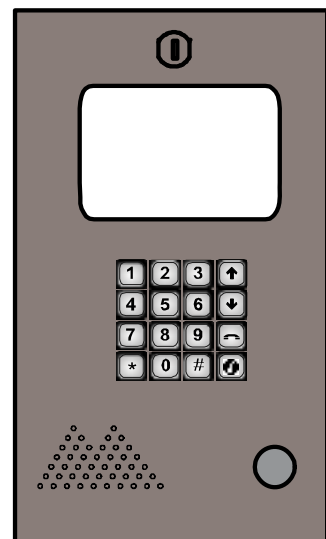
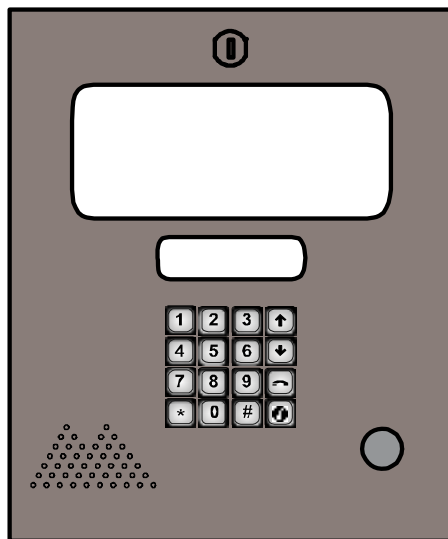




TX3 Series

TELEPHONE ACCESS SYSTEMS



Installation and Operation Manual

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1 Introduction

This manual provides information about the installation and operation of the Telephone Access 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.**

For warranty and special notices information see the Warranty and Special Notices chapter on page 103.

This manual explains

- Lobby Control Unit Installation and Operation
- NSL Control Unit Installation and Operation
- Elevator Restriction Unit Installation and Operation
- Card Reader Unit Integration

1.1 TX3 Systems

The Mircom's TX3 series of telephone access systems provide high quality two-way communication between residents and their visitors in a multi-unit dwelling establishment.

The basic TX3 system consists of the TX3 Lobby Control Unit and depending on the application, may be integrated with a combination of Mircom Elevator Restriction Units and Card Access Units. All access systems may be networked together using an peer-to-peer RS-485 connection.

The TX3 system is capable of providing ADC or NSL type telephone access control from a single panel or from a networked system.

A maximum of 31 units are supported with any combination of Lobby Control Units, Elevator Restriction Units and Card Access Units. Valid network addresses range from 1 to 31. Units with a real time clock, such as Lobby Control Units and Card Access Units, require the address node to be 1.

The access system can be configured as an autodialer controller (ADC) or as a no subscriber line (NSL) system. Both system setups can be configured for multiple entrances with independent doors and control devices such as electric door locks, cameras, and garage doors.

1.1.1 ADC and NSL Capability

TX3 supports full ADC and NSL telephone connectivity from a single Telephone Access System panel or from a networked system. A single panel supports up to five ADC and/or NSL telephone lines.

An ADC connection requires a dedicated subscriber telephone line service connected to an outside telephone line. This connection lets the visitor call the tenant and access their voice mail.

An NSL type connection uses the existing building telephone lines for communication and does not require a separate telephone line. This system may consist of one or more Lobby Control Units connected to TX3-NSL-8M NSL Units, typically located in the electrical/telephone room of a building. The NSL units intercept all telephone lines into the building's suites and communicate directly to the resident phone using the Lobby Control Unit.

1.1.2 Elevator Restriction Units

The TX3-ER-8 Elevator Restriction Unit limits building accessibility by granting visitor access only to the destination floor.

1.1.3 Other Controllers

Mircom controllers, such as the Card Access controller, may be networked with the TX3 through a peer-to-peer RS-485 network.

1.2 Features

Features of the TX3 series include:

- Stainless steel front panel
- Universal Series enclosure with a built-in rain hood
- Large scrolling 8 x 20 LCD display that eliminates the need for an external directory
- Back-lit 16 digit keypad with dedicated operational buttons for Page Up, Page Down, Call and Info
- Provisions for postal lock and camera
- Multilingual Display and Voice Greeting (English, French-Canadian and Spanish) that provides instructions on how to use the Lobby Control Unit
- Concierge/Security Desk/Guard Phone capability
- Card Access Interface
- Supports both Auto Dialer (ADC) and NSL (no phone bill)
- Ability to network panels together (peer-to-peer)
- Hands free, full duplex communication
- Flexible one to four digit resident dial codes
- Dials up to 18 digit telephone numbers
- System can be configured locally using the keypad or a computer with the TX3 configuration software
- Upload/download configuration files without taking the whole system off-line
- Programming from one location
- Records a maximum of 5000 event logs
- Elevator restriction capability
- Schedule based call restrictions provide more security and flexibility
- Capability of one person testing the NSL controller without using the Lobby Control Unit
- Industry Canada and F.C.C. approved

1.3 Lobby Control Unit Enclosures

There are three sizes of enclosures for Lobby Control Units:

Universal Series. The Universal Series enclosure is an indoor/outdoor unit for the scrolling Lobby Control Unit.

Universal Slim-Line Series. The Universal Slim-Line enclosure is an indoor/outdoor unit that is narrower and longer than the Universal and Continental series, and is for the scrolling Lobby Control Unit. This series is also available as a kit.

Continental Series. The Continental Series is a stainless steel indoor unit larger than the Universal Series and is for the scrolling Lobby Control Unit.

1.3.1 Universal Series

The Universal Series enclosures are surface or semi-flush mounted with the Lobby Control Units. Optional flush trim rings are available for semi-flush and flush installations. A rain hood is included allowing for outdoor use.

The following Universal Panel models use the Scrolling Directory:

Model TX3-120U. Stainless steel finish entry panel with speaker, microswitch for postal lock, 200 name main controller board, 4x20 LCD display, 120 name paper directory and one PS-4P transformer plug. Designed for outdoor applications.

Model TX3-200-8U. Stainless steel finish entry panel with speaker, microswitch for postal lock, 200 name main controller board, 8x20 LCD display and one PS-4P transformer plug. Designed for outdoor applications.

Model TX3-1000-8U. Stainless steel finish entry panel with speaker, microswitch for postal lock, 1000 name main controller board, 8x20 LCD display and one PS-4P transformer plug. Designed for outdoor applications.

Model TX3-2000-8U. Stainless steel finish entry panel with speaker, microswitch for postal lock, comes with a 2000 name main controller board, 8x20 LCD display and one PS-4P transformer plug. Designed for outdoor applications.

1.3.2 Universal Slim-Line Series

The Universal Slim-Line series enclosure houses the TX3-200-4U model and can be surface or semi-flush mounted:

Model TX3-200-4U. Stainless steel finish slim-line entry panel with speaker, microswitch for postal lock, a 4x20 LCD display and one PS-4P transformer plug. Designed for outdoor applications.

1.3.3 Universal Slim-Line Kit

The Universal Slim-Line series is available as a kit:

Model TX3-NSL-12K. The TX3-NSL-12K kit consists of:

- TX3-200-4U slim-line entry panel with speaker and microswitch for postal lock
- 4x20 LCD display
- PS-4P transformer plug
- TX3-NSL-8M Master NSL Relay Cabinet with one PS-4P transformer plug
- 2012K Twelve Telephone Relay Kit with a 2012 Twelve Telephone Relay board and a 9106 Cable
- RJ-71C Punch Down Block for outdoor applications

The Universal Panel Accessories consist of the following:

Model TX3-UFT. Universal Flush mounting trim for use with TX3-120U, TX3-200-8U, TX3-1000-8U and TX3-2000-8U. Stainless steel.

Model TX3-USFT. Universal Slim-Line Flush mounting trim for TX3-200-4U. Stainless steel.

1.3.4 Continental Series

The Continental Series enclosure for Lobby Control Units are flush mounted and for indoor use only. The following Continental Series models use the Scrolling Directory:

Model TX3-120C. Stainless steel finish Lobby Control Unit with speaker, microswitch for postal lock, 120 name paper directory, flush mounting back box and a PS-4P transformer plug. Designed for indoor use.

Model TX3-200-8C. Stainless steel finish Lobby Control Unit with speaker, microswitch for postal lock, 200 name main controller board, 8x20 LCD display, flush mounting back box and one PS-4P transformer plug. Designed for indoor use.

Model TX3-1000-8C. Stainless steel finish Lobby Control Unit with speaker, microswitch for postal lock, 1000 name main controller board, 8x20 LCD display, flush mounting back box and one PS-4P transformer plug. Designed for indoor use.

Model TX3-2000-8C. Stainless steel finish Lobby Control Unit with speaker, microswitch for postal lock, 2000 name main controller board, 8x20 LCD display, flush mounting back box and one PS-4P transformer plug. Designed for indoor use.

Model TX3-200-8CH. Stainless steel finish Lobby Control Unit with speaker, microswitch for postal lock, 200 name main controller board, 8x20 LCD display, handset, flush mounting back box and one PS-4P transformer plug. Designed for indoor use.

Model TX3-1000-8CH. Stainless steel finish Lobby Control Unit with speaker, microswitch for postal lock, 1000 name main controller board, 8x20 LCD display, handset, flush mounting back box and one PS-4P transformer plug. Designed for indoor use.

Model TX3-2000-8CH. Stainless steel finish Lobby Control Unit with speaker, microswitch for postal lock, comes with a 2000 name main controller board, 8x20 LCD display, handset, flush mounting back box and one PS-4P transformer plug. Designed for indoor use.

1.4 Lobby Control Unit Accessories

The Lobby Control Unit accessories consist of the following items:

- TH-102K Thermostat heater kit for outdoor use of Lobby Control Unit unit complete with one PS-24P transformer plug.
- TX3-UFT Universal series flush trim ring.
- TX3-USFT Slim line Universal Series flush trim ring.
- TX3-UGA Gooseneck mounting adapter designed for use with the standard Universal Series enclosure for pedestals.
- TX3-USGA Gooseneck mounting adapter designed for use with the TX3-200-4U Slim Line Universal enclosure pedestals.
- TH-102 Heater Kit
- CAM-2 TX3 Camera
- TX3-MDM Modem Module
- TX3-GPM Guard Phone Module

1.5 Warranty and Special Notices

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

Please see the Warranty and Special Notices chapter on page 103 for information about the warranty and special notices about equipment use.

1.6 About This Manual

This manual provides comprehensive information on the installation and configuration of the TX3 Series Telephone Access System by the installation technician. Tasks are described in the order that they are likely to be performed.

This manual applies to the following models:

- TX3-120/200-4 (4x20 LCD)
- TX3-200-8 (8x20 LCD)
- TX3-1000-8 (8x20 LCD)
- TX3-2000-8 (8x20 LCD)
- TX3-1000-8 (8x20 LCD)

Chapter 9 describes the Telephone Access System resident operating instructions for NSL and ADC systems.

1.6.1 Version Control

The version number appears on the front cover and changes whenever there is a major or minor update to any part of the system regarding operation or configuration.

The following convention indicates major or minor changes:

Initial release. Version 1.00.0

Major change. Version 2.00.0

Minor change. Version 2.01.0

Pre-release changes. Version 2.01.1

1.6.2 Additional Documentation

For additional documentation, see the following Mircom literature:

- TX3-CX Touch Screen Administrators Guide LT-995
- TX3-CX Card Access System Installation and Operation Manual LT-980
- TX3 Telephone Access System User's Guide LT-968
- TX3 Two Door Card Access System Kit Catalogue Number 6531
- TX3 Series Elevator Restriction Accessories Catalogue Number 6532

1.6.3 Key Terms

The following terms are common and specific to this manual:

CAU. Card Access Unit

ERU. Elevator Restriction Unit

LCU. Lobby Control Unit

1.7 Contact Us



You can contact us from Monday to Friday 8:00 A.M. to 5:00 P.M. E.S.T.

1.7.1 General Inquiries

Toll Free: 1-888-660-4655

Local: 905-660-4655

1.7.2 Customer Service

Toll Free: 1-888-MIRCOM5

Local: 905-695-3535

Local Fax: 905-660-4113

Toll-Free Fax: 1-888-660-4113

1.7.3 Technical Support

For technical support contact Mircom's Technical Support Department between 8 A.M. and 5 P.M. (EST) Monday through Friday, excluding holidays.

Toll Free: 1-888-MIRCOM5

Local: 905-695-3535

Local Phone: 905-660-4655

Toll Free Phone: 1-888-660-4655

Email: techsupport@mircom.com

1.7.4 Website

www.mircom.com

1.7.5 Email

mail@mircom.com

2 Enclosure Installation

This chapter provides information on how to install the various enclosures and panels.

This chapter explains

- Enclosure installation
- Lobby Control Unit installation
- Heater installation

2.1 Installing the Enclosures and Lobby Control Unit

Lobby Control Units use one of the following three types of Lobby Control Unit enclosures:

Universal Series. The Universal Series are surface or semi-flush mounted with the lobby Lobby Control Units. Optional flush trim rings are available for semi-flush and flush installations. The semi-flush trim is the TX3-UFT. A rain hood is included allowing for outdoor use.

Universal Slim-Line Series. The Universal Slim-Line series enclosure houses the TX3-200-4U model and can be surface or semi-flush mounted. The semi-flush trim is the TX3-USFT.

Continental Series. The Continental Series enclosure for Lobby Control Units are flush mounted.

2.1.1 Installing the Universal enclosure

The Universal enclosure mounts inside the wall with or without the TX3-UFT Universal Series Flush Trim Ring TX3-UFT. This Trim Ring houses the universal series enclosure as shown in Figure 1.

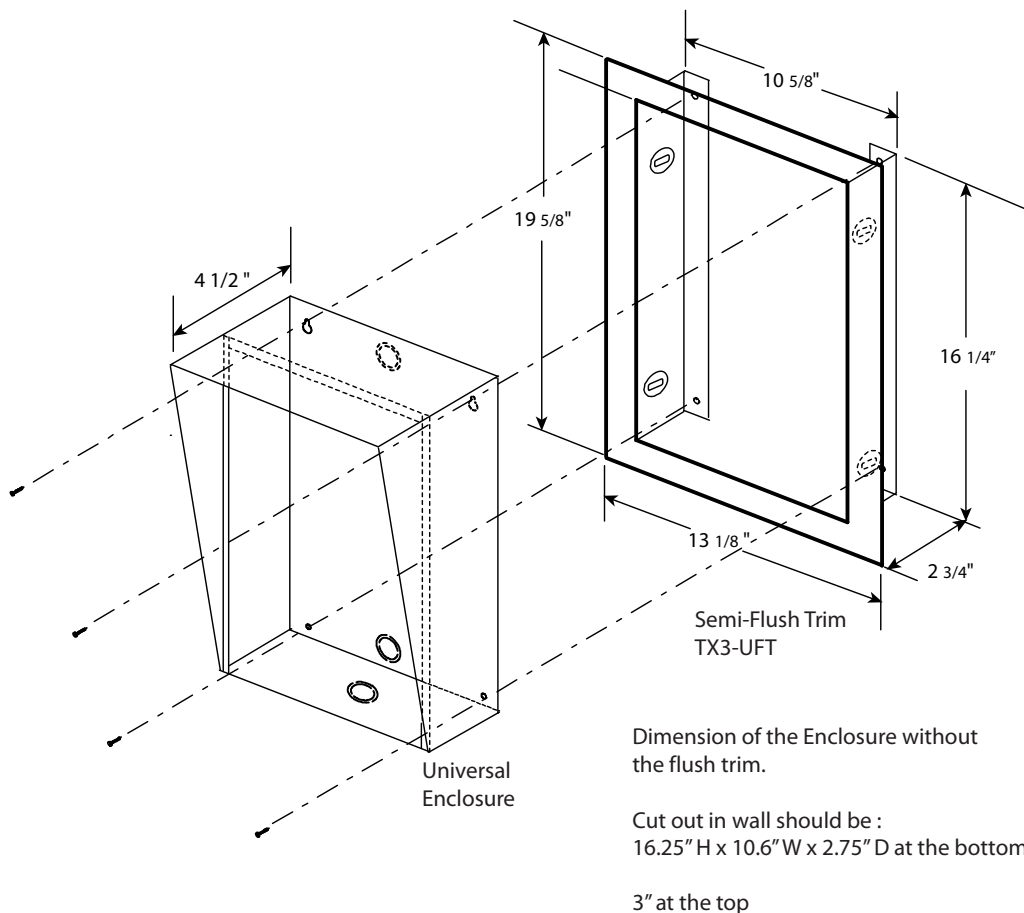


Figure 1. TX3-UFT Universal Series Flush Trim Ring

To install the Universal enclosure with the Flush Trim Ring to the wall stud

1. Find a suitable location for the enclosure next to a wall stud.
2. Using the enclosure as a template, trace an opening in the wall for the cut out with one side aligned with the side of the wall stud.
3. Cut an opening in the wall ensuring that one side is aligned with the wall stud.
4. Using the semi-flush trim ring as a template, insert the trim ring into the wall cut out and mark the top mounting hole location as shown in Figure 1. Ensure that at least one side is beside a wall stud.
5. Place the screw halfway into the wall into the marked hole location using the supplied screw.
6. Hang the Trim Ring onto the top screw.
7. Screw the lower two screw at the bottom of the trim ring halfway into the wall.
8. Tighten the two screws into place.
9. Insert the universal enclosure with the rain hood inside the trim ring.
10. Secure the universal enclosure into the trim ring using the supplied four screws as shown in Figure 1.

To surface mount the Universal enclosure

1. Find a suitable location for the Universal enclosure over a wall stud.
2. Using the Universal enclosure as a template, mark the two side mounting hole locations as indicated in Figure 1. Ensure that at least one side is over a wall stud.
3. Remove the enclosure and place the screws halfway into the marked hole location and wall stud using the supplied screws.
4. Change the Universal enclosure onto the two screws.
5. Screw the two side screws of the Universal enclosure halfway into the wall.
6. Tighten all four screws into place.

Note: The enclosure can also be mounted directly onto the drywall using anchors.

To install the Universal enclosure with the Flush Trim Ring to the back wall

1. Find a suitable location for the enclosure. Using the enclosure as a template trace an opening in the wall for the cut out.
2. Cut an opening in the wall.
3. Using the semi-flush trim ring as a template, insert the trim ring into the wall cut out and mark the top two mounting hole locations as shown in Figure 1.
4. Place the screws halfway into the wall into the marked hole location using the supplied screws.
5. Change the Trim Ring onto the two screws.
6. Screw the lower two screws at the bottom of the trim ring halfway into the wall.
7. Remove the screws and trim ring.
8. Place the universal enclosure with the rain hood, inside the trim ring and insert into the wall cut out.
9. Tighten all four screws into place.

To install the Universal enclosure without the Flush Trim Ring to the back wall

1. Using the semi-flush trim ring as a template, insert the Universal enclosure into the wall cut out and mark the top two mounting hole locations as indicated in Figure 1.
2. Place the screws halfway into the wall into the marked hole location using the supplied screws.
3. Change the Universal enclosure onto the two screws.
4. Screw the lower two screws at the bottom of the Universal enclosure halfway into the wall.
5. Tighten all four screws into place.

