Mircom

TX3 Series

TX3-CX CARD ACCESS SYSTEM

Installation and Operation Manual

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Mircom TX3-CX Card Access System Installation and Operation Manual v.2.0.2

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1 Welcome

This manual provides information about the installation and operation of the TX3-CX Card 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 55.

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

This chapter explains

- The TX3-CX Card Access System
- Applications
- Configurable Features
- Installer Responsibilities
- Setup

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1.1 Introducing the TX3-CX Card Access System

The TX3-CX Card Access System is part of the Mircom suite of products that provide building ready monitoring, control and integrated security solutions for use in the high end multi-tenant residential market.

The Card Access System addresses the need within today's high end multi-tenant residential market for an easy-to-use tenant access system and an easy-to-use configuration utility.

This manual provides the technician with information about the installation and configuration of the Card Access System and explains how to configure various components for a new system, including the modification of an existing system.

1.2 Applications

Mircom's Card Access System consists of a controller, two card readers and configuration software. The controller can accept at the same time, a combination of card readers with the 26-bit Wiegand, 35-bit Indala, 37-bit Mircom, 50-bit RBH, and 32-bit CSN card reader standards to control two access points or doors. The Card Access System can set elevator usage if elevator controls are used.

A number of different card readers are supported, such as the TX3-CX-REC Wiegand wireless receiver, all of which are configurable using the configurator software.

The Card Access System can be used in a stand-alone or networked environment using a standard RS-485, daisy chain peer-to-peer network arrangement.

This network can consist of only the Card Access Controller or a combination of Touch Screens, Lobby Control Units, Elevator Restriction Units and Card Access Units. Up to 63 units can be networked on any RS-485 network or subnetwork. Valid RS-485 network addresses range from 1 to 63. One of the networked units with a real time clock, such as Touch Screen, Lobby Control or Card Access must have their network address set to 1.

If an ethernet network is used, you can connect more than 63 units to your system. If you use an etherent network with RS-485 subnetworks, each RS-485 subnetwork can have 63 devices connected to it.

1.2.1 Wiegand interface

The Wiegand interface is a wiring standard for card readers for establishing the connections between a card reader and the Card Access System. This interface is a serial interface requiring 7 to 10 conductors for communications between the reader and the controller. This interface also supplies 12V power to the reader.

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The Wiegand compatible access card has 26 bits of information embedded onto the card. The card reader reads and registers the card information and sends it back to the controller in a serial bit stream.

1.2.2 Card Access System

The Mircom Card Access System supports a proprietary 37-bit encoding technology and a 26-bit SIA standard format, and consists of a maximum of 63 Card Access Controllers networked together. Each Card Access Controller can have two card readers. The Card Access System provides an optional battery backup and a real time clock.

The Card Access System integrates with the TX3 Telephone Access system by utilizing a common network for both Telephone Access and Card Access Systems.

A PC provides configuration and on-line monitoring of the Card Access System and the Telephone Access System status. Once the system is configured, the PC is not required.

1.3 Configurable Features

The system is configured by connecting the inputs and outputs to device access points, and using the configurator software to establish the correlations between these inputs and outputs.

Additional physical configuration is required using the dip switches and jumpers on the controller. DIP switches set the Card Access Controller network address. Jumper settings set the controller for firmware updates.

1.3.1 PC Configurator Software

The Configurator Software TX3-MSW is a combined Telephone Access System and Card Access System configurator that uses a common database. Once the controller is installed the system applies its default values. Use the configurator software to fully configure the system. See the following documentation:

- LT-995 Configuration and Administration Guide
- LT-973 TX3 Software Guide

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1.4 Installer Responsibilities

The installation and setup must be done by a qualified technician. The technician is responsible for installing all of the system components, connecting all of the input and output wiring for the appropriate door entry systems, and ensuring that the wiring adheres to the requirements of the system for proper operation using the configurator software.

1.4.1 PC Requirements

The following are the PC requirements:

- Dual core processor
- 1.8 GHz, 1 GB RAM
- Windows XP or later
- USB Connection

1.5 Network Setup

The Card Access System can consist of either stand-alone Card Access Controllers or networked Card Access Controllers. Networked Card Access Controllers can communicate over an RS-485 network, an ethernet TCP/IP network, or a combination of an ethernet network with RS-485 subnetworks. All Card Access Controllers can communicate over RS-485. To communicate over an ethernet network you need at least one IP-enabled Card Access Controller (called a Master Node).

The TX3 Configurator software can connect to any of these network configurations. How you connect to the network (that is, through TCP/IP, USB, a modem, or the COM port) determines what devices you can configure on the network using the TX3 Configurator. The different network configurations are explained in the rest of this section.

Figure 1 shows a basic Card Access System with one Card Access Controller and two card readers. The maximum distance between the Card Access Controller and the card readers is 500 feet.

Figure 1. Basic Card Access System

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Figure 2 shows a network with two Card Access Controllers connected to an RS-485 network. The Card Access System can have up to 63 Card Access Controllers networked together. If you connect to any device on the RS-485 network (using USB, a modem, or a COM port), you can also connect to and configure any other device on the RS-485 network using the TX3 Configurator software.

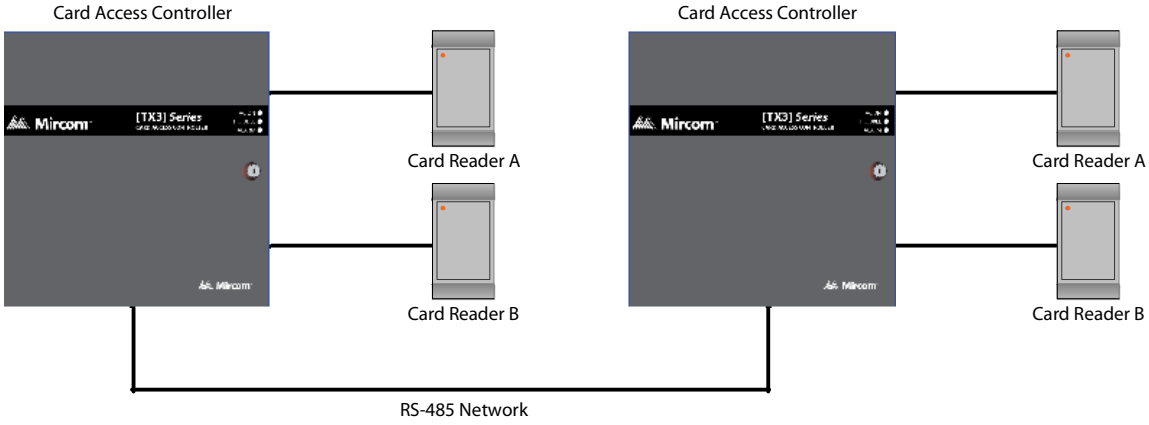

Figure 2. Card Access System using an RS-485 network

Figure 3 shows a configuration with Card Access Controllers connected to an ethernet TCP/IP network. This configuration removes the 63 device limitation that you have on an RS-485 network. The devices connected to an ethernet TCP/IP network are called Master Nodes. If you connect to the TCP/IP network with the TX3 Configurator, you can connect to and configure any of the Master Nodes on the ethernet TCP/IP network. If you connect directly to one of the Master Nodes using USB, a modem, or a COM port, you will be able to configure that device but not any other device.

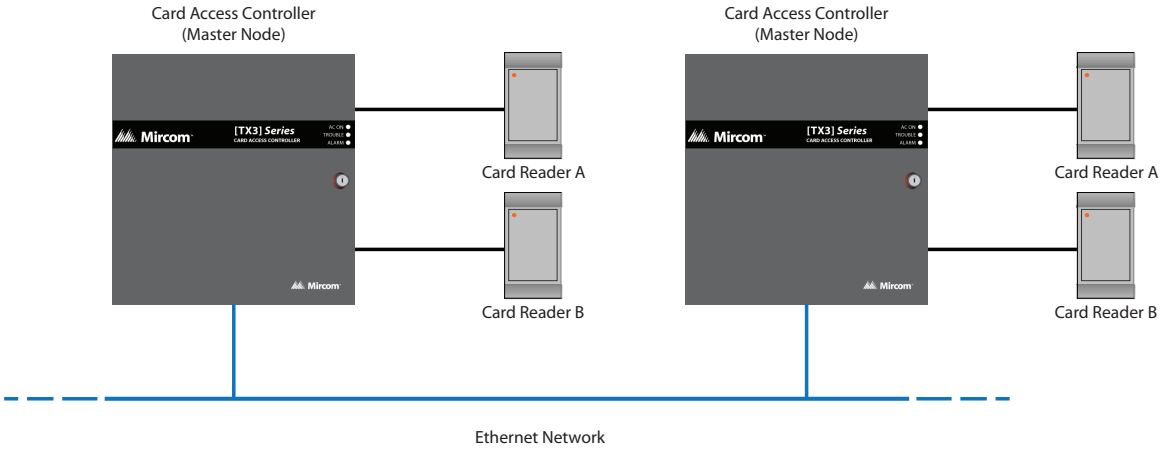

Figure 3. Card Access System using an ethernet TCP/IP network. Controllers connected to an ethernet network are Master Nodes.

Notes: In order for a panel to be a Master Node it must satisfy the following conditions.

- It must be IP capable. Panels that are IP capable are usually denoted by a “-A” at the end of their model names.
- If the panel is not a Touch Screen, it must have a TX3-IP IP Module installed.

Figure 4 shows a Card Access System using an ethernet network with RS-485 subnetworks. The Card Access Controllers connecting to to a Master Node’s RS-485 subnetwork are Slave Nodes to the Master Node. Each RS-485 subnetwork can have up to 63 controllers connected to it; you can still have more than 63 Master Nodes connected to the ethernet network.

