SAN JOSE/EVERGREEN COMMUNITY COLLEGE DISTRICT

San Jose, California

PROJECT MANUAL

Volume 2- Technical Specfications

Bid Document G2010.0107

District Office, #39301
San Jose` City Community College

Dated:
08/13/2014

Bids must be submitted at **3:00 p.m., September 24, 2014 in the DISTRICT Purchasing Office, Building 7, 4750 San Felipe San Jose, CA 95135**

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Electronic Safety and Security

This section includes technical standards data and criteria that should be used, in whole or in part, by security design professionals on a project specific basis. The intent of the material provided is to serve a guideline for establishing performance criteria and maintaining conformance to District security standards. The systems designed on particular projects must maintain conformity and operation with the SMS software as described and installed. As such, major system components are manufacturer specific and substitution will not be permitted. However, field devices are specified on a performance basis. Where make and models are specified, the information is to serve solely to establish performance criteria. In such cases, make and model information will be followed by, "or equal" and should be specified as such in the project specific design documentation.

1. General Security Requirements

    A. CODES AND STANDARDS

    All work shall be in accordance, where applicable, with the latest edition of the following:

i.	California Building Code – Title 24 (CBC)
ii.	California Electrical Code (CEC)
iii.	California Fire Code (CFC)
iv.	Electronics Industries Association (EIA)
v.	Institute of Electrical and Electronic Engineers (IEEE)
vi.	National Electrical Manufactures Association (NEMA)
vii.	Occupational Safety and Health Act (OSHA)
viii.	All other State and local codes and ordinances that may prevail

    B. DESCRIPTION OF WORK

    Work will require the furnishing and installation of items described herein or reasonably inferred as necessary for safe and proper operation; including every article, device or accessory (whether or not specifically called for by item) reasonably necessary to facilitate each system's functionality as indicated by the design and the equipment specified.

    Elements of the work include, but are not limited to, materials, labor, supervision, supplies, equipment, transportation, storage, utilities, and all required licenses.

    Work includes the design, procurement and installation of SMS devices and equipment and integration of the devices and equipment to the Districts SMS, comprised of the following sub-systems:

ix.	ACAMS - Honeywell ProWatch
x.	BIAS – Ademco/Vista (primarily existing)
xi.	PSVS - Honeywell MaxPro
xii.	ECS - Talk-a-Phone (and Cisco as defined in the telecommunications standards)

    Specific devices types, locations and interconnection requirements are described and detailed within project specific documents, in accordance with these District Standards.

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All equipment detailed in this Standard may not be applicable to each project. Include only the equipment best suited for the particular installation location on a per-project basis.

Security related work may require system configuration and programming of existing District systems. Coordinate all such configuration and programming requirements with the District.

C. QUALIFICATIONS OF CONTRACTOR

All work should be performed by a Contractor of established reputation and experience who has completed similar installations for a period of at least three (3) years and who should be able to refer to similar installations rendering satisfactory service.

The Contractor should maintain all current licenses required to provide the specific work efforts of the specific project.

The Contractor should utilize installation and service technicians whom are competent, factory trained and certified personnel capable of installing and maintaining the system and providing reasonable service.

D. MATERIAL SUBSTITUTIONS

Whenever materials, equipment or processes are specified or described in this Standard by using the proprietary name of an item or the name of a particular manufacturer, fabricator, supplier or distributor, the naming of the item is intended to establish the type, function and standard of quality and performance required by this Contract. It is not the intent of the District to exclude other materials, equipment, or processes or to limit competition in bidding. Therefore, unless the proprietary name referred to in the specifications is followed by words indicating that no substitution is permitted, materials, equipment, or processes of other manufacturers, fabricators, suppliers, or distributors will be considered by the District for substitution.

Consideration will be given to a proposed substitute only when sufficient information is submitted to the District to determine that the proposed substitute material, equipment, or process is in fact equivalent in all respects to the materials, equipment, or processes named in the specifications.

Where the phrase "or equal," occurs in this Standard, do not assume that the materials, or equipment, will be approved as equal until the item has been specifically so approved for this work by the District.

The Owner, based upon conformance and integration with existing system equipment, has selected primary system components manufactured by Honeywell. No substitutions will be accepted for these components.

E. INSTALLATION

Systems, equipment and devices should be installed by competent tradesmen, skilled in this class of installation.

Systems should be installed in a manner that is consistent with the provisions and intent of the project specific Specifications, the Drawings, and the referenced Codes and Standards, and in

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accordance with equipment manufacturers' written Specifications and instructions and these Standards.

Installation workmanship should be accomplished in a neat and professional manner, meeting industry standards.

F. ACCEPTANCE TESTING AND COMMISSIONING

On-site Acceptance Testing with witness by the District, providing all personnel and equipment necessary to perform these tests, should be included in each project referencing work included in this standard.

Acceptance Testing should include, but not necessarily be limited to the following:

  i.   Operational verification and testing of all new and existing devices installed, modified and/or associated with the scope of this Project.
  ii.   Quality and craftsmanship of the installation.
  iii. Verification of all wire and cable installation per the applicable specification.
  iv.   Verification of all wire labeling per the applicable Specification.

G. RECORD DRAWINGS

The Contractor should maintain red-line drawings during construction and incorporate into AutoCAD, after acceptance testing, all changes made to the project.

H. OPERATIONS AND MAINTENANCE MANUALS

Operations and Maintenance manuals should be provided for all system devices provided and installed with each project, regardless of the use of identical devices at other locations within the District. O&M manuals should include the following:

  i.   All data and items specified for the project and/or included in the submittals, in its final, "as-built" form.
  ii.   Programmer's Manual with complete description of all programming included that is project specific. Manual should include a complete description of the system architecture, commands, diagnostic messages, and other programming procedures that are project specific.
  iii. Graphics of all systems equipment configurations, showing all system equipment locations, data point addresses and operator notations, where applicable.
  iv.   Maintenance instructions for all systems and components, including parts and spare parts list.

I. WARRANTY

Equipment, materials, and workmanship should be guaranteed for a period of a minimum of twelve (12) months from the date of final system acceptance.

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2. Access Control and Alarm Monitoring System Requirements

    A. Materials and Equipment

Unless otherwise noted, all materials and equipment shall be new, of the type, capacity, and quality specified and free from defects. Material shall bear the label of, and be listed by the Underwriters' Laboratories unless of a type for which label or listing service is not provided.

Materials shall be of same brand or manufacturer throughout for each class of material or equipment.

    B. ACAMS SERVER

The ACAMS server is existing and utilizes Honeywell ProWatch. It resides on the District Ethernet infrastructure on a dedicated security VLAN. All ACAMS panels and devices specified in and provided for District projects shall be fully compatible with the ACAMS.

The configuration and programming of all panels and devices associated with a specific project shall be included as a requirement within that project. All configuration and programming shall be coordinated with District representatives and shall match the existing naming and classification schema.

    C. ACCESS CREDENTIALS

Access credentials (cards and fobs) are a foundational part of the ACAMS. The District maintains controls and issues multi-technology cards that function with existing 125MHz proximity card readers as well as newer Smart Card readers. Individual project designed and specified under these Standards should not need to provide access credentials within the scope of work.

    D. ACAMS PANELS

In all circumstances ACAMS panels should be fully compatible with and made operational within the District's existing Honeywell ProWatch system.

        i. ACAMS Panels should have the following minimum characteristics:

    (1) ACAMS panels should be Ethernet capable, utilize an imbedded operating system to provide distributed ACAMS functionality
    (2) ACAMS panels should be provided with proximity card reader interface capabilities, and input/output functionality.
    (3) ACAMS panels should be specified with appropriate panel power supplies, lock power supplies and isolation lock isolation relays. All power supplies should be provided with internal minimum 7amp-hour batteries.

        ii. Enclosure Tamper Switches

    (1) If not already equipped from the factory, all ACAMS panel, power supply and ancillary board enclosures should be equipped with an enclosure tamper switch.
    (2) Tamper switches should be single-pole, single throw (SPST) units to provide supervision of enclosure doors.

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(3) Tamper switches shall be tested and proven capable of initiating an alarm signal when the protected door is opened 3/8" on the latch side.

(4) Tamper switch should be installed inside the enclosure.

D. ACAMS/ BIAS FIELD DEVICE HARDWARE REQUIREMENTS

i. Card Reader

(1) The reader is available in a variety of form factors. The particular form factor that is most suitable to the installation environment should be specified on a per project basis.

(2) The reader should be capable of reading and processing the contactless Smart Card utilized by the District.

(3) The reader should be read when presented in any orientation or at any angle to the surface of the reader (minimum read range: 3.5").

(4) The reader should power the card, process the encoded data, and output the data to the access system in less than 175 milliseconds.

(5) A tri-state LED on the front of the reader should indicate to the user that the card was read and an access decision was made. The LED should be red when the door is secure, flash green when access is granted and flash red when access is denied.

(6) The readers should have an audible "beep" tone feature to indicate to the user that the card or tag was read.

(7) Accidental or intentional transmission of radio frequency signals into the reader should not compromise the system.

(8) The reader should function in the access control system's normal or anti-pass back mode without changes to the reader.

(9) Damage or vandalism to the reader should not damage any other part of the access control system.

(10) Individual card reader finishes and colors should be coordinated with the Project Architect and the District.

(11) Proximity card readers shall be by HID, XceedID, or equal.

ii. Door Position Switches/Alarm Contact

(1) Switches should be single-pole, double throw (SPDT) unit to provide single circuit operation suitable for a line supervision.

(2) Switches should be capable of initiating an alarm signal when the protected door is opened 1" on the latch side.

(3) Recessed switches and magnets should be a minimum of 3/8" diameter and a maximum of 1" diameter.

(4) Surface mount switches should be mounted to door headers and the associated magnet shall be surface mounted to the door.

(5) Surface mount contacts and magnets should have aluminum housings and be equipped with an armored cable jacket.

(6) Overhead door contacts should be floor mounted and the associated magnet should be surface mounted to the overhead door.

(7) Overhead door contacts and magnets should have aluminum housings and be equipped with an armored cable jacket.

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iii. Request-to-Exit (REX) Devices

(1) Where feasible, REX devices should be supplied integral with electronic door hardware as defined in the door hardware standards as specified in and coordinated with Division 8.

(2) REX switches should be single-pole, single throw (SPST) dry micro switch

(3) In circumstances where it is not feasible for the REX to be integral with the door hardware, a passive infrared motion sensor should be specified.

(4) Passive infrared REX devices should have an adjustable detection curtain, set to reliably activate prior to an individual exiting but to minimize incidental activation from passersby.

(5) Individual passive infrared finishes and colors should be coordinated with the Project Architect and the District.

(6) In circumstances where neither an integral REX nor passive infrared REX is suitable for installation, a push button REX should be utilized.

(7) REX push button should be mounted to a double gang steel face plate engraved with the words "Push to Release" and the plate shall be installed onto an existing stainless steel pedestal at the applicable door location.

(8) REX push button should include a DPST dry relay switch.

(9) REX push button should include a pneumatically controlled adjustable (2-60 seconds) time delay reset.

iv. Hardwired Electric Locks

(1) Hardwired electric locks should be electrified mortise, cylindrical, strike, rim device, exit device and/or electromagnetic lock as defined by the door hardware standard.

(2) Locks should operate at 24 VDC.

(3) Locks should have integral REX switch wherever practical.

(4) Locks should be provided with appropriate wire transfer or electrified door hinge.

(5) Locks should be fail-secure.

v. Wireless Electric Locks

(6) For medium security applications wireless electric locks should be utilized.

(7) Trim and finish of electric locks should match District hardware standards per the project specific requirements and specifications.

(8) Wireless locks should incorporate proximity card reader, door position switch and REX device.

(9) To maintain consistency with mechanical door hardware standards and existing wireless lock installations, all wireless locks needs to be an Ingersoll Rand, Schlage AD400 series devices.

(10) Wireless locks need to be configured to communicate with the specified Honeywell panel via an Ingersoll Rand, Schlage PIM. The PIM can wirelessly communicate with up to 16 wireless locks and itself is hardwired to the Honey ACAMS panel.

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vi.   Emergency Door Release (EDR):

(1)   EDR should be used in conjunctions with electromagnetic locks where required by local fire code.

(2)   EDR should be mounted to a single gang stainless steel face plate engraved with the words" Emergency Release".

(3)   EDR should include a 1-9/16" Red mushroom activation button.

(4)   EDR should include a pneumatically controlled adjustable (2- 60 seconds) time delay reset.

(5)   EDR should include a DPST dry relay switch with one pole hardwired to locally interrupt lock power and the other pole hardwired to the ACAMS panel and configured as a hardwired input.

vii.   Motion Detectors:

(1)   Motion detectors should be used to provide internal area alarm detection on a time scheduled basis.

(2)   Motion detector should utilize microwave and passive infrared technology to reduce false alarms.

(3)   Motion detector should be surface or flush mount in a standard double gang junction box.

viii.   Glass Break Detector

(1)   Glass break detectors should be used to provide internal area alarm detection of intrusion attempts though exterior/perimeter glass.

(2)   Glass break detectors should provide low and high frequency detection to reduce the likelihood of false alarms.

(3)   Glass break detectors should be zoned within rooms when complete glass protection requires multiple devices.

ix.   Microwave Beam Detectors

(1)   Microwave beam detectors should be used to provide internal area alarm detections of intrusion attempts through shy lights, glass roof panels, and/or high ceiling windows that are accessible from the exterior.

(2)   Microwave beam detectors are typically long range devices that include an active unit at one end and a passive unit at the other.

(3)   Where microwave beam detectors are required, infrastructure and architectural coordination will be required.

x.   Local Alarm Horn:

(1)   Some perimeter exit doors may be designated as "Emergency Exit Only" and will be equipped with door positions switches/ alarm contacts.

(2)   Upon a violation of an emergency exit door, a local horn should be provided to activate a high level sounder. The horn should continue to sound until expiration of the pre-determined software dwell time.

        (3)   Horn should deliver a minimum +/-90 peak db.

        (4)   Horn must have a sound that is distinguishable from the fire alarm system.

3. Public Safety Camera System Requirements

    A. MATERIALS AND EQUIPMENT

Unless otherwise noted, all materials and equipment shall be new, of the type, capacity, and quality specified and free from defects. Material shall bear the label of, and be listed by the Underwriters' Laboratories unless of a type for which label or listing service is not provided.

Materials shall be of same brand or manufacturer throughout for each class of material or equipment.

    B. PSCS SERVER

The PSCS server is existing and utilizes Honeywell MaxPro. It resides on the District Ethernet infrastructure on a dedicated security VLAN. All PSCS devices specified in and provided for District projects shall be fully compatible with the PSCS.

