Contra Costa Community College District Security Design Guidelines

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Contra Costa Community College District Security Design Guidelines

1.0 Revision Log

Date	Version	Description of Changes
March 7, 2012	B.2	Final Draft for Board ApprovalUpdates per 12/01/11 review meeting
March 1, 2018	B.3	Revised VSS Requirements and added ALPR capability
		Revised Security Device Requirements
		Added additional Access Control System Requirements (card reader override)
		Added data requirements for Emergency Notification System

Contra Costa Community College District Security Design Guideline

1.0 OVERVIEW

Contra Costa Community College District plans to operate and maintain a consistent campus-wide electronic security systems program throughout its multiple campuses: Contra Costa College, Diablo Valley College, Los Medanos College. This also pertains to the District Office and the two satellite campuses: San Ramon Valley Campus and the Brentwood Center. To assist with the design and development of individual security projects, the following design guidelines were created.

Each new campus security project may include a blend of the following systems: Access Control and Alarm Monitoring System (ACAMS), an Intrusion Detection System (IDS), and a Video Surveillance System (VSS). Collectively the systems are an economical solution to provide security and safety while maintaining convenience and flexibility. Contractors proposing on new Contra Costa Community College District project must ensure that new security work utilizes the same software versions that are currently operating on the Contra Costa Community College District Server(s) located at the District Office in Martinez, CA.

The standards are based around the following manufacturers:

- Access Control and Alarm Monitoring System: Software House CCURE 9000
- Intrusion Detection System: DSC PowerSeries
- Video Surveillance System: Salient Systems

This design guideline details the electronic security standards, system design criteria, implementation guidelines, and coordination requirements. It is not intended as a substitution for construction documents, but rather guides the engineer to design additions to the overall system during new and renovation construction projects. Included with the guidelines are a sample RFP, unit pricing, template construction technical specifications, typical product information, overall system topology diagrams, typical details, and example shop drawings.

1.1 Scope

The scope of the guideline includes the following information:

- A. Access Control and Alarm Monitoring Design Criteria
- B. Intrusion Detection System Design Criteria
- C. Video Surveillance Design Criteria
- D. Electronic Security Device Application Matrix
- E. Architectural, Structural, Electrical, Mechanical, Elevator, and Telecommunication coordination and design requirements required to support the physical access control and security system during implementation.

1.2 Application

Physical security plays a critical role in providing a safe environment for staff and students. Security for the district consists of access control and alarm monitoring system (ACAMS), intdusion detection, and video surveillance system, which mitigate theft, vandalism, and general crimes of opportunity. Additionally the system automates the opening and closing of the buildings on schedule, increasing the effective utilization of staff.



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> The guidelines and criteria herin apply to each campus within the Contra Costa Community College District - Contra Costa College (CCC) located in San Pablo, Diablo Valley College (DVC) located in Pleasant Hill, and Los Medanos College (LMC) located in Pittsburg, as well as the District Office in Martinez. Even though the two satellite campuses: San Ramon Valley Campus and the Brentwood Center do not have the same facility structure as the other campuses, these guidelines and citeria shall apply to these locations.

1.3 Arrangement of Information

This document is arranged by design discipline. Best practice has the Architect and Design Engineers reading this document, the electronic security device application matrix, and the design coordination document, including related documents. The Design Team should study the specific sections related to their discipline and review the other sections.

The district and colleges should review and utilize the sample RFP, unit pricing, template construction technical specifications, typical product information, overall system topology diagrams, typical details, and example shop drawings as a reference for each project including electronic security systems.

1.4 Roles and Responsibilites

The successful design and implementation of any component of the electronic security systems requires coordination with the following entities throughout the delivery process:

- A. Facilities Planning Staff such as campus project managers will engage endusers in discussions regarding the security systems and operation, credential issuance, and access privileges. Architects and other design consultants and their agents shall not engage directly with end-users on system operational requirements. The project managers will ensure that a project's scope, schedule and budget goals are achieved.
- B. Building and Grounds Manage and maintain doors and hardware, including mechanically keyed hardware on each campus, connected to the electronic physical security systems.
- C. Police Services Operate the electronic security systems on each campus and on the district-wide level. Staff maintain credentials and control building access schedules.
- D. Information Techology and Research Coordinate all aspects of the ACAMS, intrusion, and video surveillance interfaces and connections with the LAN and/or WAN.
- E. User Groups Facility users who will interact with the mechanically keyed, ACAM'd and/or video surveilled facility. User group representatives will define specific program requirements for the systems, beyond the minimum standard deployed across all projects.



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- F. Security Design Engineer Members of the design team who are designing the electronic physical security systems shall have a thorough understanding, knowledge and successful experience in designing similar systems in similar applications. The design team members (whether part of the prime consultant's design team or an associated consultant) shall be approved by CCCD prior to performing any design work. The Design Engineer shall provide services in accordance with these standards. The Design Team shall verify that all applicable portions of these standards are incorporated into the project's design, drawings, specification and final construction. Requests for variances from these standards are to be submitted in writing to the campus project manager, and will be scrutinized very carefully. Variances from any aspects of this physical access controls and security management system design standard will only be allowed with the explicit written consent of the District.
 - G. Security Systems Integrator
 - 1. Integrator firms minimally provide the "parts and smarts" for the ACAMS system. They may sell the parts to a C-10 electrician who then installs the parts and wires them, and then the Integrator simply provides the programming of those devices (smarts). Integrators may also install the entire system (parts, smarts and wiring).
 - a) In order to ensure that an Integrator is able to provide the level of service that the District requires, there are a number of qualifications that must be met. The District may, at its discretion, make exceptions based on demonstrated strengths in one area that outweigh a deficiency elsewhere.
 - b) Documentation demonstrating compliance with the following criteria must be provided as a submittal prior to any work being done by the Integrator
 - 2. Required Qualification Criteria:
 - a) Personnel must have successful experience and demonstrated knowledge, skill and ability in working on a Software House ACAMS at the Global level. Personnel must also reside in the District's service area. Resumes of the proposed Project Manager, General Foreman, and Lead Technician(s) indicating role, years of experience, tenure, product certifications and training, listing of similar projects the individual performed in the role proposed for this project, along with client contact information for each shall be reviewed by the District to ensure proposed personnel are qualified. In addition, each proposed technician's Software House Enterprise level certification or other proof of factory training must be provided; this requirement ensures that the manufacturer has certified that the technician is trained in Enterprise level Software House ACAMS installations.
 - b) Integrator firms must be an authorized dealers for Software House, allowing the firm to act as a reseller, installer, and warranty provider of the Software House security system at the Enterprise Level. Certifications from Software House for lower tiered product offerings are not acceptable. This requirement ensures that the manufacturer has qualified the Integrator to conduct business at the Enterprise level that is installed across the District.



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2.0 ACCESS CONTROL AND ALARM MONITORING SYSTEM (ACAMS)

2.1 Overview

The District selected Software House as its access control system provider. All district security projects must utilize this system to provide commonality in access card formats, system monitoring/reporting capabilities, and District-wide programming standards.

Each campus will include a Software House system comprised of access control panels, card readers, power supplies, access control cards, and interfaces to electrically controlled locking hardware. The individual campus control panels connect to the Enterpise Software House server software via the District LAN/WAN. The District IT department will provide and support application servers and District workstations including video badging workstations. The individual campus IT departements will support their respective security workstations. Police Services will manage the security system software on both the District and campus levels. Refer to the specific sections in the Design Specifications for recommendations regarding specific security products.

The District requires card readers capable of reading proximity and iCLASS dual technology access cards. All District security projects must utilize standardized control panels and a commpon manufacturer for card readers to ensure commonality in system performance, system monitoring/reporting capabilities, and District-wide programming standards. The District uses standard 125KHz proximity access control cards. The design for new projects should account for the use of 13.56 MHz "Smart" cards in the future. This will include memory/storage capabilities to support future applications including logical access, biometric templates, and debit card capabilities.

2.2 Application

- A. ACAMS controls access into the buildings and select interior doors. Intrusion alarm monitoring comprised of door contacts, motion detectors, and duress buttons also monitored on the ACAMS system via integration with the IDS alarm panels.
- B. ACAMS electronic locks are used on doors that are deemed critical to security of expensive assets subject to a high possibility of theft, confidential records, or other areas of critical nature. These doors are typically locked at all times by the ACAMS.
- C. ACAMS locks may also be used on doors that are not deemed "critical", but have other operational requirements that make ACAMS a good solution, such as building entrances. These doors are locked or unlocked based on a programmed schedule
- D. Doors specified to have electronic access control must tie into the College's existing Software House ACAMS. Create schedules to automate the opening and closing of the building including unlocking doors, bypassing alarms and enabling the auto operator at main entrances
- E. No other security systems may be used in lieu of or in addition to the Software House ACAMS.
- F. Card readers and card readers with integrated keypads are generally not used at the District at this time.
- G. Interconnect ACAMS to auto operators for secure after hour's operation



- 1. Interlock exterior ADA push plates (or motion sensor) with aux relay on local lock power supply.
- 2. When door is locked exterior push plate (or motion sensor) is disabled
- 3. When door unlocked, even momentarily, ADA push plate (or motion sensor) is enabled.
- H. Security enclosures require tamper switches monitored by the ACAMS. Supervision of power supplies and batteries is required.
- I. Utilize stranded, plenum-jacketed cable and route on dedicated security J-Hangers through the building's accessible ceiling. Home run cable to nearest security equipment hub typically located in telecommunications rooms. Do not share conduits with fire alarm or telecommunications systems. Utilize plenum jacketed cable when required.
- J. Reference Specifications for additional application requirements.

2.3 ACAMS Door Typology

Table 2.3 lists standard ACAMS door typology used by the District. Each typology has an identifying number used to indicate the door's security function. All types include intrusion monitoring. When programming ACAMS design with end-user groups, use the Districts door typology as a starting point.

Door Type	Description	How it Works
1	Card Reader Door with Standard Proximity Reader (no keypad)	Can be programmed to unlock/lock on a schedule. When not scheduled unlocked, a card or fob must be presented to unlock the door. Door includes capability to disable card reader by using a push button or other override device on opposite side on interior of door. Activation of the push button or override device generates an alarm event and locks the door.
2	ADA Card Reader Door with Standard Proximity Reader	Uses a card reader, like "1", but in conjunction with an automatic door operator.
3	Scheduled Unlock Door	Automatically locks or unlocks on a schedule that has been programmed into the ACAMS. Door includes capability to lock the door by using a push button or other override device on opposite side on interior of door. Activation of the push button or override device generates an alarm event and locks the door.
4	Monitored Door with Authorized Exiting	Allows for egress without an alarm, no re-entry through these doors, typically no exterior trim on this type.
4.1	Emergency Exit Door with Local Alarm	Monitored like "4", exiting through this door will set off an audible alarm near the door as well as at the ACAMS and IDS.
4.2	Emergency Exit Door with Local Alarm	Monitored like "4", exiting through this door will set off an alarm at the ACAMS and IDS.



5	In/Out Standard Proximity Reader with Door Management Alarm	A card or fob must be presented to use this door to exit or enter, otherwise an audible alarm near the door will sound.
6	Proximity Reader Sliding Storefront	Card reader outside to enter, momentary key switch inside to exit, magnetic lock on the first sliding panel.

Table 2.3:	ACAMS	Door	Туре	Naming	Convention

The District security standard shall provide card readers at the following locations:

- □ Main perimeter entry/exit doors.
- Exterior elevator hall call buttons
- Other perimeter doors frequently used by staff
- □ MDF, IDF, and data rooms
- Lecture halls, laboratories, and rooms with high-value instructional technology
- □ Staff administrative spaces including: Administrative Offices, Accounts Receiveable, Financial Aid, Counseling, and Information Services Departments
- Other rooms where staff handle or store cash and other assets
- □ Smart classrooms and computer labs

Refer to the Electronic Security Device Matrix for additional security information.

2.4 Programming

- A. The District, College CM, Design Engineer, and Contractor shall hold a meeting prior to the completion of construction to discuss the programming criteria and access to the District head end. Discuss the following topics
 - 1. Door Names
 - 2. Device Names
 - 3. Alarm groups
 - 4. Schedules and time codes
 - 5. Action/responses from individual input points
 - 6. Action response from card commands
 - 7. Alarm groupings for programming and reporting
- B. Contractor shall program and setup all system hardware such that no additional programming other than entering new access cards, time codes, and adding doors to existing access privilege groups is required
- C. Program any Type 3, scheduled unlock doors which access the same space as a Type 1 or 2, card reader door to unlock with when the space is switched to an unlocked/disarmed state via card reader conditional comands.
- D. Program the ACAMS software to make conditional commands a control panel function instead of a server function. Conditional "if" statements shall have up to eleven "then" commands.



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2.5 Coordination

- A. The ACAMS can interface many different disciplines making coordination extremely important. Reference all other disciplines covered in these documents and coordinate ACAMS requirements for each project. Attend design team coordination meetings during design and hold a construction kick off meeting at the start of construction.
- B. Refer to Paragraph 5.0, Coordination below for additional information.

2.6 Commissioning and Closeout

A. Refer to Paragraph 6.0, Testing, below for additional information.

3.0 INTRUSION DETECTION SYSTEM (IDS)

3.1 IDS Overview

The District selected Digital Security Controls (DSC) as its IDS for integration with the Software House access control system. The IDS is required to send security system alarms and alarm events to District and Campus selected listed Central Alarm Monitoring Station (CAMS). All security system devices monitored by the IDS are capable of being sent to the CAMS and have secondary monitoring through the ACAMS.

Help/duress buttons located at the public interaction desks and cash transation counters are wired directly to the IDS. The IDS system shall integrate to the ACAMS system to ensure that activation of a help/duress button reports to the ACAMS and IDS. The IDS includes a keypads located near main entry portals and also mounted on the cover of the control panel located in the designated telecommunication room. The keypad will allow activation, deactivation, and programming of the IDS system. Software integration will also allow the ACAMS to arm and disarm alarm partitions through the use of specific credentials or through the ACAMS workstation.

3.2 Application

Alarm initiating devices connected to the IDS are monitored via software thorugh the ACAMS. Each security device is monitored through the ACAMS server and logged in the software. The District security standard shall provide alarm devices at the following locations:

- □ Building perimeter consisting of all perimeter door contacts.
- □ Building perimeter spaces with exterior glazing include motion sensors within the space.
- Areas with assets and/or critical information consisting of alarm contacts on door to the space and motion sensors
- Duress buttons at cash transaction counters and other high-risk locations

3.3 Programming

Program the IDS to transmit help/duress button activations and forced door alarms to the CAMS at all times (24hrs/7days). Other alarm monitoring devices such as motion detectors and non-emergency exit-only doors will transmit alarms to the ACAMS when the IDS is activated. All security alarms report to both systems (ACAMS & IDS) through software integration. Review IDS schedules for each project with the campus project manager for specific operational requirements.

Refer to the Electronic Security Device Matrix for additional security information.



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3.4 Coordination

- A. The IDS interfaces with different disciplines, including door hardware, electrical, and campus IT, making coordination extremely important. Reference all other disciplines covered in these documents and coordinate the IDS requirements for each project. Attend design team coordination meetings during design and hold a construction kick off meeting at the start of construction.
- B. Refer to Paragraph 5.0, Coordination below for additional information.

3.5 Commissioning and Closeout

A. Refer to Paragraph 6.0, Testing, below for additional information.

4.0 VIDEO SURVEILLANCE SYSTEM (VSS)

4.1 VSS Overview

The District requires a video recording and viewing software platform which integrates with the ACAMS via software interface. The District and individual campus security projects must utilize a consistent system to provide commonality in recording and viewing formats, along with District-wide programming standards. The video surveillance system will include monitoring client workstations utilized by Police Services on each campus.

The District selected to use megapixel color cameras with vari-focal lens for both interior and exterior locations. While current specifications reflect a few IP camera manufacturers, any comparable performing PoE IP camera may be acceptable for use upon review by the District and respective college campus IT department. Note that on typical new construction projects, the telecommunication contractor will provide IT cabling. This ensures that all IT cabling provided for the project falls under the certified IT structured cabling system. Please review District and specific campus IT standards as they relate to the VSS..

The District and individual campus IT departments will provide and maintain the required network video servers. These network videor servers will reside in a centralized telecommunications or server room on each campus. The existing server capacity shall be reviewed during the design and implementation of security cameras on every project.

4.2 Application

The District security standard advises to provide VSS cameras at the following locations:

- □ Main entry/exit doors
- Other perimeter doors including fire stairwell and exit-only doors
- □ High traffic or high value interior locations and corridors

Refer to the Electronic Security Device Matrix for additional security information. Also note, do not locate cameras to allow the viewing of staff or students within standard classrooms.

4.3 Coordination

A. The VSS interfaces heavily with the district and campus IT Department, making coordination extremely important for a successful installation. All projects will utilize existing central servers while large projects will require the installation of additional storage to existing servers to support the processing and storage requierments for the network video recorder software. The owner's IT department will provide the centrally located server.



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- B. Reference other disciplines covered in these documents and coordinate the IDS requirements for each project. Attend design team coordination meetings during design and hold a construction kick off meeting at the start of construction.
- C. Refer to Paragraph 5.0, Coordination below for additional information.

4.4 Commissioning and Closeout

A. Refer to Paragraph 6.0, Testing, below for additional information.

5.0 COORDINATION

This design guideline document identifies general information required for implementation of new security work on any District facility. A significant amount of detailed coordination work is required for a completely functional and operational installation at a new location. Following is a list of some of the specific coordination activities required. Additional security coordination items are indicated in the following <u>Security Design Coordination</u> document.

- Coordinate with door and hardware specifier to ensure proper door preparation, voltages, and divisions of work.
- □ Electrical power locations for ACAMS and IDS control panels.
- Coordination with local Authority Having Jurisdiction (AHJ) regarding building fire alarm system interfaces, and local code requirements including Emergency Door releases and intercoms.

6.0 TESTING

The purpose of system commissioning and closeout is to ensure the security system operates properly when it is needed most. Security systems are very complex from both equipment and programming standpoints, and thorough testing is necessary to ensure correct operation prior to the building's occupancy.

The local security system integrator is required to perform 100% pre-functional testing of the ACAMS, IDS, and VSS prior to requesting witnessing of final acceptance testing by the District or their designated representative. The Contractor should be present and demonstrate the security system functionality during the punch walk. Refer to individual specification sections for specific testing/commissioning requirements. Refer to security system commissioning specification 28 08 00 for specific closeout procedures.



Contra Costa	New Project Security System Standards										
Community	Electric Security Device Application										
Community	Access Control Alarm Monitoring							CCTV		Notes	
College District	Card ²	Sched	Entry	Alarm	Arming	Audible	Durocc	Motion	Fixed	Multi	
at firm to a	Card	Electric	Intorcom	Contact	Station	Local	Duress	Dotoctor	Comoro	Sensor	
parnways to success	Reader	Lock	mercom	Contact	Keypad ³	Alarm	BULLOII	Delector	Camera	Camera	
Site											
Vehicle Entry Points									0	0	
Pedestrian Entry Points									0	0	
Staff & Student Lots									0	0	
Student Assembly Areas									0	٠	
Critical Circulation Areas									0	٠	Trouble areas on campus
Building Perimeter											
Main Perimeter Entry	•			•	•			•	•	0	
Perimeter Entrance	•	•		•				•	•	0	
Employee Entrance	•			•	•				0		
Emergency Exit-Only				•		•			0		
Perimeter Exit-Only				•					0		Include request-to-exit
Util Ent. w/ Bldg Access	•			•					0		
Util Ent. w/o Bldg Access				•							
Rooms w/ Window								•	0		
Loading Dock	•		•	•					•	0	If applicable
Building Interior											
Cashier/Cash Handling	•			•			•		•	0	
Student/Staff Counters							•		•	0	
High Value Asset Areas	•			•	•			•	•	0	
Counseling Entrance	•			•					0		
Telecom Rooms	•			•							
Additional Interior											
Tiered Lecture Halls	•			•							
Staff Work Areas	•			•							
Smart Classrooms	•	•		•				•			Card reader on one door
Computer Labs	•	•		•				•			Card reader on one door
Instructional Labs	•	•		•						О	
Corridors Adjacent to High											
Value / Sensitive Areas /	•	•		•					0	0	
Labs											

Notes:

- 1. (O) Indicates an optional requirement. Determine requirements based on specific project requirements.
- 2. Card reader consists of magnetic door contacts, request-to-exit, and electrified locking hardware interface.
- 3. Alarm Arming Station Keypad only required if building/area does not have ACAMS present with alarm integration.
- 4. Where applicable, include Automated License Plate Recognition Camera at vehicle entry points.

Contra Costa Community College District Security Design Coordination

1.0 INTRODUCTION

1.1 Scope

The scope of this design guideline coordination document includes the following information and should supplement the previous Security Design Guideline segment:

A. Architectural, Structural, Electrical, Mechanical, Elevator, and Telecommunication coordination and design requirements required to support the physical access control and security system during implementation.

1.2 Arrangement of Information

This document is arranged by design disciple. Best practice has the Architect and Design Engineers reading the entire document and related items within the security guidelines binder. The design team should review the specific sections related to their discipline and how this affects their work.

2.0 ARCHITECTURAL

2.1 Equipment Rooms

- A. Coordinate the locations of security equipment panels in telecommunications rooms with the campus IT department, unless space constraints do not allow. Wall mount panels to plywood backboard and coordinate space requirements with telecommunication contractor with acceptance by campus IT department. Verify at least one segment of 4' wide x 8' high plywood is reserved in each typical telecommunication room for security equipment. Depending on the magnitude of the project, some installations will require more wall space.
- B. Coordinate rack space for network security equipment. Take security equipment into consideration when sizing the telecommunication rooms. Some projects may require more rack space than others depending on the quantity of security devices.
- C. When space constrains do not allow for security equipment panels in the telecommunication rooms, locate equipment in spaces suitable for low-voltage equipment. Spaces shall be free from moisture, excess dust & dirt, and secured from the general public. Equipment panels shall mount to plywood backboard following the same requirements in telecommunication rooms.
- D. Typically telecommunication rooms and rooms with extremely critical infrastructure receive a card reader and associated security hardware.

2.2 Doors and Hardware

A. Exterior Door ADA Interface Requirements



- 1. The District is committed to providing access for our disabled community and when appropriate will implement beyond code requirements. As an example, auto operators at the major entries to each building may be provided even if not required.
 - a) Operators shall be furnished with three-position rocker switches (on/off/hold open).
 - b) Interlock the power assist's push plate actuators with the ACAMS when access control is required such that interior push plates unlock the door before swinging the door open. Exterior push plate actuators will not trigger the operator unless the door is in an unlocked state.
 - c) In some cases automatic sliding doors with motion sensors may be used instead of push plate actuators. Interface the automatic sliding door's locking mechanism and motion sensor with the ACAMS.

B. Mechanical Override

- 1. Card reader doors must have mechanical lock mechanisms.
 - a) ACAMS electronic locks must have a manual override feature that allows for access in the event of ACAMS downtime due to extended power outages or other system failures.
 - b) Card reader doors must be keyed to the College's master key system. Only a high level master should have the capability to unlock card reader doors.
 - c) Card reader doors must have capability to disable the card reader and lock the door from the interior side using an electronic or mechanical pushbutton. Disabling the card reader using either method above generates an alarm event in the access control system and requires electronic reset by the access control system.
- 2. This protocol facilitates emergency response, ease of use, departmental control, protection of assets, lockout capability and the safety and security of faculty, staff and students.
- C. Application
 - 1. All doors must have mechanical lock mechanisms with key access, unless doors are exit only portals where no exterior trim exists.
 - a) Locked doors must be keyed to the College's master key system.
 - b) ACAMS electronic locks must have a manual override feature that allows for access in the event of ACAMS system downtime due to extended power outages or other system failures.
 - 2. This protocol facilitates emergency response, ease of use, departmental control, protection of the District's assets, and the safety and security of faculty, staff and students. No exceptions to this protocol are allowed.



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2.3 Rated Doors and Frames

- A. New Construction
 - Factory prepare fire rated assemblies for security devices by the manufacturer prior to installation. Factory-prepared doors should be ready for electrified locks via a transfer hinge and a factory-prepped cored chase for wiring to the lock. No modifications to door or frame are allowed in the field. Field modifications void rating and require replacement of the entire rated assembly.
- B. Renovation
 - Existing rated assemblies use a different modification approach. Utilize tape wire around the edge of the door from the electrified hinge to the electrified lockset instead of drilling through the door. Create a notch 3/4" wide by 1/4" deep around the edge of the door for the tape wire. Backfill notch and conceal tape wire with additional wood to match original finish.
 - 2. Coordinate color of security devices on walls and ceilings to best match the mounting surface finish. Devices should not stand out. This applies to security field devices such as card readers, request-to-exit sensors, contacts, glass break sensors, and camera housings.

3.0 STRUCTURAL

3.1 New Construction

- A. Seismic Bracing of Security Equipment Racks, in Telecommunications Rooms
 - 1. Equipment racks, possibly both floor-mounted and wall-mounted, will be installed into Telecommunications Rooms.
 - 2. The Structural Engineer shall be responsible to confirm the seismic bracing designs (including structural calculations and details as required by the Project), and provide recommendations as necessary.

3.2 Renovation

- A. Floor Anchoring for Equipment Racks
 - Floor-standing equipment racks and cabinets shall be anchored to the structural floor via devices pre-approved by DSA. Examples of such devices include Hilti Kwik-Bolt 3. The structural engineer shall determine the applicability of the anchoring device set in the floor system, including minimum embedment depth.
- B. Wall Anchoring for Equipment Racks and Cabinets
 - 1. Wall-mounted equipment racks and cabinets shall be anchored to the wall via fasteners pre-approved by Division of State Architect (DSA). Examples of such fasteners include woods screws into plywood backboard and expansion anchors into concrete wall.



- 2. The structural engineer shall determine the applicability of the fasteners depending upon the mounting substrate, including minimum embedment depth.
- C. Typical Fasteners
 - 1. The Chart 3.1 is a guide to the fasteners generally approved for mounting backboards, equipment, etc.

Wall Type	Fastener Required
Concrete Wall	TAPCON, 3/16" x 1 ¹ / ₄ " with 1" min embedment
CMU Wall	TAPCON, 3/16" x 1 ¹ /4" with 1" min embedment
Metal Stud Framed Wall, 1 Layer Gypsum	Into metal stud: no. 8 x 2" self-tapping metal screw for metal studs
	Into gypsum wallboard: Toggler toggle bolt BA (3/16" x 24)
Wood Stud Framed Wall, 1	Into wood stud: no. 8 x 2" wood screw
layer Drywall	Into gypsum wallboard: Toggler toggle bolt BA (3/16" x 24)
Plaster Wall	Toggler toggle bolt BA (3/16" x 24)
Plywood Backboard	no. 8 x 2" wood screw

Chart 3.1 - Approved Fasteners Chart

4.0 ELECTRICAL

4.1 **Power Requirements**

- A. Security Equipment Hubs
 - 1. Coordinate power at each wall-mounted security equipment hub location, typically in the telecommunication rooms. Provide two 120 VAC, 20 amp dedicated circuits to each security equipment hub location. Connections to security equipment transformers or power supplies are hardwired unless a receptacle is specifically indicated.
 - Network Video Recorders (NVR) require one 120 VAC, 20 amp dedicated circuit. NVR's are typically rack-mounted units. Verify load on new or existing UPS power supplies can accommodate NVRs. If centralized UPS power is not available, provide a rack-mount dedicated unit. Coordinate exact power requirements and locations.
- B. Locking Hardware
 - Review door locking hardware requirements on the latest door hardware schedule. Verify if any hardware requires a local power supply or booster, such as a Von Duprin PS 873, provided by the door hardware installer. Power supplies are cabled no further than 25 feet from the electrified lock. Provide hardwired 120 VAC to each lock power supply.
- C. Field Devices
 - 1. Coordinate power at field locations for remote security device power supplies.



- a) Review site security requirements and provide a 120 VAC, 20 amp circuit to each remote security power supply location. Security power supplies used to power cameras, detection devices, or remote security panels. Obtain locations from security Design Engineer.
- b) Provide power to any vehicular gate operator system. These are typically not provided by the security Design Engineer or Integrator but may interface the ACAMS in several ways.

4.2 Pathways

- A. Horizontal
 - Horizontal pathways consist of device boxes, conduit, j-hangers, and cable tray used to home run the security cable from each device to the closest telecommunication room. Security equipment typically requires a 4-square device box installed on a wall or ceiling. Conduit is run from the device to the closest accessible ceiling or directly into a cable tray when tray is utilized. Dedicated security j-hangers are used in accessible ceilings to support all security cable. Coordinate main j-hanger runs with other trades to minimize interference issues. Pathways shall be concealed in walls and accessible ceiling spaces wherever possible.
 - 2. Site conduit for remote security devices such cameras shall be coordinated with the security system Design Engineer, Civil Engineer, and Telecommunication Engineer. Plan for conduits to run underground in a joint trench into the closest telecommunications equipment room.
 - 3. Elevator Demarcation: In some cases where card access is required on an elevator, conduit is required between any elevator termination enclosures and the ACAMS equipment panels. The elevator termination enclosure is the termination point between the ACAMS and elevator controller. Refer to article 6.0 for additional requirements.
- B. Riser/Equipment Rooms
 - 1. Security equipment hubs should utilize a 6" high x 6" deep x 4' long screw cover metallic raceway above security equipment hub locations. Sizing of the raceway will vary from project to project. Provide EMT conduit from the security equipment hub raceways to the low voltage cable trays within the room or directly out of the room, to the nearest accessible ceiling for security devices located on the same floor.

4.3 Fire Detection/Life Safety

- A. Means of Egress
 - 1. When required by code, provide output from the fire alarm system to any ACAMS controlled door that falls in a path of egress. Connect the output directly to the ACAMS panel that controls these specific doors. ACAMS shall be programmed to unlock certain doors for egress in the event of a fire.
- B. Magnetic Door Holders
 - 1. Classrooms and instructional labs may have doors outfitted with hardware that allows it to be held open.



- a) If the door is in a fire corridor, a magnetic door holder shall be tied into the fire alarm system to release the door during a life/safety event.
- b) If the door is not in a fire corridor, a mechanical door holder may be used. However, mechanical door holders shall not be installed on doors with ACAMS; in these instances, use a magnetic door holder tied to the ACAMS (but not the fire alarm) system, or a door closer with an electronic hold open.
- C. Corridor Separation doors should be outfitted with hardware that allows the doors to be held open.
 - 1. If the corridor separation doors are not in a fire corridor, they can be outfitted with a mechanical door holder.
 - a) The exception to this is if the doors are to be used to secure part of the building off for operational purposes; in that case, magnetic door holders must be used and tied into the ACAMS to release and secure the corridor at the programmed time.
 - 2. If the corridor separation doors are fire doors, the magnetic door holders shall be tied into the fire alarm system.
 - a) If the doors are to be used to secure an area of the building off, then the magnetic door holders must also be tied into the ACAMS to release at the programmed time.

5.0 MECHANICAL

5.1 Equipment rooms

A. Security equipment generates heat and may require cooling depending on the type of equipment. Wall-mount equipment such as access control panels and power supplies don't create as much heat as network video recorders. Calculate heat load for security equipment and coordinate with telecommunication engineer if equipment is located in a telecom room. These rooms typically have some form of environmental cooling.

6.0 ELEVATOR

6.1 Applications

- A. In-Cab Reader
 - When specific floors require restricted access, interface ACAMS to the elevator controller to disable and enable specific floor select buttons. Surface mount card reader in the elevator cab either above or below the floor select buttons. Coordinate exact location with Owner and Design Team. Coordinate card reader cable requirements for the traveler cable and terminate cable to an elevator demarcation enclosure.
- B. Hall-Call Reader



- 1. When elevator access is restricted on a specific floor by the ACAMS, a card reader shall be located adjacent to the elevator hall-call button. ACAMS should interface the elevator controller to disable the call button. Coordinate output from ACAMS to location of elevator demarcation enclosure.
- C. Elevator Machine Room Connections
 - Cables from the elevator cab and controller do not terminate directly on ACAMS control panels. The elevator contractor or electrical contractor shall provide a demarcation enclosure with terminal strips for interface to ACAMS. This enclosure is usually mounted in a coordinated accessible space, just outside the elevator machine room. Conduit is required between the enclosure and both the elevator controller and the ACAMS equipment panels. Conduit sizing will vary depending on the level of ACAMS integration on each project.
 - 2. Provide demarcation terminal strip. Coordinate with the elevator contractor. Terminate ACAMS cabling to one side of the terminal strip. The other side of the terminal strip is used for the elevator controller interface wiring terminated by the elevator contractor.

7.0 TELECOMMUNICATIONS

7.1 Network Connections

- A. Connection to the District/Campus network is required at each ACAMS security equipment hub for primary communications to the existing District ACAMS server. This is typically a TCP/IP 10/100/1000 BASE-T connection. Provide active network port and coordinate IP address to security contractor.
- B. Cameras will typically require one TCP/IP 10/100/1000 BASE-T connection to communicate back to the District/Campus network. Provide active network port with PoE for each camera location and coordinate IP addresses with security contractor.
- C. IDS panels require one TCP/IP 10/100/1000 BASE-T connection for integration with the ACAMS server for local alarm monitoring. Coordinate active network port and coordinate IP address to security contractor.
 - 1. IDS panels may require a second TCP/IP address if the District migrates to network based central station monitoring. Confirm network connections based on current project requirements.
- D. Classroom and spaces with no telephones require one TCP/IP 10/100 /1000 BASE-T connection for District Standard Emergeny Notification System. Coordinate termination of TCP/IP connection with Emergency Notification System provider.

7.2 Voice Connections

A. Intrusion alarm/detection panels (IDS) require an analog phone line to communicate with an offsite central station. Provide an analog phone line to security enclosure for the IDS communications for after hours alarm monitoring.



Contra Costa Community College District - Security Design Coordination Page 8 of 8

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Contra Costa Community College District Security Design Guidelines

SECURITY SYSTEM REQUEST FOR PROPOSAL

PART 1 - PROJECT OVERVIEW

As part of this [remodel/new construction] project, Contra Costa Community College District (CCCD) wishes to incorporate their new District wide security system. This Request for Proposal document and associated bid form, drawings, specifications, unit price sheet, base building work rules and general contractor insurance requirements are provided to solicit a complete and competitive bid from authorized Software House dealers for this work.

SECURITY CONTRACTOR SELECTION PROCESS

1.01 Schedule of Events:

A. Date to be determined

RFP documents sent to selected bidders

B. Date to be determined

Mandatory pre-bid site walk General Contractor, (time to be determined) at the job site.

C. Date to be determined

Deadline for any final contractor requests for information (RFIs) needed to complete their response to the RFP. Email RFIs to **General Contractor** and cc: [Respective campus PM contact information], all **questions must be in writing.** CCCCD will provide responses to questions by the close of business on the date to be determined.

D. Date to be determined

Contractors submit RFP responses by noon on date to be determined.

Bid Interviews may be held during the evaluation period. The bid interview schedule will be determined at a later time.

E. Date to be determined

General Contractor [or CCCCD] to award security project to winning bidder

1.02 Bid Documents

A. RFP Document Date

- B. Project schedule dated Project Date
- C. Project drawings dated Project Date
- D. Project specifications dated Document Date
- E. Unit Price Sheet dated **Document Date**
- F. Base Building work rules dated Document Date
- G. General Contractor insurance requirements (Issued by General Contractor during Bid Walk)

PART 2 - CONSTRUCTION SCHEDULE

- 2.01 Contractor is to coordinate with General Contractor and Contra Costa Community College District to meet construction timelines for the project.
- 2.02 See attached Construction Schedule for project milestones and deadlines.

PART 3 - SPECIFIC REQUIREMENTS

- 3.01 Forms: Each proposal shall be made on the Bid Forms prepared by the Engineer and shall be submitted electronically via email. Where sufficient space is not provided in the forms for a complete answer, supplemental sheets shall be used and attached to the proposal.
- 3.02 Delivery of Proposals: Proposals shall be delivered electronically before **time and date to be determined** (fax is not acceptable). It is the sole responsibility of the Bidder to see that their proposal is received in proper time. Any proposal received after the scheduled closing time for receipt of Proposals shall not be considered.
- 3.03 Withdrawal: Any Bidder may withdraw his/her Proposal, either personally or by telegraphic or written request, at any time prior to the scheduled closing time for receipt of Proposals.
- 3.04 Award or Rejection: The contract will be awarded to the best-qualified responsible Bidder complying with these instructions. CCCCD reserves the right to reject any or all Proposals or to waive any formality or technicality in any Proposal in the interest of CCCCD. No Bidder may withdraw his Proposal for a period of 30 days after the date of opening thereof.
- 3.05 Interpretation of Documents: If any person contemplating submitting a Proposal is in doubt as to the true meaning of any part of the Contract Documents, they may submit to CCCCD/Engineer a written request for an interpretation or correction thereof. The person submitting the request will be responsible for its prompt delivery. Any interpretation or correction of the documents will be made only by Addendum duly issued and a copy of the Addendum will be faxed or delivered to each person receiving a set of the Request for Proposal. Neither CCCCD nor the Engineer will be responsible for any other explanations or interpretations of the technical specifications and drawings. The written interpretation by the Engineer or CCCCD shall be final.
- 3.06 Addenda: Any addenda issued during the time of preparation of the Proposal, shall be covered in the Proposal, and shall be made a part of the Contract. Receipt of each addendum shall be acknowledged in the proposal.

PART 4 - PROPOSAL SUBMISSION

- 4.01 Submit proposal to each of the following people:
 - To: General Contractor Contact Person General Contractor (XXX) XXX-XXXX phone TBD@TBD.com
 - cc: Contra Costa Community College District Representative Contra Costa Community College District email@4CD.edu

[Name of Campus] District Representative (if applicable) Contra Costa Community College District email@4CD.edu

PART 5 - STIPULATED AMOUNTS

The Undersigned hereby proposes and agrees to provide a completely operational and functional security system for CCCCD in accordance with the conditions and requirements outlined in this Request for Proposal for the following stipulated amounts. A completely functional system includes all required equipment, materials, labor including programming and training, software, coordination, submittals including detailed drawings and project management even if not specifically detailed in bid documents.

The bidder is required to document in writing any exclusions, exceptions, or errors that may impact the projects schedule or price. All security work is assumed to be included by the contractor. Failure to document any exclusions, exceptions, or errors will result in the contractor providing the additional work at no additional cost to CCCCD.

Note: Prices quoted shall include all charges, i.e. permit fees, includes tax, shipping, job expenses, permits, overhead, and profit, etc. All line items must be filled in.

	Materials	Labor	Tax	Total
Access Control System				
Intrusion Detection System				
Video Surveillance System				
Total				
Year 2 M/A				
Year 3 M/A				
Year 4 M/A				

5.01 Base Bid; Security System

5.02 Change Order Pricing

Change order pricing is for all work outside of the scope of the construction documents. This pricing shall be used for change order pricing during this contract that is not covered under Unit Pricing. Change order pricing shall also be valid for one year from the date of bid award.

Provide material and labor rates for the following:

Material Mark Up	Project <u>%</u>	_ Change	e Order <u>%</u>	
Hourly Rates	Normal	Overtime	Weekend	Shift
Project Manager				
Lead Forman	. <u> </u>			
Installer				

All change orders shall be performed on normal time. The contractor shall add crew to complete change orders if required. Overtime work will be evaluated approved on a case-by-case basis by CCCCD.

PART 6 - SUPPLEMENTAL INFORMATION

6.01 Bill of Materials

A. Contractor shall attach a copy of the Bill of Materials for the project listing product description, model#, manufacturer and quantity.

6.02 Project Team

A. Contractor shall attach a resume for each individual specified below.

Sales/Account Manager:	
Project Manager:	
Lead Forman:	

6.03 Certifications

Please attach a copy of the manufacturer's certification or provide letter from manufacturer confirm that the bidder is an authorized dealer of the specified products and the listed team members are certified in installation and repair of the specified products.

Insurance

See attached insurance requirements and provide written proof of required coverage's.

6.04 Specifications

The Undersigned hereby acknowledges receipt of the following Specification Sections:

Section 28 00 00, Section 28 05 13, Section 28 05 53, [Section 28 08 00, Section 28 13 00, Section 28 23 00, TBD]

PART 7 - DRAWINGS

The Undersigned hereby acknowledges receipt of the following Drawings:

Drawing sheets:

Drawing sheets to be determined

ADDENDA

The Undersigned hereby acknowledges receipt of the following Addenda:

Addendum Number

Dated

PART 8 - Exclusion, Exceptions, or Error

8.01 Document any exclusions, exceptions, or errors:

PART 9 - Value Engineering Ideas

9.01 The Contra Costa Community College District team is open to value engineering ideas that will save the Owner money and/or improve the operation of the proposed security system installation. Please provide any recommendations for our review.

PART 10 - THE PRECEDING PROPOSAL IS HEREBY RESPECTFULLY SUBMITTED BY

- 10.01 I understand that the Owner reserves the right to reject this bid, but that this bid shall remain open and not be withdrawn for a period of thirty (30) days from the date prescribed for its opening.
- 10.02 If written notice of the acceptance of this bid is mailed or delivered to the undersigned at any time before it is withdrawn, the undersigned will execute and deliver to the Owner Proof of Insurance coverage within five (5) days after notification of this bid.
- 10.03 Notice of Acceptance, or request for additional information, may be addressed to the undersigned at the addresses set forth below.
- 10.04 The names of all persons interested in the foregoing bid as principals are:

Licensed in accordance with the governing country, state, local board, and with License Number

Sign Here:

Signature of Bidder

NOTE: If Bidder is a corporation or partnership, set forth the legal name of the corporation or partnership together with the signature of the officer or officers authorized to sign contracts on behalf of the corporation or partnership.

Business Address:	 	
Telephone Number:		
Date of Bid:		

Security System Unit Pricing

Contra Costa Community College District Security Design Guidelines

Security System Unit Pricing

Provide unit pricing to add or delete the following security system devices. Include all labor, materials including wiring, conduit and back boxes, software, programming, one-year warranty, and updating project As-Built drawings. Reference project specifications for individual manufacturer, model number, and device requirements. Do not include any hardware or software upgrades to head-end equipment and assume sufficient spare capacity to support new work on existing access control panels, network video recorders, PoE network switches and security system power supplies:

Access Control System

1. One software license for "client" access control system workstation.

Cost to add: _____

Cost to delete:

2. One interior card reader door including card reader, request-to-exit device, alarm contact(s), and interface to locking hardware. Do not include electric locking hardware.

Cost to add: _____

3. One perimeter card reader door including card reader, request-to-exit device, alarm contact(s), interface to locking hardware, and interface to ADA actuator or automated door system. Do not include electric locking hardware.

Cost to add: _____

Cost to delete: _____

4. One scheduled unlock door including request-to-exit device, alarm contact(s), and interface to locking hardware. Do not include electric locking hardware.

	Cost to add:
	Cost to delete:
5.	One door alarm contact(s) for security monitored door.
	Cost to add:
	Cost to delete:
6.	One local door alarm management unit and alarm contact(s). Do not include electric locking hardware.
	Cost to add:
	Cost to delete:
Int	rusion Detection System
1.	One wall-mounted alarm control keypad.
	Cost to add:
	Cost to delete:
2.	One door alarm contact(s) for security monitored door.
	Cost to add:
	Cost to delete:
3.	One wall/ceiling mounted motion detector.
	Cost to add:
	Cost to delete:
4.	One under-counter duress (Help) button.
	Cost to add:
	Cost to delete:
Vic	leo Surveillance System
1.	One interior fixed IP color camera, including software camera license.
	Cost to add:
	Cost to delete:
2.	One exterior fixed IP color camera, including software camera license.
	Cost to add:
	Cost to delete:



3. One interior multi-sensor IP color camera, including software camera license.

Cost to add: _____

Cost to delete: _____

4. One exterior multi-sensor IP color camera, including software camera license.

Cost to add: _____

Cost to delete: _____

Security System Training

1. 4 hours of on site user training

Cost to add: _____

Security System Programming

1. 4 hours on site programming.

Cost to add: _____

r End of Document 🖘



SECTION 28 00 00

BASIC SECURITY REQUIREMENTS

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section includes general administrative and procedural requirements for Division 28 and is intended to supplement, not supersede, the requirements specified in Division 1.
- B. The requirements described herein include the following:
 - 1. References
 - 2. Definitions
 - 3. System Description
 - 4. Submittals
 - 5. Quality Assurance
 - 6. Project Management and Coordination Services
 - 7. Product Delivery, Storage, and Handling
 - 8. Warranty
 - 9. Maintenance
- C. Products furnished and installed under another section:
 - 1. 120V power
 - 2. Conduit and junction boxes
 - 3. Door hardware
 - 4. Network Connections
- D. Related Sections:
 - 1. Consult other Sections, determine the extent and character of related work, and properly coordinate work specified herein with that specified elsewhere to produce a complete and operable installation.
 - 2. Section 28 05 13 Security System Cabling
 - 3. Section 28 05 53 Security System Labeling
 - 4. Section 28 08 00 Security System Acceptance Testing
 - 5. Section 28 13 00 Access Control and Alarm Monitoring System
 - 6. Section 28 16 00 Intrusion Detection System
 - 7. Section 28 23 00 Video Surveillance System
 - 8. Earthwork: Include trenching, backfilling, boring and soil compaction as required for the installation of underground conduit, in-grade pull boxes, vaults, and bollard foundations.
 - 9. Selective Demolition: Nondestructive removal of materials and equipment for reuse or salvage as indicated. Also dismantling electrical materials and equipment made obsolete by these installations.



- 10. Concrete Work: Include forming, steel bar reinforcing, cast-in- place concrete, finishing and grouting as required for underground conduit encasement, pedestal foundations, and curbs (also includes saw-cutting of existing slabs and grouting of conduits in saw-cut).
- 11. Miscellaneous Metal Work: Include fittings, brackets, backing, supports, rods, welding and pipe as required for support and bracing of raceways, equipment enclosures, cameras, and similar devices.
- 12. Miscellaneous Lumber and Framing Work: Include wood grounds, nailers, blocking, fasteners, and anchorage for support of security materials and equipment.
- 13. Moisture Protection and Smoke Barrier Penetrations: Include membrane clamps, sheet metal flashing, counter flashing, caulking and sealant as required for waterproofing of conduit penetrations and sealing penetrations in or through fire walls, floors, ceiling slabs and foundation walls. Tape and make vapor tight penetrations through vapor barriers at slabs on grade.
- 14. Locking Hardware: Include interface to electronic hardware and door controllers on security related doors.
- 15. Access Panels and Doors: Required in walls, ceilings, and floors to provide access to security devices and equipment.
- 16. Painting: Include surface preparation, priming and finish coating as required for security cabinets, exposed conduit, pull and junction boxes, and devices where indicated as field painted in this Division. Refer to Division 9, Painting.
- 17. Elevators: Include interface to elevator floor and hall call on security related elevators.

1.02 REFERENCES

- A. General
 - 1. Codes, standards, and industry manuals/guidelines listed by reference, including revisions by issuing authority, form a part of this specification section to extent indicated. Consider such codes and/or standards a part of this Specification as though fully repeated herein.
 - 2. Standards listed are identified by issuing authority, authority abbreviation, designation number, title or other designation established by issuing authority. Standards subsequently referenced herein are referred to by issuing authority abbreviation and standard designation.
 - 3. Reference to codes, standards, specifications and recommendations of technical societies, trade organizations and governmental agencies shall mean that latest edition of such publications adopted and published prior to submittal of the bid unless otherwise specifically stated.
- B. Codes: Perform Work executed under this Section in accordance with applicable requirements of the latest edition of governing codes, rules and regulations including but not limited to the following minimum standards, whether statutory or not:
 - 1. California Code of Regulations (CCR):
 - a. Title 8, "Industrial Relations"
 - 1) Chapter 3.22, "California Occupational Safety And Health Regulations (CAL/OSHA)"
 - b. Title 24, "California Building Standards Code"
 - 1) Part 1, "California Building Standards Administrative Code"
 - 2) Part 2, Volumes 1 and 2, "California Building Code" (CBC)



- 3) Part 3, "California Electrical Code" (CEC)
- 4) Part 11, "California Green Building Standards Code" (CALGeen)"
- 2. National Fire Protection Agency (NFPA)
 - a. NFPA 70, "National Electrical Code" (NEC)
 - b. NFPA 75, "Protection Of Information Technology Equipment"
 - c. NFPA 255, "Standard Method of Test of Surface Burning Characteristics of Building Materials", 2006
- 3. National Fire Protection Agency (NFPA)
 - a. NFPA 70, "National Electrical Code" (NEC)
 - b. NFPA 75, "Protection of Information Technology Equipment"
 - c. NFPA 262, "Standard Method of Test for Flame Travel and Smoke of Wires and Cables for Use in Air-Handling Spaces", 2007
- 4. International Code Council
 - a. International Building Code (2009)
 - b. International Fire Code (2009)
- 5. National, State, Local and other binding building and fire codes
- 6. Code of Federal Regulations (CFR) Title 47 "Telecommunication", Chapter I "Federal Communications Commission (FCC)":
 - a. Part 15, Radio Frequency Devices
- C. Standards: Perform Work and furnish materials and equipment under Division 137xx in accordance with the latest editions of the following standards as applicable:
 - 1. Underwriter's Laboratories (UL): Applicable listing and ratings.
 - a. UL 294: Access Control System Units
 - b. UL 1076: Proprietary Burglar Alarm Units and Systems
 - c. UL 2044 Commercial Closed-Circuit Television Equipment

1.03 DEFINITIONS

- A. The Definitions of Division 1 apply to the 28xxxx sections
- B. In addition to those Definitions of Division 1, the following list of terms as used in this specification defined as follows:
 - 1. "Owner" : Contra Costa Community College District
 - 2. "Engineer": TEECOM Design Group
 - 3. "Furnish": To purchase, procure, acquire, and deliver complete with related accessories.
 - 4. "Install": To set in place, join, unite, fasten, link, attach, set up or otherwise connect together and test before turning over to the Owner, parts, items, or equipment supplied by contractor or others. Complete installation and make ready for regular operation.
 - 5. "Provide": To furnish, transport, install, erect, connect, test and turn over to the Owner, complete and ready for regular operation.
 - 6. "Connect": To install required patch cords, equipment cords, cross-connect wire, etc. to complete an electrical or optical circuit.
 - 7. "As directed": As directed or instructed by the Owner, or their authorized representative.



- 8. "Cabling": A combination of cables, wire, cords, and connecting hardware (e.g., cables, conductor terminations, connectors, outlets, patch panels, blocks, and labeling).
- 9. "System": The access control, video surveillance, and intrusion detection systems
- 10. "SEC": Security Equipment Cabinet
- 11. "SJB": Security Junction Box
- 12. "ACAMS": Access Control & Alarm Monitoring System
- 13. "VSS": Video Surveillance System
- 14. "IDS": Intrusion Detection System

1.04 SYSTEM DESCRIPTION

- A. Overview
 - 1. The Owner intends to *construct/renovate* a *single/multi*-level building at *Contra Costa College / Diablo Valley College / Los Medanos College / District Office / San Ramon Valley Campus / the Brentwood Center.*
 - 2. Security at the new facility will consist of [video surveillance, access control and alarm monitoring, and intrusion detection systems].
 - 3. The System will connect to the Owner's existing Software House CCure 9000 headend located at the District Office over the Owner's local/wide area network.
 - 4. Provide a high level of coordination services to ensure the proper installation and functioning of the security system.
 - 5. Coordinate the installation of the security system with other trades. This may include: review of other's subcontractor's shop drawings, attendance at meetings, providing samples for mockup, and preparation & distribution of written documentation.
 - 6. Refer to Division 1 for detail building description.
- B. Existing Conditions
 - 1. [Perform a functional test of the existing security devices and provide a written list to the Owner and Engineer of deficiencies prior to the commencement of work. Security work not identified assumed as functional and contractor will repair at no additional cost to the Owner.] (only include if reusing existing security equipment with new security work)
- C. Base Bid Work
 - 1. Access Control and Alarm Monitoring System (ACAMS)
 - a. The Owner requires an access control system to automate opening and closing of the building, restrict access after hours by cardholder privileges, and monitor specific spaces for intrusion.
 - b. The ACAMS consists of card readers, control panels, power supplies, workstations, alarm monitoring devices, and interfaces to other security equipment.
 - c. Refer to Section 28 13 00 for detailed description of system.
 - 2. Intrusion Detection System (IDS)


- a. The IDS consists of keypads, control panels, duress buttons, alarm monitoring devices, and interfaces to other security equipment.
- b. The IDS will communicate with a remote, third-party central station for alarm monitoring and contact Police Services during day-time operation and dispatch of the local Police Department after hours.
- c. Refer to Section 28 16 00 for detailed description of system.
- 3. Video Surveillance System (VSS)
 - a. The Owner requires a video surveillance to provide a photographic record of access control transactions and alarm events, some real-time monitoring of the facility, and integration with the access control and alarm monitoring system.
 - b. The VSS consists of a combination of analog and IP cameras, power supplies, IP encoders, and network video recorders.
 - c. Refer to Section 28 23 00 for detailed description of system.
- 4. [The System includes integration with the Elevator conveying system to provide the following:
 - a. Individual floor and/or hall call access control]
- 5. The System includes integration with the Fire/Life-Safety system to provide the following:
 - a. Automatically release locks upon fire alarm activation for doors within the path of egress
 - b. Disconnect power to magnetic door holders to automatically close doors after business hours

1.05 SUBMITTALS

- A. Submit required submittals to the General Contractor in the quantities and formats as required under the general contract. In the absence of requirements, provide as described in the following with reference to quantity and format.
- B. Contractor Qualifications
 - 1. Resumes of the Project Manager, General Foreman, and Lead Technician(s) indicating role, years of experience, product certifications and training, listing of similar projects the individual performed the role proposed for this project along with client contact information for each.
 - 2. Certification letters stating the Contractor is an authorized reseller, installer, and extended warranty provider for the following systems:
 - a. Software House CCure 9000
 - b. Salient Systems
- C. Product Data
 - 1. Obtain written approval from the Engineer for the product data submittal prior to the release of materials and equipment purchase order and prior to installation.
 - 2. Quantity: Submit product data submittals as described in Division 1.
 - 3. Format:
 - a. Minimum Format: Submit each product data submittal in an 8-1/2 x 11 inch folder. Product data submittal shall be in a 3-ring binder (or similar). If in a 3-ring binder, insert the submittal information the transparent front cover and spine pockets.



- b. Clearly label the cover and spine of each submittal with the following information:
 - 1) Client Name
 - 2) Project Name and Address
 - 3) Project Submittal Number
 - 4) Submittal Name (e.g., "Product Data Submittal for Video Surveillance System")
 - 5) Specification Section Number (e.g., "Section 28 23 00")
 - 6) Date of Submittal Format: <month> <day>, <year> (e.g., "January 1, 2010")
 - 7) Contractor Name
- c. Include a Table of Contents at the beginning of the submittal that lists materials by article and paragraph number (e.g., "2.02-A Network Video Recorders").
- d. Include tabbed separators for improved navigation through the submittal.
- 4. Content:
 - a. Cover Letter: Product data submittals shall include a cover letter stating that the submittal is in full compliance with the requirements of the Contract Documents. Sign (and stamped, if applicable) cover letter and list items and data submitted. Have the person who prepared the submittal sign the document as well. Failure to comply with this requirement shall constitute grounds for rejection of submittal.
 - b. Product Information: Product Data submittal shall consist of manufacturer's technical data, product literature, "catalog cuts", data sheets, specifications, and block wiring diagrams (if necessary). This data shall clearly describe the product's characteristics, physical and dimensional information, electrical performance data, materials used in fabrication, material color & finish, and other relevant information such as test data, typical usage examples, independent test agency information, and storage requirements. Clearly indicate by arrows or brackets precisely what is being submitted on and those optional accessories, which are included and those which are excluded. At a minimum, include products listed in the Division 28 specifications. Include relevant products that will be installed, which are not listed in the specifications.
 - c. Re-submittals: Provide a cover letter with the re-submittal that lists the action taken and revisions made to each product submittal in response to Submittal Review Comments. No review shall take place for any re-submittal packages that is not accompanied by this cover letter. Failure to include this cover letter will constitute rejection of the re-submittal package.
- D. Shop Drawings
 - 1. Obtain written approval from the Engineer for the shop-drawings submittal prior to the release of materials and equipment purchase order and prior to installation.
 - 2. Quantity and Media: Submit shop-drawings as described in Division 1.
 - 3. Format:
 - a. Produce shop drawings using AutoCAD, or other computer design application that can save files to AutoCAD-compatible files.
 - b. Use the same size drawing sheet as the drawings of the Contract Documents.
 - c. Text: minimum of 3/32" high when plotted at full size.
 - d. Screen background information.



- e. Plot system components (devices, cable routes, etc.) and text at a sufficient line weight to stand out against background information.
- f. Scaling:
 - 1) Scale floor plans at 1/8"=1'-0"
 - 2) Scale enlarged room plans at 1/4"=1'-0"
 - 3) Scale wall elevations at 1"=1'-0"
- 4. Content:
 - a. Submit shop drawings that represent proposed installation of security system.
 - b. Floor Plans: Scale floor plans at 1/8"=1'-0". Floor plans shall show:
 - 1) Locations and identifiers of security devices.
 - 2) Size, quantity, location and proposed routes of security cabling.
 - 3) Size, quantity, location, and routes of pathways (such as cable trays, cable basket, conduits, cable hangers, and other cable support devices).
 - c. Point-to-Point Diagrams: Include wiring, points of connection and interconnecting devices.
 - d. Schedules: Provide schedules for devices and control panels that show each point ID with a description of the connected devices.
 - e. Block Diagram/Riser Diagram: Show the devices, conduit, wire types, and sizes between them, including cabling interties between termination hardware.
 - f. Proposed mounting details
- E. As-Built Drawings
 - 1. Quantity and Media: Submit as-built drawings as described in Division 1 in both hard copy and electronic formats.
 - 2. Format:
 - a. Produce as-built drawings using AutoCAD, or other computer design application that can save files to AutoCAD-compatible files.
 - b. Use the sheet size as the drawings of the Contract Documents, and use the project title block.
 - c. Text: minimum of 3/32" high when plotted at full size.
 - d. Use symbols identical to the symbols shown on the Drawings.
 - e. Screen background information.
 - f. Plot system components (devices, cable routes, etc.) and text at a sufficient line weight to stand out against background information.
 - 3. Content:
 - a. Submit as-built drawings that fully represent actual installed conditions and that incorporate modifications made during the course of construction.
 - b. Floor Plans: Scale floor plans at 1/8"=1'-0". Floor plans shall show:
 - 1) Locations and identifiers of security devices.
 - 2) Size, quantity, location and proposed routes of security cabling.
 - 3) Size, quantity, location, and routes of pathways (such as cable trays, cable basket, conduits, cable hangers, and other cable support devices).
 - c. Point-to-Point Diagrams: Include wiring, points of connection and interconnecting devices.
 - d. Schedules: Provide schedules for devices and control panels that show each point ID with a description of the connected devices.



- e. Block Diagram/Riser Diagram: Show the devices, conduit, wire types, and sizes between them, including cabling interties between termination hardware.
- f. Custom mounting details
- F. Operation and Maintenance (O&M) Manuals
 - 1. Quantity: Submit quantity of O&M Manuals as described in Division 1 in both hard copy and electronic formats.
 - 2. Format:
 - a. Submit each O & M Manual in a white, 3-ring binder with front cover and spine clear pockets for insertion of the project information.
 - b. Clearly label the cover of each O&M Manual with the following information:
 - 1) Client Name
 - 2) Project Name and Address
 - 3) Manual Name (e.g., "Operation and Maintenance Manual for Telecommunications Cabling System")
 - 4) Date of Submittal Format: <month> <day>, <year> (e.g., "January 1, 2010")
 - 5) Contractor Name
 - c. Include a Table of Contents at the beginning that lists the contents.
 - d. Include tabbed separators for improved navigation through the manual.
 - 3. Content:
 - a. 11"x17" prints of as-built drawings, as described above
 - b. Manufacturer's original catalog information sheets for each component provided under applicable Section (typically, this is similar to the accepted product data submittal)
 - c. Warranty certificate from the manufacturer and the Contractor
 - d. Manufacturer's instructions for system or component use
 - e. Instructions and requirements for maintenance and warranty issues
 - 4. Contents shall include requirements and methods for maintaining installed products.

