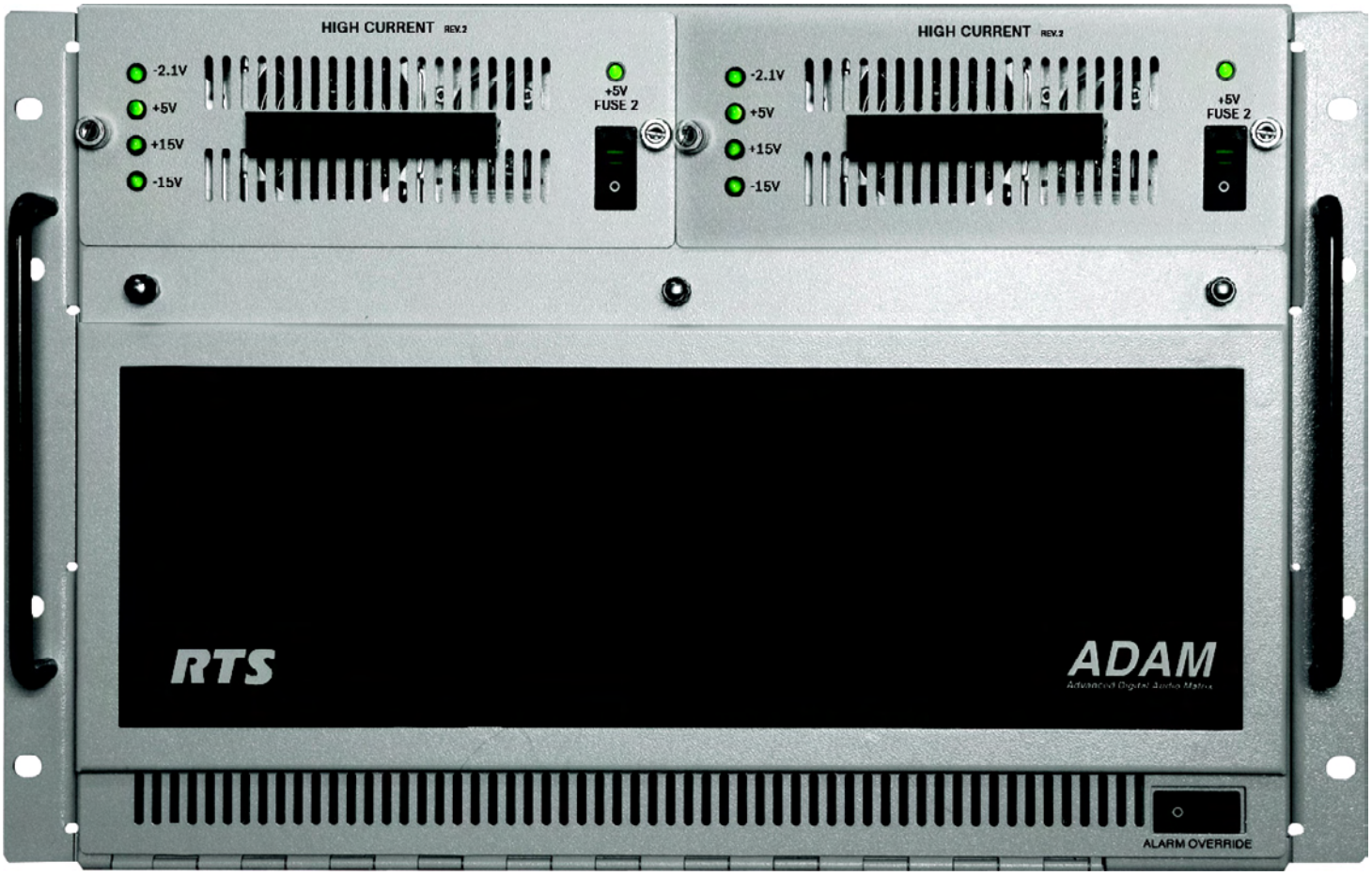
RTS Digital Matrix Intercom
Innovating the Future of Communications

ADAM
Advanced Digital Audio Matrix
System Installation Guide



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12000 Portland Avenue South
Burnsville, MN 55337 USA
info@rtsintercoms.com
Telephone: 800-392-3497
Fax: 800-323-0498
Factory Service: 800-553-5992

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Telephone: 402-467-5321
Fax: 402-467-3279
Factory Service: 800-553-5992

Please include a note in the box which supplies the company name, address, phone number, a person to contact regarding the repair, the type and quantity of equipment, a description of the problem and the serial number(s).

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All shipments of product should be made via UPS Ground, prepaid (you may request from Factory Service a different shipment method). Any shipment upgrades will be paid by the customer. The equipment should be shipped in the original packing carton. If the original carton is not available, use any suitable container that is rigid and of adequate size. If a substitute container is used, the equipment should be wrapped in paper and surrounded with at least four (4) inches of excelsior or similar shock-absorbing material. All shipments must be sent to the following address and must include the Proof of Purchase for warranty repair. Upon completion of any repair the equipment will be returned via United Parcel Service or specified shipper, collect.

Factory Service Department
Bosch Security Systems, Inc.
8601 East Cornhusker Hwy.
Lincoln, NE 68507 U.S.A.
Attn: Service

This package should include the following:

ADAM FRAME, 110 V

Quantity	Description	Part Number
1	ADAM Frame, 110V	9000-7500-002
1	Cable, RS232C, Data	9020-7297-05
1	System Manual	9370-7500-010
1	Warranty Statement	38110-387

ADAM FRAME, 220 V

Quantity	Description	Part Number
1	ADAM Frame, 220V	9000-7500-003
1	Cable, RS232C, Data	9020-7297-05
1	System Manual	9370-7500-010
1	Warranty Statement	38110-387

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CHAPTER 1

Introduction

Unpacking the Components

Unpack the contents of the shipping crates and carefully inspect for damage. Notify the freight carrier immediately if any damage is noted. Check off all items as noted in the packing lists.

CAUTION: Use caution when lifting the system components. A fully loaded ADAM Card Frame, for example, weighs approximately 75lbs (34kg).

Mounting the Central Matrix Components

Bolt the ADAM Card Frame into the front of the equipment rack. The frame has no special ventilation requirements, but make sure the ventilation holes on the front and back are unobstructed. The rack space behind the ADAM Card Frame should be kept completely clear to allow for connections and the insertion and removal of back cards (at least 2 feet).

NOTE: There is an LED fail indicator and reset switch located near the top-front of each front card. The LED indicators are only visible when the center of the card frame is at or above eye level.

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 Program Assign Panels 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.

Front Card Access

To access the front cards, do the following

1. Loosen the **thumbscrews** that secure the front glass door.
2. Swing the **door** down.

Card Removal and Installation

All ADAM 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.

CAUTION: READ THIS BEFORE INSTALLING CIRCUIT CARDS!

The connector pins on the back plane inside the ADAM 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 edge connector is toward the bottom.
2. Insert the **card edges** into the upper and lower guides in the back of the ADAM frame.
3. Push the **card** in until the mounting plate is flush with the ADAM frame.
4. Install **mounting screws** in the top and bottom of the card plate to lock it in place.

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

When installing a front card, orient it so the indicator LED and reset switch are at the top-front.

1. Insert the **card edges** into the upper and lower card guides in the front of the ADAM frame.
2. SLOWLY push the **front card** straight into the slot until initial resistance is felt.
3. When initial resistance is felt, apply **slightly more pressure** to begin engaging the connector pins.
4. 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 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 down on the **lower ejector lever** and up on the **upper ejector lever**.
2. Once the card is released from the back plane connector, pull it straight out of the frame.

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

> First release the **front card** by pressing the ejector levers, then remove the **back card**.

IMPORTANT: All system clock signals are derived from the Audio Input/Output (AIO) card in slot number 9, with clock backup in slot number 8. Therefore, if your intercom system uses fewer than ten AIO Cards, make sure that slots 8 and 9 are filled in any case.

CAUTION: Also, never remove cards 8 and 9 at the same time as the intercom system ceases to operate.

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 (p/n 9000-7467-003) to cover the opening.

Master Controller Card DIP Switches

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 1 on page 11 or Table 2 on page 12. If any changes are made to the settings, make sure both the main and backup controller cards are set the same.

Power Supply Removal and Installation

To remove the power supply, do the following:

1. Place the power switch on the front of the power supply in the **OFF (O) position** before removal.
2. Use a screw driver to loosen the **two captive thumbscrews** on the front of the power supply.
3. Grasp the **screws** to pull the power supply out.

To install a power supply, do the following:

1. Set the power switch on the front of the supply to the **OFF** position.
2. Push the **power supply** firmly into the slot in the ADAM frame so that the connector sits properly in the slot.
3. Tighten the **captive screws**.

AC Power Connection

1. Place the AC switches on the back panel of the ADAM frame in the **OFF (O)** position.
2. Place the power supply ON/OFF switch on the front of each power supply in the **OFF (O)** position.
3. Connect **AC power** to both of the AC jacks on the back of the ADAM Frame.
   Connecting both AC inputs assures continued operations of the ADAM 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.

ADAM Frame Power-Up

NOTE: For proper power supply loading, at least two front cards should be installed in the frame before turning on the power supplies.

1. Place the AC switches on the back of the ADAM Frame in the **ON** position.
2. Place the ALARM OVERRIDE switch on the front panel in the **ON** position.
   The alarm should sound while the power supplies are OFF.
3. Place the ON/OFF switch on the front of each power supply in the **ON** position.
   The POWER GOOD indicators and all voltage indicators should light. The fans should turn on. The alarm should shut off.

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. 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.

Alarm Operation

If there is a power supply fault during operation, the audible alarm sounds and one or more indicator lights on the affected power supply turn off.

To deactivate the alarm, do the following:

1. Set the ALARM OVERRIDE switch to the **OFF** position.
2. Turn **OFF** the defective power supply, and repair or replace it as soon as possible to assure continued backup protection in the event of another power supply failure.

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.

Specifications

ADAM Frame

Matrix Size

5 – 1000 ports

20 Slots

17 AIO Slots, 2 MC Slots, and 1 Blank Slot

Matrix Type

Digital Audio, TDM Bus

Signal Format

44.1kHz, 24-bit

Redundancy

Power/Controller

Matrix Frame

7RU (12.25”) high, 19” EIA Rack, 20” Deep

Power

110V, 220V, 50/60Hz, 1000VA max

Approvals

UL, CSA, CD, VDE, FCC

Temperature

Operating

0°C – 70°C (32°F – 158°F)

Storage

-50°C - 125°C (-58°F - 257°F)

CAUTION:

- Ventilation: Mininum 6” clearance 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).
- Warning the ADAM is to be connected to a mains socket outlet with a protective earth connection (EN 60065 Clause 5.4.1d).

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

FIGURE 1. ADAM Power Supply — top view

Specifications

Input Ratings

100–200V nominal
47–63Hz, 11A RMS Maximum

Output Ratings

Module C1 - 2.1V, 35A

Modules C3 - 15V, 18A

Module D2 - 5V, 45A

NOTE: The adjustment pots for each of the voltage cells correspond to their position in relation to the top of the unit, see Figure 2, Detail A.

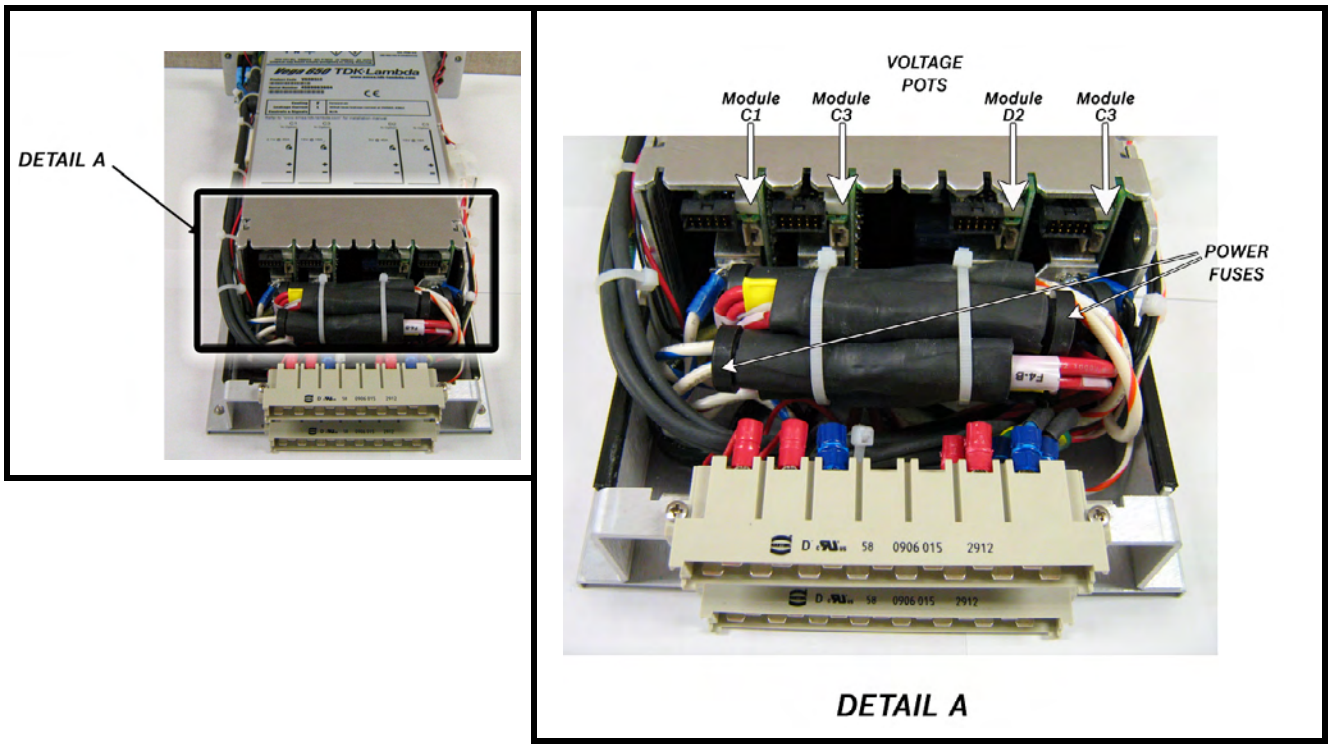


FIGURE 2. ADAM Power Supply — Adjustment Pots and Power Fuses

Voltage Adjustment

To **adjust the voltage on the ADAM Power Supply**, do the following:

> Using a flathead screwdriver, turn the **voltage pot clockwise** to increase the voltage.
> OR
> Turn the **voltage pot counterclockwise** to decrease the voltage.
> *The voltage is adjusted accordingly.*

Fuse Replacement

WARNING: All replacement fuses must be Littelfuse variety to maintain proper protection of the ADAM system components.

TABLE 1. Fuse Identification and Specification

Wire Color	Fuse Voltage	Fuse Value
White/Blue	+2.1V	3A
White/Red	+15V	12A
Red	+5V	20A
Red	+5V	20A
White/Orange	-15V	8A

For fuse specifications, see Figure 1.

NOTE: If the ADAM does not power up properly, verify the fuses are working. If needed, please contact Bosch Security Systems, Inc technical support to replace the fuse for proper functionality.

CHAPTER 2

Intercom Port Connections

General Information

Typically, devices are connected to individual intercom ports using Station Breakout Panels as shown in the in the drawings starting on page 35. Depending on the type of breakout panels being used, the individual intercom stations utilizes either RJ-11 modular style intercom cables, or 9-pin D-sub cables. Wiring diagrams for both are shown in the Figure 24, “Intercom Station Cables,” on page 20.

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), 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.

Logical Keypanel Numbers

Even though separate data pins are provided for each intercom port, these pins do not actually represent a unique data port. Rather, groups of intercom ports share a common data port. In an ADAM intercom system, data groups consist of eight (8) intercom ports, and each Audio Input/Output card represents one (1) data group. To distinguish between devices connected to the same data group, a *logical keypanel number* (1 through 8) is assigned to each device at the time of connection. The relationship between intercom port numbers, Audio I/O Cards and Logical Keypanel Numbers is shown in Table 6 on page 19. Specific information about setting Logical Keypanel Numbers is discussed further in the installation notes on the following pages.

NOTE: AIO-16 Cards consist of 16 ports per card, double the number of ports the AIO card contains. Also, the AIO-16 is a *smart card*, which means when it is inserted into an ADAM frame, it automatically detects the back card configuration and protocols being used. The AIO-16, unlike the AIO-8, is not constrained by logical keypanel numbers or addresses completely, because each port has its own data driver.

General Procedure for Connecting Devices to the Intercom

The following is a suggested method for planning the intercom system and connecting devices to intercom ports:

- Make a copy of the Intercom System Planning Worksheet, See “Intercom Planning Worksheet” on page 63. (Or create your own custom tables using your favorite spreadsheet or database program).
- Fill a row in the worksheet for each device connected.
- Breifly note, the device type (keypanel, beltpack, TIF, program source, CDP-950, etc.). Other useful information might include the device location and usage, as well as any labeling on the intercom cable.
- Record the name (either 4, 6, or 8-characters) in the AZedit Alpha column of the worksheet. Enter this name into the intercom system later using AZedit. Then, whenever you assign the port to an intercom key, the name appears in the keypanel display for that key.

  NOTE: In earlier versions of AZedit, a port had a single alpha representing both the audio input, and audio output portions of the port. For keypanels, where both the input and output refer to the same device, this made sense, However, in other applications, the input and output paths of the port would often be used for different purposes (eg. IFB program inputs or listen sources on the input side, and an IFB output on the output side).

  In versions 2.06 or higher, it is now possible to give separate alphas to both the input and output portions of a port (by default, the input alpha tracks the output alpha unless you explicitly change the input alpha, so that normally they are the same which would be typical for ports with keypanels attached).
- Record a second name in the *AZedit Alias* column of the worksheet if the Intercom System is trunked (interconnected) to another intercom system. This name is also entered using AZedit. An alias may be useful, for example, to prevent conflicts when the same alpha name is already being used in both intercom systems. When the intercom port is assigned to a keypanel key in the external intercom system, the alias name appears in the display above that key. If you do not enter an alias name, AZedit automatically uses the alpha name as the default.
- Connect devices to the intercom ports as noted in the worksheet. Refer to any installation notes included below for the type of device being connected.
- Run AZedit and enter the AZedit Alpha and Alias names as listed in the worksheet.
- Complete the intercom system configuration.

KP-12 Installation Notes

Use either FRAME connector (but not both) on the back of the keypanel to connect to an intercom port at a Station Breakout Panel.

For more information on Breakout Panels, see the Breakout Panel Resource Guide (p/n *LIT000061000*)

To **connect to an expansion panel**, do the following:

1. Connect the **EXPANSION connector** of the KP-12 to either CONTROL connector on the expansion panel using the cable supplied with the expansion panel. The remaining CONTROL connector may be used to connect a second expansion panel.
2. Plug in the **AC power cords** for the KP-12 and any connected expansion panels.
3. Turn **ON** the power.
   When the KP-12 is connected and turned ON for the first time, the call waiting window displays SET ADDR.
4. Tap the **SELECT control**.
   ADDR 1 should appear in the call waiting window (logical keypanel address number 1).
5. Turn the **SELECT control** to display the correct logical keypanel address number.
6. Tap **SELECT** again.
   After a few moments the alphanumeric displays should change from asterisks (****) to dashes (----).

NOTE: When the KP-12 keypanel is initially set, it is automatically saved. Unlike KP-9x series keypanels, no power-off reset is required to change the intercom port number.

Refer to the KP-12 User Manual (p/n *9350-7497-001*) for complete user information.

KP-32 Installation Notes

Use either FRAME connector (but not both) on the back of the keypanel to connect to an intercom port at a Station Breakout Panel.

To **connect an expansion panel**, do the following:

1. Connect from the **EXPANSION connector** of the KP-32 to either the CONTROL connector on the expansion panel using the supplied cable.
2. Plug the **external power supply**, provided with the KP-32, into the power connector and then into the AC power cord.

Addressing the KP-32

Each KP-32 keypanel is uniquely identified on the data port by setting the rotary address switch (see KP-32 Addressing on page 19).

Refer to the KP-32 Keypanel User Manual (9350-7656-000) for complete user instructions.

Program Source Notes

External audio program sources can be connected to intercom inputs, but all sources must be DC isolated. The audio output and data pins for the port are not used. Nominal input level is +8 dBu.

NOTE: If program inputs are assigned using a Program Assign Panel (PAP), they must be connected to specific ports of the intercom system. See “Program Assign Panel (PAP) Installation” on page 23.

TIF Telephone Interface Installation Notes

Rear Panel DIP Switch (S201)

The rear panel DIP Switch contains switches to configure the most often changed options. These include: auto-answer ON/OFF, ring signal ON/OFF, password ON/OFF, intercom port address, and full duplex method.

