TX3 Series

ELEVATOR RESTRICTION SYSTEM

Installation Manual

Elevator Restriction System Manual rev. 3

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1 Introduction

This manual provides information about the installation and operation of the TX3 Elevator Restriction System, and must be read in its entirety before beginning any installation work.

Installation must be performed by a qualified technician and must adhere to the standards and special notices set by the local regulatory bodies.

Note: Mircom periodically updates panel firmware and Configurator Software to add features and correct any minor inconsistencies. For information about the latest firmware or software visit the Mircom website at **www.mircom.com**.

Warning: **The Telephone Access System assembly must be grounded by a qualified electrician. An improperly grounded unit can result in equipment malfunction and electrical shock.**

This manual explains

- Elevator Restriction Unit Installation and Operation

1.1 Firmware Versions

Note: For instructions on upgrading firmware see LT-995 TX3 System Configuration and Administration Manual.

TX3 panels run either version 2 firmware or version 3 firmware, depending on their hardware.

- If your panels run version 2 firmware, you must upgrade to version 2.4.x or higher in order to use floor groups.
- If your panels run version 3 firmware, you must upgrade to version 3.4.x or higher in order to use floor groups.
- If you do not upgrade your panels to version 2.4.x or 3.4.x, you can still use elevator restriction but you cannot use floor groups.

If you have TX3-ER-8-B (ERU 2.0), see LT-995 TX3 System Configuration and Administration Manual for firmware compatibility.

1.2 Terms

1.2.1 TX3 Card Access System

The Card Access System consists of a Card Access Controller (for instance TX3-CX-2-A), the access points, the cards, and the elevator restriction units. See LT-980 for instructions on installing a card access system

1.2.2 Access Point (card reader)

When a user swipes a card at a card reader, the system grants access to the user based on the access level of the card. Card readers can be wired or wireless. Usually there is a card reader installed inside each elevator cab. The card access system consists of the access controller, credentials, card readers, elevator restriction cabinets and door control hardware such as strikes and maglocks. The access controllers are typically installed in a secure room or locked cabinet. See LT-980 for instructions on installing card readers. See LT-1160 for information about wireless card readers.

1.2.3 Access Level

You assign an access level to a card to keep track of access privileges. A card can have only one access level.

1.2.4 Elevator Restriction Unit (ERU)

Mircom's Elevator Restriction Units are used with the TX3 card access system to restrict access to elevator floors based on access level.

An Elevator Restriction Unit (ERU) controls an elevator cab. It is usually installed in the building's electrical or telephone room. It has 96 relays which are wired to the input circuits of the elevator manufacturer's button controller. When the relay activates, the button is activated or deactivated depending on how the system is programmed. In this way, the ERU enables or disables the button for a configurable amount of time. There should be one Elevator Restriction Unit for each elevator cab.

1.2.5 Floor Group

A floor group is a group of floors. Floor groups let you give a card or resident access to a specific group of floors, and restrict access to other.

1.2.6 Old Elevator Restriction Firmware

Old elevator restriction firmware refers to firmware version 2.0.x and 3.0.x. It supports basic elevator restriction features.

1.2.7 New Elevator Restriction Firmware

New elevator restriction firmware refers to firmware versions 2.4.x and 3.4.x and higher.

1.3 Card Access System and New Elevator Restriction Firmware

Figure 1 is a conceptual diagram of an example system that has three elevator cabs. There is an elevator restriction unit (ERU) restricting each cab, for a total of three elevator restriction units. One card reader controls all three ERUs.

Figure 1.   Elevator Restriction in a Card Access System

Access points control ERUs, and card access levels control floors. This means that a resident has access to the same floors no matter which elevator cab she uses.

Floors are grouped into floor groups. For example, consider a 6-floor building where residents are allowed access to floors 1 to 5, but administrators are also allowed access to floor 6.

•   Floor Group 1: Floors 1, 2, 3, 4, 5

•   Floor Group 2: Floors 1, 2, 3, 4, 5, 6

Access Level A (for residents) is assigned to Floor Group 1, and Access Level B (for administrators) is assigned Floor Group 2.

When a resident swipes her card at Access Point A, the system sees that the card has Access Level A and therefore has access to Floor Group 1. The system allows access to Floor Group 1 only on the ERUs that are controlled by Access Point A.

The ERU relays are active for a configurable amount of time, up to 600 seconds. This timer starts when the access point reads the card.

If the access point is installed outside the elevator cab, then the resident must call the elevator first, then swipe a card at the access point. The timer must be long enough for the elevator to descend from the top floor to the lobby, and for the resident to enter the elevator cab and press a button.

See LT-995 TX3 System Configuration and Administration Manual for instructions on configuring a card access system.

1.4 Card Access System and Old Elevator Restriction Firmware

1.4.1 Firmware Versions 3.1.x

Figure 2 is a conceptual diagram of an example system that has three elevator cabs. There is an elevator restriction unit (ERU) restricting each cab, for a total of three elevator restriction units. There is a card reader associated with each cab, for a total of three access points.
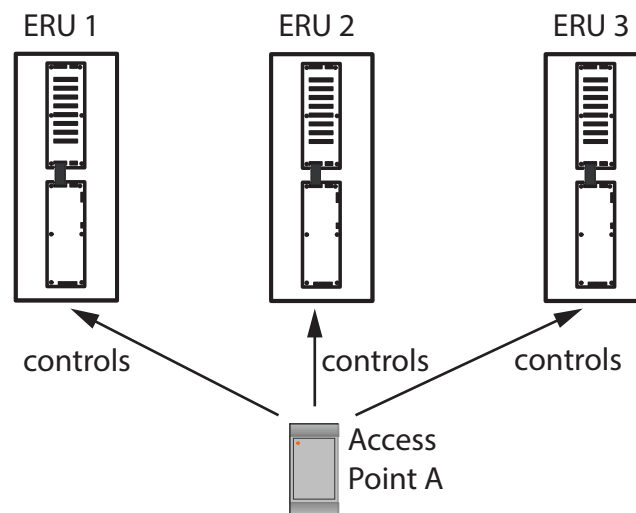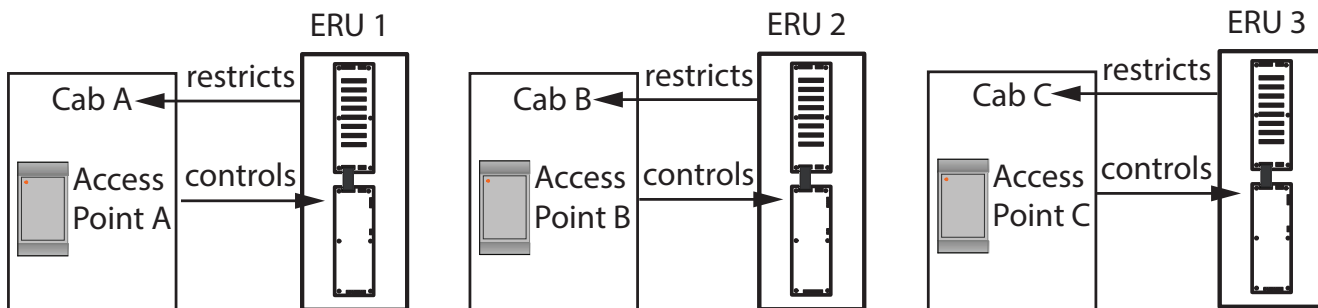

Figure 2.   Elevator Restriction in a Card Access System

When a resident swipes a card at Access Point A, the system checks the access level of the card. The card's access level determines which floors the card has access to. ERU 1 restricts only Cab A. Cabs B and C are unaffected.

The ERU relays are active for a configurable amount of time, up to 600 seconds. This timer starts when the access point reads the card.

Note: Each access point controls a specific elevator restriction unit. For this reason, install an access point inside each cab. Wire the relays of each ERU identically.

See LT-995 TX3 System Configuration and Administration Manual for instructions on configuring a card access system.

1.4.2 **Firmware Versions Lower than 3.1.x (for Version 3 Panels) and Lower than 2.4.x (for Version 2 Panels)**

Figure 3 is a conceptual diagram of an example system that has three elevator cabs. There is an elevator restriction unit (ERU) restricting each cab, for a total of three elevator restriction units. There is a card reader associated with each cab, for a total of three access points.
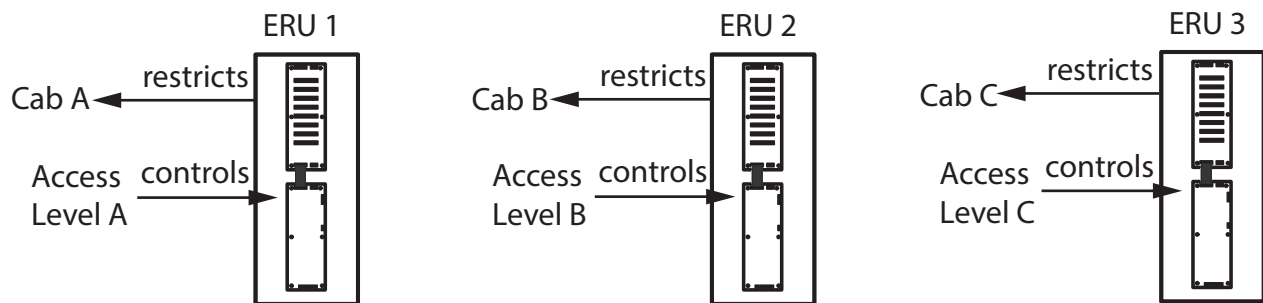
Figure 3. **Elevator Restriction in a Card Access System**

When a resident swipes a card at the access point in Cab A, the system checks the access level of the card. The card's access level determines which floors the card has access to. ERU 1 restricts only Cab A. Cabs B and C are unaffected.

