O expansion card.

3 Power switch.

4 Main power supply.

5 AES/EBU I/O channels 1–4. 25-pin female D-sub connector with Tascam pin-out.

6 AES/EBU I/O channels 5–8. 25-pin female D-sub connector with Tascam pin-out.

7 MADI I/O BNC connectors.

8 Primary DigiLink Mini port for Pro Tools | HDX or HD Native.

9 Primary or Expansion DigiLink Mini port for Pro Tools | HDX or HD Native, or another I/O.

10 Word Clock synchronization output, BNC connector.

11 Word Clock or Video Black Burst synchronization input (configurable), BNC connector.

12 AES11/AES3 synchronization input, female XLR connector.

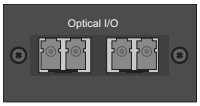
13 Ethernet control and IP audio Primary port (net 1) RJ45 connector. Control port in redundant IP audio mode.

14 Ethernet control and IP audio Secondary port (net 2) RJ45 connector.

15 Reconfigure button and Status LED.

Digital I/O Connections

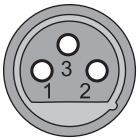
MTRX Dual MADI I/O Expansion Card



The MTRX Dual MADI I/O expansion card can be installed with one or two “Small form-factor pluggable” (SFP) transceiver modules. The SFP modules are standard types which support various types of optical interfaces with LED or Laser diodes, various wavelengths and fiber types. Each SFP module has a receiver and a transmitter port, and can be used for MADI audio I/O. The right port of the SFP connector is the receiver and the left port is the transmitter.

Optical wavelengths of 850nm and 1300nm are commonly used for multi-mode MADI cards. 1300nm uses 100BASE-FX cable and allows for cable runs as far as 6,600 feet. 850nm is a lower cost alternative that uses 100BASE-SX cable, due to the use of short wavelength optics (which are significantly less expensive than the long wavelength options used in 100BASE-FX), with maximum cable runs up to approximately 1,000 feet.

AES11 Sync Input, Female XLR Connector

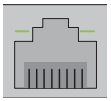


Pin 1 TX. +

Pin 2 TX. –

Pin 3 RX. +

Ethernet, RJ45 Connector, Gigabit



Pin 1 BI_DA+

Pin 2 BI_DA–

Pin 3 BI_DB+

Pin 4 BI_DC+

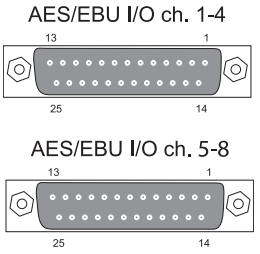
Pin 5 BI_DC–

Pin 6 BI_DB–

Pin 7 BI_DD+

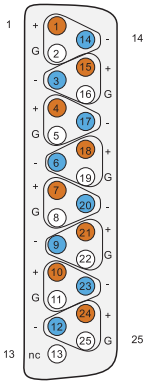
Pin 8 BI_DD–

AES/EBU I/O 25-pin Female D-sub Connectors



The top connector provides the connection for AES/EBU I/O channels 1–4. The lower connector provides the connection for AES/EBU I/O channels 5–8, providing a total of eight AES/EBU I/O channels.

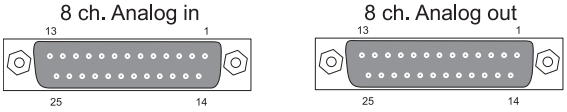
Connections Channel 1–4 / Channel 5–8



Connections for the combined input and output 25-pin D-sub connector are listed in the table below. The pinning is according to the proprietary standard by Tascam.

Pin number	Function	Pin number	Function
1	DOUT 4/8 +	14	DOUT 4/8 –
2	GND	15	DOUT 3/7 +
3	DOUT 3/7 –	16	GND
4	DOUT 2/6 +	17	DOUT 2/6 –
5	GND	18	DOUT 1/5 +
6	DOUT 1/5 –	19	GND
7	DIN 4/8 +	20	DIN 4/8 –
8	GND	21	DIN 3/7 +
9	DIN 3/7 –	22	GND
10	DIN 2/6 +	23	DIN 2/6 –
11	GND	24	DIN 1/5 +
12	DIN 1/5 –	25	GND
13	N.C.		

Analog I/O Connections



Analog I/O 25-pin Female D-sub Connectors

There are four types of optional analog cards for MTRX:

Pro Tools | MTRX 8 Line Pristine AD card 8-channel Line AD Card.

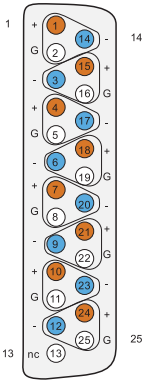
Pro Tools | MTRX 2 Mic/Line Pristine AD card 2-channel Mic/Line AD Card.

