

Innovating the Future of Global Communications

# TBX-2

# *Triple Bus Expander for ADAM/ADAM-M*



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THE EXCLAMATION POINT WITHIN THE ALERTING YOU OF

# Important Safety Instructions

- 1. Read these instructions.
- 2. Keep these instructions.
- 3. Heed all warnings.
- 4. Follow all instructions.
- 5. Do not use this apparatus near water.
- 6. Clean only with dry cloth.
- 7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- 8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- 10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- 11. Only use attachments/accessories specified by the manufacturer.
- 12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
- 13. Unplug this apparatus during lightning storms or when unused for long periods of time.
- 14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

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# chapter 1 Introduction

# **General Description**

A single TBX-2 fiber card can link up to four (4) ADAM/ADAM-M frames, while multiple Tribus cards can link up to nine (9) frames. This makes it possible to increase the number of available users on a system by transparently integrating additional frames. The ADAM/ADAM-M frame must be equipped with an MCII-e Master Controller card (version 2.0.4 or later), allowing the TBX-2 to link together multiple ADAM/ADAM-M intercom systems. Ring-mode wiring supports systems with more than 256 timeslots in a given frame; it reduces the number of Tri-Bus cards required for systems with larger numbers of frames, and it simplifies the wiring scheme. This needs an MCII-e Master Controller card version 2.8.0 or later. This functionality can be useful in mobile production scenarios to tie systems together via fiber using the digital audio of the TBX-2. In this scenario, the MCII-e Master Controllers are tied together via Ethernet connections. In a failure of the Ethernet connection of one (1) frame, the affected ADAM/ADAM-M can be automatically isolated as an autonomous frame, and the remaining frames function as a normal interconnected system. The TBX-2 works in both AIO-8 and AIO-16 frame environments with simple software settings in AZedit intercom software. The TBX-2 card comes with a fiber connection only, allowing a range of up to 24.8 miles (40km) between ADAM/ADAM-M frames.

# **Version Requirements**

- MCII-e version 2.0.4 or later
- AZedit version 3.6.1 or later
- MCII-e version 2.8.0 or later for ring wiring
- AZedit version 4.3.0 or later for ring wiring

**IMPORTANT:** When updating a system, the PC II-e must have the firmware changed to that of the MCII-e before the TBX-2 cards are inserted into the frame.

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eatures							
Interface with ADAM/ ADAM-M	The TBX-2 card is backward compatible with all existing AES, AIO, and RVON cards in an ADAM/ADAM-M intercom system. The hardware and software is compatible to work seamlessly with the <b>TDM</b> <sup>a</sup> (Time Division Multiplexing) and control bus circuitry for routing audio and controlling data. This card provides a downloadable firmware feature through AZedit Intercom Software						
Channels Per Link	The TBX-2 has three (3) fiber links. Each link can support up to a maximum of 256 audio channels per link. This channel capability is provided in AIO-16 systems. Moreover, the link can also be scaled down to 128 channels, allowing it to support AIO-8 based intercom systems.						
New System Architecture	The System Framework has been redefined for the TBX-2 allowing the system to reconfigure itself in the event of a frame failure. In the scenario where the master frame fails, another ADAM/ADAM-M frame within the system seizes control until the fault is fixed. This fail-save mechanism monitors both audio and control, and sends messages to report any corrupt behavior in the system.						
	<b>NOTE:</b> DBX cards are not compatible with TBX-2 cards.						
Support for Multiple Distances	The backcard features three (3) <b>SFP</b> (Small Form-Factor Pluggable) connectors that allow for support of multiple distances. This allows the user to configure these cards based on their custom application. The user can insert <b>COTS</b> (Commercial Off-The-Shelf) modules (Multi Mode/Single Mode) to match their needs.						
System Expansion	The TBX-2 employs the next generation <b>ASIC</b> (Application Specific Integrated Circuit) Nucleus for higher performance and future system expansion. See Table 1 on page 14.						
Autonomous Mode	Normally, a TBX-2 frame communicates with other frames that are part of the same intercom. However, if an Ethernet link is not present, the TBX-2 automatically enters Autonomous mode.						
	AZedit also has a new option on the Intercom Configuration Options window ( <i>Options</i>   <i>Intercom Configuration</i>   <i>Options Tab</i> ) called "Force Autonomous Mode when no audio links up." The Force Autonomous Mode check box is used to force the current frame into autonomous (independent) mode, if none of its TBX-2 links are up. Normally, a frame communicates with other frames that are part of the same intercom. If selected, the frame refuses to communicate with any other frames if none of its TBX-2 links are up, even if Ethernet communications are fine. And, once one (1) or more of its audio links are restored, the frame automatically tries to re-establish messaging links to the other frames in the cluster.						
Automatic Transfer of Control	Within each frame, both the active and the standby MCII-e master controllers maintain Ethernet messaging links with every other frame in the cluster. If the Active controller in the frame loses its messaging links, but the standby controller has one (1) or more Ethernet links available, an automatic transfer of control is performed. When this transfer occurs, the standby controller becomes the active controller and the previously active controller becomes the standby controller when its messaging links are restored.						
Alarms and Warnings	A new view in AZedit displays various alarms and warnings occur in the intercom. Once an alarm has been resolved, it is deleted after five (5) minutes.						
AZedit Connections	AZedit Connections ( <i>Options</i>   <i>Connect to Frame</i> ) allow the user to select the frame AZedit should connect to.						
	AZedit version 3.6.1 or higher is required.						
In Use Tally	When a user turns a talk or listen key on to connect with a resource in another frame within the cluster,						
Indicator	the key displays a busy tally, flashing between the <i>Alpha</i> and **, to indicate the resource is unavailable.						
	<b>NOTE:</b> For special lists and party lines, no unavailable tally is generated if there are any members of the special list or party line in accessible frames.						
Logging	Each frame in an intercom cluster generates its own log message and stores them locally. Normally, the log messages are identical from frame to frame, except when frames are synchronizing. Using the logging configuration window, you can select whether changes affect all frames in a cluster or just the locally connected frame.						

a. TDM is a technology that transmits multiple signals simultaneously over a single transmission path.

# **LED** Indicators



Link B - 0x04 Link C - 0x02 code is displayed on bits 23-20 while lower push-button is held in.

Task Clock Task CB Rx Task CB Tx Task Port A Rx Task Port B Rx

Task Port B Rx Task Port C Rx Task Port A Tx Task Port B Tx Task Port C Tx Task Fn Rx Task Fn Tx

Task Idle Ċ

8

Current Task

Low Priority

Executive

ARB Listen Enab ARB Error ARB Requested ARB Grant	ARB Status
Rx FIFO Empty Clock Good Lower Button Pressed Upper Button Pressed Rxd FIFO Msg Rx Error Rxd Byte TxBusy	Stat Reg 0
Cti Bus Rx FIFO Msg Cti Bus Rxd Byte	CB IRQ Stat

**Test Audio** 



#### **DIP Switch Settings**

Ignore Port A Test Audio	1
Ignore Port B Test Audio	2
Ignore Port C Test Audio	3
	4
	5
	6
	7
Debug Only Mode	8

Sub-Page Codes							
Port A - ASIC 0	0x80	Port A - ASIC 0					
Port A - ASIC 1	0x08	Port A - ASIC 1					
Port B - ASIC 0	0x40	Port B - ASIC 0					
Port B - ASIC 1	0x04	Port B - ASIC 1					
Port C - ASIC 0	0x20	Port C - ASIC 0					
Port C - ASIC 1	0x02	Port C - ASIC 1					
Combined Audio Out	0xee	Combined Audio Out					



 Sub-Page Codes

 Max msgs allocated
 Uxff
 Msgs currently in use

 Queue to Local MC
 0x80
 Queue to this card

**Note:** Sub-page number is diplayed on bits 22-23 while bottom button is pressed and held in.

# **Specifications**

#### Power

Input Power

2.6 Amps at 5 V (Combined)

Power Consumption

13.2 W

# Audio

Audio Performance

THD+N at 1 kHz, 0.4%

Frequency Response

Within $\pm 1$  dB from 20 Hz to 20 kHz

### Environmental

Weight

Front Card

0.72 lb (0.33 kg)

Back Card

0.42 lb (0.19 kg)

# Temperature

Operating

0°C to 50°C (32°F to 122°F)

Storage

-40°C to 70°C (-40°F to 158°F)

#### **Board Performance**

Throughput Per Link:

360Mb/sec

SFP Fiber Transceivers:

Voltage:

3.3 V Rails

Standard Rate:

SONET OC12 or Gigabit Ethernet

**Recommended Parts:** 

Multi-Mode:

Finisar - FTLF8519P2BNL (Oxide VCSEL, Maximum reach of 550m)

Single Mode:

Finisar - FTLF1422P1BTL (1310nm, Maximum reach 40km)

Fiber Cable Connector Type:

Multiple Mode Fiber LC-LC Duplex Connector - max length 500m (546.8yd.)

Single Mode Fiber LC–LC Duplex Connector – max length 40km (24.9mi)

#### **Configuration Requirements**

An MCII-e Master Controller card must be installed in the same frame as the TBX-2. For more information, see the MCII-e User Manual which can be found at www.rtsintercoms.com.

TABLE 1. Systems	Supported	by the	TBX-2	Card
------------------	-----------	--------	-------	------

# of Frames	Links Used	# TBX-2 Cards per Frame	System	Channels	TBX-2 Only System
2	1	1	AIO-8	256	ADAM with 1 TBX-2 Card - Place TBX-2 Card in
2	1	1	AIO-16	512	Slot 9
3	3	1	AIO-8	384	
3	3	1	AIO-16	768	
4	6	1	AIO-8	512	
4	6	1	AIO-16	880	
5	10	2	AIO-8	640	ADAM with 2 TBX-2 Cards - Place TBX-2 Cards
6	15	2	AIO-8	768	in Slots 8 and 9
7	21	2	AIO-8	880	
8	28	3	AIO-8	880	ADAM with 3 TBX-2 Cards - Place TBX-2 Cards in Slots 8, 9, and 10

#### NOTE:

- The TBX-2–TBX-2 supports up to eight (8) frames in non-redundant mode. Slot 10 should be used if a third TBX-2–TBX-2 card is needed.
- If ring wiring is selected, the TBX-2 supports up to nine frames in redundant mode. Two cards per frame must be used.

# Fail-Over Modes

Audio and communications (called *control*<sup>1</sup>) between frames is separated between the TBX-2 card and the MCII-e Master Controller Card. Communication between frames using TBX-2 occurs using the MCII-e Master Controller over Ethernet. Audio is passed between frames using the TBX-2 card fiber connection (see Figure 1 to Figure 3).

Audio between frames exists as long as there is a single valid link between frames. There are three (3) types of system configurations:

- Full Redundancy
- Partial Redundancy
- Non-Redundancy

<sup>1.</sup> Control is the ability to talk to keypanels and act on key presses.

# **Full Redundancy**

In Full Redundancy systems, there are two (2) links, shown in Figure 1, between each frame, so losing either one does not affect audio.



FIGURE 1. 4 Frame System with Full Redundancy, including failover Master Controller

# **Partial Redundancy**

In a **Partially Redundant** system, multiple frames, but not all frames, have two (2) links configured between them. In the example shown in Figure 2, Frame 1 and Frame 2 have full redundancy between them; however, Frame 3 has only one (1) link to Frame 1. This means if the fiber connection between Frame 1 and Frame 3 is broken, Frame 3 cannot send or receive audio.



FIGURE 2. Partially Redundant system, including failover Master Controller

Non-Redundancy

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In a **Non-Redundant** system, shown in Figure 3, there is only one (1) link between frames, so if the fiber link goes down, audio communications between the frames is lost.