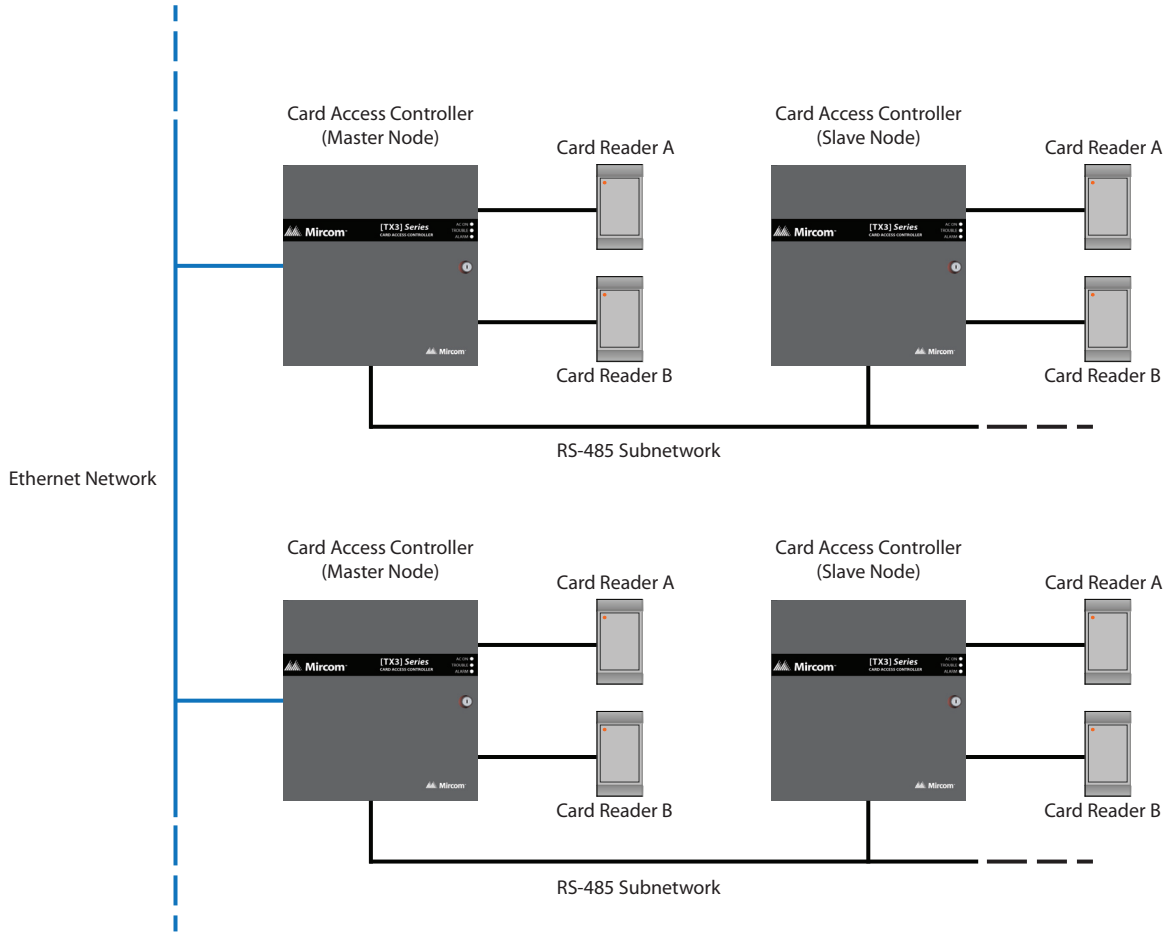

Figure 4. Card Access System using both ethernet and RS-485 networks

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If you connect to the ethernet TCP/IP network with the TX3 Configurator, you can configure any of the nodes in the system. If you connect direcly to a controller using USB, a modem, or a COM port, you will only be able to configure devices that are on the same RS-485 subnetwork as that device.

Note: There can only be **one** Master Node on an RS-485 subnetwork. That is, you cannot connect one RS-485 subnetwork to another RS-485 subnetwork.

1.6 About This Manual

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

Chapter 2 describes the installation of the controller.

Chapter 3 describes the configurable modes of operation.

This manual applies to the following models:

- TX3-CX-2K Two Door Card Access System Kit
- TX3-CX Two Door Card Access Controller
- TX3-CX-2K-A IP Capable Two Door Card Access Controller Kit
- TX3-CX-2-A IP Capable Two Door Card Access Controller

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 Telephone/Card Access System Installation and Operation Manual LT-969
- TX3 Telephone Access System User's Guide LT-968
- TX3 MDM Modem Module Installation LT-971
- TX3-IP IP Module Installation Instructions LT-1161
- TX3 Two Door Card Access System Kit Catalogue Number 6531
- TX3 Series Elevator Restriction Accessories Catalogue Number 6532
- TX3 Configuration and Administration Manual LT-995
- TX3 Configurator Quick Start LT-973
- TX3-USB-AD Kit Installation Instructions LT-6027

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

Mircom fosters a collaborative support process and environment in providing early feedback to meet your specific needs.

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

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1.7.1 General Inquiries

For general inquiries call us at the following numbers:

Toll Free: 1-888-660-4655

Local: 905-660-4655

1.7.2 Customer Service

Customer service is available at the following numbers:

Toll Free: 1-888-MIRCOM5

Local: 905-695-3535

Local Fax: 905-660-4113

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

1.7.3 Website

Visit the Mircom website, at **www.mircom.com**, to find the product information you are looking for and to learn about troubleshooting, training and technical support options.

The website provides avenues for customers to ask questions about new and existing technologies, and receive expert technical support about software and products. Visit **www.mircom.com/chat.**

1.7.4 Email

As a customer you quickly become informed on how we can help with new products and technologies. Contact Mircom at **mail@mircom.com**.

1.7.5 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

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2 Configurable Features

This chapter describes all the configurable features and their modes of operation, and provides you with detailed information to let you configure the system using the Configurator software.

This chapter explains

- Inputs
- Correlation
- Access Criteria
- Timers
- Schedules
- Holidays
- System Status

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2.1 Inputs

Each Card Access Controller has eight inputs to accommodate the following special functions:

- Request to exit for reader A or B
- Door sense for reader A or B
- General purpose

2.1.1 Request to exit for reader A or B

When an input is active the door unlocks and the door unlock timer starts. When the door timer expires or the door sense associated with this card reader becomes active, the door locks.

The input is associated with the 'request to exit' function.

2.1.2 Door sense for reader A or B

When this input is active the door opens and when the input is inactive the door closes. The door sense input determines or performs the following functions:

- Determines if the door ever opened after it was unlocked as a result of access being granted. If the door did not open even though the door was unlocked, for the programmed time duration, it will be reported to configurator if configured.
- Senses a forced entry. If the door is locked and the door sense input becomes active, the force entry alarm activates if configured.
- Senses a door held open condition. This condition is when the door is unlocked and the door sense becomes active but does not get inactivated before the door unlock timer or the extended door unlock timer expires. At this time the 'door held open warning timer' starts. If the door is still open when this timer expires, a 'door held open warning' is reported to the configurator.

  Upon expiry of the 'door held open warning timer' the door held open alarm timer starts. Upon expiry of the 'door held open alarm timer' and the 'door still held open' a door held open alarm is reported to the configurator.

  If the door closes during the time when the 'door held open warning timer' or the 'door held open alarm timer' are active, the 'restore door held open' event is reported to the PC.

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2.2 Correlation

The correlations function lets you establish specific relationships between panel inputs (events) and outputs (actions), such as turning on a light when a door opens. Correlations also allow you to specify these relationships to a schedule, such as allowing access only during certain days and times of the week. A maximum of 32 correlations is allowed.

2.2.1 Assigning events to access points

Assigning events to access points associates the access point with the event. The configurator lets you assign input events by labelling the following access points:

- Reader A
- Reader B
- Inputs 1 to 8

2.2.2 Events

Events are defined by the following inputs and reader states:

- Access is granted (*from Reader A or B*)
- Access is denied (*from Reader A or B*)
- Forced entry alarm (*from Reader A or B*)
- Door held open alarm (*from Reader A or B*)
- Door not open (*from Reader A or B*)
- Input is active (*from Inputs 1 to 8*)
- Unlock mode is on (*from Reader A or B*)
- Unlock mode is off (*from Reader A or B*)
- High security is on (*from Reader A or B*)
- High security is off (*from Reader A or B*)

2.2.3 Actions

An action is defined by the type of action that occurs for a specific event and consists of the following:

- Turn ON output
- Turn OFF output
- Turn ON high security
- Turn OFF high security

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2.2.4 Panels

Correlations can be applied to either one of the panels on your system, all of the panels on your system. or to a custom group of panels on your system (for TCP/IP networks only). across all panels on the network and can occur on the local panel, distributed panels or different types of panels (Card Access and Telephone Access) on the network.

Note: Correlation signals cannot be transmitted by Touch Screen Master Nodes. If you plan on setting up correlations either all of the panels on your network or a custom group of panels, you should **not** have any Touch Screen Master Nodes on your network.

2.2.5 Output

Actions are applied to an output on the panel(s) selected. This option specifies which output.

2.2.6 Duration

The duration of the action is specified in minutes and seconds, or indefinitely.

2.2.7 Schedule

The schedule lets you specify when correlated events take effect.

2.3 Access Criteria

If connected to a PC the configurator software monitors the functional state of inputs from all panels and devices, and autosenses the on/off status of connected components. Outputs are programmed for specific functionality, such as specific delay and on/off times.

Granting access depends on different criteria, such as security precautions and the access privileges granted the card holder. To prevent unauthorized access the controller has various configurable features for determining the conditions and type of access.

Access requirements are a function of schedule, holidays, security precautions and access privileges. The parameters are configurable and allow for very detailed system operation. For example access privileges may have dependencies and consequently may be more suitable to run as a scheduled task.

The configurator software lets you define and configure the various modes of operation for managing access, defining inputs and assigning outputs. In order to effectively use the configurator you must understand these configurable features.

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The following features are configurable:

- Lock / Unlock
- High security
- PC decision required
- Facility code
- Card + PIN
- Anti-passback
- Temporary card
- Interlock
- Access Level
- Controller options
- Access point options
- Card options

2.3.1 Lock / Unlock

An access point has one of the following lock status modes:

Lock Mode. When in lock mode the door is normally locked. Any valid access card unlocks the door for the duration of a specified time interval according to:

- door unlock time
- extended unlock time

During this mode the red LED on the card reader associated with this access point becomes active and turns green for the duration the door is unlocked.

