RTS™

MCII-e
System Controller Card

User Manual

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WARRANTY NOTICE

See the enclosed warranty card for further details.

UNPACKING AND INSPECTION

Immediately upon receipt of the equipment, inspect the shipping container and the contents carefully for any discrepancies or damage. Should there be any, notify factory service of any discrepancies in the shipment. Notify the freight company and factory service of any shipping damage.

CUSTOMER SUPPORT

Technical questions should be directed to:
Customer Service Department
RTS/Telex Communications, Inc.
12000 Portland Ave South
Burnsville, MN 55337 U.S.A.
Telephone: (800) 392-3497
Fax: (800) 323-0498
Factory Service: (800) 553-5992

This package should include the following:

Component	Description	Qty.
90207734000	MCII-e Front Card Assembly	1
90207734500	MCII-e Back Card Assembly	1
59000240	Screw, M2.5-45x10 PH Pan Head M/S DIN 7985A Zinc	4
93507734000	Master Controller User Manual	1
38110387	RTS Warranty Lincoln 3 year	1
90207562010	Cable, SCSI-III 10 Ft. Amp 750732-4	1

RETURN SHIPPING INSTRUCTIONS

Customer Service Department
Telex Communications, Inc. (Lincoln, Nebraska)
Telephone: (402) 467-5321
Fax: (402) 467-3279
Factory Service: (800) 553-5992

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

SHIPPING TO THE MANUFACTURER

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

Factory Service Department
Telex Communications, Inc.
8601 Cornhusker Hwy.
Lincoln, NE 68507 U.S.A.
Attn: Service

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Introduction

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Introduction

The RTS MCII-e System controller card is the third generation controller for the ADAM Intercom System. Designed to replace the ADAM-MC, it adds a number of key features. Adding Ethernet connectivity between the ADAM Intercom and the PC running AZedit, the new controller can support up to 35 simultaneous AZedit sessions (32 using Ethernet and up to 3 using serial ports). Using a pair of MCII-e controller cards will provide full redundancy with seamless automatic change-over upon failure.

The speed of Ethernet, combined with expanded memory, allows the card to fully support large matrices with reduced setup file download time.

As with all ADAM™ Intercom family products, the MCII-e card supports all standard, hot-swappable, and configurable features through the AZedit configuration software. It is fully compatible with existing ADAM systems and cards, including AIO-8, AIO-16, AES-3, and RVON VOIP interfaces

*The New MCII-e System Controller card is only for use in the ADAM Matrix Intercom System and cannot be intermixed with older ADAM master controllers in a given frame.

Features

Installation:	The MCII-e System Controller card is hot-swappable and installs into slots 19 or 20 in an ADAM™ Intercom System.
Trunk Capable:	The MCII-e System Controller card supports ancillary data control for use with Telex® Intelligent Trunking.
Ethernet Compatible:	Fully Ethernet capable. The MCII-e provides a single RJ-45 connection for use with a 10BASE-T or 100BASE-TX compliant and network. Each system controller has its own IP address network access.
AZedit Configurations:	The MCII-e can connect to AZedit via Ethernet or Serial (RS-232) connections. Also, the new Intercom Sizing Wizard in AZedit makes configuring the new system controller card easier than ever.

Controls: Reset push-button switch, general indicators, an LED module for advanced monitoring features and for gathering additional card information.