FIGURE 3. 4 Frame System with No Redundancy, including failover Master Controller

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FIGURE 4. Eight Frame TBX-2 System – Non-Redundant

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# **Debug** Information

The **Debug Information** menu item, shown in Figure 5, allows you to send a flash file to RTS to help troubleshoot the reason for an intercom issue in AZedit. In the event of a processor crash, the processor saves diagnostic information about the cause of the problem to its flash memory. The menu item stays grayed-out until a flash file is created when the processor crashes.

**NOTE:** Every card in every frame stores its own debug information. So, if frame 3 has a processor crash, you must connect AZedit to frame three (3) to create an.azd file to send to RTS for debugging.



FIGURE 5. Upload Debug Information

To create the debug file, do the following:

- NOTE: Once the processor has crashed the Upload Debug Information menu item becomes active.
  - 1. From the Options menu, select Upload Debug Information. *The Upload Debug Information window appears.*

Upload Debug Inf	formation				?	Ľ
Savejn:	C DEBUG		•	수 🗈 💣	<b>III</b> •	
My Recent Documents Desktop My Documents						
My Computer						
	File <u>n</u> ame:			•	<u>S</u> ave	
My Network Places	Save as <u>t</u> ype:	Debug files (*.azd)		•	Cancel	
		I Save Directory				

NOTE: By default, the Debug folder (C:\Telex\AZedit\Debug) is where the AZedit debug file you create is stored.

- 2. In the File name field, enter a **name** for the debug file you create. For example, you could use the date as the file name 12152008.azd.
- 3. Click Save.

The Uploading Debug Information Status window appears.

	Card Type	e   Comm	Status	Errors Io	BEK IO	Errors
2	-	-	-	-	-	-
)	-	-	-	-	-	-
3	-	-	-	-	-	-
1	AIO-16	ОК	Cur	-	-	-
2	AIO-16	OK	Cur	-	-	-
)	AIO-16	ОК	Cur	-	-	-
3	AIO-16		<u></u>		2 1	-
3	AIO-16	opioaung bebug ini	ormation			2
4	AIO-16	STATUS: Completed				-
2	AIO-16					-
)			1009	%		1
	TBX	Delete debug info	ormation from in	tercom		-
3	AIO-16	V Delete debug int	annadorr nonn in	toroom		-
3	AIO-16		OK			1
4	AIO-16					-
	AIO-16	OK	Cur	-	-	-
	AIO-16	ОК	Cur	-	-	-
	AIO-16	OK	Cur	2	-	1
	-	-	-	-	-	-
	AIO-16	OK	Our	8	-	-

- **NOTE:** Select the *Delete debug information from intercom* check box if you want to delete the debug information from system once the azd file is created. Otherwise, the information is kept on the intercom system. Remember, you can only save the most current debug information. This means if your processor fails twice you only capture the second failure's diagnostic information.
- 4. Click OK.

The AZedit debug file is made.

To find the file you just created, do the following:

- 1. Right-click on **My Computer**, and from the popup menu, select **Explore**. *The My Computer window appears with a navigation pane down the left hand side of the window.*
- 2. Navigate to C:\Telex\AZedit\Debug. OR

Navigate to the **folder** you store your AZedit debug file. *The file you create is stored in this folder.* 



Once you have created the AZedit Debug file, please contact your RTS system engineering for further instructions. If you do not know your local system engineer, please see http://www.rtsintercoms.com/contact.php.

# **Installation and Configuration**

# **Installation**

# Requirements

- 10 Base-T or 100 Base TX Ethernet connection to the network
- AZedit 3.6.1 or higher
- MCII-e Master Controller 2.0.4 or higher
- AZedit version 4.3.0 or later for ring wiring
- MCII-e Master Controller 2.8.0 or later for ring wiring
- **NOTE:** See the MCII-e Master Controller User Manual (p/n 93507734000) user manual for specific DIP switch settings for proper TBX-2 operation.

**IMPORTANT:** All frames in a TBX-2 system must have the same firmware version on the Controllers and TBX-2 cards.

# Supported ADAM Configurations

# TABLE 2. Supported TBX-2 Configurations for the ADAM

# ADAM with 1 TBX-2 Card

Place TBX-2 Card in Slot 9

ADAM with 2 TBX-2 Cards

Place TBX-2 Cards in Slots 8 and 9

ADAM with 3 TBX-2 Cards

Place TBX-2 Cards in Slots 8, 9, and 10



FIGURE 6. TBX-2 Slots in the ADAM frame

# Supported ADAM-M Configurations

# **IMPORTANT:** Remember to save your configuration, if needed, because it is deleted.

NOTE: Whenever possible avoid installing MADI cards in slot 6 due to improved reliability through heat reduction.

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

TABLE 3. Supported MADI/TBX-2 Configurations for the ADAM-M

# ADAM-M with 2 MADI cards and 0 TBX-2 Cards

Place MADI Cards in slots 5 and 6

#### ADAM-M with 2 MADI cards and 1 TBX-2 Card

Place MADI Cards in slots 5 and 8

Place TBX-2 Card in slot 6

# ADAM-M with 2 MADI cards and 2 TBX-2 Cards

Place MADI Cards in slots 3 and 8

Place TBX-2 Cards in slots 5 and 6

# ADAM-M with 1 MADI Card<sup>a</sup> and 3 TBX-2 Cards

Place MADI Card in slot 8

Place TBX-2 Cards in slots 4, 5, and 6

a. When three (3) TBX-2 cards are used in the ADAM-M, only one (1) MADI card can be used in the system. For complete system clock redundancy slots 5 and 6 must be populated.

#### To install the TBX-2 into an ADAM/ADAM-M frame, do the following:

1. Firmly push the back card into proper slot in the ADAM/ADAM-M frame.

**NOTE:** See Table 2 or Table 3 for proper card placement in the intercom.

- 2. Using a screwdriver, secure the **back card** into the frame with the provided screws.
- 3. Firmly push the front card into the front corresponding back card slot.
- 4. Securely lock the **front card** in place with the top and bottom extractor handles.



# Configuration

**IMPORTANT:** 

- There are two (2) ways to configure multi-frame systems:
  - Manual
  - Dynamic Ethernet and TBX-2 links must be running

# **Manual Configuration**

To manually configure the TBX-2 card, the following steps must be completed for the Intercom System to be active:

- Step 1 Configure each MCII-e Master Controller IP Address for the Ethernet (page 28)
- **Step 2** Configure the size of your Intercom system for each frame (page 29)
- **NOTE:** Each frame must be configured exactly the same. The number of ports must not exceed the number of ports allowed for the number of frames in the intercom system.
- **Step 3** Configure the frame using the Frame Mapping window in AZedit (page 33)
- **Step 4** Cable the Ethernet and TBX-2 Links (page 34)

# Configure each MCII-e Master Controller IP Address for the Ethernet

To configure the IP Address for the MCII-e, do the following:

- Verify you are serially connected to AZedit. You must be connected serially to make any changes to the Ethernet Setup window in AZedit.
- 2. Open AZedit.
- **3.** From the Options menu, select **Ethernet Setup**. *The Ethernet Setup window appears*.

Ethernet Setup							<u>?</u> ×
Left Controller (Acti	ve) —					 	
IP Address:	192		168		210	87	
Network <u>M</u> ask:	255	. :	255		0	0	
Default <u>G</u> ateway:	0		0		0	0	
MAC Address:	00:0B	:7C	:80:(	)3	:3A		
-Right Controller (Sta	andby) -					 	_
IP Address:	0		0		0	0	
Network <u>M</u> ask:	0		0		0	0	
Default <u>G</u> ateway:	0		0		0	0	Apply
MAC Address:	00:00	:00	:00:0	)0:	:00		Close

- 4. In the IP Address field, enter the **IP Address** for the MCII-e.
- 5. In the Network Mask field, enter the **Network Mask** for the MCII-e, if applicable
- 6. In the Default Gateway field, enter the **Default Gateway** for the MCII-e, if applicable.

- **NOTE:** If you are unsure of your IP Address, Network Mask, or Gateway Address, contact your System Administrator for this information.
- 7. Click Apply. *The IP Address is set for the MCII-e.*
- 8. Repeat steps 1-7 for each frame in your system.

# Configure the size of your Intercom system for each frame

NOTE: Each frame must be configured identically, otherwise they cannot talk to each other even when an Ethernet link is available.

To configure the size of your frame, do the following:

**IMPORTANT:** You must know the number of frames and the number of ports your intercom system supports.

 In AZedit, from the Options menu, select Intercom Configuration. A warning message appears.

AZedit		×
8	WARNING! Changing these settings will ERASE the online intercom setup and reset the intercom system! You must then restore your setup from disk.	
	For further information, press F1.	
	Press CANCEL and save the online intercom setup to disk before proceeding!	
	OK Cancel	

# **2.** Click **OK**.

The Intercom Configuration window appears.

Intercom Configuration				? ×
Resources Options				
Frames Ports 272	Party Lines IFBs IFB Special Lists Special Lists GPI Outputs ISOs Assignment Groups UPL Resources UPL Statements GPI Inputs Inter-panel Dims	96 64 32 64 96 64 32 120 256 96 32	Intercom Setup ADAM Redundant Audio Test Audio	
<u> </u>		1		
	Apply	Cancel		lelp

# 3. Click Intercom Sizing Wizard.

The Select Intercom Type window appears.

Select Intercom Type	?	×
Select the type of intercom to configure:		
C Zeus / Zeus-II		
C Zeus-III		
C Zeus-III LE		
O Cronus		
C ADAM-CS		
( ADAM		
O ODIN		
< Back Next > Cancel	He	lp

- 4. Select the ADAM/ADAM-M radio button.
- 5. Click Next.

The Select Intercom Size window appears.

Select Intercom Size				?	×
Select the number of in	ntercom fram	nes:			
	< <u>B</u> ack	<u>N</u> ext >	Cancel	Hel	p

- 6. From the drop down menu, select the number of frames in the system (up to eight frames).
- 7. Click Next.

The Select Frame Links window appears.

Select Frame Links	?	×
<ul> <li>Select the type of card used to connect frames together:</li> <li>Single Bus Expander Cards (SBX)</li> <li>Dual Bus Expander Cards (DBX)</li> <li>Tri-Bus Expander Cards (TBX)</li> </ul>		
<ul> <li>Use Redundant Audio</li> <li>Enable Test Audio (recommended)</li> <li>Use Ring Wiring</li> </ul>		
< <u>B</u> ack <u>N</u> ext > Cancel	Help	

- 8. Verify the TBX-2 Expander Cards (TBX-2) radio button is selected.
- 9. Select the Enable Test Audio (recommended) check box.

# 10. Click Next.

The Allocate Ports Configuration window appears.

Frame	Size	Ports
1	256	001 - 256
2	256	257 - 512
3	256	513 - 768

**11.** In the Size field, adjust the **intercom size**.

A warning message appears.

AZedit		×
<u> </u>	Warning: Timeslots 255-256, 511-512, 767-768 and 1023-1024 will not be available in all frames (in this configuration).	
	Mesh wiring configurations can forward a maximum of 256 timeslots between frames. However, test audio requires two timeslots on each link, limiting the number of timeslots that can be forwarded by each frame to 254.	
	ОК	

The Verify Intercom Configuration window appears.

Verify Intercom Con	figuration			?	×
Intercom Type:	ADAM				
Number of Frames	: 3				
Number of Ports:	768				
Frame Links:	TBX				
Wiring Scheme:	Mesh				
Redundant Audio:	No				
Test Audio:	Yes				
	< <u>B</u> ack	Finish	Cancel	He	p

- **13**. Click **Test** to verify the configuration validity.
- **14.** Click **Apply** to apply the configuration to the intercom system. *The Intercom Configuration window closes and the configuration is applied to the intercom system.*

#### **Configure The Frame Using The Frame Mapping Window In Azedit**

To configure the frames with the Frame Mapping window, do the following:

 From the Options menu in AZedit, select Frame Mapping Table. The Frame Mapping Table appears with the current frame's IP and MAC Address(es) already entered in the table.

