PTI SECURITY SYSTEMS

FalconXT

System Installation Manual

S E C U R I T Y , A C C E S S : C O N T R O L

www.ptisecurity.com *800.523.9504*

Revised March 2016

Thank you for purchasing the Falcon XT and StorLogix Access Control System. For your complete satisfaction with this product, we recommend that you take the time to thoroughly review this manual. It is designed to be followed from start to finish for the installation of the Falcon XT Access Control System. If you have any difficulties, we strongly recommend that you review this manual prior to contacting Technical Support.

We also offer comprehensive training to help you become fully accustomed to the product. Training can be customized to your site's specific needs in classrooms at PTI Security Systems Headquarters or on-site at your facility. Contact PTI Security Systems at (800) 523-9504 to arrange training for your site. Throughout the manual, there are cautions, things to remember, hints, and suggested applications. Watch for these as they will help make installation much smoother.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio TV technician for help.

This Class B digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

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CONTENTS

Chapter 1: Pre-Installation

Overview

The Falcon XT offers the access control industry the most comprehensive hardware and software package. It is revolutionizing the industry by integrating surveillance, access control, intrusion, lighting, custom scripting, and elevator controls all in one package.

The Falcon XT provides the following features:

- 8 inputs on the main board that can be used for door alarms, motion sensors, beams, or almost any other type of alarm switch
- 4 output relays on the main board that can be used to open gates or doors, activate lights, control elevators, shunt alarms, act as secure interior relays, or perform custom function switching
- 2 Wiegand Protocol Device inputs on the main board that allow the connection of proximity card devices, key fob devices, biometric fingerprint devices, and many other types of Wiegand protocol devices
- A built-in 12VDC 2A power supply with 4Ah battery backup
- Integration with a computer using RS232, USB, or Ethernet TCP/IP
- Supports up to 127 Access Interface (AI) devices.
- Multiple Falcon XTs can be networked using LAN and WAN configurations
- Can be connected to 900 MHz Wireless Access Devices
- Redundant Memory Backup

Specifications

Power Supply:

Input Voltage:	24 VAC – 40 VA or 24 VDC – 2.5 A
Current Consumption:	250 mA Maximum
Output Voltage:	14 VDC – 2 A

Relay Outputs (resistive load):

Maximum Switching Voltage:	30 VAC/DC
Maximum Switching Current:	AC: 10 A (NO) / 3 A (NC)
	DC: 5 A (NO) / 3 A (NC)
Maximum Switching Capacity:	1250 VA 150 W (NO)
	375 VA 90 W (NC)
Minimum Permissible Load:	10 mA at 5 VDC
Contact Resistance:	100 mΩ Maximum

Life Expectancy: (at maximum rated load)

Mechanical:	10,000,000 operations
Electrical:	200,000 operations minimum

Inputs:

Dry Contact Type ONLY. Do Not apply voltage to any of the inputs.

Dry Contact Specifications:

Contact Resistance:	500 mΩ Maximum
Current Capacity:	100 mA at 5 VDC Minimum

Environmental:

Ambient Temperature:	-40°C to +80°C (-40°F to 176°F)
Ambient Humidity:	0% to 100% (see note)

Note: The humidity inside the housing for any controller or AI Device cannot exceed 85% and must be noncondensing.

See the Appendix for System Requirements for computers, components, and peripherals used with the controller.

Pre-Installation Recommendations

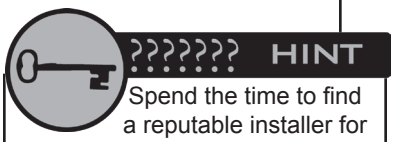
Proper installation is the most important key to having a system that functions and operates as it should. While it may seem to save money in the short run by cutting corners on the installation, your overall satisfaction with the system will be better if you spend the time and money to do it correctly from the start. A poor installation ultimately will be very frustrating, costing much more money as it can lead to loss of revenue as well as many hours of technical support and service personnel time to fix issues with the install.

Choice of Installer

We strongly recommend that installation and setup of any PTI Security Systems equipment be done by a certified, licensed, qualified, and competent technician. We can recommend local dealers and installers, but it is up to the customer to verify their qualifications and negotiate any pricing or contracts unless PTI Security Systems has been specifically contracted in writing to do so for the customer. With any setup or installation, some troubleshooting and adjustment of the configuration may be required. This will differ with every installation and computer setup depending on many site-specific variables. This troubleshooting and configuration may include purchasing additional equipment. In no circumstances will PTI Security Systems be 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 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 your responsibility and PTI Security Systems cannot be held liable if you do not install to code.**



Spend the time to find a reputable installer for your site. Don't just consider the lowest price. Price is important, but definitely not as important as quality. A cheap, poor install will always cost you more money than a quality installation that costs a little more initially.

We recommend that you take the time to get several quotes from different installers.

Check references and contact the Better Business Bureau and any local licensing bureaus. Look for an installer that has been in business in your area for years and has a history of installing this type of equipment.

Look for an installer who will provide at least a 1 year warranty on the installation and who is willing to do a paid service contract after that.

Power

Reliable equipment operation depends on a noise-free uninterrupted source of power. The battery back-up feature is provided primarily to preserve the integrity of the memory database and operation of the controller. It does not guarantee operation of the gate motor or door actuator for emergency situations in the event of a power loss or equipment failure. It is the sole responsibility of the purchaser to provide for and facilitate manual nonelectrical emergency means of exit in the event of a power failure. Contact your local dealer/installer for options and availability. Verify that there are enough 120V outlets in the office (and/or maintenance rooms) where the equipment will be located to support the equipment needs. Also, consider other office equipment and electronics that require power such as copiers, fax machines, computers, telephones, lights, water coolers, etc. Each power supply, controller, computer, video monitor, etc. requires at least one outlet. We recommend a minimum of two, 4-outlet stations for the equipment; however your site may require more.

Auxiliary Security Devices

Power for door strikes, gate operators, sirens, cameras, and any equipment other than the controller and AI devices must be provided by separate power supplies. Never power a door strike or siren from the same power supply to which an AI device is connected. This must be considered when planning power needs for a site.

Wire

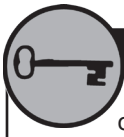
Refer to Wire Recommendations for recommendations on the proper wire to be used with the controller. Be sure to plan on enough wire plus an additional 10% – 15% for safety. Take into consideration the linear distance, distance in rise for multiple floors, or the distance in depth for burial when ordering wire. Be sure to pull an extra 10 feet of wire at each end of a wire pull during installation. This allows enough wire to meet the needs of the site without having to splice extra wire. When installing AI devices, trim the excess, leaving a one-foot service loop. Also, pull an extra 18 AWG 4-conductor wire throughout the site and set aside several extra sets of 24 AWG 50-conductor wires for future add-ons, maintenance, or repair of wiring. It is less expensive and easier to do this up-front than to try and pull wire later. Especially if additional construction is planned. PTI Security Systems can supply the necessary wire for your needs. We recommend that you use this wire as we have tested it over the years and know that, if installed correctly, it works with our system.

Never power auxiliary devices such as power door strikes, sirens, gate operators, cameras, or any other equipment from the same power supply as AI devices are connected to.

Never power auxiliary devices such as power door strikes, sirens, gate operators, cameras, or any other equipment from the controller. Only AI devices should be powered from the controller.

These auxiliary devices should be powered as per manufacturer instructions with considerations for amperage/current draw and voltage requirements.

Powering auxiliary devices on the same circuit as AI devices or from the controller can cause voltage drop in the system leading to device lockup and intermittent problems.



HINT

It is a good idea to order 10% - 15% more multiplexer door channels than you need and save a few conductors in the door alarm trunk line. Many sites layout their units one way initially and later come back and split larger units into smaller ones to increase profit on the square footage. This increases the number of doors and it can be very costly to go back to pull new wire and install new muxes in areas with already rented units. The negligible cost of preplanning saves a lot of money in the long run.

Conduit

Consider purchasing the next size larger conduit than you need to allow for future expansion and maintenance. Consider also pulling extra wire-pull strings. This is especially important if future construction phases or expansion are planned. Be sure to have 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.

Advance Review

Review the manuals and documentation before installation. These are available on our web site at *www.ptisecurity.com* and can also be obtained by e-mail, fax, or U.S. mail by contacting Technical Support. 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). It is a good idea to plug everything 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.

Equipment Location and Site Layout

Equipment and mounting locations should be laid out and planned in advance of installation. Use a set of site plans to lay equipment locations and to determine the amount of conduit and wire needed. A copy of this can be sent to your PTI Security Systems Sales Representative so they can review it with you to make sure that you get the equipment that you need. Be sure to discuss the local code particular to your municipality with your Sales Representative. Plans should be kept in a safe location after the site is complete to help with future additions and site maintenance.

??????? HINT

Keep a map of the site showing the location of every AI device, power supply, system component, wire direction, and junction box. The installer should keep a copy of this in their customer records for the site and the site should also maintain a copy along with the manuals in a location that is safe but easily accessible for those who might need to maintain, service, or troubleshoot the equipment.

Falcon XT Location

A secure room, closet, or cabinet should be set aside for the Falcon XT. This room often will also contain DVRs, power supplies, relay boards, wireless multiplexers, and alarm panels. This room should have adequate ventilation with air conditioning and be secure, but with access for maintenance.

StorLogix Computer

The StorLogix computer is generally located at the main desk but must have some proximity to the controller depending on cable length and type of connection. Refer to Connecting the Controller to the Computer for more information.

Keypads and Proximity Readers

Keypads and proximity readers are generally mounted on gooseneck stands or bollards, or on the wall near the gate, door, or elevator that is being accessed. Be sure to consider traffic flow, ease of access, Americans with Disabilities Act Standards (ADA), and local code when planning the mounting location. Gooseneck stands, bollards, and gate operators are generally mounted on a concrete pad. Refer to manufacturer instructions for pad size and type.

REMEMBER

Never install an AI device inside a unit that will be rented or in any other area that is not easily accessible for future maintenance, expansion, or troubleshooting.

The relay that trips a gate or door should be located in a secure area and is called a secure interior relay. For example, a gate has an entrance keypad and an exit keypad. The gate operator should only be connected to the exit keypad relay. When a client uses the entrance keypad, the Falcon XT is programmed to use the exit keypad's relay to open the gate. This prevents anyone from breaking into the keypad or bollard and crossing wires to open the gate.

Door Alarm Multiplexers - Hardwired

Door alarm multiplexers are generally mounted high on the side of a building or high on a wall in a hallway that allows access by ladder for maintenance if needed, but is out of reach of the general public. Multiplexers should never be mounted inside of a unit that will be rented or otherwise inaccessible. Multiplexer boxes are weather-resistant and can be mounted in exterior locations, but not under a downspout.

Door Alarm Multiplexers - Wireless

Wireless door alarm multiplexers are generally mounted in the office or security cabinet with the receiver mounted high on a wall. Repeaters are generally located as needed throughout the property, but must have access to 120VAC power.

Door Alarm Switches

Most hardwired door alarm switches and magnets are placed on the inside latch side of the door. Wireless door alarm transmitters are usually placed on the other side of the door. Switch and magnet installation must never interfere with door movement.

Power Supplies

Power for AI devices is provided by the controller. Additional power supplies for the AI devices may be placed throughout the site as necessary for voltage drop and current draw considerations. Additional power supplies must always be wired with an RB5 relay to allow central reset capability. See Adding Additional Power Supplies for more information. Power for other equipment such as cameras, sirens, door strikes, and gates must be considered per manufacturer recommendations.

