

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK



# CITY OF PORTLAND BUILDING PERMIT



**This is to certify that**

DIFILIPPO CARMINE W /Cunningham Security Systems

**Located at**

33 HAMPSHIRE ST

**PERMIT ID:** 2013-00304

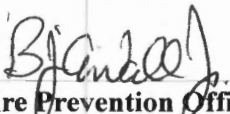
**CBL:** 028 J009001

has permission to **install supervised fire alarm system.**

provided that the person or persons, firm or corporation accepting this permit shall comply with all of the provisions of the Statues of Maine and of the Ordinances of the City of Portland regulating the construction, maintenance and use of the buildings and structures, and of the application on file in the department.

Notification of inspection and written permission procured before this building or part thereof is lathed or otherwise clsoed-in. 48 HOUR NOTICE IS REQUIRED.

A final inspection must be completed by owner before this building or part thereof is occupied. If a certificate of occupancy is required, it must be procured prior to occupancy.

  
Fire Prevention Officer



Code Enforcement Officer / Plan Reviewer

**THIS CARD MUST BE POSTED ON THE STREET SIDE OF THE PROPERTY  
THERE IS A PENALTY FOR REMOVING THIS CARD**

PERMIT ID: 2013-00304

Located at: 33 HAMPSHIRE ST

CBL: 028 J009001

**BUILDING PERMIT INSPECTION PROCEDURES**  
Please call 874-8703 (ONLY)  
or email: [buildinginspections@portlandmaine.gov](mailto:buildinginspections@portlandmaine.gov)

With the issuance of this permit, the owner, builder or their designee is required to provide adequate notice to the city of Portland Inspections Services for the following inspections. Appointments must be requested 48 to 72 hours in advance of the required inspection. The inspection date will need to be confirmed by this office.

- **Please read the conditions of approval that is attached to this permit!! Contact this office if you have any questions.**
- **Permits expire in 6 months. If the project is not started or ceases for 6 months.**
- **If the inspection requirements are not followed as stated below additional fees may be incurred due to the issuance of a "Stop Work Order" and subsequent release to continue.**

**REQUIRED INSPECTIONS:**

Final - Fire

Final - Electric

The project cannot move to the next phase prior to the required inspection and approval to continue, REGARDLESS OF THE NOTICE OF CIRCUMSTANCES.

IF THE PERMIT REQUIRES A CERTIFICATE OF OCCUPANCY, IT MUST BE PAID FOR AND ISSUED TO THE OWNER OR DESIGNEE BEFORE THE SPACE MAY BE OCCUPIED.

**City of Portland, Maine - Building or Use Permit**

389 Congress Street, 04101 Tel: (207) 874-8703, Fax: (207) 874-8716

<b>Permit No:</b> 2013-00304	<b>Date Applied For:</b> 02/15/2013	<b>CBL:</b> 028 J009001
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<b>Location of Construction:</b> 33 HAMPSHIRE ST	<b>Owner Name:</b> DIFILIPPO CARMINE W	<b>Owner Address:</b> 107 BROOK RD	<b>Phone:</b>
<b>Business Name:</b>	<b>Contractor Name:</b> Cunningham Security Systems	<b>Contractor Address:</b> 10 Prince Point Road Yarmouth	<b>Phone</b> (207) 846-3350
<b>Lessee/Buyer's Name</b>	<b>Phone:</b>	<b>Permit Type:</b> Fire Alarm System	

<b>Proposed Use:</b> Same: Four Residential Dwelling Units	<b>Proposed Project Description:</b> Fire Alarm permit w/separate electric permit
---------------------------------------------------------------	--------------------------------------------------------------------------------------

**Dept:** Zoning      **Status:** Approved      **Reviewer:** Marge Schmuckal      **Approval Date:** 02/21/2013  
**Note:**      **Ok to Issue:**

**Dept:** Fire      **Status:** Approved w/Conditions      **Reviewer:** Ben Wallace Jr      **Approval Date:** 02/25/2013  
**Note:**      **Ok to Issue:**

