Accelaterm ®

Eight / Sixteen Door

Access Control Panel

Installation and Service Manual

Continental Access

A NAPCO SECURITY GROUP COMPANY

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FCC WARNING

Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which the user will be required to correct the interference at his own expense.
Shielded cables must be used with this unit to ensure compliance with the Class A FCC limits.

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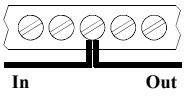
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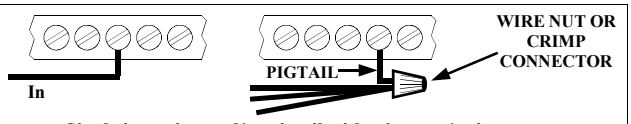
IMPORTANT WIRING METHODS



For single-conductor terminal blocks (like the type shown at left), to terminate more than one conductor to a terminal, use the wiring methods shown at right:



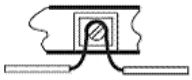
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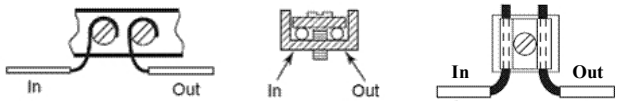
Correct -- Single incoming and/or pigtail with wire nut / crimp connectors



For "barrier" type terminal blocks (like the type shown at left), to terminate two conductors to a terminal, use the wiring methods shown at right:

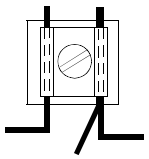


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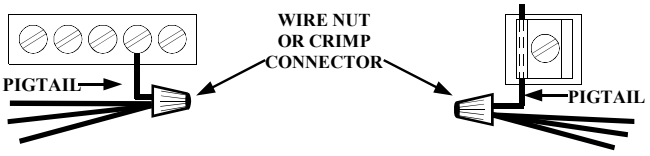


Correct -- Separate incoming and outgoing conductors

To terminate more than two conductors or conductors of different wire sizes to a terminal, use the "pigtail" type wiring method as shown at right. Use insulated wire for the pigtail, and firmly secure the conductors to the pigtail using an appropriate wire nut or crimp connector for the number and gauge of conductors used.

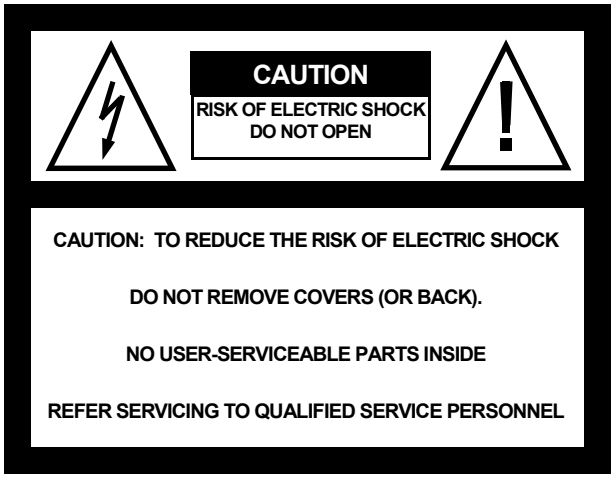


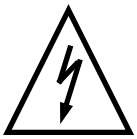
Incorrect



Correct -- Use pigtail and wire nut / crimp connector

THE INSTALLATION AND SERVICE OF THIS PRODUCT MUST BE PERFORMED BY QUALIFIED SERVICE PERSONNEL AND SHOULD CONFORM TO ALL LOCAL CODES.





The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of un-insulated 'dangerous voltage' within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

WARNING

This product generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this product in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

UNPACKING AND INSPECTION

Unpack carefully. This is an electronic product and should be handled as such. Compare the items received with the packing list with your order.

BE SURE TO SAVE THE SHIPPING CARTONS AND INSERT PIECES. THEY ARE THE SAFEST MATERIAL IN WHICH TO MAKE FUTURE SHIPMENTS OF THE PRODUCT.

WARNING

TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE.

MAINTENANCE

User maintenance of this unit is limited to external cleaning and inspection.

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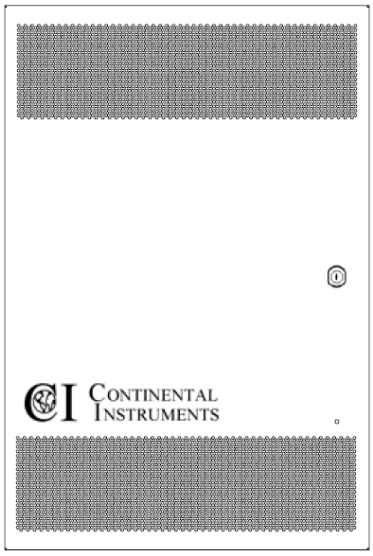
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ACCELATERM DESCRIPTION

The Accelaterm is a fully programmable, self contained, 8/16* door access control panel that offers users flexibility, expandability, and simplicity. Operating as a stand-alone unit or within a network, each Accelaterm makes independent access control decisions.



The Accelaterm accepts Wiegand, Magnetic Stripe (not evaluated by UL), Proximity card readers, and Wiegand-Format Keypads to control the access functions for as many as sixteen individual access points (entrances/exits). All inter-connected devices must be UL Listed. Contact Continental Instruments with questions regarding the support or compatibility of any specific readers and keypads.

At the Reader Connector for each door, two supervised inputs are provided for door contact sensors, door bypass switches, or related detection accessories. Seventeen onboard Form-C relays support door locking mechanisms, door alarm shunts or handicapped access privileges.

The standard Accelaterm features a user-programmable, onboard database that supports a maximum of 150,000 card holders. Expansion memory Modules enable the Accelaterm to support as many as 590,000 card holders with two 8MB memory expansion modules installed.

Note: Card Capacities can vary due to changes in Firmware, Badge Length and Panel Configuration (Transaction buffer size, Time Schedule Blocks, and Access Groups). Maximum Card Count can be verified by checking Communication Driver (Max Card Count column).

The Accelaterm functions for a period of 3.5 hours at full load when two 12V / 12 amp-hour (AH) batteries are utilized in the event of an AC power supply loss.

A switch on the Accelaterm power supply selects between 115VAC/60Hz (USA) and 230 VAC/50Hz EU. With built-in overcurrent protection, this Access Control panel meets the requirements for Class 2 / Power-Limited installations.

In addition, a replaceable lithium battery protects the onboard database and programmed operating instructions from loss for a period of 4 weeks. In the event of a total failure of the AC power supply *and* the backup battery, the Accelaterm would immediately be ready for full operating capability once a source of operating power is reestablished. **Note:** Green AC indicator on front door is lit when AC power is present.

A maximum of 63 Accelaterm access control panels may be networked together. Note that the Continental Superterm and Turbo Superterm control panels may be included in this network if they are equipped with the Continental Accelerator Board (CICP18ACCBD). Note that the Continental *Smarterm*, *Miniterm*, and *Microterm* control panels should **not** be included in this network, because that would reduce the data rate to match the lower speed of the legacy products.

Each Accelaterm may communicate with its own plug-in Ethernet Connection. A plug-in CICP2800RS485BD board allows communication on a high speed Repeater Network. By plugging in both the Ethernet and the CICP2800RS485BD boards, an Accelaterm can be configured as a bridge between a Host Computer Ethernet connection and downstream Accelaterms on the high-speed EIA/TIA-485 Network.

A single host computer may be used to manage and program one Accelaterm or a fully developed network of Accelaterms, saving equipment and installation costs, database entry/deletion procedures, and monitoring individual access usage.

Changes or upgrades to the Accelaterm operating software are readily downloadable from the host computer to either one specific Accelaterm or an entire network of Access Control panels, eliminating the need to physically change the EPROM chip inside the unit. The operating software is securely stored in the processor's FLASH memory, and therefore power interruptions have no effect. Using a typical modern server, upgrades to the operating software to a panel can be accomplished.

*Expansion module CICP2800EXPRDBD required for 9-16 card reader inputs. See WI2047 for more information.

IMPORTANT SAFETY INFORMATION

The Accelaterm has been evaluated by UL as a Stand-Alone Access Control System (Burglary and Fire Alarm features have not been evaluate by UL). The PC connection provides convenient setup and monitoring of the system, but all decision-making for a Cardholder's Authorizations at a particular time and place are made by the Access Control Panel.

Disruptions to the communication with the PC, or to the operation of the PC itself will not result in impaired operation of the Access Control System.

The Accelaterm Access Control panel is to be installed in a secured area. Nevertheless, because opening the enclosure door gives access to terminals that can allow an invalid entrance, a tamper switch is installed on the door. The tamper switch must be configured at the Host Computer to signal an alert when the tamper switch is activated. The tamper switch may also be configured to activate the console relay, which may then be wired into an Alarm Signal Circuit or an Alarm Sounding Circuit.

In some localities, the Access Control System Reader, Serial Communication, Door Lock Circuits and other signal wiring may use UL Type CM or UL Type CL2 foil-shielded multi-conductor and multi-pair cable. Where the AHJ's (Authorities Having Jurisdiction) require Plenum-Rated Cabling, UL Type CL2P cabling may be acceptable.

All external wiring must be UL Listed, suitable for the installation application.

Replace the lithium backup battery on the Interface Board with a Rayovac "BR1225E" coin cell. **Use of another battery may present a risk of fire or explosion**.

The Accelaterm must be installed on a wall, permanently connected to the AC Mains.

Fault-Tolerance, Fault Isolation, and Conditions that may result in impaired operation

As described above, a faulted computer or communication link with the computer will not impact the ongoing access management of the Access Control Panel. Furthermore, the transactions occurring during the equipment outage will be recorded in the Access Control Panel, then forwarded to the computer when the fault is removed.

If the Access Control Panel itself fails due to a long-term power failure or internal fault, the Access Control Software on the host computer will normally detect this failure, signal an alert, and log the time of this event.

Sensing the status of the Door Monitor Contacts, the Request to Exit (REX) and the Accessory Alarm Inputs will be impaired by a cut cable or short-circuit in the Signal Circuit Wiring. By installing end-of-line termination resistors, as described in this manual, the Alarm and Signal Circuits may be supervised to detect such faults and indicate the need for a repair.

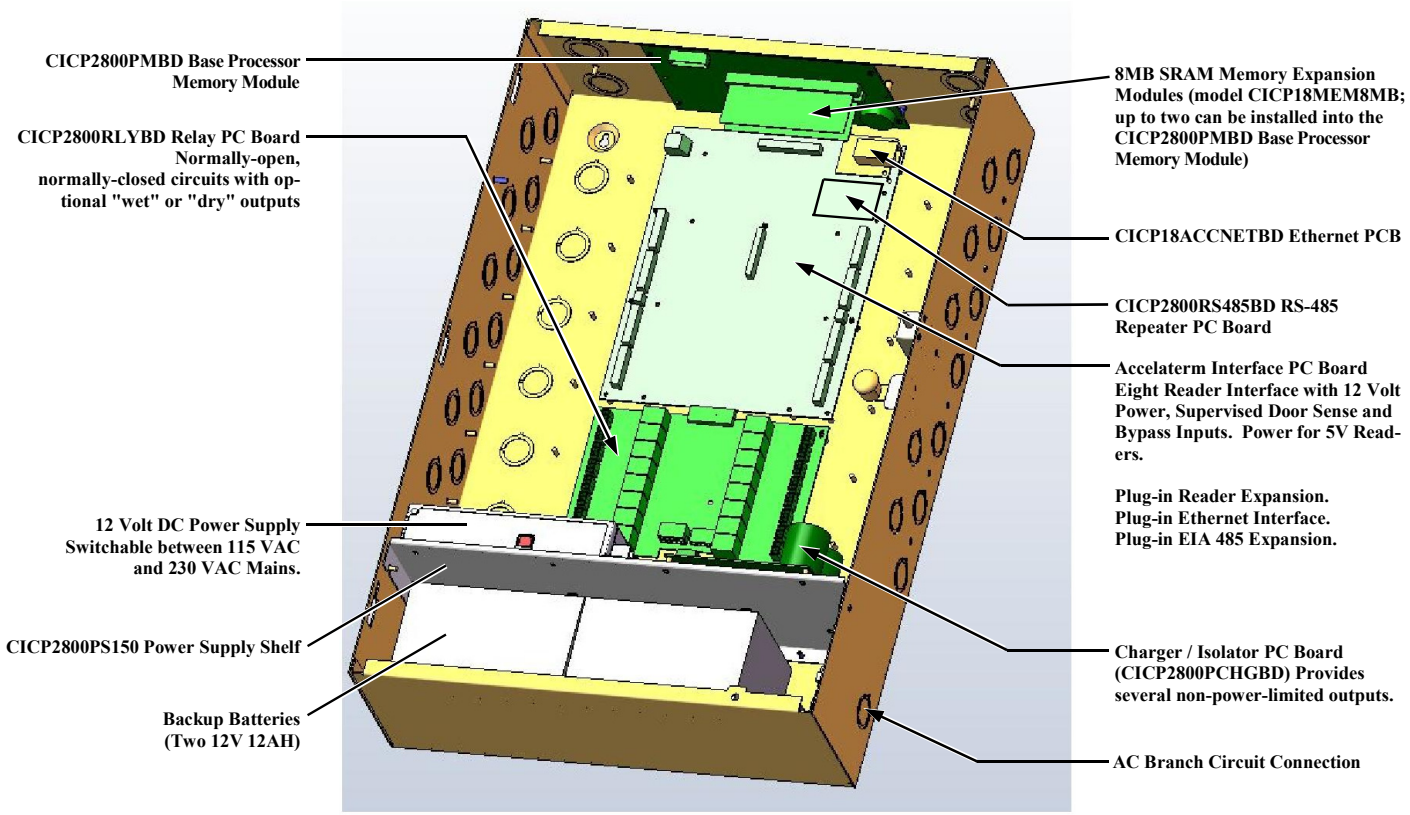


Figure 1 - Accelaterm Components

CONFIGURATION

Capacities

The standard version Accelaterm provides access control functions for eight doors and eight card readers. The plug-in eight reader expansion board adds capability for eight more readers and the associated supervised door sensor and bypass inputs. Each 12V reader may draw 350mA from the PWR pin of the reader connector. The interface board and expansion board each supply 5V power for special readers and accessory equipment.

Each of the 8 alarm inputs on the main board may be configured as supervised alarms (requiring termination resistors), or standard alarms (requiring plain electrical contacts).

Communication

10/100Base-T Ethernet Interface Board (CICP18ACCNETBD)

This option board plugs into a space at the upper-right of the Interface Board to provide direct wideband Ethernet connection to the Facility Security Network. See WI1595 for details, included in the Appendix of this Manual.

Isolated CICP2800RS485BD Repeater Board

This option board plugs into the space just below the Ethernet Interface board. Every Panel must have a unique setting of ADDRESS Switch for the Host to communicate with each panel.
When wired as described in WI2033, this board provides ground-loop isolation that minimizes the possibility of damage from lightning strikes at or near the facility. See WI2033 for details, included in the Appendix of this Manual.

Communication Bridge between Ethernet and EIA/TIA-485 Networks

When both the Ethernet and CICP2800RS485BD boards are installed, setting an Option Jumper to BRIDGE allows the Host Computer to communicate with several panels on a full-duplex EIA/TIA-485 Repeater Chain through the primary Accelaterm.

Memory

The Base Processor/Memory Board of the Accelaterm carries the Boot and Downloaded Firmware with the Processor's FLASH Memory. On-board high reliability SRAM provides 4MB for the Cardholder Database and Transaction Buffer.

8MB SRAM Memory Expansion Modules (CICP18MEM8MB)

One or two of these custom SIMM boards may be installed into the CICP2800PMBD Base Processor Memory Module to increase Cardholder capacity, and/or assure a higher transaction buffer limit. These may be ordered with the Accelaterm unit, or they may be installed/upgraded at the field installation.

Charger / Isolator PC Board (CICP2800PCHGBD)

Provides two non power-limited outputs. Installed on the CICP2800PS150 Power Supply Shelf.

CICP2800RLYBD Relay PC Board

Normally-open, normally-closed circuits with optional "wet" or "dry" outputs.

INSTALLATION

Only qualified service personnel familiar with all local building codes should attempt this installation. Take appropriate safeguards to avoid unintentional operation by employees and maintenance personnel working about the premises.

The installation of each Accelaterm system should be completed and tested on its own before connecting into a network. Any possible wiring or installation problems are magnified many times by the complexity of the network.

Once an individual panel has been tested and found operating satisfactorily, it can then be safely brought into the network.

The Accelaterm is categorized as PERMANENTLY CONNECTED EQUIPMENT with fixed wiring. This system must be installed within the protected premise in accordance with the National Electrical Code (NFPA70), local codes, and the authorities having jurisdiction.

A Ground Bond Strap is bolted between the Enclosure and the Door to reduce the risk of electric shock. If the Ground Bond Strap is unbolted from the Door to allow the Door to be removed, it is critical that the Ground Bond Strap be correctly attached before putting the Access Control Unit into service.

The following warnings are designed for the safety of the Accelaterm install/service technician and for the continued proper function of the Accelaterm unit.

About This Manual

This manual describes the installation of the Accelaterm Access Control Unit and the specific accessories that connect to it.

End-User Periodic Tests and Emergency Planning

The Host Computer Software supervises the Access Control System, reporting failures at an individual panel within seconds of the occurrence. Nevertheless, failures can occur at the Door Sense and Bypass contact monitoring hardware, the individual Card Reader electronics and wiring, or the Electric Door Lock Hardware that will not be detected until the equipment is used. For this reason, please instruct staff at the installation to perform a "walk through" test at every controlled entrance and verify operation of all the monitored contacts at least once per week, especially at sites that are less frequently used. Assist the Security Staff at the installation to devise acceptable alternates to allow entrance and monitoring of access at controlled sites impacted by equipment failures, especially in high-traffic areas.

Provide staff members at the facility with contact information that will help assure the swift correction of equipment outages.

NOTES:	Notes are included with a procedure informing the installer about related material.
CAUTION 	Cautions indicate that a particular process requires special attention.
WARNING 	Warnings indicate that a particular process exposes the installer to live circuits or that making wrong connections can lead to equipment failure.

CAUTION 	Prevent the risk of a fire by replacing ALL fuses with the same type and rating. The main fuse protects the power supply circuit against excessive currents and short circuits. Failure of the power supply (other than a blown fuse) fuse usually indicates a fault in a power supply component. There are no user-serviceable parts in the Accelaterm cabinet. The power supply must be replaced if it fails.
CAUTION 	Do not place accessory circuit cables in the same conduit sections containing power cables.

