CLOUDCONTROLLER
USER'S MANUAL

PTI SECURITY SYSTEMS

2023

CLOUDCONTROLLER

PTI SECURITY SYSTEMS

CLOUDCONTROLLER
USERS MANUAL

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CLOUDCONTROLLER MANUAL

> Overview

The CloudController offers the access control industry the most comprehensive hardware and software package to the access control industry. It's revolutionary design integrates surveillance, access control, intrusion, lighting, custom scripting, and elevator controls all in one package.

- 8 inputs on the main board for door alarms, motion sensors, beams, or almost any other type of alarm switch
- 4 output relays on the main board to open gates or doors, activate lights, control elevators, shunt alarms, act as secure interior relays, or perform custom function switching
- Key fob devices and biometric fingerprint devices.
- A built-in 12VDC 2A power supply with 5Ah battery backup
- Supports up to 127 Access Interface (AI) devices.

Input Power:	
Input Voltage:	24 VAC – 40 VA 24 VDC – 2.5 A

Output Power:	
Output Voltage:	13.8VCD nominal 2A max load

Relay Specifications:	
Maximum Switching Voltage*:	30VAC / 30VDC
Maximum Switching Current*:	AC: 10A (NO) / 3A (NC) DC: 5A (NO) / 3A (NC)
* Resistive load	

Inputs:	
Dry contact supervised inputs.	

Environmental:	
Ambient Temperature:	-40°C to +85°C (-40°F to 185°F)
Ambient Humidity:	0% to 85% , non condensing
Note: The CloudController is not intended for outdoor installation.	

See "Computer System Requirements" on page 3 for computers, components, and peripherals used with the controller.

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> Computer System Requirements

PTI recommends that installation and setup of any PTI Security Systems equipment is done by a certified, licensed, qualified technician. PTI can recommend local dealers and installers, but it is the customers' responsibility to verify qualifications and negotiate any pricing or contracts (unless PTI Security Systems has been specifically contracted in writing to do so on behalf of the customer).

Hardware running any PTI Security Systems, software, or utilities must meet specific requirements. These requirements are intended as a minimum guideline for operating our access control system and are subject to change without notice.

With any setup or configuration, some troubleshooting and adjustment of the configuration may be required. This will differ with every setup depending on operating system, software installed on it, quality of components, Internet connection, modem connection, or any other variable introduced into the setup.

Troubleshooting and configuration may include the purchase of additional equipment. Under no circumstances is PTI Security Systems be responsible for any damages either incidental or consequential based on these recommendations If a customer intends to add third party peripherals to the system, they are responsible for ensuring that the products are compatible with the access control system they have installed.

Power
* Electrical outlet providing 120VAC (United States) or 240VAC (Europe or Australia)

Proximity Cards / Photo ID Badges / Swipe Cards
The following items are recommended for the operation of peripheral devices.
* Any 4-line magnetic stripe card for use with swipe reader devices

Site Graphics™ Additional Requirements (optional)
If you have purchased the Site Graphics™ software the computer running the software must include these computer requirements as well as those previously listed.
* PTI Graphics Serial Adapter (Part # PGRASIA)
* 16 MB Video Card or higher
* 1024 x 768 resolution minimum (Large screen monitor recommended)

Wire and Cable Specifications

The following wire specifications are recommended for installing PTI Security Systems' products. Planning and installing the wiring of a site is a process that requires a high degree of technical knowledge; we recommend that this be done by a trained professional.

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> Wire and Cable Specifications

AI Device Power & Data Wire Recommendation (from Controller to AI Devices)

PTI Part #	Belden Wire Code	Description
wwir1804s*	9418	18 AWG, 4-conductor stranded copper wire with overall shield and common ground (PVC Insulation)
wwir1804spl	89418	18 AWG, 4-conductor stranded copper wire with overall shield and common ground (Plenum Insulation)
wwir1804sdb	9552	18 AWG, 4-conductor stranded copper wire with overall shield and common ground (Direct Burial)

* Denotes standard recommended wire.
- ☑ Never use wire smaller than 18 AWG for installing power to AI devices.
- ☑ Never use any unshielded wire for installing power and data to AI devices.
- ☑ Data wire length should never exceed 4000 feet in a single linear distance.
- ☑ Maximum length for power will vary significantly because of voltage drop due to current draw, number of devices, splices, and other factors.

Door Alarm Wire Recommendation (from Multiplexer to Door Switch)

PTI Part #	Belden Wire Code	Description
wwir2450 *	9585	24 AWG, 50-conductor solid copper wire (PVC Insulation)
wwir2450pl	N/A	24 AWG, 50-conductor solid copper wire (Plenum Insulation)
wwir2450db	165185110	24 AWG, 50-conductor solid copper wire (Direct Burial)

*   Denotes standard recommended wire.
- ☑ Never use wire smaller than 24 AWG for installing door switches.
- ☑ Never use stranded wire for installing door switches.
- ☑ Applications that require shielded trunk line, use direct burial cable.

Intercom Wire Recommendation: from LEF or NEM Base Station to intercoms

PTI Part #	Belden Wire Code	Description
wwir1810s *	5345FE	18 AWG, 10-conductor stranded copper wire with overall shield and common ground (PVC Insulation)
wwir1804s *	9418	18 AWG, 4-conductor stranded copper wire with overall shield and common ground (PVC Insulation)
wwir1802s	8760	18 AWG, 2-conductor stranded copper wire with overall shield and common ground (PVC Insulation)
wwir2210s	9946	22 AWG, 10-conductor stranded copper wire with overall shield and common ground (PVC Insulation)

*   Denotes standard recommended wire.
- ☑ Never use wire smaller than 22 AWG for installing LEF or NEM intercoms. We recommend that 18 AWG be used in most installations for best results. Do not exceed 1600 feet in linear distance when using 18 AWG or 600 feet in linear distance using 22 AWG.

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> Wire and Cable Specifications

International Wire Cross-Reference

The chart below shows the nearest approximate wire equivalents for several international wire gauge standards for use with PTI Security Systems products. It is usually better to use a slightly thicker wire than a thinner one (especially over longer distances). Always refer to local electrical codes and regulations as these requirements may be more stringent. Refer to the wire type requirements on the previous pages for cross reference.

AWG American Wire Gauge	SWG/Imperial British Standard Gauge	Metric	CSA Cross Sectional Area
16	18 or 17	14	2.50 mm2
18	19 or 18	12	2.00 mm2
20	21	9 or 8	1.50 mm2
22	22	7	1.25 mm2
24	24	6	1.00 mm2

Surge Protection

All access control systems and electronics experience power fluctuations and surges, so the controller has built-in surge protection. However if you are in an area that is prone to brownouts, blackouts, electrical storms, or other major power interruptions or fluctuations, PTI recommends that the system is equipped with the following safeguards against these problems.