- 1) All fire alarm records required by NFPA 72 should be stored in an approved cabinet located at the FACP labeled "FIRE ALARM RECORDS".
- 2) Notice: The first scheduled final inspection fee is at no charge. Additional inspections shall be billed at \$75 for each inspector.
- 3) The installation shall comply with the following:  
 City of Portland Chapter 10, Fire Prevention and Protection;  
 NFPA 1, Fire Code (2009 edition), as amended by City Code;  
 NFPA 101, Life Safety Code (2009 edition), as amended by City Code;  
 City of Portland Fire Department Rules and Regulations;  
 NFPA 72, National Fire Alarm and Signaling Code (2010 edition), as amended by Fire Department Rules and Regulations; and  
 NFPA 70, National Electrical Code (2011 edition) as amended by the State of Maine
- 4) The fire alarm system shall have a new fire alarm inspection sticker.
- 5) In field installation shall be installed per code as conditions dictate.
- 6) Manual Pull Stations are required per NFPA 101:30.3.4.2.1 at all exit doorways and within 200 feet of travel.
- 7) Automatic fire detection devices shall be installed as follows:  
 (1) Smoke detectors shall be installed in all common areas and work spaces outside the living unit, such as exit stairs, egress corridors, lobbies, storage rooms, equipment rooms, and other tenantless spaces in environments suitable for proper smoke detector operation.  
 (2) Heat detectors shall be located within each room of the living unit (exception: bathrooms not exceeding 55 ft<sup>2</sup> and closets not exceeding 24 ft<sup>2</sup>).
- 8) Records cabinet, FACP, annunciator(s), and pull stations shall be keyed alike.
- 9) A 4100 series Knox Box is required.
- 10 Audible signals shall be minimum 50 dBA in residential occupancies with the exception of sleeping rooms being 75 dBA at the pillow. Measurement shall be with all doors closed. Installer to verify.
- 11 Through-penetrations and membrane penetrations in fire walls, fire barrier walls, and fire resistance rated horizontal assemblies shall be protected by firestop systems or devices in conformance with NFPA 101:8.3.5 (ASTM E 814 or ANSI/UL 1479). Providing firestop labels at each firestop system or device and an onsite manual containing the detail for each firestop system or device used for the project will streamline final inspection approvals.
- 12 Supervising Station monitoring for addressable fire alarm systems shall be by point.
- 13 A master box connection is not authorized for this building.

<b>Location of Construction:</b> 33 HAMPSHIRE ST	<b>Owner Name:</b> DIFILIPPO CARMINE W	<b>Owner Address:</b> 107 BROOK RD	<b>Phone:</b>
<b>Business Name:</b>	<b>Contractor Name:</b> Cunningham Security Systems	<b>Contractor Address:</b> 10 Prince Point Road Yarmouth	<b>Phone</b> (207) 846-3350
<b>Lessee/Buyer's Name</b>	<b>Phone:</b>	<b>Permit Type:</b> Fire Alarm System	

- 14 Fire protection systems shall be maintained. If system is to be off line over 4 hours a fire watch shall be in place. Dispatch notification required 874-8576.
- 15 The fire alarm technician shall be present for the fire inspection. System acceptance and commissioning must be coordinated with alarm and suppression system contractors and the Fire Department. Call 874-8703 to schedule.
- 16 All smoke detectors shall be photoelectric.

**City of Portland, Maine - Building or Use Permit Application**

389 Congress Street, 04101 Tel: (207) 874-8703, Fax: (207) 874-8716

Permit No: 2013-00304	Issue Date:	CBL: 028 J009001
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<b>Location of Construction:</b> 33 HAMPSHIRE ST	<b>Owner Name:</b> DIFILIPPO CARMINE W	<b>Owner Address:</b> 107 BROOK RD PORTLAND , ME 04103	<b>Phone:</b>
<b>Business Name:</b>	<b>Contractor Name:</b> Cunningham Security Systems	<b>Contractor Address:</b> 10 Prince Point Road Yarmouth ME 04096	<b>Phone</b> (207) 846-3350
<b>Lessee/Buyer's Name</b>	<b>Phone:</b>	<b>Permit Type:</b> Fire Alarm System	<b>Zone:</b> R6
<b>Past Use:</b> Four Residential Dwelling Units	<b>Proposed Use:</b> Same: Four Residential Dwelling Units	<b>Permit Fee:</b> \$190.00	<b>Cost of Work:</b> \$17,000.00
<b>Proposed Project Description:</b> Fire Alarm permit w/separate electric permit		<b>FIRE DEPT:</b> 2/25/13 <input checked="" type="checkbox"/> Approved <input type="checkbox"/> Denied <input type="checkbox"/> N/A	<b>INSPECTION:</b> Use Group: Type:
		<b>Signature:</b> <i>[Signature]</i> <b>Signature:</b> <i>[Signature]</i>	
		<b>PEDESTRIAN ACTIVITIES DISTRICT (P.A.D.)</b>	
		Action: <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied	
		Signature: Date:	

<b>Permit Taken By:</b> bjs	<b>Date Applied For:</b> 02/15/2013	<b>Zoning Approval</b>		
<ol style="list-style-type: none"> <li>This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules.</li> <li>Building permits do not include plumbing, septic or electrical work.</li> <li>Building permits are void if work is not started within six (6) months of the date of issuance. False information may invalidate a building permit and stop all work..</li> </ol>	<b>Special Zone or Reviews</b> <input type="checkbox"/> Shoreland <input type="checkbox"/> Wetland <input type="checkbox"/> Flood Zone <input type="checkbox"/> Subdivision <input type="checkbox"/> Site Plan Maj <input type="checkbox"/> Minor <input type="checkbox"/> MM <input type="checkbox"/>	<b>Zoning Appeal</b> <input type="checkbox"/> Variance <input type="checkbox"/> Miscellaneous <input type="checkbox"/> Conditional Use <input type="checkbox"/> Interpretation <input type="checkbox"/> Approved <input type="checkbox"/> Denied	<b>Historic Preservation</b> <input checked="" type="checkbox"/> Not in District or Landmark <input type="checkbox"/> Does Not Require Review <input type="checkbox"/> Requires Review <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied	
	Date: <i>2/21/13</i>	Date:	Date:	

**CERTIFICATION**

I hereby certify that I am the owner of record of the named property, or that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his authorized agent and I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in the application is issued, I certify that the code official's authorized representative shall have the authority to enter all areas covered by such permit at any reasonable hour to enforce the provision of the code(s) applicable to such permit.