Pro Tools | MTRX 8 Mic/Line Pristine AD card 8-channel Mic/Line AD Card.

Pro Tools | MTRX Pristine 8 DA card 8-channel Line DA Card.

These are interfaced using 25-pin D-sub connectors on the card. This connector type is used for both the analog input card and the analog output card.

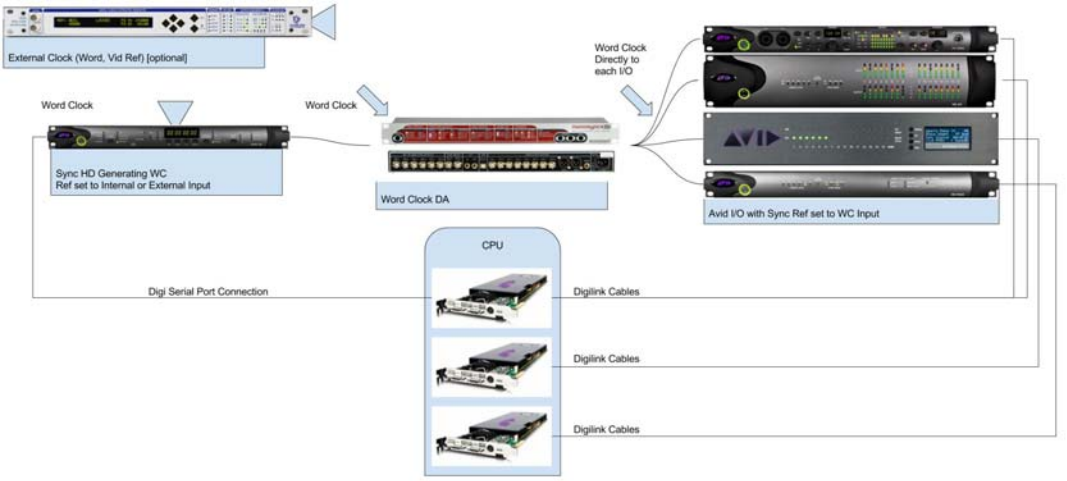
Connections Channels 1–8

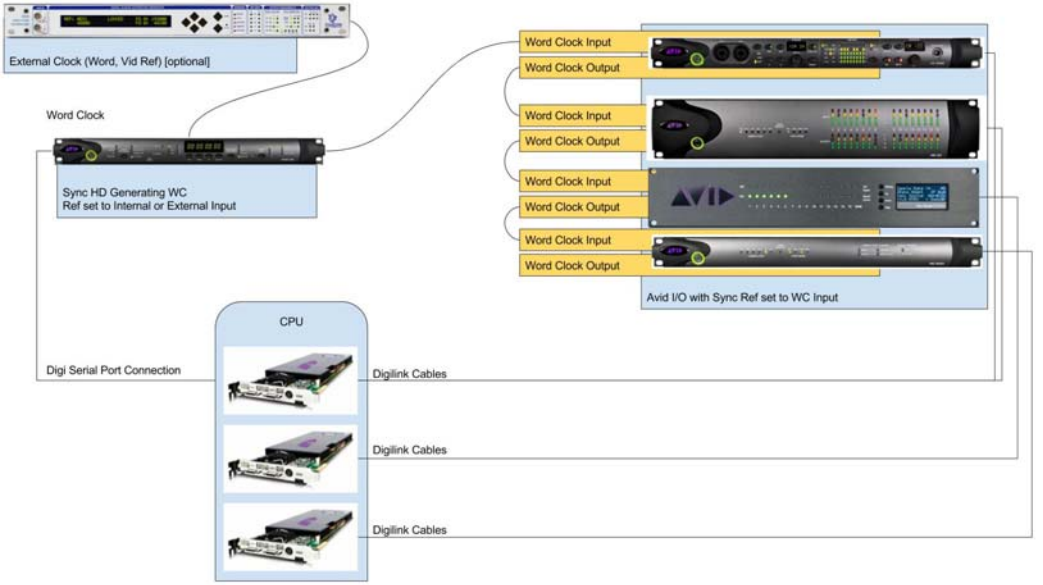


Connections for the 25-pin D-sub connector are listed in the table below. The pinning is according to the proprietary standard by Tascam.

Pin number	Function	Pin number	Function
1	AIN/OUT 8 +	14	AIN/OUT 8 –
2	GND	15	AIN/OUT 7 +
3	AIN/OUT 7 –	16	GND
4	DOUT 2/6 +	17	AIN/OUT 6 –
5	GND	18	AIN/OUT 5 +
6	AIN/OUT 6 +	19	GND
7	AIN/OUT 4 +	20	AIN/OUT 4 –
8	GND	21	AIN/OUT 3 +
9	AIN/OUT 3 –	22	GND
10	AIN/OUT 2 +	23	AIN/OUT 2 –
11	GND	24	AIN/OUT 1 +
12	AIN/OUT 1 –	25	GND
13	N.C.		

