

ADAM - M

Advanced Digital Audio Matrix

System Installation Guide



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 <p>THE LIGHTNING FLASH AND ARROWHEAD WITHIN THE TRIANGLE IS A WARNING SIGN ALERTING YOU OF "DANGEROUS VOLTAGE" INSIDE THE PRODUCT.</p>	<p>CAUTION</p> <p>RISK OF ELECTRIC SHOCK DO NOT OPEN</p> <p>CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER. NO USER-SERVICABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.</p>	 <p>THE EXCLAMATION POINT WITHIN THE TRIANGLE IS A WARNING SIGN ALERTING YOU OF IMPORTANT INSTRUCTIONS ACCOMPANYING THE PRODUCT.</p>
SEE MARKING ON BOTTOM/BACK OF PRODUCT.		
WARNING: APPARATUS SHALL NOT BE EXPOSED TO DRIPPING OR SPLASHING AND NO OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, SHALL BE PLACED ON THE APPARATUS.		
WARNING: THE MAIN POWER PLUG MUST REMAIN READILY OPERABLE.		
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, GROUNDING OF THE CENTER PIN OF THIS PLUG MUST BE MAINTAINED.		
WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPRATUS TO RAIN OR MOISTURE.		
WARNING: TO PREVENT INJURY, THIS APPARATUS MUST BE SECURELY ATTACHED TO THE FLOOR/WALL/RACK IN ACCORDANCE WITH THE INSTALLATION INSTRUCTIONS.		
	This product is AC only.	
		

Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus 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 apparatus (including amplifiers) that produce heat.
9. 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.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus 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 apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

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Introduction

General Description

Re-engineered with the latest design and technology, the ADAM-M Matrix Intercom bridges legacy with innovation.

The sleek re-design provides 128+ ports in an extremely compact 3 RU (rack unit) package, with full redundancy on the master controllers and power supplies. The Matrix frame supports current ADAM cards, including AIO-16, RVON-16, MADI-16 Plus, OMI, TriBus and MCII-e controllers. It also supports existing ADAM wiring schemes and options.

Built for the entire world and the REAL world, the chassis plugs and plays anywhere, running on 90-264VAC at 50/60Hz.

The chassis is built with improved low noise cooling, hot-swappable components (including cooling modules), and improved status reporting.

Features

Port Density	The ADAM-M supports 128+ ports in a 3RU unit, giving more functionality with less rack space used.
Redundant Master Controllers	Every ADAM-M is equipped with two (2) master controllers that are fully redundant to each other, so if one fails the other will take over until the failed controller can be brought back online.
Power System	The ADAM-M has two fully redundant, hot-swappable power supplies that work from 90-264VAC, 50/60Hz with low noise cooling and advanced status reporting capabilities. UL, CSA, CE, VDE, FCC and PSE approved.
Compatibility Bridging with Past and Future	The ADAM-M supports existing legacy products, such as the AIO-16, RVON-16, MCII-e, Tribus, and MADI, as well as our current generation OMI cards.
Extended Back Card Capabilities	The ADAM-M includes provisions for expanded back cards to increase wiring options and simplicity.
Integration/Expansion	The ADAM-M, utilizing existing cables and bus expanders, integrates and expands existing intercom systems into larger systems with minimal effort.
Hot Swappable Components	Not only are the I/O cards in the ADAM-M hot-swappable, but the power supplies and fans are completely removable and hot swappable, making replacement and maintenance easier than ever.

Reference View

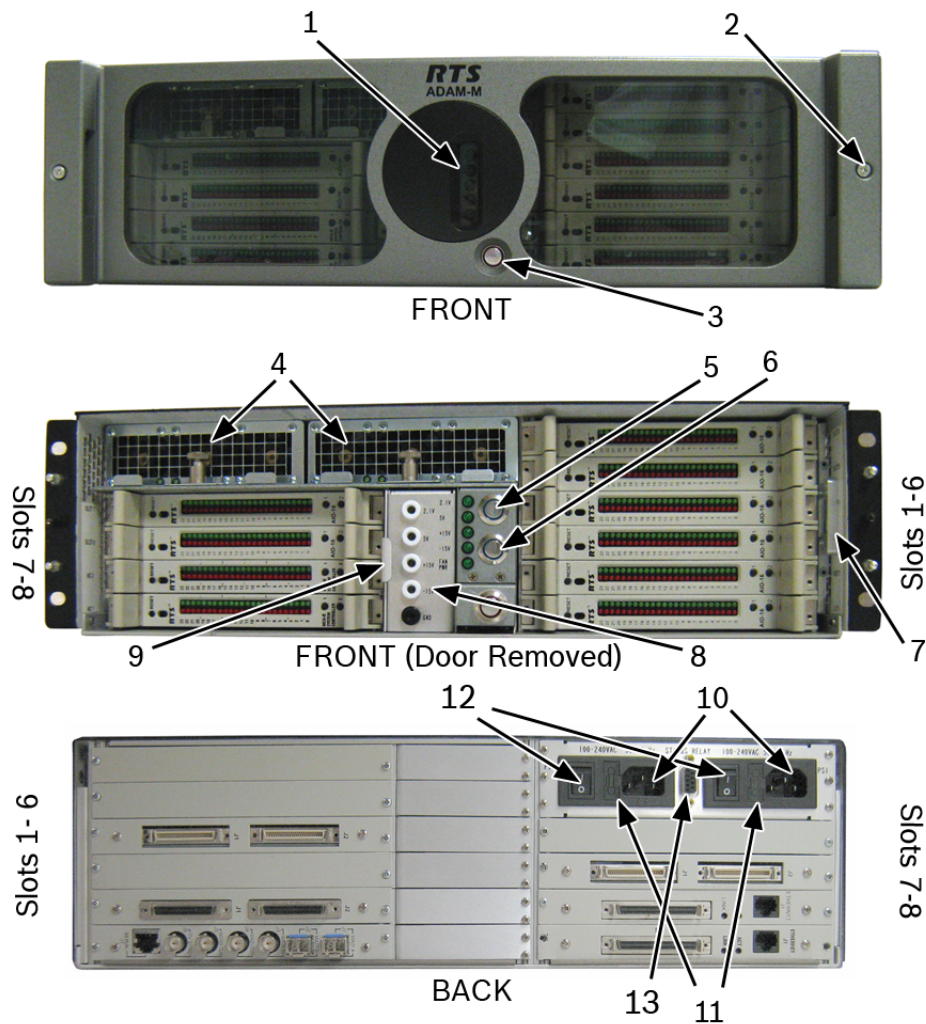


FIGURE 1. ADAM-M Reference View

1. Status LEDs
2. Front Cover Thumb Screws
3. Alarm Override Button
4. Power Supplies
5. DC Power On/Off Button
6. DC Power On/Off Button
7. Filter Module
8. Power Test Point Banana Jacks
9. Fan Module
10. AC Power Connectors
11. Fuses
12. AC Power On/Off Button
13. Status Relay Connector

Specifications

General

Matrix Size

16-128 ports, frame expandable up to 880 ports

Cards Supported

AIO-16: 16 Analog ports with individual, bi-directional data 15Hz to 20kHz, >90dB A-weighted S/N

MADI-16 Plus: 16 to 64 channels of MADI

RVON-16: 16 VoIP ports supporting G.711, G.729A, and G.723

Tri-Bus: Triple Bus Expander for linking between ADAM-M and other ADAM frames

OMI: IP Ethernet and fiber optic connections for OMNEO compatible devices into the ADAM-M and ADAM intercom BUS

MCII-e: Ethernet Master Controllers in redundant configuration

Electrical

Power Supply

Universal PSU 90V to 264V 50/60Hz

Power Consumption

System dissipation up to 237 Watts

Environmental

Temperature

Operating: 0°C to +50°C (+32°F to +122°F)

Storage: -40°C to +55°C (-40°F to +131°F)

Humidity: 0 to 95% non-condensing

Dimensions

Height: 5.25" (133.35mm) 3RU

Width (frame with rack ears): 19" (482.6mm)

Depth: ≤ 20" (508mm)

Weight: ≤ 22.05lbs (10.00kg)

Approvals

UL, CSA, CE, VDE, FCC, PSE, REACH, RoHS, WEEE, CCC, ACMA C-Tick, China RoHS, and IECCEB Scheme

CAUTION: Ventilation: Minimum 6" clearance on the sides to keep fan area unobstructed (EN 60065 Clause 4.1.4).

Apparatus shall not be exposed to dripping or splashing and no objects filled with liquids shall not be placed on the apparatus (EN 60065 Clause 5.4.1a).

The ADAM-M is to be connected to a mains socket outlet with a protective earth connection (EN 60065 Clause 5.4.1d).

REFERENCE: For information on ADAM-M Frame accessory specification, consult the individual device's user manual. Most user manuals can be found at www.rtsintercoms.com.

Alarm Operation

The ADAM-M is equipped with a power supply fault, fan fault, and over-temperature alarm. If there is a problem detected in any of these areas, an audible alarm sounds.

<i>Power issue</i>	If only one (1) power supply is running, an alarm sounds because redundant power is not active.
<i>Fan issue</i>	If any of the three (3) fans stops, an alarm is triggered.
<i>Heat issue</i>	If the heat within the chassis goes above 140°F (60°C), an alarm is triggered. There are three (3) heat sensors in the ADAM M chassis – at the chassis rear, on the backplane, and in the chassis air vent.

The chassis provides an aux alarm relay for when the chassis mounted in unoccupied areas to trigger a remotely located alarm. Contact closure is given to the connector when a failure is detected.

It is possible to disable these alarms by engaging the Alarm Override button (see Figure 1 on page 10). If the alarm override switch is engaged, a red ring appears around the button, the alarm is being by-passed and no notification is heard. By disengaging the alarm override button, the alarm resumes its audible notification.

NOTE:

- The power supply alarm also sounds if a power supply is turned off. This is normal. Either turn on the power supply, or turn off the alarm override switch.
- Alarm override does not override the alarm for the status relay connection.

Status Relay Pin Out

Relay 1 consists of pins 1, 2, and 6 of the DB-9 Connector.

IMPORTANT: The relay driver must be capable of 5v, 50ma.

TABLE 1. DB-9 Pin Out

Pin	Description
1	NO
2	NC
3	n/a
4	n/a
6	Common
7	n/a
8	n/a
9	n/a

Mounting the Central Matrix Components

CAUTION: To avoid potentially dropping and damaging the ADAM-M, verify the thumbscrews are secure and be sure to grasp the front door and the main unit rack ears together when transporting the frame.



CORRECT

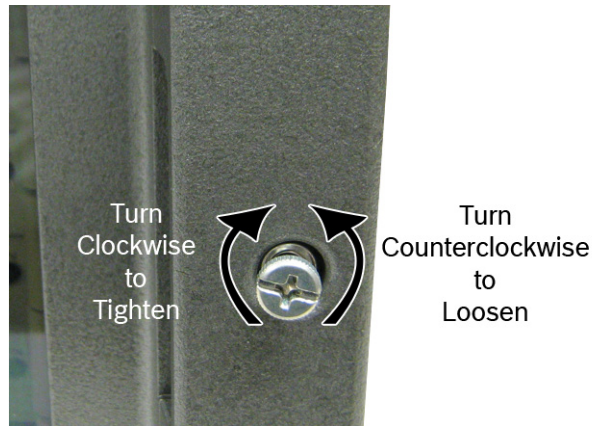


INCORRECT

FIGURE 2. ADAM-M—Proper Carrying Position

To **mount the ADAM-M unit**, do the following:

1. Using a flat blade screwdriver, loosen the **thumb screws** on both sides of the front door. (see Figure 1 on page 10).



2. Remove the **front door** from the ADAM-M.
3. Bolt the **ADAM-M Frame** into the front of the equipment rack.
4. Using the rear brackets, bolt the **ADAM-M into the back of the equipment rack**.
5. Replace the **front cover** on the ADAM-M.

NOTE: Make sure the ventilation holes on the both sides are unobstructed (minimum 2"). The rack space behind the ADAM-M Card Frame should be kept completely clear to allow for connections and the insertion and removal of back cards (at least 2 feet).

Station Breakout Panels and Translation Panels are usually mounted in the back of the equipment rack, and are generally arranged to allow intercom station cabling to exit the frame at the top or bottom, as required.

Optional UIO-256/GPIO-16 Frames can be mounted in the front of an equipment rack. When positioning a UIO-256/GPIO-16, consideration should be given to the visibility of the front panel LEDs, which provide visual indication for any active inputs and outputs.

Optional **PAP** (Program Assign Panels) units should be mounted in the front of an equipment rack. Generally, a PAP should be located slightly below eye height when sitting or standing to allow for viewing of the front panel indicators and easy activation of the front panel controls.

Initial Setup

IMPORTANT: If you are running four (4) cards (including master controllers) or less, verify the Load Card is installed.