SIGNATURE OF APPLICANT	ADDRESS	DATE	PHONE
RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE		DATE	PHONE



# Fire Alarm Permit

If you or the property owner owes real estate or property taxes or user charges on any property within the city, payment arrangements must be made before permits of any kind are accepted.

Installation address: 33 Hampshire Street CBL: 28-J-9-1

Exact location: (within structure) Basement

Type of occupancy(s) (NFPA & ICC): Four family

Building owner: Carmine DiFilippo

System Designer (point of contact): Unicad  
Must be

Designer phone: 801-985-0410 E-mail: wayne@unicad.net

Installing contractor: Cunningham Security Certificate of Fitness No: \_\_\_\_\_

Contractor phone: 207-846-3350 E-mail: mmajor@cunninghamsecurity.com

This is a new application: YES  NO  New AES Master Box: YES  NO   
(Include Master Box approval form)

Amendment to an existing permit: YES  NO  Permit no: \_\_\_\_\_

The following documents shall be provided with this application:

- Floor plans
- Wiring diagram
- Annunciator details
- Input/ Output Matrix
- Equipment data sheets
- Electrical Permit Pulled (check alarm/com)
- Scope of Work
- 11 1/2 x 17s
- pdf copy (may be e-mailed)
- Designer qualifications
- Battery/ voltage drop calcs

Master box approval only: YES  NO   
(If yes check *New AES Master Box* above)

COST OF WORK: \$17,000.00

PERMIT FEE: 190.00  
(\$10 PER \$1,000 + \$30 FOR THE FIRST \$1,000)

RECEIVED  
FEB 15 2013  
Dept. of Building Inspections  
City of Portland Maine

The designer shall be the responsible party for this application. Download a new copy of this application at [www.portlandmaine.gov/fire](http://www.portlandmaine.gov/fire) for every submittal. Submit all plans in electronic PDF in addition to readable 11 1/2 x 17s to the Building Inspections Department, 389 Congress Street, Room 315, Portland, Maine 04101.

Prior to acceptance of any fire alarm system, a complete commissioning and acceptance test must be coordinated with all fire system contractors and the Fire Department, and proper documentation of such test(s) provided.

All installation(s) must comply with the *City of Portland Technical Standard for Signaling Systems for the Protection of Life and Property*, available at [www/portlandmaine.gov/fire](http://www.portlandmaine.gov/fire).

Applicant signature: [Signature] Date: 2-14-13

# CUNNINGHAM

## Security Systems

10 Princes Point Road • Yarmouth, Maine 04096  
(207) 846-3350 • Fax (207) 846-6080 • (800) 210-0257

2/14/13

Lieutenant Benjamin Wallace, Jr.  
Portland Fire Department  
380 Congress Street  
Portland Maine 04101

Please find attached a permit application for 33 Hampshire Street. The building is a four story, four unit residential occupancy. We are proposing to install a predominantly hard wired automatic fire alarm system supplemented with wireless devices, as necessary. The system was designed by Unicad and will be wired and certified by Cunningham Security Systems.

Thank you,



Michelle Perkins, Operations Manager

Planning • Installation • Monitoring • Service  
Visit our web site at: [www.cunninghamsecurity.com](http://www.cunninghamsecurity.com)



**NATIONAL INSTITUTE FOR CERTIFICATION  
IN ENGINEERING TECHNOLOGIES®**

*Providing Certification Programs Since 1961*

BE IT KNOWN THAT

**Wayne B. Haws**

IS HEREBY AWARDED CERTIFICATION AT

**LEVEL IV**

**IN FIRE PROTECTION ENGINEERING TECHNOLOGY  
FIRE ALARM SYSTEMS**

BASED UPON SUCCESSFUL DEMONSTRATION OF REQUISITE KNOWLEDGE,  
EXPERIENCE AND WORK PERFORMANCE AS SET FORTH BY THIS INSTITUTE.

Certification Valid through May 1, 2014

CERTIFICATION NUMBER 90496

CHAIRMAN OF THE NICET BOARD OF GOVERNORS

A DIVISION OF THE NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS



## VISTA-128FBP/V128FBP-24

COMMERCIAL PARTITIONED FIRE AND  
BURGLARY ALARM CONTROL PANEL



Now UL864 9th Edition Approved

Designed to integrate seamlessly with CCTV, access control and Honeywell's full range of fire and burglary components, the new VISTA-128FBP provides the ultimate protection of life and property. The UL Listed commercial fire and burglary control panel supports up to eight partitions and up to 128 zones/points using hardwired, wireless and V-Plex®

addressable technologies. A diverse line of Honeywell initiating devices, notification circuits, communication devices, keypads, RF receivers and relays are also supported. The VISTA-128FBP has been designed to mount quickly and easily in an attack resistant cabinet, and is available in 12V and 24V models.