Example System Configurations





Appendix A: Specifications

Audio Specifications

Analog Input

Sampling, resolution	5-bit sigma/delta @ 5.645 or 6.144 MHz, 24-bit PCM
PCM (DXD) sample rates	44.1, 48, 88.2, 96, 174.4, 192, 352.8, 384 kHz
DSD sample rates	8224 & 5.6448 Mhz (64 & 128 fs)
Dynamic range (A)	> 123 dB
THD+N(A)	< –117 dB @ –3 dB FS / 0.00014%
Cross talk	< –120 dB
Input Impedance (differential)	> 10 k Ohm
Max input level	Adjustable from 9 dBu to 30 dBu in steps of 0.1 dB
Microphone input gain range/accuracy	Adjustable from –18 to +70 dB, in steps of 0.1 dB ± 0.25 dB accuracy
Microphone equivalent input noise (A)	133 dB

Analog Output

Modulator resolution, format	32 x oversampling, 1 bit DSD, 24 bit PCM
PCM (DXD) sample rates	44.1, 48, 88.2, 96, 174.4, 192, 352.8, 384 kHz
DSD sample rates	8224 & 5.6448 Mhz (64 & 128 fs)
Dynamic range (A)	> 128 dB
THD+N(A)	< –110 dB @ –3 dB FS / 0.00031%
Cross talk	< 120 dB
Max output level	Adjustable from –60 dBu to 24 dBu in steps of 0.1 dB

Digital I/O and Synchronization

Digital I/O formats Supported sample rate	AES/EBU, Pro Tools DigiLink Mini, Dante IP Audio/up to 192 kHz MADI / up to 384 kHz and DSD
Synchronization/sample rate	AES11, Word Clock, All digital inputs, Video Sync (word clock connector) / PAL, NTSC, SECAM
DSD sample rates	8224 & 5.6448 Mhz (64 & 128 fs)
Dynamic range (A)	> 128 dB
THD+N(A)	< –110 dB @ –3 dB FS / 0.00031%
Cross talk	< 120 dB
Max output level	Adjustable from –60 dBu to 24 dBu in steps of 0.1 dB

Network Interface

Interface	1000BASE-T, RJ45 connector, 4-pair connection

Electrical Specifications

Power consumption	90 VA maximum
Input voltage	90–260 VAC 100–240 VAC Nominal, 47–63 Hz
Mains fuse, mounted in IEC connector	1 A, T1AH/250V

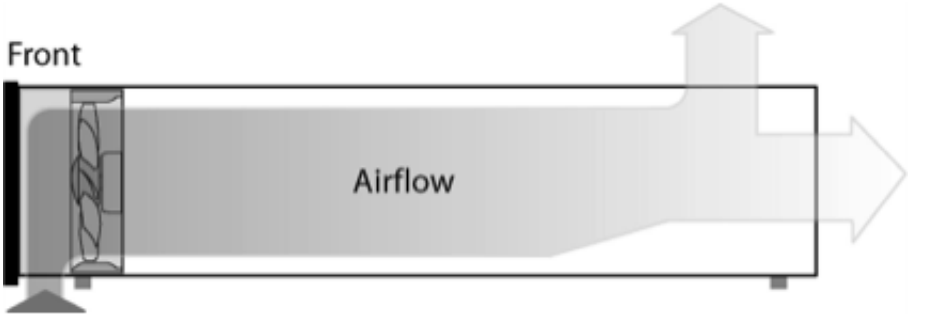
Power supply cord must be min. light sheathed flexible cord according to IEC60227 (designation 60227 IEC 52) and include a protective earth conductor having a green-and-yellow insulation. Cross-sectional areas min. 3 x 0.75mm.

Mains line plug type	**Correct type acc. to standard**
110–125V	UL817 and CSA C22.2 no 42
220–230V	CEE 7 page VII, SR section 107-2-D1/IEC 83 page C4
240V	BS 1363 of 1984.Specification for 13A fused plugs and switched and un-switched socket outlets

Mechanical Specifications

Chassis standard	19”, 2 RU
Chassis depth, without connectors mounted	35.0 cm / 13.8”
Chassis body width	43.5 cm / 17.2”
Weight, not including I/O cards	5 kg / 11 lbs.

Chassis air flow from front to rear:



Environmental Specifications

Operating Temperature	0–45º C / 32–113º F
Humidity	
EMC compliance	FCC 47 CFR part 15 (A): Emission

Appendix B: Installing I/O Expansion Cards

The analog and digital IO capacity and processing of Pro Tools | MTRX can be expanded in the following ways:

Analog I/O You can install up to six A/D or D/A cards in any combination, for up to 48 analog audio channels.