2.1.2 Installing the Universal Slim-line enclosure

The Universal enclosure mounts inside the wall with or without the Universal Series Flush Trim Ring TX3-USFT. The Trim Ring houses the universal series enclosure as shown in Figure 2

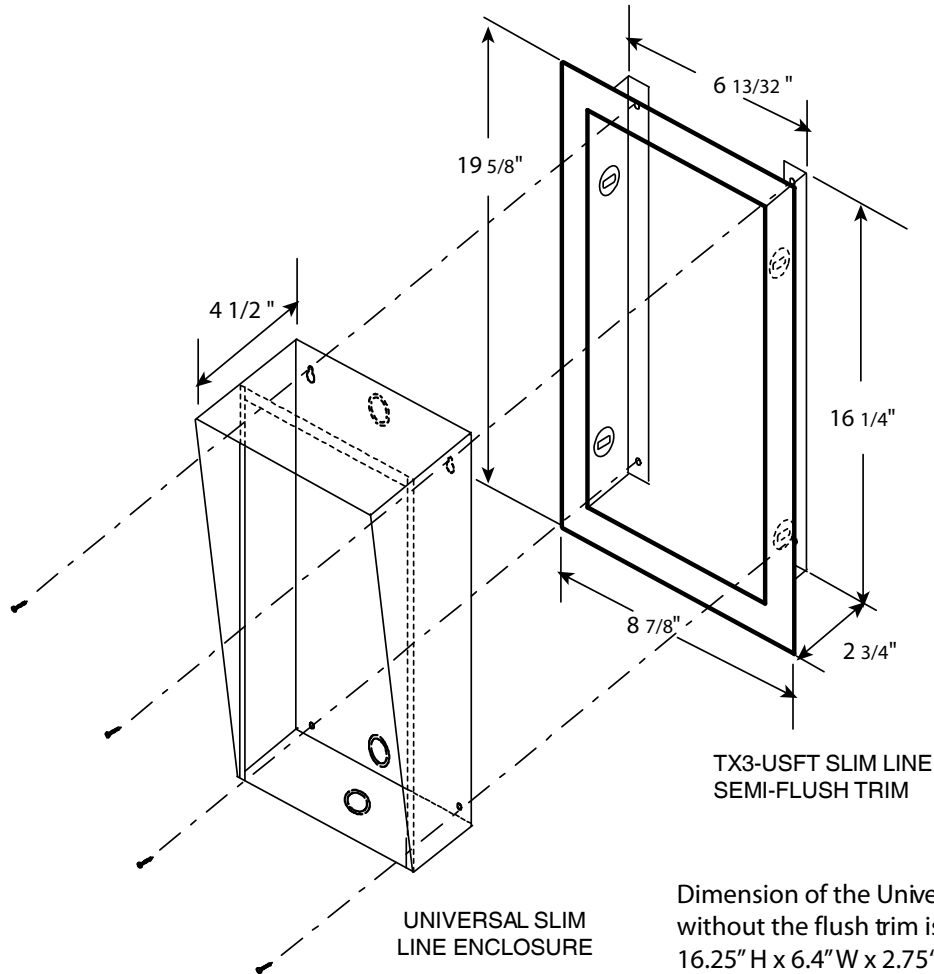


Figure 2. TX3-USFT Slim Line Universal Flush Trim Ring

To install the Universal Slim-line enclosure with or without the Flush Trim Ring

1. Follow the instructions in section 2.1.1. using the Universal Slim-line enclosure.

2.1.3 Installing the Continental enclosure

The Continental enclosure flush mounts directly inside the wall to the wall stud as shown in Figure 3. Mount the back box flush with the wall and right-side up (the ground screw location is at the bottom).

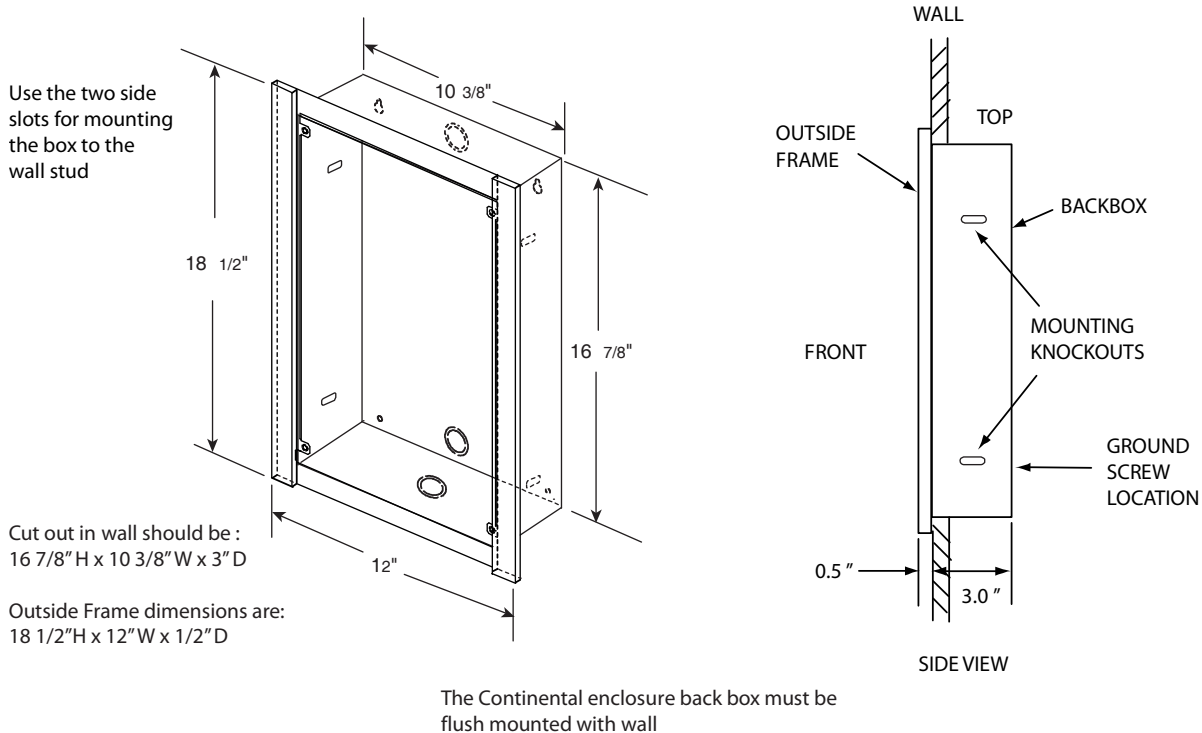


Figure 3. Continental Enclosure Flush Mount

To install the Continental enclosure

1. Find a suitable location for the Continental enclosure beside a wall stud.
2. Using the enclosure as a template, trace an opening in the wall for the cut out with one side aligned with the side of the wall stud.
3. Cut an opening in the wall ensuring that one side is aligned with the wall stud.
4. Insert the enclosure into the wall cutout and using the enclosure as a template mark the top mounting hole location as shown in the side view in Figure 3. Ensure that at least one side is beside a wall stud.
5. Remove the enclosure and place the screw halfway into the wall into the marked hole location using the supplied screw.
6. Place the enclosure onto the top screw.
7. Screw the lower two screws at the bottom of the trim ring halfway into the wall.
8. Tighten the two screws into place.

2.2 Installing the Heater

For temperatures where the Telephone Access System operates below 0°C (32°F) at any time, a heater must be installed inside the Universal enclosure as shown in Figure 4.

For additional information refer to LT-653 TH-102 Heater Installation Instructions.

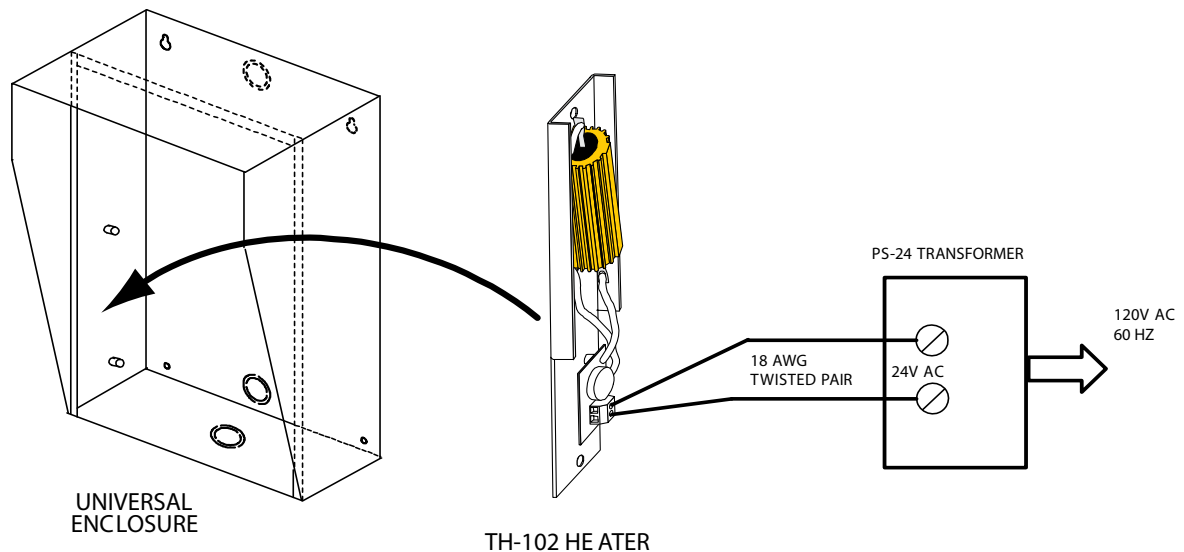


Figure 4. Heater TH-102 Installation Location

To install the heater

1. Place the TH-102 Heater into the bottom left hand corner of the Universal enclosure and secure using the two supplied spacers and two hex nuts.
2. Connect the TH-102 heater to the PS-24 Transformer 24 Vac terminal screws using a pair of #18 AWG wires.

Note: The transformer must be installed outside the enclosure.

3 TX3 System

This chapter provides information about the TX3 System and its use.

This chapter explains

- The TX3 System
- Single Lobby Control Unit
- Dual Lobby Control Unit
- Multiple Lobby Control Units
- Three Lobby Control Unit Configuration
- Single Entrance System Wiring Application

3.1 TX3 System

The TX3 Lobby Control Unit may be networked with a combination of Elevator Restriction Units and Card Access Units through an peer-to-peer RS-485 connection.

The TX3 system is capable of providing ADC or NSL telephone access from a single panel or from a networked system.

The No Subscriber Line (NSL) controller does not use an outside telephone service and calls residents directly using the existing building's resident telephone lines. The NSL system uses the TX3-NSL-8M NSL units and TX3-8EC/16 NSL expanders situated in the electrical/telephone rooms.

The Auto Dialer Controller (ADC) uses the existing outside telephone lines to call residents.

Each outside telephone line requires a separate line to the entry control panel.

The following figures depict various TX3 network scenarios.

Note: Install all transformers outside the Lobby Control Unit enclosure.

All wiring is a maximum length of 1000 ft. The RS-485 wiring maximum length is 4000 ft.

All units use the PS-4P transformer for the power supply. The door strike power supply depends on the door strike power requirements.

3.2 Single Lobby Control Unit

Figure 5 shows the simplest configuration.

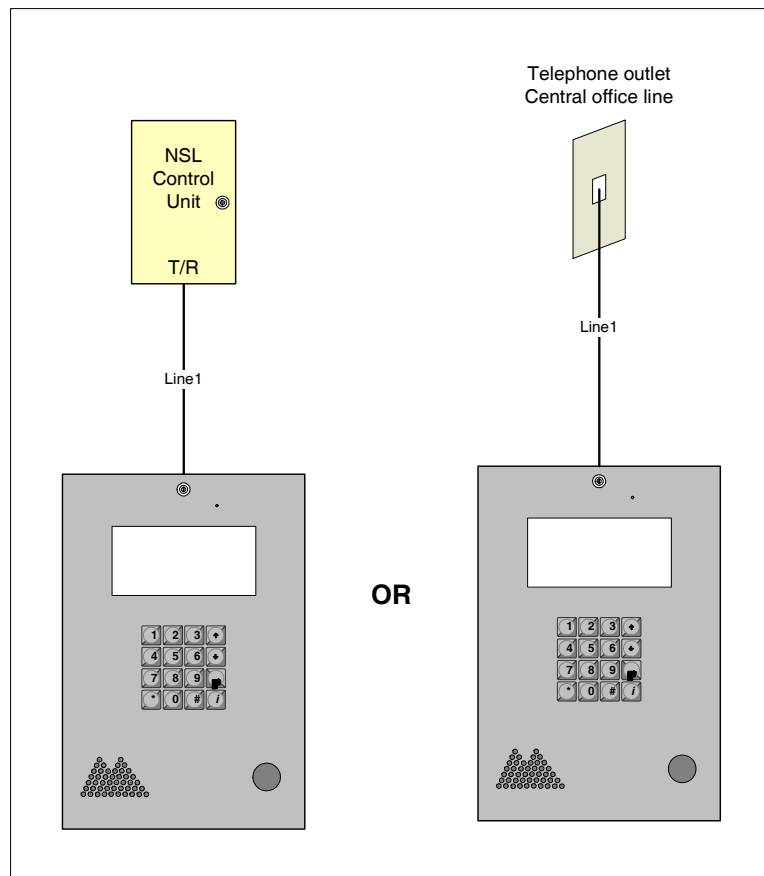


Figure 5. Single Lobby Control Unit

Figure 6 shows a configuration using one Lobby Control Unit connected to one ADC line and four NSL lines.

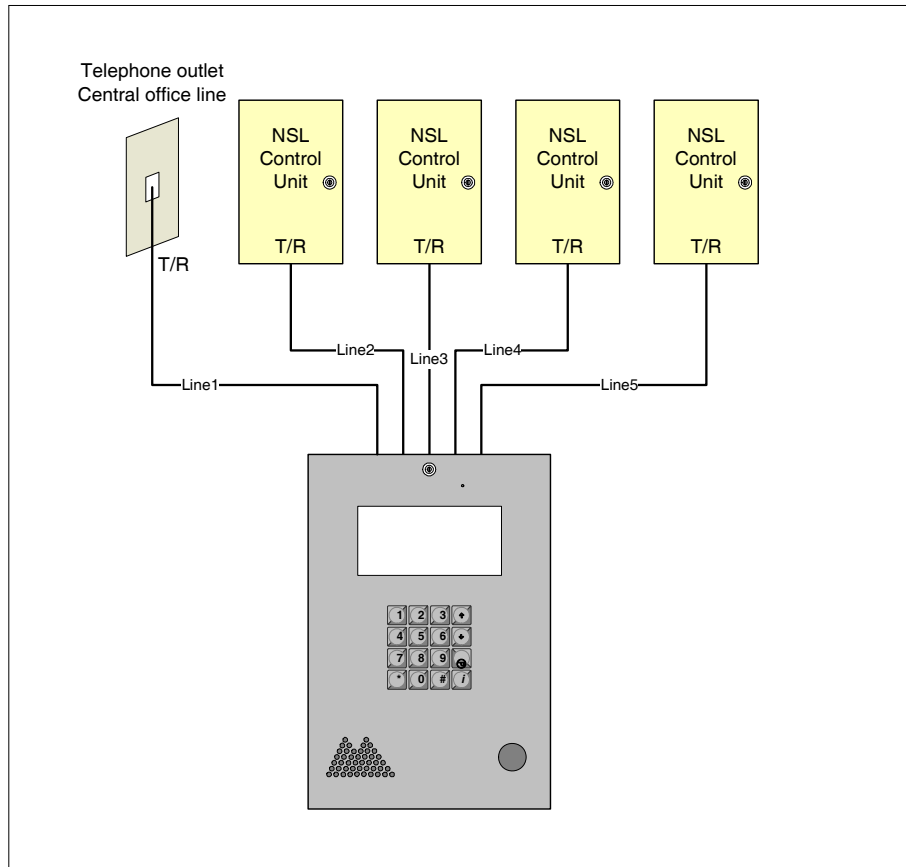


Figure 6. Single Lobby Control Unit with ADC and NSL Lines

Figure 7 shows the various inputs to the panels.

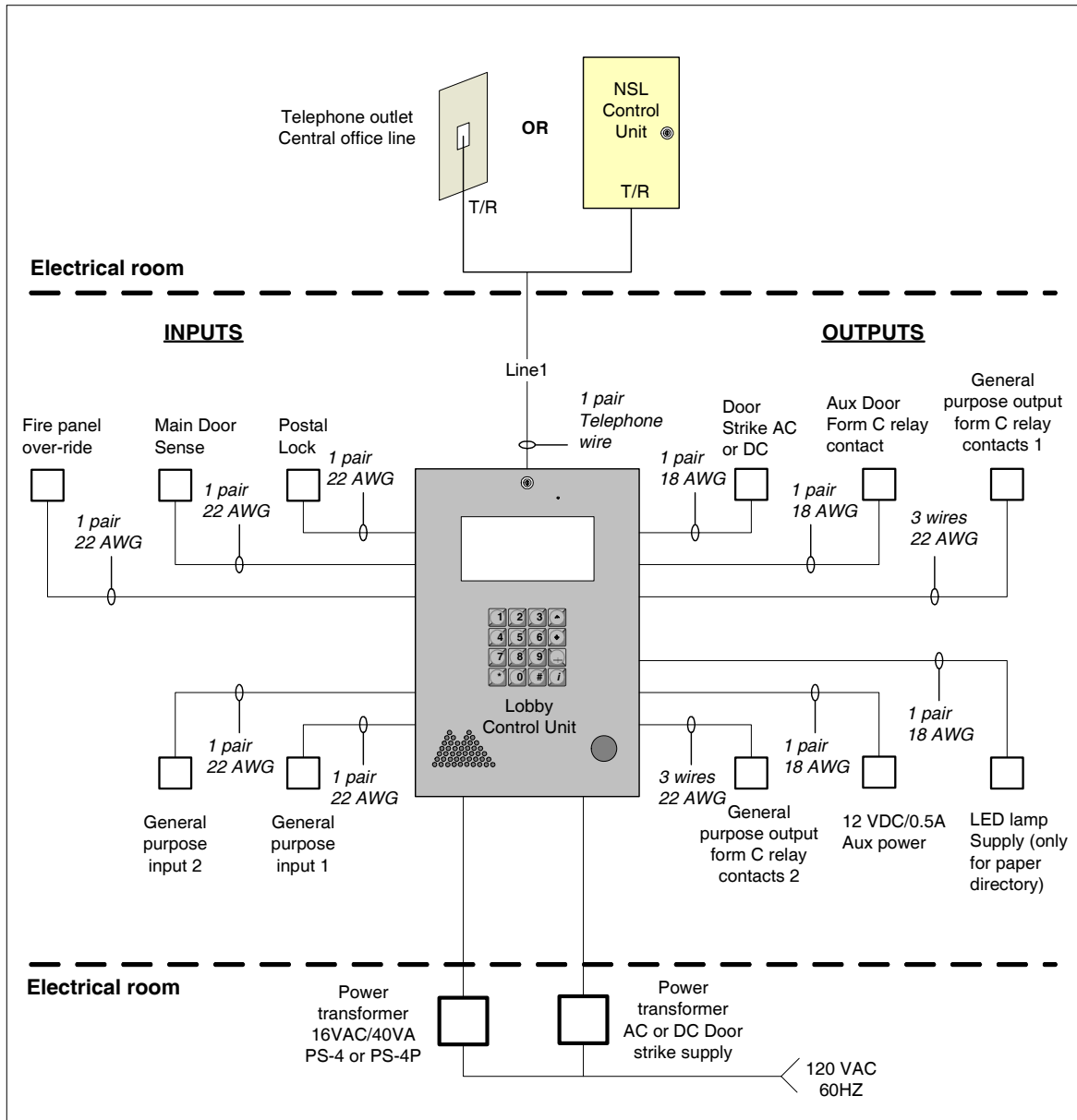


Figure 7. Single Entrance System Wiring

3.3 Dual Lobby Control Units

Figure 8 shows a dual entry application for either an NSL type or ADC connection type. The phone line from either the NSL control unit or an ADC dedicated phone line is shared by both Lobby Control Units.

The Lobby Control Unit senses whether the line is in use. If one of the Lobby Control Units is in use and the user tries to make a call, the other lobby indicates that the line is in use.

The RS-485 network connection is optional and is only required if the user decides to connect a PC configurator on one of the panels to configure and/or monitor both systems.

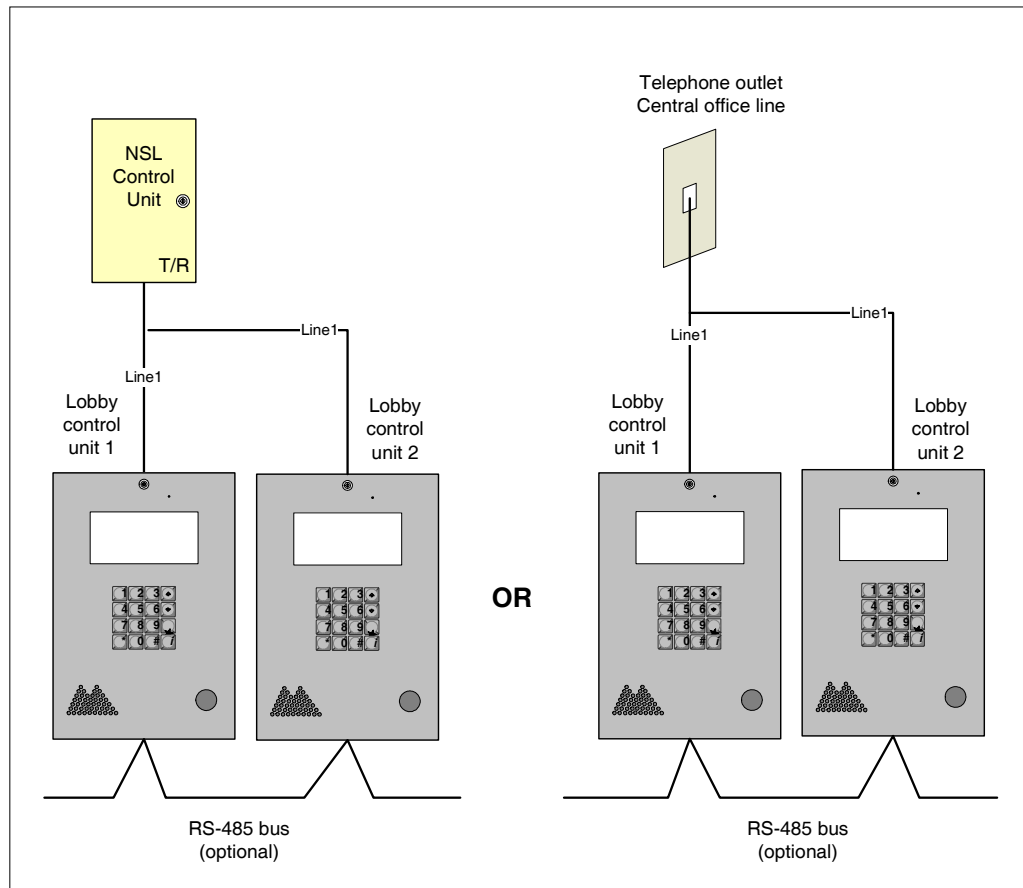


Figure 8. Dual Lobby Control Units

3.4 Three Lobby Control Unit Configuration

Figure 9 shows a configuration with many Lobby Control Units connected to many phone lines using combined ADC and NSL connection types. Line 1 and Line 2 connect to NSL Control Units while Line 3 connects to a dedicated phone line.