Relay Boards

Relay boards are generally installed in interior locations or inside junction boxes that are accessible for maintenance if needed. Relay boards should never be mounted inside a unit that will be rented or otherwise inaccessible. Relay boards for elevator controls will generally be in or very near the elevator control room.

Other Equipment

DVRs, alarm panels, sirens, cameras, and most other equipment will be located as to manufacturer recommendations.

Tools Needed

The following tools are necessary to complete a normal installation. Depending on the construction of the site and other considerations, other tools may be required.

A. Rotary Hammer Drill	N. Wire Strippers	AA. Assorted Hex Keys*
B. Caulking Gun	O. Wire Cutters	BB. Rivet Gun
C. Drywall Punch Saw	P. Assorted Pliers	CC. Scissors or Shears
D. Assorted Screwdrivers	Q. Flashlight	DD. Torpedo Level
E. Precision Screwdrivers	R. Sharp Markers	EE. Assorted Box Wrenches
F. ¼" Nut Driver	S. Tape Measure	FF. Assorted Vice Grips
G. Multimeter	T. Hole Saw	GG. Adjustable Wrenches
H. Wire Fish Tape	U. Rechargeable Drill/Driver	HH. Safety Glasses
I. Bits for Hammer Drill	V. Claw Hammer	II. Work Gloves
J. Bits for Drill/Driver	W. Razor Blade or Knife	JJ. Conduit Bender
K. Drill Screw Bit	X. Assorted Tin Snips	KK. 9V Battery w/ Test Clips
L. 3M E9-Y Crimper	Y. Wireless Tester*	LL. Conduit Cutter/Reamer
M. Crimping Pliers	Z. Mux Punchdown Tool*	MM. Hack Saw

* Note: Items shown with an asterisk are sold by PTI Security Systems.

Hardware Needed

The following hardware is necessary to complete a normal installation. Depending on the construction of the site and other considerations, other hardware may be required.

A. Red Head Concrete Wedge Anchors	N. Caddy Clips +
B. Tapcon Concrete Anchors +	O. 18 AWG Spade Connectors
C. Hammer Set Concrete Anchors	P. 3M U-Type Connectors (UR2, UY2, UG) *
D. Self Tapping Screws +	Q. Wire Nuts +
E. Sheet Metal and Wood Screws +	R. Electrical Tape
F. Drywall Screws +	S. PL Premium Construction Adhesive
G. Toggle Bolts +	T. Silicone Sealant – Heavy Duty Outdoor
H. Machine Washers +	U. Fire Barrier Sealant
I. Plastic Wall Anchors +	V. Panduit Wire Raceway
J. Heavy Duty Self Drilling Drywall Anchor+	W. Wire Pulling Lubricant
K. Sheet Metal Rivets +	X. Conduit Compression Fittings/Mounts +
L. Screwhead Mounting Wire Ties +	Y. Flexible Conduit
M. Cable Clamps and Mounts +	Z. Electrical Conduit with Sweep 90 Bends

+ Note: Assorted lengths, sizes, and types will be needed of these.
* Note: Items shown with an asterisk are sold by PTI Security Systems.

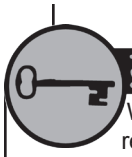
Mounting Hardware Recommendations

Surface Type for Mounting	Recommended Mounting Hardware
Drywall between Studs	Self Drilling Drywall Anchors or Toggle Bolts
Drywall on Studs	Self Tapping Drywall Screws
Stucco	Toggle Bolts
Wood	Drywall Screws
Sheet Metal	Self Tapping Sheet Metal Screws
Hollow Block	Tapcon Concrete Anchors or Toggle Bolts
Brick or Solid Block	Tapcon Concrete Anchors or Concrete Wedge Anchors
Masonry or Concrete	Tapcon Concrete Anchors or Concrete Wedge Anchors

All anchors should be size #8 head with a length of 1½ inches or longer (based on wall depth)

Wire and Cable Needed

The following are the recommended wire types for installing PTI Security Systems manufactured products as well as many of the other access control and security products that we sell to compliment our system. 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.



??????? HINT

We strongly recommend that you purchase the wire for your system from PTI Security Systems as we have determined the most ideal wire over years of experience and testing.

AI Device Power & Data Wire Recommendation

(from Controller to AI Devices)

PTI Part #	Belden Wire Code	Ω per 1000' Resistance	Description
wwir1804s *	9418	6.92	18 AWG, 4-conductor stranded copper wire with overall shield and common ground (PVC Insulation)
wwir1804spl	89418	6.92	18 AWG, 4-conductor stranded copper wire with overall shield and common ground (Plenum Insulation)
wwir1804sdb	9552	6.92	18 AWG, 4-conductor stranded copper wire with overall shield and common ground (Direct Burial)

* Denotes standard recommended wire.

Standard CAT5 cable can be used for RS-485 data communications with this system. Be sure to correctly identify the twisted pair that will be used. A seperate 18AWG power line will need to be run or dropped when using CAT5.

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' 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	Ω per 1000' Resistance	Description
wwir2450 *	9585	25.67	24 AWG, 50-conductor solid copper wire (PVC Insulation)
wwir2450pl	N/A	25.67	24 AWG, 50-conductor solid copper wire (Plenum Insulation)
wwir2450db	165185110	25.67	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.

APPLICATION

Using the incorrect wire for an application can cause many problems with voltage drop, RF interference, and ground faults; resulting in lost revenue and greatly increased costs for service, reinstallation, repair, and technical support

Always refer to local code prior to ordering the wire for your site, as these requirements may be more stringent.

REMEMBER

When retrofitting an existing facility, we do NOT recommend that you use the existing wiring. New wire should be pulled and all new connections made. Old wiring is often the source of many problems in a system and the initial investment to install new wire will make the overall retrofit experience much better as there is less likely to be problems in the new wiring if it is installed correctly.

APPLICATION

Baluns are video signal converters that allow twisted pair cable to be used to carry video signals up to 1200 feet. Two baluns are required for each camera connection (one at the camera end and one at the DVR end). This is an efficient way to run video signal on sites with a lot of cameras. Contact a PTI Security Systems Sales Representative for more information on Baluns.

Intercom Wire Recommendation (from LEF or NEM Base Station to intercoms)

PTI Part #	Belden Wire Code	Ω per 1000' Resistance	Description
wwir1810s *	5345FE	6.92	18 AWG, 10-conductor stranded copper wire with overall shield and common ground (PVC Insulation)
wwir1804s *	9418	6.92	18 AWG, 4-conductor stranded copper wire with overall shield and common ground (PVC Insulation)
wwir1802s	8760	6.92	18 AWG, 2-conductor stranded copper wire with overall shield and common ground (PVC Insulation)
wwir2210s	9946	17.5	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.

Cameras/Video Wire Recommendations (From DVR to Camera)

PTI Part #	Belden Wire Code	Ω per 1000' Resistance	Description
wwirsiamese *	549945	10.15/6.92	RG59U / 18 AWG 2-conductor in same cable (PVC Insulation)
wwirsiamesepl	649948	10.15/6.92	RG59U / 18 AWG 2-conductor in same cable (Plenum Insulation)
wwirrg59u	8241	10.15	Coaxial Cable with 22 AWG core and stranded copper common ground (PVC Insulation)
wwirrg59upl	89259	10.15	Coaxial Cable with 22 AWG core and stranded copper common ground (Plenum Insulation)
wwirrg59udb	8212	10.15	Coaxial Cable with 22 AWG core and stranded copper common ground (Direct Burial)
wwir1802s **	8760	6.92	18 AWG, 2-conductor stranded copper wire with overall shield and common ground (PVC Insulation)
wwir2210s ***	9946	17.5	22 AWG, 10-conductor stranded copper wire with overall shield and common ground (PVC Insulation)
wwir2450 ***	9585	25.67	24 AWG, 50-conductor solid copper wire (PVC Insulation)

* Denotes standard recommended wire
** 1802S can be used for power by many types of cameras.
*** 2450 or 2210 can be used for interior video signal using Baluns (see Application Note).