- If using the USB to connect the CloudController™, you MUST use the USB isolator supplied as it will provide the required surge protection. Failure to use the isolator for USB connectivity will void your warranty.
- Use UL rated power supplies, rated to provide at least 12 volts to maximum 18 volts (AC or DC) at each AI device. Power must provide sufficient amperage throughout the system.
- Install an uninterrupted power supply (UPS) system. This provides power conditioning and surge suppression to protect electronics. The controller and system power supplies must be connected to separate UPSs from the computer. Each component plugged into a UPS reduces the actual battery backup time.
- Ditek or Opto-Isolator surge protection for the RS485 at each AI device.
- Gates, door strikes, and elevators should have battery backup or other safety measures that meet local and national electrical codes. Consult with these specialist installers for recommendations.
- Office computers, copiers, fax machines, telephones, and other electronics should be plugged into surge protectors or a separate UPS.
- Obtain adequate lightning insurance coverage from an insurance agent for all electronic equipment if you are in an area that is prone to regular lightning strikes or electrical storms. Lightning is powerful enough to arc across the sky, there is not much that you can do to protect any electrical equipment against a direct strike other than to have appropriate lightning insurance.
- For ongoing power issues, contact your local electrical company for their recommendations. Often, they can install power conditioners and/or surge suppressors on the incoming power lines to help protect your site.

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> Wire and Cable Specifications

These recommendations should provide protection against most common power surges, power fluctuations, indirect lightning strikes, and general electrical storm activity. Unfortunately, due to the naturally destructive nature of lightning and electrical storms, there is only so much protection that can be provided to any hard-wired electronic system. Any local or direct strike may damage one or more pieces of electronic equipment in the vicinity and may damage or destroy the surge protectors or even, in some cases, the entire system.

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> Power

(See PTI CLOUDCONTROLLER Installation Guide v1)

Battery Operation
When the Power Supply input power is interrupted, the Power Supply will automatically switch to using the battery as the power source. Several factors will influence the amount of time that the battery will keep the system operational including load, temperature, age of the battery, minimum voltage requirement and charge state. The following chart can be used to estimate backup time based on average current load.

Backup time (hours)	Average Current Load	
	4AH Battery	7AH Battery
11	0.25A	0.35A
5	0.45A	0.63A
3	0.85A	1.2A
2	1.25A	1.75A

The battery life also depends on the same variables listed above but when used as a backup function in PTI equipment, a battery may last 3-5 years.

For a security system battery backup function to be effective, any gate or door strike must also have a separately powered battery backup. See more battery information in "Battery Maintenance and Replacement Instructions:" on page 31

Power Considerations

The CloudController has a built-in battery backed power supply capable of outputting 2A DC for powering AI devices and RS485 isolators connected to the CloudController's RS485 network. The output is available on P13, pins 1 and 2 labeled 12VDC and GND.

This output is controlled by the CloudController firmware and has the following characteristics:

- It is powered on after the CloudController initializes. This can be several seconds after a reset of the CloudController before the power output is switched on.
- It is short circuit protected. When a short condition is detected power will be switched off. The XT will retry enabling power periodically and switch it back on when the short condition is removed.
- When operating on battery power, the CloudController will switch off the power output when the battery voltage drops to 11 volts.

All the above conditions are recorded in the CloudController event log and can be viewed in StorLogix.

If additional power is required, external remote power supplies can be added to the system. For guidance calculating the power requirements of the system, see the "Remote Power Supply" manual. Here you will find detailed calculations for planning power distribution for your system.

CLOUDCONTROLLER MANUAL

> Power

Precautions

☑ Door strikes, magnetic locks and sirens must be powered from their own power supplies. Do not power them from the same supply used to power the AI device.

☑ The manuals for the products list their maximum current consumption. Always use maximums when calculating voltage drop in your connecting cable.

☑ PTI recommends planning for no more than 75% of the supplies load. For the CloudController's 2A supply we recommend connecting no more than a 1.5A load.

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> Pre-Installation

Pre-Installation Recommendations

Correct installation is essential to create a security system that operates properly. Reducing installation costs may save you money in the short run, but your long term maintenance, costs and experience with the system will be greatly improved if you spend the time and money to install it correctly from the start. A poor installation can lead to increased costs due to loss of revenue plus many technician hours to fix issues from the original setup.

Choice of Installer

PTI recommends that installation and setup of any PTI Security Systems equipment be done by a certified, licensed, qualified technician. PTI can recommend local dealers and installers, but it is the customers' responsibility to verify qualifications and negotiate any pricing or contracts (unless PTI Security Systems has been specifically contracted in writing to do so on behalf of the customer).

With any setup or installation, some troubleshooting and adjustment of the configuration may be required. This will differ with every installation due to site-specific variables. Troubleshooting and configuration may include the purchase of additional equipment. PTI Security Systems is not responsible for any damages either incidental or consequential based on these recommendations.

Code and Legal Considerations

Installation of equipment manufactured by PTI Security Systems must be performed per our recommendations and guidelines except where local, municipal, state, and provincial codes; the National Electrical Code; and Construction codes take precedence.

When code and our guidelines do not cover a given situation, it is the customer/installer's responsibility to contact PTI Security Systems for instruction and/or follow established custom and best practices applicable to the particular trade. Installers must know and abide by all existing laws pertaining to their work.

Meeting code is always the customer/installer's responsibility and PTI Security Systems shall not be held liable if the equipment is not installed to code.

Power

Reliable equipment operation depends on a noise-free uninterrupted source of power. The battery back-up feature's primary function is to preserve the integrity of the memory database and operation of the controller.

- Verify that there are enough 120V outlets in the area where the equipment will be located to support equipment needs. Each power supply, controller, computer, video monitor, etc. requires at least one outlet
- PTI recommends a minimum of two, 4-outlet stations for the equipment. However your site may require more.

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> Pre-Installation

- Remember to consider other office equipment and electronics that requires power (e.g. copiers, fax machines, computers, telephones, lights, water coolers, etc.

The PTI battery back-up does not guarantee emergency operation of the gate motor, or door actuators in the event of a power loss or equipment failure.

The purchaser is the solely responsible for providing manual, non-electrical emergency means of exit in the event of a power failure. Contact your local dealer/installer for solutions.

Auxiliary Security Devices
Power for door strikes, gate operators, sirens, cameras and any other equipment must be provided by separate power supplies from controller and AI devices.
☑ Never power a door strike or siren from the same power supply to which an AI device is connected. Take this into consideration when planning power needs for a site.

Wire
- Refer to "Wire and Cable Specifications" on page 6 for the correct wire to use with the controller.
- Plan for enough wire plus an additional 10% – 15% for safety.
- Plan for the linear distance, the distance in rise for multiple floors, or the distance in depth for burial when ordering wire.
- Pull an extra 10 feet of wire at each end of a wire pull during installation. This allows for enough wire to meet the needs of the site without making wire splices.
- When installing AI devices, trim the excess wire, leaving a one-foot service loop.
- Pull an extra 18 AWG 4-conductor wire throughout the site and set aside extra sets of 24 AWG 50-conductor wires for future add-ons, maintenance, or repair of wiring. This is less expensive and easier to do during install than to try and pull wire later.
- PTI Security Systems can supply the necessary wire for your needs. Our recommendations are based on experience and we verify that, if installed correctly, the wire will work with our system.

Conduit
- Consider purchasing the next size larger conduit than you need to allow for future expansion and maintenance.
- Consider pulling extra wire-pull strings. This is important if future construction phases or expansion are planned.
- Ensure there are pull boxes at all conduit terminations.
- Use only electrical conduit with sweep 90 degree bends.
- Never use sprinkler PVC, plumbing pipe, or direct 90 degree elbow bends.
- All splices should be in junction boxes above ground.