Fr	ame Mapping Tab	le				<u>?</u> ×
	Frame	IP Address 1	MAC Address 1	IP Address 2	MAC Address 2	Base 16
	1	192.168.1.38	80:00:00:ff:80:00	-	-	
	2	-	-	-	-	
	Move Up Mo	ve Down 🗌 Act	cept frame mapping table	from other frames	<u>Apply</u>	est Done

2. Click the Frame 2 IP Address 1 field.

*The field becomes active and a browse button appears.* 

3. Enter the **IP Address** for Frame 2.

- 4. Repeat step 2 and step 3 for every frame to be included in the system.
- 5. Using the Move Up and Move Down buttons, move the frame to the hierarchical position you desire.
- 6. Repeat step 5 for all the frames in the intercom system.
- 7. Click **Test**. *The results will tell you the mapping is either valid or invalid.*
- 8. Click Apply. *The frames are mapped together.*

# Cable the Ethernet and TBX-2 Links

To cable the Ethernet and TBX-2 Links, do the following:

- 1. Power off all the frames in the system.
- 2. Using an Ethernet cable, connect each frame to the network.
- 3. Using figures 1 through 4, connect the **frames** with the fiber links.
- 4. Power on the system.

# Dynamic Configuration

IMPORTANT:	Remember to save your configuration, if needed, because it is deleted when making changes to the Intercom Configuration menu item.
To dynamically c	onfigure the TBX-2 card, the following steps must be completed for the Intercom System to be active:
Step 1	Configure each MCII-e Master Controller IP Address for the Ethernet (page 28)
Step 2	Configure the size of your Intercom system for each frame (page 29)
NOTE:	Each frame must be configured exactly the same. The number of ports must not exceed the number of ports allowed for the number of frames in the intercom system.
Step 3	Cable the Ethernet and TBX-2 Links (page 41)
Step 4	Configure the frame using the Frame Mapping window in AZedit (page 33)

# Configure each MCII-e Master Controller IP Address for the Ethernet

To configure the IP Address for the MCII-e, do the following:

1. Verify you are serially connected to AZedit.

**IMPORTANT:** You must be connected serially to make any changes to the Ethernet Setup window in AZedit.

2. Open AZedit.

**3.** From the Options menu, select **Ethernet Setup**. *The Ethernet Setup window appears*.

Et	hernet Setup								<u>? ×</u>
	-Left Controller (Activ	ve) —							1
	IP Address:	192		168		210		87	
	Network <u>M</u> ask:	255		255		0		0	
	Default <u>G</u> ateway:	0		0		0		0	
	MAC Address:	00:0B	:7	C:80:	03	:3A			
	-Right Controller (Sta	andby)-							
	IP Address:	0		0		0		0	
	Network <u>M</u> ask:	0		0		0		0	
	Default <u>G</u> ateway:	0		0		0		0	ňosly
	MAC Address:	00:00	:0	0:00:0	00	:00			Close
			-		_		_		

- 4. In the IP Address field, enter the IP Address for the MCII-e.
- 5. In the Network Mask field, enter the Network Mask for the MCII-e, if applicable
- 6. In the Default Gateway field, enter the **Default Gateway** for the MCII-e, if applicable.

7. Click Apply.

The IP Address is set for the MCII-e.

8. Repeat steps 1-7 for each frame in your system.

**NOTE:** If you are unsure of your IP Address, Network Mask, or Gateway Address, contact your System Administrator for this information.

# Configure the Size of your Intercom System for each Frame

**NOTE:** Each frame must be configured identically, otherwise they cannot talk to each other even when an Ethernet link is available.

To configure the size of your frame, do the following:

**IMPORTANT:** You must know the number of frames and the number of ports your intercom system supports.

1. In AZedit, from the Options menu, select Intercom Configuration. A warning message appears.

AZedit		×
8	WARNING! Changing these settings will ERASE the online intercom setup and reset the intercom system! You must then restore your setup from disk.	
	For further information, press F1.	
	Press CANCEL and save the online intercom setup to disk before proceeding!	
	OK Cancel	
- 2. Click OK.
  - The Intercom Configuration window appears.

Intercom Configuration				<u>?</u> ×
Resources Options				
Frames Trames Ports 272	Party Lines IFBs IFB Special Lists Special Lists GPI Outputs ISOs Assignment Groups UPL Resources UPL Statements GPI Inputs Inter-panel Dims	96 64 32 64 96 64 32 120 256 96 32	Intercom Setup ADAM Redundant Audio	
			<u>R</u> eset to Defaults	
		Cancel	<u>⊺</u> est He	ip

**3.** Click **Intercom Sizing Wizard**. *The Select Intercom Type window appears*.

Select Intercom Type	?	×
Select the type of intercom to configure:		
C Zeus / Zeus-II		
C Zeus-III		
C Zeus-III LE		
C Cronus		
C ADAM-CS		
ADAM		
C ODIN		
< <u>B</u> ack <u>N</u> ext > Cancel	He	lp

- 4. Select the ADAM/ADAM-M radio button.
- 5. Click Next.
  - The Select Intercom Size window appears.

Select Intercom Size			?	$\times$
Select the number of interco	om frames:			
3				
< <u>B</u> a	ick <u>N</u> ext >	Cancel	Hel	p

- 6. From the drop down menu, select the number of frames in the system (up to eight frames).
- 7. Click Next.

The Select Frame Links window appears.

Select Frame Links	?	$\times$
<ul> <li>Select the type of card used to connect frames together:</li> <li>Single Bus Expander Cards (SBX)</li> <li>Dual Bus Expander Cards (DBX)</li> <li>Tri-Bus Expander Cards (TBX)</li> </ul>		
<ul> <li>Use Redundant Audio</li> <li>Enable Test Audio (recommended))</li> <li>Use Ring Wiring</li> </ul>		
< <u>B</u> ack <u>N</u> ext > Cancel	Help	,

- 8. Verify the TBX-2 Expander Cards (TBX-2) radio button is selected.
- 9. Select the Enable Test Audio (recommended) check box.

#### 10. Click Next.

The Allocate Ports Configuration window appears.

Fran	Size	i irame.	Por	te	
1	256		001 -	256	_
2	256		257 -	512	
3	256		513 -	768	

**11.** In the Size field, adjust the **intercom size**. *A warning message appears*.

AZedit		×
<u> </u>	Warning: Timeslots 255-256, 511-512, 767-768 and 1023-1024 will not be available in all frames (in this configuration).	
	Mesh wiring configurations can forward a maximum of 256 timeslots between frames. However, test audio requires two timeslots on each link, limiting the number of timeslots that can be forwarded by each frame to 254.	
	ОК	

#### **12.** Click **OK**.

The Verify Intercom Configuration window appears.

Verify Intercom Con	figuration			?	×
Intercom Type:	ADAM				
Number of Frames	: 3				
Number of Ports:	768				
Frame Links:	TBX				
Wiring Scheme:	Mesh				
Redundant Audio:	No				
Test Audio:	Yes				
	< <u>B</u> ack	Finish	Cancel	Hel	p

**13.** Verify the intercom configuration.

#### 14. Click Finish.

The Intercom Configuration window reappears.

Intercom Cor	nfiguration			? ×
Resources	Options Capabilities			
Frames Ports Interc Frame 1 2 3	Image: Size of the second s	Party Lines IFBs IFB Special Lists Special Lists GPI Outputs ISOs Assignment Groups UPL Resources UPL Statements Auto Dials GPI Inputs Inter-panel Dims	96 64 32 64 96 64 32 120 256 64 96 32	Intercom Setup ADAM w/TBX □ Redundant Audio ✓ Test Audio □ Ring Wiring
		Apply	Cancel	Iest Help

**NOTE:** If redundant is not selected, redundant TBX-2 cards cannot be used in the same frame because ports are allocated to slot 9 and the Matrix cannot register the second TBX-2 card.

Test audio uses ports at the end of the 256 slots to send an audio test signal to other frames in the system and waits for them to be acknowledge. If the port gets back something different/out of range, it tears down the audio links and remakes them. Once finished, the process starts over. Test Audio should always be selected.

- 15. Under Number of Ports in, make any changes to the frames for port allocation, as needed.
- 16. Click Test to verify the configuration validity.
- 17. Click Apply to apply the configuration to the intercom system.*The Intercom Configuration window closes and the configuration is applied to the intercom system.*

#### Cable the Ethernet and TBX-2 Links

To cable the Ethernet and TBX-2 Links, do the following:

- 1. Power off all the frames in the system.
- 2. Using an Ethernet cable, connect **each frame** to the network.
- 3. Using figures 1 through 4, connect the **frames** with the fiber links.
- 4. Power on the system.

#### Configure the frame using the Frame Mapping window in AZedit

To configure the frames with the Frame Mapping window, do the following:

- **TIP:** To save time from manually entering in the IP Addresses and MAC Addresses for all you frames, be sure to connect to Ethernet. By being connected via Ethernet, you can browse for the other ADAM/ADAM-M frame's addresses, select them, and automatically update the table.
- 1. From the Options menu in AZedit, select Frame Mapping Table. The Frame Mapping Table appears with the current frame's IP and MAC Address(es) already entered in the table.

Fi	ame Mapping Tab	le				<u>? ×</u>
	Frame	IP Address 1	MAC Address 1	IP Address 2	MAC Address 2	Base 16
	1	192.168.1.38	80:00:00:ff:80:00	-	-	<b>v</b>
	2	-	-	-	-	
	Move Lin Mo	ve Down Ac	cent frame manning table	from other frames		est Done
	more op		sopername mapping table		-12PT	

2. Click the Frame 2 IP Address 1 field.

The field becomes active and a browse button appears.

- 3. Click the **browse** button.
  - The Select Frame window appears.

Se	elect Frame					? ×
	IP Address 1	MAC Address 1	IP Address 2	MAC Address 2		
	192.168.1.38	80:00:00:ff:80				
	·					
					OK Cancel	

- 4. Select the **Frame(s)** to add to the Frame Mapping Table.
- 5. Click OK.
- The Select Frame window closes and the frame information appears in the Frame Mapping Table.
- 6. Using the Move Up and Move Down buttons, move the frame to the hierarchical position you desire.
- 7. Repeat step 6 for all the frame in the intercom system.

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- 8. Click Test. *The results display the mapping is either valid or invalid.*
- 9. Click Apply. *The frame resets.*
- **10.** Open the **Frame Mapping Table**.

**NOTE:** Steps 11 through 13 must be done on each frame in the system, except frame 1.

- 11. Select the Accept frame mapping table from other frames check box.
- 12. Click Test.
- **13.** Click **Apply**. *The frame resets*.

#### Base 8 vs. Base 16 Port Number Systems

With the advent of the TBX-2 card and the ever-evolving technology to a 16-channel port system, **Base 8** (or standard density) and **Base 16** (or high density) port number systems were created.

In order to support cards with more than 16 ports, AZedit supports a Port Allocation Table. The Port Allocation Table is used to select which card types occupy which intercom slots and which ports are allocated to each card. Ports are allocated to each card, up to four groups of 16 (64 ports per card). Alternately, eight ports per slot can be selected.

Requirements

- Minimum version MCII-e 2.3.0 or later
- Minimum version AZedit 3.9.0 or later
- **NOTE:** Any 16-channel card, must use the high density (Base 16) port numbering system. Alternatively, any 8-channel card can use either the standard density (Base-8) or high density (Base 16) port numbering system

#### Base 8 Port Number System (Legacy support only)

The **Base 8 Port Number System** splits 16 ports between a top and bottom group. The bottom group starts with 1 through 136; the top group consists of ports 137 through 272 (see Figure 7).