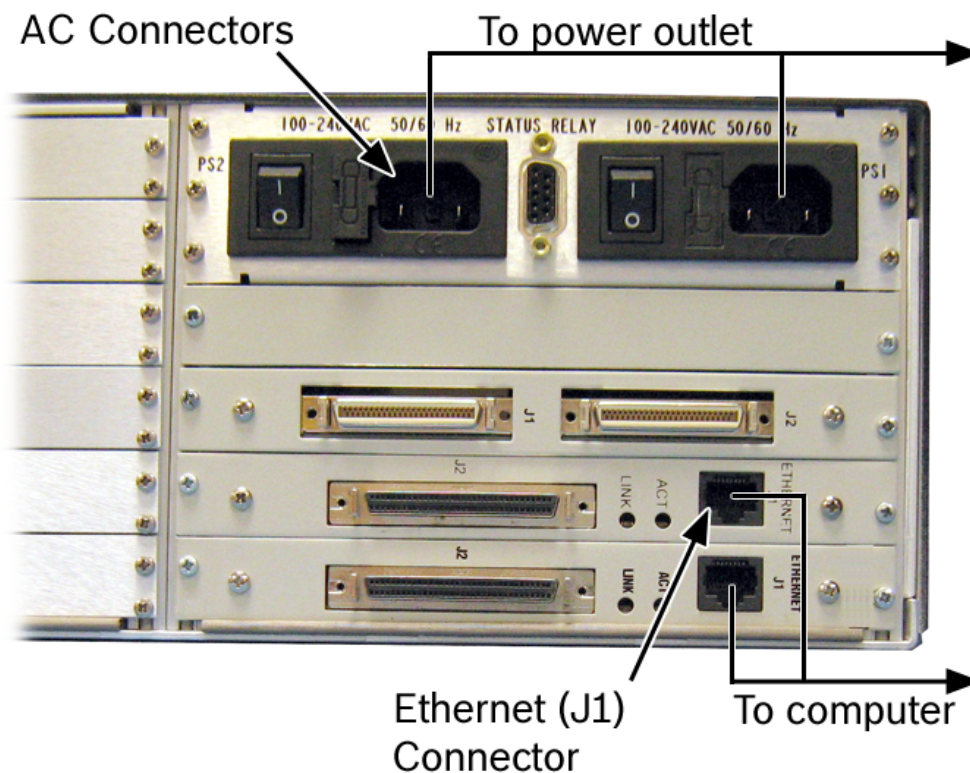
Checklist before cabling:

- Verify unit is not damaged
- Verify the power supplies are firmly seated in their slots
- Verify the MCII-e (s) are in slots MC1 and MC2

To **set up the ADAM-M**, do the following

1. Connect the **power cord connector end(s)** to the power module on the rear side of the ADAM-M.
2. Connect the **power cord plug(s)** to an electrical outlet.
3. Using an Ethernet cable, connect the **Primary MCII-e (J1)** to the computer hosting AZedit.
4. Using an Ethernet cable, connect the **Standby MCII-e (J1)** to the computer hosting AZedit (optional).
5. Using the appropriate user manuals, cable the **specific I/O cards** used in your system.

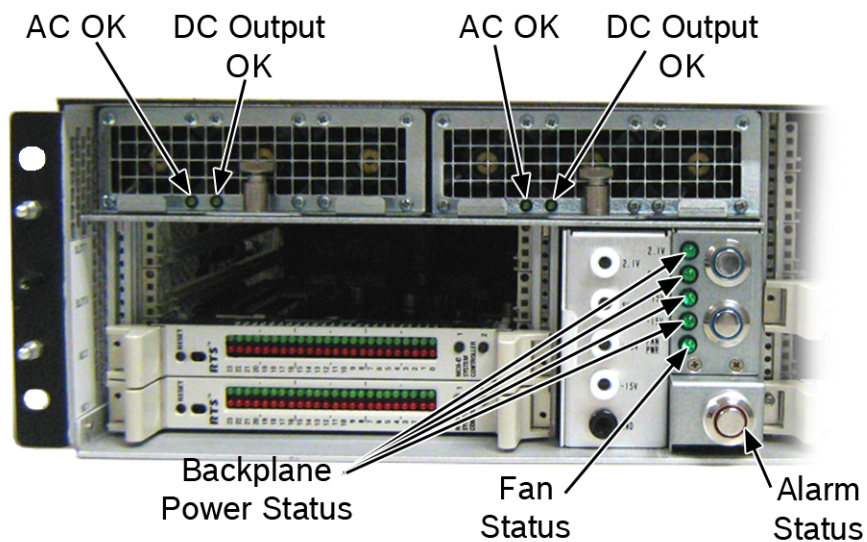
REFERENCE: For a complete list of RTS User Manuals, visit www.rtsintercoms.com



6. Power on the **ADAM-M** unit.

7. Verify the following **Status LEDs** are good (on):

- AC/DC Status
- Power Status
- Alarm Status
- Fan Status



ADAM-M Front (cover removed)

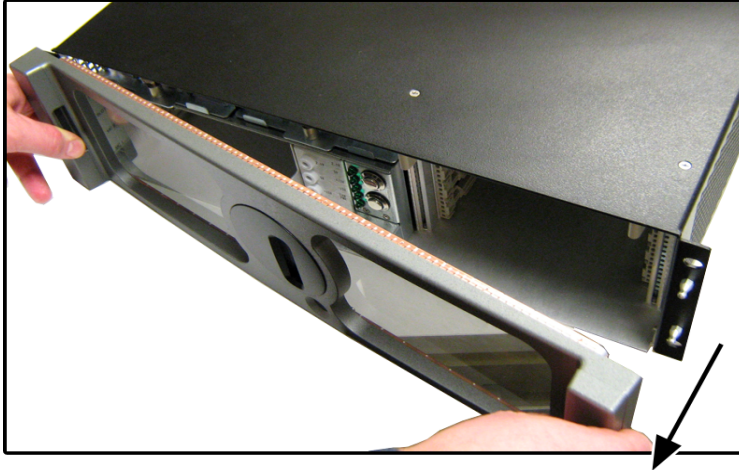
8. Using AZedit, verify **ADAM is communicating** with the computer.

ADAM-M Cards

Front Card Access

To **access the front cards**, do the following

1. Loosen the **thumb screws** on both sides of the front door. (see Figure 1 on page 10)
2. Grasp the **ADAM-M front cover** on each hand hold.
3. Firmly pull the **chassis front door** from one side.
The other side of the chassis door automatically pops free.



4. Remove the **front door** and set it aside.

Card Removal and Installation

All ADAM-M circuit cards can be hot-installed, which means you do not have to turn the power off before installing or removing a card. This permits continuous operation of the intercom system - with no interruptions to unaffected ports - in the event of a card failure.

NOTE:

- Tribus cards should be placed in slot 6 (use slot 5 when using redundant TBX audio or ring architecture).
- For instructions on how to place MADI cards to better dissipate heat, refer to the preferred layout in the MADI manual (F01U193297), found at www.rtsintercoms.com. Place the cards in slots 4 and 8 of the ADAM-M frame for maximum system reliability.
- If less than four (4) cards are loaded in the ADAM-M (including Master Controllers), use the Load Card in slot 1. This guarantees power supply redundancy.

CAUTION: The connector pins on the back plane inside the ADAM-M frame can be easily damaged by improper or hurried insertion of the circuit cards.

To **insert back cards**, do the following:

1. Orient the **card** so the component side of the board is facing up.
2. Insert the **card edges** into the right and left guides in the back of the ADAM-M frame.
3. Push the **card** in until the mounting plate is flush with the ADAM-M frame.
4. Install **mounting screws** in the left and right of the card plate to lock it in place.

IMPORTANT: Slots designate MC1 and MC2 are reserved for Master Controllers. Do not install I/O cards in these slots.

To **insert front cards**, do the following:

1. Orient the **front card** so the reset switch is on the left-hand side.
2. Insert the **card edges** into the right and left card guides in the front of the ADAM-M frame.
3. Push the **front card** into the slot until initial resistance is felt.
4. When initial resistance is felt, apply **slightly more pressure** to begin engaging the connector pins.
5. Once the connector pins have started to engage, press firmly to completely seat the **connectors**.
When the card is properly seated, the card mounting plate should be flush with the ADAM-M frame.

NOTE: Mount screws for the front cards are not required, but are recommended for mobile installations.

To **remove a front card**, do the following:

1. Press the **ejector levers**.
2. Once released from the back plane connector, pull the **front card** straight out of the frame.

To **remove a back card**, do the following:

1. Release the **front card** by pressing the ejector levers.
2. Unscrew and remove the **back card mounting screws**.
3. Remove the **back card**.

NOTE: When a front or back audio card is removed, the displays on any keypanel connected to that card displays asterisks instead of the normal key assignments. After a card is reinstalled, it may take a minute or two for the keypanel displays to return to normal.

Unused Back Card Slots

To ensure proper air flow, each unused back card slot should be fitted with a card blank, shown in Figure 3, (F01U118559) to cover the opening.

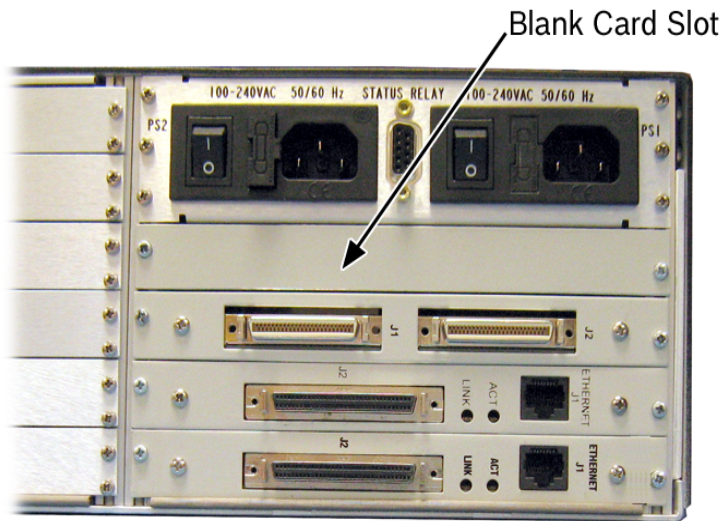


FIGURE 3. ADAM-M-Blank Card

Supported ADAM-M Configurations

The ADAM-M has a limit of only two (2) MADI cards. The following configurations are supported:

ADAM-M with 2 MADI cards and 0 TBX Cards

Place MADI Cards in slots 3 and 6

ADAM-M with 2 MADI cards and 1 TBX Card

Place MADI Cards in slots 3 and 8

Place TBX Card in slot 6

ADAM-M with 2 MADI cards and 2 TBX Cards

Place MADI Cards in slots 3 and 8

Place TBX Cards in slots 5 and 6

ADAM-M with 1 MADI Card^a and 3 TBX Cards

Place MADI Card in slot 8

Place TBX Cards in slots 4, 5, and 6

a. When three (3) TBX cards are used in the ADAM-M, only one (1) MADI card can be used in the system.

Master Controller Card DIP Switches

NOTE: As shipped from the factory, all master controller card DIP switches are set to the default operation position. These settings are satisfactory for most applications. Optional settings are summarized in Table 2 on page 21. If any changes are made to the settings, make sure both the main and backup controller cards are set the same.

MCII-e System Controller Card Board view.

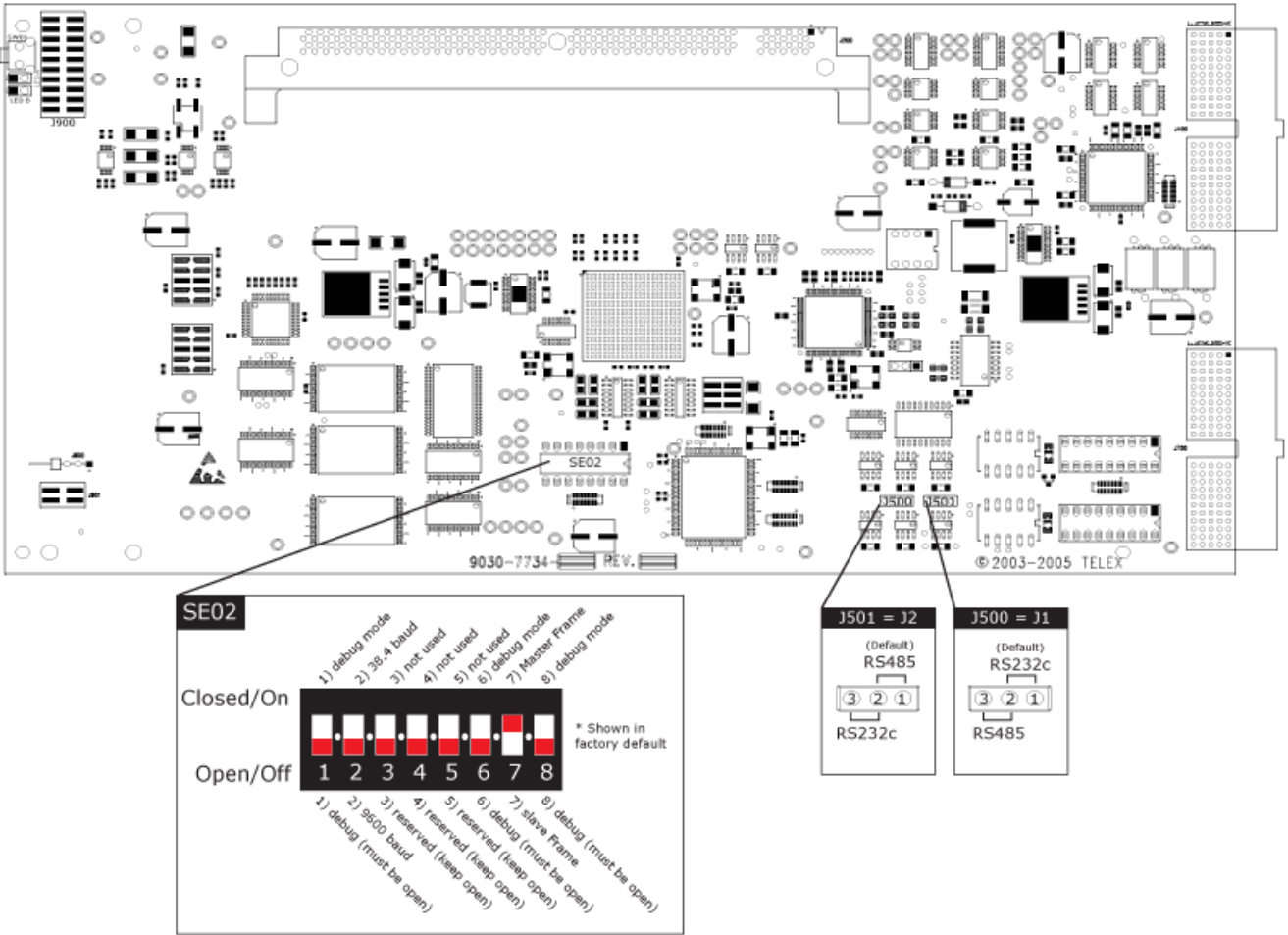


FIGURE 4. MCII-e Master Controller Card Board View. (Gilman, Mike, illus. 2010)