The ERU relays are active for a configurable amount of time, up to 600 seconds. This timer starts when the access point reads the card.

See LT-995 TX3 System Configuration and Administration Manual for instructions on configuring a card access system.

1.5 Telephone Access System and New Elevator Restriction Firmware

Figure 4 is a conceptual diagram of an example system with three elevator cabs and a Telephone Access Controller. There is an elevator restriction unit (ERU) restricting each cab, for a total of three elevator restriction units.

Figure 4.   Elevator Restriction Units (ERU) and a Telephone Access Controller

Floors are grouped into floor groups. For example, consider a 4-floor building where residents are allowed access only to the floor they live on and the ground floor. There are 3 Floor Groups:

• Floor Group 1: Floors 1 and 2

• Floor Group 2: Floors 1 and 3

• Floor Group 3: Floors 1 and 4

Each resident is assigned to one of these Floor Groups depending on which floor he lives on. Each resident is also assigned one or more ERUs.

When a resident grants a visitor access, the Telephone Access Controller activates the resident's Floor Group on the ERUs that are assigned to that resident, for a configurable amount of time.

For example, Resident 1 is configured for ERU 1, 2 and 3, and for Floor Group 1 (floors 1 and 2). When Resident 1 grants a visitor access, the visitor must call one of the cabs controlled by ERUs 1, 2 or 3. Then the visitor must enter the cab and press the button for floor 1 or 2 within the configured amount of time. The minimum time is 5 seconds and the maximum is 600 seconds. This timer starts when the system grants the visitor access. This means that the timer must be long enough for the elevator cab to descend from the top floor to the lobby, and for the visitor to enter the cab and press the button. The distance from the access point to the cab might also be a consideration for the timer.

See LT-995 TX3 System Configuration and Administration Manual for instructions on how to configure a telephone access system.

1.6 Telephone Access System and Old Elevator Restriction Firmware

Figure 5 is a conceptual diagram of an example system with three elevator cabs and a Telephone Access Controller. There is an elevator restriction unit (ERU) restricting each cab, for a total of three elevator restriction units.

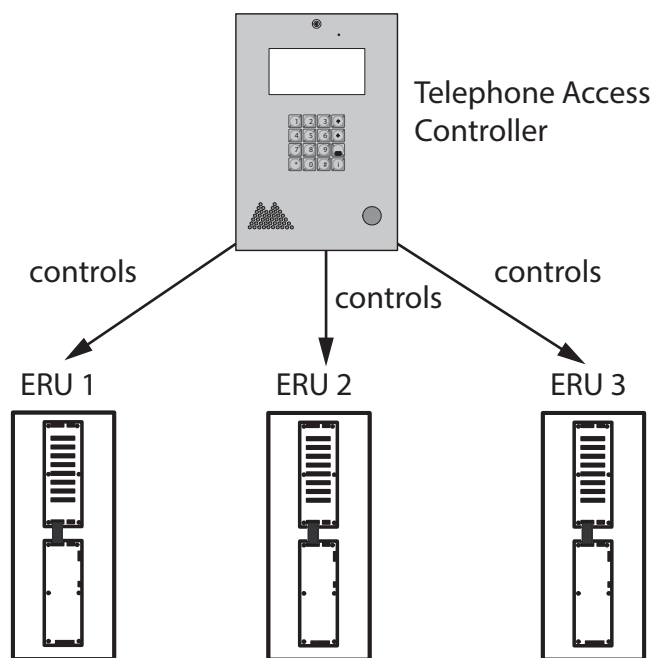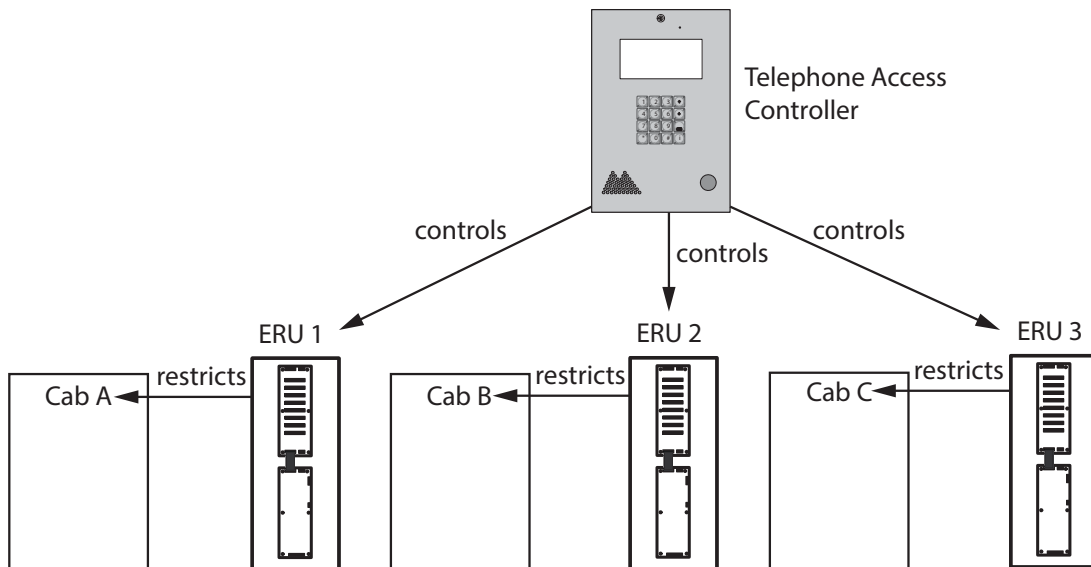**Figure 5.   Elevator Restriction Units (ERU) and a Telephone Access Controller**

Each resident is configured for a specific ERU and a specific floor. When a resident grants a visitor access, the Telephone Access Controller activates one ERU and one floor on that ERU for a configurable amount of time.

For example, Resident 1 is configured for ERU 1 and floor 5. When Resident 1 grants a visitor access, the visitor must call Cab A; the other cabs do not work. Then the visitor must enter the cab and press the button for floor 5 within the configured amount of time. The minimum time is 5 seconds and the maximum is 600 seconds. This timer starts when the system grants the visitor access. This means that the timer must be long enough for the elevator cab to descend from the top floor to the lobby, and for the visitor to enter the cab and press the button. The distance from the access point to the cab might also be a consideration for the timer.

See LT-995 TX3 System Configuration and Administration Manual for instructions on how to configure a telephone access system.

1.7 Elevator Restriction Unit Overview

The Elevator Restriction Unit limits building accessibility by granting visitor access only to the destination floor. Figure 6 shows a Lobby Control Unit with an Elevator Restriction Unit.
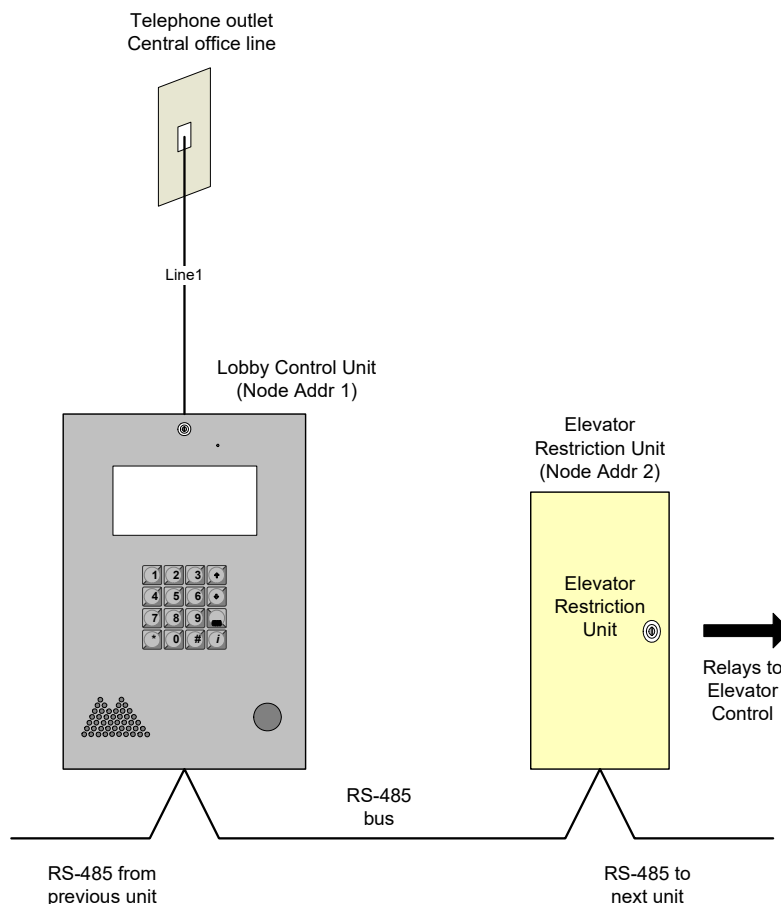
Figure 6.   Lobby Control Unit with Elevator Restriction

The Elevator Restriction Unit consists of the Elevator Restriction Controller Board and the Elevator Restriction Backplane. Up to eight relay boards can be installed on the backplane, allowing for control of 96 elevator floors (8 boards x 12 relays per board). See Figure 7.