1.06 QUALITY ASSURANCE

- A. General
 - 1. Provide new and unused materials, equipment, and parts comprising the units specified herein of current manufacturer and of highest grade.
 - 2. Only use products and applications listed in this Division on the project
- B. Substitutions
 - 1. Conform to the general requirements and procedure outlined in Division 1 in the Request For Substitution.
 - 2. Where products are noted as "or equal", a product of equivalent design, construction, and performance is considered. Include in the Product Data submittal: catalog cuts, product information, and pertinent test data required to substantiate that the product is in fact equivalent to that specified.
 - 3. Only one substitution allowed for each product specified. Do not provide substituted material, processes, or equipment without written authorization from the Engineer.



Assumptions on the acceptability of a proposed substitution, prior to acceptance by the Engineer, are at the sole risk of the Contractor.

- 4. The burden of proof rest with the Contractor that the substituted product is equivalent to the specified product. When the Engineer accepts a substitution in writing, it is with the understanding that the Contractor guarantees the substituted product, component, article, or material to be equivalent to the one specified and dimensioned to fit within the construction according to contract documents. Approved substitutions do not relieve the Contractor of responsibilities for the proper execution of the Work, or from provisions of the Specifications.
- 5. Manufacturers' names and model numbers used in conjunction with materials, processes or equipment included in the Contract Documents are used to establish standards of quality, utility and appearance. Materials, processes or equipment that, in the opinion of the Engineer, are equivalent in quality, utility and appearance will be approved as substitutions to that specified when "or equal" follows the manufacturers' names or model number(s).
- 6. Whenever material, process or equipment is specified in accordance with a Federal specification, an ASTM standard, an ANSI specification, UL rating or other association standard, present an affidavit from the manufacturer certifying that the product complies with the particular standard specification. When requested by the Engineer, submit support test data to substantiate compliance at no additional cost.
- 7. Pay expenses, without additional charge to the Owner, in connection with substitution materials, processes and equipment, including the effect of substitution on self, subcontractor's or other Contractor's work.
- C. Contractor Qualifications
 - 1. A current, active, and valid and C7 or C10 California State Contractors License
 - 2. Minimum five years experience in installation and service of access control, video surveillance, and intrusion detection systems.
 - 3. Minimum five completed projects similar to scope and cost.
 - 4. Evidence of technicians qualified for the work in the form of current manufacturer's training certification
- D. Materials
 - 1. Materials, support hardware, equipment, parts comprising units, etc., shall be new, unused, without defects and of current manufacturer, materials
 - 2. Use specified products and applications, unless otherwise submitted and approved in writing.
- E. Regulatory Requirements
 - 1. Work and materials shall conform to the latest rules of National Board of Fire Underwriters wherever such standards have been established and shall conform to the regulations of the State Fire Marshal, OSHA and the codes of the governing local municipalities. Work under Division 28 shall confirm to the most stringent of the applicable codes.
 - 2. Provide the quality identified within these Specifications and Drawings when codes, standards, regulations, etc. allow Work of lesser quality or extent. The Contract Documents address the minimum requirements for construction.



- F. Drawings
 - 1. Follow the general layout shown on the Drawings except where other work may conflict with the Drawings.
 - 2. Drawings for the Work within this Division are essentially diagrammatic within the constraints of the symbology applied.
 - 3. The Drawings do not fully represent the entire installation for the security system. Drawings indicate the general route for the cables and the location of outlets. The Drawings might not expressly show every conduit, sleeve, hanger, etc., but a complete system is required.
 - 4. Complete the details necessary for point-to-point design. This allows the Contractor to achieve desired results applying their own procedures and methods. Submit shop drawings for review prior to installation.

1.07 PROJECT MANAGEMENT AND COORDINATION SERVICES

- A. Project Management and Coordination Services
 - 1. Provide a project manager for the duration of the project to coordinate this Work with other trades. Coordination services, procedures and documentation responsibility include, but are not limited to, the items listed in this section.
 - 2. Review of Shop Drawings Prepared by Other Subcontractors:
 - a. Obtain copies of shop drawings for equipment provided by others that require telecommunication service connections or interface with Work.
 - b. Perform a thorough review of the shop drawings to confirm compliance with the service requirements contained in the Division 28 contract documents. Document discrepancies or deviations as follows:
 - 1) Prepare memo summarizing the discrepancy
 - 2) Submit a copy of the specific shop drawing, indicating via cloud, the discrepancy
 - c. Prepare and maintain a shop drawing review log indicating the following information:
 - 1) Shop drawing number and brief description of the system/material
 - 2) Date of the review
 - 3) Name of the individual performing the review
 - 4) Indication if follow-up coordination is required
 - 3. Request for Information (RFI)
 - a. Thoroughly review the contract documents prior to the preparation and submission of an RFI. If an RFI is submitted, attach 8 1/2" x 11" copies of relevant documents to clarify the issue.
 - b. Submit RFIs with your recommended solution.
 - c. Prepare and maintain an RFI log using a Microsoft Excel spreadsheet indicating the following information:
 - 1) RFI number and brief summary of the issue.
 - 2) Date of issuance and receipt of response.
 - 4. Scheduling of Work
 - a. Prepare work schedules for each floor or building indicating the following information:



- 1) Cable Installation
- 2) SEC Build Out
- 3) Device Installation
- 4) Programming
- 5) Testing
- 6) Other tasks included under the alternate work section of these specifications
- B. Role of the Engineer
 - 1. During the construction phase of the project, the Engineer will work with the Contractor to provide interpretation and clarification of project contract documents, reply to (and 'process') relevant Requests for Information (RFIs), and act as an interface between the Contractor and the Owner.
 - 2. The Owner has retained the Engineer's services to observe the Work for general compliance with the Contract Documents and to ensure that the installation meets the design intent of the system.
 - 3. In general, the Engineer will participate during the construction phase as follows:
 - a. Review product data and shop drawings submittals for general compliance with the contract drawings and specifications.
 - b. Review changes as they arise, and confirm that the proposed solutions maintain the intended functionality of the system.
 - c. Interpret field problems for Owner, and translate between Owner and Construction Team.
 - d. Review the testing procedures to confirm compliance with industry-accepted practices.
- C. Use of CAD Files
 - 1. Should the Contractor need the Engineer's CAD files to produce shop drawings and/or as-built drawings, the Engineer requires the Contractor sign a CAD files release agreement.

1.08 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Delivery
 - 1. Do not deliver security system components to the site until protected storage space is available. Storage outdoors covered by rainproof material is not acceptable.
 - 2. Replace equipment damaged during shipping and return to manufacturer at no cost to the Owner.
- B. Storage
 - 1. Store materials in a clean, dry, ventilated space free from temperature extremes.
 - 2. Maintain factory wrapping or provide a heavy canvas/plastic cover to protect units from dirt, water, construction debris, and traffic.
 - 3. Provide heat where required to prevent condensation or temperature related damage.
- C. Handling
 - 1. Handle in accordance with manufacturer's written instructions.



2. Prevent internal component damage, breakage, denting and scoring. Do not install damaged equipment. Replace damaged equipment and return equipment to manufacturer.

1.09 WARRANTY

- A. Provide the Security System as described in this specification with a one-year parts and service warranty at no additional cost to the Owner.
- B. Include in the warranty package, at a minimum, the following:
 - 1. Software support agreement for the ACAMS and VSS
 - 2. Software upgrades and patches
 - 3. Labor to install software upgrades and patches necessary to maintain the latest version
 - 4. Emergency service on regular working hour basis
 - 5. Service by factory trained and employed service representatives of system manufacturer
- C. Maintain regular service facilities and provide a qualified technician familiar with this work at the site within four (4) hours of receipt of a notice of malfunction including weekends and holidays. Provide material, devices equipment and personnel necessary for repairs. Install approved temporary, alternate equipment if required by the Owner, complete and operational within twenty four (24) hours after notification of a malfunction, at no additional cost.
- D. Conduct warranty repairs and service at the job site unless in violation of manufacturer's warranty; in the latter event, provide substitute systems, equipment and/or devices, acceptable to the Owner, for the duration of such off-site repairs. Transport warranty substitute and/or test systems, equipment, devices, material, parts and personnel to and from the job site at no additional cost.

1.10 MAINTENANCE

- A. Extra Materials
 - 1. Deliver extra materials to a secured location determined by the Owner.
 - 2. Provide a complete Bill of Materials listing quantities, part numbers, and descriptions for each device for the Owner to sign indicating receipt of equipment.
 - 3. Provide new and unused spare parts in their original packing materials upon delivery.
- B. Maintenance Service
 - 1. For the first year of service, conduct quarterly system performance review meetings to review system operation problems and/or defects that occurred during the preceding 3 months. During these performance review meetings, perform the following:
 - a. Visual checks and operational tests of the central processor, local processors, monitors, keyboards, system printers, peripheral equipment, ACAMS equipment, power supplies, and electrical and mechanical controls
 - b. Clean system equipment, including interior and exterior surfaces
 - c. Perform diagnostics on equipment
 - d. Check and calibrate each device
 - e. Run system software and correct diagnosed problems
 - f. Resolve previous outstanding problems
 - 2. Provide software and firmware updates issued free of charge by the manufacturer.



PART 2 - PRODUCTS

2.01 GENERAL

- A. Material and equipment specified herein have been selected as the basis of acceptable quality and performance and have been coordinated to function as components of the included systems. Where a particular material, device, equipment or system is specified directly, the current manufacturer's specification for same is a part of these specifications, as if completely elaborated herein.
- B. Remove manufacturer identification marks from visible equipment.
- C. Use standard, regularly manufactured, materials and equipment for this and/or other similar systems, and not custom designed especially for this project. Provide systems and components thoroughly tested and proven in actual use. Provide subsystems of one manufacturer.

2.02 TAMPER RESISTANT HARDWARE

- A. Provide pinned-allen type hardware for exposed hardware in public spaces.
 - 1. Provide hardware used in specialty metal surfaces that posses a similar finish color.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Conditions: Verify existing conditions, which have been previously provided under other sections, are acceptable for product installation in accordance with manufacturer's instructions.
- B. Pathways: Verify that pathways and supporting devices, which have been previously provided under other sections, are properly installed, and that temporary supports and devices have been removed.
- C. Field Measurements: Verify dimensions of pathways, including length of pathways. For example, "True Tape" the conduits to verify cable distances.

3.02 FIELD QUALITY CONTROL

- A. Staffing: Provide a qualified foreman who is in charge of the Work and who is present at the job site at times Work is being performed. Perform the Work using skilled technicians under the direction of the foreman. Supervise the work force executing the Work. Perform the installation within the restraints of the construction schedule. Do not change the supervisor during the project without prior written approval from the Owner.
- B. Inspection: Perform inspection after installation. Keep areas of work accessible and notify code authorities, or designated inspectors, of work completion released for inspection. Document completion, and inspection as required.

3.03 INSTALLATION

A. Perform this work in accordance with acknowledged industry and professional standards and practices and the procedures specified herein.



- B. Provide a complete, operating system. Include devices specified including basic components and accessories, interconnecting wiring and other equipment and installation devices necessary for a complete system as specified.
- C. Manufacturer's Instructions:
 - 1. Comply with manufacturer's product data, including product technical bulletins, product catalog installation instructions, and product carton instructions for installation.
 - 2. Maintain jobsite file of Material Safety Data Sheets (MSDS) for each product delivered to jobsite.
- D. Boxes, Panels, and Enclosures
 - 1. Install boxes, panels, and enclosures square and plumb.
 - 2. Set "flush mounted" units with the face of the cover, bezel or escutcheon in the same plane as the surrounding finished surface.
 - 3. Mount boxes, panels and trim so that there are no gaps, cracks or obvious lines between the trim and the adjacent finished surface and ready them to receive final finish, as applicable.
 - 4. Install insulating terminations in signal circuit boxes, panels, wireways or enclosures.
- E. Painting
 - 1. Custom paint devices as indicated on the drawings.

3.04 REPAIR/RESTORATION

- A. Replace or repair work completed by others that you deface or destroy, at not cost to the Owner.
- B. Punch List:
 - 1. Inspect installed work in conjunction with the General Contractor and develop a punch list for items needing correction.
 - 2. Provide punch list to Engineer for review prior to performing punch walk with the Engineer.
- C. Re-Installation:
 - 1. Make changes to the system such that defects in workmanship are correct and cables and the associated termination hardware passes the minimum test requirements.
 - 2. Repair defects prior to system acceptance.
- D. Painting: Repaint surfaces altered during installation of the security system to match previous conditions.

3.05 CLEANING

- A. Remove temporary coverings and protection of adjacent work areas. Remove unused products, debris, spills, or other excess materials. Remove installation equipment.
- B. Leave finished work and adjacent surfaces in neat, clean condition with no evidence of damage.
- C. Repair or replace damaged installed products.
- D. Legally dispose of debris.



E. Clean installed products in accordance with manufacturer's instructions prior to Owner's acceptance.

END OF SECTION



SECTION 28 05 13

SECURITY SYSTEM CABLING

PART 1 - GENERAL

1.01 SUMMARY

- A. General: Furnish engineering, labor, materials, apparatus, tools, equipment, transportation, temporary construction and special or occasional services as required to make a complete working security system installation, as described in these specifications.
- B. Section Includes:
 - 1. Wire and cable
 - 2. Compression Seal BNC Connectors
- C. Related Sections:
 - 1. Consult other Sections, determine the extent and character of related work and properly coordinate work specified herein with that specified elsewhere to produce a complete and operable system.
 - 2. Section 28 00 00 Basic Security Requirements: includes general project requirements, submittal formats, installation, and warranty requirements.
 - 3. Section 28 05 53 Security System Labeling: includes label types and formats.
 - 4. Section 26 05 33 Raceways: includes pathway types in different areas of the project.

1.02 SUBMITTALS

- A. Product Data: Submit product information, including:
 - 1. Cable Description and Use
 - 2. Jacket Rating
 - 3. Outside Diameter (of the overall wire or cable)
 - 4. Manufacturer and Part Number

PART 2 - PRODUCTS

2.01 WIRE AND CABLE

- A. General
 - 1. Provide required wire and cable sized to allow for voltage drop on long runs and effectively shielded as required to allow the routing of 12 & 24V power and video signal cable in the same conduit without interference or signal noise.
 - 2. Cable installed outdoors or in underground conduit must contain a PVC or Polyethylene jacket to prevent water intrusion and compliant with the TIA-455-82B water infiltration test.
 - 3. Cables installed indoors to contain a plenum rated jacket (type CMP).



- B. Manufacturers:
 - 1. West Penn
 - 2. Belden
 - 3. Or Equal
- C. Access Control & Alarm Monitoring System
 - 1. Plenum Jacketed Cable
 - a. #18/2 AWG unshielded: West Penn #25224B, door contact cable
 - b. #18/4 AWG unshielded: West Penn #25244B, REX and alarm device cable
 - c. #18/6 AWG shielded (overall): West Penn #253186B, card reader cable
 - d. #16/2 AWG unshielded: West Penn #25225B, lock power cable
 - e. #14/2 AWG unshielded: West Penn #25226B, lock power cable from local power booster to exit device
 - f. #24/4 AWG shielded (overall): West Penn #D4854, RS-485 communications cable
 - 2. Water Blocked Cable
 - a. #18/2 AWG unshielded with Aquaseal tape: West Penn #AQC224, door contact cable
 - b. #18/4 AWG unshielded with Aquaseal tape: West Penn #AQC244, REX and alarm device cable
 - *c.* #18/6 AWG shielded (overall) with Aquaseal tape: West Penn # AQC3186, card reader cable
 - *d.* #16/2 AWG unshielded with Aquaseal tape: West Penn #AQC225, lock power cable
 - e. #14/2 AWG unshielded with Aquaseal tape: West Penn #AQC226, lock power cable from local power booster to exit device
- D. Intrusion Detection System
 - 1. Plenum Jacketed Cable
 - a. #22/2 AWG unshielded: West Penn #25221B, door contact cable
 - b. #22/4 AWG unshielded: West Penn #25241B, keypad and alarm device cable
 - c. #18/2 AWG unshielded: West Penn #25224B, control panel power cable
- E. Video Surveillance System
 - 1. Cabling for IP cameras provided by Telecommunications contractor. Refer to *Section 27* 15 13 – Communications Horizontal Twisted Pair Cabling.
 - 2. Provide minimum RG-59/U CCTV video coaxial cable between analog cameras and the monitoring equipment, with the following features:
 - a. 95% percent copper braid
 - b. Foam dielectric
 - *c. Solid copper core*
 - *d.* 75 ohm characteristic impedance
 - e. Plenum jacket
 - 3. Plenum Jacketed Cable
 - a. #RG-59/U coaxial: West Penn #25815, analog camera video cable



- b. #18/2 AWG unshielded: West Penn #25224B, power cable
- *c.* #22/4 AWG 2 pair individually shielded (overall): West Penn #D25420, RS-422 communications cable for analog PTZ cameras
- 4. Water Blocked Cable
 - a. #RG-59/U coaxial with Aquaseal tape: West Penn #AQC815, analog camera video cable
 - b. #18/2 AWG unshielded with Aquaseal tape: West Penn #AQC224, power cable
 - *c.* #22/4 AWG 2 pair individually shielded (overall) with Aquaseal tape: West Penn #AQC430, RS-422 communications cable for analog PTZ cameras

2.02 MISCELLANEOUS COMPONENTS

- A. Cable Ties
 - 1. General
 - a. Provide Velco-style cable ties on security cabling within telecommunications spaces and covered wireways.
 - b. Dress and bind cabling with cable ties every 24" minimum.
 - c. Width: 0.75 inches
 - d. Color: Black
 - 2. Manufacturer:
 - a. Panduit #HLS-15-R-0 Black, 15 feet roll, cut to length
 - b. Or Equal
- B. Compression Seal BNC (Bayonet Neill Concelman) Connectors
 - 1. General
 - a. Suitable for use on RG-59/U coaxial cable for CCTV systems.
 - b. Compression seal connection
 - *c.* Capable of accepting cable with outside diameters between 0.195 0.245 inches. Twist-on or crimp-on style connectors are not permitted.
 - 2. *Manufacturer*:
 - a. GEM Electronics #302-10CSTP compression seal BNC connector
 - b. Or Equal

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Label cables in accordance with Section 28 05 53 Security System Labeling.
- B. Horizontal Cable Installation and Routing
 - 1. Provide wire and cable with a continuous, splice-free sheath for the entire length of run between designated connections or terminations. Splices not permitted.
 - 2. Place cables within designated pathways, such as cable tray, basketway, cable hangers, etc. Do no fasten (such as with cable ties) or attach cables to other building infrastructure (such as ducts, pipes, conduits, etc), other systems (such as ceiling support wires, wall studs, etc), or to the outside of conduits, cable trays, or other non-approved pathway systems.



- 3. Place and suspend cables and conductors during installation and termination in a manner to protect them from physical interference or damage. Place cables with no kinks, twists, or impact damage to the sheath. Replace cables damaged during installation or termination at no additional cost.
- 4. Route cables at 90-degree angles, allowing for bending radius, along corridors for ease of access.
- 5. Do not exceed manufacturer's limits for pulling tension.
- 6. Do not use cable-pulling compounds for indoor installations.
- 7. Route cables under building infrastructure (such as ducts, pipes, conduits, etc) so the installation results in easy accessibility to the cables in the future. Do not route cables over building infrastructure.
- 8. Dress and secure coaxial cables to preclude stress and/or deformation.
- 9. Install shielded wiring or route in separate raceways as recommended by the manufacturer's current requirements.
- 10. Place cables 6", minimum, away from power sources to reduce interference from EMI.
- 11. Do not run signal wire and cable in parallel to power (120VAC).
- 12. Make connections to screw-type barrier blocks with insulated crimp-type spade lugs. Size lugs properly to assure high electrical integrity, i.e., low resistance connections.
- 13. Follow manufacturers recommended guidelines for installation.
- 14. When exiting the primary pathway (such as basketway or cable tray) to the work area, exit via the top of the pathway. Secure the cables to the pathway using an approved cable tie.
- C. Cable Routing and Dressing within Telecommunication Rooms
 - 1. Place cables within the overhead cable support and, when routing vertically, fasten the cables onto wall-mounted vertical cable support every 24 inches on-center using cable ties.
 - 2. Only use Velcro type cable ties within the IDF.
 - 3. Neatly bundle (dress cable longitudinally) and support security cables within overhead cable runways.
 - 4. Dress and bind cabling with cable ties every 12" minimum.
 - 5. Provide 4 feet, minimum, sheathed cable slack length not to exceed permanent link maximum length requirement. Place the slack within the screw cover gutter wireways.

3.02 CABLE SUPPORT

- A. Horizontal Support
 - 1. Concrete and Metal construction (Above Ceiling)
 - a. Provide separate and dedicated cable support system for security cable runs. Anchor cable support system to structural ceiling. Support and tie cables at a maximum of 5-foot intervals.
 - 2. Wood Construction (above ceiling and no ceiling)
 - a. Support cable utilizing appropriately sized drive rings or "D" rings.
 - b. Fasten rings to structural ceiling.



- c. Install drive rings at approximately 5 foot intervals.
- d. Route cable through drive rings and cable tie at 10 foot intervals, or every other drive.

B. Vertical Support

- 1. Riser Systems
 - a. Route cable through conduit in vertical riser systems.
 - b. Terminate conduit at each stacked closet in a lockable junction box. Refer to Section 28 00 00 Basic Security Requirements for minimum sizing of junction boxes and equipment enclosures.
 - c. Fastened entire cable group to the inside of junction box at every other floor or approximately every 24 feet.
 - d. Fasten cable in Junction box utilizing cable ties equipped with eyelets designed to accept screws for fastening or approved equivalent method.
- 2. Vertical cable on floor space not in riser system
 - a. Route cable from below suspended ceiling devices to above ceiling when possible.
 - 1) Provide conduit and firestoppping for cable routed in fire rated wall assemblies.
 - 2) Provide conduit for cable routed from below ceiling devices to above ceiling on concrete tilt up style walls.
 - b. Cable routed vertically from devices with no suspended ceiling.
 - 1) Provide conduit stub from device junction box to 14 feet above finished floor minimum.

END OF SECTION



SECTION 28 05 53

SECURITY SYSTEM LABELING

PART 1 - GENERAL

1.01 SUMMARY

- A. General: Furnish engineering, labor, materials, apparatus, tools, equipment, transportation, temporary construction and special or occasional services as required to make a complete working security system installation, as described in these specifications.
- B. Section Includes:
 - 1. Labeling of wire, cable, security devices, enclosures, and raceways.
- C. Related Sections:
 - 1. Consult other Sections, determine the extent and character of related work and properly coordinate work specified herein with that specified elsewhere to produce a complete and operable system.
 - 2. Section 28 00 00 Basic Security Requirements: includes general project requirements, submittal formats, warranty, and installation requirements.

1.02 SUBMITTALS

- A. Product Data: Submit the following:
 - 1. Product information for components specified herein.
 - 2. List of equipment (wire, cable, devices, enclosures, and raceways) and the corresponding text for the label.

PART 2 - PRODUCTS

2.01 NAMEPLATES

A. Engraved, plastic laminated nameplates, signs, and instruction plates. Engrave stock melamine plastic laminate 1/16 inch minimum thickness for signs up to 20 square inches, or 8 inches in length; 1/8 inch thick for larger sizes. Use white letters for engraved nameplates and punch for mechanical fasteners.

2.02 LABELS

- A. Wire and Cable Labels:
 - 1. General
 - a. Self-laminating adhesive laser labels.
 - b. Machine printable with a laser printer.
 - c. Cable size: 0.16 0.32" OD
 - d. Color: white with black lettering
 - 2. Manufacturer:
 - a. Panduit #R100X125V1T, #R100X150V1T, and R100X225V1T wire marking labels



- b. Brady #WML-211-295 and #WML-311-292 wire marking labels
- c. Or Equal
- B. Device Labels:
 - 1. Self-laminating, type on tape, adhesive labels. Use Helvetica 12 pt text

PART 3 - EXECUTION

3.01 INSTALLATION

- A. General Requirements
 - 1. Label the security system components. The components include, but are not limited to, the following:
 - a. Equipment Enclosures
 - b. Conduits
 - c. Security Devices
 - d. Batteries
 - e. Wires and Cables
 - f. Equipment Racks
 - g. Terminal Blocks
 - h. Relays
 - i. Patch panels, and the termination positions within the patch panels.
 - 2. Labels to coincide with device IDs used on the record drawings.
 - 3. Degrease and clean surfaces to receive nameplates and labels
 - 4. Install nameplates parallel to equipment lines. Secure nameplates to equipment fronts using machine screws.
- B. Equipment Cabinets
 - 1. Label SEC enclosures associated with the security system with a nameplate.
 - 2. Mount label on exterior of door, centered horizontally, and positioned one-third of the door height vertically from the top.
 - 3.Example:Line 1: "SEC-01"(1/2 inch high letters)Line 2: "Security Equipment Cabinet"(1/4 inch high letters)
- C. Conduits
 - 1. Write the destination for every conduit entering a junction box, SEC, and CEC enclosure, or wireway using a black permanent ink marker next to the conduit inside the box.
 - 2. Example: "To SEC-01"
- D. Security Devices
 - 1. Label devices associated with the security system with a permanent machine generated, laminated, label. Use 12 point Helvetica text with a clear background. Use white or black lettering depending upon the color of the device.
 - 2. Label each device in a concealed location with the system point number and address.



- E. Batteries
 - 1. Label power supply batteries with the month and year they were installed.
 - 2. Example: "April 2012"
- F. Wire and Cable
 - 1. Identify wire and cable clearly with permanent machine-generated labels wrapped about the full circumference within one (1) inch of each connection.
 - 2. Indicate the cable ID designated on the associated field or shop drawings or run sheet, as applies.
 - 3. Assign wire or cable designations consistently throughout a given system; i.e., each wire or cable to carry the same labeled designation over its entire run, regardless of intermediate terminations.
 - 4. Provide labels where wire and cable first enter and exit from conduit, junction or distribution boxes; locate labels within six (6) inches of the point of exit.
 - 5. Positional labels so they are clearly visible without the need to remove wire management or other obstructions.
 - 6. Label cables at both ends of a run and within pull and junction boxes using machine generated wrap-around labels.

3.02 CABLE LABEL FORMAT

- A. From Panel to Field Device
 - 1. Line 1: Device Type and Device Number
 - 2. Line 2: Panel ID Port Number
 - 3. Example: CR 001 PANEL 2 – CR5
 - 4. Standard Device Types
 - a. CR = Card Reader
 - b. K = Camera
 - c. ET = Entry Telephone
 - d. R = Relay Output
 - e. A = Alarm Point
 - 5. Standard Port #s
 - a. CR = Reader
 - b. M = Monitored Input
 - c. R = Relay Output
- B. From Door Junction Box to Card Reader
 - 1. Line 1: Device Type and Device Number
 - 2. Line 2: Panel ID Port Number
 - 3. Example: CR 001 PANEL 4 – CR3



- C. Miscellaneous Examples:
 - 1. From Door Junction Box to Door Contact
 - a. CR001
 - b. DC
 - 2. From Door Junction Box to Rex Alarm
 - a. CR001
 - b. REX ALM
 - 3. From Panel to Rex
 - a. CR001
 - b. REX PWR
 - c. 12 VDC
 - 4. From Panel to Lock
 - a. CR001
 - b. LCK PWR
 - c. 24 VDC
- D. Communications Cable
 - 1. Line 1: Communication Type and Direction
 - 2. Line 2: Panel ID
 - 3. Example: RS-485 TO PANEL 2
 - 4. Typical Communication Types
 - a. RS-485
 - b. RS-232
 - c. RS-422

END OF SECTION



SECTION 28 08 00

SECURITY SYSTEM ACCEPTANCE TESTING

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. General: Furnish engineering, labor, materials, apparatus, tools, equipment, and transportation required to thoroughly test the completed security system installation as described in these specifications.
- B. Base Bid Work
 - 1. Full testing of a completed security system which includes:
 - a. Develop, submit, and obtain Engineer's approval of security system Prefunctional and Functional testing forms.
 - b. Complete 100% Pre-functional test of the security system. Submit Pre-functional testing documentation reflecting that all security devices, cabling, locking hardware, power, interfaces to other systems, IT switches, computer/servers and other components required for a completely functional security system are provided per project documents.
 - c. Complete 100% Functional test of the security system. Submit Functional testing documentation reflecting that all security equipment, components, interfaces, and programming are functioning correctly per project documents. Upon receiving approval of functional testing documentation, schedule final acceptance testing activities to be witnessed by Engineer and/or Owner.
 - d. Demonstrate 100% security system functionality to the Engineer and/or Owner. Document testing activities and submit with final As-Built drawing.
- C. Related Sections:
 - 1. Section 28 00 00 Basic Security Requirements
 - 2. Section 28 05 13 Security System Cabling
 - 3. Section 28 05 53 Security System Labeling
 - 4. Section 28 08 00 Security System Acceptance Testing
 - 5. Section 28 13 00 Access Control and Alarm Monitoring System
 - 6. Section 28 16 00 Intrusion Detection System
 - 7. Section 28 23 00 Video Surveillance System

1.02 SUMMARY OF SYSTEM COMMISSIONING ACTIVITIES

- A. Overview
 - 1. The purpose of system commissioning is to ensure the security system operates properly when it is needed most. Security systems are very complex from both an equipment and programming standpoint, and thorough testing is necessary to ensure correct operation.



- 2. Perform testing activities after-hours or on weekends when the system is "quiet" and the building is generally unoccupied. This will minimize the amount of irrelevant activity in the system activity reports that will be used as a record of the pre and final test results.
- B. Pre-Functional Test
 - 1. Perform a 100% pre-functional test of system aspects to verify correct operation prior to scheduling the final test. The pre-test will help to make the final test run smoothly when demonstrating the system's operation to the Owner and Engineer.
 - 2. Document the results of the pre-test using the approved test forms and submit a copy to the Engineer along with the system activity reports
- C. Functional Test
 - 1. Perform a 100% functional test of system aspects to verify correct operation prior to scheduling the final test. The functional test will help to make the final test run smoothly when demonstrating the system's operation to the Owner and Engineer.
 - 2. Document the results of the pre-test using approved test forms and submit a copy to the Engineer along with the system activity reports prior to final acceptance test.
- D. Final Acceptance Test
 - 1. Perform a final test of the system in the presence of the Engineer and/or Owner to demonstrate correct operation of the security system.

1.03 SUBMITTALS

- A. Operation and Maintenance Manuals: Submit the following for review and comment at the completion of the project:
 - 1. Functional Design Manual: Includes a detailed explanation of the operation of the system.
 - 2. Hardware Manual which includes:
 - a. Pictorial parts list and part numbers
 - b. Pictorial and schematic electrical drawings of wiring systems, including devices, control panels, instrumentation and annunciators
 - c. Telephone numbers for the authorized parts and service distributors
 - d. Include service bulletins
 - 3. Software Manual which includes:
 - a. Use of system and applications software
 - b. Initialization, start-up, and shut down procedures
 - c. Alarm Reports
 - 4. Operator's Manual which fully explains procedures and instructions for the operation of the system and includes:
 - a. Computers and peripherals
 - b. System start up and shut down procedures
 - c. Use of system, command, and applications software
 - d. Recovery and restart procedures
 - e. Graphic alarm presentation
 - f. Use of report generator and generation of reports



- g. Data entry operator commands
- h. Alarm messages and reprinting formats
- i. System access requirements
- 5. Maintenance Manual which includes:
 - a. Instructions for routine maintenance listed for each component, and a multi-page summary of component's routine maintenance requirements.
 - b. Detailed instructions for repair of the security system.
 - c. A summary of the software licenses, including license numbers, quantity of clients, summary of the software options provided and database capabilities.
 - d. A summary of the TCP/IP address used and which system component they are associated with. Include the gateway address, subnet mask, DNS server, and host name information.
- 6. Test Results Manual, which includes the document results of tests, required under this Specification, organized by System, Floor, and Door.
- 7. Record Drawings Manual which includes 11"x17" prints of record drawings as described below.
- B. Record Drawings: Submit the following for review and comment at the completion of the project:
 - 1. Drawings to fully represent installed conditions including actual locations of devices, actual cable and terminal block numbering, and correct wire sizing as well as routing. Record changes in the work during the course of construction on blue or black line prints.
 - 2. Include drawings submitted as part of the Shop Drawing package, plus additional information required to accurately document installed conditions.
 - 3. Include the following additional information:
 - a. Device addresses & IP address information.
 - b. Settings for each camera (lens specs, mm setting, auto shutter setting, and other available camera settings, etc.)
 - 4. Final acceptance will not be made until the Engineer approves the record drawings.

1.04 QUALITY ASSURANCE

A. Provide a project manager to coordinate the security system commissioning work with other trades.

PART 2 - PRODUCTS

2.01 NOT USED

PART 3 - EXECUTION

3.01 SCHEDULING

A. Coordinate security acceptance testing with the General Contractor, and provide specific information on pre-test and final-testing activities to be entered into the overall project construction schedule.



3.02 TESTING REQUIREMENTS

A. Site Tests

- 1. Perform a 100% pretest of the system prior to final testing by the Engineer. Provide the Engineer with a minimum of a 5 day notice prior to scheduling testing.
- 2. At the conclusion of the work on a floor, test the system on that floor to verify proper operation and reporting of devices.
- 3. Work with the door hardware supplier to resolve electric hardware failures and door alignment/closure problems.
- 4. At the completion of the work, test the entire system to verify proper operation. At a minimum, include these tests:

a.	Building Perimeter Test:	Test doors, cameras, and devices related to securing the perimeter of the building.
b.	MDF/IDF Test:	Test devices related to securing the MDF and IDF rooms. Inspect system panels, power supplies, and other related security equipment located in these areas.
c.	Access Control System Test:	Test the software for correct programming and setup. Test control and alarm communication through both campus and District security workstations. Verify correct integration with the IDS and Video Surveillance Systems.
d.	CCTV Recording System Test:	Test the recording system for correct programming, alarm recording, and event retrieval. Verify correct integration with the ACAMS and IDS system for alarm call-up. Test and verify CCTV system viewable from workstations.
e.	Intrusion Detection System Test:	Test the alarm dialer and duress stations for correct programming and operation. Verify correct arming/disarming functions from each keypad and alarm partitioning. Verify integration with ACAMS and Video Surveillance Systems.
f.	CCTV Camera Test:	Review cameras for proper coverage, video quality, physical installation, etc.
g.	Other Readers/Door Test:	Test remaining card readers, scheduled unlock doors, and exit-only doors not included in the above tests.
h.	Glass Break Test:	Test the glass break detectors for correct operation.
i.	Motion Detector Test:	Test the motion detectors for correct operation and coverage.
j.	Battery and UPS Load Test:	Disconnect AC power to security system equipment to verify battery operation functions and system remains fully operational.

B. Test Preparation



- 1. Provide device identification numbers that differ from or were not included on the original contract drawing set.
- 2. Provide a complete systems point list.
- 3. Provide paper and toner for the printer so that an event log can be printed out and attached to the test reports as verification of test sequence and systems response.
- 4. During testing, provide a minimum of three technicians familiar with the installation to assist with the test. Stage the technicians as follows: one at the host, one at the device being tested, and one runner responsible to furnishing tools, step ladders, etc.
- 5. Provide radios for use by the Engineer and Owner during testing.
- 6. Provide pre-programmed access cards for use during testing. Provide one card for each access level.

3.03 TEST PROCEDURES

A. Refer to the test forms for testing procedures for each type of device/system.

3.04 DOCUMENTATION

- A. Provide a full-sized blueline drawing containing a detailed wiring diagram (layout of equipment/elevation, complete parts list, and a complete wiring diagram for each ACU & I/O Board) for each SEC. Fold the diagram and place it inside a clear plastic pocket affixed to the inside door of the SEC.
- B. Provide a service log on the inside door of each SEC. Include columns for the following information: date of service, description of work performed, service technician(s), service company in the service log. Place the service log inside a separate clear plastic pocket affixed to the inside door of the SEC.

3.05 DEMONSTRATION

- A. On completion of the acceptance test, instruct the owner's representatives, at a time convenient to them, in the operation and testing of the system.
- B. Utilize the database for the project during training to give the users a project specific example to learn from.
- C. Provide a minimum of *12 (or more hours depending on scope and complexity of project)* hours of on-site training by a factory trained representatives. Maintain a sign in sheet with names and dates of persons trained and forwarded to owner upon completion of training.
- D. Provide for two Owner's representatives to attend factory certification training (off-site) for both the following systems:
 - 1. Access Control System
 - 2. Video Surveillance System

END OF SECTION



SECTION 28 13 00

ACCESS CONTROL & ALARM MONITORING SYSTEM

PART 1 - GENERAL

1.01 SUMMARY

- A. General: Furnish engineering, labor, materials, apparatus, tools, equipment, transportation, temporary construction and special or occasional services as required to make a complete working Access Control & Alarm Monitoring system installation, as described in these specifications.
- B. Section Includes:
 - *1. ACAMS client workstations*
 - 2. ACAMS control panels, input/output modules, and card readers
 - 3. ACAMS power supplies
 - 4. Alarm initiating devices, including: magnetic switch contacts, and request-to-exit sensors.
 - 5. Interface to electric door hardware and ADA door operators
 - 6. *Interface to elevator controls*
 - 7. Interface to fire/life-safety system
 - 8. Interface to security subsystems to allow bi-directional communication with one another
- C. Products Installed But Not Supplied Under This Section:
 - 1. Electric feed-through power transfer hinges
 - 2. Electrified locking hardware cable and termination to transfer hinge and security system
- D. Products Specified but Not Installed Under this Section:
 - 1. Access control devices inside elevator cabs, including card readers, interface relays, and reader modules.
- E. Products Furnished and Installed Under another Section:
 - 1. 120V power
 - 2. Conduit, junction boxes, and *(telecom cable trays, if included in project)*
 - 3. ADA door operators and push buttons
 - 4. Fire/life-safety system interface relays
 - 5. Electromagnetic door holders
 - 6. Network connectivity for ACAMS devices via Owner's local/wide area network
- F. Related Sections:
 - 1. Consult other Divisions, determine the extent and character of related work and properly coordinate work specified herein with that specified elsewhere to produce a complete and operable system.
 - 2. Section 08 71 00 Door Hardware: for wireless card reader with integrated locking hardware product requirements.



- 3. Section 28 00 00 Basic Security Requirements: for submittal formats, warranty, general product requirements, and installation requirements.
- 4. Section 28 05 13 Security System Cabling: for cable requirements related to the ACAMS.
- 5. Section 28 05 53 Security System Labeling: for device labeling requirements.
- 6. Section 28 08 00 Security System Acceptance Testing: for testing requirements.
- 7. Section 28 16 00 Intrusion Detection: for interface requirement to the ACAMS.
- 8. Section 28 23 00 Video Surveillance System: for interface requirement with the ACAMS.

1.02 SYSTEM DESCRIPTION

- A. Overview
 - 1. The ACAMS is a distributed network of control panels connected to and programmed from an existing host server and client workstations, one located at the District Office and the others at each respective campus.
 - 2. The ACAMS is utilized for electronically controlling access to students, delivery personnel, and staff entrances to the building(s).
 - 3. The ACAMS consists of an existing Software House CCURE 9000 server located at the District Office in Martinez, existing client workstations, control panels, card readers, *battery powered wireless card readers with integrated locking hardware, wireless interface modules* and alarm initiating devices. The host server communicates with the field panels via the Owner's local/wide area network.
 - 4. Card reader doors must tie into the existing District-wide host server. Develop schedules to automate the opening and closing of the building(s), including unlocking doors, bypassing alarms, and enabling ADA actuation devices.
 - 5. Card readers used in classrooms and/or additional locations as identified by the college must include emergency lockdown capability for shelter in place. The lockdown capability will:
 - a. Disable the exterior reader and only allow excess via mechanical key only.
 - b. Notify Police Services via the access control system and/or the intrusion detection system of emergency lockdown alarm event.
 - 6. The ACAMS also provides secondary alarm monitoring and alarm partition control of the IDS control panels through software integration.
- B. Access Control & Alarm Monitoring System
 - 1. Provide ACAMS interface software license for IDS control panels and program to enable bidirectional alarm communication for alarm notification and partition arm/disarm control.
 - 2. Provide ACAMS interface software to VSS network video recorders to enable alarm event recording and automatic call up of associated cameras upon alarm activation (forced door, door held open, etc).
 - 3. Provide ACAMS control panels located in the telecommunication rooms as indicated on project drawings. Coordinate exact location of control panels with local IT department. Panels support up to 16 card readers with locking control outputs and multiple general-purpose input/output modules for automation.



- 4. Provide proximity wireless card readers with integrated locking hardware. Wireless readers are battery powered.
- 5. Provide wireless interface modules. Field determine the quantity and exact locations of the wireless interface modules for full coverage of wireless card readers.
- 6. *Provide wireless survey kit to verify wireless interface module placement.*
- 7. Provide input and output modules in a lockable enclosure to support the project specific security system requirements.
- 8. Provide multi-technology card readers with optical tampers on doors deemed critical to the security of assets subject to a high possibility of theft, sensitive information, or other areas of critical nature and doors with operational requirements such as building entrances, as noted on the project drawings.
- 9. Provide alarm contacts and request-to-exit motion detectors for card reader controlled doors. *Include output from ACAMS to indicate alarm contact status to IDS.*
- 10. Provide alarm contacts for non-card reader controller perimeter doors as indicated on project drawings.
- 11. Provide local audible alarms at monitored emergency exit-only doors and special card reader doors as indicated on project drawings. Local audible alarms to sound upon alarm activation (forced door, door held open, etc). Provide monitoring of the keyswitch and remote reset through the ACAMS.
- 12. Utilize IDS integration to monitor motion detector and duress alarms through the ACAMS workstation.
- 13. Provide interface to ADA automatic/power assist door operator and corresponding actuator push plates or optical motion detection actuators.
 - a. When door locked, exterior push plate/optical sensor is disabled
 - b. When door unlocked, even momentarily, push plate/optical sensor is enable.
 - c. Interior push plate/optical sensor unlocks door and triggers automatic door operator at all times.
- 14. Provide 12/24VDC ACAMS device and lock power supplies as indicated on project drawings with enclosure tamper switches.
- 15. Provide battery backup of system components and power supplies.
- C. Elevator Interface (if required on project)
 - 1. Passenger and/or freight elevator card readers to control access to floors based on cardholder access levels after normal business hours and on weekends.
 - 2. Provide card readers at elevator call stations as indicated on project drawings. Call station card readers to activate call buttons and control access to elevator cab.
 - *3. Provide interface relays between ACAMS and elevator controller.*
 - 4. Furnish card readers to elevator contractor for installation inside elevator cabs with card access control.
 - 5. Route security cabling from the ACAMS control panels to the security demarcation enclosures located in/adjacent to the elevator machine room as indicated on the project drawings.
 - 6. *Connections in the demarcation enclosure include landings, terminal blocks, and labels.*



- 7. Provide coordination during installation of card reader and cable terminations. Elevator contractor responsible for elevator traveler cable, connection from elevator controller to security demarcation enclosure, and installation of card readers within the elevator cabs.
- D. Fire/Life-Safety System Interface (if required on project)
 - 1. Coordinate with Fire/Life-Safety system contractor to automatically drop power from stairwell, elevator lobby, and other doors within the path of egress upon alarm activation of the Fire/Life-Safety system.
 - 2. Coordinate with Fire/Life-Safety system contractor for scheduled release of electromagnetic door holders on designated card reader doors as indicated on project drawings. Provide ACAMS output modules as necessary to interface with Fire/Life-Safety system.
 - 3. Provide emergency door release pull stations with double pole, double throw contacts located in elevator vestibule lobbies as indicated on project drawings. First set of contacts to break power to electrified door hardware on adjacent card reader door. Second set of contacts to connect with ACAMS. Provide ACAMS input modules as necessary to monitor status of emergency door release pull stations.
- E. Tamper Monitoring
 - 1. Provide additional monitor input points for monitoring the following:
 - a. Tamper switches located within each security equipment enclosure and wireway (use unsupervised inputs for this purpose).
 - b. Supervision of power supplies and batteries (use unsupervised inputs for this purpose).
 - c. Tamper switches located within each door junction box.

1.03 SUBMITTALS

- A. Contractor Qualifications: Submit certification letters for the manufacturer of the ACAMS.
- B. Product Data: Submit product information for components specified herein.
- C. Shop Drawings:
 - 1. Device placement on floor plans
 - 2. Point-to-Point Diagrams: Include wiring, points of connection and interconnecting devices between the following:
 - a. ACAMS control panel
 - b. ACAMS card reader and input/output modules
 - c. ACAMS power supplies
 - d. Card Readers
 - e. Wireless Card Reader interface modules
 - f. Alarm contacts and request-to-exit sensors
 - g. Local audible alarms
 - h. Interface to electrified door hardware
 - i. Interface to ADA auto operators and actuators
 - j. Interface to fire/life-safety system
 - *k. Interface to elevator controller*
 - *l. Hardwired interfaces to IDS*



- m. Cable conductors (identify conductors on the point-to-point diagrams with the same tag as the installed conductor)
- 3. Schedules: Provide schedules for ACAMS control panels that show each point ID with a description of the connected devices.
- 4. Block Diagram/Riser Diagram: Show the ACAMS components, conduit, wire types, and sizes between them, including cabling interties between termination hardware.
- 5. Custom mounting details

1.04 EXTRA MATERIALS

- A. Provide 10% spare parts of total installed the following: (Round up to the next complete device)
 - 1. Card Readers
 - 2. Fuses (Place five (5) of each type of fuse inside each SEC and power supply housing).
 - 3. Relays

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Access Control & Alarm Monitoring System
 - 1. Software House CCURE 9000 to match campus standards

2.02 ACAMS CONTROLLERS

- A. General
 - 1. An intelligent controller with integrated battery backup, database, and communication ports that supports 16 card readers.
 - 2. Supports multiple communication channels to which a variety of devices can connect.
 - 3. Supports hardware modules used for additional memory and/or for future feature enhancements.
 - 4. Functions provided include:
 - a. Central control for attached devices and addressable modules
 - b. Makes decisions for access
 - c. Responds to monitor activity
 - d. Receives input to control its decision making
 - e. Reports activity to other devices
- B. Features
 - 1. Supports HID proximity, MIFARE, and DESFire card reader formats
 - 2. Supports flash upgrades for firmware updates
 - 3. Utilizes an onboard Ethernet NIC for TCP/IP communication, supporting IPv4 and IPv6
 - 4. Global input/output and anti-passback functionality
 - 5. Capable of utilizing keypad commands to activate/deactivate events
- C. Supports RS-485 or RS-422connectivity to addressable modules:



- 1. Input Module: Supports 8 Class A supervised input points
- 2. Output Module: Supports 8 Form C dry contact relays
- 3. Reader Interface Module: Supports 2 or 4 card readers with associated alarm contacts, request-to-exit devices, and lock outputs

D. Manufacturer

- 1. Software House # iSTAR ULTRA 64MB control panel
 - a. Accessories
 - 1) Software House # 18 input module
 - 2) Software House # R8 output module
 - 3) Software House # RM-4E reader interface module
 - *Allegion PIM400-485; Panel Interface Module*

2.03 EQUIPMENT ENCLOSURES

- A. General
 - 1. Provide enclosures with butt hinged and lockable door containing a lock kit (keyed alike with other security enclosures on the project).
 - 2. Provide perforated back panel for mounting control boards, relays, and terminal strips with enclosure.
 - 3. Provide slotted wiring duct for routing security cabling within enclosure.
 - 4. One tamper switch for each enclosure
- B. Security Equipment Cabinets
 - 1. Type: NEMA type 1 enclosure
 - 2. Size: 36" x 24" x 6" minimum
 - 3. Finish: ANSI 61 gray polyester powder paint finish inside and out
 - 4. Manufacturer:
 - a. Cooper B-Line # 36246-1PP with back panel and lock kit
 - b. Hoffman #A36N24M with #A36N24MPP back panel and #A612AR lock kit
 - c. Or Equal
- C. Security Junction Boxes
 - 1. Type: NEMA type 1 enclosure
 - 2. Size: 12" x 12" x 6" minimum
 - 3. Finish: ANSI 61 gray polyester powder paint finish inside and out
 - 4. Manufacturer:
 - a. Cooper B-Line # 12126-1PP with back panel and lock kit
 - b. Hoffman # A12N126 with #A12N12PP back panel and # A612AR lock kit
 - c. Or Equal
- D. Slotted Wiring Duct
 - 1. Type: Lead-free PVC with narrow finger design



- 2. Size: 1" x 1" minimum
- 3. Color: Light gray
- 4. Manufacturer:
 - a. Panduit # Type-F narrow slot wiring duct
 - b. Iboco # T1-1010 wiring duct
 - c. Or Equal

2.04 WIREWAYS

- A. General:
 - 1. Provide screw cover wireway sections with open top assembly as shown on Security drawings.
 - 2. Provide closure plates to secure end of wireway sections.
- B. Screw Cover Gutter Wireways
 - 1. Type: NEMA type 1 enclosure
 - 2. Size: 4" x 4" x 48" minimum
 - 3. Finish: ANSI 61 gray polyester powder paint finish inside and out
 - 4. Manufacturer:
 - a. Copper B-Line # 4448-G-NK lay-in painted wireway without knockouts
 - b. Hoffman # F44T148GVP lay-in painted wireway without knockouts
 - c. Or Equal
 - 5. Accessories:
 - a. Cooper B-Line # 44-E-NK closure plate without knockouts
 - b. Hoffman # A44GCPNK closure plate without knockouts
 - c. Or Equal

2.05 TERMINAL BLOCKS

- A. General
 - 1. Provide terminal blocks inside SEC for demarcation of elevator traveler and security cabling.
 - 2. Provide DIN rails and other mounting accessories for a complete installation.
- B. Modular Terminal Strips
 - 1. Push-in style bridging system that utilizes the IDC termination method
 - 2. Feed through style, single level
 - 3. Modular design
 - 4. Capable of mounting on standard 35mm DIN rails
 - 5. Manufacturer:
 - a. Phoenix Contact # QTC-1,5 terminal block
 - b. Weidmuller
 - c. Or Equal



- 6. Accessories:
 - a. Phoenix Contact # NS-35/7,5 DIN rail
 - b. Weidmuller
 - c. Or Equal

2.06 CARD READERS

- A. General
 - 1. Presenting an access card to the reader initiates a single transmission to the ACAMS controller.
 - 2. Rugged, weatherized polycarbonate enclosure, designed to withstand an operating temperatures of -22 to 120 degrees Fahrenheit (-30 to 65 degrees Celsius) and operating humidity of 5-95% non-condensing.
 - 3. Utilizes a Wiegand protocol for communication for compatibility with standard access control systems.
 - 4. Utilizes a multi-color LED and an audible sounder to indicate the status of the door.
 - 5. Utilizes an internal tamper switch that will indicate an alarm condition if an unauthorized attempt is made to disassemble the unit.
 - 6. FCC and CE certified, and conform to the following ISO standards:
 - a. 15693 (CSN read-only)
 - b. 14443A (CSN read-only)
 - c. 14443B (CSN read-only)
 - 7. Capable of reading the following frequencies and card formats:
 - a. 125kHz HID, Indala, or AWID proximity
 - b. 13.56MHz MyD, ISO 15693 CSN (MyD, ICODE, Tag-it), ISO 14443A CSN (MIFARE, DESFire), ISO 14443B CSN, and US Government PIV

B. Manufacturer

- 1. HID # multiCLASS series
 - a. Wall mount: HID # RP40 multi-technology card reader
 - b. Wall mount with keypad: HID # RPK40 multi-technology card reader with integrated keypad
 - c. Mullion style: HID # RP15 multi-technology card reader

2.07 ACCESS CARDS

- A. General
 - 1. Utilizes a graphics quality surface that supports direct-to-card printing.
 - 2. Capable of being produced with holograms, ultra-violet fluorescent inks, or other anticounterfeiting features.
- B. Manufacturer
 - 1. HID ISOProx II proximity card, Corporate 1000 Program; verify card format with College in writing prior to ordering.



2.08 SECURITY SYSTEM PRINTERS

- A. Badging System Printer
 - 1. Features
 - a. Print Method: Dye-sublimation, resin thermal transfer
 - b. Resolution: Up to 300 dpi
 - c. Colors: Up to 16.7 million, 256 shades per pixel
 - d. Accept card thickness from 0.020 inches to 0.060 inches
 - e. Capable of utilizing custom watermarks for additional security
 - *f. Includes Ethernet NIC option*
 - 2. Manufacturer
 - *a. HID* # *DTC550 card printer*
 - *b.* Zebra # P430i card printer
 - *c. Magicard* # *Tango* 2*e card printer*
 - d. Or Equal

2.09 ACAMS SECURITY WORKSTATION & COMPONENTS

- A. ACAMS Security Workstation
 - 1. Document the cost of this hardware at time of bid due to price reductions and advancements in technology. Prior to placement of order, provide upgrades to the most current model as requested by the Owner up to the cost of the specified product.
 - 2. Provide complete prepackaged unit containing:
 - a. Processor: Intel Core i7 Quad Core 870 2.93GHz, 8M L3Cache
 - b. Memory: 4GB, 1333MHz FSB, DDR3 SDRAM, Non-ECC (2 DIMMS)
 - *c.* Video Card: Dual 512MB, dual monitor compatible for support for up to 4 monitors
 - *d.* Monitors: Two 22" widescreen monitors, 1920x1080 resolution, with digital video inputs
 - e. Hard Drive: 250GB SATA, 7200 RPM and 8MB DataBurst Cache
 - f. OS: Microsoft Windows 7 Professional, or latest OS supported by manufacturer
 - g. Optical Drive: 16xDVD-RW
 - h. Network Adapter: Gigabit Ethernet NIC
 - 3. Manufacturer
 - a. Dell # OptiPlex 980 series workstation
 - 1) Dell # USB Multimedia Pro keyboard
 - 2) Dell # USB optical mouse
 - b. Or Approved Equal
- B. ACAMS Software
 - 1. Include software licenses: Badging software license
 - 2. Manufacturer
 - *a.* Software House # C-Cure 9000 client software
- C. UPS:



- 1. Provide one UPS for each workstation furnished.
- 2. APC or equal by BEST for backup of one CPU and two monitors. Connect UPS alarm condition output relay to security system. Provide smart software interface with UPS and operating system to facilitate automatic shut-down. Provide a separate UPS for each required workstation.

2.10 MAGNETIC CONTACT SWITCHES

- A. Wood, Steel, and Hollow Metal Doors
 - 1. General
 - a. Mounting: Recessed
 - b. Contacts: Single Pole, Single Throw
 - c. Gap Distance: 0.5" maximum
 - 2. Manufacturer
 - a. GE Security # 1078C 3/4" alarm contact switch
 - b. GRI
 - c. Or Equal
- B. Local Audible Alarmed Doors
 - 1. General
 - a. Mounting: Recessed
 - b. Contacts: Single Pole, Double Throw
 - c. Gap Distance: 0.5" maximum
 - 2. Manufacturer
 - *a. GE Security* # 1076C 3/4" alarm contact switch
 - b. GRI
 - c. Or Equal

C. Overhead Roll-Up Doors

- 1. General
 - a. Mounting: Surface
 - b. Contacts: Single Pole, Single Throw
 - c. Gap Distance: 3.0" maximum
 - d. Wiring: Armor Cable, 12" minimum
- 2. Manufacturer
 - a. GE Security # 2205 floor mounted contact switch with 3' armored cable lead
 - b. GRI
 - c. Or Equal

2.11 REQUEST-TO-EXIT MOTION SENSORS

- A. General
 - 1. Power: 12 or 24VDC, 35mA
 - 2. Relay Output: 2 form "C" contacts
 - 3. Adjustable relay latch time



- 4. Programmable retrigger or non-retrigger mode
- 5. Programmable Fail Safe or Fail Secure Modes
- 6. Radio Frequency Interference (RFI) Immunity range from 26 to 1,000 MHz at 50 v/m
- B. Manufacturer
 - 1. Bosch #DS160 with TP160 trim plate
 - 2. Honeywell #IS320WH with IS310WHTP trim plate
 - 3. Or Equal

2.12 LOCAL AUDIBLE ALARMS

- A. General
 - 1. Panel operating voltage selectable 12 or 24VDC at 150mA.
 - 2. *Keyswitch operation using rim cylinder provided by Owner to match existing standard.*
 - *3. Utilizes 80 Db horn.*
 - 4. Input points for door switch, alarm shunt, door status, tamper switch, and key switch override.
 - 5. Output points for door propped alarm, intrusion alarm, door status, tamper switch, and key switch override.
 - 6. *Timers for access period, warning period, and auto reset.*
 - 7. Tamper switch to detect the removal of the unit from the electrical back box.
- B. Manufacturer
 - *1. Designed Security # 4200 local alarm sounder*
 - 2. Or Equal

2.13 ACAMS POWER SUPPLIES

- A. General
 - 1. Provides a 120VAC to 12 and 24VDC output, fully supervised power supply to power ACAMS field devices.
 - 2. Utilizes 16 fused Class 2 rated power limited outputs.
 - 3. Short circuit and thermal overload protection.
 - 4. Integrated charger for sealed lead acid or gel type batteries.
 - 5. Capable of providing a 10 amp supply current.
 - 6. Supports a fire alarm disconnect to relay that individually selects any or all of the 16 outputs.
 - 7. Enclosure with integrated tamper switch
- B. Manufacturer
 - 1. Altronix # MAXIM75 power supply
 - 2. Or Equal


2.14 BATTERIES

- A. General:
 - 1. Voltage: 12.00
 - 2. Amps: 12.00
 - 3. Chemistry: SLA or VRLA valve regulated
 - 4. Termination: Spade protected terminals
- B. Manufacturer:
 - 1. Yuasa #RE12-12 sealed lead acid 12V 12Ah battery
 - 2. Interstate Batteries #SLA1105 sealed lead acid 12V 12Ah battery
 - 3. Or Equal

PART 3 - EXECUTION

3.01 INSTALLATION

- A. ACAMS Control Panels
 - 1. Place power supply and associated hardware in same location.
 - Install supervisory and end-of-line (EOL) resistors as required. Refer to Section 28 00 00 – Basic Security Requirements for EOL supervision requirements.
 - 3. Connect power supply tamper switches to ACAMS for SEC hub monitoring.
- *B. Wireless Interface Module*
 - 1. Field determine best location for wireless card reader interface module. Locate module above accessible ceiling, whenever possible to avoid damage to units.
 - 2. Connect wireless interface module to ACAMS panel using the RS-485 data bus.
- C. Remote Reader Modules
 - 1. Locate remote reader module in accessible ceiling space unless otherwise noted on the project drawings.
 - 2. Power remove reader modules from power supply located at centralized security hub.
- D. Four-State End-of-Line (EOL) Supervision
 - 1. Provide designated resistors at device end of line per manufacturer's EOL recommendation to provide four-state supervision of security device and cabling.
 - 2. Provide EOL supervision for alarm contacts, local alarm sounders, motion detectors, help/duress buttons, and other designated security devices connected to the ACAMS and IDS.
 - 3. Provide the following states of supervision:
 - a. Contact closed = Secure
 - b. Contact open = Alarm
 - c. Short circuit = Line fault
 - d. Open circuit = Line fault



- E. Card Readers
 - 1. Wire the card reader's multi-color LED to indicate the following status of the door.
 - a. Red status indicates the door is secure (locked).
 - b. Green status indicates the door is unsecured (unlocked).
 - c. Yellow status indicates the card reader is not functioning (off-line/trouble), is processing a read request, or has denied access.
 - 2. Utilize configuration card to enable optical tamper.
 - 3. Wire the card reader's optical tamper to spare input on the ACAMS reader module and jumper ground wire from door contact to provide a Normally Closed circuit.
 - 4. The card reader to produce an audible beep tone to indicate to the user:
 - a. The card was read and/or access was denied.
 - b. Door is being held open and needs to be closed.

F. Elevator Readers

- 1. Furnish card reader to elevator contractor for installation,
- 2. Coordinate the installation and termination of the card reader inside the cab and in the elevator machine room.
- 3. Coordinate with elevator contractor to connect ACAMS output relays to elevator controller. Install terminal blocks in security demarcation enclosure as indicated on project drawings to separate security from elevator cabling.
- G. Door Hardware
 - 1. Route power to electrically controlled locks on life-safety doors through fire alarm output to automatically unlock the door upon activation of Fire/Life-Safety system. Connect fire alarm output to the disconnect relay on the associated 24VDC lock power supply.
 - 2. Setup and conduct a door hardware coordination meeting.
 - 3. Coordinate the installation and termination of the security cable with the installation of the electric door hardware and transfer hinge.
 - 4. Provide cable and terminate wires to delayed egress devices for monitoring activation of delayed egress by the ACAMS system.
- H. Door Contacts
 - 1. Install on protected (secured) side of door.
 - 2. Install 6" from leading edge at top of door.
- I. Request-To Exit Motion Detectors
 - 1. Mount motion detector on the secured (protected) side of door.
 - 2. Install motion detector so that detection pattern is not obstructed by Exit Signs, light fixtures and other objects that would interfere with proper operation.
 - 3. Adjust relay hold time and pattern to properly detect valid exit and allow shunting of door contact.
 - 4. Adjust detection sensitivity to pulse.
 - 5. Mask detector lens to provide a confined detection area limited to the door handle or pushbar.