Installation Preparation

First, select a mounting location within a secure, limited access area (see Figure 2). Make note of the wall construction type to which the cabinet will be secured.

- Ensure adequate space is available for mounting the Accelaterm cabinet vertically on a wall with no interference from wires, pipes, or other obstructions. The Accelaterm measures:

  Height: 24-3/8" (620mm)
  Width: 16-3/8" (416mm)
  Depth: 5" (127mm)

- Confirm that adequate free space exists on both sides of the Accelaterm cabinet for cabling conduit entering and exiting the cabinet.
- Determine the directions of the cabling conduit exiting the Accelaterm cabinet. Confirm sufficient access to ceilings and/or walls before fitting the conduit lengths.
- Knockouts at the back of the unit may be used for "hidden wiring" installations.
- Use all 4 mounting screws to secure cabinet to wall.

  Note: All Accelaterm signal wiring and accessory power circuits are power limited. The use of conduit is optional for these circuits (if accepted by your Authority Having Jurisdiction [AHJ]).

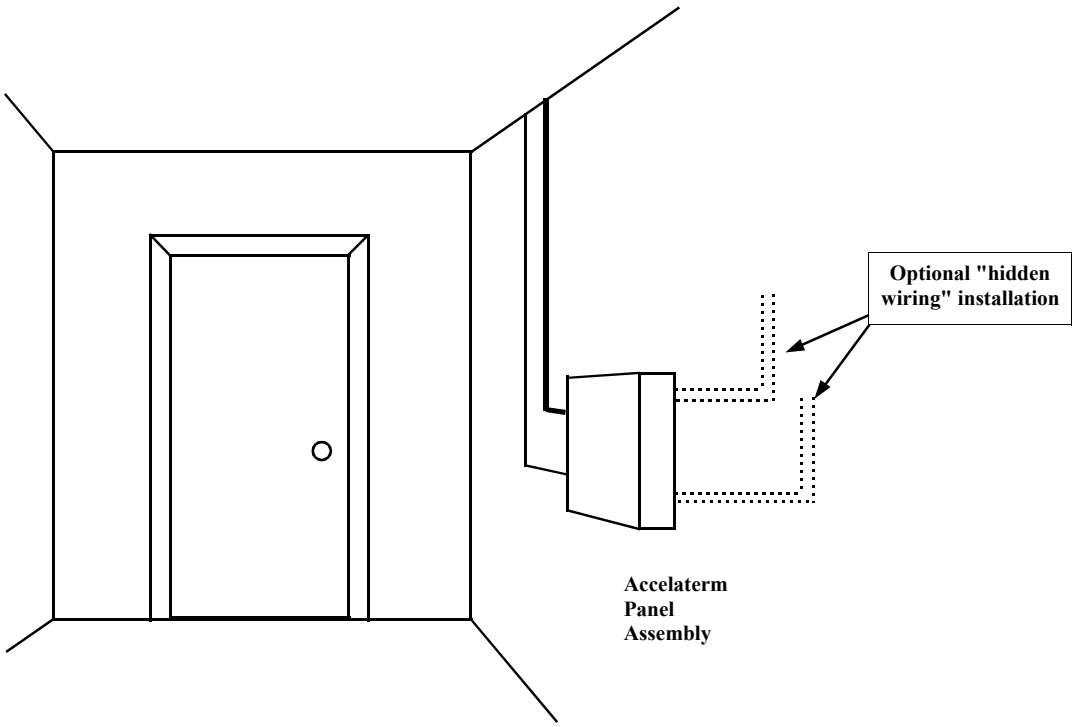


Figure 2 - Accelaterm Installation Location

Cabinet Mounting

Inspect the mounting surface around the proposed installation site. The mounting surface must be capable of supporting 38 pounds (17.3Kg) plus any additional weight of the installation hardware.

CAUTION
Use only suitable mounting hardware for the type of wall construction encountered.

1. Determine the Accelaterm cabinet mounting location.
2. Mark the four mounting holes against the mounting surface using the Accelaterm cabinet as a template or using the measurements provided in Figure 3.

   Note: Mark the small oval portion of the cabinet screw holes (see Figure 4, Detail A and B).

3. Place the Accelaterm cabinet out of the way.
4. Drill pilot holes to the required depth and size for the mounting screws.
5. Insert the top two mounting screws into the wall. Leave approximately one quarter of the screw's length protruding from the wall.

   Note: Do not tighten screws completely at this time.

6. Place the Accelaterm cabinet over the mounting screws.

   Secure the Accelaterm cabinet to the mounting surface using the two lower screws, and then tighten the remaining length of the screws.

   Note: Use all 4 mounting screws to secure cabinet to wall. For mounting to 3/4" thick plywood, use four 1/4" x 3/4" wood screws. For mounting to sheetrock, use four 1/4" toggle bolts.

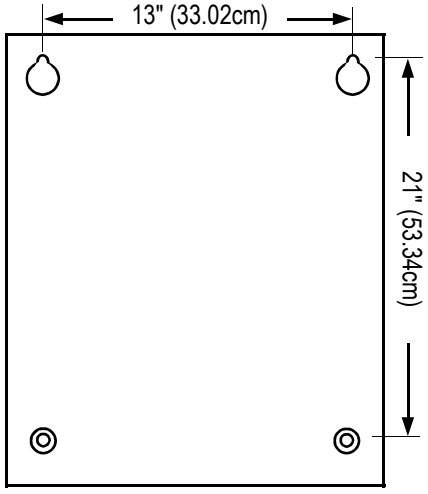


Figure 3 - Accelaterm Cabinet Mounting Hole Dimensions

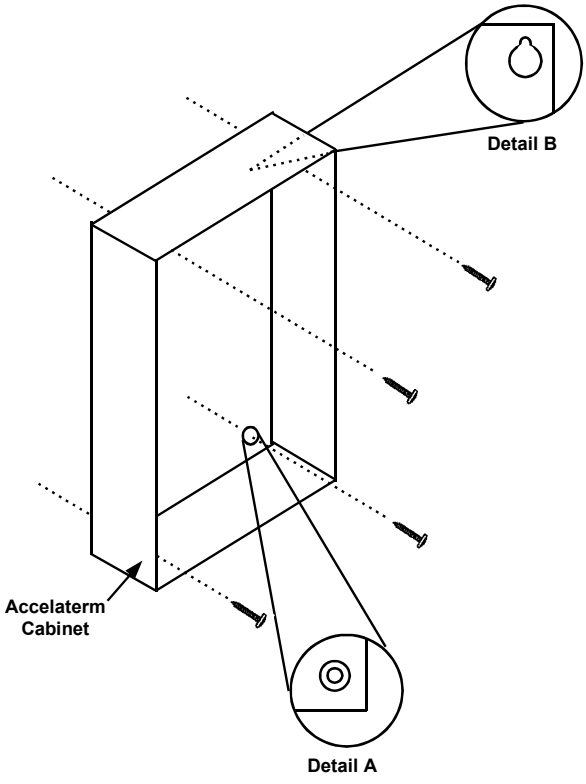


Figure 4 - Accelaterm Mounting Screws

Cable and Wiring Categories

The wiring and cabling for the Accelaterm are divided into three categories:

Mains Power Cables and Wiring

This category contains Mains AC power cables servicing the Accelaterm Panel. The connection to the mains must be carried out by qualified personnel.

Low-Voltage Power and Accessory Relay Devices

12 or 5 Volt Reader Power, any accessory relay controlled devices connected to the Panel, and any 12 Volt Accessories receiving battery-backed power from the panel. (These are power-limited circuits, and normally do not require a licensed electrician to complete this work). All power-limited wiring to remain ABOVE the shelf (shown in the image below). **Do not allow power-limited wiring to cross over circuit boards**.

Communication Cables

This category contains all the communication cabling between the Accelaterm and all communication equipment, all alarm circuits, and all card reader devices. (These are power-limited circuits, and normally do not require a licensed electrician to complete this work). All power-limited wiring to remain ABOVE the shelf (shown in the image below). **Do not allow power-limited wiring to cross over circuit boards**. **Note:** For proper operation of the Accelaterm, route EACH category of cabling in SEPARATE conduit or bundle (i.e., **DO NOT mix alarm and communication cables in the same conduit as relay and power cables**). Plenum-Rated cabling may be required in certain installations. See Important Safety Information, page 6.

Incoming Power Conduit Knockout

The Accelaterm System requires [120VAC, 2A, 60Hz] --or-- [230VAC, 1A, 50Hz] voltage to the AC Input Power Terminal Block (see page 12). The power cabling is delivered to the Accelaterm through a knockout located on the lower right side cabinet wall (see Figure 5). The 3/4 inch knockout accepts EIA standard conduit connectors. Connection must be made to metal enclosed Class 1 wiring system.

Note: This system must be installed indoors within the protected premise in accordance with the National Electrical Code (NFPA70), local codes, and the authorities having jurisdiction.

Accessory Conduit Knockouts

All cabling for the Accelaterm is routed through EIA standard knockouts located on the left and right sides of the cabinet (see Figure 5). On the top of the enclosure, three-size knockouts are available.

Grounding Accessory Drain and Shield Wires

Ensure electromagnetic compatibility and reliable performance by keeping all accessory drain and shield wires as short as possible.

All accessory drain and shield wires connect to ground posts mounted along the knockout strips on both sides of the Accelaterm cabinet (see Figure 5).

The following procedures assure proper installation of all drain and shield wires.

- Carefully remove the cable jacket after the cable enters the Accelaterm cabinet.
- Place the drain wires under the ground post screw. Trim as needed.
- Verify a good connection and tighten the ground post nuts.
- Connect the accessory wires to the appropriate terminal strip on the Accelaterm circuit board.

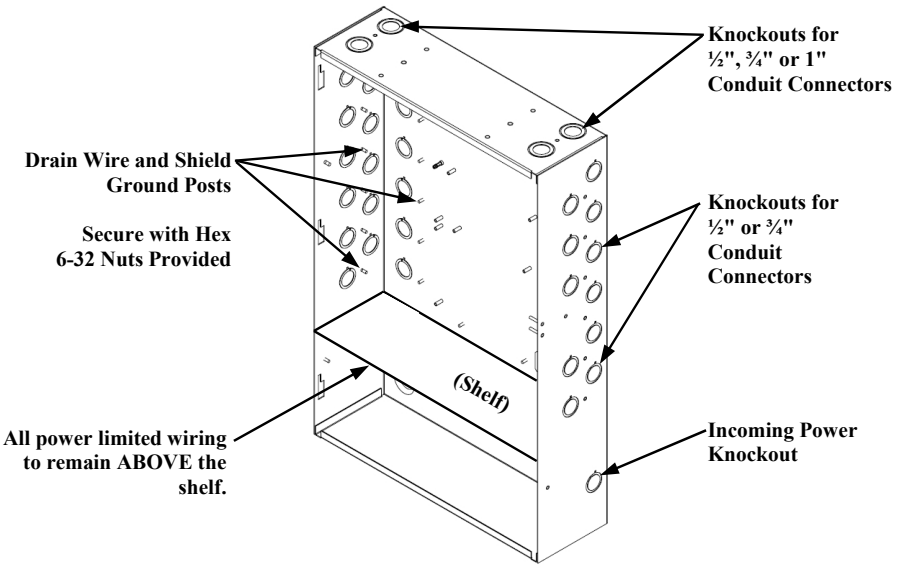


Figure 5 - Cabling Conduit Knockouts

POWER CONNECTIONS

AC Power Source Grounding

WARNING
Verify that the AC source voltage is switched off at the breaker panel before proceeding with connections. At this time also set either "115V" or "230V" on the power supply selector switch.

AC Power

The incoming AC source voltage connects to the AC Input Power Terminal Block located in the lower right of the Accelaterm cabinet (see Figure 7).

First, secure the branch circuit "Ground" wire to the green grounding screw adjacent to the AC Input Terminal Block. Then secure the White "Neutral" wire to the neutral terminal and secure the Black "Line" wire to the line terminal as labeled on the enclosure.

After the wiring is completed, use a cable-tie to secure the wires to the cable-tie mount (provided) located below the AC Input Power Terminal Block.

Note: Use of a dedicated, un-switched AC power source results in optimal performance with minimum interference.

Table 1 lists the incoming AC source voltage connections to the AC Input Power Terminal Block in the USA (see Table 2 for Europe).

Note: Knockouts for conduit Fittings are located on the back of the metal housing and can be used if "hidden cable" installation is required.

IMPORTANT SAFETY REQUIREMENT: If the enclosure door is removed, the Ground Strap may be unbolted--but MUST be REATTACHED after installation or service is completed. Failure to Reconnect the Ground Strap may increase the Risk of Electric Shock.

Backup Battery Installation

1. Place one or two backup batteries (P/N CI-HE0047) into to the lower right of the cabinet with the terminals on the right side.
2. Push the terminal of the BLACK lead onto the NEGATIVE (Black) Tab of the battery.
3. Push the terminal of the RED lead onto the POSITIVE (Red) Tab of the battery.

Note: Because of the Low Battery Voltage Disconnect feature, the Accelaterm will not start to operate until mains (AC) power is connected.

Table 1 - AC Input Power Terminal Block Connections (USA)

Incoming AC	Wire Color	AC Input Terminal Block
Line	Black	L
Neutral	White	N
Ground	Green	⏚

Table 2 - AC Input Power Terminal Block Connections (Europe)

Incoming AC	AC Input Terminal Block
Line	L
Neutral	N
Ground	⏚

Power Limited Wiring Information

IMPORTANT:
Keep power-limited wiring AT LEAST 1/4" (one-quarter of an inch) away from the top of the exposed printed circuit boards, and away from the Battery Compartment.
Use clear tubing for auxiliary power "**ACC PWR OUT**" wiring as shown in the accompanying image.

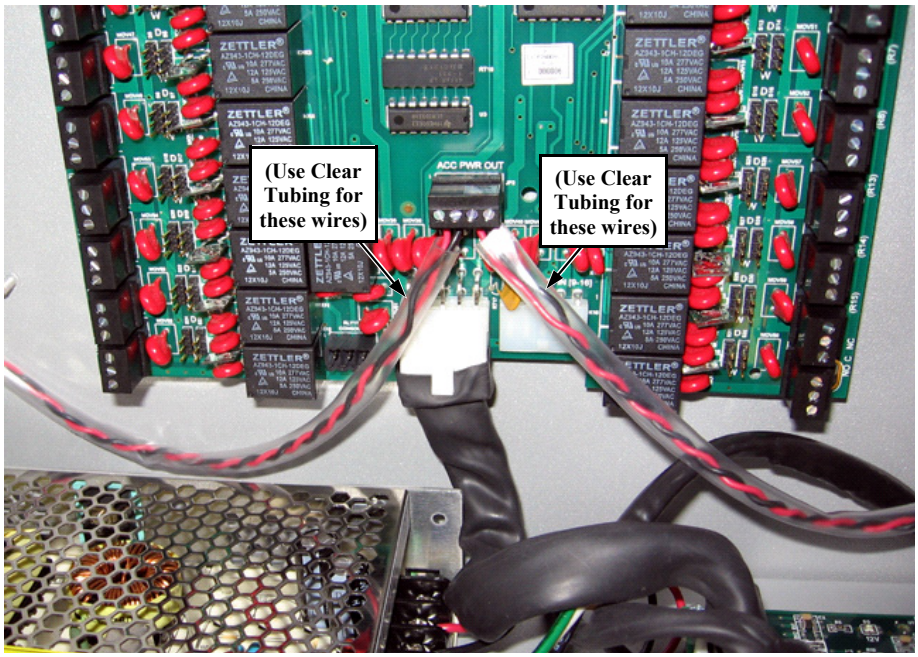
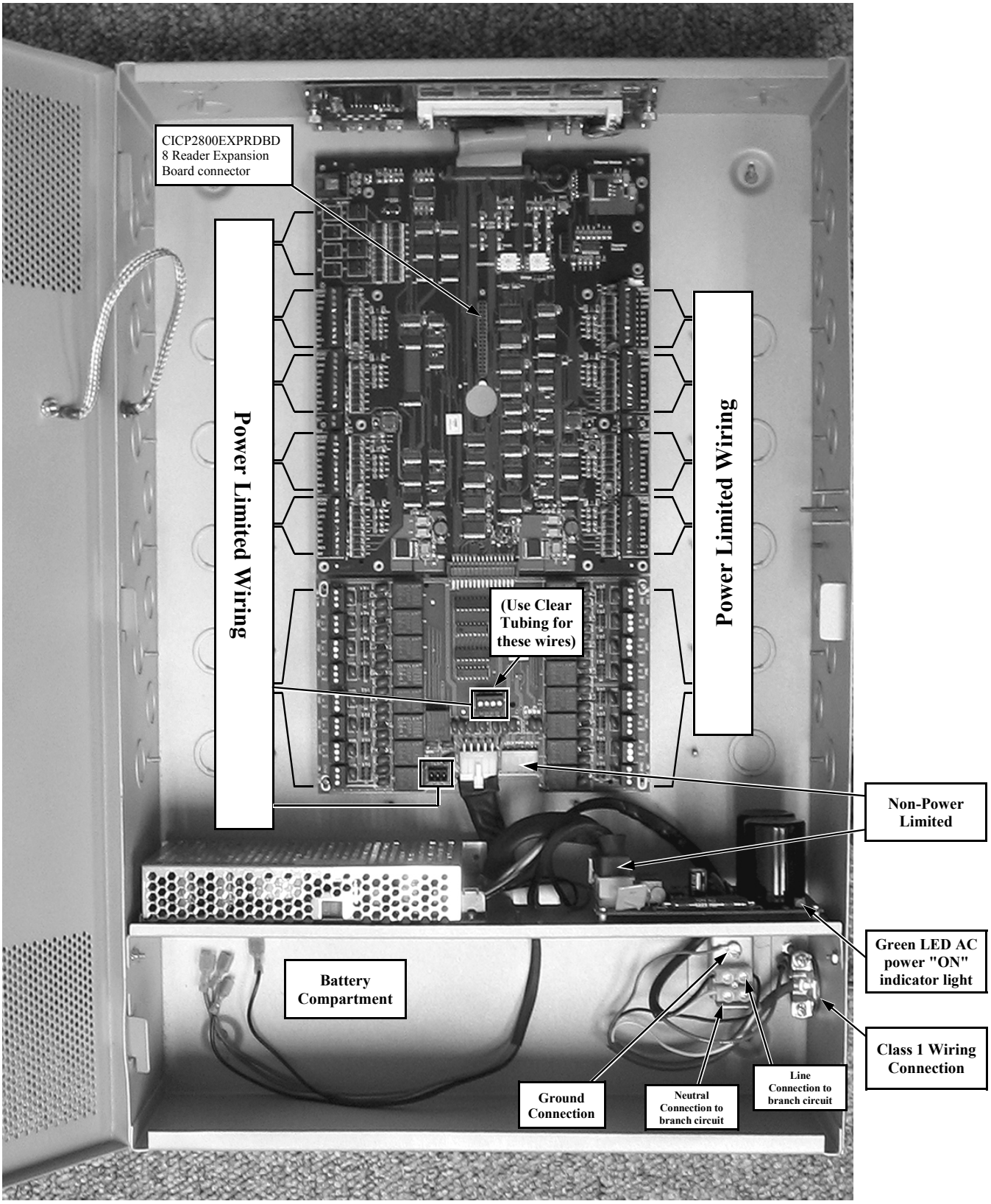


Figure 6 - Use clear tubing for auxiliary power "**ACC PWR OUT**" Power Limited Wiring



IMPORTANT: Keep power-limited wiring AT LEAST 1/4" (one-quarter of an inch) away from the top of the exposed printed circuit boards, and away from the Battery Compartment. Use clear tubing for auxiliary power "**ACC PWR OUT**" wiring as noted in the above image.