The Elevator Restriction Unit performs the following functions:

- A maximum of 96 time-dependent relay contacts
- RS-485and TCP/IP interface to network to other units

Each slot accepts a relay board

Elevator Restriction Backplane

Elevator Restriction Controller Board
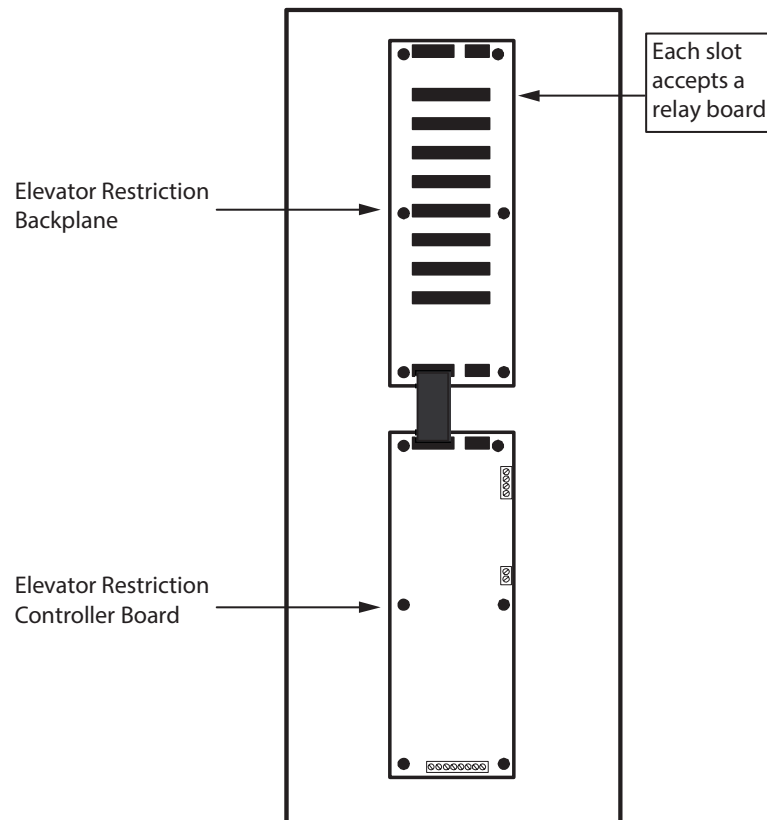
Figure 7.   Elevator Restriction Unit

1.8   Warranty and Special Notices

Mircom values your business and always attempts to provide you with the very best service.

See the Warranty and Warning Information chapter on page 41 and the Special Notices on page 46 for information about the warranty and special notices about equipment use.

1.9 About This Manual

This manual applies to the following models:

- TX3-ER-8 Elevator Restriction Unit
- TX3-ER-8-A Elevator Restriction Unit (IP capable)
- TX3-ER-8-B Elevator Restriction Unit (IP capable)
- 2012E Elevator Restriction Relay Board
- 3012E Elevator Restriction Relay Board

1.9.1 Additional Documentation

For additional documentation, see the following Mircom literature, available on **http://www.mircom.com**:

- LT-995 System Configuration and Administration Manual
- LT-6616 Elevator Restriction Migration for Firmware Version 3
- LT-6615 Elevator Restriction Migration for Firmware Version 2
- LT-980 TX3 Card Access System Installation and Operation Manual
- LT-969 TX3 Telephone Access Installation and Operation Manual
- LT-1160 TX3 Aperio Interface Panel Installation and Operation Manual
- LT-996 TX3 Touch Screen Installation Manual

1.10 Contact Us

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1.10.3 Website

http://www.mircom.com

2 Installing the Elevator Restriction Unit

This chapter describes

- Mechanical Installation
- Power Supply Enclosure (TX3-ER-8-B Only)
- Relay Boards
- Elevator Restriction Unit Backplane
- Elevator Controller Board
- Elevator Restriction Unit ID
- RS-485
- Optional TCP/IP Network Connection
- Power and Ground on TX3-ER-8 and TX3-ER-8-A
- Power and Ground on TX3-ER-8-B
- Firmware Update
- System Configuration

2.1   Mechanical Installation

The Elevator Restriction Unit (ERU) contains the elevator access equipment. Mount the ERU in the building's elevator room.
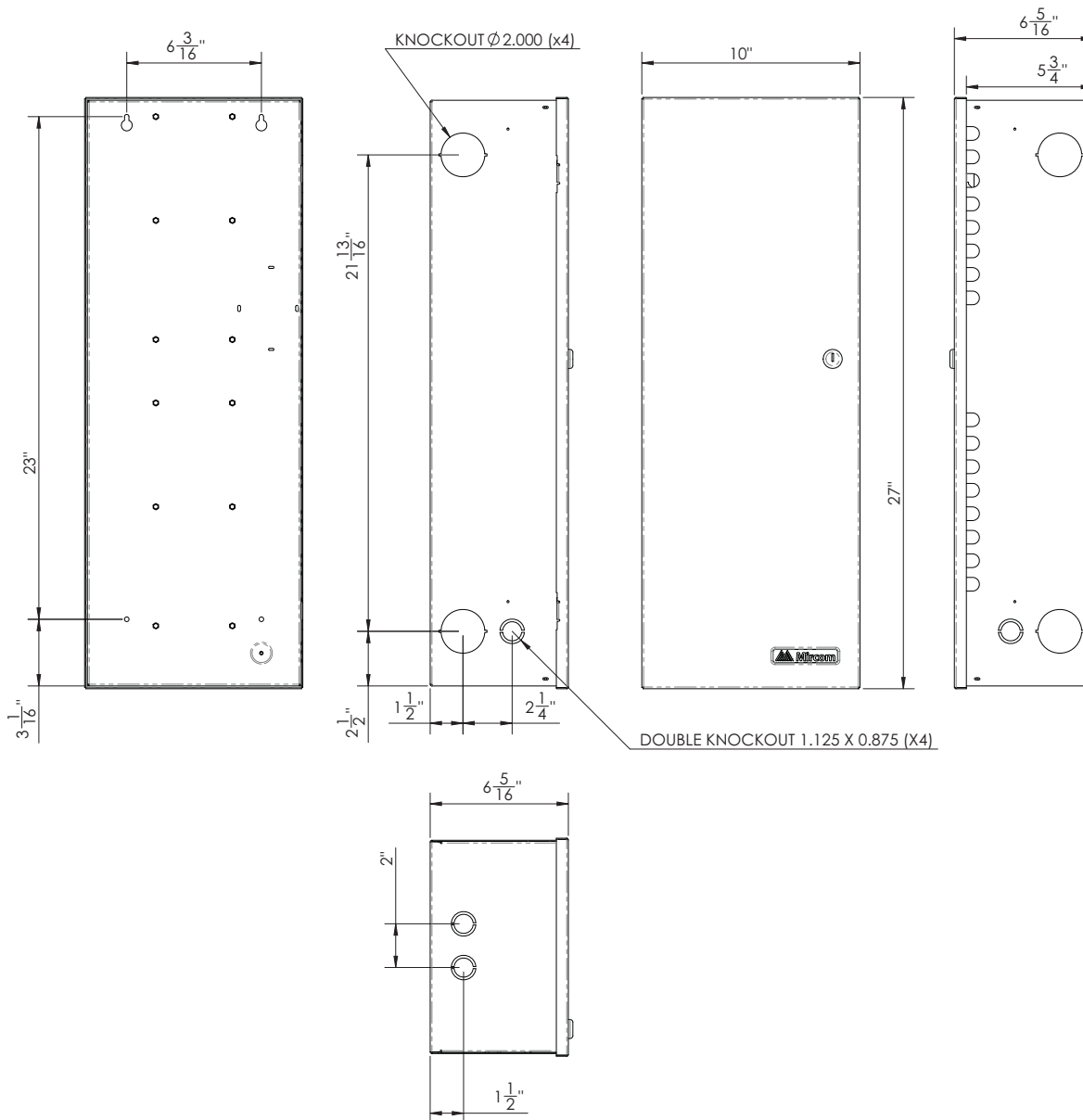
Figure 8.   Box for the TX3-ER-8(-A/B) Elevator Restriction Unit

To mount the Elevator Restriction Unit

1.   Using the back cover as a template mark the top two mounting hole locations 6 3/16" (157 mm) apart as shown in Figure 8.

2. Place the screws halfway into the wall in the position shown using a suitable screw.

3. Hang the box onto the two screws.

4. Screw the other two screws at the bottom of the panel.

5. Tighten all four screws into place.

2.2 Power Supply Enclosure (TX3-ER-8-B Only)

TX3-ER-8-B uses the TX3-PS24-5A power supply, which is a 156 W, 24 V single output switching power supply in a metal enclosure. A voltage selection switch is located on the side of the power supply and is factory set to 115V but can be switched to 230V.

