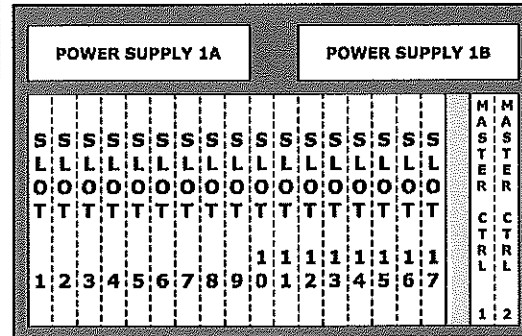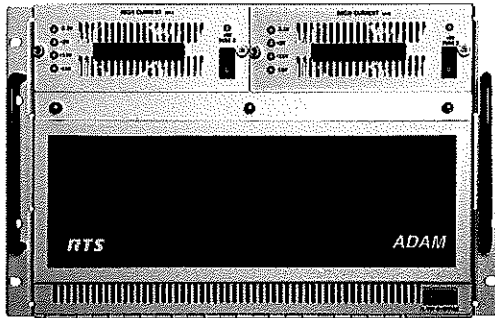# ADAM

Intercom

Overview

with

MCII-e and Dual Bus

Expansion Tutorial

Adam Intercom - Frame

Description

An Adam Intercom Frame consist of 20 slots. The first 17 slots are for IO cards(AIO, Rvon, Bus expanders). Slot 18 is not used. Slot 19 and 20 are for the Master Controller Cards. An Adam system uses TDM(Time Division Multiplexing) to multiplex all input and outputs signals in the Intercom Matrix. This has to be synchronized and timed. Slot 9 starts this timing and there needs to be a card in slot 9 even if you have a system that is smaller than 9 cards. When you have a system that contains more than one matrix slot 9 is the first slot used for Bus Expansion cards. When installing cards make sure you have the correct back card and install the back card first. An Adam System doesn't have any type of card that won't have some kind of back card to accompany it. The Adam Frame has two redundant power supplies. These supplies have 4 voltage rails. These voltages are +2.1 volt(TDM ASIC chips), +5 volt(logic circuits), +15 volt and -15 volt (for the fans). These voltages should be check from time to time to make sure they are accurate.

Notes

* **20 Card Slots/ 1-17 for IO, 18 not used, 19 & 20 for Master Controllers**

* **Slot 9 is the timing slot. There should be a card in this slot at all times**

* **Voltages/ +2.1 volts(TDM ASIC circuits), +5 volts(Logic circuits), +15 volts & -15 volts (for the Fans)**

Adam Intercom - Master Controller
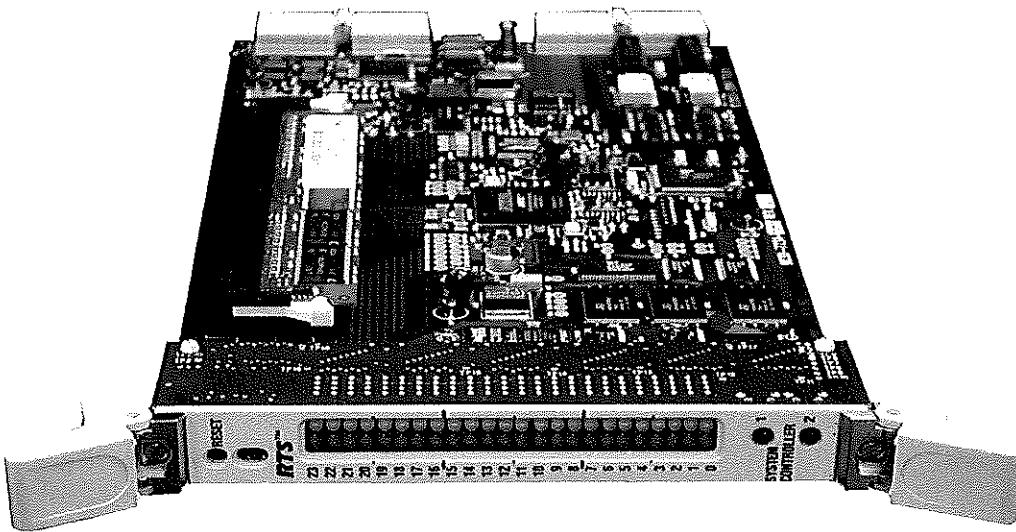
Description

A Master Controller card is the brains of the Adam system. This is what the programming computer talks to when programming the intercom. There are two kinds of Master Controller cards an MCII and an MCII-e. AN MCII is a standard master controller it interfaces with programming computers via serial RS232. An MCII-e is the newer model and can interface with programming computers via serial RS232 or via Ethernet. The back card of both MCII and MCII-e connects to a MC-XCP breakout panel. An MC XCP has several DB connectors on it to interface with programming computers and other peripheral devices. An Adam system has two Master Controllers that are redundant. If the active master controller has any issues and has to shutdown, the backup Master Controller will take over. An active Master Controller is indicated by LED #23 being lit. Master Controllers reside in frame slots 19 and 20. In a multiple frame Dual Bus Expanded(DBX) Adam system the master controller is changed to a Peripheral Controller (more info in Bus expansion section).