Unlock Mode. When in unlock mode the door is unlocked. The green led on the reader associated with this access point stays lit. During this mode the door sense is not monitored for the following:

- door did not open
- door held open warning
- force entry alarm

2.3.1.1 Changing the lock/unlock mode

The lock/unlock mode is changed in one of the following three ways:

- an administrator using the configurator can send a command to change the lock mode

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- an access card with lock/unlock privileges, if swiped twice in succession, toggles between lock and unlock mode
- a schedule associated with the lock/unlock mode - when the associated schedule is active, it changes to unlock mode and when the schedule is inactive, it changes back to lock mode

Whenever the mode is changed from lock to unlock or from unlock to lock, the beeper on the reader associated with this access point sends a distinct beep indicating the mode is changed.

2.3.2 High security

The high security mode grants access to cards with the high security privilege. This mode is changed as follows.

- if the access point is configured as high security then it is in high security mode by default unless changed by the PC or card with high security privilege
- if an access card with high security privilege is swiped four times in succession, the mode toggles between high security on to high security off
- the configurator software can change the mode from high security on to high security off or from high security off to high security on
- an event correlated with a response to turn on or off the high security mode

The high security mode locks all doors in the unlocked mode.

Whenever the high security mode changes, the beeper on the reader associated with this access point sends a distinct beep.

2.3.3 PC decision required

During this mode the decision to grant access is transferred to an attendant. Using the PC the attendant grants or denies access. Only valid cards assigned with the PC decision requirement are able to make this type of access request.

2.3.4 Facility code mode

Access cards consist of two codes; facility code and card code. The facility code mode is designed for new installations where access cards are not programmed into the database. When the facility code mode is enabled, cards with same facility code are granted access.

The facility code can be set to any number. If a number is not chosen, it will automatically default to “0” as a placeholder.

In this mode, the door is unlocked for the same period of time that as that of the standard door unlock timer. This mode is configured for each access point.

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2.3.5 Card + PIN

This mode provides another level of security during certain parts of the day. During this mode not only a valid card is required for access but also a PIN code. The PIN code is 1 to 4 digits long and is programmed for each card. 0 is not a valid PIN code.

There is a schedule associated with this mode. When the schedule is enabled, the mode is on and when the schedule is disabled, the mode is off.

This feature requires a card reader with a keypad.

2.3.6 Anti-passback

This mode prevents unauthorised users from getting access. During the anti-passback period if a valid card is used at an access point, it cannot be re-used at the same access point until the pre-programmed anti-passback timer expires. After expiration of the timer, the user regains access.

2.3.7 Temporary card

This type of card can be created by placing a usage counter on the card. Each time the card is used, the usage counter is reduced by one. When the usage number reaches zero, access is denied.

A usage counter of 255 indicates there is no restriction on use.

2.3.8 Interlock

This mode is typically used in a double door application to prevent unauthorised access. During this mode the user presents the card at both doors. The second door unlocks after presenting the card, if the first door is locked and closed.

If enabled door B cannot be unlocked until door A is locked and closed. Door A cannot be unlocked until door B is locked and closed.

2.3.9 Access level

Creating an access level lets you define where and when to use a card, and set elevator usage if elevator controls are used.

A maximum of 128 access levels are defined for each controller. A schedule is associated with each access level for all the access points on the controller as indicated by the following example.

Access level ID = 1

- for reader A schedule = Always

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- for reader B schedule = Never

Access level ID = 2

- for reader A schedule = Office hours
- for reader B schedule = Always

If a card is assigned an access level 1 it means the user can have access to reader A at all times but will not have access to reader B at any time.

If a card is assigned an access level 2 it means the user can have access to reader A during the office hours and will have access to reader B all the time.

The option for elevator control exists for each access level. If elevator control is enabled for a specific access level then swiping a card with that access level will turn on the associated elevator relays. Which relays are activated can be specified individually for each access level. Up to 16 elevator relays can be activated for each access level. If more than 16 relays are assigned to a specific access level only the first 16 will be activated.

2.3.10 Controller options

The following controller options are configurable:

Card format. The following card formats are supported:

- 26-bit Wiegand SIA
- 37-bit Mircom
- 35-bit Indala
- 50-bit RBH
- 32-bit CSN

Send real time logs. If enabled, only the real time logs are sent to the PC.

Interlock feature. If enabled, door B cannot be unlocked until door A is locked and closed. Door A cannot be unlocked until door B is locked and closed.

Facility code. Facility code is set to any value is used in the facility code mode. The default is 0.

2.3.11 Access point options

The following access point options are configurable:

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Auto relock. Enabling this option locks the door when the door closes before the door open timer or extended door timer expires. Disabling this option locks the door, but only after the expiration of door open timer or extended door open timer.

Deduct usage count. For cards designated as “temporary” (that is, the usage counter option is enabled and set to a value below 255), this option decreases the usage counter by one every time this card is used at the access point. When the usage counter reaches zero, the card deactivates.

Disable forced entry alarm. Disabling the forced entry alarm will not activate the forced entry alarm even if the door is opened without permission. Instead an access granted sequence is started. This is usually used on access points where there is no request to exit (RTE) device.

Ignore card facility code. This option is enabled by default meaning that only card number will be processed. If this option is unchecked, then for every card, card number and facility code will be processed to grant access.

PC decision required. When enabled granting access is transferred to the PC from the controller. For this option to work the PC needs to be on all the time with an attendant. Use this option when the building has a security desk or a concierge.

First person In. Configuring the access point for the lock/unlock schedule, causes the door to remain locked at the start of the unlock schedule, until the first valid card with this privilege is presented to the card reader. The door continues to remain unlocked for the remainder of the unlock schedule.

RTE bypass DC. When enabled, requests to exit (RTE) bypass the door contact (DC) and do not unlock the door. This is typically used where there is a mechanical egress device installed on the door.

High security. When enabled only access cards with the high security privilege are able to open the door.

Report request to exit. This option logs and monitors events and system status. When enabled any requests to exit are logged and reported to the configurator. Since the person exiting is not known, only the time and date and the request itself is logged and reported.

Report door not opened. When enabled this option logs and reports events when access is granted but the door remains closed.

Report unknown format. When enabled this option logs and reports access attempts with a card with an unknown format.

Facility code mode. Enabling this mode grants access to cards based on only their facility code. This allows nonprogrammed cards to have complete building access. Use only when necessary.

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Inhibit ID. When enabled the card code is not sent to the PC. This feature is used for logging and reporting purposes.

Timed Anti-passback. When enabled access is not permitted at the same access point for a specific amount of time specified by the anti-passback timer.

2.3.12 Card options

Access cards are configured for the following features:

Usage counter. The usage counter is used for temporary cards. The usage counter can be given any value from 1 to 255. Using 255 means there is no restriction on usage. If any other value is used it means the card is only usable for that number of times.

Status. The status of the access card is marked as:

- Active
- Inactive

Inactive cards are not granted access. Active cards are granted access provided all the other conditions like schedule and privilege are met.

Access level. Select the access level for the card. Access levels are configurable on the basis of privilege. Up to 128 access levels can be defined for the system.

PIN. The PIN code is a 1 to 4 digit numerical value used during the card + PIN schedule. 0 is not accepted.

Ignore anti-passback. When this option is enabled the card holder is not restricted by the timed anti-passback mode.

Lock/Unlock privilege. When this option is enabled the user has the privilege of unlocking the door by presenting the card to the reader twice in succession.

High security privilege. When this option enabled only access cards with this privilege are able to open the door.

Extended unlock time. When this option is enabled the door opens for the extended unlock time (see section 2.4.3, Extended unlock time). This option is normally given to seniors and persons with disabilities.

Handicap. When this option is enabled the output designated as accessible is activated along with the main door.

First person in. This option works in conjunction with scheduled unlock modes only. If the First person in setting is enabled, only a card with the First person in privilege can start the unlock mode.

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2.4 Timers

The following types of timers are associated with the Card Access System operation:

- Unlock time
- Extended unlock time
- Anti-passback
- Door held open warning
- Door held open alarm

2.4.1 Timer schedule

Events are scheduled as Always, Never, or administrator defined. Timed access adheres to a schedule as follows:

Auto-unlock schedule. When enabled the door remains unlocked during the schedule.

PIN required schedule. Card access requires the use of a PIN during the schedule.

2.4.2 Unlock time

The door unlock timer starts when the door unlocks. When the timer expires the door locks. The main door unlock timer is programmable from 0 to 300 seconds. The default is 10 seconds.

2.4.3 Extended unlock time

This extended unlock timer mode is used for cards with the extended unlock feature enabled. The timer starts when the door unlocks. When the extended unlock timer expires the door locks. The timer resets when the main door sense is programmed to be inactive. The extended unlock timer is programmable from 10 to 300 seconds. The default is 15 seconds.

2.4.4 Anti-passback

The anti-passback timer starts when access is granted. In this mode the user cannot re-enter this door until the anti-passback timer expires. When the timer expires the user has access. The anti-passback timer is programmable from 0 to 900 seconds. The default is 300 seconds.

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2.4.5 Door held open warning

The door held open warning timer starts when access is granted. When the door unlock timer expires and the door does not close during this interval a ‘door held open’ warning is issued to the PC and the common trouble status becomes active. If the door closes during this interval, the timer resets and no warning report is sent to the PC.

The door held open warning timer is programmable from 10 to 900 seconds. The default is 30 seconds

2.4.6 Door held open alarm

The door held open alarm timer starts when the door held open warning timer expires and the door remains not closed. When this timer expires and the door is still open, a ‘door held open alarm’ is issued to the PC and the common alarm status becomes active. The door held open alarm timer is programmable from 10 to 900 seconds. The default is 60 seconds

2.5 Schedules

Schedules let you set up a timetable to establish when certain actions are permitted to occur, such as door access. These schedules are designated and listed by name in the configurator software, and are available for selection wherever it is necessary to invoke access permission.

The system can store up to 64 schedules. Each schedule consists of eight periods with each period consisting of

- Start time and end time in hours: minutes format
- Days of the week and Holiday selection

Each schedule has an ID and a label to identify the schedule for use in the configurator software.

If the current time and day satisfies any one of the eight periods in a schedule, the schedule is considered to be active; otherwise, it is inactive.