Note: **Install the power supply indoors and outside of the ERU enclosure.**

To set the voltage on the TX3-PS24-5A

Follow the instructions in the included document (LT-6662) to set the voltage on the TX3-PS24-5A.

To mount the power supply enclosure

Follow the instructions in the included document (LT-6662) to mount the TX3-PS24-5A.

2.3   Relay Boards

The 2012E and 3012E Elevator Restriction Relay Boards plug into the backplane portion of the Elevator Restriction Unit. Figure 9 and Figure 10 show the two models of relay boards, viewing the board from the top with the relays on the right.

Up to eight relay boards can be mounted on the Elevator Restriction Controller Backplane, for a maximum of 96 relays.

Note:	**Only a qualified elevator service technician should wire the Elevator Restriction Unit to the elevator controller.**
	Before wiring, ensure that the power is off.

Before you mount and wire the relay boards, you must know the following:

*   How many floors or relays per cab you are using, keeping in mind that each relay board has 12 relays. Each relay will be assigned to a specific floor selection button.

*   Whether the circuits are normally open or normally closed.

*   What they will be connected to.

Using the information in this section, wire the relays to the input circuits of the elevator manufacturer's button controller. Use tables in Chapter 4 to record how each relay is wired.

2.3.1 2012E Relay Board

Each relay board has 12 Form C relay contacts rated at 0.25 A max. / 100 VDC max.
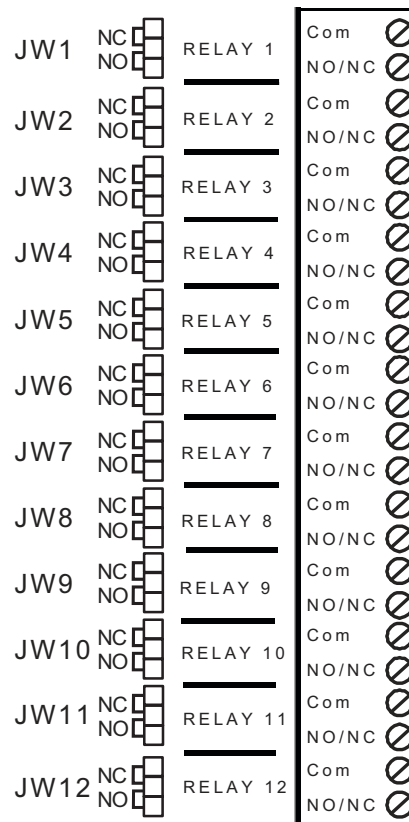
Figure 9.   2012E Elevator Restriction Relay Board

2.3.1.1 2012E Relay Board Components

JW1-12. Jumpers for selecting normally open or normally closed relay operation. By default the relays are normally open.

For example, if you want relay 1 to be normally closed, then put the jumper on the top two pins of JW1. If you want relay 1 to be normally open, then put the jumper on the bottom two pins of JW1.

I1-12. LEDs indicating when each relay is active.

Relays 1 to 12. Screw terminal contacts for each relay.

2.3.2 3012E Relay Board

Each relay board has 12 Form C relay contacts with the following ratings:

- 220 VDC @ 0.24 A
- 250 VAC @ 0.25 A
- 30 VDC @ 2 A

Figure 10. 3012E Elevator Restriction Relay Board

2.3.2.1 3012E Relay Board Components

JW13-24. Jumpers for selecting normally open or normally closed relay operation. By default the relays are normally open.

For example, if you want relay 1 to be normally open, then put the jumper on the top two pins of JW13. If you want relay 1 to be normally closed, then put the jumper on the bottom two pins of JW13.

JW1-12. Jumpers for selecting AC or DC operation. If the circuit wired to the relay uses DC, then the corresponding jumper must be closed. If the circuit uses AC, then the corresponding jumper must be open. By default these jumpers are closed.

I1-12. LEDs indicating when each relay is active.

Relays 1 to 12. Screw terminal contacts for each relay.

2.4 Elevator Restriction Unit Backplane
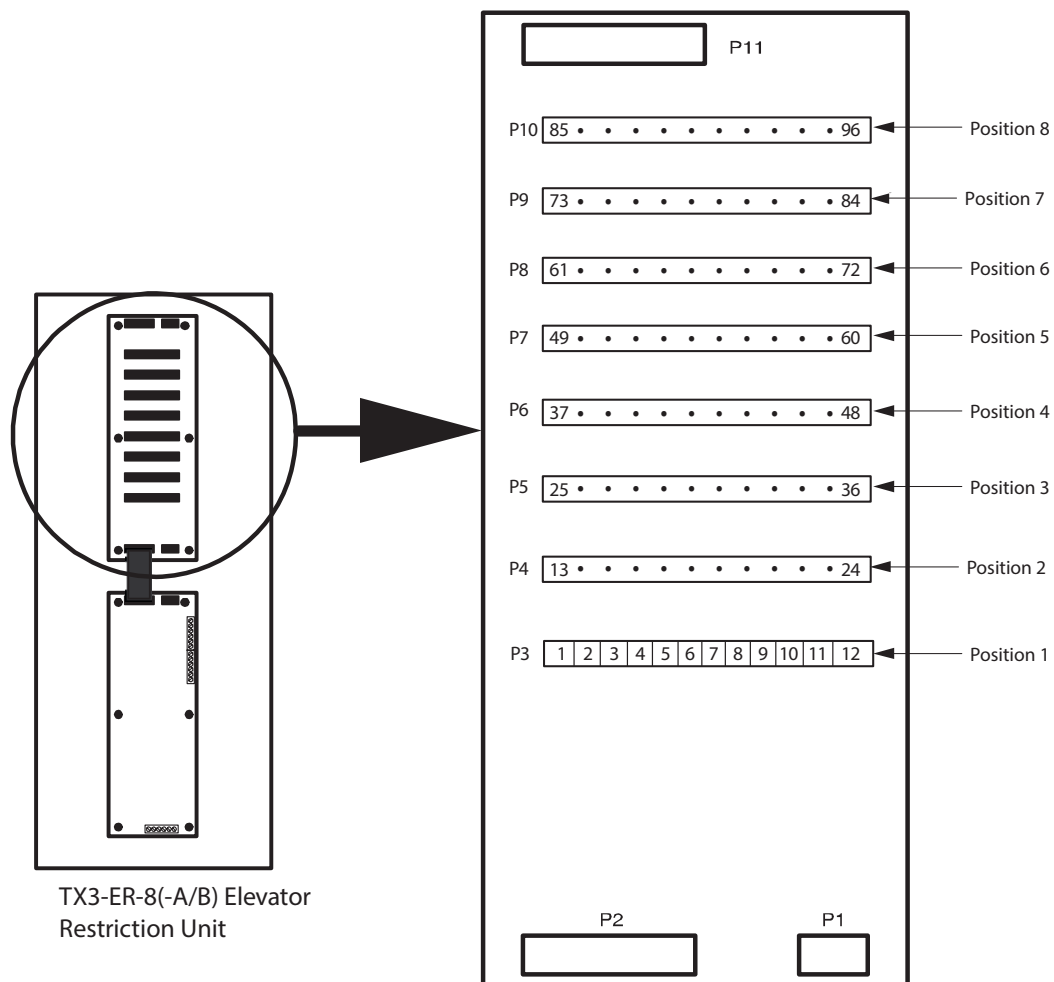
Figure 11. Elevator Restriction Controller Backplane

2.4.1 Connectors on the Elevator Restriction Unit Backplane

P1. Not used.

P2. Ribbon cable connector from the elevator restriction main controller board.

P3 to 10. Connectors for the elevator restriction relay boards (maximum eight relay boards per backplane and one backplane per elevator). Boards are mounted starting from Position 1, 2, 3 up to Position 8.

P11. Not used.

2.4.2 Relay numbering

Up to eight relay boards can be mounted on the Elevator Restriction Controller Backplane, for a maximum of 96 relays. Figure 11 shows how the relays are numbered.

- The system numbers the relays starting in position 1.

- The 12 relays in position 1 are numbers 1 to 12.

- The 12 relays in position 2 are numbers 13 to 24.

- The 12 relays in position 3 are numbers 25 to 36, and so on.

For example, the relay labeled **RELAY 1** on a relay board is relay 1 when the board is mounted in position 1, but it is relay 13 when the board is mounted in position 2, and relay 25 when the board is mounted in position 3.

2.4.3 Relay Board Installation

Note: **Only a qualified elevator service technician should wire the Elevator Restriction Unit to the elevator controller.**

To mount the relay board

- Insert the relay boards in the 8 sockets in the Elevator Restriction Unit Backplane, starting from the bottom. If you have only one relay board, put it in position 1. If you have 2 boards, put them in positions 1 and 2, and so on.