**EXAMPLE:** This means that if you have an AIO-16 in slot 1, ports 1–8 and 137–144 is used by the AIO-16 card. Alternatively, if you have AIO-16's in slots 1 and 3 and an AIO-8 in slot 2, the following port mapping applies:

#### Figure 4. Example for Base 8 Port Numbering

AIO-16 Ports 1–8 and 137–144	Ports 145-161 are not used when an AIO-8 card is in the slot	AIO-16 Ports 17–33 and 162–178
	AIO-8 Ports 9-16	

		+5V +15V -15V							+5 FUSE			-2.1V +5V +15V -15V						+5 FUSE 2	
		)																	
	SLOT 1	SLOT 2	SLOT 3	SLOT 4	SLOT 5	SLOT 6	2 TOTS	SLOT 8	SLOT 9	SLOT 10	SLOT 11	SLOT 12	SLOT 13	SLOT 14	SLOT 15	SLOT 16	21 TOJS		
Bottom Group	8 ports (1-8)	Bottom Group 8 ports (9-16)	Bottom Group 8 Ports (17-24)	Bottom Group 8 ports (25-32)	Bottom Group 8 ports (33-40)	Bottom Group 8 ports (41-48)	Bottom Group 8 ports (49-56)	Bottom Groups 8 ports (57-84)	Bottom Group 8 ports (85-72)	Bottom Group 8 ports (73-80)	Bottom Group 8 ports (81-88)	Bottom Group 8 ports (89-96)	Bottom Group 8 ports (97-104)	Bottom Group 8 ports (105-112)	Bottom Group 8 ports (113-120)	Bottom Group 8 ports (121-128)	Bottom Group 8 ports (129-136)		

FIGURE 7. Base 8 Port Numbering System Example



FIGURE 8. Tribus Slot in the ADAM Frame

$\bigcirc$		-2.1V +5V +15V				RRENT NEV			+5 FUSE			-2.1V +5V +15V				RENT AU		+5 FUSE 2	
		-15V										-15V							
	Top Group 8 ports (137-144)	Top Group 8 ports (145-152)	Top Group 8 ports (153-160)	Top Group 8 ports (167-176)	Top Group 8 ports (167-176)	Top Group 8 ports (177-184)	Top Group 8 ports (185-192)	Top Group 8 ports (193-200)	Top Group 8 ports (201-208)	Top Group 8 ports (209-216)	Top Group 8 ports (217-224)	Top Group 8 ports (225-232)	Top Group 8 ports (233-240)	Top Group 8 ports (241-248)	Top Group 8 ports (249-256)	Top Group 8 ports (257-264)	Top Group 8 ports (265-272)		
	SLOT 1	SLOT 2	SLOT 3	SLOT 4	SLOT 5	SLOT 6	SLOT 7	SLOT 8	SLOT 9	SLOT 10	SLOT 11	SLOT 12	SLOT 13	) SLOT 14	) SLOT 15	) SLOT 16	) SLOT 17		
	Bottom Group 8 port (1-8)	Bottom Group 8 port (9-16)	Bottom Group 8 port (17-24)	Bottom Group 8 port (25-32)	Bottom Group 8 port (33-40)	Bottom Group 8 port (41-48)	Bottom Group 8 port (49-56)	Bottom Group 8 port (57-64)	Bottom Group 8 port (65-72)	Bottom Group 8 port (73-80)	Bottom Group 8 port (81-88)	Bottom Group 8 port (89-96)	Bottom Group 8 port (97-104)	Bottom Group 8 port (105-112)	Bottom Group 8 port (113-120	Bottom Group 8 port (121-128	Bottom Group 8 port (129-136		

FIGURE 9. Base 8 Port Numbering scheme with both AIO-16 and an AIO-8 card installed.



FIGURE 10. Base 8 Port Numbering scheme with both AIO-16 and AIO 8 card installed

#### **Base 16 Port Number System**

The **Base 16 Port Number System** is newly supported with the TBX-2 Card. Unlike the Base 8 Port Number System, where the ports were split into an upper and lower set of eight (8) ports, the Base 16 Port Number System puts all 16 ports in one slot. This means, when you configure your intercom system to support Base 16, slot 1 in the ADAM holds ports 1through 16, slot 2 holds ports 17 through 33, slot 3 holds 34 through 49, and so on. When a TBX-2 card is inserted into the frame, the port numbering system jumps to the next available AIO card slot.

When using the port allocation table, the position of the card and the available port numbering allows for greater density cards, such as OMI-32, 48, or 64. And when MADI 32, 48, and 64 cards are used in conjunction with the high density system and the total card port density exceeds 256 ports, the use of ring wiring is required.





#### Force Autonomous Mode Check Box

The **Force Autonomous Mode** check box, shown in Figure 11, is used to force the current frame into autonomous (independent) mode, if none of its TBX-2 audio links are active. Normally, a frame communicates with other frames that are part of the same intercom. However, the Options page of the Intercom Configuration dialog has a new option, *Force Autonomous Mode when no audio links up*. If selected, the frame refuses to communicate with any other frames if none of its TBX-2 links are up, even if Ethernet communications are fine. And, once one (1) or more of its audio links are restored, the frame automatically tries to re-establish messaging links to the other frames in the cluster.

	Intercom Configuration				? ×
	Resources Options				
	Talk levels		Setup pages per port	4	
	Listen levels	1	Physical panels per port	4	
	Panels with Key Labels	64	Keys per setup page	16	
Force Autonomous Mode when no audio links up check box	Key Labels Per Panel	64	Maximum IFB priority	3	
	Use input alphas Auto listen functions Allow for remote trun Don't generate talies Don't generate talies Don't generate indefi Always stack callers Configure onboard G Generate snoop talie Force Autonmous Me	pick up all talk leve k master for in-use trunk as: for off-hook TIF as inite PL tallies in call waiting winds PI Outputs in FR95 as ade when no audio	ts signments signments 28 mode links up		
				Beset to Defa	vults
			Apply Canc	el <u>I</u> est	Help

FIGURE 11. Force Autonomous Mode when no audio links up

To Force Autonomous Mode when no audio links are up, do the following:

1. From the Options menu in AZedit, select Intercom Configuration. *A warning window appears.* 

A	Zedit	×
	8	WARNING! Changing these settings will ERASE the online intercom setup and reset the intercom system! You must then restore your setup from disk.
		For further information, press F1.
		Press CANCEL and save the online intercom setup to disk before proceeding!
		Cancel

**2.** Click **OK**.

The Intercom Configuration window appears.

- 3. Click the **Options tab**. *The Options page appears*.
- 4. Select the Force Autonomous Mode when no audio links up check box. *Force Autonomous Mode is enabled.*
- **5.** Click **Apply**. *The Intercom Configuration window closes.*

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#### **AZedit** Connections

The **AZedit Connections** menu item, shown in Figure 12, is used to select a frame that AZedit connects to. This menu also has the option to *Auto Connect*. If this is selected, AZedit automatically tries to connect to another frame if it loses its connection to the current frame.

NOTE: This menu is only available when AZedit is configured to communicate using Ethernet.

**TIP:** You can also change the frame, the serial port, or IP Address in the Communications window (*Options*|*Communications*).



FIGURE 12. Connect To Frame Menu

# CHAPTER 3 Window Descriptions

## Frame Mapping Table Window

The **Frame Mapping Table** window, shown in Figure 13, is used to link TBX-2 frames together. Determine the frame position (1 through 8) and enter the primary and secondary MCII-e Master Controller IP Addresses.

Fran	ne Mapping Tab	le				<u>? ×</u>
	Frame	IP Address 1	MAC Address 1	IP Address 2	MAC Address 2	Base 16
	1	192.168.210.81	00:0b:7c:80:03:52	-	-	
	2	192.168.210.82	80:00:00:ff:ff:19	-	-	
	Move Up Mo	ve Down 🗌 🗖 Acc	ept frame mapping table I	from other frames	Apply I	est Do <u>n</u> e

FIGURE 13. Frame Mapping Table

#### **Frame Column**

The Frame column displays the frame's positional rank within the intercom system.

#### **IP Address 1 Column**

The IP Address 1 column indicates the IP Address of the Active MCII-e Master Controller.

To set the IP Address, do the following:

- 1. Click the Address to make the field active and the Browse button appear.
- 2. Click the Browse button to open the Select Frame Window.

NOTE: For more information, see "Select Frame Window" on page 54.

Frame Mapping Ta	able									
Frame	IP Address 1	MAC								
1	192.168.210.81	0.81 00:0b:								
2	192.168.210.82	80:00								
Frame Mapping Tab	le				<u>?</u> ×					
Frame	IP Address 1	MAC Address 1	IP Address 2	MAC Address 2	Base 16					
1	192.168.210.81	00:0b:7c:80:03:52	169.254.210.84	00:0b:7c:80:0e:5a						
2	192.168.210.82	80:00:00:ff:ff:19	· ·	1072						
Move Up Ma	Select Frame IP Address 1 192.168.210.8	MAC Address 1 5 00:0b:7c:80:0e:07	IP Address 2 MAC 192.168.210.82 80:00	Address 2 0:00:ff:ff:19	?×					
				QK	⊆ancel					

#### MAC Address 1 Column

The MAC Address 1 column indicates the MAC Address of the active MCII-e Master Controller in the frame.

#### **IP Address 2 Column**

The IP Address 2 column indicates the standby MCII-e Master Controller IP Address.

To set the IP Address 2, do the following:

- 1. Click the Address to make the field active and the Browse button appear.
- 2. Click the Browse button to open the Select Frame Window.

**NOTE:** For more information, see "Select Frame Window" on page 54.

#### **MAC Address 2 Column**

The MAC Address 2 column indicates the MAC Address of the standard MCII-e Master Controller in the frame.

#### **Base 16 Column Check Box**

The **Base 16** check box is used to enable the Base 16 port number system. For more information, see "Base 8 vs. Base 16 Port Number Systems" on page 43.

#### Move Up Button

The **Move** Up button allows you to set the frame position of the system up in the frame hierarchy. Frame 1 is the master frame and holds the most complete frame mapping table. If frame 1 fails, then frame 2 becomes the master frame.

#### **Move Down Button**

The **Move Down** button allows you to set the frame position of the system down in the frame hierarchy. Frame 1 is the master frame and holds the most complete frame mapping table. If frame 1 fails, then frame 2 becomes the master frame.

#### Accept Frame Mapping Table from Other Frames Check Box

The Accept Frame Mapping Table from Other Frames check box is used to allow other frames to send their frame mapping information to the selected frame.

<b>IMPORTANT:</b> This	s check box does not remain selected once the frame has been tested and accepted.

**NOTE:** Each frame in a valid system must be defined in a table map to be able to communicate with the other frames in the system.

#### **Apply Button**

The **Apply** button is used to accept the modifications you make and send them to the Intercom System. Once the modifications have been applied, AZedit displays the message below and then reboots itself.



FIGURE 14. Apply Button message



#### **Test Button**

The **Test** button is used to test the frame mapping configuration you create. Once you have tested your frame map configuration, press the **Apply** button to implement the modifications you make. The message below appears if the frame map is deemed valid.



FIGURE 15. Frame Mapping Table Valid message

#### **Done Button**

The Done button is used to close the Frame Mapping window.

#### Select Frame Window

The Select Frame window, shown in Figure 16, is used to select a Frame (IP Address and MAC Address) to include in the Frame Mapping table for your TBX-2 Intercom System.

Se	elect Frame					<u>? ×</u>
	IP Address 1	MAC Address 1	IP Address 2	MAC Address 2		
	192.168.1.38	80:00:00:ff:80				
					OK	Cancel

FIGURE 16. Select Frame Window

#### **IP Address 1 Column**

The IP Address 1 column displays the IP Address of the active master controller in the ADAM/ADAM-M frame.

#### MAC Address 1 Column

The MAC Address 1 column displays the MAC Address of the active master controller in the ADAM/ADAM-M frame.