### FEATURES

- Eight hardwired zones standard, expandable to 120 V-Plex addressable points/zones or 128 wireless points/zones
- Can control eight separate areas independently (8 partitions)
- Supports commercial wireless fire and burglary devices
- Stores up to 512 events
- Accommodates 150 user codes and up to 250 access card holders using VistaKey
- Supports V-Plex addressable VistaKey access control (1 to 8 doors)
- Two on-board notification (bell) circuits delivering 2.3A @ 12V or 3.4A @ 24V
- Automatic smoke detector sensitivity maintenance testing
- Four-wire smoke reset using onboard J2 output trigger
- Supports Dynamic Signaling for AlarmNet Communicators
- Supports Remote Control via the Internet\*
- Supports Internet Alarm Reporting\*
- Supports Graphical User Interface Consoles
- Listed to UL864 9th Edition
- Upload/download via Ethernet\*
- Carbon monoxide (CO) zone support

\* When used with AlarmNet devices.

# VISTA-128FBP/V128FBP-24

COMMERCIAL PARTITIONED FIRE AND  
BURGLARY ALARM CONTROL PANEL

# Honeywell

## ADDITIONAL FEATURES

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- Notification Appliance Circuits (two):
  - Programmable
  - Temporal code compliant
  - Individually silenceable
- Programmable on-board auxiliary relay
- False alarm reduction features:
  - Exit error logic
  - Exit delay reset
  - Cross zoning
  - Call waiting defeat
  - Recent close report
- Supports commercial hardwired, addressable V-Plex polling loop and wireless zones
- Hardwired zones
  - Provides eight style B hardwired zones
  - EOLR supervised for Fire and UL burglary installations
  - Supports N.O. or N.C. sensors
  - Individually assignable to any eight partitions
  - Up to <sup>16</sup>32 two-wire smoke detectors each on zone one and two (~~64~~ total)
- Up to 50 two-wire glassbreak detectors on zone eight
- Patented addressable V-Plex polling loop technology
  - Supports 120 two-wire zones points
  - Global polling technology for faster processing
  - Supervised by panel
  - Zones individually assignable to partitions, notification circuit (bell) output or auxiliary relay
  - 4,000 ft. capability without the use of shielded cable
  - Extender/Isolation bus modules
  - Eight zone – Class A and B expander module
  - Eight zone – Class B expander module
  - One zone supervised contact monitor module
- UL Listed wireless expansion
  - Supports up to 128 wireless zones/points
- Supervised by control for check-in signals
- Tamper protection for transmitters
- Individually assignable up to eight partitions
- Supports commercial wireless smoke detectors
- Access Control integration
  - Full integration with PassPoint Access Control System Complete Gateway interface of VISTA and access functions
- Up to eight doors using VistaKey V-Plex Access Control
- Event reporting
- Local printer of access or VISTA related events
- Communication
  - Phone mapping by zone response type
  - Panel operation during download

## SPECIFICATIONS

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### Applications

The VISTA-128FBP control is well suited for a variety of applications as an integrated fire and burglary control. A diverse line of Honeywell initiating devices supports this extremely powerful control. Some of the applications supported are: medical and professional buildings, churches or synagogues, office buildings, schools, strip malls, larger residences and factory or warehouse environments.

### Electrical

- Primary power: 18VAC @ 72VA Honeywell No. 1451
  - Control panel quiescent current draw: 300mA
  - Backup battery:
    - 12VDC, 12AH min to 34.4AH max
    - Lead acid battery (gel type)
  - Alarm power: 12VDC, 1.7A max for each notification (bell) circuit output Total 2.3A @ 12V
  - Aux. standby pwr: 12VDC, 1A max
  - Total power: 2.3A at 12VDC, 3.4A at 24VDC from all sources
  - Standby time: 24 hours with 1A standby load using 34.4AH battery
- Fusing: Battery input, aux. and notification (bell) circuit outputs are protected using PTC circuit protectors. All outputs are power limited.
  - Optional 24-volt power supply, PS 24 supplies two 24 VFW, 1.7A full wave rectified, unfiltered outputs

### Main Dialer

- Line seize: Double Pole
- Ringer equiv.: 0.7B
- Formats: ADEMCO Low Speed, ADEMCO 4+2 Express, ADEMCO High Speed, ADEMCO Contact ID, Sescoa and Radionics
- Dual phone line capability (using 5140DLM module)

### Cabinet dimensions

- 18" H x 14.5" W x 4.3" D

### Environmental

- Storage temp: 14° F to 158° F (-10° C to 70° C)
- Operating temp: 32° F to 122° F (0° C to 50° C)
- Humidity: 85% RH

- EMI: Meets or exceeds the following requirements:
  - FCC Part 15, Class B Device
  - FCC Part 68
  - IEC EMC Directive

### Agency Listings

- UL609 Grade A Local Mercantile Premises and Mercantile Safe and Vault
- UL611/1610 Grades A, AA, Central Station
- UL365 Grades A, AA Police Connect
- UL864/NFPA72 Local, Central Station and Remote Station
- UL985
- Factory Mutual
- California State Fire Marshal
- MEA
- CAN/ULC S304 – Central and Monitoring Station Burglar Alarm Unit
- CAN/ULC S527 – Central Unit for Fire Alarm Systems
- CAN/ULC S303 – Local Burglar Alarm Unit
- CAN/ULC S525 – Audible Signal Appliances