By default the following two schedules cannot be edited:

- 'Always' schedule
- 'Never' schedule

Schedules are used for the following:

- Timer schedule
- Correlations

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- Auto-unlock
- PIN required schedule
- Access levels

2.6 Holidays

Up to 128 holidays can be entered in the system. Each holiday consists of the following:

- start time/date
- end time/date

If a holiday falls on the same date each year it can also be programmed as an annual event.

Each holiday has a holiday ID and label to identify the holiday for use in the configurator software.

By default, New Year (January 1) is already programmed into the system.

2.7 System Status

The controller monitors inputs for trouble and alarm conditions.

2.7.1 Common trouble

The common trouble indicator is active when any of the following inputs receive a trouble condition:

- Any supervised input
- Power (AC and battery)
- Door held open warning

The common trouble status clears only if all the above inputs are back in normal state. When the common trouble status is active, the common trouble led flashes at a slow rate.

2.7.2 Common alarm

The common alarm status is active when any of the following inputs receive an alarm condition:

- forced entry alarm

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- door held open alarm

The common alarm status clears only if all the above inputs are back in normal state. When the common alarm status is active, the common alarm led flashes at a fast rate.

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3 Installation and Setup

This chapter describes the installation and setup of the controller and card reader.

This chapter explains

- System Grounding Requirements
- Card Reader Installation
- Setup
- Connecting the Inputs and Outputs
- Card Reader Connection
- Power Supply
- Battery Backup
- RS-485
- Dip Switch and Jumper Settings
- Updating Firmware
- Beginning the Configuration

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3.1 Grounding the Card Access System

Grounding reduces the risk of electrical shock by providing an alternate escape route for the electrical current. The Card Access System is equipped with a 16 gauge electrical wire attached to the panel chassis Ground Terminal.

Note: Do not disconnect this wire.

Attach the end of the supplied wire to a suitable grounding wire 16 gauge or thicker. Attach the other end to the cold water ground.

3.2 Installing the Controller and Components

The Card Access Controller surface mounts with four screws as shown in Figure 5. The back cover is 12 inches wide by 14 inches long. The top two mounting holes are 10 inches apart.

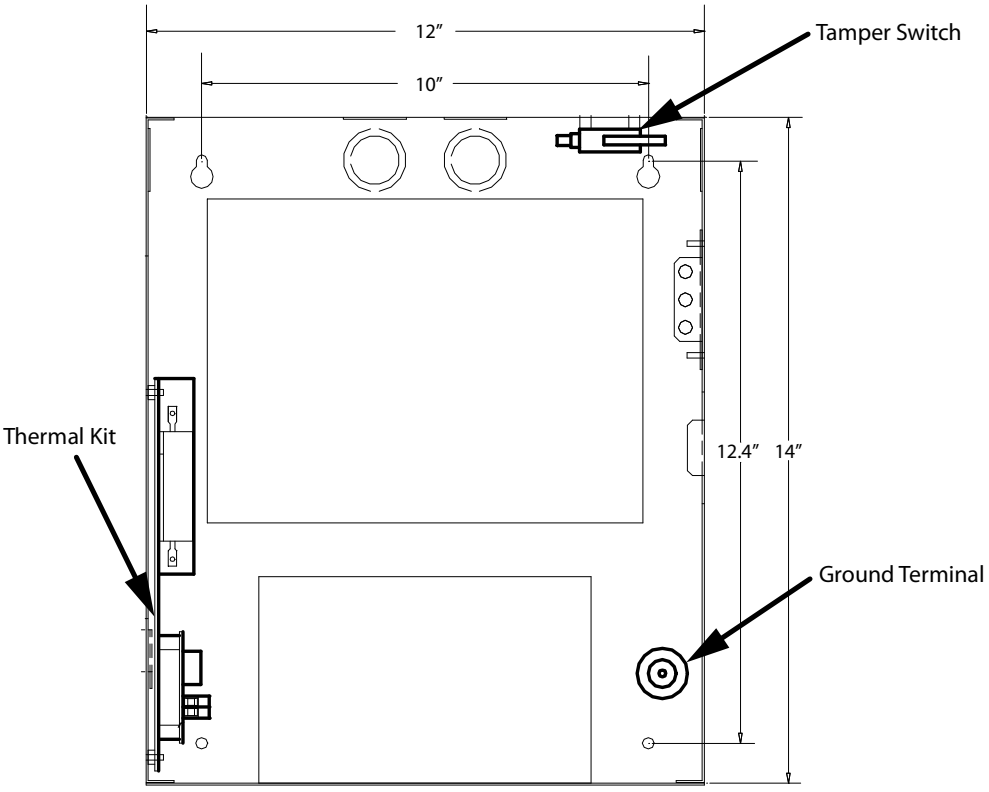

Figure 5. Controller Back Cover Dimensions and Optional Component Location

3.2.1 Optional Components

Install the following optional components as required:

- Thermal kit TH-102

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- Tamper switch
- TX3-MDM Modem Module
- TX3-IP IP Module (only for models TX3-CX-2-A or TX3-CX-2K-A)
- MD-993 RS-485 to USB Module
- Battery

3.2.2 Installing the Card Access Controller

The Card Access Controller enclosure mounts directly on the wall to the wall stud using the mounting screws locations as shown in Figure 5.

To mount the card reader

1. Find a suitable location for the enclosure beside a wall stud.
2. Using the controller back cover as a template mark the top two mounting hole locations 10” apart as shown in Figure 5.
3. Place the screws halfway into the wall in the position shown using a suitable screw.
4. Hang the box onto the two screws.
5. Screw the other two screws at the bottom of the panel.
6. Tighten all four screws into place.

3.2.3 Installing the thermal kit

Install the thermal kit inside the back cover on the left side in the location shown in Figure 5.

3.2.4 Installing the tamper switch

The tamper switch is located at the top right corner of the back cover shown in Figure 5. Connect the tamper switch wire to the general purpose input and correlate the opening of the cover to a specific output (action). For a complete description of correlations see Chapter 2 Configurable Features.

3.2.5 Installing the modem

Install the optional TX3-MDM Modem Module in the location shown in Figure 6. Secure the Modem Module into the location using the supplied four screws.

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For additional documentation see the TX3 MDM Modem Module Installation Instructions LT-971.

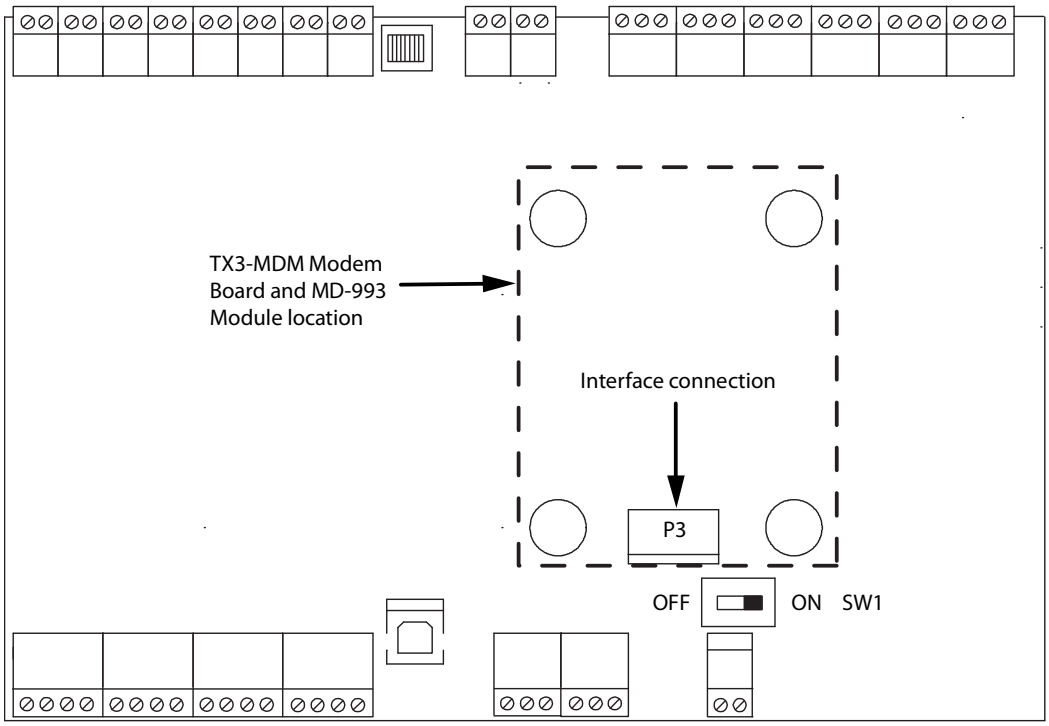

Figure 6. Modem Board Location

3.2.6 Installing the IP Module

The optional TX3-IP IP Module kit comes with the MD-921 IP Module which allows a Card Access Controller to connect to an ethernet TCP/IP network as a Master Node. Install the MD-921 in the location shown in Figure 7. Secure the IP Module into the location using the supplied four screws.

For additional documentation see the MD-921 IP Module Installation Instructions LT-1161.

Note: The MD-921 IP Module can only be installed on the TX3-CX-2-A or TX3-CX-2K-A models.