Supplemental server hardware may be required to support the cameras installed as part of the PSCS on a given project. When that is the case, the hardware should be provided to exceed the minimum specified requirements for such hardware as published by Honeywell at the time of design and specification.

The PSCS requires each camera in the system to be licensed. Add-on camera licenses should be specified within each project design to accommodate the cameras specified within that particular project.

The configuration and programming of all devices associated with a specific project shall be included as a requirement within that project. All configuration and programming shall be coordinated with District representatives and shall match the existing naming and classification schema.

~~C. PSCS DATA STORAGE~~

~~Video data consumes a considerable amount of digital storage. It also requires a considerable amount of bandwidth, in relation to other network system, to transmit. Therefore, PSCS data storage needs to be provided on a per project basis in the form of Network Attached Storage (NAS). The specified storage should be capable of storing all video data, from all project related cameras for a minimum of 30 days, at the following (per-camera) parameters:~~

      ~~i.~~   ~~Maximum specified camera resolution~~
      ~~ii.~~   ~~Minimum one (1) image per second continuous recording~~
      ~~iii.~~   ~~Maximum fifteen (15) images per second event recording (cash area cameras)~~

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D. CAMERAS

In all circumstances PSCS cameras should be fully compatible with and made operational within the District's existing Honeywell MaxPro system. Specified cameras should meet or exceed the following:

iv.   Cameras should utilize TCP/IP Ethernet with a codex compatible with Honeywell MaxPro.
v.   Cameras should be powered with Ethernet PoE.
vi.   Cameras should use a high resolution, progressive scan, 1/3-inch or greater CMOS imager that provide minimum HD720 (1280x720) pixel resolution.
vii.   Camera resolution should be use based with a minimum HD720 resolution and maximum 5mp resolution.
viii.   Cameras should be provided with auto-iris, vari-focal lenses with a range applicable to capture the desired field of view.
ix.   Interior cameras should be suitable for interior installation environments.
x.   Exterior cameras should be suitable for exterior installation environments and should be provided with integral heaters/blowers/seals/etc. necessary to operate in the applicable exterior environment.
xi.   Camera should be as discreet as possible and color, finish and form factor should be closely coordinated with the project architect to balance use and function while maintaining the desired aesthetic of the facility.
xii.   Cameras should be products of Axis, Panasonic, Sony, Honeywell, Bosch, or equal (camera codex must be compatible with and supported by MaxPro).

4. Emergency Communication System Requirements

A. MATERIALS AND EQUIPMENT

Unless otherwise noted, all materials and equipment shall be new, of the type, capacity, and quality specified and free from defects. Material shall bear the label of, and be listed by the Underwriters' Laboratories unless of a type for which label or listing service is not provided.

Materials shall be of same brand or manufacturer throughout for each class of material or equipment.

B. ECS/WEBS SERVES

The ECS/WEBS servers are existing. The emergency communication telephones operate through the District's Cisco VoIP telephone system. The WEBS audio and SMS/SMTP broadcast operate through the District's Talk-A-Phone Contact Plus Mass Notification server. All ECS/WEBS devices specified in and provided for District projects shall be fully compatible with the ECS/WEBS platforms.

The WEBS Mass Notification Server requires each WEBS device in the system to be licensed. Add-on licenses should be specified within each project design to accommodate the WEBS devices specified within that particular project.

The configuration and programming of all devices associated with a specific project shall be included as a requirement within that project. All configuration and programming shall be coordinated with District representatives and shall match the existing naming and classification schema.

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C. ECS/WEBS DEVICES

In all cases, new WES devices should be fully compatible and made operation with the existing Talk-A-Phone ECS/WEBS server and Contact Plus software. Specific devices from the Talk-A-Phone WEBS product line should be specified to meet the particular project requirements. On WEBS devices that include the requirement of emergency telephones, Cisco compatible Talk-A-Phone units should be provided. Emergency telephones that do not include WEBS should be products of Talk-A- Phone to maintain consistency throughout. ECS/WEBS units should be have either a blue or stainless steel finish. When the device includes an emergency telephone should include the word "EMERGENCY" in white lettering on two side of the unit.

END OF DOCUMENT

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Division 8 by others

Final connection and conductor from hinge side to controller by security contractor.

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AD Series
Exit trim compatibility

Overview

The AD Series electronic lock is available in 993 Exit Trim for use on openings that require exit devices for either retrofit or new construction applications. Offline and networked solutions are available. The 993 Exit Trim was designed to suite with AD Series cylindrical and mortise locksets to ensure that the facility remains aesthetically consistent. The AD Series 993 Exit Trim utilizes universal hardware to simplify installation of offline trim to a variety of exit devices, including rim style from Von Duprin, Falcon, Sargent®, Precision™ Corbin Russwin®, Dorma®, and Yale®.

Available Exit Trim styles:
- 993R – Rim, concealed vertical cable or concealed vertical rod (CVC and CVR for metal doors only)
- 993S – Surface vertical rod
- 993M – Mortise

Features and benefits

- Multiple credential reader options
- FIPS 201-1 compliant when applied with the FIPS multi-technology plus keypad reader module (FMK)
- Offline and networked communication options
- A wide variety of finishes and lever styles
- Power options that include hardwired (12 VDC or 24 VDC) or batteries (4AA or 8AA)
- Compatible with most standard, FSIC or SFIC keyways from major brands of master key systems including Schlage, Sargent®, Corbin Russwin®, Medeco® and Yale®

Compatibility

Devices	AD-200/ 201/250	AD-300/ AD-301[3]	AD-400/ AD-401[3]
Von Duprin 98/99 and 98/99XP rim/SVR/CVR[1]/CVC[1]/mortise	X	X	X
Von Duprin 22/22F rim/SVR	X	X	X
Falcon 25 rim	X	X	X
Sargent® 80[2] rim	X		
Precision™ 21 rim (2100 converts to 21 with Precision's BP21 kit)	X		
Yale® 7000 rim	X		
Corbin Russwin® 5000 rim	X		
Dorma® 9300 rim	X		

[1] For metal doors only
[2] Narrow design and reversible rim exits not compatible.
[3] The proper low current request to exit switch (RX-LC) is required for AD-300/301 and AD-400/401. Part numbers for request to exit switch:
- Von Duprin: 050281
- Falcon: 650359

Available AD Series reader modules[2]

- Multi-technology (125 kHz proximity and 13.56 MHz smart card)
- FIPS 201-1 compliant multi-technology (125 kHz proximity and 13.56 MHz smart card)
- Magnetic stripe
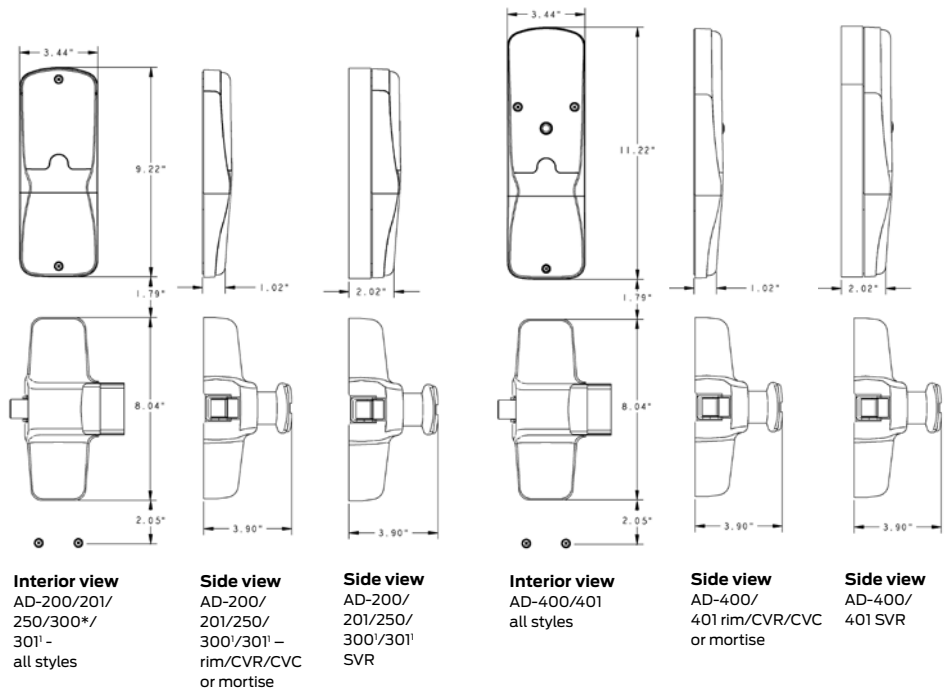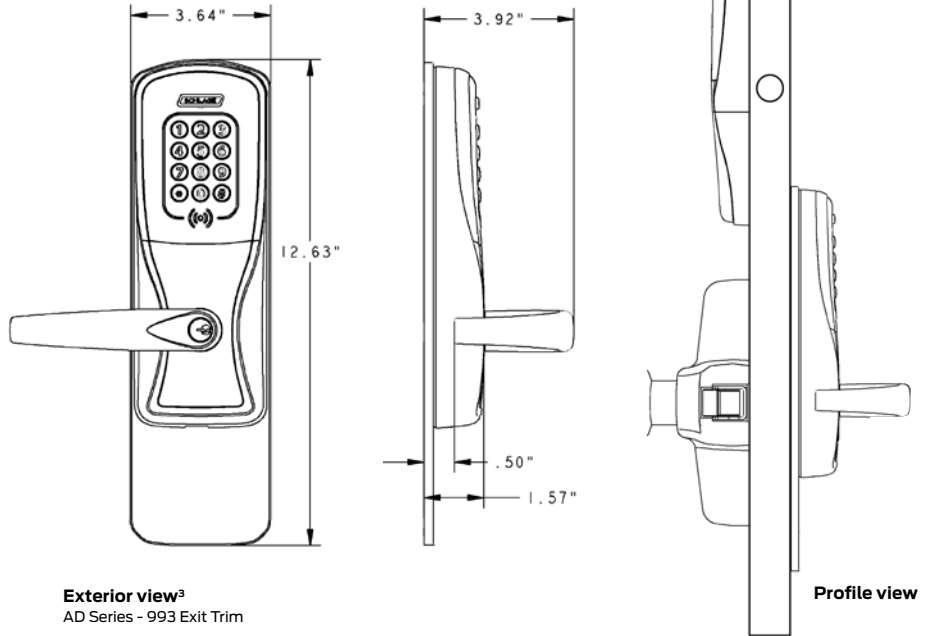- Keypad only
- All credential readers available + keypad

Available communication options

- AD-400: Networked wireless locks
- AD-401: Networked wireless locks - FIPS 201-1 compliant
- AD-300: Networked hardwired locks
- AD-301: Networked hardwired locks - FIPS 201-1 compliant
- AD-250: Offline, access rights stored on the magnetic stripe credential
- AD-200: Offline, access rights stored on the lock
- AD-201: Offline, access rights stored on the lock FIPS 201-1 complaint

[1] AD-300/301 includes LED indicator
[2] Unlike other AD Series chassis styles, upgrading reader modules on the 993 Exit Trim requires the exterior escutcheon to be removed from the door
[3] (2) #7 fasteners with decorative washers located 11.88" below bottom edge of lock

Exterior view[3]
AD Series - 993 Exit Trim

Profile view

Interior view
AD-200/201/250/300*/301[1] – all styles

Side view
AD-200/201/250/300[1]/301[1] – rim/CVR/CVC or mortise

Side view
AD-200/201/250/300[1]/301[1] SVR

Interior view
AD-400/401 all styles

Side view
AD-400/401 rim/CVR/CVC or mortise

Side view
AD-400/401 SVR

About Allegion

Allegion (NYSE: ALLE) creates peace of mind by pioneering safety and security. As a $2 billion provider of security solutions for homes and businesses, Allegion employs more than 7,800 people and sells products in more than 120 countries across the world. Allegion comprises 23 global brands, including strategic brands CISA®, Interflex®, LCN®, Schlage® and Von Duprin®. For more, visit **www.allegion.com.**

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Division 8 by others

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AD-400
Networked wireless electronic lock

Overview

AD Series electronic locks from Schlage are designed to be modular and provide more options to choose from, more functionality in the lock and more compatibility with existing systems. Its patent-pending modular design allows the lock to be customized to fit the needs of an application now, and can change to meet future needs without removing it from the door.

Factory orderable options include choices of credential readers, chassis type, network configurations, locking functions, power options, lever styles and finishes. It also offers a wide selection of features that can be configured in the field to customize your openings.

To simplify installation, the AD Series combines all the hardware components required at the door for a complete access control system into one integrated design that includes the electrified lock, credential reader, request-to-exit and request-to-enter sensors, door position switch, tamper guard and more.

The AD-400 wireless networked lock gives you many of the key benefits of a hardwired access control system — without the wires. This allows you to secure doors that were traditionally difficult to run wires to in the past—and increase the security throughout your facility.

The AD-400 has a number of features built in, that are configurable in the field and a long list of items that can be monitored by access control software. Please consult your access control software partner for details on the integration of specific features.

Features and benefits

- Open Architecture platform
- Panel interface options ensure seamless communication with your system
- Non-invasive installations for historic buildings and sensitive areas
- Secure encrypted data transmission
- Unique communication protocols that won't interfere with other wireless networks
- Patent-pending wireless feature that enables efficient centralized lockdown in less than 10 seconds while still optimizing battery life up to 2 years
- Available in cylindrical, mortise, mortise deadbolt and exit trim
- Compatible with major brands of master key systems
- Wireless accessories available for remote, gate, elevator and portable (mustering) applications
- AD Series with multi-technology readers are NFC compatible[1]
- FIPS 201-1 compliant when applied with the FIPS multi-technology plus keypad reader module (FMK)
- ANSI/BHMA A156.25, ANSI/BHMA Grade 1, UL 294, UL10C, FCC Part 15, ADA, RoHS, Industry Canada (IC)

[1] Please refer to aptiQmobile compatibility chart for a list of certified devices

Reliable communications

Secure and reliable wireless communication with the Panel Interface Module (PIM) is accomplished using 900 MHz frequency. 900 MHz band enables longer transmission ranges because signal propagation with longer wavelengths travel a greater distance and better penetrates typical building construction – allowing for simplified system design.

Wake-Up on Radio

This feature enables implementation of wireless locks in applications where centralized lockdown or unlock is required. 'Wake Up on Radio' utilizes patent-pending technology to enable real-time activation at a remote battery-powered wireless lock. The technology is configurable from 10 to 1 second increments. When Wake-Up on Radio is used in critical applications Dynamic Channel Switching should also be enabled.

Panel Interface Module (PIM400)

The PIM400 (sold separately) is required for communication between the AD-400 wireless lock and the access control panel, and can support up to 16 locks depending on your access control system.