Password Required

Turning ON the password required option sets the unit so when a call is automatically answered, the user must enter a password via DTMF before the unit allows communications. The password numeric sequence and length are determined by the settings of the S203 internal DIP switch.

Intercom Port Address

Switches 4 to 7 determine the address of the unit. The port address is expressed in binary with switch 4 being the **LSB** (Least Significant Bit) and switch 7 being the **MSB** (Most Significant Bit). For more information, see Table 4 on page 18.

Connections

Intercom

Use either of the *To Matrix* connectors (but not both) to connect to an intercom port. The intercom port you connect to determines the address of the unit. An LED labeled “Data’ is located next to the Matrix connectors and serves as a basic indicator.

Telephone and Telephone Line

There are two (2) telephone connections provided on the rear of the TIF system. Plug the telephone line into the jack labeled *To Phone Line*. You may also plug a standard telephone into the jack labeled *Loop Thru*.

NOTE: The telephone plugged into the *Loop Thru* jack is disconnected when the TIF seizes the telephone line.

Power Supply

To **power the TIF**, do the following:

1. Insert the **round connector** from the brick type power supply into the power connector on the rear of the TIF.
2. Turn the **locking ring** on the connector to secure the connection.
3. Plug the **female end** of the IEC type power cord into the power supply and then plug the **other end** into an appropriate power outlet.

For more detailed installation instructions, see the TIF User Manual.

CDP-950 Camera Delegate Panel Installation Notes

CDP-950 General Description

The **CDP-950** provides a means of quickly and easily assigning ports to any of four (4) party lines. In an ADAM intercom system, up to eight (8) ports can be controlled from the CDP-950.

CDP-950 Theory of Operation

The CDP-950 connects to the data port for an intercom group by connecting it to the data pins for any port in the group. It can either be connected along with an intercom station, or it can be connected to a port by itself. Once connected, the CDP-950 controls all

nine (9) ports in the group. Or, it can be set to control less than eight (8) ports, leaving the remaining ports free to be used by other data devices.

For each port, the CDP-950 provides the equivalent of four (4) keypanel keys. The keys a rearranged in a column, and are labeled *PL1* through *PL4*. There are 10 columns of keys, labeled *CAM1* through *CAM10*, but columns 9 and 10 are not used in ADAM intercom system.

Once the CDP-950 has been connected and the range of intercom stations that control has been set, the front panel keys may be assigned like any other keypanel keys. Since the CDP-950 is primarily intended for assigning ports to various party lines, the keys are generally assigned to party lines, but they do not have to be. For example, a key could be assigned to talk to a specific person, if desired. Unlike most keypanels, which typically have a separate talk and listen assignments. When a key is activated, the intercom station which is connected to the audio lines for the corresponding port can talk and/or listen to the selected destination.

During normal operation, all four (4) keys for a port may be activated simultaneously, if desired. However, during critical communications, it may be desirable to temporarily disable all non-essential communications. The CDP-950 has an *Isolate* option which permits this. This option is selectable via an internal DIP switch. When the *Isolate* option is activated, the PL4 keys function as *ISO* keys. Pressing a PL4 key activates its talk/listen assignment, and at the same time, it disables the PL1 through PL3 keys directly above it. When the ISO key is turned off, the previous state of the other three keys are restored. This ISO feature is selectable using an internal DIP switch in the CDP-950.

The following procedures describe the installation and programming of the CDP-950 for use in an ADAM intercom system:

Installing the CDP-950

To **install the CDP-950**, do the following:

1. Before installing the CDP-950, remove the **top cover** and set the **internal DIP switches**:

DIP #1	Normal/ISO Select	
	Closed:	Normal Operation
	Open:	ISO Operation
DIP #2	Baud Rate Select	
	Closed:	9600 baud
	Open:	76,800 baud (Do not use for ADAM)
DIP #3	Not Used (position does not matter)	
DIP #4 - #8	Intercom range select (see Table 4 on page 18 for settings.)	

2. Connect the **CDP-950** to the data for any one of the intercom ports to be controlled. Several possible cable wiring diagrams are shown in Figure 24 on page 20
3. Connect **beltpacks**, **camera intercoms**, etc. to the audio input and output pins or each intercom port controlled by the CDP-950.

Programming the CDP-950

To program the CDP-950, do the following:

1. Run **AZedit**.
2. Assign the **CDP-950 keys** just as you would normal keypanel keys. For each intercom port, the PL1 through PL4 keys on the CDP-950 correspond to keys 1 through 4 in the AZedit key assignment table.

NOTE: When a key is activated, both the talk and listen assignment for that key activate.

TABLE 2. ADAM Master Controller Card (MC-ADAM 9002-7514-100) DIP Switch Settings (S1)[1]

DIP Switch No.	Description On=Closed, Off=Open	Default Setting On=Closed, Off=Open
1	AZedit baud rate select[2] OFF: 9600 ON: 38.4	ON
2	Key Incoming Message Option[3] OFF: Normal Operation ON: All callers displayed in Incoming Messages window	OFF
3	Keypanel busy and in-use flash[4] OFF: Enable ON: Disable	OFF
4	Trunk Master baud rate select[5] OFF: 38.4K baud ON: 9600 baud	OFF
5	Clock Monitor[6]	
6	Not Used (set to OFF)	OFF
7	Primary / Secondary ADAM card frame select[7] OFF: Secondary Frame ON: Primary Frame	ON
8	Test ON / OFF OFF: Normal Operation ON: Test Mode	OFF

1. Always set the DIP switches the same on both the main and backup controller cards.
2. The default setting of 9600 baud is compatible with the default setting for the AZedit configuration software. Alternatively, 38.4k baud provides faster uploads and downloads, but the cable from the ADAM Frame to the PC must be kept to a length less than 10ft (3m), and some older PCs may not operate reliably at this speed.
3. Normally, when a call is received by a keypanel, the keypanel checks for a talk key assigned to the caller. If there is no talk key assigned, the display above that key flashes. If no key is assigned, the caller's name appears in the Incoming Messages window. Some intercom systems may have many keypanels that do not have alpha-numeric displays. In this case, it may be preferable to have all callers names appear in the Incoming Messages window.
4. The in-use flash is indicated by a slow and continuous flashing display above a keypanel talk key. It is provided for IFBs, ISOs and trunk lines. It occurs, for example, on all keypanels that have keys assigned to a particular IFB, when that IFB is in-use by any keypanel.The displays continue to flash until the IFB is no longer in-use. Any user could activate their talk key to talk to the IFB while the display is flashing, but they may interrupt a conversation that is in progress.

   The busy flash is indicated by a display that alternates between the normal key assignment and a double asterisk (**) when the talk key is pressed. A "busy" flash occurs when a keypanel tries to talk to an IFB or trunk line that is currently in-use by another keypanel that has a higher IFB or trunking priority. When a busy flash is indicated, the user cannot talk to the destination assigned to the talk key.
5. 38.4K baud is the normal data rate for communication with a local trunk mast. 9600 baud may be selected when the intercom system is connected to a remote trunk master over some form of long-distance connection (modems, partial T1, etc.). However, expect large response delays when using 9600 baud. If this is not acceptable, other methods of connection using additional equipment may be required.
6. Set to ON only for Altera chip versions 4.1 and higher. Provides enhanced error correction for the bus clock. Leave in off position for Altera versions below 4.1.
7. The primary frame is the one that is connected to the system configuration computer, trunk master, UIO-256/GPIO-16s, PAPs, etc. When a single ADAM frame is used alone, it must be set as the primary frame. When several ADAM frames are interconnected using bus expanders, one of the frames must be set as the primary frame, and all other frames must be set as secondary frames.

TABLE 3. MCII-e Factory set DIP Switch Settings

DIP Switch 1	Debug Only! Must be in OPEN position.
DIP Switch 2	Sets the baud rate for AZedit serial connection via J1. By default, AZedit is set for COM1 and 38,400 kbps (38.4k). The baud rate set in AZedit must match the baud rate setting of the Master Controllers in ADAM. **Default**: CLOSED **OPEN**: 9600 baud **CLOSED**: 38.4k baud
DIP Switch 3, 4, and 5	Reserved, keep in OPEN position.
DIP Switch 6	Debug Only! Must be in OPEN position.
DIP Switch 7	Determines the Master / Slave Frame in a multi-frame system **Default**: CLOSED **OPEN**: Slave Frame **CLOSED**: Master Frame
DIP Switch 8	Debug Only! Must be in OPEN position.

CAUTION: DIP Switches 1, 6, and 8 should always be left in the OPEN position. These are reserved for debugging and can have unintended consequences if not left in the OPEN position.

NOTE: For AIO-16 cards, see the AIO-16 User Manual (p/n 9350-7726-000).

TABLE 4. Address DIP Switch Settings for KP-95, 96, 97, 98 Keypanels and the TIF

Logical Keypanel Number	Address DIP Switch Setting			
	SW4	SW5	SW6	SW7
1	DOWN	UP	UP	UP
2	UP	DOWN	UP	UP
3	DOWN	DOWN	UP	UP
4	UP	UP	DOWN	UP
5	DOWN	UP	DOWN	UP
6	UP	DOWN	DOWN	UP
7	DOWN	DOWN	DOWN	UP
8	UP	UP	UP	DOWN
9	DOWN	UP	UP	DOWN
10	UP	DOWN	UP	DOWN

NOTE: The shaded area is for CS9xxx system address only!

TABLE 5. CDP-950 Intercom Range Selection

Ports Controlled	DIP Switch No.				
	4	5	6	7	8
1 Only	Open	Closed	Closed	Closed	Closed
1 & 2	Closed	Open	Closed	Closed	Closed
1 & 3	Open	Open	Closed	Closed	Closed
1 & 4	Closed	Closed	Open	Closed	Closed
1 & 5	Open	Closed	Open	Closed	Closed
1 & 6	Closed	Open	Open	Closed	Closed
1 & 7	Open	Open	Open	Closed	Closed
1 & 8	Closed	Closed	Closed	Open	Closed
2 & 8	Closed	Open	Closed	Closed	Open
3 & 8	Open	Open	Closed	Closed	Open
4 & 8	Closed	Closed	Open	Closed	Open
5 & 8	Open	Closed	Open	Closed	Open
6 & 8	Closed	Open	Open	Closed	Open
7 & 8	Open	Open	Open	Closed	Open
8 Only	Closed	Closed	Closed	Open	Open

#1 refers to the lowest numbered port on any given Audio Input/Output Card; #8 refers to the highest

TABLE 6. Relationship between Audio Input/Output Cards, Intercom Ports, and Logical Keypanel Numbers

Logical Keypanel Number	Intercom Port Numbers, Grouped by Audio I/O Card Numbers																
	AIO 1	AIO 2	AIO 3	AIO 4	AIO 5	AIO 6	AIO 7	AIO 8	AIO 9	AIO 10	AIO 11	AIO 12	AIO 13	AIO 14	AIO 15	AIO 16	AIO 17
1	1	9	17	25	33	41	49	57	65	73	81	89	97	105	113	121	129
2	2	10	18	26	34	42	50	58	66	74	82	90	98	106	114	122	130
3	3	11	19	27	35	43	51	59	67	75	83	91	99	107	115	123	131
4	4	12	20	28	36	44	52	60	68	76	84	92	100	108	116	124	132
5	5	13	21	29	37	45	53	61	69	77	85	93	101	109	117	125	133
6	6	14	22	30	38	46	54	62	70	78	86	94	102	110	118	126	134
7	7	15	23	31	39	47	55	63	71	79	87	95	103	111	119	127	135
8	8	16	24	32	40	48	56	64	72	80	88	96	104	112	120	128	136

KP-32 Addressing

A rotary switch is used to indicate the logical port address the keypanel uses when communicating with the Matrix. The switch is read continuously through polling by the matrix. If the port address is changed, the new address is effective immediately.

NOTE: The address pot, by default is shipped with an invalid address to ensure that there are no conflicts with existing keypanels. It is important to set the address port for the KP-32 keypanel for it to function properly.

The address switch has a white pointer - pointed at 7. This indicates port 7 or the given AIO card. Determine the proper setting using Table 7.

TABLE 7. Program Assign Panel DIP Switch Settings for Panel Number

ID	SW1	SW2	SW3	SW4
0	Open	Open	Open	Open
1	Close	Open	Open	Open
2	Open	Close	Open	Open
3	Close	Close	Open	Open
4	Open	Open	Close	Open
5	Close	Open	Close	Open
6	Open	Close	Close	Open
7	Close	Close	Close	Open
8	Open	Open	Open	Close
9	Close	Open	Open	Close
10	Open	Close	Open	Close
11	Close	Close	Open	Close
12	Open	Open	Close	Close
13	Close	Open	Close	Close
14	Open	Close	Close	Close
15	Close	Close	Close	Close

TABLE 8. UIO-256/GPIO-16 DIP Switch Settings for Input/Output Range

I/O Range	DIP Switch Settings							
	1	2	3	4	5	6	7	8
1-16[1]	Open	Closed	Open	Open	Open	Open	Open	Closed
17-32	Open	Closed	Open	Closed	Open	Open	Open	Closed
33-48	Open	Closed	Open	Open	Closed	Open	Open	Closed
49-64	Open	Closed	Open	Closed	Closed	Open	Open	Closed

1. Default

TABLE 9. UIO-256/GPIO-16 Relay Outputs Connector (J5)

Relay Output Numbers[1]	PIN Numbers		
	NC Contact	Common	NO Contact
1/17/33/49	38	13	40
2/18/34/50	39	14	15
3/19/35/51	41	16	43
4/20/36/52	42	17	18
5/21/37/53	44	19	46
6/22/38/54	45	20	21
7/23/39/55	47	22	49
8/24/40/56	48	23	24
9/25/41/57	26	1	28
10/26/42/58	27	2	3
11/27/43/59	29	4	31
12/28/44/60	30	5	6
13/29/45/61	32	7	34
14/30/46/62	33	8	9
15/31/47/63	35	10	37
16/32/48/64	36	11	12

1. Dependent on UIO-256/GPIO-16 DIP Switch SW1 Settings for Input/Output Range as summarized in Table 7. The relay contacts are rated for 0.5A at 120 VAC; 1A at 24 VDC; 0.3A at 60 VDC

TABLE 10. UIO-256/GPIO-16 Opto-Isolated Inputs Connectors (J7)

Relay Output Numbers[1]	PIN Numbers	
	DC Control Input "-"	DC Control Input "+" (50 to 30 VDC)
1/17/33/49	9	34
1/18/34/50	10	35
3/19/35/51	11	36
4/20/36/52	12	37
5/21/37/53	13	38
6/22/38/54	14	39
7/23/39/55	15	40
8/24/40/56	16	41
9/25/41/57	1	26
10/26/42/58	2	27
11/27/43/59	3	28
12/28/44/60	4	29
13/29/45/61	5	30
14/30/46/62	6	31
15/31/47/63	7	32
16/32/48/64	8	33

1. Dependent on UIO-256/GPIO-16 DIP Switch SW1 Settings for Input/Output Range as summarized in Table 7.

   Inputs sink 100mA max at a maximum input voltage of +18 VDC

   For operation from an external DC voltage source, connect the external control voltage to the "+" pin, and connect the external common to the – pin.

   The UIO265 also has an internal 18 VDC source that is available at pins 18 to 22. Ground is available at pins 24 and 25. To use the internal 18 VDC source, ground the – pin for the desired control input, then use an external switch to connect from the 18 VDC internal source to the "+" input pin.

CHAPTER 3

Device Connections

Connections to the ADAM Frame

An ADAM Intercom System can be setup in a variety of configurations to meet different user requirements. Several common variations are illustrated in the system drawings starting on page 35.

Configuration Computer Connection and Check

Use an RS-232 serial cable to connect from J1 of the XCP-ADAM-MC Breakout Panel to a COM port of the configuration PC. For cable wiring details, refer to "ADAM-807 ADAM Intercom System AZedit to PC RS-232-C Cable" on page 17.

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

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

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.

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, see "ADAM Master Controller Card (MC-ADAM 9002-7514-100) DIP Switch Settings (S1)" on page 16 or "MCII-e Factory set DIP Switch Settings" on page 17, depending on the type of Master Controller you are using.

Program Assign Panel (PAP) Installation

General

Up to 15 PAPs 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 11. 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 Single PAP

Connect a single PAP to J3 of the Master Controller Breakout Panel as shown in ADAM-101 through ADAM-108 interconnect diagrams on starting on page 1. Use and RS-485 data cable wired as shown in the ADAM-809 installation drawing on page 19. Connect power to the AC mains connector.

Connecting Additional PAPs

Connect any additional PAPs by wiring them in parallel with the first PAP.

Change the panel number DIP switches in all but one of the PAPs. To do this, remove the covers from the PAP and locate the 8-position DIP switch block on the PMC-15 circuit board. By default, all PAPs are supplied with DIP switches #1 and #2 set for panel number 1. Reset the switches as shown in Table 7 on page 20, so that each PAP has a unique panel number.

By default, all PAP systems are supplied with the lower of two ranges of IFBs selected. For example, a PAP-952 is set by default to work with IFB numbers 1 to 24. If a second PAP-952 is connected, it can be reset to work with IFB numbers 25 to 48, if desired.

NOTE: DIP switches 4-8 in PAP systems are not used and their position does not matter.

Programming IFB Defaults to Initialize PAPs

Before a PAP can reassign program inputs, a default configuration for each IFB must first be setup using AZedit. See “Creating an IFB”.

NOTE: It is not necessary to have any program sources or output stations connected to setup the IFBs.

Checking PAP Operation

Status of a PAP can be checked by selecting PAP from the Status menu in AZedit.

Alternatively, it is possible to check PAP operation using the XPT (Crosspoint Table) in AZedit. When you select *Force and Inhibit* from the System menu in AZedit, a port pick list appears. Select one of the IFB output ports. A *Connecting Ports* table for that port appears. As program sources are reassigned on the PAP front panel, the changes can be viewed in the table by pressing the Enter key. As each new program source is connected, a check mark appears next to that port in the table.

PAP-32 Program Assign Panel

The PAP-32 connects to J3 on the ADAM system, port 902 on an ADAM CS system. 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.

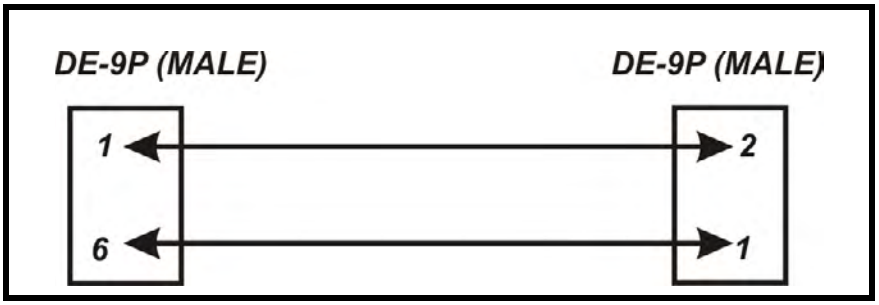


FIGURE 3. PAP D-sub Cable Diagram

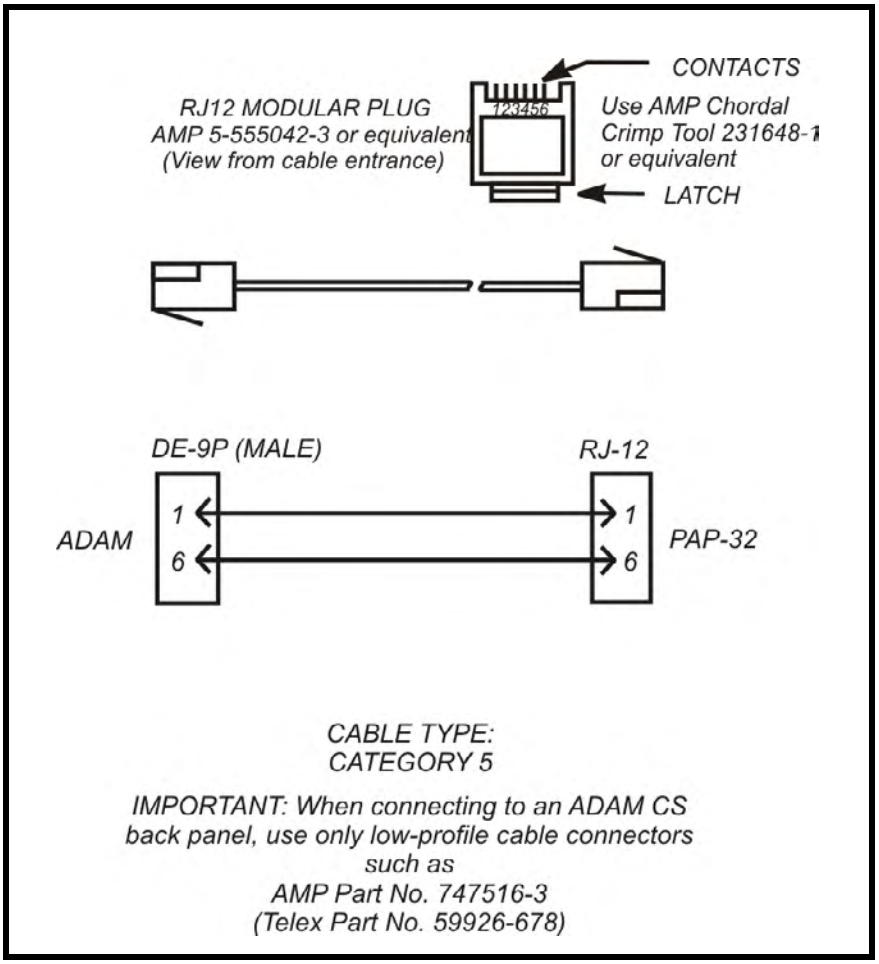


FIGURE 4. PAP-32 RJ-12 Cable

Viewing the Program Source for an IFB

Press an IFB destination key that has an IFB assignment (i.e., is not blank/). The IFB key's lower LED turns on solid red.