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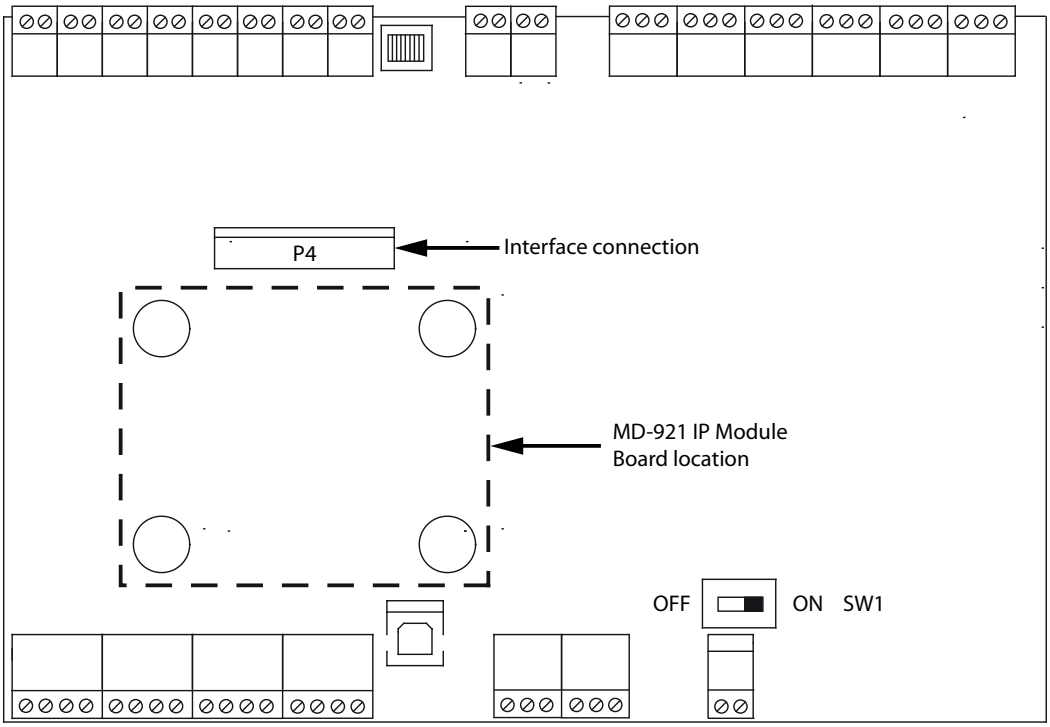

Figure 7. IP Module Board Location

3.2.7 Installing the MD-993 module

The MD-993 Module converts RS-485 signals to USB and is part of the TX3-USB-AD Kit. Install the MD-993 Module in the location shown in Figure 6 using the supplied four screws. The MD-993 Module ribbon cable connects to the P3 connector on the controller board.

The module has an RS-485 connector as shown in Figure 8.

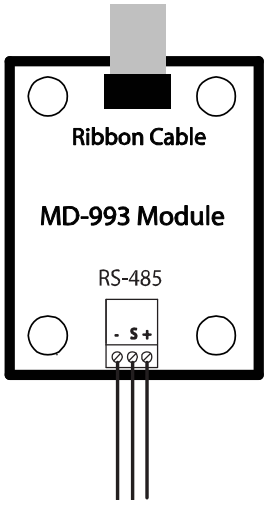

Figure 8. MD-993 Module

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Table 1: MD-993 Jumper Settings

Mode	JW1	JW2
No termination	Open	Open
AC termination 120R + 1nF	Short	Open
No termination	Open	Short
DC termination 120R (Factory Default)	Short	Short

Note: For the main application of the MD-993, short JW1 and JW2.

For a description on how to install the MD-993 Module see the TX3-USB-AD Kit Installation Instructions LT-6027.

3.3 Controller Board Description

The Card Access System controls access points according to how the inputs and outputs are defined and correlated with each other. Inputs and outputs are defined by how the access and control points are wired with the controller.

Before you begin you must establish how you want the outputs to behave as a function of the inputs. For a complete description of correlation and the modes of operation see Chapter 2 Configurable Features.

Keep a record of the wiring for configuration purposes.

3.3.1 Controller Panel LEDs

There are three status LEDs on the front of the Card Reader Panel:

AC ON LED. `AC ON LED` illuminates steady green when AC power is present.

Trouble LED. `Trouble LED` flashes amber at a slow rate when there is a common trouble condition in the system. Trouble consists of:

- any supervised input
- AC power/low battery
- door held open warning

Alarm LED. `Alarm LED` flashes red at a fast flash rate when there is a forced entry or the door held open alarm timer expires.

3.3.2 Controller Board Components

The Card Access Controller consists of the following terminals:

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- 8 inputs
- 8 outputs (6 relay contact outputs and 2 outputs providing 12 Vdc)
- connections for two card readers (noted as Reader A and Reader B)
- power supply
- RS-485 connector
- USB, IP Module, and Modem board connectors

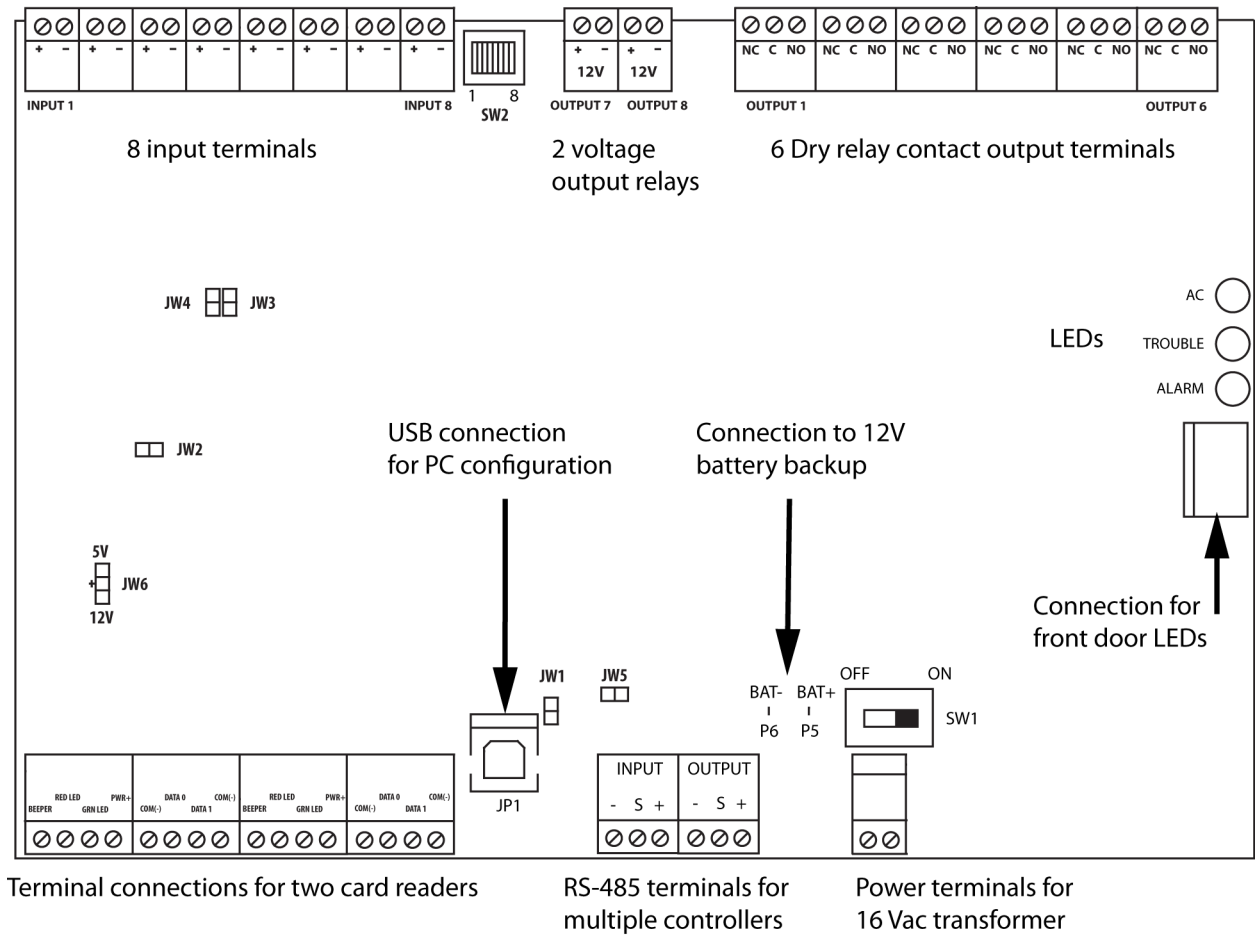

Figure 9. Controller Board Connection Locations

Note: See Figure 21 and Figure 22 for the terminal connections for the two card readers.

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3.3.3 Power Supply

The power supply connection is situated at the bottom right of the main controller board and receives 16 Vac, 40 VA. Use 18 AWG wiring. An external PS-4 or PS-4P plug-in transformer connects to the power terminals. Refer to Figure 5 and Figure 10.

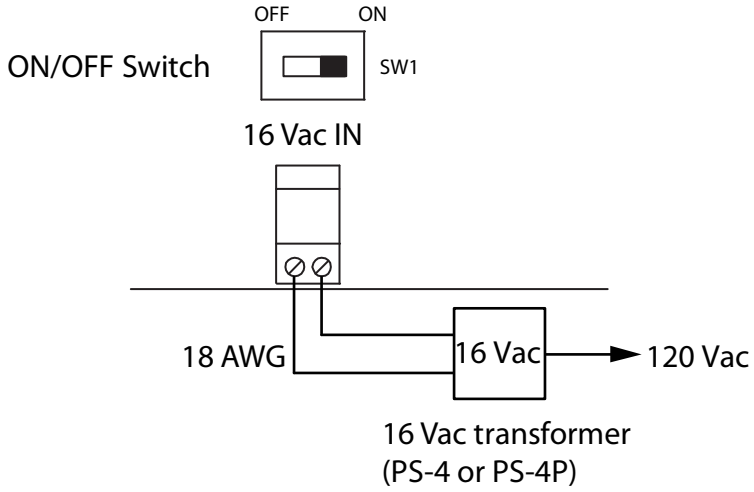
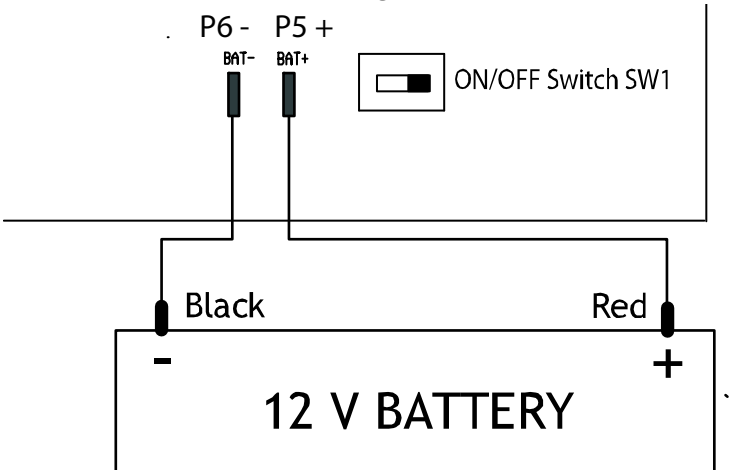


Figure 10. Power Supply

3.3.4 ON/OFF Switch and Battery Back-up

Battery back-up is provided with a 12V 6.5AH battery which fits inside and at the bottom of the unit. Connect the battery to the connectors located to the left of the ON/OFF switch SW1 as shown in Figure 11.