Specifications

Power

    7.5W/ 1.5A @ 5V

Physical

    5.687" (144.45mm) W x 11.024" (280.01 mm) L

Connectors

    SCSI connector via backcard
    RJ-45 Ethernet via backcard

Miscellaneous

    4 Mbytes of Code Flash
    32 MB of SDRAM
    8Mbytes Configuration Flash

System Diagram
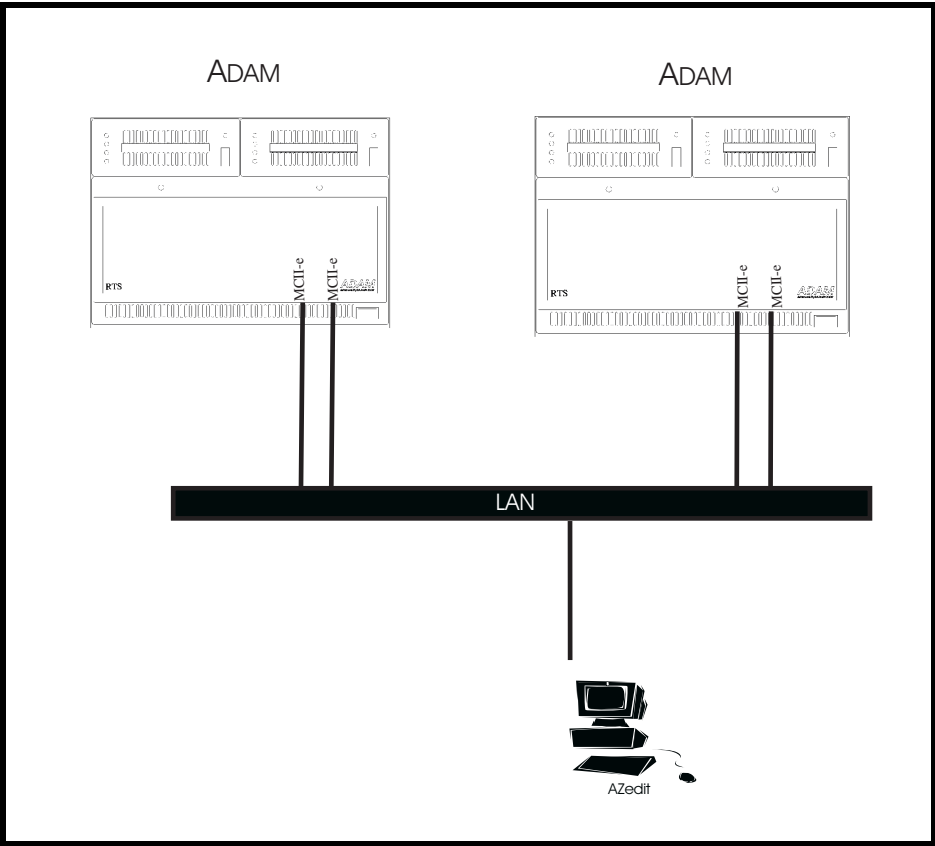
Figure 1. System Diagram - MCII-e Master Controller

Reference View - Front Card

Jumper Settings

For Programming Use ONLY!

J801 -
Pins 1 & 2 **must** be shorted.

Pins 3 & 4 **must** be shorted.
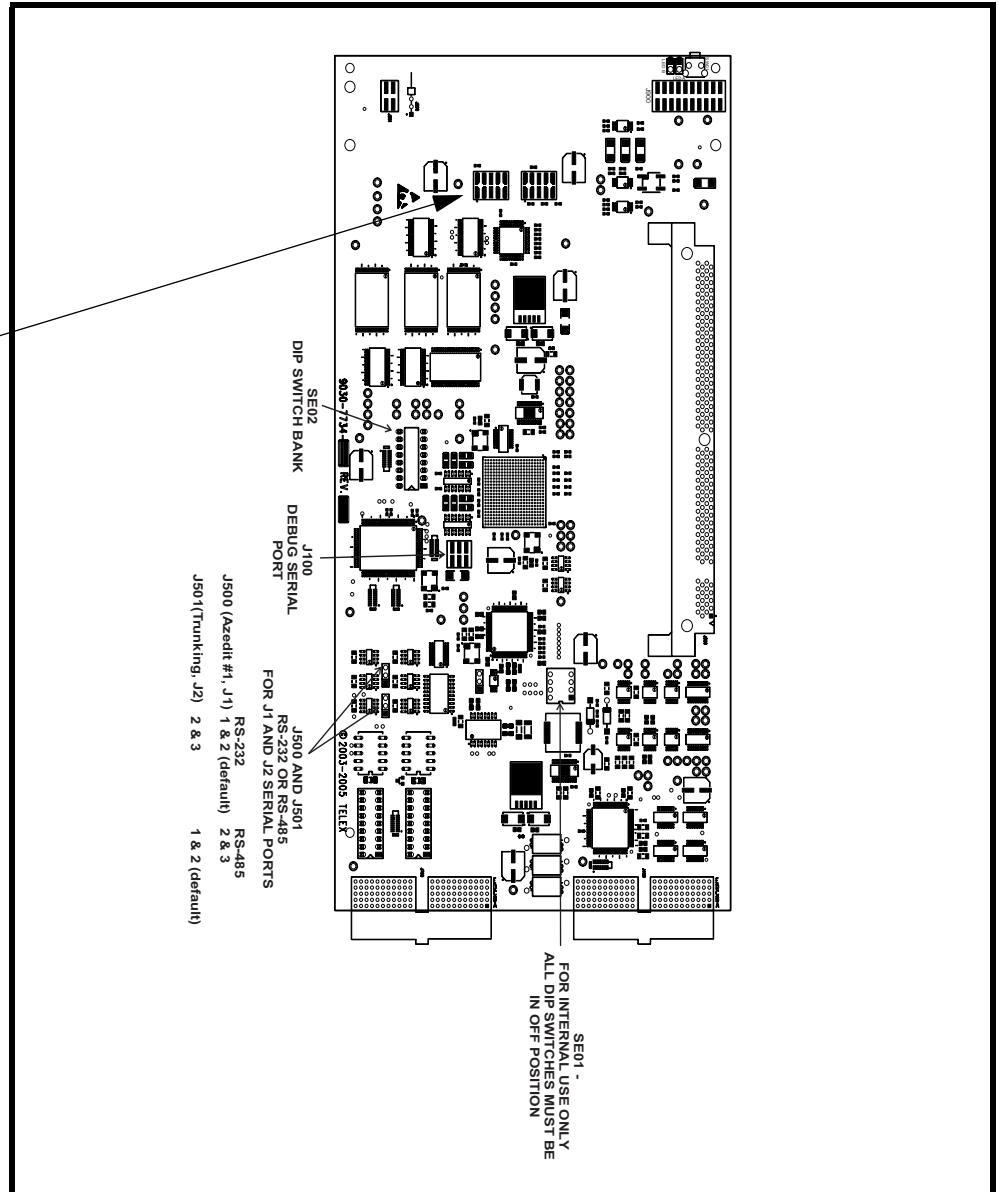
Figure 2. MCII-e System Controller Card Board view.