Lobby Control Units 1, 2 and 3 can make simultaneous calls as long as a line is not in use by another Lobby Control Unit. For example, if Lobby Control Unit 1 uses line 1, Lobby Control Unit 2 can use Line 2 and Lobby Control Unit 3 can use line 3.

When Lobby Control Unit 1 is using line 1 and Lobby Control Unit 2 also wants to use line 1, which is busy, then a line busy message displays on Lobby Control Unit 2.

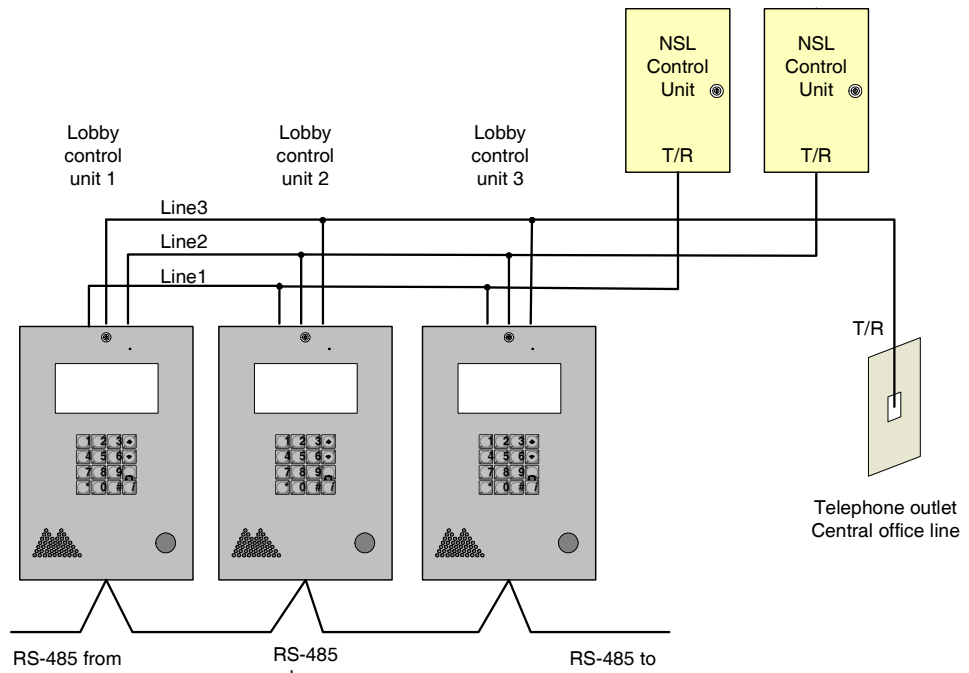


Figure 9. Multiple Lobby Control Units to Multiple Lines

3.5 Multiple Lobby Control Units

Figure 10 shows a configuration of many Lobby Control Units to one phone line. The phone can be either a dedicated phone line from the phone company or an NSL phone line from the NSL Control Unit.

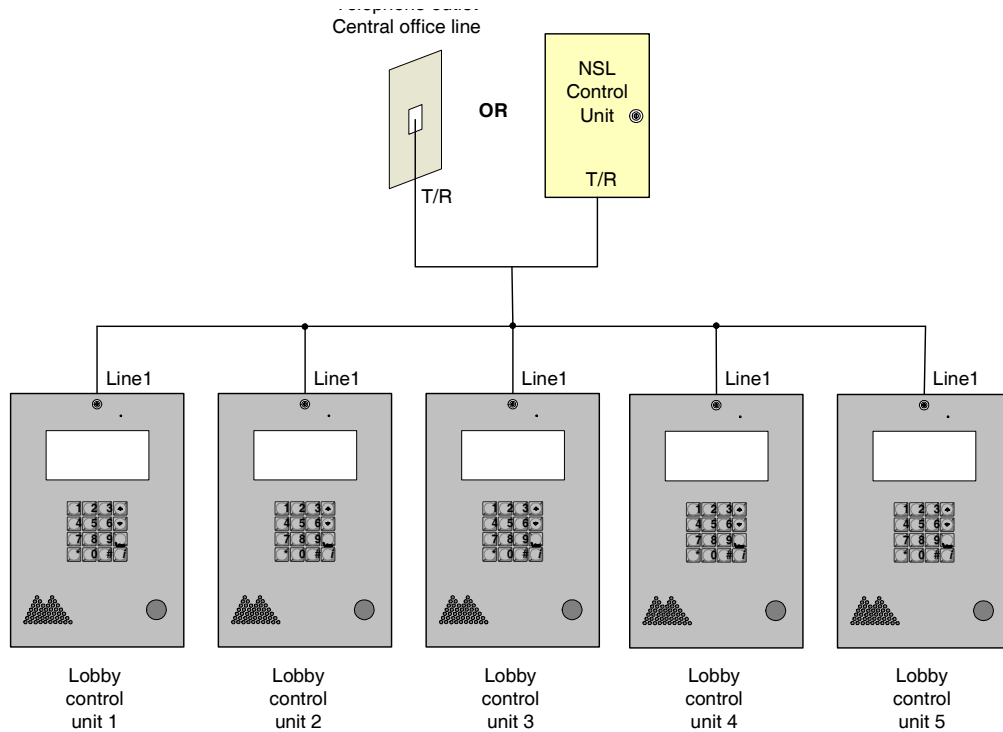


Figure 10. Many Lobby Control Units to One Line

3.6 Lobby Control Unit Wiring

All units use the PS-4P transformer for the power supply. All wiring is a maximum length of 1000 ft. The door strike power supply depends on the door strike power requirements.

Figure 11 shows a typical wiring arrangement for the Lobby Control Unit.

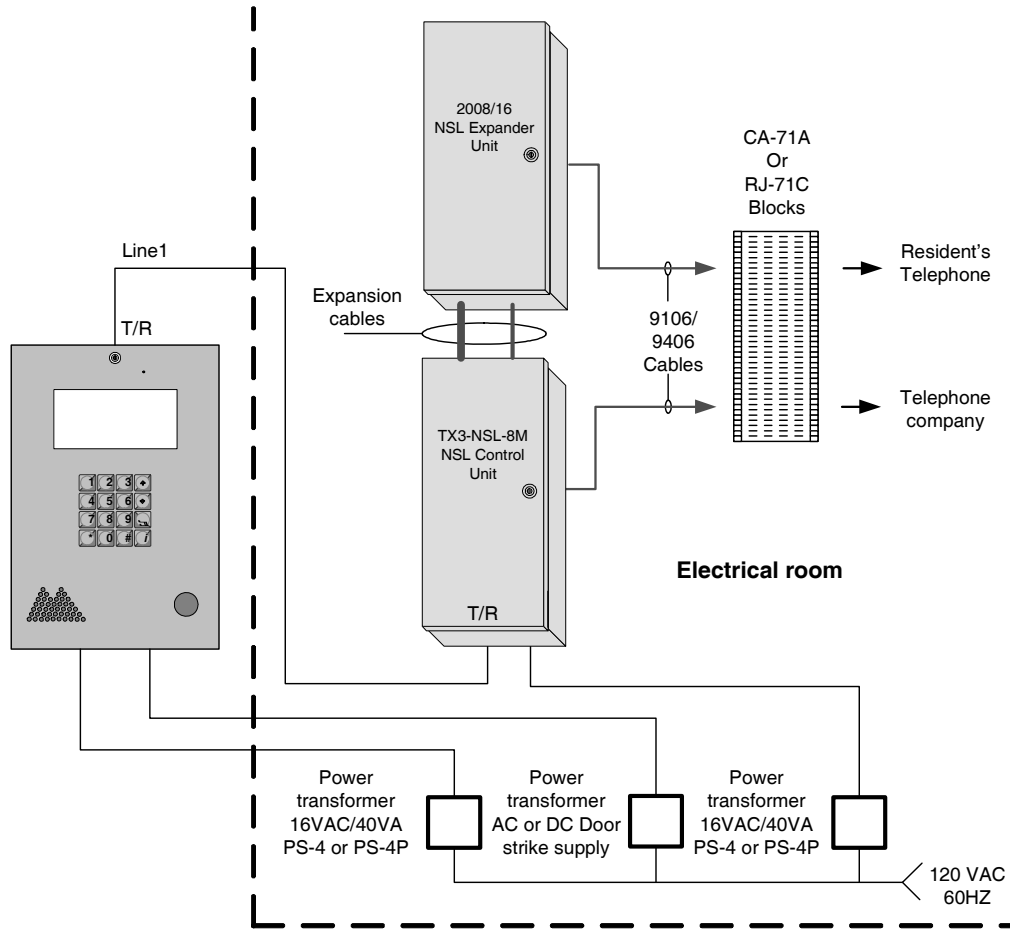


Figure 11. Lobby Control Unit Wiring

Note: Install all transformers outside the Lobby Control Unit enclosure.

4 Lobby Control Unit Setup

This chapter describes the Lobby Control Unit controller board components and provides information about its operation and setup

This chapter explains

- Lobby Control Unit controller board
- Lobby Control Unit Setup
- PC Configuration of the Controller
- Firmware Update

4.1 Controller Board

Figure 12 shows the general layout of the Lobby Control Unit main controller board. See Figure 13 and Figure 16 for a detailed description of the connectors at the bottom and top of the controller board.

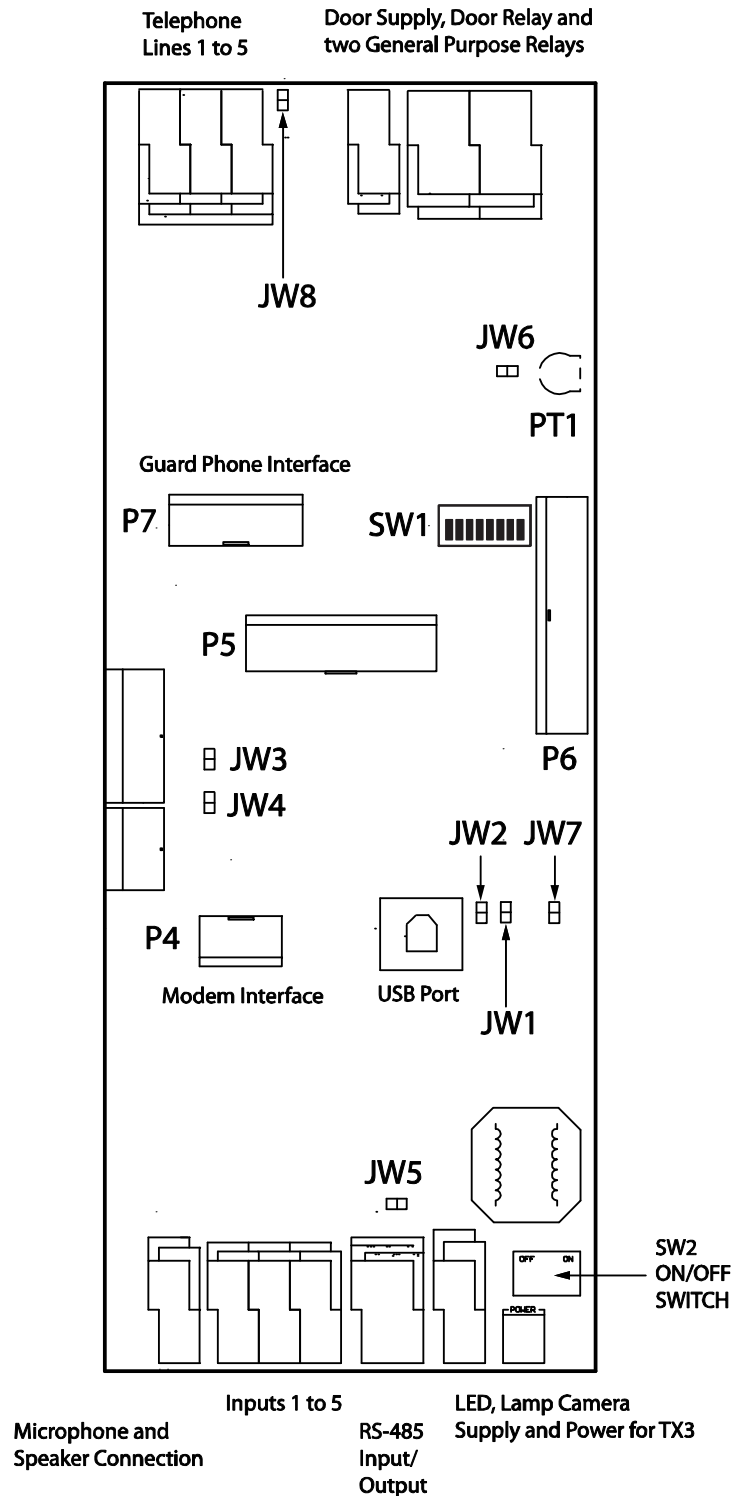


Figure 12. Lobby Control Unit Main Controller Board

4.1.1 Connectors

USB. Computer connection for firmware download.

P4. TX3-MDM Modem Board connector.

P6. Key pad and front door LCD display.

P7. Guard Phone Board connector.

4.1.2 Potentiometer

PT1. Pulse phone potentiometer. This potentiometer is normally factory set and does not require adjustment.

4.1.3 DIP Switches

SW1. SW1 sets the unit's ID (node address).

SW2. SW2 turns the unit's power ON and OFF for servicing, or to re-start the unit.

4.1.4 Jumpers

JW1. JW1 is used for updating firmware and is normally open.

JW2. JW2 is used for updating firmware and is normally open.

JW3. JW3 is not used and is left open.

JW4. JW4 is not used and is left open.

JW5. JW5 is open on all units, except the last one on an RS-485 network, where a jumper is used to short the pins.

JW6. JW6 is left closed.

JW7. JW7 is not used and is left open.

JW8. JW8 defines the operating state of the door strike relay as normally open or normally closed. A jumper wire connects to either the normally open (position 2 - top) or normally closed pin (position 1 - bottom).

4.2 Controller Board Connectors - Bottom

Figure 13 shows the connectors at the bottom of the controller board.

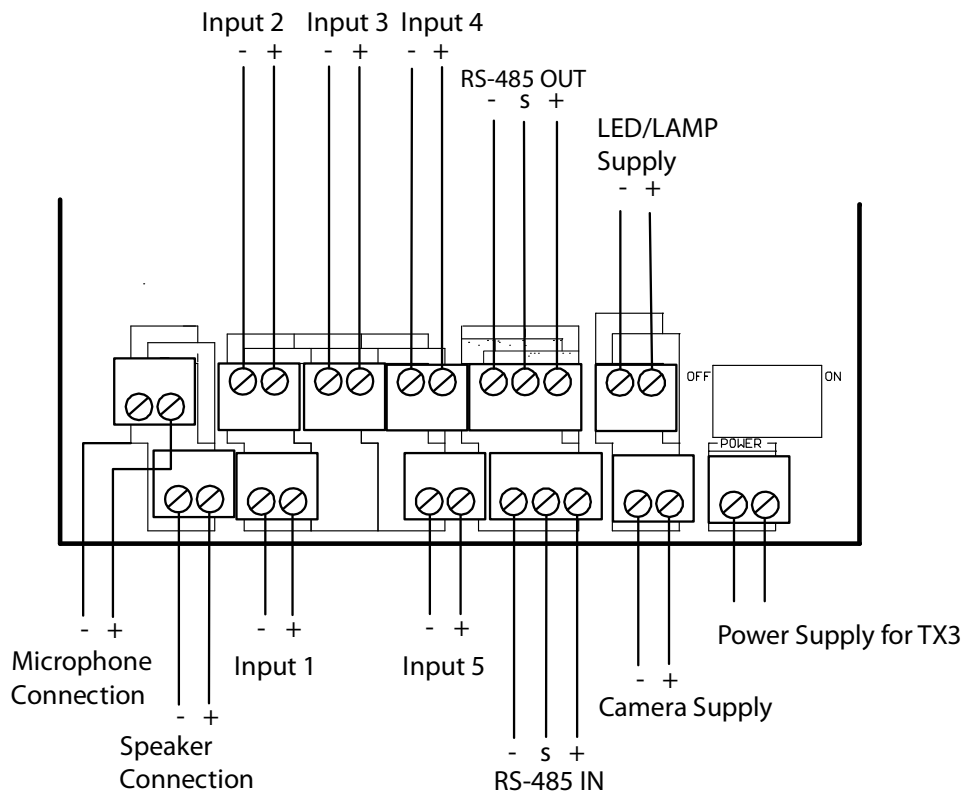


Figure 13. Controller Board Connectors - Bottom

4.2.1 Microphone Connection

The microphone connection is situated at the bottom left of the main controller board. It connects to the front display and is factory set.

4.2.2 Speaker Connection

The speaker connection is situated at the bottom left of the main controller board. It connects to the front display and is factory set.

4.2.3 Inputs 1 to 5

Inputs 1 to 5 are situated at the bottom of the main controller board and are assigned specific functions. Inputs 1 to 3 have pre-defined functions and connect to specific devices. Inputs 4 and 5 are general purpose inputs that can be correlated to activate a general purpose output.

Inputs 1 to 5 are designated as follows (see Figure 13):

Input 1. Postal Lock. Input 1 connects to the Postal Lock. Activation of this input unlocks the main door and starts the main door timer. The door locks when the timer expires or when the door sense input is activated. Daily usage is limited according to a pre-defined amount. Any attempt to use the postal lock beyond this point causes a warning message to appear and the system to return to normal operation. Input 1 also, when configured, activates a general purpose output to perform any required function.

Input 2. Fire Panel. Input 2 connects to the fire alarm panel and receives fire notification. Activation of this input unlocks the main and auxiliary doors. These outputs are active as long as the fire panel input is active. Input 2 also, when configured, activates a general purpose output to perform any required function.

Input 3. Main Door Sense. Input 3 connects to the door sense switch. Unlocking the main door activates the main door open timer. Activation of the Main Door Sense locks the main door and resets the main door open timer. This function is typically used to prevent 'tailgating'. Input 3 also, when configured, activates a general purpose output to perform any required function.

Input 4. General Purpose. Input 4 is a general purpose input that, when configured, activates a general purpose output to perform any required function. An example of a typical application is the use of an optional tamper switch (see Figure 14).

Input 5. General Purpose. Input 5 is a general purpose input that, when configured, activates a general purpose output to perform any required function.



Figure 14. Tamper Switch

4.2.4 RS-485

An RS-485 terminal lets you easily connect multiple telephone and card access controllers across a network. The RS-485 connection is situated at the bottom middle of the main controller board and consists of two separate terminals, each for an input and output.

The RS-485 terminal consists of + (positive), - (negative), and S (Shield) connections. See Figure 13.

Note: Connect the last controller on the network to the RS-485 input terminal and close jumper JW5. On all the other controllers leave JW5 open.

4.2.5 Auxiliary Camera Supply

The camera supply connection is situated at the bottom right of the main controller board and provides + 12 Vdc, 600 mA. The camera is controlled by one of the general outputs. The camera's positive terminal connects to the normally open (NO) general output relay contact. The common (C) contact of the general output relay connects to the + 12 Vdc supply terminal. The camera is typically configured to operate when the main door is open.