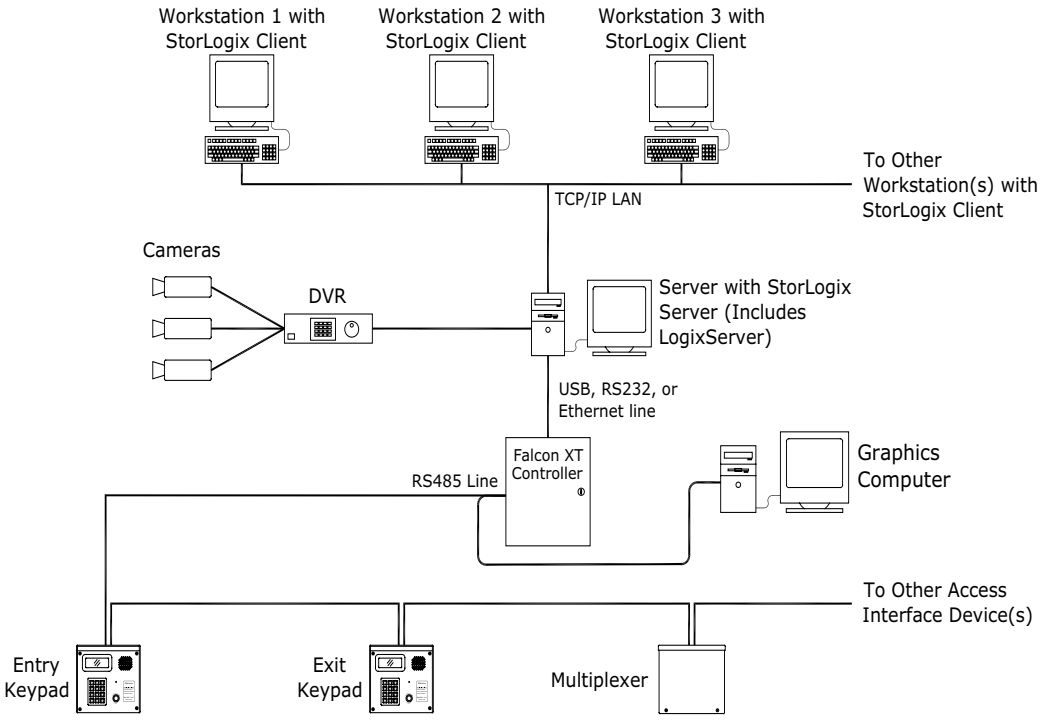
International Wire Cross-Reference

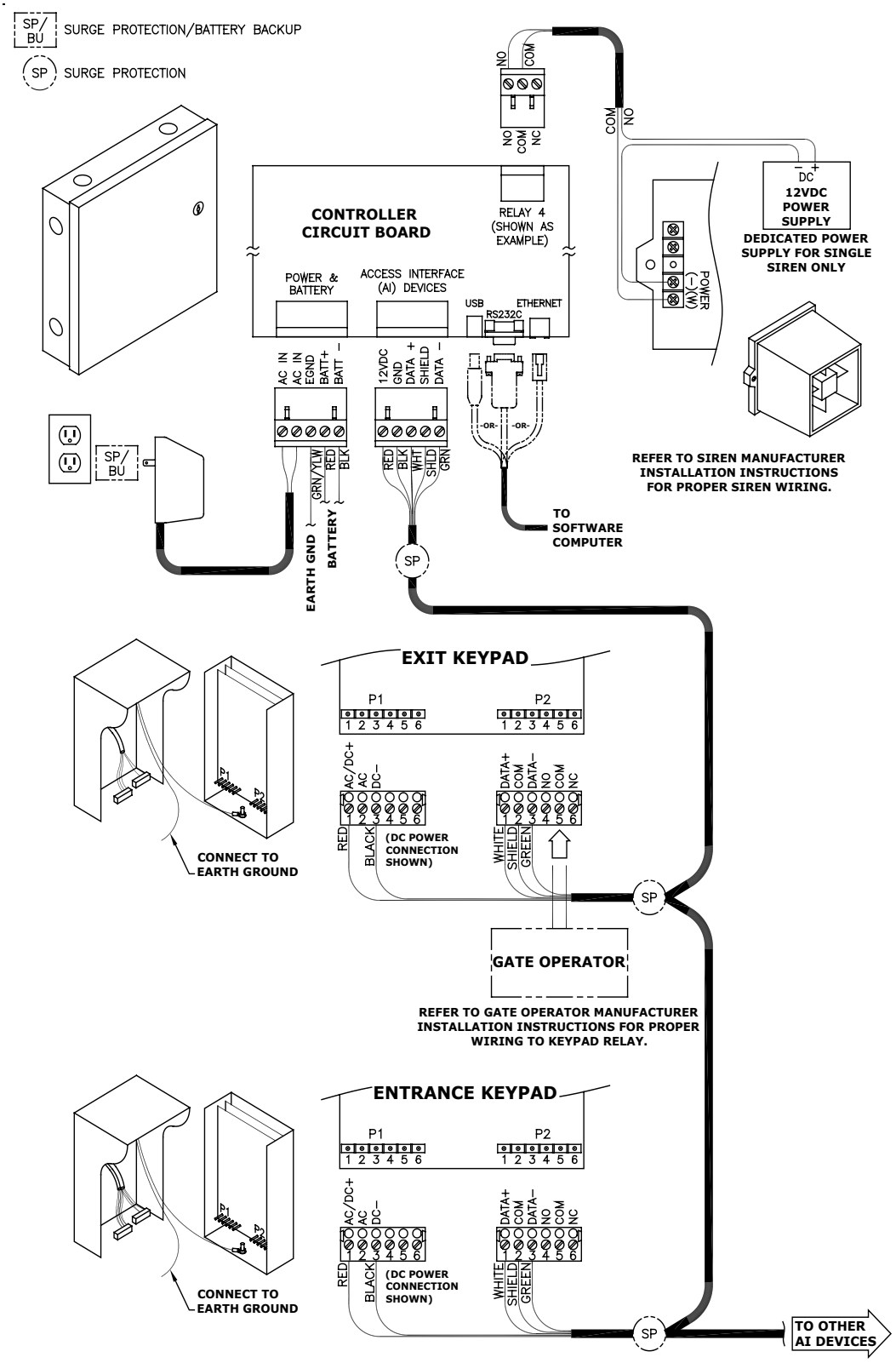
The chart below shows the nearest approximate wire equivalents for several international wire gauge standards for use with PTI Security Systems products. It is usually better to use a slightly thicker wire than a thinner one (especially over longer distances). Always refer to local electrical codes and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

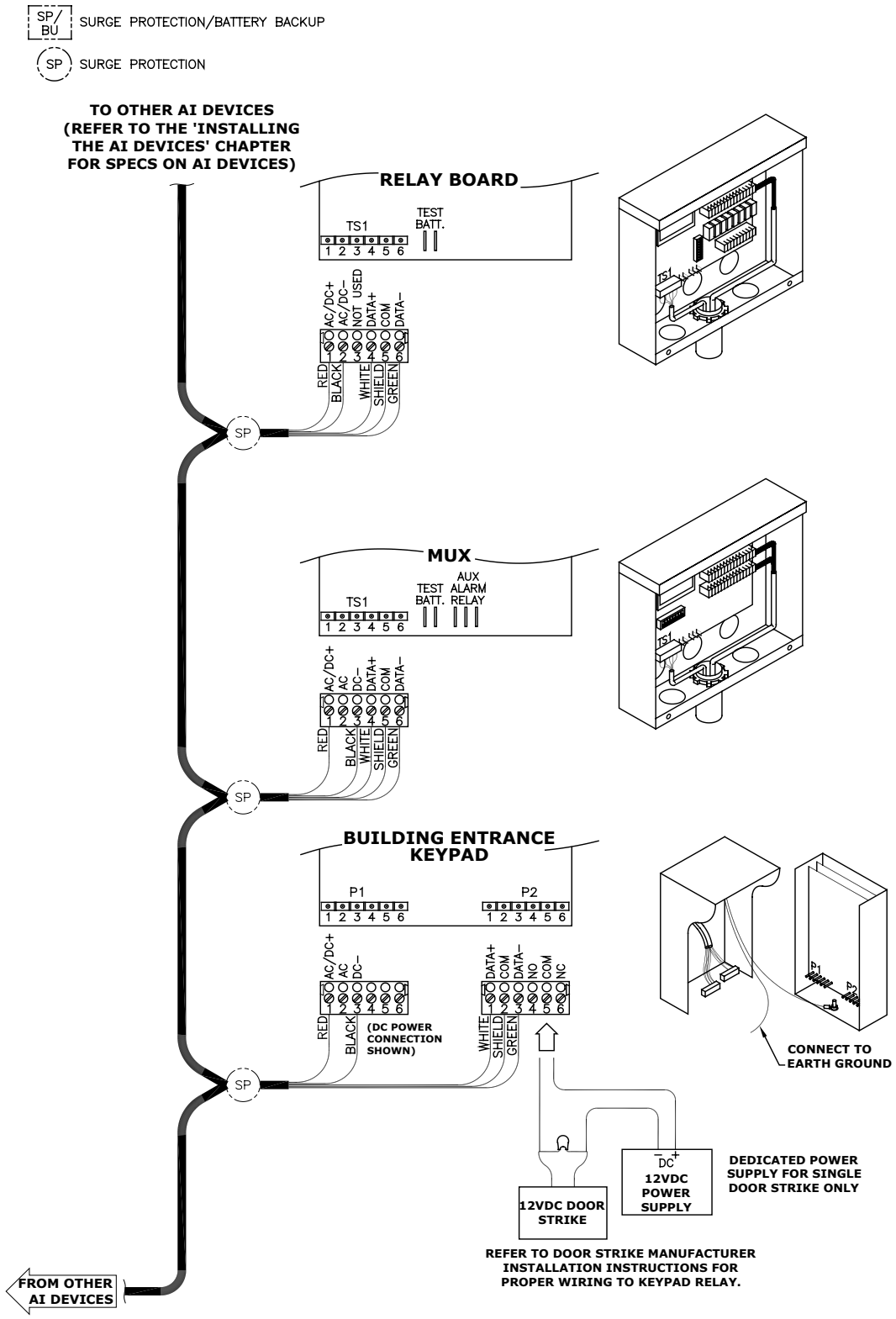
AWG American Wire Gauge	**SWG/Imperial** British Standard Gauge	**Metric** Metric Wire Gauge	**CSA** Cross-Sectional Area
16	18 or 17	14	2.50 mm^2
18	19 or 18	12	2.00 mm^2
20	21	9 or 8	1.50 mm^2
22	22	7	1.25 mm^2
24	24	6	1.00 mm^2

Typical Wiring Scheme

The following pages show a typical site wiring scheme. These are shown in order to give the installer an idea of equipment layout and wire planning. Each site will be different and must be planned accordingly.




SP/BU SURGE PROTECTION/BATTERY BACKUP
SP SURGE PROTECTION
NO COM
NO COM NC
COM NO
CONTROLLER CIRCUIT BOARD
RELAY 4 (SHOWN AS EXAMPLE)
POWER & BATTERY
ACCESS INTERFACE (AI) DEVICES
USB
ETHERNET
RS232C
AC IN
AC IN
EGND
BATT+
BATT –
12VDC
GND
DATA +
SHIELD
DATA –
-OR-
-OR-
POWER (–)(+)
– DC +
12VDC POWER SUPPLY
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
EARTH GND
BATTERY
TO SOFTWARE COMPUTER
SP
EXIT KEYPAD
P1
P2
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
CONNECT TO EARTH GROUND
SP
GATE OPERATOR
REFER TO GATE OPERATOR MANUFACTURER INSTALLATION INSTRUCTIONS FOR PROPER WIRING TO KEYPAD RELAY.
ENTRANCE KEYPAD
P1
P2
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
CONNECT TO EARTH GROUND
SP
TO OTHER AI DEVICES


SP/BU SURGE PROTECTION/BATTERY BACKUP
SP SURGE PROTECTION
TO OTHER AI DEVICES (REFER TO THE 'INSTALLING THE AI DEVICES' CHAPTER FOR SPECS ON AI DEVICES)
RELAY BOARD
TS1
1 2 3 4 5 6
TEST BATT.
GND AC/DC+ AC/DC– NOT USED DATA+ COM DATA–
1 2 3 4 5 6
RED BLACK WHITE SHIELD GREEN
SP
MUX
TEST BATT.
AUX ALARM RELAY
GND AC/DC+ AC DC– DATA+ COM DATA–
BUILDING ENTRANCE KEYPAD
P1
P2
GND AC/DC+ AC DC–
DATA+ COM DATA– NO COM NC
(DC POWER CONNECTION SHOWN)
CONNECT TO EARTH GROUND
12VDC DOOR STRIKE
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

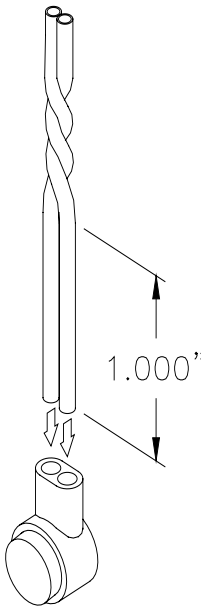
Wire Splicing

Wire splices must be kept to a minimum. Every splice increases the conductive resistance, reducing the effective distance of the electrical power or signal. Also, every splice is a potential failure point for the system due to the danger of corrosion in the wire, improper joint connections, radio frequency interference, ground faults, and other factors. Improper splices run the risk of intermittent system problems that can be very difficult to troubleshoot. Try to plan and install the site so that the only splices in the system occur in the terminal blocks that connect to each AI device. If a splice is absolutely necessary, it must be done in an above-ground, weatherproof, electrical-rated, junction box. The proper procedure for making a wire splice is as follows:

CAUTION

Never pull spliced wire through conduit. Splices should only be made in wire that is already pulled into a junction box.

1. Inside the junction box, pull an extra foot of wire for each side of the splice. This is called a service loop and allows extra wire for future service or replacement of the splice if it is done incorrectly, becomes corroded, or is otherwise damaged.
2. Trim back 1½ inches of the outside insulation jacket on the cable. Do NOT strip the insulation off the individual conductor wires themselves. Place the two wires to be spliced side by side and twist them together for about ½ inch, leaving about 1 inch of wire free to be slid into a 3M U-Type connector. 3M U-Type connectors can be purchased from PTI Security Systems.



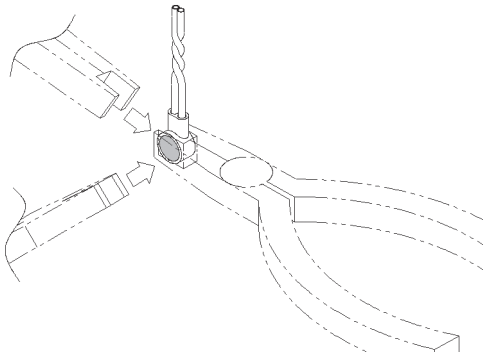
APPLICATION

Never splice two different colors, gauges, or types of wire. It is extremely important that wire color, gauge, type, and purpose of each wire remain consistent throughout a site.