Digital I/O You can install up to eight digital I/O expansion cards for additional AES3, MADI, and SDI input and output. You can also install either a 64-channel IP Audio interface powered by Dante™ or a 128-channel MADI module.

DSP/FPGA You can install a SPQ Speaker Processor card for monitor control, speaker matching, and comprehensive EQ and bus management in all output formats.

Overview of Installation

Installing expansion cards involves the following steps:

1 Preparing for the installation

2 Removing the top panel

3 Installing and connecting the expansion card

4 Completing the installation

Preparing for the Installation

Before installing expansion cards, collect the required materials and prepare your work area.

To prepare for the installation:

1 Make sure you have collected the required materials:

- One or more MTRX Expansion Card packages.
- Anti-Static wrist strap (not included).
- Foam or other padded surface to place the card on (not included).

- The following tools:
  - #1 Phillips screwdriver (not included).
  - If installing a MTRX MADI module, you will also need a small flathead screwdriver and a 3/16-inch socket or similar sized open end wrench.

2 Put on your anti-static wrist strap and configure according to its instructions.

3 Make sure the MTRX is powered off and disconnect any cables connected to it.

4 Place the MTRX on a table or other flat surface.

5 Make sure your surface is clear of any debris and that you have a padded surface nearby to place the expansion card if you need to set it down during installation.

Opening the MTRX Chassis

To open the MTRX Chassis:

1 Use a #1 Phillips screwdriver to remove the screws on the top and sides of the unit that secure chassis cover. Carefully set each screw aside as you remove them and keep them nearby to reattach the chassis cover after cards are installed.

2 Set the chassis cover aside.

Installing an Expansion Card

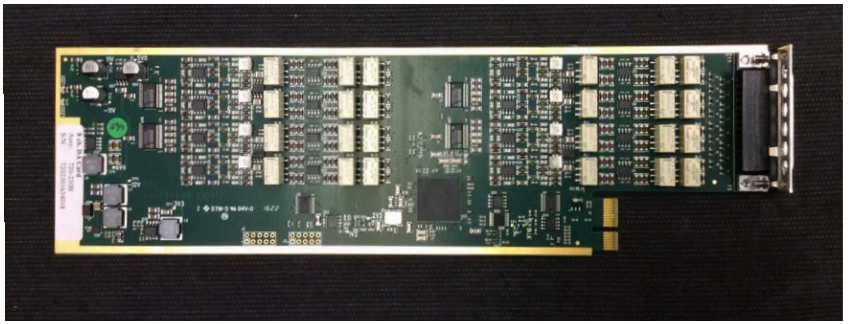
Installation steps differ slightly depending on the type of expansion card you are installing. If you are installing any of the following analog or digital I/O cards, or a processor card, see “Installing Expansion Cards” on page 27:

- MTRX 8 Line Pristine AD card
- MTRX 2 Mic/Line Pristine AD card
- MTRX 8 Mic/Line Pristine AD card
- MTRX Pristine 8 DA card
- MTRX 8 AES3 I/O card
- MTRX Dual SDI/HD/3G card
- MTRX Dual MADI I/O card
- MTRX SPQ Speaker Processor card

If you are installing a MTRX MADI module, see “Installing a MTRX MADI Module” on page 31.

Installing Expansion Cards

Expansion cards are installed into slots along the back of the unit. All eight slots can be used. Up to six analog cards can be installed. Digital I/O expansion cards can be installed in any available slot.

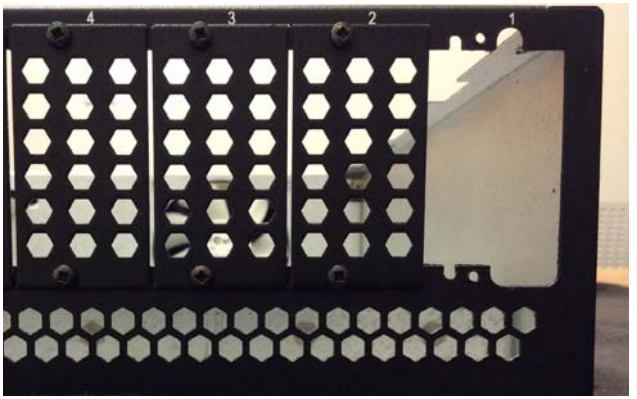


Orientation, connector and ports of an example Expansion Card (MTRX 8 Pristine DA card shown)

To install an expansion card:

1 Standing at the back of the unit, use a #1 Phillips screwdriver to remove the faceplate covering the slot where you want to install the card. For example, to install a card into slot 1 remove the two fasteners securing the faceplate on slot 1 shown below.

Set the fasteners aside (you will use them to secure the new card to the unit after the card is installed).