4.2.6 LED/Lamp Supply

The LED/Lamp connection is situated at the bottom right of the main controller board. This lamp is used with the paper directory models to illuminate the paper directory.

4.2.7 Power Supply

The power supply connection is situated at the bottom right of the main controller board and receives 16 Vac, 40 VA. An external PS-4 or PS-4P plug-in transformer connects to the power terminals. Refer to Figure Figure 13 and Figure 15.

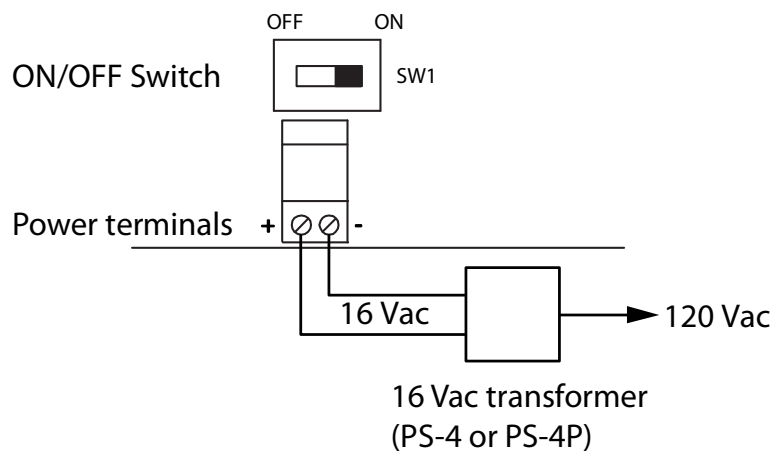


Figure 15. Power Supply

4.3 Controller Board Connectors - Top

Figure 16 shows the connectors at the top of the controller board.

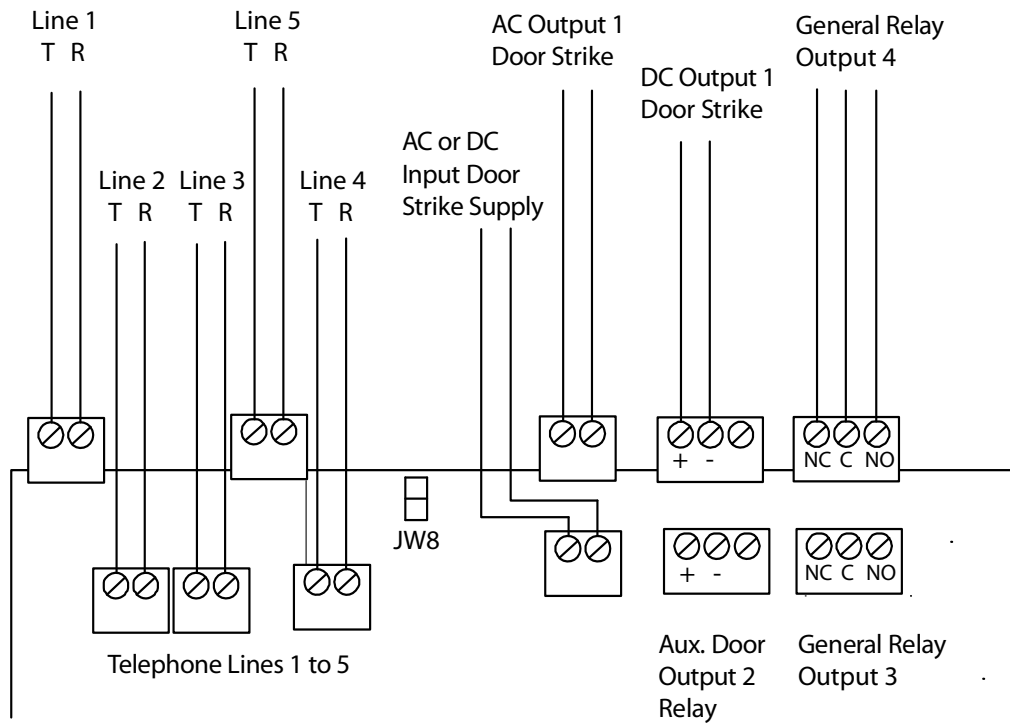


Figure 16. Controller Board Connectors - Top

4.3.1 Telephone Lines 1 to 5

The telephone lines are situated at the top left of the main controller board.

Both NSL and ADC lines can be connected. Each T/R line is polarity insensitive and can be reversed.

4.3.2 JW8

JW8 must be set to define the operating state of the door strike relay as normally open or normally closed. Use the jumper wire to connect to either the normally open (position 2 - top) or the normally closed pin (position 1 - bottom). For example, when using a mag lock, connect the jumper wire to the normally closed pin (position 1).

4.3.3 AC or DC Input Door Strike Supply

The power for the door strike is supplied by transformer PS-3B (or other compatible power supply) and provides AC or DC power for one of the door strike outputs.

Note: The controller is able to convert an AC supply to a DC output. The reverse is not true. Consequently, an AC door strike will not work with a DC power supply.

The recommended supply for the AC or DC Input Door Strike is:

- 30 Vdc rated, 1 amp
- 30 Vac rated, 2 amp

4.3.4 AC Output Door Strike

The AC Output Door Strike receives power from the AC Input Door Strike supply. The AC power output remains the same as the power supplied to the AC Input Door Strike.

The AC Output Door Strike is configured for activation by the resident's telephone keypad.

4.3.5 DC Output Door Strike

The DC Output Door Strike receives power from the AC or DC Input Door Strike supply. When using a DC Input Door Strike supply, the DC power output remains the same as the input.

When using an AC Input Door Strike supply, the DC power output is 1.41 times the input value. For example, a 30 Vac input produces a 42 Vdc output.

The DC Output Door Strike is configured for activation by the resident's telephone keypad.

4.3.6 Auxiliary Door Relay

The auxiliary door output is configured for activation by the resident's telephone keypad and can be configured to activate general outputs. This relay is a relay contact programmable output with the same characteristics as a general output relay.

4.3.7 General Output Relays 3 and 4

Outputs 3 and 4 are relay contact programmable outputs with the following characteristics.

- normally open (NO)
- normally closed (NC) available
- 30 Vdc rated, 3 Amperes (NO)

- 30 Vac rated, 5 Amperes (NO)
- 30 Vdc rated, 1 Amperes (NC)
- 30 Vac rated, 2 Amperes (NC)

The general output relays can be correlated to operate for the following events:

- when inputs 1 to 5 are active
- call is started
- call is finished
- call is connected
- access is granted
- access is denied
- system is normal

4.4 Modem Board

The TX3-MDM Modem Module is located above the TX3 Lobby Control Unit controller board on the bottom left hand side. See Figure 12.

The TX3-MDM ribbon cable connects to the P4 connector on the controller board.

The module has two telephone connectors, an RJ-11 connector and a terminal block as shown in Figure 17. The terminal block T/R line is polarity insensitive and can be reversed.

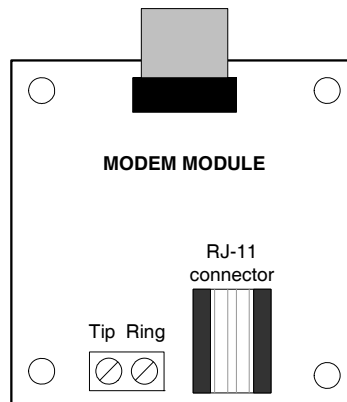


Figure 17. Modem Module Telephone Connectors

For a description on how to install the modem board see the Modem Manual Installation Instructions LT-971.

4.5 Guard Phone Module

The TX3-GPM Guard Phone Module mounts above the TX3 Lobby Control Unit main board on the top left hand side. See Figure 12.

The module has two connectors, an RJ-11 connector and a ribbon cable as shown in Figure 18.

The TX3-GPM ribbon cable connects to the P7 connector on the TX3 Lobby Control Unit main board. The guard phone uses a telephone cable to connect to the RJ-11 connector.

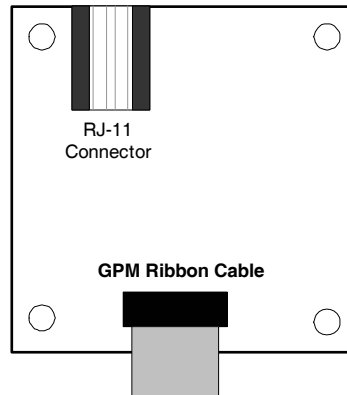


Figure 18. Guard Phone Module

For a description on how to install the modem board see the Guard Phone Manual Installation Instructions LT-972.

4.6 Guard Phone

The Guard phone is an auxiliary phone that plugs into the RJ-11 connector on the Guard Phone Module on the Lobby Control Unit. This phone provides most of the same features as a normal telephone and lets you do the following:

- Place calls to the Lobby Control Unit.
- Receive calls from the Lobby Control Unit.
- Place calls to residents.

To call the Lobby Control Unit phone

1. Pick up the guard phone, wait for the dial tone and dial *9997. The guard phone connects to the Lobby Control Unit.
2. Press the # key on the guard phone. The main door unlocks.

To receive a call from the Lobby Control Unit

1. When a visitor dials 9997 on the Lobby Control Unit the guard phone rings. Pick up the phone. The Lobby Control Unit is now connected to the guard phone.
2. Press the # key on the guard phone. The main door unlocks.

To call a resident from the guard phone

1. Pick up the guard phone and wait for the dial tone.
2. Dial *DDDD (where DDDD is the resident's four digit dial code). The resident phone rings. When the resident picks up the phone, the connection is established.
3. Press the # key on the guard phone. The main door unlocks.

4.7 Controller ID Setup

The Lobby Control Unit's ID address is separately set by the SW1 DIP switches on the Lobby Control Unit main controller board. The individual switches are numbered 1 to 8 from left to right, and are marked as either ON or OFF. The first five switches (1, 2, 3, 4 and 5) set the address ID.

Every TX3 System Lobby Control Unit requires a unique ID. The unit ID settings do not need to be in sequence but it is recommended to assign IDs starting from 1, using increments of one (e.g. 1, 2, 3, 4, etc.). Unit IDs must not be duplicated.

DIP switch SW1 is found at the top central portion of the controller board, see Figure 12.

Table 1 shows the SW1 DIP switch settings for each Lobby Control Unit.

Note: DIP switches 6,7 and 8 are not used and must be left at the default factory setting.

Table 1: Lobby Control Unit SW1 DIP Switch Settings

Lobby Control Unit ID #	Switch 1	Switch 2	Switch 3	Switch 4	Switch 5
0 (not allowed as a Lobby Control Unit ID 0 is used for PC ID)	OFF	OFF	OFF	OFF	OFF
1	ON	OFF	OFF	OFF	OFF
2	OFF	ON	OFF	OFF	OFF
3	ON	ON	OFF	OFF	OFF
4	OFF	OFF	ON	OFF	OFF
5	ON	OFF	ON	OFF	OFF
6	OFF	ON	ON	OFF	OFF
7	ON	ON	ON	OFF	OFF
8	OFF	OFF	OFF	ON	OFF
9	ON	OFF	OFF	ON	OFF
10	OFF	ON	OFF	ON	OFF
11	ON	ON	OFF	ON	OFF
12	OFF	OFF	ON	ON	OFF
13	ON	OFF	ON	ON	OFF
14	OFF	ON	ON	ON	OFF
15	ON	ON	ON	ON	OFF
16	OFF	OFF	OFF	OFF	ON
17	ON	OFF	OFF	OFF	ON
18	OFF	ON	OFF	OFF	ON
19	ON	ON	OFF	OFF	ON
20	OFF	OFF	ON	OFF	ON
21	ON	OFF	ON	OFF	ON
22	OFF	ON	ON	OFF	ON

Table 1: Lobby Control Unit SW1 DIP Switch Settings

Lobby Control Unit ID #	Switch 1	Switch 2	Switch 3	Switch 4	Switch 5
23	ON	ON	ON	OFF	ON
24	OFF	OFF	OFF	ON	ON
25	ON	OFF	OFF	ON	ON
26	OFF	ON	OFF	ON	ON
27	ON	ON	OFF	ON	ON
28	OFF	OFF	ON	ON	ON
29	ON	OFF	ON	ON	ON
30	OFF	ON	ON	ON	ON
31	ON	ON	ON	ON	ON

4.8 Configuration Using a PC

In order to correctly utilize the capabilities of the TX3 Telephone Access System you must first plan and establish how you want to configure the system for your application.

The easiest way to configure the Lobby Control Unit is with the Mircom TX3-MSW Configuration Software. This software is provided on a single CD-ROM.

The PC connects to the controller board using a USB cable from the computer to the TX3 Main Lobby board.

As an alternative, the PC also connects to the controller board modem. The TX3 system is compatible with the following modem(s):

- TrendNet TFM-560U High Speed USB 2.0 Fax Modem

Additional modems are currently being tested for compatibility.

The TX3 configuration is set using either the unit's own keypad and display or via the PC Configuration Software.

4.8.1 PC System Requirements

The minimum system requirements are as follows:

- Windows XP SP2/ Vista (32 bit)
- 512 RAM

- 1 GHZ CPU
- 600M disk space
- 1 USB port

4.9 Updating Firmware

Firmware updates require a specialized hardware initialization procedure. After the hardware initialization, use the TX3-MSW Configuration Software to complete the firmware update.

There are three types of firmware updates; 'major', 'minor' and 'revision'. Whenever there is a major or minor firmware update, the next time the configurator software connects to the network, it autosenses the new default values and adopts these values as the new default settings. All existing configuration values are replaced with the new default values. Existing system values may be backed up and re-applied after the firmware update.

Note: Firmware 'revision' changes do not affect default values.

To update firmware

1. Turn the power OFF by using SW2 on the bottom right side of the card access controller board.
2. Short JW1 and JW2 using a jumper.
3. Turn the power ON.
4. Wait for 15 seconds.
5. Turn power OFF and remove jumper JW2.
6. Connect the USB cable to the card access controller board.
7. Turn the power ON.
8. Proceed with the firmware update using the configurator software.
9. When you are finished updating the firmware, turn the power OFF.
10. Unplug the USB cable.
11. Open JW1.
12. Turn the power back ON.

4.9.1 Firmware Version Control

The firmware version number is accessible from the configurator software and changes whenever there is a major, minor or revision update.

The following convention is used whenever there is a major, minor or revision change:

Initial release. Version 1.00.0

Major change. Version 2.00.0

Minor change. Version 2.01.0

Revision changes. Version 2.01.1

4.10 Beginning Configuration

The Lobby Control Unit controller is now ready for configuration.

The Lobby Control Unit controller may be configured remotely using the optional modem board TX3-MDM Modem Module.

To start the configuration

1. Ensure the controller is fully operational.
2. Connect the PC to the controller using the USB port.
3. Configure the Card Access system using the Configurator Program TX3-MSW and the LT-995 Configuration and Administration Guide.

5 NSL Relay Cabinet Installation and Wiring

This chapter provides information about the NSL Relay Cabinet Installation and Wiring.

This chapter explains

- NSL Control Unit Relay Cabinet Mechanical Installation
- NSL Control Unit and Expanders
- Wiring the TX3-NSL-8M Main Controller Board

5.1 NSL Relay Cabinet Mechanical Installation

The NSL Relay cabinets contain the telephone switching equipment and are typically mounted in the electrical/telephone room of a building.

NSL Relay cabinets are factory assembled in one of the following enclosure sizes:

- TX3-NSL-8M NSL Unit: 27 inch high enclosure
- TX3-8EC NSL Expander: 13 15/16 inch high enclosure
- TX3-16EC NSL Expander: 27 inch high enclosure

The TX3-8EC NSL Expander includes the 13 15/16 inch enclosure. The TX3-NSL-8M Relay Cabinet includes the 27 inch enclosure. The TX3-16EC NSL Expander includes the 27 inch enclosure. See Figure 19 and Table 2.

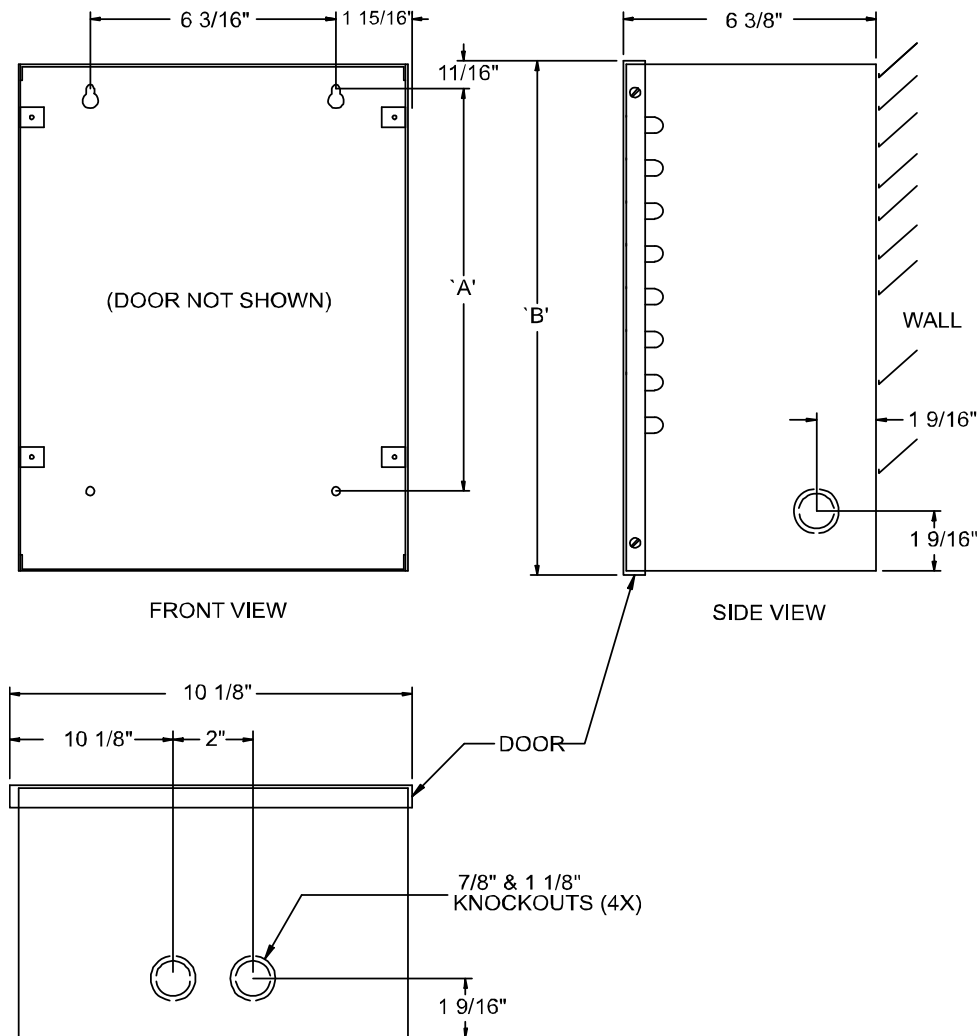


Figure 19. NSL Relay Cabinet

The top two mounting holes are 6 3/16 inches apart.

Table 2: NSL Relay Cabinet Dimensions

Model Number	Dim 'A'	Dim 'B'
TX3-8EC	10 1/8"	13 15/16"
TX3-NSL-8M	23 3/16"	27"
TX3-16EC	23 3/16"	27"

To mount the NSL Relay Cabinet

1. Using the back cover as a template mark the top two mounting hole locations 6 3/16 inches apart as shown in Figure 19.
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.

5.2 NSL Relay Control Unit and Expanders

The TX3-NSL-8M NSL Relay Control Unit, TX3-8EC and TX3-16EC NSL Relay Backplane Expanders perform the following functions:

- Telephone switching functionality to facilitate voice communication between the resident's phone and the lobby
- Generating call waiting tones to the resident if the line is busy.
- Provide access control by the resident using the telephone keypad.
- Low power operation from one 16V AC transformer.

5.2.1 TX3-NSL-8M NSL Control Unit

The TX3-NSL-8M Relay Control Unit consists of:

- NSL Main Controller Board
- NSL Backplane Board

Figure 20 shows a TX3-NSL-8M Relay Control Unit.