Attention: **Mount the relay boards so that the LEDs are on the left side facing you.**

2.5 Elevator Controller Board

TX3-ER-8(-A/B) Elevator
Restriction Unit

SW2

P3

JW2

P5

P6

P1   P2

JW9   JW10

JW1   JW5

USB

ON   OFF

SW1

16V AC IN on TX3-ER-8(-A)
24 VDC IN on TX3-ER-8-B

RS-485 Terminals
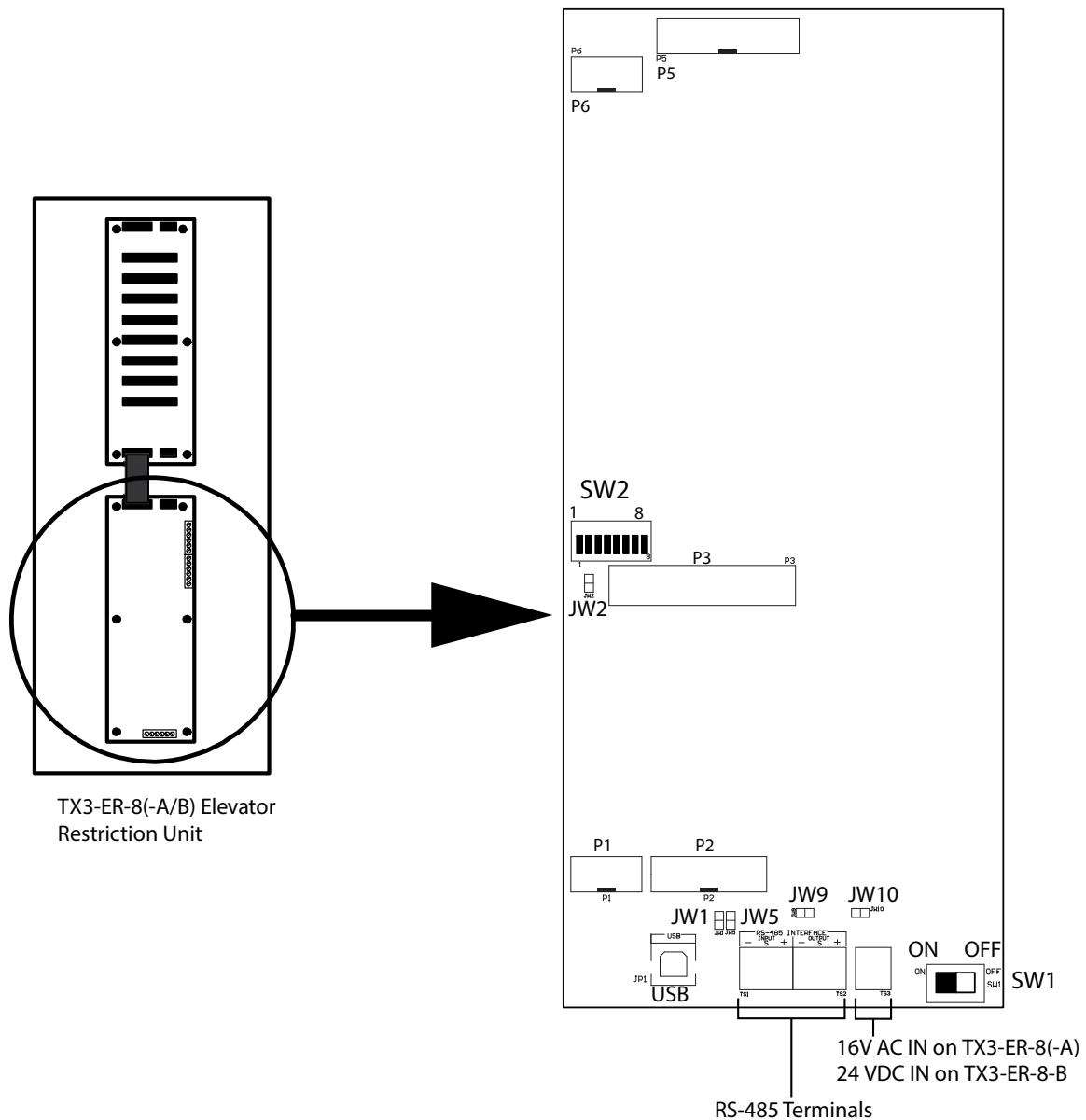
Figure 12.   Elevator Controller Board

2.5.1 Connectors

USB. Computer connection for firmware download.

P1. Not normally used. Used for debugging purposes only.

P2. Not used.

P3. Connector for the TX3-IP Module (TX3-ER-8-A and TX3-ER-8-B only). See section 2.8 on page 28.

P5. Expansion to the elevator restriction backplane.

P6. Not used.

RS-485 Terminals. See section 2.7 on page 27.

2.5.2 DIP Switches

SW1. Turns the unit's power ON and OFF for servicing, or to re-start the unit.

SW2. Sets the unit's RS-485 ID (node address) and the IP addressing mode. See section 2.6.

2.5.3 Jumpers

JW1. JW1 is used for updating firmware and is open by default.

JW2. JW2 is used for updating firmware and is open by default.

JW5. If end-of-line 120 Ω resistors for RS-485 are not available, close JW5 on the first and last controllers connected by RS-485. By default this jumper is open.

JW9 and JW10. If there are problems with RS-485 communication, close both JW9 and JW10 on either the first or last controller connected by RS-485. By default these jumpers are open.

2.5.4 USB

The USB port is used for updating firmware.

2.6 Elevator Restriction Unit ID

Use the eight position DIP Switch labelled SW2 to set the Elevator Restriction Unit ID. Give each ERU a different Unit ID.

SW2 is shown in Figure 12.

The individual switches are numbered 1 to 8 from left to right, and are marked as either ON or OFF. The first six switches (1, 2, 3, 4, 5 and 6) set the ID.

Note: **Every Elevator Restriction Unit in a given TX3 System requires a unique ID. Do not duplicate Unit IDs.**

Table 1: Elevator Control Unit SW2 DIP Switch Settings

Lobby Control Unit ID #	Switch 1	Switch 2	Switch 3	Switch 4	Switch 5	Switch 6
0 (Not allowed as an Elevator Control Unit ID. 0 is used for PC ID.)	OFF	OFF	OFF	OFF	OFF	OFF
1	ON	OFF	OFF	OFF	OFF	OFF
2	OFF	ON	OFF	OFF	OFF	OFF
3	ON	ON	OFF	OFF	OFF	OFF
4	OFF	OFF	ON	OFF	OFF	OFF
5	ON	OFF	ON	OFF	OFF	OFF
6	OFF	ON	ON	OFF	OFF	OFF
7	ON	ON	ON	OFF	OFF	OFF
8	OFF	OFF	OFF	ON	OFF	OFF
9	ON	OFF	OFF	ON	OFF	OFF
10	OFF	ON	OFF	ON	OFF	OFF
11	ON	ON	OFF	ON	OFF	OFF
12	OFF	OFF	ON	ON	OFF	OFF
13	ON	OFF	ON	ON	OFF	OFF
14	OFF	ON	ON	ON	OFF	OFF
15	ON	ON	ON	ON	OFF	OFF
16	OFF	OFF	OFF	OFF	ON	OFF
17	ON	OFF	OFF	OFF	ON	OFF
18	OFF	ON	OFF	OFF	ON	OFF
19	ON	ON	OFF	OFF	ON	OFF
20	OFF	OFF	ON	OFF	ON	OFF
21	ON	OFF	ON	OFF	ON	OFF
22	OFF	ON	ON	OFF	ON	OFF
23	ON	ON	ON	OFF	ON	OFF
24	OFF	OFF	OFF	ON	ON	OFF
25	ON	OFF	OFF	ON	ON	OFF
26	OFF	ON	OFF	ON	ON	OFF

Table 1:   Elevator Control Unit SW2 DIP Switch Settings (Continued)

Lobby Control Unit ID #	Switch 1	Switch 2	Switch 3	Switch 4	Switch 5	Switch 6
27	ON	ON	OFF	ON	ON	OFF
28	OFF	OFF	ON	ON	ON	OFF
29	ON	OFF	ON	ON	ON	OFF
30	OFF	ON	ON	ON	ON	OFF
31	ON	ON	ON	ON	ON	OFF
32	OFF	OFF	OFF	OFF	OFF	ON
33	ON	OFF	OFF	OFF	OFF	ON
34	OFF	ON	OFF	OFF	OFF	ON
35	ON	ON	OFF	OFF	OFF	ON
36	OFF	OFF	ON	OFF	OFF	ON
37	ON	OFF	ON	OFF	OFF	ON
38	OFF	ON	ON	OFF	OFF	ON
39	ON	ON	ON	OFF	OFF	ON
40	OFF	OFF	OFF	ON	OFF	ON
41	ON	OFF	OFF	ON	OFF	ON
42	OFF	ON	OFF	ON	OFF	ON
43	ON	ON	OFF	ON	OFF	ON
44	OFF	OFF	ON	ON	OFF	ON
45	ON	OFF	ON	ON	OFF	ON
46	OFF	ON	ON	ON	OFF	ON
47	ON	ON	ON	ON	OFF	ON
48	OFF	OFF	OFF	OFF	ON	ON
49	ON	OFF	OFF	OFF	ON	ON
50	OFF	ON	OFF	OFF	ON	ON
51	ON	ON	OFF	OFF	ON	ON
52	OFF	OFF	ON	OFF	ON	ON
53	ON	OFF	ON	OFF	ON	ON
54	OFF	ON	ON	OFF	ON	ON
55	ON	ON	ON	OFF	ON	ON
56	OFF	OFF	OFF	ON	ON	ON
57	ON	OFF	OFF	ON	ON	ON
58	OFF	ON	OFF	ON	ON	ON
59	ON	ON	OFF	ON	ON	ON
60	OFF	OFF	ON	ON	ON	ON
61	ON	OFF	ON	ON	ON	ON
62	OFF	ON	ON	ON	ON	ON
63	ON	ON	ON	ON	ON	ON

Note:	DIP switch 7 is not used and must be left OFF.