Figure 3. LED Descriptions for the MCII-e

Reference View - Back Card
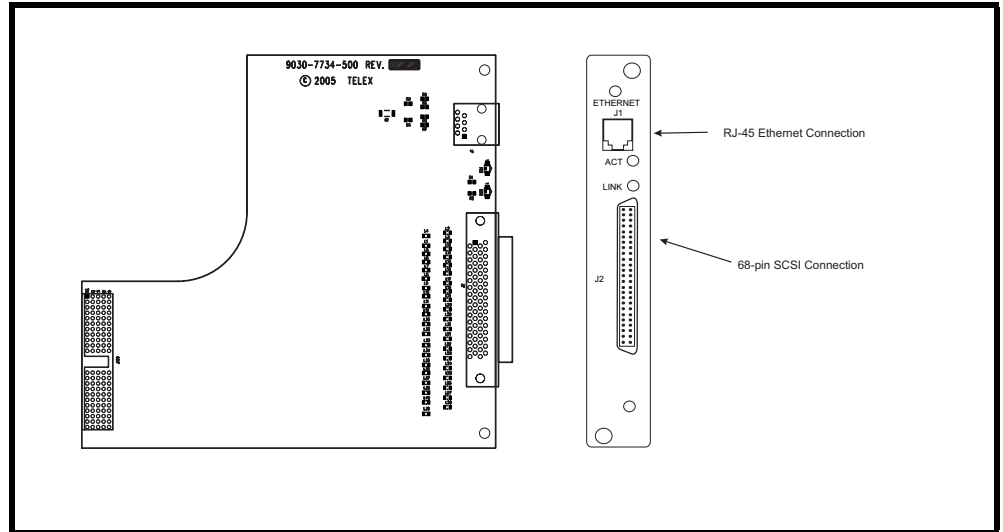
Figure 4. Back Card

DIP Switches
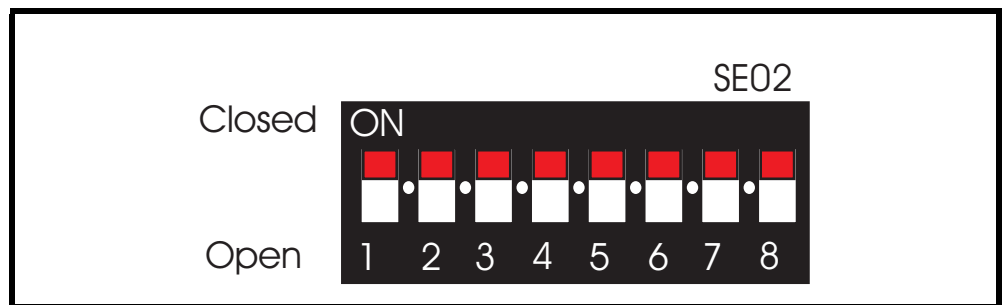
Figure 5. Dip Switch SE02

DIP Switch 1:   Debug Only! Must be in OPEN position.