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> Unpacking the Controller

Advance Review

- Review the manuals and documentation before installation. These are available on our web site at www.ptisecurity.com/resources.
- Order equipment with enough advance notice to have it on-site prior to installation.
- When a shipment is received, promptly check the equipment received against the packing list to verify that all parts have been delivered. Also, verify that there isn't any shipping damage.
- If there is any shipping damage, retain all packing materials and contact PTI Security Systems immediately (within 5 days of receipt).
- We recommend you plug the equipment in and verify that you understand the set up prior to the full site installation. Contact PTI Security Systems immediately if there are any issues.

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> Unpacking the Controller

Unpacking the CloudController

The following items should be contained in the CloudController box. Unpack the box and verify that all items are present and ready for installation*.

	CloudController – The system controller
	Power Cable – 15 feet, 18 AWG, 2-conductor cable used to connect the CloudController to the transformer for power. This cable can be cut to the required length
	Spade Connectors – These connectors must be crimped onto one end of the power cable to connect it to the transformer
	Transformer – Connect to the power cable using the enclosed spade connectors. The power cable is connected to the CloudController controller then plugged into power at the wall outlet, UPS, or power strip.
	Battery – Connected to the battery cables inside the CloudController and used to power the CloudController during short power outages
	Keys – Used to lock the CloudController box after installation and setup are complete to prevent tampering

* Images are for reference only and may not exactly represent what is supplied with the
CloudController controller due to changes in supply or manufacturing.

CLOUDCONTROLLER MANUAL

> Typical Wiring Scheme

Drawing 1: Typical Computer Setup
(See PTI CloudController Installation Guide V1)
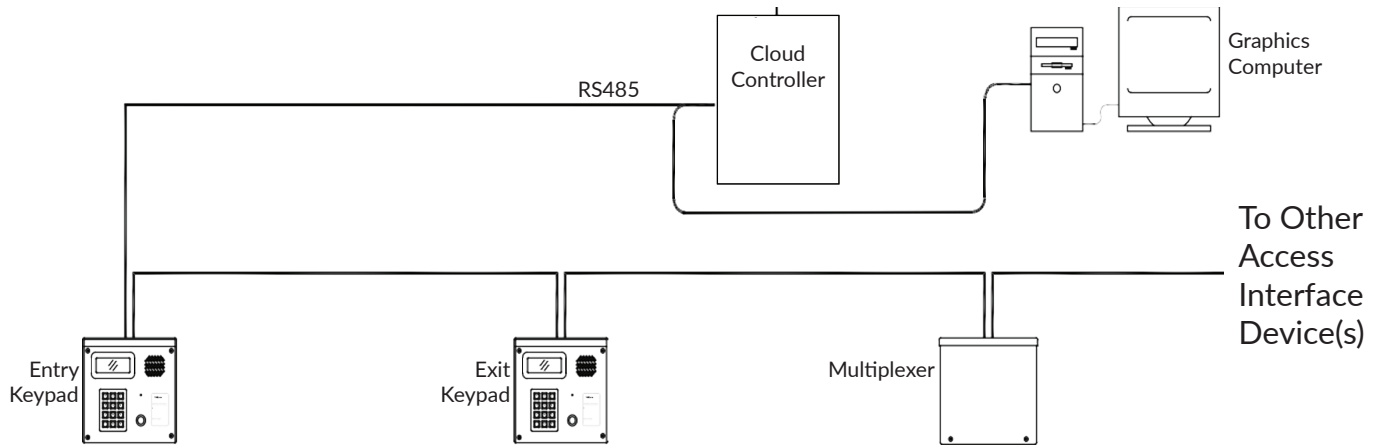
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> Typical Wiring Scheme

Drawing 2: Installation with circuit board

SP/
BU   PROTECTION/BATTERY BACKUP

SP   PROTECTION

CONTROLLER CIRCUIT BOARD

RELAY 4 (SHOWN AS EXAMPLE)

POWER & BATTERY

ACCESS INTERFACE (AI Devices)

USB   ETHERNET
RS232C

AC IN
AC IN
EGND
BATT+
BATT -

12VCD
GND
DATA+
SHIELD
DATA_

NO
COM
NO

NO
COM

DC
− +

12VDC POWER SUPPLY

POWER
(−)(w)

DEDICATED POWER SUPPLY FOR SINGLE SIREN ONLY

REFER TO SIREN MANUFACTURER INSTALLATION INSTRUCTIONS FOR PROPER SIREN WIRING

SP/
BU

GRN/YLW
RED
BLK

RED
BLK
WHT
SHLD
GRN

OR - OR-

EARTH GND
BATTERY

SP

SITES INTERNET MODEM

EARTH GROUND

EXIT KEYPAD

P1   P2

1 2 3 4 5 6   1 2 3 4 5 6

AC/DC+
AC
DC-

DATA+
COM
DATA-
NO
COM
NC

RED
BLACK

(DC POWER CONNECTION SHOWN)

WHITE
SHIELD
GREEN

SP

GATE OPERATOR

ENTRANCE KEYPAD

P1   P2

1 2 3 4 5 G   1 2 3 4 5 G

AC/DC+
AC/DC-

DATA+
COM
DATA-

NO
COM
NC
NO
COM
NC

Relay 1   Relay 2

CONNECT TO EARTH GROUND

SP

TO OTHER DEVICES

> Typical Wiring Scheme

Drawing 3: Installation With Relay Board

SP/BU SURGE PROTECTION/BATTERY BACKUP

SP SURGE PROTECTION

RELAY BOARD

TEST BATT.

TS1

1 2 3 4 5 6

RED AC/DC+
BLACK AC/DC-
NOT USED
WHITE DATA+
SHIELD COM
GREEN DATA-

SP

MUX

AUX
TEST ALARM
BATT. RELAY

TS1

1 2 3 4 5 6

RED AC/DC+
BLACK AC/DC-
NOT USED
WHITE DATA+
SHIELD COM
GREEN DATA-

SP

BUILDING ENTRANCE KEYPAD

P1

1 2 3 4 5 6

RED AC/DC+
AC
BLACK DC-

P2

1 2 3 4 5 6

WHITE DATA+
SHIELD COM
GREEN DATA-
NO
COM
NC

SP

CONNECT TO EARTH GROUND

12VDC DOOR STRIKE

DC 12VDC POWER SUPPLY

DEDICATED POWER SUPPLY FOR SINGLE DOOR STRIKE ONLY

REFER TO DOOR STRIKE MANUFACTURER INSTALLATION INSTRUCTIONS FOR PROPER WIRING TO KEYPAD RELAY

FROM OTHER AI DEVICES

CLOUDCONTROLLER MANUAL

> Installation

Installing the CloudController (See PTI CLOUDCONTROLLER Installation Guide V1)
Location
- The CloudController™ should be installed in a secure, interior area, such as a locking cabinet, room, or closet. This location should be close to the sites Internet modem.
- The location should have adequate ventilation and air conditioning.
- It is crucial that the location is accessible for future maintenance.