TABLE 2. MCII-e Version 1.6.2 Dip Switch Settings

Dip Switch	Description
1	Debug Only! Must be in open position.
2	<p>Sets the baud rate for the AZedit serial connection via J1. By default, AZedit is set for COM 1 and 38,400 kbps (38.4K). The baud rate set in AZedit must match the baud rate setting of the Master Controllers in ADAM.</p> <p style="text-align: center;"> DEFAULT = closed OPEN = 9600 CLOSED = 38.4k Baud </p>
3	Reserved, keep in open position.
4	Reserved, keep in open position.
5	Reserved, keep in open position.
6	Debug Only! Must be in open position
7	Reserved, keep in open position.
8	Debug Only! Must be in open position.

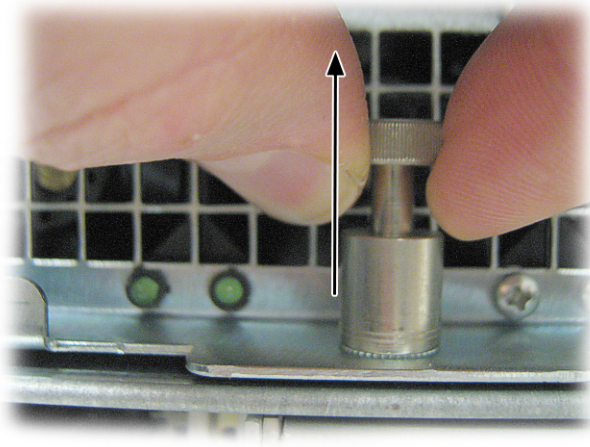
TABLE 3. MCII-e Version 2.0.0 or Later Dip Switch Settings

Dip Switch	Description
1	Debug Only! Must be in open position.
2	<p>Sets the baud rate for the AZedit serial connection via J1. By default, AZedit is set for COM 1 and 38,400 kbps (38.4K). The baud rate set in AZedit must match the baud rate setting of the Master Controllers in ADAM.</p> <p style="text-align: center;"> DEFAULT = closed OPEN = 9600 CLOSED = 38.4k Baud </p>
3	Reserved, keep in open position.
4	Reserved, keep in open position.
5	Reserved, keep in open position.
6	Debug Only! Must be in open position
7	Reserved, keep in open position.
8	Debug Only! Must be in open position.

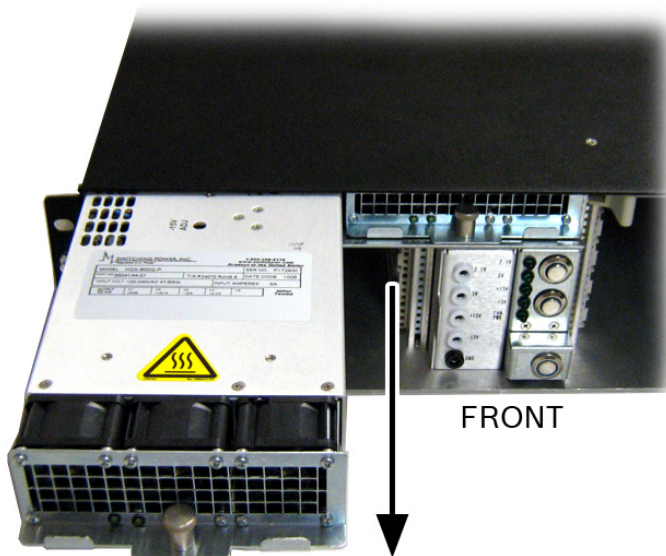
Power Supply Removal and Installation

To **remove the power supply**, do the following:

1. Remove the **ADAM-M front door**.
2. Lift up the **finger lock** holding the power supply in place.



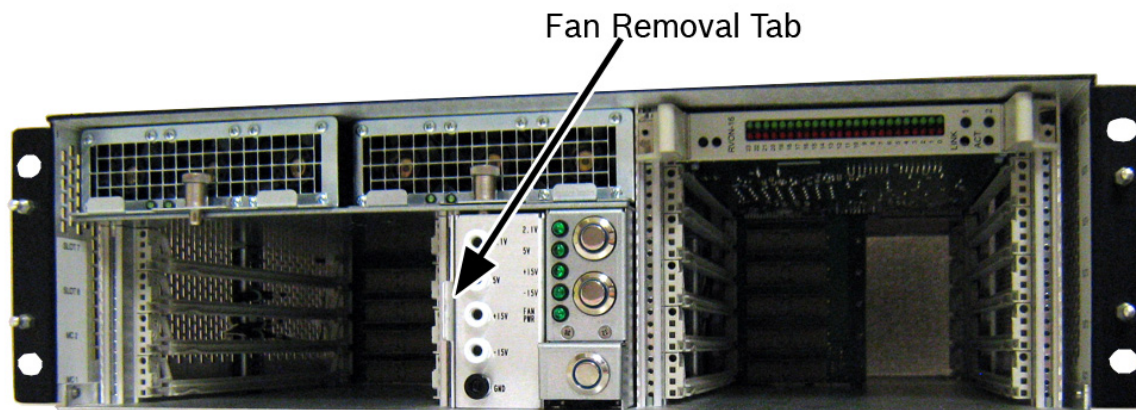
3. Rotating counterclockwise, rotate the **finger lock** half a turn.
The finger lock stays in the open position.
4. Pull the **power supply** out of the ADAM-M chassis.



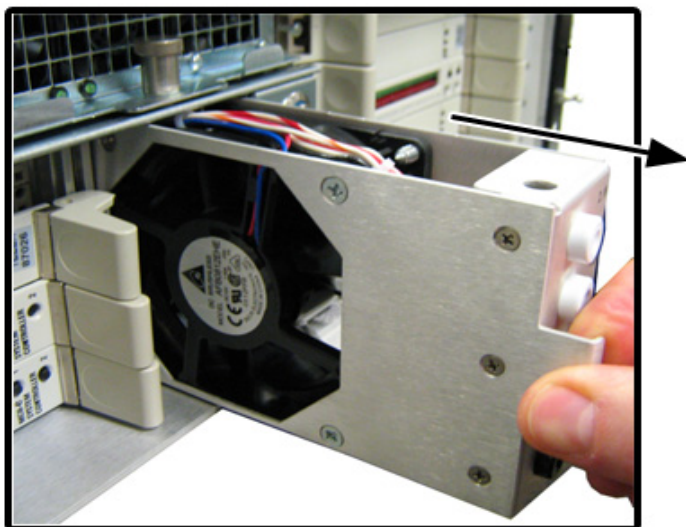
Fan Removal and Replacement

To **remove the fan unit**, do the following:

1. Remove the **front door** from the ADAM-M unit.
2. Lift up the **thumbscrew** for power supply 2.
3. Find the **Fan Removal Tab**.



4. Using the fan removal tab, pull the **fan unit** from the ADAM-M chassis.



AC Power - Chassis

The ADAM-M Chassis has two (2) separate power sources; the power to the chassis and the power to the power supply. The power on/off buttons on the front of the unit power the chassis, while the AC power connectors on the rear of the unit power the power supply. See Figure 1 on page 10. Pressing the power on/off buttons on the front of the unit will not fully power down the ADAM-M. You must press the AC power connector switches on the rear of the unit to turn off the power supplies.

To **power on the ADAM-M**, do the following:

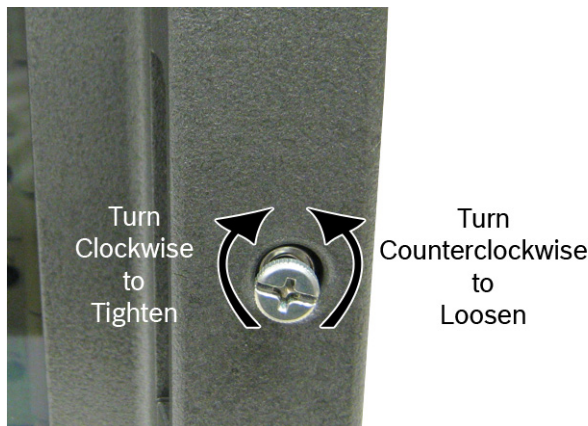
1. On the back of the ADAM-M, press both **AC power switches** to the on position.
2. On the front of the ADAM-M unit, press the **power supply on/off button** located. See Figure 1 on page 10.

NOTE: Connecting both AC inputs assures continued operations of the ADAM-M Frame in the event that one (1) power supply fails. If desired, two (2) separate AC power phases may be connected. This protects not only against a power supply failure, but also against a loss of power to one phase.

Fan Air Filter Replacement

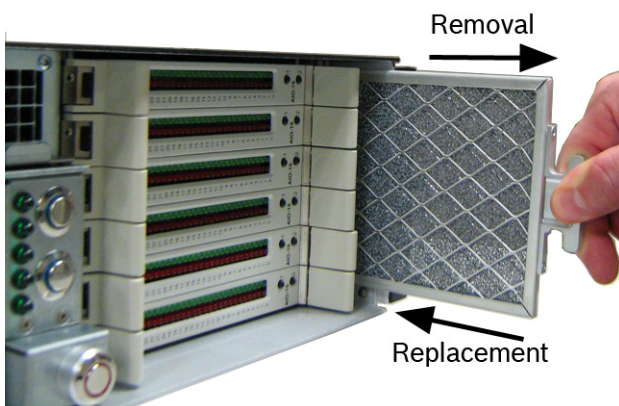
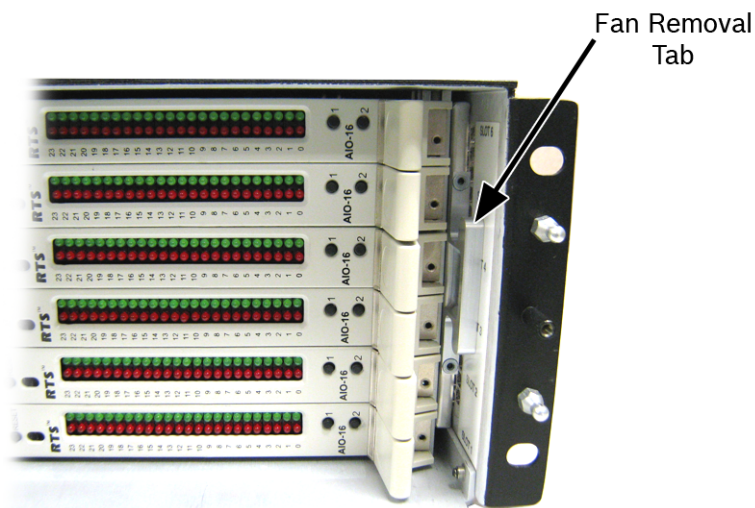
To **replace fan air filter**, do the following:

1. Using a flat blade screwdriver, loosen the **thumb screws** on both sides of the front door. (see Figure 1 on page 10).



2. Remove the **front door** from the ADAM-M.

3. Grasp and gently pull the **fan filter tab** out.



Fuse Replacement

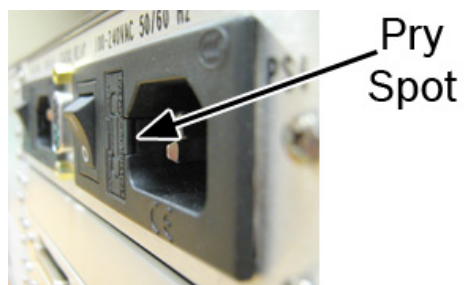
IMPORTANT: There are two types of fuses: 1.6Amp for 240V and 3.0Amp for 120V.

NOTE: We recommend a qualified service technician be used to replace the ADAM-M fuses.