- If the specified IFB has a program source, the lower LED for the key that has a program source assigned turns on solid red for as long as the IFB key is pressed. If the program source for that IFB does not appear on any of the source keys, the source displays in the scroll window, and the scroll window's lower LED turns on solid red.
- If the specified IFB key is pressed and does not have a program source, no indication is shown on the source keys.
- If an IFB destination key is pressed and the key does not have a program source, no indication is shown on the source keys.
- If an IFB destination key is pressed and the key does not have an assignment, the key press is ignored.
- If an IFB key is pressed and it does not have an output bus defined (in AZedit), the LED turns on solid green to indicate the program input for that IFB cannot be changed.

Viewing What IFBs a Program Source Feeds

Press a program source key. The lower LED for that key turns on solid red. Any IFB keys which that have a program source assigned turn on solid red, for as long as the source key is held on.

The program source may also feed other IFBs which are not assigned on the PAP-32. No indication is provided for those IFBs.

Assigning Source and IFB Keys

NOTE: When a key is programmed by entering a programming sequence or by copying the scroll key to it, its LED turns green to indicate the key is being programmed. The key must be released and pressed again in order to see information about its assignment (e.g., for an IFB key, to see what program input is feeding it).

Direct Assignment

To directly assign a source key, enter 1 (NUM), followed by the IFB number (1–3 digits), followed by PGM, and tap a source key. The key is assigned to that port. A port number of zero (0) is used to clear any existing assignments.

To directly assign an IFB key, enter 0:, 2 (Function-IFB), followed by the IFB number (1–3 digits) followed by PGM, and tap a destination key. The key is assigned to that IFB. An IFB number of 0 is used to clear any existing assignments.

Scrolling

Press either the *Source* key on the keypad to scroll through available program sources or press the Dest key to scroll through IFBs. The first item of the requested list is shown in the scroll window. The scroll keys can be used to step through the list. Normally, one item at a time is scrolled. Press 5 (Prefix) to enter prefix scroll mode, in which groups of alphas with the same 2-character prefix are skipped. Pressing CLR or PGM cancels prefix scroll mode and reverts to normal scroll mode.

When the requested assignment is displayed, press 7 (copy), and then tap the key to which the assignment is to be copied. Alternatively, for program sources only, the key can be used while it is in the scroll window, without copying. The scroll key can be cleared, if desired, by pressing up briefly.

When scrolling through program sources, the only ports that are displayed are those for which the LCP-102 scroll enable check box is selected in AZedit. By default, the first 200 ports are LCP-102 scroll enabled. However, if a port has been assigned to a key, the assignment remains even if the port is subsequently scroll restricted.

NOTE: 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)

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 wired as shown in the ADAM -809 installation drawing on page 19, connect a **single UIO-256/GPIO-16** to **J3** of the Master Controller Breakout Panel, as shown in ADAM-101 through ADAM-108 interconnect diagrams starting on page 1,

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

2. Set **SW-1 DIP switch** on the back of the UIO-256/GPIO-16 to select a range 1-16, as shown in Table 8 on page 20. *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. *The J5 connector pinout is shown in Table 9 on page 21*.
4. Connect the **input devices** using the opto-isolator connector, J7. The connector pinout is shown in Table 10 on page 21.

Connecting Additional UIO-256/GPIO-16 Frames

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

1. Connect the **J3 output of the ADAM MC to the UIO-256/GPIO-16 via 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 as summarized in Table 8 on page 20.
6. Connect to the **opto-isolator outputs** and **relay inputs** as for the first UIO-256/GPIO-16.

Programming the UIO-256/GPIO-16

Each opto-isolator input is assignable in the GPI Assignments table of AZedit. The GPI Assignment table allows you to simulate a key on a keypanel at a particular intercom port, regardless of whether or not there is an actual keypanel connected to that port.

If an input has been assigned to a key, it is then necessary to define a device to be activated by that key. This is accomplished in the keypanel edit screen for the port the digital input was assigned to.

The UIO-256/GPIO-16 relay outputs are programmed using the GPI Output Edit screen in AZedit.

General Description

The SSA-324 is a System-to-System Adapter (or interface). It interconnects the voice signals between different types of intercom systems. In addition, it can optionally interconnect intercom systems. Also, it can optionally interconnect Calls or tally signals between systems. Each SSA-324 includes two, 2-wire to 4-wire converters. The 4-wire interface can deliver and accept high-level signals such as those from the McCurdy intercom system. An SSA-324 carries two voice channels when used as dual 2-wire to 4-wire interfaces, and one voice channel when functioning as a 2-wire to 2-wire interface.

Installation

Mechanical Installation

The SSA-324 can be installed in 3 ways:

- A single unit mounted in half rack space using an optional Model MCP2 Kit for rack mounting a single unit.
- Two SSA-324 power supplies mounted side-by-side using the optional MCP1 Kit for rack mounting two units side-by-side.
- Free standing using the optional MCP8 Kit for adding side channels for non-rack mounting portable use.

Electrical Installation

The connection for the headset on the front panel is used to setup the interface. All other connections are on the rear panel.

On the rear panel, the 2-wire connection on System A is at J101, while on System B it is a J102. These are XLR-3-31 (female) type connectors. System A and B 4-wire connections are both at TB1 and J103. J103 also contains connections to the options card, when installed. Low voltage alternating current power is applied to J104 (16 volts, AC).

	RTS Unbalanced	**Audiocom Balanced[a]**	**Clear-Com Unbalanced[b]**
CH1	2	2, 3	3
CH2	3	-	-
Com	1	1	1

a. S101 (System A) and/or S102 (System B) set to IN position for balance operation.

b. If option board installed and Clear-Com call light operation is required, move jumper W103 (System A) an/or jumper W203 (System B) on motherboard to 2, 3 position. Jumper J103-7, 20 for System A, and/or J103-12/25 for System B.

TB1 Four Wire Connections

	System A TB1-	System B TB1-
Audio In Hi	1	5
Audio In Lo	2	6
Audio Out Hi	3	8
Audio Out Lo	4	8

J104 Power Input

Earth	1
16VAC	2
16VAC	3
No Conn.	4

J103 I/O

1	Earth
2	4-wire Audio In Hi, System A
15	4-wire Audio In Lo, System A
3	4-wire Audio Out Hi, System A
16	4-wire Audio Out Lo, System A
4	4-wire Audio In Hi, System B
17	4-wire Audio In Lo, System B
5	4-wire Audio Out Hi, System B
18	4-wire Audio Out Lo, System B
6	Call Send GND (A)
19	Call Send Hi (A)
7	DC Call Sig En GND (A)
20	DC Call En Hi (A)
8	Relay Contact NO (A)
9	Relay Contact COM (A)
21	Relay Contact NC (A)
22	Relay Contact NO (B)
23	Relay Contact COM (B)
10	Relay Contact NC (B)
11	Call Send GND (B)
24	Call Send Hi (B)
12	DC Call Sig En GND (B)
25	DC Call Sig En Hi (B)

Front Panel Dyn. Mic Headset Connector

1 Mic Lo

2 Mic Hi

3 Headphone Com

4 Headphone Hi

Motherboard Test Signal Jumper

Place jumper on W2 for tone test signal, W3 for voice test signal. Test signal used with headset and front panel nulling adjustments to null return 2-wire signal.

Operation

Controls and Connections

Front Panel Switches

- Channel Select switch, CH1 out / CH2 in, Sys A.
- Press momentary switch for nulling System A, 2-wire
- Channel Select switch, CH1 out / CH2 in, System B
- Press momentary switch for nulling System B, 2-wire

Connectors

- XLR-4-31 Female 4-pin headset connector (DYN MIC HEADSET)

Controls

- Monitor headphone level (VOLUME)

Indicator

- Indicator (Power) green LED

Controls

- LEVEL TO RTS, System A
- LEVEL FROM RTS, System A
- DUCK Level, System A
- Inductive (LOW) null, System A
- Resistive (MEDium) null, System A
- Capacitive (HIgh) null, System A
- LEVEL TO RTS, System A
- LEVEL FROM RTS, System A
- DUCK Level, System A
- Inductive (LOW) null, System A
- Resistive (MEDium) null, System A
- Capacitive (HIgh) null, System A

Rear Panel

Switches

Unbalance (Out) Balance (In) / Select Two-wire, System A
Unbalance (Out) Balance (In) / Select Two-wire, System B

Operation Nulling

Preset Controls as follows:

Function	Pot Position
To/From RTS	Set to midway
Duck Level	Set to **CW** (Clockwise)
Low	Set to midway
Med	Set to midway
Hi	Set to **CCW** (Counter Clockwise)
Volume	10 O'clock

Press Test Switch

- If test signal tone, adjust Med for null, then Hi, then Low. If test signal voice, say "ahhhhh" into microphone, adjust Med for null, then Hi, then Low.
- Release Test Switch

Level Setting

- Have Talkers 1 and 2 on 4-wire system, Talkers 3 and 4 on 2-wire system. Adjust To / From RTS Controls so that all Talkers can hear each other at about the same level regardless of which system they are on.

Duck Setting

- Adjust Duck Level only if full duplex operation is not possible because of feedback. Adjust Duck Level carefully from CW towards CWW. Only a very small amount of ducking should be used.

General Description

The SSA-424A Dual Digital Hybrid interfaces two, 2-wire intercom lines to two, 4-wire intercom lines. Unlike earlier analog hybrids, the SSA-424A features advanced digital signal processing to achieve automatic nulling of the 4-wire lines. Plus, each hybrid features convenient peak-reading level meters to quickly match the levels between the lines that are being interfaced. The result is an easy and accurate setup. With the SSA-424A, all need for test tones, nulling adjustments, and ducking adjustments have been eliminated.

4-Wire Audio Connections for ADAM, ADAM CS or Zeus

- Use standard 9-pin or RJ-12 keypanel cables.
- Connect from one port of your intercom system to J2A or J3A (System A connection) on the back of the SSA-424A.
- Connect from another port to J2B or J3B (System B connection).
- on the SSA-424A front panel, set the 4W LEVEL REF SEL switches to the +8dB position.

Audio Connections for Other 4-Wire Communications Systems

1. Construct 9-pin or RJ-11 cables to connect from your 4-wire system to the SSA-424A. To to the System A hybrid, use either J2A or J3A; for the System B hybrid, use either J2B or J3B.

Pin Connections are as follows:

DB 9-pin Connection

Connector Type (on SSA-424A end of cable): 9-pin male D-sub

Pin 1	No Connection
Pin 2	No Connection
Pin 3	No Connection
Pin 4	Balanced Audio + output (to 4-wire system)
Pin 5	Balanced Audio - output (to 4-wire system)
Pin 6	No Connection
Pin 7	Balanced Audio - input (from 4-wire system)
Pin 8	Balanced Audio + input (from 4-wire system)
Pin 9	No Connection

RJ-12 Connection

Connector Type (on SSA-424A end of cable)): RJ-12 plug

Pin1	No Connection
Pin 2	Balanced Audio + input (to 4-wire system)
Pin 3	Balanced Audio + output (to 4-wire system)
Pin 4	Balanced Audio - output (to 4-wire system)
Pin 5	Balanced Audio + output (to 4-wire system)
Pin 6	No Connection

2. On the SSA-424A front panel, set the 4W LEVEL REF SEL switches to the position which most closely matches the audio input and output levels of your 4-wire system. If you don’t know the levels, select +4 dB. for the time being.

4-Wire Call Signal Connections

NOTE: These connections require the call signal option. Part Number 9002705500.

Call Signal Connections for ADAM, ADAM CS, and Zeus

You can use the General Purpose Interface (GPI) connector to interface the call signals. The pin-out of the connector is the same for all of these intercom systems.

ADAM GPI Connector:	XCP-ADAM-MC, J11
ADAM CS GPI Connector:	J903
Zeus GPI Connector	J27

NOTE: If you intercom system is equipped with a UIO-256/GPIO-16 Universal Input / Output Frame, you can also use that for connections.

As an alternative to using the GPI, you can use external components to send and receive call signals.

Call Signal Connections for Other 4-Wire Communications Systems

4-wire Call Send and Call Enable/Inhibit

The SSA-424A accepts a switch-contact input from the 4-wire system and then generates a call signal output to the 2-wire system. The SSA-424A also accepts an option switch contact input to enable or inhibit call signalling between the 4-wire and 2-wire systems.

4-Wire Call Receive

The SSA-424A receives call signals from the 2-wire system, then converts this to relay contact closure for use as a 4-wire call receive indication. The SSA-424A also provides +5 VDC which can be connected to the relay contacts to generate a DC output signal instead of a contact closure.

The SSA-424A power indicator flashes whenever a call signal is received from either 2-wire line. This can be used as an incoming call indication for the 4-wire system, if desired, and the level display should provide an indication of which line is calling.

CHAPTER 4

Drawings

FIGURE 5. ADAM-101 ADAM Intercom System XCP-40-RJ11Interconnect Diagram

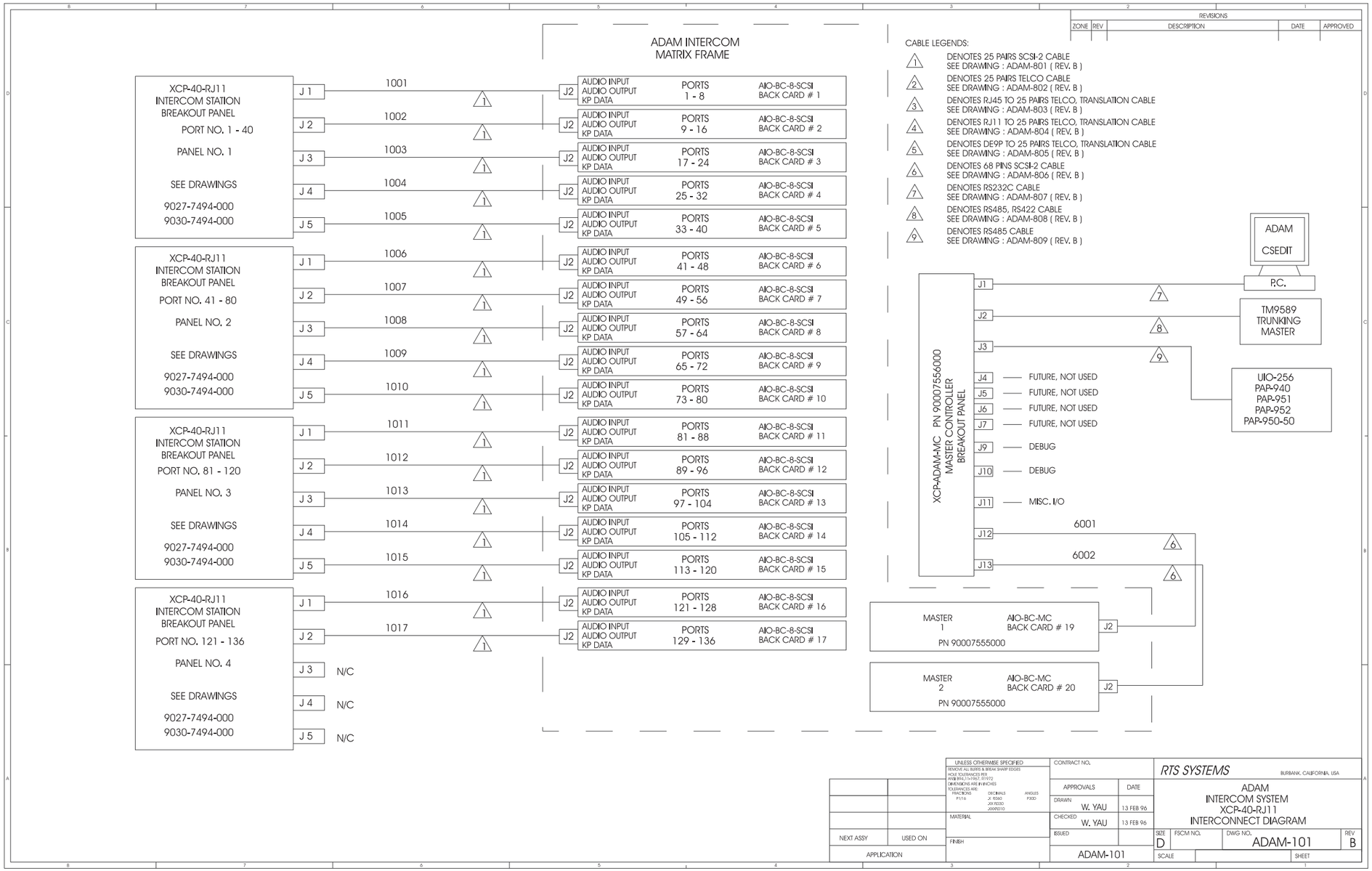


FIGURE 6. ADAM-102 ADAM Intercom System XCP-40-DB9 Interconnect Diagram

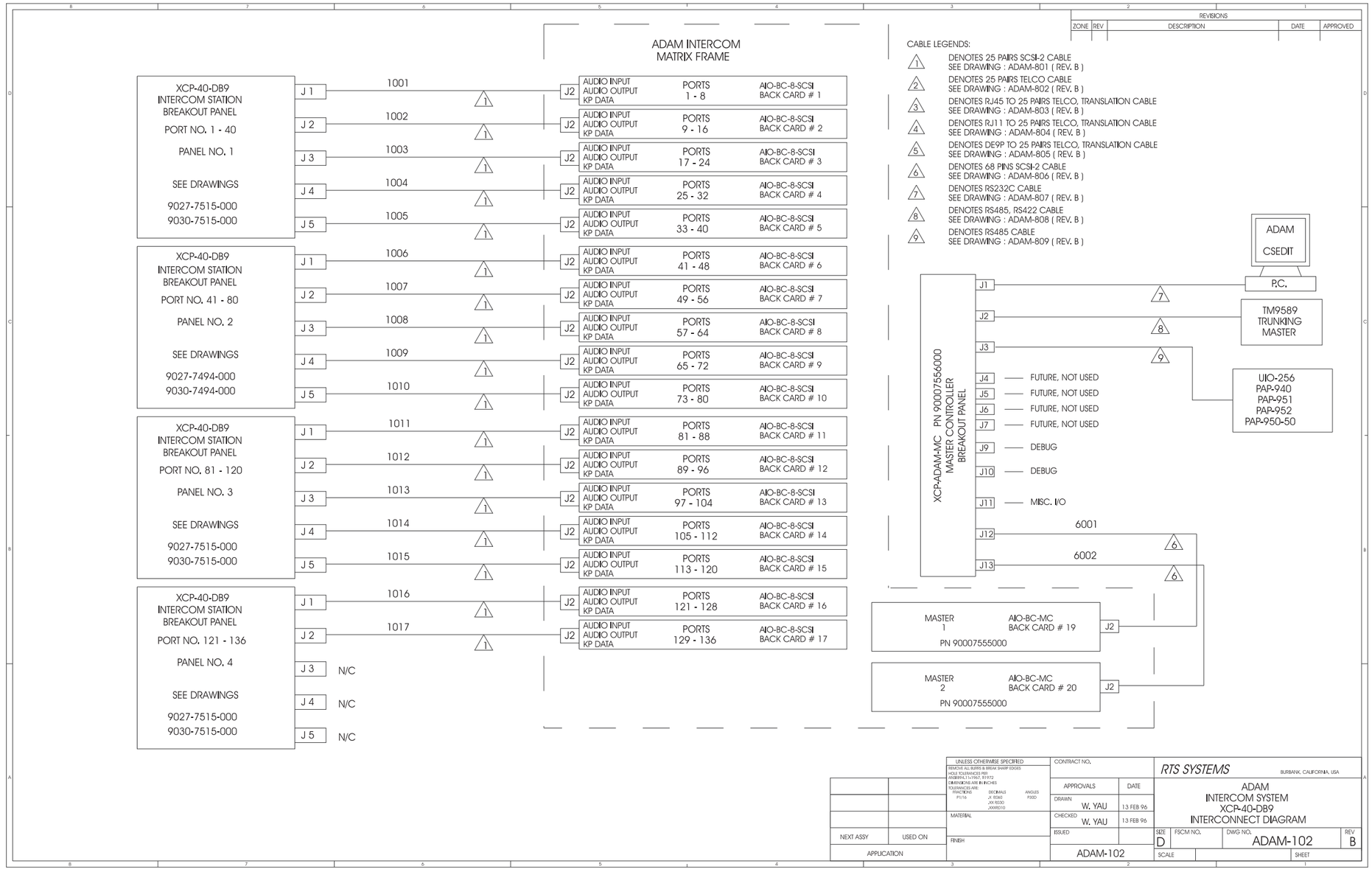


FIGURE 7. ADAM-103 ADAM Intercom System XCP-955 / Jack Fields / SCSI Interconnect Diagram