Note: Battery backup is optional.

Figure 11. Controller Board Battery Wiring

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3.3.5 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.

Connect the RS-485 input terminal to the RS-485 output terminal of another controller.

The RS-485 terminal consists of + (positive), - (negative), and S (Shield) connections. See Figure 12.

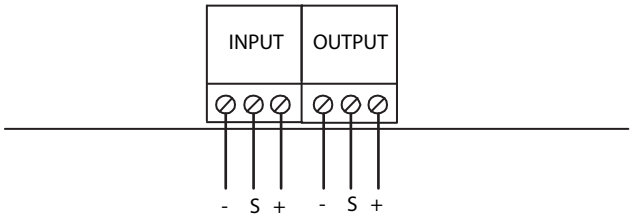

Figure 12. RS-485 Terminals

There are two additional RS-485 Terminal Connectors that must be added to the FIRST and LAST node of the network. On the FIRST node of the network attach the connector to the RS-484 IN. One the LAST node of the network attach the terminal connector to the RS-485 OUT. See Figure 10.

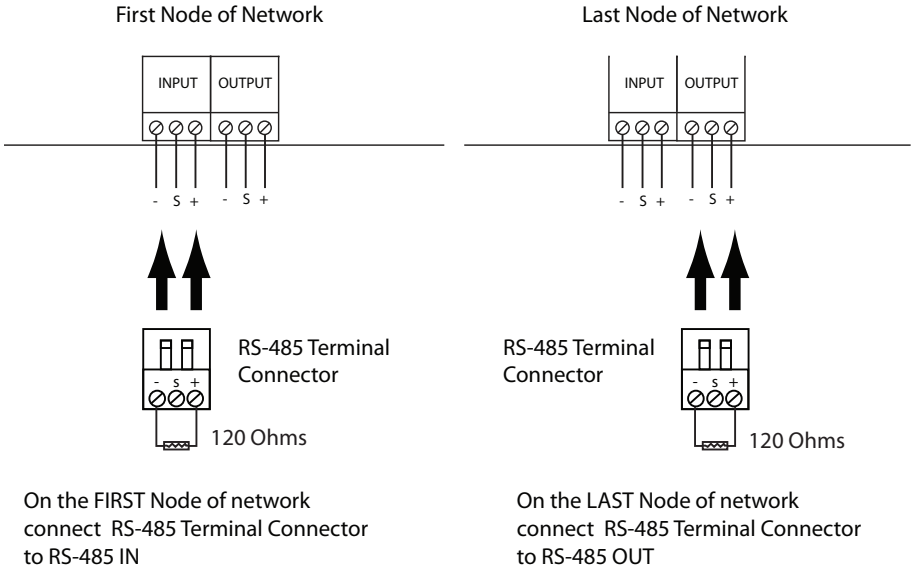

Figure 13. Connecting additional RS-485 Terminal Connector to the First or Last Node of Network

3.3.6 USB Port

The USB port provides a connection to a PC, for configuring the Card Access System and downloading any new firmware.

3.4 Connecting the Inputs

Each Card Access Controller has eight inputs to accommodate the different types of configurable functions associated with the inputs. For additional details and a complete description of the different types of configurable functions see Chapter 2 Configurable Features.

After the installation and setup is complete, the functional state of all inputs and circuit supervision types must be configured using the configurator software. During configuration you will also establish correlations between inputs and outputs.

Depending on the device each input is configured according to:

- type of input function
- active state
- supervision requirement
- alarm delay

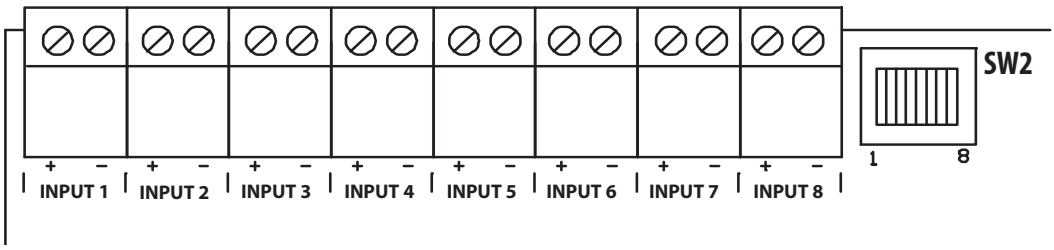

Figure 14. Controller Board Input Terminals

3.4.1 Inputs 1 to 8

Inputs 1 to 8 are programmable inputs. Configure each input for one of the following actions. Figure 15 shows a sample connection.

- Request to Exit (reader A)
- Request to Exit (reader B)
- Door sense (reader A)
- Door sense (reader B)
- General purpose input

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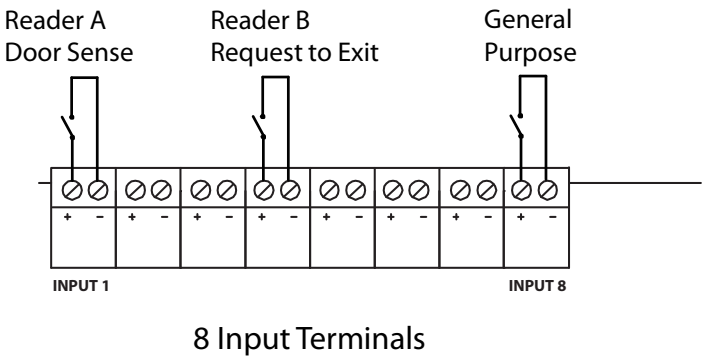

Figure 15. Input Terminal Sample Connections

3.4.2 Request to Exit

Activation of this input unlocks the door and starts the door unlock timer.

3.4.3 Door sense

When the door is open this input is active and when the door is closed the input is inactive.

3.4.4 General purpose input

The general purpose input is mainly used for establishing a correlation with a specific output. When a general purpose input becomes active it is considered as an event that correlates to either turn on or off a general purpose output, or to turn on or off the high security mode. Other correlated events include different functions such as forced entry, auto relock or interlock.

3.4.5 Active state

An active state is when the input circuit is considered active and is configured as one of the following:

- open
- short (default)

There are some restrictions in configuring the active state depending on what kind of supervision is required.

If the input is not supervised the input is either ‘open’ or ‘closed’. If the input is supervised for ‘open’ the active state cannot be ‘open’.

If the input is supervised for both ‘open’ and ‘short’ the active state cannot be ‘open’.

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3.4.6 Supervision requirement

Each input is configured for a specific type of supervision depending on your particular installation requirements as follows:

- no supervision
- supervise for open
- supervise for short
- supervise for both open and short

3.4.6.1 No Supervision

When inputs are configured with no supervision, the active state is either ‘open’ or ‘short’ as programmed.

3.4.6.2 Supervised for open

When configured as supervised for open, the active state is ‘closed’ (short). Open supervision uses a single 47K ohm resistor.

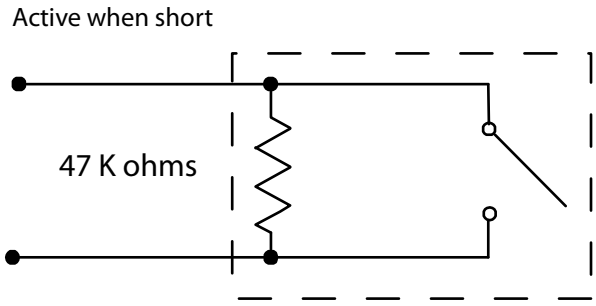

Figure 16. Input - Supervised for Open

Note: The active state cannot be an open state.

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3.4.6.3 Supervised for short

When configured as supervised for short, the active state is open. A single 47K ohm resistor is required for short supervision.

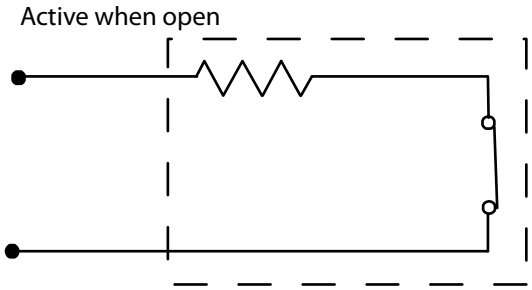

Figure 17. Input - Supervised for Short

Note: The active state cannot be a short state.

3.4.6.4 Supervise for open and short

When configured as supervise for both ‘open’ and ‘short’, the active state cannot be open, therefore the active state is closed.

Two 22K ohm resistors are required for supervision.

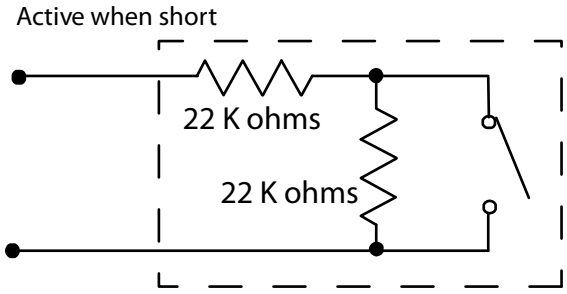

Figure 18. Input - Supervised for Open and Short

Note: The active state cannot be an open state.

3.4.7 Alarm Delay

Alarm delay is a configurator defined parameter that specifies the amount of time before an input raises an alarm condition. For more information see Chapter 2 Configurable Features.

3.5 Connecting the Outputs

There are 8 outputs located on the top right hand corner of the Card Access Controller as shown in Figure 9.

Each output is wired for a specific function or for an active state. Determine the functional requirements for the device and connect the outputs accordingly. For additional details and a complete description of the different types of configurable functions see Chapter 2 Configurable Features.

After the installation and setup is complete, the functional state of all outputs must be configured using the configurator software.