1. Select a location on the wall approximately 5 feet above the floor. Run conduit (at least ¾ inch) from this area to the AI devices.
   - The location should also have a dedicated electrical outlet nearby for the controller.
2. The mounting location for the housing should be at least 13" x 13" and allow room for the door to swing fully open to the left side of the housing as you face it.
   - Wire-in-conduit can be run into the housing through knockouts on the housing case.
3. Once the conduit locations are determined, place the housing against the wall and mark the wall with a pencil through the four mounting holes on the rear of the housing.
   - Use a torpedo level to verify that the housing is level and double-check that the housing is level and that the location is correct.
4. Set the housing aside and drill the four holes as marked. The mounting surface for the housing will determine the type of drill, the drill bit size, and type of anchors used. All anchors should be #8 and 1½ inch in length or longer, depending on the depth of the wall.
5. After the housing is anchored to the wall, connect the conduit to the box using compression fittings.

For Router/Switch Ethernet connections (up to 328 feet):
1. Use one (1) Ethernet cable using CAT5 Twisted Pair Network cable. Connect the end of one cable to the Ethernet port in the bottom right corner of the controller circuit board
2. Connect the other end of the cable to the router or network switch.
3. Power-up the router or network switch.
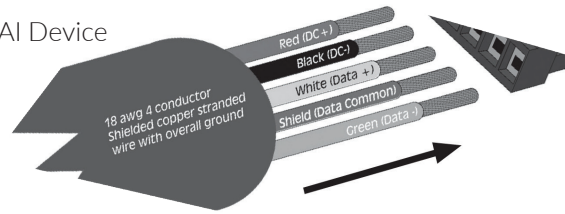
Controller to AI Devices Connection
The controller is connected to remote AI devices using RS485 communications through 18 AWG, 4-conductor wire. The wire must be run in conduit from the controller out to each AI device, such as keypads, multiplexers, and relay boards. See "Drawing 6: Wiring from controller to AI devices".
☑ The system will not operate properly if the voltage is below 12VDC. Take extreme care when choosing a power supply voltage and current rating. Long distance runs may require a remote power supply to be installed in line with an RB5 relay to ensure proper operation.

1. Strip 2 inches from the end of the outside cable insulation and foil shield exposing the individual conductor wires. Be careful not to cut any of the conductors or the shield wire.
2. Strip ¼ inch of insulation from the end of each individual conductor wire. Wrap electrical tape or heat shrink insulation around the bare shield wire, leaving ¼ inch of the end bare.
3. Connect the wires to the access interface (AI) devices terminal block in the bottom center of the controller circuit board. Beginning at the first terminal slot on the left connect the wires from left to right as follows in Drawing 5:

> Installation
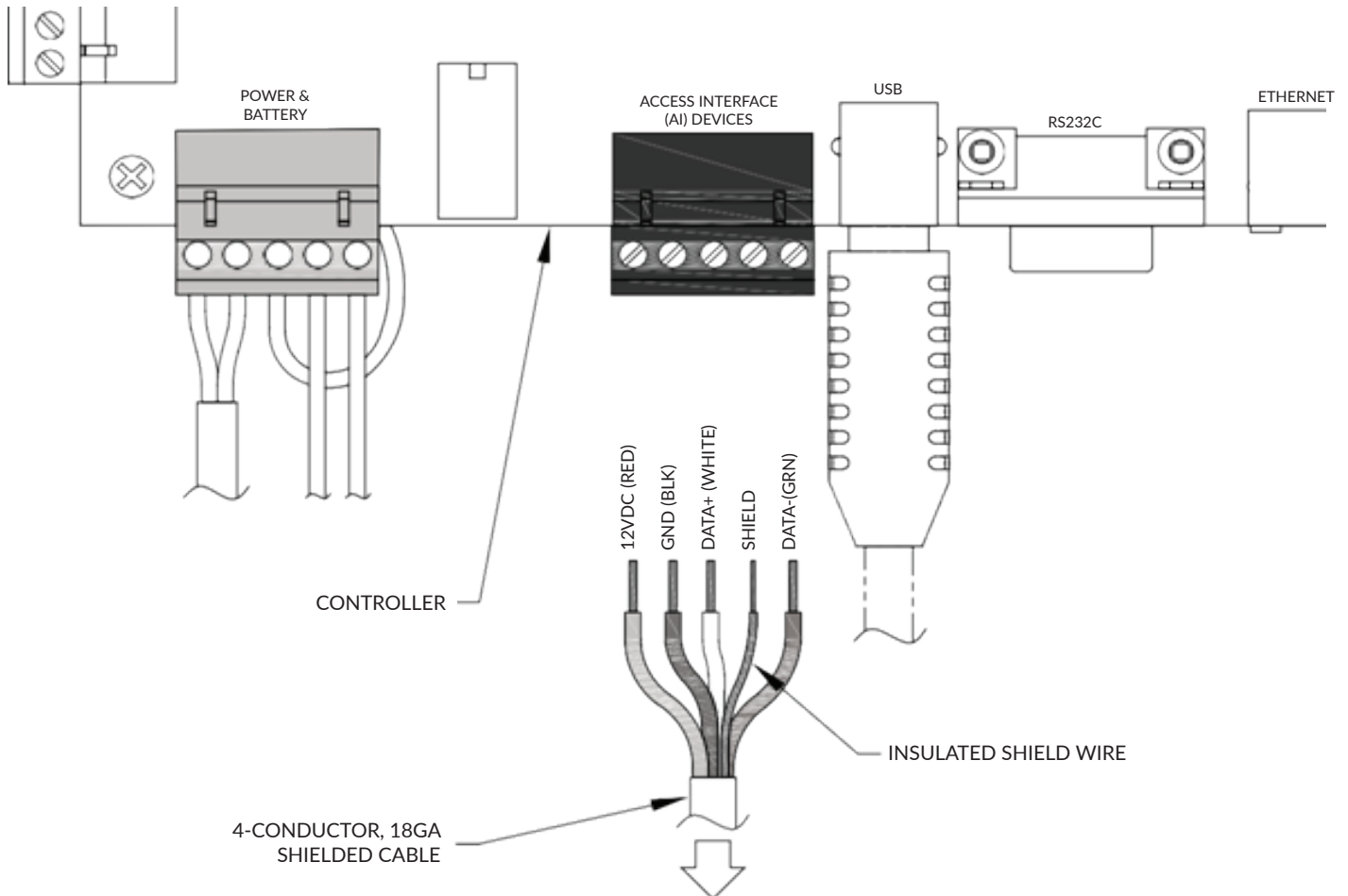
Drawing 5: Wire Connections to AI Device
Terminal Block

Red (DC +)	Slot 1: Red DC+
Black (DC-)	Slot 2: Black DC-
White (Data +)	Slot 3: White Data +
Shield (Data Common)	Slot 4: Shield Wire*
Green (Data-)	Slot 5: Green Data-

18 awg 4 conductor Shielded copper stranded wire with overall ground

* The shield wire is bare inside the cable. It should be insulated using electrical tape or heat shrink insulation

4. To connect each wire, use a small, flathead precision screwdriver to tighten down the terminal screw to firmly hold the wire in place. Gently tug on the wire to verify that it is secure. Check that the terminal screw is tightened down on the bare copper wire and not the insulation, but make sure that there is no copper wire showing outside of the terminal block.