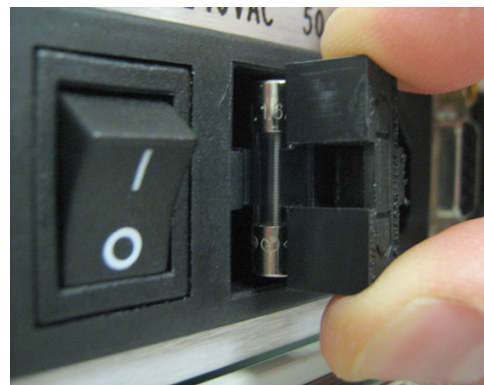
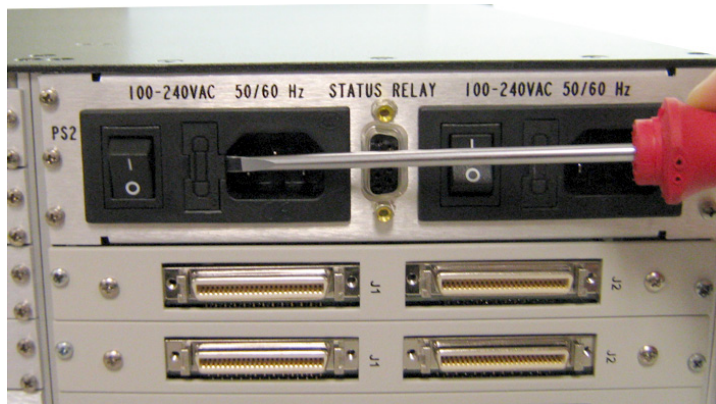
To **replace the fuse on the ADAM-M**, do the following:

1. Power **off** the ADAM-M unit.
2. On the rear of the ADAM-M, locate the **AC power connectors**. (see Figure 1 on page 10).
3. Using a small screwdriver, pry open the **AC power connector**.

NOTE: There are two (2) AC connectors that contain fuses.



4. Completely open the **fuse door**.
5. Using a small screwdriver and then your fingers, pull the **fuse** out of the fuse slot.



6. Discard the **old fuse**.
7. Install a **new fuse**.

NOTE: Take care to verify the fuse is inserted with the notch in the plastic on the left when looking at the fuse.



8. Close the **fuse door**.

ADAM-M Frame Power-Up

NOTE: For proper system power regulation, lightly loaded systems should incorporate a load card to guarantee operation within power supply design tolerances.

1. Press the **power buttons** on the front of the ADAM-M Frame to power the frame on. See Figure 1 on page 10. *The LED indicators and all voltage indicators should light. The fans should turn on. The alarm should shut off.*

NOTE: While the intercom system is initializing, the red LED fail indicators are lit on all circuit cards. Allow 15 to 30 seconds for all indicators to turn off.

Circuit Card Reset and Fail Indication

Each front card is equipped with a reset button located near the top front of the card. Directly under the reset button is the red LED fail indicator (see Figure 5). The LED indicator remains off during normal operation. If the fail indicator turns on, first attempt to restore normal operation by momentarily pressing the reset button. Allow 15 to 30 seconds for reset. If the fail indicator does not turn off after this time, replace the affected card.

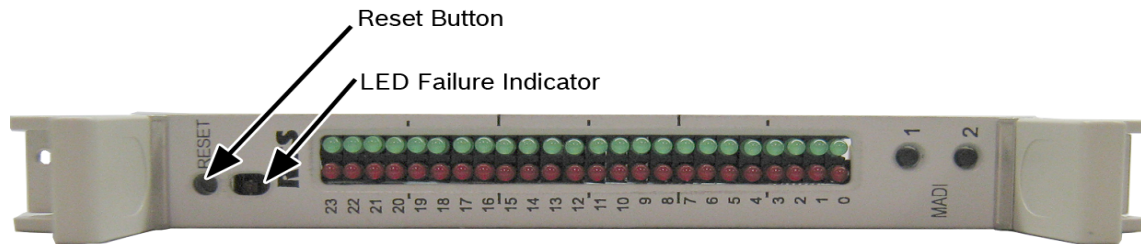
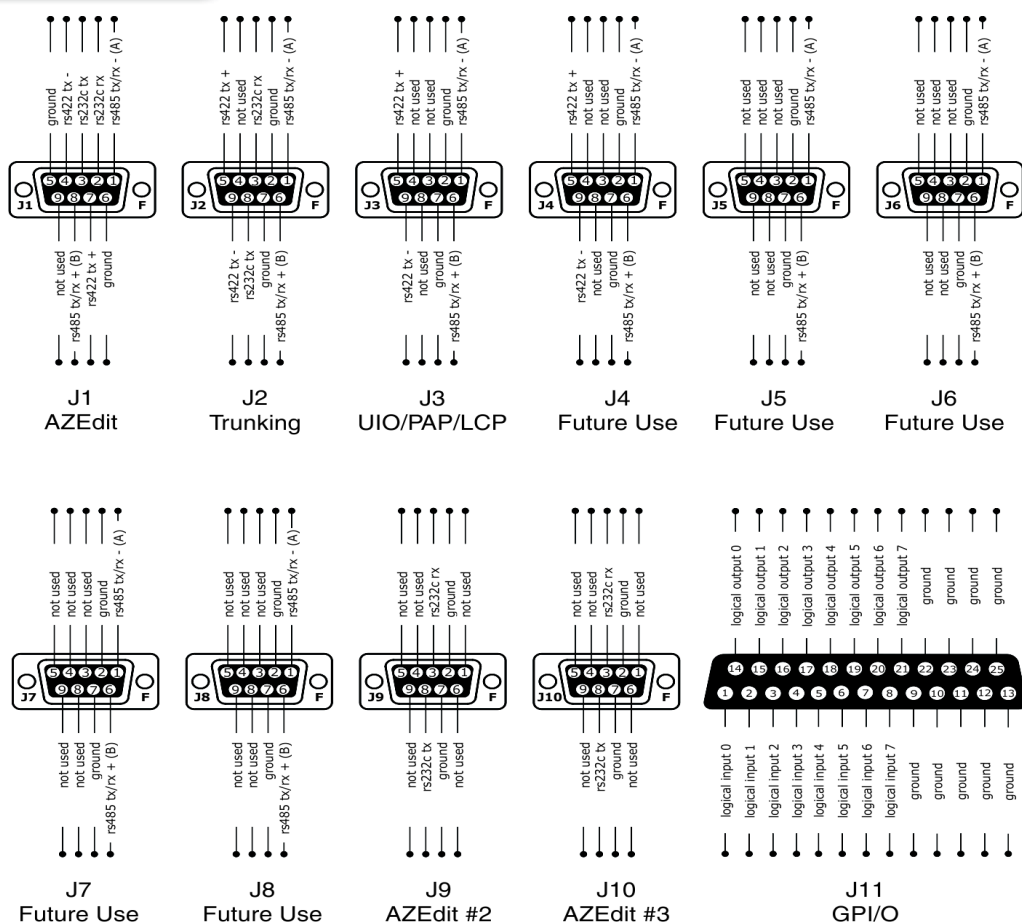


FIGURE 5. Reset Button and LED Failure Indicator

*XCP-ADAM-MC**Breakout Panel***XCP-ADAM-MC**

Adam Connectors: Audio only connectors are male and data only connectors are female (i.e. J1-J10). Keypanel 9 pins are female. Adam CS data connectors are male which is contrary to the standard setup.



NOTE: AZedit sessions are only enabled on J9 or J10 when the advanced communication boxes are enabled from "communications" screen and the correct baud rates are configured.

FIGURE 6. XCP-ADAM-MC (Gilman, Mike, illus. 2010)

Connector Pinouts

AZedit #1		
68-pin Master Controller	J-1 of XCP-ADAM-MC	Assignment 2W
1	1	RS485 TX/RX-
3	2	RS232C RX
37	3	RS232C TX
4	4	RS422 TX-
2	5	Ground
2	6	Ground
38	7	RS422 TX+
35	8	RS485 TX/RX+
	9	

Trunking System		
68-pin Master Controller	J-2 of XCP-ADAM-MC	Assignment 2W
5	1	RS485 TX/RX-
36	2	Ground
6	3	RS232C RX
	4	Not Used
41	5	RS422 TX+
39	6	RS485 TX/RX+
36	7	Ground
40	8	RS232C TX
7	9	RS422 TX-

UIO-256/PAP/LCP		
68-pin Master Controller	J-3 of XCP-ADAM-MC	Assignment 2W
8	1	RS485 TX/RX-
9	2	Ground
	3	Not Used
	4	Not Used
44	5	RS422 TX+
42	6	RS485 TX/RX+
9	7	Ground
	8	Not Used
10	9	RS422 TX-

General Purpose		
68-pin Master Controller	J-4 of XCP-ADAM-MC	Assignment 2W
11	1	RS485 TX/RX-
43	2	Ground
	3	Not Used
	4	Not Used
46	5	RS422 TX+
45	6	RS485 TX/RX+
43	7	Ground
	8	Not Used
12	9	RS422 TX-

General Purpose		
68-pin Master Controller	J-5 of XCP-ADAM-MC	Assignment 2W
11	1	RS485 TX/RX-
14	2	Ground
	3	Not Used
	4	Not Used
	5	Not Used
47	6	RS485 TX/RX+
14	7	Ground
	8	Not Used
	9	Not Used

General Purpose / Bus Exp.		
68-pin Master Controller	J-6 of XCP-ADAM-MC	Assignment 2W
15	1	RS485 TX/RX-
48	2	Ground
	3	Not Used
	4	Not Used
	5	Not Used
49	6	RS485 TX/RX+
48	7	Ground
	8	Not Used
	9	Not Used

General Purpose / Bus Exp.		
68-pin Master Controller	J-7 of XCP-ADAM-MC	Assignment 2W
16	1	RS485 TX/RX-
17	2	Ground
	3	Not Used
	4	Not Used
	5	Not Used
50	6	RS485 TX/RX+
17	7	Ground
	8	Not Used
	9	Not Used

AZedit #3		
68-pin Master Controller	J-10 of XCP-ADAM-MC	Assignment 2W
	1	Not Used
67	2	Ground
21	3	RS232C RX
	4	Not Used
	5	Not Used
	6	Not Used
67	7	Ground
54	8	RS232C TX
	9	Not Used

General Purpose / Bus Exp.		
68-pin Master Controller	J-8 of XCP-ADAM-MC	Assignment 2W
18	1	RS485 TX/RX-
51	2	Ground
	3	Not Used
	4	Not Used
	5	Not Used
52	6	RS485 TX/RX+
51	7	Ground
	8	Not Used
	9	Not Used

AZedit #2		
68-pin Master Controller	J-9 of XCP-ADAM-MC	Assignment 2W
	1	Not Used
19	2	Ground
20	3	RS232C RX
	4	Not Used
	5	Not Used
	6	Not Used
19	7	Ground
53	8	RS232C TX
	9	Not Used

General Purpose Interface (GPI) Connector

General Purpose			
68-pin Master Controller	J-11 of XCP-ADAM-MC	Assignment	Signal
22	1	MI (0)	Logical Input (0)
23	2	MI (1)	Logical Input (1)
24	3	MI (2)	Logical Input (2)
25	4	MI (3)	Logical Input (3)
26	5	MI (4)	Logical Input (4)
27	6	MI (5)	Logical Input (5)
28	7	MI (6)	Logical Input (6)
29	8	MI (7)	Logical Input (7)
30	9	Ground	Ground
31	10	Ground	Ground
32	11	Ground	Ground
33	12	Ground	Ground
34	13	Ground	Ground
55	14	MO (0)	Logical Output (0)
56	15	MO (1)	Logical Output (1)
57	16	MO (2)	Logical Output (2)
58	17	MO (3)	Logical Output (3)
59	18	MO (4)	Logical Output (4)
60	19	MO (5)	Logical Output (5)
61	20	MO (6)	Logical Output (6)
62	21	MO (7)	Logical Output (7)
63	22	Ground	Ground
64	23	Ground	Ground
65	24	Ground	Ground
66	25	Ground	Ground

IMPORTANT: For complete pin out descriptions for the ADAM Breakout Panel, which includes the GPIO, see the Breakout Panel Resource Guide. The Breakout Panel Resource Guide can be found on the website, www.rtsintercoms.com.

The GPI connector provides eight (8) general purpose control outputs. The control inputs can be assigned, using AZedit, to activate intercom ports, party lines, etc. The control outputs can also be assigned, using AZedit, to be activated by keypanel keys. The control outputs can be used to control lighting, to key remote transmitter, to activate a paging system, etc.

Connections

The GPI inputs require +5 to +12VDC for activation. Figure 7 shows a typical connection. The GPI outputs are open collector outputs and require an external voltage to operate. These output pull to common when activated (Figure 8 shows a typical connection).