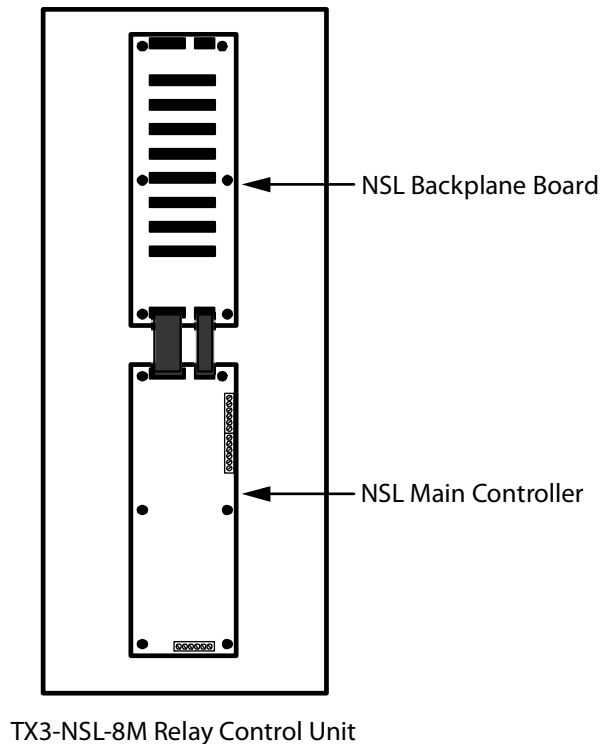


Figure 20. TX3-NSL-8M Relay Control Unit

5.2.2 2012 NSL Relay

The NSL Backplane board contains up to eight 2012 NSL Relay Boards. Each 2012 NSL Relay Board has 12 relays, allowing for a total of 96 relays.

5.2.3 NSL Expanders

NSL expanders plug into the NSL Backplane Board connectors and consist of:

- TX3-8EC NSL Eight Relay Card Backplane Expander
- TX3-16EC NSL 16 Relay Card Backplane Expander

Extension cables provide connections between adjacent enclosures using the expansion connectors. See Section 5.3 for a description of the NSL Backplane Board connectors.

The TX3-8EC NSL Eight Relay Backplane Expander and the TX3-16EC NSL 16 Relay Backplane Expander are housed in their own cabinet and can be connected with two cables to provide an additional capacity for 8 or 16 relay boards respectively.

The expanders allow a total of 16 backplanes to be installed, allowing for up to 1536 relays (16 x 8 x 12).

Note: The TX3-NSL-8M and any TX3-8EC and/or TX3-16EC must all be adjacent to each other, mounted on the same wall and in the same room.

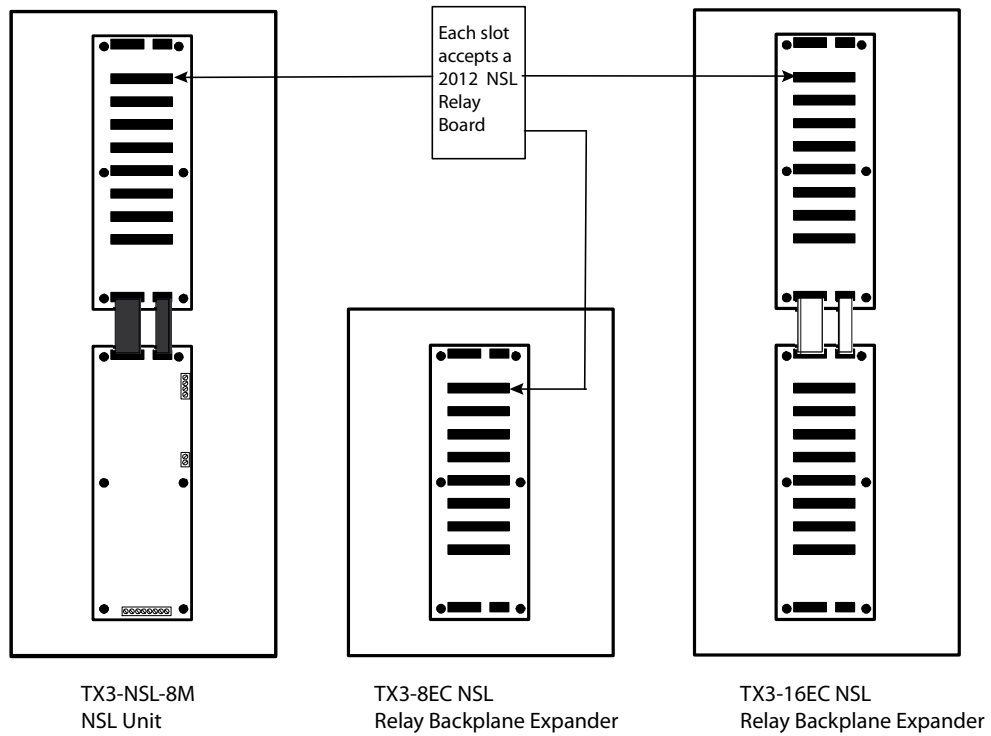


Figure 21. NSL Expanders

5.3 Wiring the TX3-NSL-8M Main Controller Board

The TX3-NSL-8M NSL Main Controller Board has both ribbon cable sockets and screw terminals.

Attention: High voltages are present on this board during the ringing of suite telephones.

Figure 22 shows the general layout of the TX3-NSL-8M Main Controller board components.

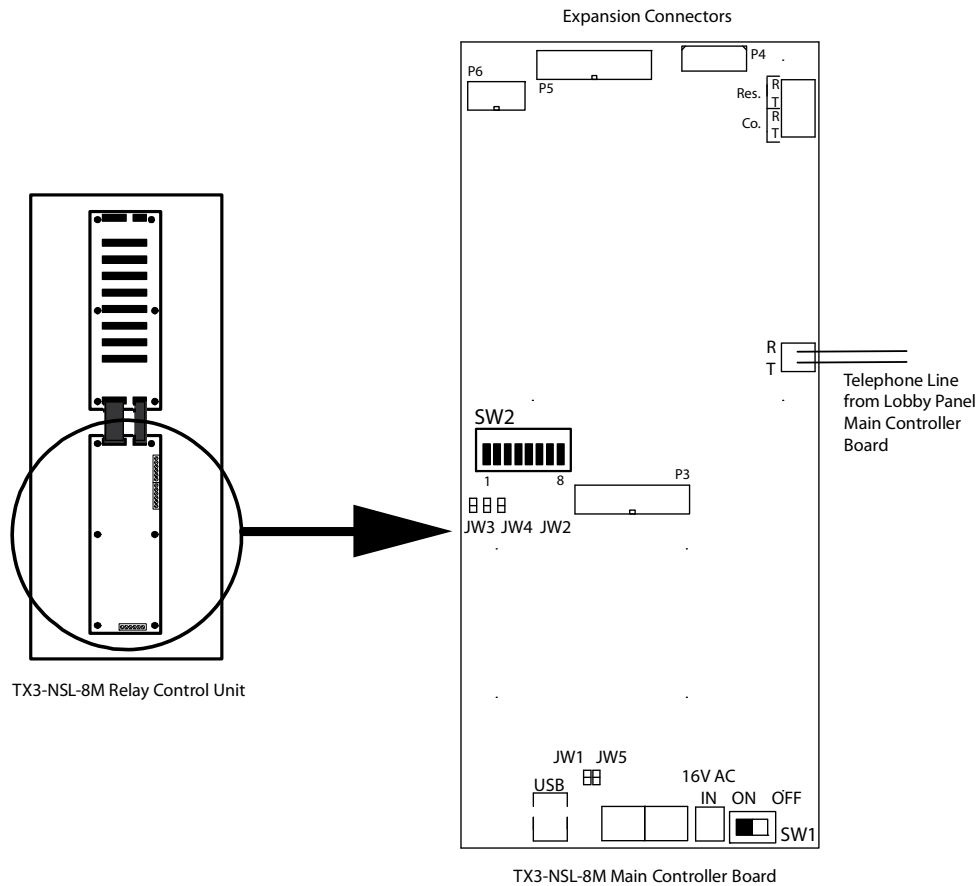


Figure 22. TX3-NSL-8M Main Controller Board

5.3.1 Connectors

USB. Computer connection for firmware download.

P3. Not used.

P4. Expansion to the NSL Controller back-plane.

P5. Expansion to the NSL Controller back-plane.

P6. Not used.

5.3.2 DIP Switches

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

SW2. Not used.

5.3.3 Jumpers

JW1. JW1 is used for updating firmware and is normally open.

JW2. JW2 is used for updating firmware and is normally open.

All other jumpers are not used.

5.3.4 Telephone Line

Each NSL control unit provides a single telephone line connection to the Lobby Control Unit. See Figure 24.

Each Lobby Control Unit panel can use any one of the five telephone lines on the Lobby Control Unit Main Controller Board to communicate to an ADC telephone system or to an NSL relay control unit.

There are many possibilities for connecting Entry Control panels and NSL control units, but each main Lobby Control Unit requires one individual telephone line to each NSL control unit.

Lobby Control Units connect to the NSL and control units through telephone lines. Telephone lines are not connected to expansion units.

Expansion relay control units do not require an individual telephone line.

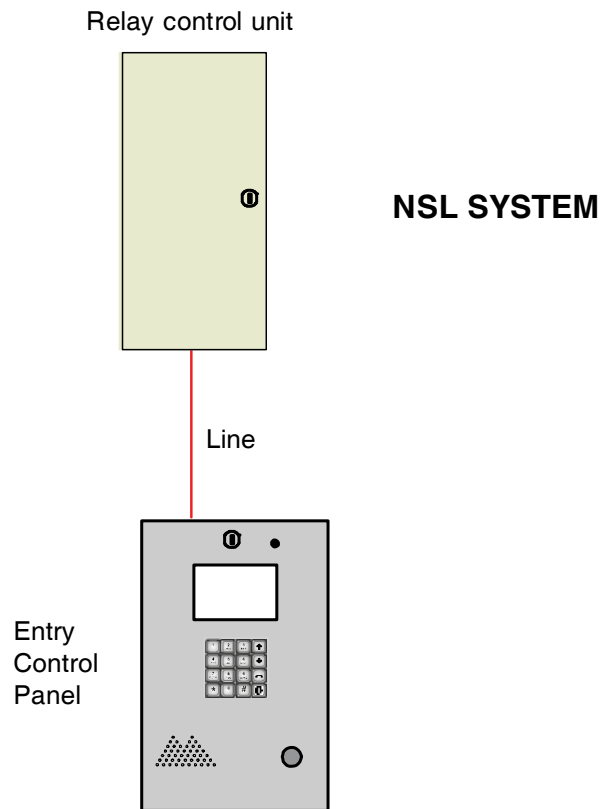


Figure 23. NSL System with Telephone Line

To test the TX3-8M-NSL Relay Control unit

1. Connect a telephone to the TX3-8M-NSL Relay Control unit telephone terminal block (see Figure 22).
2. Pick up the telephone. A dial tone is heard.
3. Dial *RRRR#, where RRRR is the relay code. A resident line LED relay card light turns on.
4. Hang up. The resident line LED relay card light turns off. The TX3-8M-NSL Relay Control unit is operational.
5. Perform the same test for all of the relay codes.

Note: Resident telephones associated with the relay card will ring. If the resident picks up their telephone a connection will be established.

6. Disconnect the telephone and proceed with the installation.

5.3.5 Connecting to an NSL line

Use the following calling pattern when connecting to the NSL Panel.

*RRRRPPNNC#

Note: PP and NN and C are optional

where:

RRRR is the relay code.

PP is the ring pattern.

NN is the maximum number of rings.

C is call transfer key.

To connect to an NSL line

1. Dial *RRRRPPNNC#.

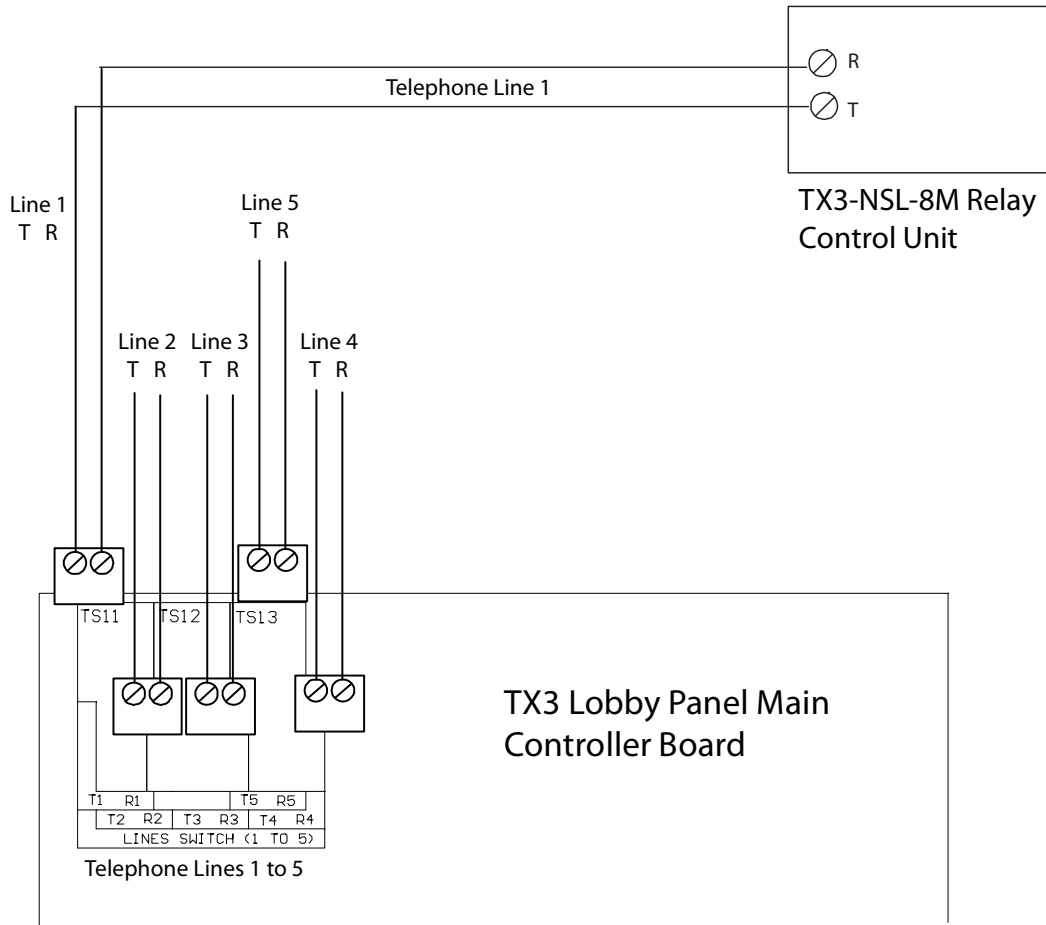


Figure 24. NSL Controller Telephone Lines

5.3.6 TX3-NSL-8M/TX3-8EC/TX3-16EC NSL Unit Relay Backplane Boards

The TX3-NSL-8M / TX3-8EC / TX3-16EC NSL Unit Relay Backplane Boards have both ribbon cable sockets and relay board sockets.

Figure 25 shows the general layout of the TX3-NSL-8M NSL Unit controller board components.

5.3.7 Connectors

Up to 16 NSL backplanes connect to an NSL main controller board. Each has a set of 16 positions for a jumper plug. The first backplane is jumpered for “1”, the next for “2”, and so on up to “16”.

P1. Expansion from the previous controller or the NSL main controller board.

P2. Expansion from the previous controller or the NSL main controller board.

P3 to P10. Connectors for the 2012 NSL Relay Boards. (eight relay boards per backplane.)

P11. Expansion to the next backplane.

P12. Expansion to the next backplane.

NSL Backplane Number Selector. (located between P1 and P2).

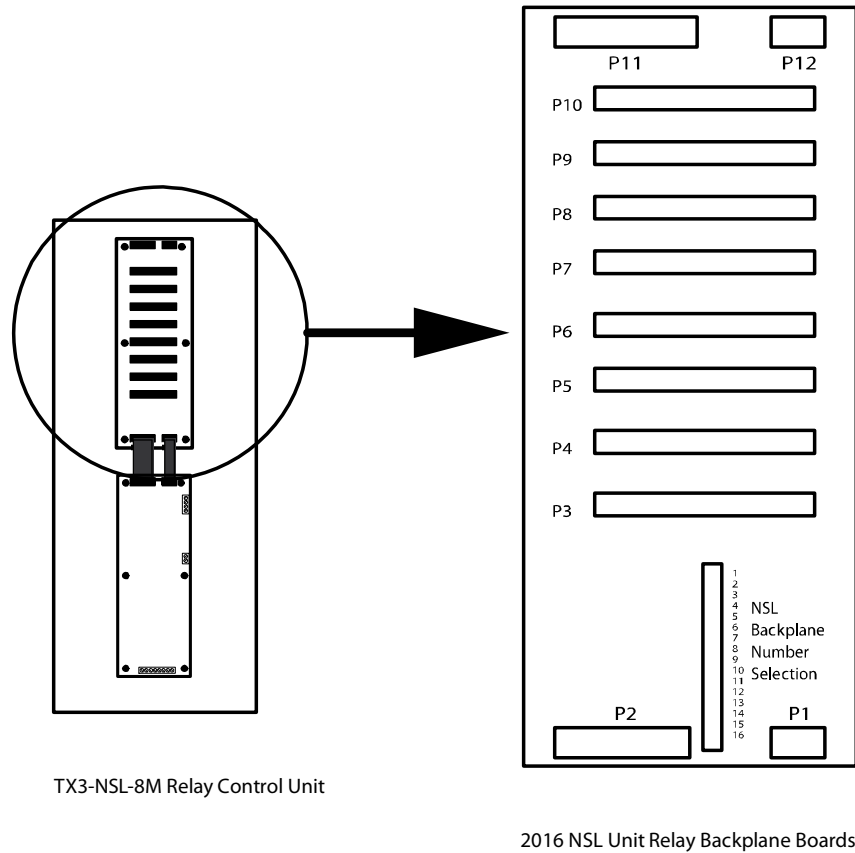


Figure 25. NSL Backplane

Attention: High voltages are present on this board during the ringing of suite telephones.

5.3.8 Setting the Backplane Number

Relay addresses are numbered to show the relay card's connector location and backplane number setting. Table 3 provides sample addresses for the first three backplane number jumper settings.

For example, when the backplane number jumper setting is set to 1, the first relay on P3 relay board has an address of 1. When the backplane number setting is set to 2, the first relay on P3 relay board has an address of 97.

To set the backplane number

1. Determine the relay address according to the relay card's connector location and backplane number setting.
2. Using a jumper, set the backplane number across the Backplane Number Selection pins as shown in Figure 26.

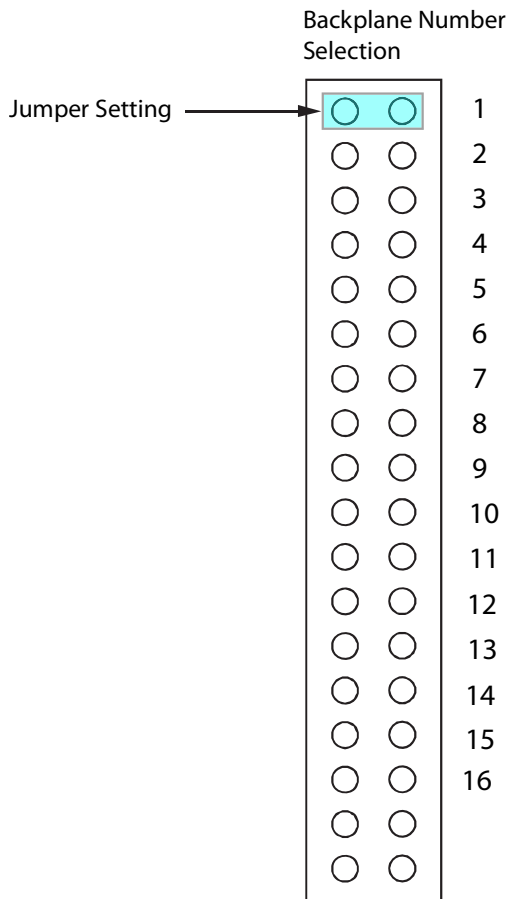


Figure 26. Backplane Number Section

Table 3: Sample Backplane Relay Addresses

Connector	Backplane Number Setting		
	Jumper 1 Address 1-96	Jumper 2 Address 97-192	Jumper 3 Address 193-288
P3	1 to 12	97 to 108	193 to 204
P4	13 to 24	109 to 120	205 to 216
P5	25 to 36	121 to 132	217 to 228
P6	37 to 48	133 to 144	229 to 240
P7	49 to 60	145 to 156	241 to 252
P8	61 to 72	157 to 168	253 to 264
P9	73 to 84	169 to 180	265 to 276
P10	85 to 96	181 to 192	277 to 288

5.3.9 2012 NSL Relay Board Wiring

The 2012 NSL Relay Board plugs into the backplane boards of the NSL units. There may be up to eight relay boards in each backplane board (to a maximum of 128 relay boards for 16 NSL backplane boards).