#### **IP Address 2 Column**

The IP Address 2 column displays the IP Address of the standby master controller, if available, in the ADAM/ADAM-M frame.

#### **MAC Address 2 Column**

The MAC Address 2 column displays the MAC Address of the standby master controller, if available, in the ADAM/ADAM-M frame.

#### **OK Button**

The **OK** button is used to accept the selections made and close the window.

#### **Cancel Button**

The Cancel button is used to reject the selections made and close the window.

#### TBX-2 Links Status Window

The **TBX-2 Links Status** window, shown in Figure 17, is used to check the status of the TBX-2 card status. From this window, you can also download firmware. For more information, see "Firmware Upgrades" on page 63.

File (	e <b>dit (ASF</b> Inline Au	:Xiong) - Ithenticati	[ONLINE]	- TBX Lii View Sv	n <b>k Stat</b> /stem	us Alphas	Status	Options	s Load	aina Heli	D											<u>s</u> ×
	🖻 🖬	84	ø 🖻 e	2 2	<b>×</b>   ≚	20	1 8	; 🖻 I	8   0	2   🎉 -	F -	<b>4</b> 0 m	) 🤣	K? 🛈 🛛								
Т	BX 🔺	Comr	n (A)	) Link U	p/Dn	(A)	Partner	(B	) Link	Up/Dn	(B) F	Partner	(C)	Link Up/[	Dn	(C) P	artner	Audio /	A Aud	io B	Audio C	
	: 009 2 : 009	OK OK		-			-		Ok Ok	<		2 1		-			-	-	257- 001-	512 256	-	
		•	••	•#•	•- <u>F</u>		≈K_	<u>_</u>	4		*	• <b>7</b> 5•	~+		A				R			
KP	5 PLs	IFBs	IFB SLs	SLs	RYs	ISOs	GPIs	UPL	URs	AGRPs	XPTs	RVON	Vox	Gains	Alpha	is	Keypanel	s MC	I/O Cards			
For Help	, press Fi														LOC	L TBX	( 001		JSERS:1	NLINE	ADAM C	0

FIGURE 17. TBX-2 Links Status Window

#### **TBX-2** Column

The TBX-2 column displays TBX-2 cards listed by frame and slot number.

**EXAMPLE:** 2:009 indicates the TBX-2 card is in Frame 2 and occupying slot 9.

#### **Comm Column**

The Comm column displays the communications status of the TBX-2 card.

#### (A) Link Up/Dn Column

The (A) Link Up/Dn column displays the status of the links on the TBX-2 port A.

Any of the following indicators may appear:

"—" The link is down.OK The link is up for # hops.

#### (A) Partner Column

The (A) Partner column displays frame number of the TBX-2 card to which the connection is made. For example, if Frame 1's A connector is connected to Frame 2, a 2 appears under the (A) Partner column.

**NOTE:** If there are multiple TBX-2 cards in a frame, use the slot number to determine the card connection being used.

#### (B) Link Up/Dn Column

The (B) Link Up/Dn column displays the status of the links on the TBX-2 port B.

Any of the following indicators may appear:

"—" The link is disabled.

*OK* The link is active for # hops.

#### (B) Partner Column

The **(B)** Partner column displays frame number of the TBX-2 card to which the connection is made. For example, if Frame 1's B connector is connected to Frame 2, a 2 appears under the (B) Partner column.

NOTE: If there are multiple TBX-2 cards in a frame, use the slot number to determine the card connection being used.

#### (C) Link Up/Dn Column

The (C) Link Up/Dn column displays the status of the links on the TBX-2 port C.

Any of the following indicators may appear:

"—" The link is disabled. If this is seen, the intercom ports were not configured correctly. See "Configuration" on page 28 to read how to configure the ports.

*OK* The link is active for # hops.

#### (C) Partner Column

The **(C) Partner** column displays frame number of the TBX-2 card to which the connection is made. For example, if Frame 1's C connector is connected to Frame 2, a 2 appears under the (C) Partner column.

**NOTE:** If there are multiple TBX-2 cards in a frame, use the slot number to determine the card connection being used.

#### **TBX-2** Technical Manual

#### Audio A Column

The Audio A column displays the ports assigned to the Audio A link.

#### **Audio B Column**

The Audio B column displays the ports assigned to the Audio B link.

#### Audio C Column

The Audio C column displays the ports assigned to the Audio C link.

#### Intercom Alarms

The **Intercom Alarms** window, shown in Figure 18, displays alarms that occur in the intercom and an indication of whether they have been resolved or not. If an alarm has not been resolved, it is highlighted in yellow on the status bar (see Figure 18). Once an alarm has been resolved, it is automatically deleted out of the list after five (5) minutes.



FIGURE 18. Intercom Alarm Indication

To open the Intercom Alarms window, do the following:

1. Double-click the **yellow highlighted alarm** in the status bar. OR

From the Status menu, select Alarms.

) - [ONLINE] - Intercom Alarn	າຣ								
Edit View System Alphas	Status	Options	Logging	Help					
/ 睢 🖉 🦱 🗶 🗠 으	Port Mast	er Control	er						
🌣 🙂 🚔 💛 🕋 🔽 🖷	Standby Controller TBX Links								
Alarm Time 🔺	PAP	and LCP-1	02		scr				
12/01/08, 15:54:12	UIO-	256			au				
12/01/08, 15:54:15	Softv	vare Versio	ons Ctrl+	-Shift+V	▶ Etl				
12/01/08, 15:54:15	Trun	k Master			Etl				
12/01/08, 15:54:15	RVO	V Connecti	ions		EtI				
12/02/08, 08:59:07 12/02/08, 13:59:50	Alarr	ns			= pa Etl				
12/02/08, 13:59:50			-	N	lo Etl				
12/02/08, 13:59:50			-	N	lo Etl				
12/02/08 13:50:50			-	N	lo qu				

The Intercom Alarms window appears.



#### **Frame Column**

The Frame column displays the frame affected by the warning or alarm.

#### **Alarm Time Column**

The Alarm Time column displays the date and time (in 24-hour clock time) the alarm or warning occurred.

#### **Resolved Time Column**

The Resolved Time column displays the date and time (in 24-hour clock time) the alarm or warning was resolved.

#### **Description Column**

The Description column displays a description of the alarm or warning.

#### Hiding and Clearing Alarms

Some alarms can be cleared, as shown in the example below. Other alarms, such as loss of the backplane clock, can be hidden but cannot be cleared. The only way to clear these alarms from the window is to resolve them.

- **EXAMPLE:**Lost communications with the Trunk Master. In this case, the alarm is not regenerated unless the alarm condition is resolved, and then recurs. This means the Master Controller starts communicating with the Trunk Master again, and then loses communications again.
- NOTE: You can also hide certain alarm type by selecting Hide this alarm type, if desired.

#### To hide or clear alarms/alarm types out of the Intercom Alarms window, do the following:

1. Right-click the **alarm** you want to clear.

A popup menu appears. From the popup menu, select Hide this alarm, Clear this alarm or Hide this alarm type.



## Logging Window

The AZedit **Logging** window, shown in Figure 19, displays the log messages about the events that have occurred in the cluster. The log messages are kept locally on each frame. These normally are identical, with the exception of when the frames are re-synchronizing, across the intercom cluster.

Image: Section of the section of th	AZedit - [ONLINE] - Log Viewer      File Online Arthentication Filt View System Alphas Status Onlinos Longing Help	<u>B</u> ×
Image: Solution (010-TEST)       Image: Solution (010-TEST) <td< td=""><td>□ 🕫 탑 🖬 🚭 🥒 🗶 🖌 요 요 🖉 ※ 助 🖻 Q 🐌 - 耳 - 🕈 🌵 🕔 段 🛛 🧾</td><td></td></td<>	□ 🕫 탑 🖬 🚭 🥒 🗶 🖌 요 요 🖉 ※ 助 🖻 Q 🐌 - 耳 - 🕈 🌵 🕔 段 🛛 🧾	
Image Files       Image Location       5/ 2/2008         [08: 54: 20. 05]       [010-TEST]       [00-PP-002-DASS]       [TY]         [08: 54: 30. 01]       [010-TEST]       [00-PP-002-CAM7]       [TY]         [08: 54: 52. 01]       [010-TEST]       [00-PP-002-CAM7]       [TY]         [08: 54: 52. 01]       [010-TEST]       [00-PP-002-CAM7]       [TY]         [08: 54: 52. 01]       [010-TEST]       [00-PP-002-CAM7]       [TN]         [08: 55: 00. 10]       [010-TEST]       [00-PP-022-CAM7]       [TN]         [08: 55: 16. 08]       [010-TEST]       [00-PP-022-CAM5]       [LY]         [08: 55: 16. 08]       [010-TEST]       [00-PP-024-CAM5]       [LY]         [09: 55: 16. 08]       [010-TEST]       [00-PP-024-CAM5]       [LY]     <		
[08:54:20.05] (010-TEST] [00-PP-002-DASS] [TY] [08:54:28.01] (010-TEST] (00-PP-002-DASS] [TY] [08:54:48.34] (010-TEST] [00-PP-002-DASS] [TN] [08:55:20.1] (010-TEST] [00-PP-002-DASS] [TN] [08:55:20.1] (010-TEST] [00-PP-024-CAM5] [LY] [08:55:16.08] [010-TEST] [00-PP-024-CAM5] [LY]	Log Files 5/ 2/2008	•
Image:	[08:54:20.05] [010-TEST] [00-PP-002-DASS] [TY] [08:54:28.01] [010-TEST] [08-PP-009-BRIT] [TY] [08:54:48.34] [010-TEST] [00-PP-002-DASS] [TN] [08:54:20.01] [010-TEST] [00-PP-002-DASS] [TN] [08:55:20.10] [010-TEST] [00-PP-026-CAM7] [TN] [08:55:16.08] [010-TEST] [00-PP-024-CAM5] [LY]	
	KPS PLS IFBS LS SLS RYS ISOS GPIS UPL URS AGRPS XPTS RVON Vox Gains Apphas Keypanels MC I/O Cards	
##・## *### *### *## *## ### ### ###	HIT IN HIT IN A CARPS	

FIGURE 19. Log Viewer Window

### Configure Logging Window

The **Configure Logging** window, shown in Figure 20, is used to configure the connection type of the AZedit session where log messages are sent when the Log to File option is selected. The Configure Logging window is only accessible when connected to AZedit using the J1 serial connection or using the start AZedit session.

Configure Logging
When "Log to File" is enabled, the intercom will send log messages to the AZedit session connected via:
• II
C 13
⊙ J <u>1</u> 0
C Ethernet at IP Address 0.0.0.0 <
Apply this change to:
<ul> <li>All frames</li> </ul>
C This frame only
OK Cancel

FIGURE 20. Configure Logging Window

#### **J1 Radio Button**

The J1 radio button indicates log messages are sent to another AZedit session connected serially over the J1 port.

**NOTE:** The only AZedit session allowed to configure the log destinations is the session currently configured as the start destination for log messages or the main serial connection connected to J1 of the ADAM/ADAM-M MC breakout panel. Restrictions can be set up for the AZedit destination session to restrict access to the Configure Logging window.

#### **J9 Radio Button**

The J9 radio button indicates log messages are sent to another AZedit session connected serially over the J9 port.

#### **J10 Radio Button**

The J10 radio button indicates log messages are sent to another AZedit session connected serially over the J10 port.

#### **Ethernet Radio Button**

The Ethernet radio button indicates log messages are sent to another AZedit session connected over Ethernet.

#### **IP Address Field**

The **IP** Address field is used to enter the IP Address of the computer running the AZedit session you want to send log messages to over Ethernet.

#### **All Frames Radio Button**

The All Frames radio button is used to apply all changes made to the Log Configuration to all frames connected to this frame.