Figure 7 - Power Limited Wiring Information

Accelaterm Wiring Diagram

The Accelaterm circuit board (see Figure 8) provides wiring terminal strips for external access control devices (card readers, keypads, alarms, etc.).

The following descriptions in this manual reference the Accelaterm main circuit board, shown below, and use cutaway drawings to identify specific locations on the circuit board.

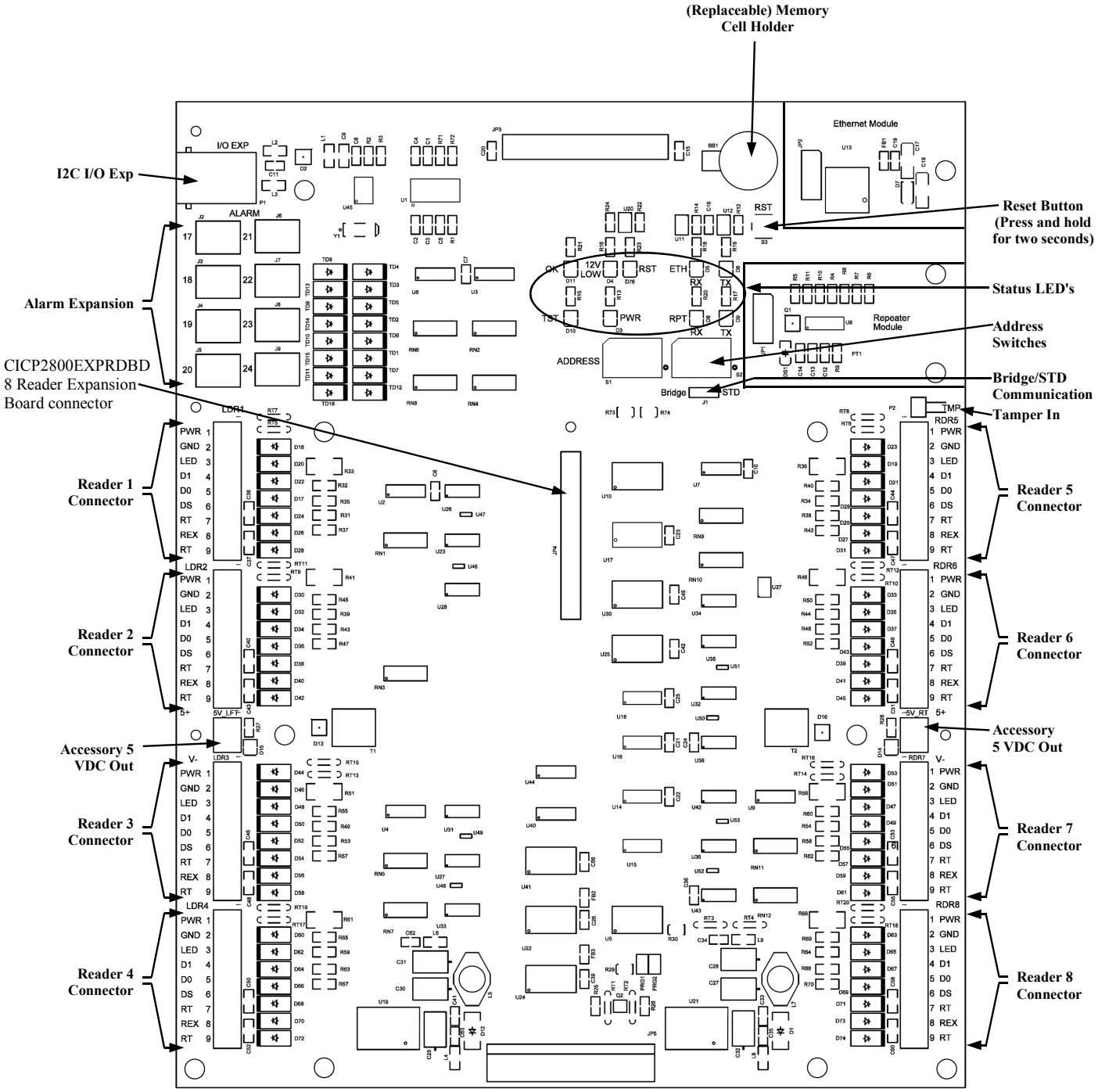


Figure 8 - Accelaterm Interface Circuit Board Layout

DOOR CONNECTIONS

Inputs from Card Readers, Keypad/Card Readers and Door Alarms connect to the Accelaterm via the terminal strips on the left and right side of the board labeled RDR1 through RDR16.

Wiegand/Proximity Reader Connections

Table 3 below lists the connections between the RDR1 and RDR16 terminal strips and the Wiegand/Proximity Readers.

Table 3 - Connection Table for Wiegand /Proximity Reader

RDRx Terminal Strip Pin	Function	Wire Color
PWR	+5VDC/+12VDC	Red *
GND	Ground	Black
LED	LED	Brown
D1	Data-1	White
D0	Data-0	Green

* +5VDC power is provided by a separate connector on the left and right sides of the Interface and Eight-Reader Expansion boards. This 5VDC power is separate from the logic power.

* Proximity Readers are normally powered by +12VDC.

Wiegand/Proximity Reader Cable Requirements

Wiegand/Proximity Readers require a 5-conductor cable between the Accelaterm and the particular unit (see Figure 9). **Do not use twisted pair cable.**

Note: Readers may have a maximum current draw of 350mA each.

Table 4 lists the cable gauge-vs.-length requirements for proper operation of the Accelaterm and a Wiegand/Proximity Reader.

Table 4 - Cable Requirements for Wiegand/Proximity Readers

Unit	Distance (maximum)	Wire Gauge
Wiegand Reader	500ft/153m	22AWG Shielded w/
Proximity Reader**	500ft/153m	22AWG Shielded w/

**500ft/153m maximum for un-buffered Wiegand units.



CAUTION
Keep all drain and cable shield wires between the Accelaterm and any Wiegand/Proximity Readers short. Connect drain and cable shield wires to the ground posts located on both sides of Accelaterm cabinet. DO NOT ground drain wires and cable shields at any other point.

Keypad Connection

Wiegand-Output Card and Keypad Readers -
The preferred connection for "Card and Keypad" installations is the use of a UL Listed Wiegand – Output Reader/Keypad such as the HID 5355AGK00 or 5355ABK00. These products eliminate the cost of additional wiring, and require no addition Interface Equipment. Compatible equipment produce the following codes for Keypad entries:

Table 5 - Codes for Keypad Entries

0 = 0000	4 = 0100	8 = 1000
1 = 0001	5 = 0101	9 = 0101
2 = 0010	6 = 0110	* = 1010
3 = 0011	7 = 0111	# = 1011

Note: Wiegand-output Keypads may simply be connected to the Card Reader inputs for "Keypad Only" connections.

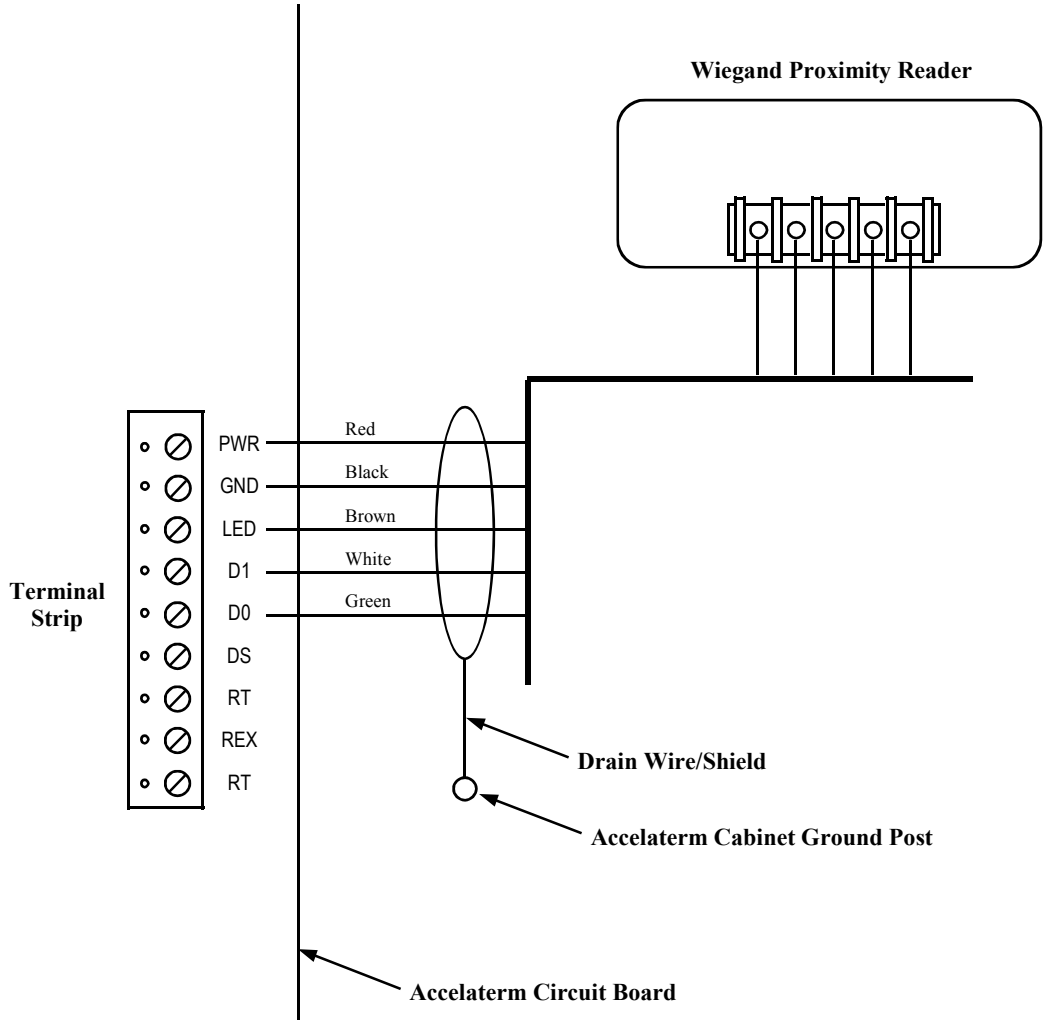


Figure 9 - Wiegand/Proximity Reader Connection to Accelaterm Board

Magnetic Stripe Reader Connection

Magnetic Stripe Readers (not evaluated by UL) connect to terminal strips DR (see Figure 10).

Note: Magnetic Stripe readers are normally powered by 5VDC, and must use the separate 5VDC Accessory Power Connections provided.

Table 6 lists the connections between the DR1 and DR16 terminal strips and the Magnetic Stripe Reader.

Table 6 - Connection Table for Magnetic Stripe Reader

DRx Terminal Strip Pin	Function
(Not used, see Note)	+5VDC (Red)
(Not used, see Note)	Ground (Black)
LED (Brown)	LED[1] (Yellow)
D1 (White)	Data-1/DAT (Blue)
D0 (Green)	Data-0/CLK (Green)

Note 1: If the Magnetic Stripe Reader does not feature an LED indicator, 4-conductor cable may be used.

Magnetic Stripe Reader Cable Requirements

Magnetic Stripe Readers require a 5-conductor cable between the Accelaterm and the particular unit (see Figure 10). **Do not use twisted pair cable.**

Table 7 lists the cable gauge-vs.-length requirements for proper operation of the Accelaterm and Magnetic Stripe Readers.

Table 7 - Cable Requirements for Magnetic Stripe Reader

Unit	Distance	Wire Gauge
Magnetic Stripe Reader	(maximum) 500ft/153m	22AWG Shielded w/drain

CAUTION
Keep all drain wires between the Accelaterm and Magnetic Stripe Readers short. Connect drain wires to the ground posts located on both sides of Accelaterm cabinet. DO NOT ground drain wires and cable shields at any other point.

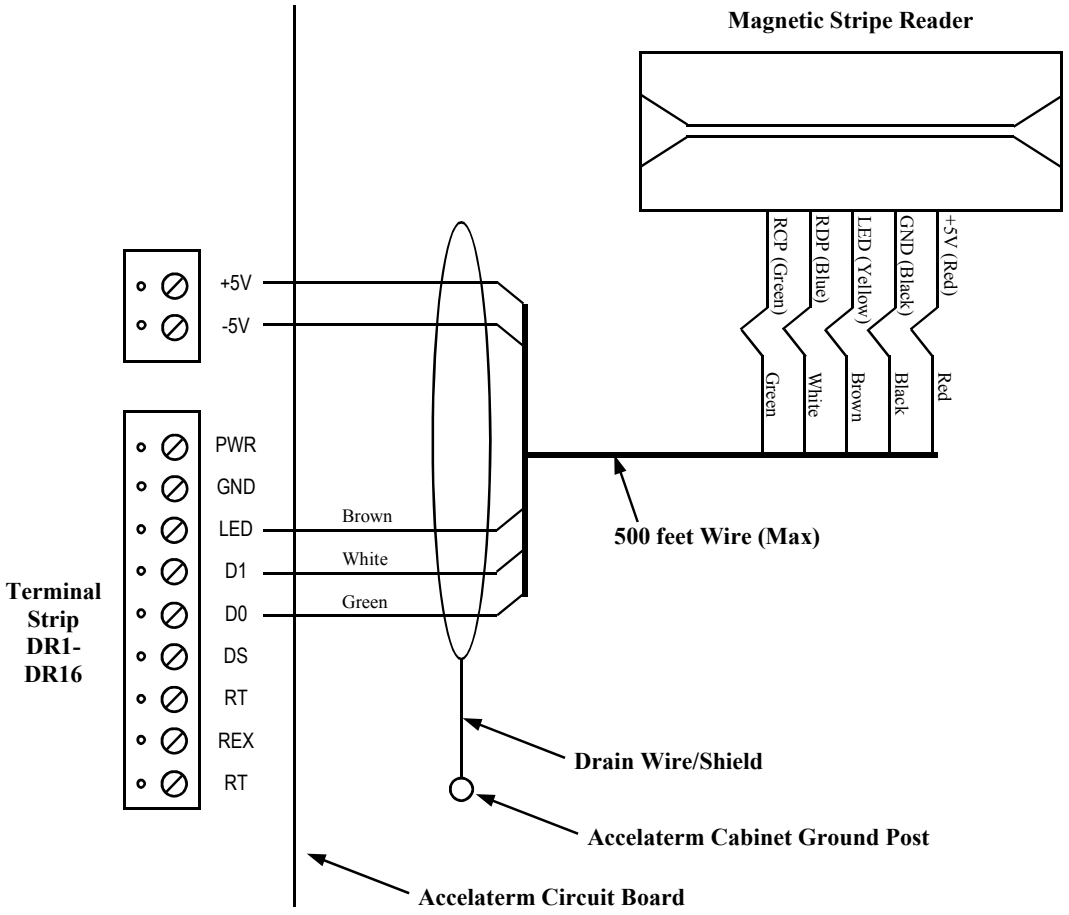


Figure 10 - Magnetic Stripe Reader Connection to Accelaterm Board

Door Status Sensor Connection

Door Status sensors connect to the Accelaterm through two terminal strips labeled RDRx (see Figure 11).

Table 8 lists the connections between the RDRx terminal strips and the Door Status sensor.

Table 8 - Connection Table for Door Status Sensor		
RDRx Terminal Strip Pin	**Signal**	**Door Status Sensor Function**
DS	Alarm	Positive
RT	Return	Negative

Door Status Sensor Cable Requirements

Door Status sensors require a 22AWG, 2-conductor, stranded, shielded, cable with drain wire between the Accelaterm and the particular unit (see Figure 11).

Table 9 lists the cable gauge-vs.-length requirements for proper operation of the Accelaterm and the Door Status sensor.

Table 9 - Cable Requirements for Door Status Sensor		
Unit	**Distance**	**Wire Gauge**
Door Status Sensor	500ft/153m	22AWG Shielded w/drain

NOTES: Refer to page 24, Accessory Alarm Connections, to configure Door Status sensors as supervised alarms.

The Door Status sensor is normally used to turn off the lock after the door is closed. It also senses if the door was forced open (triggers a Door Forced Alert at the Host Computer at the central station).

CAUTION
Keep all drain wires short. Connect drain wires to the ground posts located on both sides of Accelaterm cabinet. DO NOT ground drain wires and cable shields at any other point.