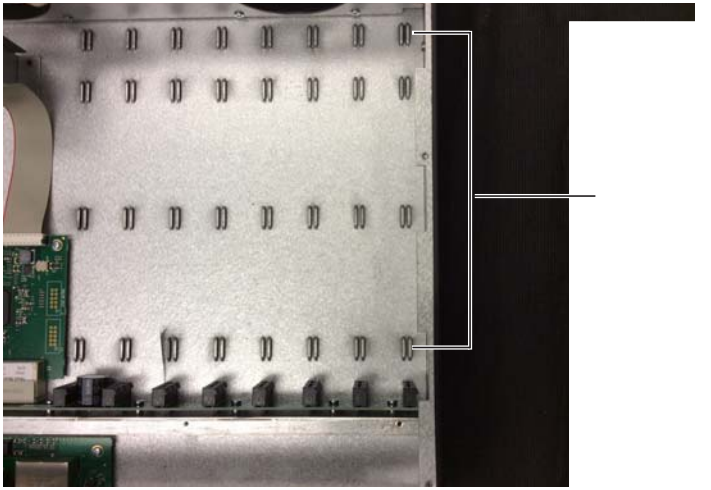


Faceplate removed from slot 1

2 Remove the expansion card from its packaging, being careful to handle it by its edges only.

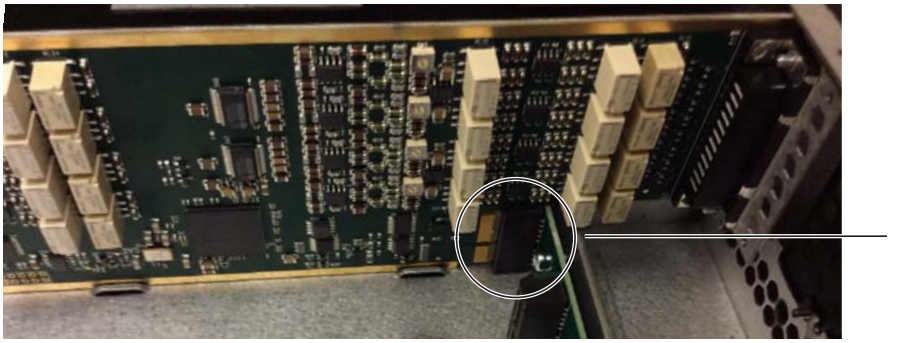
3 Orient the card with its external connectors facing you (towards the back of the unit) and its PCIe connector also facing the back of the unit.

4 Align the card in the corresponding guide rails on the bottom of the unit. Ensure any internal cables (such as the ribbon cable near slot 8) are laid under the card.



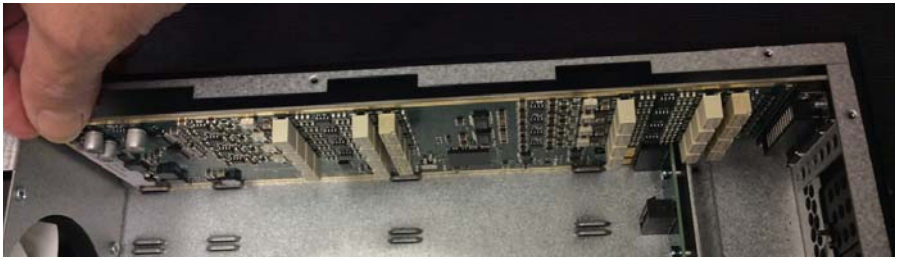
Guide rails for slot 1

5 Align the PCIe connector on the card with the PCIe port mounted in the unit.



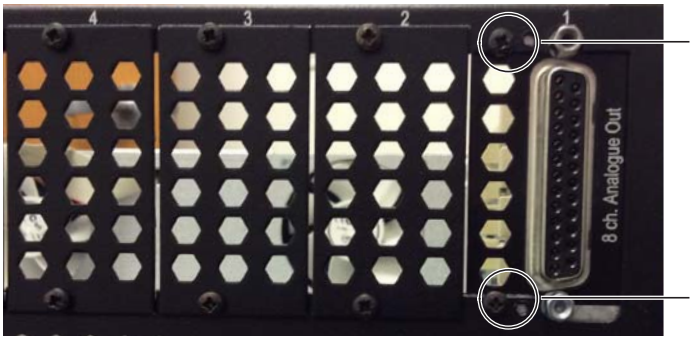
Side view showing card PCIe connector aligned with unit PCIe port

6 Making sure to guide the audio connectors through the open slot on the back of the unit, carefully push the card towards the back of the unit until it seats fully into its PCIe connector.



Pushing the card into its PCIe connector

7 Once the card is seated completely in its slot, secure it to the unit using a #1 Phillips screwdriver and the fasteners you removed from the faceplate in step 1. Note that the fasteners are threaded into different threaded holes than when they were securing the faceplate.