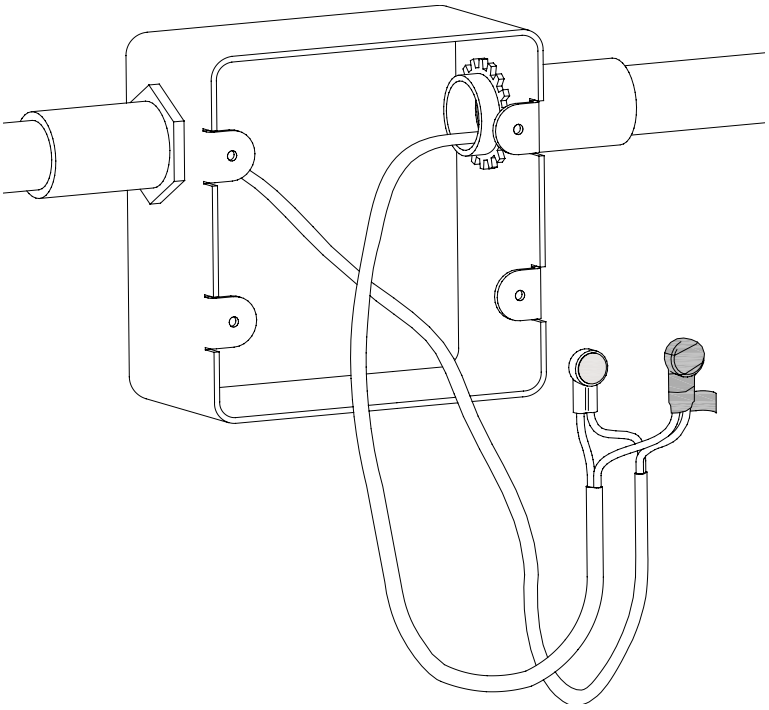
For example: If you are following PTI Security Systems' wiring recommendations, the DC+ wire should be red, 18 AWG stranded copper wire throughout the site.

NOTE: Do not leave copper wire exposed. The outside sheathing is necessary for the strength of the connection.

3. Verify that the wires are both seated completely at the bottom of the connector. Then, using a 3M E9-Y crimping tool, crimp down the button on the connector. The crimping tool can be purchased from PTI Security Systems. For best results, crimp each connector three times in different places around the edge of the button. Verify that the button is evenly crimped all the way around and that it does not pop back up on one side.



4. Wrap electrical tape around the splice and partway up the wires to help seal and protect the connection. Place a wire tag on the wires inside the junction box, identifying what the wire is connected to at each end.



REMEMBER

Splices should be kept to a minimum or eliminated completely from a site whenever possible.

Any splices that must be done should be made in an all-weather electrical junction box that is mounted above ground in accordance with electrical code.

??????? HINT

At every splice, pull box, junction box, and AI device connection, a 'service loop' should be made. This is an extra 1' – 2' of wire that is pulled to allow for future maintenance or correction of the splice or connection. After the splice or connection is made, the extra wire is neatly coiled in the box or slid back into the gooseneck or wall behind the device.

APPLICATION

Do not confuse a 'power strip' with a 'surge protector'. Often, surge protectors are located right next to power strips in the store and look very similar. Power strips merely add additional outlets while surge protectors actually provide electrical protection. Look for the words 'surge protection' on the packaging and purchase a well known brand. Many high-end surge protectors offer insurance against damage to electronics if the surge protector fails to protect them. Buying the better model surge protector doesn't cost much more and will provide peace of mind that your electronics are protected.

HINT

Uninterruptible Power Supplies (UPS) are the best option in the consumer market for protecting most electronics. A UPS does three things:

- Conditions incoming power to help prevent minor power spikes and temporary power drops (brownouts) from damaging the electronics.
- Protects against major power surges with better protection than most surge protectors.
- Provides temporary battery backup in case of complete power loss. The duration of backup time varies by the type of UPS and the items that are plugged into it.

Most UPSs offer an insured guarantee should an electronics product be damaged by a surge.

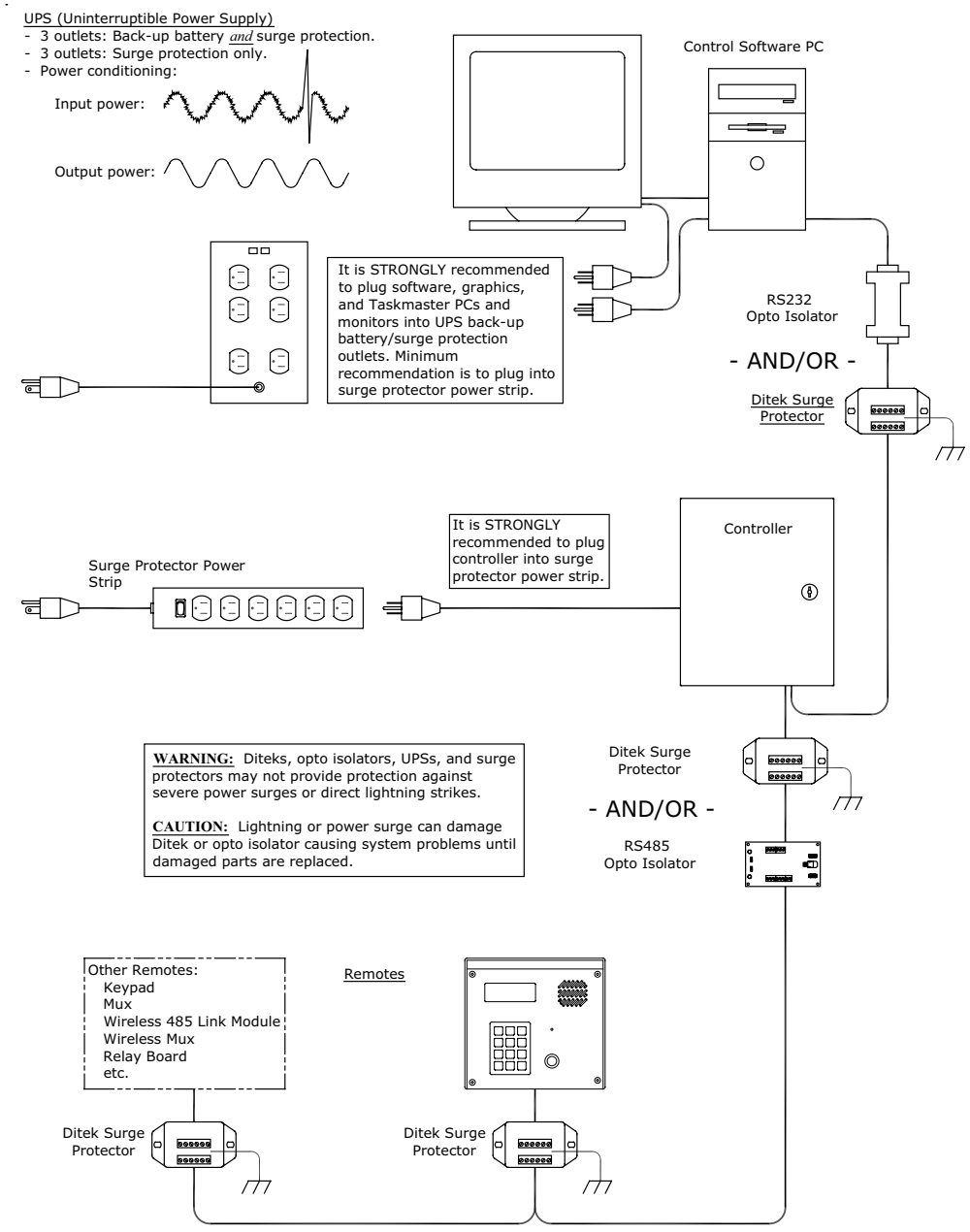
You can purchase a UPS from PTI Security Systems or at almost any computer or office supply store.

Surge Protection

Power fluctuations and surges are issues that are faced by all access control systems and electronics. The controller has excellent 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, we recommend that your system be equipped with the following safeguards against these problems.*

- If connecting the Falcon XT using USB, the supplied USB cable must be used as it includes the needed surge protection. Failure to use this cable for USB connectivity will void your warranty.
- 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.
- UL rated power supplies adequately rated to provide at least 12 volts (AC or DC) and no more than 18 volts (AC or DC) at each AI device as well as providing sufficient amperage throughout the system.
- Power conditioning and surge suppression in the form of an uninterruptible power supply (UPS) system connecting the controller, the access control system's power supplies, and any computers to the 120V power. 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 RS232 and RS485 at the controller and at each AI device.
- Gates, door strikes, and elevators should have battery backup or other safety measures that meet local and national electrical codes.
- Office computers, copiers, fax machines, telephones, and other electronics should be plugged into surge protectors or a separate UPS.
- 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.

* 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. Considering that lightning is powerful enough to arc more than 12 miles 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.



NOTE: We recommend plugging other computers, FAX machines, copiers, and/or other office electronics into a UPS in areas prone to lightning and/or power surges.

APPLICATION

There are several types of power risks to be aware of and protect against:

Brownouts or power sag is when the power at the wall outlet drops below 115VAC (in the United States). This can be due to the utility company reducing power due to load issues or it can occur when large appliances cycle on in an overloaded circuit.

Dirty Power occurs in some municipalities with antiquated or overloaded power grids. This is where the wall outlet power has consistent occurrences of small power spikes and brownouts. This is very damaging to electronics.

Blackouts occur when power is completely lost at the wall outlet. This can happen due to storms, damage to power poles and lines, or to power grid problems. Blackouts are often followed immediately by power surges or brownouts when the power comes back on and large appliances cycle on.

Surges are large spikes of power over 120VAC (in the United States). These can happen due to electrical storms, lightning strikes, and power grid problems. These can damage and sometimes destroy electronics.

Lightning can cause problems in multiple ways. Indirect strikes that do not actually hit the system can cause static discharge, disrupting electronics. Direct strikes can travel along any conductive metal, cable, or other material damaging everything in its path. Lightning is harder to deal with as it could come in on the power, data, or relay connections or even through the conduit, building walls, or equipment cases.

CHAPTER 2: INSTALLATION

Unpacking the Falcon XT

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

	Falcon XT – The system controller
	USB Cable – This cable is used for a USB connection between the StorLogix Computer and the Falcon XT is desired. If using a USB connection, the supplied USB cable with integrated circuit protection MUST be used. Failure to do so will void your warranty.
	Ethernet Cable – This cable is used for network connectivity between the Falcon XT and the StorLogix computer. The supplied cable connects the Falcon XT to the network router or switch.
	Power Cable – 100 foot, 18 AWG, 2-conductor cable used to connect the Falcon XT to the transformer for power. This cable can be cut to the needed length
	Spade Connectors – These connectors must be crimped onto one end of the power cable to connect it to the transformer
	Transformer – Connected to the power cable using the enclosed spade connectors. The power cable is connected to the Falcon XT and then plugged into power at the wall outlet, UPS, or power strip.
	Battery – Connected to the battery cables inside the Falcon XT and used to power the Falcon XT during short power outages
	Keys – Used to lock the Falcon XT 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 Falcon XT controller due to changes in supply or manufacturing.

REMEMBER

Check all boxes of equipment shipped to you against the packing list to ensure that all items have been received prior to attempting the installation. Contact PTI Security Systems immediately if anything is missing or damaged. Shipping damages must be reported within 5 calendar days of receipt and all packing materials must be retained in order to file any damage claim.