Note:	For units with an TX3-IP Module installed, DIP Switch 8 determines how the IP address is assigned to the IP Module.

- **DIP Switch 8 OFF:** The IP address is assigned using a DHCP server. This is the default factory setting.
- **DIP switch 8 ON:** The IP address is assigned using the TX3 Configurator software.

2.7   RS-485

If you do not have end-of-line 120 Ω resistors, close JW5 on the first and last controllers instead.

If there are problems with RS-485 communication, close both JW9 and JW10 on either the first or last controller connected by RS-485.

Note:	Use twisted shielded pair.

Recommended cables for RS-485:

- RS485 cables
    - Belden 3109A RS-485, (4 pr) 22 AWG (7x30) or equivalent
    - Belden 9842 RS-485, (2 pr) 24 AWG (7x32) or equivalent
    - Belden 9841 RS-485, (1 pr) 24 AWG (7x32) or equivalent
- CAT5 Cables
    - Belden 72001E ETHERNET Cat 5e 2 Pair, 24 AWG or equivalent
    - Belden 70006E Cat 5e, 100Mb/s, Quad, AWG 22 (1) or equivalent

Maximum total length for RS-485:

- 4000 feet (1219.2 m) for 22 AWG
- 2500 feet (762 m) for 24 AWG

Attention: Do not T-tap.
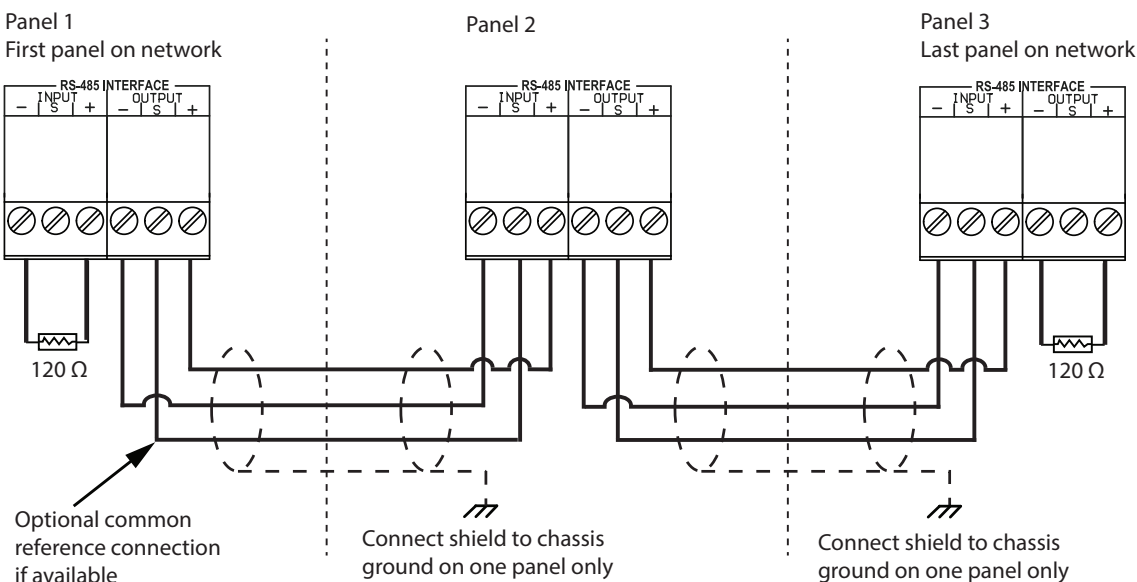
Figure 13.   RS-485 Wiring

2.8   Optional TCP/IP Network Connection

Note: **With firmware 3.4.x and higher, Elevator Control features work with card access panels or telephone access panels that are connected to the Elevator Restriction Unit with RS-485 or TCP/IP.**

Use the optional TX3-IP Module to connect the Elevator Restriction Unit (models TX3-ER-8-A and TX3-ER-8-B only) to an Ethernet TCP/IP network. The TX3-IP Module allows you to configure and monitor the TX3 devices on your system using a computer and an Ethernet connection.

The TX3-IP Module ribbon cable connects to the P3 connector on the controller board. It has an RJ-45 connector that connects to the Ethernet network using a standard Ethernet cable. See Figure 14.
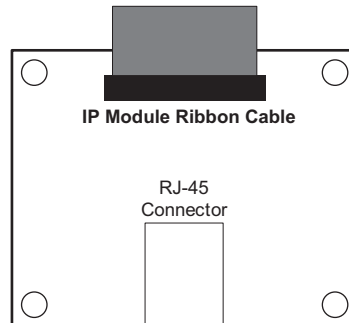
Figure 14.   IP Module Data and Ethernet Connectors

For instructions on how to install the TX3-IP Module, see LT-1161 TX3-IP Module Installation Instructions.

Note: **The TX3-IP Module can be installed only on TX3-ER-8-A and TX3-ER-8-B.**

2.9 Power and Ground on TX3-ER-8 and TX3-ER-8-A

TX3-ER-8 and TX3-ER-8-A use the PS-4P power supply, which is a 16 VAC/ 40 VA, CSA approved Class 2 Power Transformer, plug-in.

Attention: Connect all relay boards and elevator controller wires to the ERU before connecting the power.

Connect the included 16 AWG wire to the earth ground.
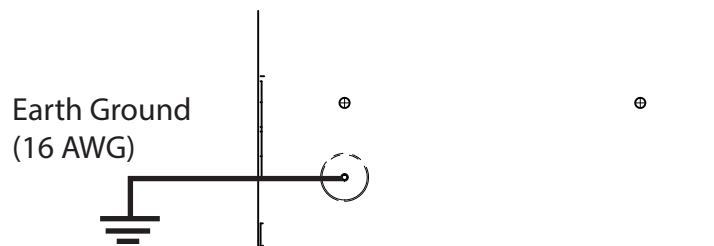
Figure 15.   Earth Ground

Connect the power to the 16VAC IN terminal, and then turn on the power.
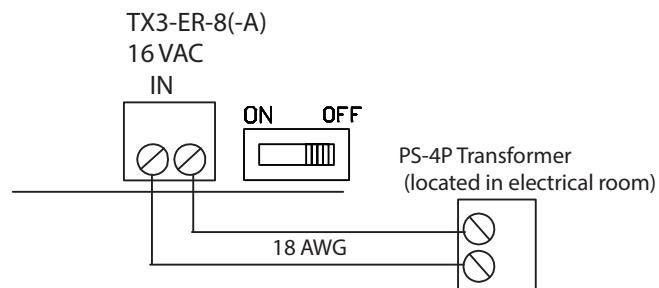
Figure 16.   Power

2.10 Power and Ground on TX3-ER-8-B

TX3-ER-8-B uses the TX3-PS24-5A power supply, which is a 156 W, 24 V single output switching power supply in a metal enclosure.

Attention: **Connect all relay boards and elevator controller wires to the ERU before connecting the power.**

Connect the included 16 AWG wire to the earth ground.
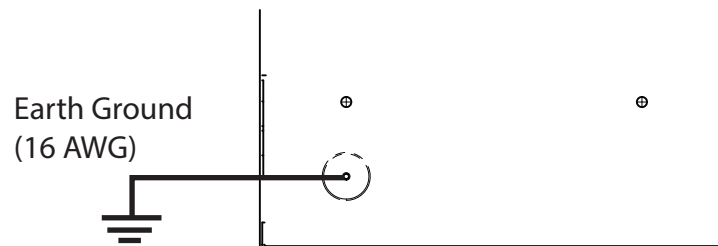
Figure 17.   Earth Ground

2.10.1 External Power Supply Wiring

The power supply terminal block receives 24 VDC from the external TX3-PS24-5A power supply.

The external TX3-PS24-5A power supply connects to the building power AC power supply. A voltage selectable switch is located on the side of the unit and is factory set to 115 V. See the included document LT-6662 for instructions on how to change the voltage.

For best operation install the external power supply into its own dedicated electrical outlet to protect it from excessive power surges and current fluctuations.
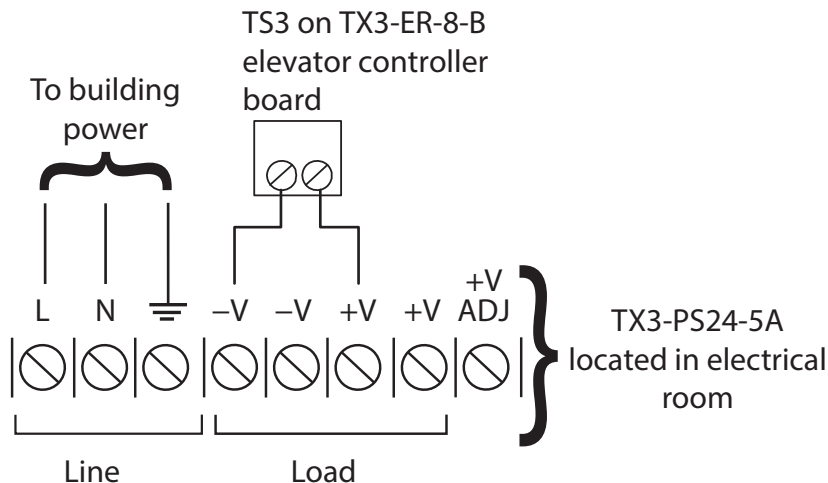
Figure 18.   TX3-PS24-5A Terminal Block Wiring

To connect the power supply

1.   Turn the switch SW1 on the elevator controller board OFF. The location of SW1 is shown in Figure 12.
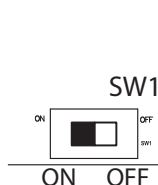
Figure 19.   Power Switch SW1 on the Elevator Controller Board

2.   Set the voltage selectable switch on the TX3-PS24-5A power supply to the appropriate voltage. The voltage selectable switch can be set to either 115 V or 230 V. See the included document LT-6662.