DIP Switch 2:   Sets the baud rate for the AZedit serial connection via J1. By default, AZedit is set for COM 1 and 38,400 kbps (38.4K). The

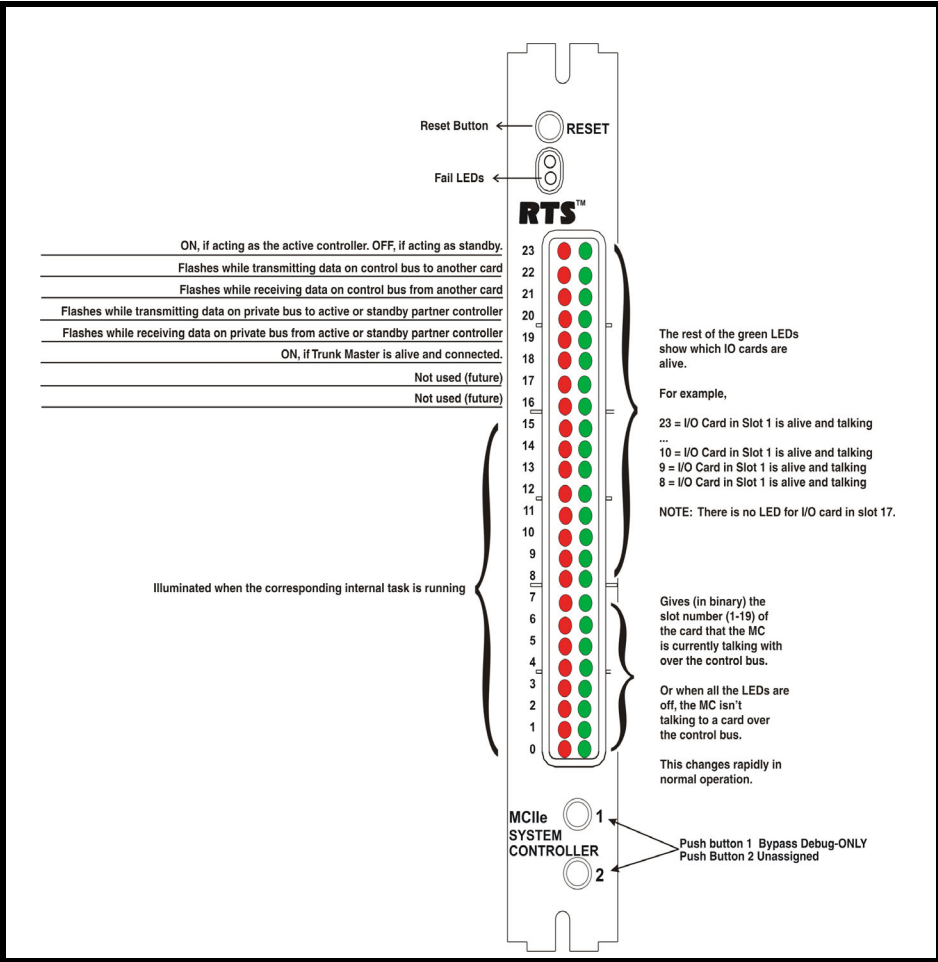baud rate set in AZedit must match the baud rate setting of the Master Controllers in ADAM.

> **DEFAULT** = OPEN
> **OPEN** = 9600
> **CLOSED =** 38.4k Baud

DIP Switches 3, 4, and 5: Reserved, keep in OPEN position.

DIP Switch 6: Debug Only! Must be in OPEN position.

DIP Switch 7: Determines Master/Slave Frame in a multi-frame system.

> **DEFAULT** = CLOSED
> **OPEN** = Slave Frame
> **CLOSED =** Master Frame

DIP Switch 8: Debug Only! Must be in OPEN position.

Warning: DIP Switches 1, 6, and 8 should always be left in the OPEN position. These are reserved for debugging and can have unintended consequences.

Connector Pinouts

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

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

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

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

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

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

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

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

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

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

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

Configuring the MCII-e

In this chapter

- System Requirements
- Ethernet Setup for the MCII-e System Controller
- Download Firmware for the MCII-e System Controller

System Requirements

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

- AZedit v 2.08.01 or later
- AIO-8 v 10.3.4 or later
- AIO-16 v 1.0.0 or later
- Periph-IIe, requires DBX v1.14.0 or later

NOTE: Field upgrade of DBX will requires Boot Code upgrade to version 0.0.3. If the Boot Code is not upgraded, the DBX card will not work with the MCII-e. Refer to *DBX Boot Code Upgrade* (pn 38110-472.

Ethernet Setup for MCII-e System Controller

Set the IP Address for the MCII-e System Controller

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

Verify the MCII-e is connected to the PC using a RS232 (ADAM standard) cable. Connect J1 on the XCP-ADAM-MC to the COM port on the PC.