Drawing 6: Wiring from controller to AI devices

POWER & BATTERY

ACCESS INTERFACE (AI) DEVICES

USB

RS232C

ETHERNET

12VDC (RED)
GND (BLK)
DATA+ (WHITE)
SHIELD
DATA-(GRN)

CONTROLLER

INSULATED SHIELD WIRE

4-CONDUCTOR, 18GA SHIELDED CABLE

☑ Keep splices to a minimum. RS485 splices should be made using 3M U-Type connectors and crimpers only.

☑ During retrofits and change-outs, use new wire for installations and updates. Do not use existing wire that has already been pulled on a site, it is impossible to know the condition of this wire and the system may not perform as required.

☑ Do not use RS485 for more than 4,000 feet in a single run. RS485 should be run in series from the

CLOUDCONTROLLER MANUAL

> Installation

controller to the first AI device, then from the first AI device to the second, etc.
☑ Avoid star patterns in the wiring, where an individual cable is run to each AI device, as this makes future service and troubleshooting almost impossible.

Output Relay Connections

There are four output relays along the top of the controller circuit board, they can be used for many things, including controlling gate operators, doors, sirens, alarm shunts, lights, elevator controls, and virtual relays. These functions are programmed in the control software. Refer to the software Help Files for more information on setting up output relays.

☑ The relays have a maximum switching capacity of 30V. Devices with higher voltage must be wired to the system relay through contact blocks.

1. Each relay in the controller has three connection points: normally open, common, and normally closed. Refer to manufacturer instructions for the device that you are connecting to determine whether the connection is a normally open or normally closed connection.
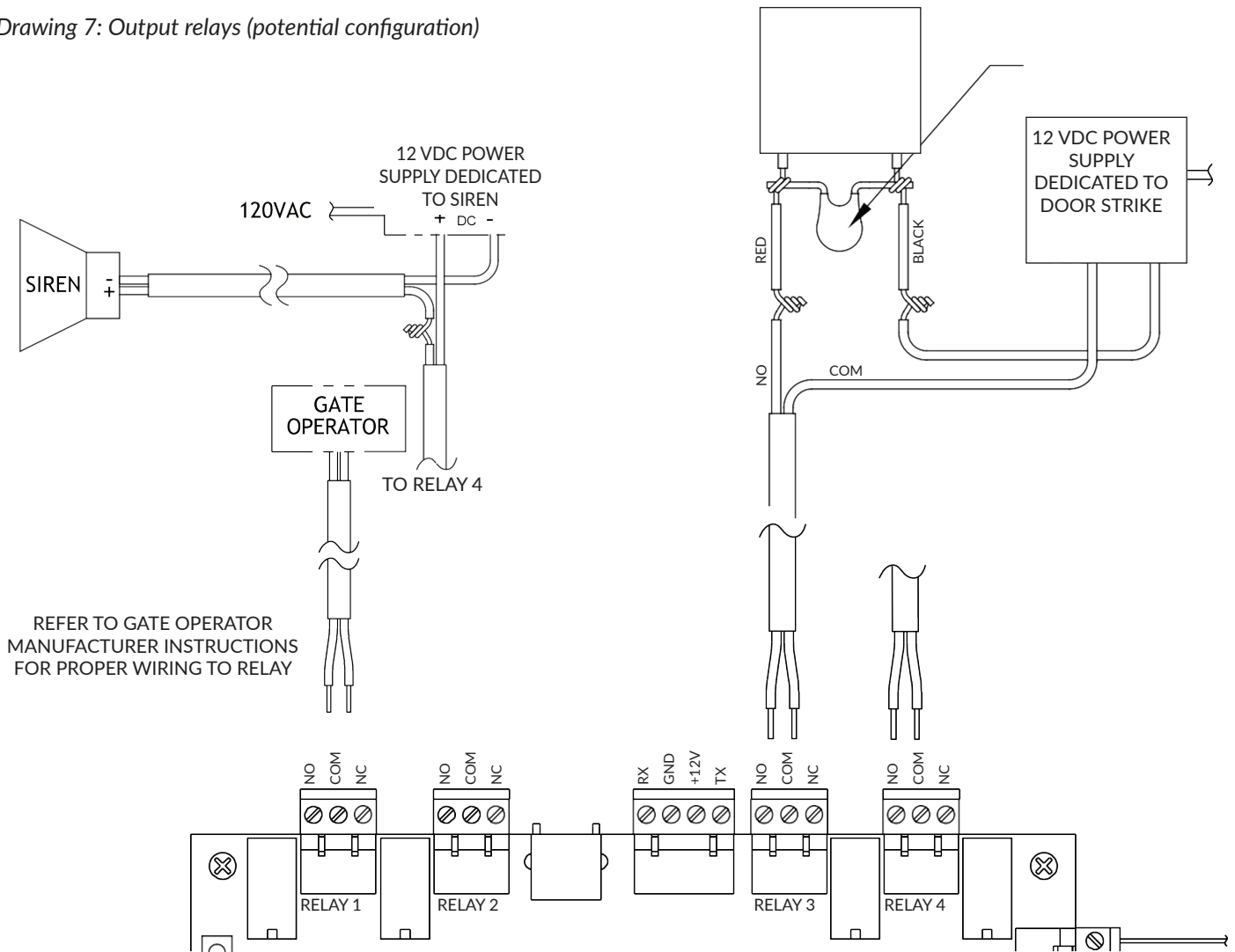
Normally open connection	wired to	normally open common points
Normally closed connection	wired to	normally closed common points

2. Output Relay 1 is the default for the gate operator relay in the control software. This can be reprogrammed to any relay function. All relays are programmable and can be used for different types of functions.
   - To connect the gate operator to the relay, pull wire as recommended by the gate manufacturer in conduit from the gate operator to the controller. The two gate wires are usually 18 AWG or 16 AWG.
   - Connect the end in the gate operator per gate manufacturer instructions.
   - The other end of the wires will be connected to a relay connection in the controller, either at the controller circuit board or a relay on an AI device.

3. Output Relay 2 and Relay 3 do not have default settings in the control software and can be used for any programmable relay function.

4. Output Relay 4 defaults to the siren relay in the control software. This can be reprogrammed to any relay function. All relays are programmable and can be used for different types of functions. Connect the siren as per manufacturer instructions.

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> Installation

Drawing 7: Output relays (potential configuration)