# VISTA-128FBP/V128FBP-24

COMMERCIAL PARTITIONED FIRE AND BURGLARY ALARM CONTROL PANEL

## COMPATIBLE DEVICES

### Auxiliary Devices

- 6160CR-2 – Red Alpha Keypad
- 4204 – Relay Module, four form C contacts
- 4204CF – Two supervised output circuits
- 5881 Series RF receiver
- 5883H RF receiver
- 6220S – System printer used with 4100SM serial module
- 6160CR-2 – Red Fire Keypad
- 6160 – Burglary Keypad

### Two-Wire Smoke Detectors

#### Conventional

- System Sensor
- ESL
- DSC

#### Horn/Strobes

- System Sensor
- Wheelock
- Gentex

### Manual Pull Stations

- 5140MPS-1
- 5140MPS-2

### V-Plex (Addressable) Devices

- 4208U Loop Expansion Module – eight zones
- 4101SN Single Relay/Zone Module

- 4208SNF Class A/B Expander Module
- 4190SN Remote Point Module – two zones
- 4193SN Two-Zone Serial Interface Module
- VSI Module
- 4293SN One-Zone Serial Interface Module

### V-Plex Extender/Isolation Modules

- 4297 Extender/Isolator Module
- VSI Isolator Module

### V-Plex Smoke Detectors:

- 5193SD
- 5193SDT

### V-Plex Passive Infrared Detectors

- 998MX
- IS2500SN
- DT7500SN

### V-Plex (Addressable) Contacts

- 4939SN-WH
- 4944SN-WH
- 4959SN

### V-Plex Glassbreak Detectors

- FG1625SN

### Optional 24V Power Supply

- PS24 – 24V power supply – 3.4A

### Commercial Wireless Devices

- 5808W3 – Photoelectric Smoke/Heat Detector
- 5806W3 – Photoelectric Smoke Detector
- 5809 – Wireless Heat Detector
- 5817CB – Wireless Commercial Transmitter
- 5869 – Hold-Up Transmitter
- 5881ENHC – RF Receiver
- 5883H – RF Receiver

### Access Control

- VistaKey V-Plex (addressable) Access Control
- VistaKey-SK Starter Kit
- VistaKey-EX Expansion Kit

### Alarm Communications

- 7845i-ENT – Internet/Intranet Communicator
- 7845GSM – Digital Cellular Communicator
- 7845i-GSM – Internet and Digital Cellular Communicator
- GSMCF/iGSMCF – Commercial Fire Communication Kits (when available)

Product specifications subject to change.

## ORDERING

### V128FBP-9

Commercial Fire and Partitioned Burglary Alarm Control Panel 12V Model

### V128FBP9-24

Commercial Fire and Partitioned Burglary Alarm Control Panel 24V Model

For more information: [www.honeywell.com/security/hsc](http://www.honeywell.com/security/hsc)

### Automation and Control Solutions

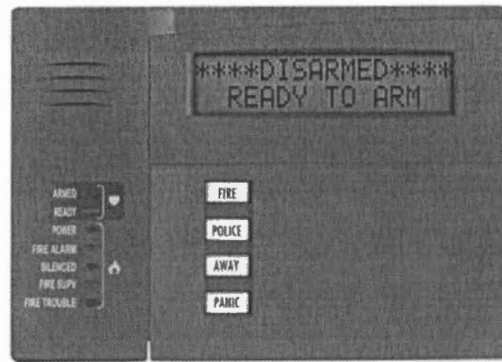
Honeywell Security & Communications  
2 Corporate Center Dr. Suite 100  
Melville, NY 11747  
1.800.467.5875  
[www.honeywell.com](http://www.honeywell.com)

# Honeywell

LVSTA128FBPD/D  
September 2009  
© 2009 Honeywell International Inc.

# 6160CR-2

COMMERCIAL FIRE ALPHA KEYPAD  
UL864 REV 9 LISTED



The 6160CR-2 is an addressable remote keypad intended for use in commercial fire applications with Honeywell's commercial fire control panels. The keys are continuously backlit for convenience and easy visibility. The LCD display

is backlit only when a key is depressed\*, or when the system is in alarm or trouble condition.

\*Note: The LCD may be programmed to remain on at all times (see panel instructions for details).

## FEATURES

- Four programmable function keys
- Built-in sounder
- Seven Status LEDs
  - Armed (Red)
  - Ready (Green)
  - Power (Green)
  - Fire Alarm (Red)
  - Silenced (Yellow)
  - Supervisory (Yellow)
  - Trouble (Yellow)
- Large easy-to-read display
- Red removable door
- Physical  
5.250" W x 7.437" H x 1.312" D

## SPECIFICATIONS

### Sounder

- High-quality speaker

### Electrical

- 45mA standby 160mA in alarm (sounder, back light and LED on)

### Compatibility

- Supports Control Panels
  - VISTA-32FB Rev 5 and higher
  - VISTA-128FBP Rev 4 and higher
  - VISTA-250FBP Rev 4 and higher

UL/CUL and residential Listed for commercial fire and burglary installations. To be employed with manufacturer's listed control units as indicated in the installation instructions.