Notes

* **Two kinds of Master Controllers-MCII**

        -MCII Only serial RS232 communication to programming computers

        -MCII-e Both serial RS232 and Ethernet communication to programming computers

* **Adam has 2 redundant Master Controllers**

* **Active Master Controller has LED #23 lit**

* **DBX system the Master Controllers become Peripheral Controllers**
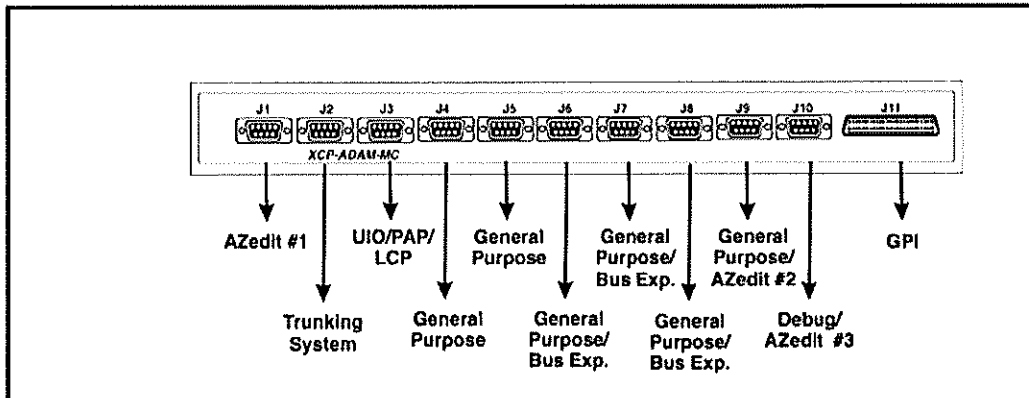
Adam Intercom -MC-XCP Breakout

Figure 1. XCP-ADAM MC

AZedit #1		
68-pin Master Controller	J-1 of XCP-ADAM-MC	Assignment 2W
Normal AZedit pinout with a straight 9 pin needs a null modem	1	RS485 TX/RX-
	2	RS232C RX
	3	RS232C TX
	4	RS422 TX-
	5	Ground
2	6	Ground
38	7	RS422 TX+
35	8	RS485 TX/RX+
	9	

| AZedit #2		This end gets wired to the XCP-MC
68-pin Master Controller	J-9 of XCP-ADAM-MC	Assignment 2W
	1	Not Used
19	2	Ground
Wire Pin 3 to Pin 3 → 3		RS232C RX
	4	Not Used
Souldn't need a null modem	5	Not Used
	6	Not Used
19	7	Ground
Wire Pin 2 to Pin 8 → 8		RS232C TX
	9	Not Used

Adam Intercom - Bus Expanders
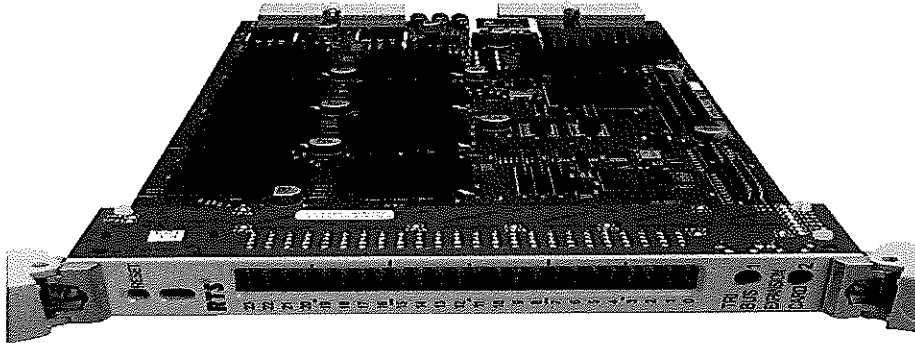
Description

Bus Expanders are used when an Intercom system needs to be bigger than one frame. Bus Expanders are cards that forward multiple audio channels/time slots and some send data down multiple links. These cards use coax or more common fiber optics to send these signals between multiple frames. There are three kinds of bus expanders Single Bus Expanders(SBX), Dual Bus Expanders(DBX) and Triple Bus Expanders(TBX). The SBX is no longer used and will not be discussed. When a DBX card is installed the MCII cards have to be turned into Peripheral Controllers. After that is done the DBX card acts as the Master Controller. The MCII cards are still the cards the communicate with the programming computers but are not longer the master of the intercom. The DBX card in frame one is a master with the DBX card in the second frame being a slave. The DBX cards send data down the DBX links to talk to each other the keep the frames up and running. The DBX card has two links and A and B. A DBX link can forward 128 time slots and also contains the intercom data to run the frames. If one link is severed time slots will hop to other links. If all links are severed only frame 1 will continue to work. The newest Bus Expander is the TBX cards. The TBX cards have 3 links and forward 256 time slots per link. TBX cards no longer transfers intercom data down the links there for require MCII-e cards in each frame. The MCII-e cards stays as the Master Controllers. All frames in a TBX system need their MCII-e cards networked together and that's how they transfer intercom data. If all links between the frames is severed each frame will continue to work as it's own intercom because each frame has it's own sent of Mater Controller cards. The first Bus Expander card is always installed in slot 9 so it can set the timing. Additional Bus Expander cards are install in slot 8 then slot 10.