NOTE: For more information on Network Basics, see the Basic Networking Guide found at our website (http://www.telex.com/Intercoms/files.nsf/sitemap#Brochures), under *Applications*.
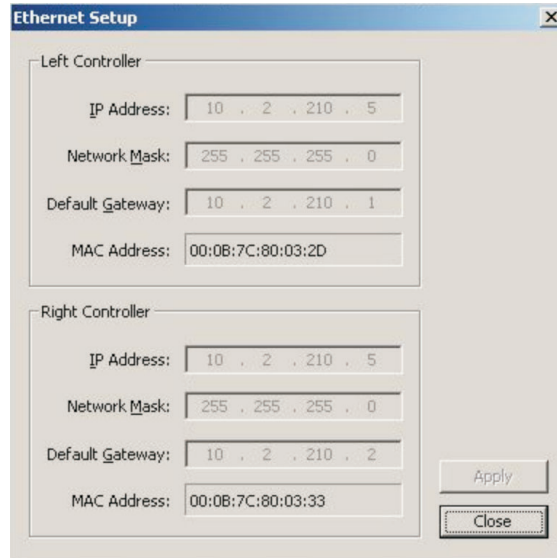
If there are two controllers, they must each have their own unique IP Addresses (different from each other and any other devices sharing the same network).

To connect the Active MCII-e to the PC with a serial cable, do the following:

1. Open **AZedit**.
   The Keypanels/Ports screen appears.

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

3. In the IP Address field, enter the **IP Address** for the current MCII-e System Controller.

4. In the Network Mask field, enter the **Network Mask** number for the current MCII-e System Controller.

5. Where appropriate, in the Default Gateway field, enter the **Gateway** number for the MCII-e System Controller.

NOTE: If the MCII-e will communicate with hosts outside its network, enter the IP address of a host or router which will serve as the **Gateway**. Otherwise, if the MCII-e only needs to communicate with the local network, leave the Default Gateway field at its default setting (0.0.0.0).

The Default Gateway is normally configured the same on both the active and standby MC-II-e System Controller Cards.

The same screen you use to set the network settings can be used to view the settings as well. You must be connected using a serial connection via J1 to make changes, but you can view them with any type of AZedit connection (J1, J9, J10, or Ethernet).

6. Click **Apply**.
7. Click **Close**.
   The Ethernet Setup window is closed.
8. Connect the MCII-e System Controller to your network with an Ethernet cable.

NOTE: The unique Ethernet MAC address assigned to each MCII-e card during manufacturing is displayed in the field MAC Address. It is NOT possible to modify this address.
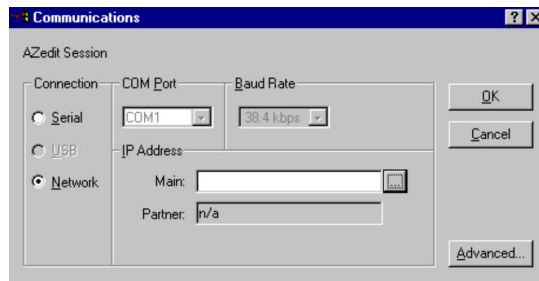
9. Connect the PC to your network with an Ethernet cable.

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

Once you have entered the IP Address and Network Mask, do the following:

1. From the Options menu, select **Communications**.
   The Communication screen appears

2. In the Connection area, select the **Network** radio button.
3. In the IP Address field, either enter the **MCII-e IP Address** you wish to connect with, or click the **Search** button . The search button scans the network for any MCII-e devices. If multiple units are on the network, each will appear in the list.
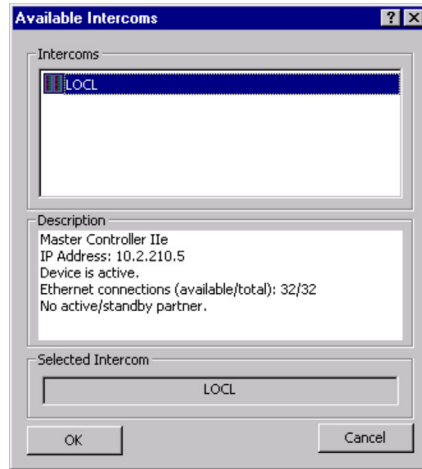
4. Select the **MCII-e System Controller** you wish to work with.

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

Download Firmware for the MCII-e System Controller

WARNING: The following procedure will cause one or more brief disruptions in intercom communications. Also, *SAVE* your intercom system configuration. From the File menu, select **SAVE**. Later, if you need to restore the intercom configuration from disk, use *Send File* in the *Online* Menu.