#### **This Frame Only Radio Button**

The This Frame Only radio button is used to allow the log destination for each frame to be different.

**NOTE:** The overall log status (enabled or disabled) applies to all frames.

## CHAPTER 4 Firmware Upgrades

### Download Firmware to the TBX-2 Card

To download firmware to the TBX-2 card, do the following:

- 1. From the Status menu in AZedit, select **Software Versions**. *A flyout menu appears*.
- 2. From the flyout menu, select IO Cards. *The I/O Card Version Information Window appears.*

File Online Authentication Edit Vew System Alphas Status Options Looping Help         Image: Status Options Looping Help	💁 AZedit (ASF:Xiong) - [ONLINE] - 1/O Card Version Information 📃 🖪	×
Image:	File Online Authentication Edit View System Alphas Status Options Logging Help	
Stat       Version         1:001       ADAM AD-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:002       ADAM AD-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:004       ADAM AD-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:005       ADAM AD-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:006       ADAM AD-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:007       n6         1:008       ADAM AD-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:009       n6         1:000       n6         1:001       ADAM AD-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:007       n6         1:001       ADAM AD-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:001       ADAM AD-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:001       ADAM AD-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:011       ADAM AD-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:017       n6         2:002       n6         2:003       n6         2:004       n6         2:005       n6         2:005       n6         2:005       n6         2:005       n6         2:005       n6         2:005	□ ☞ 階 显 叠   ダ 階 थ ↗ ≭   ♀ ♀ 彡 為 階 6   ♀   ≱・  F・  ♥ ♥ ❷ ●	
Stot // Version       1:001       ADAM A0-16 Card, Version 1.1.0. Jun 6 2005, CRC-ce6e         1:001       ADAM A0-16 Card, Version 1.1.0. Jun 6 2005, CRC-ce6e         1:003       ADAM A0-16 Card, Version 1.1.0. Jun 6 2005, CRC-ce6e         1:004       ADAM A0-16 Card, Version 1.1.0. Jun 6 2005, CRC-ce6e         1:005       ADAM A0-16 Card, Version 1.1.0. Jun 6 2005, CRC-ce6e         1:006       ADAM A0-16 Card, Version 1.1.0. Jun 6 2005, CRC-ce6e         1:007       r/a         1:008       ADAM A0-16 Card, Version 1.1.0. Jun 6 2005, CRC-ce6e         1:009       ADAM A0-16 Card, Version 1.1.0. Jun 6 2005, CRC-ce6e         1:000       r/a         1:011       r/a         1:011       ADAM A0-16 Card, Version 1.1.0. Jun 6 2005, CRC-ce6e         1:010       r/a         1:011       ADAM A0-16 Card, Version 1.1.0. Jun 6 2005, CRC-ce6e         1:012       ADAM A0-16 Card, Version 1.1.0. Jun 6 2005, CRC-ce6e         1:014       ADAM A0-16 Card, Version 1.1.0. Jun 6 2005, CRC-ce6e         1:015       ADAM A0-16 Card, Version 1.1.0. Jun 6 2005, CRC-ce6e         1:016       ADAM A0-16 Card, Version 1.1.0. Jun 6 2005, CRC-ce6e         1:017       r/a         2:002       r/a         2:003       r/a         2:004       r/a <td< th=""><th></th><th>_</th></td<>		_
1:001       ADAM AU-16 Card, Version 11.0, Um 6 2005, CRC-ee6e         1:002       ADAM AU-16 Card, Version 11.0, Um 6 2005, CRC-ee6e         1:003       ADAM AU-16 Card, Version 11.0, Um 6 2005, CRC-ee6e         1:004       ADAM AU-16 Card, Version 11.0, Um 6 2005, CRC-ee6e         1:005       ADAM AU-16 Card, Version 11.0, Um 6 2005, CRC-ee6e         1:004       ADAM AU-16 Card, Version 11.0, Um 6 2005, CRC-ee6e         1:005       ADAM AU-16 Card, Version 11.0, Um 6 2005, CRC-ee6e         1:007       rds         1:008       ADAM AU-16 Card, Version 11.0, Um 6 2005, CRC-ee6e         1:009       ADAM AU-16 Card, Version 11.0, Um 6 2005, CRC-ee6e         1:011       ADAM AU-16 Card, Version 11.3, Ot 4 2007, CRC-902c         1:013       ADAM AU-16 Card, Version 11.3, Ot 4 2007, CRC-902c         1:014       ADAM AU-16 Card, Version 11.3, Ot 4 2007, CRC-902c         1:015       ADAM AU-16 Card, Version 11.0, Jun 6 2005, CRC-ee6e         1:017       rds         1:018       ADAM AU-16 Card, Version 11.0, Jun 6 2005, CRC-ee6e         1:017       rds         1:018       ADAM AU-16 Card, Version 11.0, Jun 6 2005, CRC-ee6e         1:017       rds         1:017       rds         1:016       rds         1:017       rds         2:005 <th>Slot A Version</th> <th>4</th>	Slot A Version	4
1:002       ADAM ADD 16 Card, Version 1.1.0, Um 6 2005, CRC-ce6e         1:004       ADAM ADD 16 Card, Version 1.1.0, Um 6 2005, CRC-ce6e         1:005       ADAM ADD 16 Card, Version 1.1.0, Um 6 2005, CRC-ce6e         1:006       ADAM ADD 16 Card, Version 1.1.0, Um 6 2005, CRC-ce6e         1:007       r/ds         1:008       r/ds         1:009       ADAM ADD 16 Card, Version 1.1.0, Um 6 2005, CRC-ce6e         1:000       r/ds         1:0010       r/ds         1:0111       ADAM ADD 16 Card, Version 1.1.0, Um 6 2005, CRC-ce6e         1:0116       ADAM ADD 16 Card, Version 1.1.0, Um 6 2005, CRC-ce6e         1:0117       r/ds         1:016       ADAM ADD 16 Card, Version 1.1.0, Um 6 2005, CRC-ce6e         1:017       r/ds	1:001 ADAM AIO-16 Card, Version 1.1.0, Jun 6 2005, CRC=ce6e	
1:003       ADAMA ALO-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:005       ADAMA ALO-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:005       ADAMA ALO-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:007       r/s         1:008       ADAMA ALO-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:009       ADAMA ALO-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:001       r/s         1:001       r/s         1:002       ADAMA ALO-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:011       ADAMA ALO-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:012       ADAMA ALO-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:013       ADAMA ALO-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:014       ADAMA ALO-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:017       r/s         1:018       ADAMA ALO-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:017       r/s         2:001       r/s         2:002       r/s         2:003       r/s         2:004       r/s         2:005       r/s         2:005       r/s         2:005       r/s         2:005       r/s         2:005       r/s <th>1:002 ADAM AIO-16 Card, Version 1.1.0, Jun 6 2005, CHC-cebe</th> <th></th>	1:002 ADAM AIO-16 Card, Version 1.1.0, Jun 6 2005, CHC-cebe	
1:000       ADAM AlO-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:000       ADAM AlO-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:000       r/a         1:000       r/a         1:000       r/a         1:001       r/a         1:002       r/a         1:003       r/a         1:001       r/a         1:002       r/a         1:001       r/a         1:001       r/a         1:002       r/a         1:001       r/a </th <th>1:003 ADAM AIO-10 Cardy Version 11.0.004 6 2005, CHC-cebe</th> <th></th>	1:003 ADAM AIO-10 Cardy Version 11.0.004 6 2005, CHC-cebe	
1:006       ADAM AD-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:007       nde         1:008       ADAM AD-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:011       ADAM AD-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:012       ADAM AD-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:013       ADAM AD-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:014       ADAM AD-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:015       ADAM AD-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:016       ADAM AD-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:017       ADAM AD-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:017       nde         2:002       rvia         2:003       rvia         2:004       rvia         2:005       rvia         2:006       rvia         2:007       rvia         2:008       rvia         2:009       rvia         2:001       rvia         2:002       rvia         2:003       rvia         2:004       rvia         2:005       rvia         2:001       rvia         2:002       rvia         2:003       rvi	1:005 ADAM AIO-16 Card, Version 1.1.0, Jun 6 2005, CRC=ce6e	
1:007       n/a         1:008       ADAM Tri-Buz Expander, Version 0.0.4. Aug 08 2008. Concrete         1:010       n/a         1:011       n/a         1:011       n/a         1:011       ADAM Alo-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:012       ADAM Alo-16 Card, Version 1.1.3, Oct 4 2007, CRC-902c         1:013       ADAM Alo-16 Card, Version 1.1.3, Oct 4 2007, CRC-902c         1:014       ADAM Alo-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:015       ADAM Alo-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:016       ADAM Alo-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:017       n/a         2:001       n/a         2:002       n/a         2:002       n/a         2:003       n/a         2:004       n/a         2:005       n/a         2:004       n/a         2:005       n/a         2:001       n/a         2:002       n/a         2:003       n/a         2:004       n/a         2:005       n/a         2:006       n/a         2:007       n/a         2:008       n/a         2:0101	1:006 ADAM AlO-16 Card, Version 1.1.0, Jun 6 2005, CRC=ce6e	
1:009       n/a         1:001       n/a         1:011       ADAM TH-Bus Expander, Version 10.4. Aug 08 2009. (Concession         1:011       ADAM Alo-16 Card, Version 1.1.0, Jun 6 2005. CRC=ce6e         1:012       ADAM Alo-16 Card, Version 1.1.3, Oct 4 2007. CRC=902c         1:013       ADAM Alo-16 Card, Version 1.1.3, Oct 4 2007. CRC=902c         1:014       ADAM Alo-16 Card, Version 1.1.0, Jun 6 2005. CRC=ce6e         1:015       ADAM Alo-16 Card, Version 1.1.0, Jun 6 2005. CRC=ce6e         1:016       ADAM Alo-16 Card, Version 1.1.0, Jun 6 2005. CRC=ce6e         1:017       n/a         2:002       n/a         2:003       n/a         2:004       n/a         2:005       n/a         2:006       n/a         2:007       n/a         2:008       n/a         2:009       n/a         2:001       n/a         2:002       n/a         2:003       n/a         2:004       n/a         2:005       n/a         2:001       n/a         2:002       n/a         2:003       n/a         2:004       n/a         2:010       n/a         2:011	1:007 n/a	-
1:000       ALDAM INTERDUE Expander, Version 1.10, Jun 6 2005, CRC-reefe         1:011       ADAM AD-16 Card, Version 1.1.0, Out 6 2005, CRC-reefe         1:012       ADAM AD-16 Card, Version 1.1.3, Oct 4 2007, CRC-902c         1:013       ADAM AD-16 Card, Version 1.1.3, Oct 4 2007, CRC-902c         1:014       ADAM AD-16 Card, Version 1.1.0, Uut 6 2005, CRC-reefe         1:015       ADAM AD-16 Card, Version 1.1.0, Uut 6 2005, CRC-reefe         1:016       ADAM AD-16 Card, Version 1.1.0, Uut 6 2005, CRC-reefe         1:017       r/a         2:001       r/a         2:002       r/a         2:003       r/a         2:004       r/a         2:005       r/a         2:006       r/a         2:007       r/a         2:008       r/a         2:009       r/a         2:001       r/a         2:001       r/a         2:001       r/a         2:002       r/a         2:003       r/a         2:004       r/a         2:005       r/a         2:006       r/a         2:007       r/a         2:008       r/a         2:0109       r/a         2:011<		
1:011       ADAM Alo-16 Card, Version 1.1.0, Jun 8 2005, CRC~ce8e         1:012       ADAM Alo-16 Card, Version 1.1.3, Oct 4 2007, CRC~902c         1:013       ADAM Alo-16 Card, Version 1.1.3, Oct 4 2007, CRC~902c         1:014       ADAM Alo-16 Card, Version 1.1.0, Jun 8 2005, CRC~ce8e         1:015       ADAM Alo-16 Card, Version 1.1.0, Jun 6 2005, CRC~ce8e         1:016       ADAM Alo-16 Card, Version 1.1.0, Jun 8 2005, CRC~ce8e         1:017       r/4         2:001       r/4         2:002       r/6         2:003       r/4         2:004       r/6         2:005       r/4         2:006       r/4         2:007       r/6         2:008       r/4         2:009       r/6         2:001       r/6         2:002       r/6         2:003       r/8         2:004       r/6         2:005       r/4         2:006       r/4         2:007       r/6         2:008       r/8         2:009       r/6         2:010       r/6         2:011       r/6         2:012       r/6         2:013       r/6         2:01	1:0109 ADAM Tr-Bus Expander, Version 0.0.4, Aug 08 2008, U Download firmware	
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1:013       ADAM AD-16 Card, Version 1.1.3, Oct 4 2007, CRC-902c         1:014       ADAM AD-16 Card, Version 1.1.3, Oct 4 2007, CRC-902c         1:015       ADAM AD-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:016       ADAM AD-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:017       r/a         2:001       r/a         2:002       r/a         2:003       r/a         2:005       r/a         2:006       r/a         2:007       r/a         2:008       r/a         2:009       r/a         2:001       r/a         2:011       r/a         2:012       r/a         2:013       r/a         2:014       r/a         VPS       IFB         IFB       IFB       SLS       SLS       RYS         IFB       IFB       SLS       SLS       RYS       ISOS       GPIS         VPS       IFB       IFB       SLS       S	1:012 ADAM AIO-18 Card, Version 1.1.3, Oct 4 2007, CRC=902c	
1:014       ADAM AD-16 Card, Version 1.1.3, Ott 4 2007, CRC-902c         1:015       ADAM AD-16 Card, Version 1.1.0, Jun 6 2005, CRC-sc6e         1:016       ADAM AD-16 Card, Version 1.1.0, Jun 6 2005, CRC-sc6e         1:017       n/a         2:001       n/a         2:002       n/a         2:003       n/a         2:004       n/a         2:005       n/a         2:006       n/a         2:007       n/a         2:008       n/a         2:009       n/a         2:001       n/a         2:002       n/a         2:003       n/a         2:004       n/a         2:005       n/a         2:006       n/a         2:007       n/a         2:008       n/a         2:009       n/a         2:001       n/a         2:011       n/a         2:012       n/a         2:014       n/a         KPS       IFB       IFB SLS       SLS       RYS         KPS       IFB       IFB SLS       SLS       RYS       ISOS       GPIs         KPS       IFB SLS       SLS	1:013 ADAM AIO-16 Card, Version 1.1.3, Oct 4 2007, CRC=902c	
1:015       ALDAM AUC-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:016       ADAM AUC-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce6e         1:017       r/a         2:002       r/a         2:003       r/a         2:004       r/a         2:005       r/a         2:006       r/a         2:007       r/a         2:008       r/a         2:009       r/a         2:001       r/a         2:002       r/a         2:003       r/a         2:004       r/a         2:005       r/a         2:010       r/a         2:011       r/a         2:012       r/a         2:013       r/a         2:014       r/a         V       r/a         V/a       r/a         V/a       r/a         V/a       r/a         V/a       r/a         V/a <th>1:014 ADAM AIO-16 Card, Version 1.1.3, Oct 4 2007, CRC=902c</th> <th></th>	1:014 ADAM AIO-16 Card, Version 1.1.3, Oct 4 2007, CRC=902c	
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2:001 m/s 2:002 m/s 2:003 m/s 2:004 m/s 2:005 m/s 2:005 m/s 2:006 m/s 2:006 m/s 2:006 m/s 2:009 m/s 2:009 m/s 2:009 m/s 2:009 m/s 2:000 m/s 2:001 m/s 2:011 m/s 2:011 m/s 2:012 m/s 2:012 m/s 2:014 m/s 2:014 m/s 2:014 m/s 2:014 m/s 2:014 m/s 2:014 m/s 2:014 m/s 2:015 m/s 2:014 m/s 2:014 m/s 2:015 m/s 2:015 m/s 2:010 m/s 2:000 m/s	1.017 Ma	
2:002       n/a         2:003       n/a         2:005       n/a         2:006       n/a         2:005       n/a         2:006       n/a         2:005       n/a         2:006       n/a         2:007       n/a         2:008       n/a         2:009       n/a         2:010       n/a         2:011       n/a         2:012       n/a         2:014       n/a         2:014       n/a         XPS       PLS       IFBS       SLS       SLS       RYS       ISOS GPLS       UPL       UR       AGRPS XPTS       W/n       Yox       Gains       Alphas       Keypanels       Keypanels       Keypanels       Mc       I/o       Gains       Alphas       I/o       Gains       Alphas       Keypanels	2:001 n/a	
2:003       n/a         2:005       n/a         2:006       n/a         2:007       n/a         2:008       n/a         2:009       n/a         2:001       n/a         2:002       n/a         2:003       n/a         2:011       n/a         2:012       n/a         2:013       n/a         2:014       n/a         IIII       IIII         KPS       PLS         IFBS       SLS         SLS       SLS         RYS       ISOS         Gains       Alphas         Keyparales       MC         I/O       Gains	2:002 n/a	
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2:005 n/8 2:007 n/8 2:008 n/8 2:009 n/8 2:010 n/8 2:011 n/8 2:012 n/8 2:012 n/8 2:012 n/8 2:013 n/8 2:014 n/8 2:014 n/8 2:015 N/8 2:015 N/8 2:016 N/8 2:017 n/8 2:017 n/8 2:017 n/8 2:018 N/8 2:018 N/8 2:018 N/8 2:019 N/8 2:010 N/8 2:00 N	2:004 n/a	
2:007 n/s 2:008 n/s 2:009 n/s 2:009 n/s 2:010 n/s 2:010 n/s 2:011 n/s 2:012 n/s 2:013 n/s 2:014 n/s <b>X</b> <b>X</b> <b>X</b> <b>X</b> <b>X</b> <b>X</b> <b>X</b> <b>X</b>	2.005 ma	
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2:009 m/a 2:010 m/a 2:011 m/a 2:012 m/a 2:014 m/a KPS PLS IFB SLS SLS RYS ISOS GPIS UPL URS AGRPS XPTS RVON Vox Gains Alphas K. L/O Cards Keypanels M. L/O Cards	2:008 n/a	
2:010 n/a 2:011 n/a 2:012 n/a 2:013 n/a 2:014 n/a 2:014 n/a KPS PLS IFBS LIS SLS RYS ISOS GPIS UPL URS AGRPS XPTS RVON Vox Gains - Alphas Keypanels MC I/O Grds	2:009 n/a	
2:012       n/a         2:013       n/a         2:014       n/a         2:014       n/a         KPS       PLS         IFBS       IFB         SIF       IFF         IFF       IFF         SIF       IFF         IFF       IFF         SIF       IFF         IFF	2:010 n/a	
2:013 m/s 2:014 m/s	2:011 N/a 2:012 n/a	
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III       III       III       IIII       IIIII       IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII		
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LOCL JTBX JUD9 JUSERS:1 JONLINE JADAM JUU	LOCL [TBX  009   USERS:1   ONLINE  ADAM   O	0
🏄 Start 🛛 🕝 🥥 📔 AZedit (ASF:Xiong) - [ 🦉 untitled - Paint 🔰 8:36 AM	🏄 Start 🛛 🞯 🥭 🗍 📴 AZedit (ASF:Xiong) - [ 🦉 untitled - Paint 🔰 🖓 🕸 🕸 🐙 😢 8:36 /	АМ