Notes

* In a DBX system the MCII cards have to be turned into Peripheral Controllers making DBX the Master

* DBX cards have 2 links and forward 128 time slots per link

* TBX systems need MCII-e cards in each frame/ MCII-e stay as Master Controllers

* TBX frames will work by themselves if disconnected from other frames

* TBX cards have 3 links and forward 256 time slots per link

* First Bus Expander card is installed in Slot 9 to set timing.

Adam Intercom - AIO Cards
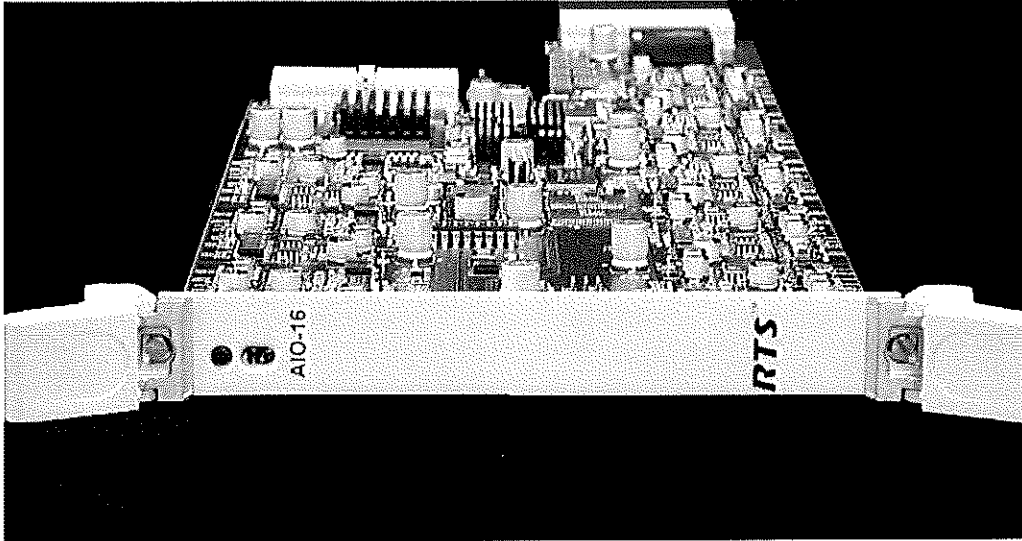
Description

An AIO Card is the most common IO card in an ADAM system. AIO stands for Audio Input and Output. This type of card is where the physical port resides. Ports are used to connect Key panels(KPs), other intelligent devices or audio only inputs and outputs. A port consists of three things. Analog Audio Input, Analog Audio Output and a RS485 data stream. There are two kinds of AIO cards. An AIO 8 and the newer AIO 16. For the most part they are the same but have some differences. The first and most obvious is the number of ports on the card. An AIO8 has 8 ports and an AIO 16 has 16 ports. The other big difference has to do with the RS485 Data. An AIO8 uses party line RS485. This party line data contains the data for all 8 ports and is the reason you have to address a Keypanel(KP) or other device. The address tells the device which part of the data to listen to. An AIO16 uses discreet RS485 data. This simplifies installation of KPs and devices because you don't have to worry about what it's addressed. The KPs and devices do need an address 1 thru 8 but it doesn't matter what it's address to. AIO cards have many different kind of back cards to breakout the ports. These back cards then connect to XCP panels that can break out the ports to numerous connectors that range from 25pr to get the port to the jack field, DB 9 pin and RJ12 connectors to connect to KPs and devices.

Notes

* **Three Parts to a Port-Audio In/ Audio Out/ Data**

* **AIO8 is Party Line Data/ KPs and Devices have to have the right Address**

* **AIO16 use Discreet Data/ KPs and Devices just have to have a address 1 thru 8**

Adam Intercom - RVON
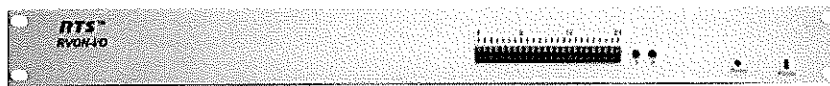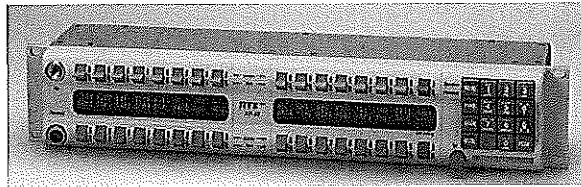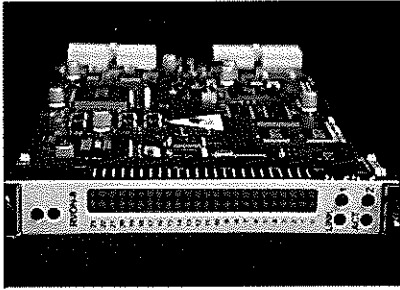
Description