Fasteners re-installed to secure the card into slot 1

8 Proceed to “Completing the Installation” on page 36.

Installing a MTRX 64 Channel IP Audio Dante Module

The MTRX 64-Channel IP Audio Dante Module is a small card that snaps into a slot on the motherboard.

MTRX 64-Channel IP Audio Dante Module (top view)

To install a MTRX 64-Channel IP Audio Dante Module:

1 Locate the Dante card slot on the motherboard shown below.

Slot for Dante card

2 Align the Dante card connectors with the Dante slot on the motherboard, holding it at a slight angle, then carefully push the card in so it seats fully into its slot.

Side view, pushing the Dante card into its slot

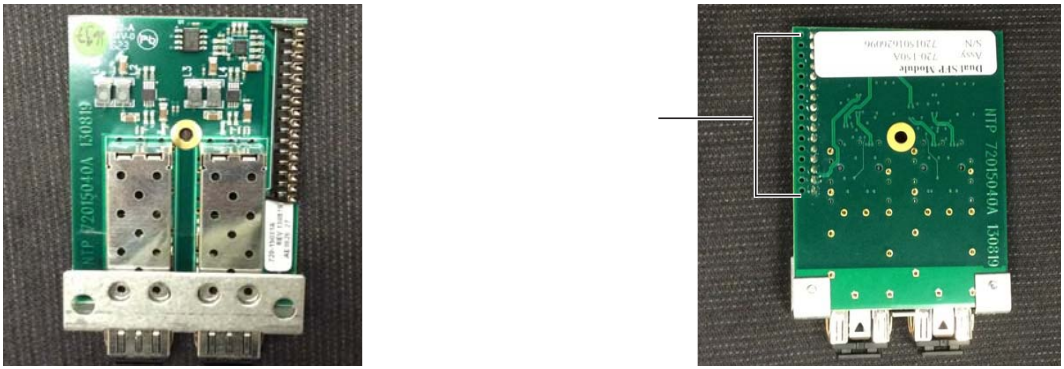
3 If necessary, gently push down on the card until it clicks into its two retaining clips.

Pushing the Dante card down into its retaining clips

4 Proceed to “Completing the Installation” on page 36.

Installing a MTRX MADI Module

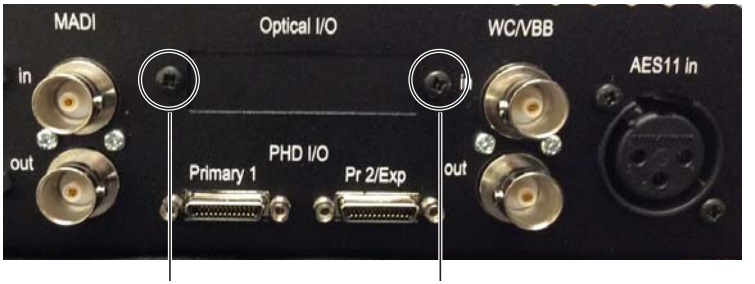
The MTRX MADI module is a daughter card that is mounted to the motherboard. Installing a MADI module involves freeing the motherboard from the chassis, installing the MADI module onto its connector pins, then reattaching the motherboard assembly to the chassis. In addition to a #1 Phillips screwdriver, you will also need a small flathead screwdriver and a 3/16-inch socket or similar sized open end wrench.



MTRX MADI module, top (shown at left) and underside showing connector (at right)

To install a MTRX MADI module:

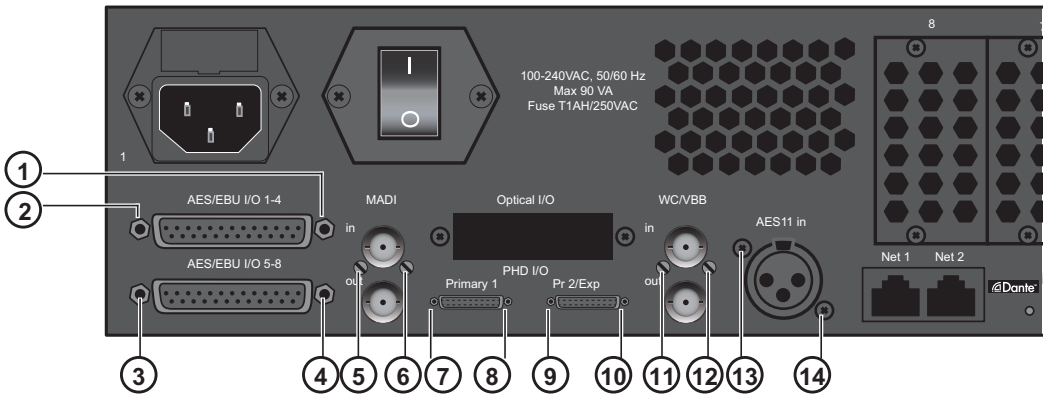
1 Remove the two fasteners that secure the faceplate over the Optical I/O slot and remove the faceplate. Set the screws aside (you will use them later to secure the card to the unit).