In each NSL backplane the relay boards are numbered 1 to 8, starting from the bottom of the backplane and going to the top. Each relay board provides 12 resident telephone lines connections, for a maximum of 1536 telephone lines per system.

Connections are made via the CA-71A BIX Block or RJ-71C Punch Down Block Wiring Configuration as follows:

CA-71A BIX Block. The CA-71A (for Canada) wiring configurations of BIX and Punch Down Block are shown in Figure 28 and Table 4.

RJ-71C Punch Down Block. The RJ-71C (for U.S.A.) wiring configurations of BIX and Punch Down Block are shown in Figure 29 and Table 5.

Normally, the required blocks are installed by the telephone company. Each block serves up to 12 telephone lines.

The 50-pin amphenol connector on the BIX block connects to the 2012 relay card using the standard 9106 cable.

To connect the 2012 NSL Relay Board

1. Contact the telephone company at least three weeks before the actual installation to order the required blocks.
2. Complete the CA-71A or RJ-71C Block Identification Forms (Table 4 and Table 5) for the telephone installer. The form shows the telephone installer how the telephone lines connect to the BIX/Punch Down Blocks.
3. Install all BIX Blocks as close as possible to the NSL unit to which they connect.
4. Plug the 2012 NSL Relay Board into the NSL unit's backplane board.
5. Connect the 50-pin amphenol connector on the BIX block to the 2012 relay card using the 9106 cable.
6. Connect the CA-71A BIX Block or RJ-71C Punch Down Block Wiring Configuration.
7. See the warranty section on page 103 and provide the following information to the telephone company:
 - Telephone numbers of the lines to which the TX3 system will be connected.
 - The Industry Canada registration number for Canada or the FCC registration number for U.S.A.
 - The Ringer Equivalence Number (REN) of the TX3 system.

Note: RJ-71C wiring configuration is not recognized by all telephone companies. For Bell Canada who has jurisdiction for Ontario and Quebec, refer to CA-71A block for interconnect to the telephone entry systems.

Note: Since there are two types of block wiring configuration, CA-71A and RJ-71C, Mircom recommends that you contact the telephone company as to what block wiring configuration is available. We suggest using Mircom's standard 9106 cable for CA-71A or RJ-71C configured blocks since they are straightforward and easy to use.

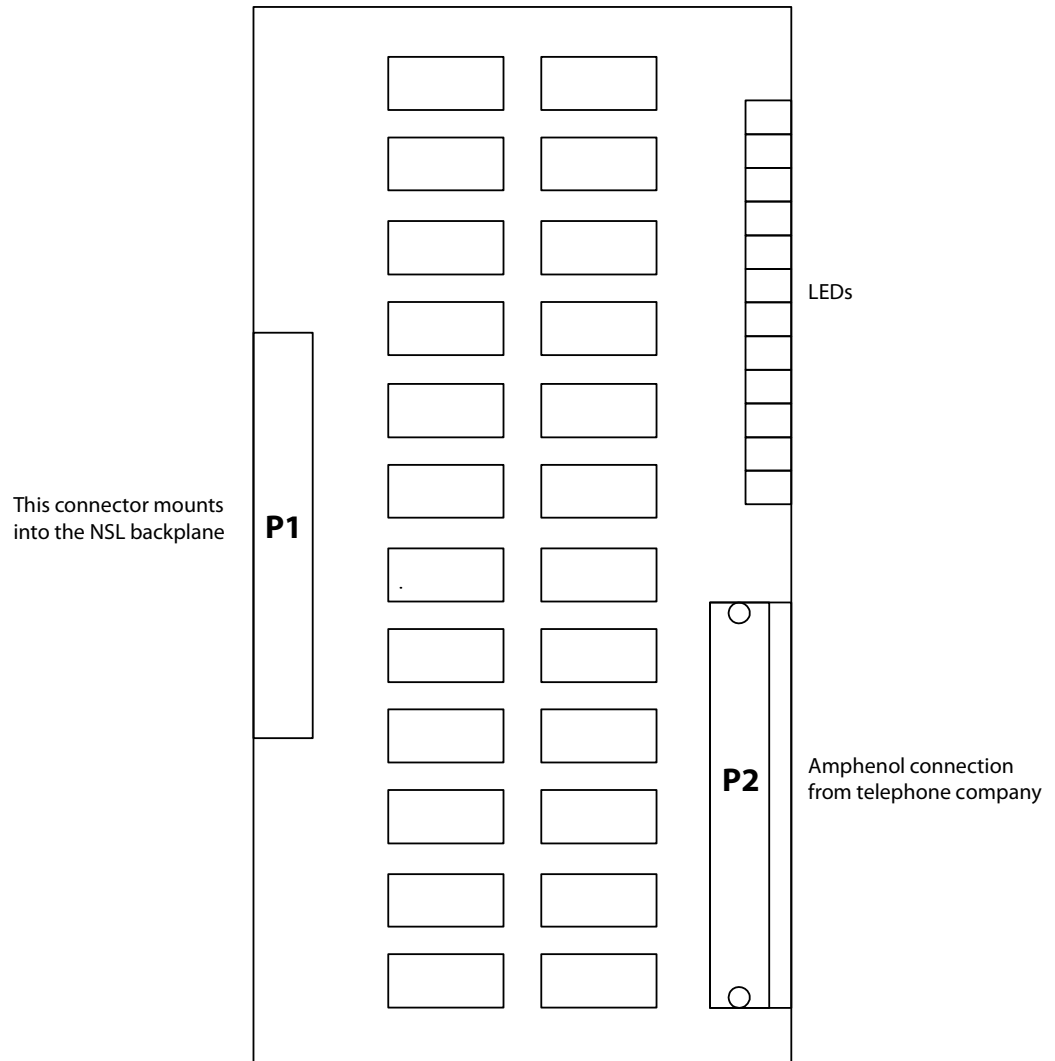


Figure 27. 2012 NSL Relay Board

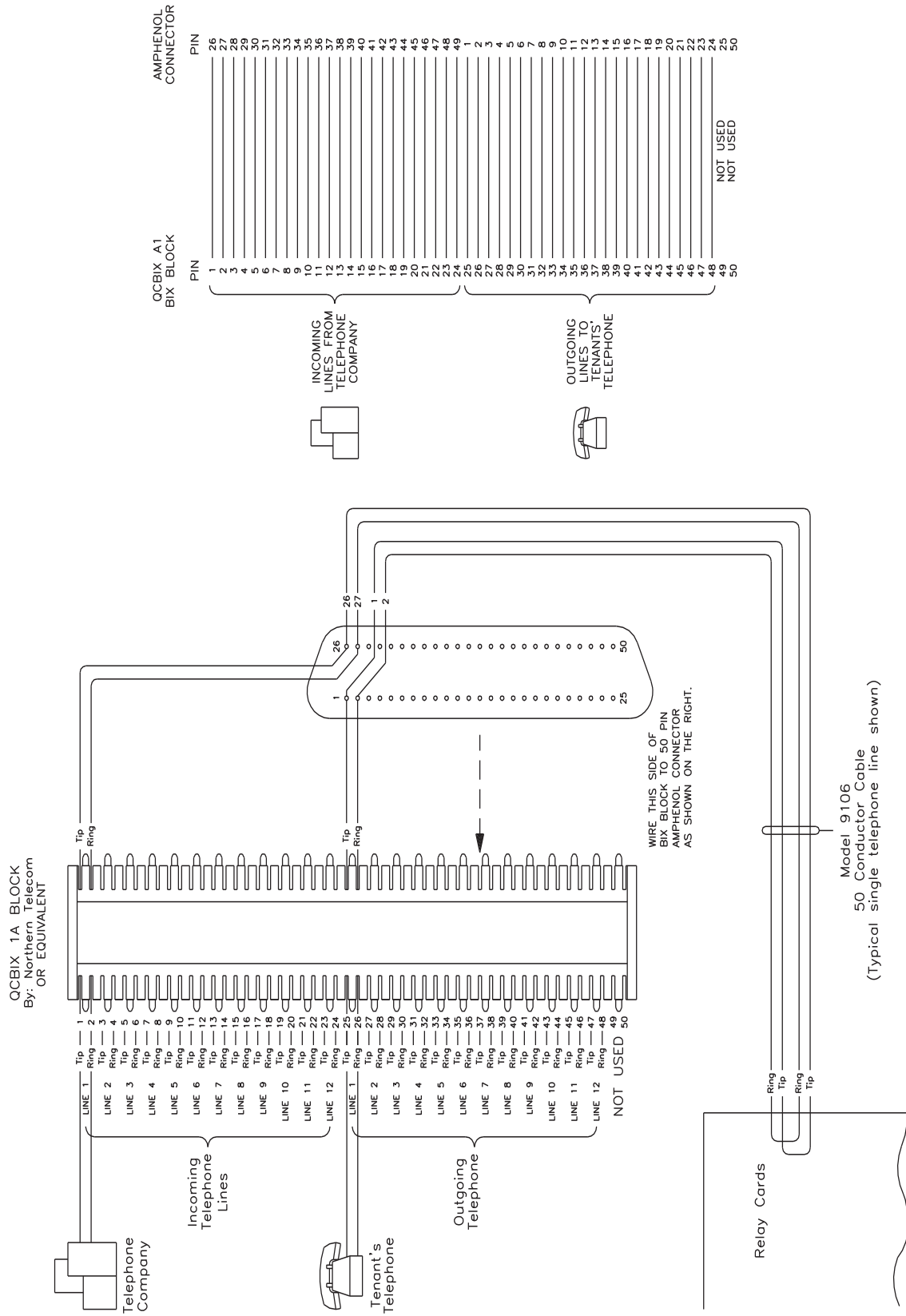


Figure 28. CA-71A BIX Block Wiring Configuration

Table 4: CA-71A BIX Block Identification Form

Relay Cabinet No. ____ of ____ Decoder/Mother Board No. _____

Relay Card/Amp. Jack #	Telephone Number	Block Pins Tel. Co./Res.	Apt. #	Dial Code	Relay/Line #	Relay Card/Amp. Jack #	Telephone Number	Block Pins Tel. Co./Res.	Apt. #	Dial Code	Relay/Line #
1		1,2/25,26			0001	5		1,2/25,26			0049
		3,4/27,28			0002			3,4/27,28			0050
		5,6/29,30			0003			5,6/29,30			0051
		7,8/31,32			0004			7,8/31,32			0052
		9,10/33,34			0005			9,10/33,34			0053
		11,12/35,36			0006			11,12/35,36			0054
		13,14/37,38			0007			13,14/37,38			0055
		15,16/39,40			0008			15,16/39,40			0056
		17,18/41,42			0009			17,18/41,42			0057
		19,20/43,44			0010			19,20/43,44			0058
		21,22/45,46			0011			21,22/45,46			0059
		23,24/47,48			0012			23,24/47,48			0060
2		1,2/25,26			0013	6		1,2/25,26			0067
		3,4/27,28			0014			3,4/27,28			0062
		5,6/29,30			0015			5,6/29,30			0063
		7,8/31,32			0016			7,8/31,32			0064
		9,10/33,34			0017			9,10/33,34			0065
		11,12/35,36			0018			11,12/35,36			0066
		13,14/37,38			0019			13,14/37,38			0067
		15,16/39,40			0020			15,16/39,40			0068
		17,18/41,42			0021			17,18/41,42			0069
		19,20/43,44			0022			19,20/43,44			0070
		21,22/45,46			0023			21,22/45,46			0071
		23,24/47,48			0024			23,24/47,48			0072

Table 4: CA-71A BIX Block Identification Form

Relay Cabinet No. ____ of ____ Decoder/Mother Board No. _____

Relay Card/Amp. Jack #	Telephone Number	Block Pins Tel. Co./Res.	Apt. #	Dial Code	Relay/Line #	Relay Card/Amp. Jack #	Telephone Number	Block Pins Tel. Co./Res.	Apt. #	Dial Code	Relay/Line #
3		1,2/25,26			0025	7		1,2/25,26			0073
		3,4/27,28			0026			3,4/27,28			0074
		5,6/29,30			0027			5,6/29,30			0075
		7,8/31,32			0028			7,8/31,32			0076
		9,10/33,34			0029			9,10/33,34			0077
		11,12/35,36			0030			11,12/35,36			0078
		13,14/37,38			0031			13,14/37,38			0079
		15,16/39,40			0032			15,16/39,40			0080
		17,18/41,42			0033			17,18/41,42			0081
		19,20/43,44			0034			19,20/43,44			0082
		21,22/45,46			0035			21,22/45,46			0083
	23,24/47,48			0036		23,24/47,48			0084		
4		1,2/25,26			0037	8		1,2/25,26			0085
		3,4/27,28			0038			3,4/27,28			0086
		5,6/29,30			0039			5,6/29,30			0087
		7,8/31,32			0040			7,8/31,32			0088
		9,10/33,34			0041			9,10/33,34			0089
		11,12/35,36			0042			11,12/35,36			0090
		13,14/37,38			0043			13,14/37,38			0091
		15,16/39,40			0044			15,16/39,40			0092
		17,18/41,42			0045			17,18/41,42			0093
		19,20/43,44			0046			19,20/43,44			0094
		21,22/45,46			0047			21,22/45,46			0095
	23,24/47,48			0048		23,24/47,48			0096		

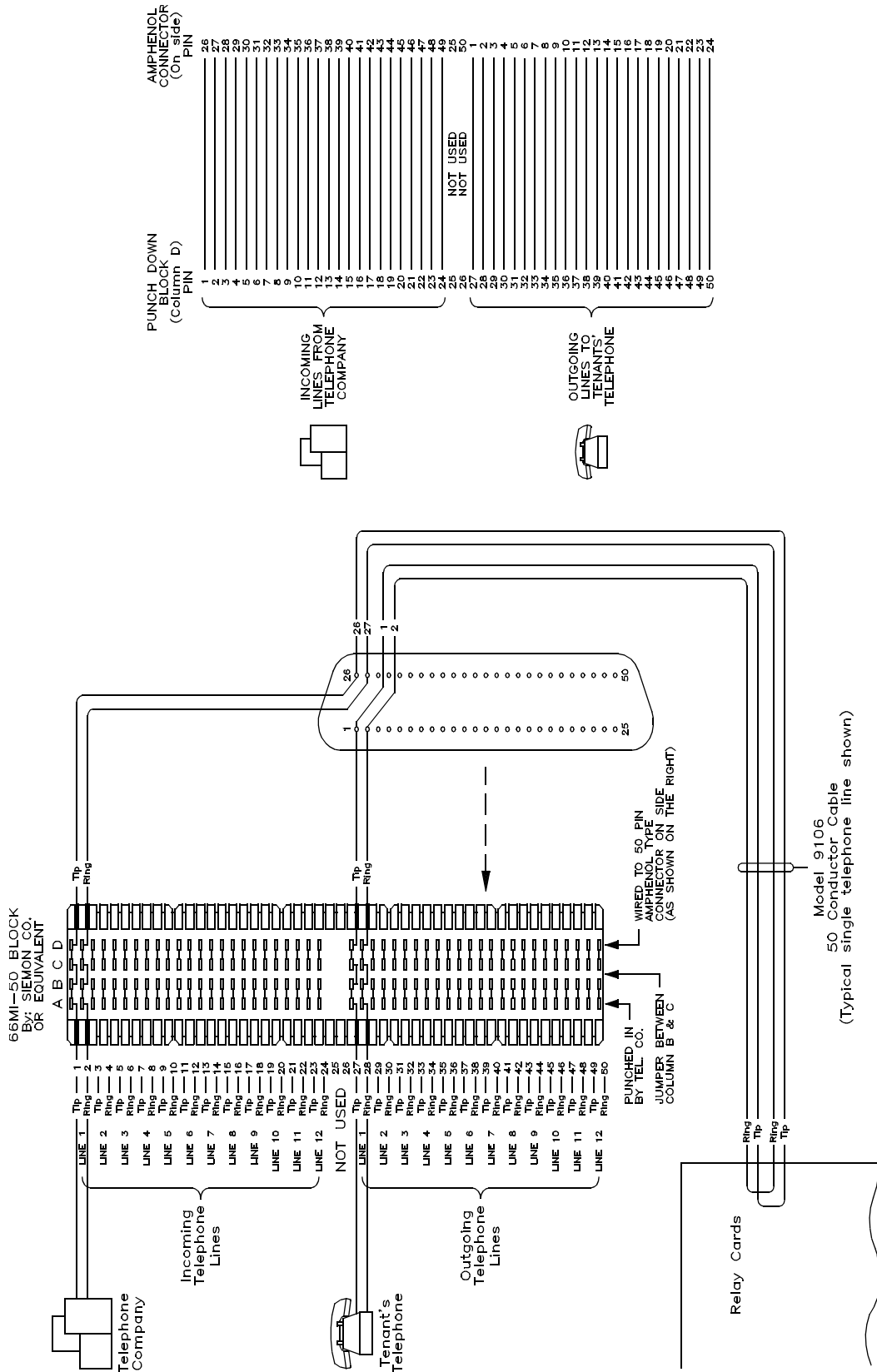


Figure 29. RJ-71C Punch-Down Block Wiring Configuration

Table 5: RJ-71C Punch-Down Block Identification Form

Relay Cabinet No. _____ of _____ Decoder/Mother Board No. _____

Relay Card/Amp. Jack #	Telephone Number	Block Pins Tel. Co./Res.	Apt. #	Dial Code	Relay/Line #	Relay Card/Amp. Jack #	Telephone Number	Block Pins Tel. Co./Res.	Apt. #	Dial Code	Relay/Line #
1		1,2/27,28			0001	5		1,2/27,28			0049
		3,4/29,30			0002			3,4/29,30			0050
		5,6/31,32			0003			5,6/31,32			0051
		7,8/33,34			0004			7,8/33,34			0052
		9,10/35,36			0005			9,10/35,36			0053
		11,12/37,38			0006			11,12/37,38			0054
		13,14/39,40			0007			13,14/39,40			0055
		15,16/41,42			0008			15,16/41,42			0056
		17,18/43,44			0009			17,18/43,44			0057
		19,20/45,46			0010			19,20/45,46			0058
		21,22/47,48			0011			21,22/47,48			0059
		23,24/49,50			0012			23,24/49,50			0060
2		1,2/27,28			0013	6		1,2/27,28			0067
		3,4/29,30			0014			3,4/29,30			0062
		5,6/31,32			0015			5,6/31,32			0063
		7,8/33,34			0016			7,8/33,34			0064
		9,10/35,36			0017			9,10/35,36			0065
		11,12/37,38			0018			11,12/37,38			0066
		13,14/39,40			0019			13,14/39,40			0067
		15,16/41,42			0020			15,16/41,42			0068
		17,18/43,44			0021			17,18/43,44			0069
		19,20/45,46			0022			19,20/45,46			0070
		21,22/47,48			0023			21,22/47,48			0071
		23,24/49,50			0024			23,24/49,50			0072

Table 5: RJ-71C Punch-Down Block Identification Form

Relay Cabinet No. _____ of _____ Decoder/Mother Board No. _____

Relay Card/ Amp. Jack #	Telephone Number	Block Pins Tel. Co./Res.	Apt. #	Dial Code	Relay/Line #	Relay Card/ Amp. Jack #	Telephone Number	Block Pins Tel. Co./Res.	Apt. #	Dial Code	Relay/Line #
3		1,2/27,28			0025	7		1,2/27,28			0073
		3,4/29,30			0026			3,4/29,30			0074
		5,6/31,32			0027			5,6/31,32			0075
		7,8/33,34			0028			7,8/33,34			0076
		9,10/35,36			0029			9,10/35,36			0077
		11,12/37,38			0030			11,12/37,38			0078
		13,14/39,40			0031			13,14/39,40			0079
		15,16/41,42			0032			15,16/41,42			0080
		17,18/43,44			0033			17,18/43,44			0081
		19,20/45,46			0034			19,20/45,46			0082
		21,22/47,48			0035			21,22/47,48			0083
		23,24/49,50			0036			23,24/49,50			0084
4		1,2/27,28			0037	8		1,2/27,28			0085
		3,4/29,30			0038			3,4/29,30			0086
		5,6/31,32			0039			5,6/31,32			0087
		7,8/33,34			0040			7,8/33,34			0088
		9,10/35,36			0041			9,10/35,36			0089
		11,12/37,38			0042			11,12/37,38			0090
		13,14/39,40			0043			13,14/39,40			0091
		15,16/41,42			0044			15,16/41,42			0092
		17,18/43,44			0045			17,18/43,44			0093
		19,20/45,46			0046			19,20/45,46			0094
		21,22/47,48			0047			21,22/47,48			0095
		23,24/49,50			0048			23,24/49,50			0096

5.4 Updating Firmware

After completion of the TX3-NSL-8M NSL Main Controller wiring and configuration, use the TX3-MSW Configuration Software to complete the firmware update.