RVON is RTS's version of VOIP. There are several types of Rvon cards and devices. There are two kinds of cards an RVON8 and RVON16. Just like AIO cards the model number describes the number of ports on the card. The other difference between the cards is that the RVON8 has one serial port and the RVON16 has 2 serial ports. The serial ports can be use to transport RS232 or RS485 data to another RVON card or device. Some of the good uses for this serial port are to send AzEdit or Trunking data to a remote location. Another device is an RVON IO. An RVON IO is a 1-rack unit device that can support 8 ports in the form of DB 9 pin connectors. Each port can be used to connect 8 KPs or used as just audio in and out to the ADAM frame. In addition to the ports it has the same type of serial connector to transport RS232 /RS485, a DB 9 for local relays and a 25 pin for local GPI/Os. The last RVON device is a RVON enabled KP. A KP32 and a KP32 CLD are the only kind of RVON KPs. These KPs don't have the serial connector that the other RVON cards/devices have. All of the cards/device uses TCP/IP protocols. The RVON Edit program can program all the devices. RVON Edit is a windows program similar to AzEdit. The cards that are put into the ADAM Frame can be programmed also by AzEdit. The KPs can have their IP setting programmed from the menu in the KP. There is also a way to program the RVON IO from a connected KP32.

## Notes

* RVON Cards/Devices use TCP/IP protocols and can be programmed from RVON Edit

* RVON Cards can be programmed by AzEdit

* Most RVON Cards/Devices have a serial pass thru connector to transport RS232 or RS485 data

* RVON IO s have 8 ports, a serial pass thru connector, a local relay connector, and a local GPI/O connector

* RVON KP can have it's IP setting programmed by the KP menu

Adam Intercom - Keypanels
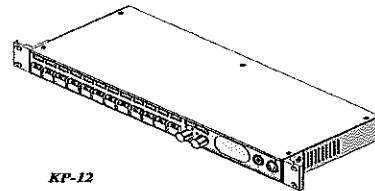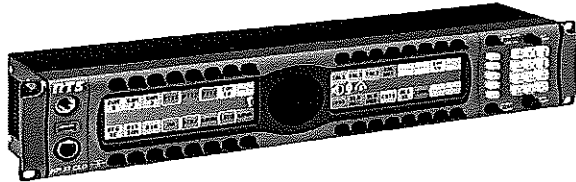
KP-12
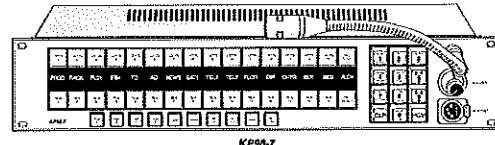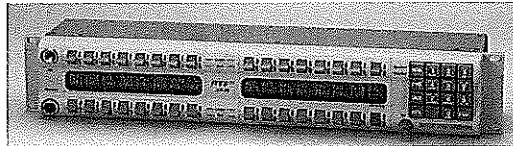
KP98-7

Description

Keypanels(KPs) are one on the most common intercom user devices. There are many Key Panels. The most common used today are the KP98, KP12, KP32, and KP32 CLD. The basic function of the key panel is turning on listen, talk keys to enable the user to talk to other user and/or conferences. Some are push button type the others are toggles/latches/flippers. Each Key is programmed by AzEdit the Adam intercom programming software. Each Key Panel is connected to a intercom port. Intercom ports consist of three items Audio in, Audio out, and RS485 Data. The common port connector on the key panel is a DB 9 pin or RJ12. The intercom port can plug into either. Depending on the type of AIO card the KP might have to be addressed 1 thru 8 to pick off the right part of the RS485 data stream. Each KP has a different way of addressing. Some have dip switches, some have dials, others have to be done through the KP user menu. Below is a list of KPs and the addressing method. When a KP is powered with out being plugged into the intercom every key position will have stars or asterisks displayed. After addressing and plugging in the KP to the intercom the stars should change to Alpha Numeric or dashes if the Key is not programmed. After the key positions are programmed in AzEdit the kp should be able to talk to other KPs connected to the intercom and Party Line Conferences. Some Key Panels have additional hardware options. Two of the most common options are a Rear Connector Option or Rvon Option. Rear Connector Option gives the KP Additional connectors for Hot Mic outputs, Aux inputs, Relays, and External headset and Mic connectors. The Rvon Option enables the KP to talk and listen on a TCP/IP Network using VOIP.

KP Types and Method of Addressing

KP98	Dip Switches
KP12	User Menu
KP32	Dial
KP32 CLD	User Menu

Notes

* **Depending on the AIO card Key Panels need to be addressed 1-8**

* **Each type of Key Panel uses different methods to address**

* **Two types of port connectors on a KPs, DB 9 pin connector or RJ12 connector either can be used**

Adam Intercom - Keypanels Addressing

KP 98 Dip Switch Settings

Table 1. DIP Switch Summary

DIP Switch	Description	Settings			
1	Talk key row select	Open: Use bottom row Closed: Use top row			
2	Expansion Panel In-use Indication	Open: Flash Closed: No flash			
3	LCP select	Open: No LCP connected Closed: LCP connected			
		Address	Sw 4	Sw 5	Sw 6	Sw 7
4		1	Close	Open	Open	Open
		2	Open	Close	Open	Open
5		3	Close	Close	Open	Open
	Logical keypanel address select.	4	Open	Open	Close	Open
6		5	Close	Open	Close	Open
		6	Open	Close	Close	Open
7		7	Close	Close	Close	Open
		8	Open	Open	Open	Close
8	Baud rate select	Open: 9600 baud Closed: 76.8 kbaud (DO NOT USE!)			