*Product specifications subject to change.*

## ORDERING

6160CR-2

Commercial Fire Alpha Keypad

For more information: [www.honeywell.com/security/hsc](http://www.honeywell.com/security/hsc)

**Automation and Control Solutions**  
Honeywell Security & Communications  
2 Corporate Center Dr. Suite 100  
Melville, NY 11747  
1.800.467.5875  
[www.honeywell.com](http://www.honeywell.com)

# Honeywell

L/6160CR2D/D  
September 2009  
© 2009 Honeywell International Inc.



**SYSTEM  
SENSOR®**

## 5600 Series Mechanical Heat Detectors

*System Sensor's 5600 series mechanical heat detectors offer a low-cost means for property protection against fire, and for non-life-safety installations where smoke detectors are inappropriate.*

### Features

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- Multiple configurations for installations:
  - Single- and dual-circuit models
  - Fixed temp and combination fixed- temp/rate-of-rise 135°F or 194°F ratings.
- Plain housing for residential installations (Model 5601P)
- Easy-to-use terminal screws
- A broad range of back box mounting options:
  - Single gang
  - 3.5" and 4" Octagonal
  - 4" square with square to round plaster ring
- Reversible mounting bracket



**Multiple configurations.** The 5600 series offers a full-line of configurations to accommodate a broad range of applications. Both single- and dual-circuit models are available for low- and high-temperature ratings with either fixed temperature or combination fixed temperature/rate-of-rise (ROR) activation. The ROR element of the fixed/ROR models is restorable to accommodate field-testing.

**Installation flexibility.** To satisfy a variety of installation needs, the 5600 series easily mounts to single-gang and octagonal back boxes. And these models accommodate four-square back boxes, when used with a square to round plaster ring. The reversible mounting bracket permits both flush- and surface-mount back box installations.

**Visual identification.** The 5600 series provides clear markings on the exterior of the unit to ensure that the proper detector is being used. Alphanumeric characters identify the activation method, as well as the temperature rating, in Fahrenheit and Celsius degrees. Fixed temperature models are identified FX, while combination fixed/rate-of-rise units are marked FX/ROR. The 5600 series also provides a post-activation indicator in the form of a collector. When the detector is activated, the collector drops from the unit, making it easy to identify the unit in alarm.

### Agency Listings

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## Specifications

### Architectural/Engineering Specifications

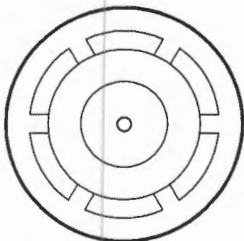
Mechanical heat detector shall be a System Sensor 5600 series model number \_\_\_\_\_, listed to Underwriters Laboratories UL 521 for Heat Detectors for Fire Protective Signaling Systems. The detector shall be either a single-circuit or a dual-circuit type, normally open. The detector shall be rated for activation at either 135°F (57°C) or 194°F (90°C), and shall activate by means of a fixed temperature thermal sensor, or a combination fixed temperature/rate-of-rise thermal sensor. The rate-of-rise element shall be activated by a rapid rise in temperature, approximately 15°F (8.3°C) per minute. The detector shall include a reversible mounting bracket for mounting to 3½-inch and 4-inch octagonal, single gang, and 4-inch square back boxes with a square to round plaster ring. Wiring connections shall be made by means of SEMS screws that shall accommodate 14–22AWG wire. The detector shall contain alphanumeric markings on the exterior of the housing to identify its temperature rating and activation method. The rate-of-rise element of combination fixed temperature/rate-of-rise models shall be restorable, to allow for field-testing. The detectors shall include an external collector that shall drop upon activation to identify the unit in alarm.

### Physical/Operating Specifications

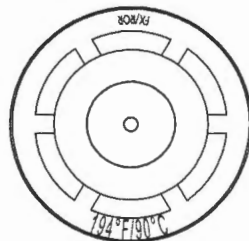
<b>Maximum Installation Temperature</b>	5601P, 5603, 5621, and 5623: 100°F (38°C) 5602, 5604, 5622, and 5624: 150°F (65.6°C)
<b>Operating Humidity Range</b>	5 to 95% RH non-condensing
<b>Dimensions with mounting bracket</b>	Diameter: 4.57 inches (11.6cm) Height: 1.69 inches (4.3cm)
<b>Alarm Temperature</b>	5601P, 5603, 5621, and 5623: 135°F (57°C) 5602, 5604, 5622, and 5624: 194°F (90°C)
<b>Weight</b>	6 oz. (170 grams)
<b>Rate-of-Rise Threshold</b>	15°F (8.3°C) rise per minute (models 5601P, 5602, 5621, and 5622 only)
<b>Mounting</b>	3½-inch octagonal back box 4-inch octagonal back box Single gang back box 4-inch square back box with a square to round plaster ring