- 6. Run wire inside structural tube steel frame into back of condulet for cage locations.
- J. Local Alarm Sounders
 - 1. Mount local alarm sounder as indicated on project drawings.
 - 2. Install local, square, and plumb. Set flush-mounted units so that the face of the cover, bezel, or escutcheon matches the surrounding finished surface.
 - 3. Mount so that there are no gaps, cracks, or obvious lines between the trim and the adjacent finished surface.

3.02 PROGRAMMING

- A. Prior to the completion of construction, schedule and hold a meeting with the Owner to determine the programming criteria. Discuss the following:
 - 1. Door and device names
 - 2. Access card levels and door groupings
 - 3. Alarm priority levels
 - 4. Alarm integration with IDS including arming and disarming protocol through the ACAMS card readers (for example valid card disarms alarm partition while presenting card two times arms alarm partition)
 - 5. Schedules and time codes
 - 6. Holidays and holiday types (priorities)
 - 7. Action/responses from individual input points
 - 8. Standard and custom (expanded) reports
 - 9. Defining alarm messages and standard response messages applicable to site
 - 10. Routing of alarm points to selected pagers
 - 11. Routing of alarm points to operator's workstations, printers, and history files
 - 12. Coordinate implementation of graphics with Owner. Develop sample graphic complete with icons and text. Alarms to appear on building floor plans depicting the nature and location of alarms. Review and revise graphic layout as required by Owner.
 - 13. System data base backup to external hard-drives
- B. Document the results of the meeting and perform necessary programming to achieve the Owner's requests.
- C. System Operation, Alarm and Reporting Function: Program door control panel tamper switches to immediately reported as a separate "tamper" point to the system resulting in an alarm condition displayed in both text and graphic form on the applicable workstation(s) and an alarm message transmitted to the appropriate pager(s).
- D. Receive CAD drawing files of floor plans and perform the following relative to system graphics:
 - 1. Delete non-applicable drawing layers and details to arrive at simple floor plans of the building as built.
 - 2. Convert drawings to a graphic file format compatible with the Owner's access control and alarm monitoring system.
 - 3. Load drawing files into the system.



- 4. Apply new and predefined icons and other points on each graphic to indicate point and control status.
- 5. Link graphic images to reader, monitor and control points.
- E. Program routing of monitor and control points. Route activations and restore messages to one or more of the following locations as directed by the Owner's Representative:
 - 1. One or more system workstations;
 - 2. One or more system printers;
 - 3. One or more alphanumeric pagers;
 - 4. History files in addition to the above;
 - 5. History files only.
- F. Program the system such that reliance on a remote host for routine building operations, such as scheduled door commands and conditional events, are minimized to the greatest extent possible and decisions are made at the local building controller.
- G. Program the system in a manner that minimizes the amount of time required for the users to make updates and maintain the system on a daily basis especially updates that impact card holder record updates. Nested programs, such as reader groupings used in access codes shall be used to the greatest extent possible such that single actions are required to update an entire card data population. If there is a question regarding the appropriate approach to programming, given the flexibility of most systems, contact the Engineer prior to any initial programming
- H. Complete other programming as required for system operation.
- I. Program and setup the system such that no additional programming other than entering new access cards is required. Include setup of available features of the software.
- J. Use the point names provided on the system point schedule.
- K. Perform 2 full system back-ups at completion of initial programming and deliver one copy to owner with letter of Transmittal explaining information included in back-up and brief description of recovery procedures. Label the second CD-ROM and store onsite. Perform back-ups on a regular basis through the remainder of the project.
- L. Customize menus with the assistance of the factory to "gray-out" features not used on project (such as elevator control).
- M. Perform field software changes after the initial programming session to "fine tune" operating parameters and sequence of operations based on revised operating requirements.

3.03 TESTING

A. Commission ACAMS in accordance with Section 28 08 00.

END OF SECTION



SECTION 28 16 00

INTRUSION DETECTION SYSTEM

PART 1 - GENERAL

1.01 SUMMARY

- A. General: Furnish engineering, labor, materials, apparatus, tools, equipment, transportation, temporary construction, and special or occasional services required to make a complete working intrusion detection system installation as described in these specifications.
- B. Section includes:
 - 1. Intrusion Detection System, including digital communicator, keypad, and alarm devices.
 - 2. Door contacts, glass break detectors, motion sensors
 - 3. Duress alarm stations
 - 4. Interfaces and connections between intrusion detection subsystems to allow communication with one another
- C. Products furnished and installed under another section:
 - 1. 120V power
 - 2. Network connectivity for IDS Panel via Owner's local/wide area network
 - 3. Phone line
- D. Related sections:
 - 1. Section 28 00 00 Basic Security Requirements: for submittal format, warranty, general product requirements, and installation requirements
 - 2. Section 28 13 00 ACAMS: for interface requirement to the intrusion detection system
 - 3. Section 28 05 13 Security System Cabling: for cable requirements related to the IDS
 - 4. Section 28 05 53 Security System Labeling: for device labeling requirements
 - 5. Section 28 08 00 Security System Acceptance Testing: for testing requirements

1.02 SYSTEM DESCRIPTION

- A. Overview
 - 1. The IDS is comprised of multiple areas that can be armed and disarmed independently of each other *[through IDS keypads or through integration with the ACAMS]*.
 - 2. The IDS is utilized for after hours monitoring of the building(s), interior partitions and alarm zones. The IDS will also be utilized for 24-hour monitoring of specific areas which include but are not limited to duress buttons, glass breaks, etc.
 - 3. Activation of the IDS dials a remote, third party central station to first contact Police Services on campus during campus hours or dispatch the local [San Pablo/Pleasant Hill/Pittsburg/other city] Police Department after hours.
 - 4. The IDS integrate with the ACAMS through software to send alarm information for secondary monitoring with the ACAMS and *hardwired input points for remote monitoring of ACAMS door alarm contact status.*



- B. Intrusion Detection System
 - 1. Provide an IDS control panel with integrated UL listed digital communicator shown on the project drawings. Panels support up to 8 areas and 64 zones by use of addressable input/output point modules.
 - 2. Provide LCD command keypads as indicated on project drawings. Keypads allow for system arming and disarming by authorized users.
 - 3. Provide wireless back up alarm communicator.
 - 4. Provide under counter duress buttons as indicated on project drawings. Program duress alarm inputs as 24 hours zones.
 - 5. Provide *motion and glass break* sensors as indicated on project drawings.
 - 6. Provide alarm contacts on perimeter doors and operable windows as indicated on project drawings. *(if project does not include ACAMS or integration to existing ACAMS)*
 - 7. Provide local audible alarms on doors indicated on project drawings.
 - 8. Provide double pole, double throw alarm contacts on doors with local alarm sounders. Wire one contact to alarm sounder and wire the other contact to the IDS.
 - 9. Provide 12VDC auxiliary power supply to support the field devices indicated on project drawings.
 - 10. Provide battery backup of IDS components and power supplies for a minimum of 24 hours in the event of a power failure or emergency.
- C. Interface with ACAMS
 - 1. Connect ACAMS alarm outputs to the IDS control panel. Provide expansion modules as necessary to support the security devices shown on the project drawings.
 - 2. Integrate IDS with ACAMS for alarm monitoring and alarm partition arming/disarming through ACAMS workstation(s).
- D. Tamper Monitoring
 - 1. Provide additional monitor input points for monitoring the following:
 - a. Tamper switches located within each security equipment enclosure and wireway (use unsupervised inputs for this purpose).
 - b. Supervision of power supplies and batteries (use unsupervised inputs for this purpose).

1.03 SUBMITTALS

- A. Product Data: Submit product information for the intrusion detection systems, including:
 - 1. IDS control panel
 - 2. Keypads
 - 3. Cellular backup communicator
 - 4. Duress buttons
 - 5. *Motion sensors*
 - 6. Glass break sensors
 - 7. *Alarm contacts*



- 8. *Local audible alarms*
- 9. Power supplies
- 10. Calculations for backup batteries
- B. Shop Drawings: Submit shop drawings containing the following:
 - 1. Device placement on floor plans
 - 2. Point-to-Point Wiring Diagrams: Include wiring, points of connect, and interconnecting devices between the following:
 - a. IDS control panel
 - b. IDS expansion modules and relays
 - c. Keypads
 - d. Motion sensors
 - e. Glass break sensors
 - f. Alarm contacts
 - g. Local audible alarms
 - h. Power supplies
 - i. Cable conductors (identify conductors on the point-to-point diagrams with the same tag as the installed conductor)
 - 3. Schedules: Provide schedules for the IDS control panel that show each alarm zone, applicable area or partition, and a description of the connected device.
 - 4. Custom mounting details

1.04 EXTRA MATERIALS

- A. Provide 10%, of the total installed, spare parts for the following: (Round up to the next complete device)
 - 1. Motion sensors
 - 2. Glass break sensors
 - *3. Duress buttons*
 - 4. Alarm contacts

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Intrusion Detection System
 - 1. DSC to match campus standard

2.02 IDS CONTROL PANELS

- A. General
 - 1. Integrated UL listed digital communicator with phone line monitor (loop or ground start).
 - 2. Supports up to 64 alarm zones and 8 programmable areas or partitions.
 - 3. Capable of utilizing multiple telephone numbers, primary and duplicate paths with main and alternate destinations.



- 4. Capable of utilizing a dual phone line switcher to monitor 2 phone lines.
- 5. Capable of sending daily automatic test and status reports.
- 6. Supports supervised expansion and relay output modules.
- 7. Supports RS-232 connectivity to third party devices for automation.
- 8. Capable of utilizing an TCP/IP converter for Ethernet connectivity.

B. Manufacturer

- 1. DSC PowerSeries #PC1864 8-64 zone control panel
 - a. Accessories
 - 1) DSC #PC5200 Power Supply Module
 - 2) DSC #PC5204 Power Supply Module
 - b. Expansion modules
 - 1) DSC # PC5100 Addressable Xone Expander
 - 2) DSC # PC5108 8-Hardwire Xone Expander
 - 3) DSC # PC 5208 Programmable Output Module
 - 4) DSC # IT-100 Integration Module
 - 5) Lantronix # UDS1100 w/ #500-163-R cable adapter
 - 6) DSC #TL250GS Internet Alarm Communicator
 - c. Wireless back-up communication device
 - 1) DSC #GS3060; Universal Wireless Alarm Communicator

2.03 IDS KEYPADS

- A. General
 - 1. 32-character display
 - 2. Keys light on entry or key press
 - 3. Back lighted multi-key touch pad
 - 4. User controlled brightness and loudness
- B. Provide the ability to display for each detection point:
 - 1. Alarm
 - 2. Trouble
 - 3. Supervisory
 - 4. Faulted
 - 5. Custom text
- C. System wide displays include:
 - 1. Local system test
 - 2. Sensor reset
 - 3. Event log
- D. Manufacturer
 - 1. DSC #PK5500 64-Zone LCD Full-Message Keypad



2.04 DURESS BUTTONS

- A. General
 - 1. Actuating lever, housing, and cover plate made of ABS fire-retardant plastic
 - 2. Latching circuit with integrated LED
 - 3. Contact: Normally Open or Normally Closed electrical loop, SPDT
 - 4. Operating Voltage: 12VDC
- B. Manufacturer:
 - 1. GE Security # 3040 panic switch
 - 2. Or Equal

2.05 MOTION SENSORS

- A. General
 - 1. Type: Passive infrared (PIR) detector with Fresnel type lens
 - 2. Operating Voltage: 10-14VDC
 - 3. Range: 35' x 35' minimum
 - 4. Integrated tamper switch
- B. Manufacturer
 - 1. Wall mount
 - a. Bosch # ISM-BLP1 blue line PIR detector
 - b. Or Equal
 - 2. Ceiling Mount
 - a. Bosch # DS938Z panoramic PIR detector
 - b. Or Equal

2.06 GLASS BREAK SENSORS

- A. General
 - 1. Type: Digital, utilizing DSP technology
 - 2. Operating Voltage: 6-18 VDC
 - *3. Range: 25' maximum, omnidirectional*
 - *4. Integrated tamper switch*
- B. Manufacturer:
 - 1. Honeywell # FG-1628T glass break sensor
 - 2. Or Equal

2.07 MAGNETIC CONTACT SWITCHES

- A. Wood, Steel, and Hallow Metal Doors
 - 1. Mounting: Recessed



- 2. Contacts: Single Pole, Single Throw
- *3. Gap Distance: 1.0" maximum*
- 4. Manufacturer:
 - a. GE Security # 1078 1" alarm contact switch
 - b. Or Equal
- B. Local Audible Alarmed Doors
 - 1. Mounting: Recessed
 - 2. Contacts: Double Pole, Double Throw
 - *3. Gap Distance: 0.5" maximum*
 - 4. *Manufacturer*:
 - *a. GE Security* # 1076D alarm contact switch
 - b. Or Equal
- C. Overhead Roll-Up Doors
 - 1. Mounting: Surface
 - 2. Contacts: Single Pole, Single Throw
 - *3. Gap Distance: 3.0" maximum*
 - 4. Wiring: Armor Cable, 12" minimum
 - 5. *Manufacturer*:
 - a. GE Security # 2205 floor mounted contact switch with 3' armored cable lead
 - b. Or Equal

2.08 LOCAL AUDIBLE ALARMS

- A. General
 - 1. Panel operating voltage selectable 12 or 24VDC at 150mA.
 - 2. *Keyswitch operation using rim cylinder provided by Owner to match existing standard.*
 - *3. Utilizes 80 Db horn.*
 - 4. Input points for door switch, alarm shunt, door status, tamper switch, and key switch override.
 - 5. Output points for door propped alarm, intrusion alarm, door status, tamper switch, and key switch override.
 - 6. *Timers for access period, warning period, and auto reset.*
 - 7. *Tamper switch to detect the removal of the unit from the electrical back box.*
- B. Manufacturer
 - 1. Designed Security # 4200 local alarm sounder
 - 2. Or Equal

2.09 IDS POWER SUPPLIES

A. General



- 1. Provides a 120VAC to 12/24VDC output, fully supervised power supply to power IDS field devices.
- 2. Utilizes 16 PTC Class 2 rated power limited outputs.
- 3. Short circuit and thermal overload protection.
- 4. Integrated charger for sealed lead acid or gel type batteries.
- 5. Capable of providing 6 amp supply current.
- B. Manufacturer
 - 1. Altronix # AL600ULXPD16CB multi-output power supply/charger
 - 2. Or Equal

PART 3 - EXECUTION

3.01 INSTALLATION

- A. General
 - 1. Follow manufacturers recommended guidelines for installation.
- B. Components
 - 1. IDS Control Panel
 - a. Utilize dedicated *[or ACAMS]* power supplies to power control panel and associated expansion boards. Do not use plug-in transformers.
 - b. Place power supply and associated hardware in same location.
 - c. Install supervisory and end-of-line resistors on alarm initiating devices.
 - d. Coordinate installation of phone jack and network connection in IDS control panel enclosure for communications to the contracted central station and integration with the ACAMS.
 - 2. Keypads
 - a. Mount keypads as indicated on project drawings.
 - 3. Duress Buttons
 - a. Mount duress buttons under work desks as indicated on the project drawings.
 - b. Coordinate with architect and casework contractor to field determine exact placement prior to installation.
 - 4. Motion Sensors
 - a. Mount motion detectors as indicated on project drawings. Verify current location to maximize coverage prior to installation.
 - b. Install motion detector so that detection pattern is not obstructed by exit signs, light fixtures, and other objects that would interfere with proper operation.
 - 5. Glass Break Sensors
 - *a. Mount glass break detectors as indicated on drawing. Verify correct location to maximize coverage prior to installation.*
 - 6. Door Position Contacts (if not installed with ACAMS)
 - a. Program input on IDS control panel to receive alarm output from ACAMS indicating card reader door forced or door held-open alarm.
 - b. Install on protected (secured) side of door.



c. Install 6" from leading edge at top of door.

3.02 PROGRAMMING

- A. Prior to the completion of construction, schedule a meeting with the Owner to determine the following programming criteria:
 - 1. Zone or alarm point descriptions
 - 2. User authority levels to arm/disarm areas or alarm partitions
 - 3. Auto arm/disarm schedules
 - 4. Arm/disarm requirements through the ACAMS using specific credentials.
 - 5. Interface requirement with ACAMS
 - 6. Central station response from individual alarm points
 - 7. Central station password and call list information
- B. Document the results of the meeting and perform necessary programming to achieve the Owner's requests. Program and setup the system such that no additional programming other than entering new access codes is required.

3.03 TESTING

A. Commission the Intrusion Detection System in accordance with Section 28 08 00.

END OF SECTION



SECTION 13720

VIDEO SURVEILLANCE SYSTEM

PART 1 - GENERAL

1.01 SUMMARY

- A. General: Provide engineering, labor, materials, apparatus, tools, equipment, transportation, temporary construction, and special or occasional services as required to make a complete working video surveillance system installation, as described in this specification.
- B. Section Includes:
 - 1. VSS Monitoring and Recording System
 - 2. VSS Fixed, Multi-sensor, and PTZ IP cameras, lens, mounts, and housing
 - 3. VSS Power supplies
 - 4. Integration with ACAMS
 - 5. Interfaces and connections between VSS subsystems to allow communication with one another
- C. Products Supplied But Not Installed Under This Section:
 - 1. None
- D. Products Installed But Not Supplied Under This Section:
 - 1. None
- E. Products Specified But Not Installed Under This Section:
 - 1. None
- F. Products Furnished and Installed Under another Section:
 - 1. 120V power
 - 2. Ethernet cable back to telecommunication for IP cameras
 - 3. PoE switches in the telecommunications rooms for VSS connectivity via LAN/WAN
- G. Related Sections:
 - 1. Consult other Divisions, determine the extent and character of related work and properly coordinate work specified herein with that specified elsewhere to produce a complete and operable system.
 - 2. Section 280000 Basic Security System Requirements: includes general project requirements, submittal formats, installation, and warranty requirements.
 - 3. Section 281300 Access Control & Alarm Monitoring System: includes product information for video integration with the ACAMS.
 - 4. Section 280513 Security System Cabling: includes product information for wire and cable needed to support the video surveillance system.



- 5. Section 280553 Security System Labeling: includes label types and formats for security devices.
- 6. Section 280800 Security Acceptance Testing: includes the integrating testing/commissioning requirements for the video surveillance system.

1.02 DEFINITIONS

- A. The Definitions of Division 1 apply to the 28 XX XX sections.
- B. In addition to those Definitions of Division 1, the following list of terms as used in this specification defined as follows:
 - 1. "IP": Internet Protocol
 - 2. "NVR": Network Video Recorder
 - 3. "VMS": Video Management System
 - 4. "PTZ": Pan-Tilt-Zoom
 - 5. "NAS": Network Attached Storage
 - 6. "PoE": Power-over-Ethernet
 - 7. "VSS": Video Surveillance System

1.03 SYSTEM DESCRIPTION

- A. Overview
 - 1. The VSS is a network of IP cameras connected to and managed through a video management and recording server software and viewed on client workstations. The recording servers are managed and provided by District / Campus IT on centrally located servers.
 - 2. The VSS consists of interior and exterior fixed and PTZ IP cameras, networked video recorders, management software, and dedicated client video monitoring workstations.
 - 3. Cameras will integrate with the ACAMS through software and TCP/IP communication for alarm events which initiate video recording and tag video with specific alarms.
- B. VSS Camera System Base Bid
 - 1. Provide VSS software and licenses capable of video motion detection and integration capabilities with the ACAMS software for alarm interface.
 - 2. Provide the appropriate number of video licenses for IP cameras connected to the VSS video management system.
 - 3. Coordinate installation of VSS camera licenses on centrally located network video server(s) hardware provided by the Owner. Provide District / Campus IT the bandwidth and storage requirements for cameras included under the project scope to ensure appropriate resources are available.
 - 4. Provide NVR client workstation software for monitoring and viewing capabilities in the Police Services Office. Load client software on existing workstation located in the security office.
 - 5. Coordinate network connection between IP cameras and existing security workstation at the Police Services Office with the District's IT department prior to installation.



- 6. Coordinate one static IP network connection for each camera *and/or IP video encoder*.
- 7. Provide IP fixed VSS cameras as indicated on the floor plans.
- 8. Provide IP multi-sensor VSS cameras as indicated on the floor plans.
- 9. Provide IP PTZ VSS site camera as indicated on the floor plans.
- 10. Provide day/night cameras in outdoor locations with low light levels. Coordinate field of view with exterior light sources to prevent poor image quality.
- 11. Provide VSS camera power supplies (if needed) for PTZ and exterior camera enclosures.
- 12. Provide software interface to the ACAMS for alarm call up of cameras and PTZ specific presets on predefined alarm events.
- C. Tamper Monitoring
 - 1. Provide additional monitor input points for monitoring the following:
 - a. Tamper switches located within each security equipment enclosure and wire way
 - b. Supervision of power supplies and batteries

1.04 SUBMITTALS

- A. Contractor Qualifications: Submit certifications for the manufacturers of the video surveillance equipment.
- B. Product Data: Submit product information for components specified herein.
- C. Shop Drawings:
 - 1. Device placement on floor plans.
 - 2. Point-to-Point Diagrams: Include wiring, points of connection and interconnecting devices between the following:
 - a. Video surveillance system, monitors, and recording equipment
 - b. Devices connected to the system
 - c. Miscellaneous control relays
 - d. Conductors (identify conductors on the point-to-point diagrams with the same tag as the installed conductor)
 - 3. Block Diagram/Riser Diagram: Show the video surveillance system components, conduit, wire types, and sizes between them, including cabling interties between termination hardware.
 - 4. User interface graphics with icons and control buttons displayed.
 - 5. Custom mounting details

1.05 EXTRA MATERIALS

- A. Provide 10% spare parts of total installed the following: (Round up to the next complete device)
 - 1. Fuses (Place five (5) of each type of fuse inside each power supply).

1.06 WARRANTY

A. Camera Systems



- 1. Provide a manufacturer's warranty covering repair or replacement of defective parts for a period of one year from the date of shipment from the factory
- 2. Cameras and support devices
 - a. Provide a manufacturer's warranty covering repair or replacement of defective parts for a period of one year from the date of shipment from the factory.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Video Surveillance System
 - 1. Network Video Recorder Software
 - a. Salient Systems
 - 2. IP Cameras
 - a. Sony
 - b. Axis Communications
 - c. Arecont Vision
 - d. Or Equal
 - 3. Power Supplies
 - a. Altronix
 - b. Pelco
 - c. Or Equal

2.02 CAMERA SYSTEMS

- A. General
 - 1. Type: Color, solid-state CCD with DSP technology, unless otherwise noted
 - 2. Power: 24 VAC/VDC,
 - 3. Imager: 1/3 inch format, unless otherwise noted
 - 4. Lens Mount: Accept a "CS" mount auto or manual-iris lens
 - 5. Synch: Adjustable line lock for synchronizing camera to power line. No auxiliary sync cable required.
 - 6. Resolution: 640x480 minimum resolution (EIA RS-170), unless otherwise noted
 - 7. Minimum Light Level: 0.1 fc imager illumination at full video, unless otherwise noted
 - 8. Lens: Field determine, unless otherwise noted
 - 9. Video transmission through IP or analog signals through IP encoder
- B. Fixed IP Interior Dome Cameras
 - 1. Complete prepackaged unit containing:
 - a. Minimum 1280x720 megapixel resolution for fixed cameras, with progressive scan



- b. Resolution: 30 frames per second at all resolutions
- c. Video streaming: Simultaneous Motion JPEG and H.264
- d. Auto iris, varifocal lens of 2.5-6mm
- e. Security: IP address filtering and HTTPS encryption
- f. Power over Ethernet (IEEE 802.3af), Class 1
- g. Connectors:
 - 1) Ethernet 10/100 BaseT, RJ-45
 - 2) Terminal block for alarm inputs, output, and RS-485/422
 - 3) Power Mini DC
- h. Dome housing
- 2. Manufacturer:
 - a. Axis #P33 Series network dome megapixel camera
 - b. Sony #SNCDH140 network dome megapixel camera
 - c. Arecont Vision #AV1355 network dome megapixel camera
 - d. Or Equal
- 3. Accessories:
 - a. Axis In-Ceiling Mount #5502-361 or Surface Mounting Plate #5502-401
 - b. Sony In-Ceiling Mount #YTICB45
 - c. Arecont Vision Surface Mounting Plate #MD-EBA
 - d. Or Equal
- C. Exterior Fixed IP Mini-Dome Cameras
 - 1. Complete prepackaged unit containing:
 - a. Superior 1.3 megapixel image sensor quality with progressive scan
 - b. Resolution: 12 frames per second at 1280x1024 and 30 frames per second at 640x480
 - c. Video streaming: Simultaneous Motion JPEG and MPEG-4
 - d. Auto iris, varifocal lens of 2.8-10mm
 - e. Security: IP address filtering and HTTPS encryption
 - f. Power over Ethernet (IEEE 802.3af), Class 1
 - g. Connectors:
 - 1) Ethernet 10/100 BaseT, RJ-45
 - 2) Terminal block for alarm inputs, output, and RS-485/422
 - 3) Analog video, BNC composite output
 - 4) Audio line output, mini-jack
 - Vandal resistant dome housing
 - i. Manufacturer:

h.

- 1) Axis #P33 Series megapixel network mini-dome camera
- 2) Or Equal
- j. Accessories:
 - 1) Axis #5502-321 Pendant kit
 - 2) Axis #5017-611 Wall Bracket
 - 3) Axis #5017-641 Corner Bracket



4) Axis #5017-671 Pole Bracket

D. PTZ IP Dome Camera

- 1. Provide IP PTZ camera with appropriate mount to flush mount into roof soffit
- 2. Complete prepackaged unit containing:
 - a. 1/4" high-resolution color CCD camera & motorized zoom auto-iris lens
 - b. Resolution: Supports 1280x720 resolution at 30 frames per second
 - c. Resolution: 30 frames per second at all resolutions
 - d. High-speed pan and tilt that is stepper motor driven (belt-driven not acceptable).
 - e. Integral receiver/driver
 - f. Color
 - g. Integral 18X min optical zoom lens for exterior locations
 - h. Exterior cameras: wide dynamic range and auto day/night switching between color and B/W
 - i. Motion JPEG and H.264 video compression
 - j. Integrated heater and blower for exterior locations
 - k. Power over Ethernet plus (IEEE 802.3at) compatible
 - l. Electronic Image Stabilizer
- 3. Provide seismic support of unit attached directly to roof soffit structure.
- 4. Manufacturer:
 - a. Sony #SNCRH164
 - b. Axis #P5534 Series
 - c. Or Equal
- 5. Accessories:
 - a. Sony #UNI#MB1 mounting bracket
 - b. Axis #T91A Mounting Accessories
 - c. Or Equal
- E. Multi-sensor camera
 - 1. Complete prepackaged unit containing:
 - a. Minimum resolution: (4) 1920 x1080
 - b. Video Compression format: H.264
 - c. Power over Ethernet (IEEE 802.3af, Class 2)
 - d. Frame Rate: 12.5 fps at H.264
 - e. Sensor: Four 1/2.8" progressive scan RGB CMOS sensors
 - f. Vandal Resistant Dome
 - 2. Manufacturer, or equal:
 - a. Axis P3707-PE
 - 3. Accessories, or equal:
 - a. AXIS T91D61 Wall Mount including weather shield
- *F. License plate capture camera*
 - 1. Integrated infrared imager for capture up to 50ft.



- 2. Housing: NEMA4 Compliant
- 3. IP Video Transmission
- 4. Manufacturers:
 - a. Inex-Tech ALPR Platform
 - b. ARH ParkIT
 - c. Hanwa with Arteco LPR Open Platform Application

2.03 VIDEO MANAGEMENT SOFTWARE

- A. NVR Video Management Software
 - 1. Video surveillance software must have software integration with ACAMS. Hard-wired input/output alarms is not acceptable.
 - 2. Include software licenses:
 - a. Camera licenses to support devices shown on project drawings
 - b. Client workstation licenses to support a minimum of 5 concurrent users
 - c. Internet Explorer client browser license
 - 3. Manufacturer:
 - a. Salient Systems Complete View Enterprise (to match existing standard)
 - b. Salient Systems LPR Tracker

2.04 POWER SUPPLIES/BATTERY CHARGERS

- A. VSS System Power Supplies
 - 1. 120 VAC input to 24 VAC output, continuous current, fully supervised power supplies for power to cameras.
 - 2. Provide a separate fused connection to power supply per camera.
 - 3. Exterior PTZ Camera
 - a. Pelco #WCS 1-4 NEMA4X/IP66 rated for outdoor use
 - b. AXIS #5000-001 24VAC Outdoor power supply
 - c. Altronix
 - d. Or Equal

2.05 VSS LIGHTNING PROTECTORS

- A. Power Line Protectors
 - 1. Provide on power lines serving exterior cameras.
 - 2. Manufacturer:
 - a. PolyPhaser Corp #IS-SPTV
 - b. DITEK
 - c. Or Equal
- B. PTZ Data Line Protectors
 - 1. Provide on data lines serving exterior IP cameras.



- 2. Manufacturer:
 - a. PolyPhaser Corp #NX4-60-IG
 - b. DITEK
 - c. Or Equal

2.06 IP VIDEO ENCODER

- A. General
 - 1. Video Compression: Motion JPEG, MPEG-4 Part 2 (ISO/IEC 14496-3), Profiles: ASP and SP
 - 2. Resolution: 4CIF, 2CIFExp, 2CIF, QCI
 - *3. Frame Rate: Up to 30/25 per channel*
 - 4. Pan/Tilt /Zoom control
 - 5. *Alarm and event management*
 - 6. Channels: 4 minimum
- B. Blade Video Server
 - *1. Hot-swappable*
 - 2. Built-in, universal power supply
 - 3. Security: IP address filtering and HTTPS encryption
 - 4. *Manufacturer*:
 - a. Axis #243Q blade video server
 - b. Or equal
- C. Video Server Rack Enclosure
 - 1. High density rack-mount solution
 - 2. Capable of storing a minimum of 3 interchangeable and hot-swappable blade video servers
 - *3. Manufacturer:*
 - a. Axis #291 1U video server rack
 - b. Or equal

PART 3 - EXECUTION

3.01 INSTALLATION

- A. VSS Cameras
 - 1. Provide outdoor housing and mounts for exterior cameras.
 - 2. Field determine exact placement of cameras to ensure complete coverage.
 - 3. Coordinate location with obstructions such as columns or exceedingly high shelving units to avoid concealment opportunity.
 - 4. Field determine fixed camera lens size to ensure complete coverage.



- 5. Route watertight flex from junction box to camera housing from below on exterior cameras.
- 6. Provide 25 foot cable loop at PTZ location for relocating unit if required post installation
- 7. Coordinate Network Data Drop with Telecom contractor for each IP Camera.
- 8. Coordinate camera IP address with District IT staff.
- B. VSS Power supplies
 - 1. Do not combine with Access Control & Alarm Monitoring System power supplies.
- C. Network Video Recorder Storage
 - 1. Coordinate installation of additional camera licenses and programming of cameras on owner provided network video server with District ITS
- D. Surge Protection
 - 1. Provide surge protection for video, power, and control cable on exterior cameras.
 - 2. Provide protective device at the camera and encoder/recorder device.

3.02 **PROGRAMMING**

- A. Coordinate a meeting with Owner's IT representative to determine IP addresses and LAN/WAN utilization of IP cameras and NVRs.
- B. Prior to the completion of construction schedule a meeting with the Owner and the Engineer to determine the programming criteria. Discuss the following:
 - 1. Camera naming
 - 2. PTZ Presets
 - 3. Schedules and recording parameters including quality and frame rate (including video motion detection)
 - 4. ACAMS alarm and event integration requirements for workstation pop-ups and recording.
 - 5. Video archiving schedule
 - 6. Live viewing requirements
 - 7. System data base backups
- C. Document the results of the meeting and perform necessary programming to achieve the Owner's requests.
- D. Setup and program the system such that no additional programming required.
- E. Use the camera naming convention agreed upon at in the programming meeting when programming point names into the system.
- F. Perform a full system back-ups at completion of initial programming and deliver one copy to the Owner with a Letter of Transmittal explaining information included in back-up and brief description of recovery procedures.
- G. Customize menus with the assistance of the factory to "gray-out" features not used on project (such as elevator control).



H. Perform field software changes after the initial programming session to "fine tune" operating parameters and sequence of operations based on revised operating requirements.

3.03 TESTING

A. Commission the video surveillance system in accordance with Section 280800.

END OF SECTION



SOFTWARE HOUSE

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C•CURE 9000 Enterprise

Taking C•CURE 9000 further with advanced distributed architecture

Features That Make a Difference:

- Advanced distributed architecture for enterprise scalability
- Maintain independent control at each remote location
- Optimize local performance by limiting WAN traffic and latency
- Synchronize full database across all servers
- Manage entire enterprise across multiple geographical areas from one central location
- Monitor alarms from multiple sites on one workstation
- Global reporting for efficient, consolidated data tracking

C•CURE 9000 Enterprise provides advanced distributed architecture for enterprise scalability. Whether your organization consists of a few facilities that are locally dispersed or many that span the globe, this solution grows as your company grows.

3

C-CI

C•CURE 9000 Enterprise gives corporate security personnel and IT managers central control over the entire system, while each local facility maintains independent control of its individual operation. It also allows system administrators at the main facility to configure and monitor all locations from that central site.

Each local server may be positioned near its relevant field hardware which limits traffic to the main server and optimizes performance. Each facility maintains a local SQL database which increases system reliability as there is no dependence on the master database or WAN connection for normal operations. Data from each local server is synchronized with the main server via the WAN to ensure data consistency throughout your entire organization. All database information, including cardholder and access control information, is sent to the central server. In addition, when updates are made to the main server, those updates are distributed to the local servers to ensure local data is current.

C-CURE

C•CURE 9000 Enterprise allows system operators to simultaneously monitor alarms from multiple facilities from one workstation. You can manage your entire enterprise from a single client providing one source of critical information. Additionally, you can compile global journal and audit reports at the main facility for efficient, consolidated tracking of personnel or event information. These reports can be used for internal investigations or to comply with company mandates.

Features

Advanced Distributed Architecture for Enterprise Scalability

The C•CURE 9000 Enterprise architecture supports a master application server (MAS), and up to 20 satellite application servers (SAS) without limiting system functionality. All communication is performed across a WAN, which allows real time two-way communication between the MAS and each SAS.

Independent Control at Each Remote Location

Each SAS communicates directly with the MAS but is not dependent on the MAS for access control in the area in which the local hardware resides. Each satellite system administrator has total control over all access control field hardware and system information related to his/her respective location. This gives regional system administrators autonomous control over their individual regions independent of the MAS and corporate WAN. Each location retains its own database and has full local reliability. This prevents unnecessary system downtime should the SAS lose communication with the MAS.

Optimize Local Performance

By connecting a SAS to a Local Area Network (LAN) along with relevant access control hardware, local performance may be optimized in the event of latency from the WAN. The SAS may communicate directly with the hardware that is part of that particular LAN. There is no reliance on the MAS or any other SAS for functionality. Placement of the SAS within a LAN can decrease the time it takes to transmit data to the relevant hardware since there is no dependence on the WAN for operation. Much less bandwidth may be required, thereby increasing efficiency. Local performance is further optimized since the MAS performs substantial reporting for all SASs. This allows each SAS to allocate additional resources to perform important access control functions.

Synchronize Full Database Across All Servers

All access control information, not just cardholder data, from each SAS is synchronized with the MAS. The MAS then distributes any changes received from each SAS, so that all servers are equipped and operating with up-to-date information. This is all done in real time. Consistent synchronization of each local database to the master database ensures data consistency. This provides information that is necessary to make certain the organization is secure and its employees are well protected. Synchronization of a full database also gives security personnel the ability to compile global personnel and configuration reports quickly and efficiently.

Manage Entire Enterprise from One Central Location

Since all cardholder and access control field data collected from each SAS is synchronized and communicated to the MAS, you can manage and perform central monitoring operations. Viewing all data across all SASs gives you a full view of your entire operation.

Monitor Alarms from Multiple Sites on One Workstation

The power of C•CURE 9000 Enterprise allows you to simultaneously monitor alarms in multiple locations from one convenient workstation. Central monitoring of alarms from multiple sites means more flexibility. Operators might share the responsibility of monitoring various sites during different time periods.



Global Reporting for Efficient Consolidated Data Tracking

With C•CURE 9000 Enterprise's global reporting functionality, you can retrieve personnel, configuration, hardware, journal, and audit data from all facilities within the organization. This data can be used for a variety of reasons such as investigating unauthorized entries, analyzing hardware positioning across the organization, and complying with specific company mandates. You can save valuable time searching for data and compiling critical reports since all global information is replicated on the MAS where you can quickly run reports on pertinent information.

Features

C•CURE 9000 Enterprise Architecture Diagram



C•CURE 9000 Enterprise System Capacities^{1, 2}

	Master Appl	ication Serv	er		
	MAS 1	MAS 2	MAS 3	MAS 4	MAS 5
Global Personnel Records	1,000	10,000	25,000	100,000	250,000
Simultaneous Clients (admin, monitoring or web)	5	5	5	10	10
Badging Clients	1	1	1	2	2

		Satellite	Applicat	tion Serve	ər			
	SERIES L	SERIES M	SERIES N	SERIES P	SERIES Q	SERIES R	SERIES R PLUS	SERIES S
Online Readers	16	32	64	128	256	512	1,000	2,500+
Online Inputs	64	128	256	512	1,024	2,500	5,000	10,000+
Online Outputs	64	128	256	512	1,024	2,500	5,000	10,000+
Local Personnel Records	7,000	12,000	40,000	45,000	250,000	250,000	250,000	500,000
Simultaneous Clients	5	5	5	10	10	10	10	10
Badging Clients	1	1	1	2	2	2	2	2

Capacities shown are default values. Additional connections may be purchased separately.
 Additional clients and badging clients may be added to a system license. Simultaneous client connections are tabulated by C•CURE 9000 Administration, Alarm Monitoring, and Web Client connections.

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In addition to the essential C•CURE 9000 features, C•CURE 9000 Enterprise offers these powerful features³:

-	Global Database Synchronization
	Clobal Alarm and Event Manitaring

- Global Alarm and Event Monitoring - Global Journal and Audit Reporting
- Global Configuration Reporting
- Full Operation at Local Satellite

Maximum Concurrent Satellite Application

Servers per Master Application Server 20 Authentication

Windo	ows Authentication
on Do	omain and Trusted
Doma	ain

C•CURE 9000 Master Application Server Minimum Hardware and Software

Processor	Intel [®] Quad-Core Xeon (2.4 GHz or greater);
	Xeon 5500 Series or greater
Hard Disk Drives	Dual drives: primary drive = 250 GB (9000
	Runtime) secondary drive = 250 GB
	(data backups)
Drive Speed	15K RPM or greater
Memory	8 GB
Network Adapter Card	100/1000 MB/sec
DVD Drive	Required
Operating System	Windows® Server 2008 R2 Standard and
	Enterprise (64-bit only)
Web Server	IIS v6.0 or higher for C•CURE 9000 Web Client
	if required
Database	SQL Server 2008 Standard and Enterprise
	(64-bit only)
Video Card	Dedicated 256 MB accelerated video card

C•CURE 9000 Satellite Application Server Minimum Hardware and Software

Processor

Series L-N	Intel Pentium Dual-Core or greater (2.5 GHz
	or greater)
Series P-S	Intel Quad-Core Xeon (2.4 GHz or greater);
	Xeon 5500 Series or greater

Hard Disk Drives

	Series L-N	Dual drives: primary drive = 80 GB (9000 Runtime); secondary drive = 80 GB (data backups) Drive speeds: 7200 RPM or greater
	Series P-S	Dual drives: primary drive = 250 GB (9000 Runtime); secondary drive = 250 GB (data backups) Drive speeds: 10,000 RPM or greater
N	lemory	
	Series L-N Series P-S Network Adapter Card DVD Drive Operating System	4 GB 4 GB 4 GB ⁴ 100/1000 MB/sec Required Windows 7 Professional (32- and 64-bit) Windows Server 2008 R2 Standard and Enterprise (64-bit) Windows Server 2008 Standard and Enterprise (32-bit) Windows Server 2003 Standard and Enterprise SP2 (32-bit)
	Web Server Database	Vindows XP Professional SP3 (32-bit) IIS v6.0 or higher SQL Server 2008 R2 Express, Standard, and Enterprise (32- and 64-bit); SQL Server 2005 Express, Standard, and Enterprise (32-bit)
	Video Card	Dedicated 256 MB accelerated video card

C•CURE 9000 Client Workstation Minimum Hardware and Software

Intel Pentium Dual-Core or greater (2.5 GHz or
greater) Single 100 GP: Drive speed: 7200 PPM or
greater
2 GB
100/1000 MB/sec
Required
Windows 7 Professional and Enterprise (32-bit)
Windows Vista Business and Enterprise (32-bit)
Windows 2003 Standard (32-bit)
Windows 2003 Enterprise SP2 (32-bit)
Windows XP Professional SP3 (32-bit)
Dedicated 256 MB accelerated video card

Supported Languages

English, Arabic, Brazilian Portuguese, Dutch, French, German, Italian, Polish, Simplified Chinese, Spanish

(3) Refer to the C•CURE 9000 Security and Event Management data sheet for essential features (4) 8 GB recommended for Windows Professional and Windows Server 2008 R2 (64-bit)



C•CURE 9000 Web Client

Approvals









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C•CURE 9000 v2.0 Security and Event Management System



Max Application Lagrand

Features That Make a Difference:

- NEW! C•CURE 9000 Enterprise provides advanced distributed architecture for enterprise scalability
- Control and monitor areas with anti-passback, Occupancy Restrictions, and N-man Rule
- Easily create your own custom personnel data fields to capture information specific to your company
- Enhance security by requiring operator confirmation before manual activation of events
- Trigger automatic changes in access rights based on threat levels with Dynamic Clearance Filters
- Control security objects directly from the monitoring station or from graphical CADbased maps
- Dynamically change views, reorder columns, and modify and filter data from a single screen
- Easily drag and drop cameras directly to the interface
- Share a single database while retaining security and privacy of your own information
- Significantly enhance security with intrusion zones and keypad commands
- Remotely manage and monitor the system using C•CURE 9000 Web Client
- Access and leverage LDAP-compliant data sources
- Create a virtual hub of integrated applications
 with robust Software Development Kit (SDK)
- Supports the entire suite of iSTAR and apC controllers¹, and SimplexGrinnell Ethernet ISC panels
- Integrates with American Dynamics solutions as well as other video systems
- FIPS 201 compliant

C•CURE 9000 is a powerful security and event management system that provides IT-standard tools and innovative distributed architecture. By leveraging .NET v3.5 technology, C•CURE 9000 offers native encryption and XML data transfer, making it one of the fastest, most secure systems in the industry.

C•CURE 9000 provides unsurpassed integration capabilities, advanced alarm routing, and remote access for system administration and monitoring via a light client. For extremely effective information management, C•CURE 9000 supports multiple layouts and monitoring station panes in the same windows. This enables you to focus on system activity, while another window displays your live video.

Integrate an unlimited number of security and business applications using the same GUI, navigation, driver interfaces, etc. with the C•CURE 9000 Kit (SDK). This kit is available through the "Software House Connected" platform integration program. The SDK provides the essential tools to develop hardware and software applications that communicate seamlessly with C•CURE 9000. C•CURE 9000 provides advanced security with a built-in LDAP general connection. This allows a user to connect to many external data sources including industry-leading Microsoft Active Directory.

C-CURE

With C•CURE 9000 Web Client, you can manage personnel, display dynamic views, and monitor system activity directly from any PC with a web browser from anywhere in the world. C•CURE 9000 Web Client allows you to perform a wide range of tasks such as creating/modifying cardholders, and monitoring alarms/events while away from the workstation. Refer to the C•CURE 9000 Web Client data sheet on www. swhouse.com for more detailed information.

The new C•CURE 9000 Enterprise provides advanced distributed architecture for enterprise scalability. Whether your organization consists of a few facilities that are locally dispersed or many that span the globe, this solution grows as your company grows. Refer to the C•CURE 9000 Enterprise data sheet on <u>www.swhouse.com</u> for more detailed information.

Features

Customizable Integrated Monitoring Station

C•CURE 9000 offers preconfigured layouts or an empty palette for each administrator to customize. Drag and drop different viewers - some that represent objects like video tours and specific types of activities, live camera views, dynamic views of system activity, or configuration data, even the Windows Explorer bar to make navigation very easy.



The most powerful thing about the monitoring station is that each pane is live and interactive. With appropriate permissions, you can manipulate data fields and change views, navigate around maps, launch a video tour, perform quick searches and queries—all in real time, all from one interface.

Scalable, Editable Maps

Import CAD (.dwg, .dxf) or raster files (.bmp, .jpg, etc.) and populate complex floor plans with your security objects. All original CAD layers are immediately visible or can be hidden for easy viewing. Create new layers, and drag and drop security objects such as cameras, tours, inputs/outputs, and more directly to your drawing with scalable icons. One-click magnification and tracking views provide the ability to manage and navigate around your floor plans. For expansion projects, easily update or replace your CAD drawings without having to add security icons again.



Control Areas and Monitor Occupancy

Easily configure all areas across your facility to enforce anti-passback to prevent cardholders from passing their credentials to others to gain access to secured areas. You can further configure the system with time restrictions and to activate events such as sounding an alarm for anti-passback entry and exit violations.

Occupancy restrictions let you quickly define a maximum number of people, by role, that are permitted into a specified area. This type of control is essential in highly-classified areas such as those in government facilities or hospitals. An event can be triggered if the limit is violated. Similarly, a minimum occupancy level or N-man Rule limits access to an area based on a minimum required occupancy. For example, in order to grant access to a computer lab that stores highly classified data, a minimum of two people must present their credentials to unlock the door.

Intrusion Zones and Keypad Commands Enhance Security

To enhance security, grouping inputs and doors into intrusion zones allows you to arm/disarm alarm inputs as well as lock/unlock groups of doors while displaying their current mode and status in a defined area. To enforce operator accountability and prevent misuse of the system, you can configure C•CURE 9000 to require the operator to verify his/her credentials before manual activating events.

Leveraging the intrusion zone feature, keypad commands give you the ability to remotely activate cameras, doors, and other events as well as trigger a duress call right from a reader key pad. Keypad commands can be configured to require card presentation and/or a PIN to validate the command.

Highly Secure Database Partitioning

Independent companies can share a single database while, at the same time, partitioning that database to maintain the security and privacy of their individual organization. Users can specify to which multiple partitions they share privileges - doors, clearances, etc. The partitioning of information includes everything from personnel to video and hardware configuration.

Exceptionally Reliable Security

C•CURE 9000 provides FIPS 197-approved encrypted communication between the client and server, Microsoft Windows single sign-on, field-level audit, and authentication of historical log content feature a digital signature on each event. This allows administrators to detect additions, modifications, or deletions of data which is critical in order to maintain compliance with regulations, such as Sarbanes-Oxley, HIPAA, and 21-CFR Part 11. Distributed architecture and support for Microsoft SQL Server 2005 and 2008 provide powerful inherent data redundancy.

C•CURE 9000 addresses the U.S. Government's HSPD-12 and, specifically, Federal Information Processing Standards (FIPS) 201. A key component of the FIPS 201 credentialing for

Take a closer look

all government employees and contractors is the Cardholder Unique Identifier (CHUID). Support for extended card numbers allows users in government applications to comply with certain federal guidelines that require a multi-field CHUID. Additionally, C•CURE 9000 can be used in environments that use a Transportation Worker Identification Credential (TWIC) system to ensure individuals who pose a threat do not gain access to secure areas of the nation's maritime transportation system.

Complete Flexibility and Scalability Answers the Evolving Needs of an Enterprise

C•CURE 9000 Enterprise gives corporate security personnel central control over the entire system, while each local facility maintains independent control of its individual operation. Its power gives system administrators at the main facility the ability to configure and monitor all locations from that single site. You can manage your entire enterprise from a central client providing one source of critical information.

Additionally, you can compile global journal and audit reports at the main facility for efficient, consolidated tracking of personnel or event information. These reports can be used for internal investigations or to comply with company mandates. Refer to the C•CURE 9000 Enterprise data sheet for further details.

Sophisticated Badging with C•CURE ID

Leveraging a WYSIWYG badge designer, this solution offers superior control over color and easy manipulation of graphics. With a powerful Expression Builder, you can easily create expressions that simplify badge creation. Uncomplicated query features allow you to query a common field and then print those cards found by the query in one batch.



With the smart card enrollment solution, you can read and/or reprogram multiple smart card formats such as MIFARE® (1K & 4K cards), iCLASS®, and DESFire®. These cards can be programmed with a wide range of data depending on the protocol of each card type for critical security purposes and/or value add-ons such as vending, parking, etc. Refer to the C•CURE ID datasheet on <u>www.swhouse.com</u> for more detailed information.

Easily Migrate C•CURE 800/8000 Data

The optional C•CURE 9000 migration utility allows you to easily bring your important C•CURE 800/8000 data into C•CURE 9000. Data includes: cardholder information (including credentials and images), clearances, time specifications, readers, inputs, outputs, iSTAR and apC panels, doors, door groups, events, and actions.



C•CURE 9000 Enterprise Diagram

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C•CURE 9000 System Capacities

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	SERIES L	SERIES M	SERIES N	SERIES P	SERIES Q	SERIES R	SERIES R PLUS	SERIES S
# of Online Readers	16	32	64	128	256	512	1,000	2,500+
# of Online Inputs	64	128	256	512	1,024	2,500	5,000	10,000+
# of Online Outputs	64	128	256	512	1,024	2,500	5,000	10,000+
# of Credentials	7,000	12,000	40,000	45,000	250,000	250,000	250,000	500,000
# of Simultaneous Clients ² (Admin., Monitoring, or Web)	5	5	5	10	10	10	10	10
# Badging Clients	1	1	1	2	2	2	2	2

Note - Additional input/output capacity and additional clients and badging clients may be added to a system license.

Features Included with All C•CURE 9000 Series	C•CURE 9000 Server Recommended Hardware and Software
Activity Journal	Processor
Activity Journal	Series L-N Intel [®] Pentium Dual-Core or greater (2.5 GHz or greater)
Automated Import	Series P-S Intel Quad-Core Xeon (2.4 GHz or greater); Xeon Series 5500
- Automateu Import	or greater)
	Hard Disk Drives
- Olearance Fillers	Series L-N Dual drives: primary drive = 80 GB (9000 Runtime);
Double Swipe	Secondary drive = 80 GB (data backups) Drive speeds: 7200 RPM or greater
Eloyator Support	Series P-S
- Elevator Support Extended Card Number Support (Covernment Carde)	secondary drive = 250 GB (data backups)
Field Level Auditing	Drive speeds: 10,000 RPM or greater
- Fleid Level Auditing	Memory
- Graphical Maps	Series L-N 4 GB
- Reypau Commanus	Series P-S4 GB ⁷
- Intrusion Zones	Network Adapter Card 100/1000 MB/sec
- Mahuai Action Challenge Multiple Card Support	DVD Drive Required
- Multiple Card Support	
- Multiple Guard Station GOIS	Operating System
- Multiple Time Zones	Series L-N
NotVuo Integration with Intelley DV/Rs and VideoEdge NV/Rs	Windows Server 2008 R2 Standard and Enterprise (64-bit)° Windows Server 2008 Standard and Enterprise (32, bit)
Notification by Email	Windows Vista Business and Enterprise (32-bit)
	Windows Server 2003 Standard and Enterprise, SP2 or later (32-bit)
- Occupancy nestrictions	Windows XP Professional SP3 or later (32-bit)
- Faluuoning	
- Personner views	Series P-S Windows Server 2008 R2 Standard and Enterprise (64-bit) ⁸
- Fush install of Olients	Windows Server 2008 Standard and Enterprise (32-bit) Windows Server 2002 Standard and Enterprise, SP2 or later (22 bit)
- RIVI LOD Messages	Windows Server 2003 Standard and Enterprise, SF2 of later (S2-bit) Web Server IIS v6.0 or higher
- Single Sign-On Authentication	
- Smart Card Program/Enromment	Database
- System Backup of Database and Journals	Series L-N SQL Server 2005 and 2008 R2 Express (32-bit)
- User-Delined Fields	Series P-S
	Enterprise (32-bit)
Options that Expand the Power of C•CURE 9000	VIDEO CARO Dedicaleo 256 MB acceleraleo Video caro ^o
	C•CURE 9000 Client Workstation
- COURE 9000 Enterprise Server	Recommended Hardware and Software
- Tools for in-Country Localization*	Processor Intel Pentium Dual-Core or greater (2.5 GHz or greater)

Spanish

Memory.....2 GB

DVD Drive Required

Supported Languages

Network Adapter Card 100/1000 MB/sec

Hard Disk Drive 100 GB at 7200 RPM or greater

Operating System Windows 7 Professional and Enterprise (32-bit)8

Video Card Dedicated 256 MB accelerated video card⁹

- or in-Country Localization
- Web Client
- C•CURE Mobile⁵
- Built-in LDAP Connection
- Migration Tool for Cardholder Data
- "Software House Connected" Program Drivers⁶
- Integration with Wireless Access System

(2) Client License = single monitoring station application, administration application, or Web Client

- (3) (4)
- See C•CURE 9000 Enterprise data sheet for more details Included with Series S C•CURE Mobile requires Windows Server 2003 (5)
- (6)
- Contact sales for a complete list of available "Software House Connected" program drivers 8 GB recommended for for Windows 7 Professional and Windows Server 2008 R2 (64-bit) Version 1.93 and higher For multiple screen display or other display applications, additional video cards required (7)

SiteServer

(8) (9)

Related Products





C•CURE 9000 Enterprise

C•CURE 9000 Web Client

iSTAR Controllers

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ISV/Software Solutions Networking Infrastruct

SECURITY Ϋ́

Windows Vista Business and Enterprise, SP1 or later (32-bit)

Windows XP Professional, SP3 or later (32-bit)

Approvals

Arabic, Brazilian Portuguese, Dutch, French, German, Italian, Polish, Simplified Chinese,

Microsoft

Windows Server 2003 Standard and Enterprise, SP2 or later (32-bit)

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SOFTWARE HOUSE

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C•CURE 9000 Web Client Web Client User Interface

Features That Make a Difference:

- Provides remote access to C•CURE 9000 from virtually any computer with an Internet browser
- Manage personnel, display dynamic views, monitor system activity and generate reports
- Lock/unlock doors and activate events using manual actions
- Easily create and setup email for simple reports of card access activity and operator actions
- Show journal history and audit trail activity through pre-configured dynamic views
- Intuitive icon-driven user interface
- Easy deployment and installation
- Share a single database while retaining security and privacy of data through database partitioning
- Simple management of access-level permissions
- 128-bit AES encryption using SSL for secure communication between server and clients
- Single sign-on utilizes Microsoft[®] Windows Authentication to maintain integrity of IT security
- Up to 10 simultaneous users
- Built using latest Microsoft standards and platforms

C•CURE 9000 Web Client provides simplicity and portability of your C•CURE 9000 security and event management system by giving you remote access to C•CURE 9000 using an Internet browser. With C•CURE 9000 Web Client you can manage personnel records, display dynamic views of doors, readers, inputs/ outputs, and controllers, and monitor system activity from within a facility or anywhere in the world. You can perform a wide-range of tasks such as creating/ modifying cardholders and monitoring alarms/events while away from your workstation. And, for a permanent log of system activity, you can quickly and easily create reports from historical journal and audit trail data. It's a simple and secure way to deploy, monitor, and control the C•CURE 9000 system from any location.

Built using the latest Microsoft® standard tools and platforms, C•CURE 9000 Web Client is easy to administer and navigate with an intuitive layout and clear, consistent navigation panes. There is no need to install additional software. You can log on to the Web Client using the same unique logon/password you use for C•CURE 9000, which reduces management of user accounts. You can add, delete, and modify personnel records, clearances, and credentials, as well as enable and disable cards. Validating whether an individual has or does not have access to a facility, a particular area within a facility, or a particular door has never been easier.

To streamline productivity and balance both responsibility and workload, corporate security administrators can disseminate control to individual department managers. This allows them to grant access in the physical areas for which they are responsible. The managers can assign or remove access privileges for each employee thereby eliminating the need for intervention by security administration.



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Windows XP SP2; any client that supports

Windows Server 2003 Standard SP2;

the same number of simultaneous Web Clients)

C•CURE 9000 Web Client

C•CURE 9000 Server

Supported Client

Supported Server

Maximum Simultaneous

Maximum Number of

Minimum System Requirements

Supported Browsers Microsoft Internet Explorer 7 and 8

Operating System Windows 7; Windows Server 2008;

Operating System Windows 7; Windows Vista;

Microsoft Silverlight Version v3.0 and higher

Supported Web Server MS IIS v5.10, v6.0, v7.0 C+CURE 9000. Version 1.93 and higher

Minimum System Requirements

Configured Users. Unlimited Client to Server Encryption . . SSL, 128-bit AES

Database Partitioning Yes

Ordering Information

Mozilla[®] Firefox[®] Google™ Chrome

Silverlight[™] 3.0

Windows XP SP2

Client Connections to Server. .Up to 10 (C•CURE 9000 license must include

C•CURE 9000 Web Client licenses are included in the overall C•CURE 9000 client license count – no special part numbers are required. To order addition

CC9000-ADDCLI..... One additional C•CURE 9000 client license CC9000-ADD5CLI..... Five additional C•CURE 9000 client licenses

C•CURE 9000 client licenses use the part numbers listed below.

Personnel Management

Crederbals	Clearanc	es Customer Prev. Doors	
First Name	Tarrific		
Middle Name	τ.		
Last Name	Tom		20
Object ID	5002		
Personnel Type	Employe		
Operator Name			
PH	0		
liscellaneous:			
Personnel Ider	differ .		
Association Cat	egory	1	
Organizational Cat	egory	a	upbers:
Organizational Idee	tifier		Abernato Share(ADA)
Modification History:			C Mathematical Second
Last Edited On	8/19	/2009 3107122 994	Activate AntiPassach Event
Last Edited By	AND	BIAL_whene	Keypel Command: Administrator Honorison Toma Administrator

Dynamic Views

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	c-cun	E 1000 Web Client	1		Merchaning	
T/	AR Desire x	and the second of the second se				
	Rame	Description	Mode Status	Open Status	Unlock Time	Alarm State status
	FrontDoor	Main Entrance on Williams Street	Locked	Cicsed	5	Normal
	EmployeeEntrance	Side Entrance on Elm Street	Locked	Closed	5	Normal
	RSD Lab 1	First Floor Software Lab	Locked	Closed	5	Normal
	RSD Lab 2	Second Floor Optics F&D Lab	Locked	Closed	5	Normal
	- Cri	gypeli & 2019 Fyle Mineralevial 181, auf	ts Basperfire Corego	anat, Al fights Baserred (-CUR) 10	og Wal Claud Ride V	www.e.1.10.24034

Activity Viewer

C Cure 9000 Web Client	A 😡 🗋 C Cure 9000 Web Client 🔛 🗋 C Cure 9000 Web Client			
C-CURE	= 1000 Web Client 👌 🗾 Dynamic Views 🏰 🗾 🧭			
Activity Viewer				
¥ = \$	¥ 🔂			
Date - Time	Activity			
6/18/2009 9:45:03 AM	Operator "AAAAAAAAAAAAAAAAAAAAAAAAA logged in on computer 'AAAAAAAA ' using Monitoring Station.			
6/18/2009 9:45:21 AM	System Warning: software support agreement will expire on computer 'AAAAAAAA '.			
6/18/2009 9:50:25 AM	Manual action by 'AAAAAAAAAAAAAAAAA': disarm Event 'Door Event [Main Campus]' from 6/16/2009 9:50:00 AM to 6			
6/18/2009 9:50:25 AM	Event 'Door Event [Main Campus]' is disarmed.			
6/18/2009 9:50:33 AM	Manual action by 'AAAAAAAAAAAAAAAAAA': arm Event 'Door Event [Main Campus]' from 6/18/2009 9:50:00 AM to 6/1			
6/18/2009 9:50:34 AM	Event 'Door Event [Main Campus]' is anned.			
6/18/2009 9:50:42 AM	Manual action by 'AAAAAAAAAAAAAAAAA': activate Event 'Door Event [Main Campus]' from 6/18/2009 9:50:00 AM to			
	Township we are a second and the second s			

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Related Products



C•CURE 9000









iSTAR Edge

Approvals





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Approvala

Software House™

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Software House C•CURE® ID is an intuitive, .NET based badging solution that provides high performance, cost-effective, and secure identification management. C•CURE ID allows you to read and/or reprogram multiple smart card formats with a wide range of vital personnel information for more stringent security protocols.