KP32 Dial
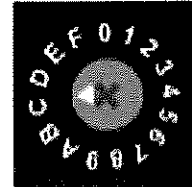
KP 12 Set Address Meun Path

Using the rotary dial to scroll and press the rotaty dial to select

Menu
  → Service
      → Set Addr
          → Select 1-8

KP32 CLD Set Address Meun Path

Use the SEL or FWD key to select a menu item and the 3 and 6 keys with the up and down arrows to scroll

Press Menu
  → Service
      → Set Addr
          → Select 1-8
              After selecting the
              address number the KP
              will reboot

(USOC Based Wiring Diagram)
CAT-5E Cable / RJ12 Modular Connector

The colors below do not strictly conform to the exact USOC standard for color code but is depicted "as is" for ease of connector pin vs signal pairing. The important factor concerning the RTS application of connector termination is to maintain the integrity of the pairing relationship with respect to signal type, i.e. never split signal pairs. Also **DO NOT** use the flat, *silver satin*, Telco cable.

Cable Type: Belden 1583A Datatwist or equiv.

Cut off brown pair at jacket
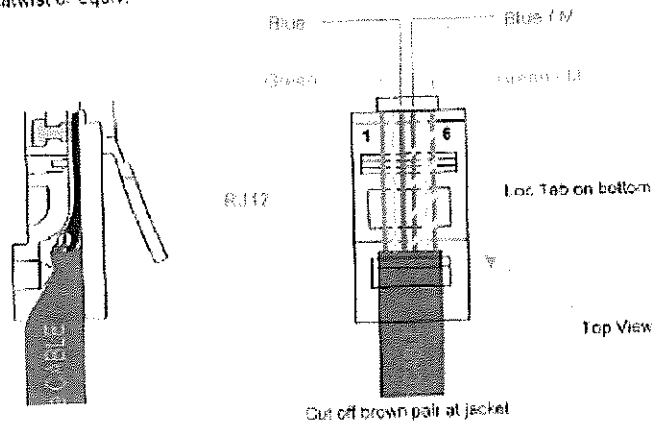
PAIRING ORDER

PINS	SIGNAL		PINS	SIGNAL
1	DATA -		6	DATA +
2	AUDIO FROM MATRIX +		5	AUDIO FROM MATRIX -
3	AUDIO TO MATRIX +		4	AUDIO TO MATRIX -

* each end wired identically

Recommended connectors:

EZ-RJ12 Connector (Platinum Tools) Pacific Radio # 100026 (50 ea)
EZ-RJ45/12 Crimp / Cutter Tool (Platinum Tools) Pacific Radio # 100044 (1 ea)

USOC Wiring Diagram.doc
10/18/06 GO

Adam Intercom - TIFs, 2 to 4 wire Interfaces, IFB Interfaces
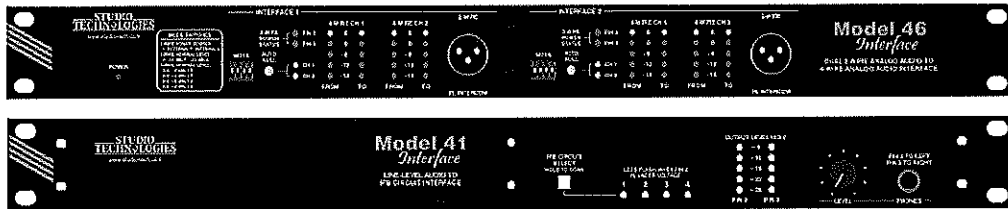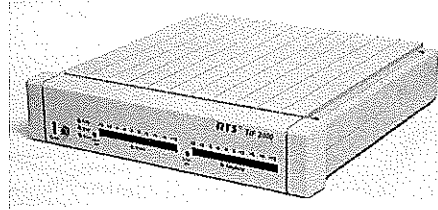

Description

TIF - Telephone Interface - Gives you the ability to communicate with other party's over a phone line. Whether it is connected to another TIF or just a phone. Most of the TIFs used with the intercom communicate with the intercom through the RS485 port data. This allows DTMF dialing from the KPs. TIFs will need to be addressed just like a KP if working with an AIO8. 2 to 4 Wire Interfaces allow the intercom port, which is a 4-wire form audio communication, talk to a 2-wire form of communication. The 2 to 4 Wire Interface will need to be nulled because of the load in a 2-wire circuit. The proper time to null is once all of the wire and user communication devices are connected to that circuit. 2 to 4 Wire Interfaces all have different ways of nulling check the manual of the device you are using for proper null procedure.

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IFB Interface- IFB Interfaces do two things. The first is to apply DC voltage to the signal. This voltage is used to power the user/Talent device. The second thing an IFB Interface does is adding a NON-interrupt audio source to the audio signal. A non-Interrupt source is used when a user/talent is using a headset or stereo device. The non-Interrupt source is typically the same source as the program source used for the interrupt side of the IFB.