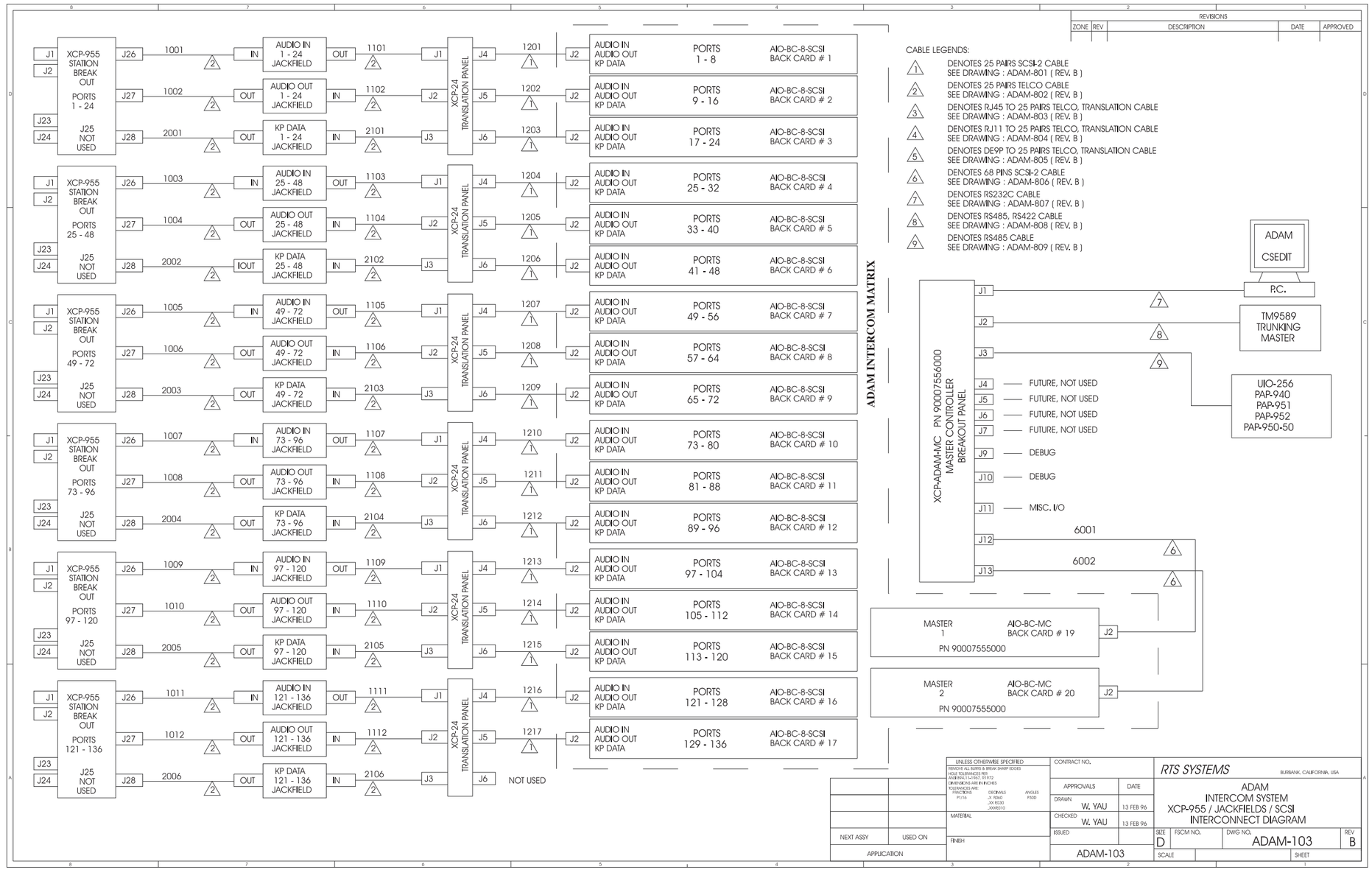


FIGURE 8. ADAM-104 ADAM Intercom System XCP-955 / Jack Fields / RJ Interconnect Diagram

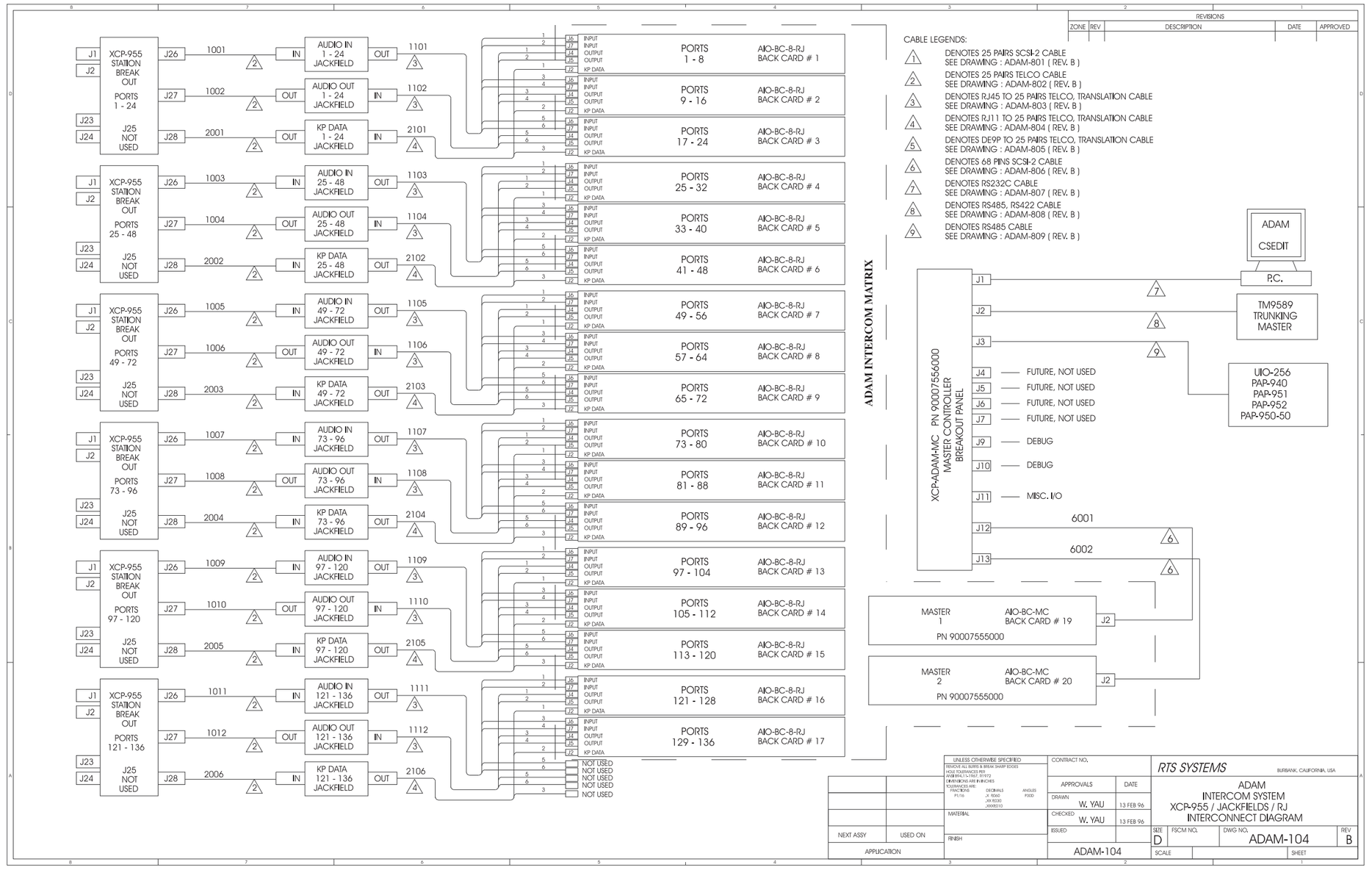


FIGURE 9. ADAM-105 ADAM Intercom System XCP-955 / Jack Fields / SCSI Interconnect Diagram

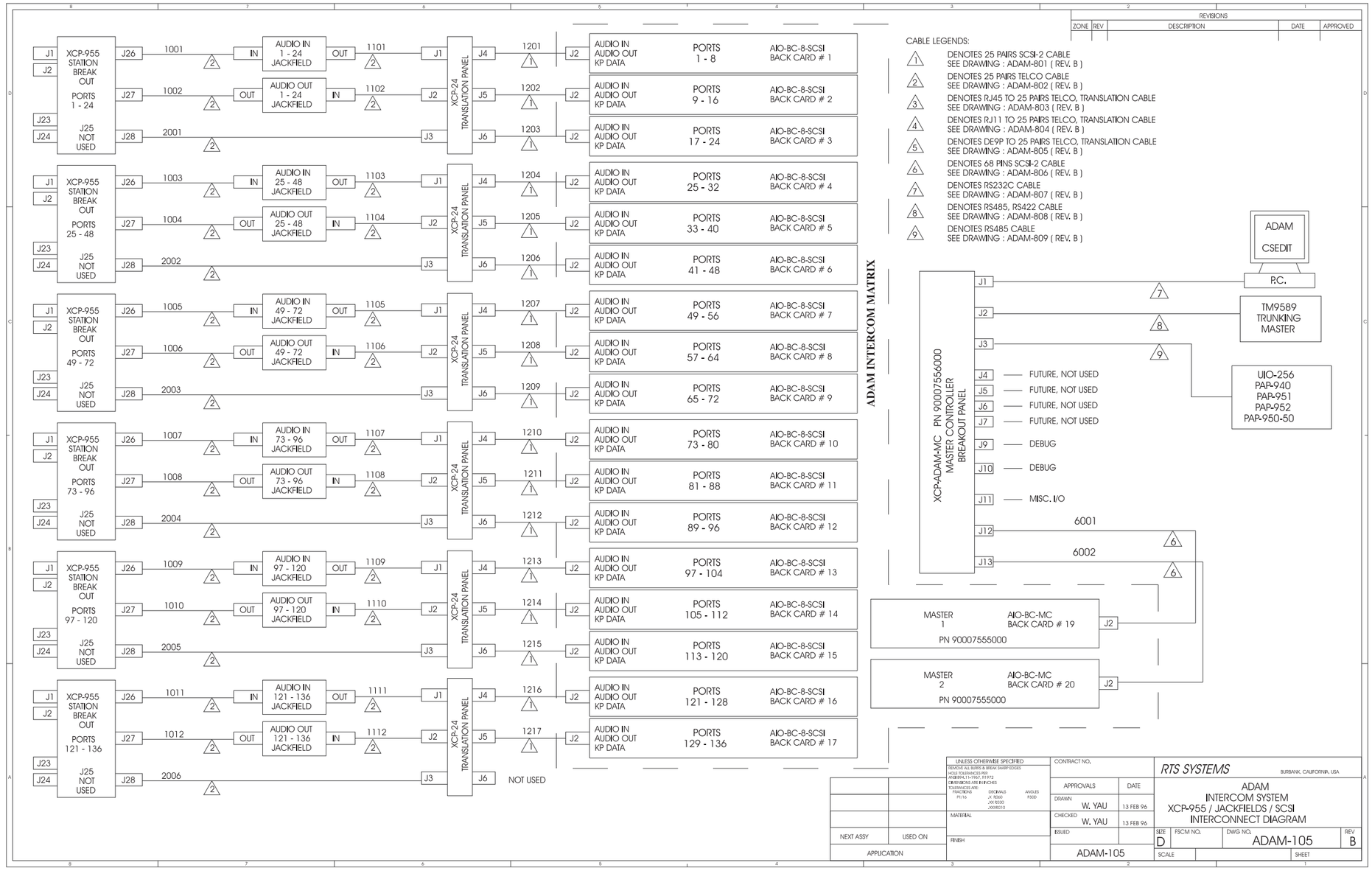


FIGURE 10. ADAM-106 ADAM Intercom System XCP-955 / Jack Fields / RJ Interconnect Diagram

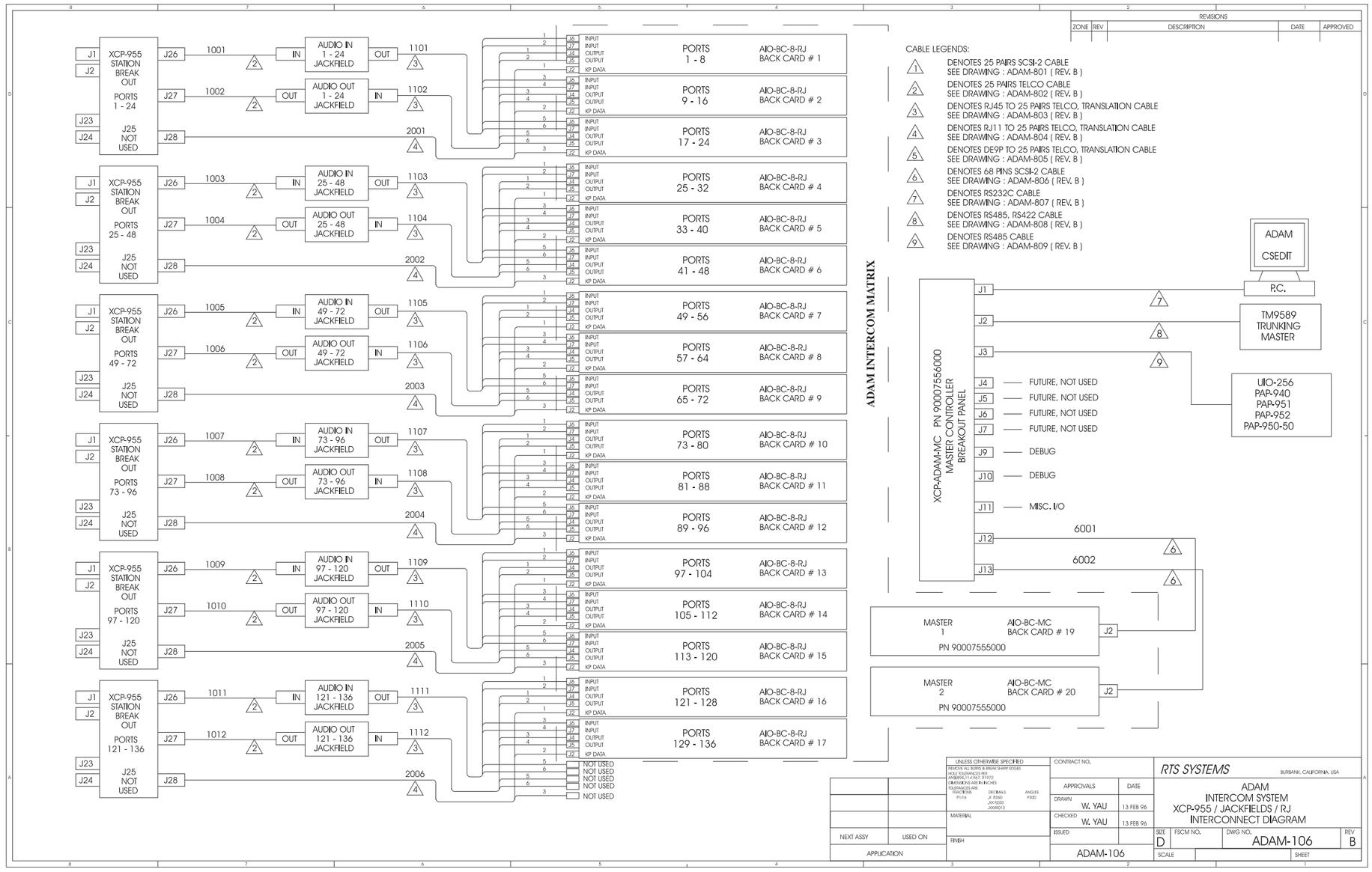


FIGURE 11. ADAM-107 ADAM Intercom System XCP-954-48 / Jack Fields / SCSI Interconnect Diagram

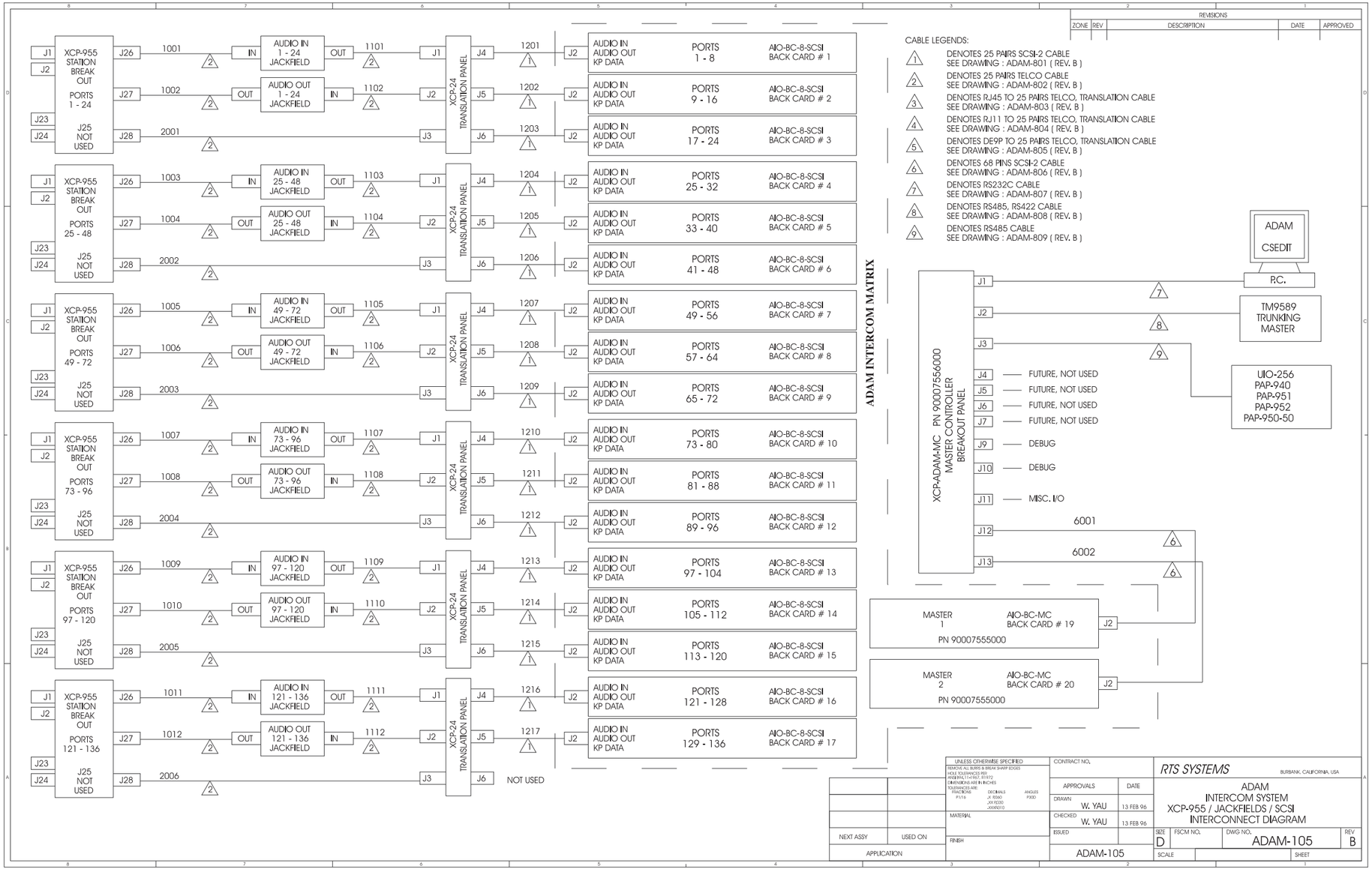


FIGURE 12. ADAM-108 ADAM Intercom System XCP-954-48 / Jack Fields / RJ Interconnect Diagram