12 VDC POWER
SUPPLY DEDICATED
TO SIREN
+ DC −

120VAC

SIREN

12 VDC POWER
SUPPLY
DEDICATED TO
DOOR STRIKE

GATE
OPERATOR

TO RELAY 4

RED

BLACK

NO

COM

REFER TO GATE OPERATOR
MANUFACTURER INSTRUCTIONS
FOR PROPER WIRING TO RELAY

NO COM NC   NO COM NC   RX GND +12V TX   NO COM NC   NO COM NC

RELAY 1   RELAY 2   RELAY 3   RELAY 4
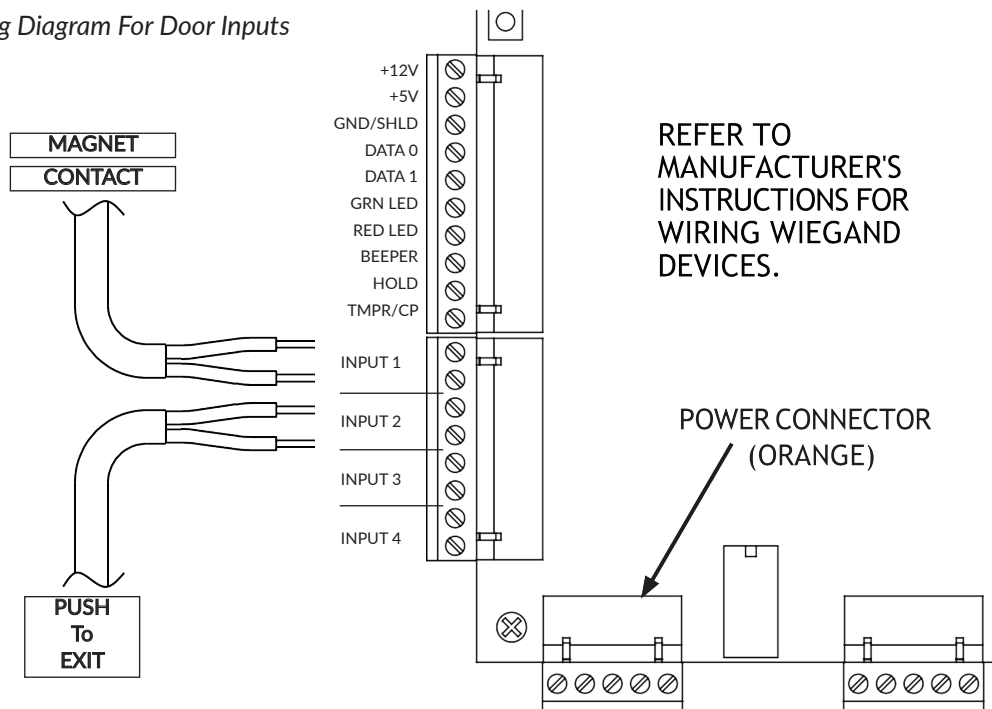
CLOUDCONTROLLER MANUAL

> Installation

Door Input Connections

There are eight door inputs on the controller circuit board. Door Inputs 1 – 4 are on the lower left side of the board and Inputs 5 – 8 are on the lower right. These door inputs can be used for door alarm switches, request-to-exit switches, motion sensors, photobeams, pressure pads, and many other types of dry contact switches. See "Drawing 8: Wiring diagram for door inputs".

1. To connect door Input 1, run the two wires from the switch into the controller housing.
2. Strip ¼ inch of insulation from the end of each of the individual conductor wires.
3. Connect one of the wires to the first terminal slot marked Input 1.
4. Connect the second wire to the second terminal slot marked Input 1 (immediately below the first terminal slot).
5. Use a small, flathead precision screwdriver to tighten down the terminal screw to firmly hold the wire in place.
6. Check that the wire is firmly held by tugging slightly on it.
7. Repeat the process in Step 1 above for each of the eight door inputs. Be sure that each set of wires is clearly marked so that it is easy to tell which door switch or other device it is connected to. This will be very important when programming the control software.
8. Once all of the door inputs have been connected, they must be programmed in the control software. Refer to the software Help Files for more information.
☑ When connecting the various device inputs to the controller circuit board, keep a written record of the input number, cross-referenced with the door unit, or physical location for the device. File the written record with the manuals for future reference.

Drawing 8: Wiring Diagram For Door Inputs

+12V
+5V
GND/SHLD
DATA 0
DATA 1
GRN LED
RED LED
BEEPER
HOLD
TMPR/CP

INPUT 1
INPUT 2
INPUT 3
INPUT 4

MAGNET
CONTACT

PUSH
To
EXIT

REFER TO MANUFACTURER'S INSTRUCTIONS FOR WIRING WIEGAND DEVICES.

POWER CONNECTOR (ORANGE)

Note: Run cables through housing knockout/conduit before wiring to board

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> Power

(See PTI CloudController Installation Guide V1)

Power Connections (North America)
Power connections can be made during initial setup to ensure that all electrical connections are working correctly, but power should remain disconnected until all AI devices are installed and connected and the system is ready for testing.

☑ Do not turn on power until all wiring is complete. This may result in electrical shock injury and/or damage to the electronics

Connect the Transformer
☑ Do not plug in the transformer until after all AI devices are installed and wired and the system is ready to be plugged in and tested.

Drawing 10: Connecting power (N. America)

CloudController

1. Lay out the power cable from the nearest outlet to the controller. Trim off any excess cable, leaving a little extra length for service.
2. Strip back the power cable insulation 1½ inches on both ends of the cable. Strip back the ends of both the red and black wires about ¼ inch.
3. Crimp the spade connectors to the end of the provided 15 foot power cable. Be sure that the copper wire makes good contact inside the spade connector and there is no copper wire showing outside of the insulation.
4. Use a small screwdriver to screw the spade connectors onto the transformer.
5. Connect the other end of the cable to the AC In terminal slots inside the controller, using a precision screwdriver to tighten them down.
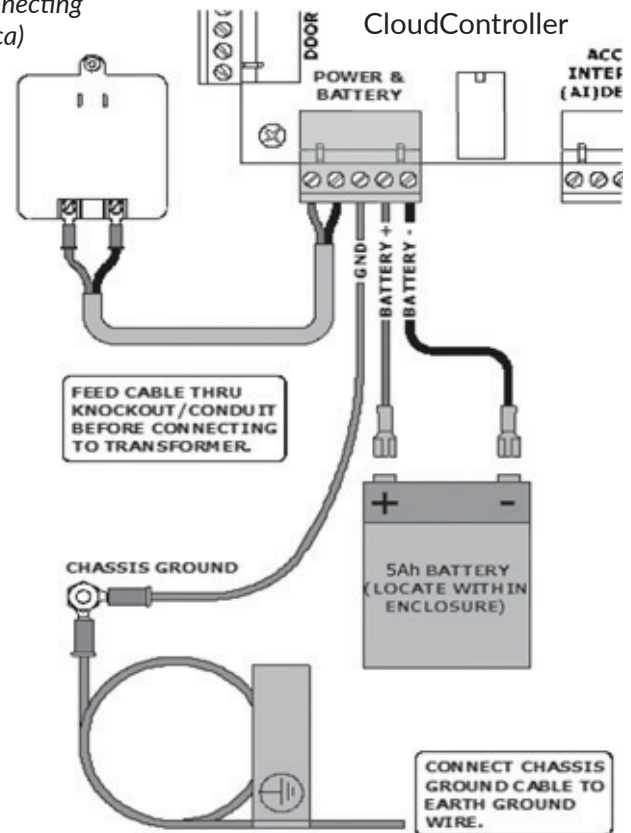
Connect the Battery
Do not connect the battery until the system is ready to be plugged in and tested, after all AI devices are installed and wired. Information about battery hours is in "Battery Operation" on page 9.
1. Slide the black negative battery wire onto the negative pole of the battery.
2. Slide the red positive battery wire onto the positive pole of the battery.

Battery Maintenance and Replacement Instructions
The battery supplied with the controller are sealed to prevent any spills and maintenance-free. The only servicing they require is a regular monthly check-up for power to ensure they have ≥ 12V and

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> Power

regular recharge.
1. Remove the positive and negative battery terminals.
2. Remove the old battery and replace with a new battery of the same type and rating using the connection directions above.
3. Dispose of the old battery per local codes for hazardous waste.