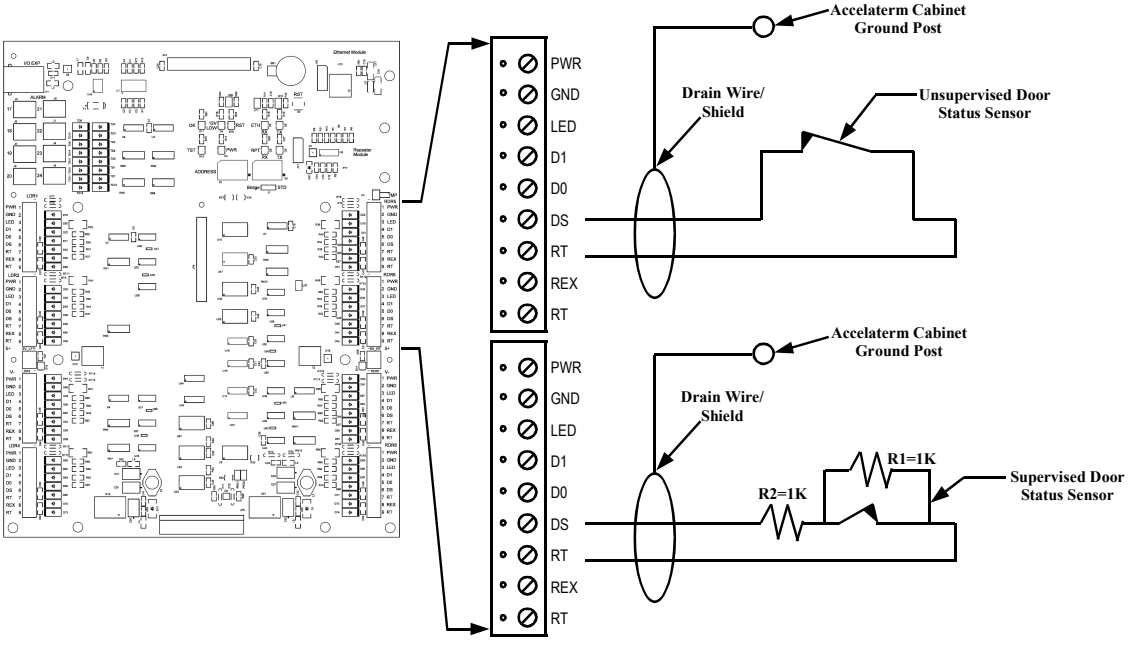


Figure 11 - Door Status Sensor to Accelaterm Connections. Plain (Unsupervised) Contacts, and Supervised Contacts

Request-to-Exit (Bypass) Sensor Connection

Request-to-Exit sensors (also known as Bypass sensors) work in conjunction with Door Status Sensors to provide complete facility entry and exit control. The Request-to-Exit sensor input connects to the same Accelaterm terminal strip (RDRx) that the associated Door Status Sensor connects to (see Figure 12).

Table 10 lists the connections between the RDRx terminal strips and the associated Request-to-Exit sensor.

Table 10 - Connection Table for Request-to-Exit Sensor

DRx Terminal Strip Pin #	Signal	Request-to-Exit Sensor Function
REX	Alarm	Positive
RT	Return	Negative

Request-to-Exit Sensor Cable Requirements

Request-to-Exit sensors require a 22AWG, 2-conductor, stranded, shielded, cable with drain wire between the Accelaterm and the particular unit (see Figure 12).

Table 11 lists the cable gauge-vs.-length requirements for proper operation of the Accelaterm and the Request-to-Exit sensor.

Table 11 - Cable Requirements for Request-to-Exit Sensor

Unit	Distance	Wire Gauge
Request-to-Exit Sensor	(maximum) 500ft/153m	22AWG Shielded w/drain

CAUTION

Keep all drain wires short. Connect drain wires to the ground posts located on both sides of Accelaterm cabinet. DO NOT ground drain wires and cable shields at any other point.

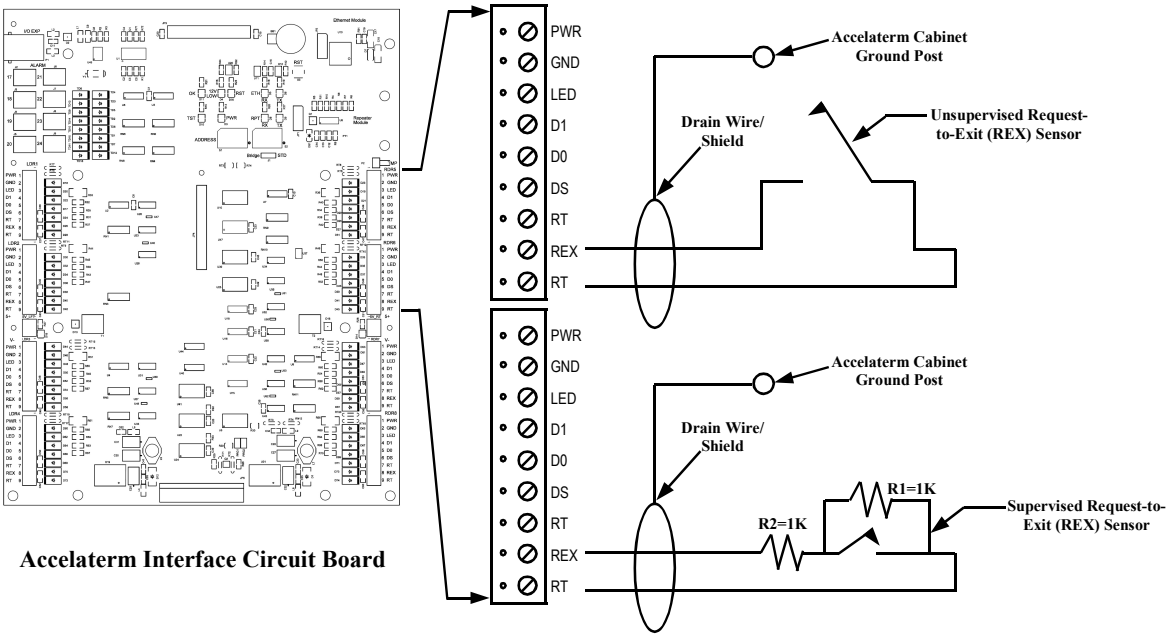


Figure 12 - Request-to-Exit Sensor to Accelaterm Connections. Plain (Unsupervised) Contacts, and Supervised Contacts

RELAY CONNECTIONS

Introduction

The Accelaterm Relay Board provides 17 relays with Normally-Open, Common, and Normally-Closed contact connections from each relay. The 16 relays and their connectors that are associated with Door Lock control are located on the left and right side of the board. These may be jumper-configured to be "Dry" or "Wet" outputs. "Dry" contacts normally switch circuits where the lock circuit is powered from a source away from the Access Control Panel. "Wet" contacts supply battery-backed power that can be obtained from within the Access Control Panel or from a qualified Power Supply located in the immediate area of the Access Control Panel.

- Relays 1-4 and 9-12, when configured as "Wet" contacts, share the Accelaterm power supply and backup batteries.
- Relays 4-8 and 13-16, when configured as "Wet" contacts, share either the Accelaterm power supply and backup batteries or alternatively could use any Listed power-limited power supply rated 28VDC* or less (do not use an AC power supply in this configuration) when wired to the wiring harness 9CICP2800AUXH provided.

To configure "Wet" relays 4-8 (to be powered from the Accelaterm power supply and backup batteries), place a shunt across JP5. To configure these relays to use an external power supply, wire (+) to the red striped wires and (–) to the black striped wires of the 9CICP2800AUXH.

To configure "Wet" relays 9-12 (to be powered from the Accelaterm power supply and backup batteries), place a shunt across JP6. To configure these relays to use an external power supply, wire (+) to the solid red wires and (–) to the solid black wires of the 9CICP2800AUXH.

Fail-safe or Fail-secure

Electric Strikes are available as Fail-safe or Fail-secure devices. Emergency planning may require some areas to use Fail-safe installations to assure safe passage of personnel after a prolonged power outage leaves the backup batteries discharged. The disadvantage of a Fail-safe circuit is the continuous drain on the backup battery during a power outage, resulting in less backup time. The popular Electromagnetic (EM) Locks are always Fail-safe.

Fail-safe locks use the Normally-Closed and Common connector pair. When the Access Control Panel logic activates the relay, the circuit is opened, and passage is allowed. Fail-secure locks use the Normally-Open and Common connector pair. When the Access Control Panel logic activates the relay, the circuit is closed, and passage is allowed.

Configuring Unpowered or Powered "Wet" Contacts

In the same row with the Relay Connector, there is a small Jumper Block marked D on top and W on bottom. Move both Jumpers to the top or bottom pair of contacts to select the Dry or Wet (Powered) output. Relays 1-8 are normally configured for Doors 1-8 and may receive power through the Charger/Isolator Board from the 12VDC Power Supply or backup batteries. See page 22 "" for more information regarding how the relays are mapped to the card readers.

The energy budget for the locks associated with first eight door doors is 4.8A. This is sufficient to maintain eight 600mA Electromagnetic Locks. With this lock load, the internal batteries can be expected to power the Accelaterm with eight typical Proximity Readers for 3.5 hours with two 12V/12AH batteries (up to full system load).

Power to Relays 5-8 and 13-16 may be connected to JP4, LOCK PWR IN (5-8 and 13-16) at the bottom-right of the Relay Board (not evaluated by UL). A Field Wiring Accessory Cable Assembly is available from Continental (part number 9CICP2800AUXH). Two pairs of conductors supply Relays 5-8 and Relays 13-16. One or two Power-Limited Battery-Backed 12 or 24VDC Power Supplies carrying UL294 or UL603 Listings are recommended. The Power Supplies must be located near the Access Control Panel. Some models carry connections to meet some considerations for use with a Fire Alarm Control Panel. (FACP)

Console Relay

Configurable at the Host Computer, the 17th relay is the Console Relay, and activation may be linked to specific events such as invalid door access, alarm input, and tamper switch input. A common use is to activate a signal for staff to view an Alert Screen at a Security Work Station. The Dry-Contact output is found on the lower-left of the Relay Board.

Auxiliary Relays

Relays not configured to control Door passages may be designated as Auxiliary Relays and used for low-voltage control functions.

Relay Characteristics

The relays on the Relay Board all share the following characteristics: Form-C relay with a contact rating of 2A at 28V AC/DC for connection to Class 2 or power-limited circuits only. Fast-acting PTC devices limit the relay circuit current to 2.5A.

Metal oxide varistors (MOV's) are placed across the contacts to reduce electrical noise. The MOV's limit any noise caused by the strike coil to 56 volts.

Using door strikes with a coil voltage greater than 28VAC/VDC requires using external relays that can be driven by the Accelaterm relays. Likewise, to control currents greater than 2A, external relays must be used.

NOTES: Installing a 56V MOV at the strike coil further reduces possible noise input. Additional MOV's are available from Continental Instruments as part number R783R. Because of this noise, door strike wiring MUST NOT be put in the same conduit with other wiring.

Considerations for Fire Safety

The Access Authorizations controlled by the Panel may be changed to respond to emergency conditions. For example, a Fire Emergency signaled through an Accessory Alarm Input can activate a pre-defined emergency response, such as allowing free access through any or all controlled passages.

In a worst-case scenario, when the Access Control Panel is damaged during the fire emergency several Fail-safe Locks may be unconditionally opened by an open-circuit from the FACP (see examples).

Lock Power Examples

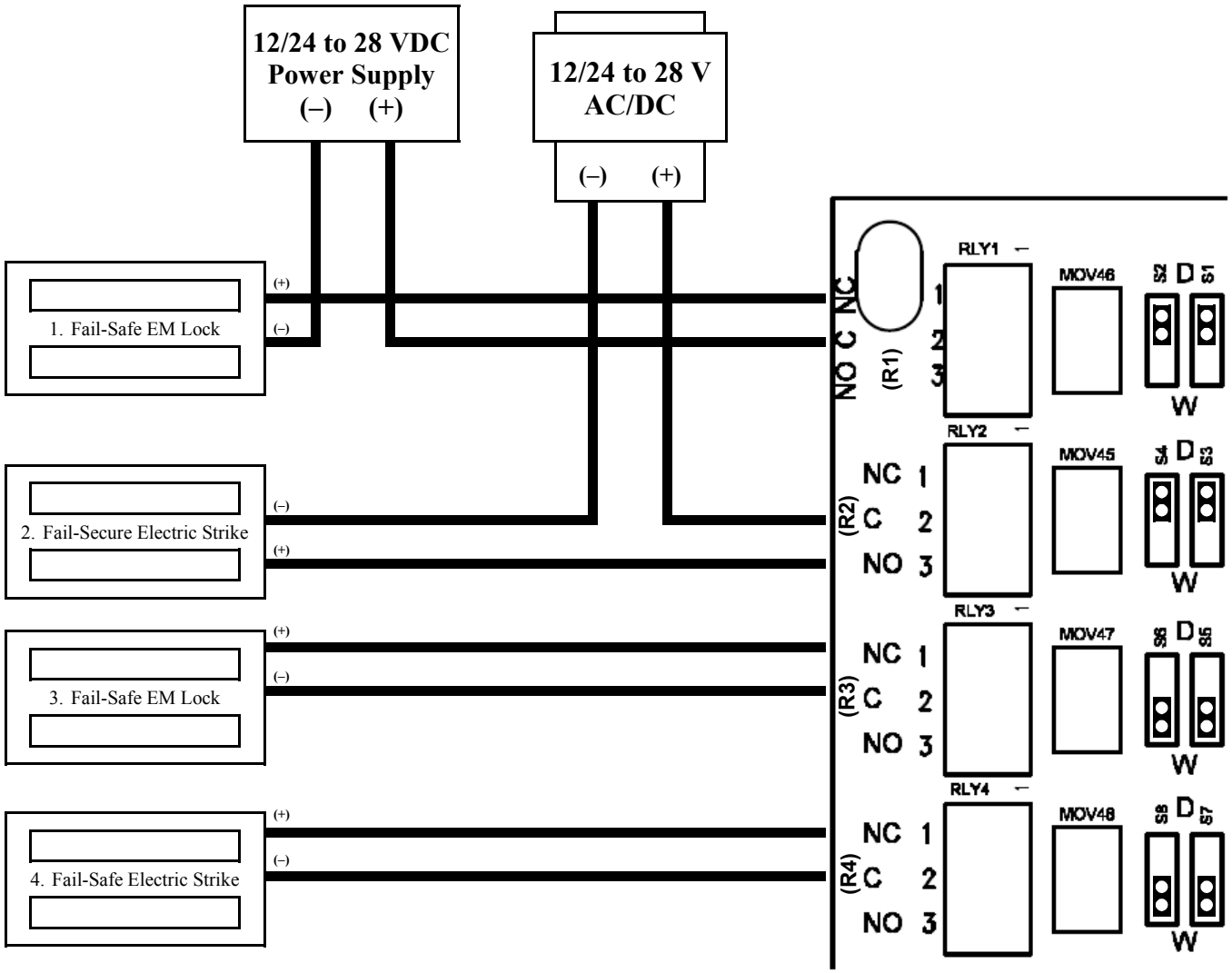


Figure 13 - Lock Power Example

Lock 1: A ***fail-safe*** electro-mechanical (EM) lock powered by an external 12/24 to 28 VDC source. Maximum circuit current is 2A. The configuration jumpers are set to "D" for "Dry" contact output.

Lock 2: A ***fail-secure*** electric strike powered by a 12V or 24 to 28V, AC or DC source. Maximum circuit current is 2A. The configuration jumpers are set to "D" for "Dry" contact output.

Lock 3: A ***fail-safe*** EM Lock powered by the Accelaterm's internal battery-backed 12VDC power. Maximum recommended lock current rating is 2A or less. Total system current may not exceed 5A. Eight 600mA locks may then be powered from the Accelaterm control panel. The configuration jumpers are set to "W" for "Wet" contact output.

Lock 4: A ***fail-safe*** electric strike powered by the Accelaterm's internal battery-backed 12VDC power. Maximum recommended lock current rating is 600mA or less. Eight 600mA locks may then be powered from the Accelaterm control panel. The configuration jumpers are set to "W" for "Wet" contact output.

EXPANSION BOARD CONNECTIONS

Internally-Routed Power for Locks 5-8 and 13-16

When the Eight Reader Expansion Board is added, relays 5-8 and 13-16 are normally used to control the locks. The control may be with familiar dry contact power connected to each circuit, or field wiring can be greatly simplified by routing the lock power through the Accelaterm Relay Board. See WI2045 for more information.

To the right of the center line on the Relay Board, find JP4 marked LOCK PWR IN [5-8] and [13-16] (not evaluated by UL). A 9CICP2800AUXH Accessory Cable provides two pairs of conductors for two power-limited circuits. The power-limited power supply may be one or two UL603 or UL294 Listed units. Normally battery-backed, these may be 12VDC or 24 to 28VDC.

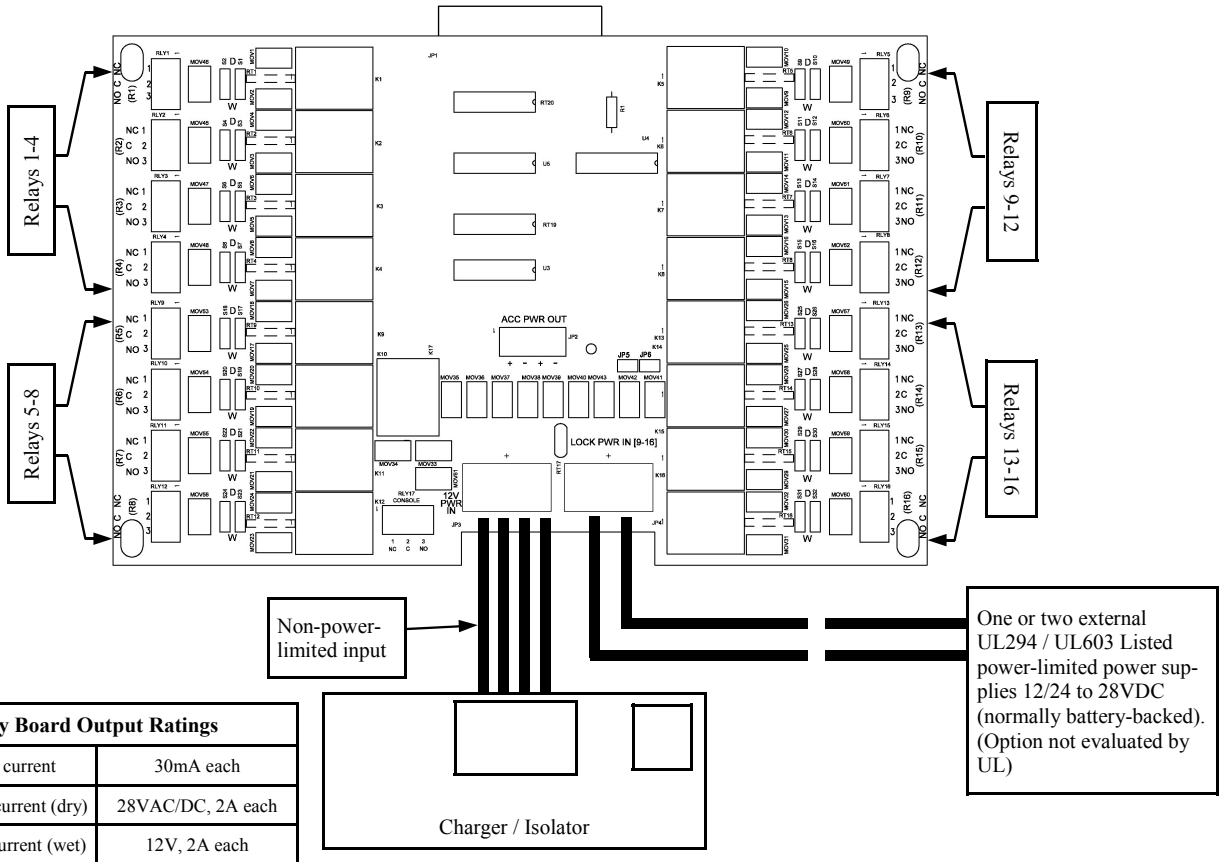
Considerations for use of 24VDC Equipment

- Magnetic locks drain half the current at 24V than at 12V for the same holding force.
- Losses in the wiring resistance are ¼ that of the lower voltage. This is significant if high-holding force locks must be used.
- Many UL294 / UL603 power-limited power supplies offer selectable voltage, at the same current and cost.