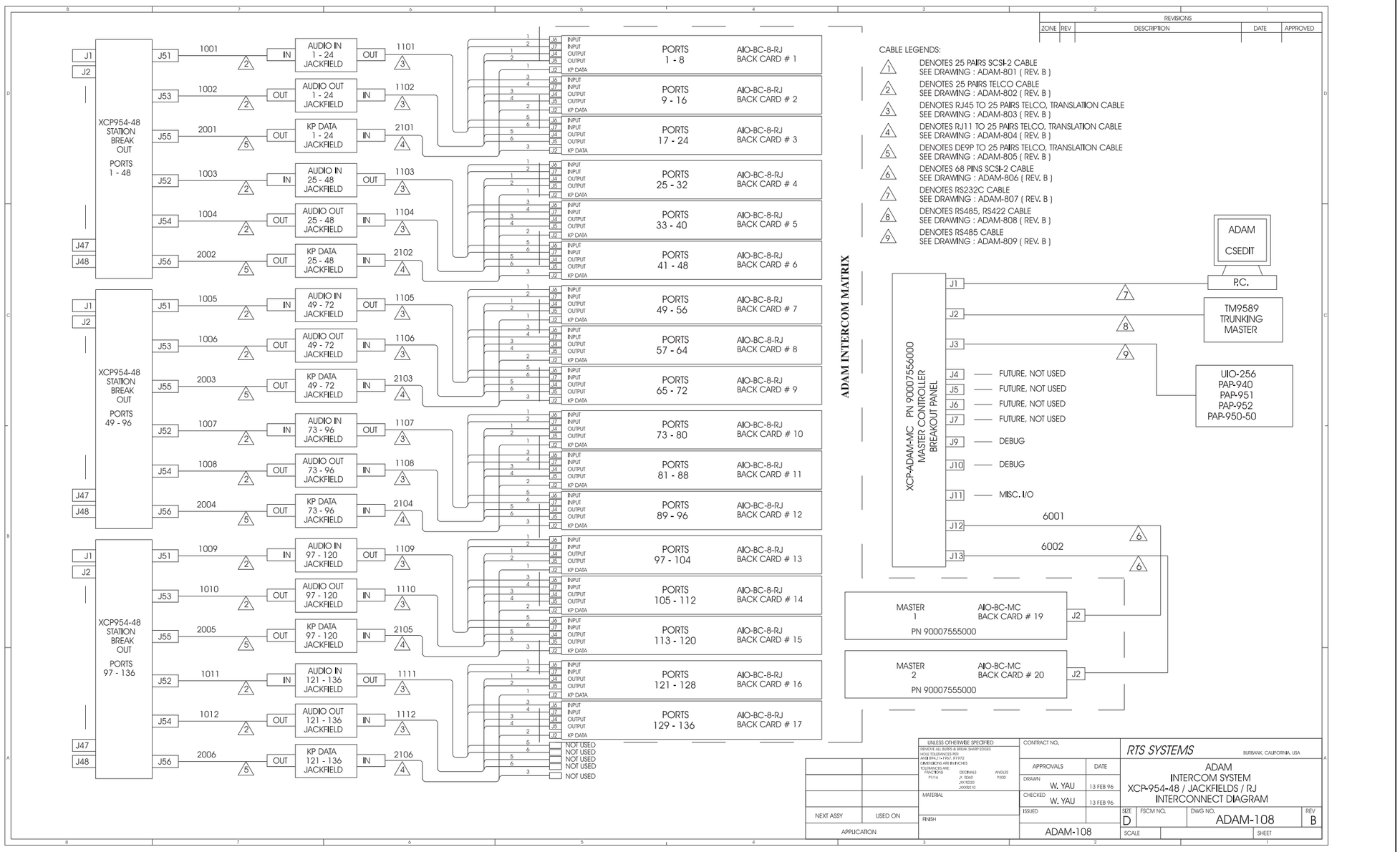


FIGURE 13. ADAM-301 ADAM Intercom System Matrix Frame Layout - AIO-8

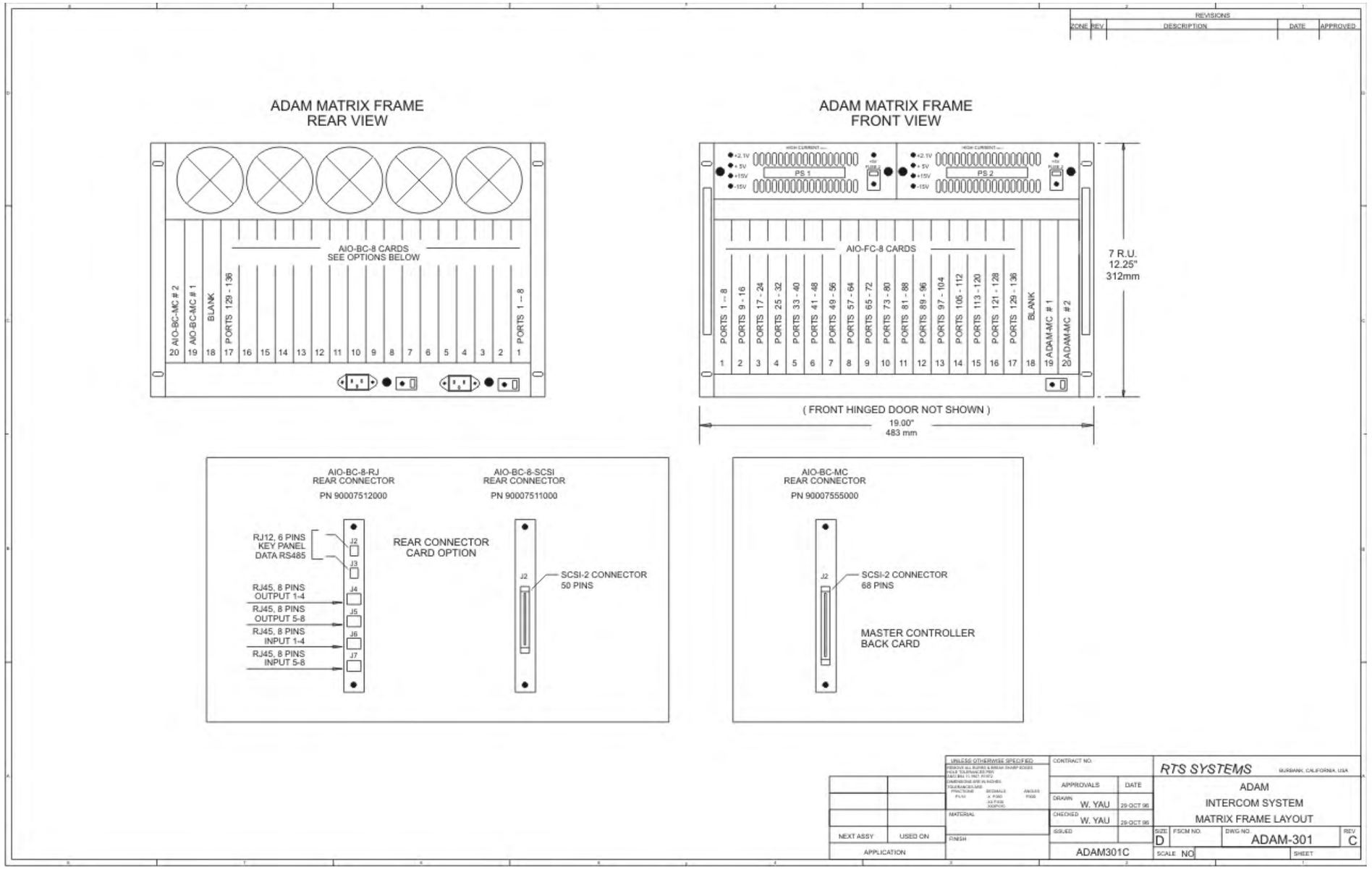
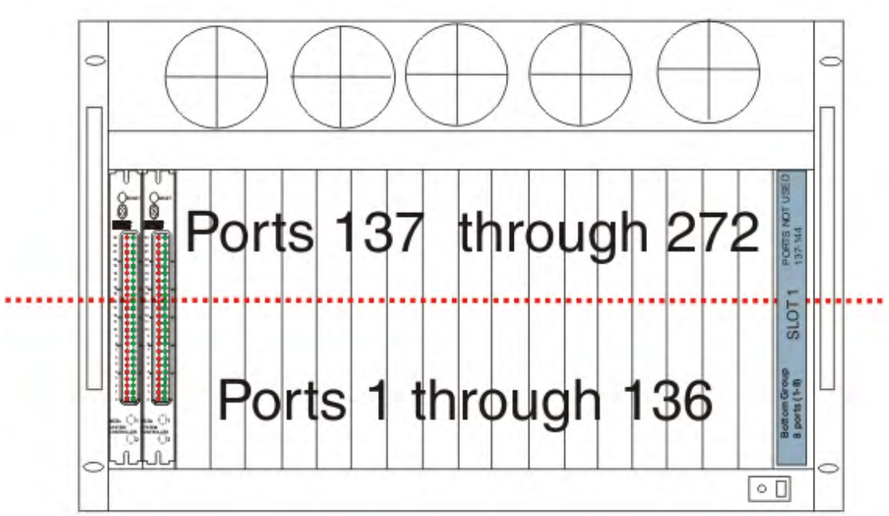
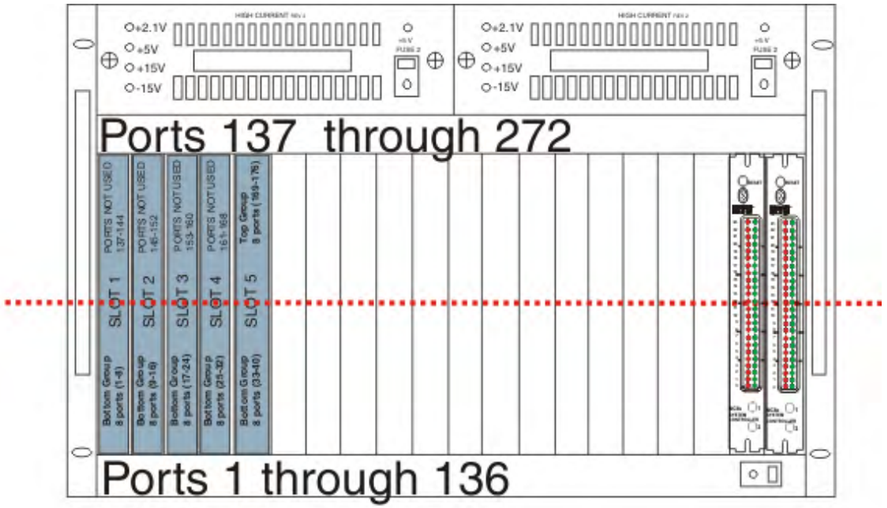
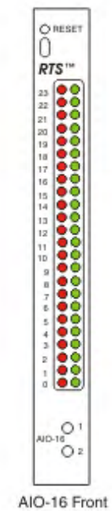


FIGURE 14. ADAM Intercom System Matrix System Layout - AIO-16

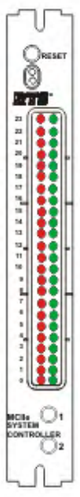






AIO-16 Front Card Plate with LED Board

AIO-16 Front Card Plate (Standard)



MCII-e Front Card Plate, Master Controller

AIO-16 Back Card Plate, SCSI

AIO-16 Back Card Plate, MDR

FIGURE 15. ADAM-801 ADAM Intercom System Audio Input/Output/Data 50-pin SCSI-2 Cable

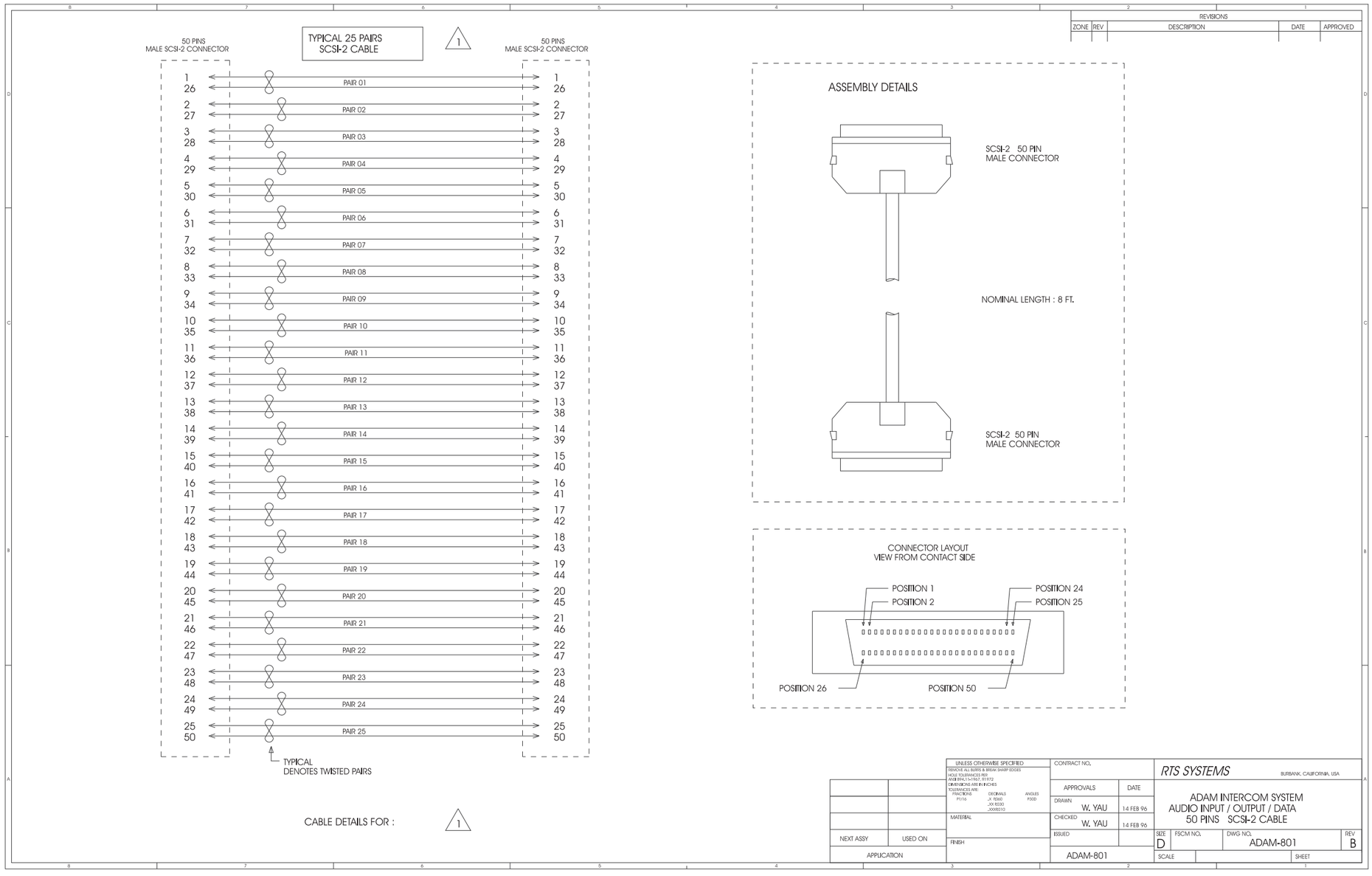


FIGURE 16. ADAM-802 ADAM Intercom System Audio Input/Output 25 Pairs Telco Cable

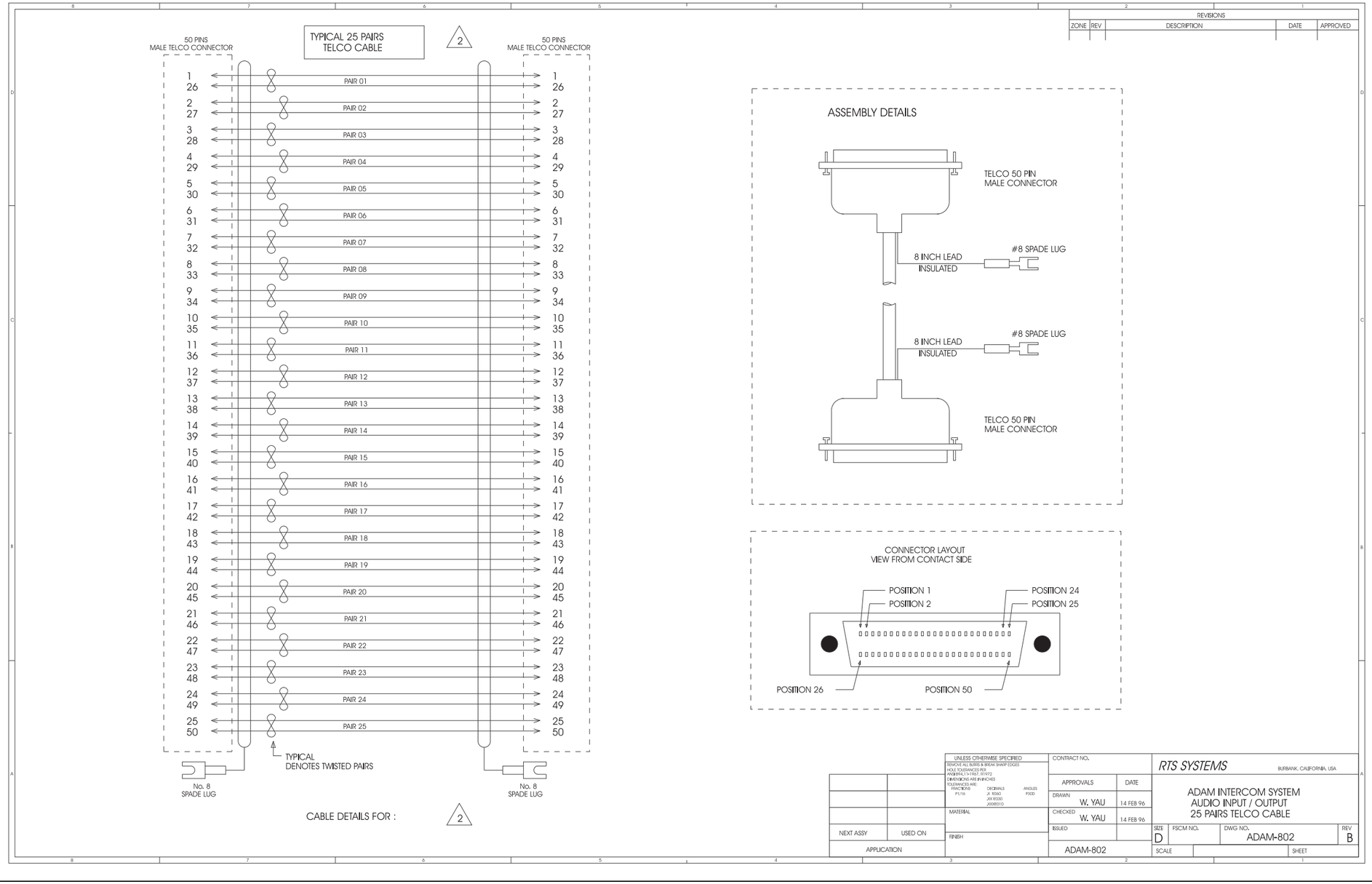


FIGURE 17. ADAM-803 ADAM Intercom System Audio Input/Output 25 Pairs to RJ-45 Cable