Access control cards can also be a powerful way to communicate your company's message to employees and the public. C•CURE ID utilizes Microsoft[®] .NET guidelines for the GUI letting you create professional-looking badges.

C•CURE ID offers a WYSIWYG badge designer which provides complete control over color, graphics, text, and backgrounds on both sides of the credential. With a powerful Expression Builder, C•CURE ID lets you easily create expressions that simplify badge creation and organization.

C•CURE[®] ID

Intuitive Badging Solution

Features That Make a Difference:

- Read and reprogram multiple smart card formats such as MIFARE[®] (1K & 4K cards), iCLASS[®], and DESFire[®] for more secure badging
- What You See Is What You Get (WYSIWYG) layout editor lets you design badges exactly the way they'll appear
- Intuitive graphical user interface (GUI) displays badge changes instantaneously
- Design badge layout and edit cards in one convenient window
- Expression Builder lets you easily add customized dynamic fields to badges
- Choose from sample data templates for quick and easy badge design
- Supports 1D or 2D barcodes for biometric data encoding; also supports magnetic stripe encoding
- Access text and layout properties on both sides of badge for tremendous flexibility
- Signature capture adds unique security characteristic to badge
- Supports a variety of image formats (.bmp, .jpg, .tif, and .wmf) and automatically assigns a format to any unsupported, imported image
- Easily import customized badge templates from C•CURE 800/8000 to C•CURE 9000

In many instances a company can have hundreds, even thousands of employee and personnel records in its security system. The C•CURE ID query functions allow you to query a common field and then print those cards found in a single batch rather than one record at a time, making it faster and easier to manage your badges. Credentials can also be organized for sheet printing, facilitating the layout of a year book making it easier to manage a watch list or disallowed list.

For a complete badging solution, C•CURE ID provides a state-of-the-art, fully integrated photo imaging application that runs on C•CURE 9000 and C•CURE 800/8000.

C•CURE ID makes it easy to migrate from C•CURE 800/8000 to C•CURE 9000. Customized badge templates in C•CURE 800/8000 can be easily merged into a C•CURE 9000 system without losing valuable information and formatting.

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Smart Card Enrollment and Provisioning

Read and reprogram multiple smart card formats such as MIFARE (1K and 4K cards), iCLASS, and DESFire. These cards can be programmed with a wide range of data depending on the protocol of each card type for critical security purposes and/or value add-ons such as vending, parking, etc. Using a USB based desktop encoder/decoder or the card encoding and decoding capabilities built into the printer lines of Fargo[®], Magicard, or NiSCA printers, you can provision data onto a smart card or enroll data from the card into the C•CURE system. Those same printers can then be used to easily print cards in a specified layout.

With the powerful enrollment process, you can digitally store encrypted credentials onto the card for more stringent identity authentication and authorization.

Pre and Post Processing of Captured Images Provides Superior Photos

Easily control the iris and zoom of TWAIN compliant digital cameras before the image is captured ensuring you get exactly the photo you want.

Once the image is captured, the lighting, sharpness, and clarity of the image can easily be modified within C•CURE ID. The post-processing image settings can be saved within the application so that future captured images are uniform in those same settings.

Intuitive GUI of Badge Layout Editor

The badge layout editor lets you construct and manipulate all aspects of the badge layout. Create and apply numerous badge layouts to individuals or groups of cardholders. All objects, images, and text can be moved, sized, rotated, and altered to meet your specific needs. Other effects can be achieved through "ghosting" and "transparency".

Powerful Expression Builder

C•CURE ID offers an Expression Builder which allows you to easily meet specialized layout needs. Simply pick the fields and formats from a template list to build sophisticated expressions. Save layout time by importing data in one format and then transforming it to another format to suit your specific badge design. For example, if your personnel data imported from a human resources database appears in upper/lower case, you can use Expression Builder to easily change how you want the information displayed on the badge by selecting from a list of pre-configured formats.



C•CURE ID Client Workstation Recommended System Requirements¹

CPU	1.5 GHz
Memory	1 GB
Video Card	SVGA, 16 MB RAM
Resolution	1024 x 768
Operating System	Windows [®] XP Professional
Qualified Printers	Magicard Rio 2e, Magicard Tango 2e, Fargo DTC400e, Fargo DTC550, Fargo HDP5000, and NiSCA PR5350

(1) The system should have enough USB ports to support keyboard, mouse, camera, signature capture tablets, and other input devices utilized in the station. Additionally, if a dedicated video capture card (either the FlashBus[®] MV Lite or FlashBus MV Plus) is being utilized, the system should have the appropriate video ports available.

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Software House

From Tyco Security Products

iSTAR Ultra SE

Special Edition iSTAR Ultra, Compatibility and Future-Proofing with Pro Mode and Ultra Mode



Features That Make a Difference:

- Powerful network-ready door controller for up to 32 readers (16 from ACMs)
- Dedicated DIP switch allows you to go from "Pro mode" for use with C•CURE 800/8000 and C•CURE 9000 to "Ultra mode" for use with C•CURE 9000
- Dual GigE network ports for redundant network operation
- Hardened Linux embedded OS for improved security and scalability
- Enables wireless locks to communicate with C•CURE 9000 providing a fully integrated and managed lock solution
- Includes global anti-passback and advanced peer-to-peer clustering
- Native intrusion zone functionality
- Manages up to 500,000 cardholders in local memory
- Socketed relays improve serviceability
- Dedicated input for fire alarm interlock overrides door locks during fire conditions (Ultra mode only)¹
- Onboard 256-bit AES network encryption (Ultra mode only)
- Rack-mount models provide flexibility in mounting options
- Flexible adapter plate to mount in existing iSTAR Pro enclosures
- Great solution for enterprise and government installations

iSTAR Ultra SE is a powerful, intelligent network-ready controller that supports up to 32 readers. With a strong iSTAR Ultra feature set, the iSTAR Ultra SE provides an extra level of compatibility ("Pro mode") to ensure all Software House systems can take advantage of its enhanced capabilities. The controller features the same General Controller Module (GCM) as iSTAR Ultra, and one or two Access Control Modules (ACM) to accommodate field wiring from readers, inputs, and outputs. The iSTAR Ultra SE ACM size, footprint, and connectors are identical to the iSTAR Pro ACM allowing for an easy upgrade to the iSTAR Ultra SE.

In "Pro mode", iSTAR Ultra SE has the feature set of the iSTAR Pro providing compatibility with C•CURE 800/8000. In "Ultra mode", additional high end features such as AES encryption and ASSA ABLOY Aperio wireless lock support are enabled. Changing between "Pro mode" and "Ultra mode" is accomplished via a dedicated DIP switch on the GCM board.

iSTAR Ultra SE was designed with flexibility and compatibility in mind. When your project calls for a controller with a smaller footprint, an upgrade from an earlier Software House controller, or when the project does not require the additional embedded lock power management features of iSTAR Ultra, iSTAR Ultra SE gets the job done.

Supports up to 32 Readers

iSTAR Ultra SE uniquely combines support for traditional hardwired access control doors with support for wireless lock sets,

¹ Available with C•CURE 9000 v2.50 or higher

all in the same controller. Up to 32 readers are supported by the iSTAR Ultra SE, of which 16 may come from the I/O units of the ACM – the rest can be made up of IP-ACM Ethernet Door Modules and/or wireless lock sets and devices.

iSTAR Ultra SE is ideal for areas that require many readers in close proximity to the panel. For more distributed installations, iSTAR Ultra SE includes up to 16 RS-485 ports, allowing the installer to run longer distances to each door.

Networking Strength and Security

iSTAR Ultra SE includes two onboard gigabit network ports for primary and secondary communications to the host. AES 256-bit FIPS 140-2 network encryption, with custom key management and denial-of-service protection, secures the controller from potential network threats. iSTAR Ultra SE supports both static and dynamic IP addresses, using DHCP and DNS to simplify network installation. In addition, the powerful iSTAR Configuration Utility (ICU) reduces startup time by allowing you to view online controllers, change configuration parameters, and download new firmware from a single interface.

iSTAR Ultra SE uses a GCM which includes standard 2GB RAM and 16GB SD card for memory.Database backups and all buffered transactions are stored to non-volatile SD card memory. A real-time clock battery keeps the clock powered during a power failure.

Features

Ultra Mode vs Pro Mode

iSTAR Ultra SE provides the ultimate compatibility with the ability to be used with both C•CURE 800/8000 and C•CURE 9000 systems. For C•CURE 800/8000 systems, the controller is set to "Pro mode" and will operate as an iSTAR Pro. It can cluster with other iSTAR Pros and even supports a dial-up connection back to the C•CURE 800/8000 host. "Pro mode" is also very useful when upgrading iSTAR hardware ahead of a C•CURE 9000 upgrade – it allows you to upgrade the hardware first, while still on the previous access control software.

For C•CURE 9000 v2.50 and greater, you can set the Ultra SE to "Ultra mode" to take advantage of additional high end features. When the controller is in "Ultra mode", it has all of the powerful iSTAR Ultra features including AES encryption, 32-reader connectivity, ASSA ABLOY and Schlage wireless lock integration, and configurable input circuit types. It can also cluster with iSTAR Ultra, iSTAR Edge, iSTAR eX, or iSTAR Pro (non-encrypted).

	Ultra Mode	Pro Mode
Compatibility	C•CURE 9000, v2.50 and above	C•CURE 800/8000 v10.3, C•CURE 9000 v2.30 and above
10/100/1Gb Ethernet, Full Duplex	Yes	Yes
Dual Network Ports	Yes	Yes
AES 256 Encryption, FIPS 197	Yes	No
Dialup Support	No	Yes
Selectable Input Circuit Types	Yes	No
Total # of Readers Supported	32	16
# of Supervised Inputs per ACM	16	16
# of Relay Outputs per ACM	8	8
# Wiegand Readers per ACM	8	8
# RM Readers per ACM	8	8
# I/O Modules per ACM	16-l8 & 16-R8	8-18 & 8-R8
Schlage Wireless Locks per GCM	32	16
Aperio Wireless Locks per GCM	32	none
# Personnel, 10 clearances/per, 5 cards/per, long card #s	500,000	500,000

Ensure Reliable Communication with Clusters

iSTAR Ultra SE supports peer-to-peer communications across clusters meaning that the controllers communicate with one another without needing host intervention. Clusters are user-defined groups of up to 16 controllers and can be created to enhance security by separating a widely dispersed facility into different controlled areas. For example, events linking inputs on one controller to outputs on another controller will still be active without the host.

Local and Global Anti-Passback Provides Effective System-Wide Security

Anti-passback prevents cardholders from passing their credentials back to others in order to gain access to secured

areas. Global anti-passback is critical for ensuring uncompromised security on a large scale. Building upon cluster-based anti-passback as described above, the controllers are able to send an anti-passback violation notice to the C•CURE server. Tailgating, or following another cardholder into a secured area without presenting a separate badge, can easily be flagged within the C•CURE monitoring station.

Rack Mount Flexibility

iSTAR Ultra SE is available in a modular rack mount configuration, reducing the space requirements and costs associated with installing a panel on the wall. Separate GCM and ACM modules can be arranged in the rack to optimize your server room installation. For example, the GCM can be mounted in the front of a four-post rack, while the ACM and field wiring can be located in the rear of the rack. Field wiring on the ACM is easily routed through the top and/or bottom of the enclosure, with the ACM board mounted front and center for convenient servicing.

Keypad Commands Provide the Ultimate in Control

iSTAR Ultra SE supports custom keypad commands which provide a powerful way to easily activate events in C•CURE. These commands include anything from triggering a duress call and sounding an alarm, to locking and unlocking doors directly from an RM reader keypad. Commands can be configured to require a card presentation and/or a card and PIN to validate the command. Keypad commands can also be used to arm and disarm intrusion zones.

Arm and Disarm Intrusion Zones to Enhance Security

For your most critical areas, iSTAR Ultra SE features built-in intrusion zone functionality allowing you to monitor and respond to intrusion alarms quickly, without relying on a third-party intrusion panel. Any door or input on the iSTAR Ultra SE, including inputs from I8 expansion modules, can be configured as part of an intrusion zone, either as a 24/7 monitored input such as a glass break detector, or as a controlled input such as a motion sensor or door. Zones can be armed and disarmed using a combination of card and/or PIN, and/or from the C•CURE 800/8000 or C•CURE 9000. Entrance and exit delays, bypass, and custom triggers and commands are all configurable per zone for the utmost in flexibility.

Extended Card Formats, Multiple Credentials Enhance Flexibility

iSTAR Ultra SE supports extended card formats of up to 256 with multiple data fields, providing the utmost in flexibility when configuring custom card formats. Longer card numbers and formats offer greater protection against card duplication, and are especially valuable to customers who require card numbers that exceed 10 digits.
Features

iSTAR Ultra SE allows administrators to assign up to five active cards per cardholder record rather than having to create a separate record for each card. This simplifies the management and maintenance of personnel records. For additional flexibility, iSTAR Ultra SE can support up to 128 card formats systemwide and ten card formats per reader.

Built-in Diagnostics to Easily Test and Troubleshoot

iSTAR Ultra SE includes both built-in web diagnostics pages and a local LCD to test and troubleshoot inputs, outputs, reader ports, and last card read. In addition, via the network, you can retrieve real-time status and diagnostics of:

- controller time/boot time
- total/available memory
- connection status
- firmware and OS versions
- hardware (MAC) and IP addresses
- downloaded clearances and cardholders

Fully Integrated and Managed Lock Solution

Utilizing iSTAR Ultra SE, wireless locks from ASSA ABLOY or Schlage communicate with C•CURE 9000, providing a fully integrated and managed lock solution. Up to 32 ASSA ABLOY Aperio or Schlage AD300 and AD400 locksets can be managed by a single iSTAR Ultra SE (in Pro mode - up to 16 Schlage locks, no Aperio support). In addition to traditional locksets, the Aperio line also includes cabinet and data center locks, allowing you to extend the breadth of your access control system to non-traditional openings. Each lockset communicates using AES 128-bit encrypted wireless technology to an a wireless hub, which is then connected to the iSTAR Ultra SE with a simple RS-485 communications bus. Each hub can accommodate up to eight Aperio or 16 Schlage wireless locks.

All activity and alarms from each wireless device are sent to the iSTAR Ultra SE and then up to the C•CURE 9000 in real time, guaranteeing a high level of control and visibility of door actions. Besides standard card access transactions, each device also communicates low battery, tamper, and communications status to the system.

iSTAR Ultra SE and Wireless Lock System Layout



² The C•CURE 9000 Server component is now called the victor Application Server. ³ ASSA ABLOY Aperio or Schlage AD300 or AD400 but not both.

SOFTWARE HOUSE

From Tyco Security Products

Specifications

Physical
Dimensions (H \times W \times D)
Wall-Mount
Rack Mount GCM
Rack Mount ACM
(4U rack height)
GCM Board
Weight
Wall-Mount
Rack Mount ACM 4.1 kg (9.5 lbs)
Enclosure Material
Operating Temperature0 - 50°C (32 - 122°F)
Storage Temperature20 - 60°C (- 4 - 140°F)
Electrical
Power Requirements, GCM,, 12 VDC +/- 20%, 0.5 A plus up to
1.5 A per RS-485 port
Power Requirements,
Each ACM 12V DC +/- 20%, 0.5A for core board;
0.8A per Wiegand
12V DC (Wiegand 5V max, 1.25A total);
Total ACM core board plus outputs not to
exceed 5A.
Power Jupping (Optional) Power Input 90 to 240V AC 47 to 63 Hz 1 7A
Power Output
Heat Dissipation GCM: 20.5 BTU/hr, each ACM: 20.5 BTU/hr
Memory and RTC Backup CR 2032 lithium battery provides RTC backup;
non-volatile memory
System and Network
CPU Freescale i MX6 1 GHz dual core Cortex-A9
System Memory
SD Storage
Primary Network Port
Network Encryption Optional AES 256-bit with custom key
Management (Ultra mode only); Pro mode does
not support RSA RC4 encryption
Indicators and Switches LCD for diagnostics, LEDs for power, LAN
encryption-enable switch (Liltra mode only). Liltra
mode/Pro mode switch
Modem Port thru USB Modem Supported on C•CURE 800/8000,
C•CURE 9000 v2.50 (Pro mode only)
Memory Capacity₄
Ten clearances, five cards/
Transaction Buffer Size 10,000 minimum 500,000 maximum
Dedicated Inputs Cabinet tamper AC fail low battery
Distance GCM to ACM

Technologies Support ASSA ABLOY Aperio (ultra mode only), Schlage AD300 & AD400, WA Series⁶ GCM RS485 Ports to Connect Wireless Hubs..... 2 (Ultra mode), 1 (Pro mode, Schlage only) Max # of Locksets

Specifications for Wireless Lockset Support⁵

per RS485 Port..... 16 Max # of Wireless Hubs/PIMs per RS485 Port..... 15 (Aperio); 16 (Schlage) Max # of Locksets per Wireless Hub. 8 (Aperio); 16 (Schlage)

Specifications per ACM Board⁷ Readers

Wireless Lockset

Number of Readers Supported, per ACM Board Types of Readers Supported	8 Wiegand signaling and RM (RS-485)
Reader Technologies Supported	Multi-Technology, Proximity, Smart Card (incl. PIV II & TWIC), Wiegand, and Magnetic Stripe (RM only)
Maximum Data Distance to Door Reader Power Status Indication RM Bus Communications	RM: 1,219 m (4,000 ft); Wiegand: 150 m (500 ft) On/off indication per port, through C•CURE 9000 Eight ports, RS-485 half duplex, two wire, plus optional two wires for device power
Inputs	
Number of General Purpose Inputs per ACM	16 supervised inputs, configurable EOL circuit
Additional Dedicated Inputs	Cabinet tamper (standard); fire alarm interlock, fire alarm key switch override,
Input Expansion	64 per ACM (Pro mode); 128 per ACM (Ultra mode) using I8 modules on RM bus
Outputs	
Number of Relay Outputs	
per ACM	8
Output Rating, Dry Contact Output Protection	Snubber and transzorb (outputs use socketed relays)
Output Expansion	64 per ACM (Pro mode); 128 per ACM (Ultra mode) using R8 modules on RM bus
Regulatory	
Access Control	UL 294, CSA C22.2 No. 205 (Canada);
Burglar Alarm	UL 1076, ULc 1076 (Canada)
CE	EN 55022 (EMI), EN 55024 (EMC), EN 60050 1/Safatu)
Safety	IEC 60950-1
EMI	FCC Part 15 Class A, EN 55022, ICES-003
	(Canada), VCCI Class A ITE (Japan), C-Tick
EMG	(AS/NZS CISPR 22 - Australia/New Zealand)
	EN 61000-6-1
Encryption	FIPS 197 (Utra mode only); Pro mode does not support RSA RC4 encryption

⁶ Only 16 Schlage PIMs and readers are supported on one RS485 port in Pro mode ⁷ Up to two ACM boards per iSTAR Ultra ⁸ Available with C•CURE 9000 v2.50 or higher

Approvals





⁴ Memory allocation is dynamic and shared between cardholders, event storage, and configuration information.
⁵ ISTAR Ultra SE (Ultra mode only) supports 32 readers (ACM and/or wireless) total of which 16 may come from ACMs

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Software House®



Input/Output Modules

Features That Make a Difference:

- Provides cost-effective expansion of input and output capacity
- Compatible with full range of Software House[®] iSTAR and apC access control panels
- Locate modules up to 1,220 m (4,000 ft) away from controllers using flexible two-wire RS-485 RM bus
- Reduces length of sensor and control wiring to save installation costs
- I8 provides eight Class A supervised inputs
- R8 provides eight Form C relay outputs
- I8-CSI, configurable supervised input model, allows use of existing input wiring without changing end-of-line (EOL) resistors
- Three status LEDs per input (red/yellow/green) and one per output enable quick diagnostics and troubleshooting
- Small, modular size requires minimal panel space
- Dedicated tamper input included on each module
- Optional UL-listed enclosure available

The Software House I8, R8, and I8-CSI modules provide a flexible, cost-effective means to expand the input and output functionality of any iSTAR or apC access controller. Common applications include alarm monitoring and control and elevator control.

The I8 input module provides eight Class A supervised inputs. Three LEDs per input help the installer commission and troubleshoot each input circuit – red if the input is in alarm, green for normal, and yellow for a supervision error. LEDs may be turned off via a DIP switch setting.

The I8-CSI module enhances the functionality of the standard I8 module by supporting numerous supervised circuit types and EOL resistance values. This allows the I8-CSI to accommodate existing field wiring without changing EOL resistors. More than 20 different circuit types are supported. The circuit type is selected via a bank of DIP switches and applies to all eight inputs on the I8-CSI.

The R8 output module provides eight Form C dry contact relay outputs. A red status LED per output shows the state of the relay.

All modules feature a dedicated input for an external cabinet tamper switch and mount easily in the Software House RM-CAN or RM-DCM-CAN enclosure. The modules communicate with iSTAR or apC controllers via the two-wire RM bus that allows total wiring distances of up to 1,220 m (4,000 ft). Up to eight I8s and eight R8s can be connected to each apC, iSTAR eX, and iSTAR Pro eight-reader model; up to 16 of each module can be connected to the iSTAR Pro 16-reader model.

The modules are fully compatible with both C+CURE® 800/8000 and C+CURE 9000.



Software House®

SPECIFICATIONS

General

oronoral
Dimensions (H x W) 11.0 x 15.0 cm (4.3 x 5.9 in)
Environmental
humidity, non-condensing
Power Input Voltage 12 VDC +/- 10%
Tamper Dedicated input for external tamper switch
Weight
RegulatoryUL 294, UL 1076, FCC Part A
CE, EN 50133, ROHS

18 Input Module

Power Requirements	180 mA @ 12 VDC
Inputs	Eight Class A supervised
LEDs per Input	Red (alarm), green (normal), and yellow (supervision error)
I8-CSI Input Mod	lule
Power Requirements	180 mA @ 12 VDC
· · ·	Fight Olage A surger deal section makes de DIF

Inputs	Eight Class A supervised, configurable via DIP switch.
LEDs per Input	.Red (alarm), green (normal) and yellow
	(supervision error)
Circuits Supported	Single resistor: 1K, 5K, 10K
	Double resistor: 1K, 5K, 10K,
	1K/2K, 6.8K/18K, 200/10K
	Unsupervised: NO, NC

Wiring Summary

R8 Output Module

Power Requirements45 mA @ 12 VDC plus 32 mA per active relay
OutputsEight Form C dry contact relays
LED per Output Red (relay active)
Relay Contact Ratings 30 VDC, 2.0 A resistive
30 VDC, 1.0 A inductive
125 VAC, 4.0 A
Optional Metal Enclosures with Tamper Switch

RM-CAN

Model Numbers

Signal	From	То	Belden #	Gauge	# of Pairs	Shielded	Maximum Length
Comm (two-wire RS485)	apC/iSTAR	18/R8	9841*	24	1	Yes	1,220 m (4,000 ft)
Power	apC/iSTAR	18/R8	9841*	24	1	No	Based on voltage drop
Control Point	R8	Strike, Siren, etc.	8442/8461	18	1	No	Based on voltage drop
Supervised Input	18	REX or Door Contact	8442/8461	22/18	1	No	610 m (2,000 ft)

Wiring Configuration Diagram







Sample System Configuration: Combination Bus/Star Wiring Diagram



(*) For plenum or underground applications, use Belden 89182 for one pair 22 AWG, 100 ohm 12.95 pf/ft. Note: Control, supervised, and unsupervised input cables must be shielded for FCC Class B operation.

Product offerings and specifications are subject to change without notice. Actual products may vary from photos. Not all products include all features. Availability varies by region; contact your sales representative. Certain product names mentioned herein may be trade names and/or registered trademarks of other companies.

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Software House®

DATA SHEET



RM-DCM-2

Door Control Module with Enclosure

Features That Make a Difference:

- Full-featured local door control module lowers wiring costs
- Complete set of inputs and outputs to control one door
- Flexible control options for reader LEDs and beep patterns
- Easily expandable
- Additional internal etch connections support magnetic lock features and accommodate local bypass switch
- Optional LCD provides clear instructions that help simplify startup and diagnostics
- Status LEDs on inputs and outputs for quick troubleshooting
- Built-in tamper switch provides secure installation
- Plug-in screw terminals reduce installation time

Put a full-featured RM-4E door control module in a UL listed, tamper-protected enclosure and you have the powerful Software House® RM-DCM-2. RM-DCM-2 is designed to support up to two RM-4Es and a choice of up to two I8 input boards or R8 output boards, providing a single enclosure for doors with IN and OUT readers.

RM-DCM-2 supports both Wiegand and magnetic stripe readers and provides additional wiring to magnetic locks if required.

The RM-4E modules create the connectivity between a reader and a control panel when third party card readers are used on a C•CURE[®] system. In addition, the RM-4E modules provide two supervised inputs and two SPDT relays (no ARM-1s are necessary). The LEDs and optional LCD display provide diagnostics to simplify the installation. RM-DCM-2 provides standby power with its built-in uninterruptible power supply (UPS).

With its robust feature set, RM-DCM-2 is designed to handle the most demanding access control applications with ease while offering numerous installation and service features that lower its life cycle cost.

Software House

SPECIFICATIONS

Physical

Enclosure Dimensions (H x W x D) . .356 x 305 x 89 mm (14 x 12 x 3.5 in) RM-4E Board-Only

Dimensions (H x Ŵ)136 x 181 mm Weight (without battery)4.5 kg (8 lbs) cabinet with tamper switch on door

(5.375 x 7.125 in)

5 to 95% RH, non-condensing

Environmental

Operating and Storage Temperature 0 ° to 50°C (32° to 122°F)

Electrical

Power Requirements
without Reader or Relays+12 VDC +/- 5% or +24 VDC +/-10%,
280 mA max
Power Requirements, Maximum,
with Reader and Relays+12 VDC +/- 5% or +24 VDC +/-10%,
550 mA max
Output Relay Power Ratings
Reader LED Output Controls 4.0 volts to 5.25 volts, 20mA max
Power Available for Reader
125mA max (at 5V or 12V)
Optional Battery 12V/4Ah battery provides
nominal 4 hours backup time

Regulatory UL 294

CE, including EN50081-1, EN50130-4, EN50133 FCC Part 15 Class A RoHS

Communications

Communications Bus	.RM bus from iSTAR controller
	or apC/8X panel
Communications Type	.RS-485 half duplex, two-wire
Maximum Distance	.1,219 m (4,000 ft)

Reader, Inputs & Outputs

Reader Ports	.One
Reader Support	.Wiegand or magnetic stripe
Reader Control Lines Available	.Red LED, green LED, yellow LED, beeper
Keypad Support	.Terminals provided for external 3x4
	matrix keypad
Supervised Inputs	.Two, double-resistor
Output Relays	.Two, Form C, dry contact
Tamper Input	.One

Indicators and Switches

Three status LEDs for each supervised input LED on each relay output LEDs for RS-485 transmit and receive LED for power-on Optional LCD for diagnostics Eight position dipswitch for feature selection: • Wiegand/magnetic stripe reader type Tamper bypass

- LED pattern
- RM bus termination
- Input LED disable

Mounting Specifications



Product offerings and specifications are subject to change without notice. Actual products may vary from photos. Not all products include all features. Availability varies by region: contact your sales representative. Certain product names mentioned herein may be trade names and/or registered trademarks of other companies.

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ISV/Software Solutions Networking Infrastructure Solutions

Type 1 Enclosures

Type 1 Locking Hinge Cover Enclosure w/ Perforated Panel Data Sheet





Application

- Houses electrical and electronic controls and instruments in an environment which does not require oil, dust, or water tight specifications
- · Protects against contact with enclosed equipment

Standards

- UL 50 listed, Type 1
- CSA C22.2 No. 40 certified, Type 1
- Conforms to NEMA standard for Type 1
- IEC 60529, IP30

Construction

- Covers and bodies are fabricated from code gauge steel (see chart)
- · Includes panel grounding hardware kit
- Cover has keyed quarter turn lock, two (2) keys are included
- Cover includes foam corner padding
- Includes removable 16 gauge white perforated panel
- Enclosure body has mounting holes on the back which are accessible with or without the panel installed.
- Cover is secured to the body with a continuous hinge on one side and a flush latch on the opposite side

Finish

- · Wash and phosphate undercoat
- ANSI 61 gray acrylic electro-coat finish

Accessories

- Touch-up paint (84034)
- Self-tapping screws (10168)

Catalog Number	Height x Dep A x B	Ga	uge	Perforated Panel Size			
	in. mm		in.	mm	in.	mm	
12126-1PP	12.00x12.00x6.00	305x305x152	16	1.4	10.25x10.25	260.3x260.3	
16126-1PP	16.00x12.00x6.00 406x305x15		16	1.4	13.00x10.50	260.3x260.3	
20166-1PP	20.00x16.00x6.00 508x406x152		16	1.4	17.00x14.50	431.8x368.3	
24206-1PP	24.00x20.00x6.00	610x508x152	14	1.9	21.00x18.50	5333.4x469.9	
36246-1PP	36.00x24.00x6.00	914x610x152	14	1.9	32.00x22.50	812.8x571.5	
36306-1PP	36.00x30.00x6.00	914x762x152	14	1.9	32.00x28.50	812.8x723.9	

Type 1 Enclosures

Type 1 Locking Hinge Cover Enclosure w/ Perforated Panel Illustration Sheet

Drawings for 12126-1PP



Notes: Dimensions are in inches. Millimeters shown are for reference only. Data subject to change without notice.



R **ELECTRICAL SOLUTIONS**

for flame retardant material

· Provided with mounting holes

• Base and cover length is 6 feet

See C E Panduct[®] Type F Narrow Slot Wiring Duct

· Narrow slot/finger design provides more slots to fit the spacing of high-density terminal blocks and other hardware

- Material: Lead-free PVC
- UL recognized continuous use temperature: 122°F (50°C)
- UL 94 flammability rating of V-0







Multiple slot restrictors present with 2" and greater duct wall height.



To order cover with protective film add "-F" to part number. 6" cover not available with film.

NEW!

									B2. Cable
Base	Duct Size (W x H)*		Slot Width		Cover	Std. Pkg.	Base Ctn.	Cover Ctn.	Accessorie
Part Number	In.	mm	In.	mm	Part Number	Qty.	Qty.	Qty.	B3.
F.5X.5LG6	0.69 x 0.60	17.5 x 15.2	0.20	5.0	C.5LG6	6	120	120	Stainless Stool Tios
F.5X1LG6	0.69 x 1.06	17.5 x 26.9	0.20	5.0	C.5LG6	6	120	120	Steel Hes
F.75X.75LG6	0.93 x 0.82	23.6 x 20.9	0.20	5.0	C.75LG6	6	120	120	
F.75X1.5LG6	0.93 x 1.57	23.6 x 39.9	0.20	5.0	C.75LG6	6	120	120	C1. Wiring
F1X1LG6	1.26 x 1.13	32.0 x 28.7	0.20	5.0	C1LG6	6	120	120	Duct
F1X1.5LG6	1.26 x 1.62	32.0 x 41.1	0.20	5.0	C1LG6	6	120	120	
F1X2LG6	1.26 x 2.12	32.0 x 53.8	0.20	5.0	C1LG6	6	120	120	C2.
F1X3LG6	1.26 x 3.12	32.0 x 79.2	0.20	5.0	C1LG6	6	120	120	Surface
F1X4LG6	1.26 x 4.10	32.0 x 104.1	0.20	5.0	C1LG6	6	60	120	naceway
F1.5X1LG6	1.75 x 1.12	44.5 x 28.4	0.20	5.0	C1.5LG6	6	120	120	
F1.5X1.5LG6	1.75 x 1.62	44.5 x 41.1	0.20	5.0	C1.5LG6	6	120	120	Abrasion
F1.5X2LG6	1.75 x 2.12	44.5 x 53.8	0.20	5.0	C1.5LG6	6	120	120	Protection
F1.5X3LG6	1.75 x 3.12	44.5 x 79.2	0.20	5.0	C1.5LG6	6	120	120	
F1.5X4LG6	1.75 x 4.10	44.5 x 104.1	0.20	5.0	C1.5LG6	6	60	120	C4.
F2X1LG6	2.25 x 1.12	57.2 x 28.4	0.20	5.0	C2LG6	6	120	120	Cable
F2X1.5LG6	2.25 x 1.62	57.2 x 41.1	0.20	5.0	C2LG6	6	120	120	manageme
F2X2LG6	2.25 x 2.12	57.2 x 53.8	0.20	5.0	C2LG6	6	120	120	
F2X3LG6	2.25 x 3.12	57.2 x 79.2	0.20	5.0	C2LG6	6	60	120	D1.
F2X4LG6	2.25 x 4.10	57.2 x 104.1	0.20	5.0	C2LG6	6	60	120	Ierminais
F2X5LG6	2.25 x 5.10	57.2 x 129.5	0.20	5.0	C2LG6	6	60	120	
F2.5X3LG6	2.75 x 3.12	69.9 x 79.2	0.20	5.0	C2.5LG6	6	120	120	D2.
F3X1LG6	3.25 x 1.12	82.6 x 28.4	0.20	5.0	C3LG6	6	120	120	Power
F3X2LG6	3.25 x 2.12	82.6 x 53.8	0.20	5.0	C3LG6	6	120	120	connector
F3X3LG6	3.25 x 3.12	82.6 x 79.2	0.20	5.0	C3LG6	6	60	120	
F3X4LG6	3.25 x 4.10	82.6 x 104.1	0.20	5.0	C3LG6	6	60	120	Grounding
F3X5LG6	3.25 x 5.10	82.6 x 129.5	0.20	5.0	C3LG6	6	60	120	Connector
F4X2LG6	4.25 x 2.12	108.0 x 53.8	0.20	5.0	C4LG6	6	60	120	
F4X3LG6	4.25 x 3.12	108.0 x 79.2	0.20	5.0	C4LG6	6	60	120	E1.
F4X4LG6	4.25 x 4.10	108.0 x 104.1	0.20	5.0	C4LG6	6	60	120	Labeling
F4X5LG6	4.25 x 5.10	108.0 x 129.5	0.20	5.0	C4LG6	6	60	120	Systems
F6X4LG6	6.25 x 4.15	158.8 x 105.4	0.20	5.0	C6LG6	6	60	120	
									1

· Conforms with NFPA 79-2007 section 13.3.1 requirement

Part number shown for LG (Light Gray). For other color availability see color selection guide, page C1.48. Base and cover sold separately.

*"H" dimension includes duct and cover.

A. System Overview

B1. **Cable Ties**

B2. Cable cessories

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C3. rasion tection

C4.

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Cable
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D1. rminals

D2. Power nectors

D3. ounding nectors

E1.

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E2. Labels

E3. **Pre-Printed** & Write-On Markers

E4. Permanent Identification

E5. Lockout/ Tagout & Safety Solutions

> E. Index

Type 1 Screw Cover Wireway - Painted & Galvanized Data Sheet



Application

- Houses runs of control and power cable
- Used for cable and wire junction, distribution and termination

Standards

- UL 870 listed, Type 1
- CSA C22.2 No. 26 certified, Type 1
- Conforms to NEMA standard for Type 1
- IEC 60529, IP30

Finish

- · Wash and phosphate undercoat or galvanized steel
- ANSI 61 gray acrylic electrocoat finish

Accessories

- Sealing devices
- Touch-up paint
- See Accessories section



Construction

- Wireway body and cover are fabricated from code gauge steel or galvanized steel, (see table)
- Wireway body has mounting holes on the back
- Wireway is available with or without knockouts on the top and bottom sides
- Wireway fittings have no knockouts, ends are available with or without knockouts
- · Cover is secured to the body with plated screws
- Keyhole slots are furnished on the wireway cover which allow easy access to the inside without removing the screws
- Flush and surface wireway covers are available
- Wireway exceeding 72 inches in length has two overlapping covers
- Variety of fittings allow runs which can change direction, junction and terminate
- Standard wireway connectors (sold separately) have a unique gate feature which can swing completely open allowing for continuous runs of wire and cable
- Universal connectors are also available for adapting to other manufacturer's wireway, (see table, page 16)
- Completely interchangeable with Type 1 Hinge Cover Wireway
 and Fittings

Type 1 Screw Cover Wireway - Painted & Galvanized

Catalog Number

	Wireway Cat	alog Number		Wirew	ay Size				Kno	ckout
Pai	nted	Galva	anized	Height x De A x B	pth x Length _{x C})		Qua	intity
ко	No KO	КО	No KO	in.	mm	in. r	nm	Gauge	Тор	Bottom
2212 G	2212 G NK	2212 GGV	2212 GGV NK	2.50x2.50x12.00	64x64x305	1.25	32	16	3	3
2218 G	2218 G NK	2218 GGV	2218 GGV NK	2.50x2.50x18.00	64x64x457	1.25	32	16	5	5
2224 G	2224 G NK	2224 GGV	2224 GGV NK	2.50x2.50x24.00	64x64x610	1.25	32	16	7	7
2236 G	2236 G NK	2236 GGV	2236 GGV NK	2.50x2.50x36.00	64x64x914	1.25	32	16	11	11
2248 G	2248 G NK	2248 GGV	2248 GGV NK	2.50x2.50x48.00	64x64x1219	1.25	32	16	15	15
2260 G	2260 G NK	2260 GGV	2260 GGV NK	2.50x2.50x60.00	64x64x1524	1.25	32	16	19	19
2272 G	2272 G NK	2272 GGV	2272 GGV NK	2.50x2.50x72.00	64x64x1829	1.25	32	16	23	23
22120 G	22120 G NK	22120 GGV	22120 GGV NK	2.50x2.50x120.00	64x64x3048	1.25	32	16	39	39
3312 G	3312 G NK	3312 GGV	3312 GGV NK	3.00x3.00x12.00	76x76x305	1.50	38	16	3	3
3318 G	3318 G NK	3318 GGV	3318 GGV NK	3.00x3.00x18.00	76x76x457	1.50	38	16	5	5
3324 G	3324 G NK	3324 GGV	3324 GGV NK	3.00x3.00x24.00	76x76x610	1.50	38	16	7	7
3336 G	3336 G NK	3336 GGV	3336 GGV NK	3.00x3.00x36.00	76x76x914	1.50	38	16	11	11
3348 G	3348 G NK	3348 GGV	3348 GGV NK	3.00x3.00x48.00	76x76x1219	1.50	38	16	15	15
3360 G	3360 G NK	3360 GGV	3360 GGV NK	3.00x3.00x60.00	76x76x1524	1.50	38	16	19	19
3372 G	3372 G NK	3372 GGV	3372 GGV NK	3.00x3.00x72.00	76x76x1829	1.50	38	16	23	23
33120 G	33120 G NK	33120 GGV	33120 GGV NK	3.00x3.00x120.00	76x76x3048	1.50	38	16	39	39
4412 G	4412 G NK	4412 GGV	4412 GGV NK	4.00x4.00x12.00	102x102x305	2.75	70	16	3	3
4418 G	4418 G NK	4418 GGV	4418 GGV NK	4.00x4.00x18.00	102x102x457	2.75	70	16	5	5
4424 G	4424 G NK	4424 GGV	4424 GGV NK	4.00x4.00x24.00	102x102x610	2.75	70	16	7	7
4436 G	4436 G NK	4436 GGV	4436 GGV NK	4.00x4.00x36.00	102x102x914	2.75	70	16	11	11
4448 G	4448 G NK	4448 GGV	4448 GGV NK	4.00x4.00x48.00	102x102x1219	2.75	70	16	15	15
4460 G	4460 G NK	4460 GGV	4460 GGV NK	4.00x4.00x60.00	102x102x1524	2.75	70	16	19	19
4472 G	4472 G NK	4472 GGV	4472 GGV NK	4.00x4.00x72.00	102x102x1829	2.75	70	16	23	23
44120 G	44120 G NK	44120 GGV	44120 GGV NK	4.00x4.00x120.00	102x102x3048	2.75	70	16	39	39
6412 G	6412 G NK	6412 GGV	6412 GGV NK	6.00x4.00x12.00	152x102x305	4.25	108	16	3	3
6418 G	6418 G NK	6418 GGV	6418 GGV NK	6.00x4.00x18.00	152x102x457	4.25	108	16	5	5
6424 G	6424 G NK	6424 GGV	6424 GGV NK	6.00x4.00x24.00	152x102x610	4.25	108	16	7	7
6436 G	6436 G NK	6436 GGV	6436 GGV NK	6.00x4.00x36.00	152x102x914	4.25	108	16	11	11
6448 G	6448 G NK	6448 GGV	6448 GGV NK	6.00x4.00x48.00	152x102x1219	4.25	108	16	15	15
6460 G	6460 G NK	6460 GGV	6460 GGV NK	6.00x4.00x60.00	152x102x1524	4.25	108	16	19	19
6472 G	6472 G NK	6472 GGV	6472 GGV NK	6.00x4.00x72.00	152x102x1829	4.25	108	16	23	23
64120 G	64120 G NK	64120 GGV	64120 GGV NK	6.00x4.00x120.00	152x102x3048	4.25	108	16	39	39
6612 G	6612 G NK	6612 GGV	6612 GGV NK	6.00x6.00x12.00	152x152x305	4.25	108	16	3	3
6618 G	6618 G NK	6618 GGV	6618 GGV NK	6.00x6.00x18.00	152x152x457	4.25	108	16	5	5
6624 G	6624 G NK	6624 GGV	6624 GGV NK	6.00x6.00x24.00	152x152x610	4.25	108	16	7	7
6636 G	6636 G NK	6636 GGV	6636 GGV NK	6.00x6.00x36.00	152x152x914	4.25	108	16	11	11
6648 G	6648 G NK	6648 GGV	6648 GGV NK	6.00x6.00x48.00	152x152x1219	4.25	108	16	15	15
6660 G	6660 G NK	6660 GGV	6660 GGV NK	6.00x6.00x60.00	152x152x1524	4.25	108	16	19	19
6672 G	6672 G NK	6672 GGV	6672 GGV NK	6.00x6.00x72.00	152x152x1829	4.25	108	16	23	23
66120 G	66120 G NK	66120 GGV	66120 GGV NK	6.00x6.00x120.00	152x152x3048	4.25	108	16	39	39

See page 14 for 8"x8" through 12"x12" wireway.

Notes: Dimensions are in inches. Millimeters shown are for reference only. Data subject to change without notice.



Type 1 Screw Cover Wireway - Painted & Galvanized Catalog Number

	Wireway Catalog Number		Wireway Size					Kno	ckout	
Pai	nted	Galv	anized	Height x Dep A x B x	oth x Length C C	0	1		Qua	intity
KO	No KO	КО	No KO	in.	mm	in.	mm	Gauge	Тор	Bottom
8812 G	8812 G NK	8812 GGV	8812 GGV NK	8.00x8.00x12.00	203x203x305	6.00	152	14	3	3
8818 G	8818 G NK	8818 GGV	8818 GGV NK	8.00x8.00x18.00	203x203x457	6.00	152	14	5	5
8824 G	8824 G NK	8824 GGV	8824 GGV NK	8.00x8.00x24.00	203x203x610	6.00	152	14	7	7
8836 G	8836 G NK	8836 GGV	8836 GGV NK	8.00x8.00x36.00	203x203x914	6.00	152	14	11	11
8848 G	8848 G NK	8848 GGV	8848 GGV NK	8.00x8.00x48.00	203x203x1219	6.00	152	14	15	15
8860 G	8860 G NK	8860 GGV	8860 GGV NK	8.00x8.00x60.00	203x203x1524	6.00	152	14	19	19
8872 G	8872 G NK	8872 GGV	8872 GGV NK	8.00x8.00x72.00	203x203x1829	6.00	152	14	23	23
88120 G	88120 G NK	88120 GGV	88120 GGV NK	8.00x8.00x120.00	203x203x3048	6.00	152	14	39	39
101012 G	101012 G NK	101012 GGV	101012 GGV NK	10.00x10.00x12.00	254x254x305	8.00	203	14	3	3
101024 G	101024 G NK	101024 GGV	101024 GGV NK	10.00x10.00x24.00	254x254x610	8.00	203	14	7	7
101036 G	101036 G NK	101036 GGV	101036 GGV NK	10.00x10.00x36.00	24x254x914	8.00	203	14	11	11
101048 G	101048 G NK	101048 GGV	101048 GGV NK	10.00x10.00x48.00	254x254x1219	8.00	203	14	15	15
101060 G	101060 G NK	101060 GGV	101060 GGV NK	10.00x10.00x60.00	254x254x1524	8.00	203	14	19	19
101072 G	101072 G NK	101072 GGV	101072 GGV NK	10.00x10.00x72.00	254x254x1829	8.00	203	14	23	23
1010120 G	1010120 G NK	1010120 GGV	1010120 GGV NK	10.00x10.00x120.00	254x254x3048	8.00	203	14	39	39
121212 G	121212 G NK	121212 GGV	121212 GGV NK	12.00x12.00x12.00	305x305x305	10.00	254	14	3	3
121224 G	121224 G NK	121224 GGV	121224 GGV NK	12.00x12.00x24.00	305x305x610	10.00	254	14	7	7
121236 G	121236 G NK	121236 GGV	121236 GGV NK	12.00x12.00x36.00	305x305x914	10.00	254	14	11	11
121248 G	121248 G NK	121248 GGV	121248 GGV NK	12.00x12.00x48.00	305x305x1219	10.00	254	14	15	15
121260 G	121260 G NK	121260 GGV	121260 GGV NK	12.00x12.00x60.00	305x3051524	10.00	254	14	19	19
121272 G	121272 G NK	121272 GGV	121272 GGV NK	12.00x12.00x72.00	305x305x1829	10.00	254	14	23	23
1212120 G	1212120 G NK	1212120 GGV	1212120 GGV NK	12.00x12.00x120.00	305x305x3048	10.00	254	14	39	39

Type 1 Screw Cover Wireway Fittings - Painted & Galvanized Catalog Number

Connector											
Catalo	a Number			B							
		in.	mm	in.	mm						
22	2 C	2.50	64	2.50	64						
33	3 C	3.00	76	3.00	76						
44	4 C	4.00	102	4.00	102						
64	4 C	6.00	152	4.00	102						
6	6 C	6.00	152	6.00	152						
8	3 C	8.00	203	8.00	203						
11	D10 C	10.00	254	10.00	254						
1:	212 C	12.00	305	12.00	305						
			Re	duce	r						
Catalog	y Number	A	1	B	1	Aź	2	B	2	C	
Painted	Galvanized	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
2233 FR	2233 FRGV	2.50	64	2.50	64	3.00	76	3.00	76	6.00	152
3344 FR	3344 FRGV	3.00	76	3.00	76	4.00	102	4.00	102	8.00	203
4466 FR	4466 FRGV	4.00	102	4.00	102	6.00	152	6.00	152	10.00	254
6688 FR	6688 FRGV	6.00	152	6.00	152	8.00	203	8.00	203	12.00	305
881010 FR	881010 FRGV	8.00	203	8.00	203	10.00	254	10.00	254	12.00	305
10101212 FR	10101212 FRGV	10.00	254	10.00	254	12.00	305	12.00	305	16.00	406
Wireway End Flange											
Catalog		A	E	3	E		1	-			
Painted	Galvanized	in.	mm	in.	mm	in.	mm	in.	mm		
22 GF	22 GFGV	2.50	64	2.50	64	4.00	102	4.00	102		
33 GF	33 GFGV	3.00	76	3.00	76	4.50	114	4.50	114		
44 GF	44 GFGV	4.00	102	4.00	102	5.50	140	5.50	140		
64 GF	64 GFGV	6.00	152	4.00	102	7.50	191	5.50	140		
66 GF	66 GFGV	6.00	152	6.00	152	7.50	191	7.50	191		
88 GF	88 GFGV	8.00	203	8.00	203	9.50	241	9.50	241		
1010 GF	1010 GFGV	10.00	254	10.00	254	11.50	292	11.50	292		
1212 GF	1212 GFGV	12.00	305	12.00	305	13.50	343	13.50	343		
			90°	Elbo	W						
Catalog	y Number		A	E	3	C	;			F	
Painted	Galvanized	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
22 L COMBO	22 L COMBOGV	2.50	64	2.50	64	5.59	142	4.28	109	4.28	109
33 L COMBO	33 L COMBOGV	3.00	76	3.00	76	6.09	155	4.50	114	4.50	114
44 L COMBO	44 L COMBOGV	4.00	102	4.00	102	7.09	180	5.00	127	5.00	127
64 L COMBO	64 L COMBOGV	4.00	102	6.00	152	10.09	256	5.00	127	5.00	127
66 L COMBO	66 L COMBOGV	6.00	152	6.00	152	10.09	256	7.00	178	7.00	178
88 L COMBO	88 L COMBOGV	8.00	203	8.00	203	12.09	307	8.00	203	8.00	203
1010 L COMBO	1010 L COMBOGV	10.00	254	10.00	254	14.09	358	9.00	229	9.00	229
1212 L COMBO	1212 L COMBOGV	12.00	305	12.00	305	16.09	409	10.00	254	10.00	254
22 L SIDE	22 L SIDEGV	2.50	64	2.50	64	5.59	142	4.28	109	4.28	109
33 L SIDE	33 L SIDEGV	3.00	76	3.00	76	6.09	155	4.50	114	4.50	114
44 L SIDE	44 L SIDEGV	4.00	102	4.00	102	7.09	180	5.00	127	5.00	127
64 L SIDE	64 L SIDEGV	6.00	152	4.00	102	10.09	256	7.00	178	7.00	178
66 L SIDE	66 L SIDEGV	6.00	152	6.00	152	10.09	256	7.00	178	7.00	178
88 L SIDE	88 L SIDEGV	8.00	203	8.00	203	12.09	307	8.00	203	8.00	203
1010 L SIDE	1010 L SIDEGV	10.00	254	10.00	254	14.09	358	10.00	254	9.00	229
1212 L SIDE	1212 L SIDEGV	12.00	305	12.00	305	16.09	409	10.00	254	10.00	254
22 L SWEEP	22 L SWEEPGV	2.50	64	2.50	64	5.63	143	4.25	108	4.25	108
33 L SWEEP	33 L SWEEPGV	3.00	76	3.00	76	8.41	214	6.84	174	6.84	174
44 L SWEEP	44 L SWEEPGV	4.00	102	4.00	102	9.41	239	7.34	186	7.34	186
64 L SWEEP	64 L SWEEPGV	6.00	152	4.00	102	11.41	290	8.34	212	8.34	212
66 L SWEEP	66 L SWEEPGV	6.00	152	6.00	152	11.41	290	8.34	212	8.34	212
88 L SWEEP	88 L SWEEPGV	8.00	203	8.00	203	13.41	341	9.34	237	9.34	237
1010 L SWEEP	1010 L SWEEPGV	10.00	254	10.00	254	15.41	391	10.34	263	10.34	263
4040 LOWEED	1010 L CWEEDOV	40.00	005	40.00	0.05	امہ جما	440	44.04	000	ا م م ا	000

	Telescopic Fitting								
Catalo	og Number		A	B	1	B	2	C	;
Painted	Galvanized	in.	mm	in.	mm	in.	mm	in.	mm
22 FTF	22 FTFGV	2.75	70	1.75	44	1.12	28	12.00	305
33 FTF	33 FTFGV	3.25	83	2.25	57	1.12	28	12.00	305
44 FTF	44 FTFGV	4.25	108	3.25	83	1.12	28	12.00	305
64 FTF	64 FTFGV	6.25	159	3.25	83	1.12	28	12.00	305
66 FTF	66 FTFGV	6.25	159	5.25	133	1.12	28	12.00	305
88 FTF	88 FTFGV	8.25	210	7.25	184	1.12	28	12.00	305
1010 FTF	1010 FTFGV	10.25	260	9.25	235	1.12	28	12.00	305
1212 FTF	1212 FTFGV	12.25	311	11.25	286	1.12	28	12.00	305
Fnd									

	Catalo	g Number			A	E	3
KO	No KO	KO	No KO				
Pai	nted	Galva	in.	mm	in.	mm	
22 E	22 E NK	22 EGV	22 EGV NK	2.50	64	2.50	64
33 E	33 E NK	33 EGV	33 EGV NK	3.00	76	3.00	76
44 E	44 E NK	44 EGV	44 EGV NK	4.00	102	4.00	102
64 E	64 E NK	64 EGV	64 EGV NK	6.00	152	4.00	102
66 E	66 E NK	66 EGV	66 EGV NK	6.00	152	6.00	152
88 E	88 E NK	88 EGV	88 EGV NK	8.00	203	8.00	203
1010 E	1010 E NK	1010 EGV	1010 EGV NK	10.00	254	10.00	254
1212 E	1212 E NK	1212 EGV	1212 EGV NK	12.00	305	12.00	305
See drawing for KO sizes.							

	Wireway Hanger								
Catalog Number		G	1	Н			J	K	
Painted	Galvanized	in.	mm	in.	mm	in.	mm	in.	mm
22 FH	22 FHGV	8.50	216	6.50	165	6.50	165	2.87	73
33 FH	33 FHGV	10.50	267	8.50	216	9.00	229	3.87	98
44 FH	44 FHGV	12.50	318	10.50	267	10.37	263	4.87	124
66 FH	66 FHGV	16.50	419	14.50	368	13.50	343	5.87	149
88 FH	88 FHGV	20.50	521	18.50	470	16.75	425	6.87	174
1010 FH*	1010 FHGV*	24.50	622	22.50	572	19.75	502	7.87	200
1212 FH*	1212 FHGV*	28.50	724	26.50	673	22.75	578	8.87	225

*Hangers are shipped welded in the top cover assembly position.

	90° Elbow - Tee - Cross						
Cata	Catalog Number				B	()
Painted	Galvanized	in.	mm	in.	mm	in.	mm
22 LTX	22 LTXGV	2.50	64	2.50	64	4.50	114
33 LTX	33 LTXGV	3.00	76	3.00	76	5.00	127
44 LTX	44 LTXGV	4.00	102	4.00	102	6.00	152
64 LTX	64 LTXGV	6.00	152	4.00	102	8.00	203
66 LTX	66 LTXGV	6.00	152	6.00	152	8.00	203
88 LTX	88 LTXGV	8.00	203	8.00	203	10.00	254
1010 LTX	1010 LTXGV	10.00	254	10.00	254	12.00	305
1212 LTX	1212 LTXGV	12.00	305	12.00	305	14.00	356

Notes: Dimensions are in inches. Millimeters shown are for reference only. Data subject to change without notice.

Type 1 Screw Cover Wireway Fittings - Painted & Galvanized **Catalog Number**

45° Elbow									
Catalo	g Number		1	B	;	E		F	-
Painted	Galvanized	in.	mm	in.	mm	in.	mm	in.	mm
2245 L COMBO	2245 L COMBOGV	2.50	64	2.50	64	1.72	44	1.72	44
3345 L COMBO	3345 L COMBOGV	3.00	76	3.00	76	2.56	65	2.56	65
4445 L COMBO	4445 L COMBOGV	4.00	102	4.00	102	2.75	70	2.75	70
6445 L COMBO	6445 L COMBOGV	4.00	102	6.00	153	2.75	70	2.75	70
6645 L COMBO	6645 L COMBOGV	6.00	153	6.00	153	3.18	81	3.18	81
8845 L COMBO	8845 L COMBOGV	8.00	203	8.00	203	3.62	92	3.62	92
101045 L COMBO	101045 L COMBOGV	10.00	254	10.00	254	4.06	103	4.06	103
121245 L COMBO	121245 L COMBOGV	12.00	305	12.00	305	4.50	114	4.50	114
2245 L SIDE	2245 L SIDEGV	2.50	64	2.50	64	1.97	50	1.97	50
3345 L SIDE	3345 L SIDEGV	3.00	76	3.00	76	2.56	65	2.56	65
4445 L SIDE	4445 L SIDEGV	4.00	102	4.00	102	2.75	70	2.75	70
6445 L SIDE	6445 L SIDEGV	6.00	153	4.00	102	3.18	81	3.18	81
6645 L SIDE	6645 L SIDEGV	6.00	153	6.00	153	3.18	81	3.18	81
8845 L SIDE	8845 L SIDEGV	8.00	203	8.00	203	3.62	92	3.62	92
101045 L SIDE	101045 L SIDEGV	10.00	254	10.00	254	4.06	103	4.06	103
121245 L SIDE	121245 L SIDEGV	12.00	305	12.00	305	4.50	114	4.50	114
			Tee						
Catalog	Number		A		B	I	E	F	:
Painted	Galvanized	in.	mm	in.	mm	in.	mm	in.	mm
22 T	22 TGV	2.50	64	2.50	64	4.25	108	4.25	108
33 T	33 TGV	3.00	76	3.00	76	4.50	114	4.50	114
44 T	44 TGV	4.00	102	4.00	102	5.00	127	5.00	127
64 T	64 TGV	6.00	153	4.00	102	7.00	178	7.00	178
66 T	66 TGV	6.00	153	6.00	153	7.00	178	7.00	178
88 T	88 TGV	8.00	203	8.00	203	8.00	203	8.00	203
1010 T	1010 TGV	10.00	254	10.00	254	9.00	229	9.00	229
1212 T	1212 TGV	12.00	305	12.00	305	10.00	254	10.00	254

Cross									
Catalo	og Number		1	E	3	E	E	F	
Painted	Galvanized	in.	mm	in.	mm	in.	mm	in.	mm
22 X	22 XGV	2.50	64	2.50	64	4.25	108	4.25	108
33 X	33 XGV	3.00	76	3.00	76	5.62	143	5.62	143
44 X	44 XGV	4.00	102	4.00	102	6.12	155	6.12	155
64 X	64 XGV	6.00	152	4.00	152	7.12	181	7.12	181
66 X	66 XGV	6.00	152	6.00	152	7.12	181	7.12	181
88 X	88 XGV	8.00	203	8.00	203	8.12	206	8.12	206
1010 X	1010 XGV	10.00	254	10.00	254	9.12	232	9.12	232
1212 X	1212 XGV	12.00	305	12.00	305	10.12	257	10.12	25
Barrier Kit, 60" Bolt-On									
Catal		Si	ze		Len	gth	H	I	

Catalog Number	ં ડા	ze	Len	igth	н	
	in.	mm	in.	mm	in.	mm
22-12BK*	2.50x2.50	64x64	60.00	1524	1.88	48
33-12BK*	3.00x3.00	76x76	60.00	1524	2.25	57
44-12BK*	4.00x4.00	102x102	60.00	1524	3.00	76
66-12BK*	6.00x6.00	152x152	60.00	1524	4.50	114
88-12BK*	8.00x8.00	203x203	60.00	1524	6.00	152
1010-12BK*	10.00x10.00	254x254	60.00	1524	8.00	203
1212-12BK*	12.00x12.00	305x305	60.00	1524	10.50	267

*Not UL or CSA listed fitting.

	Type 1 Wireway Competitor Adapters								
Wireway Size ^{in. mm}		Hoffman ^{®1}	Wiegmann ^{®2}	Square D ^{®3}	Unity ^{®4}	Electrical Box and Enclosures ^{®5}	Austin ^{®6}		
2.5x2.5	64x64	22 CA	22 CA	22 CA	22 CA	-	22 ACA		
4x4	102x102	44 CA	44 CA	44 CA	44 CA	44 CA	44 ACA		
6x6	152x152	66 CA	66 CA	66 CA	66 CA	66 CA	66 ACA		
8x8	203x203	88 CA	88 CA	88 SCA	88 CA	88 CA	88 ACA		
10x10	254x254	1010 CA	1010 CA	1010 SCA	1010 CA	1010 CA	1010 ACA		
12x12	305x305	1212 CA	1212 CA	1212 SCA	1212 CA	1212 CA	1212 ACA		

1. HOFFMAN® is the registered trademark of Hoffman Engineering Company, Anoka, Minnesota.

2. WIEGMANN® is the registered trademark of Hubbell Incorporated, Orange, Connecticut.

SQUARE D[®] is the registered trademark of Square D Company, Palatine, Illinois.
 UNITY[®] is the registered trademark of Unity Manufacturing, Garland, Texas.
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Type 1 Screw Cover Wireway - Painted & Galvanized **Illustration Sheet**

Wireway



Notes: Dimensions are in inches. Millimeters shown are for reference only. Data subject to change without notice.