- **3.** Right-click on the **TBX-2 card** you want to download the firmware update to. *A popup menu appears*.
- **4.** From the popup menu, select **Download firmware...**. *The Firmware Download window appears*.
- 5. Using the Look in: drop down menu, navigate to the folder where the firmware is located.

#### 6. Click Open.

The Download Device Firmware window appears.

D	ownload Device Firm	iware	? ×
	- Download Information	ı ———	 Begin Download
	Type of Download:	ТВХ	Dogingonnood
	Selected Device(s):	9	
	File to download:	tribus.hex	
	- Download Status		
			<u>C</u> ancel

#### 7. Click Begin Download.

The download begins. This takes a minute or two to occur.

Download
20M11000

8. When the download is finished, click **OK**.

The TBX-2 card firmware download is complete and a Success message appears.

AZedit (ASF:Xiong) - [UNLINE] - 1/0 Card Version Information	. 8 ×
File Online Authentication Edit View System Alphas Status Options Logging Help	
D 😅 🕆 🖬 🖉 🤌 🖉 🎟 🖉 🛹 🗶 으 오 🥒 🔏 🗠 🖻 🔍 🚱 🖡 F - 🚺 👐 🖗 🔗 🧐 🖪	
Slot 🔺 Version	<b></b>
1:001 ADAM AlO-16 Card, Version 1.1.0, Jun 6 2005, CRC=ce6e	-
1:002 ADAM AIO-16 Card, Version 1.1.0, Jun 6 2005, CRC=ce6e	
1:003 ADAM AIO-16 Card, Version 1.1.0, Jun 6 2005, CRC=ce6e	
1:004 ADAM AIO-16 Card, Version 1.1.0, Jun 6 2005, CRC=ce6e	
1:005 ADAM AIU-16 Card, Version 1.1.0, Jun 6 2005, CRC-ce66	
1:007 m/a	
1:008 m/a	
1 : 009 ADAM Tri-Bus Expander, Version 0.0.4, Aug 08 2008, CRC=CF08	
1:010 n/a Download Device Firmware	
1:011 ADAM AIO-16 Card, Version 1.1.0, Jun 6 20 Download Information	
1: 012 ADAM AIO-16 Card, Version 1.1.3, Oct	
1:013 ADAM AID-16 Card, Version 11.3, Oct	
1:015 ADAM AIO-16 Card, Version 1.1.0, Jun 1 AZedit has successfully completed sending the firmware.	
1:016 ADAM AIO-16 Card, Version 1.1.0, Jur	
1:017 n/a Please use the Software Version screens to verify the success of the download	
2:001 n/a Derore removing or re-powering the target device(s).	
2:002 n/a	
2:00% m/a	
2:007 n/a	
2:008 n/a	
2:009 n/a	
2:010 n/a	
2.012 ma	
2:014 n/a	-
KPS PLS INDS INDS INDS SLS KYS ISOS GPIS UPL URS AGRPS XPTS RVON Vox   Gains   Alphas   Keypanels MC I/O Cards	
For Help, press F1 LOCL TBX 009 USERS:1 ONLINE  ADAM	00
🦺 Start   🕝 🥔   📴 AZedit (ASF:Xiong) - [ 🦉 dnld3.bmp - Paint	40 AM

#### 9. Click OK.

The success message and Download Device Firmware window closes.

- From the Status menu, select I/O Cards. The IO Card Status window appears.
- 11. Verify the TBX-2 card firmware has been updated.
- **CAUTION:** Do not power down the frame or remove the TBX-2 card from the frame until you have verified the new version information from AZedit. If the card loses power during download, undesirable results may occur.