Fasteners securing the Optical I/O faceplate

2 Remove the following 14 fasteners from the back panel of the MTRX. Keep the fasteners organized to simplify reassembly.

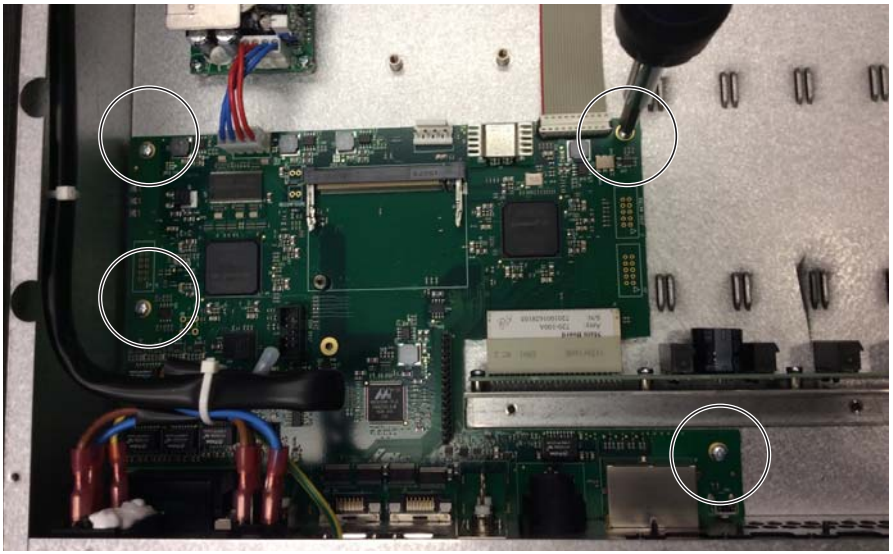
- Use a 3/16-inch socket or similar sized open end wrench to remove the two pairs of cable anchors (4 total) from each AES/EBU DB-25 port (items **1–4** in the figure below).
- Use a small flathead screwdriver to remove the two pairs of cable anchors (4 total) that secure the PHD I/O ports (items **7–10** in the figure below).
- Use a #1 Phillips screwdriver to remove the three pairs of fasteners (6 total) that secure the MADI, WC/VBB, and AES11 ports (items **5–6**, and **11–14** in the figure below).



Fasteners to remove

Do not remove any PSU or analog card fasteners.

3 Inside the unit, remove the four screws that secure the motherboard to the chassis.



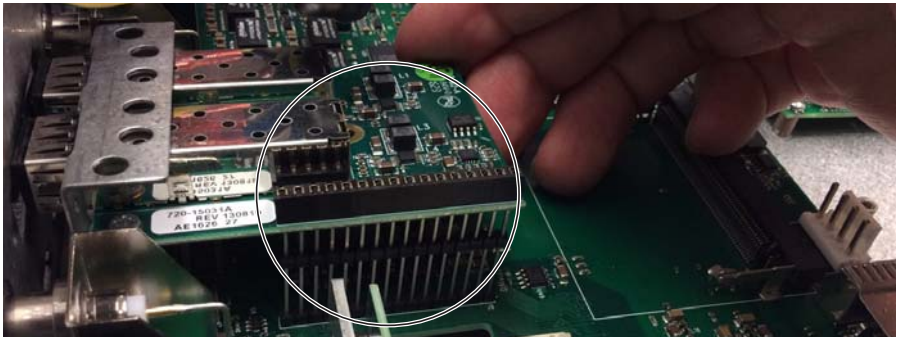
Fasteners to remove from the motherboard

4 From the back of the unit, gently push the AES/EBU 5–8 and AES11 connectors towards the front of the unit, until the motherboard is no longer attached to the chassis.

You should see and hear the Main Board multi-pin connector fully disengage.

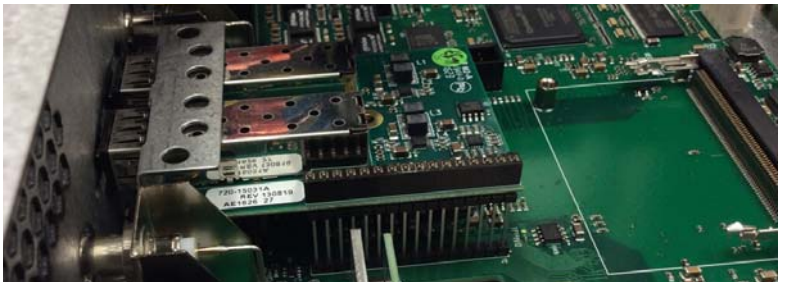
Main Board multi-pin connector (circled) disengaged

5 Carefully position the MADI module in the unit so that the receiving holes on the underside of the MADI module align with the MADI connector pins on the motherboard.