AD-400 electronic lock specifications

Modulation	900 MHz spread spectrum, direct sequence, 10 channels
Frequency range	902-928 MHz
Transmission/encryption	AES-128 bit key
Credential verification time	< 1 second[1]
Wake-Up on Radio	Responds to lock/unlock command from host in less than 10 seconds in battery powered applications (per field configuration)
Communication range	Up to 200 ft with obstructions (normal building construction), up to 1000 ft clear line of sight
RF interference avoidance	Configurable dynamic channel switching
Data rate	RF: 40 kbps
Visual/audible communications	Tri-colored LED's and audible indicators (field configurable)
System interface	RS-485, Wiegand, or Clock & Data via PIM400 to host
Power supply	4AA, 8AA, 12 VDC or 24 VDC
Voltage range	4 VDC to 26 VDC
Max current requirement	Up to 250 mA
Battery life	Up to 2 yrs with 4AA
Operating temperature/exterior	–31º to 151ºF (–35º to 66ºC)
Operating temperature/interior	32º to 120ºF (0º to 49ºC) (battery)
Operating humidity	0 - 100% non-condensing
Certifications	ANSI/BHMA A156.25, ANSI/BHMA Grade 1, UL 294, UL10 C, FCC Part 15, ADA, RoHS
Accessories	Panel Interface Module (PIM400), Handheld Device (HHD), remote antennas for PIM400 to extend range, Dry Contact Relay Board (RLBD) may be required for supervised inputs (Wiegand systems)

Functions

- Classroom/storeroom[2]
- Office[2, 3, 4]
- Privacy[3, 4]
- Apartment[3, 4]

Available status signals

- Lock/unlock status[5]
- Request-to-exit
- Door position
- Mechanical key override[3]
- Deadbolt position[3]
- Interior push button[3]
- Interior cover tamper guard[3]
- Battery status
- Communication status[3]
- Request-to-enter[3]

Access control management system

Access Control Panel (ACP)

Panel Interface Module (PIM400)

AD-400 (up to 16 locks)
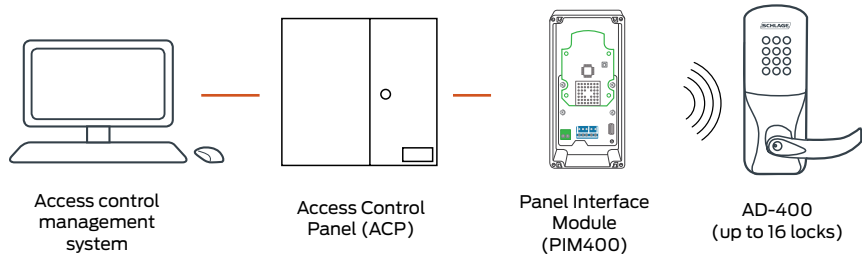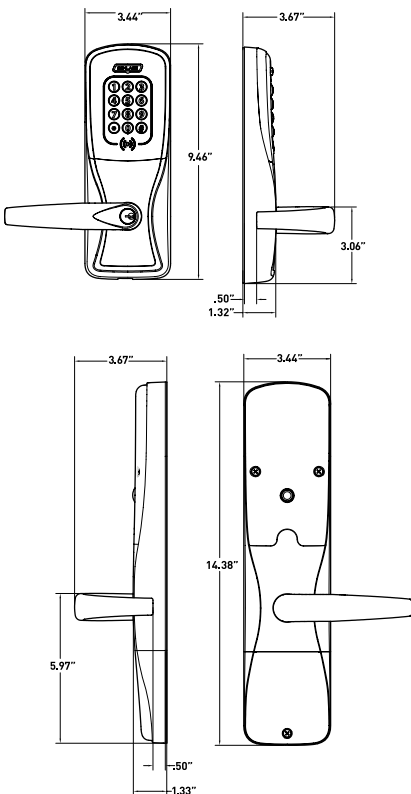
[1] Lock requires less than 100 msec, response time does not include latency time of ACP.
[2] Classroom/storeroom and office function not available with mortise deadbolt option.
[3] Consult your access control software provider for specific scope of support. Interior pushbutton, mechanical key override and deadbolt position are only available when linked via PIM400-485.
[4] Not available on exit trim.
[5] Software indicates lock/unlock status based on sequence of events, but cannot validate mechanical clutch position unless monitored on RS-485 connection.

Mechanical specifications

Chassis	Cylindrical	Mortise	Exit trim
Handing	Handed to order, field reversible		
ANSI standard (Meets or exceeds)	A156.25 A156.2 Series 4000 Grade 1	A156.25 A156.13 Series 1000 Grade 1	A156.25 A156.3
Door thickness	1 ³/₄" standard, 1 ³/₈" to 2 ³/₄" optional (available in ¹/₈" increments)		
Backset	Standard: 2 ³/₄" Optional: 2 ³/₈", 3 ³/₄", 5"	2 ³/₄" only	Defined by exit device
Latch bolt	Standard: ¹/₂" throw Optional: ³/₄" throw	Standard: ³/₄" throw Optional: 1" throw on mortise deadbolt	Provided by exit device
Levers	Pressure cast zinc, plated	Steel, plated	Steel, plated
Strike	Standard: 1 ³/₁₆" lip, ANSI, 1 ¹/₄" x 4 ⁷/₈" Optional: Additional configurations available please see price book		Provided by exit device
Cylinder and keys	Schlage 6-pin Everest 29 S123 keyway cylinder with two patented keys standard Additional options available including Standard, SFIC, FSIC and competitor brands		

Multi-technology reader specification

Frequency	125 kHz proximity and 13.56 MHz smart card
Standards	ISO standard 15693 and ISO 14443
Maximum read range	Up to 1.25" on 125 kHz proximity, up to 0.75" on 13.56 MHz smart card
125 kHz compatibility	Schlage Proximity, XceedID™ Proximity, HID® Proximity, GE/CASI ProxLite®, AWID® Proximity, LenelProx®
13.56 MHz compatibility	Schlage MIFARE® Secure Sector, XceedID™ MIFARE® Secure Sector, aptiQ™ smart cards using MIFARE DESFire™ EV1 with PACSA; PIV and PIV-I[1,2]
13.56 MHz compatibility (serial number only)	DESFire® CSN, HID iCLASS® CSN, Inside Contactless PicoTag® CSN, MIFARE®, MIFARE DESFire™ EV1, ST Microelectronics® CSN, Texas Instruments Tag-It® Serial Number, Phillips I-Code® CSN
125 kHz compatible XceedID credentials	125 kHz clamshell, ISO card, ISO card with magnetic stripe, keyfob, and PVC disk (7000 series)
13.56 MHz compatible aptiQ™ credentials	aptiQ™ smart cards using MIFARE® in clamshell, ISO card, ISO card withmagnetic stripe, keyfob and PVC Patch (9000 Series); aptiQ™ smart cards using MIFARE DESFire™ EV1 in clamshell, ISO card, ISO card with magnetic stripe, keyfob, and PVC disk (8000 Series)
Certifications/standards	FCC, Industry Canada (IC), UL 294 Listed, ISO standard 15693, and ISO standard 14443
Style/layout	Option for 12 button, 3x4 matrix backlit keypad

[1] FIPS 201-1 compliant option available: The AD Series can be used in applications which require approval by the U.S. Federal Government under HSPD-12 for FIPS 201-1 compliance. Specific components are required, please see the AD 401 data sheet or AD 301 data sheet for complete details.

[2] 75 bit output format default. Configurable to other output formats.

[3] Please refer to aptiQmobile compatibility chart for a list of certified devices.

AD Series exit trim:

AD-300 and AD-400 exit trim is exclusively compatible with Von Duprin 98/99 and 98/99XP (Rim, Mortise, and SVR. CVC and CVR on metal doors only), Von Duprin 22/22F (Rim and SVR) and Falcon 25 (Rim) exit devices made by Allegion. The proper low current request-to-exit switch (RX-LC or AE) is required.

Part numbers for request-to-exit switch:
- Von Duprin: 050281
- Falcon: 650359

Benefits of AD Series multi-technology readers:

- Reads multiple brand of both proximity (125 kHz) and smart (13.56 MHz) technologies with single device
- AD Series multi-technology readers are NFC compatible[3]
- Allows end user to migrate to more secure credentials over time and as budgets permit

Additional readers

Magnetic stripe
- Now available with choice of insertion or swipe style readers
- Triple track reader (1, 2 or 3), field configurable
- ABA, ISO76XX standard
- Option for 12 button, 3x4 matrix backlit keypad

Keypad
- Backlit keypad
- 12 button, 3x4 matrix

Available AD Series reader modules

Multi-technology
- Proximity
- Smart card
- ➕ KEYPAD

FIPS 201-1 compliant option available (FMK)

Multi-technology
- Proximity
- Smart card

Magnetic stripe (insertion)
- ➕ KEYPAD

Magnetic stripe (insertion)

Magnetic stripe (swipe)
- ➕ KEYPAD

Magnetic stripe (swipe)

Keypad

Ordering information

Available through one of our GSA schedule 84 approved distributions; BAA options available

AD‑400‑CY‑70‑MG‑SPA‑626‑PD‑S123‑RH‑4B‑13‑049‑10‑025‑1 ³⁄₄

Series	Class	Chassis	Function	Reader	Lever style	Finish	Lever cylinder	Keying type	Handling	Battery	Backset & latch	Strike	Door thickness
1	2	3	4	5	6	7	8	9	10	11	12	13	14

Selections correspond with the numbers above

Standards options are indicated in bold. See price book for specific configuration options.

3 Chassis
CY	Cylindrical
MS	Mortise
MD	Mortise deadbolt
993R	Exit trim – Rim/CVC/CVR
993S	Exit trim – SVR
993M	Exit trim – mortise
993DT	Non-functioning dummy trim for exit

4 Function
70	Classroom/storeroom
50	Office
40	Privacy
60	Apartment

Lock function capabilities are determined by users access control system

5 Reader
KP	Keypad
MG	Magnetic stripe (insertion)
MGK	Magnetic stripe + keypad (insertion)
MS	Magnetic stripe (swipe)
MSK	Magnetic stripe + keypad (swipe)
MT	Multi-technology (125kHz and 13.56 MHz)
MTK	Multi-technology + keypad (125kHz and 13.56 MHz)
FMK	FIPS 201-1 compliant multi-technology + keypad (125 kHz and 13.56 MHz)
DT	Dummy trim

6 Lever
SPA	Sparta
RHO	Rhodes
ATH	Athens
TLR	Tubular

Available with knurled surface

7 Finish
626	Satin chrome
605	Bright brass
606	Satin brass
612	Satin bronze
619	Satin nickel
625	Bright chrome
643e	Aged bronze
626AM	Satin chrome antimicrobial

8 Lever cylinder type
PD	Schlage 6-pin full cylinder

See price book for other SFIC, FSIC and less cores options available. Compatible with Schlage, Sargent, Corbin, Medeco and Yale.

9 Keyway type
S123	Everest 29

See price book for other available keyway options including master keying

10 Handling
RH	**Right handed**
LH	Left handed

Field reversible

11 Battery
4B	**4AA**
8B	8AA

12 Backset & latch or armor front
Cylindrical
13-049	2 ³⁄₄" backset, deadlatch, square corner, 1 ¹⁄₈" x 2 ¹⁄₄"

Mortise
09-663	Armor front, 1 ¹⁄₄" wide, square corner

See price book for mortise deadbolt and other backset and latch options or armor front options

13 Strike
Cylindrical
10-025	1 ³⁄₁₆" lip, ANSI, no box, 1 ¹⁄₄" x 4 ⁷⁄₈"

Mortise
10-072	1 ³⁄₁₆" lip, 1 ¹⁄₄" x 4 ⁷⁄₈" square corner, box

See price book for other available strikes

14 Door thickness
1 ³⁄₄"
Other thicknesses available between 1 ³⁄₈" and 2 ³⁄₄"

See price book for detail

Lever styles

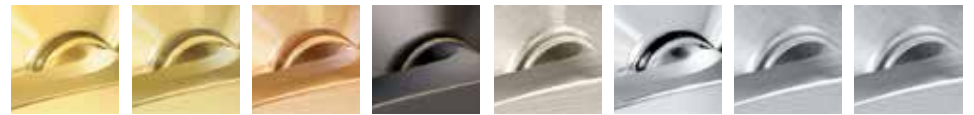Standard cylinders shown, SFIC and FSIC also available.

Sparta

Rhodes

Athens

Tubular

Finishes

Warm tone finishes Cool tone finishes

| 605 Bright brass | 606 Satin brass | 612 Satin bronze | 643e Aged bronze | 619 Satin nickel | 625 Bright chrome | 626 Satin chrome | 626AM Satin chrome with antimicrobial |

About Allegion

Allegion (NYSE: ALLE) creates peace of mind by pioneering safety and security. As a $2 billion provider of security solutions for homes and businesses, Allegion employs more than 7,800 people and sells products in more than 120 countries across the world. Allegion comprises 23 global brands, including strategic brands CISA®, Interflex®, LCN®, Schlage® and Von Duprin®. For more, visit **www.allegion.com.**

aptiQ ■ LCN ■ SCHLAGE ■ STEELCRAFT ■ VON DUPRIN

ALLEGION™

AXIS P33 Network Camera Series — Indoor models

Fixed domes for any environment with remote focus and zoom.

> **Exceptional image quality including 5 MP and HDTV**

> **WDR with dynamic capture**

> **Lightfinder technology**

> **Built-in IR illumination**

> **Remote focus and zoom**

> **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, day and night, in exposed areas such as city surveillance, airports, railway stations, retail stores, office buildings, museums, schools and university campuses.

AXIS P33 Series offers models with exceptional image quality from SVGA resolution up to 5 megapixel, including SMPTE-compliant HDTV 720p and 1080p video. AXIS P33 Series provides multiple, individually configurable H.264 and Motion JPEG video streams.

The SVGA and HDTV 720p/1MP models support Axis' Lightfinder technology, which makes these cameras extremely sensitive to low light. AXIS P3384-V that additionally supports wide dynamic range (WDR) with 'dynamic capture', provides outstanding video quality in the most demanding conditions with strong variations in light. The 5 megapixel model, AXIS P3367-V, can cover a large area with exceptional detail and light sensitivity. All AXIS P33 models support P-Iris control for optimal image clarity.

AXIS P3364-LV incorporates new long-life LED technology that is highly power-efficient. Adjustable in angle and intensity, the built-in IR solution offers easy configuration optimizing for the scene.

All AXIS P33 cameras support the remote focus capability that eliminates hands-on focusing at the camera, and remote zoom that allows the camera's angle of view to be optimized.

All AXIS P33 cameras offer digital pan/tilt/zoom and the 3-megapixel and 5-megapixel models additionally provide multi-view streaming. AXIS P33 Series has low, environmental-friendly power consumption, supplied by standard Power over Ethernet (IEEE 802.3af).