CAUTION

Do NOT connect the controller to power yet. Only connect power when instructed to during the installation steps on the following pages.

Installing the Falcon XT

The Falcon XT should be installed in a secure, interior area, such as a locking cabinet, room, or closet. Generally, this location should be in close proximity to the StorLogix (control software) computer. The location should have adequate ventilation and air conditioning. It is very important that the location be accessible for future maintenance.

1. Select a location on the wall approximately 5 feet above the floor. Conduit (at least ¾ inch) should be run from this area to the AI devices. A separate conduit (at least ¾ inch) should be run from this area to the computer if connection uses RS232 or Ethernet. If the computer interface connection is via USB, the Falcon XT cannot be more than 15 feet from the computer and this second conduit is not necessary. The location should also have a dedicated electrical outlet nearby.
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 are facing it. Wire in conduit can be run into the housing through conduit knockouts on the housing.
3. Once the conduit locations are determined, place the housing against the wall and mark the wall through the four mounting holes on the rear of the housing using a pencil. Use a torpedo level to verify that the housing will be mounted level.
4. Double-check that the housing is level and that the location is correct. Set the housing aside and drill the four holes as marked. The surface that the housing is being mounted against will determine the type of drill, drill bit size, and type of anchors used. All anchors should be #8 that are 1½ inch in length or longer, depending on the depth of the wall.
5. Once the housing has been anchored to the wall, connect the conduit to the box using compression fittings.

APPLICATION

Knockouts can be added which allow connection of ¾ inch or 1 inch conduit fittings. If larger conduit is needed, the installer will have to drill a larger hole in the case.

CAUTION

Be aware of electrical and plumbing locations when drilling into the wall to prevent damage or injury.

Controller to Computer Connection

The Falcon XT must be interfaced to a computer running the StorLogix software. This interface can be via Ethernet, USB, or RS232. Ethernet allows high-speed connection over a Local or Wide Area (Internet) network connection using standard CAT5 cable (up to 328ft / 100m). USB allows high speed communication, but only for distances less than 15 feet (4.5m). RS232 is slightly slower, but allows distances up to 50 feet (15m).

CAUTION

Do NOT connect the controller to power at this point. Only connect power when instructed to during the installation steps on the following pages.

REMEMBER

Connecting the controller to the computer via Ethernet is not the only point in the system when CAT5 network cable can be used. CAT5 network cable can also be used for RS-485 communication wiring. Refer to the Wire Needed section in Chapter 1 for more information on the correct wire to use for various parts of the installation.

For Direct Ethernet connections:

1. Using the supplied Ethernet cable, connect one end of the cable to the bottom right corner of the Falcon XT board. If desired, a cable of different length can be used but it must meet CAT5 or better specifications and cannot exceed the length limit of 100 meters (328 feet).
2. If needed, run the cable through conduit to the control software computer.
3. Connect the other end to the Ethernet port located on the back of the computer.

For Router/Switch Ethernet connections:

1. Two Ethernet cables are required for this configuration. One is supplied. Using the supplied Ethernet cable, connect one end of the cable to the connector on the bottom right corner of the Falcon XT board.
2. Connect the other end of the cable to the router.
3. Connect one end of the second cable to the software computer.
4. Connect the other end of the cable to the router.
5. Power-up the router.

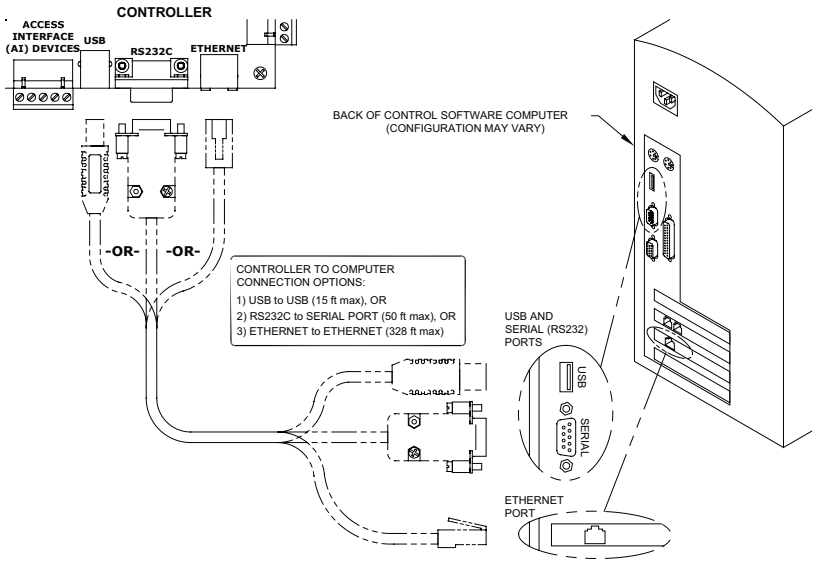
For USB connections:

1. The USB cable provided with the Falcon XT MUST be used for USB connections as it contains the necessary circuit protection. Failure to use this cable for USB connections will void the warranty on the Falcon XT. Connect the smaller end of the USB cable to the USB port located on the bottom middle of the Falcon XT board.
2. Run the USB cable through a knockout on the controller housing to the control software computer.
3. Connect the larger end of the USB cable to a USB port located on the back of the computer.

For RS232 connections:

1. RS232 cables for connection of the FalconXT to the StorLogix computer are available as an accessory from PTI Security Systems. Connect the end marked ‘Controller’ to the RS232C port located on the bottom middle of the controller circuit board.
2. If needed, run the cable through conduit to the control software computer.

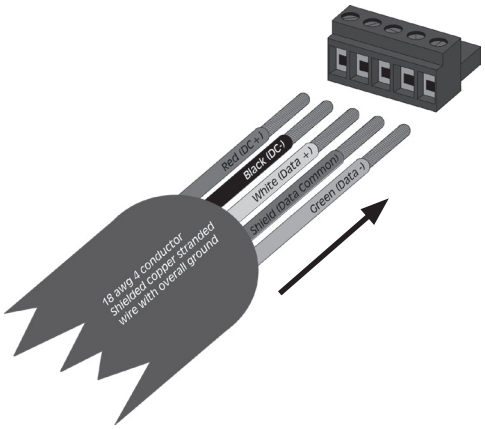
   Note: Unplug the connectors from this cable to allow the cable to be pulled through the conduit.
3. Connect the end marked ‘PC’ to the RS232 port located on the back of the computer.



Controller to AI Devices Connection

The controller is connected to remote AI devices using RS485 communications through 18 AWG, 4-conductor wire. This wire should be run in conduit from the controller out to each AI device, such as keypads, Wiegand proximity readers, multiplexers, and relay boards.

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 of the individual conductor wires. 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, insert the red DC + power 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. Verify 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.



REMEMBER

AI devices (Access Interface Devices) are any PTI Security Systems manufactured device that connects to the controller and is used to perform a service in the system. These include keypads, multiplexers, relay boards, and Wiegand interface devices.

HINT

Notes on RS485

Remember, splices should be kept to a minimum. RS485 splices should be made using 3M U-Type connectors and crimpers only. It is better to pull a single new cable instead of splicing. See the Wire Splicing section in Chapter 1 for more information.

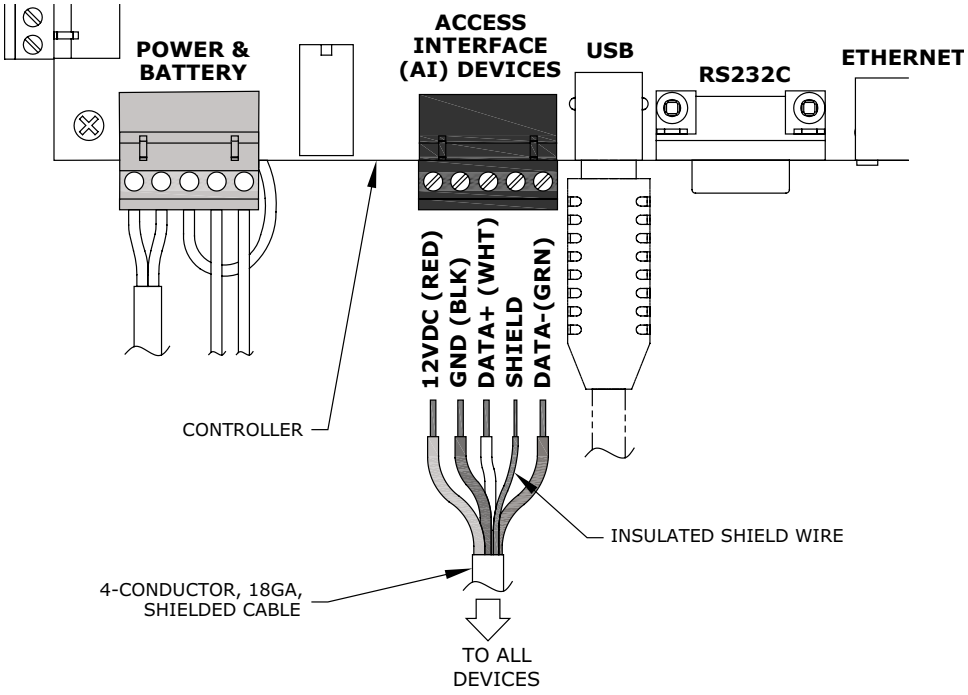
During retrofits and change-outs, we do not recommend using existing wire that has already been pulled on a site. It is impossible to know the condition of this wire and the site may experience costly troubleshooting and service calls due to problems with older wiring or wire types that are not recommended by PTI Security Systems.

We do not recommend that RS485 be run more than 4000' in a single run.

Engineering Specifications for RS485 recommend that the wire be run in series from the controller to the first AI device, then from the first AI device to the second, from the second to the third, and so on. Due to site layout considerations, it may not be possible to go from one device to another in order. At times a second line must be run from the controller to a different section of the property. However, it is important to 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.

4. Repeat this process with the rest of the wires as follows:
   - Slot 1: Red DC +
   - Slot 2: Black DC –
   - Slot 3: White Data +
   - Slot 4: Shield Wire *
   - Slot 5: Green Data –

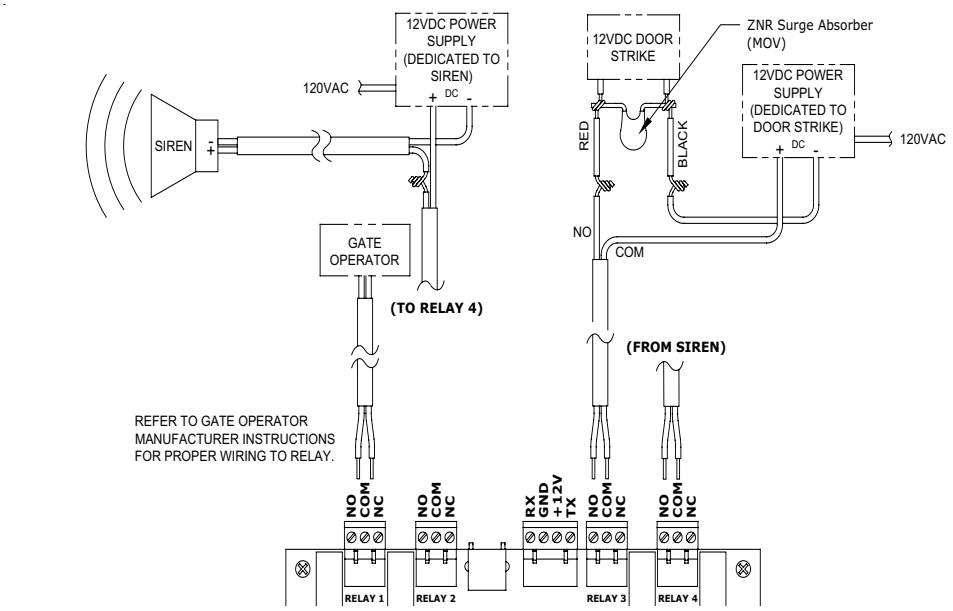
* The shield wire is bare inside the cable. It should be insulated using electrical tape or heat shrink insulation.