3.   Connect the load power supply wires to the elevator controller board TS3 terminal screws.

4.   Connect the other end of the load power supply wires to the **Load** terminal screws on the TX3-PS24-5A.

5.   Connect the building power supply wires to the **Line** terminal screws on the TX3-PS24-5A.

6.   Turn the switch SW1 on the elevator controller board on.

2.10.2 Maximum Power Supply Wire Distances

The distance from the ERU to the power supply is a function of the wire gauge and the resistance generated by the cable by the power draw.

Do not exceed the maximum distances from the ERU to the power supply as indicated in Table 2.

Table 2:   Maximum Power Supply Wire Distances

Gauge	Distance
16	125 ft (38.1 m)
14	200 ft (60.96 m)
12	320 ft (97.536 m)
10	500 ft (152.4 m)

2.11   Firmware Update

You can update the firmware on your panel with the TX3 Configurator software by using one of the following methods.

- Firmware Upgrade Wizard
- Network Firmware Upgrade

The Firmware Upgrade Wizard can be used to update only one panel at a time. It will work on any panel.

The Network Firmware Upgrade procedure can update more than one panel at the same time. In order to use the Network Firmware Upgrade, all of the panels must already have firmware that supports this feature installed on them.

Refer to LT-995 TX3 System Configuration and Administration Manual for instructions on how to perform both of these firmware upgrade methods. LT-995 can be found on the TX3 Configurator Software installation CD, USB flash drive, or on the Mircom website.

2.12   System Configuration

See LT-995 TX3 System Configuration and Administration Manual for instructions on configuring an elevator restriction system.

3 Specifications

3.1 TX3-ER-8 and TX3-ER-8-A

Operating Temperature
50°C (122°F) to −20°C (−4°F)
AC Power Supply
105 VAC to 128 VAC
Power Transformer
Mircom Model PS-4P. 16 VAC/ 40 VA, CSA approved Class 2 Power Transformer, plug-in.
Relays
Up to eight 2012E relay boards can be mounted on the Elevator Restriction Controller Backplane, for a maximum of 96 relays. Form C relay with these contact ratings: 0.25 A max. / 100 VDC max

3.2 TX3-ER-8-B

Operating Temperature
50°C (122°F) to −20°C (−4°F)
External Power Supply
TX3-PS24-5A 156 W, 24 V single output switching power supply Input voltage: 88 VAC to 132 VAC
2012E Relay Board
Up to eight relay boards can be mounted on the Elevator Restriction Controller Backplane, for a maximum of 96 relays. Form C relay with these contact ratings: 0.25 A max. / 100 VDC max

3012E Relay Board
Up to eight relay boards can be mounted on the Elevator Restriction Controller Backplane, for a maximum of 96 relays. Form C relay contacts with the following ratings: •   220 VDC @ 0.24 A •   250 VAC @ 0.25 A •   30 VDC @ 2 A

4 Relay List

Use these tables to keep a list of relays. Print out one copy of this chapter for every ERU.

Table 3: ERU #_____, Position 1

Number on the Relay Board	Relay Number in the Configurator	Floor Number	Other Information
1	1		
2	2		
3	3		
4	4		
5	5		
6	6		
7	7		
8	8		
9	9		
10	10		
11	11		
12	12		

Table 4: ERU #_____, Position 2

Number on the Relay Board	Relay Number in the Configurator	Floor Number	Other Information
1	13		
2	14		
3	15		
4	16		
5	17		
6	18		
7	19		
8	20		
9	21		
10	22		

Table 4: ERU #_____, Position 2 (Continued)

Number on the Relay Board	Relay Number in the Configurator	Floor Number	Other Information
11	23		
12	24		

Table 5: ERU #_____, Position 3

Number on the Relay Board	Relay Number in the Configurator	Floor Number	Other Information
1	25		
2	26		
3	27		
4	28		
5	29		
6	30		
7	31		
8	32		
9	33		
10	34		
11	35		
12	36		

Table 6: ERU #_____, Position 4

Number on the Relay Board	Relay Number in the Configurator	Floor Number	Other Information
1	37		
2	38		
3	39		
4	40		
5	41		
6	42		
7	43		
8	44		
9	45		

Table 6: ERU #_____, Position 4 (Continued)

Number on the Relay Board	Relay Number in the Configurator	Floor Number	Other Information
10	46		
11	47		
12	48		

Table 7: ERU #_____, Position 5

Number on the Relay Board	Relay Number in the Configurator	Floor Number	Other Information
1	49		
2	50		
3	51		
4	52		
5	53		
6	54		
7	55		
8	56		
9	57		
10	58		
11	59		
12	60		

Table 8: ERU #_____, Position 6

Number on the Relay Board	Relay Number in the Configurator	Floor Number	Other Information
1	61		
2	62		
3	63		
4	64		
5	65		
6	66		
7	67		
8	68		

Table 8: ERU #_____, Position 6 (Continued)

Number on the Relay Board	Relay Number in the Configurator	Floor Number	Other Information
9	69		
10	70		
11	71		
12	72		

Table 9: ERU #_____, Position 7

Number on the Relay Board	Relay Number in the Configurator	Floor Number	Other Information
1	73		
2	74		
3	75		
4	76		
5	77		
6	78		
7	79		
8	80		
9	81		
10	82		
11	83		
12	84		

Table 10: ERU #_____, Position 8

Number on the Relay Board	Relay Number in the Configurator	Floor Number	Other Information
1	85		
2	86		
3	87		
4	88		
5	89		
6	90		
7	91		

Table 10: ERU #_____, Position 8 (Continued)

Number on the Relay Board	Relay Number in the Configurator	Floor Number	Other Information
8	92		
9	93		
10	94		
11	95		
12	96		

Warranty and Warning Information

WARNING!

Please read this document **CAREFULLY**, as it contains important warnings, life-safety, and practical information about all products manufactured by the Mircom Group of Companies, including Mircom and Secutron branded products, which shall include without limitation all fire alarm, nurse call, building automation and access control and card access products (hereinafter individually or collectively, as applicable, referred to as "**Mircom System**").

NOTE TO ALL READERS:

1. **Nature of Warnings.** The within warnings are communicated to the reader out of an abundance of caution and create no legal obligation for Mircom Group of Companies, whatsoever. Without limiting the generality of the foregoing, this document shall NOT be construed as in any way altering the rights and obligations of the parties, governed by the legal documents that apply in any given circumstance.

2. **Application.** The warnings contained in this document apply to all Mircom System and shall be read in conjunction with:

    a. the product manual for the specific Mircom System that applies in given circumstances;

    b. legal documents that apply to the purchase and sale of a Mircom System, which may include the company's standard terms and conditions and warranty statements;

    c. other information about the Mircom System or the parties' rights and obligations as may be application to a given circumstance.

3. **Security and Insurance.** Regardless of its capabilities, no Mircom System is a substitute for property or life insurance. Nor is the system a substitute for property owners, renters, or other occupants to act prudently to prevent or minimize the harmful effects of an emergency situation. Building automation systems produced by the Mircom Group of Companies are not to be used as a fire, alarm, or life-safety system.

NOTE TO INSTALLERS:

All Mircom Systems have been carefully designed to be as effective as possible. However, there are circumstances where they may not provide protection. Some reasons for system failure include the following. As the only individual in contact with system users, please bring each item in this warning to the attention

of the users of this Mircom System. Failure to properly inform system end-users of the circumstances in which the system might fail may result in over-reliance upon the system. As a result, it is imperative that you properly inform each customer for whom you install the system of the possible forms of failure:

4. **Inadequate Installation.** All Mircom Systems must be installed in accordance with all the applicable codes and standards in order to provide adequate protection. National standards require an inspection and approval to be conducted by the local authority having jurisdiction following the initial installation of the system and following any changes to the system. Such inspections ensure installation has been carried out properly.

5. **Inadequate Testing.** Most problems that would prevent an alarm a Mircom System from operating as intended can be discovered by regular testing and maintenance. The complete system should be tested by the local authority having jurisdiction immediately after a fire, storm, earthquake, accident, or any kind of construction activity inside or outside the premises. The testing should include all sensing devices, keypads, consoles, alarm indicating devices and any other operational devices that are part of the system.