Type 1 Screw Cover Wireway - Painted & Galvanized Illustration Sheet



Wireway Section

Lengths from 12.00" (305 mm) to 120.00" (3048 mm). Wireway exceeding 72.00" (1829 mm) has two covers. Shown with KO's also available without.



Reducer

A2 and B2 dimensions (see catalog table), correspond to the large end opening. Used to reduce or enlarge wireway runs.



End

Used to terminate wireway or fitting. 2.50"x2.50" (64 mm x 64 mm) through 8.00"x8.00" (203 mm x 203 mm) ends have a 1.50"-1.25" concentric 2-way KO. 10.00" x 10.00" (254 mm x 254 mm) ends and larger have a 3.00"-2.50" concentric 2-way KO for terminating on pipe or conduit. Also available without KO.

K G (shipped unassembled)*

Wireway Hangers

Side Cover Assembly

For those installations where the wireway cover must be removed from the side. *1010 FH & 1212 FH are shipped welded in the top cover assembly position.

Top Cover Assembly

Κ

Ø.45 _ Ø.25

G

For those installations where the wireway cover must be removed from the top.*1010 FH & 1212 FH are shipped welded in the top cover assembly position.



Telescopic Fitting

Adjustable length up to 10.00" (254 mm). Wraps around the two near joining wireway lengths to achieve a continuous run.



Connector Swing gate allows for continuous runs of wire and cable.



Wireway End Flange Allows for a secure connection of wireway to an adjoining enclosure or wall.



Barrier, Bolt-On For those installations that require separated wiring compartments.

Notes: Dimensions are in inches. Millimeters shown are for reference only. Data subject to change without notice.

Type 1 Screw Cover Wireway - Painted & Galvanized

Illustration Sheet



Combo Opening Specially designed for removing either the inside or outside cover to allow a continuous run

with 90° turns.

Wireway 90° Elbows



Side Opening Side cover is removable to allow a continuous run on designs with 90° turns.



Sweep Elbow Side cover design with a larger radius for 90° sweeping turns.

Wireway 45° Elbows



Combo Opening

Similar to the 90° elbow design except a 45° turn. Both inside and outside covers removable.



Side Opening

Similar to the 90° side opening design except for a 45° turn. Excellent for combining two to make a gradual sweeping 90° turn.



Side cover design where a "T" junction is necessary.



90° Elbow-Tee-Cross Designed for left or right 90° turns or as a tee or cross by removing closure plates. Includes two (2) closure plates and hardware.



Cross Side cover and broad body design to junction cable run in four directions.

Notes: Dimensions are in inches. Millimeters shown are for reference only. Data subject to change without notice.

COOPER B-Line



Extract from the online catalog

QTC 1,5/ 1P

Order No.: 3050073



http://eshop.phoenixcontact.de/phoenix/treeViewClick.do?UID=3050073

Commercial data

GTIN (EAN)

4 017918 975784

sales group	A770
Pack	50 pcs.
Customs tariff	85369010
Catalog page information	Page 316 (CL1-2011)

Product notes

WEEE/RoHS-compliant since: 01/01/2003

http:// www.download.phoenixcontact.com Please note that the data given here has been taken from the online catalog. For comprehensive information and data, please refer to the user documentation. The General Terms and Conditions of Use apply to Internet downloads.

Technical data

GeneralNumber of levels1Number of connections2ColorgrayInsulating materialPAInflammability class acc. to UL 94V0

Dimensions

Width	5.2 mm
Length	53.5 mm
Height NS 35/7.5	39.3 mm
Height NS 35/15	46.8 mm

Technical data

Maximum load current	17.5 A (with 1.5 mm ² conductor cross section)
Rated surge voltage	6 kV
Pollution degree	3
Surge voltage category	III
Insulating material group	1
Connection in acc. with standard	IEC 61984
Nominal current I _N	17.5 A
Nominal voltage U_{N}	500 V
Open side panel	ја

Connection data

Conductor cross section solid min.	0.25 mm²
Conductor cross section solid max.	1.5 mm ²
Conductor cross section stranded min.	0.25 mm ²
Conductor cross section stranded max.	1.5 mm ²
Conductor cross section AWG/kcmil min.	24
Conductor cross section AWG/kcmil max	16
Connection method	Fast/plug-in connection
Internal cylindrical gage	A3
Material wire insulation	PVC / PE

Certificates / Approvals



CSA, CUL, GL, GOST, UL

Α	C	C	e	s	s	O	rı	es	
	•	-	-	-	-	-		~~	

Item	Designation	Description				
Assembly						
3206209	ATP-QTC	Partition plate, Length: 64.4 mm, Width: 2 mm, Height: 46 mm, Color: gray				
3206322	D-QTC 1,5/1P	End cover, Length: 53.5 mm, Width: 2.2 mm, Height: 39.3 mm, Color: gray				
Bridges						
3030161	FBS 2-5	Plug-in bridge, Number of positions: 2, Color: red				
3030174	FBS 3-5	Plug-in bridge, Number of positions: 3, Color: red				
3030187	FBS 4-5	Plug-in bridge, Number of positions: 4, Color: red				
3030190	FBS 5-5	Plug-in bridge, Number of positions: 5, Color: red				
3030213	FBS 10-5	Plug-in bridge, Number of positions: 10, Color: red				
3030226	FBS 20-5	Plug-in bridge, Number of positions: 20, Color: red				
3038930	FBS 50-5	Plug-in bridge, Number of positions: 50, Color: red				
Marking						
3040588	PC	Keying star, Length: 3 mm, Width: 3 mm, Height: 6 mm, Color: red				
0818108	UC-TM 5	UniCard materials for labeling terminal blocks with a marker groove,96-section, can be labeled with BLUEMARK and CMS-P1-PLOTTER, color: white				
0824581	UC-TM 5 CUS	UniCard sheets, for labeling terminal blocks with a zack marker strip groove, can be printed as per customer requirements				
0818153	UC-TMF 5	UniCard materials for labeling terminal blocks using a flat marker groove, 96-section, can be labeled with BLUEMARK and CMS-P1-PLOTTER, color: white				
0824638	UC-TMF 5 CUS	UniCard sheets, for labeling terminal blocks with a flat zack marker sheet groove, can be printed as per customer requirements				
0828734	UCT-TM 5	UniCard materials for thermal transfer printer, for labeling terminal blocks with a marker groove, 72-section, can be labeled with THERMOMARK CARD and BLUEMARK LED, color: white				
0829595	UCT-TM 5 CUS	Terminal block marking, can be labeled as per customer specifications				
0828744 UCT-TMF 5 UniCard materials for thermal transfer printer, for labeling to blocks with a horizontal marker groove, 72-section, can be with THERMOMARK CARD and BLUEMARK LED, color: v		UniCard materials for thermal transfer printer, for labeling terminal blocks with a horizontal marker groove, 72-section, can be labeled with THERMOMARK CARD and BLUEMARK LED, color: white				
0829658	UCT-TMF 5 CUS	Terminal block marking, can be labeled as per customer specifications				

1050004	ZB 5 :UNBEDRUCKT	Zack strip, unprinted, 10-section, for individual labeling with M- PEN, ZB-T or CMS system, pack is sufficient for 100 terminal blocks, for a terminal width of 5.2 mm, color: White
Plug/Adapter		
3030925	PAI-4	Test adapter, Color: gray
3036709	PS-4/E	Test adapter, Color: red
3030983	PS-5	Test adapter, Color: red
Tools		
1204517	SZF 1-0,6X3,5	Actuation tool, for ST terminal blocks, also suitable for use as a bladed screwdriver, size: $0.6 \times 3.5 \times 100$ mm, 2-component grip, with non-slip grip
Additional pro	ducts	
Item	Designation	Description
Plug/Adapter		
3040258	SP 2,5/ 1	Connectors, Connection method: Spring-cage connection, Number of positions: 1, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 5.2 mm, Height: 39 mm, Color: gray
3040698	SP 2,5/ 1 BU	Connectors, Connection method: Spring-cage connection, Number of positions: 1, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 5.2 mm, Height: 39 mm, Color: blue
3040708	SP 2,5/ 1 GNYE	Connectors, Connection method: Spring-cage connection, Number of positions: 1, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 5.2 mm, Height: 39 mm, Color: green-yellow
3040261	SP 2,5/ 2	Connectors, Connection method: Spring-cage connection, Number of positions: 2, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 10.4 mm, Height: 39 mm, Color: gray
3040274	SP 2,5/ 3	Connectors, Connection method: Spring-cage connection, Number of positions: 3, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 15.6 mm, Height: 39 mm, Color: gray
3040287	SP 2,5/ 4	Connectors, Connection method: Spring-cage connection, Number of positions: 4, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 20.8 mm, Height: 39 mm, Color: gray
3040290	SP 2,5/ 5	Connectors, Connection method: Spring-cage connection, Number of positions: 5, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 26 mm, Height: 39 mm, Color: gray
3040300	SP 2,5/ 6	Connectors, Connection method: Spring-cage connection, Number of positions: 6, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 31.2 mm, Height: 39 mm, Color: gray
3040313	SP 2,5/ 7	Connectors, Connection method: Spring-cage connection, Number of positions: 7, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 36.4 mm, Height: 39 mm, Color: gray

3040326	SP 2,5/ 8	Connectors, Connection method: Spring-cage connection, Number of positions: 8, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 41.6 mm, Height: 39 mm, Color: gray
3040339	SP 2,5/ 9	Connectors, Connection method: Spring-cage connection, Number of positions: 9, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 46.8 mm, Height: 39 mm, Color: gray
3040342	SP 2,5/10	Connectors, Connection method: Spring-cage connection, Number of positions: 10, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 52 mm, Height: 39 mm, Color: gray
3040355	SP 2,5/11	Connectors, Connection method: Spring-cage connection, Number of positions: 11, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 57.2 mm, Height: 39 mm, Color: gray
3040368	SP 2,5/12	Connectors, Connection method: Spring-cage connection, Number of positions: 12, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 62.4 mm, Height: 39 mm, Color: gray
3040371	SP 2,5/13	Connectors, Connection method: Spring-cage connection, Number of positions: 13, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 67.6 mm, Height: 39 mm, Color: gray
3040384	SP 2,5/14	Connectors, Connection method: Spring-cage connection, Number of positions: 14, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 72.8 mm, Height: 39 mm, Color: gray
3040397	SP 2,5/15	Connectors, Connection method: Spring-cage connection, Number of positions: 15, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 78 mm, Height: 39 mm, Color: gray
3040106	SPB 2,5/ 1	Connectors, Connection method: Spring-cage connection, Number of positions: 1, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 5.2 mm, Height: 39 mm, Color: gray
3040724	SPB 2,5/ 1 BU	Connectors, Connection method: Spring-cage connection, Number of positions: 1, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 5.2 mm, Height: 39 mm, Color: blue
3040711	SPB 2,5/ 1 GNYE	Connectors, Connection method: Spring-cage connection, Number of positions: 1, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 5.2 mm, Height: 39 mm, Color: green-yellow
3040119	SPB 2,5/ 2	Connectors, Connection method: Spring-cage connection, Number of positions: 2, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 10.4 mm, Height: 39 mm, Color: gray
3040122	SPB 2,5/ 3	Connectors, Connection method: Spring-cage connection, Number of positions: 3, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 15.6 mm, Height: 39 mm, Color: gray
3040135	SPB 2,5/ 4	Connectors, Connection method: Spring-cage connection, Number of positions: 4, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 20.8 mm, Height: 39 mm, Color: gray
3040143	SPB 2,5/ 5	Connectors, Connection method: Spring-cage connection, Number of positions: 5, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 26 mm, Height: 39 mm, Color: gray
3040151	SPB 2,5/ 6	Connectors, Connection method: Spring-cage connection, Number of positions: 6, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 31.2 mm, Height: 39 mm, Color: gray

3040164	SPB 2,5/ 7	Connectors, Connection method: Spring-cage connection, Number of positions: 7, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 36.4 mm, Height: 39 mm, Color: gray
3040177	SPB 2,5/ 8	Connectors, Connection method: Spring-cage connection, Number of positions: 8, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 41.6 mm, Height: 39 mm, Color: gray
3040180	SPB 2,5/ 9	Connectors, Connection method: Spring-cage connection, Number of positions: 9, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 46.8 mm, Height: 39 mm, Color: gray
3040193	SPB 2,5/10	Connectors, Connection method: Spring-cage connection, Number of positions: 10, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 52 mm, Height: 39 mm, Color: gray
3040203	SPB 2,5/11	Connectors, Connection method: Spring-cage connection, Number of positions: 11, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 57.2 mm, Height: 39 mm, Color: gray
3040216	SPB 2,5/12	Connectors, Connection method: Spring-cage connection, Number of positions: 12, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 62.4 mm, Height: 39 mm, Color: gray
3040229	SPB 2,5/13	Connectors, Connection method: Spring-cage connection, Number of positions: 13, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 67.6 mm, Height: 39 mm, Color: gray
3040232	SPB 2,5/14	Connectors, Connection method: Spring-cage connection, Number of positions: 14, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 72.8 mm, Height: 39 mm, Color: gray
3040245	SPB 2,5/15	Connectors, Connection method: Spring-cage connection, Number of positions: 15, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 78 mm, Height: 39 mm, Color: gray
3040407	SPDB 2,5/ 1	Connectors, Connection method: Spring-cage connection, Number of positions: 1, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 5.2 mm, Height: 39 mm, Color: gray
3040737	SPDB 2,5/ 1 BU	Connectors, Connection method: Spring-cage connection, Number of positions: 1, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 5.2 mm, Height: 39 mm, Color: blue
3040740	SPDB 2,5/ 1 GNYE	Connectors, Connection method: Spring-cage connection, Number of positions: 1, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 5.2 mm, Height: 39 mm, Color: green-yellow
3040410	SPDB 2,5/ 2	Connectors, Connection method: Spring-cage connection, Number of positions: 2, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 10.4 mm, Height: 39 mm, Color: gray
3040423	SPDB 2,5/ 3	Connectors, Connection method: Spring-cage connection, Number of positions: 3, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 15.6 mm, Height: 39 mm, Color: gray
3040436	SPDB 2,5/ 4	Connectors, Connection method: Spring-cage connection, Number of positions: 4, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 20.8 mm, Height: 39 mm, Color: gray
3040449	SPDB 2,5/ 5	Connectors, Connection method: Spring-cage connection, Number of positions: 5, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 26 mm, Height: 39 mm, Color: gray

3040452	SPDB 2,5/ 6	Connectors, Connection method: Spring-cage connection, Number of positions: 6, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 31.2 mm, Height: 39 mm, Color: gray
3040465	SPDB 2,5/ 7	Connectors, Connection method: Spring-cage connection, Number of positions: 7, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 36.4 mm, Height: 39 mm, Color: gray
3040478	SPDB 2,5/ 8	Connectors, Connection method: Spring-cage connection, Number of positions: 8, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 41.6 mm, Height: 39 mm, Color: gray
3040481	SPDB 2,5/ 9	Connectors, Connection method: Spring-cage connection, Number of positions: 9, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 46.8 mm, Height: 39 mm, Color: gray
3040494	SPDB 2,5/10	Connectors, Connection method: Spring-cage connection, Number of positions: 10, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 52 mm, Height: 39 mm, Color: gray
3040504	SPDB 2,5/11	Connectors, Connection method: Spring-cage connection, Number of positions: 11, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 57.2 mm, Height: 39 mm, Color: gray
3040517	SPDB 2,5/12	Connectors, Connection method: Spring-cage connection, Number of positions: 12, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 62.4 mm, Height: 39 mm, Color: gray
3040520	SPDB 2,5/13	Connectors, Connection method: Spring-cage connection, Number of positions: 13, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 67.6 mm, Height: 39 mm, Color: gray
3040533	SPDB 2,5/14	Connectors, Connection method: Spring-cage connection, Number of positions: 14, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 72.8 mm, Height: 39 mm, Color: gray
3040546	SPDB 2,5/15	Connectors, Connection method: Spring-cage connection, Number of positions: 15, Cross section: 0.08 mm ² - 4 mm ² , AWG 28 - 12, Width: 78 mm, Height: 39 mm, Color: gray

Diagrams/Drawings

Diagram





The figure shows the derating curve of the QTC 1,5/ 1P... terminal block in connection with the QP 1,5 connector

Dimensioned drawing





Circuit diagram



Address

PHOENIX CONTACT Inc., USA 586 Fulling Mill Road Middletown, PA 17057,USA Phone (800) 888-7388 Fax (717) 944-1625 http://www.phoenixcon.com



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DIN rail, Width: 35 mm, Height: 7.5 mm

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multiCLASS[™] RP15, RP40 and RPK40 Readers

13.56 MHz Contactless and 125 kHz Proximity Card Readers • 6125, 6136, 6145

- Simple Migration From the most popular proximity technologies to iCLASS[®].
- **GSA-approved** Included in the U.S. General Services Administration (GSA) FIPS 201 Approved Products List.
- Dual Factor Authentication (RPK40 only) Combine contactless card presentation with a PIN.



ACCESS upgrade.

The multiCLASS[™] family of card readers is designed for customers upgrading their current card system from the most popular proximity technologies to iCLASS[®] credentials. With the RP40, RPK40 and RP15 readers, the customer has the ability to transition to smart cards over time while incorporating the use of multiple card technologies within a single building or across multiple facilities.

The multiCLASS reader line provides enhanced security through mutual authentication and data encryption. HID, Indala and other popular proximity technologies are supported by multiCLASS. Save on system configuration costs by keeping system upgrade simple. Whether reading proximity, iCLASS or multi-technology cards, identical user identification data formats are sent to the panel. Unlike competitor products, HID multiCLASS readers support all HID and Indala Proximity formats, including Corporate 1000, long and FlexSecur.

Only the multiCLASS family of products provides true iCLASS security, the ease of proximity technology, the power of smart cards and the confidence of choosing HID, the worldwide leader in access control.

Unique Read Selection

- Enable iCLASS, proximity or both technologies at the same time.
- Multiple data outputs available when multi-technology card is presented depending on preference.
- Configuration cards configure the reader to custom installation requirements.
- Reads: 125 kHz HID, Indala or AWID Proximity
 - 13.56 MHz iCLASS, ISO 15693 CSN (MyD, ICODE, Tag-it), ISO 14443A CSN (MIFARE® DESFire®), US Government PIV, ISO 14443B CSN, FeliCa™ IDm, CEPAS CAN or CSN

Seamless Upgrade

Same HID and Indala Proximity reader features and format compatibilities.

- Matching Reader and Credential formats for EM4102 and iCLASS.
- Same wiring, power and interface as many popular proximity readers in the market today.
- All Corporate 1000 formats can be migrated.
- ▶ For additional security, our iCLASS Elite program is available with iCLASS credentials.
- Wiegand or Clock-and-Data outputs easily interface with existing access control panels.
- The RPK40 combines a contactless card presentation with a personal identification number (PIN) to support dual factor authentication of identity.
- The RP15 is a mullion form factor drop-in replacement for the HID MiniProx.

Features

Security	64-bit authentication keys are extremely secure. Readers and cards require matching keys to function. All RF data transmission between the card and reader is encrypted, using a secure algorithm. The key management system reduces the risk of compromised data or duplicated cards.	Easily Interfaced The reader's Wiegand output protocol access control panel and will output data as encod be configured to output 26-bi formats, based on the card se
Elite Custom Keys	Custom keys provide the highest level of security, where cards and readers are uniquely matched to individual sites or customers, and are non-interchangeable. Combining Elite custom keys with our Corporate 1000 can offer companies a scalable solution that can be implemented in facilities worldwide.	Indoor/Outdoor De Rugged, weatherized polycart environments, provides reliab tamper switch in reader hous
Audiovisual Indication	Audio sounder provides various tone sequences to signify access granted, access denied, power up and diagnostics. Visually impaired cardholders can easily distinguish between access granted and access denied. A high-intensity light bar provides a clear visual status indication in red, green or amber, even in bright sunlight. (Note: Light bar will illuminate amber when a PIV/FIPS 201 card is read.)	Options Colors - Black or Gray Key Management - Standard o Selectable Output Type (for N Termination Options: 18" (46 Programmable LED/Beeper of Accessory, Society Tool: 40

It easily interfaces with most existing Wiegand Is. The reader reads standard HID format data ded. When reading MIFARE® cards, the reader can it, 32-bit, 34-bit, 37-bit, 40-bit, or 56-bit Wiegand erial number.

esign bonate enclosure, designed to withstand harsh ble performance and resistance to vandalism. A sing facilitates the notification of a tamper alarm.

standard or Elite utput Type (for MIFARE cards) inition Options: 18" (46 cm) Pigtail rrogrammable LED/Beeper operation Accessory - Security Tool; 04-0001-03 Prox - HID and AWID or Indala Transit - Enable FeliCa IDm **ICLASS™ Keypad** gand)

	RP40 multiCLASS [™] Reader	RPK40 m Reader v	ultiCLASS [™] vith Keypad	RPI5 multiCLASS™ Mullion-mount Reader
*Model Number	6125C (Wiegand) 6123C (Clock-and-Data) 6124C (Transit)	6136C 6133C (C 6134((Wiegand) lock-and-Data) C (Transit)	6145C (Wiegand) 6143C (Clock-and-Data) 6144C (Transit)
**Read Range	iCLASS Card: 4.0 - 4.5" (10.2 - 11.4 cm) iCLASS Key/Tag: 1.0 - 2.0" (2.5 - 5.0 cm) HID Prox ISO Card: 2.5 - 3.5" (6.5 - 9.0 cm) HID Prox Clamshell Card: 3.5 - 4.0" (9.0 - 1.0.0 cm) HID Prox Keyfob/Tag: 1.0 - 2.25" (2.5 - 5.5 cm) Indala Proximity ISO Card: 1.5 - 2.0" (4.0 - 5.0 cm) Indala Proximity Clamshell Card: 1.75 - 2.25" (4.5 - 5.5 cm) Indala Proximity Keyfob/Tag: 1.0 - 1.75" (2.5 - 4.5 cm)	iCLASS Card: 3.5 iCLASS Key/Tag: 1 HID Prox ISO Card: HID Prox Clamshell Ca HID Prox Keyfob/Tag: Indala Proximity ISO Cc Indala Proximity Camshell (Indala Proximity Keyfob/	$\begin{array}{l} -4.25^{\circ} \left(9.0\ -11.0\ cm\right)\\ 0 - 1.5^{\circ} \left(2.5\ -4.0\ cm\right)\\ 2.5 - 3.5^{\circ} \left(6.5\ -9.0\ cm\right)\\ 4.5 - 4.0^{\circ} \left(9.0\ -10.0\ cm\right)\\ 1.25 - 1.75^{\circ} \left(3.2\ -4.5\ cm\right)\\ 1.25 - 1.75^{\circ} \left(3.2\ -4.5\ cm\right)\\ 1.25 - 1.25^{\circ} \left(4.0\ -5.0\ cm\right)\\ 2.25^{\circ} \left(4.5\ -5.5\ cm\right)\\ 2.25^{\circ} \left(4.5\ -5.5\ cm\right)\\ Tag: 1.0 - 1.25^{\circ} \left(2.5\ -3.2\ cm\right)\end{array}$	iCLASS Card 3.0 - 3.25" (7.5 - 8.3 cm) iCLASS Key/Tag: 1.0 - 1.5" (2.5 - 4.0 cm) HID Prox ISO Card: 2.5 - 3.5" (6.5 - 9.0 cm) HID Prox Clamshell Card: 3.5 - 4.0" (9.0 - 1.00 cm) HID Prox Keyfob/Tag: 1.25 - 1.75" (3.2 - 4.5 cm) Indala Proximity ISO Card: 1.5 - 2.0" (4.0 - 5.0 cm) Indala Proximity ISO Card: 1.75 - 2.25" (4.5 - 5.5 cm) Indala Proximity Keyfob/Tag: 1.0 - 1.25" (2.5 - 3.2 cm)
Mounting	A three-part reader makes installation easier, Mounting plate attaches to U.S./EU/Asian back box, 52-60 mm screw hole spacing (vertical or horizontal), or to any flat surface. Reader body fits onto mounting plate. Cover fits over reader body, secured with a screw. An auto-tuning circuit provides consistent read ranges on various mounting surfaces with minimal reduction on metal surfaces.	Mounting plate attaches to mm screw holespacing (v reader housing latches onto screw. An optional spacer installations. Mounting on range and we recommend mize r	U.S./EU/Asian back box, 52-60 rertical or horizontal). Keypad mounting plate, secured with a can be used for surface mount metal can affect optimal read the use of our spacer to maxi- ead range.	Mounting plate attaches to mullion, door frame, U.S. single- gang J-box or any flat surface. (Reader will not cover junc- tion box.) Reader body snaps onto mounting plate, secured with a screw. Identical mounting holes as the HID MiniProx.
Dimensions	3.3" x 4.8" x .95" (8.4 cm x 12.2 cm x 2.4 cm)	3.3" × 4.8" × 1.05" (8	.4 cm x 12.2 cm x 2.7 cm)	6.1" x 1.9" x 0.9" (15.6 cm x 4.8 cm x 2.3 cm)
Weight	8.8 oz (249.5 g)	9.1 c	oz (258 g)	5.9 oz (166 g)
Power Supply		5 to 16 VDC. Linea	r supply recommended	
*** Current Requirements	55 mA AVG, 141 mA PEAK @ 12 VDC	85 mA AVG, 169	mA PEAK @ 12 VDC	55 mA AVG, 114 mA PEAK @ 12 VDC
Operating Temperature		-31° to 150°	F (-35° to 65° C)	
Operating Humidity		5% to 95% relative h	numidity non-condensing	
Transmit Frequency		125 kHz a	nd 13.56 MHz	
Card Compatibility	Cable Distance Wiegand/Clock-and-Data Interface 500 ft (150 m) 22 AWG			
	 ISO I 5693 - read only; 2k bit ISO I 4443A - read only; MIFARE and DESFire[®] (serial numb Credentials, 	(256 Byte), 16k bit (2k Byte) a ver) • ISO 14443B - read onl serial number • FeliCa IDm	and 32k bit (4k Byte) iCLASS (y; 2k bit (256 Byte), 2k bit (256 E n, CEPAS CAN/CSN • US Governi	Credentials, serial number Byte), 16k bit (2k Byte) and 32k bit (4k Byte) iCLASS ment (PIV) ****
Certifications	UL294/cUL (US), FCC Certification (US), IC (Canada), C	E (EU), C-tick (Australia, New	Zealand), SRRC (China), MIC (Ko	rea), NCC (Taiwan), MIC (Japan), iDA (Singapore), RoHS
Housing Material		UL94 Po	blycarbonate	
Environmental			IP55	
Family Model	RPI	RP40N-6408-30 SN-6407-300, RP15D-6407-31	0, RP40D-6408-300, 00, 6136AxN, 6136AxD and 6136,	AxA
Warranty	Warrantied against de	efects in materials and workma	nship for life. (See complete warra	nty policy for details.)
e contraction of the second se	 *Consult How to Order Guide for specific ordering instructions. **Dependent upon installation conditions *** Add 25 mA to AVG current when reader is populated with InD Prox module; add 40 mA to AVG current when reader is populated with Indala Prox module. **** (CLASS RPK40 Revision C readers are not currently approved for FIPS 201 functionality. See iCLASS RPK40 Revision B readers for US Government compliant readers. 			lobal Corporation. All rights reserved HID, the HID logo, and iCLASS are rgistered trademarks of HID Global in the U.S. and/or other countries. All ks, service marks, and product or service names are trademarks or registered heir respective owners. Rev. 04/2010 MKT-iCLASS_RP-SERIES_C_DS-EN
ACCESS experience. hidgloba				
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PHYSICAL ACCESS SOLUTIONS





Features:

- Offers universal compatibility with all HID proximity readers.
- Provides durable packaging and consistent read range.
- Provides an external number for easy identification and control.
- Supports formats up to 85 bits, with over 137 billion codes.
- Custom pre-printed artwork available.
- A PVC overlay allows for on-site photo ID using most direct image printers.
- Using HID's ProxProgrammer®, card vendors can ship ProxCard II proximity cards, custom programmed to their customers' requirements, from their own inventory. Enables smaller order quantities and overnight delivery. (Check with vendor for availablilty.)

THE RF-PROGRAMMABLE PROXCARD[®] II PROXIMITY ACCESS CARD IS THE INDUSTRY CHOICE FOR A COST-EFFECTIVE SOLUTION TO PROXIMITY ACCESS CONTROL.

- Proven, Reliable Technology Offers extremely consistent read range. Unaffected by body shielding or variable environmental conditions, even when close to keys and coins.
- Convenient To Use Can fit into a wallet or purse. Use with a strap and clip as a photo ID badge.
- Cross-reference A cross-reference list correlating the external card number and the programmed ID number is provided for easy system administration.
- Security Offers over 137 billion unique codes.
- Long Life Passive, no-battery design allows for an infinite number of reads.
- Durability Strong, flexible and resistant to cracking and breaking.
- Companion Products- 1321 Photo pouch overlay 1324 PVC Direct print overlay

The RF-programmable ProxCard[®] II proximity access card is the industry choice for a cost-effective solution to proximity access control.



SPECIFICATIONS

ProxCard[®] II Card

Base Part Number	1326	
Typical Maximum* Read Range	ProxPoint® Plus reader-up to 3" (7.5 cm) MiniProx® reader-up to 5.5" (14 cm) ThinLine® II reader-up to 5.5" (14 cm) ProxPro® reader-up to 8" (20 cm) ProxPro® II reader-up to 9"(22.9 cm) Prox80™-up to 5.5" (14 cm) MaxiProx® reader-up to 24" (60 cm)	
Dimensions	2.135" x 3.385" x 0.075" MAX. (5.4 x 8.6 x 0.19 cm)	
Operating Temperature	-50° to 160° F (-45° to 70° C)	
Options	External card numbering (inkjet only; no laser engraving) Custom artwork (text or graphics)	
Weight	0.24 oz. (6.8 gm)	
Warranty	Lifetime	

NOTES:

*Dependent on local installation conditions.



North America: +1 949 732 2000 Toll Free: 1 800 237 7769 Europe, Middle East, Africa: +44 1440 714 850 Asia Pacific: +852 3160 9800 Latin America: +52 55 5081 1650

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Product Information



GE Magnetic Contacts

www.GE-Interlogix.com

Steel Door Contact

³/₄" and 1" contacts 1078/1076 Series

Overview	The GE Interlogix 1078 Series Steel Door contacts are designed specifically for use in the steel doors commonly found in commercial building applications. The unique housing design features a rugged unibody construction with flexible ribbed sides for quick, secure installation without gluing. The magnet housing isolates the magnet from the surrounding steel for maximum gap distances, both make and break. Over seven models including: Wide Gap, SPDT, DPDT, and Biased for High Security applications make the 1078 Series the most widely used and comprehensive line available.			
	On available models a terminal connection (T) makes installation easier. Simply strip the wire, insert it into the terminal block and tighten. The terminal accepts any wire size from 14 to 22 gauge, and has a unique one piece design for added strength.			
	An optional Rare Earth Magnet is available. It is designed for use in metal entry/exit doors with a channel in the top of the door. The magnet eliminates the need to cut a mounting hole in the door channel. The flexible magnet housing can be compressed to accommodate a variety of channel widths for quick, easy installation. Adhesive is recommended.			
Architectural and Engineering Specifications	The contact contains a hermetically sealed magnetic reed switch. The reed shall be potted in the contact housing with a polyurethane based compound. Contact and magnet housing shall snap-lock into a 3/4" or 1" dia. hole. Housings shall be molded of flame retardant ABS plastic. Color of housings shall be off-white, grey or mahogany brown. The magnet shall be made of Alnico V. Rare Earth Magnet shall be made of neodymium iron boron.	<u>Sta</u> 0 0		
Designed for use in Steel Doors	Snap-lock insulation bushing for tight fit and maximum gap in steel. Both contact and magnet plastic housings are constructed of one piece of thick-walled ABS plastic for maximum strength and durability.	0		
		•		



Rare Earth Magnet

ndard Features

- Fly leads and terminal options available
- Designed specifically for use in steel doors
- Special ribbed sides allow for easy installation
- Rugged unibody construction for maximum durability and reliability
- Terminal models available for easier installation
- Regular, Wide Gap, SPDT, DPDT, and High Security models available
- Rare Earth Magnet designed for steel door with top channel available

Model numbers

1076, 1076W, 1076C, 1076CW, 1076D, 1078, 1078W, 1078C, 1078CT, (R)1078, 1078CTW

Steel Door Contact $\frac{3}{4}$ and 1" contacts 1078/1076 Series

Dimensions

Models: 1078C, 1076C,

Models: (R)1078, 1078W, 1076, 1076W, 1076D



1.125" 2.86 cm 41111-.875" 2.22 cm



1076CW, 1076CH



(R) prefix indicates Rare Earth Magnet

Ordering Information

Model	Dia.	Loop Туре	Electrical Config.	Hole Re Contact	equired Magnet	Wood*	Gap Distan Steel*	ce* Rare Earth	Color
1076	1″	Open or Closed	SPDT	1″ x 1.125″	1" x 1.563"	1″	Up to ¹ /2"	Up to ⁵ / ₈ "	M, N, 0
1076W	1″	Open or Closed	SPDT	1" x 1.125"	1" x 1.563"	2″	Up to 1"		M, N, 0
1076D	1″	Open or Closed	DPDT	1" x 1.125"	1" x 1.563"	³ /4″	Up to ³ / ₈ "	Up to ⁵ / ₈ "	M, N, 0
1078	1″	Closed	N/0	1" x 1.125"	1" x 1.563"	1″	Up to ¹ /2"	Up to ⁵ / ₈ "	M, N, 0
1078W	1″	Closed	N/0	1" x 1.125"	1" x 1.563"	2″	Up to 1"		M, N, 0
1076C	3/4"	Open or Closed	SPDT	.75″ x 1.125″	.75" x 1.563"	7/8″	Up to ³ / ₈ "	Up to ⁵ / ₈ "	M, N, 0
1076CW	3/4"	Open or Closed	SPDT	.75" x 1.125"	.75" x 1.563"	2″	Up to ³ /4"		M, N
1078C	³ /4"	Closed	N/0	.75" x 1.125"	.75" x 1.563"	1/2″	N/A		M, N, 0
(R)1078	1″	Closed	N/0	1" x 1.125"	1" x 1.563"	1″	Up to ¹ /2"	Up to ⁵ / ₈ "	M, N
1078CT	3/4"	Closed	N/0	.75" x 1.625"	.75″ x 1.56″	7/8″	1/ ₂ "	5 _{/8} ″	M, N
1078CTW	3/4"	Closed	N/0	.75″ x 1.625″	.75″ x 1.56″	⁵ /8″	3/4″	N/A	N

ł .750" 1.91 cm

+

Magnet Part No. 1921C

(included)

Gap distances are nominal make distance ±20%. Gap specifications are for switch to make. Break distance is approximately 1.1 to 1.5 times make



GE Interlogix

www.GE-Interlogix.com

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2266 Second Street North North St. Paul, MN 55109 Phone: 651-777-2690 USA & Canada: 800-777-5484 Technical Service: 800-777-2624

3/4"

Specifications

Form A: (R)1078, 107	8W, 1078C, 1078CT, 1078CTW
Voltage	100V AC/DC max.
Current	0.5 A max.
Power	7.5 W max.
Form C: 1076, 1076V	/, 1076D, 1076C(D), 1076CW, 10

Form C: 1076, 1076	W, 1076D, 1076C(D), 1076CW, 1076CH			
Voltage	30V AC/DC max.			
Current	0.25 A max.			
Power	3.0 W max.			

Rare Earth Magnet



Protected by U.S. Patent 5,844,458.



_

	Rare Earth	
2″	Up to ⁵ / ₈ "	M, N, G
'		M, N, G
в″	Up to ⁵ / ₈ "	M, N, G
2″	Up to ⁵ / ₈ "	M, N, G
'		M, N, G
Β″	Up to ⁵ / ₈ "	M, N, G
4″		M, N
		M, N, G
2″	Up to ⁵ / ₈ "	M, N
	⁵ /8″	M, N
	N/A	Ν



www.GESecurity.com

2202 Series Overhead Door Magnetic Contacts

Surface/floor mount contacts with armored cable

Overview

The GE Security 2202 Series overhead door magnetic contact is for use in the rigorous environments of commercial and industrial installations.

The floor mount units are constructed with a low profile heavy cast aluminum housing. The reed switch assembly is fully encased in GE Security's exclusive polyurethane potting material to prevent damage due to moisture or humidity. A wide operating gap distance of up to 3 inches makes installation easy and helps prevent false alarms caused by door movement or damaged and loose fitting doors.

The 2202 Series is available with a universal style magnet that allows for greater installation flexibility.



Standard Features

- Wide 3-inch operating gap
- Fully sealed switch
- Form C unit available
- Mounting hardwire included



2202 Series Overhead Door Magnetic Contacts

Surface/floor mount contacts with armored cable

Specifications

Electrical, 2202

- Voltage: 100 VAC/DC max.
- Current: 0.5 A max.
- Power: 7.5 W max.

Electrical, 2204

- Voltage: 30 VAC/DC max.
- Current: 0.25 A max.
- Power: 3.0 W max.

Features, 2202

- · Loop type: Closed
- Electrical configuration: Normally open
- Gap distance: Up to 3 in.
- Lead type: 18 in. flexible stainless steel cable

Features, 2204

- Loop type: Open or closed
- Electrical configuration: SPDT
- Gap distance: Up to 3 in.
- · Lead type: 18 in. flexible stainless steel cable
- Lead colors: Black common; white closed loop (N.O.); red open loop (N.C.)

Physical

- Dimensions, 2202A (LxWxD): 3.50 x 1.50 x 1.50 in. (89 x 38 x 38 mm)
- Dimensions, 2202AU and 2204AU (LxWxD): 3.125 x 2.125 x 0.81 in. (79
- x 54 x 21 mm)
- Construction: Cast aluminum
- Color: Aluminum
- Regulatory

◆ C-UL-ŪS

Related Diagram



Ordering Information

2202A-L	Floor-mount magnetic contact for overhead doors, aluminum housing, 3 in. gap size, closed loop, includes 18 in. stainless steel armored cable
2202AU-L	Floor-mount magnetic contact for overhead doors, universal magnet, 3 in. gap size, closed loop, includes 18 in. stainless steel armored cable
2204A-L	Floor-mount magnetic contact for overhead doors, aluminum housing, 3 in. gap size, SPDT, includes 18 in. stainless steel armored cable
2204AU-L	Floor-mount magnetic contact for overhead doors, universal magnet, 3 in. gap size, SPDT, includes 18 in. stainless steel armored cable



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(437-3287)	fax 852-2142-5063	fax +44-113-253-8121
faxback 800-483-2495	Australia	Latin Amorica
email info@gesecurity.com	tel +61-3-9259-4700	tel 305-267-4301
www.gesecurity.com	fax +61-3-9259-4799	fax 305-267-4300

As a company of innovation, GE Security reserves the right to change product specifications without notice. For the latest product specifications, visit GE Security online at www.GESecurity.com or contact your GE Security sales representative. IPS-2202 Series Overhead Door Magnetic Contacts-2005-07-20 02:17:38 Released : 20.07.2005


DS160 Series High Performance Request-to-exit Detectors



The DS160 Series consists of the DS160 Detector (light gray) and the DS161 Detector (black) specifically designed for Request-to-exit (REX) applications. With features such as timers, door monitor with sounder alert, and pointable coverage, the DS160 and DS161 have the flexibility to meet the most stringent REX requirements. The exclusive Sequential Logic Input (SLI) provides added security that is not offered in any other REX device.

Functions

Sequential Logic Input (SLI)

The SLI terminal allows connection of a second device to require sequential detection. This eliminates the possibility that an object that is slid through the door or underneath the door will activate the detector. This input can also be used to lock the sensor if motion is present outside the premises.

Door Monitor

The sensor can monitor a door contact to allow special control of the internal relay. For example, if the door is opened within the relay time period, the sensor can be programmed to halt the timer. If the door is not opened within a specific time period, the relay can be programmed to deactivate.

- Door monitor with sounder alert
- Sequential Logic Input (SLI)
- Internal vertical pointability
- Wrap-around coverage pattern with precise pattern control
- Up to 64 second adjustable latch time
- Selectable relay trigger mode
- Selectable fail-safe or fail-secure modes
- Adjustable sounder volume
- Activation LED

Sounder Alert

An integrated sounder can be programmed to activate if the door is left open too long. The sounder volume is fully adjustable to 85 dB.

Keycard Input

The keycard input allows the sensor relay to be controlled from an external source, such as an access control system or card reader.

Certifications and Approvals

Region	Certificatio	n
Europe	CE	89/336/EEC, EN55022: 1998 +A1: 2000 +A2: 2003, EN50130-4: 1996 +A1: 1998 +A2: 2003, EN61000-4-2: 1995 +A1: 1998 +A2: 2001, EN61000-4-3: 2002 +A1: 2003, EN61000-4-4: 1995 +A1: 2000 +A2: 2001, EN61000-4-5: 1995 +A1: 2001, EN61000-4-6: 1996 +A1: 2001 +A2: 2001, EN61000-4-11:1994 +A1: 2001, EN60950-1: 2001 2004/108/EC; EN 50130-4:1996 +A1:1998 +A2:2003; EN
		60950-1:2006
USA	UL	ALVY: Access Control Systems Units (UL294)

Europe Complies with EN50131-1 Grade 2

Installation/Configuration Notes





Front View

Mounted on wall above door and mounted on ceiling .75 m (2.5 ft) in front of the door.



Side View

The higher that you mount the unit, the larger the coverage area. Do not mount the DS160/DS161 more than 4.6 m (15 ft) above the floor.

Side view of coverage pattern with the unit mounted at 4.6 m (15 ft) above the floor with the lens pointed straight down.





Side View

The higher that you mount the unit, the larger the coverage area. Do not mount the DS160/DS161 more than 4.6 m (15 ft) above the floor.

Side view of coverage pattern with the unit mounted at 4.6 m (15 ft) above the floor with the lens pointed straight down.

Coverage Information

The coverage (detection area) varies depending on the mounting height above the floor, angle of the lens, and whether the unit is mounted on a wall above the door or on the ceiling. The coverage is 2.4 m x 3 m (8 ft x 10 ft) The coverage patterns for the detector at a height of 2.3 m (7.5 ft) are shown. The coverage pattern increases or decreases with height and detector alignment.

Note When you mount the unit on the wall and the lens points straight down, some detection zones point toward the wall and do not detect movement.

The diagrams depict views of the coverage pattern with the detector mounted at 2.3 m (7.5 ft) above the floor with the lens pointed straight down. Zones that are pointed toward the wall are not shown.

Technical Specifications

Environmental

Operating Temperature:	-29°C to +49°C (-20°F to +120°F) For UL Certificated installations, 0°C to +49°C (+32°F to +120°F)
Radio Frequency Inter- ference (REI) Immunity:	No alarm or setup on critical frequencies in the range from 26 MHz to 1000 MHz at 50 V/m

Complies with Environmental Class II (EN50130-5)

Mechanical

Dimensions:	4.5 cm x 17.1cm x 4.4 cm (1.80 in. x 6.75 in. x 1.75 in.)
Material:	High impact ABS plastic enclosure
Modes	
Power Loss De- fault:	Programmable fail-safe or fail-secure modes.
Timer:	Programmable reset accumulative or non-reset counting mode.
Electrical	
Current Draw:	8 mA nominal standby current, 39 mA at 12 VDC in alarm
Voltage:	12 VAC or VDC to 30 VAC or VDC
Alarm Output:	Two Form C relay contacts each rated 1 A at 30 VAC or VDC for resistive loads
Indicators:	1 activation LED
Relay Latch Time:	Adjustable from 0.5 sec to 64 sec.

Ordering Information

DS160 Request-to-exit Detect Light gray enclosure. For use in exit (REX) applications. Provide (8 ft x 10 ft) coverage, timers, with sounder alert, and pointab	tor DS request-to- es 2.4 m x 3 m door monitor ble coverage.	5160
DS161 Request-to-exit Detect Black enclosure. For use in req (REX) applications. Provides 2 ft x 10 ft) coverage, timers, dow with sounder alert, and pointable	tor DS uest-to-exit .4 m x 3 m (8 or monitor ble coverage.	5161
Accessories		
TP160 Trim Plate A light gray trim plate used whe the detector over a standard sin	TP en mounting ngle-gang box.	9160
TP161 Trim Plate A black trim plate used when m	nounting the	2161

A black trim plate used when mounting the sensor over a standard single-gang box.

Americas: Bosch Security Systems, Inc. 130 Perinton Parkway Fairport, New York, 14450, USA Phone: +1 800 289 0096 Fax: +1 585 223 9180 security.sales@us.bosch.com www.boschsecurity.us

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TP160 Trim Plate



A light gray trim plate used when mounting the detector over a standard single-gang box.

Ordering Information

TP160 Trim Plate A light gray trim plate used when mounting the detector over a standard single-gang box. TP160

Americas: Bosch Security Systems, Inc. 130 Perinton Parkway Fairport, New York, 14450, USA Phone: +1 800 289 0096 Fax: +1 585 223 9180 security.sales@us.bosch.com www.boschsecurity.us

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TP161 Trim Plate



A black trim plate used when mounting the sensor over a standard single-gang box.

Ordering Information

TP161 Trim Plate A black trim plate used when mounting the sensor over a standard single-gang box. TP161

Americas: Bosch Security Systems, Inc. 130 Perinton Parkway Fairport, New York, 14450, USA Phone: +1 800 289 0096 Fax: +1 585 223 9180 security.sales@us.bosch.com www.boschsecurity.us

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E G 4 2 0 (

Door Management Alarm

The ES4200 is a multifunctional door monitoring device that combines the best features and functions of DSI's door prop and exit alarm product lines into one easy-to-use master unit. Field selectable alarm timing, delay, and input/output options are sure to make the NEW ES4200 the product of choice.



FEATURES & BENEFITS

- Aesthetically pleasing design
- Compatible with all access control systems
- Can be used as a stand-alone product
- Field selectable alarm timing and alarm delay option
- Field selectable high or low level sounder
- 12-24 VDC/VAC operation
- Easy installation
- Encourages employees to maintain access control procedures
- Reset/bypass keyswitch and remote input
- Visual status indicator
- Tamper resistant
- Incorporates form C output relays
- Supports door supervision



1402 Hawthorne St. Bastrop, TX 78602 Voice: 1-800-272-3555 Fax: 512-321-9181 E-mail: dsi@dsigo.com www.dsigo.com

ES4200 Door Management Alarm — Typical Application



ELECTRICAL SPECIFICATIONS

Power:	12-24 VDC/VAC @ 250 mA
Local Control:	Keyswitch for Unit Reset/Bypass
Control Input:	N/O or N/C Alarm Shunt N/C Door Contact N/O Remote Reset/Bypass Voltage Sense Shunt
Control Output:	N/O and N/C Door Contact Status N/O and N/C Door Prop Alarm Status N/O and N/C Intrusion/Tamper Alarm Status N/O and N/C Bypass/Keyswitch Status Remote LED
Adjustment:	Auto Reset 0 sec. – 5 min. or Manual Reset Alarm Delay 0 sec. – 5 min. or Infinite Silent Time 0 sec. – 90 min.
Audible Alarm:	Field Selectable High – 103 dB@ 3 ft. Low – 96 dB@ 3 ft.

MECHANICAL SPECIFICATIONS

Dimensions:	2 Gang Plate with Standard Key 4.6"W x 4.5"H x 2.32"D
	3 Gang Plate with Rim Hardware 6.4"W x 4.5"H x 2.32"D
Keyswitch:	Double Bitted Rim Hardware with or without Cylinder
Finish:	Painted – DSI Beige

PRODUCT DESCRIPTION

The ES4200 provides complete monitoring of access control points by offering door prop/door held and intrusion/door forced detection. These alarms are designed to complement card reader and access control systems and will interface with electronic locks, produce audible warnings and reduce nuisance alarms by encouraging user compliance with access control procedures.



1402 Hawthorne St. Bastrop, TX 78602 Voice: 1-800-272-3555 Fax: 512-321-9181 E-mail: dsi@dsigo.com www.dsigo.com



Maximal75 Access Power Controller

Overview



This unit distributes and switches power to access control systems and accessories. Unit converts a 115VAC 60Hz input into eight (8) 12VDC and eight (8) 24VDC independently controlled fuse protected outputs. These Fail-Safe/Fail-Secure power outputs may be converted to dry form "C" contacts. The outputs are activated by an open collector sink or normally open (NO) dry trigger input from an Access Control System, Keypad, Push Button, REX PIR, etc. Units will route power to a variety of access control hardware devices including: Mag Locks, Electric Strikes, Magnetic Door Holders, etc. The FACP Interface enables Emergency Egress, Alarm Monitoring, or may be used to trigger other auxiliary devices. The fire alarm disconnect feature is individually selectable for any or all of the sixteen (16) outputs. All interconnecting equipment must be UL Listed.

Maximal75

- 12VDC and 24VDC outputs.
- Maximum output current: 19.2 amp total.
 Option P/S 1 P/S 2
- A 12VDC @ 9.5 amp • 115VAC 60Hz, 10.0 amp input.
- Input fuse ratings: AL1012ULXB 3.5 amp/250V. AL1024ULXB 10 amp/250V.
- Power supply input options:
 - a) Two (2) common power input for either ACM8 and lock power (factory installed).
 - b) Two (2) isolated power inputs (external power supply is required), (current is determined by the power supply connected, not to exceed a maximum of 10 amp total).
- Sixteen (16) Access Control System trigger inputs. Input options:
 - a) Sixteen (16) normally open (NO) inputs.
 - b) Sixteen (16) open collector inputs.
 - c) Any combination of the above.
- Sixteen (16) independently controlled outputs. Output options:
 - a) Sixteen (16) Fail-Safe and/or Fail-Secure power outputs.
 - b) Sixteen (16) form "C" 5 amp rated relay outputs.c) Any combination of the above.
- Sixteen (16) auxiliary power outputs (unswitched) (outputs are rated 2.5 amp).
- ACM8 boards main fuse is rated at 10 amp. Output fuses are rated @ 3.5 amp.
- Red LEDs indicate outputs are triggered (relays energized).

Specifications

• Fire Alarm disconnect (latching or non-latching) is individually selectable for any or all of the sixteen (16) outputs. 24VDC @ 9.7 amp • Fire Alarm disconnect input options: a) Normally open (NO) or normally closed (NC) dry contact input. b) Polarity reversal input from FACP signaling circuit. • Alarm output relay indicates that FACP input is triggered (form "C" contact rated @ 1 amp 28VDC). • Green LED indicates FACP disconnect is triggered. • Filtered and electronically regulated outputs (built-in power supply). • Built-in charger for sealed lead acid or gel type batteries. • Maximum charge current AL1012ULXB is 0.7 amp. AL1024ULXB is 3.6 amp. • Automatic switch over to stand-by battery when AC fails. • Zero voltage drop when unit switches over to battery backup (AC failure condition). • Thermal and short circuit protection with auto reset. • AC input and DC output LED indicators. • AC fail supervision (form "C" contact). • Low battery and battery presence supervision (form "C" contact). • Enclosure accommodates up to four (4) 12AH batteries. • Product weight: 40.65 lbs. • Shipping weight: 44.65 lbs.

Agency Approvals



UL Listed for Access Control System Units (UL 294).



CUL Listed - CSA Standard C22.2 No.205-M1983, Signal Equipment.



CSFM California State Fire Marshal Approved.



NP SERIES - NP 12-12

Reliability is your Security

Utilizing the latest advance design Oxygen Recombination Technology, Yuasa have applied their 80 years experience in the lead acid battery field to produce the optimum design of Sealed Lead Acid batteries.

FEATURES

- Superb recovery from deep discharge.
- Electrolyte suspension system.
- Gas Recombination.
- Multipurpose: Float or Cyclic use.
- Usable in any orientation.
- Superior energy density.
- Lead calcium grids for extended life.
- Manufactured World wide.
- Application specific designs.

Technical Features

Sealed Construction

Yuasa's unique construction and sealing technique ensures no electrolyte leakage from case or terminals.

Electrolyte Suspension System

All NP batteries utilize Yuasa's unique electrolyte suspension system incorporating a microfine glass mat to retain the maximum amount of electrolyte in the cells. The electrolyte is retained in the separator material and there is no free electrolyte to escape from the cells. No gels or other contaminants are added.

Control of Gas Generation

The design of Yuasa's NP batteries incorporates the very latest oxygen recombination technology to effectively control the generation of gas during normal use.

Low Maintenance Operation

Due to the perfectly sealed construction and the recombination of gasses within the cell, the battery is almost maintenance free.

Terminals



Layout





Terminals

NP batteries are manufactured using a range of terminals which vary in size and type. Please refer to details as shown.

Operation in any Orientation

The combination of sealed construction and Yuasa's unique electrolyte suspension system allows operation in any orientation, with no loss of performance or fear of electrolyte leakage.

Valve Regulated Design

The batteries are equipped with a simple, safe, low pressure venting system which releases excess gas and automatically reseals should there be a build up of gas within the battery due to severe overcharge. Note. On no account should the battery be charged in a sealed container.

General Specifications

Nominal Capacity (Ah)	NP12-12
20hr to 1.75vpc 30°C	12
10hr to 1.75vpc 20°C	11.1
5hr to 1 .70vpc 20°C	10
1 hr to 1 .60vpc 20°C	7.2
Voltage	12
Energy Density (Wh.L.20hr)	1 04
Specific Energy (Wh.kg.20hr)	36
Int. Resistance (m.Ohms)	16
Maximum discharge (A)	75
Short Circuit current (A)	360
Dimensions (mm)	
Length	151
Width	98
Height overall	97.5
Weight (Kg)	4.05
Terminal	D
Layout	4
Terminal Torque Nm	-

www.yuasabatteries.com

NP

Data Sheet



NP SERIES - NP 12-12

Lead Calcium Grids

The heavy duty lead calcium alloy grids provide an extra margin of performance and life in both cyclic and float applications and give unparalleled recovery from deep discharge.

Long Cycle Service Life

Depending upon the average depth of discharge, over a thousand discharge/charge cycles can be expected.

Float Service Life

The expected service life is five years in float standby applications.

Separators

The use of the special separator material provides a very efficient insulation between plates preventing inter-plate short circuits and prohibiting the shedding of active materials.







Yuasa Battery Inc.

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PERCENTAGE

2901 Montrose Ave Laureldale, PA 19605 www.yuasabatteries.com

Registered number 1548820

Cat. No. NP 12-12 March 09

Long shelf Life

The extremely low self discharge rate allows the battery to be stored for extended periods up to one year at normal ambient temperatures with no permanent loss of capacity.

Operating Temperature Range

The batteries can be used over a broad temperature range permitting considerable flexibility in system design and location.

Charge – 15°C to 50°C Discharge – 20°C to 60°C Storage – 20°C to 50°C (fully charged battery)





Distributed by



AXIS P33 Network Camera Series

Fixed domes for any environment with remote focus and zoom.



- > Superb video quality including HDTV 1080p
- > Multiple H.264 video streams
- > Remote focus and
- > Outdoor ready
- > Digital PTZ and multi-view streaming
- > P-Iris control

AXIS P33 Network Cameras constitute a series of indoor and outdoor-ready fixed domes. These cameras are ideal for unobtrusive video surveillance in exposed areas such as airports, subways, retail stores, schools and university campuses.

AXIS P33 Series offers models from SVGA resolution up to 3 megapixel, including support for HDTV 720p and 1080p in compliance with the SMPTE standard in resolution, color representation and frame rate. All models provide day and night functionality with removable infrared-cut filter for increased light sensitivity.

The remote focus feature allows for convenient installation eliminating the need for hands-on focusing at the camera, and the remote zoom and pixel counter features ensure that the camera's angle of view is optimized for the scene and pixel resolution.

AXIS P33 Series provides multiple, individually configurable H.264 and Motion JPEG video streams. All AXIS P33 cameras offer digital pan/tilt/zoom, and the 3-megapixel AXIS P3346 models additionally provide multi-view streaming.

AXIS P3346 cameras offer the unique and revolutionary P-Iris control, which allows the cameras to precisely control the iris position to optimize depth of field and lens resolution for optimal image sharpness.

AXIS P33 Series ranges from indoor cameras to vandalresistant outdoor models, supplied by standard Power over Ethernet (IEEE 802.3af). Weather-proof models operate in temperatures from -40 °C to 55 °C (-40 °F to 131 °F).





Fixed domes designed for efficient installation – indoors or outdoors

AXIS P33 Series is the perfect choice for a wide range of demanding video applications in outdoor and indoor environments. AXIS P33 Network Cameras are designed for professional video surveillance with easy and reliable installation in focus.

Outdoor-ready installation for extreme temperatures

The outdoor models of AXIS P33 Series are specially designed for reliable, vandal-resistant and weatherproof installation, with pre-installed heater and fan, and an integrated dehumidifying membrane eliminating any humidity caught in the camera casing during installation. These cameras come with a 5 m (16 ft.) Ethernet cable with a pre-mounted, specially designed gasket, enabling flush wall mounting and requiring no additional sealant. A weather shield is also included for effective protection against reflections from sunlight, or build-ups of rain or snow.

Mounting options

AXIS P33 Series offers a wide range of optional kits for indoor and outdoor installations, for example, for mounting on a wall, pole or corner. The IP51-rated drop ceiling mount kit protects the camera from condensation and dust that may exist in the plenum space above the drop ceiling. Both indoor and outdoor camera models include a smoked transparent cover as an alternative to the clear cover, for additional flexibility.

Easy installation with remote focus and zoom

AXIS P33 Network Cameras offer unique installation capabilities with remote focus and zoom. The remote focus feature enables convenient focusing over the network, eliminating the need for hands-on finetuning at the camera. The remote zoom functionality ensures that the viewing angle is optimized for the area to be monitored.

Unique pixel counter feature

The unique pixel counter offered in Axis cameras allows the installer to easily verify that the camera installation fulfills any regulatory or specific customer requirements, for example, calculating the pixel resolution of the face of a person passing a doorway monitored by the camera.





Unique pixel counter feature





AXIS P3343-VE /P3344-VE Weight: 1.6 kg (3.5 lb.) with weather shield

AXIS P3343/-V/P3344/-V AXIS P3343/P3344 weight: 450 g (1.0 lb.) AXIS P3343-V/P3344-V weight: 660 g (1.5 lb.)

148 mm (5.8"

AXIS P3346-VE Weight: 1.7 kg (3.7 lb.) with weather shield



AXIS P3346/-V AXIS P3346 weight: 490 g (1.1 lb.) AXIS P3346-V weight: 700 g (1.6 lb.)