Relay Mapping

From the factory the relays are mapped to the card readers in the following way:

If the expansion board is <u>not</u> used then:	If the expansion board <u>is</u> used then:
Relay 1 - Reader 1 Door Strike	Relay 1 - Reader 1 Door Strike
Relay 2 - Reader 1 Shunt	Relay 2- Reader 9 Door Strike
Relay 3- Reader 2 Door Strike	Relay 3 - Reader 2 Door Strike
Relay 4 -Reader 2 Shunt	Relay 4 - Reader 10 Door Strike
Relay 5- Reader 3 Door Strike	Relay 5- Reader 3 Door Strike
Relay 6- Reader 3 Shunt	Relay 6- Reader 11 Door Strike
Relay 7- Reader 4 Door Strike	Relay 7- Reader 4 Door Strike
Relay 8- Reader 4 Shunt	Relay 8- Reader 12 Door Strike
Relay 9- Reader 5 Door Strike	Relay 9- Reader 5 Door Strike
Relay 10- Reader 5 Shunt	Relay 10- Reader 13 Door Strike
Relay 11- Reader 6 Door Strike	Relay 11- Reader 6 Door Strike
Relay 12- Reader 6 Shunt	Relay 12- Reader 14 Door Strike
Relay 13- Reader 7 Door Strike	Relay 13- Reader 7 Door Strike
Relay 14- Reader 7 Shunt	Relay 14- Reader 15 Door Strike
Relay 15- Reader 8 Door Strike	Relay 15- Reader 8 Door Strike
Relay 16- Reader 8 Shunt	Relay 16- Reader 16 Door Strike



Relay Board Output Ratings	
Relay Coil current	30mA each
Relay contact current (dry)	28VAC/DC, 2A each
Relay output current (wet)	12V, 2A each
ACC PWR OUT	12V, 600mA combined

Figure 14 - CICP2800RLYBD Relay Board Layout

ACCESSORY POWER

The ACCESSORY POWER terminal strip (labeled "**JP2**" and "**ACC PWR OUT**") provides battery backed +12VDC power outlets for auxiliary devices. This terminal strip is located in the lower middle of the Relay Board.

Table 12 lists the ACC PWR OUT terminal strip pin numbers and their associated functions.

Table 12 - ACC PWR OUT Terminal Strip Functions

Pin	Function
1	+12
2	GND
3	+12
4	GND

Note: +12VDC current draw is limited to a total maximum of .75 Amps for accessories.



WARNING
Observe Positive and Negative wire polarity between accessory devices and the Accelaterm.

ACCESSORY ALARM CONNECTIONS

Eight accessory supervised alarm inputs are located on the Accessory ALARM terminal strip located on the upper left corner of the Accelaterm circuit board (see Figure 15). These alarm inputs may be used for dry contact type inputs (unsupervised) or supervised alarms.
Labeled 17 through 24, they are positioned on two levels to simplify wiring.

Supervised Alarms

Supervised alarms provide monitoring of alarm inputs for fault or tamper conditions. Two additional alarm states may be detected by installing two-1K Ohm) resistors near the alarm contacts.
In addition to the standard Normal and Abnormal alarm conditions, the supervised alarms report Line Open and Line Short conditions.

- A Line **Open** condition is the result of a cut wire.
- A Line **Short** condition is the result of a short in the alarm wiring.

These fault conditions may be the result of tampering, and indicate the system cannot correctly detect the state of the alarm contacts.

Configuring an Alarm in the Supervised Condition

1. Use two 1K Ohm, 1/4W, ±5% carbon film resistors per alarm.
2. Install R 1 in parallel with the alarm contacts (see Figure 15).
3. Install R2 in series with the alarm input conductor.

Note: For maximum protection, install the resistors close to the alarm contacts and embed them in epoxy.

Alarm Cable Requirements

Connecting alarm sensors to the Accelaterm board requires 22 AWG, stranded, shielded, cables with drain wires.

CAUTION
Keep all drain wires short. Connect drain wires to the ground posts located on both sides of Accelaterm cabinet. DO NOT ground drain wires at any other point.

Tamper Switch

The Accelaterm cabinet has a built-in tamper switch. The tamper switch is factory wired and requires no adjustment. For a UL-Compliant Installation, the Tamper Switch must be configured at the Host Computer to signal an Alert when the Tamper Switch is activated. The Tamper Switch shall also be configured to activate the Console Relay that is wired to an alarm signal circuit or an alarm sounder for all UL installations.

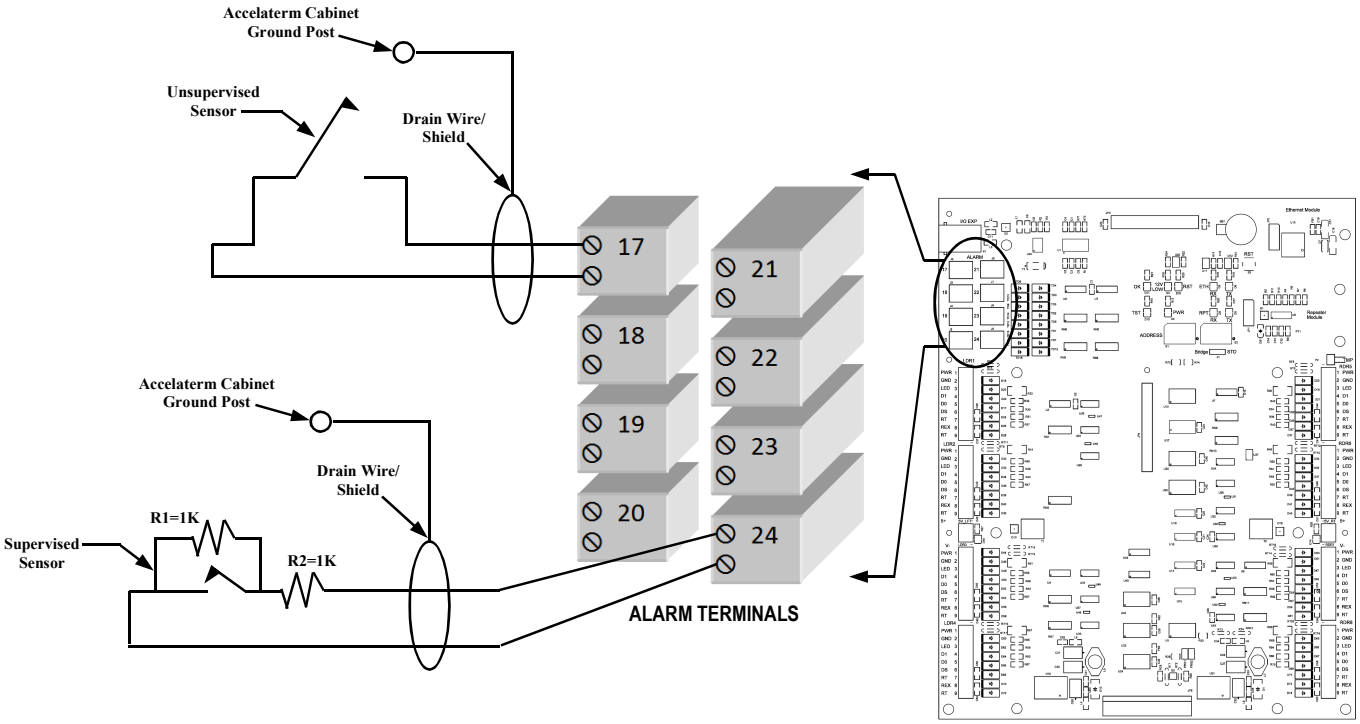


Figure 15 - ALARM Terminals - Unsupervised and Supervised Alarm Connections

COMMUNICATION

Each Accelaterm may communicate with the Host Computer or Server via an Ethernet connection. Or each Accelaterm may communicate through a high speed full-duplex (4-wire) EIA/TIA-485 Network connected to the Accelaterm communicating to the host computer / server via Ethernet.

By adding the Ethernet Plug-in Module, (CICP18ACCNETBD), a connection to the Host Sever or its Bridge can be made using CAT5/6 UTP cable. This offers excellent data rates as well as high isolation for protection from the damaging effects of lightning.

Installing the isolated CICP2800RS485BD board allows direct connection with other Access Control Panels upstream and downstream on a 4-wire Repeater String. This allows for high data rates and industry-leading isolation from very high-energy transients, adding ground-loop isolation to already proven built-in surge protection technology.

By setting the Bridge/STD Configuration jumper (J1) to **Bridge**, and installing both the Ethernet Module and the CICP2800RS485BD board, an Accelaterm control panel forms a fast and reliable data bridge between the Ethernet and the EIA-EIA/TIA-485 Repeater Network.

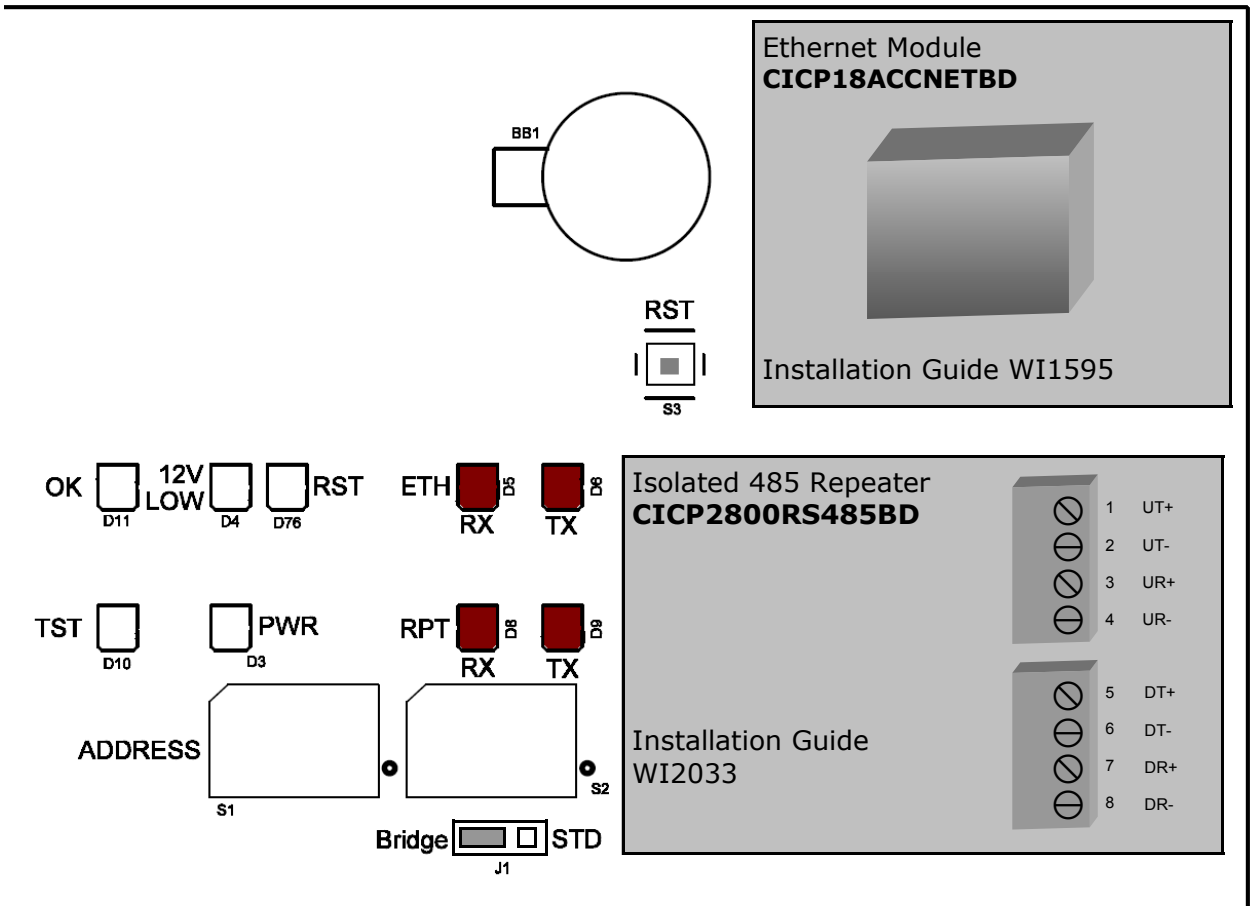


Figure 16 - Ethernet Plug-in Module CICP18ACCNETBD and Isolated 485 Repeater CICP2800RS485BD

Networking

The Accelaterm can be networked with a maximum of 62 other Accelaterm units or other Continental Access access control devices (Superterm, Turbo Superterm, Smarterm, Miniterm and Microterm).

'485 Repeater Network Cable Requirements

Networking multiple Accelaterm panels requires 4-conductor cable (2-two wire twisted pair), stranded, 22AWG, with shielding, and drain wire.

For REPEAT network configurations, cable length between EACH Accelaterm is restricted to a maximum length of 500 feet (150m).

Network Address Settings

Operating the Accelaterm with a host computer, or in a network, requires that each Accelaterm (or other device) have an individual, unique address other than zero.

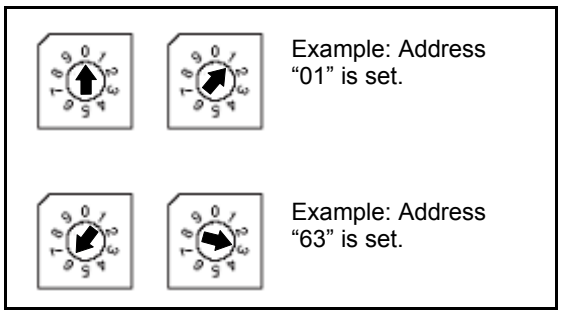


Figure 17 – Setting Network Address

The BCD Rotary Switches are set with a small screwdriver. There is a click detent for each number. The valid address range is "01" to "63". (Address "00" is not valid).

See "Clear Memory and Force Download to Panel" on page 31.

Communication LED Functions

Table 13 - Communication LED Functions	
LED	**Function**
ETH RX	Ethernet Port is *receiving* data from the Host Computer
ETH TX	Ethernet Port is *transmitting* data to the Host Computer
RPT RX	'485 Repeater Port is *receiving* data from the Host Computer
RPT TX	'485 Repeater Port is *transmitting* data to the Host Computer

Communication Wiring

The Ethernet Port normally requires plenum-spec CAT 5, CAT 5e, CAT 6 or CAT 6a cable. Maximum length allowed in the IEEE 802.3 specification is 100 meters (305 feet).

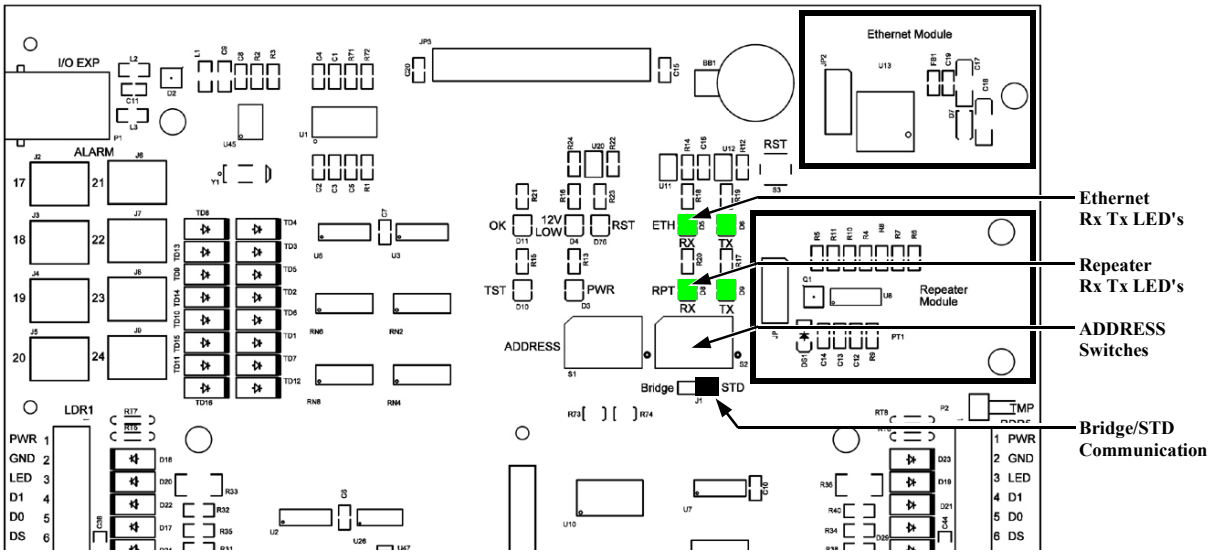


Figure 18 - Accelaterm Address Switch Location

Functions of the '485 Data Pair Connections

T+ T-	Differential Transmitter Data
R+ R-	Differential Receive Data

Note: A (+) is always connected to a (+), and a (-) always to a (-). A Transmitter is always connected to a Receiver. *Upstream cables head toward the Server; downstream cables head away from the Server.*

Example – Accelaterm Ethernet to '485 Repeater Network

ADDRESS = 01* Ethernet *and* '485 Interfaces Installed. Bridge [□□]□ STD	ADDRESS = 02* '485 Repeater Interface Installed. Bridge □[□□] STD	ADDRESS = 03* '485 Repeater Interface Installed. Bridge □[□□] STD	ADDRESS = 04* '485 Repeater Interface Installed. Bridge □[□□] STD	ADDRESS = 05* '485 Repeater Interface Installed. Bridge □[□□] STD
Bridge OUT: T+ T- R+ R-	R+ R- T+ T- : STD IN			
	STD OUT: T+ T- R+ R-	R+ R- T+ T- : STD IN		
		STD OUT: T+ T- R+ R-	R+ R- T+ T- : STD IN	
			STD OUT: T+ T- R+ R-	R+ R- T+ T- : STD IN
				If last unit, Downstream Connections left open.