Plug in the Transformer
1. Remove the screw from the outlet wall plate and plug the transformer into the electrical outlet.
2. Use the screw provided on the transformer to screw the transformer and wall plate onto the outlet to prevent the power from accidentally being disconnected.

Power Connections (International)
Power connections can be made during initial setup to ensure that all electrical connections are working correctly, but power should be disconnected until all AI devices are installed and connected and the system is ready for testing. Never try to install or connect wire while the power is connected to the system.

Connect the Ground Wire
1. Strip back the green ground wire coiled inside the case, strip back about ½ inch from the end near the warning tag.
2. Use a wire nut to connect the green ground wire to a ground wire running to a copper grounding post or grounded water pipe as per local code.

Connect the Battery
Do not connect the battery until the system is ready to be plugged in and tested, after all AI devices are installed and wired. Information about battery hours is in "Battery Operation" in this manual.
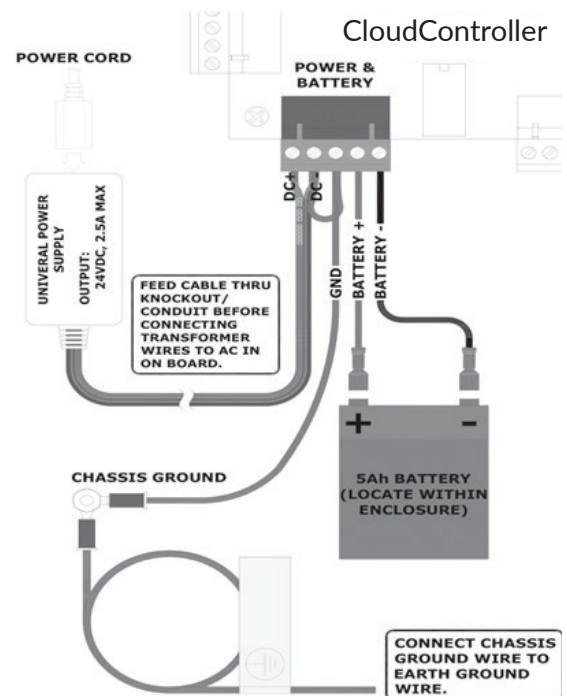1. Slide the black negative battery wire onto the negative pole of the battery.
2. Slide the red positive battery wire onto the positive pole of the battery.

Drawing 11: Connecting power (International)

Battery Maintenance and Replacement Instructions:
The battery supplied with the controller are sealed to prevent any spills and maintenance-free. The only servicing they require is a regular monthly check-up for power to ensure they have ≥ 12V and regular recharge.
1. Remove the positive and negative battery terminals.
2. Remove the old battery and replace with a new battery of the same type and rating using the connection directions above.
3. Dispose of the old battery per local codes for hazardous waste.

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Plug in the Power
1. Connect the power cord to the small power supply unit.
2. Plug the other end of the cord into a wall outlet.
☑ Do not plug in the power until after all AI devices are installed and wired and the system is ready to be plugged in and tested.

CLOUDCONTROLLER MANUAL

> Troubleshooting

Troubleshooting the Cloud Controller
To make troubleshooting easier, use a good installer/ service company for the initial install and keep a thorough set of records about the system that includes:

- A site map showing the location of all equipment and wiring.
- A list of AI devices with functions and locations, regular backups of data from all software.
- Copies of all manuals and all software disks.
- Contact information for the installer and responsible personnel.

Determine whether anything has been changed at the site. For instance, Has there been any new construction? This includes any changes to the site, adding units, reconfiguring units, changing or adding video surveillance components, changing any electrical wiring, roofing changes, painting, etc. External factors can also play a part, such as lightning strikes or storms, physical damage or vandalism.

Even with a small change, wiring can be disturbed or disconnected or something new can interfere with equipment operation.

- Check all wires and cables in the vicinity of the system.
- Verify that all the cables are plugged in, all connections are tight.
- There are no pinched, crushed, or cut wires.

Reset the System
1. Locate the controller and press the reset button in the upper left of the circuit board. Hold the reset button in for at least 60 seconds.
2. Large sites with more AI devices may require the button to be held in for a longer time period to be sure that every AI device is reset.
3. Once the button is released, watch the control software event log to verify that each device comes back on-line in numeric order by address.
4. Verify that the system is working and that all AI devices are functioning correctly.
5. If the problem stops, monitor the situation for a few days.
6. If the problem reoccurs, repeat these steps and compare notes to try to find a pattern.
7. If none of these troubleshooting tips fixes the problem, contact Technical Support for assistance

CLOUDCONTROLLER MANUAL

> Forms

Forms

The following pages contain several forms that may be useful for the site. We recommend that the Equipment Location and Site Closeout Checklist forms be used for most sites. These forms may be copied.

Equipment Location	Keep this, along with a wiring map of the site, on-site with this manual. The dealer should also retain a copy in their customer files.
Site Closeout Checklist	This form is a tool to protect both the end user and the dealer. The dealer and an authorized representative of the site should walk the property while reviewing the checklist to verify that all items are installed correctly and working properly. Both parties should sign off on the checklist and keep a copy. This list may not be comprehensive to all of the work that the installer may have performed on the site, therefore, be sure to check all work.
Service History	Complete at installation and update any time service is performed on the system. This includes regular maintenance, troubleshooting, repairs, and future additions or upgrades.
Dealer/Service Contact Information	The dealer/installer should fill this out at the completion of the project. This tells the client who to call for service, maintenance, or future additions.

Equipment Location:
Site Name:_____Date of Install:_____
Site Address: _____

> Forms

AI Device Type	Location on Site	AI Device Address	Purpose of Device	Notes/Other Information

* Make additional copies of this form if more space is needed.

Site Closeout Checklist
Site Name:_____Date of Install:_____
Site Address: _____

> Forms

Following is a list of the major functions of the installed CloudController system. The installer and a representative of the site should review each item and verify functionality. Each item in the categories below should be checked as it is verified in working order. The Installer and representative of the site should sign the form should be signed at the bottom.

Do NOT check off any item that is not fully functional! Cross out any item that is not applicable and write 'N/A' next to it. This form should be completed and signed off prior to any final payment to the installer.

Access Control System:

☐ Time and date correct at every keypad, multiplexer, single door module, and relay board.
☐ Verify hours and remotes are correctly set up for every access level in StorLogix™.
☐ Sample code for each access level works to access property during correct hours.
☐ Sample code for each access level allows access only to remotes and/or elevator floors available to it.
☐ Sample code for each lighting area activates correct lights for that zone.
☐ Each keypad opens only the device(s) to which it is assigned.
☐ If using DC door strikes, a diode has been placed across the positive and negative, per specifications.
☐ Verify that each gate or door relay can be manually activated from StorLogix™.
☐ Verify that all relay times are correct for each device.
☐ Print and attach a copy of each of the following reports from Storlogix™:
  • Access Area Configuration
  • Access Level Configuration
  • AI Device Configuration
  • Alarm Zone Configuration
  • Custom Messages
  • Elevator Configuration
  • Quantum Configuration
  • Holidays Configuration
  • Input Configuration
  • Lighting Area Configuration
  • LogixScript
  • Relays Configuration
  • Time Schedule Configuration

Initials: _____

Site Closeout Checklist (cont'd)

Door Alarm System:
- ☐ Open and close every alarmed door on-site in sequential order. this step is very important and can be performed ahead of time and proven by the next step below.
- ☐ Print a 'Site Activity by Date' report for today's date showing each door opening and closing in sequential order with no mistakes. This cannot be faked in the system and will demonstrate that all doors are correctly working. Attach a current copy of this report.
- ☐ Verify that when a door is opened without entering a code, the siren sounds for the correct time.
- ☐ Verify that when a door is opened without entering a code, the siren is stopped and every door returns to alarmed normal status when alarms are cleared in the control software.