Notes

* TIFs communicate with the intercom using the RS485 port data, allowing the user to dial from the KP

* When using a TIF with an AIO8 the TIF needs to be addressed

* 2 to 4 Wire Interfaces need to be nulled when it has it's full load of wire and user communication devices

* IFB Interfaces add DC power and add a non interrupt source to the signal

Basic Intercom Terms

- **Ports**- Ports are the basic input and outputs of the intercom matrix. They can be used to connect many devices such as Keypanel, TIFs, 2 to 4 wire adaptors, etc. Or you can use ports just to get audio in the intercom as a source or audio out of the intercom.

- **Party Lines**-Party Lines are conferences. Multiply ports attach to these so more that two users can talk and listen to each other.

- **IFBs**-IFBs (Interruptible Fold Back) are the audio source that typically goes to Talent. IFBs typically have a program audio source that can be interrupted by a user to talk to the talent while on air.

- **Keypanels**-Are User device/station used to talk between users. This is also a menu in AzEdit to program these devices. There is some other programming in this menu that can be used even with a Keypanel not connected to the associated port.

- **ISOs**-Are primarily used for Camera CCUs. This enables a user to temporarily remove a port that is a permanent PL talk and listener off the PL to have a point-to-point conversation. This action is activated when a user activates the talk key that has that ISO alpha assigned to it.

MCII-e Upgrade and Dual Bus Expansion Tutorial

The following is instruction on how to upgrade to MCII-e and Dual Bus eXpand your intercom system.

Gather all equipment, Cards, Firmware, Wire, and Tools
- MCII-e Cards
- DBX Cards
- Fiber with adaptors to SC connectors if needed
- Computer Running AzEdit with all the firmware to be downloaded to Cards
- Screwdriver

MCII-e Card Installation
- Make sure all intercom frames are turned off
- Remove MCII front cards
- Unplug cables to MC-XCP from MCII back cards
- Unscrew and remove MCII back cards
- Install and screw in both MCII-e back cards
- Install the left MCII-e. Make sure it's cleanly seated. After the programming computer is connected and intercom is stable install right MCII-e.
- If system is already Bus Expanded, remove Bus Expander card
- Turn Intercom Frame 1 on.

Connecting to the Adam Frame
The computer with AzEdit installed can be connected to the Adam Intercom by two methods Serial and by IP Network.
- **Serial RS232** - Since this port uses RS232 to communicate you will need a null modem in line.
  - Connect the computers serial port to the J1 on the MC-XCP. The J1 port is always on and can't be password protected.
  - Launch AzEdit- most likely a prompt will come up saying either "Unable to connect to intercom entering FILE mode" or "COM port specified is not available" click ok to move on.

- o Go to *Options~Communications~select serial~select COM port~select the baud rate (usually 38.4 kbps if having issues connecting select 9800 bps)*
- o Click ok- The intercom should now connect. Look in the lower right. There is to status lights both should be flashing green. If you only have one light then your not connected. Check your connections and settings.

- **Ethernet Setup**-After the computer is connected to the intercom through the serial port the Ethernet addresses can be assigned for the Master Controllers if you have MCII-e cards.
  - o Options~Ethernet setup~Type the IP Address for MCII-e that is in the standby position. Exit Menu.
  - o Now fault the MCII-e in the active position. AzEdit may disconnect for a quick second then automatically reconnect. Once system is connected repeat for setting active card.

- **Connecting Via IP/Ethernet Network**-Now that the MCII-e has IP addresses the computer can connect to the Adam system via Ethernet.
  - o Change the computer IP address to be in the same range as the MCII-e.
  - o Connect all devices to a networking device like a switch or a hub.
  - o In AzEdit change the communications to network.
    Options~Communications~select Network
    - Either *type one of the IP addresses in the provided text box* or to the right of the text box click the box with multiply dots or periods in it. That will bring up a list of intercoms on the network. If you have multiply intercoms on the same network all will be listed here. These intercoms are listed by a four character alpha. Most likely there will only be one and the default alpha is LOCL.
    - *Select LOCL.* This will bring up a confirmation dialog (the same dialog will come up if you just typed in the IP address of one of the MCII-e cards and pressed enter.)
    - If the IP addresses are correct *Select OK.*
  - o You should now be connected to AzEdit over Network and both status lights should be flashing green.

MCII-e Upgrade and Dual Bus Expansion Tutorial   Rickey Hayes Jr.-2012

Dual Bus Expansion: Is expanding the intercom to 2 or more frames using DBX Cards. One of the Intercom frames will be the Master Frame also referred to as Frame 1. This will be the frame your computer will be connected to for AzEdit and is the frame that contains the Mater Controller Cards (MCII-e). This version of DBX is non redundant since there is only one DBX card per frame.

Check mobile unit comms system
- Make sure AzEdit is working
- If you don't have a default AzEdit file than save one now
- Look at Sizing info. *Options~Intercom Configuration*
  - Click Ok at the Warning pop up window. We won't be resizing yet
  - Resizing Window should pop up. Make notes of how many ports and what the virtual recourses are set at.
  - Click Options tab. Make note of which options are enabled
- Send a change if successful turn all frames off

Run Fiber between All Frames
- DBX uses 4 strains of glass each. Connections discussed later.