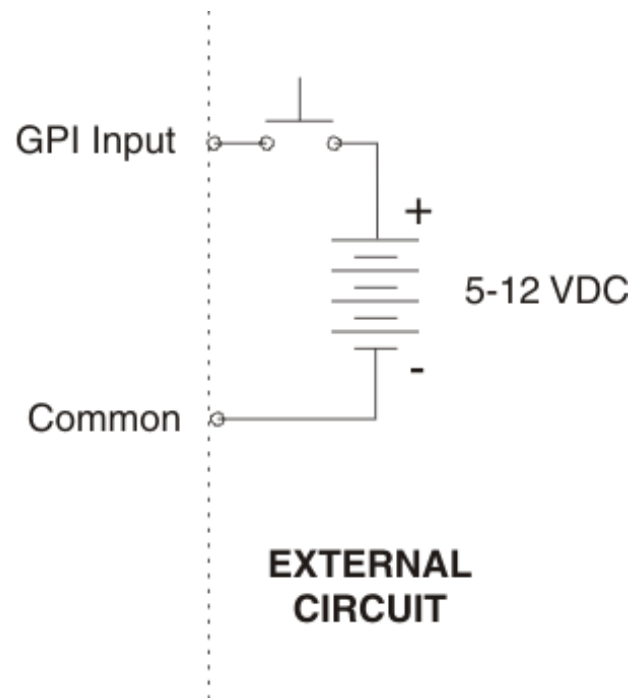


FIGURE 7. Typical GPI input connection

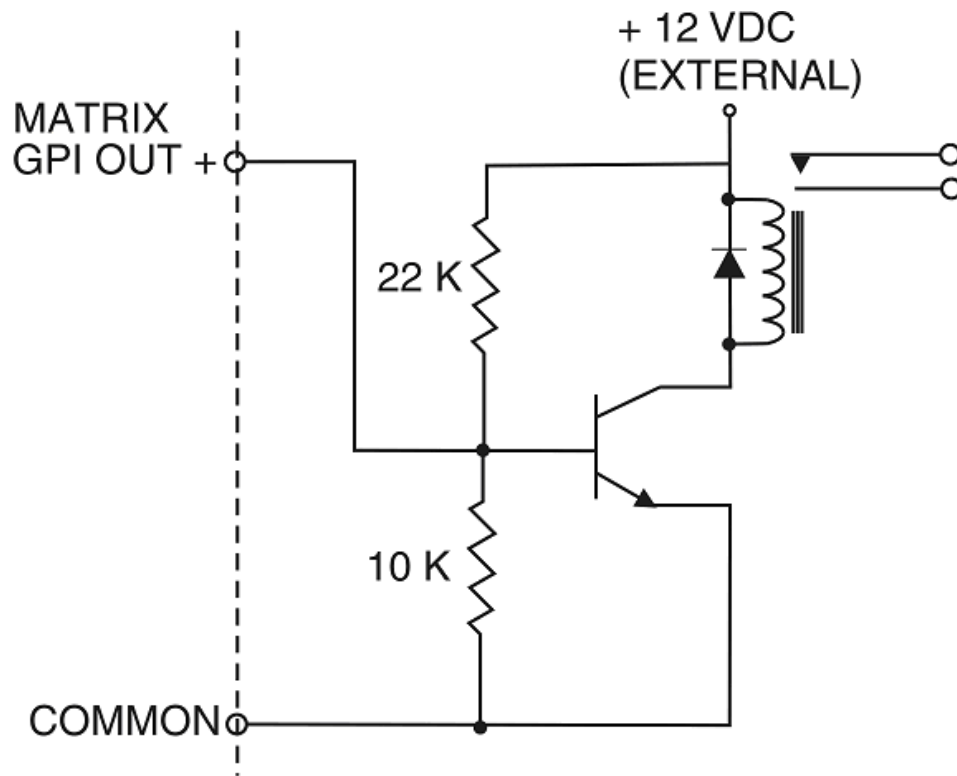


FIGURE 8. Typical GPI output connection

Device Connections

General Information

Typically, devices are connected to individual intercom ports using Station Breakout Panels as shown in the drawings starting on page 35. Depending on the type of breakout panels being used, the individual intercom stations utilize either RJ-12 for keypanels, RJ-11 for audio only devices, or 9-pin D-sub cables.

Each intercom port supplies two (2) pins for audio input, two (2) for audio output, and two (2) for data. All audio connections are balanced, dry lines. All audio inputs and outputs are set for unity gain by default: whatever level is applied at an input is supplied at the output. Input and output levels may be adjusted for individual ports, if required. This may be accomplished either from AZedit or from individual keypanels.

Various types of intercom stations are generally connected to the intercom ports, but other types of audio devices could also be connected. For example, a program source could be connected to the audio input for an intercom port, and in this case the audio output pins are available for other functions.

The data wires for an intercom port are used to send and receive control information between the connected device and the ADAM AIO card. The data wires are only used by keypanels, by the **TIF** (Telephone Interface), **PAM** (Production Audio Monitor) and by **CDP-950** (Camera Delegate Panel). The type of data transmitted includes key press information and display information. For example, when a key is pressed on a keypanel, this information is sent on the data wires to the ADAM frame. The AIO card talks to the Master Controller, the ADAM frame then makes the necessary talk and listen connections so that a conversation can take place. It also sends data to the device being called; for example, to display the caller's name at a keypanel, or to activate a telephone line at a TIF interface.

Port Allocation

The **Port Allocation Table** is used to support I/O cards with more than 16 ports. It allows you to select which card types occupy which intercom slots and which ports are allocated to each card. Ports can be allocated in groups of four (4). Each group contains 16 ports.

NOTE: If you are running a single frame system, up to 880 ports are supported. If you are running a multiframe Tribus system, you are limited to 256 ports per frame.

IMPORTANT: Check power limitations of each frame before building large intercom systems.

Requirements:

The Port Allocation Table requires the following minimum software and firmware versions:

- • AZedit V3.9.0
- • MCII-e V2.3.0

To **navigate to the port allocation table in AZedit**, do the following:

>From the Options menu, select **Port Allocation Table**.

The Port Allocation Table Window appears.

Port Allocation Table				
Slot	Type	Allocated	Ports	Ports
001	RVON-16	16	001 - 016	-
002	AIO-16	16	017 - 032	-
003	RVON-16	8 + 8	049 - 056	209 - 216
004	-	-	-	-
005	-	-	-	-
006	-	-	-	-
007	-	-	-	-
008	AIO-16	-	-	-

To **assign cards to ports**, do the following:

1. In the Type column, delete as many **card types** as necessary to fit the required frame population.
Deleting the card type also deletes the quantity of allocated ports and the port numbers.
2. In the Type column, enter the correct **card types**.

Port Allocation Table

Slot	Type	Allocated
001	AIO-16	16
002	OMI-64	64
003	OMI-64	48
004	RVON-16	16
005	RVON-8	8
006	-	-
007	MADI-16	16
008	-	-

Dropdown menu for Slot 008 Type:

- AIO-8
- AIO-16
- RVON-8
- RVON-16
- MADI-16
- MADI-32
- MADI-48
- MADI-64
- AES-3
- OMI-16
- OMI-32
- OMI-48
- OMI-64

3. In the Allocated column, enter the correct **quantity of ports**.

NOTE: The Allocated port count can be for 8, 8+8, 16, or 32/48/64 depending on the desired system architecture and the card types being fitted. When 8+8 or a port count other than 16 is used, fill in additional port count columns.

Port Allocation Table

Slot	Type	Allocated	Ports	Ports
001	AIO-16	16	001 - 016	-
002	OMI-64	64	017 - 032	033 - 048
003	OMI-64	-	081 - 096	097 - 112
004	RVON-16	8	153 - 168	-
005	RVON-8	8 + 8	145 - 152	-
006	-	16	-	-
007	MADI-16	24	217 - 232	-
008	-	32	-	-
		40	-	-
		48	-	-
		56	-	-
		64	-	-

- 4. In the Ports column, enter the correct **port number**.

Port Allocation Table					
Slot	Type	Allocated	Ports		
001	AIO-16	16	001 - 016	-	-
002	OMI-64	64	017 - 032	033 - 048	-
003	OMI-64	48	-	097 - 112	-
004	RVON-16	16	129 - 144	-	-
005	RVON-8	8	169 - 184	-	-
006	-	-	177 - 192	-	-
007	MADI-16	16	185 - 200	-	-
008	-	-	193 - 208	-	-
			201 - 216	-	-
			233 - 248	-	-
			241 - 256	-	-
			249 - 264	-	-
			257 - 272	-	-

- 5. Using the Intercom Configuration Wizard, resize the **frame** to its actual frame size.
- 6. Click the **Test button**.
The mapping is tested.

NOTE: A pop-up window appears if mapping fails.
Check column entries and correct as necessary.

- 7. Click the **Apply button**.
The mapping is applied to the frame.

IMPORTANT: In the Port Allocation Window, a warning column shows if there are wrong card types and/or unallocated ports.

Port Allocation Table							
Slot	Type	Allocated	Ports	Ports	Ports	Ports	Warning
001	AIO-16	16	001 - 016	-	-	-	-
002	OMI-64	64	017 - 032	033 - 048	049 - 064	065 - 080	-
003	OMI-64	48	081 - 096	097 - 112	113 - 128	-	Card has unallocated ports
004	RVON-16	16	153 - 168	-	-	-	Card not detected
005	RVON-8	8	145 - 152	-	-	-	-
006	-	-	-	-	-	-	-
007	MADI-16	16	217 - 232	-	-	-	Card reports as MADI-64
008	-	-	-	-	-	-	-

Additional port number columns

Warnings

Warning: Not all ports are allocated.

Apply Test Cancel

Master Controller Breakout Panel – XCP-ADAM-MC

The **XCP-ADAM-MC Breakout Panel** affords the ADAM more connections to frame accessories, see “XCP-ADAM-MC” on page 29, without losing the connection to AZedit, and the ability to trunk systems.

Specifications

Dimensions

18.98” (482mm)W x 1.69” (43mm) H x 472” (12mm) D

Weight

1 lb. (.4534kg)

Baud Rates for the XCP-ADAM-MC

NOTE: J9 and J10 are RS-232, J7 and J8 are RS-485. In Tribus systems, you can elect whether to use J7 and J8 or J9 and J10 for your second and third AZedit ports.

TABLE 4. Baud Rates for XCP-ADAM-MC connections

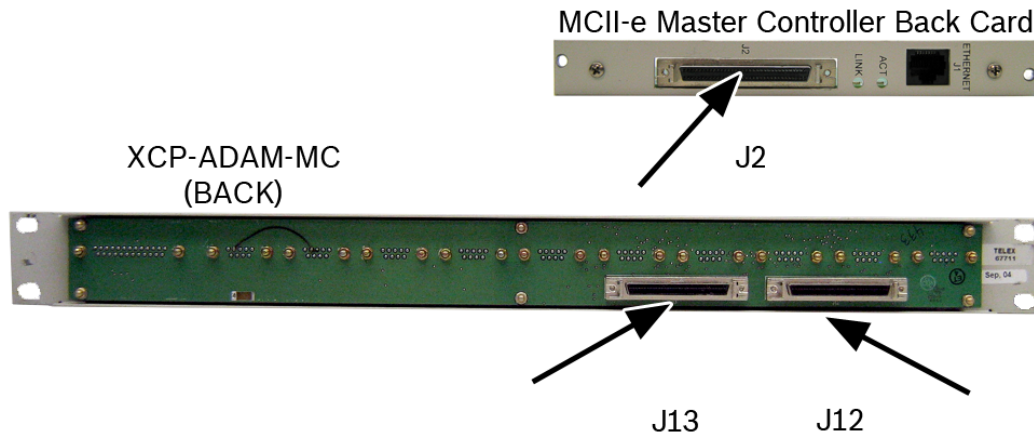
Connector	Description	Baud Rate
J1	AZedit	9600 or 38.4K
J2	Trunking	9600 or 38.4K
J3	UIO/PAP/LCP	76.8K
J4	PAP-32	9600
J5	N/A	
J6	N/A	
J7	General Purpose/Bus. Expander	9600, 19.2K, or 38.4K
J8	AZedit	9600, 19.2K, or 38.4K
J9	AZedit	9600, 19.2K, or 38.4K
J10	AZedit	9600, 19.2K, or 38.4K
J11	GPIO	N/A

Connecting the Master Controller Breakout Panel

To connect the XCP-ADAM-MC to the ADAM-M, do the following:

- > Connect **J12 on the back of the XCP-ADAM-MC to J2 on the MCII-e back card.**
OR
Connect **J13 on the back of the XCP-ADAM-MC to J2 on the MCII-e back card.**

NOTE: For redundant MCs, connect J12 to one (1) MC J2 connector and connect J13 to the second MC J2 connector.



AZedit

An ADAM Intercom System can be setup in a variety of configurations to meet different user requirements.

NOTE: By default, the AZedit configuration program uses COM1 and 38400 baud for communication between the computer and intercom system. COM2 and/or 9600 baud, USB, Network connections are selectable as options in *AZedit (Options|Communications)*. When operating at 38.4k baud, DIP switch number 1 must be set to the ON position on both the main and backup master controller cards in the ADAM frame or depending on the type of Master Controller you are using.

Configuration Computer Connection and Check

Use an RS-232 serial cable to connect from J1 of the XCP-ADAM-MC Breakout Panel (Figure 6 on page 29) to a COM port of the configuration PC.

To install AZedit on the configuration computer with a CD, do the following:

1. Insert the **AZedit software CD** into the computer.
2. Follow the **instructions** to load AZedit onto the PC.

To install AZedit on the configuration computer with software downloaded from the web, do the following:

- >Run the **install software**.

NOTE: The computer should have at least 2MB of extended memory (4MB preferably).

To **connect the AZedit computer to the intercom**, do the following:

- > Using a DB-9 cable, connect the **PC to J1** on the XCP-ADAM-MC breakout panel.