Intercom System:
- ☐ Verify that each keypad call button works to call the intercom base station.
- ☐ Verify that each keypad can receive a call from the intercom base station.
- ☐ Verify that the volume is sufficient at each keypad and base station.
- ☐ Verify that any other remote intercom call stations send and receive calls.
- ☐ Verify each remote intercom call station location is correctly labeled at the intercom base station.
- ☐ Verify that there is no static, buzzing, or sound bleed at each keypad and intercom station.
- ☐ Verify that all call functions work throughout the site.
- ☐ Verify that music can be heard at each location (NEM only).
- ☐ Verify that radio is receiving stations (NEM only).

Site Graphics™ (may not be installed):
- ☐ Verify every door correctly shows open and closed on the graphics (verify with door test above).
- ☐ Verify all screen control functions work through the mouse, control panel, or wireless remote.
- ☐ Verify the panning path and screen resolution allow the entire site to be viewed while running.
- ☐ Verify that the graphics update correctly.
- ☐ Verify that the site graphics and layout are correct.

Gate System:
- ☐ Verify that the manual override control switch in the office opens the gate.
- ☐ Verify that all gate safety equipment is working correctly and actually stops the gate (loops, beams, photo eyes, millers edge, etc.).

Office Security Alarm:
- ☐ Verify that each zone is set up correctly.
- ☐ Verify that each zone arms and disarms correctly.
- ☐ Verify that the siren is functioning properly.
- ☐ Verify that access codes and master codes can be changed properly.

Initials: _____

Site Closeout Checklist (cont'd)

Other Items:

☐ _____

   ___

☐ _____

   ___

☐ _____

☐ _____

☐ _____

Date of Closeout:_____

Installing Company Sign off:
By signing below, I acknowledge that the listed systems have been installed correctly and are functioning properly. I certify that the installation meets all applicable codes and is installed to PTI Security Systems' specifications except where code takes precedence. I certify that a representative of the site has been trained in the maintenance and operation of the systems.

_____
Signature of Installer   Date

_____
Printed Name of Installer   Title

Site Representative Sign off:
By signing below, I acknowledge that all items checked on the preceding sign off list are functioning properly and the installation is acceptable.

_____
Signature of Installer   Date

_____
Printed Name of Installer   Title

> Forms

Site Service History

Date:	Servicing Company:	Name & Phone Number of Tech:
Services Performed:		

Date:	Servicing Company:	Name & Phone Number of Tech:
Services Performed:		

Date:	Servicing Company:	Name & Phone Number of Tech:
Services Performed:		

Date:	Servicing Company:	Name & Phone Number of Tech:
Services Performed:		

Date:	Servicing Company:	Name & Phone Number of Tech:
Services Performed:		

Initials: _____

CLOUDCONTROLLER MANUAL

> Forms

Dealer/Service Contact Information
Please complete the information below and keep this page in the manual so that the customer has this information for future sales, installation, and servicing needs.

Dealer who sold the system:	
Company Name:	
Contact Person:	
Address:	
Phone Number:	
Fax Number:	
E-mail:	

Installer who installed the system:	
Company Name:	
Contact Person:	
Address:	
Phone Number:	
Fax Number:	
E-mail:	

Contact for service:	
Company Name:	
Contact Person:	
Address:	
Phone Number:	
Fax Number:	
E-mail:	

> Warranty

Standard One-Year Equipment Warranty

PTI Security Systems warrants its products and equipment to conform to its own specifications and to be free from defects in materials and workmanship, under normal use and service, for a period of one year from the date of shipment. Within the warranty period, PTI Security Systems will repair or replace, at its option, all or any part of the warranted product which fails due to materials and/or workmanship. PTI Security Systems will not be responsible for the dismantling and/or re-installation charges. To utilize this warranty, the customer must be given a Return Materials Authorization (RMA) number by PTI Security Systems The customer must pay all shipping costs for returning the product.

This warranty does not apply in cases of improper installation, misuse, failure to follow the installation and operating instructions, alteration, abuse, accident, tampering, natural events (lightning, flooding, storms, etc.), and repair by anyone other than PTI Security Systems. This warranty does not warrant the replacement of batteries that are used to power PTI Security Systems' products.

This warranty is exclusive and in lieu of all other warranties, expressed or implied, including but not limited to the implied warranties of merchantability and fitness for a particular purpose. PTI Security Systems will not be liable to anyone for any consequential or incidental damages for breach of this warranty or any other warranties.

This warranty will not be modified or varied. PTI Security Systems does not authorize any person to act on its behalf to modify or vary this warranty. This warranty applies to PTI Security Systems products only. All other products, accessories, or attachments used in conjunction with our equipment, including batteries, will be covered solely by their own warranty, if any. PTI Security Systems will not be liable for any direct, incidental, or consequential damage or loss whatsoever, caused by the malfunction of product due to products, accessories, or attachments of other manufacturers, including batteries, used in conjunction with our products.

The customer recognizes that a properly installed and maintained system may only reduce the risk of events such as burglary, robbery, personal injury, and fire. It does not insure or guarantee that there will be no death, personal damage, and/or damage to property as a result. PTI Security Systems does not claim that the Product may not be compromised and/or circumvented, or that the Product will prevent any death, personal and/or bodily injury and/or damage to property resulting from burglary, robbery, fire, or otherwise, or that the Product will in all cases provide adequate warning or protection.

PTI Security Systems products should only be installed by qualified installers. The customer is responsible for verifying the qualifications of the selected installer.

PTI Security Systems shall have no liability for any death, injury, or damage, however incurred, based on a claim that PTI Security Systems Products failed to function. However, if PTI Security Systems is held liable, directly or indirectly, for any loss or damage arising under this limited warranty or otherwise, PTI Security Systems's maximum liability will not in any case exceed the purchase price of the Product, which will be fixed as liquidated damages and not as a penalty, and will be the complete and exclusive remedy against PTI Security Systems.

PTI SECURITY SYSTEMS

SHAPING THE INDUSTRY SINCE 1979

With CloudController, operators can easily customize all of their facility's access areas, review site activity, and monitor zones and alarms from one cloud-based account. Create a world-class operation with the most advanced enterprise access control solution from the trusted industry leader with over 40 years of experience.

Since 1979, PTI Security Systems™ has provided the self-storage industry with proven security and access control systems. Known for our complete and innovative solutions that deliver advanced and cost-effective security systems, self-storage owners and operators can efficiently manage their facility from anywhere, lower operating costs, and enhance the tenant experience.

For more information about PTI Security Systems or CloudController, please contact a PTI representative or visit our website.

ptisecurity.com   sales@ptisecurity.com   800.523.9504