Moving IO Cards/Card Installation

- Installing DBX cards also means you need to remove existing cards.
- DBX Card will go in Frame Slot 9(timing Slot)
- You have to decide where you want to move the IO card in slot 9.
    - o If running a Firmware version without Port Allocation (Ver. 1.22 or older) the best way is to shift all the cards down one slot.
    - o If running a Firmware version with Port Allocation (Ver. 1.24 or newer) use it to reallocate the location of the cards after resizing
    - o It the frame is full you will have to decide which IO card to remove and what ports to loose.
- Remove and reinstall IO card if needed *(Use instructions below)*
- Install just the DBX Back Cards *(Use instructions below)*
    - o Keep the DBX front cards by Frame 1 for Firmware update and Fax.
    - o Make sure DBX Back Card Power Supply is connected.

- **Removing and Installing cards**
    - o **Removing**
        - Unscrew front card screws and pull out card and store in safe place. Always Remove Front Card First!
        - Remove wire connected to card making sure wire is marked to where it connects.
        - Go to back of the frame Remove the top and bottom screws on the back card, then slide out.
    - o **Installing**
        - Slide back card in to frame making sure card is on the frame rails.
        - Screw in the top and bottom screws.
        - Connect the IO wire belonging to that card.
        - With back card secure, Slide in front card in to frame making sure card is on the frame rails. It should slide in easy with no resistance in till it meets the back card at the moment give it a firm but gentle push to seat card then screw it in.

Firmware Changes

- Make sure you have obtained the correct or updated MCII-e and DBX Firmware.
- Have the firmware in a location that the AzEdit computer can access.
- One of the biggest changes in a DBX system is the firmware change of the MCII-e cards. Since the DBX card acts as a Master Controller the MCII-e cards have to be changed to Peripheral Controllers. You do this by downloading Peripheral Firmware into the MCII-e cards.
- *I normally do these Firmware updates using the J1 serial Connector on the MC-XCP. This ensures your connection to the frame doesn't get interrupted and you have to unseat and reseat cards in frame one during this process.*

- **Changing MCII-e to PCII-e**
  - Make sure you don't have a DBX card in slot 9.
  - Make sure your computer is connected to Frame 1 and has AzEdit running. If you are connected serially remember you need a Null Modem.
  - Turn on Frame. Make sure it comes up and connects to AzEdit.
  - Unscrew and unseat the right MCII-e (Slot 20). You don't have to remove entirely just unseat and slide 1/4 of the way out. This can be done with the frame on. This leaves MCII-e in slot 19 active.
  - Go to AzEdit under *Status~Master Controller* it should display an active Master Controller, under *Status~Standby Controller* it should display (na).
  - *Status~Software Versions~Master Controllers*
    - It should display the firmware revision. Note this revision number for when you restore the system back to the original configuration.
  - Right Click the Master controller and Click Download Software.
  - It will now ask for the location of the file. Direct it to the location of the folder you put the firmware in. Most important-double check, triple check that it is the right firmware. If you download the wrong firmware you can damage the card where it won't respond anymore and that card will be DOA.

- o Start the download. You will see a lot of LED activity on the front on the Master Controller. The card will reboot numerous times. During this process you may see AzEdit come on and off line. This is normal.
  - o Be Patient. Once the LED activity has calmed down there should only be a couple of LED's lit one being LED 23 denoting it is the active Master controller. You'll notice that the system hasn't connected to AzEdit. That is because it is now a Peripheral Controller.
  - o Look at the Dipswitches on the DBX Card and make sure **Dip Switch 7 is turned on**. This addresses the card as a master.
  - o Slide in the DBX card. It should slide in easy with no resistance in till it meets the back card at the moment give it a firm but gentle push to seat card. After the DBX Card downloads info from the PCII-e (MCII-e with new firmware) AzEdit should connect.
- Checking/Changing DBX Firmware- Go to *Status~Software Revisions~IO Cards*. It's Firmware Rev number should be the same Firmware Rev number as the PCII-e. If not change it.
  - o *Firmware_Status~Software Revisions~IO Cards.*
  - o Right Click the Master controller and Click Download Software.
  - o Direct it to the location of the folder you put the firmware in. Most important-double check, triple check that it is the right firmware. If you download the wrong firmware you can damage the card where it won't respond anymore and that card will be DOA.
  - o Start the download. Be patient, the system will disconnect several times in till the cards have downloaded data and info from each other, and eventually the system will reconnect and stay solid.
- Once the firmware revision is right, turn off the frame and remove the DBX card. **Change dipswitch 7 to the off position for this card will be used in a slave Frame.**
- Grab the next DBX card. Change Dipswitch 7 to on. Slide it in slot 9.
- Turn system on. Wait for AzEdit to connect. Double Check the Firmware Rev. of the DBX. Change the firmware if needed. Do this for all the DBX cards in your system.
- The reason we only updated the one MCII-e to PCII-e is to have a MCII-e to go back to if there is a problem with the Bus expanding procedure. Now that we were successful with that we can update the last MCII-e in Slot 20.