NOTE: If the link between the computer and intercom system is functioning properly, the current intercom system configuration should upload (even if nothing has yet been programmed). Online mode should appear at the lower right of the computer screen. If not, check the cable wiring and the connection between the computer and the intercom system.

Configuring the MCII-e

System Requirements

IMPORTANT:

If you are using:

- A single-frame system, you must use MCII-e version 1.6.2 or later.
- A multi-frame system with Tribus cards, you must use MCII-e version 2.0.2 or later.

Before you configure your MCII-e System Controller card, verify the following items are updated:

- AZedit v-2.08.01 or later
- AIO-8 v-10.3.4 or later
- AIO-16 v-1.0.0 or later

Default Ethernet IP Addresses

Product	Default IP Address	Default Subnet Address
RVON-I/O	192.168.0.1	255.255.0.0
RVON-8	192.168.0.2	255.255.0.0
RVON-1& RVON-2	192.168.0.3	255.255.0.0
RVON-C	192.168.0.4	255.255.0.0
RVON-16	192.168.0.5	255.255.0.0
GPIO-16	192.168.0.6	255.255.0.0
MCII-e	192.168.0.7	255.255.0.0
Cronus	192.168.0.8	255.255.0.0
Zeus III	192.168.0.9	255.255.0.0

Ethernet Setup for MCII-e System Controller

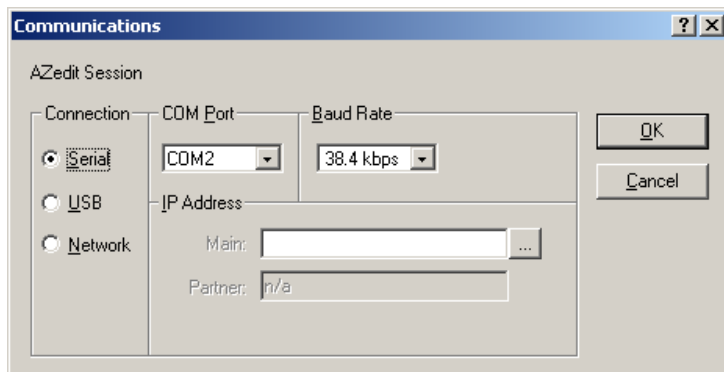
NOTE: The PC must be running version 2.08.01 or later of AZedit and have an Ethernet card installed. The MCII-e can support up to 32 concurrent sessions of AZedit on Ethernet.

To set the IP address for the MCII-e Controller, do the following:

1. Using a RS-232 (ADAM/ADAM-M standard) cable, connect **J1 on the XCP-ADAM-MC to the COM port on the PC.**
2. Open **AZedit**.
The Keypanels/Ports screen appears.
3. From the Options menu, select **Communications**.
The Communications window appears.

NOTE: A PC may not have a serial port. If using an alternative, such as a USB-Serial Interface, check the PC's Window's device manager screen to see where the device is installed.

4. Select the **correct Connection radio button**.
5. In the COM Port field, select the **COM Port** from the drop down menu
OR
enter the **COM Port number** in the form shown.
6. In the Baud Rate field, select **38.4kbps**.
7. Click **OK**.
The ADAM-M is configured to connect to AZedit serially.



NOTE: On the top AZedit tool bar, the plug/socket icon should turn purple.

8. Select the **purple plug/socket icon** to go online.



9. From the Option menu, select **Ethernet Setup**.
The *Ethernet Setup* screen appears.

10. In the IP Address field, enter the **IP Address** for the current MCII-e System Controller.
11. In the Network Mask field, enter the **Network Mask** number for the current MCII-e System Controller.
12. Where appropriate, in the Default Gateway field, enter the **Gateway** number for the MCII-e System Controller.

NOTE:

- If the MCII-e communicates with hosts outside its network, enter the IP address of a host or router which will serve as the **Gateway**. Otherwise, if the MCII-e only needs to communicate with the local network, leave the Default Gateway field at its default setting (0.0.0.0).
- The Default Gateway is normally configured the same on both the active and standby MC-II-e System Controller Cards.
- The same screen you use to set the network settings can be used to view the settings as well. You must be connected using a serial connection via J1 to make changes, but you can view them with any type of AZedit connection (J1, J9, J10, or Ethernet).
- If there are two (2) controllers, they must each have their own unique IP Addresses (different from each other and any other devices sharing the same network).

13. Click **Apply**.

14. Click **Close**.

The *Ethernet Setup* window is closed.

15. Connect the **MCII-e System Controller** to your network with an Ethernet cable.

NOTE: The unique Ethernet MAC address assigned to each MCII-e card during manufacturing is displayed in the field MAC Address. It is NOT possible to modify this address.

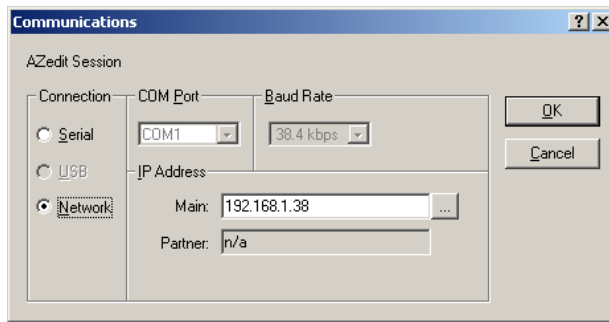
16. Connect the **PC** to your network with an Ethernet cable.

NOTE: If you do not know these numbers, your system administrator can supply the IP Address and Netmask to use.

To **configure the communication settings**, do the following:

1. From the Options menu, select **Communications**.

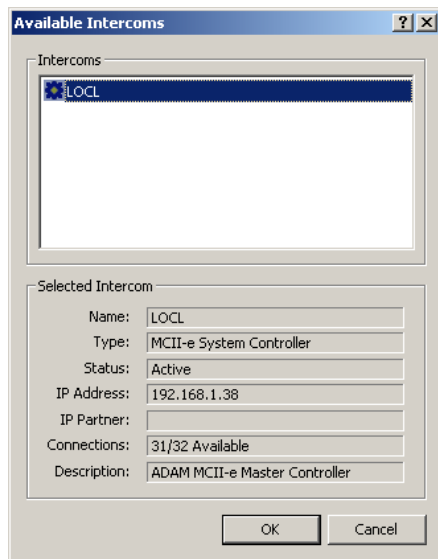
The Communication screen appears



2. In the Connection area, select the **Network** radio button.
3. In the IP Address field, either enter the **MCII-e IP Address** you wish to connect with, or click the **Search**

button. 

The search button scans the network for any MCII-e devices. If multiple units are on the network, each will appear in the list.



4. Select the **MCII-e System Controller** you wish to work with.
5. Click **OK**.

The Communications screen closes. The IP Address is configured in AZedit for the MCII-e System Controller.

Trunking

Trunk Master

General Description

The RTS Trunking System manages intercommunications between separate intercom systems using intercom ports that have been reserved and interconnected between the intercom systems. Keypanels or other data devices can then communicate with various destinations in other intercom systems via the reserved intercom ports. This is different from bus expansion, in which the bus system of two (2) or more frames are interconnected to form one (1) larger system.

The RTS Trunking System consists of a TM-10K and one(1) or more ICP-2000 Interconnect Panels, depending on the number of intercom systems to be trunked. A backup TM-10K may also be added to prevent downtime in the event of a failure of the main master control unit. When both main and backup control units are used, a SWP-2000 Switch Over Panel is required.

Hardware Requirements

Serial Ports

The TM-10K requires the standard COM1 and COM2 devices.

COM1-used for TrunkEdit

COM2-used for TrunkSupervisor

NOTE: One (1) or more serial cards must be installed in order to communicate with the intercoms.
If serial cards are not installed, the TM-10K still runs, but cannot connect to any intercoms.

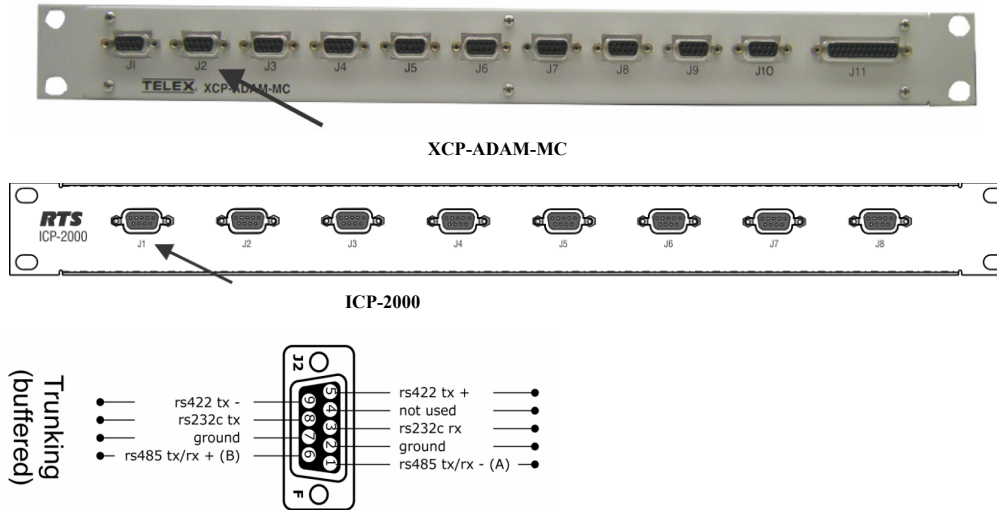
Network Port

The TM-10K can connect to the ADAM or the ADAM-M through an Ethernet cable connected to your network.

Physically Connecting the RTS Trunking System to the ADAM-M

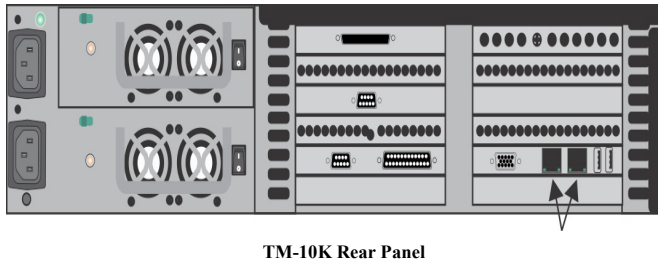
To **physically connect the RTS Trunking System to the ADAM-M through a SERIAL PORT**, do the following:

1. On the front panel of the XCP_ADAM-MC breakout panel, connect an **RS-485 cable to J2**.
2. Connect the **other end of the RS-485 cable** to the respective port (usually J1) on the ICP-2000.



To **physically connect the RTS Trunking System to the ADAM-M through a NETWORK CONNECTION**, do the following:

1. On the back panel of the TM-10K, connect an **Ethernet cable**.
2. Connect the **other end of the Ethernet cable** to your network.
3. On the back of the MCII-e card in the ADAM-M frame, connect an **Ethernet cable to the Ethernet port**.
4. Connect the **other end of the Ethernet cable** to your network.



TM-10K Rear Panel



MCII-e Master Controller Back Card

Connecting the RTS Trunking System to the ADAM-M through Trunk Edit

To **connect the ADAM-M to a Trunk Master**, do the following:

1. In the left navigation pane in Trunk Edit, click **Intercom**.
The Intercom bar expands.
2. Click the **Setup icon**.
A table displaying setup information for each intercom system is displayed.



NOTE: On the initial setup, this table is empty.

3. For each trunked intercom system under the Name 4 column of the setup table, enter a **unique four (4) character name**.

NOTE: You can also enter unique six (6) and eight (8) character names under the Name 6 and Name 8 columns, but these are optional.

4. In the Connection column, right-click a **connection**.
A pop-up menu appears.
5. From the pop-up menu, select **Serial or Network**.

To **connect via SERIAL CONNECTION**, do the following:

- a. From the Baud Rate column, right-click a **baud rate**.
A pop-up menu appears.
- b. From the pop-up menu, select **Select baud rate**.
A pop-up menu appears.
- c. From the pop-up menu, select **9600** or **38.4**.

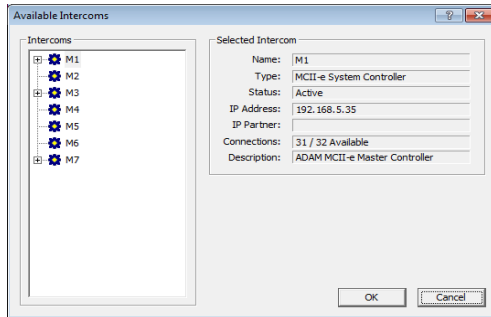
NOTE: For locally trunked systems (i.e. connected via cable only), select 38.4K. For remote trunked systems (eg. connected via RVON pass through data), select 9600.

- d. From the COM Port column, right-click the **RS-485 COM port** the TM-10K is to use.
A pop-up menu appears.
- e. From the pop-up menus, select **Select COM port**.
A pop-up menu appears.
- f. From the pop-up menu, select the **COM port**.
The available COM ports are dependant on how many ACCES I/O RS-485 PCIe cards are installed.

To **connect via NETWORK CONNECTION (Ethernet)**, do the following:

- a. From the Primary IP Address column, enter the **IP Address**.
OR
Right-click the **Primary IP Address**.
A pop-up menu appears.
- b. From the pop-up menu, select **Browse for intercom IP Address...**.
A pop-up menu appears.