Fixed domes designed for efficient installation

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

Lightfinder technology

The SVGA and HDTV 720p/1MP models of AXIS P33 Series incorporate Axis' unique Lightfinder technology. The outstanding light sensitivity, with maintained colors even in very poor lighting conditions, is obtained by a combination of Axis' expertise in image processing, system-on-chip development and selection of the best optical components.

For more on Lightfinder technology, go to:
www.axis.com/corporate/corp/tech_papers.htm

Wide dynamic range – dynamic capture

AXIS P3384-V that supports WDR with 'dynamic capture' is ideal for surveillance in areas with strong variations in light, for instance close to large windows and entrances, where the sunlight creates both very bright zones and dark shadows. AXIS P3384-V enables easy and clear identification of people and objects both in bright and dark areas.

Built-in IR illumination

AXIS P3364-LV features built-in IR illumination based on new, long-life LED technology that is highly power efficient. This results in high-quality, low-noise video also when the environment is completely dark.

P-Iris control

AXIS P33 Series features the advanced precise iris control that comprises a special P-Iris lens, together with dedicated software in the camera, to set the best iris position for optimal depth of field, resolution, image contrast and clarity. Good depth of field implies that objects at different distances from the camera are in focus simultaneously.

For more on P-Iris and iris control, go to:
www.axis.com/corporate/corp/tech_papers.htm

Easy installation

AXIS P33 Network Cameras offer unique installation capabilities including remote focus and zoom. The remote focus feature enables convenient focusing over the network, eliminating the need for hands-on fine tuning at the camera. The remote zoom functionality ensures that the camera's angle of view is optimized for the area to be monitored. The pixel counter assures that the required pixel resolution is met. The built-in IR solution in AXIS P3364-LV automatically adapts the illumination angle with the zoom level, which simplifies installation.
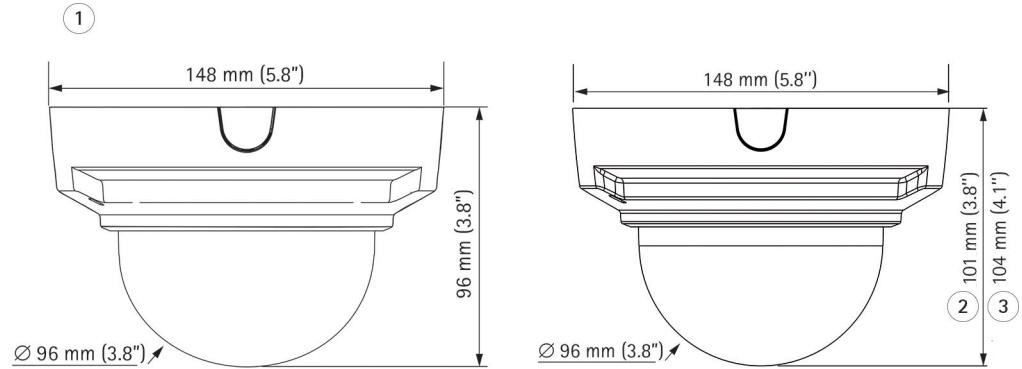
Mounting options

AXIS P33 Series offers a wide range of optional kits for indoor 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.
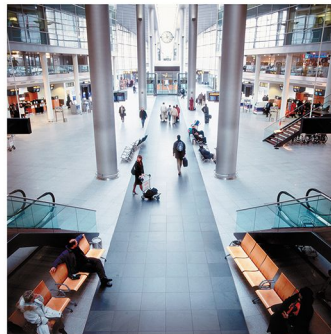
Dimensions

1. AXIS P3353/P3354/P3363-V/
   P3364-V/P3364-LV

2. AXIS P3346

3. Vandal-resistant models
   AXIS P3384-V/P3346-V/P3367-V

①

148 mm (5.8")

96 mm (3.8")

∅ 96 mm (3.8")

148 mm (5.8")

101 mm (3.8")

104 mm (4.1")

② ③

∅ 96 mm (3.8")

Optional accessories

1. IP51-rated drop-ceiling mount kit with
   transparent or smoked cover

2. Mounting bracket

3. AXIS T94H01P Conduit Back Box

4. Pendant adapter kit

5. AXIS T91A Brackets

① ② ④ ⑤ ③

Technical Specifications – AXIS P33 Network Camera Series — Indoor models

Models	**AXIS P3353:** SVGA, Lightfinder, tamper resistance **AXIS P3354:** 1 MP, Lightfinder, tamper resistance **AXIS P3363-V:** SVGA, Lightfinder, vandal resistance, audio, I/O ports **AXIS P3364-V:** 1 MP, Lightfinder, vandal resistance, audio, I/O ports **AXIS P3364-LV:** 1 MP, IR illumination, Lightfinder, vandal resistance, audio, I/O ports **AXIS P3384-V:** 1 MP, WDR - dynamic capture, Lightfinder, vandal resistance, audio, I/O ports **AXIS P3346:** 3 MP, multi-view, audio, I/O ports **AXIS P3346-V:** 3 MP, multi-view, vandal resistance, audio, I/O ports **AXIS P3367-V:** 5 MP, multi-view, vandal resistance, audio, I/O ports *Note: 6 mm and 12 mm as suffix refers to lens model* *AXIS P3301/-V and AXIS P3304/-V are not part of AXIS P33 Series*

Camera

Image sensor	**AXIS P3353/P3363-V:** Progressive scan RGB CMOS 1/3" **AXIS P3354/P3364-V/P3364-LV:** Progressive scan RGB CMOS 1/3" **AXIS P3384-V:** Progressive scan RGB CMOS 1/3" **AXIS P3346/-V:** Progressive scan RGB CMOS 1/3" (effective) **AXIS P3367-V:** Progressive scan RGB CMOS 1/3.2"
Lens	Varifocal, Remote focus and zoom, P-Iris control, IR corrected, Megapixel resolution **AXIS P3353/P3354/P3363-V/P3364-V/P3364–LV 6 mm:** 2.5–6 mm, 105°–49° view[a], F1.2 **AXIS P3353/P3354/P3363-V/P3364-V/P3364-LV:** 3.3–12 mm, 82°–24° view[a], F1.4 **AXIS P3384-V:** 3–9 mm, 84°–30° view[a], F1.2 **AXIS P3346/–V:** 3–9 mm, 84°–30° view[a], F1.2 **AXIS P3367-V:** 3–9 mm, 84°–30° view[a], F1.2

Day and night	Automatically removable infrared-cut filter
Minimum illumination	**AXIS P3353/P3354/P3363-V/P3364-V 6 mm:** Color: 0.1 lux, F1.2, B/W: 0.02 lux, F1.2 **AXIS P3364-LV 6 mm:** Color: 0.12 lux, F1.2, B/W: 0.03 lux, F1.2 **AXIS P3353/P3354/P3363-V/P3364-V 12 mm:** Color: 0.15 lux, F1.4, B/W: 0.03 lux, F1.4 **AXIS P3364-LV 12 mm:** Color: 0.18 lux, F1.4, B/W: 0 04 lux, 0 lux with IR illumination on **AXIS P3384-V** with dynamic capture: Color: 0.5 lux, B/W: 0.08 lux, F1.2 **AXIS P3384-V** with Lightfinder: Color: 0.15 lux, F1.2, B/W: 0.03 lux, F1.2 **AXIS P3346/–V:** Color: 0.5 lux, F1.2, B/W: 0.08 lux, F1.2 **AXIS P3367-V:** Color: 0.2 lux, B/W: 0.04 lux, F1.2
Shutter time	**AXIS P3353/P3354/P3363-V/P3364-V/P3364-LV:** 1/24500 s to 2 s with power line frequency 50 Hz 1/29500 s to 2 s with power line frequency 60 Hz **AXIS P3384-V** with dynamic capture: 1/192 s to 1/37 s with power line frequency 50 Hz 1/231 s to 1/44 s with power line frequency 60 Hz **AXIS P3384-V** with Lightfinder: 1/24500 s to 2 s with power line frequency 50 Hz 1/29500 s to 2 s with power line frequency 60 Hz **AXIS P3346/-V:** 1/35500 s to 1/6 s **AXIS P3367-V:** 1/28000 s to 2 s
Camera angle adjustment	**AXIS P3353/P3354/P3363-V/P3364-V/P3364-LV:** Pan 360°, tilt 170°, rotation 340° **AXIS P3384-V/P3346/P3346-V/P3367-V:** Pan 360°, tilt 160°, rotation 340°

51535/EN/M2.4/102013

Video	
Video compression	H.264 Baseline and Main Profile (MPEG-4 Part 10/AVC) Motion JPEG
Resolutions	AXIS P3353/P3363–V: 800x600 (SVGA) to 160x90 AXIS P3354/P3364–V/P3364–LV/P3384–V: 1280x960[b] (approx. 1.3 MP) to 160x90 AXIS P3346/–V: 2048x1536 (3 MP) to 160x90 AXIS P3367–V: 2592x1944 (5 MP) to 160x90
Frame rate	AXIS P3353/P3354/P3363–V/P3364–V/P3364–LV/P3384–V: 25/30 fps with power line frequency 50/60 Hz AXIS P3346/–V: 3 MP capture mode: 20 fps in all resolutions, HDTV 1080p (1920x1080) and 2 MP 4:3 (1600x1200) capture modes: 30 fps in all resolutions AXIS P3367–V: 5 MP capture mode: 12 fps in all resolutions; and capable of all AXIS P3346/–V capture modes
Video streaming	Multiple, individually configurable streams in H.264 and Motion JPEG, Controllable frame rate and bandwidth, VBR/CBR H.264
Multi-view streaming	AXIS P3346/P3346–V/P3367–V: Up to 8 individually cropped out view areas AXIS P3346/–V: When streaming 4 view areas and 1 overview in VGA resolution, the frame rate is 20 fps per stream (3 MP capture mode) AXIS P3367–V: When streaming 4 view areas and 1 overview in VGA resolution, the frame rate is 12 fps per stream (5 MP capture mode) or 20 fps per stream (3 MP capture mode)
Pan/Tilt/Zoom	Digital PTZ AXIS P3346/P3346–V/P3367–V: Preset positions, Guard tour
Image settings	Compression, Color, Brightness, Sharpness, Contrast, White balance, Exposure control, Exposure zones, Backlight compensation, Fine tuning of behavior at low light, Wide dynamic range – dynamic contrast Rotation 0°, 90°, 180°, 270°, including Corridor Format AXIS P3384–V: Wide dynamic range - dynamic capture: Up to 120 dB (0.5–500,000 lux) depending on scene
Audio	
Audio streaming	All models except AXIS P3353/P3354: Two-way
Audio compression	All models except AXIS P3353/P3354: AAC LC 8/16 kHz, G.711 PCM 8 kHz, G.726 ADPCM 8 kHz, Configurable bit rate
Audio input/output	All models except AXIS P3353/P3354: External microphone input or line input, Line output, Built-in microphone (can be disabled)
Network	
Security	Password protection, IP address filtering, HTTPS[c] encryption, IEEE 802.1X[c] network access control, Digest authentication, User access log
Supported protocols	IPv4/v6, HTTP, HTTPS[c], SSL/TLS[c], QoS Layer 3 DiffServ, FTP, CIFS/SMB, SMTP, Bonjour, UPnP, SNMPv1/v2c/v3 (MIB-II), DNS, DynDNS, NTP, RTSP, RTP, TCP, UDP, IGMP, RTCP, ICMP, DHCP, ARP, SOCKS
System integration	
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 Camera Connection. ONVIF; specification at www.onvif.org
Intelligent video	Video motion detection, Active tampering alarm, AXIS Camera Application Platform enabling installation of additional applications All models except AXIS P3353/P3354: Audio detection
Event triggers	Intelligent video, Edge storage events All models except AXIS P3353/P3354: External input
Event actions	File upload: FTP, HTTP, network share and email Notification: email, HTTP and TCP Video recording to edge storage Pre- and post-alarm video buffering All models except AXIS P3353/P3354: External output activation, Audio recording to edge storage, Play audio clip AXIS P3346/P3346–V/P3367–V: Preset positions, Guard tour

Data streaming	Event data
Built-in installation aids	Remote zoom, Remote focus, Pixel counter AXIS P3364–LV: adjustable IR illumination angle and intensity
General	
Casing	Polycarbonate transparent cover, Aluminum inner camera module with encapsulated electronics AXIS P3353/P3354/P3346: Tamper-resistant polycarbonate casing AXIS P3363–V/P3364–V/P3364–LV/P3384–V/P3346–V/P3367–V: IK10 impact-resistant casing with aluminum base Color: White NCS S 1002-B. For repainting instructions and impact on warranty, contact your Axis partner
Memory	256 MB RAM, 128 MB Flash AXIS P3367–V: 512 MB RAM, 128 MB Flash
Power	Power over Ethernet IEEE 802.3af/802.3at Type 1 AXIS P3353/P3354/P3363–V/P3364–V: Class 2; max 5.9 W AXIS P3364–LV: IR illumination on: Class 3; max 12.1 W; IR illumination off: max 5.9 W AXIS P3384–V: Class 2; max 5.9 W AXIS P3346/–V: Class 2; max 6.4 W AXIS P3367–V: Class 2; max 6.2 W
Connectors	RJ45 10BASE-T/100BASE-TX PoE All models except AXIS P3353/P3354: Terminal block for 1 alarm input and 1 output, 3.5 mic/line in, 3.5 mm line out
IR illumination	AXIS P3364–LV: Power-efficient, long-life 850 nm IR LED's with adjustable angle of illumination and intensity. Range of reach up to 30 m (100 ft) depending on scene
Edge storage	SD/SDHC/SDXC slot supporting memory card up to 64 GB (card not included) Support for recording to network share (network-attached storage or file server)
Operating conditions	0 °C to 50 °C (32 °F to 122 °F) Humidity 10–85% RH (non-condensing)
Approvals	EN 55022 Class B, EN 61000-6-1, EN 61000-6-2, FCC Part 15 Subpart B Class B, ICES-003 Class B digital, VCCI Class B, C-tick AS/NZS CISPR 22 Class B, KCC KN22 Class B, KN24, EN/IEC/UL 60950-1, IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-14, IEC 60068-2-27, IEC 60068-2-64, IEC 60068-2-78, ITE, KCC AS/NZS CISPR 22 AXIS P3364–LV: EN 62471 AXIS P3363–V/P3364–V/P3364–LV/P3384–V/P3346–V/P3367–V: IEC 62262 IK10
Weight	AXIS P3353/P3354: 430 g (0.9 lb) AXIS P3363–V/P3364–V: 650 g (1.4 lb) AXIS P3364–LV: 670 g (1.5 lb) AXIS P3346: 490 g (1.1 lb) AXIS P3384–V/P3346–V/P3367–V: 700 g (1.6 lb)
Included accessories	Installation Guide, Installation and Management Software CD, Windows decoder 1-user license All models except AXIS P3364–LV: Smoked transparent cover All models except AXIS P3353/P3354: Connector kit
Video management software	AXIS Camera Station and video management software from Axis' Application Development Partners (not included). For more information, see www.axis.com/products/video/software
Warranty	Axis 3–year warranty and AXIS Extended Warranty option, see www.axis.com/warranty

a. *Horizontal angle of view*
b. *1400x1050 (1.4 MP) scaled resolution available via VAPIX®*
c. *This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (http://www.openssl.org/), and cryptographic software written by Eric Young (eay@cryptsoft.com).*