Output Relay Connections

There are four output relays along the top of the controller circuit board. These four output relays can be used for many things, including controlling gate operators and 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.

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. A normally open connection will be wired to the normally open and common connection points. A normally closed connection will be wired to the normally closed and common connection points.
2. Output Relay 1 is defaulted as the gate operator relay in the control software. This can be reprogrammed to almost any relay function to customize the site. All relays are programmable and can be used for many 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. These two 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. If the connection has more than 30 volts running through it, connect the wires to a contactor block and connect this to the system relay.



APPLICATION

The diagram shows a default setup of the outputs. All of these outputs are completely reprogrammable and can be used to control almost any relay activated device at almost any time. Refer to the software Help Files for more information on programing output relays.

3. Output Relay 2 and Relay 3 do not have default settings in the control software and can be used for almost any programmable relay function.
4. Output Relay 4 is defaulted as the siren relay in the control software. This can be reprogrammed to almost any relay function to customize the site. All relays are programmable and can be used for many different types of functions. Connect the siren as per manufacturer instructions.

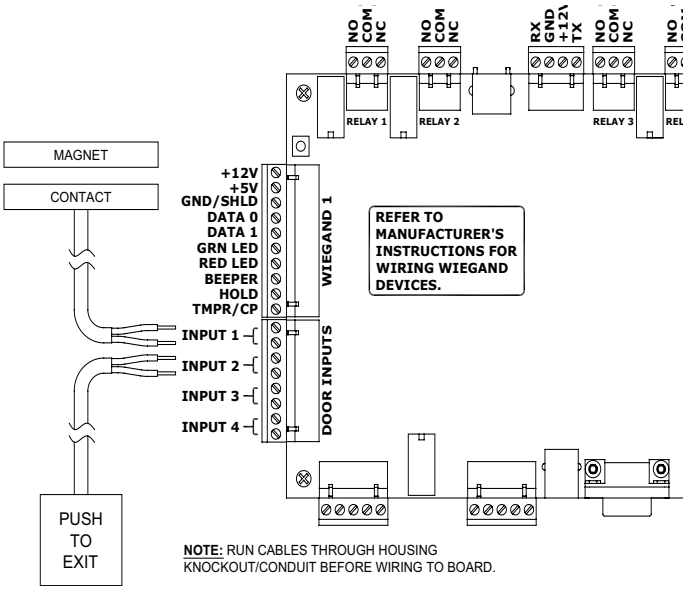
CAUTION

PTI Security Systems relays have a maximum switching capacity of 30V. Devices requiring higher voltage must be wired through contactor blocks.

Door Input Connections

There are eight door input relays 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.

1. To connect door Input 1, run the two wires from the switch into the controller housing. Strip ¼ inch of insulation from the end of each of the individual conductor wires. Connect one of the wires to the first terminal slot marked Input 1. Connect the second wire to the second terminal slot marked Input 1, immediately below the first terminal slot. Use a small, flathead precision screwdriver to tighten down the terminal screw to firmly hold the wire in place. Verify that the wire is firmly held by tugging slightly on it. Verify 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.
2. 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.
3. 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.



??????? HINT

As you connect inputs to the system, whether on the controller circuit board, on door alarm multiplexers, or on the keypads, keep a written record of the input number cross-referenced with the door unit number or location where the input is connected. This will be used when setting up the control software.

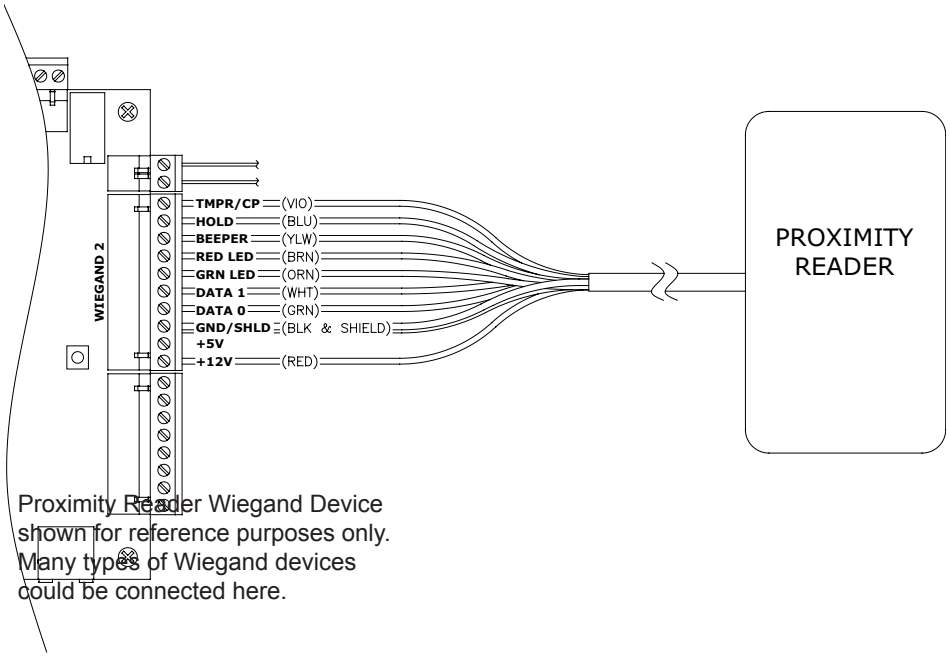
After the software is set up, this written record should be kept with the manuals for future reference.

Wiegand Input Connections

There are two Wiegand device inputs on the controller circuit board. These can be connected to most types of Wiegand output devices, such as proximity card readers, key fobs, remote door openers, etc. Refer to the software Help Files for more information on setting up Wiegand inputs. The two Wiegand inputs are commonly used to control a proximity reader controlling the entrance to the office where the controller is located or to control a proximity card reader at the desk that allows the proximity cards to be registered and assigned without going out to an AI device on the property.

There are generally 8 – 10 color-coded wires that connect to a Wiegand output device. These are connected to the controller circuit board as necessary. Refer to the Wiegand device manufacturer's instructions for wire color coding and connection assignments.

+12V	Connection point for the + wire on 12VDC Wiegand devices
+5V	Connection point for the + wire on 5VDC Wiegand devices
Gnd/Shld	Connection point for – DC wire and for the Data Ground wire
Data 0	Connection point for the Data 0 input wire
Data 1	Connection point for the Data 1 input wire
Grn LED	Connection for the optional Green LED entrance light wire
Red LED	Connection for the optional Red LED access denial light wire
Beeper	Connection for the optional beep on entrance function wire
Hold	Connection for the optional hold function wire
Tmpr/CP	Connection for the optional Card Presence and/or Anti-tamper wire



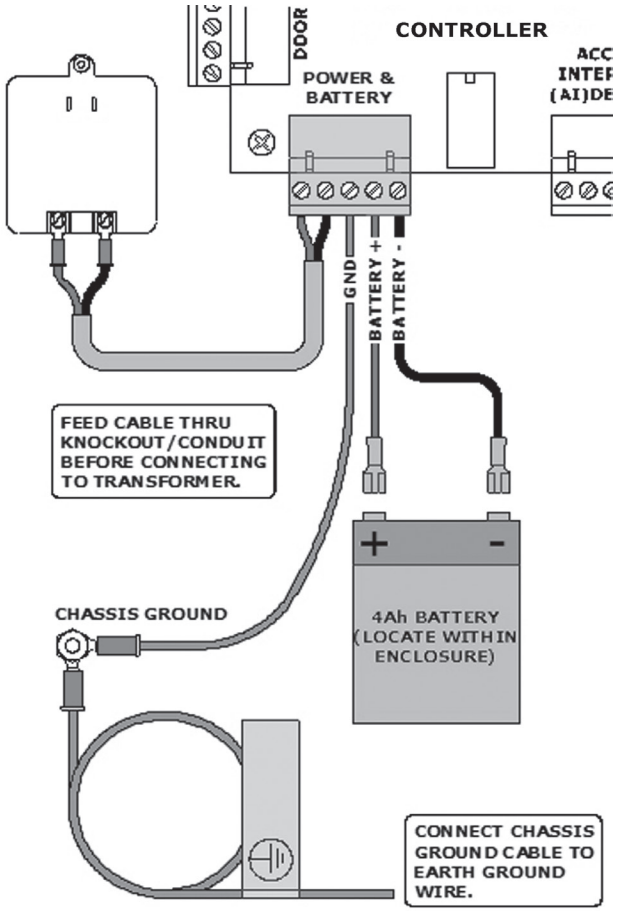
Proximity Reader Wiegand Device shown for reference purposes only. Many types of Wiegand devices could be connected here.

Power Connections (North America)

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 Transformer

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 100 foot power cable. Be sure that the copper wire makes good contact inside the spade connector and no copper wire is 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.



CAUTION

Do NOT plug the power in until all wiring is complete. Failure to observe this warning can result in electrical shock injury and/or damage to electronics.

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.

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 is a maintenance-free battery. When the battery needs to be replaced, the system will alert the administrator. To replace the battery:

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

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.

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 Power

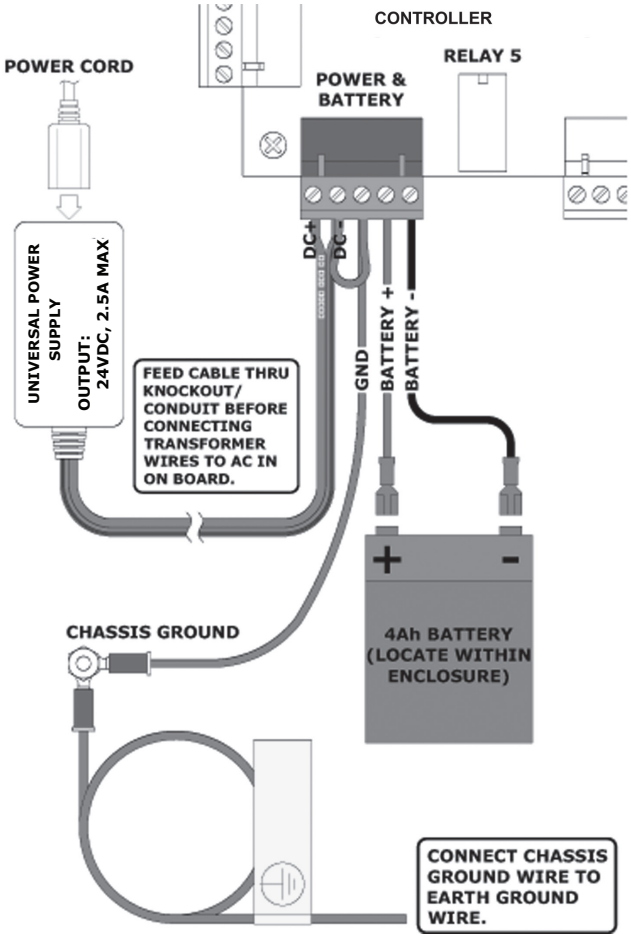
1. Feed the pre-wired power terminal block through the knockouts.
2. Plug the power terminal block in to the power and battery terminal position.
3. Unscrew the bolt from the case chassis ground and place the ring terminal of the ground wire over the screw. Screw the bolt back down on top of the ring terminal to hold it in place.