Before you begin, be sure to verify that SERVER mode has been disabled. Also, it is extremely important to take the Standby Controller card out of the frame, if one is installed.

NOTE: The Active Master Controller will have the topmost red LED (#23) on in the status window lit.

To download master controller firmware, do the following:

1. From the Status Menu, select **Software Versions**.
    A popup list appears.
2. From the Software Versions popup list, select **Master Controllers**.
    The Master Controller Version Information screen appears.
3. Right-click the active Master Controller, and then select **Download Firmware**.
    The Firmware Download screen appears.

NOTE: You can also press **Ctrl+Shift+D** to open the Firmware Download screen once the Master Controller is highlighted.

4. From the Firmware Download screen, select the **firmware update file**. Or use the browse button to navigate where the new file resides.
5. Click **Open**.
    The firmware update appears in the Download Firmware screen.
6. Click **Begin Download**.
    This process can take as little as 30 seconds with "Fast Ethernet" or as long as five minutes when using a serial connection at 9600 baud.

NOTE: If there is any disruption in the communications link during the download, you will get an error message. In this case, repeat the download.

7. When the file has been completely downloaded, the MCII-e System Controller will begin processing the update.

IMPORTANT! Any disruption at this point, such as loss of power, removing or resetting cards may result in Master Controller failure. If this happens, you will have to return the affected unit for replacement or repair.

The AZedit session goes offline for 15-20 seconds when the card performs a reset. It automatically will reconnect when it is finished.

When the Master Controller is finished, the new software version will appear in the version field of the Version Status screen.

If you do not have a Standby Master Controller Card, you can skip steps eight and nine.

8. Once the Active Master Controller is updated, **remove it** from the frame.
9. Insert the Standby Master Controller and repeat **steps three through eight**.
10. When the Standby Master Controller is finished, insert **both controllers and resend your system setup file**.

Accessories

In this chapter

- Accessories
- AZedit
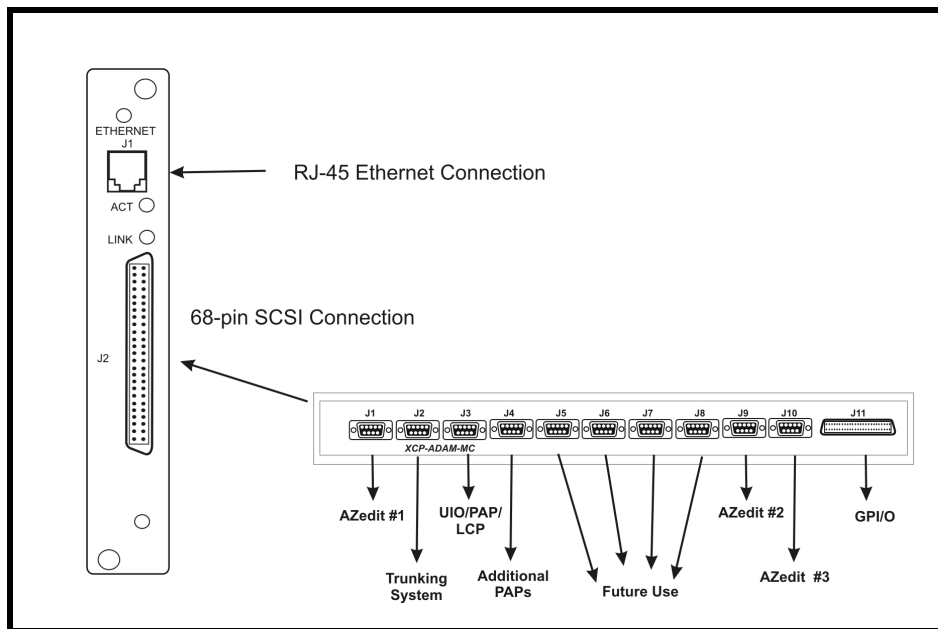- UIO-256
- PAP
- LCP
- General Purpose

Accessories

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

XCP-ADAM-MC Master Controller Breakout Panel

The XCP-ADAM-MC Breakout Panel allows many different peripherals to be connected to the master controller of an ADAM Intercom System, such as AZedit, trunking systems, UIOs, PAPs, LCPs, GPI/Os, etc. For the breakout panel pinouts, see pages 9-15.

AZedit

AZedit is a Windows®-based, full-featured configuration software, providing online and offline configuration capabilities. It gives you the ability to manage multiple intercom systems, assign and reassign users to different ports, as well as dynamically add hardware to your system setup without jumper changes, rewiring, or taking the system offline. AZedit

has the capability to load pre-set configuration files, which means configurations saved to a disk can be uploaded to the "live" application at anytime, without interruption.