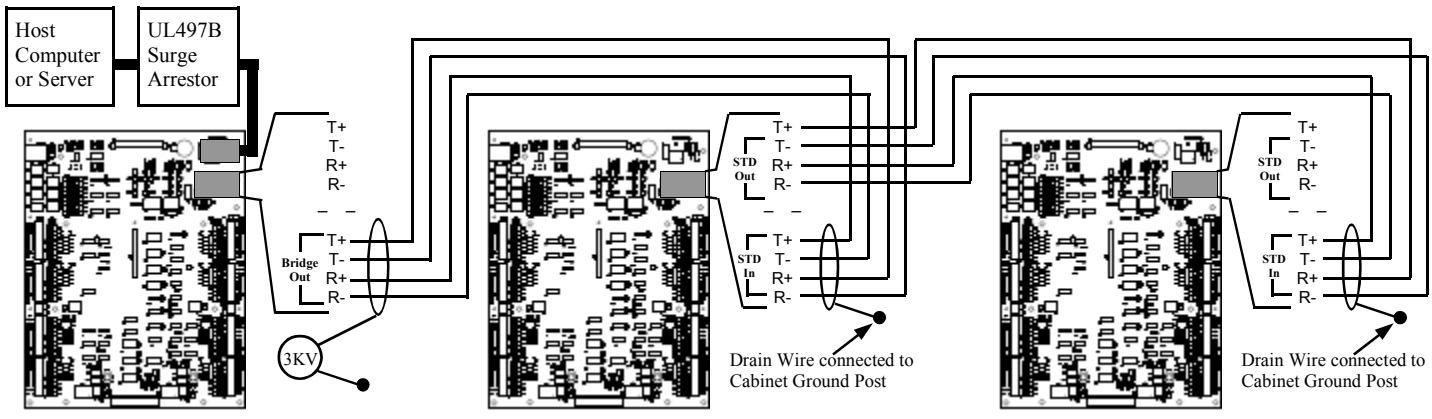


Figure 19 - Accelaterm Ethernet to '485 Repeater Network

UL294A compliant installation requires UL497B-Listed Surge arrestors be installed on all data lines connected to Computer Accessory Equipment. On the downstream side, Ground Loop currents are limited by the low-capacitance, high-voltage disc capacitor. This connection assures compatibility with nearby Radio-Frequency equipment.
"Ethernet Only" installations may use third-party isolated USB to 485 Convertors connected to the Upstream side of the first Accelaterm panel. Contact Continental Tech Support for latest data.
***Note:** Address of the Accelaterm are not required to be consecutive, only that the Bridge Accelaterm be first.

LED Diagnostics

The Accelaterm circuit board uses LED's to indicate the presence of a particular voltage and EIA/TIA-232 signals. Figure 20 shows the LED position on the Accelaterm circuit board and the individual LED functions.

Table 14 - LED Diagnostic Functions

Marking	Function	Notes
PWR	Logic Power	12 Volt power and 5 Volt Regulator okay
OK	Processor running okay	"Heartbeat" blink signals processor, memory, etc. running
RST	Reset Indicator	Red during reset; steady blink indicates processor failure
12 LOW	12 Volt Power Input low	Unit will soon shut down when on battery power (yellow)
TST	Test	Controlled by test firmware during development
ETH RX	Ethernet Receive Data	Ethernet Port is receiving data from the Host Computer
ETH TX	Ethernet Transmit Data	Ethernet Port is transmitting data to the Host Computer
RPT RX	Repeater Receive Data	'485 Repeater Port is receiving data from the Host Computer
RPT TX	Repeater Transmit Data	'485 Repeater Port is transmitting data to the Host Computer
5V (Left)	5 Volt Accessory Power	Power Status monitored separately on each side
5V (Right)	5 Volt Accessory Power	Power Status monitored separately on each side

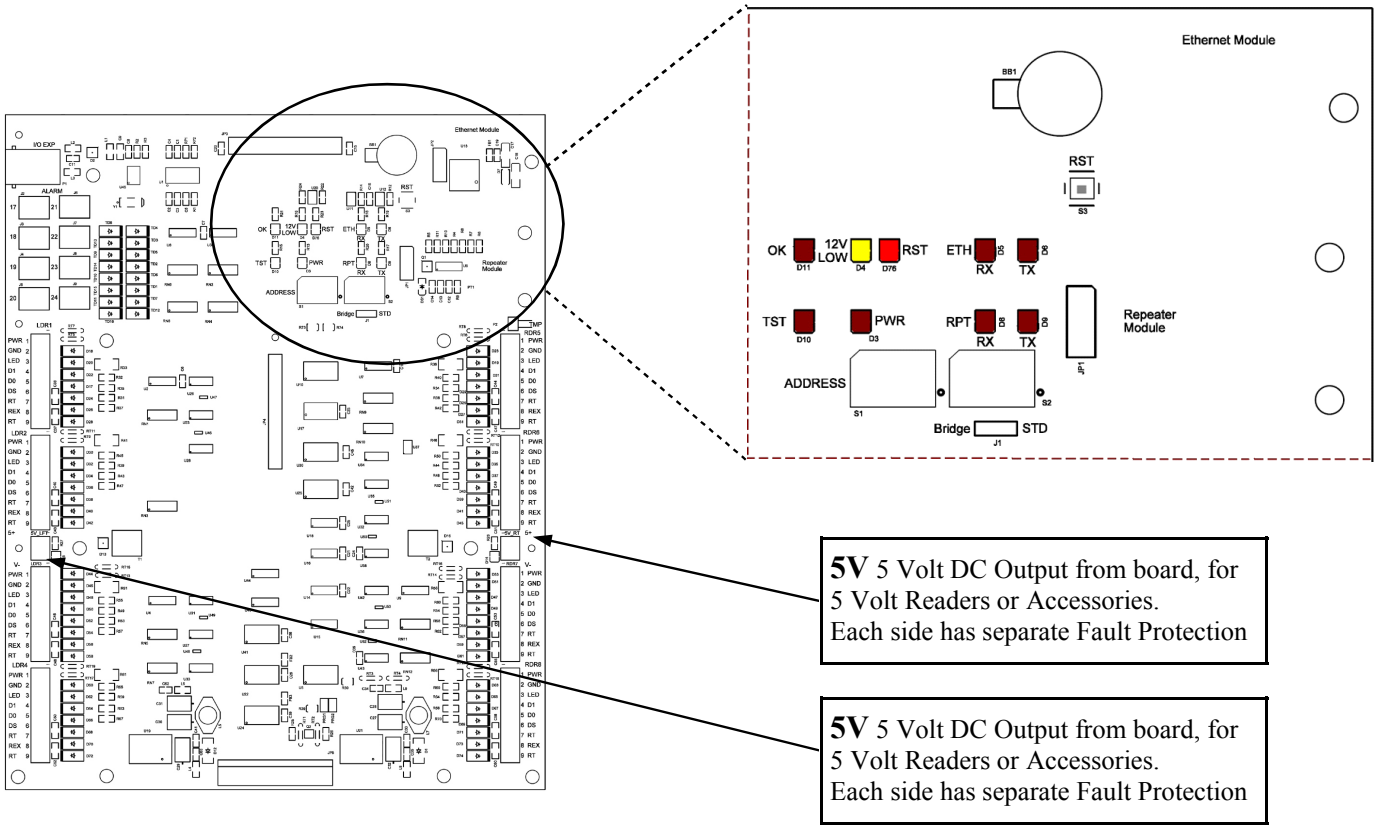


Figure 20 - LED Diagnostic Functions

Charger/Isolator Board: CICP2800PCHGBD

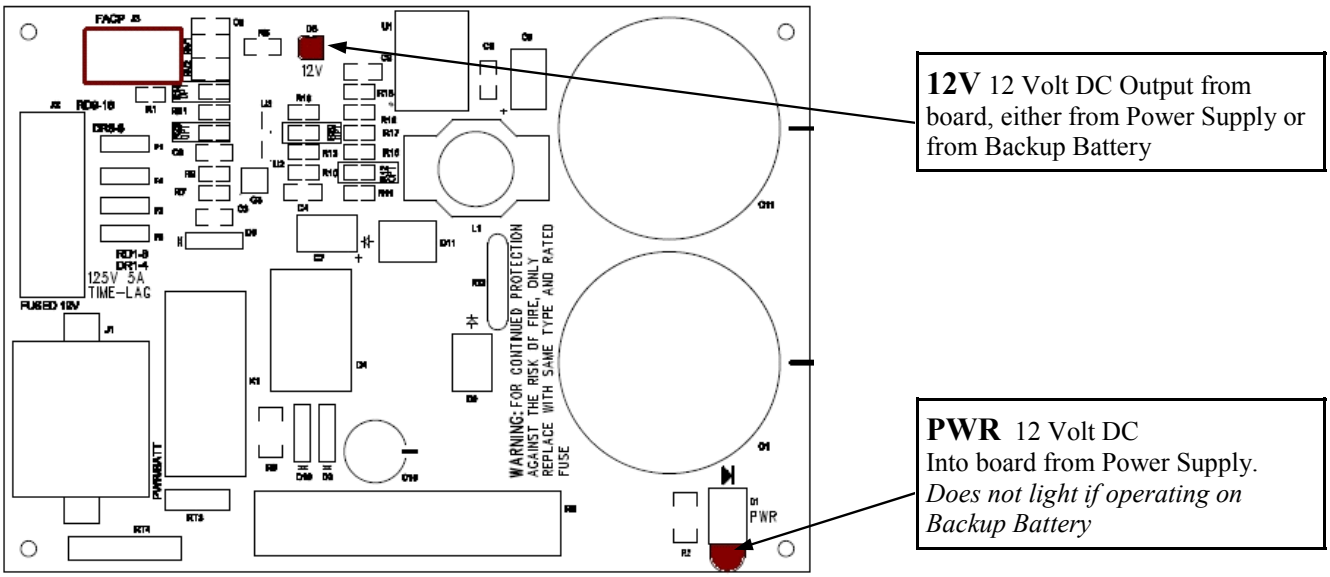


Figure 21 - LED Diagnostics: Charger/Isolator Board (CICP2800PCHGBD)

Processor/Memory Board: CICP2800PMBD

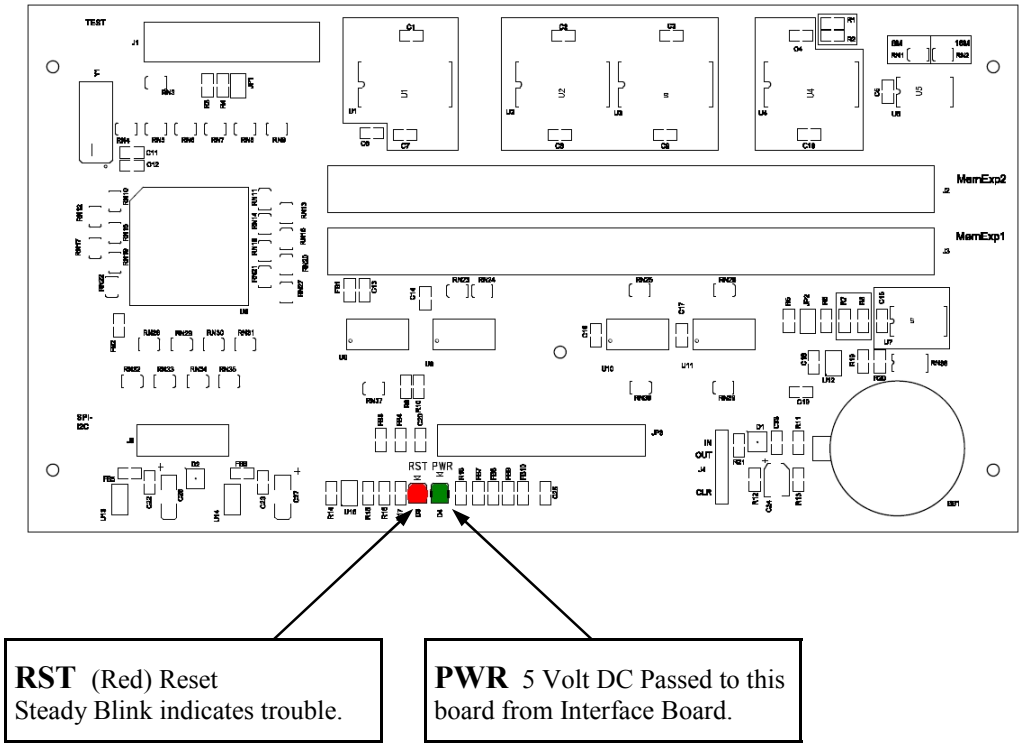


Figure 22 - LED Diagnostics: Processor/Memory Board (CICP2800PMBD)

OVERCURRENT PROTECTION

External Circuits

The Accelaterm provides 12VDC power to the badge readers, accessory devices, and electric locks. Equipment requiring 5VDC may receive battery-backed power from the Accelaterm. Self-resetting PTC devices are used to protect the Accelaterm from excess loads and to minimize risk of fire from external short-circuits. Remember a PTC will not self-reset until the fault is discovered and removed. In some instances, the circuit may need to be interrupted, conveniently done by removing the connector to the affected circuit.

The limits given below are for *each* output circuit, independently protected by a PTC device. This limits the effect of a single fault to the individual circuit.

Table 15 - LED Diagnostic Functions

Type of Output	Current Limit
12 Reader Power Output	350mA (8 or 16 Circuits)
LED Output (Sink to Ground)	100mA (8 or 16 Circuits)
5V Accessory Power	1.5A (2 or 4 Circuits)
12V Accessory Power	600mA Total for 2 Circuits.
Relay Contact Circuit	2.0A for Wet or Dry Contacts

Note: These PTC current limits are more stringent than required for [safe] power-limited output circuits.

Transient Protection

Nearby lightning discharges induce high-voltage transients into the field wiring of electronic equipment. The Accelaterm Access Control Panel provides protection from high-voltage transients at all field wiring terminals. This includes all Alarm Inputs, all Reader Connections, all 5V and 12V Accessory power outputs, etc. The normal dielectric isolation of the relay circuits is supplemented by MOV devices that are active for both the dry and wet contact circuits. MOV snubbing devices improve the life of the relay contacts.

Dielectric Isolation

The Ethernet Port meets the IEEE 802.3 Specification Standard for 1500V RMS Dielectric Isolation. Dielectric Isolation is the appropriate technology because both ends of the cable are connected to grounded equipment, and would be subject to very high ground loop currents if the circuits were not isolated.

Note that UL294 states that the connected communication equipment (Ethernet Bridge, Host Computer, or Server) must use signal-line transient protection equipment compliant to UL497B, having a maximum marked rating of 50V. **Note:** Suitably qualified third-party equipment is available from several vendors.

The Isolated 485 Interface option for the Accelaterm also incorporates transient protection, needed because of the long signal wiring supported. But because the connection between EIA/TIA-485 equipment is normally grounded, lightning discharges to ground will cause damaging high ground loop currents if the equipment is not isolated. For this reason, the Accelaterm 485 Interface adds high dielectric isolation to the high voltage transient protection.

MAINTENANCE

Coin Cell Activation

The Clock/Calendar chip on the Interface board is backed by a Rayovac "BR1225E" coin cell installed under a clip. This clip can be found at the upper-right of the Interface PCB.

The database on the Processor/Memory Board is backed by a Duracell "DL2032" or Eveready "ECR2032" coin cell which is also installed under a clip. This clip can be found at the lower-right of the Processor PCB.

The Accelaterm is shipped with a Mylar insulator placed under the clip to prevent drain from the cell during warehousing and storage. Dispose of all batteries in accordance with all local environmental and safety requirements. Do not incinerate, etc.



Coin Cell Replacement

The Accelaterm is normally powered on a 24/7 schedule. If the power is to be removed from the unit for more than a few days, **please re-install the Mylar insulator under the cell clip** to de-activate the coin cell power (a clean paper insulator can be used, if necessary).

If power was removed from an Accelaterm unit for more than four weeks without the cell being de-activated by the insulating Mylar or paper, please replace the memory coin cell, as follows:

1. Open the Accelaterm cabinet and locate the memory coin cell at the upper-middle of the PC Board.
2. Remove the old cell by pressing backward and downward.
3. Replace the lithium cell only with a Rayovac "BR1225E" on the Interface PCB, and a Duracell "DL2032" or Eveready "ECR2032" on the Processor/ Memory PCB. The use of other batteries may present a risk of fire or explosion.
4. When installing the new cell, use clean plastic forceps, or handle the cell by its edge to avoid contaminating the conductive surfaces.
5. The expected life of the lithium cell is ten years. Changing the battery every five years is recommended.

Note: The coin cells are drained only when both the mains power is lost and the backup batteries are discharged. These cells ensure that the correct time is set and the database is held for instant availability when power is restored. The correct time and the database will normally be loaded from the Host Server in a small fraction of a minute.

Clear Memory and Force Download to Panel

The following procedure is seldom necessary, but the Continental Support Staff may recommend the following procedure as part of troubleshooting:

1. Note setting of Address switches.
2. Set Address switches to "00".
3. Press and hold the reset (**RST**) button for at least two seconds.
4. Set Address switches to their original settings.

Panel memory is cleared. The panel will request a new download.



Backup Battery Replacement

WARNING

Verify the AC source voltage is switched off at the breaker panel before proceeding with backup battery replacement.

1. Open the Accelaterm cabinet and locate the backup batteries (P/N CI-HE0047) at the bottom of the cabinet.
2. Disconnect the RED leads from the POSITIVE (Red) terminals of the batteries.
3. Disconnect the BLACK leads from the NEGATIVE (Black) terminals of the batteries.
4. Remove the old batteries.
5. Install the new batteries in the reverse order of the removal.
6. Replace the Backup Batteries at least once every five years. The batteries MUST be replaced in pairs.

Note: Due to the Low Battery Voltage Disconnect feature, the Accelaterm will not start to operate until mains (AC) power is connected.