Side view of MADI module aligned with the connector on the motherboard

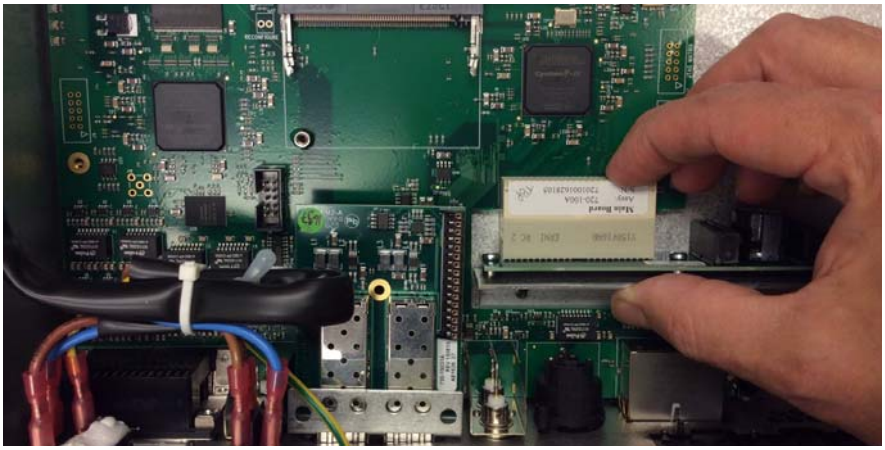
6 With the card aligned, gently push the MADI module down so that it is fully seated on its connector.



Side view of MADI module fully seated on its connector

7 Carefully move the motherboard back into its original position by doing the following:

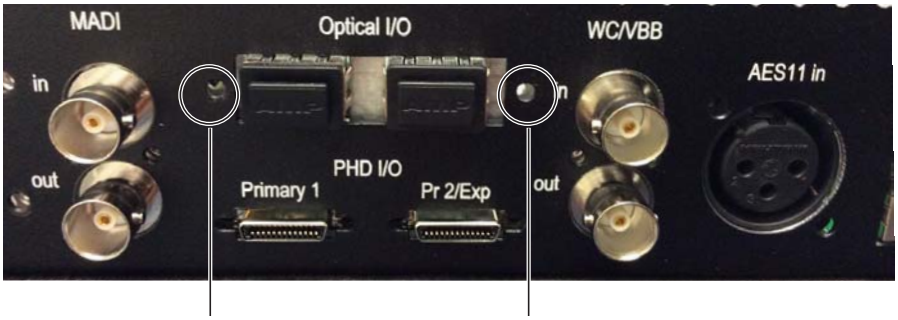
- Make sure the ports on the MADI module are aligned with the open Optical I/O slot of the back panel. Guide the ports through the slot while moving the motherboard back into position, if necessary.
- Make sure the four motherboard mounting holes align with their threaded receivers on the bottom of the unit.
- The raised tab on the Main Board multi-pin connector fits underneath the top of its receiver port. With the connector properly aligned, pinch the two sides together to ensure a proper connection and correct positioning of the motherboard.



Making sure the Main Board connector is fully connected

8 Secure the motherboard back to the bottom panel of the unit using the same four fasteners you removed previously.

9 From the back of the unit, secure the MADI module to the back panel using the two faceplate screws you removed earlier (two extras are included with the MADI module).



Location of fasteners to secure MADI module to the back panel

10 Proceed to “Completing the Installation” on page 36.

Completing the Installation

After installing cards, reassemble the unit by replacing its top panel and then power on your system to confirm the installation.

To replace the top panel:

1. Replace the top panel, making sure to orient it correctly so that the tabs on its front edge fit under the unit faceplate.
2. Using a #1 Phillips screwdriver, replace the 11 fasteners you removed earlier and secure the top panel to the unit.

To confirm installation:

1. Make sure your switchable power source (power strip or other) is off.
2. Connect power to the MTRX using the included IEC power cable.
3. Switch on your power source.
4. Wait for the unit to initialize. Check the front panel display for status.
5. Power off the unit.

Appendix C: Warranty Claims Information

If you purchased your genuine Avid product from a reseller or retailer, please contact them (within 90 days for software and one year for hardware or such longer time periods required by local law) for all warranty claims. If they cannot help you, or you purchased your product directly from Avid, please process an online request at www.avid.com/warranty. At that link, you will also find additional information and local contacts.

You can also mail a request at any time to:
Attn: Warranty Claims
Avid, 75 Network Drive
Burlington, MA 01803
USA

In Australia only, consumers may contact Avid directly at 02 9420 3066 if the reseller/retailer is unable to help.

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Burlington, MA 01803 USA

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visit us on the web at www.avid.com