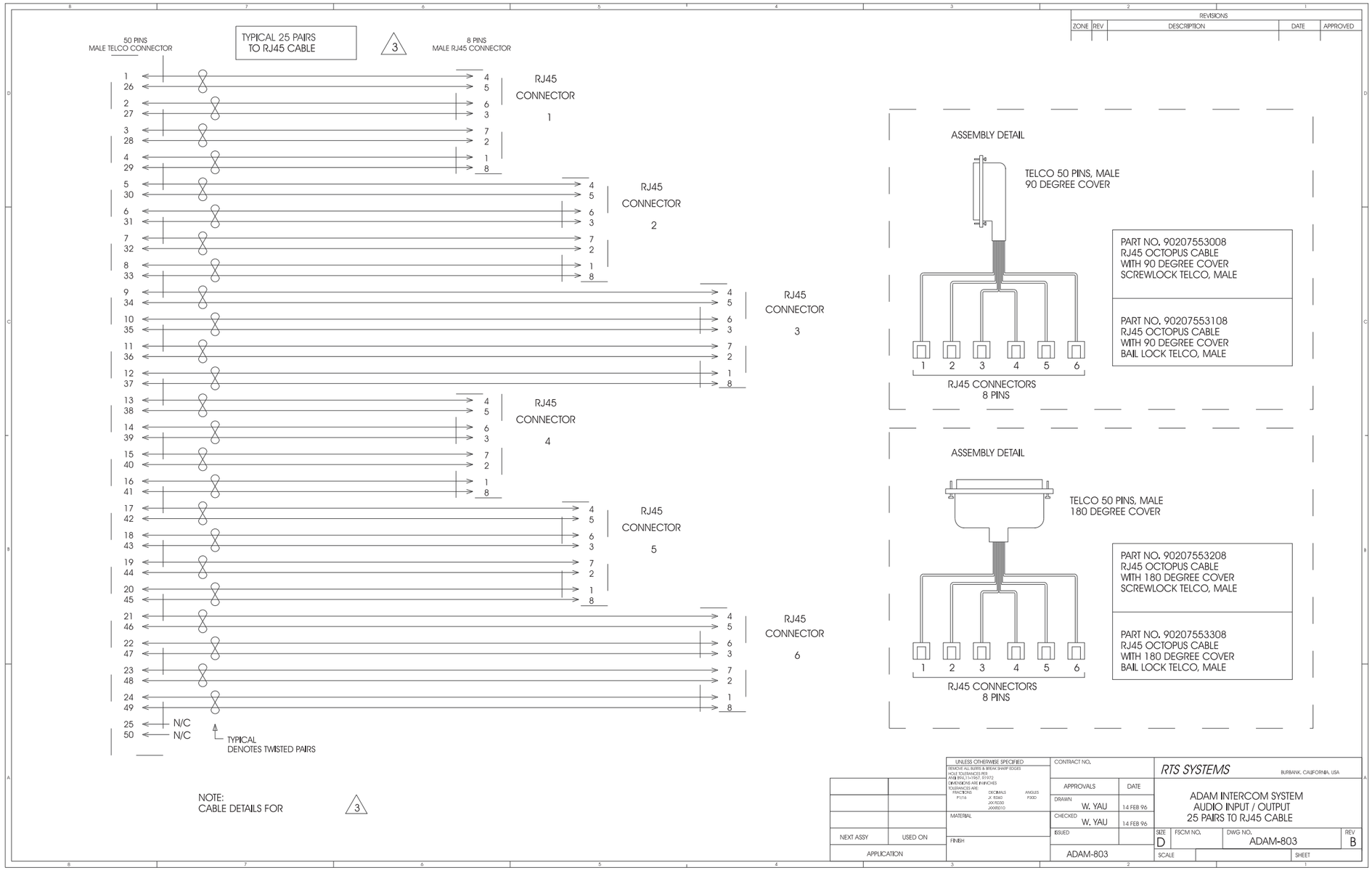


FIGURE 18. ADAM-804 ADAM Intercom Matrix RJ-11 to 50-pin Telco Translation Cable

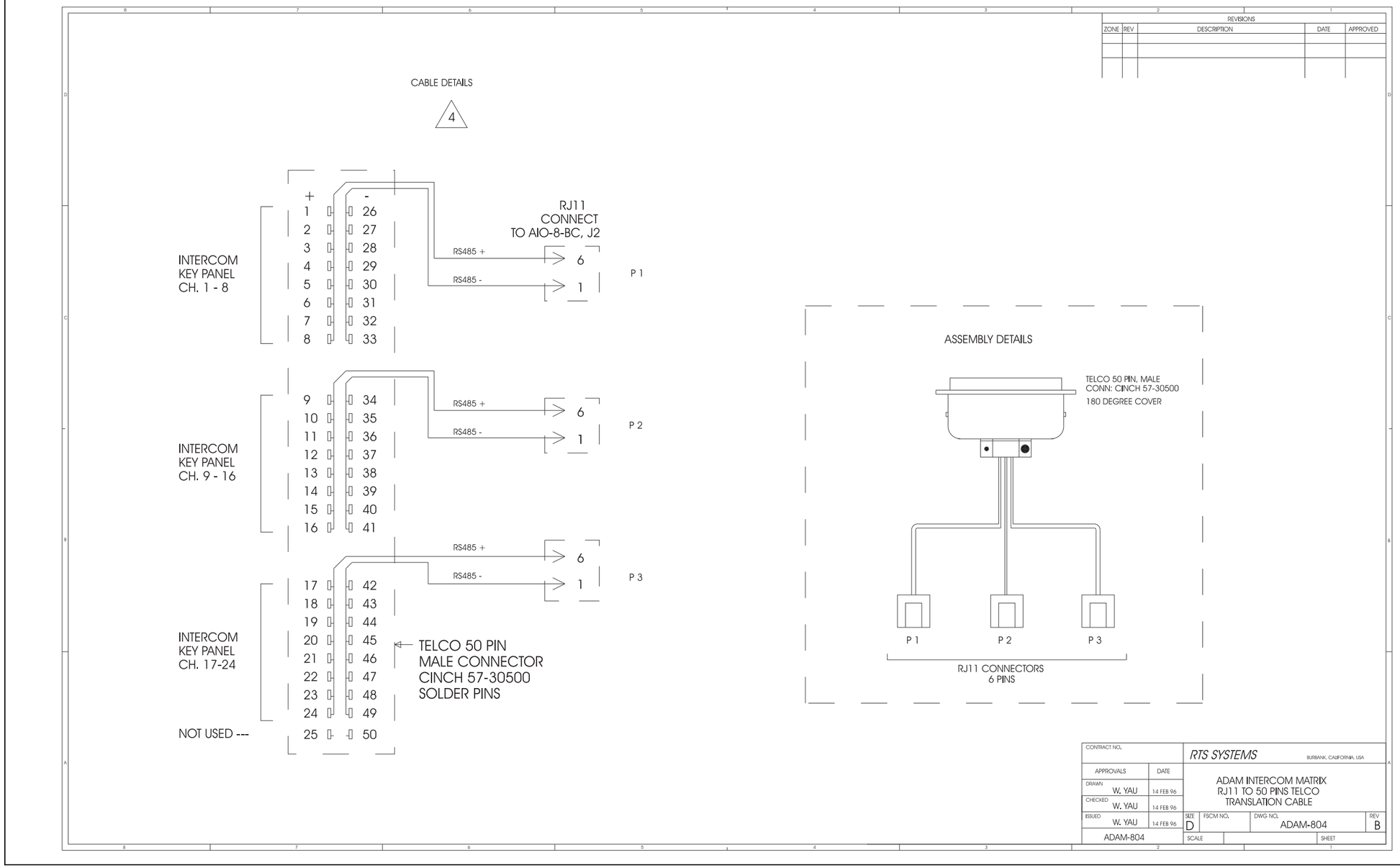


FIGURE 19. ADAM-805 ADAM Intercom Matrix DB-9 to 50-pin Telco Translation Cable

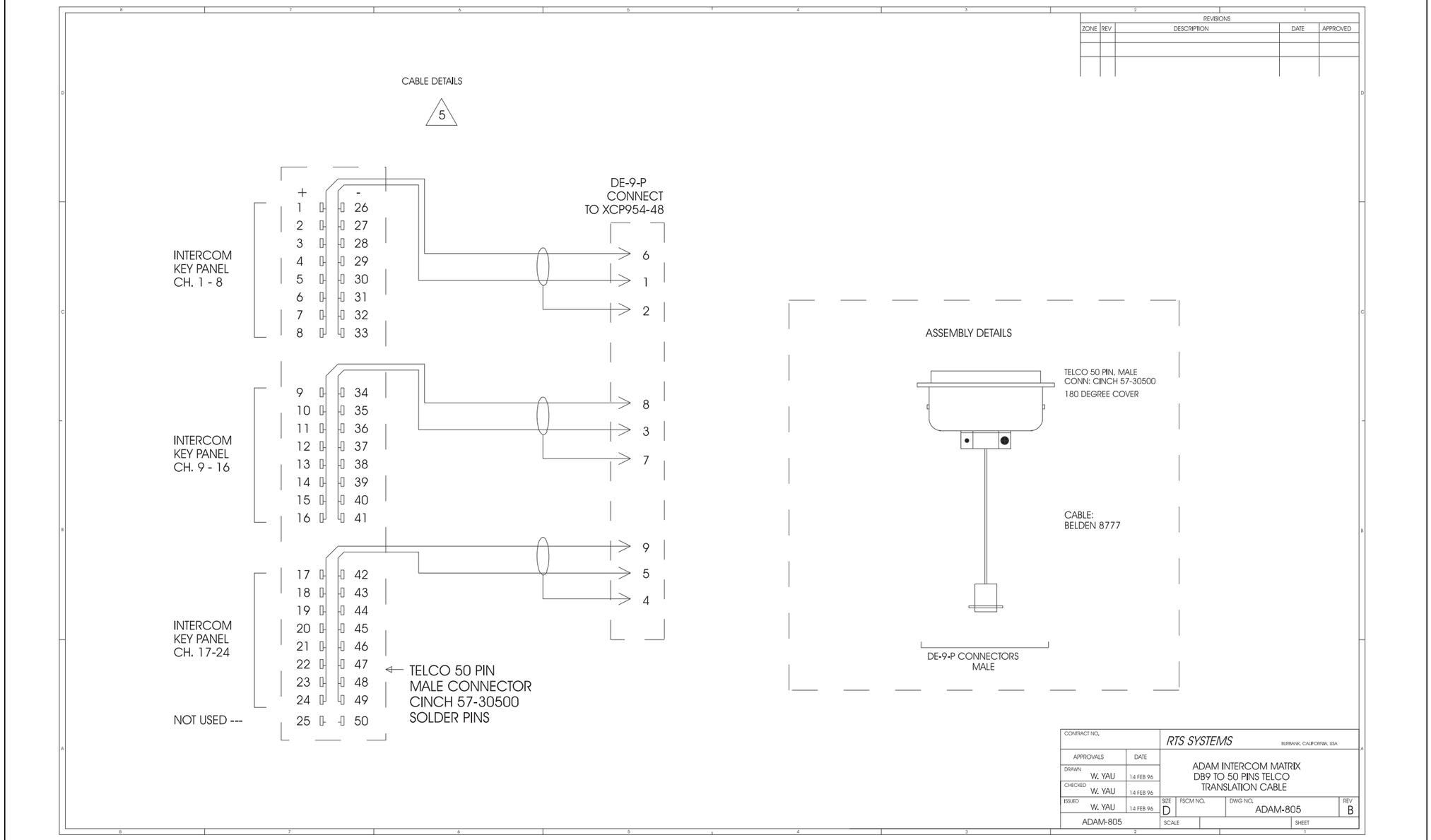


FIGURE 20. ADAM-806 ADAM Intercom System Master Controller 68-pin SCSI-2 Cable

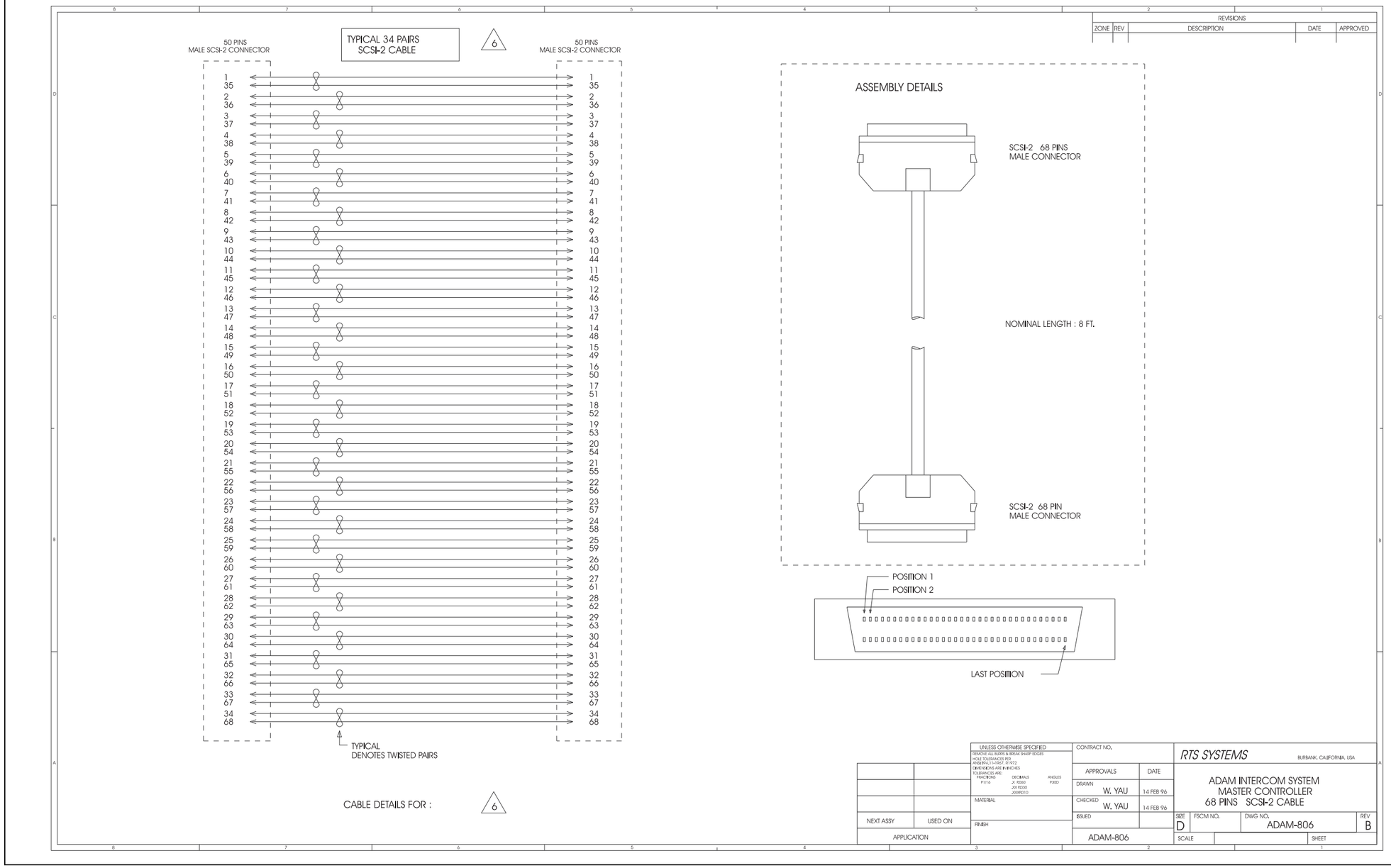


FIGURE 21. ADAM-807 ADAM Intercom System AZedit to PC RS-232-C Cable

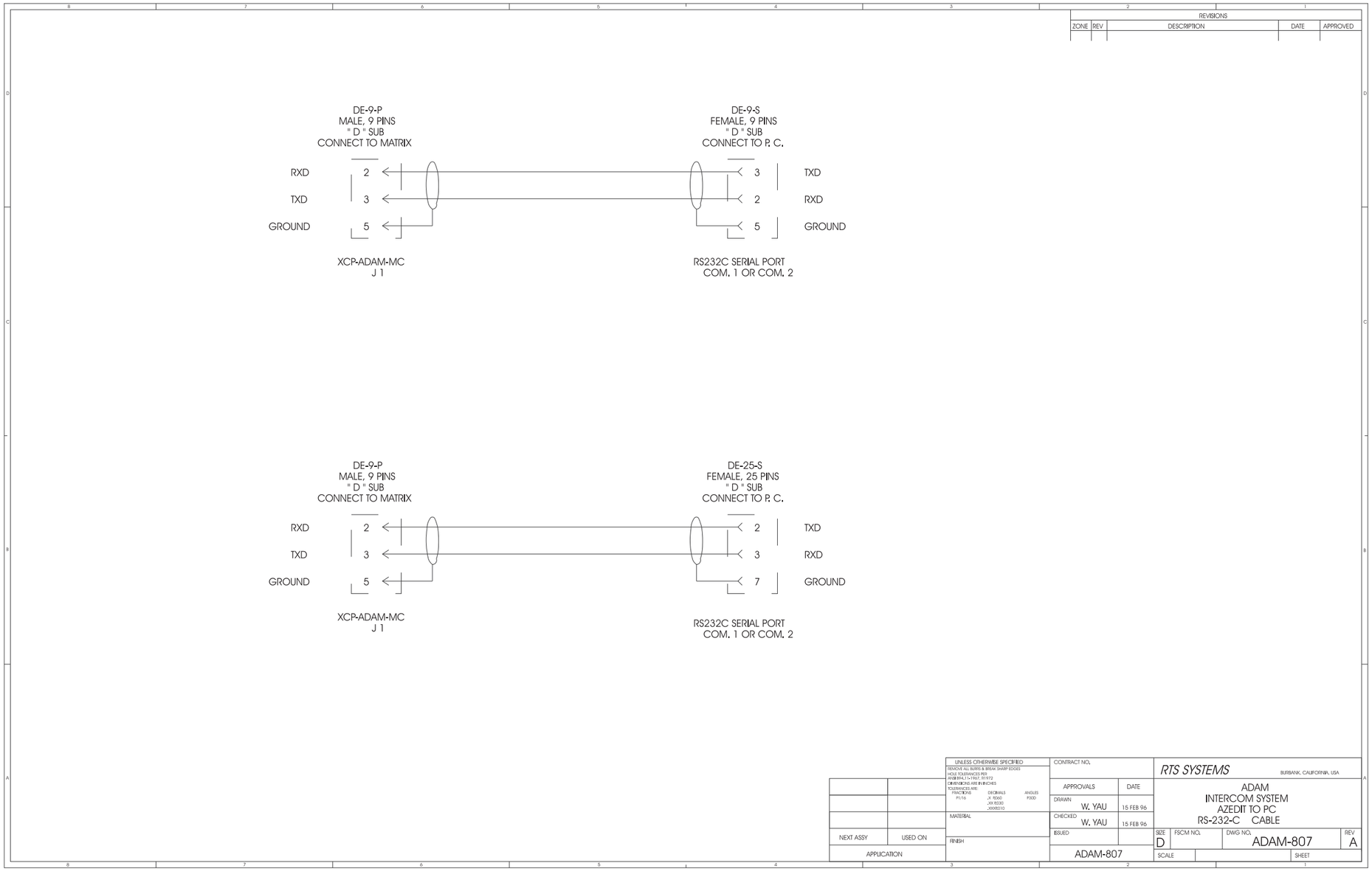


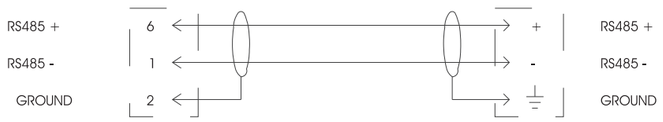
FIGURE 22. ADAM-808 ADAM Intercom System Matrix to Trunk Master RS-485/RS-232-C Cable

REVISIONS

ZONE	REV	DESCRIPTION	DATE	APPROVED

DE-9-P
MALE, 9 PINS
" D " SUB
CONNECT TO MATRIX
XCP-ADAM-MC

TELCO AMP CHAMP
MALE, 50 PINS
CONNECT TO TM9589
COMM. PORT



TM 9589
TRUNK MASTER CONTROLLER
COMMUNICATION PORTS
ASSIGNMENT TABLE
RS485 SERIAL

CONN.	PIN +	PIN -	GROUND	COMM	TYPE
J5	27	2	3	1	RS485
J5	30	5	28	2	RS485
J5	32	7	8	3	RS485
J5	35	10	33	4	RS485
J5	37	12	13	5	RS485
J5	40	15	38	6	RS485
J5	42	17	18	7	RS485
J5	45	20	43	8	RS485
J4	27	2	3	9	RS485
J4	30	5	28	10	RS485
J4	32	7	8	11	RS485
J4	35	10	33	12	RS485
J4	37	12	13	13	RS485
J4	40	15	38	14	RS485
J4	42	17	18	15	RS485
J4	45	20	43	16	RS485
J3	27	2	3	17	RS485
J3	30	5	28	18	RS485
J3	32	7	8	19	RS485
J3	35	10	33	20	RS485
J3	37	12	13	21	RS485
J3	40	15	38	22	RS485
J3	42	17	18	23	RS485
J3	45	20	43	24	RS485

TM 9589
TRUNK MASTER CONTROLLER
COMMUNICATION PORTS
ASSIGNMENT TABLE
RS232C SERIAL

	CONN.	PIN +	PIN -	GROUND	COMM	TYPE
	SELECTABLE BY JUMPER SETTING ON FC9588-IOU CARD (TOP CARD)					
*	J5	46	21	22	7	RS232C
*	J5	49	23	48	8	RS232C
	SELECTABLE BY JUMPER SETTING ON FC9588-IOU CARD (CENTER CARD)					
*	J4	46	21	22	15	RS232C
*	J4	49	23	48	16	RS232C
	SELECTABLE BY JUMPER SETTING ON FC9588-IOU CARD (BOTTOM CARD) FACTORY DEFAULT SETTING					
*	J3	46	21	22	23	RS232C
*	J3	49	23	48	24	RS232C

Note:
1 -- J3, J4, J5 ARE AMP CHAMP 50 PIN FEMALE CONNECTORS ON TM9589

2 -- COMM. PORT 7, 8, 15, 16, 23, 24 ARE SELECTABLE FOR RS485 OR RS232C.