### Electrical Specifications

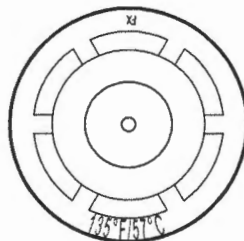
<b>Operating Voltage / Contact Ratings</b>	6–125VAC / 3A 6–28VDC / 1A 125VDC / 0.3A 250VDC / 0.1A
<b>Input Terminals</b>	14–22 AWG



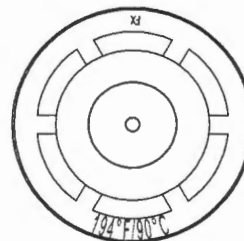
**5601P**



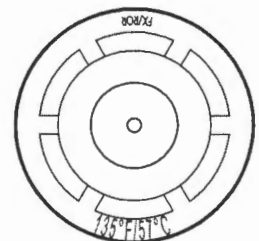
**5602, 5622**



**5603, 5623**



**5604, 5624**



**5621**

## Ordering Information

Model	Circuit	Identification Method on Exterior	Temperature Rating	Activation	UL Protected Spacing – 10 Foot Ceiling*
5601P	Single	None	135°F (57°C)	Fixed Temperature / Rate-of-Rise	50 feet × 50 feet (15.24m × 15.2m)
5602	Single	Lettering	194°F (90°C)	Fixed Temperature / Rate-of-Rise	50 feet × 50 feet (15.24m × 15.2m)
5603	Single	Lettering	135°F (57°C)	Fixed Temperature	25 feet × 25 feet (7.62m × 7.62m)
5604	Single	Lettering	194°F (90°C)	Fixed Temperature	25 feet × 25 feet (7.62m × 7.62m)
5621	Dual	Lettering	135°F (57°C)	Fixed Temperature / Rate-of-Rise	50 feet × 50 feet (15.24m × 15.2m)
5622	Dual	Lettering	194°F (90°C)	Fixed Temperature / Rate-of-Rise	50 feet × 50 feet (15.24m × 15.2m)
5623	Dual	Lettering	135°F (57°C)	Fixed Temperature	25 feet × 25 feet (7.62m × 7.62m)
5624	Dual	Lettering	194°F (90°C)	Fixed Temperature	25 feet × 25 feet (7.62m × 7.62m)

\*NOTE: Refer to NFPA72 guidelines for spacing reductions when ceiling heights exceed 10 feet.



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A05-0351-002 • 11/06 • #1676

## 5193SD/5193SDT

V-PLEX® ADDRESSABLE SMOKE DETECTOR



Honeywell's 5193SD/SDT Addressable Photoelectric Smoke Detector is designed to provide open area protection and to be used with compatible UL-listed Honeywell control panels that support V-Plex technology. The detector incorporates a state-of-the-art optical sensing chamber and an advanced microprocessor. Built-in Drift Compensation algorithms automatically maintain proper operation at factory calibrated detection levels, even when sensitivity is altered due to the presence of contaminants settling into the unit's chamber. The 5193SDT also features a restorable, built-in, fixed temperature (135° F/57.2° C) thermal detector.

### FEATURES

- **Easy Installation:** Installation of the 5193SD/SDT detector is simplified by the use of a mounting base that may be pre-wired to the system, allowing the detector to be easily installed or removed for maintenance or service. (See Figure 1).
- **LED Status Indicators:** Two LEDs (green and red) provide local visual indication of the detector's status – including normal operation, alarm, out of sensitivity and trouble conditions.
- **Test button:** This button allows the user to perform periodic testing of the detector's circuitry and verify that the detector is within the sensitivity limits.
- **Versatile Mounting:** Mounting is made simple with the included hardware and the large mounting ports, which accommodate drywall anchors for easy surface mounting. (See Figure 1).
- **Tamper Protection and Tamper Resistance:** The detector contains a built-in tamper switch that can communicate back to the control panel in the event the detector is removed from its base. For an added level of security, the detector also includes a tamper resistant element that prevents removal from the base without the use of tools. (See Figure 1).

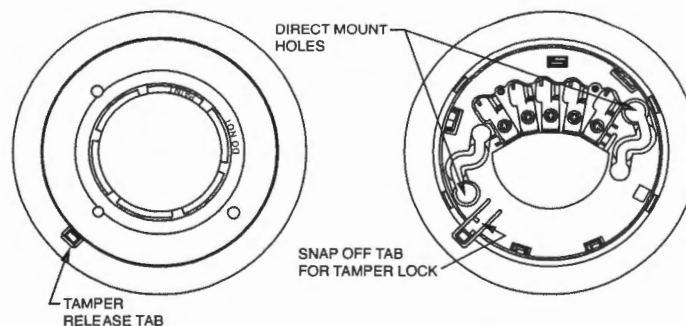


Figure 1: Tamper-Resistant Feature/Wiring



# 5193SD/5193SDT

V-PLEX® ADDRESSABLE SMOKE DETECTOR

## SPECIFICATIONS

- **Heat Sensor:** (Model 5193SDT):  
135° F (57.2° C);  
Fixed Temperature Electronic Thermistors
- **Operating Ambient Temperature Range:**  
32° to 100° F (0° to 38° C)
- **Operating Humidity Range:**  
0 to 95% RH non-condensing
- **Storage Temperature Range:**  
-4° to 158° F (-20° to 70° C)
- **Diameter (including base):** 5.3 inches
- **Height (including base):** 2.0 inches
- **Weight:** 6.3 oz.
- **Agency Listing:** UL-268
- **System Voltage Range:** 7-14V
- **Standby Current** (maximum @ 12V)  
LED off: 1.2mA  
LED on: 2.8mA

## ACCESSORY (sold separately)

To measure the detector's sensitivity, the **SENS-RDR Infrared Sensitivity Reader tool** (sold separately) should be used. It reduces testing time, simplifies sensitivity measurements and displays them precisely in terms of percent per foot obscuration. The SENS-RDR eliminates the need for magnets, voltmeters and ladders.