3.5.1 Specific functions

Each output is wired for the following specific functions:

- Lock for Reader A or B
- Handicap lock for Reader A or B
- General purpose output

Lock for reader A or B. This output assigns the main access door to either reader A or reader B. When access is granted at the designated reader, this output unlocks the door.

Handicap lock for reader A or B. This output controls the handicap access door. Access is granted to cards with handicap privileges.

General purpose output. The general purpose output is for all other types of outputs, such as turning on a light.

3.5.2 Active state

Outputs require active states. Each output is configured for the active state to indicate one of the following:

- energized
- de-energized

3.5.3 Outputs 1 to 6

Outputs 1 to 6 are relay contact programmable outputs with the following characteristics. Figure 19 shows a sample connection.

- normally open (NO)
- normally closed (NC) available
- 3 A 30 Vdc (NO)
- 1 A 30 Vdc (NC)

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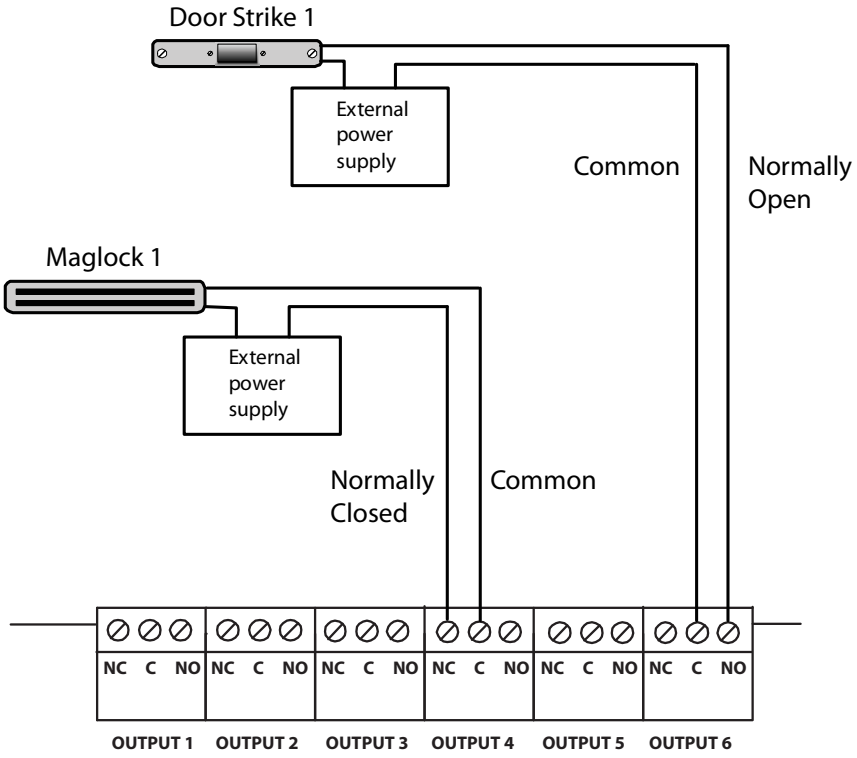

Figure 19. Controller Output Terminal Sample Connections

3.5.4 Outputs 7 and 8

Outputs 7 and 8 are programmable and provide a combined output of 1 A. Each individual output is capable of providing:

- 12 Vdc
- 500mA of current (700 mA maximum)

Note: Outputs 7 and 8 are capable of providing a maximum output of 700 mA each, for a combined output of 1 A. For example, if output 7 provides 700 mA, then output 8 provides 300 mA.

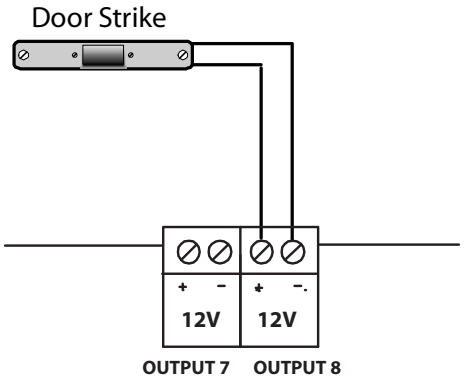

Figure 20. Outputs 7 and 8 Sample Connections

Figure 20 shows a door strike activated and powered by output 8.

3.6 Connecting the Card Reader

The card readers are manufactured by AWID and are part of the Mircom Card Access package. The cards are produced by Mircom. The controller supports two card readers.

3.6.1 Card Reader Requirements

Mircom provides the SR-2400MI-GR-MP multi protocol proximity card reader.

Third party card readers must meet the following minimum requirements in order to be compatible with Mircom's Card Access System:

- must support the 26 bit standard SIA protocol
- standard Wiegand interface
- LED status indicator
- warning or alarm buzzer
- 12 Volt operation
- maximum 500 feet distance from the card reader and the controller use 20 AWG wire and for 250 feet use 22 AWG

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3.6.2 Card Reader Connection

Connect the readers to the terminals on the bottom left side of the Card Access System board as shown in Figure 21 and Figure 22.

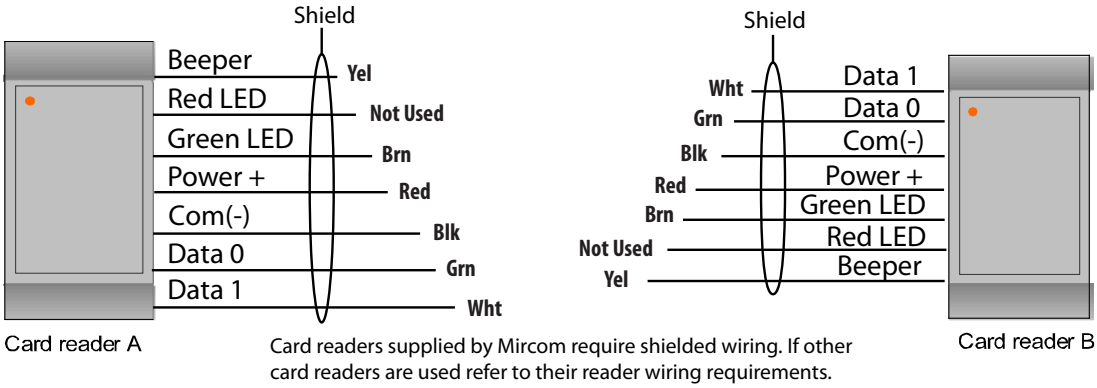

Figure 21. Card Reader Connections

Note: The card reader COM (-) wire can be connected to either COM (-) connector on the terminal block.

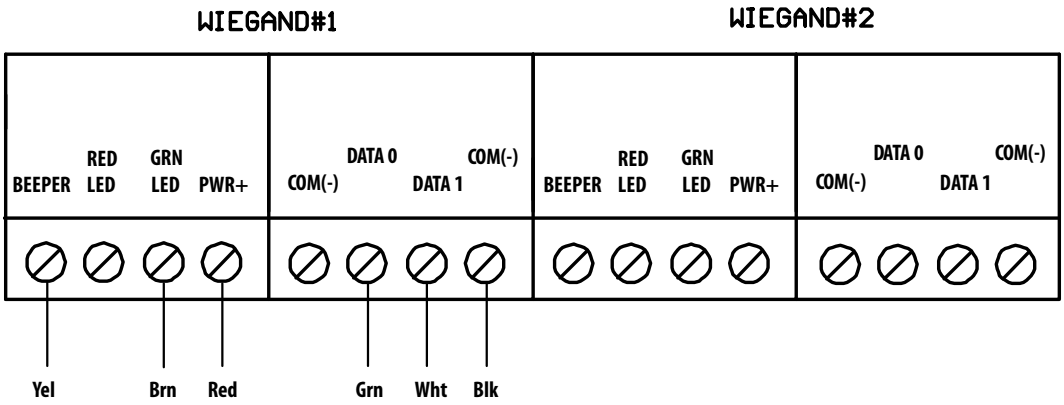

Figure 22. Controller Board Card Reader Connectors

Card Reader A. Connections required for card reader A (starting from the far bottom left side) are Beeper, Red LED, Green LED, PWR(+), COM(-), Data 0, Data 1 and COM (-).

Card Reader B. Card reader B follows the same terminal connections, located to the right of the card reader A terminals.

Note: When using card readers with a single LED control connect the control wire to the green LED terminal.

3.6.3 Card Reader Status LEDs

There are three status LEDs on the card reader:

Green LED. Illuminates steady green when door is unlocked.

Red LED. Illuminates steady red when door is locked.

Orange LED. Illuminates steady orange until a card is used for the first time. Normal illumination returns upon subsequent use. (*on some models only*)

3.6.4 Card Reader Beeper

The beeper indicates specific events at different beep rates as follows:

Card Presented. One short beep.

Access Granted. Two short beeps.

Access Denied. One short beep and one long beep.

Mode of Operation Changed. Three short beeps indicate a change in the on or off state for the high security or the unlock mode.

Alarm. Continuous short beeps.

3.7 Setting DIP Switches SW2

The DIP switches on SW2 are used to set the Card Access Controller address on the RS-485 network and determin how the Card Access Controller gets its IP address (on IP enabled controllers only). Valid addresses are 1 to 63. DIP switches 1 to 6 are used for binary addressing with DIP switch 1 being the least significant bit. DIP switch SW2 is found at the top central portion of the Card Access Controller board, see Figure 9.

See Table 2 for the DIP switch settings for RS-485 network addressing.

Note: DIP Switch 7 is not used and should remain at the factory set value.

Note: DIP Switch 8 determines how the IP address is assigned to the IP Module for IP enabled Card Access Controllers.