More information is available at www.axis.com

AXIS®
COMMUNICATIONS

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SEALED RECHARGEABLE LEAD-ACID
B A T T E R I E S

EnerSys

Power/Full Solutions™
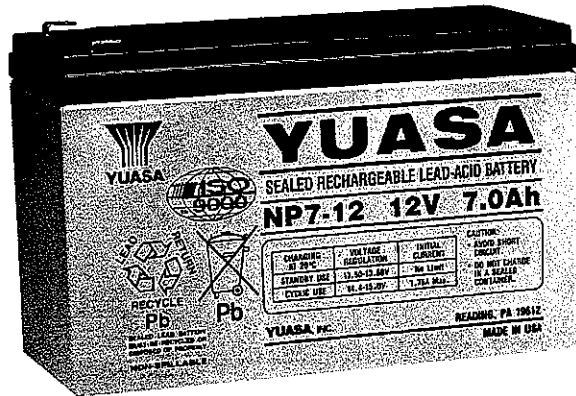
YUASA
NP7-12
NP7-12FR

12V, 7.0Ah

Specifications

NOMINAL VOLTAGE: 12V
NOMINAL CAPACITY:
  20 hr. rate of 0.35A to 10.50V   7.0Ah
  10 hr. rate of 0.65A to 10.50V   6.5Ah
  15 hr. rate of 1.19A to 10.20V   5.95Ah
  1 hr. rate of 4.20A to   9.60V   4.2Ah
WEIGHT (approx.) 6.17 pounds (2.64 kgs.)
ENERGY DENSITY (20 hr. rate):
  1.49 WH/cubic inch (91.0 WH/liter)
SPECIFIC ENERGY (20 hr. rate):
  13.6 WH/pound (30 WH/kg)
INTERNAL RESISTANCE OF CHARGED BATTERY:
  30 milliohms (approx.)
MAXIMUM DISCHARGE CURRENT
WITH STANDARD TERMINALS:
  40 amperes
MAXIMUM SHORT-DURATION
DISCHARGE CURRENT:
  210 amperes
OPERATING TEMPERATURE RANGE:
  CHARGE   5°F to 122°F
                (-15°C to 50°C)
  DISCHARGE   -4°F to 140°F
                (-20°C to 60°C)
CHARGE RETENTION (shelf life) at 68°F (20°C):
  1 month   97%
  3 months   91%
  6 months   85%
LIFE EXPECTANCY:
  STANDBY USE   3 to 5 years
  CYCLE USE (approx.)
    100% depth of discharge   250 cycles
    50% depth of discharge   550 cycles
    30% depth of discharge   1200 cycles
SEALED CONSTRUCTION:
  Can be operated in any position without leakage.
STANDARD TERMINAL:
  Quick Disconnect .187 or Optional .250
HOUSING MATERIAL: ABS Resin
OPTIONAL: Container and cover made from
  Flame Retardant ABS (UL94-VO/L.O.I.>28%)

Dimensions

65 ± 1
(2.56 ± 0.04)

151 ± 1
(5.95 ± 0.04)

97.5 ± 2 (3.84 ± 0.08)
94 ± 1 (3.70 ± 0.04)
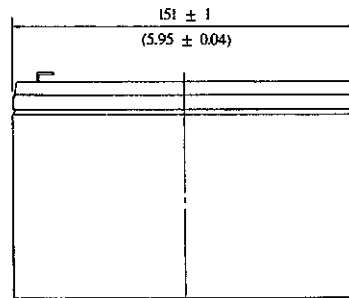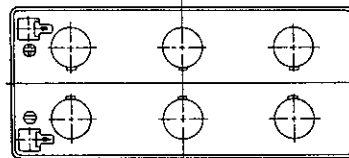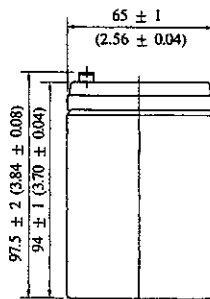
DIMENSIONS: MM (INCHES)

Terminal

Available with .250 option

.185 ± .004
.060
.124
.098
.020
.031 ± .004
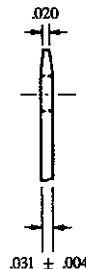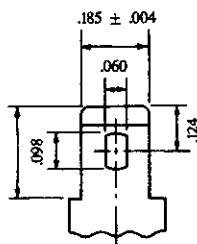
INCH	= MM
.250	6.35
.185	4.70
.124	3.15
.098	2.49
.060	1.52
.031	0.79
.020	0.51
.004	0.10

DIMENSIONS: (INCHES)

RECOGNIZED BY UL, File No. MH 16464

Honeywell

PRO3200

Professional Series Access Modules

The PRO3200 professional series family of access control modules is designed for high density installations. Supporting up to 16 readers per enclosure and 32 readers per intelligent controller along with up to 100,000 card capacity provides a combination of small installation footprint and superior cost per door ratio.

The PRO22R1 provides I/O support for one card access reader, while the PRO32R2 supports two card access readers. Both interface with the intelligent control module (PRO32IC). In the event that communication to the intelligent control module is lost, the card access readers can be individually configured to allow entrance based on security needs. This customization allows for a door to be configured as locked, unlocked, or access only via valid facility code.

The PRO32OUT interfaces with the intelligent control module (PRO32IC) providing up to 12 or 16, Form C, 12 VDC, 2A relay output controls depending if the board is rack or tile-mounted and power fail and panel tamper when tile mounted. Relays may be used for elevator control, status annunciation and for general facility control, such as door monitoring.

The PRO32IN interfaces with the intelligent control module (PRO32IC) providing 16 supervised alarm inputs and a dedicated power fail and panel tamper when tile mounted. An analog to digital converter samples the input values and the digitized result is filtered and processed. Filter parameters are configurable for each input point, resulting in the ability to specify a custom End-Of-Line (EOL) resistance value, sensitivity range and timing parameter.

The PRO3200 Series of access modules are designed to accommodate various mounting options. Units can be mounted in a rack configuration (PRO22ENC1, PRO22ENC2 and PRO22ENC5) when space is limited, or in a tile-mount configuration (PRO22ENC3).

- The PRO22ENC1 is a wall-mounted enclosure rack unit
- The PRO22ENC2 is a 19" rack-mounted enclosure rack unit
- The PRO22ENC5 is a rack unit which fits inside a customer's enclosure

FEATURES

- Modular design fits a wide variety of applications
- Up to 9 modules, power-supply and battery can be accommodated by the PRO22ENC1, PRO22ENC2 and PRO22ENC5 (no battery) enclosures
- User programmable relay outputs allow for specific control needs
- User programmable alarm inputs offer flexible system configuration and control
- RS485 communication to all modules
- Analog to digital converter technology provides digital filtering and input conditioning
- Dedicated cabinet tamper and power monitor inputs

- Supports the choice of normally open, normally closed, supervised, and non-supervised circuits
- Supports a wide range of reader technologies including Wiegand, magnetic stripe, proximity, and keypad
- System off-line modes customizable per reader include facility code access, locked (no access), and unlocked (full access)
- Supports multiple reader and card formats for maximum flexibility and security options
- Operating modes include locked, unlocked, facility code, card only, card and PIN, card or PIN and PIN only

- Communication to the host is via either 10/100 Ethernet or RS-232 (both are standard)
- Alarm circuit type - normally open, normally closed, non-supervised, supervised (with correct EOL). Meets requirements for UL294 and CUL
- Any combination of 16 I/0 or readers modules may be connected to the PRO32IC RS485 ports. 4,000 ft (1,250 m) total bus length per port
- Supports over 50,000 cards and 50,000 transactions

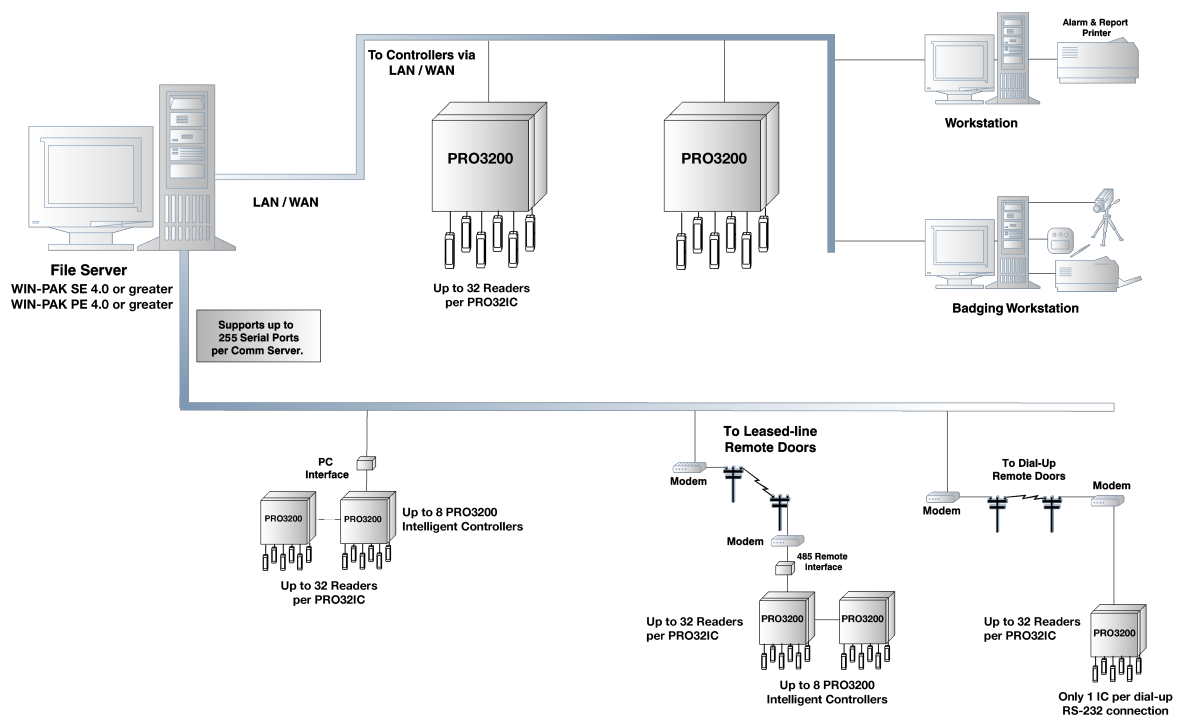# PRO3200

Professional Series Access Modules

SPECIFICATIONS

	PRO3200 Series Single Reader Module (PRO22R1)	PRO3200 Series Dual Reader Module (PRO32R2)
Module Specifications		
Port	1 reader port - 12 VDC at 50 mA, clock / data or data0 / data1	2 reader ports - 12 VDC at 50 mA, clock / data or data0 / data1
Keypad	Keypad multiplexed with card data	
Wire Support	Two-wire or one-wire bi-color LED support	
Buzzer Support	Buzzer support only with one-wire LED control	
Alarm Inputs	2 supervised, general purpose alarm inputs with programmable circuit type	8 supervised, general purpose alarm inputs with programmable circuit type (only 6 supervised inputs available when using PRO22ENC1, PRO22ENC2 and PRO22ENC5 enclosures)
Alarm Inputs	1 dedicated alarm input for tamper detection	2 dedicated alarm inputs for tamper detection and power loss
Output Relays	1 general purpose output relay, form C, 5 A 28 VDC	2 general purpose output relay, form C, 5 A 28 VDC
Output Relays	1 general purpose output relay, form C, 1 A 28 VDC	4 general purpose output relay, form C, 2 A 28 VDC (only 2 output relays available when using PRO22ENC1, PRO22ENC2 and PRO22ENC5 enclosures)
Mounting	Designed to be tile-mounted using the PRO22ENC4 enclosure	N/A
Alarm Input Properties		
Inputs	Inputs may be assigned to door related functions or general purpose I/O	
Circuit Type	Circuit type - normally open, normally closed, non-supervised, supervised (with standard 1K or custom end-of-line resistance 200-10K)	
Line Conditioning	Line conditioning - programmable sensitivity and hold time	
Output Control Properties		
Outputs	Outputs may be assigned to door related functions or general purpose I/O	
Relay Rating	The 5 A relay(s) are rated to handle the inductive loads of door locking devices	
Configurable	Configurable as standard (energize to activate) or fail-safe (de-energize to activate)	
Pulse Time	1-32,400 seconds, 1-255 for door relays	
RS485 Port	RS485 port, 4,000 ft (1,250m) total bus length	
Standard Speed	38.4 Kbps	

	PRO3200 Series Sixteen Relay Output Module (PRO32OUT)	PRO3200 Series Sixteen Alarm Input Module (PRO32IN)
Module Specifications		
Alarm Inputs	2 dedicated alarm inputs for tamper detection and power loss (tile-mounted only)	
Alarm Inputs	N/A	16 general purpose inputs with programmable circuit type
Output Relays	12 general purpose output relays, form C, 2 A 30 VDC (16 are available when using PRO22ENC3 tile-mounted enclosure)	2 general purpose, form C, 2 A 30 VDC relays (only one available when using PRO22ENC1, PRO22ENC2 and PRO22ENC5)
Output Control Properties		
Outputs	All 16-relay outputs in the tile-mount configuration (12" rack-mount) are available for general purpose I/O	Both relay outputs are available for general purpose I/O
Dry Circuit Logic	The 2 A relays are rated to handle dry circuit logic	Both relay outputs are rated to handle dry circuit logic
Pulse Time	1-32,400 seconds	
Configurable	Configurable as standard (energize to activate) or fail-safe (de-energize to activate)	N/A
Alarm Input Properties		
Inputs	N/A	All 16 inputs may be assigned to door related functions or general purpose I/O
Circuit Type	N/A	Circuit type - normally open, normally closed, non-supervised, supervised (with correct EOL)
Line Conditioning	N/A	Line conditioning - programmable sensitivity and hold time
Communication Features		
Measurements	RS485 port, 4,000 ft (1,250m) total bus length per port	
Speed	38.4 Kbps	

BENEFITS

- Anti-passback support - free pass and exempt flags, last area accessed, last reader accessed and time/date of last access

- Modular hardware architecture provides flexibility and expansion capabilities

- Large, local controller database allows access control decisions to be made by controller in real time without the need to communicate to the server