AXIS P3343-VE/P3344-VE/P3346-VE





Optional accessories for outdoor models





For information on AXIS Camera Station and video management software from Axis' Application Development Partners, see www.axis.com/products/video/software/

Optional accessories for indoor models



Technical Specifications – AXIS P33 Network Camera Series

Camera	
Models	AXIS P3343: SVGA, tamper-resistant, indoor
	AXIS P3343-V: SVGA, vandal-resistant, indoor
	AXIS P3343-VE: SVGA, vandal-resistant, outdoor
	AXIS P3344: IMP/HDIV /20p, tamper-resistant, indoor AXIS P3344-V· 1MP/HDTV 720p, vandal-resistant, indoor
	AXIS P3344–VE: 1MP/HDTV 720p, vandal-resistant, outdoor
	AXIS P3346: 3MP/HDTV 1080p, tamper-resistant, indoor
	AXIS P3346-V: 3MP/HDTV 1080p, vandal-resistant, indoor
	Cmm or 12mm or suffix specifies long antion
	Note: AXIS P3301/-V and AXIS P3304/-V are not part of AXIS P33 Series
Image sensor	AXIS P3343/-V/-VE and AXIS P3344/-V/-VE: Progressive scan RGB CMOS 1/4"
-	AXIS P3346/-V/-VE: Progressive scan RGB CMOS 1/3" (effective)
Lens	Varifocal with remote zoom and focus, IR corrected, megapixel
	AXIS P3343/-V/-VE 6 mm: 2.5-6 mm, 72°-34° view*, F1.2, DC-iris
	AXIS P3343/-V/-VE 12 mm: 3.3-12 mm , 54°-17° view*, F1.4, DC-iris
	AXIS P3344/-V/-VE 6 mm: 2.5-6 mm, 87°-40° view*, F1.4, DC-iris
	AXIS P3346/-V/-VE: 3-9 mm, 84°-30° view [*] . F1.2. P-Iris
	*horizontal angle of view
Day and night	Automatically removable infrared-cut filter
Minimum	AXIS P3343/-V/-VE 6 mm: Color: 0.2 lux, F1.2, B/W: 0.04 lux, F1.2
illumination	AXIS P3343/-V/-VE 12 mm: Color: 0.3 lux, F1.4, B/W: 0.05 lux, F1.4
	AXIS P3344/-V/-VE 6 mm: Color: 0.3 lux, F1.4, B/W: 0.06 lux, F1.4 AXIS P3344/-V/-VE 12 mm: Color: 0.4 lux, F1.6, B/W: 0.06 lux, F1.6
	AXIS P3346/-V/-VE: Color: 0.5 lux, F1.2, B/W: 0.08 lux, F1.2
Shutter time	AXIS P3343/-V/-VE and AXIS P3344/-V/-VE: 1/25000 s to 1/6 s
	AXIS P3346/-V/-VE: 1/35500 s to 1/6 s
Camera angle	AXIS P3343/-V/-VE and AXIS P3344/-V/-VE: Pan 360°, tilt 170°, rotation 240°
adjustment	AXIS P3346/-V/-VE: Pan 360°, tilt 160°, rotation 340°
Video	
Video	H.264 (MPEG-4 Part 10/AVC)
compression	Motion JPEG
Resolutions	AXIS P3343/-V/-VE: 800x600 to 160x90
	AXIS P3344/-V/-VE: 1280X800 to 160X90" AXIS P3346/-V/-VE: 2048x1536 to 160x90
	*1440x900 (1.3 MP) scaled resolution available via VAPIX®
Frame rate	AXIS P3343/-V/-VE and AXIS P3344/-V/-VE: 30 fps in all
H.264	resolutions
	AXIS P3346/-V/-VE: 3MP mode: 20 tps in all resolutions, HDTV 1080p (1920x1080) and 2MP 4:3 (1600x1200) modes: 30 fps
	in all resolutions
Frame rate	AXIS P3343/-V/-VE and AXIS P3344/-V/-VE: 30 fps in all
Motion JPEG	resolutions
	AXIS Y3346/-V/-VE: 3MP mode: 20 tps in all resolutions, HDTV 1080n (1920x1080) and 2MP 4:3 (1600x1200) modes: 20 fps
	in all resolutions
Video streaming	Multiple, individually configurable streams in H.264 and Motion JPEG
5	Controllable frame rate and bandwidth
	VBK/CBK H.264
Multi-view	AXIS Y3346/-V/-VE: Up to 8 individually cropped out view areas.
scicalility	20 fps per stream in H.264/Motion JPEG (3 MP capture mode)
	Digital PTZ, preset positions, guard tour
Image settings	Compression, color, brightness, sharpness, contrast, white balance,
	exposure control, exposure zones, backlight compensation, wide
	light
	Rotation: 0°, 90°, 180°, 270°, including Corridor Format™
Audia	rext and image overlay, privacy mask, mirroring of images
Audio	Ture uner
Audio streaming	
Audio	AAU LU 8/16 KHZ G 711 PCM 8 kHz
compression	G.726 ADPCM 8 kHz
	Configurable bit rate
Audio input/	External microphone input or line input, line output
output	AXIS P3343/-V, AXIS P3344/-V and AXIS P3346/-V: Built-in

Notwork	
Network	
Security	Password protection, IP address filtering, digest authentication, user access log, IEEE 802.1X** network access control, HTTPS** encryption
Supported protocols	IPv4/v6, HTTP, HTTPS**, QoS Layer 3 DiffServ, FTP, SMTP, Bonjour, UPnP, SNMPv1/v2c/v3(MIB-II), DNS, DynDNS, NTP, RTSP, RTP, TCP, UDP, IGMP, RTCP, ICMP, DHCP, ARP, SOCKS
System integratio	n
Application Programming Interface	Open API for software integration, including the ONVIF specification available at www.onvif.org, as well as VAPIX® and AXIS Camera Application Platform from Axis Communications, specifications available at www.axis.com Support for AXIS Video Hosting System (AVHS) with One-Click Camera connection
Intelligent video	Video motion detection, active tampering alarm, audio detection Support for AXIS Camera Application Platform enabling installation of additional applications
Alarm triggers	Intelligent video, external input
Alarm events	File upload via FTP, HTTP and email Notification via email, HTTP and TCP External output activation Video and audio recording to local storage Pre- and post-alarm video buffering
Installation aids in software	Remote zoom, remote focus, pixel counter
General	
Casing	Aluminum inner camera module with encapsulated electronics Color: white NCS S 1002-B AXIS P3343/P3344/P3346: Tamper-resistant polycarbonate casing AXIS P3343-V/P3344-V: 1000 kg (2200 lb.) impact-resistant aluminum casing AXIS P3346-V: IK10 impact-resistant aluminum casing AXIS P3343-VE/P3344-VE: IP66- and NEMA 4X-rated, 1000 kg (2200 lb.) impact-resistant aluminum casing with integrated dehumidifying membrane AXIS P3346-VE: IP66- and NEMA 4X-rated, IK10 impact-resistant aluminum casing with integrated dehumidifying membrane
Processor and memory	AXIS P3343/-V/-VE and AXIS P3344/-V/-VE: ARTPEC-3, 128 MB RAM, 128 MB Flash AXIS P3346/-V/-VE: ARTPEC-3, 256 MB RAM, 128 MB Flash
Power	Power over Ethernet IEEE 802.3af AXIS P3343/-V, AXIS P3344/-V and AXIS P3346/-V: Class 2 AXIS P3343-VE/P3344-VE/P3346-VE: Class 3
Connectors	RJ-45 10BASE-T/100BASE-TX PoE Terminal block for 1 alarm input and 1 output 3.5 mm mic/line in, 3.5 mm line out
Local storage	SD/SDHC memory card slot (card not included)
Operating conditions	AXIS P3343/-V, AXIS P3344/-V and AXIS P3346/-V: 0 °C to 50 °C (32 °F to 122 °F), humidity 15 - 85% RH (non-condensing) AXIS P3343-VE/P3344-VE/P3346-VE: -40 °C to 55 °C (-40 °F to 131 °F), humidity 15 - 100% RH (condensing)
Approvals	EN 55022 Class B, EN 61000-3-2, EN 61000-3-3, EN 55024, FCC Part 15 Subpart B Class B, ICES-003 Class B, VCCI Class B, C-tick AS/NZS CISPR 22, EN 60950-1 AXIS P3346-V: IEC 62262 IK10 AXIS P3346-VE: IEC 60529 IP66, NEMA 250 Type 4X, IEC 62262 IK10
Included accessories	Mounting and connector kits, Installation Guide, CD with installation tools, recording software and User's Manual, Windows decoder 1-user license, smoked transparent cover AXIS P3343-VE/P3344-VE/P3346-VE: mounting bracket, weather shield, cable shield, 5 m (16 ft.) network cable with pre-mounted gasket

** This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. (www.openssl.org)

More information is available at www.axis.com



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AXIS Q6032 PTZ Dome Network Camera

Advanced, high-speed indoor PTZ dome with 35x zoom.



 > 35x optical zoom, day/night

- > IP52-rated protection against dust and dripping water
- > Extended D1 resolution, H.264
- > Active Gatekeeper and tour recording
- > Power over Ethernet Plus (IEEE 802.3at)

AXIS Q6032 PTZ Dome Network Camera offers 35x optical zoom and high-speed pan/tilt performance, enabling coverage of large indoor areas and great detail when zooming in. It is ideal for use in airports, train stations, stadiums and warehouses.

AXIS Q6032 supports a wider picture with an extended D1 resolution of 752x480 in 60 Hz and 736x576 in 50 Hz. Videos in H.264 and Motion JPEG can be sent at full frame rate. Day and night functionality, progressive scan, 128x wide dynamic range and electronic image stabilization contribute to the camera's superb video quality.

The camera's tour recording functionality enables easy setup of an automatic tour using a device such as a joystick to record an operator's pan/tilt/zoom movements. With Active Gatekeeper, the camera can automatically move to a preset position upon motion detection in a pre-defined area, and track the detected object. AXIS Q6032 offers easy and reliable installation. The IP52-rated camera provides protection against dust and dripping water, enabling video to be taken even when a sprinkler system is activated. Support for Power over Ethernet Plus (PoE+) also simplifies installation since only one cable is needed for carrying power, as well as video and PTZ controls.

When an optional multi-connector cable is used, AXIS Q6032 supports two-way audio, I/O ports for external devices and AC/DC power. The camera's SD/ SDHC slot enables recordings to be stored locally.





Technical specifications – AXIS Q6032 PTZ Dome Network Camera

Camera	
Models	AXIS Q6032 60 Hz, AXIS Q6032 50 Hz
Image sensor	1/4" ExView HAD progressive scan CCD
Lens	f 3.4 – 119 mm, F1.4 – 4.2, autofocus, automatic day/night, horizontal angle of view: 55.8° – 1.7°
Minimum illumination	Color: 0.5 lux at 30 IRE F1.4 B/W: 0.008 lux at 30 IRE F1.4
Shutter time	1/30000 s to 0.5 s (60 Hz), 1/30000 s to 1.5 s (50 Hz)
Pan/tilt/zoom	E-flip, 100 preset positions Pan: 360° endless, 0.05° – 450°/s, Tilt: 180°, 0.05° – 450°/s 35x optical zoom and 12x digital zoom, total 420x zoom
Pan/tilt/zoom functionalities	Tour recording, guard tour, control queue On-screen directional indicator
Video	
Video compression	H.264 (MPEG-4 Part 10/AVC) Motion JPEG
Resolutions	Extended D1 752x480 to 176x120 (60 Hz) Extended D1 736x576 to 176x144 (50 Hz)
Frame rate	H.264: Up to 30/25 fps (60/50 Hz) in all resolutions Motion JPEG: Up to 30/25 fps (60/50 Hz) in all resolutions
Video streaming	Multiple, individually configurable streams in H.264 and Motion JPEG Controllable frame rate and bandwidth VBR/CBR H.264
Image settings	Wide Dynamic Range (WDR), Electronic Image Stabilization (EIS) manual shutter time, compression, color, brightness, sharpness, white balance, exposure control, exposure zones, rotation, backlight compensation, fine tuning of behavior at low light, text and image overlay, 3D privacy mask, image freeze on PTZ
Audio	
Audio streaming	Тwo-way
Audio compression	AAC-LC 8/16 kHz, G.711 PCM 8 kHz, G.726 ADPCM 8 kHz Configurable bit rate
Input/output	Requires multi-connector cable (not included) for external microphone or line input, and line output
Network	
Security	Password protection, IP address filtering, HTTPS encryption*, IEEE 802.1X network access control*, digest authentication, user access log
Supported protocols	IPv4/v6, HTTP, HTTPS*, SSL/TLS*, QoS Layer 3 DiffServ, FTP, SMTP, Bonjour, UPnP, SNMPv1/v2c/v3 (MIB-II), DNS, DynDNS, NTP, RTSP, RTP, TCP, UDP, IGMP, RTCP, ICMP, DHCP, ARP, SOCKS

* This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. (www.openssl.org)

System integratio	n
Application Programming Interface	Open API for software integration, including VAPIX® and AXIS Camera Application Platform from Axis Communications; specifications available at www.axis.com ONVIF, specifications available at www.onvif.org AXIS Video Hosting System (AVHS) with One-Click Camera Connection
Intelligent video	Video motion detection, audio detection, auto-tracking, Active Gatekeeper, AXIS Camera Application Platform
Alarm triggers	Video motion detection, audio detection, auto-tracking, external input, PTZ preset, temperature, memory card full, AXIS Camera Application Platform
Alarm events	File upload via FTP, HTTP and email Notification via email, HTTP and TCP External output, PTZ preset, guard tour, play audio clip, local storage Pre- and post-alarm video buffering
General	
Casing	IP52-rated, metal casing (aluminum), acrylic (PMMA) clear dome
Processors and memory	ARTPEC-3, 256 MB RAM, 128 MB Flash
Power	Power over Ethernet Plus (PoE+) IEEE 802.3at, max. 30W 24-34 V DC, max. 19 W; 20-24 V AC, max. 27 VA AXIS T8123 High PoE Midspan 1-port included: 100-240 V AC
Connectors	RJ-45 for 10BASE-T/100BASE-TX PoE Multi-connector (cable not included) for AC/DC power, 4 configurable alarm inputs/outputs, mic in, line mono input, line mono output to active speaker
Local storage	SD/SDHC memory card slot (card is not included)
Operating conditions	0 °C to 50 °C (32 °F to 122 °F) Humidity 20 - 80% RH (non-condensing)
Approvals	EN 55022 Class B, EN 61000-3-2, EN 61000-3-3, EN 61000-6-1, EN 61000-6-2, EN 55024, FCC Part 15 Subpart B Class B, ICES-003 Class B, VCCI Class B, C-tick AS/NZS CISPR 22, KCC Class B IP52 IEC 60529 IEC 60721-4-3 Class 3K3, 3M3, EN/IEC 60068-2 Midspan: EN 60950-1, GS, UL, cUL, CE, VCCI, CB, KCC, CSA, UL-AR
Weight	Camera: 2.6 kg (5.7 lb.) Camera with drop-ceiling mount: 3.2 kg (7.1 lb.)
Included accessories	AXIS T8123 High PoE Midspan 1-port, mounting kit for hard and drop ceilings, clear and smoked dome cover, Installation Guide, CD with User's Manual, recording software, installation and management tools. Windows decoder 1-user license

More information at www.axis.com



Optional accessories





Multi-connector cable for AC/DC power, I/Os and audio



AXIS T90A Illuminators





AXIS T8310 Video Surveillance Control Board

AXIS Camera Station and video management software from Axis' Application Development Partners. For more information, see www.axis.com/products/video/software/



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AXIS P3707-PE Network Camera

Flexible, 360° multisensor camera

AXIS P3707-PE Network Camera is an 8-megapixel multisensor fixed camera with four varifocal lenses that enable overview and detailed surveillance. With one IP address, one network cable, PoE support, IP66 and IP67 ratings, the four-camera-in-one unit provides a flexible, cost-effective solution for multidirectional surveillance in large indoor and outdoor areas, and at the intersection of hallways and roads. Each camera head can be moved along a circular track. The tilt angle and the field of view of each lens are adjustable, and each camera head can rotate to support Axis' Corridor Format. The specially designed clear cover, with no sharp edges, ensures undistorted views in all directions.

- > 8 MP, 360° multisensor camera, one IP address
- > Flexible positioning of four varifocal camera heads
- > 1080p videos at 12.5/15 fps; 720p videos at 25/30 fps; quad view stream
- > Axis' Zipstream technology







AXIS P3707-PE Network Camera

Camera	
Image sensor	4 x 1/2.8" progressive scan RGB CMOS
Lens	Varifocal, 2.8–6 mm, F2.0 4x1080p capture mode: Horizontal field of view: 108°–54° Vertical field of view: 57°–30° 4xHDTV 720p capture mode: Horizontal field of view: 67°–36° Vertical field of view: 37°–20° Adjustable focus and zoom, fixed iris
Minimum illumination	Color: 0.3 lux, F2.0
Shutter time	720p: 1/28000 s to 2 s 1080p: 1/22500 s to 2 s
Video	
Video compression	H.264 (MPEG-4 Part 10/AVC) Baseline, Main and High Profiles Motion JPEG
Resolutions	4 x 1920x1080 (1080p) to 160x90 Quad view 1920x1440 to 480x270
Frame rate	25/30 fps (50/60 Hz) with 720p capture mode 12.5/15 fps (50/60 Hz) with 1080p capture mode
Video streaming	Multiple, individually configurable streams in H.264 and Motion JPEG Axis Zipstream technology in H.264 Controllable frame rate and bandwidth VBR/MBR H.264
Image settings	Color, brightness, sharpness, contrast, white balance, exposure control, exposure zone, fine tuning of behavior at low light, rotation: 0°, 90°, 180°, 270° including Corridor Format, text and image overlay, privacy mask, Local contrast
Camera angle adjustment	Pan ±90° Tilt 28°-92° Rotate ±90°
Network	
IP address	One IP address for all channels
Security	Password protection, IP address filtering, HTTPS ^a encryption, IEEE 802.1X ^a network access control, digest authentication, user access log, centralized certificate management
Supported protocols	IPv4/v6, HTTP, HTTPS ^a , SSL/TLS ^a , QoS Layer 3 DiffServ, FTP, CIFS/SMB, SMTP, Bonjour, UPnP TM , SNMP v1/v2c/v3 (MIB-II), DNS, DynDNS, NTP, RTSP, RTP, SFTP, TCP, UDP, IGMP, RTCP, ICMP, DHCP, ARP, SOCKS, SSH
System integra	tion
Application Programming Interface	Open API for software integration, including VAPIX® and AXIS Camera Application Platform; specifications at www.axis.com AXIS Video Hosting System (AVHS) with One-Click Connection ONVIF® Profile S and ONVIF® Profile G, specification at www.onvif.org
Analytics	Included AXIS Video Motion Detection, active tampering alarm Support for AXIS Camera Application Platform enabling installation of third-party applications, see www.axis.com/acap
Event triggers	Analytics, edge storage events
Event actions	Overlay text, pre- and post-alarm video buffering, video recording to edge storage, SNMP trap

	File upload: FTP, SFTP, HTTP, HTTPS network share and email Notification: email, HTTP, HTTPS and TCP
Data streaming	Event data
Built-in installation aids	Pixel counter
General	
Casing	IP66-, IP67-, NEMA 4X- and IK09-rated Die-casted aluminum, polycarbonate dome
Sustainability	PVC free
Memory	1 GB RAM, 256 MB Flash
Power	Power over Ethernet (PoE) IEEE 802.3af/802.3at Type 1 Class 2 Typical 4.8 W, max 5.5 W
Connectors	RJ45 10BASE-T/100BASE-TX PoE
Storage	Support for microSD/microSDHC/microSDXC card Support for SD card encryption Support for recording to network-attached storage (NAS) For SD card and NAS recommendations see www.axis.com
Operating conditions	-30 °C to 60 °C (-22 °F to 140 °F) Humidity 10–100% RH (condensing)
Storage conditions	-40 °C to 65 °C (-40 °F to 149 °F)
Approvals	EMC EN 55022 Class B, EN 61000-3-2, EN 61000-3-3, EN 55024, EN 61000-6-1, EN 61000-6-2, FCC Part 15 Subpart B Class A+B, ICES-003 Class B, VCCI Class B, RCM AS/NZS CISPR 22 Class B, KCC KN32 Class B, KN35, EN 50121-4, IEC 62236-4 Safety IEC/EN/UL 60950-1, IEC/EN/UL 60950-22 Environment IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-6, IEC 60068-2-14, IEC 60068-2-27, IEC/EN 62262 IK09, IEC/EN 60529 IP66/IP67, NEMA 250 Type 4X
Dimensions	Diameter: ø 270 mm (10 5/8 in), Height: 91.5 mm (3 5/8 in)
Weight	2.2 kg (4.9 lb)
Included accessories	RJ45 mounting tool, Installation Guide, Windows decoder 1-user license
Optional accessories	AXIS T8415 Wireless Installation Tool, AXIS T94M02D Pendant Kit including weather shield, AXIS P3707-PE Clear Dome Kit, AXIS T91 Mounting Accessories, AXIS T8120 15 W Midspan 1-port For more accessories, see <i>www.axis.com</i>
Video management software	AXIS Camera Companion, AXIS Camera Station, Video management software from Axis' Application Development Partners available on www.axis.com/techsup/software
Languages	English, German, French, Spanish, Italian, Russian, Simplified Chinese, Japanese, Korean, Portuguese, Traditional Chinese
Warranty	Axis 3-year warranty and AXIS Extended Warranty option, see www.axis.com/warranty

a. This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. (www.openssl.org), and cryptographic software written by Eric Young (eay@cryptsoft.com).

Environmental responsibility:

www.axis.com/environmental-responsibility







Simple.Scalable.Security[™]

SALIENT SYSTEMS

Salient Systems is a leading provider of network friendly video surveillance software and hybrid video management systems.

CompleteView video management software

- Comprehensive and Flexible
- Network Friendly
- Supports IP and Analog Cameras
- Open Architecture
- Easy to Install Easy to Learn Easy to Use
- Fully Scalable One Server to Multi-Site



Secure your investment. Secure your world.

CompleteView Video Management Software contains everything you need to enable and optimize your security system. CompleteView stands apart from traditional Video Management Systems by adding a suite of features to reduce bandwidth impact on the IP network and facilitate system administration.

CompleteView comes in three editions: ONE, Pro and Enterprise. CompleteView ONE has the full power of Pro and Enterprise editions but is designed for up to 25 cameras on a single server, at an attractive price. CompleteView Pro is a fully expandable Video Management Software platform providing support for unlimited cameras, users and servers. CompleteView Enterprise provides the full feature set and additional components such as Active Directory support.

CompleteView protects your investment. As your needs change and grow, the software can scale from ONE to Pro or Pro to Enterprise without losing your original investment. With support for analog and IP cameras, fixed or PTZ and a number of access control platforms, CompleteView is just that: Complete.

CompleteView



Comprehensive and Flexible

The CompleteView suite of applications provides everything you need to manage your single-server or multi-server enterprise video system from a single desktop, whether it's local or remote. Powerful Client Applications such as Video Client, Alarm Client, Web Client and Mapping Interface are included.

Video Client provides powerful live video viewing features, access to video recordings, maps and more. Access cameras across any number of servers and allow unlimited clients to be active simultaneously* to support multi-monitor display or populate a video wall. Display cameras simultaneously, tile cameras in any configuration or pre-define views. Sequence switching between multi-camera views and use Quick Review instant replay on any video source.

Alarm Client monitors only relevant security events to make the best use of monitoring resources and reduces operator fatigue. Video displays instantly on an event to catch the attention of the security operator. Live and recorded video can be displayed at the same time with full camera control.

Monitor video without installing software using CompleteView Web Interface client. **Web Client** allows anyone from any location to instantly monitor the security system. Allow first responders to view video in an emergency, display video at configurable frame



rates and resolutions, drag and drop cameras to customize view layouts and view up to 16 cameras simultaneously.

Utilizing CompleteView's **Mapping Client**, security system operators and law enforcement personnel are able to view camera placement on facility maps and see field of view information assigned to each camera. Icons are overlaid on imported map files so operators can gain an instant understanding of the security situation. Configurable cones show camera's field of view, direction and alarm or motion activity. Additionally, system operators are able to view live video on any camera from the mapping interface.

*Available in CompleteView Pro and Enterprise editions.



Network Connected, Standalone Hybrid System



CompleteView ONE System Architecture

CompleteView ONE supports a mix of analog and IP cameras for a true hybrid installation. Up to 16 analog cameras and a mix of standard resolution, Megapixel and High Definition IP cameras can record to the server.

CompleteView ONE supports up to 25 cameras on one server simultaneously. As the need for cameras grows, CompleteView ONE can be software upgraded to Pro or Enterprise.

Cameras can be viewed remotely with connections over a local IP network or the Internet. All client software applications are included and server settings can be managed locally or remotely.

CompleteView Pro & CompleteView Enterprise System Architecture

With CompleteView Pro and Enterprise all sites and cameras can be viewed simultaneously by security system operators. The software scales to any number of servers, clients and cameras system-wide. A mix of standard resolution, megapixel and PTZ cameras are supported.

A unique component of CompleteView Pro and Enterprise is **Admin Console** which offers multi-server management. Admin Console is used to manage all servers simultaneously. In the event of a problem with storage, cameras, or servers, the administrator can instantly see and proactively respond to troubleshoot issues. Administration and live viewing can be done from any workstation on the local network, or, if enabled can be accessed over the Internet.





CompleteView easily scales from a few cameras on one server to thousands of cameras on multiple servers.



A true hybrid system, CompleteView supports virtually all leading IP and analog cameras and encoder manufacturers.

More Facts & Features

Stable Recording Architecture ••• CompleteView is built from the ground up using a unique recording architecture. Many traditional Video Management Systems store all video, audio and associated meta data to a database file. In a Video management System, a power outage, hardware failure or other unexpected interruption of the applications can cause the database to become corrupted. If the repair fails, all video contained in the database is lost. CompleteView separates the video and stores it in a flat file structure, outside of its database, avoiding the potential of database corruption and long database rebuilds.

Alarm Console ••• Designed to display live video for active alarm conditions. Display up to 4 live video sources simultaneously, list up to 100 most recent alarms and do on-screen analysis of live video and archived event video concurrently.



Automated Attendant ••• The most advanced automatic control feature in CompleteView. When motion occurs on a fixed camera, that camera can automatically instruct a PTZ camera to move to a preset location. When motion occurs on multiple fixed cameras those cameras can control multiple PTZ cameras. The system has the ability to give 'high priority' status to important locations so a PTZ camera can hold the view even if motion is detected in lower priority locations. The flexibility of Automated Attendant gives you security coverage in multiple locations with multiple views.

Network Friendly ---- CompleteView was designed to 'play nice in the IT world'. It doesn't interfere with existing applications, out of band management tools, anti-virus software or firewalls. Special features have been added to minimize the footprint of digital video on your network and reduce the bandwidth consumed by remote users.



CompleteView includes **Dynamic Resolution Scaling**, a powerful feature to manage bandwidth and network resources. Video is always recorded at the preconfigured resolution on the CompleteView Server. If video is displayed in the CompleteView Video Client at a small size, the CompleteView Server will send a lower resolution copy of the video stream to reduce bandwidth consumption. When video is displayed at a larger size on the CompleteView Video Client, video is automatically streamed at the higher resolution for high quality display.

CompleteView

Active Directory Integration

CompleteView Enterprise supports Active Directory users and groups which can be imported into CompleteView and configured with security system specific permissions. AD Integration avoids duplicate entry of user information and supports a single set of credentials for both network and security system access.



SmartSearch Instantaneous retrieval of archived video from any camera or server by time, date or motion events. Missing personal items, equipment or corporate assets? Choose a date and time, highlight any location in the cameras' view and let CompleteView do the rest. All motion in the highlighted area will be identified for viewing. Slow the video down,

speed it up, see it frame by frame or create an AVI file for viewing on any PC.

Multi Compression Support: Motion JPEG, MPEG4 & H.264

CompleteView's recording engine supports Motion JPEG, MPEG4 and H.264 compression. Supported formats allow for live view, recording and playback in all major non-proprietary compression formats.

- Recording, Live View & Playback of Motion JPEG, MPEG4 & H.264*
- Optionally transcode between compression formats for reduced storage cost
- Supports native compression from IP Cameras without transcoding
- Different compression formats can be used for recording and live view
- *available on all analog and select IP Cameras

CompleteView Config Server

Config Server is an optionally installable component of CompleteView Pro and Enterprise which allows for centralized storage of client configuration. Config Server allows users to log into any workstation or monitoring center and maintain their configured views, camera access and other settings. For security operations with multiple monitoring centers this can be an especially useful tool for scheduling guards at different stations. Security does not have to be sacrificed in situations where a user without access to certain cameras needs to log into the security system from a workstation configured to access normally unauthorized cameras and views.

Config Server also allows the administrators to centrally distribute new client software releases. When new versions of CompleteView client applications become available, the administrator can push the new release to the Config Server. The next time a client logs in, the user is prompted to upgrade with no further administrator intervention.



Simple.Scalable.Security[™]

Lower Total Cost of Ownership

Dramatically lower your total cost of ownership. CompleteView enables you to implement a comprehensive video management strategy and cut the costs of managing your enterprise.

Open Architecture, IP or Analog cameras & Acess Control supported

CompleteView takes the complexity out of designing and implementing your surveillance system by supporting differing camera technologies in a seamless manner. Enhance your security by integrating video and access control with a number of supported access control products. A true hybrid system with seamless integration of analog and IP technologies, CompleteView supports virtually all leading IP, analog and encoder manufacturers, allowing you to choose from a wide variety. Flexible Purchase and Delivery CompleteView can be delivered in three ways: Pre-installed on Salient Systems' purpose-built workstations and servers. Pre-installed on tier one industry standard platforms such as Dell, HP or other leading hardware vendors. Available as software only. Easy Installation Lower your manpower costs with CompleteView integrated systems pre-loaded with application software and documentation. An intuitive user interface guides users through set-up, log on and camera viewing. Full documentation is shipped with each system or copy of software. Pain Free Licensing Camera licenses can be transferred from one system to another and replaced with identical units, different models, or with a camera from a completely different manufacturer - all without extra license costs or penalties. **Worldwide Enterprise Capability**



Your choice is complete. CompleteView



Salient Systems Corporation Austin, Texas (512) 617-4800 www.salientsys.com



Simple.Scalable.Security[™]



Model #: SU3000RTXL3U

SmartOnline 3kVA On-Line Double-Conversion UPS, 3U Rack/Tower, 110/120V NEMA outlets



Highlights

- 3000VA / 3kVA / 2400 watt on-line double-conversion 3U rack/tower UPS
- 110/120V +/-2% output at 50/60Hz, high efficiency economy mode option
- Expandable runtime, Hot-swappable battery modules
- USB, RS232 & EPO ports; support for SNMP/WEB card options
- Front panel status LEDs with detailed load and battery metering
- 2 independently switchable output load banks
- NEMA L5-30P input; L5-30R, 5-15/20R & 5-15R outlets

Description

3000VA on-line, double-conversion UPS system for critical server, network and telecommunications equipment. 3U rackmount form factor with an installed depth of 26 inches. Expandable battery runtime with optional BP72V15-2U (limit 1) and BP72V28RT-3U (multi-pack compatible) external battery packs. Full time sine wave 110 or 120V output with +/-2% voltage regulation. Online, double-conversion Uninterruptible Power Supply (UPS) actively converts raw incoming AC power to DC, then re-converts output back to completely regulated, filtered AC output. Operates continuously without using battery power during brownouts to 65V and overvoltages to 150V. Highly efficient operation in optional economy mode saves BTU heat output and energy costs. NEMA L5-30P input plug. NEMA 5-15, NEMA 5-15/20R and NEMA L5-30R output receptacles. Network-grade AC surge and noise suppression. Zero transfer time between AC and battery operation. Network management interfaces support simultaneous communications via USB port, DB9 serial port and SNMPWEBCARD slot. Built-in DB9 port offers both enhanced RS-232 enabled monitoring data, plus contact closure monitoring ability. HID-compliant USB interface enables integration with built-in power management and auto shutdown features of Windows and Mac OS X. Supports simultaneous detailed monitoring of equipment load levels, self-test data and utility power conditions via all 3 network interfaces. Includes PowerAlert monitoring software and complete cabling. Emergency Power Off (EPO) interface. Integrated two-bank PDU switching supports load shedding and remote reboot of connected equipment. 3-stage metered current monitoring and battery charge status LEDs. LED display panel easily rotates for viewing in rackmount or tower configurations. Dataline surge suppression for dialup, DSL or network Ethernet connection. Utility power and voltage regulation LEDs. Audible alarm. Self-test. Fault-tolerant auto-bypass mode. 4-post rackmount accessories included; 2-9USTAND tower kit and 2POSTRMKITWM 2-post rackmount accessories available. Field-replaceable, hot-swappable internal batteries and external battery packs. Attractive all-black color scheme. 2-year warranty and \$250,000connected equipment insurance; extended warranty and service contracts available.

Package Includes

- SU3000RTXL3U UPS System
- PowerAlert Software and Cabling
- Mounting hardware for 4 post rack enclosures
- Instruction manual

Features

- SmartOnline high performance UPS system is ideal for critical voice, data, medical and industrial network applications
- True on-line, double-conversion UPS provides perfectly regulated sine wave output within 2% of 110/120V (user selectable) under all usage

conditions

- Maintains continuous operation through blackouts, voltage fluctuations and surges with zero transfer time
- Highly efficient operation in optional economy mode setting, saving BTU heat output and energy costs
- Removes harmonic distortion, fast electrical impulses, frequency variations and other hard to solve power problems not addressed by other UPS types
- Corrects line voltage conditions as low as 65V and as high as 150V back to selectable 110/120V (+/-2%) values
- Standard internal battery set offers 14 minutes runtime at half load (1200W) and 5 minutes at full load (2400W)
- Expandable battery runtime with optional BP72V15-2U (limit 1) and BP72V28RT-3U (no limit) external battery packs
- Compact rackmount form factor installs using only 3 rack spaces (3U) with a maximum installed depth of 26 inches
- Ships with all mounting accessories for 4 post rackmount installation
- Optional 2POSTRMKITWM enables 2 post rackmount installation (not wallmount compatible)
- Optional 2-9USTAND accessory enables small-footprint upright tower placement
- Fault tolerant electronic bypass maintains utility output during a variety of UPS fault conditions
- Network interfaces support simultaneous communications via built-in USB, DB9 serial / contact-closure and SNMPWEBCARD slot
- HID compliant USB interface enables integration with built-in power management and auto shutdown features of Windows and Mac OS X
- Included PowerAlert UPS monitoring software supports safe unattended shutdown, monitoring and control via local connected servers, plus any number of additional servers over IP
- UPS interface supports on-battery, low-battery, power-restored, AC-voltage, DC-voltage, output current monitoring, battery charge current, battery capacity, AC line frequency, timed inverter shutoff, activate self-test, load bank output power control and remote reboot, UPS nominal voltage adjustment and UPS line to battery power voltage setpoints
- Built-in Emergency Power Off (EPO) interface with cable
- NEMA L5-30P input plug; NEMA 5-15/20R & L5-30R output receptacles
- Integrated 2 bank switched PDU enables remote outlet management for load shedding or remote reboot of individual load banks (each bank has four outlets)
- Front panel LEDs offer current monitoring and battery charge level information
- UPS ships fully assembled in full compliance with DOT regulations; no time consuming connection of internal batteries by user required
- Single line TEL/DSL or network ethernet line surge suppression
- 2 year manufacturer's product warranty, \$250,000 Ultimate Lifetime Insurance

Specifications

OUTPUT		
Output Volt Amp Capacity (VA)	3000	
Output kVA capacity (kVA)	3	
Output Watt Capacity (watts)	2400	
Output kW capacity	2.4	
Output power factor	0.8	
Crest Factor	3:1	
Nominal Output Voltage(s) Supported	110V; 120V	
Nominal Voltage details	120V default	
Frequency compatibility	50 / 60 Hz	
Frequency compatibility details	Output frequency matches input nominal on startup, defaults to 60 Hz on cold-start	
Output voltage regulation (line mode)	+/- 2%	
Output voltage regulation (Economy line mode)	+/- 10%	
---	--	
Output voltage regulation (Battery mode)	+/- 2%	
Built-in UPS output receptacles	4 5-15R outlet(s); 4 5-15/20R outlet(s); 1 L5-30R outlet(s)	
Built-in controllable switched load banks	Two switchable four-outlet load banks, (bank 1 - four 5-15/20R, bank 2 - four 5-15R outlets)	
Output circuit breaker	15A branch rated (x2) - each breaker protects 4 outlets, L5-30R is unbreakered	
Output AC waveform (AC mode)	Sine wave	
Output AC waveform (battery mode)	Pure Sine wave	
INPUT		
Rated input current (at maximum load)	24A	
Nominal Input Voltage(s) Supported	110V AC; 120V AC	
UPS input connection type	L5-30P	
Input circuit breaker	40A	
UPS Input cord length (ft.)	10	
UPS Input cord length (m)	3	
Recommended Electrical Service	30A 120V	
BATTERY		
Full load runtime (minutes)	5 min. (2400w)	
Half load runtime (minutes)	14 min. (1200w)	
Expandable battery runtime	Supports extended runtime with optional external battery packs	
External battery pack compatibility	BP72V15-2U (limit 1); BP72V28RT-3U (multi-pack compatible)	
DC system voltage (VDC)	72	
Battery recharge rate (included batteries)	Less than 6 hours from 10% to 80%	
Replacement battery cartridge (internal UPS battery replacement)	RBC96-3U (quantity 1)	
Battery Access	Front panel battery access door	

Battery replacement description	Hot-swappable, user replaceable batteries
VOLTAGE REGULATION	4
Voltage regulation description	Online, double-conversion power conditioning
Overvoltage correction	2% output voltage regulation during overvoltages to 150
Undervoltage correction	2% output voltage regulation during undervoltages to 80
Severe undervoltage correction	2% output voltage regulation during undervoltages to 65 (under 70% load only)
LEDS ALARMS & SWITC	CHES
LED Indicators	14 LEDs indicate line power, online mode, economy/bypass mode, on-battery, overload, battery low, replace battery and fault status information; 4-LED meter displays load and battery charge levels; LED panel rotates for viewing in rack/tower formats
Alarms	Audible alarm indicates UPS startup, power-failure, low-battery, overload, UPS fault and remote shutdown conditions
Alarm cancel operation	Power-fail alarm can be silenced using alarm-cancel switch
Switches	2 switches control off/on power status and alarm-cancel/self-test operation
SURGE / NOISE SUPPR	ESSION
UPS AC suppression joule rating	510
UPS AC suppression response time	Instantaneous
UPS Dataline suppression	1 line TEL/DSL (1 in / 1 out); 10/100Base T Ethernet
EMI / RFI AC noise suppression	Yes
PHYSICAL	
Installation form factors supported with included accessories	4 post 19 inch rackmount (mounting rail kit included)
Installation form factors supported with optional accessories	2 post rackmount (2POSTRMKITWM); Tower (2-9USTAND)
Optional mounting accessory notes	Wallmount installation not recommended
Primary form factor	Rackmount
UPS / Power Module dimensions in primary form factor (height x width x depth / inches)	5.2 x 17.8 x 26
UPS / Power Module dimensions in primary form factor (height x width x depth / cm)	13.3 x 45.1 x 66

Installed whole system total rack space height (rack spaces)	3U
Secondary form factor	Tower (requires 2-9USTAND)
UPS / Power Module weight (lbs)	73.8
UPS / Power Module weight (kg)	33.5
UPS Shipping dimensions (height x width x depth / inches)	11.2 x 23 x 31.5
UPS Shipping dimensions (height x width x depth / cm)	28.6 x 58.4 x 80
Shipping weight (lbs)	112.4
Shipping weight (kg)	51
UPS housing material	Steel
Cooling method	Fan
ENVIRONMENTAL	
Operating Temperature Range	+32 to +104 degrees Fahrenheit / 0 to +40 degrees Celsius
Storage Temperature Range	+5 to +122 degrees Fahrenheit / -15 to +50 degrees Celsius
Relative Humidity	0 to 95%, non-condensing
AC mode BTU / hr. (full load)	1112.7
AC economy mode BTU / hr. (full load)	520.9
Battery mode BTU / hr. (full load)	1219.3
AC economy mode efficiency rating (100% load)	94%
COMMUNICATIONS	
Communications interface	USB (HID enabled); DB9 Serial; Contact closure; EPO (emergency power off); Slot for SNMP/Web interface
Network monitoring port description	Supports detailed monitoring of UPS and site power conditions; DB9 port supports RS232 and contact closure communications
PowerAlert software	Included
Communications cable	USB and DB9 cabling included
WatchDog compatibility	Supports Watchdog application, OS and hard-reboot restart options for remote applications
LINE / BATTERY TRANS	FER
Transfer time	No transfer time (0 ms.) in online, double-conversion mode

Low voltage transfer to battery power (setpoint)	80V (100% load), 65V (
High voltage transfer to battery power (setpoint)	150
SPECIAL FEATURES	
Cold Start (startup in battery mode during a power failure)	Cold-start operation supported
High availability UPS features	Automatic inverter bypass; Hot swappable batteries
Green & high efficiency features	High efficiency economy mode operation; Individually controllable load banks; Schedulable daily hours of economy mode operation
CERTIFICATIONS	
UPS Certifications	Tested to UL1778 (USA); Tested to CSA (Canada); Tested to NOM (Mexico); Meets FCC Part 15 Category A (EMI)
WARRANTY	
Product Warranty Period (U.S., Canada & Puerto Rico)	2-year limited warranty
Connected Equipment Insurance (U.S., Canada & Puerto Rico)	\$250,000 Ultimate Lifetime Insurance

Related Items

Optional Products

Product Type	Related Model	Description	Qty.
SNMP Accessories	SNMPWEBCARD	For remote monitoring and control via SNMP, Web, or Telnet.	-
SNMP Accessories	ENVIROSENSE	Monitors temperature, humidity and contact-closure inputs. (Requires SNMPWEBCARD or switched PDU.)	-
UPS Accessories	RELAYIOCARD	Programmable Relay I/O Card	-
UPS Accessories	MODBUSCARD	For remote monitoring and control via MODBUS protocol	-
Shutdown Cable Kits	AS400CABLE KIT	Power Management Tools - UPS Communication Cable Kit for System i / AS400 / iSeries Servers	-
Tower Stands	2-9USTAND	Enables Tower Placement of Rackmount UPS Systems	-
Rackmount/Wallmount Kits	2POSTRMKITHD	Enables 2-Post Rackmount Installation of 3U and Larger UPS, Transformer and Battery Pack Components	-
External Battery Packs	BP72V15-2U	BP72V15-2U - External Battery Pack for UPS System	-
External Battery Packs	BP72V28RT-3U	BP72V28RT-3U - External Battery Pack for UPS System	-
Extended Warranties	WEXT3-2200-3000	3-Year Extended Warranty - For Smart Line-Interactive and Online Tower or Rack models, 2200-3000VA	-
Extended Warranties	WEXT5-2200-3000	5-Year Extended Warranty - For Smart Line-Interactive and Online Tower or Rack models, 2200-3000VA or less	-
Power Distribution	PDUB30	Dual source Power Distribution Unit / PDU with Manual Transfer Switch enables Hot-swappable UPS Replacement in Critical Network Applications	-
Power Distribution	PDU2430	Basic PDU / Power Distribution Unit - Safe, reliable power distribution for critical networking equipment	-

Power Distribution	PDUMV30	Metered 0U Vertical Rack PDU - Metered Power Distribution Unit for Network Applications	-
Power Distribution	PDUMV30NET	Switched, Metered PDU with Remote Monitoring - 0U Vertical Rackmount Power Distribution Unit for Networks with Individually Switchable Outlets, Current Metering, Remote Monitoring and Control	-
Power Distribution	PDUMH30NET	Switched, Metered PDU with Remote Monitoring - 2U Rackmount Power Distribution Unit for Networks with Individually Switchable Outlets, Current Metering, Remote Monitoring and Control	-
Power Distribution	PDUMNV30	Monitored PDU / Power Distribution Unit supports real-time remote monitoring of load level, voltage and frequency with options for remote environmental and security monitoring	-
Power Cables	P043-002	2-ft. 10AWG Heavy Duty Power Cord with 20 AMP Breaker, (NEMA L5-30P to NEMA L5-20R)	-
Power Distribution	P044-06I	6-inch 12AWG Heavy Duty Power Adapter cord (NEMA-L5-20R to NEMA-5-20P)	-
Power Distribution	P049-010	10-ft. 12AWG Heavy Duty Power cord (IEC-320-C19 to NEMA 5-20P)	-

More information, including related products, owner's manuals, and additional technical specifications, can be found online at www.tripplite.com/en/products/model.cfm?txtModeIID=3023.

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WCS Series Power Supply 24 VAC POWER SUPPLY, OUTDOOR

Product Features

- 4 A or 20 A Capacities
- 1-4 Outputs
- Selectable Input Voltage
- 24 VAC Output or 28 VAC Output for Longer Wire Runs
- Meets NEMA Type 4X/IP66 Standards for Weatherproof Enclosure
- AC Power Indicator with Power On/Off Switch
- Compatible with Cameras, Domes, and Pan/Tilts
- WCS4-20B Has Class 2 Rated Outputs

Power supplies in the **WCS Series** offer a variety of configurations for powering up to four outdoor units from a single power source.

The power supplies provide 24 VAC output for 1–4 units, depending on the model selected. To compensate for voltage losses over long wire runs, 28 VAC outputs are available on all models. The input voltage of all models is also selectable.

For integrated systems such as Spectra[®] and Esprit[®], the power supplies are capable of handling pan/tilt, heater, and blower operation in addition to the camera.

The **WCS1-4** has one fused output and is capable of handling up to 4 A (100 VA) of total load. The WCS4-20 has four fused outputs and is capable of handling up to 20 A (480 VA) of total load. The **WCS4-20B** has four protected outputs with self-resetting circuit breakers and is capable of handling up to 12 A (288 VA) of total load. Fuses provide a greater degree of protection for the unit because they are faster acting and more precise. Circuit breakers will self-reset when the fault is corrected, eliminating the need for replacing fuses. However, the amount of current required to trip a circuit breaker can vary as much as 100 percent, depending on temperature. In the fused models, the values of fuses can be changed depending upon the specific current requirements of the equipment connected.



WCS4-20/WCS4-20B





International Standards Organization Registered Firm; ISO 9001 Quality System C654 / REVISED 11-4-10

TECHNICAL SPECIFICATIONS

MODELS

WCS1-4	Outdoor camera power supply, 100/120/240 VAC input. One 24/26/28 VAC output, total current capacity of 4 A (100 VA).
WCS4-20	Outdoor multiple camera power supply, 120/240 VAC input. Four fused 24/28 VAC outputs, total current capacity of 20 A (480 VA).
WCS4-20B	Outdoor multiple camera power supply, 120/240 VAC input. Four protected 24/28 VAC outputs, total current capacity of 12 A (288 VA) with circuit breakers.

Product Capacity Chart

A partial list of compatible products and the number of units that may be powered by each power supply are listed below. Capacity is based on the VA rating of each product to be used with the power supply.

	Power Supply Model				
Product	WCS1-4 (100 VA)	WCS4-20 (480 VA)	WCS4-20B (288 VA)		
CCD Camera (12 VA max)	1	4	4		
Indoor Spectra (25 VA)	1	4	4		
Outdoor Spectra (70 VA)	1	4	4		
Outdoor DF5 (62 VA)	1	4	4		
Esprit (70 VA)	1	4	4		

MECHANICAL

Cable Entry Latch

ELECTRICAL

Input Voltage WCS1-4 WCS4-20/WCS4-20B **Output Voltage** WCS1-4 WCS4-20, WCS4-20B Required Input Current WCS1-4 WCS4-20/WCS4-20B **Output Fuse Ratings** WCS1-4 WCS4-20 **Output Circuit Breaker Ratings** WCS4-20B Input Connectors Output Connectors

Input Wire Size Output Wire Size WCS1-4 WCS4-20/-20B

GENERAL

Environment Operating Range Construction Finish Weight WCS1-4 WCS4-20/4-20B Stainless steel link-lock latch; can be secured with padlock (not supplied)

Hole plugs for 0.75-inch (1.9 cm) conduit

100/120/240 VAC, 50/60 Hz 120 or 240 VAC, 50/60 Hz 24/26/28 VAC

24/28 VAC

1 A 4.40/2.30 A

4 A* 8 A* 3A* Screw-type barrier strips Screw-type barrier strips; WCS4-20B is suitable for Class 2 wiring

12–16 gauge solid wire 16–20 gauge solid or stranded wire

16–22 gauge solid or stranded wire

Outdoor –50° to 122°F (–45.56° to 50°C) Aluminum Gray polyester powder coat Unit Shinping

Gray polyester powder coat				
Unit	Shipping			
6.8 lb (3.1 kg)	8 lb (3.6 kg)			
16.2 lb (7.3 kg)	18 lb (8.1 kg)			

*Individual output cannot exceed this rating, and the total of all outputs cannot exceed the overall rating of the power supply (refer to *Models*).

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NOTE: VALUES IN PARENTHESES ARE CENTIMETERS; ALL OTHERS ARE INCHES.

The following are the recommended maximum distances (transformer to load) and are calculated with a 10 percent voltage drop. (Ten percent is generally the maximum allowable voltage drop for AC-powered devices.) Distances are calculated in feet; values in parentheses are meters.

Recommended Wiring Distance Chart

Innut	Wire Gauge						
Voltage	Consumed	20 A (0.5)	WG mm²)	18 A (1.0	WG mm²)	16 A (1.5	WG mm²)
24 VAC	25	113	(34)	180	(55)	287	(87)
	50	56	(17)	90	(27)	143	(43)
	70	41	(12)	64	(19)	102	(31)
26 VAC	25	133	(40)	212	(64)	337	(103)
	50	66	(20)	105	(32)	168	(51)
	70	49	(15)	78	(24)	124	(38)
28 VAC	25	155	(47)	246	(75)	392	(119)
	50	77	(23)	122	(37)	195	(59)
	70	55	(17)	88	(27)	135	(41)

CERTIFICATIONS/RATINGS

• CE

• UL/cUL Listed

• Meets NEMA Type 4X and IP66 standards

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DTK-DP4P Series



Pan/Tilt/Zoom Camera Surge Protector General Product Specifications

DITEK's DP4P protects <u>all</u> the sensitive feeds to critical Pan/Tilt/Zoom cameras, not just the video cable. Simple to install, the DP4P protects 24 Volt power conductors, 5 Volt RS-422 data pairs, and video conductors – all in one compact package. With the lowest video let through voltage (and best surge protection) on the market, the DP4P provides ideal surge protection for today's sensitive, sophisticated PTZ cameras. Three different DP4P models protect coaxial, twisted pair, or Balun video circuits. The DP4PBP includes passive Balun conversion.



<u>DTK-DP4P</u> <u>DTK-DP4PBP</u> <u>DTK-DP4PTPV</u>

Product Features

- Protects power, video and four data conductors in one package
- 5 Amp, 24V circuit protects power feeds to camera, heater, blower, defroster
- Multi-stage, SAD technology, hybrid design provides the best possible protection
- Single point ground improves protection and speeds installation
- Protect standard Coax (DP4P), Balun (DP4P BP), or Twisted Pair (DP4PTPV) video connections
- Ten Year Limited Warranty



Product Selector

- Coax connected PTZ camera: DTK-DP4P
- Balun connected PTZ camera: DTK-DP4PBP
- Twisted pair video PTZ camera: DTK-DP4PTPV



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DTK-MRJ45C5E



Gigabit Ethernet Surge Protection General Product Specifications

DITEK's MRJ45C5E protects the data lines to vital business equipment. Its low voltage clamping protects sensitive 5 Volt data circuits. All four pairs are protected. The MRJ45C5E is suitable for use on data networks, network appliances, IP Video cameras, Point of Sale terminals, DSL lines, and any other piece of networked equipment.



DTK-MRJ45C5E

Product Features

- Protects all four pairs
- RJ45 connection with external grounding screw
- Multi-stage, SAD technology, hybrid design provides the best possible protection
- Conforms to EIA/TIA standards for data transmission
- Automatically resets to protect against multiple surges

Specifications

Standards Compliance: EIA/TIA568A, EIA/TIA568B Connection Method: RJ45 In/Out, 8 pins Data rate: Gigabit Ethernet (using all four pairs) Service Voltage: <5V MCOV: 6.5V Surge Current Capacity: 268 A/pair (10/1000µs impulse) Max Continuous Current: 0.3A Attenuation: -1dB per pair (maximum) Near End Crosstalk: -39.3dB per pair (maximum) Protection Modes: Line-Ground (All) Operating Temperature: -40°F - 158°F (-40°C - 70°C) Maximum Humidity: 95% non-condensing Dimensions: 1.7" x 3.0" x 1.2" (43mm x 76mm x 30mm) Weight: 4oz (113g) Housing: ABS Warranty: Ten Year Limited Warranty

Options & Complementary Products

- DTK-MRJ45C5EGP RJ45 surge protector with receptacle ground pin, Gigabit Ethernet data rate
- •DTK-MRJ45DSL Business or Residential DSL line protection. Specifications are same as the DTK-MRJ45C5E with the following exceptions:
 - Service Voltage: <105V
 - MCOV: 150V
 - Surge Current Capacity: 100 A/pair
 - Max Continuous Current: N/A
- DTK-RM12C5 Gigabit Ethernet, 12-port 110 In/RJ45 Out, 1U rack mount surge protector
- DTK-RM16C5 Gigabit Ethernet, 16-port RJ45 In/Out, 2U rack mount surge protector



1-800-753-2345 Direct: 727-812-5000 Technical Support: 1-888-472-6100 www.ditekcorp.com Doc. Number: SPS-100042-003 Rev 7 02-11 ©2011 DITEK Corp. Specification Subject to Change



AXIS 2430 Blade Video Server

Full frame rate, high-density video encoder.



DATASHEET

- > Full frame rate
- > High-quality, de-interlaced video
- Simultaneous
 MPEG-4 and
 Motion JPEG
- > Video motion detection and pre-/post-alarm buffer
- > Support for PTZ and dome cameras

AXIS 243Q Blade Video Server is a high performance, four-channel video encoder blade enabling four analog cameras to be integrated into an IP-based video surveillance system. The video encoder is the ideal choice for casinos, airports, traffic surveillance and prisons — where the advantages of networked video are required as added benefits to analog surveillance systems.

AXIS 2430 Blade Video Server enables high resolution, full frame rate video surveillance and remote monitoring in MPEG-4 or Motion JPEG on all four channels. The video encoder converts analog video into high quality, de-interlaced digital video, and can deliver the highest resolution, 4CIF, at 30/25 (NTSC/PAL) frames per second.

AXIS 2430 Blade Video Server in combination with Axis video encoder racks are specially made for applications involving a large number of cameras. Axis video encoder rack offers flexibility and support for an expanding video surveillance system.

Offering high-resolution professional video surveillance and remote monitoring, the AXIS 243Q Blade offers a number of advanced features, such as video motion detection, active tampering alarm, and alarm buffering. Pre- and post-image alarm buffering secures images just before and after an alarm.

AXIS 243Q Blade Video Server connects to all leading brands of video analog pan/tilt/zoom (PTZ) cameras to allow for easy operation of these PTZ cameras across the IP network.

Technical specifications – AXIS 243Q Blade Video Server

Video encoder

Models	AXIS 243Q Blade Video Server Requires Axis video encoder rack
Video compression	MPEG-4 Part 2 (ISO/IEC 14496-2) Motion JPEG
Resolutions	704x576 to 160x120
Frame rate MPEG-4	Up to 30/25 (NTSC/PAL) per channel in all resolutions
Frame rate Motion JPEG	Up to 30/25 (NTSC/PAL) per channel in all resolutions
Video streaming	Simultaneous MPEG-4 and Motion JPEG Controllable frame rate and bandwidth VBR/CBR MPEG-4
lmage settings	Compression, color Rotation: 90°, 180°, 270° Aspect ratio correction Text and image overlay Privacy mask Deinterlace filter
Network	
Security	Password protection, IP address filtering, HTTPS encryption, IEEE 802.1X network access control
Supported protocols	IPv4/v6, HTTP, HTTPS, QoS layer 3 DiffServ, FTP, SMTP, Bonjour, UPnP, SNMPv1/v2c/v3(MIB-II), DNS, DynDNS, NTP, RTSP, RTP, TCP, UDP, IGMP, RTCP, ICMP, DHCP, ARP, SOCKS

More information is available at www.axis.com

System integratio	n
Application Programming Interface	Open API for software integration, including VAPIX® from Axis Communications available at www.axis.com
Intelligent video	Video motion detection, active tampering alarm
Alarm triggers	Intelligent video, external inputs, video loss, on boot, PTZ preset
Alarm events	File upload via FTP, HTTP and email Notification via email, HTTP and TCP External output activation
Video buffer	9 MB pre- and post-alarm per channel
Pan/Tilt/Zoom	Wide range of analog PTZ cameras supported (drivers available for download at www.axis.com) 20 presets/camera, guard tour, PTZ control queue Supports Windows compatible joysticks
General	
Processor and memory	4x ETRAX 100LX, 4x ARTPEC-2, 4x 32 MB RAM, 4x 8 MB Flash
Power	Powered from AXIS 291 1U Video Server Rack or AXIS Q7900 Rack
Connectors	4 analog composite video BNC input, NTSC/PAL auto-sensing RJ-45 10BASE-T/100BASE-TX Terminal block for 4 inputs, 4 outputs and RS-485 half duplex
Operating conditions	0 – 45 °C (32 – 113 °F) Humidity 20 – 80% RH (non-condensing)
Approvals	EN 61000-6-1, EN 61000-6-2, EN 55024, EN 55022 Class B, EN 61000-3-2, EN 61000-3-3, FCC Part 15 Subpart B Class B, AS/NZS CISPR 22, ICES-003, VCCI Class B, ITE, UL EN 60950-1
Weight	270 g (0.6 lbs)
Included accessories	Installation Guide, CD with installation and management tools, software and User's Manual, 1 Windows decoder user license



Required hardware

AXIS Q7900 Rack



AXIS 291 1U Video Server Rack



Optional accessories

AXIS T8310 Video Surveillance Control Board





For information on AXIS Camera Station and video management software from Axis' Application Development Partners, see www.axis.com/products/video/software/



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AXIS 291 1U Video Server Rack

Full frame rate, high-density video encoder rack solution.



AXIS 291 1U Video Server Rack is a high-density solution for seamless and professional installation of video encoders. AXIS 291 1U is designed for expanding applications and is ideal for airports, hotels and train stations – premises where analog cameras are already installed.

AXIS 291 1U Video Server Rack combines high reliability and functionality with quick, flexible and professional installation. The rack is designed to migrate from 4 to 18 analog cameras into high performance, IP-based, digital solutions, using only one Ethernet port.

AXIS 291 1U is designed for applications that need to be able to expand, not only by adding more channels, but also by using different types of cameras.

AXIS 291 1U is a 19" video encoder rack that holds up to 3 interchangeable and hot-swappable blades. Together with the video encoder blades, this rack provides MPEG-4 and Motion JPEG video at 25/30 frames per second at up to 4CIF resolution on all channels simultaneously. AXIS 291 1U can also provide H.264, dependent on the blade version.

The video encoder enables pan/tilt/zoom control over the network of all leading brands of analog video cameras on the market.



- > 1U 19" industry standard rack
- > 3 expansion slots for video encoder blades
- > Built-in universal power supply
- > Compatible with all Axis Blades



Technical specifications – AXIS 291 1U Video Server Rack

291 1U Video encoder rack		
Expansion slots	3 slots for Axis video encoder blades	
Casing	Metal casing for standalone or rack mounting	
Power	100 – 240 V AC, 1.9 A max 80 W (with 3x243Q)	
Connectors	Ethernet 10BASE-T/100BASE-TX/1000BASE-T, RJ-45 (Gigabit Ethernet) 3 terminal blocks: 4 alarm inputs 4 outputs RS-485/422 half-duplex	

Operating conditions	0 – 45 °C (32 – 113 °F) Humidity 20 – 80% RH (non-condensing)		
Approvals	EN 55022 Class B, EN 61000-3-2, EN 61000-3-3, EN 55024, EN 61000-6-1, EN 61000-6-2, FCC Part 15 Subpart B Class B, VCCI Class B, AS/NZ CISPR 22, ICES-003, ITE, UL, cUL, EN 60950-1, CB-certificate, KTL		
Weight	3.7 kg (8.2 lbs) excluding blades		
Included accessories	Installation Guide, mounting kit, AC power cable		

More information is available at www.axis.com

Compatible video encoder blades						
Blade	No. of channels	Video compression*	Frames per second in max. resolution	External inputs/outputs	PTZ support	
AXIS Q7406		H.264	Multiple streams	8		
	6	Motion JPEG	at 30/25 in D1 per channel	configurable	•	
AXIS 2430		MPEG-4	30/25 in 4CIF per channel	414		
	4	Motion JPEG		4/4	•	
AXIS 2410		MPEG-4	21/17 in 4CIF using 1 channel, 20/17 in CIF per channel using 4 channels	414	_	
	4	Motion JPEG	30/25 in 4CIF using 1 channel, 30/25 in CIF per channel using 4 channels	4/4	·	
AXIS 240Q	4	Motion JPEG	6/5 in 4CIF per channel	4/4	•	
AXIS 241S	415 1	MPEG-4	21/17 in 4CIF, 30/25 in 2CIF	A A		
		Motion JPEG	30/25 in 4CIF	4/4	•	

*H.264 is also known as MPEG-4 Part 10/AVC. In the table, MPEG-4 refers to MPEG-4 Part 2.





44 mm (1.8")

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DSC POWERSERIES CONTROL PANELS v4.2



DSC is a recognized leader in the design and manufacturing of reliable, feature-rich intrusion alarm control panels that easily integrate with an array of alarm communicators, verification modules and cabling solutions. From their clean unobtrusive look to their advanced technologies, DSC panels are a favorite of both users and installers.