- c. In the Available Intercoms window, select the **intercom**.
The Selected Intercom view displays the details for the intercom.



- d. Click the **OK** button.
The IP Address appears in the Primary IP Address column.

IMPORTANT: For the ADAM-M intercom, enter the IP Address for the standby controller.

6. If desired, **set the cascade cost** for this intercom. See the *TM-10K Trunk Master SWP-2000 Switch Over Panel ICP-2000 Interconnect Panel* Technical Manual (F01U286740) found at www.rtsintercoms.com
7. Send **changes** to the Trunk Master.

Ethernet Adapters

The TM-10K supports the use of a single Ethernet adapter. This is used for active/standby communications and for TrunkEdit communications via Ethernet.

NOTE: If TrunkEdit via Ethernet is used, the computers must be connected by a switch or a hub; otherwise, a single CAT-5 crossover cable can be used between the active and standby computers.

- For more detailed installation and configuration instructions, see the *TM-10K Trunk Master SWP-2000 Switch Over Panel ICP-2000 Interconnect Panel* Technical Manual (F01U286740) found at www.rtsintercoms.com.

UIO/PAP/LCP

UIO-256/GPIO-16 Input/Output Frame

Each **UIO-256/GPIO-16** provides 16 **GPIs** (General Purpose Input) and 16 **GPOs** (General Purpose Output). The GPIs can be set up as remotely controlled keypanel keys to activate intercom ports, party lines, GPOs, etc. within the intercom system. The GPOs are typically assigned for activation from keypanel keys. They can be used to control lighting, to key remote transmitters, paging systems, etc.

NOTE: The GPIO-16 with Ethernet support requires the following requirements:

- AZedit – version 3.3.0 or later
- MCII-e – version 1.5.0 or later
- Cronus – version 1.4.0 or later

The maximum number of devices that can be connected when using a GPIO-16 are as follows

- Zeus, Zeus II, and ADAM CS – Four (4) devices (64 relays)
- ADAM and Cronus – 16 devices (256 relays)

REFERENCE: For more detailed installation and configuration information, see:

- UIO-256 user manual (P/N 9330-7499-000)
or GPIO-16 user manual (P/N 9350-7842-000)

NOTE: The baud rate, as well as all UIO-256/GPIO-16, PAP, and LCP-102 devices is fixed at 76.8k baud.

Connecting a single UIO-256/GPIO-16 Frame

To **connect a single UIO-256/GPIO-16 frame**, do the following:

1. Using a RS-485 data cable, connect a **single UIO-256/GPIO-16** to **J3** of the Master Controller Breakout Panel.

NOTE: If a PAP is also being used, it may be wired to the same connector. Alternatively, use a punch block or other Y-cable connector system.

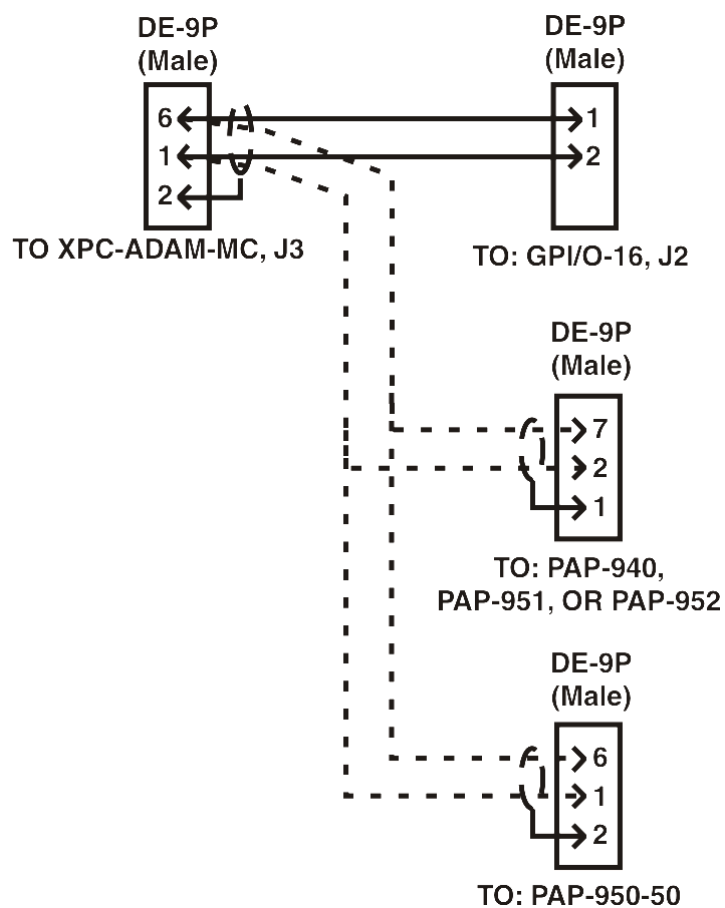
2. Set **SW-1 DIP switch** on the back of the UIO-256/GPIO-16 to select a range 1-16.
The SW-2 DIP switches are not used, and their positions do not matter.
3. Connect **relay outputs to external devices** using the relay outputs connector, J5.
4. Connect the **input devices** using the opto-isolator connector, J7.

Connecting Additional UIO-256/GPIO-16 Frames

NOTE: Up to 15 additional UIO-256/GPIO-16 frames may be connected in a parallel bus configuration using the 15-pin ribbon cables provided.

To **connect multiple UIO-256/GPIO-16 frames together**, do the following:

1. Using a Y cable(Figure 9), connect the **J3 output** of the ADAM MC to the **J2** on the UIO-256/GPIO-16.
2. Connect **J2 output** of the first UIO-256/GPIO-16 to the **J2 input** of the second UIO-256/GPIO-16.
3. Connect the **J2 output** of the second UIO-256/GPIO-16 to the **J2 input** of the third.
4. **Repeat** as necessary.
5. Set **SW1 DIP switches** on each UIO-256/GPIO-16 to select a unique panel number.
6. Connect to the **opto-isolator outputs** and **relay inputs** as for the first UIO-256/GPIO-16.

**FIGURE 9.** Y-Cable Diagram

PAP-32

General Description

Up to 15 **PAPs** (Program Assign Panel) can be connected to the intercom system. Each PAP has DIP switches to assign it as panel number 1 through 15, and to select either a low or high IFB range. As supplied, PAPs expect all program sources to be connected to sequential intercom ports of the intercom system starting with port #1. The options and default setting for the PAP series are summarized in the following table:

TABLE 5. PAP Addresses

Model	Default Ports for Program Input	Panel No. (Default = 1)	IFB Range	
			Low (Default)	High
PAP-940	1-24	1-4	1-40	41-80
PAP-950-50	1-50	1-4	1-50	51-100
PAP-951	1-8	1-4	1-12	13-24
PAP-952	1-16	1-4	1-24	25-48

The intercom port addresses for program input, as well as the low and high ranges for IFB output, are stored in EPROM memory in the PAP. In some cases, it may be desirable to control program sources and IFB ranges other than those allowed by the defaults. In such cases, new custom EPROMs can be programmed as needed. Contact your intercom system dealer for further information.

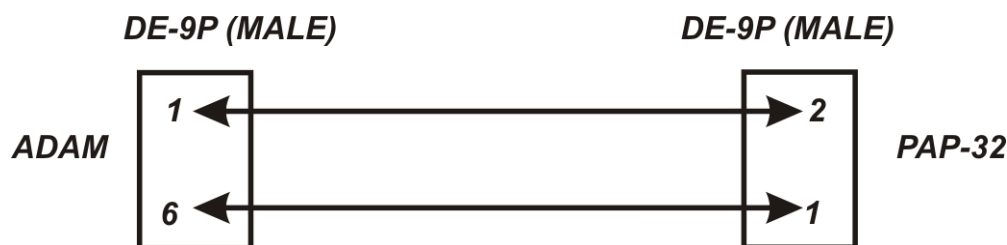
Connecting a PAP-32

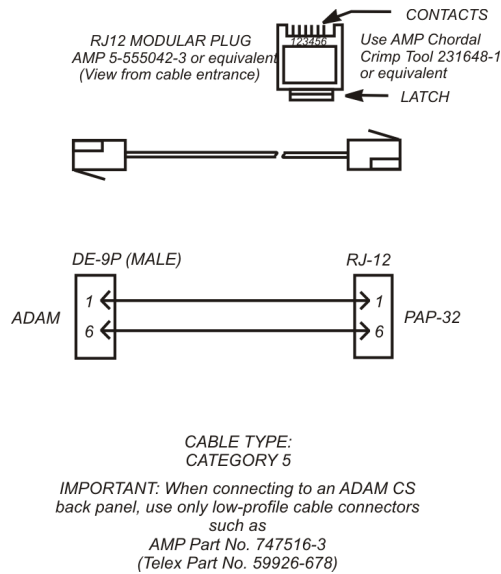
To **connect a PAP to the XCP-ADAM-MC**, do the following:

- > Connect **DB-9 FRAME connector** to **J3** on the XCP-ADAM-MC breakout panel.

NOTE: The baud rate, as well as all UIO-256/GPIO-16, PAP, and LCP-102 devices is fixed at 76.8k baud.

A cable must be made to connect the PAP-32 to the system. See the following figures for the proper cabling diagram.





LCP-102

General Description

The **LCP-102** (Level Control Panel) combines the features of an analog trim panel, a **CDP** (Camera Delegate Panel), and a **PAP** in a single frame, 2 RU high. You can easily switch between three (3) panel modes and make rapid configuration changes using the menu selector on the front panel. In each mode, you can make up to 64 assignments and then adjust the assignment levels. For example, in Trims mode, you can assign and adjust the analog input and output trims for up to 64 intercom ports.

- In **PAP** mode, you can select the program input source and set its level for each of 64 IFBs.
- In **CDP** mode, you can assign up to 64 intercom ports to any combination of party lines and then adjust the listen level for each participant on the party line.

The **LCP-102** connects to the auxiliary data port of any **ADAM**, **ADAM-M**, **Cronus**, or **Zeus** intercom system. Also, it has a loop connector for connection to an auxiliary device, such as another **LCP-102**, or a **UIO-256/GPIO-16** frame. Since a single **LCP-102** provides trim adjustments for 64 ports, only one (1) unit is required to completely configure an **ADAM-M** or **Zeus** system. For larger **ADAM** intercom systems, up to 15 additional **LCP-102** frames can be connected via the loop connectors.

Connecting an LCP-102

To **connect an LCP-102**, do the following:

- > Attach the **DATA** connector on the **LCP-102** to **J3** on the **XCP-ADAM-MC**.

To **connect multiple LCP-102 devices**, do the following:

1. Attach the **DATA** connector on the **LCP-102** to **J3** on the **XCP-ADAM-MC**.
2. Attach the **LOOP** connector on the first **LCP-102** to the **DATA** connector on the second **LCP-102**.
3. Attach the **LOOP** connector on the second **LCP-102** to the **DATA** connector on the third **LCP-102**.
4. Add up to **15 LCP-102 devices**, if desired.

REFERENCE: For more detailed installation and configuration information, see the LCP-102 user manual (P/N F01U193250).

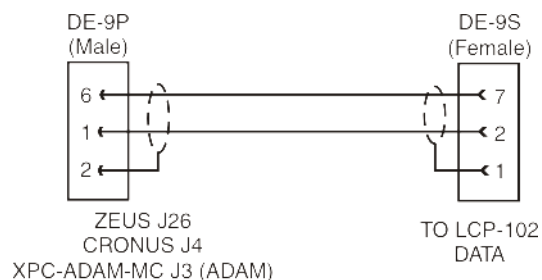


FIGURE 10. Interconnect Cable From ADAM-M

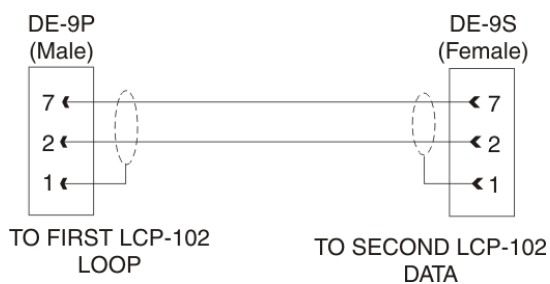


FIGURE 11. Cable to interconnect two (2) LCPs.

Keypanels and Audio/Data Devices

When connecting keypanels and audio/data devices to a frame, a breakout panel must be used. A breakout panel allows you to connect multiple devices with the same connection type to one (1) AIO card.

Available breakout panels for the ADAM-M frame are:

- XCP-954-48
- XCP-955
- XCP-40-DB9
- XCP-40-RJ11
- XCP-32-DB9
- XCP-16-DB-9-T
- XCP-48-RJ-45

For specific information on your keypanel or audio device, consult the devices user manual.