SPECIFICATIONS

Specifications	Quantity	Comments
CardAccess Compatibility		Full function on or off line
Card Capacity	200K 650K	Base 4M Memory/ 5-digit Cards Full 20M Memory/19-digit Cards
Database RAM Each option Module adds 8M	4M 12M 20M	4M Base One Option Memory Module Two Option Memory Modules
Card Reader Capacity	Eight Sixteen	Base Unit With Eight Reader Expansion via Plug-over PCB
Card Reader Power		12VDC, 350mA max each
Reader Types		Wiegand / Proximity, Magnetic Stripe (not evaluated by UL), Prox and PIN
Access Modes		Card Only, Unique PIN only, Card and PIN, Free Access
Reader LED Outputs		Active low, one per Reader (50mA limit)
Keypad Capacity	Eight Sixteen	Wiegand Format ONLY with Eight Reader Expansion via Plug-over PCB
Number of Doors	Eight Sixteen	 with Eight Reader Expansion via Plug-over PCB
Output Relays - Form C	16 plus Console	Sixteen relays configurable to route Lock Power
Relay Circuit Protection		All Relays - 2.5A PTC Limited
Internally Backed 12V Lock Power	Eight	8 Outputs at 2A max each from overall current rating
Relay Expansion		48 using External I/O Expansion Units
Supervised Inputs ..... Alarm Door Sense, Bypass Door Sense, Bypass	Eight Sixteen Sixteen	All inputs Host configurable as dry contact. Base Interface Board. With Eight Reader Expansion via Plug-over PCB.
Tamper Switch	One	Pre-assigned
Communication with Host and Downstream Panels		Ethernet 10/100Base-T (Host with Plug-in Module) Full Duplex EIA/TIA-485 (Host or Downstream Panels)
Addressing		Two BCD Format Switches
Downloadable Firmware		With fast Server - Loaded to FLASH Memory in 2 seconds or less.
Diagnostic LED's..... Interface Processor/Memory PCB Charger/Isolator	9 2 2	Ethernet TX/RX, Repeater TX/RX, Okay Blinky, Logic Power, Reset Warning, 12V Power, 12V [Battery] Low Warning. Reset, Board Power Power (Main), 12V (Main or Battery)
Auxiliary Serial Ports		I2C-bus Format via 6-Pin Modular Jack
Accessory 12V Output		600mA combined from Relay Board, PTC Limited
Accessory 5V Power		5V total 1.5A maximum
Memory Battery Backup		1 month nominal at 25°C (field-replaceable by qualified service personnel only)
Backup Power		Two 12AH Batteries for 3.5 hours battery backup (full load)
Power Supply Voltage		Switch selectable 120/230VAC 50-60 ~ 200W
Dimensions		Height 24-3/8" (620mm), Width 16-3/8" (416mm), Depth 5" (127mm)
Weight		38 pounds (17.3Kg) with two 12AH battery installed

Environmental and Regulatory	Quantity	Comments
Temperature Range Operating Temperature Range Storage		32 - 120°F (0 - 49°C) 32 - 149°F (0 - 65°C)
Relative Humidity		0% to 85% non-condensing
Compliance		UL294 Access Control (USA) 115VAC 60Hz only CE Mark (EU)

Configurable from Host	Quantity	Comments
Time Schedules	128	Standard
Access Groups	1000	Standard, configurable and expandable from Host
Link Programs	64	Standard
Facility Codes	10	Standard
Transaction Buffer	1000	Standard, configurable and expandable

Cables	AWG	Type	Maximum Length
Alarm Inputs	22	Stranded, shielded, w/drain 2-conductor	500 ft (153m)
Readers: Magnetic Stripe & Wiegand/Proximity	22	Stranded, shielded, w/drain 5-conductor (DO NOT use twisted-pair cables)	500 ft (153m)
Polling Line EIA/TIA-485 (Network)	22	Stranded, shielded, w/drain 2-twisted pair	500 ft (153m)
Ethernet		Cat 5, Cat 5e or Cat 6 UTP (Unshielded Twisted Pair)	305 ft (100m)
Relay Lock Circuits	18	Stranded, shielded, w/drain	500 ft (153m)

Sub-Assembly	Firmware	Comments
Main Processor	4.xx.xx	

Branch Circuit	AWG
Line	14-12
Neutral	14-12
Ground	14-12

POWER RATINGS

The Accelaterm contains a power supply that switches between 120VAC/60Hz for the USA, or 230VAC/50Hz for the EU.

Voltage Input	Current (Maximum)
115VAC	2.0 Amperes
230VAC	1.0 Amperes

Output Rating: 12V regulated maximum 5A.

Standby Current	
Charger Board + Interface Board + Memory Processor Board + Relay Board	95mA + 30mA for each energized relay board relay
Expansion Board	20mA
Ethernet Board	120mA
Interface Board Repeater Module	20mA

Combined Standby Current					
Battery	AH	3.5 Hours	4 Hours	12 Hours	24 Hours
Two 12AH	24	5A	4.5A	1.8A	1A
One 12AH	12	2.5A	2A	.9A	.5A

Interface Board and Expansion Board Output Ratings	
Interface Board and Expansion Board reader power	12V, 350mA each
Interface Board and Expansion Board LED current	12V, 100mA each
Interface Board and Expansion Board 5V output power	5V, 1.5A total
Interface Board Supervised Alarm Inputs (J2-J9)	5V, 5mA each

Relay Board Output Ratings	
Relay Coil current	30mA each
Relay contact current (dry)	28VAC/DC, 2 Amps each
Relay output current (wet)	12V, 2 Amps each
ACC PWR OUT	12V, 600mA combined

Power Supply Ratings	
Total 12V current from power supply not including charge current	5A
Maximum Battery charging current	1.5A

CICP18ACCNETBD INSTALLATION

The CICP18ACCNETBD Ethernet board is mounted in the Accelaterm Interface board (see the Accelaterm installation instructions WI1989 for more information regarding the Interface board installation).



Prior to opening the Ethernet board package or touching anything inside the control panel enclosure, discharge any static electricity from your body or clothing. Use a grounded wrist strap or touch an unpainted, grounded metal object such as the metal frame of the panel enclosure.

INSTALLATION

1. Find the MAC address located on the white label wrapped around the Ethernet plug (circled in Fig. 10 at right). Write the MAC address here: _____ and keep this paper in a safe location for future reference.



Fig. 10: MAC address location

2. Before installation, verify that the Accelaterm control panel is working correctly.

3. Disconnect power to the system, including the battery wires.

4. **Align the board:** The Ethernet board is mounted in the top right corner of the Accelaterm Interface board. See Fig. 11. Carefully align the two Ethernet board snap-lock standoffs with the two Interface PC board mounting holes. Then align the Ethernet board plug with the Interface board receptacle "JP2" as shown below.

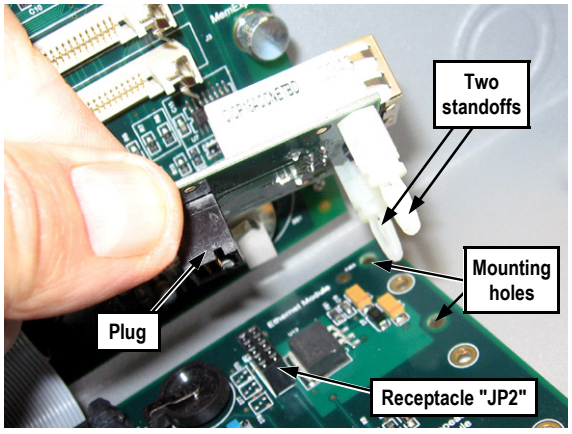


Fig. 11: Align the two snap-lock standoffs and plug with the Accelaterm Interface board holes and receptacle "JP2".

Insert the board: With both standoffs and the plug aligned, firmly press the Ethernet board into the Accelaterm Interface board by holding the Interface board with the tips of your fingers and squeezing the Ethernet board as shown Fig. 12.

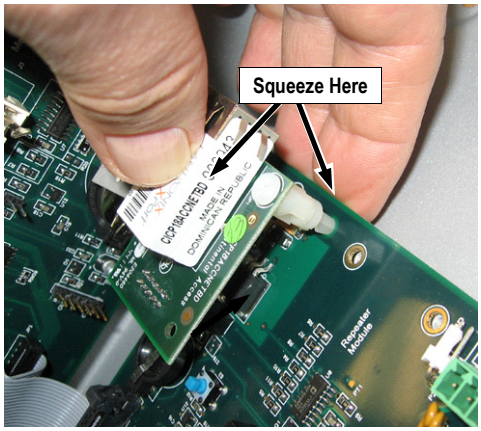


Fig. 12: Squeeze to insert the board

5. Insert your CAT5/6 Ethernet cable first through a cable clamp (Fig. 13) and then through a knockout located on the right side of the panel enclosure. Pull only enough of the Ethernet cable into the enclosure to allow the plug to be easily inserted into the Ethernet board receptacle.

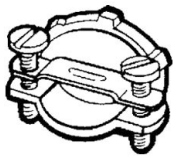


Fig. 13: Cable Clamp

6. In the parts bag, find the silver braided shield. For FCC compliance, this braided shield must be both secured to the cable clamp and placed over the Ethernet cable in the interior of the panel enclosure.

Note: The presence of this silver braided shield makes shielded twisted pair (STP) cable unnecessary. In addition, unshielded twisted pair (UTP) cable does not need to be routed in conduit.

Before tightening the cable clamp, place the braided shield over the Ethernet cable. *Pull the braided shield out through the panel knockout and into the cable clamp*. Thus, the braided shield is grounded to the panel enclosure by the cable clamp (as shown in Fig. 14.

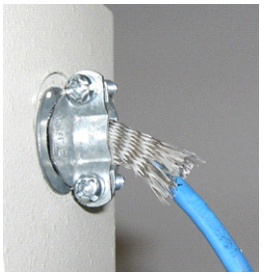


Fig. 14: PANEL EXTERIOR: Both the Ethernet cable and the braided shield must be grounded to the panel enclosure by the cable clamp.

7. The Ethernet cable **must** be covered by the braided shield but leave about one inch of cable exposed near the plug. Note that this one inch of exposed cable should be measured with the Ethernet cable plugged into the Ethernet board receptacle. If desired, use electrical tape to cover the end of the braided shield similar to the image shown in the Fig. 7 photograph earlier in this manual.



DO NOT cover the plug with the braided shield.

Be sure to tighten the cable clamp screws securing both the Ethernet cable and the braided shield to the panel enclosure.

8. Plug the Ethernet cable into the Ethernet board receptacle.

9. Re-connect power to the system, including the battery wires. Verify that the OK lamp (LED) on the Interface board blinks on and off once per second. Also verify the heartbeat lamp on the motherboard (location T1) blinks in unison with the OK lamp on the Interface board.

Note: The status LEDs on the top of the Ethernet board receptacle will blink when network activity is detected (see image in Fig. 15 for the location of these status LEDs).

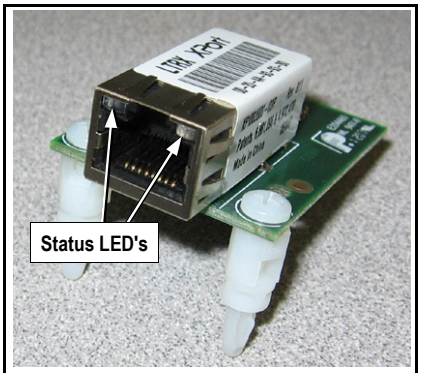


Fig. 15: Location of status LED's. These LED's will blink when network activity is detected.

Note: Be sure the MEMORY BACKUP CELL jumper is in the IN position to provide memory data retention. See Fig. 16.

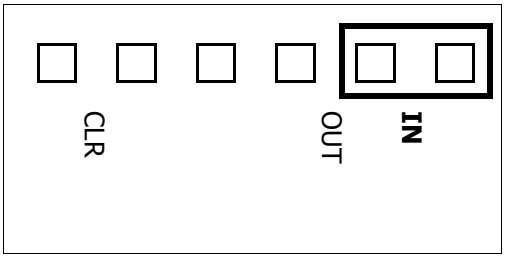


Fig. 16: "IN" Position

CICP2800EXPRDBD Eight (8) Reader Expansion Board Installation Instructions

GENERAL INFORMATION

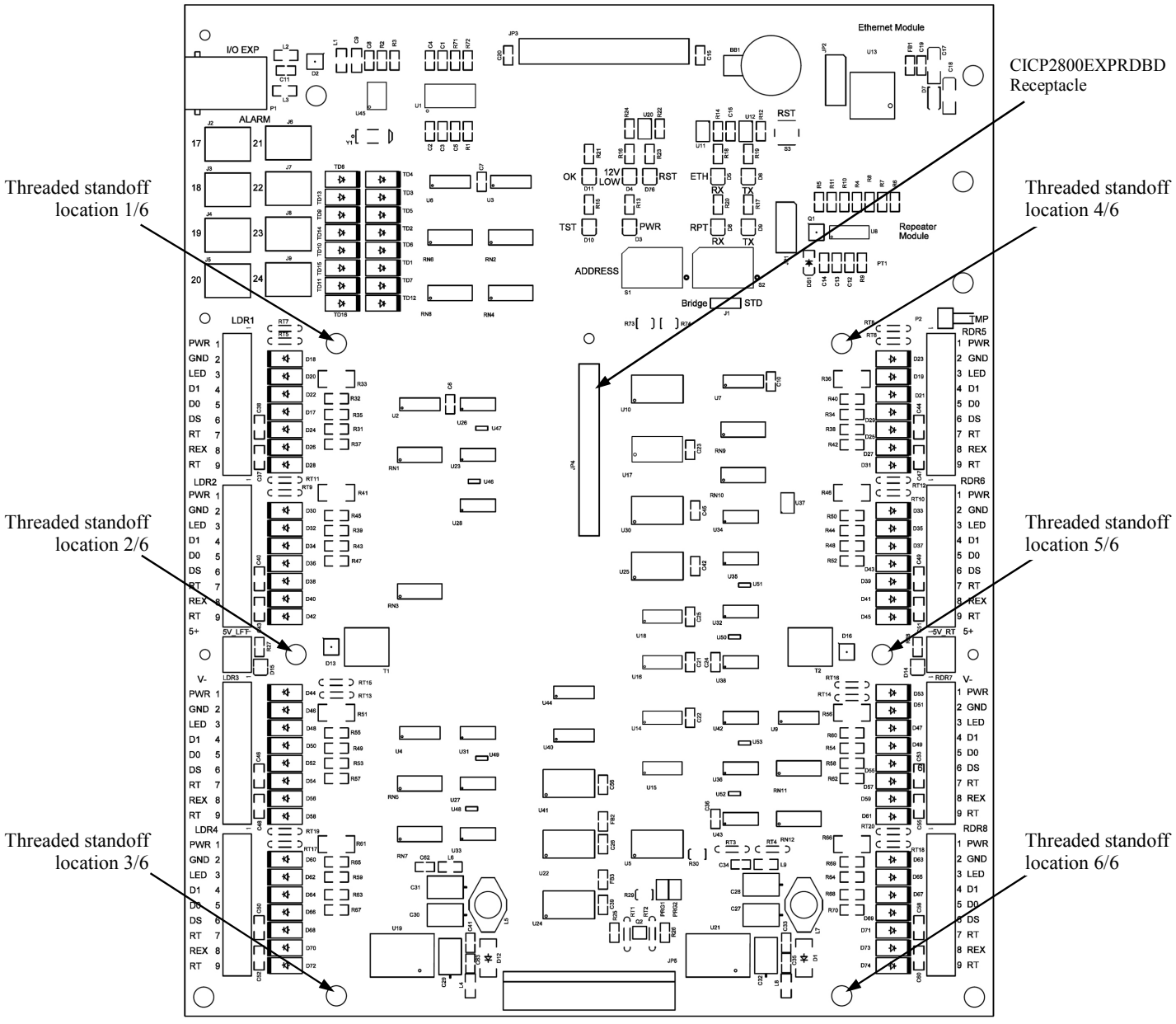
The standard version Accelaterm provides access control functions for eight doors and eight card readers. The plug-in eight reader expansion board adds capability for eight more readers and the associated supervised door sensor and bypass inputs. Each 12V reader may draw 350mA from the PWR pin of the reader connector. The interface board and expansion board each supply 5V power for special readers and accessory equipment. The 5V power is highly filtered and separate from the logic power.

Each of the 8 alarm inputs on the main board may be configured as supervised alarms (requiring termination resistors), or standard alarms (requiring plain electrical contacts).

Installation

Remove power from the system, and disconnect the batteries.

Install the CICP2800EXPRDBD into the Accelaterm interface board by first inserting 6 threaded standoffs (provided)



Accelaterm Interface PC Board

into the 6 threaded standoff locations in the Accelaterm interface board shown on page 1. Then plug the CICP2800EXPRDBD 8 Reader Expansion Board into the connector located at the center of the interface board. Finally, insert 6 screws (provided) into the 6 screw holes detailed in the image below.

See installation instructions WI1989 for more information regarding the installation of the Accelaterm control panel.

SPECIFICATIONS

12VDC rated at 20mA.