CAUTION

Do NOT plug the power in until all wiring is complete. Failure to observe this warning can result in electrical shock injury and/or damage to electronics.

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.

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:

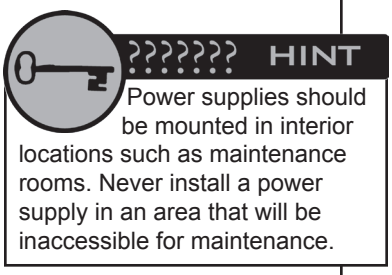
The battery supplied with the controller is a maintenance-free battery. When the battery needs to be replaced, the system will alert the administrator. To replace the battery:

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 Power

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.

1. Connect the power cord to the small power supply unit.
2. Plug the other end of the cord into a wall outlet.



Power Considerations

The controller has a built-in 2 amp power supply. Each AI device that is placed on the line has current draw that must be accounted for in that amperage. Longer lines and more AI devices on the line will also cause the voltage to drop. Both voltage and amperage requirements must be accounted for.

Amperage Considerations

Use the chart below to verify that you have enough amps to support the number of AI devices to be installed. Do NOT exceed 75% of the rated load for the power supply. It is always better to have a higher amp power supply than required as electronics only pull the current that they need. Do not confuse amps with volts, which must not exceed the specifications. If you need assistance calculating your power needs, please contact Technical Support.

Power Supply Size in Amps	Actual Amperage / Milliamps (mA)	Max. Recommended Limit (75% Load)
1 A	1.2 A / 1200 mA	900 mA
2 A	3 A / 3000 mA	2250 mA
4 A	5 A / 5000 mA	3750 mA
6 A	7 A / 7000 mA	5250 mA
10 A	10 A / 10000 mA	7500 mA

AI Device Type	Current Draw in Milliamps
Keypad or Keypad with Intercom	300 mA **
CodeXpress with Intercom	300 mA **
APEX Access Device	300 mA **
Hardwired Multiplexer (16 - 96 Ch)	300 mA
Wiegand **	300 mA **
8-Channel Relay Board	500 mA
Wireless Multiplexer	500 mA
HID Proximity Reader	30 - 260+ mA **
KT&C Pinhole Camera (B&W / Color)	100 mA / 240 mA **
RB5 Relay	120 mA

* Do NOT exceed 75% load. This provides a safety zone to allow for most peak usage and power spikes/surges without locking up or damaging the system.
** When powering other equipment from a device such as a proximity reader or pinhole camera, be sure to consider the current draw specifications from that equipment as well. Refer to manufacturer specifications for verification on current draw.

APPLICATION

For best results in most situations, do not exceed 75% of the amperage load on any given power supply.

Also, remember that line length, wire condition, splices, number of devices connected, humidity, temperature, and other factors cause voltage drop; so do not assume that three 300 mA devices can be powered from one 1A power supply. Always make it a point to check the voltage at every device once the site is completely up and running to ensure that no device is below 12V at any time.

For example – 2A power supply (2250 mA max. load) can support seven keypads equaling 2100 mA OR four keypads and two 8-channel relay boards totaling 2200 mA. If you wanted to add any other devices, you would have to move to the next larger power supply OR add an additional 1A power supply. If you are unsure, always use the next size larger remote power supply. It is always better to have more available amperage than less as an AI device will only draw to its capacity and no more.

Voltage Considerations

Voltage drop is a serious consideration when planning a site. Wire has resistance that reduces the available voltage the further along the line that the voltage travels. Additional AI devices on the line also reduce the voltage. All devices connected to the controller require a minimum of 12VDC to power them. If the power at a specific AI device falls below 12VDC due to a long length of wire with multiple AI devices on it, then the entire system can lock up. Each AI device must receive at least 12VDC when the system is at full amperage load.

For this reason, always power sirens, maglocks, and door strikes from separate power supplies, never from the controller or from a remote power supply connected to AI devices. Sirens, maglocks, and door strikes have significant amperage draw as they are initially powered up to sound or open. This can draw the system below 12VDC during this short period if they are connected to the same power supply as the rest of the system, resulting in system failure.

REMEMBER

If multiple power supplies are required to power all of the AI devices on a site, you must use an RB5 relay at every power supply to ensure that all devices and power supplies can be reset from the main controller circuit board. See Adding Additional Power Supplies for more information.

Dealing with Amperage and Voltage needs

While planning the layout of a system, it may become obvious that the 2 amp power supply in the controller is insufficient for the number of AI devices or for the wire length. Should this be the case, additional power supplies can be purchased and placed on the line as necessary. Refer to Adding Additional Power Supplies for more information.

CAUTION

Always power sirens, maglocks, and door strikes from power supplies that are separate from the ones that power AI devices. Never use the controller or any remote power supply that is connected to an AI device to power these types of devices (sirens, maglocks, door strikes) as they have significant amperage draw and can lock up the entire system. A remote power supply can be used to power these items in some cases, but it needs to remain separate from the AI devices. Remember to take voltage drop and amperage needs into consideration with these items also. Refer to manufacturer specifications for voltage needs and amperage restrictions for these devices.

Battery Backup Calculation

Battery backup time is equal to the current draw (amps) divided by the amp hour rating of the battery. For example: if the system draws 2 amps and the battery is rated at 4 amp hours; the battery backup should last for 2 hours if the battery is fully charged and all other conditions are right (4 ÷ 2 = 2). Certain external issues can influence this length of time, such as the age and condition of the battery, damage to the battery or power supply, power surges, and/or the level of charge in the battery. Also, each time the AI device is used while the AC power is out will reduce the total backup time as the current draw increases slightly when the keypad is in use.

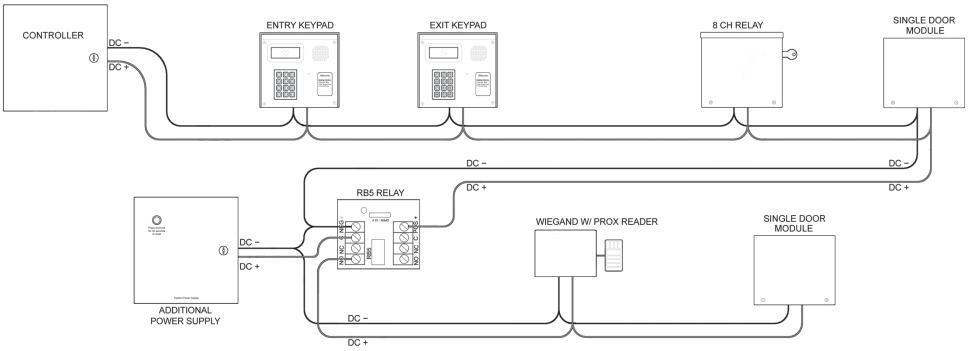
Adding Additional Power Supplies

Additional power supplies may be needed on a system due to amperage or voltage needs. The power supplies should be installed in conjunction with an Altronix RB5 Relay Module that can be purchased from PTI Security Systems. Installation in this manner will allow the entire system to be reset from the main controller.

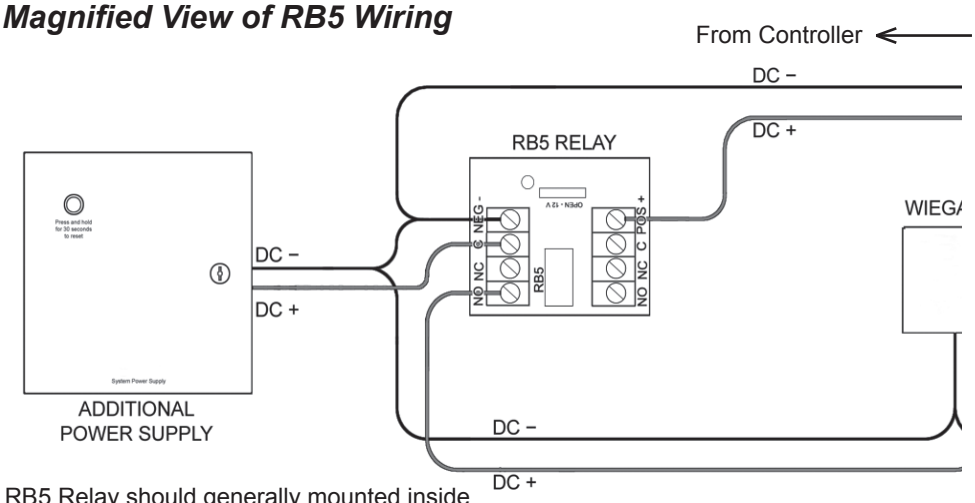
Power supplies should be mounted in an interior location that is accessible for future maintenance and service. As with all PTI Security Systems equipment (AI devices and controller), the power supply should be mounted using the correct anchors for the surface. Power wires coming into and going out of the power supply housing should be run in conduit.

Power supplies may be placed throughout the site as needed to prevent AI devices from falling below 12V at full load. The following diagrams show the correct wiring to be used when adding additional power supplies to a site.

View of System with Additional Power Supply



Magnified View of RB5 Wiring



RB5 Relay should generally mounted inside the power supply case that it controls.

REMEMBER

We strongly recommend that you use PTI Security Systems power supplies to power any PTI AI devices. Our power supplies are tested to work with our equipment and have built-in reset capabilities.

Note: Due to international shipping regulations and power differences, we do not ship our power supplies to countries other than Canada. Contact your local office for more information on powering devices in your country. Always be sure to include a reset button and RB5 relay on power supplies to allow central reset capability.

PTI Security Systems AI devices require 12 - 18VDC to function. Devices receiving less than 12VDC will not operate correctly and may lock up the entire system. Devices receiving more than 18VDC may be damaged or have a significantly shortened life. Operating AI devices at voltages greater than 18VDC voids the warranty.

APPLICATION

As many power supplies as are needed can be added to the system by wiring in an RB5 relay at each additional power supply. This allows the reset button in the controller to be pressed to reset the entire system from one location. This is very helpful when resetting the system after maintenance, for troubleshooting, or after loss of power.

CHAPTER 3: TROUBLESHOOTING

Troubleshooting Concepts

Troubleshooting Gates

Troubleshooting Concepts

Troubleshooting, like detective work, involves taking a number of clues or symptoms and following them back to a logical conclusion. This process can be very difficult if the installer skips steps or assumes answers. The technician must be careful, methodical, and thorough when troubleshooting.

Follow the steps below to begin the troubleshooting process. Keep notes throughout the process detailing what steps have been taken and the results that have been seen. Write down system messages, error messages, multimeter readings, AI device addresses, AI device functions and locations, etc.

To make troubleshooting easier, you should have a good installer/service company do 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, all software disks, and contact information for the installer and responsible personnel.

Begin troubleshooting by asking the question: “Was the item working in the past or has the problem been there since it was installed?” It is important to be very honest at this point. Generally, if something has been installed for awhile, it probably worked at some point. The trick is to find out when it stopped working and why.

If the item is newly installed and the problem has been present since the beginning, carefully go back over every part of the installation process. The following sections will detail the troubleshooting steps for specific items.

If the item worked when it was first installed, ask “What has changed at the site that may have caused the problem?”