NOTE TO USERS:

All Mircom Systems have been carefully designed to be as effective as possible. However, there are circumstances where they may not provide protection. Some reasons for system failure include the following. The end user can minimize the occurrence of any of the following by proper training, testing and maintenance of the Mircom Systems:

6. **Inadequate Testing and Maintenance.** It is imperative that the systems be periodically tested and subjected to preventative maintenance. Best practices and local authority having jurisdiction determine the frequency and type of testing that is required at a minimum. Mircom System may not function properly, and the occurrence of other system failures identified below may not be minimized, if the periodic testing and maintenance of Mircom Systems is not completed with diligence and as required.

7. **Improper Operation.** It is important that all system users be trained in the correct operation of the alarm system and that they know how to respond when the system indicates an alarm. A Mircom System may not function as intended during an emergency situation where the user is unable to operate a panic or emergency switch by reason of permanent or temporary physical disability, inability to reach the device in time, unfamiliarity with the correct operation, or related circumstances.

8. **Insufficient Time.** There may be circumstances when a Mircom System will operate as intended, yet the occupants will not be protected from the emergency due to their inability to respond to the warnings in a timely manner. If the system is monitored, the response may not occur in time enough to protect the occupants or their belongings.

9. **Carelessness or Safety Hazards.** Moreover, smoke detectors may not provide timely warning of fires caused by carelessness or safety hazards such as smoking in bed, violent explosions, escaping gas, improper storage of flammable materials, overloaded electrical circuits or children playing with matches or arson.

10. **Power Failure.** Some Mircom System components require adequate electrical power supply to operate. Examples include: smoke detectors, beacons, HVAC, and lighting controllers. If a device operates only by AC power, any interruption, however brief, will render that device inoperative while it does not have power. Power interruptions of any length are often accompanied by voltage fluctuations which may damage Mircom Systems or other electronic equipment. After a power interruption has occurred, immediately conduct a complete system test to ensure that the system operates as intended.

11. **Battery Failure.** If the Mircom System or any device connected to the system operates from batteries it is possible for the batteries to fail. Even if the batteries have not failed, they must be fully charged, in good condition, and installed correctly. Some Mircom Systems use replaceable batteries, which have a limited life-span. The expected battery life is variable and in part dependent on the device environment, usage and type. Ambient conditions such as high humidity, high or low temperatures, or large temperature fluctuations may reduce the expected battery life. Moreover, some Mircom Systems do not have a battery monitor that would alert the user in the event that the battery is nearing its end of life. Regular testing and replacements are vital for ensuring that the batteries function as expected, whether or not a device has a low-battery monitor.

12. **Physical Obstructions.** Motion sensors that are part of a Mircom System must be kept clear of any obstacles which impede the sensors' ability to detect movement. Signals being communicated by a Mircom System may not reach the receiver if an item (such as metal, water, or concrete) is placed on or near the radio path. Deliberate jamming or other inadvertent radio signal interference can also negatively affect system operation.

13. **Wireless Devices Placement Proximity.** Moreover all wireless devices must be a minimum and maximum distance away from large metal objects, such as refrigerators. You are required to consult the specific Mircom System manual and application guide for any maximum distances required between devices and suggested placement of wireless devices for optimal functioning.

14. **Failure to Trigger Sensors.** Moreover, Mircom Systems may fail to operate as intended if motion, heat, or smoke sensors are not triggered.

a. Sensors in a fire system may fail to be triggered when the fire is in a chimney, walls, roof, or on the other side of closed doors. Smoke and heat detectors may not detect smoke or heat from fires on another level of the residence or building. In this situation the control panel may not alert occupants of a fire.

b. Sensors in a nurse call system may fail to be triggered when movement is occurring outside of the motion sensors' range. For example, if movement is occurring on the other side of closed doors or on another level of the residence or building the motion detector may not be triggered. In this situation the central controller may not register an alarm signal.

15. **Interference with Audible Notification Appliances.** Audible notification appliances may be interfered with by other noise sources such as stereos, radios, televisions, air conditioners, appliances, or passing traffic. Audible notification appliances, however loud, may not be heard by a hearing-impaired person.

16. **Other Impairments.** Alarm notification appliances such as sirens, bells, horns, or strobes may not warn or waken a sleeping occupant if there is an intervening wall or door. It is less likely that the occupants will be alerted or awakened when notification appliances are located on a different level of the residence or premise.

17. **Software Malfunction.** Most Mircom Systems contain software. No warranties are provided as to the software components of any products or stand-alone software products within a Mircom System. For a full statement of the warranties and exclusions and limitations of liability please refer to the company's standard Terms and Conditions and Warranties.

18. **Telephone Lines Malfunction.** Telephone service can cause system failure where telephone lines are relied upon by a Mircom System. Alarms and information coming from a Mircom System may not be transmitted if a phone line is out of service or busy for a certain period of time. Alarms and information may not be transmitted where telephone lines have been compromised by criminal tampering, local construction, storms or earthquakes.

19. **Component Failure.** Although every effort has been made to make this Mircom System as reliable as possible, the system may fail to function as intended due to the failure of a component.

20. **Integrated Products.** Mircom System might not function as intended if it is connected to a non-Mircom product or to a Mircom product that is deemed non-compatible with a particular Mircom System. A list of compatible products can be requested and obtained.

Warranty

Purchase of all Mircom products is governed by:

https://www.mircom.com/product-warranty

https://www.mircom.com/purchase-terms-and-conditions

https://www.mircom.com/software-license-terms-and-conditions

Special Notices

Product Model Number: TX3

AC REN (U.S.): 0.0B

AC REN (CANADA): 0.0

Complies With

Federal Communications Commission (FCC):

- CFR 47, Part 15, Subpart B, Class B
- Unintentional Radiators

Industry Canada (IC):

- ICES-003, ISSUE 4, CLASS B
- Verification Authorization - Digital Apparatus

Registration Numbers

FCC (U.S.): 1M8TE00BTX3

IC (Canada): 1156A-TX3

Industry Canada Notice for all TX3 Products Sold in Canada

The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational, and safety requirements. Industry Canada does not guarantee the equipment will operate to the user's satisfaction. Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunication company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradations of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alteration made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the

equipment. Users should ensure for their own protection that the earth ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This is necessary both for proper operation and for protection.

Note: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

Note: **The Ringer Equivalence Number (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the RENs of all the devices does not exceed five.**

FCC Notice for all TX3 Products Sold in the U.S.A.

Type of Service

The TX3 is designed to be used on standard device telephone lines. It connects to the telephone line by means of a standard jack called the USOC RJ-11C (or USOC FJ45S). Connection to telephone company-provided coin service (central office implemented systems) is prohibited. Connection to party lines service is subject to state tariffs.

Telephone Company Procedures

The goal of the telephone company is to provide you with the best service it can. In order to do this, it may occasionally be necessary for them to make changes in their equipment, operations or procedures. If these changes might affect your service or the operation of your equipment, the telephone company will give you notice, in writing, to allow you to make any changes necessary to maintain uninterrupted service.

In certain circumstances, it may be necessary for the telephone company to request information from you concerning the equipment which you have connected to your telephone line. Upon request of the telephone company, provide the FCC registration number and the ringer equivalence number (REN); both of these items are listed on the equipment label. The sum of all of the RENs on your telephone lines should be less than five in order to assure proper service from the telephone company. In some cases, a sum of five may not be useable on a given line.

Mircom®

Changes to Telephone Service

The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens the telephone company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.

Ringer Equivalence Number

The REN is used to determine the number of devices that may be connected to a telephone line. Excessive RENs on a telephone line may result in the devices not ringing in response to an incoming call. In most but not all areas, the sum of RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local telephone company. For products approved after July 23, 2001, the REN for this product is Customer Information 3 July 2003 part of the product identifier that has the format US:AAAEQ##TXXXX. The digits represented by ## are the REN without a decimal point (e.g., 03 is a REN of 0.3). For earlier products, the REN is separately shown on the label.

If Problems Arise

If any of your telephone equipment is not operating properly, you should immediately remove it from your telephone line, as it may cause harm to the telephone network. If the telephone company notes a problem, they may temporarily discontinue service. When practical, they will notify you in advance of this disconnection. If advance notice is not feasible, you will be notified as soon as possible. When you are notified, you will be given the opportunity to correct the problem and informed of your right to file a complaint with the FCC. Contact your telephone company if you have any questions about your telephone line. In the event repairs are ever needed on the Communicator, they should be performed by Mircom or an authorized representative of Mircom. For information contact Mircom at the address and telephone numbers in paragraph 1.10.

If this equipment, TX3 Telephone System, causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

Product Identifier

This equipment complies with Part 68 of the FCC rules and the requirements adopted by the ACTA. On the back of the front panel cover of this equipment is a label that contains, among other information, a product identifier in the format US:AAAEQ##TXXXX. If requested, this number must be provided to the telephone company.

Telephone Connection

A plug and jack used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ACTA. You are responsible for installing a compliant telephone cord and modular plug into this product as described in this manual. It is designed to be connected to a compatible modular jack that is also compliant. See installation instructions for details.

Equipment Failure

If trouble is experienced with the TX3 Telephone/Card Access System, for repair or warranty information, please contact Mircom using the numbers paragraph 1.10. If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

Use With Alarm Auto Dialers

If your institution has specially wired alarm equipment connected to the telephone line, ensure the installation of the TX3 Telephone/Card Access System does not disable your alarm equipment. If you have questions about what will disable alarm equipment, consult your telephone company or a qualified installer.