To update firmware

1. Turn the power OFF by using SW1 on the bottom right side of the card access controller board.
2. Short SW1 and JW2 using a jumper.
3. Turn the power ON.
4. Wait for 15 seconds.
5. Turn power OFF and remove jumper JW2.
6. Connect the USB cable to the card access controller board.
7. Turn the power ON.
8. Proceed with the firmware update using the configurator software.
9. When you are finished updating the firmware, turn the power OFF.
10. Unplug the USB cable.
11. Turn the power back ON.

6 Elevator Restriction Unit Installation and Configuration

This chapter provides information about the Elevator Restriction Unit.

This chapter explains

- Elevator Restriction Cabinet Mechanical Installation
- TX3-ER-8 Elevator Restriction Units
- Wiring the TX3-ER-8 Elevator Restriction Unit Wiring
- Elevator Restriction Unit Backplane
- 2012E Elevator Restriction Relay Card
- TX3-ER-8 Elevator Restriction Unit Configuration

6.1 Elevator Restriction Cabinet Mechanical Installation

The Elevator Restriction cabinet contains the elevator access equipment and is typically mounted in the electrical/telephone room of a building. The unit is factory assembled in one cabinet size shown below.

The back cover is 10 1/8 inches wide by 27 inches long. The top two mounting holes are 6 3/16 inches apart.

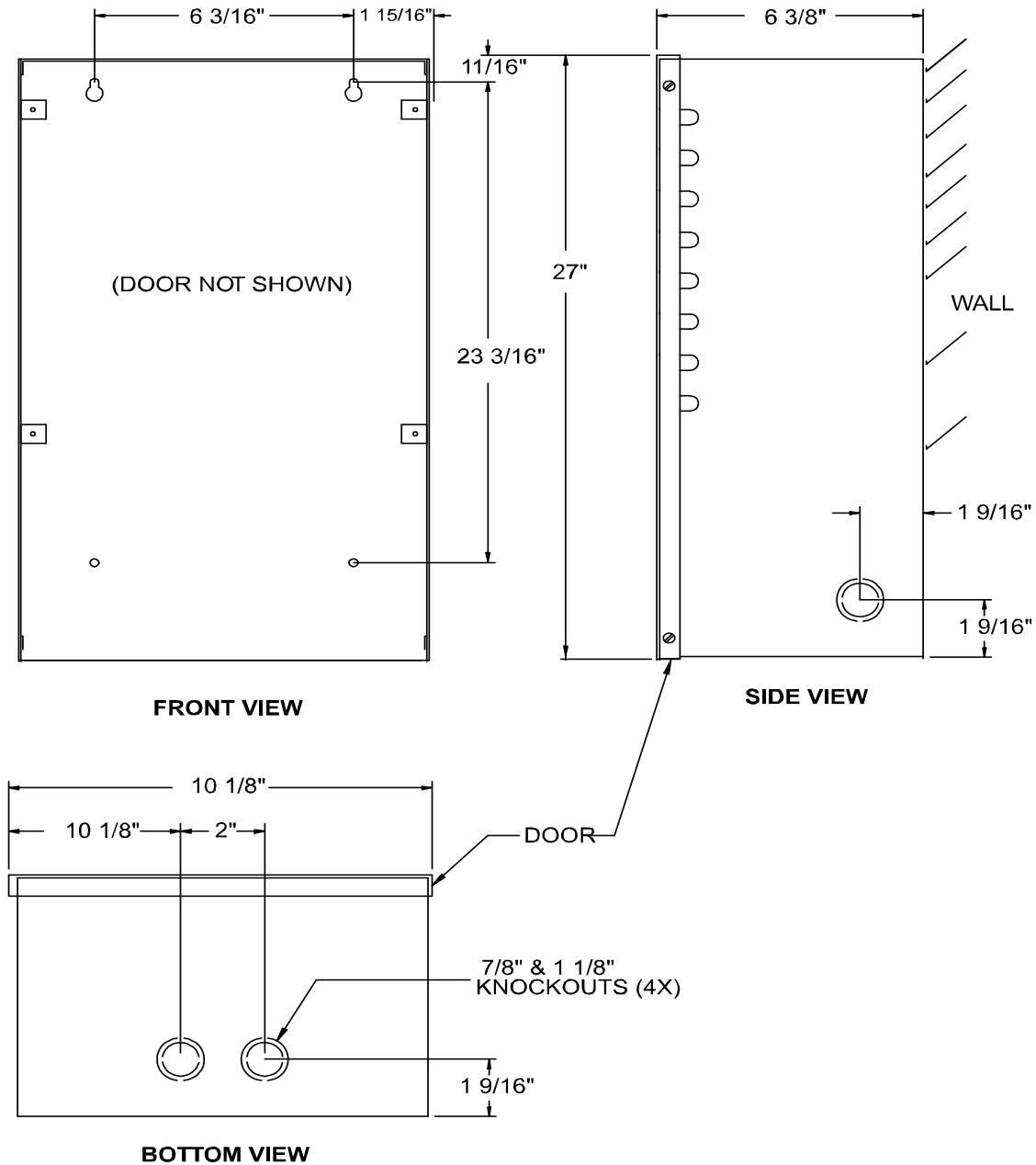


Figure 30. Elevator Relay Cabinet

To mount the TX3-ER-8 Cabinet

1. Using the back cover as a template mark the top two mounting hole locations 6 3/16 inches apart as shown in Figure 30.
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.

6.2 TX3-ER-8 Elevator Restriction Units

The TX3-ER-8 Elevator Restriction Unit limits building accessibility by granting visitor access only to the destination floor. Figure 31 shows a Lobby Control Unit with an Elevator Restriction Unit.

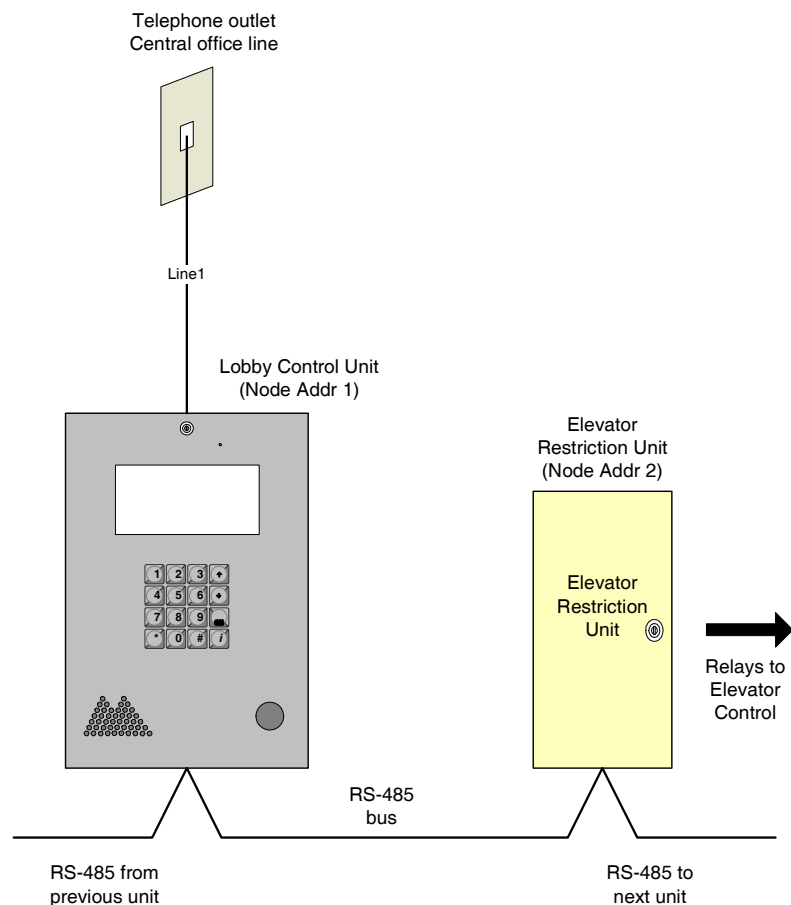


Figure 31. Lobby Control Unit with Elevator Restriction

The elevator restriction unit consists of the main elevator restriction controller board and the elevator backplane. Up to eight 2012E Elevator Relay Boards may be installed, allowing for 96 elevator floors for access in this enclosure. See Figure 32.

The TX3-ER-8 Elevator Restriction Unit performs the following functions:

- Provides time dependent relay contacts which can be used for either elevator or video control.
- User set timer for relay contacts for each TX3-ER-8 Elevator Restriction Unit at each Lobby Control Unit.
- RS-485 Interface to network to other Units.
- Low Power operation from one 16 Vac transformer.

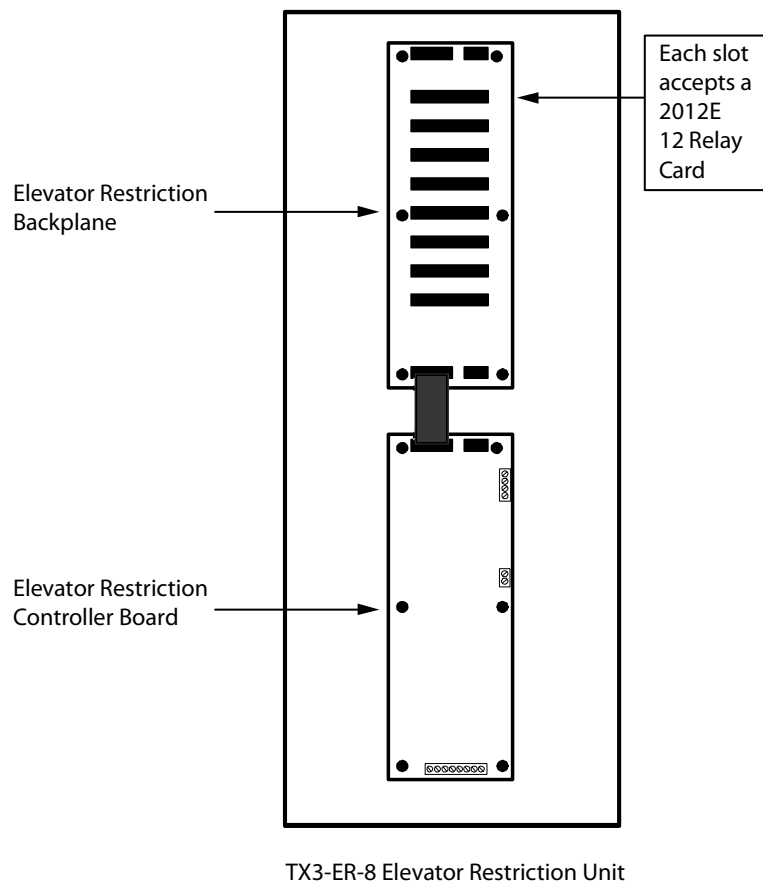


Figure 32. TX3-ER-8 Elevator Restriction Unit

6.3 Wiring the TX3-ER-8 Elevator Restriction Unit

The TX3-ER-8 Elevator Restriction Backplane use a ribbon cable to connect to the Elevator Restriction Main Controller board.

The TX3-ER-8 Elevator Restriction Controller has eight sockets for the 2012E Relay Boards.

6.3.1 Elevator Controller Board

Figure 33 shows the general layout of the Elevator Controller board components.

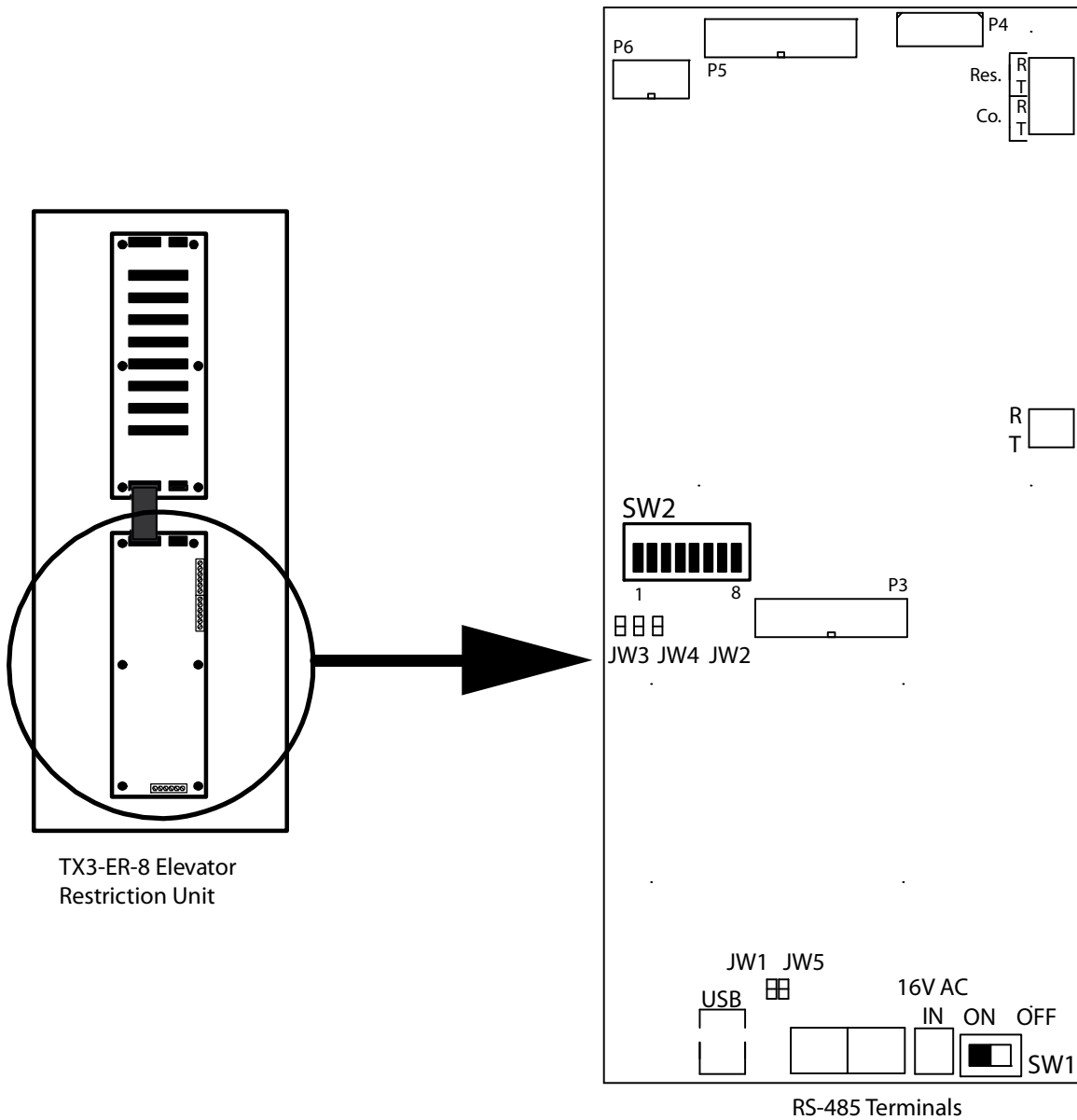


Figure 33. Elevator Controller Board

6.3.2 Connectors

USB. Computer connection for firmware download.

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

P2. Not used.

P3. Not used.

P4. Not used.

P5. Expansion to the elevator restriction backplane.

P6. Not used.

6.3.3 DIP Switches

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

SW2. Sets the unit's ID address.

6.3.4 Jumpers

JW1. JW1 is used for updating firmware and is normally open.

JW2. JW2 is used for updating firmware and is normally open.

JW5. JW5 is used by the last unit on the end of the network.

All other jumpers are not used.

6.3.5 Telephone Lines

Not used.

6.3.6 USB

The USB port is used for updating firmware.

6.3.7 RS-485

Figure 34 shows the elevator restriction unit wiring.

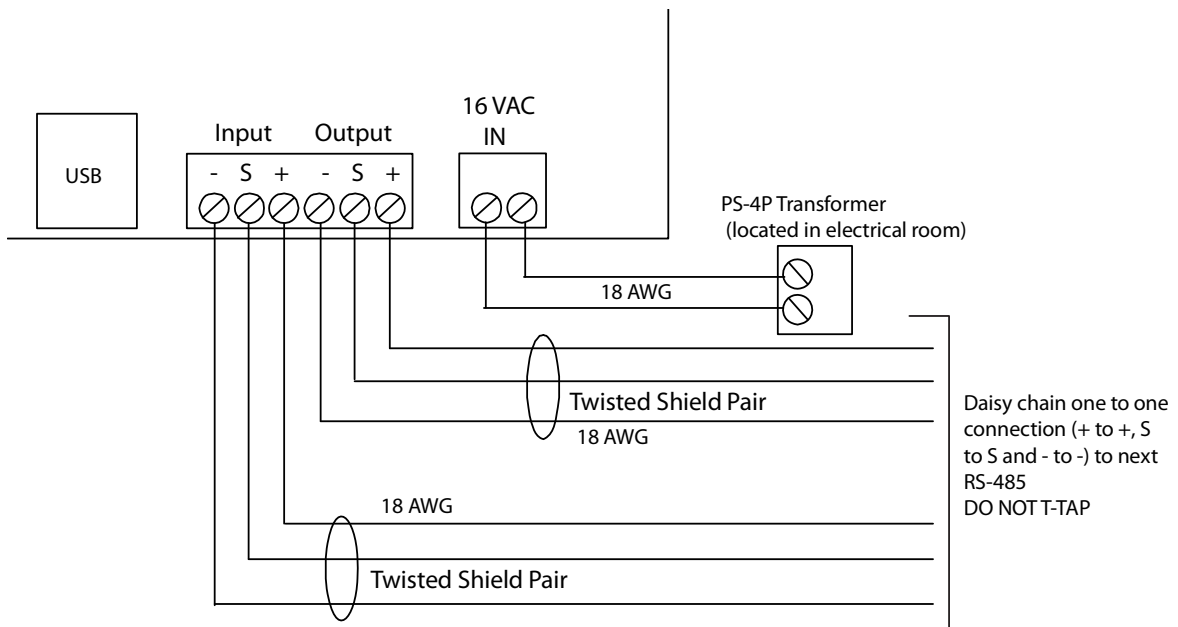


Figure 34. Elevator Restriction Controller Board Wiring

6.4 Elevator Restriction Controller Backplane

The TX3-ER-8 Elevator Restriction Unit Backplane has ribbon cables to connect to the Elevator Restriction Main Controller board and eight sockets for 2012E Relay Boards.

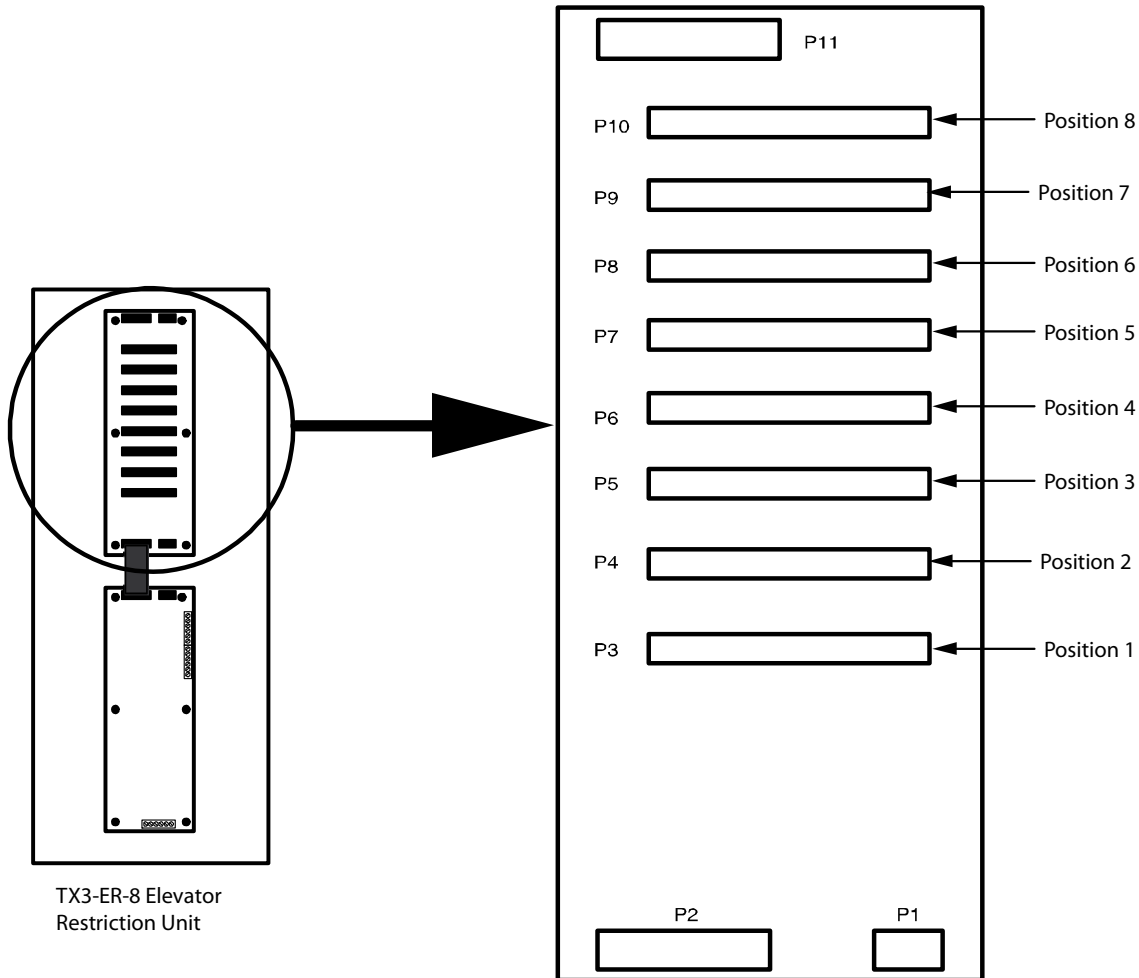


Figure 35. Elevator Restriction Controller Backplane

6.4.1 Connectors

P1. Not used.