#### Download the Bootloader File to the TBX-2 Card (v1.2.2 or later)

#### To download the bootloader file to the TBX-2 Card, do the following:

- 1. On the TBX-2 front card, press and hold the **Reset button**, and then press and hold both the 1 and 2 front-panel buttons.
- 2. While still holding the 1 and 2 front-panel buttons, release the **Reset button**.
- Wait for 1second, and then release the 1 and 2 front-panel buttons. *CPU remains in boot loader mode. Boot loader allows either the boot loader or the client code to be downloaded.*

**4.** From the AZedit menu bar, select **Status**|**Software Version**| **I/O Card**. *The I/O Card Version window appears.* 

	AZedit - [ONLI	NE] - I/O Card Version Information
Fi	ile Online Au	thentication Edit View System Alphas Status Options Logging Help
4 4 4 4	D 🖻 🖶 📙	🎒   🖉 🖻 🖉 🥒 🗶   🕰 🖉   🐰 🖻 💼   Q,   🍑 🕇   F 🕶   🗰 👘   🧐
		1
	Slot 🛆	Version
	1:001	n/a
	1:002	ADAM AIO-16 Card, Version 1.1.4, Dec 10 2008, CRC=f044
	1:003	n/a
	1:004	n/a
	1:005	n/a
	1:006	n/a
	1:007	n/a
	1:008	ADAM TBX-2 Card, Version 1.2.1, Nov 05 2015, CRC=D944
	1:009	ADAM TBX-2 Card, Version 1.2.0, Oct 16 2015, CRC=DB
	1:010	n/a
	1:011	n/a
	1:012	n/a
	1:013	n/a
	1:014	ADAM MADI-2 Card, Version 2.2.1, Oct 08 2015, CRC=a500
	1:015	n/a
	1:016	n/a
	1:017	n/a
	2 : 001	n/a
	2:002	ADAM AIO-16 Card, Version 1.3.0, Aug 17 2010, CRC=8e.c
	2 : 003	ADAM MADI Card, Version 2.2.0, Jul 06 2015, CRC=0a16
	2 : 004	ADAM MADI-2 Card, Version 2.2.2, Nov 05 2015, CRC=05
	2:005	ADAM TBX Card, Version 1.2.1, Nov 05 2015, CRC=D948
	2:006	ADAM TBX-2 Boot Downloader, Version 1.2.1, Nov 05 20
	2:007	n/a Download firmware

5. Right-click the **TBX-2 card you want to update**. *A Download Firmware... fly-out menu appears.* 

6. Click **Download Firmware...** . A Windows Explorer folder appears.

#### **TBX-2** Technical Manual

#### 7. Click Open.

The Download Device Firmware window appears.

D	ownload Device Firm	ware	? 💌
	Download Information	ı ————	Begin Download
]	Type of Download:	ТВХ	
	Selected Device(s):	23	
	File to download:	tribus_boot.hex	
	<ul> <li>Download Status</li> <li>Idle</li> </ul>		
			Cancel

#### 8. Click Begin Download.

The file begins to download to the TBX-2 card. A progression bar displays the progress of the download. Once the bootloader file is completely downloaded, the card automatically reboots. This can take up to 1.5 minutes.

Download Device Firmware	? 🔀
Download Information	Begin Download
Type of Download: TBX	Dogino on noda
Selected Device(s): 23	
File to download: tribus_boot.hex	
Download Status Downloading image	
3%	Abort

**IMPORTANT:** Multiple cards can be update at once. Take care to set all TBX-2 cards in bootloader mode before downloading the file (steps 1–3)

Download the Bootloader File to the TBX-2 Card (v1.1.0 or later)

To download the bootloader file to the TBX-2 Card, do the following:

- 1. Remove the TBX-2 card from the frame.
- 2. On JA 1, short pins 2 and 3 together.
- **3**. Replace the TBX-2 card in the frame.
- **4.** Hold in **both of the front-panel buttons and push the Reset button**. *This causes the TBX-2 card to restart in boot download mode.*

5. From the AZedit menu bar, select Status|Software Version| I/O Card. *The I/O Card Version window appears.* 

	AZedit - [ONLI	NE] - I/O Card Version Information
Fi	ile Online Au	thentication Edit View System Alphas Status Options Logging Help
4 4 4 4	D 🖻 🖶 📙	🎒   🖉 🖻 🖉 🥒 🗶   🕰 🖉   🐰 🖻 💼   Q,   🍑 🕇   F 🕶   🗰 👘   🧐
		1
	Slot 🛆	Version
	1:001	n/a
	1:002	ADAM AIO-16 Card, Version 1.1.4, Dec 10 2008, CRC=f044
	1:003	n/a
	1:004	n/a
	1:005	n/a
	1:006	n/a
	1:007	n/a
	1:008	ADAM TBX-2 Card, Version 1.2.1, Nov 05 2015, CRC=D944
	1:009	ADAM TBX-2 Card, Version 1.2.0, Oct 16 2015, CRC=DB
	1:010	n/a
	1:011	n/a
	1:012	n/a
	1:013	n/a
	1:014	ADAM MADI-2 Card, Version 2.2.1, Oct 08 2015, CRC=a500
	1:015	n/a
	1:016	n/a
	1:017	n/a
	2 : 001	n/a
	2:002	ADAM AIO-16 Card, Version 1.3.0, Aug 17 2010, CRC=8e.c
	2 : 003	ADAM MADI Card, Version 2.2.0, Jul 06 2015, CRC=0a16
	2 : 004	ADAM MADI-2 Card, Version 2.2.2, Nov 05 2015, CRC=05
	2:005	ADAM TBX Card, Version 1.2.1, Nov 05 2015, CRC=D948
	2:006	ADAM TBX-2 Boot Downloader, Version 1.2.1, Nov 05 20
	2:007	n/a Download firmware

- 6. Right-click the **TBX-2 card you want to update**. *A Download Firmware... fly-out menu appears.*
- 7. Click **Download Firmware...** . A Windows Explorer folder appears.

#### **TBX-2** Technical Manual

#### 8. Click Open.

The Download Device Firmware window appears.

Download Device Firm	nware	? <mark>×</mark>
Download Informatio	n	Begin Download
Type of Download:	ТВХ	
Selected Device(s):	23	
File to download:	tribus_boot.hex	
Download Status		_
		Cancel

#### 9. Click Begin Download.

The file begins to download to the TBX-2 card. A progression bar displays the progress of the download. Once the bootloader file is completely downloaded, the card automatically reboots. This can take up to 1.5 minutes.

Download Device Firmware	? <mark>- × -</mark>
Download Information	Begin Download
Type of Download: TBX	Dogin Domiloda
Selected Device(s): 23	
File to download: tribus_boot.hex	
Download Status	]
3%	Abort

- **10.** Once the download is complete, remove the TBX-2 card from the frame.
- **11.** On JA 1, remove the short pins 2 and 3 together.
- **12.** Replace the TBX-2 card in the frame.

**IMPORTANT:** Multiple cards can be update at once. Take care to set all TBX-2 cards in bootloader mode before downloading the file (steps 1–3).

## APPENDIX A Ring Architecture

#### Requirements

- MCII-e version 2.8.0 or higher.
- AZedit version 4.4.0 or higher.
- TBX-2 version 1.1.0 or higher.

IMPORTANT:	Each frame in the system must have two (2) TBX-2 cards installed.
	In ADAM, TBX-2 cards are in slots 8 and 9.
	In ADAM-M, TBX-2 cards are in slots 5 and 6.

#### **Ring** Architecture Overview

In a ring-wiring architecture, each frame has TBX-2 links to two (2) other frames. Multiple links are used to pass multiple frames' timeslots from one frame to the next. It is not uncommon for timeslots to be forwarded across multiple links. The links in the Ring Architecture are bidirectional, meaning audio is passed two (2) different ways; thus, the system can be viewed as having two (2) separate, unidirectional rings. In one ring, timeslots are sent clockwise from frame to frame, and in the other ring, the timeslots are sent counterclockwise.

**EXAMPLE:** In a five (5) frame system, timeslots generated in frame one (1) are forwarded clockwise through frames two (2) to five (5). Frame five (5) does not forward the timeslots to frame one (1) because this is where the timeslots originated. Alternately, the timeslots generated in frame one (1) are also forwarded counterclockwise through frames five (5) to two (2).

#### To configure your intercom matrix for ring architecture, do the following:

1. Using figure 21 through figure 27, cable your system for the number of frames you are using.

#### NOTE:

- The maximum number of frames allowed in a ring architecture is nine (9), with the possibility of 880 ports available.
- The largest number of forwarded ports across three fiber links is 768. A frame can contain up to 768 local ports, which are subject to the following limitations:
  - The intercom is limited to 880ports
  - MIN denotes the number of ports in the smallest frame (the frame with the fewest number of ports). The maximum system size is 768+MIN ports.
- 2. Open AZedit.
- **3.** From the Options menu, select **Intercom Configuration**. *A warning appears*.

AZedit	
8	WARNING! Changing these settings will ERASE the online intercom setup and reset the intercom system! You must then restore your setup from disk.
	For further information, press F1.
	Press CANCEL and save the online intercom setup to disk before proceeding!
	OK Cancel

#### 4. Click OK.

6.

The Intercom Configuration window appears.

- **5.** Click **Intercom Sizing Wizard**. *The Intercom Sizing Wizard appears.* 
  - Select ADAM (multi-frame).

Select Intercom Type	? 🛛
Select the type of intercom to configure:	
C Zeus / Zeus-II	
O Zeus-III	
C Zeus-III LE	
C Cronus	
C ADAM-CS	
C ADAM (single-frame)	
<ul> <li>ADAM (multi-frame)</li> </ul>	
<u> </u>	
< <u>B</u> ack <u>N</u> ext > Cancel	Help

- 7. Click Next.
- 8. Select the number of frames in your system (2-9).
**NOTE:** When you have 2–8 frames, ring configuration is an option. However, when you have nine (9) frames, ring configuration is mandatory.

Select Intercom Size	?🛛
Select the number of intercom frames:	
< <u>B</u> ack <u>N</u> ext > Cancel H	lelp

- 9. Click Next.
- **10**. Select the **Ring** check box.

Select Frame Links	?🛛
Select the type of card used to connect frames together:	
C Single Bus Expander Cards (SBX)	
C Dual Bus Expander Cards (DBX)	
Tri-Bus Expander Cards (TBX)	
🔽 Use Redundant Audio	
Enable Test Audio (recommended)	
☑ Use Ring Wiring	
< <u>B</u> ack <u>N</u> ext > Cancel Hel	lp

11. Click Next.

**12.** Using the Allocation table, configure the **port allocations** for your system.

Frame	Туре	Size	Ports
1	ADAM 🝷	16	001 - 016
2	ADAM	16	017 - 032
3	ADAM	16	033 - 048
4	ADAM	16	<mark>049 - 06</mark> 4
5	ADAM	16	065 - 080
6	ADAM-M	16	081 - 096
7	ADAM-M	16	097 - 112

## 13. Click Next.

The Intercom Configuration Wizard closes.

## 14. Click Test.

The Intercom Resizing Test Results window appears.

	10007000		005000
Amount Required:	1929/622	Amount Required:	920088
Amount Available:	28267740	Amount Available:	8125472
Percent Usage:	68%	Percent Usage:	11%
Current # of Alphas:	0	(approximate)	
Current Pool Size:	279000	New Pool Size:	279000
Percent Usage:	0%	Percent Usage:	0%

- **15.** Click **OK**.
- 16. Click Apply.

## **Ring Configurations**

NOTE:

- When you interconnect two cards, you can cross-connect the ports in whatever way you desire. You do not have to connect link A to link A; however, it is recommended to connect A-A, B-B, etc. as this is the easiest method to document.
- •Slots eight and nine in an ADAM frame are interchangeable. For example, you can connect frame 1 (slot eight or nine) to frame 2 (slot eight or nine).



FIGURE 21. ADAM-M Three (3) Frame Ring Configuration



FIGURE 22. ADAM-M Four (4) Frame Ring Configuration



FIGURE 23. ADAM-M Five (5) Frame Ring Configuration



FIGURE 24. ADAM-M Six (6) Frame Ring Configuration



FIGURE 25. ADAM-M Seven (7) Frame Ring Configuration



FIGURE 26. ADAM-M Eight (8) Frame Ring Configuration



FIGURE 27. ADAM-M Nine (9) Frame Ring Configuration

## **Bosch Security Systems, Inc.**

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