- ADA compliant allowing expanded door times selectable per reader

- Scalable architecture ensures optimal performance with a seamless upgrade path to accommodate future growth beyond its initial installation

- Four-state alarm input circuits - normally opened, normally closed, non-supervised, supervised (w/EOL)

- Rack or tile mounting options available

- Alarm conditioning with programmable sensitivity and hold time

- Selectable reader states include card and PIN, card or PIN, card only, or PIN only

- Auto switching power supply allows 110 / 220 operation

- System off-line modes customizable per reader include facility code access, locked (no access), and unlocked (full-access)

- Supports multiple reader and card formats for maximum flexibility and security options

PRO3200 CONFIGURATION

| | | PRO22ENC1 | | PRO22ENC3 | |
Module	Readers	Inputs	Outputs	Inputs	Outputs
PRO22R1	1	N/A	N/A	2	2
PRO32R2	2	6	4	10**	6
PRO32OUT	0	0	12	2**	16
PRO32IN	0	16	1	18**	2
**Two are used to monitor Power and Tamper					
PRO22ENC1=9 Board Capacity / PRO22ENC3=2 Board Capacity					

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PRO3200

Professional Series Access Modules

SPECIFICATIONS

Dimensions:

- Board: 9.0" H x 5.5" W x 1.0" D (22.9 cm H x 14 cm W x 2.5 cm D)
- PRO22ENC1: 13.9" H x 17" W x 9" D (35.3 cm H x 43.2 cm W x 22.9 cm D)
- PRO22ENC2: 13.9" H x 18.9" W x 9" D (35.3 cm H x 48 cm W x 22.9 cm D)
- PRO22ENC3: 14" H x 16" W x 4" D (35.6 cm H x 40.6 cm W x 10.2 cm D)
- PRO22ENC4: 8.37" H x 7.63" W x 7.63 D (21.28 cm H x 19.4 cm W x 19.4 cm D)
- PRO22ENC5: 9.35" H x 16.85" W x 5.6" D (23.7 cm H x 42.8 cm W x 14.2 cm D)

Environment:

- Temperature: 0°C to 49°C operational; -55°C to 85°C storage
- Humidity: 0 to 85% RHNC

Wire Requirements:

- Power - twisted pair, 18 AWG
- RS485 - 24 AWG, 4,000 ft (1,200m) max, two twisted pairs with shield (120 ohms, 23 pF, Belden 9842 or equiv)
- RS-232 - 24 AWG, 25 ft (7.6m) max
- Alarm input - twisted pair, 30 ohms max

Enclosures:

- PRO22ENC1 (Wall-mount) Capacity: 9 modules. Power supply and battery not included
- PRO22ENC2 (19" Rack-mount) Capacity: 9 modules. Power supply and battery not included
- PRO22ENC3 (Tile-mount) Capacity: 2 modules. Power supply and battery included
- PRO22ENC4 (Tile-mount) Capacity: 1 module (PRO22R1 only). Power supply and battery included
- PRO22ENC5 (Cage only for custom enclosures) Capacity: 9 modules. Power supply and battery not included

ORDERING

PRO3200 Controllers

PRO32IC	PRO3200 Intelligent Controller
PRO22R1	PRO2200 Single Reader Module
PRO32R2	PRO3200 Dual Reader Module
PRO32OUT	PRO3200 16 Relay Output Module
PRO32IN	PRO3200 16 Alarm Input Module

PRO-Series Enclosures

PRO22ENC1	(Wall-mount) Capacity: 9 modules. Power supply and battery not included
PRO22ENC2	(19" Rack-mount) Capacity: 9 modules. Power supply and battery not included
PRO22ENC3	(Tile-mount) Capacity: 2 modules. Power supply and battery included
PRO22ENC4	(Tile-mount) Capacity: 1 module (PRO22R1 only). Power supply and battery included
PRO22ENC5	(Cage only for custom enclosures) Capacity: 9 modules. Power supply and battery not included

PRO3200 Starter Kit with Software

PRO32SKD8	8 Door Starter Kit (1) PRO32E1D8 with WIN-PAK SE Software

PRO3200 Expansion Kits

PRO32E1D2	2 Door Kit (1) PRO32R2, (2) S-4 and (1) PRO32E1EN
PRO32E1D4	4 Door Kit (2) PRO32R2, (4) S-4 and (1) PRO32E1EN
PRO32E1D8	8 Door Kit (4) PRO32R2, (8) S-4 and (1) PRO32E1EN

Optional Accessories

PRO22DCC	Daisy Chain cable required for PRO22ENC1, PRO22ENC2 and PRO22ENC5
PRO32E1PS	4 A rack-mounted power supply with battery backup required for PRO32ENC1, PRO32ENC2 and PRO32ENC5

Network Kits

PRO32E1EN	Includes: PRO32ENC1, PRO32IC, PRO32E1PS, PRO22BAT1 and PRO22DCC
PRO32E2EN	Includes: PRO22ENC2, PRO22IC, PRO32E1PS, PRO22BAT1 and PRO22DCC

For more information: www.honeywellaccess.com

Honeywell

DKS DOORKING™®

1802
TELEPHONE
ENTRY SYSTEM

807

flush mount

surface mount

- Provides service for up to 1000 residents
- Programmable directory codes can be set from 1 to 4 digits
- Surface or flush mount styles available
- 2 year limited factory warranty

OPEN 1

modular design
makes installation and service easy

dtmf tone output
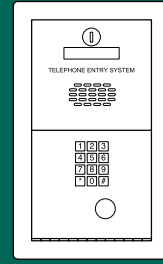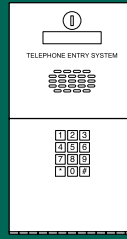useable with PBX, KSU and telephone systems with auto-attendants

lighted
keypad and display

built-in display
indicates door/gate has been opened

ACCESS CONTROL SOLUTIONS

1802

TELEPHONE
ENTRY SYSTEM

1802 Surface
6.5" W x 12" H x 5" D
(16.5cm W x 30.4cm H x 12.7cm D)

1802 Flush
8.375" W x 14" H x 3.25" D
(30.4cm W x 34.3cm H x 6.35cm D)

1802	PHONE # MEMORY	ENTRY CODES	DEVICE CODES	RELAYS	DIRECTORY	ELEVATOR CONTROL	PROGRAMMING OPTIONS	OPTIONS	TRANSACTION BUFFER
Surface Mount	1000	1000 (4-digit) 6 (5-digit)	-	2	No	No	System Keypad or Touch-Tone Telephone	Handset Kit	No
Flush Mount	1000	1000 (4-digit) 6 (5-digit)	-	2	No	No	System Keypad or Touch-Tone Telephone	Gold Plated Faceplate	No

Technical Features

Mechanical

Stainless steel faceplate

Galvanized steel sub-plate

Metal keypad

Offset speaker holes for protection

Hands free voice operation
(Optional handset available on surface mount only)

Surface or Flush mounting styles
Flush mount requires flush mounting kit
Enclosures are rated NEMA 4x

Built-in postal lock provision

Electrical

16 VAC (power transformer included)

Full Duplex voice communication

Stores up to 1000 phone numbers, 15 area codes

Two relays allow for control of both a vehicular gate and a pedestrian gate

Programmable directory codes (1 to 4 digits)

10 & 11 digit dialing capability

DTMF tone output allows for use with PBX and auto-attendant type phone systems

Four-digit entry codes = 1000

Five-digit entry codes = 6

Built-in clock / calendar
Time clock has its own backup power source

Hold open time zones (4)

Entry code time zones

Flash entry codes

Two special inputs can be programmed for relay activation or dial-out funciton

Time zone restrictions on selected entry codes

LCD display for programming assistance and shows 'open' when access is granted

Miscellaneous

Environmental: 10ºF to 145ºF *(-12°C to 62°C)*

ADA Compliant handset kit (P/N 1807-012) available on surface mount only

Camera Ready: Optional B&W or Color CCTV camera*
 *may require additional CCTV equipment

Shipping weight approximately 15-20 Lbs *(6.8-9 kg)*

ETL LISTED US
c US
Intertek

FCC (US) DUF6VT-12874-0T-0

DOC (CAN) 1736 4507 A

Access Control Solutions since 1948

Distributed by:
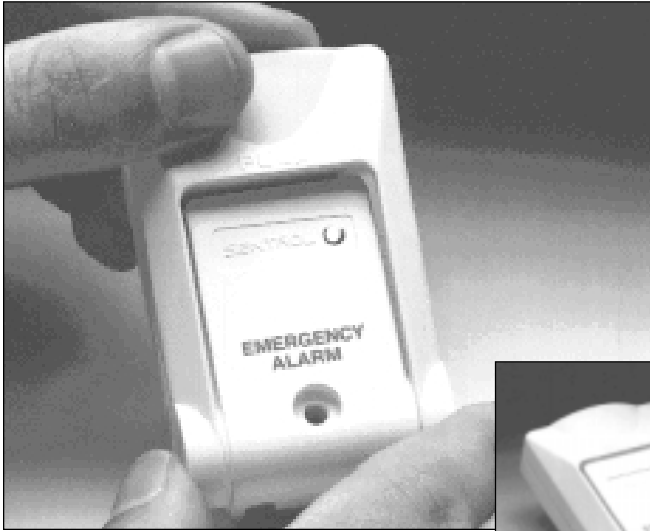
Model 3040 shown above;
Model 3045 shown on right.

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 .... 7 V DC to 15 V DC
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: .... 3 W 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.
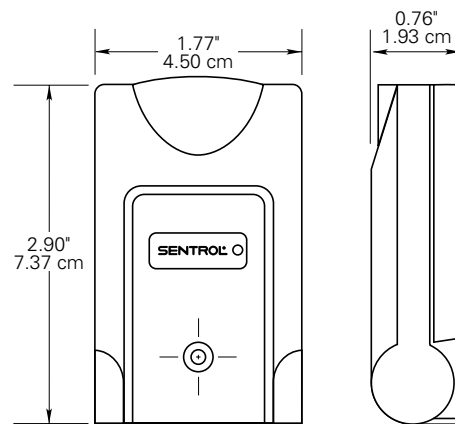
*3040, 3050, 3055
(No LED on 3045)*

Ordering Information

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

5820A Recessed ShatterPro II with trim ring (included).

Single Gang Box Model 5825

- **Recess mounts in a 1-inch diameter hole in ceiling or wall**
- **25' radius range protects an entire room with one sensor**
- **End-user can test sensor operation with a clap of the hands**
- **New protective sleeve makes removal easy**
- **Single Gang Box Kit for Prewire and Flush Mounting**

5820A SERIES ACOUSTIC GLASSBREAK SENSOR

Recessed ShatterPro™ II and Accessories

Model numbers:
5820A-W, 5822A-W, 5825-W

UL LISTED

Trim Ring Now Included

The 5820A Series Recessed ShatterPro™ II is designed for use when sensor appearance is a consideration. The 5820A recessed model can be mounted directly into the wall or ceiling or can be used with the single gang box accessory. A trim ring is included.

Using Sentrol's patented Pattern Recognition Technology™, the sensor listens for the actual pattern of breaking glass while eliminating most false alarm patterns. Recessed ShatterPro™ II sensors listen across the glass break frequency spectrum to differentiate the sound of breaking glass from most normal room sounds.

A new test feature makes installation faster by eliminating the test mode jumper. The Recessed ShatterPro™ II is tested by activating the Sentrol hand-held glassbreak tester at close range. Opening the sensor is unnecessary.

A simple hand-clap feature lets end-users confirm at any time that the Recessed ShatterPro™ II is operational. The sensor will blink twice but will not trip when a loud hand clap is made close to the unit.

The 5820A Recessed ShatterPro™ II detects in a full 360° coverage pattern, with a 25' (7.5 m) radius range from sensor to glass. The Recessed ShatterPro™ II is suitable for use in quiet occupied areas on the perimeter loop.

Sentrol 5820A Series Recessed ShatterPro™ II

Specifications:

Electrical
Operational voltage .... 9 to 16 V DC
Current draw .... 12 mA typical; 25 mA max.
Relay output .... Normally closed, open 4 seconds on alarm
   On resistance .... 5 to 15 Ohms
   Off resistance .... 20 MOhms
   Maximum loop rating
     (relay or tamper loop) .... 16 V DC, 50mA
Fails safe and opens on power loss

Environmental
Lightning suppression .... 400 watts for 1 msec pulse
Operating temperature .... 0°F to 120°F (-18°C to +50°C)
RFI immunity .... 20 V/meter from 1 to 1000MHz

Features
Housing material .... Flame retardant ABS plastic
Microphone .... Omni-directional 360° electret
Sensitivity setting .... Factory set
Range .... 25' (7.5 m) measured to the farthest point of glass
                        25' (7.5 m) on the opposite wall
                        20' (6.0 m) measured to the wall
Glass types detected
   Plate glass.. Up to ¼" (6.4 mm)
   Tempered glass .... Up to ¼" (6.4 mm)
   Wired glass .... Up to ¼" (6.4 mm)
   Laminated glass .... Up to ¼" (6.4 mm)
Mounting location .... Ceiling or any wall
Minimum distance from glass .... 3.3' (1 m)
Dimensions .... 2.50" (6.4 cm) D x 1.35" (3.4 cm) W
Color .... White

Mounting Location Range

Range measured to the farthest glass

Sensor has 360° coverage
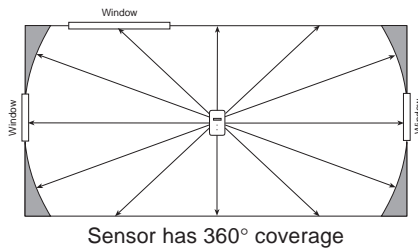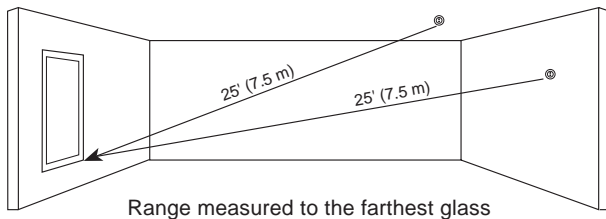
Dimensions – 5829A

Dimensions – 5820A

Recess mounts in a 1" (2.5 cm) diameter hole
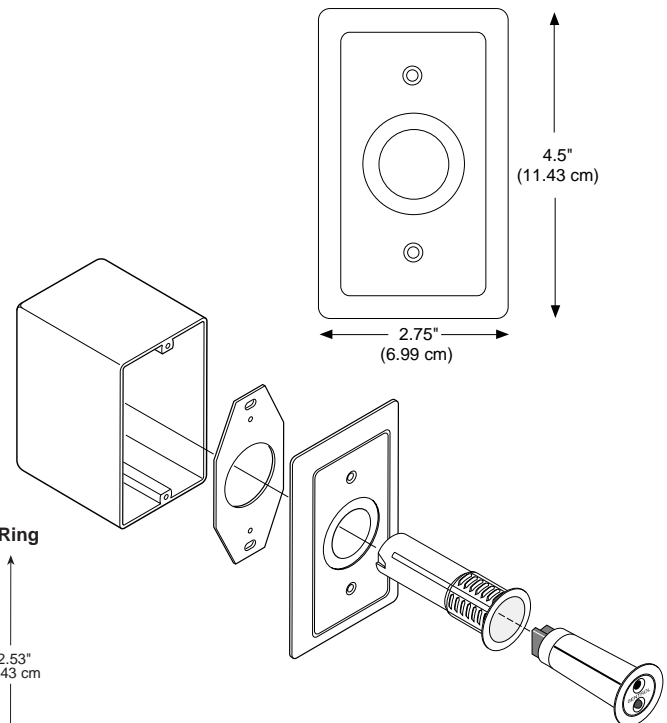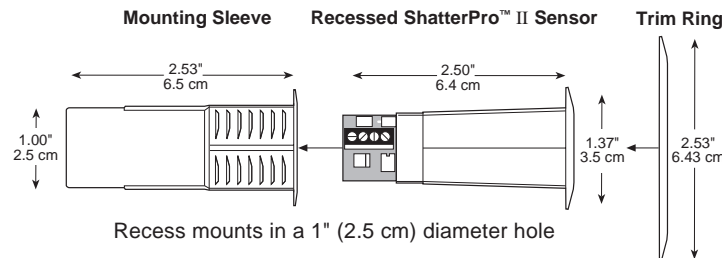
Ordering Information

| Description	Model Number	Color	Listing
Recessed ShatterPro II, latch or non-latch LED	5820A-W	White	
Recessed ShatterPro II, tamper, latch or non-latch LED	5822A-W	White	UL
Hand-held Tester	5709C-W	White	
Single Gang Box Kit with ShatterPro II	5825A-W	White	
Accessory only - Single Gang Box Kit	5829A-W	White	

Protected by U.S. Patent 5,192,931 and 5,510,767.