- o Turn off frame.
- o Unseat and slide out DBX.
- o Unseat PCII-e in Slot 19.
- o Seat MCII-e in Slot 20.
- o Turn frame on. After it boots it should connect to AzEdit.
- o Repeat the steps in Changing MCII-e to PCII-e.

Resizing

- Since we are expanding the system we now need to resize the system.
- Your system should now be all updated. The DBX Card should be installed and you should have 1 PCII-e installed/seated and one not installed/seated.
- Go to AzEdit to resize.
  - o *Options~Intercom Configuration.* If dithered out go to *Options~Preferences~Adavaced Tab~Check the box for Allow Intercom Resizing in ONLINE Mode.*
  - o Resizing Warning Window pops up with warnings. Click OK.
  - o Resizing Window Pops up.
  - o Select Intercom Sizing Wizard.
  - o Select Intercom Type- Adam (Multi-Frame).
  - o Select the number of Frames (2, 3, 4).
  - o Select type of bus expansion card and select Test Audio.
  - o Select port density. If all the IO cards are AIO-8, Rvon-8 or MADI-8 Cards select Standard Port Allocation. If the are any AIO-16, Rvon 16, or MADI Card 16 or higher select High Density Port Allocation.
  - o Configure the number of ports in each frame.
    - ▪ Even if the frame isn't full in Standard Port Allocation I usually will size it full (128 ports in each frame) incase you need to add a card later.
    - ▪ With High Density Port Allocation you have to do the math depending on the IO you have installed.
  - o Click finish.
  - o Double check you have the right number of virtual resources (PLs, IFB, UPL's).
  - o Click the options tab and make sure the right options are enabled.

- o **Make sure you only have one PCII-e/MCII-e seated.**
- o Apply and all the Oks after. This will send the sizing changes. System will come up and down, disconnecting from AzEdit a couple of times while downloading info and pushing data between the DBX and PCII-e. When done system and AzEdit connection should be stable.
- • Now that you resized, **Save this as a new AzEdit file we call it newsize.adm.** We will use this file in a later in the Merge Section.

Connecting Addition Frames

- • **Fiber Connections**
  - o DBX cards use 4 strands of fiber. The card has a A link TX and RX and a B link TX and RX. It fiber connectors are SC style you may need a fiber adaptors to connect to the fiber mult.
  - o The strands of fiber will need to be flip-flopped between cards to get the right TX to the Right RX. I generally do the flip on the master frame unless I have a fiber patch field.
  - o Here is an example of the fiber connections for a 2 frame system using a Tac 4.
    - ▪ Fiber Strand 1 will connect to Frame 1 DBX Fiber 2(Link A-2) and Frame 2 DBX Fiber 1(Link A-1).
    - ▪ Fiber Strand 2 will connect to Frame 1 DBX Fiber 1(Link A-1) and Frame 2 DBX Fiber 2(Link A-2).
    - ▪ Fiber Strand 3 will connect to Frame 1 DBX Fiber 4(Link B-2) and Frame 2 DBX Fiber 3(Link b-1).
    - ▪ Fiber Strand 4 will connect to Frame 1 DBX Fiber 3(Link B-1) and Frame 2 DBX Fiber 4(Link B-2).
  - o If doing more than a two frame consult the Adam DBX Link Mapping Figure attached for proper fiber connection combinations.

- • **Install DBX Front card**
  - o Grab the DBX card for the Slave frame your working on.
  - o Make sure all slave frames are turned off
  - o You should have already moved IO cards and installed the DBX Back card.

- o **Make sure Dip switch 7 on the DBX card is off.**
- o Slide in the DBX card. It should slide in easy with no resistance in till it meets the back card at the moment give it a firm but gentle push to seat card.

- • **Check if Slave frame is connected**
  - o With the fiber connected, cards installed, removed and moved, and the Frame 1 turned on, now turn on Frame 2.
  - o Go to AzEdit; navigate to *Status~DBX Links*. All fibers should be linked and you should have no Audio hops. If it's not links or there are hops check your fiber order and clean your fiber.
  - o If doing more than two frames consult the Adam DBX Link Mapping Figure attached to know which links should come up when the slave frames are turned one.

Reinstall Standby PCII-e

- • Now that the frames are resized and connected you can seat the standby PCII-e.
  - o Seat it, let it boot and receive info from the other PCII-e and the DBX cards.
  - o After fully booted fault the active PCII-e making the one you just seated the active PCII-e.
  - o Make sure it is reporting back good and didn't want to change your AzEdit session.

You now have a working Intercom System!

Adam DBX Link Mapping Figure

ADAM DBX LINK MAPPING

Frame Number/DBX Slot Number

DBX Card Port A — A 1/9 B — DBX Card Port B

DIAGRAM KEY

2 Frame Non-Redundant
248 - 256 ports

2 Frame Redundant
240 ports

3 Frame Non-Redundant
372 of 384 ports

3 Frame Redundant
360 ports

4 Frame Non-Redundant
480 ports
Partial redundancy does exist
between frames 1/2 & 3/4 due to
two coax paths between the
respective frames