Internally-Routed Power for Locks 5-8 and 13-16

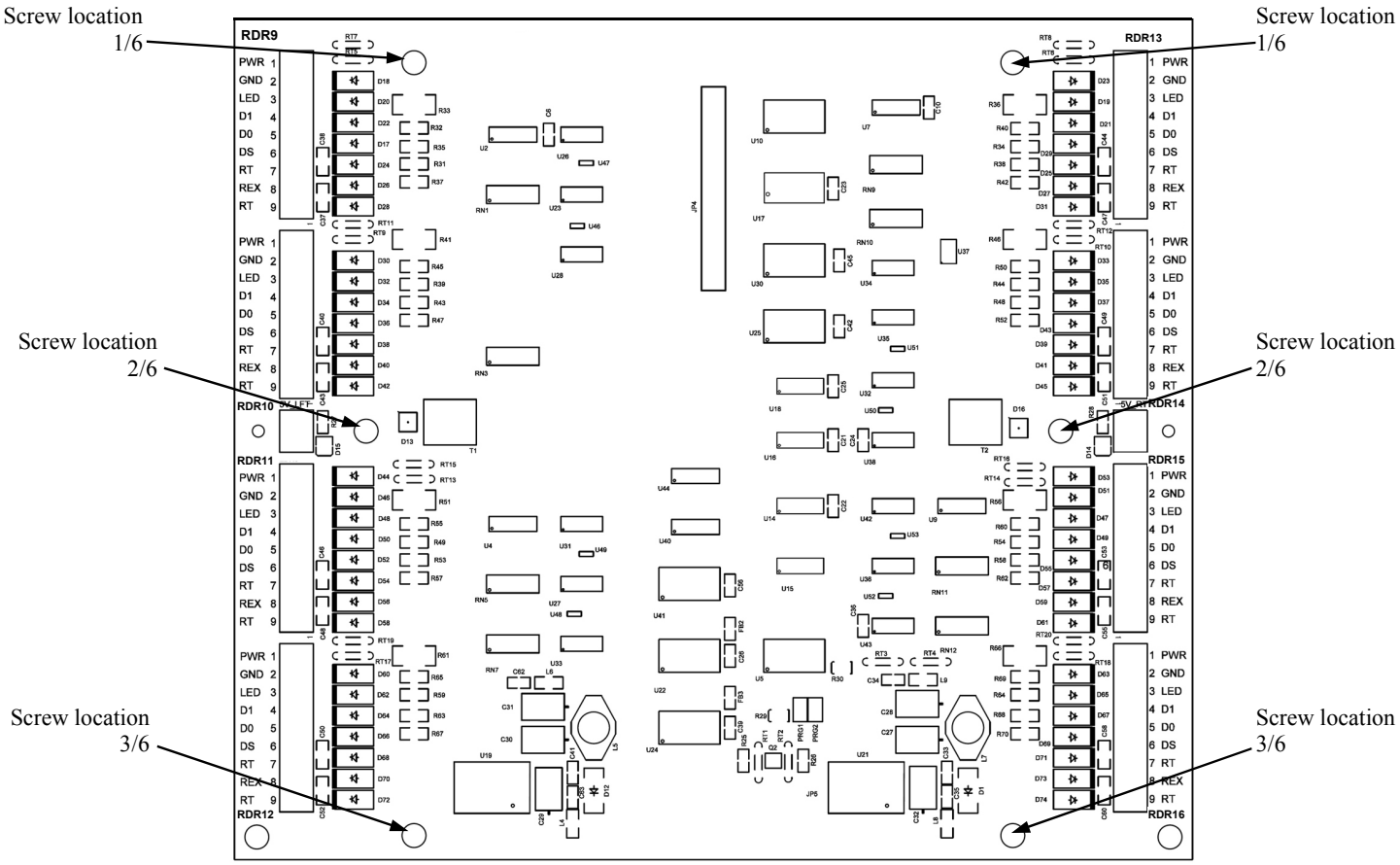
When the Eight Reader Expansion Board is added, relays 5-8 and 13-16 are normally used to control the locks. The control may be with familiar dry contact power connected to each circuit, or field wiring can be greatly simplified by routing the lock power through the Accelaterm Relay Board.

To the right of the center line on the Relay Board, find JP4 marked LOCK PWR IN [5-8] and [13-16]. A 9CICP2800AUXH Accessory Cable provides two pairs of conductors for two power-limited circuits (option not evaluated by UL). The power-limited power supply may be one or two UL603 or UL294 Listed units. Normally battery-backed, these may be 12VDC or 24 to 28VDC.



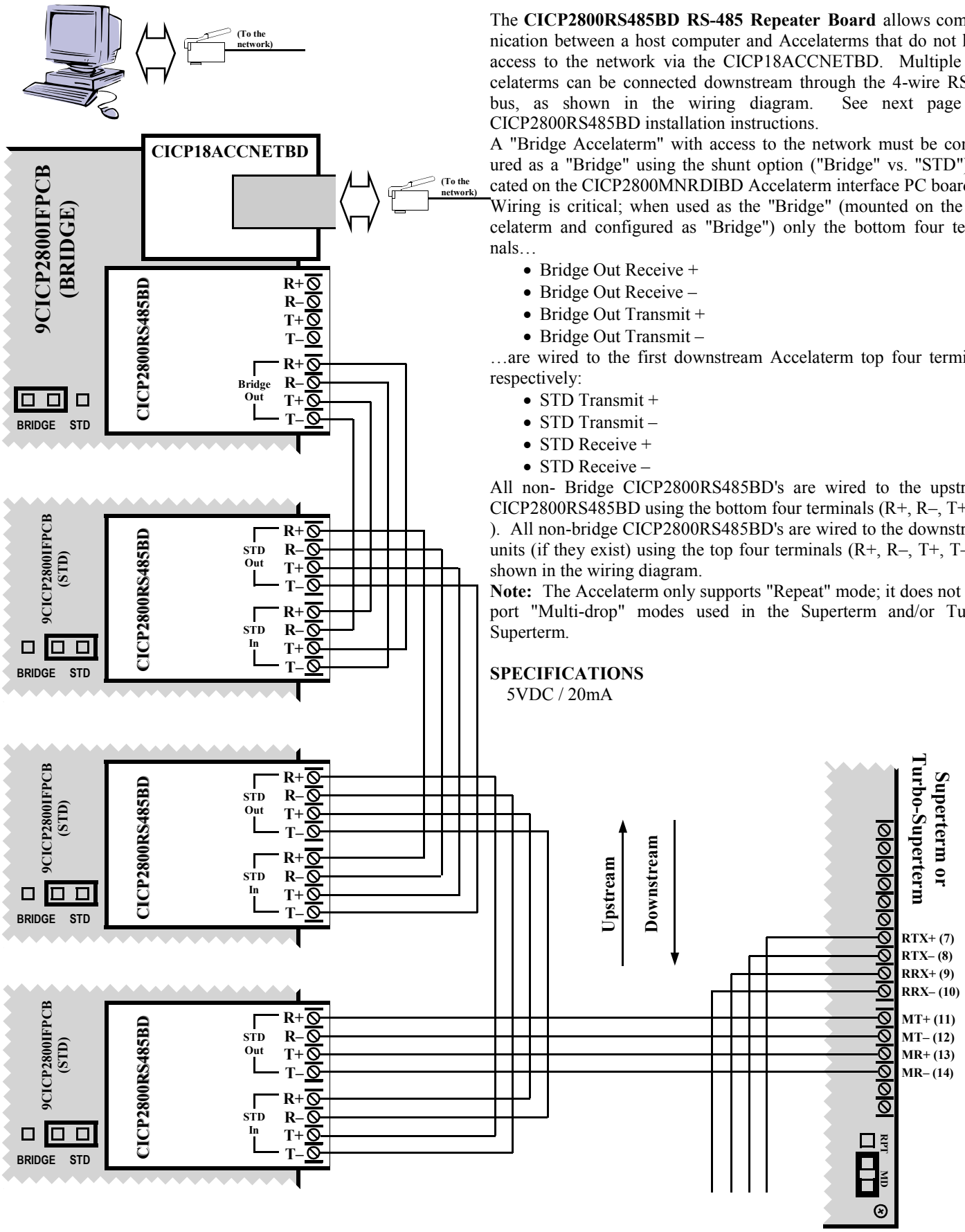
Considerations for use of 24VDC Equipment

- Magnetic locks drain half the current at 24V than at 12V for the same holding force.
- Losses in the wiring resistance are ¼ that of the lower voltage. This is significant if high-holding force locks must be used.
- Many UL294 / UL603 Listed power-limited power supplies offer selectable voltage, at the same current and cost.



CICP2800EXPRDBD 8 Reader Expansion Board

CICP2800RS485BD RS-485 Repeater Board Wiring Instructions



The **CICP2800RS485BD RS-485 Repeater Board** allows communication between a host computer and Accelaterms that do not have access to the network via the CICP18ACCNETBD. Multiple Accelaterms can be connected downstream through the 4-wire RS485 bus, as shown in the wiring diagram. See next page for CICP2800RS485BD installation instructions.

A "Bridge Accelaterm" with access to the network must be configured as a "Bridge" using the shunt option ("Bridge" vs. "STD") located on the CICP2800MNRDIBD Accelaterm interface PC board.

Wiring is critical; when used as the "Bridge" (mounted on the Accelaterm and configured as "Bridge") only the bottom four terminals…

- Bridge Out Receive +
- Bridge Out Receive –
- Bridge Out Transmit +
- Bridge Out Transmit –

…are wired to the first downstream Accelaterm top four terminals respectively:

- STD Transmit +
- STD Transmit –
- STD Receive +
- STD Receive –

All non- Bridge CICP2800RS485BD's are wired to the upstream CICP2800RS485BD using the bottom four terminals (R+, R–, T+, T–). All non-bridge CICP2800RS485BD's are wired to the downstream units (if they exist) using the top four terminals (R+, R–, T+, T–) as shown in the wiring diagram.

Note: The Accelaterm only supports "Repeat" mode; it does not support "Multi-drop" modes used in the Superterm and/or Turbo-Superterm.

SPECIFICATIONS

5VDC / 20mA

CICP2800RS485BD INSTALLATION

The **CICP2800RS485BD RS-485 Repeater Board** is mounted into the Accelaterm Interface board (see the Accelaterm installation instructions WI1989 for more information regarding the Interface board installation).



Prior to opening the Repeater board package or touching anything inside the control panel enclosure, discharge any static electricity from your body or clothing. Use a grounded wrist strap or touch an unpainted, grounded metal object such as the metal frame of the panel enclosure.

INSTALLATION PROCEDURE

1. Before installation, verify that the Accelaterm control panel is working correctly.

2. Disconnect power to the system, including the battery wires.

3. Install Standoffs: The Repeater board is mounted in the top right corner of the Accelaterm Interface board (see Fig. 2).

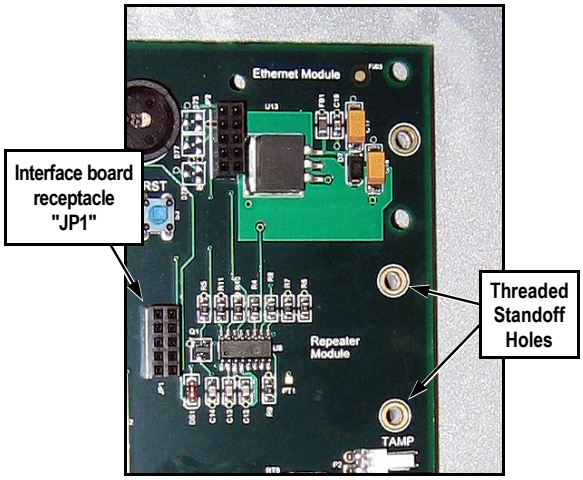


Fig. 2: Repeater Board Installation location, and Standoff Holes. Receptacle "JP1" also shown.

Screw in two metal standoffs (provided) into the two threaded standoff holes in the Interface PC board as shown in Fig. 3.

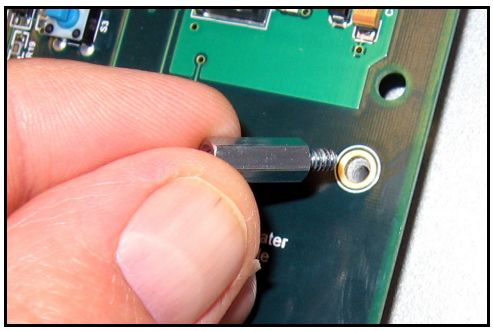


Fig. 3: Insert two metal standoffs into threaded holes.

4. Align the Repeater board plug with the Interface board receptacle "JP1" as shown in Fig. 4 below.

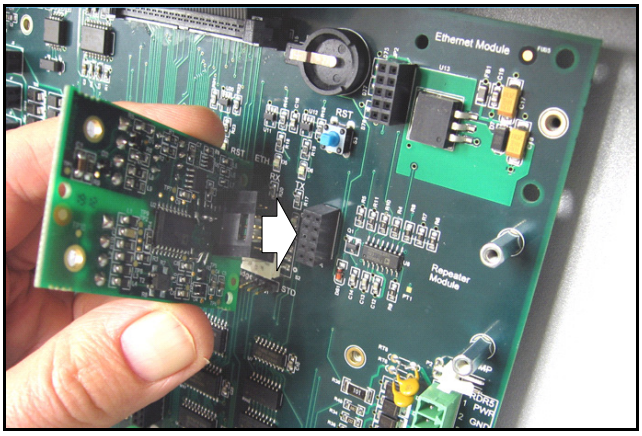


Fig. 4: Align the Repeater board plug with Interface board receptacle "JP1".

Insert the board: With both standoffs and the plug aligned, and the Repeater board surface parallel to the surface of the Interface board, firmly push the Repeater board into the Accelaterm Interface board.

5. As shown in Fig. 5, insert two small screws into the two metal threaded standoffs noted in Fig. 3 and tighten to secure the Repeater board. Do not over-tighten the screws.

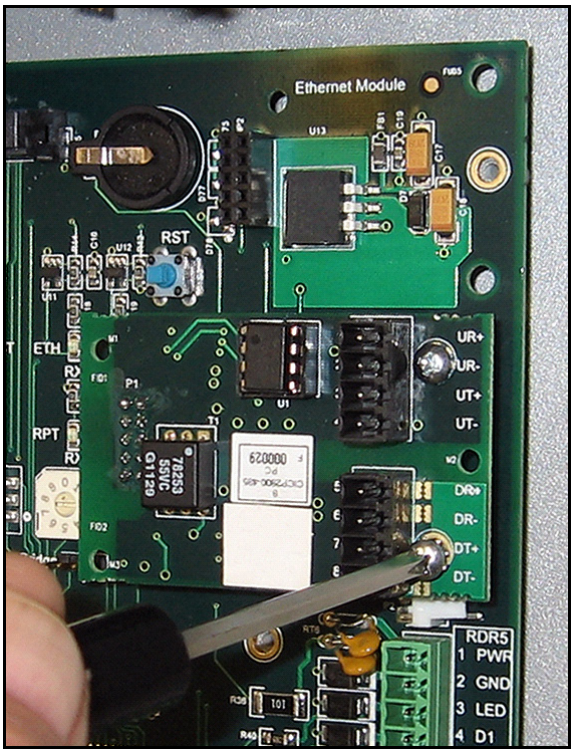


Fig. 5: Secure the Repeater board with two screws.

9. Re-connect power to the system, including the battery wires.

NOTE: Information furnished by Continental Instruments LLC is believed to be accurate and reliable. However, no responsibility is assumed by Continental Instruments LLC for its use; nor for any infringements of other rights of third parties which may result from its use. No license is granted by implications or otherwise under any patent or patent rights of Continental Instruments LLC.

NOTES

WARRANTY / TERMS & CONDITIONS
Standard Terms of Sale

Ordering

Orders for Continental products may be placed by calling Continental's order department or by issuing a purchase order specifying the quantity of Products, the desired delivery date, shipping method, and the location to which product should be shipped. If an order is placed by telephone, it must be confirmed in writing by fax or mail.

If the customer requests a guaranteed ship date or expedited shipping, Continental reserves the right to add to the price, with the customer's approval, expenses which increase the cost of production and delivery, i.e. freight charges, overtime expenses, etc. Continental reserves the right to change any price on this price list and all prices are subject to factory reconfirmation at the time of placing an order.

Sales Assistance

Continental will furnish to customers, reasonable quantities of product-related catalogs and other sales and promotional literature.

Continental will provide customer training, both technical and sales at Continentals facilities in New York. Contact the factory for costs and requirements.

Payment Terms

- Sales terms are Cash on Delivery (COD) unless prior credit arrangements are established.
- If credit arrangements are established with Continental, terms of sale are net 10 days.
- Interest charges shall accrue on all past due accounts at a rate of 1.5% per month (18% APR).
- Continental reserves the right to place a customer on a C.O.D. status in the event that customer's account becomes delinquent or Continental becomes unsure about customer's financial capabilities.
- Continental will charge a Service Fee of $50.00 for any returned check.
- If customer believes an invoice to be in error, customer shall notify Continental of the error within thirty (30) days.
- Continental reserves a security interest in all products sold hereunder, together with all proceeds thereof to secure the performance of the customer's obligations hereunder.
- All orders unless otherwise requested are shipped F.O.B. Amityville, NY.

Cancelled Orders

Special or custom order items that cannot be cancelled with our suppliers are subject to a 100% cancellation charge.

No unauthorized, returned merchandise will be accepted for credit.

Orders returned or canceled are subject to a 25% restocking charge.

Return Material Authorizations

No products will be accepted for return to Continental without prior written authorization (RMA). Unauthorized returns will not be accepted from the carrier by the receiving department. The customer may request a return material authorization (RMA), whether for credit or repair of the product. Continental will either issue an RMA or provide the customer with a written explanation for not issuing the RMA. Except for warranty claims, no returns will be accepted more than 60 days after shipment from Continental. Orders that are accepted for return are subject to a 25% restocking charge. No product will be accepted for return which has been special ordered or custom in nature.

Limited Warranty

Return Material Authorization (RMA) numbers are required to be issued by Continental prior to returning any Product for service, repair, credit or exchange. Continental warrants that its Products shall be free from defects in materials and workmanship for a pe-

riod of one year from date of shipment of the product to purchaser. The warranty on 3rd party equipment such as terminals, printers, and communications devices shall be 1 year from date of shipment. Remediation of this warranty shall be limited to the repair or replacement of those products which are defective or become defective under normal use. Continental's warranty shall not extend to any product which is found after examination to be defective as a result of misuse, improper storage, incorrect installation, operation or maintenance, alteration, modification or accident.

There are no other warranties which extend beyond this provision. This warranty is in lieu of all other warranties whether express, implied or statutory, including implied warranties of merchantability or fitness for any particular purpose. No representation or warranty of the distributor shall extend the liability or responsibility of the manufacturer beyond the terms of this provision. In no event shall Continental be liable for any costs, loss of profits, loss of use, incidental, consequential or special damages to any person resulting from the use of Continental's products.

The above limited warranty is the only warranty provided by Continental. Continental makes no other warranties or guarantees, whether expressed or implied, including, but not limited to, warranties and/or guarantees of merchantability or fitness for a particular purpose. In no event shall Continental be liable for any indirect, consequential or incidental damages, including those to person and those for lost wages, or other economic loss.

Product Liability

Continental's sole Liability and the customer's exclusive remedy for damages, shall not exceed the cost of correcting the defect and in no event shall such liability be greater than the purchase price paid by the customer for the defective equipment or software. Under no Circumstances will Continental be liable for direct, indirect or consequential damages of any kind.

General Notices:

In order to assure that Continental's customers receive the most accurate and reliable information possible, Continental at times monitors telephone calls

Information and pricing contained within this document are subject to change without notice.

Continental does not recommend that these products be used as the primary means of monitoring, warning or egress. Primary warning or monitoring systems should always meet local fire and safety code requirements.

This transaction shall be governed and construed in accordance with the laws of the State of New York.

Continental specifically rejects any terms or conditions stated by the customer or contained within purchase documents or correspondence from the customer which are in addition to, conflict with or limit, terms or conditions set forth herein. The customer's execution or other acceptance of this proposal or its acceptance of delivery of all or part of the goods to be delivered hereunder shall constitute customer's acceptance of the terms and conditions herein and shall be deemed to exclude any additional, conflicting or limiting terms stated by customer or contained in customer's purchase documents or correspondence.



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