G-2732-FLG20K-0197

HID®
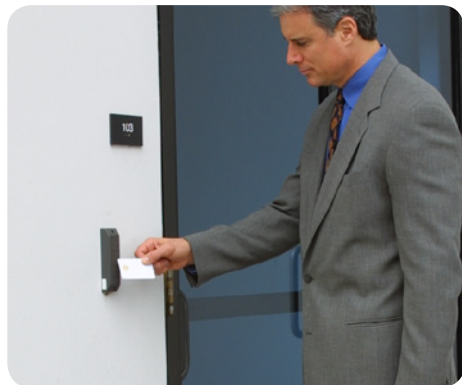
ThinLine® II Reader
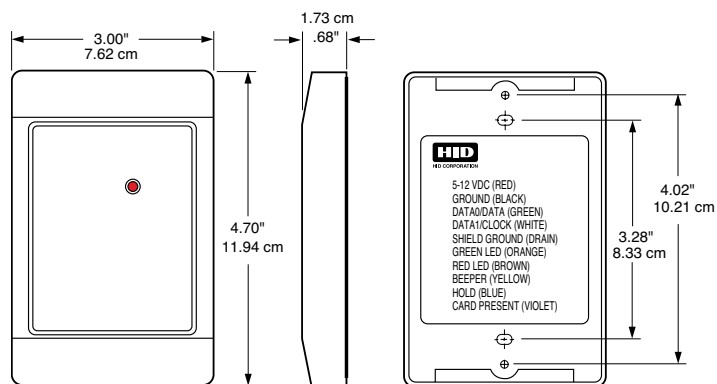
LOW PROFILE PROXIMITY CARD READER

Providing performance and reliability, HID's attractive, unobtrusive ThinLine® II proximity card reader is housed in a two-piece, weatherproof secure potted enclosure.

- Easily installed and maintained with the use of replaceable covers.
- Available with a Wiegand or Clock-and-Data interface.
- Provides high reliability, consistent read range and low power consumption.
- Features include multicolor LED and internal control or host control of the LED and beeper.
- Mounts directly on metal with minimal impact on the read range performance.
- Aesthetic design available in two cover designs and four colors to match any décor.
- Includes multilingual installation manual.

3.00"
7.62 cm

1.73 cm
.68"

4.70"
11.94 cm

HID
HID CORPORATION

5-12 VDC (RED)
GROUND (BLACK)
DATA0/DATA (GREEN)
DATA1/CLOCK (WHITE)
SHIELD GROUND (DRAIN)
GREEN LED (ORANGE)
RED LED (BROWN)
BEEPER (YELLOW)
HOLD (BLUE)
CARD PRESENT (VIOLET)

4.02"
10.21 cm

3.28"
8.33 cm

HID

FEATURES

- **Security** – Recognizes card formats up to 85 bits, with over 137 billion unique codes.
- **Audiovisual Indication** – A red LED flashes green and the beeper sounds when reader is presented with a proximity card. The multicolor LED and beeper can also be controlled individually by the host system.
- **Diagnostics** – On reader power-up, an internal self-test routine checks and verifies the setup configuration, determines the internal or external control of the LED and beeper, and initializes reader operation. An additional external loop-back test allows for the reader outputs and inputs to be verified without the use of additional test equipment.
- **Indoor/outdoor Design** – Sealed in a rugged, weatherized

polycarbonate enclosure designed to withstand harsh environments, providing reliable performance and a high degree of vandal resistance.

- **Easily Interfaced** - Wiegand output model interfaces with all existing Wiegand protocol access control systems. Clock-and-Data (magnetic stripe) model interfaces with most systems that accept magnetic stripe readers.
- **Options** – LED and beeper operation

SPECIFICATIONS

*Model Name	ThinLine® II
Model Number	5395 Wiegand interface 5398 Clock-and-Data interface
**Read Range	ProxCard® II card - up to 5.5" (14 cm) ISOProx® II card - up to 5" (12.7 cm) DuoProx® II card - up to 5" (12.7 cm) Smart ISO®/DuoProx® cards - up to 5" (12.7 cm) Proximity & MIFARE® card - up to 5" (12.7 cm) ProxCard® Plus card - up to 1.5" (3.8 cm) ProxKey® II key fob - up to 2" (5.1 cm) MicroProx® Tag - up to 3" (7.6 cm)
Mounting	Mounts on a single-gang electrical box for easy installation. Mounts directly on metal with minimal impact on read range performance.
Color	• CLASSIC series cover in gray, beige, black or white (or) • Designer series cover in grey, wave blue, black or white
Keypad	No
Dimensions	4.70" x 3.00" x 0.68" (11.9 x 7.6 x 1.7 cm)
Power Supply	5-16 VDC (Linear power supplies are recommended.)
Power Requirements (Standard Power)	Average: 30 mA (5 VDC); 20 mA (12 VDC) Peak: 110 mA (5 VDC); 115 mA (12 VDC)
Operating Temperature	-22° to 150° F (-30° to 65° C)
Operating Humidity	0-95% relative humidity noncondensing
Transmit Frequency	125 kHz
Environmental	IP55
Cable Distance	Wiegand interface: 500 feet (150 m) Clock-and-Data interface: 50 feet (15 m) Recommended cable is ALPHA 1295 (22 AWG) 5 conductor minimum stranded with overall shield or equivalent. Additional conductors may be required for LED or beeper control.
Certifications	UL294/cUL (US), FCC Certification (US), IC (Canada), CE (EU), C-tick (Australia, New Zealand), SRRC (China), MIC (Korea), NCC (Taiwan), MIC (Japan), iDA (Singapore), RoHS
Housing Material	UL94 Polycarbonate
Warranty	Lifetime

*Consult How to Order Guide for specific ordering instructions.
**Dependent upon 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

hidglobal.com

ASSA ABLOY

An ASSA ABLOY Group brand

Overview

- The AL600ULACM / AL600ULACMCB converts an 115VAC 60Hz input into eight (8) independently controlled 12VDC or 24VDC Fail-Safe and/or Fail-Secure outputs with a total of 6 amp continuous supply current. These power outputs can be converted to dry form "C" contacts (AL600ULACM only). Outputs are activated by an open collector sink or normally open (NO) dry trigger input from an Access Control System, Card Reader, Keypad, Push Button, PIR, etc. These units will route power to a variety of access control hardware devices including Mag Locks, Electric Strikes, Magnetic Door Holders, etc. The outputs will operate in both Fail-Safe and/or Fail-Secure modes. The units are designed to be powered by one common power source (factory installed) which will provide power for both the board operation and locking devices, or two (2) totally independent power sources, one (1) providing power for board operation and the other for lock / accessory power. 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 eight (8) outputs.

AL600ULACM

- Eight (8) independently controlled fuse protected outputs.

AL600ULACMCB

- Eight (8) independently controlled PTC protected outputs.
- Class 2 Rated power limited outputs.

Specifications

- 12VDC or 24VDC @ 6 amp supply current.
- Power supply input options:
  a) One (1) common power input for ACM8/ ACM8CB and lock power (factory installed).
  b) Two (2) isolated power inputs - One (1) to power the ACM8/ACM8CB and one (1) for lock accessory power, (external power supply is required). (Current is determined by the power supply connected, not to exceed a maximum of 10 amp total).
- Eight (8) Access Control System trigger inputs. Input options:
  a) Eight (8) normally open (NO) inputs.
  b) Eight (8) open collector inputs.
  c) Any combination of the above.
- Eight (8) independently controlled outputs. Output options:
  a) Eight (8) Fail-Safe and/or Fail-Secure power outputs.
  b) Eight (8) form "C" 5 amp rated relay outputs (AL600ULACM only).
  c) Any combination of the above (AL600ULACM only).
- Eight (8) auxiliary power outputs (unswitched)
- Output ratings:
  - Fuses are rated @ 3.5 amp (AL600ULACM).
  - PTCs are rated @ 2.5 amp (AL600ULACMCB).
- ACM8 board main fuse is rated at 10 amp.
- Input 115VAC 60Hz rated @ 1.9 amp.
- Filtered and electronically regulated outputs (built-in power supply).

- Red LEDs indicate outputs are triggered (relays energized).
- Fire Alarm disconnect (latching or non-latching) is individually selectable for any or all of the eight (8) outputs.
  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 not evaluated by UL).
- Green LED indicates when FACP disconnect is triggered.
- Built-in charger for sealed lead acid or gel type batteries.
- AL600ULXB (Power Supply Board) maximum charge current .7 amp.
- Automatic switch over to stand-by battery when AC fails.
- AC input and DC output LED indicators.
- Zero voltage drop when unit switches over to battery backup (AC failure condition).
- Short circuit and thermal overload protection.
- AC fail supervision (form "C" contact).
- Battery fail and battery presence supervision (form "C" contact).
- Enclosure accommodates up to two (2) 12AH batteries.

Agency Approvals

U L UL Listed for Access Control Systems Units (UL 294).

U L **C** CUL Listed - CSA Standard C22.2 No.205-M1983 Signal Equipment.

MEA Approved
MEA - NYC Department of Buildings Approved.

CSFM - California State Fire Marshal Approved.

Enclosure Dimensions

15.5"H x 12"W x 4.5"D
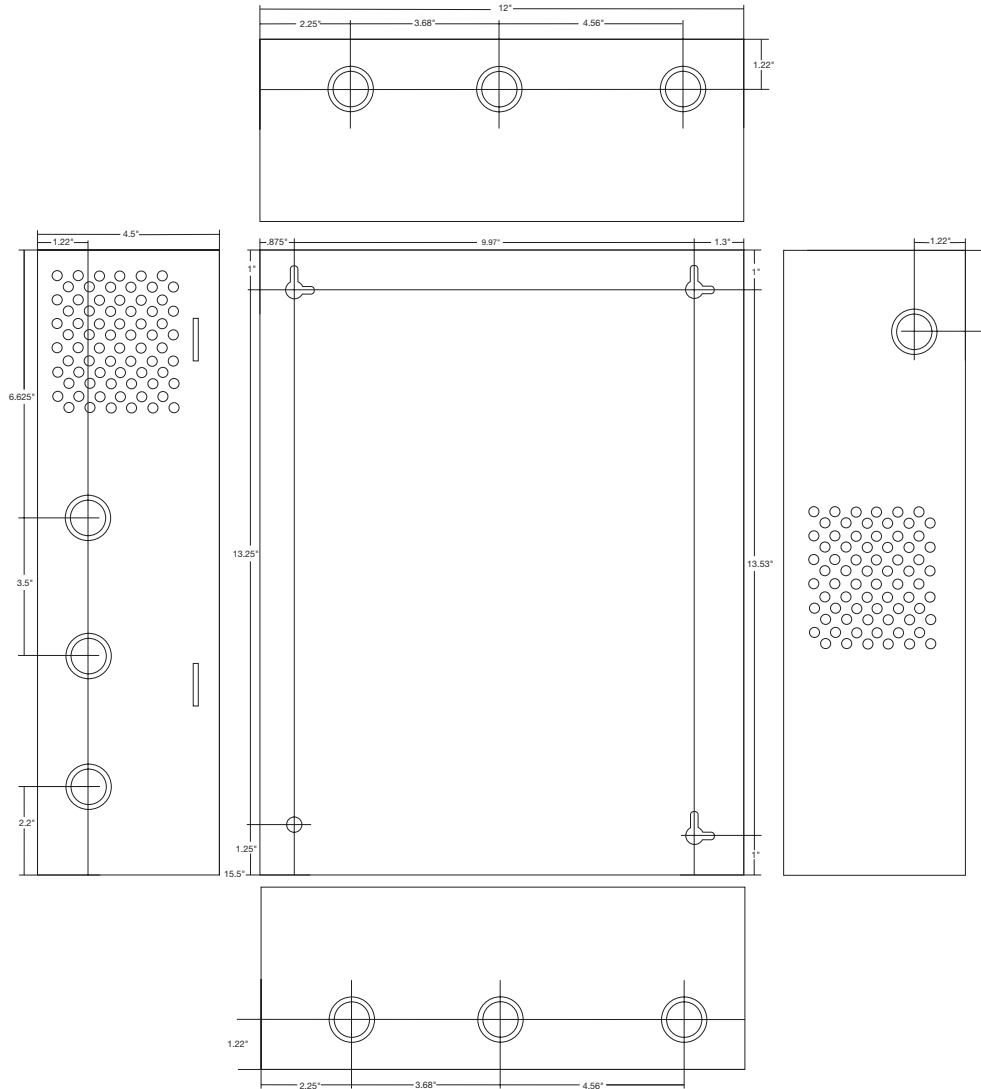
PIM400-TD2

Panel Interface Module
Wiegand or Clock & Data
communication

Overview

The PIM400-TD2 seamlessly integrates to virtually any access control panel and their reader interface modules via Wiegand or Clock & Data protocols. Each PIM400-TD2 supports up to two wireless access devices such as AD-400/401 series locks.