The XCP-ADAM-MC breakout panel has three DB-9 connectors that can be used to connect to AZedit (AZedit #1, #2, and #3).

Trunking Systems

The RTS™ Trunking System manages intercommunications between separate intercom systems using intercom ports that have been reserved and interconnected between the intercom systems with devices in other frames. Keypanels or other data devices can then communicate with devices in other frames.

UIO-256

Each UIO-256 provides 16 GPI inputs and16 GPI outputs. The GPI inputs can be used just like keypanel keys to activate intercom ports, party lines, relays, etc. Each relay output provides a choice of normal open and normal closed contacts. The relays can be assigned for activation from keypanel keys, and can be used to control lighting, or to key remote transmitters, paging systems, etc.

PAP

Program Assist Panels provide a fast and easy method of selecting any of several program sources (connected to input ports of the intercom system) for use with the IFB outputs feature of the intercom system.

LCP

The LCP panel (Level Control Panel) combines the functionality of three products into one. The LCP allows you to adjust analog input and output gains, assign sources to IFB outputs and make changes on the fly, and to add members to a party line on the fly.

GPI/O (General Purpose Input/Output)

J11 provides 8 general purpose control inputs and 8 general purpose control outputs. The control inputs can be used just like keypanel keys to activate intercom ports, party lines, relays, etc. The control outputs are open-collector, active-low outputs. They can be activated by keypanel keys and can be used to control lighting, to key a remote transmitter, to activate a paging system, etc.

Pin-outs for the digital inputs and outputs are summarized in the table on page 15.

Trunking and the MCII-e System

In this chapter

- Enable Trunk Support for MCII-e System Controller Card
- Connect MCII-e to the Trunk Master (Data)
- Configure TrunkEdit and AZedit to Communicate with the MCII-e System Controller Card

Trunking and the MCII-e System Controller

Trunking allows one intercom system to communicate with another remote intercom system with devices in other frames. For example, a user in New York can talk to a user in Los Angeles if the systems they are using are trunked together. Trunking can be configured to work with cables, fiber optics, voice over internet protocol, or any form of audio/data transfer media, to allow communication between systems.

To trunk the MCII-e System Controller Card, do the following:

ENABLE TRUNK SUPPORT IN AZEDIT

1. From the AZedit main menu, select **Options**.
   The Options sub-menu appears.

2. From the Options sub-menu, select **Preferences**.
   The Applications Preferences screen appears.

3. On the Applications Preferences screen, click the **Advanced** tab.
   The Advanced screen appear.

4. On the Advanced screen, select **Enable trunking support**.

5. Click **OK** to save the change and close the screen. Or, click **Apply** to save the change and leave the screen open.

When your system has limited bandwidth, you want to set the Allow for Remote Trunk Master. By setting this option, the baud rate is changed to 9600 baud, instead of the default, 38.4K.

To enable the Remote Trunk Master, do the following:

WARNING!: **Enabling this option will cause the system to reset. All data will be erased in the frame. Be sure to save your system setup to disk before performing this task.**

1. Remove the **Standby Master Contoller**.

2. From the AZedit main menu, select **Options**.
   The Options sub-menu appears.

3. From the Options sub-menu, select **Intercom Configuration**.
   The Intercom Configuration screen appears.

4. On the Intercom Configuration screen, click the **Options** tab.
   The Options screen appears.

5. On the Options screen, select **Allow for remote trunk master**.

6. Click **Test** to verify the intercom will accept the new settings.

7. Click **Apply**.
   The intercom will stop communicating with AZedit, reconfigure itself, and then reset.

8. Resend the **current setup**.

9. Replace the **standby controller**.
   It will automatically reconfigure itself to match the new settings.

CONNECT THE MCII-e TO THE TRUNK MASTER (DATA)

To connect MCII-e to the Trunk Master, do the following:

1. Connect the MCII-e System Controller Card data connector to one of the eight DB-9 connections on the ICP-2000.

**CONFIGURE THE TRUNKMASTER TO COMMUNICATE WITH
THE MCII-e SYSTEM CONTROLLER CARD**

To setup the TrunkMaster to be able to communicate with MCII-e, do the following:

1. Open **TrunkEdit**.

2. In the left navigation, open the **Intercom slide screen**.
   *The Intercom navigation panel displays*.

3. From the Intercom navigation, select **Setup**.
   The Intercom Setup screen appears.

4. In the Intercom Setup screen, enter the **Intercom System Name (i.e.; ADAM)** in the appropriate ICOM port (for example, if the MCII-e System Controller is cabled to the ICP-

2000's J4 connector, then in the Intercom Setup screen, enter the MCII-e's machine name in the line which corresponds with the COM port #4 field).