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

P3 to 10. Connectors for the elevator restriction 2012E 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.

6.5 2012E Elevator Restriction Relay Card

The 2012E Elevator Restriction Relay Boards plug into the backplane portion of the TX3-ER-8 Elevator Restriction Unit. They number from one to eight starting from the bottom slot and moving towards the top.

Each relay board has 12 Form “A” or “B” relay contacts rated at 28 VDC, 0.5 amperes. Each jumper is selectable as normally open or normally closed.

There may be a total of 96 elevator restriction relays in each TX3-ER-8 unit.

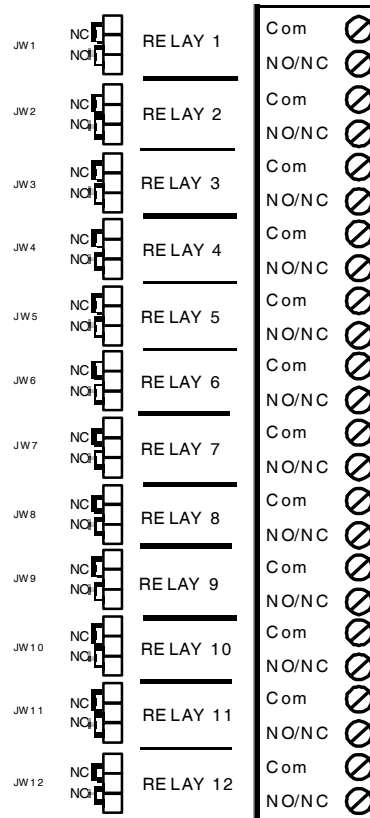


Figure 36. 2012E Elevator Restriction Relay Board

6.5.1 Relay Board Components

JW1-12. Jumpers for selecting normally open or normally closed relay operation.

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

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

6.6 TX3-ER-8 Elevator Restriction Unit Configuration

TX3-ER-8 Elevator Restriction Unit ID is set using the eight position DIP Switch labelled SW2 as shown in Figure 33.

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

Note: Every Elevator Restriction Unit in a given TX3 System requires a unique ID. Unit IDs must not be duplicated.

Table 6: TX3-ER-8 Elevator Restriction Unit's settings

Elevator Restriction Unit ID #	Switch 1	Switch 2	Switch 3	Switch 4	Switch 5
0 (not allowed as an elevator ID. 0 is used for PC ID)	OFF	OFF	OFF	OFF	OFF
1	ON	OFF	OFF	OFF	OFF
2	OFF	ON	OFF	OFF	OFF
3	ON	ON	OFF	OFF	OFF
4	OFF	OFF	ON	OFF	OFF
5	ON	OFF	ON	OFF	OFF
6	OFF	ON	ON	OFF	OFF
7	ON	ON	ON	OFF	OFF
8	OFF	OFF	OFF	ON	OFF
9	ON	OFF	OFF	ON	OFF
10	OFF	ON	OFF	ON	OFF
11	ON	ON	OFF	ON	OFF
12	OFF	OFF	ON	ON	OFF
13	ON	OFF	ON	ON	OFF
14	OFF	ON	ON	ON	OFF
15	ON	ON	ON	ON	OFF
16	OFF	OFF	OFF	OFF	ON
17	ON	OFF	OFF	OFF	ON
18	OFF	ON	OFF	OFF	ON

Table 6: TX3-ER-8 Elevator Restriction Unit's settings

Elevator Restriction Unit ID #	Switch 1	Switch 2	Switch 3	Switch 4	Switch 5
19	ON	ON	OFF	OFF	ON
20	OFF	OFF	ON	OFF	ON
21	ON	OFF	ON	OFF	ON
22	OFF	ON	ON	OFF	ON
23	ON	ON	ON	OFF	ON
24	OFF	OFF	OFF	ON	ON
25	ON	OFF	OFF	ON	ON
26	OFF	ON	OFF	ON	ON
27	ON	ON	OFF	ON	ON
28	OFF	OFF	ON	ON	ON
29	ON	OFF	ON	ON	ON
30	OFF	ON	ON	ON	ON
31	ON	ON	ON	ON	ON

Note: DIP switches 6, 7 and 8 are not used.

6.7 Updating Firmware

After completion of the TX3-ER-8 Elevator Restriction Unit wiring and configuration, use the TX3-MSW Configuration Software to complete the firmware update.

To update firmware

1. Turn the power OFF by using SW2 on the bottom right side of the card access controller board.
2. Short JW1 and JW2 using a jumper.
3. Turn the power ON.
4. Wait for 15 seconds.
5. Turn power OFF and remove jumper JW2.

6. Connect the USB cable to the card access controller board.
7. Turn the power ON.
8. Proceed with the firmware update using the configurator software.
9. When you are finished updating the firmware, turn the power OFF.
10. Unplug the USB cable.
11. Open JW1.
12. Turn the power back ON.

7 Adding Controllers

This chapter provides information about adding additional controllers on the same network as the Telephone Access System.

This chapter explains

- How to add the controller

7.1 Adding a Controller

The TX3 telephone access system may be integrated with other controllers, such as the TX3-CX Card Access system, through a peer-to-peer connection via the RS-485 bus.

Note: Ensure that all network devices each have unique ID addresses.

To integrate another controller

1. Ensure the Telephone Access System and the controller are setup and ready for operation.
2. Turn the power OFF for Telephone Access System and controller.
3. Connect the controller to the Telephone Access System via the RS-485 bus using the RS-485 connectors.
4. Turn the power ON for the Telephone Access System and controller.
5. Connect the PC to either the Telephone Access System or controller using the USB port.
6. Use the TX3 Configurator Program to add and configure the controller to the network.

8 Appendix

This chapter contains additional information about the TX3 Telephone Access System.

This chapter explains

- Telephone Access System Specifications
- Telephone Access System Kits

8.1 Specifications

8.1.1 Operating Temperature

50°C (122°F) to -20°C(-4°F).

For temperatures where the Telephone Access System will operate below 0°C (32°F) at any time, install the TH-102K Thermostat Heater within the enclosure.

8.1.2 Telephone Lines

Use only Loop Start telephones (not ground start), check with your local telephone company.

8.1.3 AC Power Supply

105 Vac to 128 Vac.

8.1.4 Power Transformer

Mircom Model PS-4. 16 Vac/ 40 VA, CSA approved Class 2 Power Transformer.

Mircom Model PS-4P. 16 Vac/ 40 VA, CSA approved Class 2 Power Transformer, plug-in.

Mircom Model PS-24. 24 Vac/ 40 VA, CSA approved Class 2 Power Transformer.

Mircom Model PS-24P. 24 Vac/ 40 VA, CSA approved Class 2 Power Transformer, plug-in.

8.1.5 Door Strikes

Select the appropriate door strike as required by your system applications. We recommend using the following Mircom door strikes below and its compatible power transformer.

- **Mircom Model M-10.** DC (silent) or AC (buzzing) Door Strike. (Use PS-3B transformer)

Note: The door strike must have its own separate power transformer. Do not tap or use the system power transformers. When using a different door strike and door strike transformer, the maximum strike load that may be switched through the control unit is 28 Vac or 3.0 Amp DC.

8.1.6 Post Office Lock

The system has a built-in micro switch and mounting hardware for a postal lock installation. If a postal service is required, contact the Post Office to obtain the lock.

8.1.7 Tamper Switch

This switch can be connected to any security or monitoring system to supervise the opening of the panel front door. This microswitch is the same type used for the postal lock. This switch is normally open when the panel front door of the TX3 is closed, 28 Vac or 28 Vdc, 1A.

8.1.8 Modem

Modems must be compatible with the TFM-560U High Speed USB 2.0 Fax Modem.

8.2 Kits - Electronic Scrolling Directory

8.2.1 TX3-120U Electronic Scrolling Directory plus Paper Directory Lobby Control Unit Kit

- Four-line by 20 character LCD display
- 120 name paper directory
- Main controller board for 200 residents
- PS-4P Transformer
- Universal Enclosure complete with Rain Hood and Light Assembly

8.2.2 TX3-200-8U Electronic Scrolling Directory Lobby Control Unit Kit

- Eight-line by 20 character LCD display
- Main controller board for 200 residents
- PS-4P Transformer
- Universal Enclosure complete with Rain Hood and Light Assembly
- Designed for outdoor applications

8.2.3 TX3-1000-8U Electronic Scrolling Directory Lobby Control Unit Kit

- Eight-line by 20 character LCD display
- Main controller board for 1000 residents
- PS-4P Transformer
- Universal Enclosure complete with Rain Hood and Light Assembly
- Designed for outdoor applications

8.2.4 TX3-2000-8U Electronic Scrolling Directory Lobby Control Unit Kit

- Eight-line by 20 character LCD display
- Main controller board for 2000 residents
- PS-4P Transformer
- Universal Enclosure complete with Rain Hood and Light Assembly
- Designed for outdoor applications

8.3 Kits - Telephone Access Slim-line

8.3.1 TX3-200-4U Slim-Line Electronic Scrolling Directory Lobby Control Unit Kit

- 4 Line by 20 LCD character display
- Main controller board for 200 residents
- PS-4P Transformer
- Slim-line Universal Enclosure complete with Rain Hood and Light Assembly

8.3.2 TX3-NSL-12K Slim-Line NSL Starter Kit

- TX3-200-4U Slim Line Universal Enclosure complete with Rain Hood and Light Assembly
- 4 Line by 20 LCD character display
- Main controller board for 200 residents
- PS-4P Transformer
- TX3-NSL-8M Master NSL Relay Cabinet complete with PS-4P transformer
- 2012K Twelve unit kit complete with a 2012 Telephone card and a 9106 Relay Cable
- RJ-71C Punch Down Block
- Designed for outdoor applications

8.4 Kits - Continental Series Enclosures

8.4.1 TX3-120U Electronic Scrolling Directory plus Paper Directory Lobby Control Unit Kit

- Four-line by 20 character LCD display
- 120 name paper directory
- Main controller board for 200 residents
- PS-4P Transformer
- Universal Enclosure complete with Rain Hood and Light Assembly

8.4.2 TX3-200-8C Electronic Scrolling Directory Lobby Control Unit Kit

- Eight-line by 20 character LCD display
- Main controller board for 200 residents
- PS-4P Transformer
- Continental Enclosure
- Designed for indoor applications

8.4.3 TX3-1000-8C Electronic Scrolling Directory Lobby Control Unit Kit

- Eight-line by 20 character LCD display
- Main controller board for 1000 residents
- PS-4P Transformer
- Continental Enclosure
- Designed for indoor applications

8.4.4 TX3-2000-8C Electronic Scrolling Directory Lobby Control Unit Kit

- Eight-line by 20 character LCD display
- Main controller board for 2000 residents
- PS-4P Transformer
- Continental Enclosure
- Designed for indoor applications

8.4.5 TX3-200-8CH Electronic Scrolling Directory Lobby Control Unit Kit with Handset

- Eight-line by 20 character LCD display

- Handset
- Main controller board for 200 residents
- PS-4P Transformer
- Continental Enclosure
- Designed for indoor applications

8.4.6 TX3-1000-8CH Electronic Scrolling Directory Lobby Control Unit Kit with Handset

- Eight-line by 20 character LCD display
- Handset
- Main controller board for 1000 residents
- PS-4P Transformer
- Continental Enclosure
- Designed for indoor applications

8.4.7 TX3-2000-8CH Electronic Scrolling Directory Lobby Control Unit Kit with Handset

- Eight-line by 20 character LCD display
- Handset
- Main controller board for 2000 residents
- PS-4P Transformer
- Continental Enclosure
- Designed for indoor applications

9 Resident Operating Instructions

This chapter describes the Telephone Access System operating instructions for use by the resident.

This chapter explains

- NSL Resident Operating Instructions
- ADC Resident Operating Instructions

9.1 NSL Resident Operating Instructions

Mircom's state-of-the-art door entry system provides you and your guest with an increased level of confidence and security.

The TX3 Telephone Access system operates with your existing telephone. Your guest dials your code number or selects your name by scrolling through the electronic directory on the Entry unit, causing your telephone to ring.

Note: The telephone keypad numbers described in this chapter may be different for your system. If the keypad numbers do not perform as described, check with your building administrator to get the correct values.

9.1.1 Granting Access

When you answer your telephone, you will be in communication with your guest.

To unlock the main door

- Press " 9 " on your telephone keypad

To unlock the auxiliary door

- Press " 6 " on your telephone keypad

To refuse entry

- Hang up **or**
- Press "4"

9.1.2 Call Waiting Feature

Note: The Call Waiting Feature is available only on NSL systems.

When a guest places a call to you from the Lobby Control Unit while you are engaged in a conversation on your outside telephone line, you will hear a distinct tone.

To answer the call

1. Briefly push the call waiting key to answer the call. This action automatically places the outside telephone line "on hold".
2. While on-line with your guest, you can open the main door by dialing " 9 ". To refuse entry, press "4". This disconnects the telephone from the Lobby Control Unit.

To continue your conversation press “9”, “6” or “4” automatically reconnects to the previously "on hold" caller. In a similar manner, you can answer an outside call while talking to the guest in the lobby.

Note: You will be disconnected if you attempt to place your guest "on hold".

9.1.3 Keyless Entry Codes

The keyless code is a confidential number assigned to each resident by the building administrator to let you open the front lobby door without using a key.

To unlock the front door

1. Press “0”. The keyless code prompt appears.
2. Enter the keyless code. The front door unlocks.

9.2 ADC Resident Operating Instructions

Mircom's state-of-the-art door entry system provides you and your guest with an increased level of confidence and security.

The TX3 Telephone Access system operates with your existing telephone. Your guest simply dials your code number or selects your name by scrolling through the electronic directory on the Entry unit, causing your telephone to ring.

Note: The telephone keypad numbers described in this chapter may be different for your system. If the keypad numbers do not perform as described, check with your building administrator to get the correct values.

9.2.1 Granting Access

When you answer your telephone, you will be in communication with your guest.

To unlock the main door

- Press " 9 " on your telephone keypad

To unlock the auxiliary door

- Press " 6 " on your telephone keypad

To refuse entry

- Hang up **or**
- Press "4"

9.2.2 Keyless Entry Codes

The keyless code is a confidential number assigned to each resident by the building administrator to let you open the front lobby door without using a key.

To unlock the front door

1. Press "0". The keyless code prompt appears.
2. Enter the keyless code. The front door unlocks.

Warranty & Warning Information

Limited Warranty

Mircom Technologies Ltd. together with its subsidiaries and affiliates (collectively, the “Mircom Group of Companies”) warrants the original purchaser that for a period of two years from the date of manufacture, the product shall be free of defects in materials and workmanship under normal use. During the warranty period, Mircom shall, at its option, repair or replace any defective product upon return of the product to its factory, at no charge for labour and materials. Any replacement and/or repaired parts are warranted for the remainder of the original warranty or ninety (90) days, whichever is longer. The original owner must promptly notify Mircom in writing that there is defect in material or workmanship, such written notice to be received in all events prior to expiration of the warranty period.

International Warranty

The warranty for international customers is the same as for any customer within Canada and the United States, with the exception that Mircom shall not be responsible for any customs fees, taxes, or VAT that may be due.

Conditions to Void Warranty

This warranty applies only to defects in parts and workmanship relating to normal use. It does not cover:

- damage incurred in shipping or handling;
- damage caused by disaster such as fire, flood, wind, earthquake or lightning;
- damage due to causes beyond the control of Mircom such as excessive voltage, mechanical shock or water damage;
- damage caused by unauthorized attachment, alterations, modifications or foreign objects;
- damage caused by peripherals (unless such peripherals were supplied by Mircom);

- defects caused by failure to provide a suitable installation environment for the products;
- damage caused by use of the products for purposes other than those for which it was designed;
- damage from improper maintenance;
- damage arising out of any other abuse, mishandling or improper application of the products.

Warranty Procedure

To obtain service under this warranty, please return the item(s) in question to the point of purchase. All authorized distributors and dealers have a warranty program. Anyone returning goods to Mircom must first obtain an authorization number. Mircom will not accept any shipment whatsoever for which prior authorization has not been obtained.

Note: Unless specific pre-authorization in writing is obtained from Mircom management, no credits will be issued for custom fabricated products or parts or for complete fire alarm system. Mircom will at its sole option, repair or replace parts under warranty. Advance replacements for such items must be purchased.

Note: Mircom's liability for failure to repair the product under this warranty after a reasonable number of attempts will be limited to a replacement of the product, as the exclusive remedy for breach of warranty.

Disclaimer of Warranties

This warranty contains the entire warranty and shall be in lieu of any and all other warranties, whether expressed or implied (including all implied warranties of merchantability or fitness for a particular purpose) and of all other obligations or liabilities on the part of Mircom neither assumes nor authorizes any other person purporting to act on its behalf to modify or to change this warranty, nor to assume for it any other warranty or liability concerning this product.

This disclaimer of warranties and limited warranty are governed by the laws of the province of Ontario, Canada.

Out of Warranty Repairs

Mircom will at its option repair or replace out-of-warranty products which are returned to its factory according to the following conditions. Anyone returning goods to Mircom must first obtain an authorization number. Mircom will not accept any shipment whatsoever for which prior authorization has not been obtained.

Products which Mircom determines to be repairable will be repaired and returned. A set fee which Mircom has predetermined and which may be revised from time to time, will be charged for each unit repaired.

Products which Mircom determines not to be repairable will be replaced by the nearest equivalent product available at that time. The current market price of the replacement product will be charged for each replacement unit.

WARNING

Mircom recommends that the entire system be completely tested on a regular basis. However, despite frequent testing, and due to, but not limited to, criminal tampering or electrical disruption, it is possible for this product to fail to perform as expected.

NOTE

Under no circumstances shall Mircom be liable for any special, incidental, or consequential damages based upon breach of warranty, breach of contract, negligence, strict liability, or any other legal theory. Such damages include, but are not limited to, loss of profits, loss of the product or any associated equipment, cost of capital, cost of substitute or replacement equipment, facilities or services, down time, purchaser's time, the claims of third parties, including customers, and injury to property.

MIRCOM MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO ITS GOODS DELIVERED, NOR IS THERE ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, EXCEPT FOR THE WARRANTY CONTAINED HEREIN.

Special Notices

Product Model Number: TX3

AC REN (U.S.): 0.0B

AC REN (CANADA): 0.0

Complies With

Federal Communications Commission (FCC):

- TIA-968-A Technical requirement for connection of equipment to the telephone network.
- CFR 47, Part 15, Subpart B, Class B
- Unintentional Radiators

Industry Canada (IC):

- Terminal attachment programme
- CS-03, Issue 8 - Certification Specifications
- ICES-003, ISSUE 4, CLASS B
- Verification Authorization - Digital Apparatus

Registration Numbers

FCC (U.S.): 1M8OT00BTX3

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.

Caution: 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.

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 1.7.

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 1.7. 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.