Reliability

Reliable communications result from several technological advances and incorporated features. 900 MHz spread spectrum technology enables high transmission power in a license-free band. Error detection algorithm maintains data integrity on each transmission and redundant transmissions ensure communication success. Periodic "heartbeat" signals provide supervision and assure reliable RF communications are maintained. Lastly, dynamic channel switching (DCS) can be enabled to overcome harsh RF environments by automatically changing channels to avoid potential interference.

Security

Used extensively by government and military organizations, spread spectrum technology provides significant security advantages over conventional transmission methods. Wireless access devices utilize spread spectrum transmissions, which are encrypted with AES-128 bit keys, to yield a system that is virtually uncompromisable. In addition, scalability is virtually unlimited as each AD Series wireless access module has nearly a million addresses to choose from during the linking process.

Centralized lock/unlock command in 10 seconds or less

Patent-pending Wake-Up on Radio (WOR) feature drives communication from the PIM400 to any or all linked wireless devices in 10 seconds or less. This innovative feature works efficiently in parallel with periodic "heartbeat" to maintain up to 2 year battery life on wireless devices such as the AD-400/401 locks. Response rate can be field configured down to 1 second with consideration of battery life. When Wake-Up on Radio is used in critical applications, dynamic channel switching should also be enabled.

Features and benefits

- 900 MHz spread spectrum RF technology for long range, reliable communications

- Supports up to two AD Series wireless devices

- Automatic linking to remote wireless access points with 10 channel frequencies to select from enables easy commissioning

- AES-128 bit encrypted spread spectrum transmissions

- 13 visual indicators to quickly verify operation and troubleshoot

- Flash memory for easy software upgrades

- Certifications: NEMA 1, 4, 4X, 6; UL 294; FCC Part 15; RoHS; Industry Canada (IC)

PIM400-TD2 specifications

Frequency range	902-928 MHz
Modulation	900 MHz spread spectrum, direct sequence, 10 channels
RF interference avoidance	Optional dynamic channel switching
Transmission/encryption	AES-128 bit key (optional)
Credential verification time	< 1 second[1]
Communication range	Up to 200 ft (61 m) with obstructions Up to 1000 ft (305 m) clear line of sight Up to 2000 ft (609 m) line of sight with high gain antenna on PIM400 Up to 4000 ft (1219 m) line of sight with high gain antennas on PIM400 and WRI400
Visual/audible communications	13 LEDs for status indicators
System interface	Wiegand (data1/data0) or magnetic stripe (Clock & Data)
Power supply	12 VDC or 24 VDC
Voltage range	9.5 VDC to 26 VDC
Max current requirement	Up to 250 mA
Operating temperature	-31º to 151ºF (-35º to 66ºC)
Operating humidity	0 - 100% non-condensing
Dimensions (H x W x D)	7.1" x 7.1" x 3.0" (18.0 cm x 18.0 cm x 7.6 cm)
Weight	1.25 lb (.56 kg)
Cable specifications	DC power Input: 18AWG, 2 conductor (Belden 8760 or equivalent) up to 1000 ft (303 m) PIM400-TD2 to ACP: 22AWG, 8 conductor shielded (Alpha 1298C or equivalent) up to 500 ft (152 m)
Data rate	RF: 40 kbps
Certifications	NEMA 1, 4, 4X, 6; UL 294; FCC Part 15; RoHS; Industry Canada (IC)

Ordering information

- **PIM400-TD2** – Panel Interface Module with outdoor enclosure standard. Supports up to two access points via Wiegand or Clock & Data with virtually any access control panel.

Optional accessories
- **ANT400-REM-I/O** – Omni-directional remote indoor/outdoor antenna module. Requires available grounding kit (MGB+MCA5) for outdoor installations
- **ANT400-REM-I/O+6dB** – Directional, flat panel, remote indoor/outdoor antenna with 6dB of gain. Requires available grounding kit (MGB+MCA5) for outdoor installations
- **MGB+MCA5** – Grounding kit for outdoor installations
- **ANT400-REM-CEILING** – Omni-directional ceiling mount indoor remote antenna
- **ANT400-REM-HALL** – Bi-directional indoor hall application remote antenna
- **HHD kit** – Handheld device with SUS installed and HH–USB cable
- **593PI-12DC** – 12 VDC power supply

Available through one of our GSA schedule 84 approved distributors

[1] Dependant on latency time of access control panel.

Additional features

Reliable communications
900 MHz band enables longer transmission ranges. In general, signal propagation with longer wavelengths travel a greater distance and penetrate through, and around objects better than signals with shorter wavelengths.

Online communications (heartbeat)
Regular communications between the AD Series wireless access module and PIM400 monitor transmission presence and integrity. Online communications enable the PIM400 to download information or instructions such as unlock and relock.

Auto addressing (linking)
One of the final steps in the installation process is called "linking". Linking ties a specific wireless access module to a selected PIM400 and assigns a unique address. There are over 65,000 unique addresses available per channel, providing nearly a million combinations for virtually unlimited scalability.

Assured communications
A packet-error-rate-test (PERT) is performed during linking at reduced power levels to ensure reliable communication during operation.

Encoded transmissions
Each RF transmission is encrypted with AES-128 bit keys to provide virtually uncompromisable security.

Tamper
The PIM400 cover is monitored by a tamper switch.

Visual LED indications
- Power on
- Microprocessor running
- Linking status to WAPM
- PIM transmitting RF data
- PIM receiving RF data
- PIM receiving data
- PIM transmitting data
- Door position
- PIM tamper status
- PIM firmware version
- Wiegand and Clock & Data status 1 & 2
- Door status 1 & 2
- Trouble 1 & 2

Standard open collector contacts
- Configurable for normally open or normally closed
- Door position
- Request-to-exit
- Request-to-enter
- Trouble

Optional relay board (RLBD) to achieve dry contact
- Configurable for normally open or normally closed
- Door position
- Request-to-exit
- Request-to-enter
- Trouble

Access point status available through PIM400-TD2
- Wiegand or magnetic stripe card data
- Door position
- Request-to-exit
- Request-to-enter (optional)
- Trouble
  - Loss of RF communication
  - Low battery
  - PIM tamper
  - Reader tamper

Configurable items from PIM400-TD2
- Wake-Up on Radio (WOR)
- Heartbeat frequency
- Relock parameters
- Card data format conversion
- Extended unlock
- Fail safe/fail secure/fail as-is
- Door held pre-alarm
- Cache memory parameters
- Dynamic channel switching (DCS)
- Reader configuration
- Keypad configuration
- User interface configuration

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.

Optional 1840 Rare Earth Magnet

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.

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.

Standard 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*
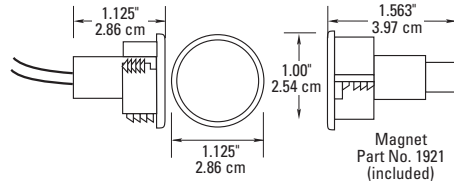- *Rare Earth Magnet designed for steel door with top channel available*

Model numbers

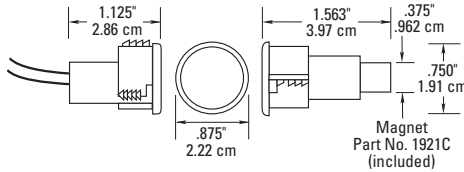*1076, 1076W, 1076C, 1076CW, 1076D, 1078, 1078W, 1078C, 1078CT, (R)1078, 1078CTW*

Dimensions

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

Models:
1078C, 1076C,
1076CW, 1076CH

Models:
1078CT, 1076CTW,
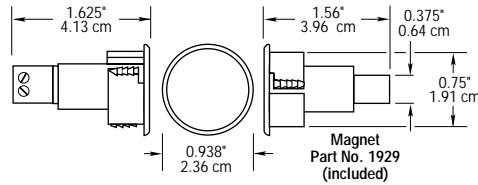
(R) prefix indicates
Rare Earth Magnet

Specifications

Form A: (R)1078, 1078W, 1078C, 1078CT, 1078CTW

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

Form C: 1076, 1076W, 1076D, 1076C(D), 1076CW, 1076CH

Voltage	30V AC/DC max.
Current	0.25 A max.
Power	3.0 W max.

Rare Earth Magnet
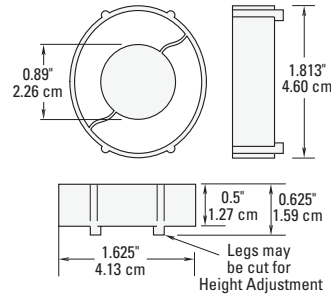
Protected by
U.S. Patent 5,844,458.

Ordering Information

Model	Dia.	Loop Type	Electrical Config.	Hole Required Contact	Hole Required Magnet	Gap Distance* Wood*	Gap Distance* Steel*	Gap Distance* 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, G
1076W	1″	Open or Closed	SPDT	1″ x 1.125″	1″ x 1.563″	2″	Up to 1″		M, N, G
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, G
1078	1″	Closed	N/O	1″ x 1.125″	1″ x 1.563″	1″	Up to $1/2$″	Up to $5/8$″	M, N, G
1078W	1″	Closed	N/O	1″ x 1.125″	1″ x 1.563″	2″	Up to 1″		M, N, G
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, G
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/O	.75″ x 1.125″	.75″ x 1.563″	$1/2$″	N/A		M, N, G
(R)1078	1″	Closed	N/O	1″ x 1.125″	1″ x 1.563″	1″	Up to $1/2$″	Up to $5/8$″	M, N
1078CT	$3/4$″	Closed	N/O	.75″ x 1.625″	.75″ x 1.56″	$7/8$″	$1/2$″	$5/8$″	M, N
1078CTW	$3/4$″	Closed	N/O	.75″ x 1.625″	.75″ x 1.56″	$5/8$″	$3/4$″	N/A	N

* 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

BOSCH

Invented for life

DS150i Series Request-to-exit Detectors

▸ **Single or double door use**

▸ **Wall or ceiling mountable**

▸ **Internal vertical pointability**

▸ **Wrap-around coverage pattern**

▸ **Selectable relay trigger mode**

▸ **Selectable fail safe/fail secure modes**

The DS150i Series consists of the DS150i Detector (light gray) and the DS151i Detector (black). They are specifically designed for Request-to-exit (REX) applications. The DS150i and DS151i detect motion in their coverage area and signal an access control system or door control device.

Functions

Test Features
Externally visible activation LED.

Certifications and Approvals

Region	Certification	
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)

Installation/Configuration Notes
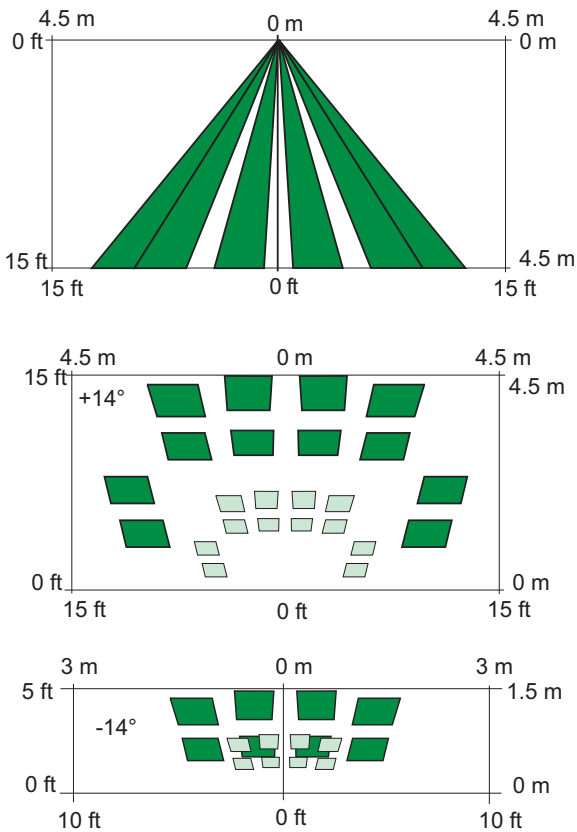
Front View and Top Views
A front view of the DS150i and DS151i coverage, as well as top views of the coverage pattern on the floor. The typical coverage measurements are 2.4 m x 3 m (8 ft x 10 ft).
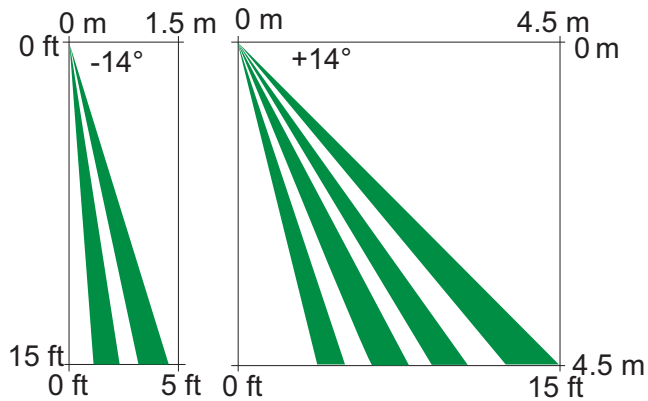
Side View
A side view of the DS150i and DS151i coverage pattern.

Technical Specifications

Electrical

Current Draw:	26 mA at 12 VDC
Voltage:	12 VAC or VDC; 24 VAC or VDC

Mechanical

Alarm Output:	Two Form C relay contacts
Indicators:	One activation LED
Relay Latch Time:	Adjustable to 60 sec
Enclosure Dimensions:	3.8 cm x 15.9 cm x 3.8 cm (1.5 in. x 6.25 in. x 1.5 in.)
Enclosure Material:	High impact ABS plastic enclosure
Power Loss Default Mode:	Programmable fail-safe or fail-secure modes.
Timer Mode:	Programmable reset (accumulative) or non-reset (counting) mode.
Mounting Location:	Surface mount on wall or ceiling

Environmental

Operating Temperature:	-29°C to +49°C (-20°F to +120°F)
Radio Frequency Interference (RFI) Immunity:	No alarm or setup on critical frequencies in the range from 26 MHz to 1000 MHz at 50 V/m.

Ordering Information

DS150i Request-to-exit PIR Detector Gray enclosure. For use in request-to-exit (REX) applications. Provides 2.4 m x 3 m (8 ft x 10 ft) coverage.	**DS150i**
DS151i Request-to-exit PIR Detector Black enclosure. For use in request-to-exit (REX) applications. Provides 2.4 m x 3 m (8 ft x 10 ft) coverage.	**DS151i**

Accessories

TP161 Trim Plate A black trim plate used when mounting the sensor over a standard single-gang box.	**TP161**
TP160 Trim Plate A light gray trim plate used when mounting the detector over a standard single-gang box.	**TP160**