5. Select the Baud Rate field and enter the **baud rate** to match the baud setting of the Intercom Trunking port (38.4K or 9600).

6. When you are finished, click the **Send** button to send the changes to the Trunk Master. When the changes are sent to the Trunk Master, the MCII-e connects to the Trunk Master and uploads the remote ports. Once the MCII-e has uploaded this data, it sends its port alphas to the Trunk Master.

In AZedit

1. Open **AZedit**.
2. On the main screen, select the **port** you want to make available remotely..
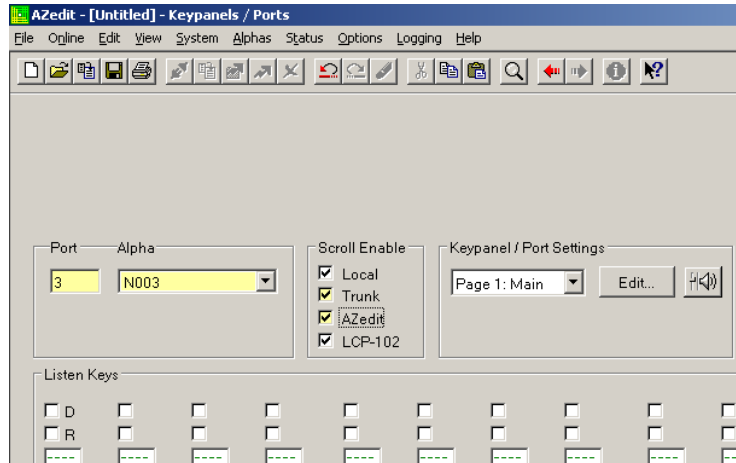
3. In the Scroll Enable field, select **Trunk** and **AZedi**t.
   By enabling Trunk and AZedit on this port, remote users will display in AZedit and remote keypanel users will be able to see enabled ports.

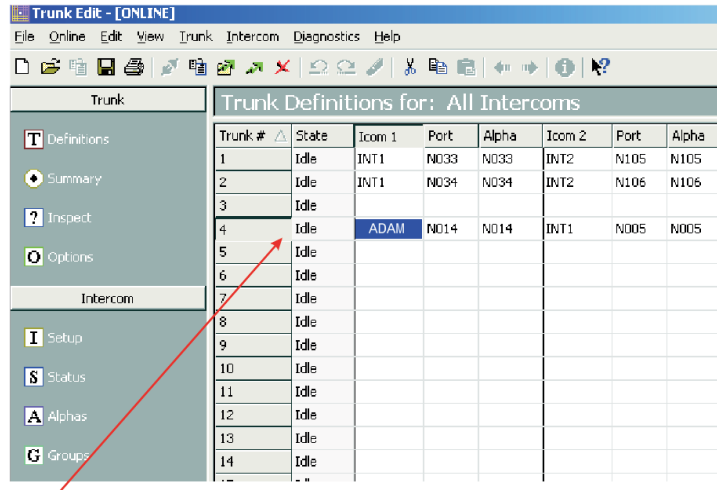**NOTE**: We recommend that you only enable user positions that will be used by remote systems.

4. Send the **changes** to AZedit.

In TrunkEdit - Define the trunk line

NOTE: We recommend you map out your system before defining the trunk lines.

Defining the trunk line shows where a trunk line begins and ends, as well as shows the audio connections between frames.

To define trunk lines, do the following:

1. Open **TrunkEdi**t.

2. In the left navigation, open the **Trunk slide screen**.
   The Trunk Definitions for: All Intercoms panel displays.

3. In the ICOM 1 field, enter the **intercom name of one end** of the trunk connection (i.e.; ADAM).

4. In the Port Field, enter the **port number** where ICOM1 is assigned (i.e.; N014). Or, in the Alpha field, enter the **Alpha** of the ICOM1 system (i.e.; N014).

5. In the ICOM2 field, enter the **name of the system** ICOM1 is linked to (i.e.; INT1).

6. In the Port field, enter the **port number** where ICOM2 is assigned (i.e.; N005). Or, in the Alpha field, enter the **alpha** of the ICOM2 system.

7. Once finished with all your definitions, **Send** the changes to the TrunkMaster.

In AZedit

Once you are finished defining the trunk lines of your system, you can use AZedit to make key assignments for the keypanels. With Trunking enabled, you will be able to see all trunked system and their ports enabled in AZedit.