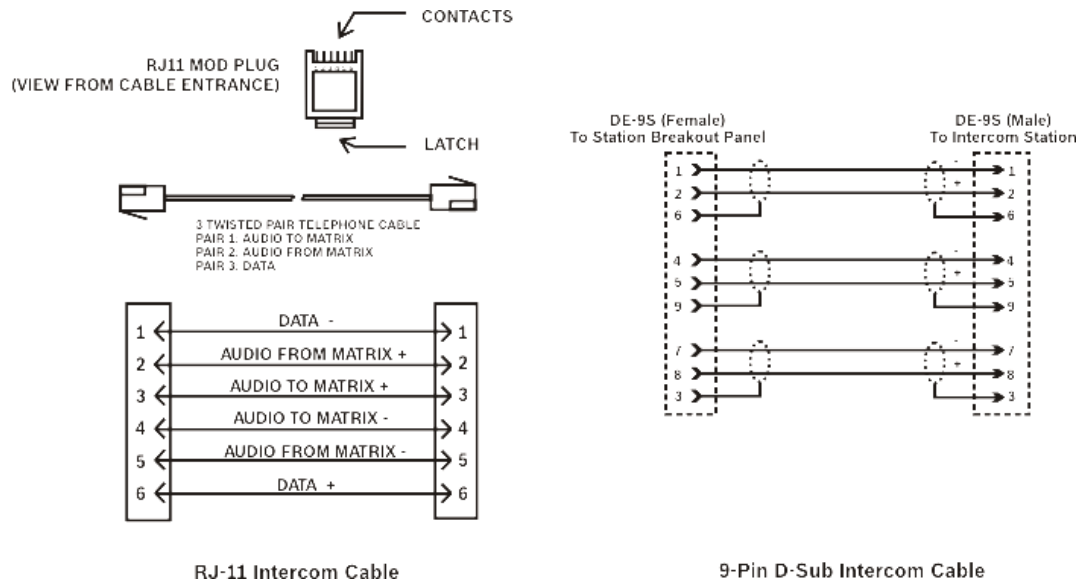


FIGURE 12. Keypanel with Data Cabling

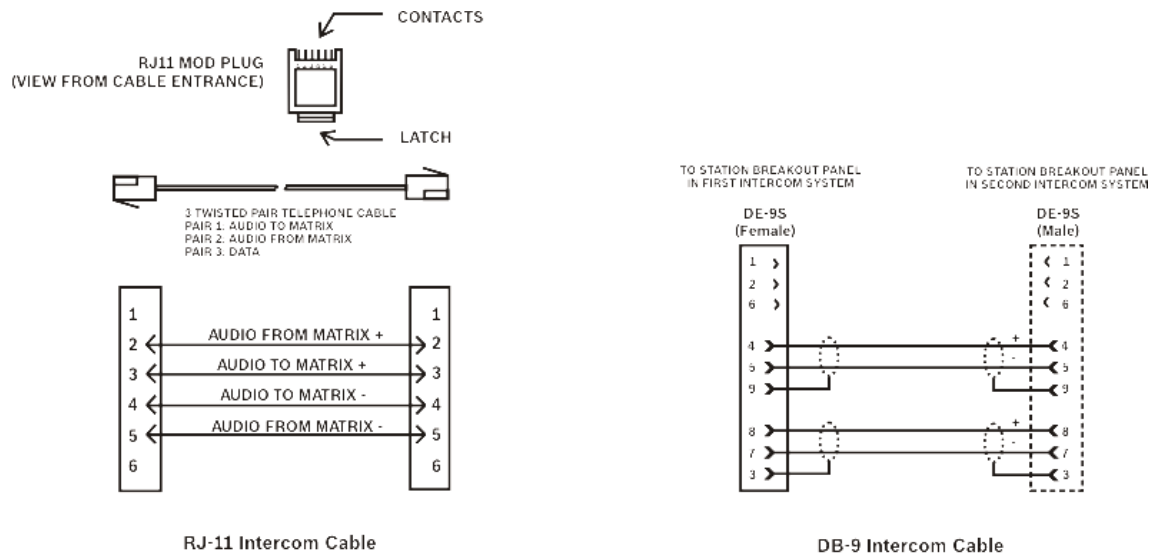
Audio Only Devices

Audio only devices, such as SSA-324, DSI-2008, etc. must use a breakout panel. A breakout panel allows you to connect multiple devices with the same connection type to one (1) AIO card.

Available breakout panels for the ADAM-M frame are:

- XCP-954-48
- XCP-955
- XCP-40-DB9
- XCP-40-RJ11
- XCP-32-DB9
- XCP-16-DB-9-T
- XCP-48-RJ-45

For specific information on your keypanel or audio device, consult the devices user manual:



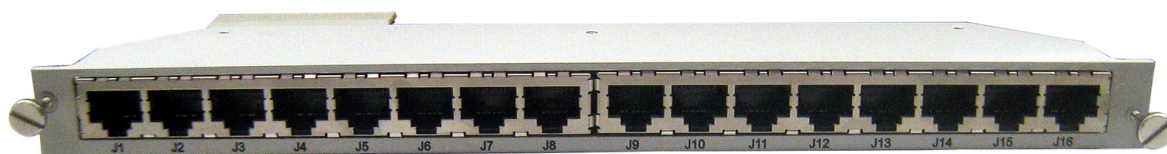
Audio Only Cabling

FIGURE 13. Audio Only Cabling

RJ-45 Backcard

With its 16 RJ-45 connectors, the RJ-45 backcard eliminates the need for a breakout panel to connect keypanels to the intercom. The design lends to a more organized wiring scheme and an easier intercom system setup.

This connector card supports both RJ-45 and RJ-12 connector plugs, as well as 568A, 568B and USOC wiring.



IMPORTANT: The RJ-45 backcard connector card is specifically designed for the AIO-16 Input/Output card for the ADAM-M intercoms system and is not compatible with any other card or intercom system. Because of the extended card size, can only be installed in slots 1-6.

To **install the RJ-45 back card into an existing ADAM-M frame**, do the following:

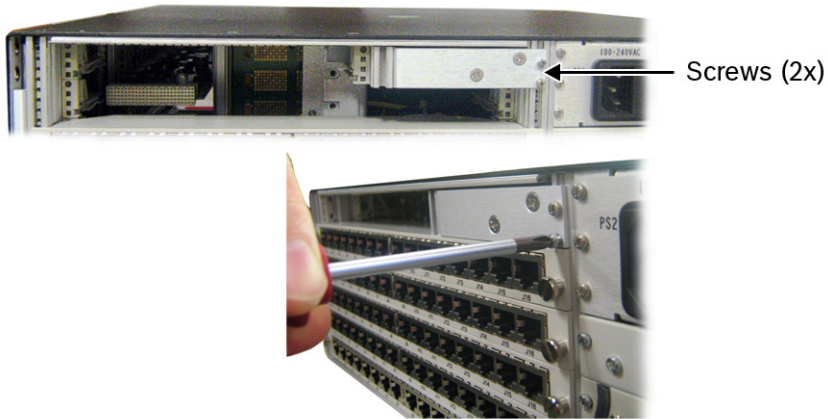
NOTE: The following instructions can be used for installing an RJ-45 backcard in a new ADAM-M system with blank card plates.

1. If present, remove the **AIO-16 front card** associated with the slot you want to use for the RJ-45 backcard.

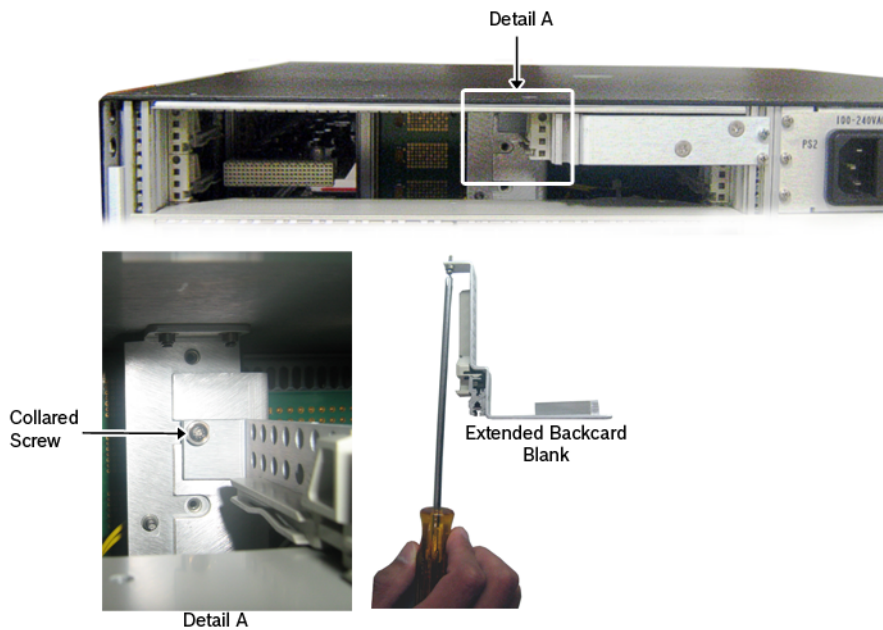
IMPORTANT: It is important to remove the AIO-16 front card, if present, from the ADAM-M before installing the RJ-45 backcard to reduce the risk of bending the connector pins. If the RJ-45 backcard connector pins are bent, this can result in permanent damage to the backcard and the need to replace it.

2. Using a Phillips head screwdriver, remove the **screws** holding the MDR backcard, SCSI backcard, or blank card plate in the slot.
3. Remove the **MDR, SCSI backcard, or blank card plate**.

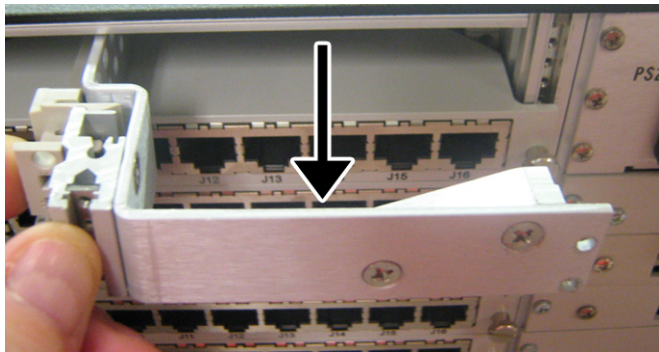
4. Using a Phillips head screwdriver, remove the **two (2) screws** of the adjoining extended card plate on the rear of the chassis.



5. Using a long shaft Phillips head screwdriver, remove the **collared screw** inside the chassis.

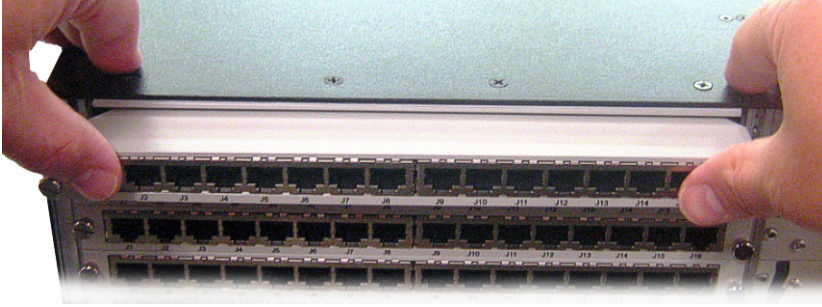


6. Carefully remove the **extended card plate** from its slot.



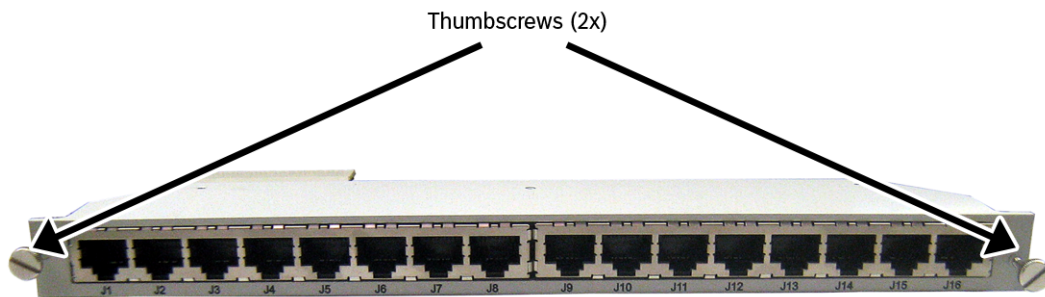
7. Taking care to fit the RJ-45 Backcard in the guides properly, place the **card** in the desired slot.

8. Applying even pressure on each end of the backcard, push the **card** into place.
The backcard should be flush with the chassis rails on both sides.



9. Using your fingers or a flat-head screwdriver, tighten the **two (2) thumbscrews** on either end of the backcard into the chassis frame.

IMPORTANT: Do not use an electric screwdriver to tighten the thumbscrews. Do not over-tighten the thumbscrews. Using an electric screwdriver or over-tightening can cause the thumbscrews to strip.



10. Replace the **AIO-16 front card** you initially removed, taking care to properly seat it in the slot.

To **remove the RJ-45 backcard from the ADAM-M**, do the following:

1. Using your fingers or a flat-head screwdriver, loosen the **two (2) thumbscrews** from the ADAM M chassis, being careful not to remove the screws from the RJ-45 backcard.
2. Grasping the thumbscrews, pull the **RJ-45 backcard** from the ADAM-M chassis.

RJ-45 Connector Pin Out	
Pin 1	Data +
Pin 2	Data-
Pin 3	Audio Out +
Pin 4	Audio In +
Pin 5	Audio In -
Pin 6	Audio Out -
Pin 7	Data +
Pin 8	Data -

RJ-12 Connector Pin Out	
Pin 2	Data-
Pin 3	Audio Out +
Pin 4	Audio In +
Pin 5	Audio In -
Pin 6	Audio Out -
Pin 7	Data +

Notes

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