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

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Table 2: SW2 DIP SWITCH SETTINGs FOR RS-485 NETWORK ADDRESSING

ADDRESS	SWITCH 1	SWITCH 2	SWITCH 3	SWITCH 4	SWITCH 5	SWITCH 6
1	ON	OFF	OFF	OFF	OFF	OFF
2	OFF	ON	OFF	OFF	OFF	OFF
3	ON	ON	OFF	OFF	OFF	OFF
4	OFF	OFF	ON	OFF	OFF	OFF
5	ON	OFF	ON	OFF	OFF	OFF
6	OFF	ON	ON	OFF	OFF	OFF
7	ON	ON	ON	OFF	OFF	OFF
8	OFF	OFF	OFF	ON	OFF	OFF
9	ON	OFF	OFF	ON	OFF	OFF
10	OFF	ON	OFF	ON	OFF	OFF
11	ON	ON	OFF	ON	OFF	OFF
12	OFF	OFF	ON	ON	OFF	OFF
13	ON	OFF	ON	ON	OFF	OFF
14	OFF	ON	ON	ON	OFF	OFF
15	ON	ON	ON	ON	OFF	OFF
16	OFF	OFF	OFF	OFF	ON	OFF
17	ON	OFF	OFF	OFF	ON	OFF
18	OFF	ON	OFF	OFF	ON	OFF
19	ON	ON	OFF	OFF	ON	OFF
20	OFF	OFF	ON	OFF	ON	OFF
21	ON	OFF	ON	OFF	ON	OFF
22	OFF	ON	ON	OFF	ON	OFF
23	ON	ON	ON	OFF	ON	OFF
24	OFF	OFF	OFF	ON	ON	OFF
25	ON	OFF	OFF	ON	ON	OFF
26	OFF	ON	OFF	ON	ON	OFF
27	ON	ON	OFF	ON	ON	OFF
28	OFF	OFF	ON	ON	ON	OFF
29	ON	OFF	ON	ON	ON	OFF
30	OFF	ON	ON	ON	ON	OFF

Table 2: SW2 DIP SWITCH SETTINGs FOR RS-485 NETWORK ADDRESSING

ADDRESS	SWITCH 1	SWITCH 2	SWITCH 3	SWITCH 4	SWITCH 5	SWITCH 6
31	ON	ON	ON	ON	ON	OFF
32	OFF	OFF	OFF	OFF	OFF	ON
33	ON	OFF	OFF	OFF	OFF	ON
34	OFF	ON	OFF	OFF	OFF	ON
35	ON	ON	OFF	OFF	OFF	ON
36	OFF	OFF	ON	OFF	OFF	ON
37	ON	OFF	ON	OFF	OFF	ON
38	OFF	ON	ON	OFF	OFF	ON
39	ON	ON	ON	OFF	OFF	ON
40	OFF	OFF	OFF	ON	OFF	ON
41	ON	OFF	OFF	ON	OFF	ON
42	OFF	ON	OFF	ON	OFF	ON
43	ON	ON	OFF	ON	OFF	ON
44	OFF	OFF	ON	ON	OFF	ON
45	ON	OFF	ON	ON	OFF	ON
46	OFF	ON	ON	ON	OFF	ON
47	ON	ON	ON	ON	OFF	ON
48	OFF	OFF	OFF	OFF	ON	ON
49	ON	OFF	OFF	OFF	ON	ON
50	OFF	ON	OFF	OFF	ON	ON
51	ON	ON	OFF	OFF	ON	ON
52	OFF	OFF	ON	OFF	ON	ON
53	ON	OFF	ON	OFF	ON	ON
54	OFF	ON	ON	OFF	ON	ON
55	ON	ON	ON	OFF	ON	ON
56	OFF	OFF	OFF	ON	ON	ON
57	ON	OFF	OFF	ON	ON	ON
58	OFF	ON	OFF	ON	ON	ON
59	ON	ON	OFF	ON	ON	ON
60	OFF	OFF	ON	ON	ON	ON
61	ON	OFF	ON	ON	ON	ON
62	OFF	ON	ON	ON	ON	ON
63	ON	ON	ON	ON	ON	ON

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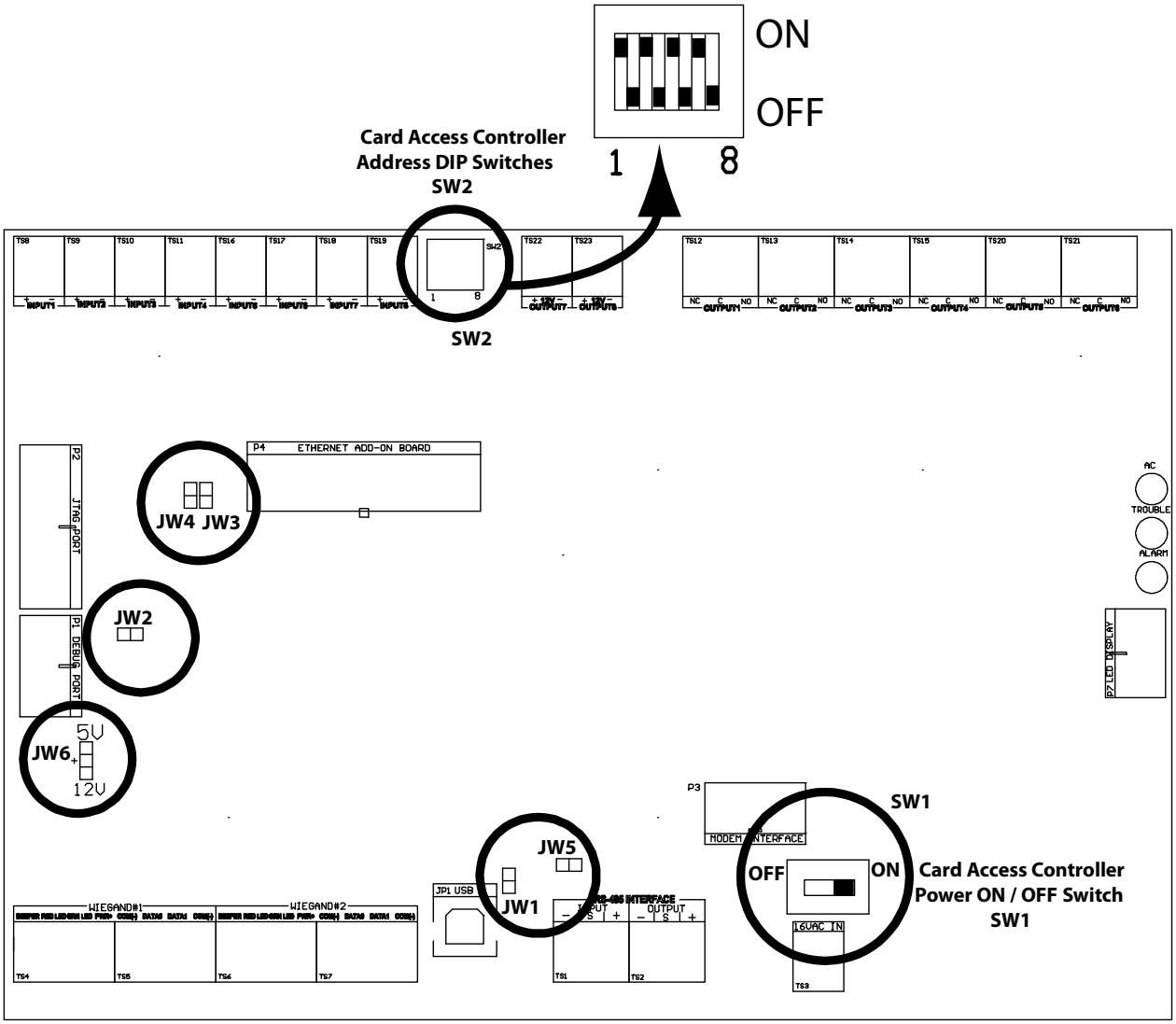

Figure 23. Location of Jumpers JW1 to JW5 and Switches SW1 and SW2

3.8 Setting Jumpers

There are six pre-set jumpers on the controller board as follows (refer to Figure 23):

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

JW2. JW2 is used for updating firmware and by default is open. See Updating Firmware on page 52.

JW3, JW4 and JW5. `JW3,JW4 and JW5` are not used and are open by default.

JW6. `JW6` is not used and by default is open.

3.9 Turning on the Controller

Before you turn on the controller ensure that the all connections adhere with the correct operation of the devices. For example, a magnetic lock requires power in the default state.

Once the controller is turned on, you must begin the configuration. For detailed information on how to configure the controller see LT-995 Configuration and Administration Guide.

3.9.1 Default Configuration Values

Once the controller is on, it operates according to its preset default configuration values. When the configurator software first starts, it uses the default values and adopts these values as its initial settings.

The default configuration values are adopted only when the following situations occur:

- turning the system on for the first time
- memory corruption
- program upgrade

3.10 Updating Firmware

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

- Firmware Upgrade Wizard
- Network Firmware Upgrade

The Firmware Upgrade Wizard can be used to update only one panel at a time. It will work on any panel. This method does not work on 64-bit versions of Windows.

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

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

3.10.1 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

3.11 Beginning Configuration

The Card Access Controller is now configurable using the following connections.

- USB connection
- Ethernet connection
- COM port connection
- Modem connection

For a complete description of the configuration and on how establish a connection to the Card Access Controller using a USB, ethernet, COM port or modem connection, see the following documentation:

- LT-995 Configuration and Administration Guide
- TX3 Configurator Quick Start LT-973

Verify the following:

- Ensure that the controller and all connected devices and components are fully operational.
- Ensure the controller DIP Switches (SW2) are set with a unique network address.

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- Ensure the Configurator software is set with the correct controller network address.
- Ensure that your PC and the Configurator are set with the correct date and time.

To start the configuration

1. Connect the PC to the controller using the USB port.
2. Launch the Configurator and click `Connect`. Once connected the connection icon appears in the Configurator tool bar.
3. Configure the Card Access system using the instructions in the Configurator Software Program TX3-MSW or the LT-995 Configuration and Administration Guide.

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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);

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- 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.

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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.

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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 tot he 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.): 1M8TE00BTX3

IC (Canada): 1156A-TX3

Industry Canada Notice for all TX3 Products Sold in Canada

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

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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.

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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 Chapter 1, page 14.

If this equipment, TX3-CX Card Access 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.

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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-CX Card Access System, for repair or warranty information, please contact Mircom using the numbers on page 15. 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 on Party Lines

Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information.

Use With Alarm Auto Dialers

If your institution has specially wired alarm equipment connected to the telephone line, ensure the installation of the TX3-CX 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.

Hearing Aid Compatibility

The TX3-CX Card Access System is hearing aid compatible.

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