ENHANCE YOUR CUSTOMERS' EXPERIENCE WITH THE NEW, EASY-TO-INSTALL POWERSERIES[™] V4.2 FROM DSC

New PowerSeries v4.2 control panels from DSC make installation easy, simple and fast. They feature template programming for new users and a programming interface that experts will be familiar with. This product also features independent end-ofline (EOL) configuration that makes installation faster than ever before. Each zone can be independently matched to a devices EOL configuration, reducing the time required to get a common EOL configuration across all devices.

PowerSeries v4.2 gives the user more control, thereby enhancing the functional experience. The user can Arm Away, Arm Stay or Disarm all partitions with just one operation. If you're worried about scalability, don't be. PowerSeries v4.2 doubles the supported wireless zones on the PC1616 which allows up to 32 wireless zones.

PowerSeries v4.2 has been designed with commercial applications in mind. Featuring additional user codes, global arming and disarming, and scheduled auto arming and disarming, DSC control panels are the preferred choice of installers.





DSC POWERSERIES CONTROL PANELS V4.2

PowerSeries[™] control panels have a proven reputation for providing the value and dependability that security professionals expect. The modular design of PowerSeries control panels provides both versatility and flexibility in any application, from small residential to medium-sized commercial. Packed with features, they are easy to install, easy to program and easy to use.

New Features of the PowerSeries v4.2

- Up to 3 Times More User Codes
 - PC1616 increases from 32 to 48
 - PC1832 increases from 32 to 72
- PC1864 increases from 32 to 95
- Duress and Supervisory Code Attributes
- Template Programming
- PC1616 Supports 32 Wireless Zones
- Auto Connect PC-Link
- Automatic Arm/Disarm
- Holiday Schedules
- Zone Bypass Reporting Codes
- Global Away Arm Function Key
- Global Stay Arm Function Key
- Global Disarm Function Key
- Independent Zone End of Line Configuration
- 24Hr Non-Latching Tamper Zone
- Identification of 1st Zone-in Alarm
- Scheduled DLS Batch Upload
- Telephone Line Monitored (TLM) Troubles Reporting Code sent via T-Link

Configurable Features

- Enable Latching or Non-Latching Troubles
- User Option [*][6] Accessible by all Users
- Keyswitch Disarming During Entry Delay
- Keyswitch Arms in Away Mode
- Access Code Required for Zone Bypass [*1], View Troubles [*2] and Alarm Memory [*3]
- Master Code Bypasses Hold-up Zones Only
- Trouble Beeps are Silent (Excluding Fire)
- Account Code Follows Phone Number
- Residential Dial Does Not Require Handshake

New PGMs

- Zone Follower PGM Supported by all 64 Zones
- Tamper Output Timer
- Hold-Up Output
- Battery Test Output
- Alternative Communicator Output
- Open After Alarm (Abort Code)
- Away Armed with no Zone Bypasses Status Output

PowerSeries Features

Features	PC1616	PC1832	PC1864
On-Board Zones	6	8	8
Hardwired Zones	16 (1 x PC5108)	32 (3 x PC5108)	64 (7 x PC5108)
Wireless Zones	32	32	32
Keypad Zone Support	Yes	Yes	Yes
On-Board PGM Outputs	PGM 1 = 50 mA PGM 2 = 300 mA	PGM 1 = 50 mA PGM 2 = 300 mA	PGM 1, 3, 4 = 50 mA PGM 2 = 300 mA
PGM Expansion	8 x 50 mA (PC5208) 4 x 500 mA (PC5204)	8 x 50 mA (PC5208) 4 x 500 mA (PC5204)	8 x 50 mA (PC5208) 4 x 500 mA (PC5204)
Keypads	8	8	8
Partitions	2	4	8
User Codes	47+ Master Codes	71+ Master Codes	94+ Master Codes
Event Buffer	500 Events	500 Events	500 Events
Battery Required	4 Ah / 7 Ah / 14 AHr	4 Ah / 7 Ah / 14 AHr	4 Ah / 7 Ah / 14 AHr
Bell Output	12 V / 700 mA (cont)	12 V / 700 mA (cont)	12 V / 700 mA (cont)

CP-01 Compliant

All PowerSeries control panels are compliant with the Security Industry Association (SIA) CP-01 standard. As more and more cities begin to incorporate this standard into their alarm ordinances for new installations, the occurrence of invalid alarm activations will be significantly reduced or eliminated.

Specifications

Power Supply	16.5 VAC/40 VA @ 50/60 Hz
Current Draw (Panel)	. 110 mA (Nominal)
Auxiliary + Output	13.75 ± 5% Vpc/700 mA
Bell Output	13.75 ± 5% Vpc/700 mA
Operating Environment	. 32° to 120° F (0° to 49° C)
Relative Humidity	93%

Ordering Information:

<u> </u>	
PC1616	PowerSeries 6-16 Zone Control Panel
PC1832	PowerSeries 8-32 Zone Control Panel
PC1864	PowerSeries 8-64 Zone Control Panel



For product information www.dsc.com Product specifications and availability subject to change without notice. Certain product names mentioned herein may be trade names and/or registered trademarks of other companies. ©2007 2007-12 T-Link TL250 Internet alarm communicators create fully supervised security solutions between protected premises and central monitoring stations. The simple-toinstall modules save end-users money by taking advantage of their existing networks to provide secure Internet communications over a private network (LAN/WAN) or the Internet, between the control panel and the Sur-Gard[™] System II/III central station receivers. This method provides flexibility and an always-on, two-way line of communication. The TL250 communication stream is small and requires only a limited amount of network bandwidth. This ensures that the integrity of the data being transferred never becomes compromised. To reduce TL250 utilizes security risks, the industry-leading, 128-bit AES encryption, polling and hardware substitution protection.





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Product Features:

- Supported by PC1864, PC1832, PC1616, Power864[™] and MAXSYS[®] control panels via built-in PC-Link, or stand-alone mode for all other control panels
- 2-way, always-on IP communication
- Works over local LAN/WAN network or the Internet
- 128-bit AES encryption (NIST approved)
- Supports DHCP (dynamic IP addresses)
- Reports events to 2 different receiver IP addresses
- Polling and hardware substitution protection
- Programmable heartbeat timer allows you to adjust the interval that the heartbeat signal is sent from the TL250 module to the central station IP receiver
- Low network bandwidth requirements
- Compatible with 10/100BaseT networks
- 4 on-board programmable inputs (expandable to 12 using PC5108 zone expander module)
- 2 programmable voltage outputs
- Programmable through the panel keypad or T-Link Console software
- Software upgrades via network
- Download control panel via Internet with DLS2002SA software
- UL AA High-Line Security and ULC Level 3/4/5 listed

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Value Added

To ensure dependable and timely event notification, the TL250 is capable of reporting to two different receiver IP addresses—a back-up feature that allows communication to continue in the event one of the IP addresses is inaccessible. The TL250 can also be programmed to communicate events to two different e-mail addresses. These e-mail addresses can be associated with a personal computer, pager, enabled mobile phone or PDA.

Flexibility

Programming the TL250 can be accomplished locally using the control panel keypad or T-Link Console software over the IP network connection made directly to TL250's Ethernet port.

By interfacing to TL250's four on-board programmable inputs, the unit can be configured to operate as a stand-alone communicator for interfacing existing third-party control equipment. Full two-way communication with the TL250 is achieved using the Sur-Gard System II or the Sur-Gard System III and its IP line card, the SG-DRL3-IP.

Secure Communication

The TL250 utilizes industry-leading 128-bit AES encryption, polling, hardware substitution protection, and application-specific hardware to help eliminate security risks.

Because the TL250 communication stream is minimal and draws only small amounts of network bandwidth, data transfer remains timely and accurate.

DLS2002SA Download Software

Simple installation of the TL250 is assured through utilization of the built-in PC-Link and T-Link Console software. Administration of accounts can be accomplished over the Internet from anywhere in the world using DLS2002SA download software—no other software application is required.

Software updates can be downloaded remotely from any personal computer as the hardware platform of the TL250 features flash upgradeable memory.

Compatibility

The TL250 is compatible with the following control panels via the built-in PC-Link:

- PC1864 PowerSeries 8-64 zone control panel
- PC1832 PowerSeries 8-32 zone control panel
- PC1616 PowerSeries 6-16 zone control panel
- Power864 PC5020 (version 3.2 or higher)
- MAXSYS PC4020 (version 3.31 or higher)

Direct trigger inputs of the TL250 can be controlled by outputs on any control panel.

Central station IP receivers:

- Sur-Gard System III with SG-DRL3-IP line card
- Sur-Gard System II

Specifications

Dimensions	. 3.25″ x 5.25″ (83 mm x 133 mm)
Input Voltage	.12 VDC
Current Draw	. 250 mA (275 mA with PGM or PC5108)
Operating Environment	. 32° to 120° F (0° to 49° C)
Relative Humidity	. 5% to 93%

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Distributed by:

Ordering Information:	
TL250	Internet Alarm Communicator
PC5108	

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DSC GSM Universal Wireless Alarm Communicator **GS3060**



The GS3060 GSM universal wireless alarm communicator can be used in a backup or primary role.

The GS3060 connects the alarm control panel to the GSM network and reports alarm signals directly to a monitoring station receiver (Sur-Gard™ System II/System III). The GS3060 uses the GPRS data channel of the GSM network to ensure low-cost, high-speed and reliable alarm communications and is compatible with control panels that communicate using the Contact ID format.



Product Features:

- Compatible with control panels that communicate using the Contact ID format
- Full event reporting
- Uses GPRS data channel for high-speed, reliable and lowcost communications to an IP receiver
- 4 on-board inputs
- 4 on-board outputs (open collector)
- SIM card (included)
- Activation and initialization via automated telephone activation system (VRU) or web-user interface provided by CONNECT 24[™]
- Panel transmission monitors capability
- Compatible with Sur-Gard System II/III monitoring station receivers
- UL/ULC listed

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How it Works

The GS3060 is installed between the telephone connection of a control panel and telephone line. When used in a backup role, the communicator assesses the connection to the PSTN phone line, and if that has failed, it then connects to the GSM network to send an alarm signal to the monitoring station. In a primary role, the communicator simply sends the alarm transmission over the GSM network immediately.

Alarm signals are transmitted directly to the IP linecard of the monitoring station receiver (Sur-Gard System II/System III) without the need of clearinghouse involvement.

Activating & Initializing the Unit

Activating and initializing the GS3060 can be done using the automated telephone activation system (VRU) or web-user interface provided by CONNECT 24. No special tools are required.

Advance Panel Transmission Monitoring

The GS3060 can intelligently monitor the panel transmission and switch over to the GSM network when the phone line is down. This function will occur for both traditional POTS and newer digital technologies (i.e. VoIP).

UL Listing

The GS3060 has been listed by UL for Residential Fire and Burglary and Commercial Burglary installations. The device has been investigated under the requirements of UL985, UL1023 and UL1610 standards.

Ordering Information:	
GS3060 USA	.GSM Universal Wireless Alarm Communicator (U.S. Model/SIM Card Included)
GS3060 CDN	.GSM Universal Wireless Alarm Communicator (Canadian Model/SIM Card Included)

Rate Plan

Cost-effective rate plans have been negotiated and are available through authorized master resellers. Contact your monitoring station or visit www.connect24.com to find a master reseller.

Specifications

Dimensions	.8 ^{14/16"} x 5 ^{1/2"} x 2 ^{3/16"} (225 mm x 138 mm x 55 mm)
Input Voltage	.13.8 Vdc
Current Draw	.(Jumper ON)700 mA (Jumper OFF)100 mA
Operating Environment	.40° to 104° F (5° to 40° C)
Weight	. 29 oz (900 g)



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DSC POWERSERIES[™] KEYPADS



 PK5500
 PK5516
 PK5501
 PK5508

 RFK5500
 RFK5516
 RFK5501
 RFK5508

PowerSeries high-quality, slim-profile keypads use advanced plastics technology to achieve a clean, unobtrusive look that homeowners welcome and installers will appreciate for their easy programming and installation. The keypads feature an input/output terminal that can be programmed to operate as a zone input, programmable output or as a low temperature sensor. The keypads also include adjustable backlit keys that address low-light situations and five programmable keys for simple one-button activation of system functions. PK5500/ RFK5500 64-zone full-message keypads support eight languages, global partition status and full, 32-character programmable phrases.

Features Common to all Keypads:

- Modern, slim-line landscape keypad
- Large, backlit keypad buttons
- ▶ 5 programmable function keys
- Input/Output terminal can be programmed to operate as a zone input, programmable output or as a low temperature sensor
- Individual FAP keys
- Multiple door chime per zone
- Adjustable backlight and keypad buzzer
- Available in black or white bezels
- Wire channel
- Dual wall-mount and front cover tamper
- Easy-to-install mounting hinge
- Surface or single-gang box mount



DSC POWERSERIES[™] KEYPADS

Easy To Use

To simplify usage, the keypads feature five programmable keys for easy one-button activation of system functions. The default tasks assigned to the five function keys are stay arming, away arming, door chime, smoke detector reset and quick exit. With the quick exit function there's no need to disarm and rearm the system every time an occupant leaves the house or lets the dog out, for example.

Integrated Temperature Sensor

The keypads' integrated temperature sensor can be programmed to activate when room temperature dips below 43° F (6° C) and restores at 47° F (8° C). Built-in logic prevents the panel from cycling in and out of alarm mode during minor temperature fluctuations, helping to reduce false alarms.

Flexibility

RF versions of the keypads are available. They include all of the same features as their hardwired equivalents and are able to support 32 wireless zones and 16 wireless keys without taking up a wireless zone slot.

Ordering Information:	
PK5500	64-Zone Full-Message Keypad
RFK5500	Wireless 64-Zone Full-Message Keypad
РК5501	64-Zone LCD Picture ICON Keypad
RFK5501	Wireless 64-Zone LCD Picture ICON Keypad
PK5516	16-Zone LED Keypad
RFK5516	Wireless 16-Zone LED Keypad
РК5508	8-Zone LED Keypad
RFK5508	Wireless 8-Zone LED Keypad



Compatibility

The keypads are compatible with all PowerSeries control panels.

Specifications

Dimensions	. 6 ^{1/16} " x 4 ^{7/16} " x 13/16" (154 mm x 113 mm x 20.5 mm)
LCD Viewable Area	3 ^{9/10} " x 15/16" (99 mm x 24 mm)
Current Draw	. 125 mA (Max)
Voltage	. 12 VDC Nominal
Operating Environment	32° to 120° F (0° to 49° C)
Relative Humidity	5 to 93%

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3040 SERIES PANIC SWITCH

Model numbers: 3040, 3045, 3050, 3055

- Easy installation
- Latching LED and non-LED models available
- 3050 and 3055 feature glowing LED for low light visibility

The Sentrol 3040 Series Panic Switch activates the SPDT switch (SPST on the 3045 model) when the user pulls the actuating lever. On the 3040 model, an external LED lights and latches, indicating that the alarm circuit has been activated. The lever is closed first to rearm the alarm switch, then the latching LED circuit is reset externally at the host panel. The 3045 model has no LED or latching circuit.

The 3050 and 3055 feature a glowing LED for low light visibility. The LED glows green when powered up, turns red upon activation. The 3050 contains a latching LED, the 3055 is non-latching.

Applications

Mounted out of sight but within easy reach for manual activation, such as under desks or counters in banks, jewelry stores and other facilities where people or property are at risk. The 3045 and 3055 models can be used in residential installations when a panic switch is needed. Models with the LED and latching circuit, can be used as a panic switch in medical care facilities. All models provide low-profile and reliable alarm protection.

Sentrol 3040 Series Panic Switch

Architect and Engineering Specifications

The unit consists of a housing that contains the electrical circuitry and magnetic reed contacts, a cover plate to protect the internal electronics and an actuating lever with an Alnico V magnet installed in a cradle in the lever. When the lever is fully closed, the magnet — in proximity to the reed — triggers the circuit. The alarm occurs when the actuating lever is moved 20° to 45° past the fully closed position (approximately 1" from the fully closed position). On the latching models, an LED on the unit flashes and latches when the lever is opened. It can be reset only at the alarm panel.

The actuating lever, housing and cover plate are made of ABS fire-retardant plastic. Dimensions of the unit are 1.77" W x 2.90" L x 0.76" H (4.50 cm W x 7.37 cm L x 1.93 cm H). The unit has 12 feet of jacket lead. The device mounts to the surface with two No. 6 combo-head screws, 5/8" and 1 1/4". Available in white.

Specifications:

Model 3040, 3050, 3055

Nominal Voltage	12 V DC @ 6 mA
Current	Max 8 mA
Operational Voltage	
Temperature Range	0° to 110°F (-17.8°C to 43.3°C)
Dimensions	1.77" W x 2.90" L x 0.76" H
(4.50	cm W x 7.37 cm L x 1.93 cm H)
Weight	1.5 oz.
Housing Material	ABS plastic

Form C: 3040 only

Voltage:		30 V
DC max.Current:	0.25 A	max.
Power:	. 3W	max.

Model 3045

Temperature Range	-40° to 150°F (-40°C to 65.6°C)
Dimensions	1.77" W x 2.90" L x 0.76" H
(4.50	cm W x 7.37 cm L x 1.93 cm H)
Weight	1.5 oz.
Housing Material	ABS plastic

Form A: 3045 only

Voltage:	100	V DC max.
Current:		0.5 A max.
Power:		7.5 W max.



3040, 3050, 3055 (No LED on 3045)

Model Number	LED	Latching Circuit	Electrical Loop Type	Configuration	Color
3040	Red	Yes	Open or Closed	SPDT	White
3045	None	No	Closed	SPST	White
3050	Bi-color	Yes	Open or Closed	SPDT	White
3055	Bi-color	No	Open or Closed	SPDT	White

Ordering Information

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CORPORATE HEADQUARTERS

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ISM-BLP1 Blue Line PIR Detector



The ISM-BLP1 Detector uses a high-density (77 zone) Fresnel lens designed to produce sharply-focused images throughout the field of view providing superior response to intruders. Easy installation and flexible mounting options provide state-of-the-art detection.

Functions

Signal Processing

First Step Processing (FSP) almost instantly responds to human targets without producing false alarms from other sources. FSP adjusts the detector's sensitivity based on signal amplitude, polarity, slope, and timing. This eliminates the need for the installer to select the sensitivity level.

Test Features

The externally-visible alarm LED can be disabled after installation.

Draft and Insect Immunity

The sealed optical chamber prevents drafts and insects from affecting the detector.

Temperature Compensation

The detector adjusts its sensitivity so that it can identify human intruders at critical temperatures.

- 11 m x 11 m (35 ft x 35 ft) broad coverage
- EN50131-2-2 Grade 2 compliant
- First Step Processing (FSP)
- Flexible mounting height from 2.3 m to 2.7 m (7.5 ft to 9 ft)
- No range or height adjustments required
- Installation-friendly two-piece design
- Easy wiring access with plug-in terminals
- Draft and insect immunity
- Eight detection layers including optional look-down zone
- Temperature compensation

Certifications and Approvals

Region	Certificatio	n
Europe	CE	2004/108/EC EMC Directive (standards: EN55022:2006; EN50130-4:1996 +A1:1998 +A2:2003; EN60950-1:2006)
	EN50131	EN 50131-1, TS 50131-2-2 August 2004, EN 50130-4, EN 50130-5
Belgium	INCERT	B-509-0009/a
		B-509-0009/b
Russia	GOST	IEC 60839-1-3-2001, IEC 60839-2-2-2001, IEC 60839-2-6-2001, GOST 26342-84, GOST 27990-88 GOST 12997-84, GOST R 50009-2000, GOST R 51317.3.2-99, GOST R 51317.3.3-99. GOST R MEK
		60065-2002
USA	UL	ANSR: Intrusion Detection Units (UL639), ANSR7: Intrusion Detection Units Certified for Canada (cULus)
Italy	IMQ	
France	AFNOR	NF, A2P (262262-00)
Sweden	INTYG	05-132; SBSC larmklass 3, miljöklass 2

Australia	C-tick	
Ukraine	IEC	C60839-1-3-2001,
	IEC	C60839-2-2-2001,
	IEG	C60839-2-6-2001, GOST 26342-84,
	GC	DST 27990-88
Europe	Complies with E	N50131-2-2 Grade 2

Installation/Configuration Notes

Coverage Patterns



Top View Broad: 11 m x 11 m (35 ft x 35 ft)

1 PIR coverage pattern



2

Two look-down zones

Side View Broad: 11 m x 11 m (35 ft x 35 ft)

1 PIR coverage pattern

Mounting

The recommended mounting height is 2.3 m to 2.7 m (7.5 ft to 9 ft).

The detector can be mounted:

- On a flat wall (surface, semi-flush) with the optional B335 Swivel-mount Bracket, or with the optional B328 Gimbal-mount Bracket,
- In the junction of two perpendicular walls, or
- On the ceiling with the optional B338 Ceiling-mount Bracket.
- **Note** The use of optional mounting brackets can reduce the detector's range and increase the dead zone areas.

Power Considerations Power Limits

Input power must be provided by an Approved Limited Power Source. All outputs must be connected to SELV (safety extra-low voltage) circuits only.

Standby Power

This detector has no internal standby battery. For UL Listed product installations, 4 hr (40 mAh) of standby power must be supplied by the control unit or by a UL Listed burglary power supply.

Parts Included

Quant.	Component
1	Detector
1	Hardware pack
1	Literature pack

Technical Specifications

Environmental Considerations

Designed to comply with EN50131-2-2 Environmental Class II, Security Grade 2

Relative Humidity:	0 to 85%, non-condensing
Temperature (operating):	-29°C to +49°C (-20°F to +120°F) For UL Listed product installations, 0°C to +49°C (+32°F to +120°F)

Mechanical Properties

Color:		White	
Dimensions:		10.7 cm x 6.1 cm x 4.8 cm (4.2 in. x 2.4 in. x 1.9 in.)	
Material:		High-impact ABS plastic	
Radio Frequency Interference (RFI) Immunity		No alarm or setup on critical frequencies in the range from 26 MHz to 950 MHz at field strengths less than 50 V/m.	
Outputs			
Digital Alarm:	5 V normally, grounded for 4 sec during alarm.		
Relay:	Solid state, supervised, Form A normally-closed (NC) contacts rated for 125 mA, 28 VDC, 3 W.		
Tamper:	Normally-closed (NC) contacts (with cover on) rated at 28 VDC, 125 mA maximum. Connect tamper circuit to 24-hour protection circuit.		
Power Requirements			

Current (Alarm):18 mACurrent (Standby):10 mA maximum at 12 VDCVoltage (Operating):10 VDC to 14 VDC

(Ordering Information	
	ISM-BLP1 Blue Line PIR Detector Produces sharply-focused images throughout the field of view providing superior response to intruders	ISM-BLP1
1	Accessories	
	ISM-BLA1-CC Blue Line Color Camera Module (NTSC format) NTSC format	ISM-BLA1-CC-N
	ISM-BLA1-CC Blue Line Color Camera Module (PAL format) PAL format	ISM-BLA1-CC-P
	ISM-BLA1-LM Blue Line Nightlight Module Fits all Blue Line detectors	ISM-BLA1-LM
	ISM-BLA1-SM Blue Line Sounder Module Fits all Blue Line detectors	ISM-BLA1-SM
	B328 Gimbal-mount Bracket Mounts on a single-gang box and allows rota- tion of a detector. Wires are hidden inside.	B328
	Swiveling B335-3 low-profile mount Swiveling, low-profile, plastic mount for wall mounting. The vertical swivel range is +10° to -20°, while the horizontal swivel range is ±25°. Available in triple packs.	B335-3
	B338 Universal Ceiling-mount Bracket Swiveling plastic mount for ceiling mounting. The vertical swivel range is $+7^{\circ}$ to -16° , while the horizontal swivel range is $\pm 45^{\circ}$.	B338

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DS938Z and ZX938Z Series Panoramic PIR Detectors



These ceiling mount, 18 m (60 ft) panoramic PIR Detectors use Motion Analyzer II processing to reduce false alarms. The series consists of the:

- DS938Z Panoramic Detector
- ZX938Z Panoramic Detector with POPIT

Several unique self-test features, including Motion Monitor, provide coverage integrity. Field replaceable mirrored optics allow them to be mounted on ceilings from 2.5 m to 6 m (8 ft to 18 ft) in height.

Functions

Motion Analyzer II Processing

Motion Analyzer II uses multiple thresholds and timing windows to analyze timing, amplitude, duration, and polarity of signals to make an alarm decision. It will not alarm on extreme levels of thermal and illumination disturbances caused by heaters and air conditioners, hot and cold drafts, sunlight, lightning, and moving headlights. Provides three sensitivity settings.

PIR Supervision

PIR supervision provides trouble output in the event that PIR circuitry fails.

- Motion Analyzer II processing
- Motion Monitor
- Self-test supervision systems
- Changeable mirrors
- ▶ 360° x 18 m (60 ft) diameter pattern
- > 2.5 m to 6 m (8 ft to 18 ft) mounting height

Motion Monitor

Switch-selectable four or thirty day Motion Monitor supervision timers provide the detector with the ability to verify that there is a clear view of the protection area and that it has not been blocked.

Test Features

Three externally visible high output alarm LEDs visible from any angle, flash to indicate trouble condition. Internal noise voltage test pins provide precise pattern location and background disturbance evaluation using a standard analog meter.

Certifications and Approvals		
Region	Certificatio	on
Europe	CE	DS938Z, DS938Z-CHI, and DS938Z-FRA: 89/336/EEC, EN55022: 1998+A1: 2000 +A2: 2003, EN50130-4: 1996+A1: 1998 +A2: 2003, EN61000-4-2: 1995+A1: 1998+A2: 2001, EN61000-4-3: 2002 +A1: 2003, EN61000-4-4: 1995+A1: 2000+A2: 2001, EN61000-4-5: 1995 +A1: 2001, EN61000-4-6: 1996+A1: 2001+A2: 2001, EN61000-4-11:1994 +A1: 2001, EN60950-1: 2001+A11: 2004
Poland	TECHOM	DS938Z: 98/07 Klasy "C"
USA	UL	DS938Z: ANSR: Intrusion Detection Units (UL639) ZX938Z: ANSR: Intrusion Detection Units
		(UL639)
China	CCC	DS938Z: 2002031901000002
		DS938Z-CHI: 2004031901000036
Sweden	INTYG	DS938Z only: 04-683

These detectors have also been designed to meet the requirements of				
Europe	DS938Z cor	mplies with EN50131-1, Grade 2		
France	AFNOR	NF, A2P		









360° x 18 m (60 ft) diameter

Technical Specifications

Enclosure Design

Material:	High impact ABS plastic enclosure
Dimensions:	8.4 cm x 13.3 cm (3.3 in. x 5.25 in.)

Environmental Considerations

Operating Temperature:		-29°C to +49°C (-20°F to +120°F) For UL Listed Applications, 0°C to + 49°C (+32°F to +120°F)		
Radio Frequency Interfer- ence (RFI) Immunity:		No alarm or setup on critical frequencies in the range from 26 MHz to 950 MHz at 50 V/m.		
DS938Z:		Complies with Environmental Class II (EN50130-5)		
Mounting				
Height (recommended):		2.5 m to 6 m (8 ft to 18 ft)		
Location:		Mounts directly to ceiling or to standard oc- tagonal electrical box.		
Internal Pointability:		Coverage is adjustable $\pm 10^{\circ}$ horizontally, +2° to -18° vertically.		
Outputs (DS models)				
Alarm:	Form C reed relay at 3.0 W, 125 mA at 28 VDC for resistive loads			
Tamper:	Normally-closed. Contacts rated at 28 VDC, 125 mA maxi- mum.			
Outputs (ZX model)				
Alarm:	Signal through POPEX data bus.			
Tamper:	Signal through POPEX data bus. Signaled as missing.			
Trouble:	Signal throug	Signal through POPEX data bus.		

Power Requirem	Power Requirements (DS models)				
Current:	Current: 18 mA at 12 VDC				
Voltage:	Voltage: 6 VDC to 15 VDC				
Power Requirem	Power Requirements (ZX model)				
Current: < 0.	Current: < 0.5 mA nominal, 2 mA in alarm with LED enabled				
Voltage: Pow	er comes from two-wire POPEX	bus.			
Note: Do not leave Walk Test LEDs enabled.					
Ordering Inf	ormation				
DS938Z Panoramic Detector Provides Motion Analyzer II processing, mov- able mirrors, and 360° x 18 m (60 ft) diameter coverage.		DS938Z			
DS938Z-FRA Panoramic Detector For use in France. Provides Motion Analyzer II processing, movable mirrors, and 360° x 18 m (60 ft) diameter coverage.		DS938Z-FRA			
ZX938Z Panoramic Detector Provides an internal POPIT, Motion Analyzer II processing, movable mirrors, and 360° x 18 m (60 ft) diameter coverage.		ZX938Z			
Accessories					
AR13-18-3 Optical Module Designed for 4 m (13 ft) to 6 m (18 ft) mounting height. Shipped in packages of three.		AR13-18-3			
TC6000 Test Cord Test cord for connecting a compatible detec- tor's test pins to a voltmeter. It is 4.6 m (15 ft) long.		TC6000			

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Honeywell

The FG-1625 Glassbreak Detector uses the latest technology to provide faster response and increased false alarm immunity. The FG-1625 is specifically designed to allow fast, easy installation, while the adjustable sensitivity

settings can compensate for the acoustics of any room. Optimum operation can be quickly verified using the FG-701 Glassbreak Simulator.

FEATURES

 FlexCore[™] Signal Processor
 The FlexCore Signal Processor is an Application-Specific Integrated Circuit (ASIC), which processes sound data in parallel rather than sequentially for faster, more accurate detection decisions. The combination of proven FlexGuard[®] performance with the speed of FlexCore processing provides unmatched false alarm immunity without compromising detection.

FG-1625/1625T GLASSBREAK DETECTOR

Easy Installation and Setup
 Honeywell's patented technology
 allows remote activation of Test
 Mode (with simulator). The FG-1625
 has a centered wire entry hole, 45°
 terminal blocks and EOL terminals.
 A hand-clap feature verifies that the
 detector is functioning.

Selectable Sensitivity

Two DIP switches on the FG-1625 make it easy to set the sensitivity to match the acoustics of the room. Four different sensitivity levels are available, ranging from very low to high. The range can then be verified remotely with the FlexGuard FG-701 Glassbreak Simulator.

- Mount the Detector Anywhere Mounts on any wall, in the window frame, or on the ceiling, with no minimum range and a maximum range of 25' (7.6m) to the glass.
- Covers All Glass Types The FG-1625 works on all glass types, including plate, tempered, laminated, wired, film-coated and sealed insulating glass.

- Multiple Domain Signal Analysis The FG-1625 performs Multiple Domain Signal Analysis in which time, frequency and amplitude characteristics are evaluated for signal qualification. This enables the detector to accurately discriminate false alarms from true glassbreak events.
- Enclosed PC Board The PCB is protected from potential damage during installation.
- Patented Remote Test Mode The Patented Remote Test Mode can enabled or disable the indicator LEDs using the FG-701 Glassbreak Simulator. The unit automatically resets from Test Mode in five minutes.
- Mounting Locations
 The FG-1625 can be mounted on
 the ceiling, opposite wall, adjoining
 wall or the same wall as the glass.

FG-1625/1625T

GLASSBREAK DETECTOR

SPECIFICATIONS

Physical Dimensions

- White high impact ABS plastic housing
- 3 7/8" H x 2 2/5" W x 7/8" D (98mm x 62mm x 21.8mm)

Weight

- Product Only: 3.2oz (90g)
- Pkgd Product: 4.1oz (116g)

Range

 25' (7.6m) maximum, omnidirectional. Range is adjustable; no minimum range

Alarm Relay

- FG-1625: Form A, 125mA max, 25VDC max
- FG-1625T: Form C, 125mA max, 25VDC max

Tamper Switch (FG-1625T only)

 Combination cover/wall tamper 25mA max, 24VDC max

Alarm Duration

• Five seconds (unaffected by alarm LED latching)

ESD Immunity

• 10kV discharges of either polarity to exposed surfaces

Power Requirements

- 6 18VDC, 12mA typical at 12VDC; 22mA max (Latched LED)
- AC ripple: 4V peak-to-peak at nominal 12VDC

RFI Immunity

• 30V/m, 10MHz - 1000MHz

Operating Temperature

- 14° to 122° F (-10° to 50° C)
- Storage: -4° to 122° F (-20° to 50° C)

Approvals and Listings

- FCC and IC verified
- CE
- C-Tick
- UL Listed
- ULC Listed

Glass Type/Thickness

Туре*	Minimum	Maximum
Plate 3a	2.4mm (3/32")	10mm (3/8")
Tempered	3mm (1/8")	10mm (3/8")
Laminated	3mm (1/8")	14mm (9/16")
Wired	6mm (1/4")	6mm (1/4")
Coated 2,3b	3mm (1/8")	6.4mm (1/4")
Sealed	3mm (1/8")	6mm (1/4")
Insulating 1,3b	(Maximum overall 7/16")	

^{*} Minimum size for all types is 28cm (11") square; glass must be framed in the wall or mounted in a barrier at least 0.9m (36") wide.

- 1 Protected only if both plates of the unit are broken.
- 2 Coated glass with security films, including films for solar protection, up to 12mil. thick may be used. Film Technologies International, Inc.'s GLASS-GUARD® GGLL 1200 has been evaluated with this product by Underwriters Laboratories, Inc.
- 3 In compliance with Underwriters Laboratories of Canada's Standard for Intrusion Detection Units (CAN/ULC-S306-M89):
 - a. Plate glass 3mm to 10mm can be used.
 - b. ULC recognizes a maximum range for protecting sealed insulated glass and coated glass of 12.5ft. (3.8m).

Note: The FG-1625/1625T detects shattering of framed glass by direct impact. It may not consistently detect breakage by blows that only crack the glass, by high velocity projectiles such as bullets, or glass broken without an impact.

Accessories Description

 FG-701 P/N 0-000-701-0 Glassbreak Simulator

FlexGuard[®] Glassbreak Simulator/Tester

• The sound of breaking glass is digitally simulated by the FG-701. The FG-701 is compatible for testing all Honeywell glassbreak detectors. Honeywell highly recommends testing glassbreak detectors before final installation.

ORDERING

FG-1625Glassbreak DetectorFG-1625TGlassbreak Detector with Tamper

Honeywell Security & Custom Electronics

Honeywell International Inc. PO Box 9035 Syosset, NY 11791 www.honeywell.com

L/FG1625/D January 2007 © 2007 Honeywell International Inc



Honeywell



OPERATING INSTRUCTIONS

FG-701 Glassbreak Simulator

WARNING: The FG-701 Simulator produces extremely loud sounds and can be hazardous to hearing when used at close range. Never operate the FG-701 with it pointed toward someone's head.

FEATURES

- Digital audio produced glassbreak sound
- MANual and FLEX test modes
- Sound activation of test mode for FG-1000 series detectors
- Low battery voice announcement
- Automatic turn-off to conserve battery life
- Compatible with all FlexGuard[®] glassbreak detectors

OPERATING THE SIMULATOR

Model FG-1000 or higher glassbreak detectors must be activated for testing.



To Activate the Model FG-1000 (or higher) Glassbreak Detector:

- 1. Install the glassbreak detector in an appropriate location (refer to the detector's installation instructions).
- 2. Stand within 10' (3 m) of the detector.
- 3. Set the FG-701 switches to the ACTIVATE and MANual modes (see Figure 1).
- 4. Aim the front speaker of the FG-701 Glassbreak Simulator at the detector.
- 5. Press the red start button for the ACTIVATE sound.

The green LED on FG-1000 series detectors will flash rapidly to indicate the detector is in test mode.

Note: Pressing the red button again will deactivate the detector test mode. The FG-1000 series test mode also turns off automatically after ten minutes.



Testing in FLEX mode:

- 1. Set the FG-701 switches to the TEST and FLEX modes. (See Figure 2.)
- 2. Press the red start button. The simulator will "click" on and start an eightsecond armed period.
- 3. Position the FG-701 near the farthest point of the protected glass, and point the speaker directly at the glassbreak detector.
- Generate a flex signal by carefully striking the glass with a cushioned tool. The FG-701 will respond by producing a burst of glass-break audio.

If both the flex and audio are received properly, the red alarm LED on the detector will light.

After the simulator is triggered by a flex signal, there is a one-second holdoff period during which the FG-701 will not retrigger. This prevents repeated triggering due to continued vibration of the glass.

Successfully triggering the simulator with a flex signal generates a new eightsecond armed period. If you do not generate a flex signal within eight seconds, the simulator will automatically "click" off. Press the start button to re-arm the simulator.

The FG-701 may be turned off by either waiting for it to "click" off in FLEX mode, or by selecting MANual mode.

Important: If window coverings are present, close them fully and hold the FG-701 **behind** the window coverings for testing.

Testing in MANual mode:

If the glassbreak detector fails to signal an alarm when testing in the FLEX mode, switch the FG-701 to the MANual mode. This will enable you to determine if the problem is flex or audio detection.



Testing in the MANual Mode (Continued):

- 1. Set the FG-701 switches to the TEST and MANual modes. (See Figure 3.)
- 2. Position the FG-701 near the protected glass and point the speaker directly at the glassbreak detector. Watch the green LED on the detector.
- 3. Press the red start button and the FG-701 will generate a burst of glassbreak audio.

If the LED on the detector flashes, the range is acceptable for audio. If the LED does not flash, move the detector closer to the glass and try again. (On FG-1000 series detectors, the green LED will momentarily turn off.)

TECHNICAL NOTES

When a pane of glass is broken by an impact, many variables affect the sound it produces. Depending on the type of glass, its size and thickness, type of mounting, the breaking instrument, and the force with which it is struck, the sound it produces varies. In addition, the sounds will be modified by absorptive or reflective surfaces in the room where the glassbreak detector is located.

While no simulator can account for all possible conditions, the sound produced by the FG-701 is carefully designed to represent the more difficult cases. The sound is an enhanced digital recording of a small pane of tempered glass broken in a controlled environment. The output level of the simulator is correlated with the original sound to insure an equivalent response in FlexGuard® detectors. In production, the acoustic output is factory-calibrated to insure uniform performance.

Room characteristics greatly affect the apparent detection range indicated by the simulator. In a room with hard walls, floor, and ceiling, the audio range will be much greater than in a room with absorbing surfaces such as carpets and acoustic tiles. This is because hard surfaces reflect the sound back into the room, reinforcing it at points far from the simulator. Actual glassbreak sound is affected in the same way as the simulator sound, since it has the same frequency content and originates from the same location in the room. Thus the audio range achieved with the FG-701 is a good indication of glassbreak detection range, independent of the room characteristics.

In FLEX mode, the low-frequency signal is generated by striking the protected glass. If sufficient flex can be generated by a safe, non-breaking blow to the glass, there is good assurance that an actual break will be detected.

Range indicated by the simulator should be considered the safe detection range for an individual detector. Because of component tolerances, it should not be assumed that a substitute detector will work at the same range. If a detector is changed, the replacement should also be tested with the FG-701.

BATTERY ANNOUNCEMENT

When the battery is low, the simulator sound will be interrupted by the word "BATTERY." The battery should then be replaced.

Use only 9V alkaline batteries. Do not use carbon-zinc or rechargeable Ni-Cd batteries because they don't have sufficient peak power capacity.

PRODUCT SPECIFICATIONS

Temperature Range

Operating: 32° F to 122° F (0° C to +50° C) Storage: -4° F to +140° F (-20° C to +60° C)

Battery Type:

9V Alkaline, Duracell MN1604 or equivalent

Estimated Battery Life:

2500 operations (MANual mode)

Output Spectral Range:

1.5 - 16 kHz

Output Level:

Peak SPL of 102 dB at 1 meter, on axis

Dimensions:

3.25" W x 6.3" H x 0.9" D (83 mm x 160 mm x 23 mm)

Weight:

8 oz. (.23 kg)

Approvals/listings:

CE C-Tick



Customers in European Union countries are advised to dispose of this product, at the end of its useful life, as per applicable local laws, regulations and procedures.

To obtain applicable EU compliance Declaration of Conformities for this product, please refer to our Website.

http://www.security.honeywell.com/hsce/international/index.html.

For any additional information regarding the compliance of this product to any EU specific requirements, please contact:

Quality Assurance Department,

Honeywell Security & Custom Electronics, Newhouse Industrial Estate Motherwell, Lanarkshire ML1 5SB. Scotland, United Kingdom. Tel: +44(0)1698 738200

Email: UK64Sales@Honeywell.com

Honeywell

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AL600ULXPD16(R), AL600ULXPD16CB(R) Multi-Output Power Supply/Charger

Rev. DSAL600ULXPD16 - B23F



Overview

• These multi-agency approved multi-output power supply/chargers convert a 115VAC/60Hz input to sixteen (16) Class 2 rated 12VDC or 24VDC power limited outputs.

AL600ULXPD16

• Grey enclosure.

AL600ULXPD16R

• Red enclosure

• Fuses are rated @ 3.5 amp/250V

• PTCs are rated @ 2.5 amp.

• Grey enclosure.

AL600ULXPD16CBR

AL600ULXPD16CB

• Red enclosure

Specifications

- 12VDC or 24VDC selectable outputs.
- 6 amp supply current.
- Class 2 Rated power limited outputs.
- Sixteen (16) protected outputs. • Input 115VAC / 60Hz, 1.9 amp.
- Input fuse rated @ 3.5 amp/250V.
- Filtered and electronically regulated outputs.
- Short circuit and thermal overload protection.
- · Built-in charger for sealed lead acid or gel type batteries.
- Maximum charge current .7 amp.
- · Automatic switch over to stand-by battery when AC fails (zero voltage drop).
- AC fail supervision (form "C" contacts).
- Low battery supervision (form "C" contacts).

- Battery presence supervision (form "C" contacts).
- AC input and DC output LED indicators.
- Enclosure:
 - Combination knockouts are 1/2" and 3/4"
 - Accommodates up to two (2) 12VDC/12AH batteries.
- Product weight:
 - AL600ULXPD16: 10.3 lbs.
 - AL600ULXPD16R: 8.7 lbs.
 - AL600ULXPD16CB: 10.3 lbs.
 - AL600ULXPD16CBR: 8.7 lbs.
- Shipping weight:
 - AL600ULXPD16: 10.3 lbs.
 - AL600ULXPD16R: 8.7 lbs.
 - AL600ULXPD16CB: 10.3 lbs.
 - AL600ULXPD16CBR: 8.7 lbs.

Agency Approvals



UL 294 UL Listed for Access Control System Units.

UL 1481 UL Listed Standard for Safety for Fire Protective Signaling Systems.

CUL Listed - CSA Standard C22.2 No.205-M1983, Signal Equipment.




2833 West Chestnut Street Washington, PA 15301 Toll Free: (800) 245-4964 Fax: (724) 222-6420 www.westpenn-wpw.com

	www.westpenn-wpw.com
PART NUMBER:	25224B
DESCRIPTION:	18/2 Stranded bare copper conductors, unshielded with an overall jacket.
NEC RATING:	CMP, NEC Article 800
APPROVALS:	(UL) C(UL) Listed or c(ETL)us Listed
APPLICATION:	Indoor within ducts, plenums, and other spaces used for environmental air for (Intercom Systems, Security Systems, Sound, Audio, Background Music)

Construction Parameters:

Conductor Stranding Insulation Material Insulation Thickness Number of Conductors Shield Drain Jacket Material Jacket Material Jacket Thickness Overall Cable Diameter Approximate Cable Weight Flame Rating

Electrical & Environmental Properties:

Temperature Rating Operating Voltage Max.Capacitance Between Conductors @ 1 KHz DC Resistance per Conductor @ 20deg C Insulation Colors Jacket Color

RoHS Compliant

Mechanical Properties:

Max. Recommended Pull Tension Min. Bend Radius (Install)

Specification Issue Date: 7/06

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-10°C To +60°C 300 V RMS 30 pf/ft Nom. 6.2 Ohms/1M' Nom. Black, Red Gray, Black, Brown, Orange, Green White, Yellow Yes

42 lbs 1.4"





2833 West Chestnut Street Washington, PA 15301 Toll Free: (800) 245-4964 Fax: (724) 222-6420 www.westpenn-wpw.com

	www.westpein-wpw.com
PART NUMBER:	25244B
DESCRIPTION:	18/4 Stranded bare copper conductors, unshielded with an overall jacket.
NEC RATING:	CMP, NEC Article 800
APPROVALS:	(UL) C(UL) Listed or c(ETL)us Listed
APPLICATION:	Indoor within ducts, plenums, and other spaces used for environmental air for (Pro Audio, Intercom Systems, Security Systems, Sound, Background Music)

Construction Parameters:

Conductor 18 AWG Bare Copper Stranding 7x26 PVC Insulation Material 0.008" Nom. Insulation Thickness Number of Conductors 4 Shield None Drain None Jacket Material PVC Jacket Thickness 0.015" Nom. **Overall Cable Diameter** 0.180" Nom. Approximate Cable Weight 32 Lbs/1M' Nom. Flame Rating NFPA 262 Flame Test

Electrical & Environmental Properties:

Temperature Rating Operating Voltage Max.Capacitance Between Conductors @ 1 KHz DC Resistance per Conductor @ 20deg C Insulation Colors Jacket Color RoHS Compliant

Mechanical Properties:

Max. Recommended Pull Tension Min. Bend Radius (Install)

Specification Issue Date: 7/06

This document is the property of West Penn Wire. The information contained herein is considered Proprietary and not to be reproduced by any means Without written consent of West Penn Wire -10°C To +60°C 300 V RMS 30 pf/ft Nom. 6.2 Ohms/1M' Nom. Black, Red, White, Green Gray Yes

84lbs 1.9"





2833 West Chestnut Street Washington, PA 15301 Toll Free: (800) 245-4964 Fax: (724) 222-6420 www.westpenn-wpw.com

	www.westpelm wpw.com
PART NUMBER:	253186B
DESCRIPTION:	18/6 Stranded bare copper conductors, shielded with an overall jacket.
RATING:	CMP, NEC Article 800
APPROVALS:	(UL) C(UL) Listed or c(ETL)us Listed
APPLICATION:	Indoor within ducts, plenums, and other spaces used for environmental air for (Intercom Systems, Security Systems, Sound, Audio, Background Music)

Construction Parameters:

Conductor	18 AWG Bare Copper
Stranding	7x26
Insulation Material	PVC
Insulation Thickness	0.008" Nom.
Number of Conductors	6
Shield	100% Aluminum Polyester Foil
Drain	Stranded Tinned Copper
Jacket Material	PVC
Jacket Thickness	0.015" Nom.
Overall Cable Diameter	0.221" Nom.
Approximate Cable Weight	50 Lbs/1M' Nom.
Flame Rating	NFPA 262 Flame Test

Electrical & Environmental Properties:

Temperature Rating Operating Voltage Max.Capacitance Between Conductors @ 1 KHz Capacitance Between Conductors to Shield @ 1 KHz DC Resistance per Conductor @ 20deg C Insulation Colors Jacket Color RoHS Compliant

Mechanical Properties:

Max. Recommended Pull Tension Min. Bend Radius (Install)

Specification Issue Date: 7/06

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141 lbs 2.25"



2833 West Chestnut Street Washington, PA 15301

		Fax: (724) 222-6420 www.westpenn-wpw.com	
PART NUMBER:	25225B		
DESCRIPTION:	16/2 Stranded bare copper conductors	16/2 Stranded bare copper conductors, unshielded with an overall jacket.	
NEC RATING:	CMP, NEC Article 800		
APPROVALS:	(UL) C(UL) Listed or c(ETL)us Liste	d	
APPLICATION:	Indoor within ducts, plenums and oth (Intercom, Security, Sound, Audio, B	er spaces used for environmental ai ackground music)	

Construction Parameters:

Conductor Stranding Insulation Material Insulation Thickness Number of Conductors Shield Drain Jacket Material Jacket Thickness **Overall Cable Diameter** Approximate Cable Weight Flame Rating

Electrical & Environmental Properties:

Temperature Rating Operating Voltage Max.Capacitance Between Conductors @ 1 KHz DC Resistance per Conductor @ 20deg C Insulation Colors Jacket Color **RoHS** Compliant

Mechanical Properties:

Max. Recommended Pull Tension Min. Bend Radius (Install)

Specification Issue Date: 7/06

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16 AWG Bare Copper 19x29 PVC 0.008" Nom. 2 None None PVC 0.015" Nom. 0.176" Nom. 25 Lbs/1M' Nom. NFPA 262 Flame Test

-10°C To +60°C 300 V RMS 33 pf/ft Nom. 4.2 Ohms/1M' Nom. Black, Red Gray, Black, Green Yes

54 lbs 1.8"



air for:



2833 West Chestnut Street Washington, PA 15301

	Toll Free: (800) 245-4964 Fax: (724) 222-6420 www.westpenn-wpw.com	
PART NUMBER:	25226B	
DESCRIPTION:	14/2 Stranded bare copper conductors, unshielded with an overall jacket.	
NEC RATING:	CL2P, NEC Article 725	
APPROVALS:	(UL) or (ETL)us Listed	
APPLICATION:	Indoor within ducts, plenums, and other spaces used for environmental air for (Intercom Systems,	

Security Systems, Sound, Audio, Background Music)

Construction Parameters:

Conductor 14 AWG Bare Copper Stranding 19x27 PVC Insulation Material Insulation Thickness 0.010" Nom. Number of Conductors 2 Shield None Drain None Jacket Material PVC Jacket Thickness 0.015" Nom. **Overall Cable Diameter** 0.218" Nom. Approximate Cable Weight 36 Lbs/1M' Nom. NFPA 262 Flame Test Flame Rating

Electrical & Environmental Properties:

Temperature Rating Operating Voltage Max.Capacitance Between Conductors @ 1 KHz DC Resistance per Conductor @ 20deg C Insulation Colors Jacket Color **RoHS** Compliant

Mechanical Properties:

Max. Recommended Pull Tension Min. Bend Radius (Install)

Specification Issue Date: 7/06

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-10°C To +60°C 150 V RMS 34 pf/ft Nom. 2.7 Ohms/1M' Nom. Black, Red Gray, Black Yes



Standard Lengths are 1000ft. The Jacket is sequentially footmarked. The information presented here is, to the best of our knowledge, is true and accurate. However, since conditions of use are beyond our control, all recommendations or suggestions are presented without guarantee or responsibility on our part. We disclaim all liability in connection with the use of information contained herein or otherwise.

84 lbs

2.25"

Technical Data Sheet Data Grade RS-485 Cables



WEST PENN WIRE

2833 West Chestnut Street Washington, PA 15301 Toll Free: (800) 245-4964 Fax: (724) 222-6420 www.westpenn-wpw.com

PART NUMBER:	D4854
DESCRIPTION:	4 Pair 24 Awg. Stranded tinned copper conductors, shielded with an overall jacket.
NEC RATING:	CM, NEC Article 800
APPROVALS:	(UL) Listed
APPLICATION:	Indoor data cable for: Computer Application, Low-Capacitance Data.

Construction Parameters:

Conductor Stranding Insulation Material Insulation Thickness Number of Conductors Shield Drain Jacket Material Jacket Thickness Overall Cable Diameter Approximate Cable Weight Flame Rating

Electrical & Environmental Properties:

Temperature Rating Operating Voltage Max.Capacitance Between Conductors @ 1 KHz Capacitance Between Conductors to Shield @ 1 KHz DC Resistance per Conductor @ 20deg C Velocity of Propagation Impedance Insulation Colors

Jacket Color RoHS Compliant

Mechanical Properties:

Max. Recommended Pull Tension Min. Bend Radius (Install)

Specification Issue Date: 7/06

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-20deg C to 60deg C 300 V RMS 12.8 pf/ft Nom. 23 pf/ft Nom. 24 Ohms/1M' Nom. 66% Nom. 120Ω Nom 1. Blue- White/Blue, 2. Orange-White/Orange, 3. Green-White/Green, 4. Brown- White/Brown Gray

110 lbs. 3.4"

Technical Data Sheet Aquaseal® Communication Cables





2833 West Chestnut Street Washington, PA 15301 Toll Free: (800) 245-4964 Fax: (724) 222-6420 www.westpenn-wpw.com



PART NUMBER:	AQC224
DESCRIPTION:	18/2 Stranded bare copper conductors, unshielded with an Aquaseal tape and overall jacket.
NEC RATING:	CM or CL3, NEC Article 800 and 725
APPROVALS:	(UL) C(UL) Listed, (ETL)us Listed
APPLICATION:	Materials suitable for outdoor use, and indoor trays, allows a variety of uses for (Intercom, Security, Sound, Audio, Background music)

Construction Parameters:

Conductor	18 AWG Bare Copper
Stranding	7x26
Insulation Material	PVC
Insulation Thickness	0.010" Nom.
Number of Conductors	2
Shield	N/A
Drain	N/A
Water-Blocking Tape	2 ply water swellable tape
Jacket Material	Sunlight/Moisture Resistance PVC
Jacket Thickness	0.025" Nom.
Overall Cable Diameter	0.194" Nom.
Approximate Cable Weight	37 Lbs/1M' Nom.
Flame Rating	UL 1685 Vertical Tray

Electrical & Environmental Properties:

Temperature Rating	-20deg C to 60deg C
Operating Voltage	300 V RMS
Max.Capacitance Between Conductors @ 1 KHz	32pf/ft Nom.
DC Resistance per Conductor @ 20deg C	6.2 Ohms/1M' Nom.
Insulation Colors	Black, Red
Jacket Color	Gray
RoHS Compliant	
TIA455-82B Water Infiltration Test Compliant	Yes
UL 444 & 13 Compliant	Yes

Mechanical Properties:

Max. Recommended Pull Tension Min. Bend Radius (Install)

Specification Issue Date: 7/06

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42 lbs.

1.9"

Technical Data Sheet Aquaseal® Fire-Alarm Cables

Aquaseal

cables



2833 West Chestnut Street Washington, PA 15301 Toll Free: (800) 245-4964 Fax: (724) 222-6420 www.westpenn-wpw.com

18 AWG Bare Copper

2 Ply water swellable tape

Sunlight/ Moisture Resistant PVC

PVC with Nylon

PVC 0.015" Nom. Nylon .005" Nom.

7x26

4

None

None

0.040" Nom.

0.327" Nom.

64 Lbs/1M' Nom.

201 04 601

UL 1685 Vertical Tray

	www.westpenn-wpw.com
PART NUMBER:	AQ244
DESCRIPTION:	18/4 Stranded bare copper conductors, overall unshielded with Aquaseal tape and overall jacket.
NEC RATING:	FPL – PLTC, NEC Article 760 And 725
APPROVALS:	(UL) or (ETL)us Listed- Direct Burial
APPLICAT	Materials suitable for outdoor use(direct burial), and indoor trays, allows a variety of uses for (Low voltage industrial process control circuits, Power-Limited circuits, Power-Limited fire alarm circuits, Power-Limited tray cable PLTC)

Construction Parameters:

Conductor Stranding Insulation Material Insulation Thickness

Number of Conductors Shield Drain Water-Blocking Tape Jacket Material Jacket Thickness Overall Cable Diameter Approximate Cable Weight Flame Rating

Electrical & Environmental Properties:

Mechanical Properties:		
UL 444 & 13 Compliant	Yes	
TIA455-82B Water Infiltration Test Compliant	Yes	
RoHS Compliant		
Jacket Color	Black	
Insulation Colors	Black, Red, Brown, Blue	
DC Resistance per Conductor @ 20deg C	6.4 Ohms/1M' Nom.	
Max.Capacitance Between Conductors @ 1 KHz	25 pf/ft Nom.	
Operating Voltage	300 V RMS	
Temperature Rating	-20deg C to budeg C	

Max. Recommended Pull Tension Min. Bend Radius (Install)

98 lbs. 3.2"

Specification Issue Date: 7/06

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Technical Data Sheet Aquaseal® Communication Cables



2833 West Chestnut Street 301 4964 20 .com



tape and overall jacket.

		Washington, PA 153 Toll Free: (800) 245-4 Fax: (724) 222-642 www.westpenn-wpw.
PART NUMBER:	AQC3186	
DESCRIPTION:	18/6 Stranded bare copper conductors, shie	elded with an Aquaseal

NEC RATING: CM or CL3, NEC Article 800 and 725

APPROVALS: (UL) C(UL) Listed, (ETL)us Listed

APPLICATION: Materials suitable for outdoor use, and indoor trays, allows a variety of uses for (Intercom, Security, Sound, Audio, Background music)

Construction Parameters:

Conductor Stranding Insulation Material Insulation Thickness Number of Conductors Shield Drain Water-Blocking Tape Jacket Material Jacket Thickness **Overall Cable Diameter** Approximate Cable Weight Flame Rating

Electrical & Environmental Properties:

Temperature Rating	-20deg C to 60deg C
Operating Voltage	300 V RMS
Max.Capacitance Between Conductors @ 1 KHz	68 pf/ft Nom.
Capacitance Between Conductors to Shield @ 1 KHz	122 pf/ft Nom.
DC Resistance per Conductor @ 20deg C	6.2 Ohms/1M' Nom.
Insulation Colors	Black, Red, White, Green, Brown, Blue
Jacket Color	Gray
RoHS Compliant	
TIA455-82B Water Infiltration Test Compliant	Yes
UL 444 & 13 Compliant	Yes

Mechanical Properties:

Max. Recommended Pull Tension Min. Bend Radius (Install)

Specification Issue Date: 7/06

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141 lbs.

3.2"

18 AWG Bare Copper 7x26 PVC 0.010" Nom. 6 100% Aluminum Polyester Foil Stranded Drain Wire 2 ply water swellable tape Sunlight/Moisture Resistance PVC 0.025" Nom. 0.323" Nom. 54 Lbs/1M' Nom. UL 1685 Vertical Tray

Technical Data Sheet Aquaseal® Communication Cables





2833 West Chestnut Street Washington, PA 15301 Toll Free: (800) 245-4964 Fax: (724) 222-6420 www.westpenn-wpw.com



PART NUMBER:	AQC225
DESCRIPTION:	16/2 Stranded bare copper conductors, unshielded with an Aquaseal tape and overall jacket.
NEC RATING:	CM or CL3, NEC Article 800 and 725
APPROVALS:	(UL) C(UL) Listed, (ETL)us Listed
APPLICATION:	Materials suitable for outdoor use, and indoor trays, allows a variety of uses for (Intercom, Security, Sound, Audio, Background music)

Construction Parameters:

Conductor 16 AWG Bare Copper Stranding 19x29 PVC Insulation Material 0.010" Nom. Insulation Thickness Number of Conductors 2 Shield None Drain None Water-Blocking Tape 2 ply water swellable tape Jacket Material Sunlight/Moisture Resistance PVC 0.025" Nom. Jacket Thickness 0.228" Nom. **Overall Cable Diameter** 48 Lbs/1M' Nom. Approximate Cable Weight Flame Rating

Electrical & Environmental Properties:

Temperature Rating	-20deg C to 60deg C	
Operating Voltage	300 V RMS	
Max.Capacitance Between Conductors @ 1 KHz	33 pf/ft Nom.	
DC Resistance per Conductor @ 20deg C	4.2 Ohms/1M' Nom.	
Insulation Colors	Black, Red	
Jacket Color	Gray	
RoHS Compliant		
TIA455-82B Water Infiltration Test Compliant	Yes	
UL 444 & 13 Compliant	Yes	
-		

Mechanical Properties:

Max. Recommended Pull Tension Min. Bend Radius (Install)

Specification Issue Date: 7/06

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54 lbs.

2.2"

48 Lbs/1M' Nom. UL 1685 Vertical Tray -20deg C to 60deg C 300 V RMS 33 pf/ft Nom. 4.2 Ohms/1M' Nom.

Technical Data Sheet Aquaseal ® Fire-Alarm Cables





2833 West Chestnut Street Washington, PA 15301 Toll Free: (800) 245-4964 Fax: (724) 222-6420 www.westpenn-wpw.com

14 AWG Bare Copper

2 Ply water swellable tape

Sunlight/ Moisture Resistant PVC

PVC with Nylon

PVC 0.015" Nom. Nylon .005" Nom.

19x27

2 (1 Pair)

0.040" Nom.

0.310" Nom.