FACTORY DEFAULT SETTING : COMM. 7, 8, 15, 16 = RS485, COMM. 23, 24 = RS232C.

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
REMOVE ALL BURRS & BREAK SHARP EDGES
HOLE TOLERANCES PER ANSI B94.17-1982, R1972
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONAL ±1/16 DECIMALS .X ±.060 .XX ±.030 .XXX±.010 ANGLES ±30D
MATERIAL
FINISH

CONTRACT NO.

APPROVALS	DATE
DRAWN W. YAU	15 FEB 96
CHECKED W. YAU	15 FEB 96
ISSUED	

ADAM-808

RTS SYSTEMS BURBANK, CALIFORNIA, USA

ADAM
INTERCOM SYSTEM
MATRIX TO TRUNK MASTER
RS-485 / RS232C CABLE

SIZE	FSCM NO.	DWG NO.	REV
D		ADAM-808	A

SCALE | SHEET

FIGURE 23. ADAM-809 ADAM Intercom System UIO-256/GPIO-16 and PAP Cables

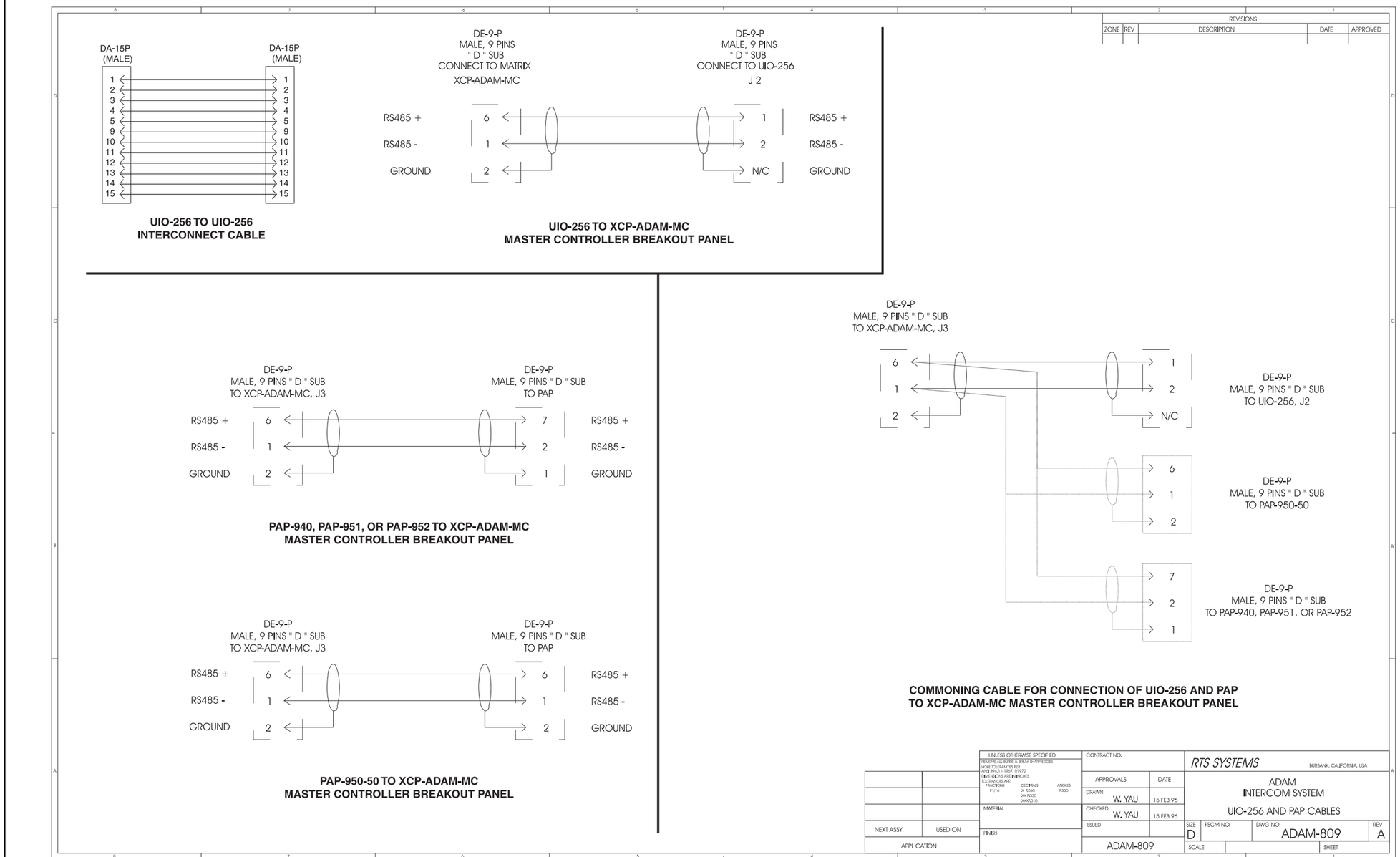
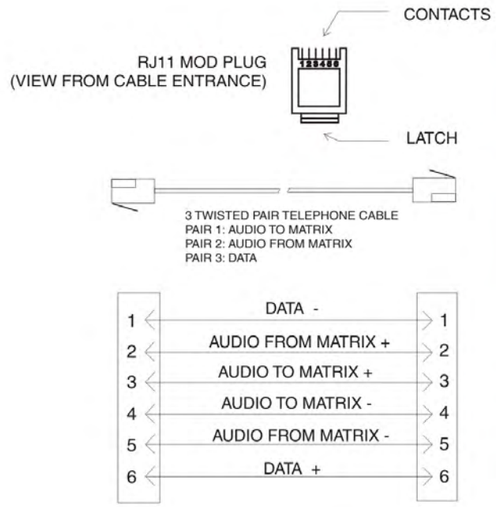
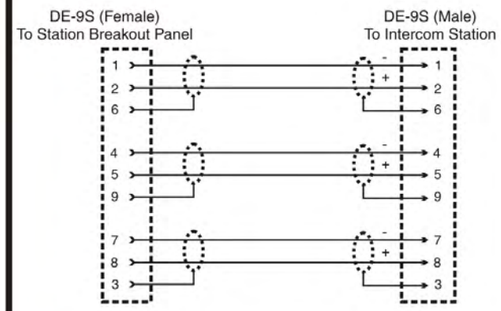


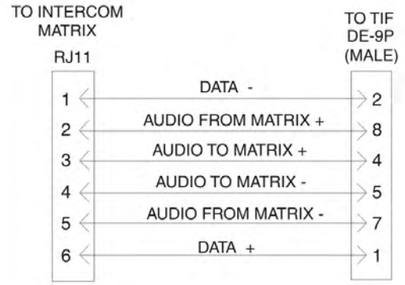
FIGURE 24. Intercom Station Cables



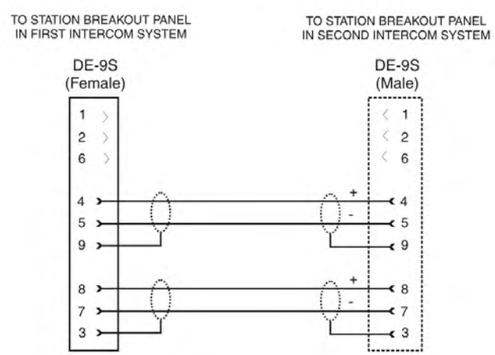
RJ-11 Intercom Cable

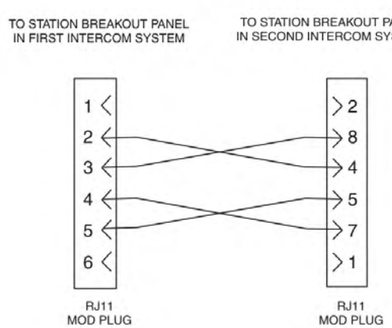


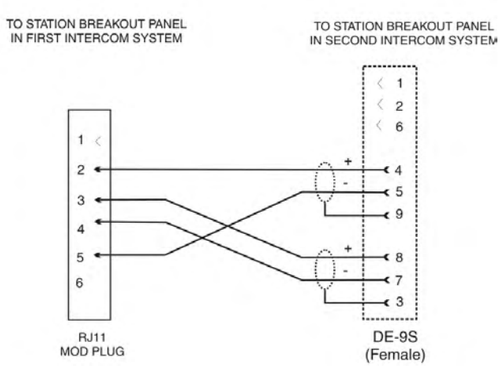
9-Pin D-Sub Intercom Cable



RJ-11 to 9-Pin D-Sub Intercom Cable For Connection of the TIF to an RJ-11 Style Station Breakout Panel

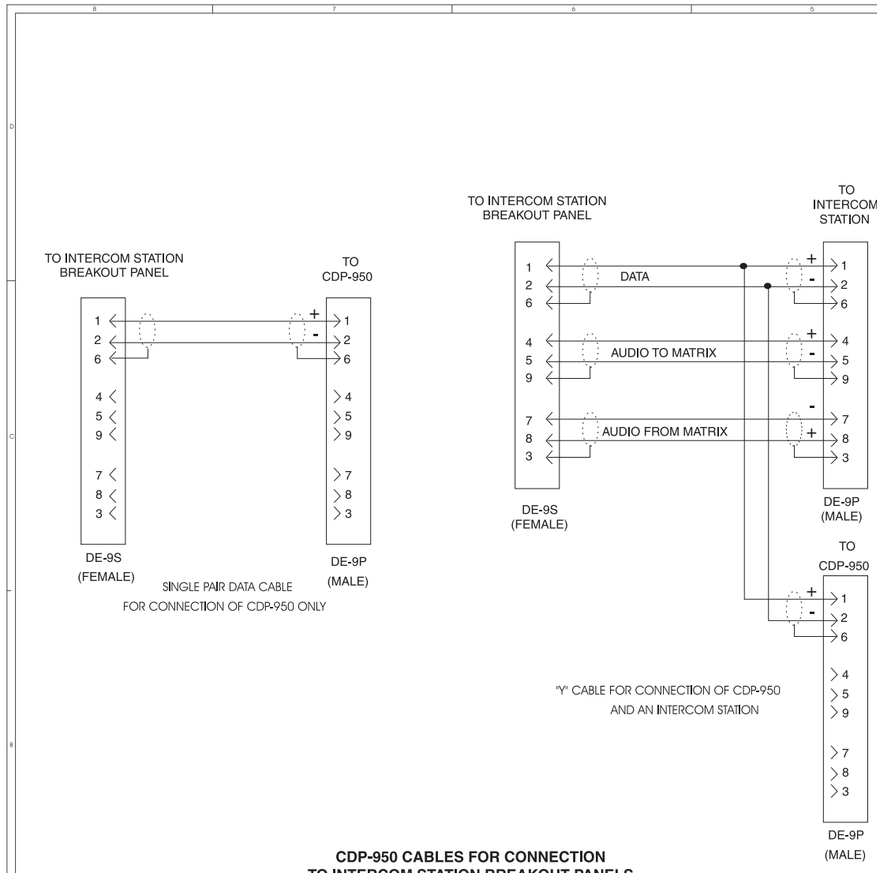




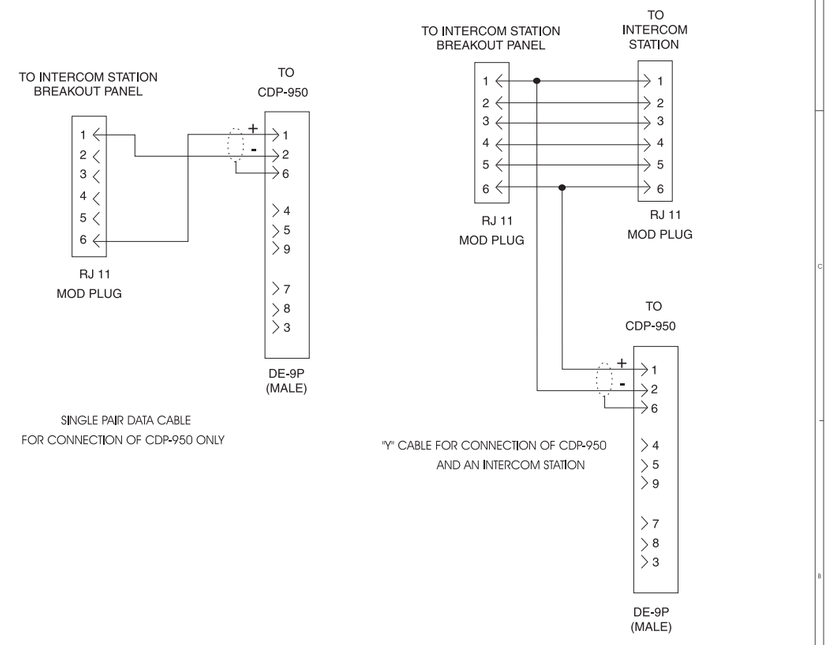


Intercom Audio Cables for Trunking Interconnect

FIGURE 25. ADAM-811 ADAM Intercom System CDP-950 Cables



CDP-950 CABLES FOR CONNECTION TO INTERCOM STATION BREAKOUT PANELS WITH 9-PIN D-SUB CONNECTORS



CDP-950 CABLES FOR CONNECTION TO INTERCOM STATION BREAKOUT PANELS WITH RJ-11 CONNECTORS

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED

UNLESS OTHERWISE SPECIFIED
REMOVE ALL BURRS & BREAK SHARP EDGES
HOLE TOLERANCES PER ANSI B94.11-1957, R1972
DIMENSIONS ARE IN INCHES
TOLERANCES ARE: FRACTIONS ±1/16, DECIMALS .X ±.1000, .XX ±.0200, .XXXX ±.0010, ANGLES ±.500
MATERIAL
FINISH
NEXT ASSY | USED ON
APPLICATION

CONTRACT NO.