Examples include:

- Construction/electrical work on-site or in the area
- Change made to the system
- New computer component added (PDA, printer, hard drive, etc.)
- New employee operating the system
- Furniture moved (pinching wires/pulling wires)
- Power interruptions or surges (blackouts or brownouts)
- Lightning strike or electrical storm
- Vandalism or other physical damage

Ask other pertinent questions, such as:

- Was the system working previously?
- When did the problem first occur?
- When and how did the problem first get noticed?
- What was happening immediately before the problem occurred?
- How often does the problem occur?
- Does the problem occur at certain times or in certain areas?
- Does the problem affect everyone or just certain individuals?

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

Try to reset the system. 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. 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. 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.

Verify that the system is working and that all AI devices are functioning correctly. If the problem has gone away, monitor the situation for a few days. If the problem reoccurs, repeat these steps and compare notes to try to find a pattern. If the problem persists, try the troubleshooting steps on the following pages. If none of these troubleshooting tips fixes the problem, contact Technical Support for assistance.

Troubleshooting Gates

Warning: Installing and troubleshooting gates should only be done by trained service technicians due to the dangers of injury, death, and property damage from electrocution, and the possibility of crushing, breaking, or severing of limbs from moving parts. All gates should be installed and serviced by trained professionals and meet all local, state, federal, and UL guidelines and safety regulations.

Most gate problems occur due to a lack of maintenance or improper maintenance. Gates should be regularly serviced by a trained service technician. A regular routine of service and maintenance should be planned for in the budget and scheduled throughout each year. Typical maintenance tasks that should be performed on gates include:

- Oil and grease gates with the recommended lubricants
- Clean parts using the proper solvents
- Inspect wheels, gears, chains, and other moving parts for wear or damage and replace immediately if necessary
- Tighten and adjust the chain regularly
- Clear weeds and rocks away from the chain and gate path
- Keep track free from debris and in good working order (unbroken and not lifting up or bending)
- Check the set screws and adjustment nut regularly
- Test loops, beams, and sensor edges regularly and immediately replace or repair them if not working correctly

If there is a problem with the gate opening or closing, try a code or card at the AI device controlling the gate to see what happens. Be sure the code or card is one that is known to be working.

If the gate closes on vehicles or people, immediately open the gate using a manual override or block access to the gate to prevent property damage, injury, or death. Then, contact a gate service company to repair the gate.

If the gate does not open at all, refer to Troubleshooting Guidelines for Access Devices.

If the gate stays partway open or closed, contact a gate service company to service the gate.

If the gate is slow, sticking, or hesitating, contact a gate service company to service the gate.

If the gate opens and stays open, check the relay settings and the hold open times in the control software and in the keypads, or contact the gate installer to ensure that safety features aren't holding the gate.

APPENDIX

System Requirements

NOTE: If you are using any other software along with ours, it is imperative that you ensure that your computer specifications more than exceed the combined total requirements for all of the software loaded on the computer.

StorLogix Computer Requirements

These computer requirements are the minimum for running the software by itself.

- 1.8GHz or higher processor
- 2+ GB RAM, 4+ GB RAM for StorLogix
- 10+ GB available hard drive space
- DVD-ROM (with high capacity storage, such as a DVD-RW, available for backups)
- 800 x 600 minimum resolution monitor
- Sound card and speakers recommended
- Two or more available working ports [Ethernet TCP/IP port(s), USB port(s), or RS232 port(s)]
- Broadband/high-speed business internet connection (cable, T1, or DSL), always-on connection
- Keyboard and Mouse
- A high quality printer (for printing Reports)
- Remote access software for technical assistance (we use FastSupport.com). To receive technical support, you MUST have a remote access software installed on your PC.
- Anti-virus software
- Windows Firewall or other firewall protection is strongly recommended (ensure settings do not interfere with other applications running on the system). This should be setup by a knowledgeable computer tech as some configuration may be required.
- UPS (Uninterruptible Power Supply) power backup and surge protection recommended.

Operating System

- 32-bit (x86) or 64-bit (x64)* Windows Vista SP2, 7 SP1, 8, 8.1, or higher.
- 32-bit (x86) or 64-bit (x64)* Windows Server 2008 SP2, 2008 R2 SP1, 2012, 2012 R2, or higher.
- Windows XP is no longer supported. StorLogix 5.0 and higher will not run on this OS.
- All necessary update and service packs for Windows should be loaded onto the computer before beginning installation.

*Not all operating systems support all software and some third party products (such as card scanners, cameras,or other peripherals) may not function with some operating systems and/or computers (i.e.,64-bit operating systems may not support peripherals built for use on 32-bit or earlier platforms). Refer to the product manufacturer's documentation for compatibility information with the operating system in use. PTI Security Systems is not liable for the functioning or reliability of any third party products and any products recommended are only done so based on historic examples of them working with our product. PTI Security Systems cannot guarantee any third party product compatibility or their continued functionality. Future releases, updates, upgrades, or other modifications to these products may affect their compatibility with PTI

Security Systems products or with other programs on your computer. We recommend that your computer and network be regularly updated and maintained by a qualified information technology technician.

Proximity Cards / Photo ID Badges / Swipe Cards

The following items are recommended for the operation of peripheral devices.

- Compatible Wiegand interface cards for proximity devices
- Any 4-line magnetic stripe card for use with swipe reader devices
- Preprogrammed blank or logo-imprinted cards can be purchased from PTI Security Systems for either device type

Site Graphics Additional Requirements

The computer on which the Site Graphics software is running must include the computer requirements previously listed as well as the following.

- PTI Graphics Serial Adapter (Part # PGRASIA)
- 16 MB Video Card or higher
- 1024 x 768 resolution minimum (Large screen monitor recommended)

Falcon XT Computer Interface Requirements

The following items are required for the operation of the access system controller.

- StorLogix software, version 4.1 or newer
- Ethernet, USB, or RS232 connection
  - Ethernet Cable Connection — maximum length 328 feet (100m)
  - USB Connection — If connecting using USB, the supplied cable MUST be used as it includes circuit protection. Failure to use this cable will void your warranty. — maximum length 15 feet (4.5m)
  - RS232 Cable Connection — maximum length 50 feet (15m)
- Electrical outlet providing 120VAC (United States) or 240VAC (Europe or Australia)

We strongly recommend that installation and setup of all computers and any PTI Security Systems equipment be done by a certified, licensed, qualified, and competent technician. PTI Security Systems can recommend local dealers and installers, but it is up to the customer to verify their qualifications and negotiate any pricing or contracts unless we have been specifically contracted in writing to do so for the customer. The above information represents recommended minimum guidelines. These guidelines are subject to change without notice. With any computer setup or configuration, some troubleshooting and adjustment of the configuration may be required. This will differ with every computer setup depending on operating system, software installed on it, quality of components, internet connection, modem connection, or any other variable introduced into the setup. This troubleshooting and configuration may include purchasing additional equipment. In no circumstances will PTI Security Systems be responsible for any damages either incidental or consequential based on these recommendations.

Computers running any PTI Security Systems hardware, software, or utilities must meet our computer requirements. These computer requirements are intended as a minimum guideline for operating our access control system. 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.

Notices, Disclaimers, and Warnings

We strongly recommend that installation and setup of PTI Security Systems equipment be done by a certified, licensed, qualified, and competent person. PTI Security Systems can recommend local dealers and installers, but it is up to the customer to verify their qualifications and negotiate any pricing or contracts unless PTI Security Systems has been specifically contracted in writing to do so for the customer. With any computer setup or installation, some troubleshooting and adjustment of the configuration may be required. This will differ with every installation and computer setup depending on operating system, software installed, quality of components, internet connection, modem connection, and any site-specific variables. Troubleshooting and configuration may require purchasing additional equipment. Under no circumstances will PTI Security Systems be responsible for any damages either incidental or consequential based on these recommendations. All installation of electronics and electrical systems must be in compliance with local, municipal, and state codes, and the National Electrical Code.

Installation of equipment manufactured by PTI Security Systems must be performed per our recommendations and guidelines except where local, municipal, state, and provincial codes, and the National Electrical Code and Construction codes take precedence. When code and our guidelines do not cover a given situation, it is the responsibility of the Dealer/ Installer to contact PTI Security Systems for instruction and/or follow established custom and best practices applicable to the particular trade. Dealers and Installers must know and abide by all existing laws pertaining to their work.

The User should follow all installation, operation, and maintenance instructions. The User is strongly advised to conduct Product and systems tests at least once each week. Changes in environmental conditions, electric or electronic disruptions, and tampering may cause the Product to not perform as expected.

Reliable equipment operation is dependent upon noise-free uninterrupted sources of power. The battery backup feature is provided primarily to preserve the integrity of the memory database and operation of the system. This will not guarantee operation of the gate motor or door actuator for emergency situations in the event of a power loss or equipment failure. It is the sole responsibility of the purchaser to provide for and facilitate manual nonelectrical emergency means of exit in the event of a power failure. Contact your local dealer/installer for options and availability.

PTI Security Systems warrants its Product to the User. The User is responsible for exercising all due prudence and taking necessary precautions for the safety and protection of lives and property wherever PTI Security Systems products are installed. PTI Security Systems does not authorize the use of its products in applications affecting life safety.

Some PTI Security Systems products use 900Mhz wireless technology. Other devices at the site such as cordless telephones or alarm components may cause interference that will disrupt the operation of the system or may be interfered with by the system. We assume no liability for any problems caused by interference. It is the sole responsibility of the user to identify and correct such problems.

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

This manual and all documentation for PTI Security Systems Products belong to the User and must be given to them by the Dealer or Installer immediately after installation. These items should be retained on-site by the User.

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 breech 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

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.

List of Forms

Equipment Location	This form, along with a wiring map of the site, should be kept 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	This form should be completed at installation and updated any time service is performed on the system. This includes regular maintenance, troubleshooting, repairs, and future additions or upgrades.
Dealer/Service Contact Information	This form should be filled out by the dealer/installer at the completion of the project. This will tell the client who to call for service, maintenance, or future additions.

Equipment Location

Site Name:_____ Date of Install:_____

Site Address:_____

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:_____

Dealer/Installer: _____

Following is a list of the major functions of the installed Falcon XT 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. Then the form should be signed at the bottom by the Installer and a representative of the site. 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' 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 isn't any 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:

- □ 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 Graphics update correctly.
- □ Verify that the site graphics and layout are correct.

Initials: _____ _____

Site Closeout Checklist *(cont'd)*

Video System:

- □ Verify that each camera is in focus and can be clearly viewed at monitors.
- □ Verify that each camera is adjusted to cover the area assigned to it.
- □ Verify that each camera is sealed properly.
- □ Verify that each monitor is functioning correctly.
- □ Verify that the time, date, and camera descriptions are input for each camera in the DVR.
- □ Verify that video is recording at correct speed, frames-per-second, resolution, and picture size.
- □ Verify that video plays back and that rewind, fast forward, and search functions work.
- □ Verify the motion detection zones and settings if applicable.
- □ Verify that VideoViewer can be brought up and used in the control software.
- □ Verify that events clicked in EventViewer bring up the correct camera view assigned.

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.

Other Items:

- □ _____
- □ _____
- □ _____
- □ _____
- □ _____
- □ _____
- □ _____
- □ _____

Initials: _____ _____

Site Closeout Checklist *(cont'd)*

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 Site Owner or Owner's Representative Date

_____

Printed Name of Site Owner or Owner's Representative Title

Initials: _____ _____

Site Service History

Complete this form each time installation, service, or maintenance is performed on the system. This history can be very useful in problem-solving if issues arise.

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: _____ _____

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:		

Site Service History

Complete this form each time installation, service, or maintenance is performed on the system. This history can be very useful in problem-solving if issues arise.

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:		

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:	

For Technical Support, Please Visit:
support.ptisecurity.com

www.ptisecurity.com