59 Lbs/1M' Nom.

UL 1685 Vertical Tray

None

None



PART NUMBER:	AQ226
DESCRIPTION:	14/2 Stranded bare copper conductors, overall unshielded with Aquaseal tape and overall jacket.
NEC RATING:	FPL – PLTC, NEC Article 760 And 725
APPROVALS:	(UL) or (ETL)us Listed – Direct Burial
APPLICATION:	Materials suitable for outdoor use (direct burial), and indoor trays, allows a variety of uses for (Low voltage industrial process control circuits, Power-Limited circuits, Power-Limited fire alarm circuits, Power-Limited tray cable PLTC)

Construction Parameters:

Conductor Stranding Insulation Material Insulation Thickness

Number of Conductors Shield Drain Water-Blocking Tape Jacket Material Jacket Thickness Overall Cable Diameter Approximate Cable Weight Flame Rating

Electrical & Environmental Properties:

Temperature Rating	-20deg C to 60deg C
Operating Voltage	300 V RMS
Max.Capacitance Between Conductors @ 1 KHz	32 pf/ft Nom.
DC Resistance per Conductor @ 20deg C	2.7 Ohms/1M' Nom.
Insulation Colors	Black, Red
Jacket Color	Black
RoHS Compliant	
TIA455-82B Water Infiltration Test Compliant	Yes
UL 444 & 13 Compliant	Yes

Mechanical Properties:

Max. Recommended Pull Tension Min. Bend Radius (Install)

Specification Issue Date: 7/06

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84 lbs.

Standard Lengths are 1000ft. The Jacket is sequentially footmarked.





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PART NUMBER:	25221B
DESCRIPTION:	22/2 Stranded bare copper conductors, unshielded with an overall jacket.
NEC RATING:	CMP, NEC Article 800
APPROVALS:	(UL) C(UL) Listed or c(ETL)us Listed
APPLICATION:	Indoor within ducts, plenums, and other spaces used for environmental air for (Intercom Systems, Security Systems, Sound, Audio, Background Music)

Construction Parameters:

Conductor	22 AWG Bare Copper	
Stranding	7x30	
Insulation Material	PVC	
Insulation Thickness	0.007" Nom.	
Number of Conductors	2	
Shield	None	
Drain	None	
Jacket Material	PVC	
Jacket Thickness	0.015" Nom.	
Overall Cable Diameter	0.116" Nom.	
Approximate Cable Weight	11 Lbs/1M' Nom.	
Flame Rating	NFPA 262 Flame Test	

Electrical & Environmental Properties:

Temperature Rating Operating Voltage Max.Capacitance Between Conductors @ 1 KHz DC Resistance per Conductor @ 20deg C Insulation Colors Jacket Color RoHS Compliant

Mechanical Properties:

Max. Recommended Pull Tension Min. Bend Radius (Install)

Specification Issue Date: 7/06

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Standard Lengths are 1000ft. The Jacket is sequentially footmarked. The information presented here is, to the best of our knowledge, is true and accurate. However, since conditions of use are beyond our control, all recommendations or suggestions are presented without guarantee or responsibility on our part. We disclaim all liability in connection with the use of information contained herein or otherwise.

24 lbs

1.4"



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	www.westpenn-wpw.com
PART NUMBER:	25241B
DESCRIPTION:	22/4 Stranded bare copper conductors, unshielded with an overall jacket.
NEC RATING:	CMP, NEC Article 800
APPROVALS:	(UL) C(UL) Listed or c(ETL)us Listed
APPLICATION:	Indoor within ducts, plenums, and other spaces used for environmental air for (Intercom Systems, Security Systems, Sound, Audio, Background Music)

Construction Parameters:

Conductor Stranding Insulation Material Insulation Thickness Number of Conductors Shield Drain Jacket Material Jacket Thickness Overall Cable Diameter Approximate Cable Weight Flame Rating

Electrical & Environmental Properties:

Temperature Rating Operating Voltage Max.Capacitance Between Conductors @ 1 KHz DC Resistance per Conductor @ 20deg C Insulation Colors Jacket Color RoHS Compliant

Mechanical Properties:

Max. Recommended Pull Tension Min. Bend Radius (Install)

Specification Issue Date: 7/06

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-10°C To +60°C 300 V RMS 25 pf/ft Nom. 16.1 Ohms/1M' Nom. Black, Red, White, Green Gray Yes



Standard Lengths are 1000ft. The Jacket is sequentially footmarked. The information presented here is, to the best of our knowledge, is true and accurate. However, since conditions of use are beyond our control, all recommendations or suggestions are presented without guarantee or responsibility on our part. We disclaim all liability in connection with the use of information contained herein or otherwise.

36 lbs

1.4"

Technical Data Sheet RG59/U Type CCTV Coaxial Cable



2833 West Chestnut Street Washington, PA 15301 Toll Free: (800) 245-4964 Fax: (724) 222-6420 octnonn wnw

	www.westpenn-wpw.com	
PART NUMBER:	25815	
DESCRIPTION:	RG59/U – 1 Conductor 20AWG Solid, 95% Bare copper braid and an overall Flex Plenum Jacket.	
NEC RATING:	CMP	
APPROVALS:	(UL) C(UL) Listed or c(ETL)us Listed	
APPLICATION:	Indoor within duct, plenum and other spaces used for environmental air for: CCTV	

Construction Parameters:

Conductor	20 AWG Bare Copper	
Stranding	Solid	
Insulation Material	Foam FEP – Teflon	
Insulation Thickness	.138" Nom.	
Number of Conductors	1 Center Conductor	
Shield	95% BC Braid	
Jacket Material	Flex Plenum PVC	
Overall Cable Diameter	0.207" Nom.	
Approximate Cable Weight	30 Lbs/1M' Nom.	
Flame Rating	UL NFPA262	

Electrical & Environmental Properties:		Mhz	db/100ft
Temperature Rating Max. Capacitance Between Conductors @ 1 KHz Velocity of Propagation Impedance DC Resistance per Conductor @ 20deg C Jacket Color RoHS Compliant	-20deg C to 60deg C 16.2 pf/ft Nom. 82% Nom. 75 ohms Nom. 10.1 Ohms/1M' Nom. Ivory Yes	1 10 50 100 400 700 1000	.30 1.03 1.80 2.52 5.30 7.34 8.76
Mechanical Properties:	I		

Max. Recommended Pull Tension Min. Bend Radius (Install)

Connectors and Accessories

75 ohm BNC Crimp	CN-BM74-32	Crimp Tool: TL-104	Strip Tool: TL-121
1 Pc. Compression BNC 75 ohm	CN-FS59BNCPL4	Comp. Tool: TL-SNSA	Strip Tool: TL-CSST
Compression RCA	CN-FS59RCAPL4	Comp. Tool: TL-SNSA	Strip Tool: TL-CSST

Specification Issue Date: 7/06

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52 lbs.

2.1"

Technical Data Sheet Data Grade Cables





2833 West Chestnut Street Washington, PA 15301 Toll Free: (800) 245-4964 Fax: (724) 222-6420 www.westpenn-wpw.com

PART NUMBER:	D25420
DESCRIPTION:	2 Pair 22 Awg. Solid tinned copper conductors, individually shielded with an overall jacket.
NEC RATING:	CMP, NEC Article 800
APPROVALS:	(UL)- C(UL) Listed or c(ETL)us Listed
APPLICATION:	Indoor data cable for: Control, Signaling, Electronic, Microprocessor Based.

Construction Parameters:

Conductor Stranding Insulation Material Insulation Thickness Number of Conductors Shield Drain Jacket Material Jacket Thickness Overall Cable Diameter Approximate Cable Weight Flame Rating

Electrical & Environmental Properties:

Temperature Rating Operating Voltage Max.Capacitance Between Conductors @ 1 KHz Capacitance Between Conductors to Shield @ 1 KHz DC Resistance per Conductor @ 20deg C Velocity of Propagation Impedance Insulation Colors Jacket Color RoHS Compliant

Mechanical Properties:

Max. Recommended Pull Tension Min. Bend Radius (Install) Specification Issue Date: 7/06

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Cold Environment Precautions: Due to the nature of PVC Compounds to become non-pliable when stored or handled in ambient temperatures of 32 deg. F or less, we recommend the following:

"Prior to installation, condition the cable for at least 24 hours at room temperature to provide the best flex properties for ease of installation." 22 AWG Tinned Copper Solid Teflon 0.012" Nom. 4 100% Aluminum Polyester Foil Stranded Tinned Copper Copolymer 0.015" Nom. 0.185" Nom. 24 Lbs/1M' Nom. NFPA 262 Flame Test

-10deg C to 60deg C 300 V RMS 15.5 pf/ft Nom. 28 pf/ft Nom. 17.5 Ohms/1M' Nom. 69% Nom. 100Ω Nom 1. Black/Yellow, 2. Red/Green Gray Tint

56 lbs. 1.8"

Technical Data Sheet- Indoor/Outdoor RG59/U Type CCTV Coaxial Cable





2833 West Chestnut Street Washington, PA 15301 Toll Free: (800) 245-4964 Fax: (724) 222-6420 www.westpenn-wpw.com

PART NUMBER:	AQC815
DESCRIPTION:	RG59/U – 1 Conductor 20AWG Solid, 95% Bare copper braid waterblocking tape and an overall Sunlight Resistant PVC Jacket.
NEC RATING:	CM, CL2
APPROVALS:	(UL) C(UL) Listed or c(ETL)us Listed
APPLICATION:	Indoor/Outdoor for: Security Cable - CCTV

Construction Parameters:

Conductor Stranding Insulation Material Insulation Thickness Number of Conductors Shield Waterblocking Tape Jacket Material **Overall Cable Diameter** Approximate Cable Weight Flame Rating

20 AWG Bare Copper Solid Gas Injected Polyethylene .142" Nom. 1 Center Conductor 95% Bare Copper Braid 2 Ply Sunlight Resistant PVC 0.242" Nom. 17 Lbs/1M' Nom. UL 1685

Electrical & Environmental Properties:

Temperature Rating	-20deg C to 60deg C	1	.5
Max.Capacitance Between Conductors @ 1 KHz	16.2 pf/ft Nom.	10	.68
Velocity of Propagation	82% Nom.	50	1.80
Impedance	75 ohms Nom.	100	3.0
DC Resistance per Conductor @ 20deg C	10.1 Ohms/1M' Nom.	100	171
Jacket Color	Black	400	4./1
RoHS Compliant	Yes	700	6.40
Kons compliant	100	1000	7.80

Mechanical Properties:

Max. Recommended Pull Tension Min. Bend Radius (Install)

Connectors and Accessories

75 ohm BNC Crimp 1 Pc. Compression BNC 75 ohm Compression RCA

CN-BM74-32	Crimp Tool: TL-104	S
CN-CSBNC-59	Comp. Tool: TL-SNSA	S
CN-CSRCA-59	Comp. Tool: TL-SNSA	S

41 lbs.

2.5"

Strip Tool: TL-121 Strip Tool: TL-CSST Strip Tool: TL-CSST

Mhz

db/100ft

Specification Issue Date: 7/06

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Technical Data Sheet Aquaseal® Communication Cables



2833 West Chestnut Street Washington, PA 15301 Toll Free: (800) 245-4964 Fax: (724) 222-6420 www.westpenn-wpw.com

22 AWG Bare Copper

100% Aluminum Polyester Foil

2 ply water swellable each pair

Stranded Tinned Copper

7x30 PVC

0.010" Nom.

4 (2 Pair)



PART NUMBER:	AQC430
DESCRIPTION:	2 Pair 22 Awg. Stranded bare copper conductors, individually shielded with an Aquaseal tape and overall jacket.
NEC RATING:	CM or CL3, NEC Article 800 and 725
APPROVALS:	(UL) C(UL) Listed, (ETL)us Listed
APPLICATION:	Materials suitable for outdoor use, and indoor trays, allows a variety of uses for (Intercom, Security, Sound, Audio, Background music)

Construction Parameters:

Conductor Stranding Insulation Material Insulation Thickness Number of Conductors Shield Drain Water-Blocking Tape

Jacket MaterialOverall 2 Ply water swellable tapeJacket MaterialSunlight/Moisture Resistance PVCJacket Thickness0.025" Nom.Overall Cable Diameter0.380" Nom.Approximate Cable Weight29 Lbs/1M' Nom.Flame RatingUL 1685 Vertical Tray

Electrical & Environmental Properties:

Temperature Rating	-20deg C to 60deg C
Operating Voltage	300 V RMS
Max.Capacitance Between Conductors @ 1 KHz	55 pf/ft Nom.
Capacitance Between Conductors to Shield @ 1 KHz	99 pf/ft Nom.
DC Resistance per Conductor @ 20deg C	17 Ohms/1M' Nom.
Insulation Colors	Black, Red
Jacket Color	Gray
RoHS Compliant	
TIA455-82B Water Infiltration Test Compliant	Yes
UL 444 & 13 Compliant	Yes

Mechanical Properties:

Max. Recommended Pull Tension Min. Bend Radius (Install)

Specification Issue Date: 7/06

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Hook and Loop Cable Ties

The comprehensive family of hook and loop cable ties delivers reliability by protecting against over-tensioning of high performance fiber and copper cables. These ties are adjustable, releasable, and reusable to effectively support frequent moves, adds, and changes (MACs). A wide range of designs, sizes, and colors provides flexibility and an aesthetically pleasing appearance.



Key Features	Benefits
Soft hook and loop material	Reliability – Safe way to effectively bundle cables while maintaining network data integrity by protecting against over-tensioning; minimal installation time; no tools required
Releasable design	Scalability – Adjustable, releasable, and reusable to accommodate frequent moves, adds, and changes (MACs) which supports evolving changes to equipment and cabling for future growth; supports rapid deployment
Wide range of designs, sizes, and colors	Aesthetics – Allows design flexibility and provides a professional, finished appearance
Plenum rated styles	UL listed cable ties can be safely applied in plenum or air handling spaces per NEC, Section 300-22 (C) and (D) $$
Comprehensive product offering	Supports a wide range of applications; allows maximum installation flexibility



Так-Тү®Loop Ties Slot allows for pre-wrapping of bundles



Так-Тү[®] Cable Ties – Plenum-rated UL Listed loop style and strip style



Так-Тү[®] Strip Ties Rolls perforated in convenient 6", 12" or 18" strips



ULTRA-CINCH[™] Ties Cinch ring provides extra strength



Так-Тү[®] **Stacked Strips** Eliminates cutting and staging 7" Strips (100 pieces)



ULTRA-CINCH[™] Ties Grommet styles for mounting applications



Так-Тү[®] Rolls Lengths: 15' and 75' can be cut to any length



Так-Таре[™] Rolls General purpose fastener

TAK-TY[®] Hook & Loop Cable Ties

- Soft, premium material is safe to use on high performance cabling
- Adjustable, releasable, and reusable up to hundreds of times
- Broad selection of durable designs and sizes
- Select ties are UL listed for use in plenum or air handling spaces (such as ceiling voids and under floor areas) per NEC, Section 300-22 (C) and (D); flammability rating: UL 94V-2

A full range of colors; see Color Chart on page 4





Rack application X-Out for #10 Truss Head Screw Loop Tie: HLT2I-X0

Available in eight colors

Ordering Information



Overhead application Continuous rolls HLS-15R6



Convenient packaging (100 pcs.) HLB2S-CO



Underfloor (Plenum application) HLSP3S-X12 HLTP3I-X12



Rack application Continuous rolls HLS-15R10, HLS-15R6

	Len	ngth	Wi	Max. Width Bundle Dia.		ax. le Dia.	Min. Tensil	Loop e Str.*	Std. Pkg.	Std. Ctn.
Part Number	In.	mm	In.	mm	In.	mm	Lbs.	N	Qty.	Qty.
Loop Ties – Slot a	allows fo	or pre-wra	apping o	f bundle	s; X-Out	allows for	or use wit	th #10 tru	iss head	screw
HLT2I-X0	8.0	203	.500	12.7	1.91	49	40	178	10	100
HLT3I-X0	12.0	305	.500	12.7	3.18	81	40	178	10	100
UL Listed Loop	Ties (Ma	aroon) fo	or plenu	m applio	cations					
HLTP2I-X12	8.0	203	.500	12.7	1.91	49	40	178	10	100
HLTP3I-X12	12.0	305	.500	12.7	3.18	81	40	178	10	100
UL Listed Loop Ties (Black) for plenum applications										
HLTP2I-X0	8.0	203	.500	12.7	1.91	49	18	80	10	100
HLTP3I-X0	12.0	305	.500	12.7	3.18	81	18	80	10	100

Strip Ties – Perforated in convenient 6", 12", and 18" strips

•				, ,						
HLS1.5S-X0	6.0	152	.750	19.1	1.50	38	50	222	10	100
HLS3S-X0	12.0	305	.750	19.1	3.20	81	50	222	10	100
HLS5S-X0	18.0	457	.750	19.1	5.00	127	50	222	10	100

Stacked Strip Ties – Eliminates cutting ties to length and staging them for each job NEW! Rounded edges for installer safety - 100 pcs.

HLB2S-C0	7.0	178	.750	19.1	1.60	41	50	222	1	10

UL Listed Strip Ties (Maroon) for plenum applications

	•									
HLSP1.5S-X12	6.0	152	.750	19.1	1.50	38	50	222	10	100
HLSP3S-X12	12.0	305	.750	19.1	3.20	81	50	222	10	100
HLSP5S-X12	18.0	457	.750	19.1	5.00	127	50	222	10	100
UL Listed Strip Ties (Black) for plenum applications										
HLSP1.5S-X0	6.0	152	.750	19.1	1.50	38	18	80	10	100
HLSP3S-X0	12.0	305	.750	19.1	3.20	81	18	80	10	100
HLSP5S-X0	18.0	457	.750	19.1	5.00	127	18	80	10	100

	Len	gth	Wie	dth	Ma Bundl	ax. le Dia.	Min. Tensil	Loop e Str.*	Std. Pka.	Std. Ctn.
Part Number	lumber Ft. m In. mm In. mm Lbs. N C	Qty.	Qty.							
Continuous Rolls – 15' and 75' Lengths – Can be cut to desired length, eliminating waste										
HLM-15R0	15	4.6	.330	8.4	Various	Various	18	80	1	10
HLS-15R0	15	4.6	.750	19.1	Various	Various	50	222	1	10
HLS-75R0	75	22.9	.750	19.1	Various	Various	50	222	1	10

*Minimum 2" overlap required to achieve loop tensile rating.

- Soft, premium material is safe to use on high performance cabling
- Adjustable, releasable, and reusable multiple times
- Unique material with hooks and loops on same side allows user to secure a greater range of bundle diameters, including smaller diameter bundles
- Low profile contoured cinch ring provides extra strength and bundle tightness, while reducing overall bundle size
- Grommet styles offer strength and assure reliable installations that resist pullout when bundling and mounting cables within cabinet applications
- Tapered tip facilitates easy, snag-free threading
- A full range of colors; see Color Chart on page 4



Three styles available in eight colors





Cinch tie on bundle UCT3S-X0

Ordering Information

		:	
	•		
	0		-
	41		2
1	4		Y
		2	

Cinch Tie mounted on rack UGCTC3S-X0

	Len	gth	n Width		Ma Bund	Max. Bundle Dia.		Min. Loop Tensile Str.*		Std. Ctn.	
Part Number	In.	mm	In.	mm	In.	mm	Lbs.	N	Qty.	Qty.	
Cinch Ties											
UCT3S-X0	12.0	305	.850	21.6	3.00	76	50	222	10	100	
UCT5S-X0	18.0	457	.850	21.6	5.00	127	50	222	10	100	
Cinch Ties – Cer	nter Mou	unt Gror	nmet (B	undle is	centere	d over ı	nounting	g point)			
UGCTC3S-X0	12.0	305	.850	21.6	3.00	76	50	222	10	100	
UGCTC5S-X0	18.0	457	.850	21.6	5.00	127	50	222	10	100	
Cinch Ties – End Mount Grommet (Bundle is offset from mounting point)											
UGCTE3S-X0	12.0	305	.850	21.6	3.00	76	50	222	10	100	
UGCTE5S-X0	18.7	475	.850	21.6	5.00	127	50	222	10	100	

Note: 1/4" (6mm) diameter mounting hole on grommet style cinch ties. *Minimum 2" overlap required to achieve loop tensile rating.



Cinch Tie mounted within cabinet UGCTC3S-X10







Bundle is offset from mounting point

Part Number	Part Description	Std. Pkg. Qty.	Std. Ctn. Qty						
Flat Head Screws for Grommet Cinch Ties									
UCTGS1224-X	12-24 UNC x 5/8mm (.625") flat head phillips screw.	10	100						
UCTGSM5-X	M5 x 16mm flat head phillips screw.	10	100						
UCTGSM6-X	M6 x 16mm flat head phillips screw.	10	100						

Tak-Tape[™] Hook & Loop Cable Tie Rolls

- Strong, low profile flexible material; safe to use on high performance cabling
- Adjustable, releasable, and reusable
- Cost effective for general purpose bundling
- Continuous rolls can be easily cut to size
- Leaves no residue
- Available in black color

Ordering Information





Convenient packaging

TTS-35RX0

	Ler	ngth	Wi	dth	Ma Bund	ax. Ie Dia.	Min. Loop Tensile Str.*		Packaging	Std. Pkg.	Std. Ctn.
Part Number	Ft.	m	In.	mm	In.	mm	Lbs.	N	Description	Qty.	Qty.
TTS-20R0	20	6.1	.750	19.1	Various	Various	40	178	One 20' roll in reusable plastic case.	1	10
TTS-35R3-0	35	10.7	.750	19.1	Various	Various	40	178	One package of three 35' rolls shrink wrapped.	1	8
TTS-35RX0	35	10.7	.750	19.1	Various	Various	40	178	One package of ten 35' rolls shrink wrapped; <i>PANDUIT</i> cutter included.	1	10

*Minimum 2" overlap required to achieve loop tensile rating.

Color Chart for Hook and Loop Cable Ties

	Black	Red	Orange	Yellow	Green	Blue	Gray	White	Maroon
Part Prefix	0	2	3	4	5	6	8	10	12
HLT, HLS, HLB, HLM	•	•	•	•	•	•	•	•	
HLTP, HLSP (Plenum)	•								•
UCT, UGCTC, UGCTE	•	•	•	•	•	•	•	•	
TTS	•								

Related Network Bundling Products

Elastomeric Cable Ties



- Elastic, flexible tie; safe on network cables and installers
- UL 94V-0 flammability rating meets telecommunication requirements
- Releasable and reusable

Cable Bundle Organizing Tool



- Reduces cable installation time up to 50%
- Arranges 24 cables optimizing bundle size and improving installed appearance
- Accommodates a wide range of data cable diameters

Cable Tie Mounts



- · For use with hook and loop cable ties
- · Unique cradle design provides maximum stability for cable bundle
- · Choice of adhesive backed or screw mount styles provides installer flexibility

WORLDWIDE SUBSIDIARIES AND SALES OFFICES

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PRODUCT BULLETIN

Turn-Tell[™] Labels NEW!

Panduit innovative Turn-Tell[™] Labels provide a unique identification solution to meet the application needs of data centers, industrial automation, and other structured cabling infrastructures. These new pressure-sensitive, self-laminating labels improve visibility, placement, aesthetics, and flexibility of the labeling application. The labels are unique because they can rotate on the wire/cable after installation to allow visibility from any angle. In addition, they allow repositioning along the length of the cable which further improves ease of installation and flexibility in high density or space restrained applications. Installers will save time and material by being able to reposition the label after pulling the wire/cable and cutting it to final length for termination.

Offered in a wide range of sizes, the new Turn-Tell[™] Labels are available in P1[™] Cassettes for the PanTher[™] LS8E and LS8EQ Hand-Held Thermal Transfer Printers. They are also offered in computer printable rolls, ready to print on demand using Panduit[®] Easy-Mark[™] Labeling Software and desktop thermal transfer printers.



Key Features	Benefits
Innovative design allows label to be moved after installation	Allows labels to rotate for visibility from any angle, and allows repositioning on the wire/cable to align legends for improved aesthetics
	Labels can be easily repositioned once installed on the wire/cable to save time and cost associated with relabeling; ideal for use in high density or space constrained cable applications
Wrap-around wire/cable label	Permits labels to be installed on terminated wires/cables without disconnecting for increased productivity, performance, and cost savings
Perforated adhesive backed anchor	Facilitates easy installation; prevents unintended movement in vertical or high vibration applications for superior performance
On-demand labeling solution	Labels can be printed in the office using desktop thermal transfer printers or in the field using the PanTher [™] LS8E or LS8EQ Hand-Held Thermal Transfer Printers; more cost effective than pre-printed solutions
Thermal transfer print technology	Provides crisp, clear, and durable legends for a reliable, high performance identification solution



"See the difference" with Turn-Tell[™] Labels

Turn-Tell™ Labels



		Wi	dth	Lei	ngth	Print-on Height		Cable Diameter Range		Std. Pkg.
Part Number	Part Description	In.	mm	In.	mm	In.	mm	In.	mm	Qty.
Labels on Rolls for Use with Easy-Mark [™] Labeling Software and Desktop Thermal Transfer Printers										
R100X075V1T	White, 18-14 AWG wire/cable.	1.00	25.4	0.75	19.1	0.25	6.4	0.12 - 0.16	3.0 - 4.0	2500
R100X125V1T	White, 12-10 AWG wire/cable.	1.00	25.4	1.25	31.8	0.38	9.7	0.16 - 0.22	4.1 – 5.6	2500
R100X150V1T*	White, Cat 5/5e/6 cable.	1.00	25.4	1.50	38.1	0.50	12.7	0.22 - 0.28	5.6 – 7.1	2500
R100X225V1T*	White, 8-4 AWG wire/cable.	1.00	25.4	2.25	57.2	0.75	19.1	0.28 - 0.39	7.1 – 9.9	2500
R100X400V1T	White, 2 AWG – 250 MCM wire/cable.	1.00	25.4	4.00	101.6	1.00	25.4	0.39 – 0.95	9.9 – 24.1	1000
R200X225V1T	White, 8-4 AWG wire/cable.	2.00	50.8	2.25	57.2	0.75	19.1	0.28 - 0.39	7.1 – 9.9	1000
R200X400V1T	White, 2 AWG – 250 MCM wire/cable.	2.00	50.8	4.00	101.6	1.00	25.4	0.39 – 0.95	9.9 – 24.1	1000

*For other colors replace suffix V1T (White) with V2T (Blue), V3T (Green), V7T (Red), or V8T (Yellow).



P1 [™] Label Ca	assettes for Use with the Pa	InTher	™ LS8E	E and L	.S8EQ F	land-H	eld The	ermal Transfe	er Printers	
R100X075V1C	White print-on, 18-14 AWG wire/cable, 150/cassette.	1.00	25.4	0.75	19.1	0.25	6.4	0.12 – 0.16	3.1 – 4.1	1
R100X125V1C	White print-on, 12-10 AWG wire/cable, 100/cassette.	1.00	25.4	1.25	31.8	0.38	9.7	0.16 - 0.22	4.1 – 5.6	1
R100X150V1C	White print-on, Cat 5/5e/6 cable, 100/cassette.	1.00	25.4	1.50	38.1	0.50	12.7	0.22 - 0.28	5.6 – 7.1	1
R100X225V1C	White print-on, 8-4 AWG wire/cable, 75/cassette.	1.00	25.4	2.25	57.2	0.75	19.1	0.28 - 0.39	7.1 – 9.9	1

How It Works



P

Remove the label from the liner by lifting it at the non-adhesive middle section.



Apply the top adhesive backed anchor section to the cable. For proper operation, the label should be applied squarely to the cable to avoid an uneven wrap.



Wrap the label around the cable repeatedly until completely wrapped.



2.

Once the label is completely applied to the cable, pinch lightly and rotate it in the same direction as you wrapped it. This will break the label perforation and separate the label from the anchor.



After the label is installed and detached from the anchor, it is free to rotate and slide on the cable. The anchor can be used as a stop to prevent unintended label movement in vertical or high vibration applications.

Adhesive backed anchor

PANDUIT CANADA Markham. Ontario cs-cdn@panduit.com Phone: 800.777.3300

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– DATA / P 16 AWG POWER SCHEDULE DOOR, TYP EL 16 AWG -CR DOOR W/AUTO OPERATOR, TYP ------ DATA/PWR · SIGNAL 16 AWG — PS – POWER SIGNAL KøDø≻ MONITORED DOOR, TYP C SIGNAL $-\mathbb{R}$ SIGNAL ____

CR DOOR, TYP





MOTION DETECTOR GLASS BREAK DETECTOR

KP IDS KEYPAD

GB

MD

DB DURESS BUTTON

\bigcirc MAGNETIC DOOR CONTACT

EL ELECTRIC MORTISE LOCK

ED ELECTRIC EXIT DEVICE

TELECOMMUNICATIONS:

REPRESENTATIVE.

SECURITY:

CR

HADA

RX REX MOTION DETECTOR, WALL OR CEILING MOUNTED ABOVE DOOR PS

LOCAL DOOR HARDWARE POWER SUPPLY

AUTOMATIC DOOR OPERATOR ACTUATOR

CARD READER, MOUNTED +42" AFF UON.

GENERAL SHEET NOTES

NUMBERED SHEET NOTES

S-4 INTERCONNECT LOCK OUTPUTS FOR EACH CARD READER DOOR WITH DRY CONTACT INPUT ON LOCK POWER SUPPLY. DO NOT SWITCH LOCK COIL LOAD THROUGH ACU RELAYS.

S-5 THESE ALARMS REPRESENT INPUTS FROM MONITORED FIELD DEVICES AND SHOULD BE SUPERVISED. NOT REPRESENTED ARE TAMPERS WHICH CAN BE UNSUPERVISED.

T-1 TELECOMMUNICATIONS CONTRACTOR TO PROVIDE DEDICATED ANALOG PHONE LINE FOR ALARM PANEL.

2. ACAMS BLOCK DIAGRAM IS DIAGRAMMATIC ONLY. PROVIDE ACU PANELS AND POWER SUPPLIES TO SUPPORT THE FIELD DEVICES SHOWN ON FLOOR PLANS.

S-1 PROVIDE PATCH CORD FROM OWNER PROVIDED SWITCH TO DEVICE.

S-2 PROVIDE INDIVIDUAL POWER FEED TO EACH 12VDC FIELD DEVICE.

S-3 PROVIDE INDIVIDUAL POWER FEED FOR EACH LOCK.

COORDINATE TCP/IP ADDRESS FOR CLIENT WORKSTATION WITH CONTRA COSTA IT DEPARTMENT



MULTI SENSOR IP CAMERA, TYP

FIXED IP CAMERA, TYP	
FIX A	
PTZ IP CAMERA, TYP	



GENERAL SHEET NOTES

1. COORDINATE TCP/IP ADDRESS FOR NVRS AND IP CAMERAS WITH CCC IT DEPARTMENT REPRESENTATIVE.

NUMBERED SHEET NOTES

SECURITY:

S-1 PROVIDE INDIVIDUAL 24VAC POWER FEED TO EACH IP PTZ CAMERA.

TELECOM:

T-1 PATCH CORD FROM OWNER PROVIDED SWITCH TO DEVICE BY TELECOMMUNICATIONS CONTRACTOR.

PTZ A FIXED CAMERA

PTZA PAN-TILT-ZOOM CAMERA

MULTIC MULTI SENSOR CAMERA - 360, 180, AND 270





GENERAL SHEET NOTES

COORDINATE TCP/IP ADDRESS FOR CLIENT WORKSTATION WITH CONTRA COSTA IT DEPARTMENT REPRESENTATIVE.

2. ACAMS BLOCK DIAGRAM IS DIAGRAMMATIC ONLY. PROVIDE ACU PANELS AND POWER SUPPLIES TO SUPPORT THE FIELD DEVICES SHOWN ON FLOOR PLANS.

NUMBERED SHEET NOTES

SECURITY:

S-1 PROVIDE PATCH CORD FROM OWNER PROVIDED SWITCH TO DEVICE. S-2 THESE ALARMS REPRESENT INPUTS FROM MONITORED FIELD DEVICES AND SHOULD BE SUPERVISED. NOT REPRESENTED ARE TAMPERS WHICH CAN BE UNSUPERVISED.

TELECOMMUNICATIONS:

T-1 TELECOMMUNICATIONS CONTRACTOR TO PROVIDE DEDICATED ANALOG PHONE LINE FOR ALARM PANEL.

C MAGNETIC DOOR CONTACT

KP IDS KEYPAD

MD MOTION DETECTOR

GB GLASS BREAK DETECTOR

OB DURESS BUTTON









CR	CARD REA	ADER, MOUNTED +42" AFF UON.									
DR	DOOR REI	LEASE BUTTON									
EL>	ELECTRIC	MORTISE LOCK									
ED	ELECTRIC	EXIT DEVICE									
	TRANSFER C = E = I	R HINGE DOOR POSITION & FEED-THROUGH ELECTRIC FEED-THROUGH									
RX	REX MOTI	REX MOTION DETECTOR, WALL OR CEILING MOUNTED ABOVE DOOR POWER SUPPLY									
PS	POWER S										
$\overline{\bigcirc}$	MAGNETIC	HEADER									
DB	DURESS E	BUTTON									
FIX	FIXED CO	FIXED CCTV CAMERA									
	ptz dome	E CCTV CAMERA									
(P)	INDICATES THE PROTECTED SIDE OF A DOOR.										
KP	KEYPAD, MOUNTED +42" AFF UON.										
(MD) C	MOTION D W = C =	ETECTOR WALL MOUNT CEILING MOUNT									
GB C	GLASS BR W = C =	REAK SENSOR Wall Mount Ceiling Mount									
	LOCAL AU	DIBLE ALARM									
	SECURITY,	CCTV EQUIPMENT CABINET									
Contra Costa Community CONTRA COSTA CO	MMUNITY	DESCRIPTION:	SKETCH	SY0.00							
College District COLLEGE DISTRICT		SYMBOLS LIST	DATE:	07.05.11							
pathways to success			REVISION:								
PROJECT NAME: SECURITY DESIGN GUIDELINES			SCALE:	NONE							














TELECOMMUNICATIONS CABLING PROVIDED BY			
Contra Costa Community College District Pathways to success	description: TYPICAL INTERIOR CEILING FLUSH MOUNT	SKETCH No: DATE:	SY0.08 07.05.11
project name: SECURITY DESIGN GUIDELINES		SCALE:	NTS







Contra Costa	DESCRIPTION:	SKETCH	
Community College District COLLEGE DISTRICT	TYPICAL	No:	SYU.12
pathways to success	SINGLE DOOR Contact Wiring	REVISION:	07.00.11
SECURITY DESIGN GUIDELINES		SCALE:	NTS

С

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ACCESS CONTROL PANEL INPUT/ IDS PANEL INPUT

1 (N RED 2 (N BLK - RESISTOR PACK

BLK BLK

RED

BLK

¥

ACCESS CONTROL PANEL INPUT/ IDS PANEL INPUT RED BLK C	RESISTOR PACK	
Contra Costa Community College District pathways to success	description: TYPICAL DOUBLE DOOR CONTACT WIRING	SKETCH No: SYO.13 DATE: 07.05.11 REVISION:
project name: SECURITY DESIGN GUIDELINES		SCALE: NTS



ACCESS CONTROL PANEL – READER TERMINAL BLOCK	READER	
Contra Costa Community College District	description: TYPICAL CARD READER	SKETCH No: SYO.15 DATE: 07.05.11
pathways to success PROJECT NAME:	WIRING	REVISION:
SECURITY DESIGN GUIDELINES		scale: NTS

ACCESS CONTROL PANEL INPUT $ \begin{bmatrix} 1 & 0 \\ 2 & 0 \\ 3 & 0 \\ 6 & 0 \\ 7 & 0 \\ 8 & 0 \\ 9 & 0 \\ 0 & 0 \end{bmatrix} $ POWER SUPPLY POWER SUPPLY C BLK C	REX MOTION SEN	SOR
Contra Costa Community College District	DESCRIPTION: TYPICAL REQUEST-TO-FXIT	SKETCH No: SYO.16 DATE: 07.05.11
pathways to success PROJECT NAME:	WIRING	REVISION:
SECURITY DESIGN GUIDELINES		scale: NTS

		SOFTWARE HOUSE SOFTWARE HOUSE ACM II MODULE
Contra Costa Community CONTRA COSTA COMMUNITY	DESCRIPTION:	SKETCH SY0.17 No:
College District COLLEGE DISTRICT	PANEL LAYOUT	date: 07.05.11
PROJECT NAME:		REVISION:
SECURITY DESIGN GUIDELINES		SCALE: $1 - 1/2$ "=1'-0"



	SEC	; URITY SYMBOLS LIST	
SECURITY	CONVENTIONS	SECURITY GENERAL NOTES	APPLIES T ALL SHEET
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E	SY2.P1A	SECURITY PARKING LEVEL FLOOR PLAN NORTH	х															
⊢	SY2.P1B SY2.01A	SECURITY PARKING LEVEL FLOOR PLAN SOUTH	X		+	+		\square	-	-	-	-			-			
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ACAMS BLOCK DIAGRAM IPARKING LEVEL

NUMBERED NOTES

01 PATCH CORD FROM OWNER PROVIDED SWITCH TO DEVICE.

02 INDIVIDUAL 24VDC POWER FEED FOR EACH LOCK. 03 INDIVIDUAL POWER FEED TO EACH 12VDC FIELD DEVICE.

D4 INTERCONNECT LOCK OUTPUTS FOR EACH CARD READER DOOR WITH DRY CONTACT INPUT ON LOCK POWER SUPPLY. DO NOT SWITCH LOCK COIL LOAD THROUGH ACU RELAYS.

05 UTILIZE EXISTING CABLING FROM SECURITY EQUIPMENT HUB TO FIELD DEVICES.



SECURITY ACAMS BLOCK DIAGRAM

SY0.11

1



SECOND FLOOR SECURITY ROOM 2.R.770

KEYBOARD 0

USB---

-TCP/IP-

CCTV

- OWNER PROVIDED WORKSTATION WITH DUAL MONITORS LOCATED IN SECURITY OFFICE

ACAMS



NETWORK

DATA CENTER

SOFTWARE HOUSE ACCESS CONTROL SERVER

NUMBERED NOTES

01 PATCH CORD FROM OWNER PROVIDED SWITCH TO DEVICE.

02 INDIVIDUAL 24VDC POWER FEED FOR EACH LOCK. 03 INDIVIDUAL POWER FEED TO EACH 12VDC FIELD DEVICE.

MATHERCONNECT LOCK OUTPUTS FOR EACH CARD READER DOOR WITH DRY CONTACT INPUT
 ON LOCK POWER SUPPLY. DO NOT SWITCH LOCK COIL LOAD THROUGH ACU RELAYS.



SY0.12







ACAMS BLOCK DIAGRAM (FOURTH FLOOR)

NUMBERED NOTES

01 PATCH CORD FROM OWNER PROVIDED SWITCH TO DEVICE.

02 INDIVIDUAL 24VDC POWER FEED FOR EACH LOCK. 03 INDIVIDUAL POWER FEED TO EACH 12VDC FIELD DEVICE.

MATHERCONNECT LOCK OUTPUTS FOR EACH CARD READER DOOR WITH DRY CONTACT INPUT
 ON LOCK POWER SUPPLY. DO NOT SWITCH LOCK COIL LOAD THROUGH ACU RELAYS.

05 FIRE STAIRWELL DOOR LOCKS POWERED BY BASE BUILDING POWER SUPPLY (NIC).

06 UTILIZE EXISTING CABLING FROM SECURITY EQUIPMENT HUB TO FIELD DEVICES.



SECURITY ACAMS BLOCK DIAGRAM

SY0.13

1



VSS BLOCK DIAGRAM

SY0.14



SECURITY VSS BLOCK DIAGRAM

1



SECURITY RISER DIAGRAM

SHEET NOTES

 THIS DRAWING REPRESENTS A DIAGRAMMATIC OVERVIEW OF THE SECURITY SYSTEM. REFER TO FLOOR PLANS FOR ESTIMATING PATHMAY AND CAREL ELINSTHS.
 SECURITY SYSTEM ARCHINY, SEC ENCLOSURES, AND RISER PLUL BOXES PROVIDED BY ELECTRICAL CONTRACTOR AS SHOWN ON TELECOM DRAWINGS. SHOWN FOR REFERENCE DN Y.

NUMBERED NOTES

03 (1) 2" CONDUIT FROM GROUND FLOOR DEVICES ROUTED THROUGH SUB FLOOR OF NDF TO IDF ROOM 2.M.362.

04 (1) 2" CONDUIT STUBBED FROM FINISHED FLOOR INTO SECURITY OFFICE WALL FOR SECURITY MONITORS, JOYSTICK CONTROLLER, AND TO ALLOW FOR FUTURE EXPANSION. COORDINATE EXACT LOCATION WITH OWNER.

02 UTILIZE 4" RISER CONDUITS SHOWN ON TELECOM DRAWINGS.

05 USE EXISTING CAT6A CABLE FOR IP CAMERA.

06 EXISTING POE SWITCH.

RAISED FLOOR

FOURTH FLOOR

URTH FLOOR

THIRD FLOOR

RAISED FLOOR

SECOND FLOOR

GROUND FLOOR

PARKING LEVEL ONE

1





SY1.01



SY2.P1A







SECURITY PARKING LEVEL PLAN SOUTH









SY2.01A





NUMBERED NOTES

OIL CONNECT EXISTING ALARM POINT(S) TO NEW SOFTWARE HOUSE ACCESS CONTROL PANELS. NO ADDITIONAL WORK IS NECESSARY AND ALARM POINT(S) ARE SHOWN FOR REFERENCE ONLY. 02 CONDUIT STUBBED DOWN TO PARKING LEVEL FUEL STORAGE AREA P1.S.862. REFER TO SY2.P1 FOR CONDUIT CONTINUATION 03 CONDUIT STUBBED UP TO MDF ROOM 2.S.860 SUB FLOOR.

SHEET NOTES

- 1. UTILIZE EXISTING ACCESS CONTROL CABLING HOMERUN FROM IDF ROOM 2.M.362.
- 2. REMOVE EXISTING CARD READERS AND REPLACE WITH NEW MULTI-FORMAT CARD READER. REFER TO SECTION 13710.
- 3. REMOVE EXISTING PELCO MINI-DOME CAMERAS AND REPLACE WITH NEW AXIS NETWORK MINI-DOME CAMERAS.
- 4. CAT6A CABLING FOR IP CAMERAS PULLED BY TELECOM CONTRACTOR.



SECURITY GROUND FLOOR PLAN

SY2.01B







SY2.02A





NUMBERED SHEET NOTES

01 SECURITY ELEVATION FOR ACP.2.1 AND ACP.2.2 SHOWN ON SY3.02 AND SY3.03. SECURITY DEVICE SCHEDULE SHOWN ON SY6.01.

1. UTILIZE EXISTING ACCESS CONTROL CABLING HOMERUN FROM IDF ROOM 2.M.362. 5. CAT6A CABLING FOR IP CAMERAS PULLED BY TELECOM CONTRACTOR.



SECURITY SECOND FLOOR PLAN

SY2.02B



SECURITY SECOND FLOOR PLAN SOUTH

SHEET NOTES

2. REMOVE EXISTING CARD READERS AND REPLACE WITH NEW MULTI-FORMAT CARD READER. REFER TO SECTION 13710.

3. REMOVE EXISTING PELCO MINI-DOME CAMERAS AND REPLACE WITH NEW AXIS NETWORK MINI-DOME CAMERAS.

4. SECURITY CABINET ON THIS FLOOR CONTAINS I-STAR PRO AND OTHER PANELS. ASSOCIATED SCHEDULE ON SHEETS SY3.02 AND SY3.03.



SY2.04A



SECURITY FOURTH FLOOR PLAN NORTH



SECURITY FOURTH FLOOR PLAN

SY2.04B







SY3.01

SAMPLE SHOP DRAWINGS













SY3.03

















SY4.01





01 SOFTWARE HOUSE ACCESS CONTROL UNIT.

2. REMOVE EXISTING ACCESS CONTROL PANELS AND POWER SUPPLIES. 3. UTLIZE EXISTING CONDUIT, CHASE COUPLERS, AND CONDUIT WHEN POSSIBLE.

 02
 24/0C CONTINUOUS LOCK POWER SUPPLY; 12/0C CONTINUOUS DEVICE POWER SUPPLY

 03
 CAT-6A PATCH CORDS FROM AXIS NETWORK MIN DOME CAMERAS TO EXISTING MODULAR PATCH PAKELS.

NUMBERED NOTES

SHEET NOTES SECURITY DEVICE ELEVATION DIAGRAMMATIC. PROVIDE ACU'S AND POWER SUPPLIES AS REQUIRED TO HANDLE THE SECURITY FIELD EQUIPMENT SHOW ON THE FLOOR PLANS.

D4 POE SWITCH PROVIDED BY IT DEPARTMENT. PATCH CORDS TO CONNECT FROM POE SWITCH TO PATCH PANELS.





SHEET NOTES

- SECURITY DEVICE ELEVATION DIAGRAMMATIC. PROVIDE ACU'S AND POWER SUPPLIES AS REQUIRED TO HANDLE THE SECURITY FIELD EQUIPMENT SHOW ON THE FLOOR PLANS.
- 2. REMOVE EXISTING ACCESS CONTROL PANELS AND POWER SUPPLIES.
- 3. UTLIZE EXISTING CONDUIT, CHASE COUPLERS, AND CONDUIT WHEN POSSIBLE.

NUMBERED NOTES

01 POE SWITCH PROVIDED BY IT DEPARTMENT. PATCH CORDS TO CONNECT FROM POE SWITCH TO PATCH PANELS.

 02
 SOFTWARE HOUSE ACCESS CONTROL UNIT.

 03
 24VDC CONTINUOUS LOCK POWER SUPPLY; 12VDC CONTINUOUS DEVICE POWER SUPPLY



SY4.02













(CR)

(CR)

CR SINGLE (LOCKSET)

FINISHED FLOOR

1



2

(CR)

TO FLOOR ABOV

ES

RX

SHEET NOTES

- 1. VIEW OF DOORS FROM PROTECTED SIDE, UDN.
- 2. EXISTING JUNCTION BOXES ARE 4" SQ. X 2-1/8" D, UON.
- 3. DASHED SYMBOLS AND JUNCTION BOXES INDICATE DEVICES ON THE OPPOSITE SIDE OF THE WALL.
- 4. CENTER OF DEVICE JUNCTION BOXES ARE MOUNTED 6" AWAY FROM THE LATCH SIDE OF THE DOOR.
- 5. EXISTING DODR CONTACTS MOUNTED 6" AWAY FROM THE LATCH SIDE OF THE DODR, UON.
- 6. CONDUIT AND JUNCTION BOXES ARE EXISTING, UON.
- 7. ELECTRIFIED LOCKING HARDWARE AND LOCAL POWER SUPPLIES ARE EXISTING, UDN.
- 8. SECURITY DOOR CONTACT SWITCHES AND REQUEST TO EXIT MOTION DETECTORS ARE EXISTING, UON.

NUMBERED NOTES

01 REMOVE EXISTING CARD READERS AND REPLACE WITH NEW MULTI-FORMAT CARD READER. 02 VERIFY EXISTING INTERFACE RELAY WILL FUNCTION WITH SOFTWARE HOUSE ACCESS CONTROL PANEL. REPLACE WITH COMPATIBLE DEVICE IF NECESSARY.

RAISED FLOOR

FINISHED FLOOR

5





SY5.01



SHEET NOTES

- 1. VIEW OF DOORS FROM PROTECTED SIDE, UON.
- 2. EXISTING JUNCTION BOXES ARE 4" SQ. X 2-1/8" D, UON.
- 3. DASHED SYMBOLS AND JUNCTION BOXES INDICATE DEVICES ON THE DPPOSITE SIDE OF THE WALL.
- CENTER OF DEVICE JUNCTION BOXES ARE MOUNTED 6" AWAY FROM THE LATCH SIDE OF THE DOOR.
- 5. EXISTING DOOR CONTACTS MOUNTED 6" AWAY FROM THE LATCH SIDE OF THE DOOR, UON.
- 6. CONDUIT AND JUNCTION BOXES ARE EXISTING, UON.
- 7. ELECTRIFIED LOCKING HARDWARE AND LOCAL POWER SUPPLIES ARE EXISTING, UDN.
- 8. SECURITY DOOR CONTACT SWITCHES AND REQUEST TO EXIT MOTION DETECTORS ARE EXISTING, UON.

NUMBERED NOTES

01 REMOVE EXISTING CARD READERS AND REPLACE WITH NEW MULTI-FORMAT CARD READER.

RAISED FLOOR

STRUCTURAL FLOOR







SY5.02



01

ROUTE PATCH CORD THROUGH EXISTING CONDUIT

01

SHEET NOTES

1. EXISTING JUNCTION BOXES ARE 4" SQ. X 2-1/8" D, UON.

2. CONDUIT AND JUNCTION BOXES ARE EXISTING, UON.

NUMBERED NOTES

01 REMOVE EXISTING ANALOG VIDEO AND POWER CABLING FOR CAMERAS. REPLACE EXISTING ANALOG CAMERA WITH NEW AXIS NETWORK MINI-DOME CAMERA.





SY5.03



TYPICAL CARD READER WIRING 1	TYPICAL REQUEST-TO-EXIT WIRING	2



SY5.04



SHEET NOTES

2. CABLING TERMINATIONS ARE DIAGRAMMATIC ONLY, VERIFY ACTUAL TERMINATIONS WITH PROVIDED EQUIPMENT.

1. SECURE AND TAPE OFF ANY UNUSED WIRING.

SECURITY DEVICE DETAILS






SHEET NOTES

- 1. SECURE AND TAPE OFF ANY UNUSED WIRING.
- 2. CABLING TERMINATIONS ARE DIAGRAMMATIC ONLY, VERIFY ACTUAL TERMINATIONS WITH PROVIDED EQUIPMENT.



SECURITY DEVICE DETAILS







SHEET NOTES

- 1. SECURE AND TAPE OFF ANY UNUSED WIRING.
- CABLING TERMINATIONS ARE DIAGRAMMATIC ONLY, VERIFY ACTUAL TERMINATIONS WITH PROVIDED EQUIPMENT.

FIELD

SEC

9



SECURITY DEVICE DETAILS

SY5.06

PARKING LEVEL ACCESS CONTROL SYSTEM SCHEDULE

1.650	10000110100	000000000000000000000000000000000000000	1 Martino -	00000	110000117	00011/	101111200101	0.0010	1 0 0 0
1	CRB.1	AC-P601	COOLER 861 IN	CR	Software House	S.861A	ACP.B.1	ACM.B.1	C-1
2	CRB.2	AC-P602	COOLER 861 OUT	CR	Software House	S.861A	ACP.B.1	ACM.B.1	C-2
				REX			ACP.B.1	ACM.B.1	I-1
				С			ACP.B.1	ACM.B.1	1-2
				EL				DCM.B.1	D-1
3	CRB.3	AC-P603	FUEL STOR 1 860 IN	CR	Software House	S.860	ACP.B.1	ACM.B.1	C-3
				REX			ACP.B.1	ACM.B.1	1-3
				С			ACP.B.1	ACM.B.1	1-4
				EL				DCM.B.1	D-2
4	CRB.4	AC-P604	FUEL STOR 2 862 IN	CR	Software House	S.862	ACP.B.1	ACM.B.1	C-4
				REX			ACP.B.1	ACM.B.1	1-5
				С			ACP.B.1	ACM.B.1	1-6
				EL				DCM.B.1	D-3
5	CRB.5	AC-P605	XFM R RM 851 IN	CR	Software House	S.851	ACP.B.1	ACM.B.1	C-5
6	CRB.6	AC-P606	XEMIR RM 851 OUT	CR	Software House	S.851	ACP.B.1	ACM.B.1	C-6
				REX			ACP.B.1	ACM.B.1	I-7
				С			ACP.B.1	ACM.B.1	I-8
				EL				DCM.B.1	D-4
7	CRB.7	AC-P607	ELECT RM 850 IN	CR	Software House	S.850	ACP.B.1	ACM.B.1	C-7
8	CRB.8	AC-P608	ELECT RM 850 OUT	CR	Software House	S.850	ACP.B.1	ACM.B.1	C-8
				REX			ACP.B.1	ACM.B.1	1-9
				С			ACP.B.1	ACM.B.1	I-10
				EL				DCM.B.1	D-5
9	CRB.9	AC-P701	MPCE 820 IN	CR	Software House	S.820	ACP.B.1	ACM.B.2	C-9
10	CRB.10	AC-P702	MPOE 820 OUT	CR	Software House	S.820	ACP.B.1	ACM.B.2	C-10
-				REX			ACP.B.1	ACM.B.2	I-17
				С			ACP.B.1	ACM.B.2	I-18
				EL				DCM.B.2	D-9
-									
11	CB.1			С		S.861B		I-8.B.1	N-1

GROUND FLOOR ACCESS CONTROL SYSTEM SCHEDULE

7402	Secorky ID	Geonney #	1 wan ne	Dewce	///CCE/#	2000r#	IST AN Darier	buaro	POINT
12	CR1.1	AC-1503	GEN RM 873 IN	CR	Software House	S.873	ACP.2.1	ACM.2.1	C-1
13	CR1.2	AC-1504	GEN RM 873 OUT	CR	Software House	S.873	ACP.2.1	ACM.2.1	C-2
				REX			ACP.2.1	A.CM.2.1	I-1
				С			ACP.2.1	ACM.2.1	1-2
				EL				DCM.2.1	D-1
14	C1.1			С				I-8.B.1	N-2
15	C1.2			С				I-8.B.1	N-3

AMERICAN DYNAMICS IP CAMERA SCHEDULE NO. Existing # Sec. ID Name DVR panel Part | Patch Panel Port IP Address PRRIVEY IPEI 4 OVR panel Part | Patch Panel Port IP Address

D 901 D 902 D 902
ID 902 ID 902 ID 904 ID 906 ID 907 ID 906 ID 907 ID
ID 903 ID 904 ID 905 ID 906 ID 907 ID 906 ID 907 ID
ID 904 ID 905 ID 906 ID 906 ID 906 ID 906 ID 906 ID 906 ID 906 ID 906 ID 906 ID 907 ID 906 ID 907 ID
ID 906 ID 906 ID 906 ID 906 ID 906 1 34 1 35
ID 908 ID 907 ID 908 : 34 : 35 : 37 : 38
ID 907 ID 908 : 34 : 35 : 37 : 38
1D 908 : 34 : 35 : 37 : 38
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: 38
ID 190
ID 191
ID 290
ID 390
ID 390
ID 390
ID 490
ID 490
ID 490
ID 590
ID 590
ID 590
ID 690
ID 690

IP CAMERAS POINT TO POIN SCALE: N.T.S.

PANEL	IP ADDRESS
PARKING LEVEL ACP.B.1	
SECOND FLOOR ACP.2.1	
SECOND FLOOR ACP.2.2	
FOURTH FLOOR ACP.4.1	

1

ACCESS CONTROL PANEL SCHEDULE

SECOND FLOOR ACCESS CONTROL SYSTEM SCHEDULE

16	CR2.1	AC-2308	STAIR 1 620	CR	Software House	Q.620	ACP.2.1	ACM.2.1	C-3
				REX			ACP.2.1	ACM.2.1	1-3
				С			ACP.2.1	ACM.2.1	1-4
				EL				DCM.2.1	D-2
17	CR2.2	AC-2501	IDF 722 IN	CR	Software House	R.722	ACP.2.1	ACM.2.1	C-4
18	CR2.3	AC-2502	IDF 722 OUT	CR	Software House	R.722	ACP.2.1	ACM.2.1	C-5
				REX			ACP.2.1	ACM.2.1	1-5
				С			ACP.2.1	ACM.2.1	1-6
				EL				DCM.2.1	D-3
19	CR2.4	AC-2307	S ELEV LOBBY 420	CR	Software House	N.240	ACP.2.1	ACM.2.1	C-6
				REX			ACP.2.1	ACM.2.1	1-7
				С			ACP.2.1	ACM.2.1	1-8
				EL				DCM.2.1	D-4
				EDR				1-8.2.1	N-3
20	CR2.5	AC-2304	IDF 240 IN	CR	Software House	L.240	ACP.2.1	ACM.2.1	C-7
21	CR2.6	AC-2305	IDF 240 OUT	CR	Software House	L.240	ACP.2.1	ACM.2.1	C-8
				REX			ACP.2.1	ACM.2.1	1-9
				С			ACP.2.1	ACM.2.1	I-10
				EL				DCM.2.1	D-5
					1				
22	CR2.7	AC-2306	STAIR 2 141	CR	Software House	K.140	ACP.2.1	ACM.2.2	C-9
				REX			ACP.2.1	ACM.2.2	I-17
				С			ACP.2.1	ACM.2.2	I-18
				EL			L	DCM.2.2	D-9
	-				1				
23	CR2.8	AC-2401	CRAC 863 IN	CR	Sottware House	5.863	ACP.2.1	ACM.2.2	C-10
24	CR2.9	AC-2402	CRAC 863 OUT	CR	Software House	S.863	ACP.2.1	ACM.2.2	C-11
				REX			ACP.2.1	ACM.2.2	I-19
				С			ACP.2.1	ACM.2.2	1-20
				EL				DCM.2.2	D-10
				X				1-8.2.1	N-4
				Х				R-8.2.1	P-1
25	CR2.10	AC-2403	MDF 860 IN	CR	Software House	S.860	ACP.2.1	ACM.2.2	C-12
26	CR2.11	AC-2404	MDF 860 OUT	CR	Software House	S.860	ACP.2.1	ACM.2.2	C-13
				REX			ACP.2.1	ACM.2.2	1-21
				С			ACP.2.1	ACM.2.2	1-22
				EL				DCM.2.2	D-11
27	CR2.12	AC-2405	STAIR 3 660	CR	Software House	Q.660	ACP.2.1	ACM.2.2	C-14
				REX			ACP.2.1	ACM.2.2	1-23
				С			ACP.2.1	ACM.2.2	1-24
				EL				DCM.2.2	D-12
28	CR2.13	AC-2406	ELEV 10 VEST663	CR	Software House	Q.663	ACP.2.1	ACM.2.2	C-15
				REX			ACP.2.1	ACM.2.2	1-25
				С			ACP.2.1	ACM.2.2	1-26
				EL				DCM.2.2	D-13
	_			EDR				1-8.2.1	N-5
	-								
29	CR2.14	AC-2407	S ELEV LBY 460	CR	Software House	N.460B	ACP.2.1	ACM.2.2	C-16
	_			REX			ACP.2.1	ACM.2.2	1-27
				С			ACP.2.1	ACM.2.2	1-28
				EL				DCM.2.2	D-14
		-		EDR	+			1-8.2.1	N-6
	-								
30	CR2.15	AC-2408	N ELEV LBY 460	CR	Software House	N.460A	ACP.2.2	ACM.2.3	C-17
				REX			ACP.2.2	ACM.2.3	1-33
				С			ACP.2.2	ACM.2.3	1-34
				EL				DOM.2.3	D-17
	-			EDR				1-8.2.1	N-7
	000.15	4.0.0001	T OTOPI OF CT	00	0.0.0	14.070	100.02	101107	0.45
31	CH2.16	AC-2301	IT STORAGE 372	CR	Software House	M.372	ACP.2.2	ACM.2.3	C-18
	+			REX	+		ACP.2.2	ACM.2.3	1-35
				C			ACP.2.2	ACM.2.3	1-36
	-	-		EL	-		-	DOM.2.3	LL-18
00	0700.47	4.0.0002	IDE 000 IN	00	0.0.0	N. 000	100.0.0	10100	0.42
32	CH2.17	AC-2302	IDF 362 IN	CR	Software House	M.362	ACP.2.2	ACM.2.3	C-19
3 3	UN2.18	AC-2303	IDF 362 OU I		Sultware House	M1.302	ACP.2.2	ACM.2.3	L 127
				HEX C	-		ACP.2.2	ACM.2.3	1-37
					+		AUP.2.2	ACM.2.3	1-38
				EL	+		l	UCM.2.3	LF-18
0.6		10.000		-	-	1000		1 10.01	11.4
34	C2.1	AP-2301		C	1	J.060		1-8.2.1	N-1
	1	1		LA	1		1	1-8.2.1	N-2

ACCESS CONTROL SYSTEM POINT TO POINT SCHEDULE



SECURITY ACCESS CONTROL SYSTEM POINT TO POINT SCHEDULE



3

t 38	
ID 1902	
ID 1910	I
ID 2905	
ID 2906	1
ID 2907	1
ID 2908	1
ID 2909	
ID 3906	1
ID 3907	1
ID 3908	1
ID 4903	1
ID 4904	1
ID 4905	1
	1
ID 5904	1
ID 5905	
ID 5906	
	1
ID 6905	
ID 6906	

T	SCHEDULE	2