APPROVALS	DATE
DRAWN W. YAU	15 FEB 96
CHECKED W. YAU	15 FEB 96
ISSUED	

ADAM-811

RTS SYSTEMS BURBANK, CALIFORNIA, USA

ADAM
INTERCOM SYSTEM
CDP-950 CABLES

SIZE	FSCM NO.	DWG NO.	REV
D		ADAM-811	A

SCALE | SHEET

FIGURE 26. 1 Frame/AIO-16 SCSI BC XCP-40-RJ11

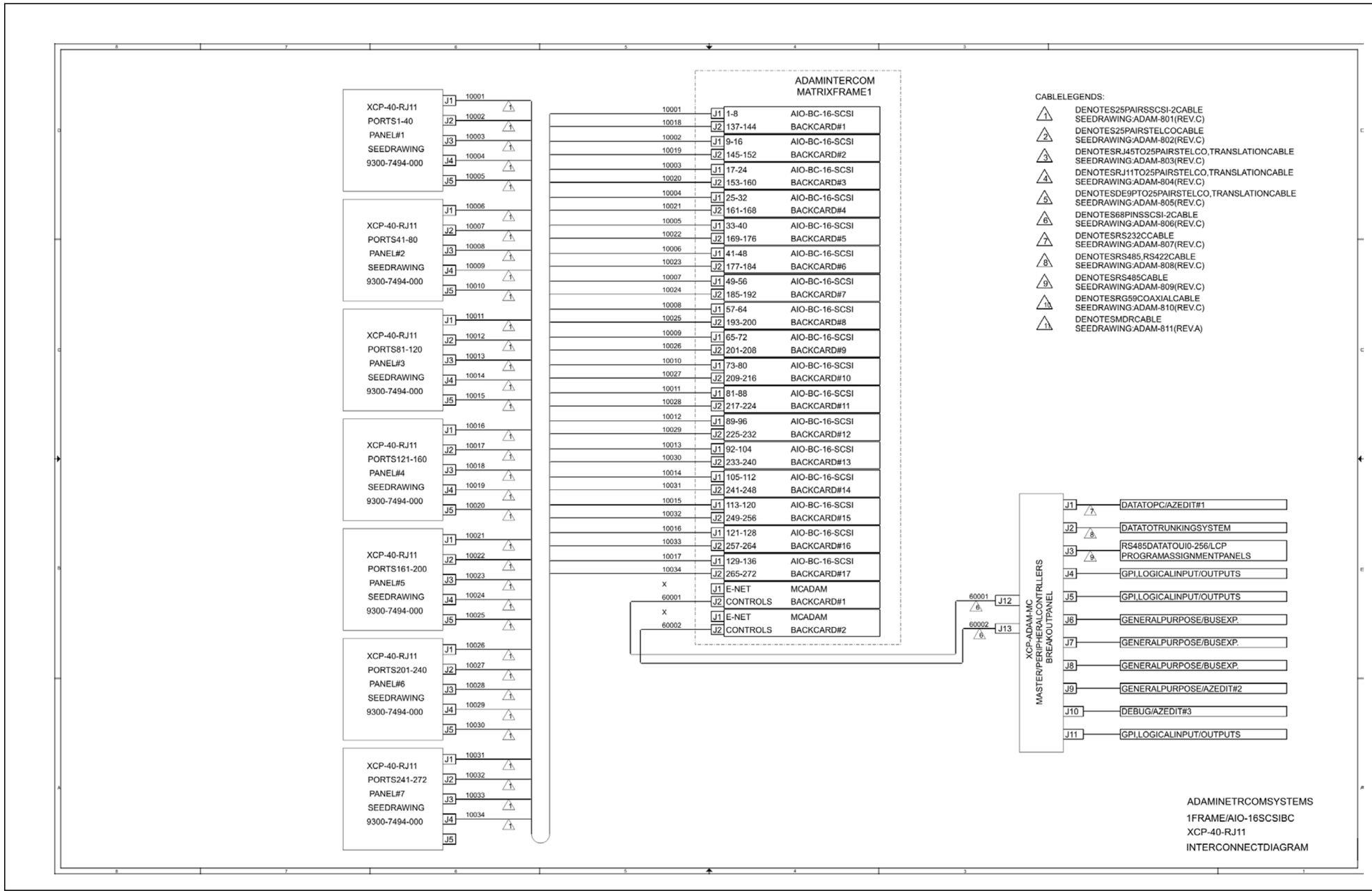


FIGURE 27. 1 Frame/AIO-16 MDR BC XCP-48-Telco/XCP-48-RJ45 Ports 1 through 272

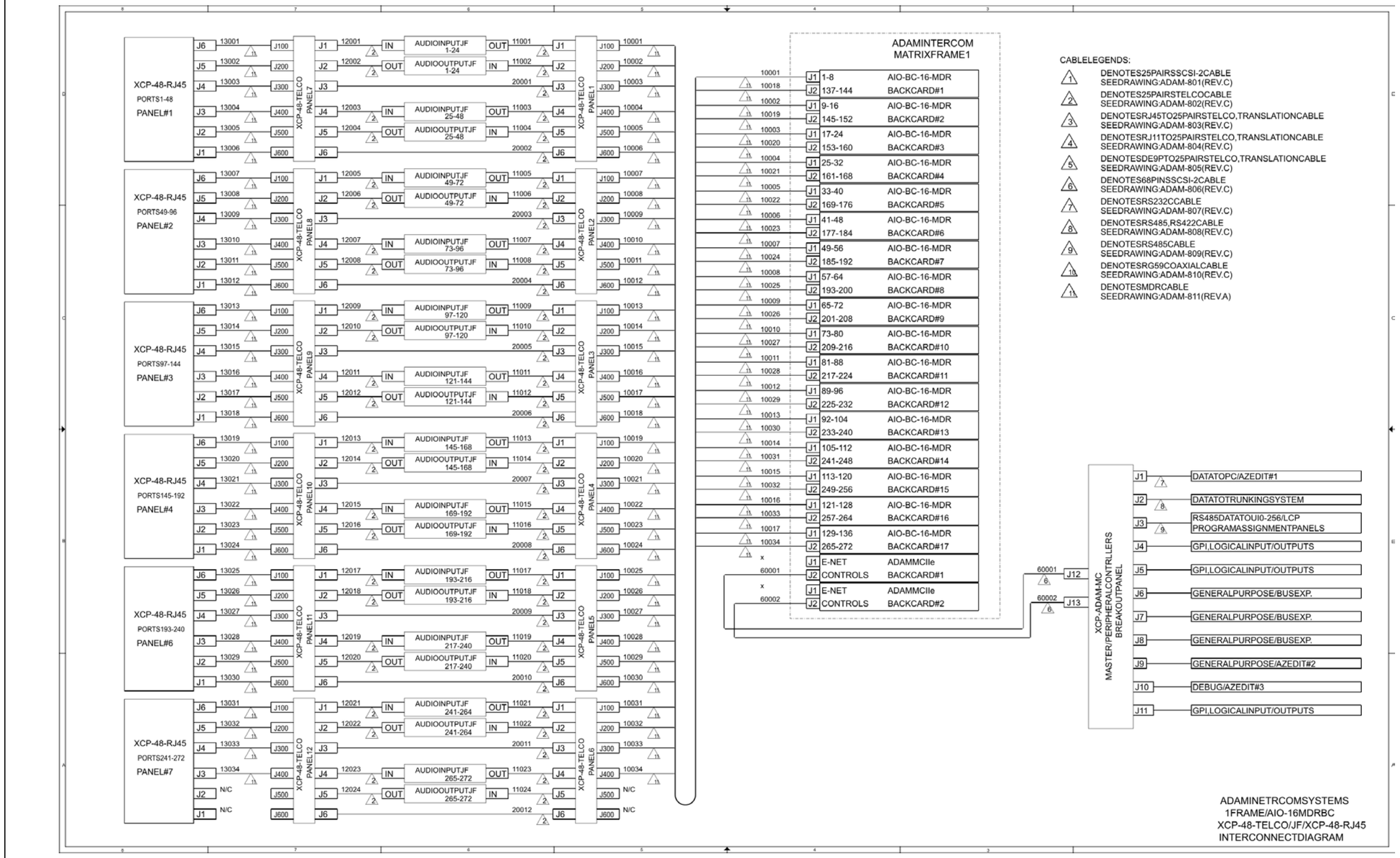


FIGURE 28. 1 Frame/AIO-16 MDR BC XCP-48-Telco/XCP-48-RJ45 Ports 1 through 272

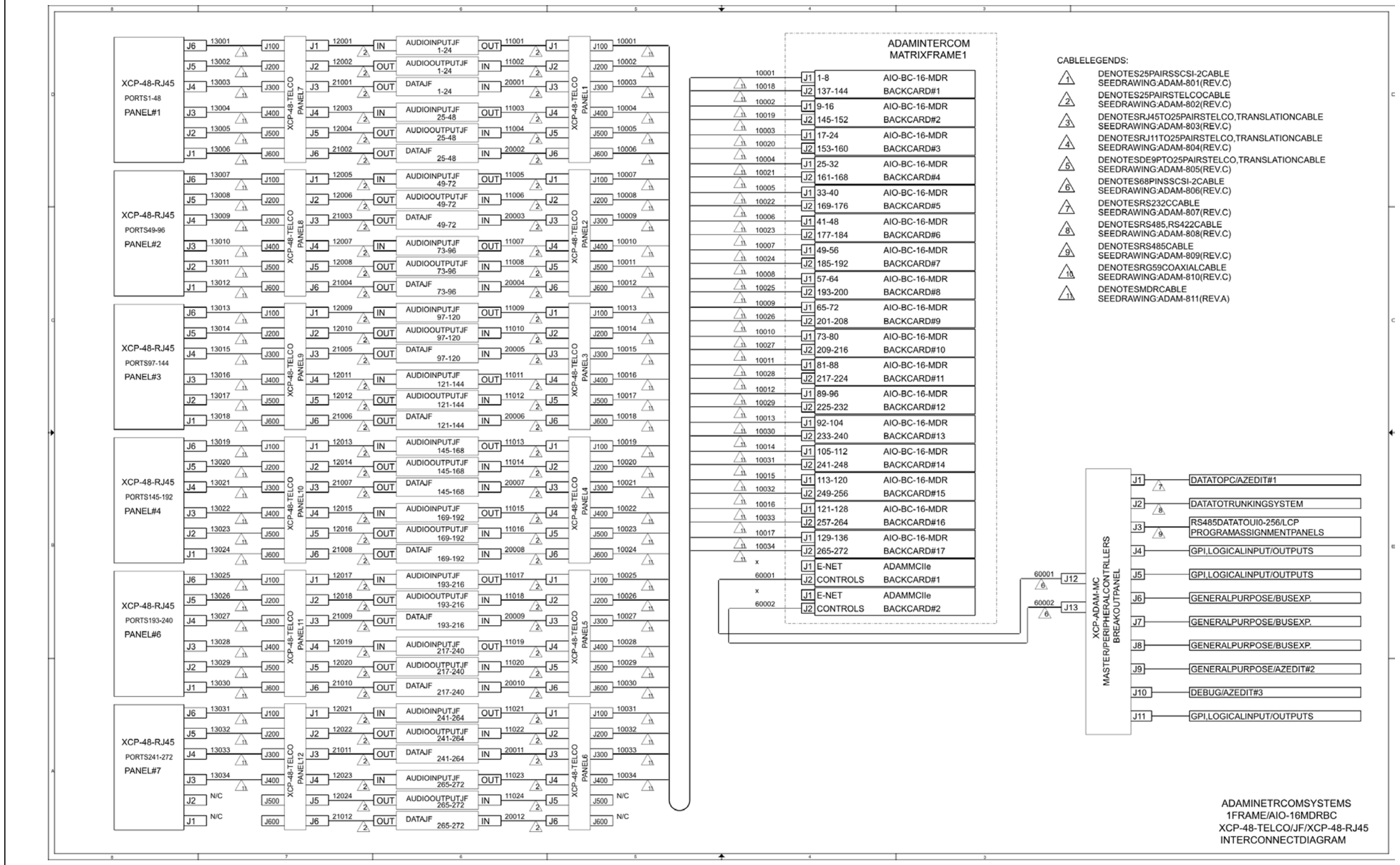


FIGURE 29. AIO-16 Matrix Frame Layout

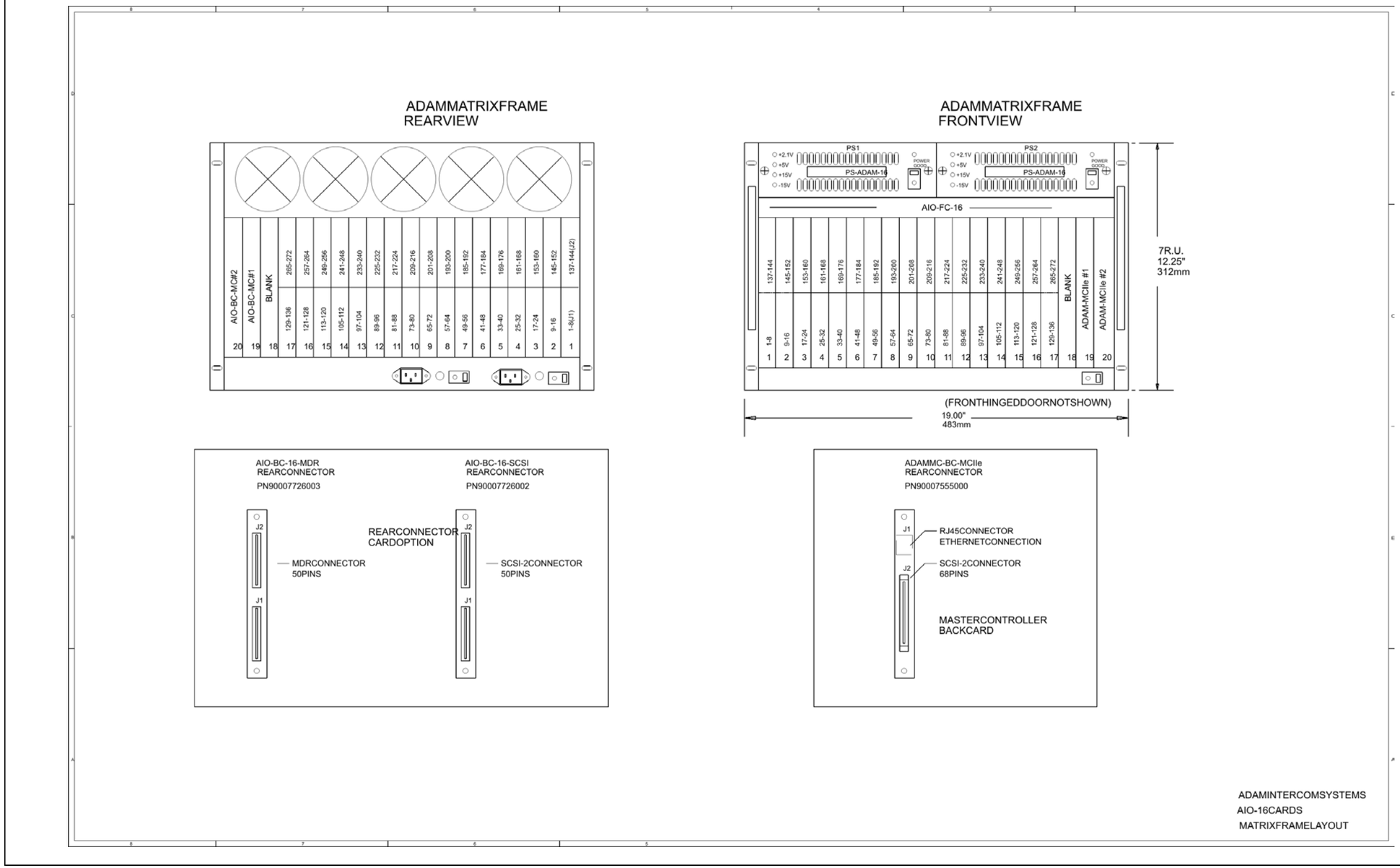
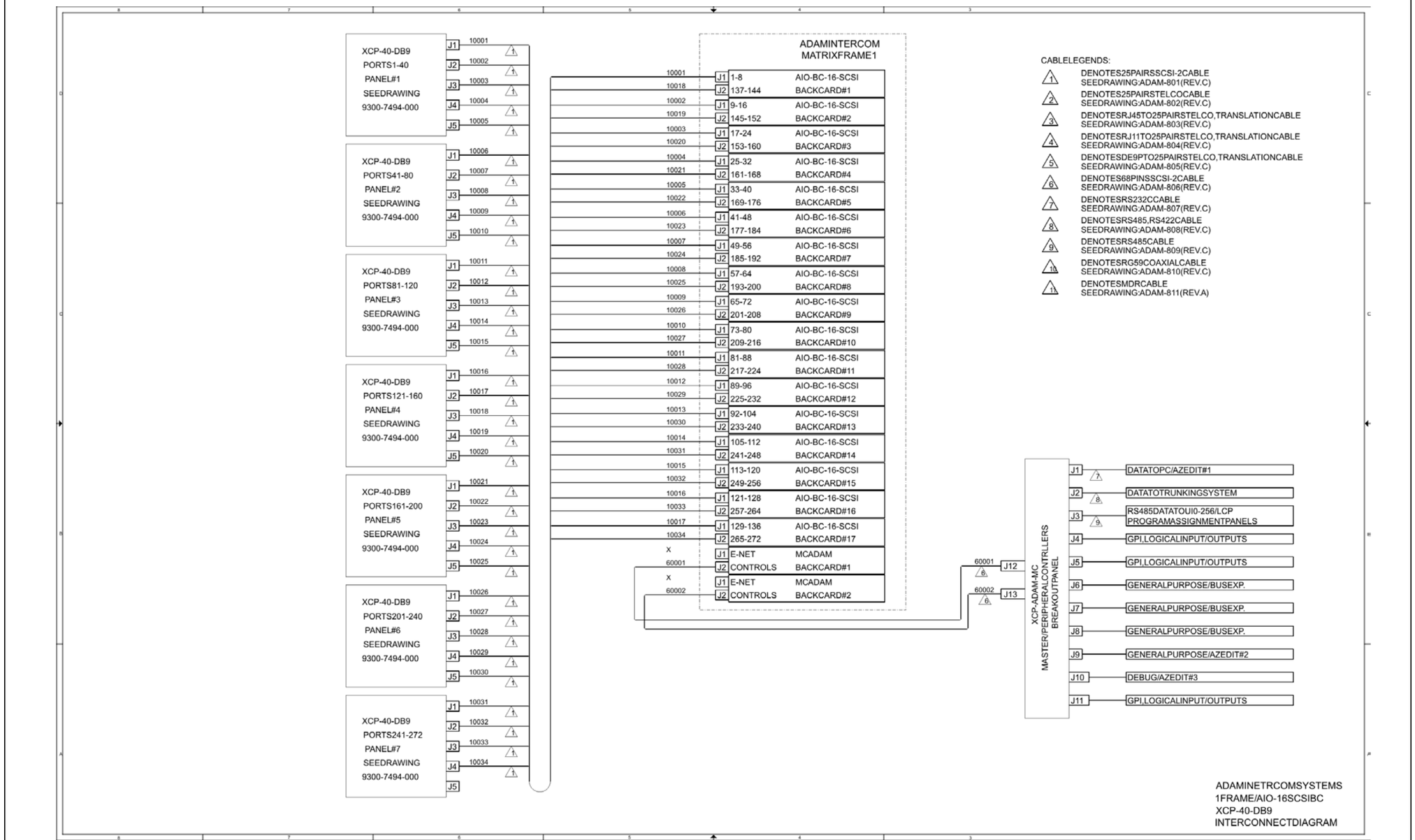


FIGURE 30. 1 Frame/AIO-16 SCSI BC XCP-40-DB9



APPENDIX A

Intercom Planning Worksheet

Intercom Port No.	ADAM Audio I/O Card No.	Logical Keypanel Number	AZedit Alpha	AZedit Alias	Description (Device Type, Location, User, etc.)
1	1-1	1			
2	1-1	2			
3	1-1	3			
4	1-1	4			
5	1-1	5			
6	1-1	6			
7	1-1	7			
8	1-1	8			
9	1-2	1			
10	1-2	2			
11	1-2	3			
12	1-2	4			
13	1-2	5			
14	1-2	6			
15	1-2	7			
16	1-2	8			
17	1-3	1			
18	1-3	2			
19	1-3	3			
20	1-3	4			
21	1-3	5			
22	1-3	6			
23	1-3	7			
24	1-3	8			
25	1-4	1			

Intercom Port No.	ADAM Audio I/O Card No.	Logical Keypanel Number	AZedit Alpha	AZedit Alias	Description (Device Type, Location, User, etc.)
26	1-4	2			
27	1-4	3			
28	1-4	4			
29	1-4	5			
30	1-4	6			
31	1-4	7			
32	1-4	8			
33	1-5	1			
34	1-5	2			
35	1-5	3			
36	1-5	4			
37	1-5	5			
38	1-5	6			
39	1-5	7			
40	1-5	8			
41	1-6	1			
42	1-6	2			
43	1-6	3			
44	1-6	4			
45	1-6	5			
46	1-6	6			
47	1-6	7			
48	1-6	8			
49	1-7	1			
50	1-7	2			
51	1-7	3			
52	1-7	4			
53	1-7	5			
54	1-7	6			
55	1-7	7			
56	1-7	8			
57	1-8	1			
58	1-8	2			
59	1-8	3			
60	1-8	4			
61	1-8	5			
62	1-8	6			
63	1-8	7			
64	1-8	8			
65	1-9	1			

Intercom Port No.	ADAM Audio I/O Card No.	Logical Keypanel Number	AZedit Alpha	AZedit Alias	Description (Device Type, Location, User, etc.)
66	1-9	2			
67	1-9	3			
68	1-9	4			
69	1-9	5			
70	1-9	6			
71	1-9	7			
72	1-9	8			
73	1-10	1			
74	1-10	2			
75	1-10	3			
76	1-10	4			
77	1-10	5			
78	1-10	6			
79	1-10	7			
80	1-10	8			
81	1-11	1			
82	1-11	2			
83	1-11	3			
84	1-11	4			
85	1-11	5			
86	1-11	6			
87	1-11	7			
88	1-11	8			
89	1-12	1			
90	1-12	2			
91	1-12	3			
92	1-12	4			
93	1-12	5			
94	1-12	6			
95	1-12	7			
96	1-12	8			
97	1-13	1			
98	1-13	2			
99	1-13	3			
100	1-13	4			
101	1-13	5			
102	1-13	6			
103	1-13	7			
104	1-13	8			
105	1-14	1			

Intercom Port No.	ADAM Audio I/O Card No.	Logical Keypanel Number	AZedit Alpha	AZedit Alias	Description (Device Type, Location, User, etc.)
106	1-14	2			
107	1-14	3			
108	1-14	4			
109	1-14	5			
110	1-14	6			
111	1-14	7			
112	1-14	8			
113	1-15	1			
114	1-15	2			
115	1-15	3			
116	1-15	4			
117	1-15	5			
118	1-15	6			
119	1-15	7			
120	1-15	8			
121	1-16	1			
122	1-16	2			
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124	1-16	4			
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126	1-16	6			
127	1-16	7			
128	1-16	8			
129	1-17	1			
130	1-17	2			
131	1-17	3			
132	1-17	4			
133	1-17	5			
134	1-17	6			
135	1-17	7			
136	1-17	8			
137	2-1	1			
138	2-1	2			
139	2-1	3			
140	2-1	4			
141	2-1	5			
142	2-1	6			
143	2-1	7			
144	2-1	8			
145	2-2	1			

Intercom Port No.	ADAM Audio I/O Card No.	Logical Keypanel Number	AZedit Alpha	AZedit Alias	Description (Device Type, Location, User, etc.)
146	2-2	2			
147	2-2	3			
148	2-2	4			
149	2-2	5			
150	2-2	6			
151	2-2	7			
152	2-2	8			
153	2-3	1			
154	2-3	2			
155	2-3	3			
156	2-3	4			
157	2-3	5			
158	2-3	6			
159	2-3	7			
160	2-3	8			
161	2-4	1			
162	2-4	2			
163	2-4	3			
164	2-4	4			
165	2-4	5			
166	2-4	6			
167	2-4	7			
168	2-4	8			
169	2-5	1			
170	2-5	2			
171	2-5	3			
172	2-5	4			
173	2-5	5			
174	2-5	6			
175	2-5	7			
176	2-5	8			
177	2-6	1			
178	2-6	2			
179	2-6	3			
180	2-6	4			
181	2-6	5			
182	2-6	6			
183	2-6	7			
184	2-6	8			
185	2-7	1			

Intercom Port No.	ADAM Audio I/O Card No.	Logical Keypanel Number	AZedit Alpha	AZedit Alias	Description (Device Type, Location, User, etc.)
186	2-7	2			
187	2-7	3			
188	2-7	4			
189	2-7	5			
190	2-7	6			
191	2-7	7			
192	2-7	8			
193	2-8	1			
194	2-8	2			
195	2-8	3			
196	2-8	4			
197	2-8	5			
198	2-8	6			
199	2-8	7			
200	2-8	8			
201	2-9	1			
202	2-9	2			
203	2-9	3			
204	2-9	4			
205	2-9	5			
206	2-9	6			
207	2-9	7			
208	2-9	8			
209	2-10	1			
210	2-10	2			
211	2-10	3			
212	2-10	4			
213	2-10	5			
214	2-10	6			
215	2-10	7			
216	2-10	8			
217	2-11	1			
218	2-11	2			
219	2-11	3			
220	2-11	4			
221	2-11	5			
222	2-11	6			
223	2-11	7			
224	2-11	8			
225	2-12	1			

Intercom Port No.	ADAM Audio I/O Card No.	Logical Keypanel Number	AZedit Alpha	AZedit Alias	Description (Device Type, Location, User, etc.)
226	2-12	2			
227	2-12	3			
228	2-12	4			
229	2-12	5			
230	2-12	6			
231	2-12	7			
232	2-12	8			
233	2-13	1			
234	2-13	2			
235	2-13	3			
236	2-13	4			
237	2-13	5			
238	2-13	6			
239	2-13	7			
240	2-13	8			
241	2-14	1			
242	2-14	2			
243	2-14	3			
244	2-14	4			
245	2-14	5			
246	2-14	6			
247	2-14	7			
248	2-14	8			
249	2-15	1			
250	2-15	2			
251	2-15	3			
252	2-15	4			
253	2-15	5			
254	2-15	6			
255	2-15	7			
256	2-15	8			
257	2-16	1			
258	2-16	2			
259	2-16	3			
260	2-16	4			
261	2-16	5			
262	2-16	6			
263	2-16	7			
264	2-16	8			
265	2-17	1			

Intercom Port No.	ADAM Audio I/O Card No.	Logical Keypanel Number	AZedit Alpha	AZedit Alias	Description (Device Type, Location, User, etc.)
266	2-17	2			
267	2-17	3			
268	2-17	4			
269	2-17	5			
270	2-17	6			
271	2-17	7			
272	2-17	8			

Notes