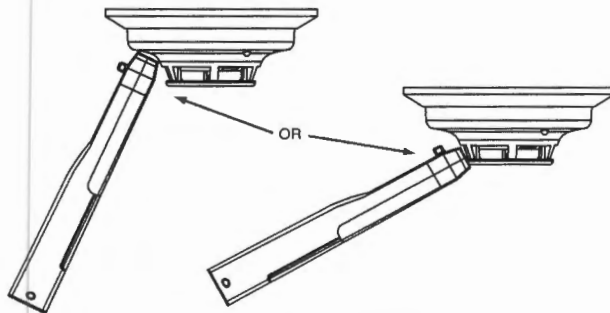


Figure 2: Position of Reader



## ORDERING

- |                |                                                                    |
|----------------|--------------------------------------------------------------------|
| <b>5193SD</b>  | Addressable Photoelectric Smoke Detector                           |
| <b>5193SDT</b> | Addressable Photoelectric Smoke Detector with Integral Heat Sensor |

### Accessory sold separately:

- |                 |                             |
|-----------------|-----------------------------|
| <b>SENS-RDR</b> | Handheld Sensitivity Reader |
|-----------------|-----------------------------|

**Automation and Control Solutions**  
Honeywell Security & Communications  
2 Corporate Center Dr. Suite 100  
P.O. Box 9040  
Melville, NY 11747  
[www.honeywell.com](http://www.honeywell.com)

L/5193SDT/D  
May 2009  
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# Honeywell



## Selectable-Output Horns, Strobes, and Horn Strobes

*SpectrAlert® Advance selectable-output horns, strobes, and horn strobes are rich with features guaranteed to cut installation times and maximize profits.*



**SPECTRAlert**  
ADVANCE  
From System Sensor

### Features

- Plug-in design with minimal intrusion into the back box
- Tamper-resistant construction
- Automatic selection of 12- or 24-volt operation at 15 and 15/75 candela
- Field-selectable candela settings on wall and ceiling units: 15, 15/75, 30, 75, 95, 110, 115, 135, 150, 177, and 185
- Horn rated at 88+ dBA at 16 volts
- Rotary switch for horn tone and three volume selections
- Universal mounting plate for wall and ceiling units
- Mounting plate shorting spring checks wiring continuity before device installation
- Electrically compatible with existing SpectrAlert products
- Compatible with MDL sync module

**The SpectrAlert Advance series** offers the most versatile and easy-to-use line of horns, strobes, and horn strobes in the industry. With white and red plastic housings, wall and ceiling mounting options, and plain and FIRE-printed devices, SpectrAlert Advance can meet virtually any application requirement.

Like the entire SpectrAlert Advance product line, horns, strobes, and horn strobes include a variety of features that increase their application versatility while simplifying installation. All devices feature plug-in designs with minimal intrusion into the back box, which make installations fast and foolproof while virtually eliminating costly and time-consuming ground faults. Furthermore, a universal mounting plate with an onboard shorting spring tests wiring continuity before the device is installed, protecting devices from damage.

In addition, field-selectable candela settings, automatic selection of 12- or 24-volt operation, and a rotary switch for horn tones with three volume selections enables installers to easily adapt devices to suit a wide range of application requirements.

### Agency Listings

SIGNALING



S4011 (chimes, horn strobes, horns)  
S5512 (strobes)



3023572

**MEA**  
approved

MEA452-05-E



7125-1653.186 (indoor strobes)  
7125-1653.188 (horn strobes,  
chime strobes)  
7135-1653.189 (horns, chimes)

# SpectrAlert Advance Specifications

## Architect/Engineer Specifications

### General

SpectrAlert Advance horns, strobes, and horn strobes shall mount to a standard 4 x 4 x 1½-inch back box, 4-inch octagon back box, or double-gang back box. Two-wire products shall also mount to a single-gang 2 x 4 x 1½-inch back box. A universal mounting plate shall be used for mounting ceiling and wall products. The notification appliance circuit wiring shall terminate at the universal mounting plate. Also, SpectrAlert Advance products, when used with the Sync-Circuit™ Module accessory, shall be powered from a non-coded notification appliance circuit output and shall operate on a nominal 12 or 24 volts. When used with the Sync-Circuit Module, 12-volt-rated notification appliance circuit outputs shall operate between 9 and 17.5 volts; 24-volt-rated notification appliance circuit outputs shall operate between 17 and 33 volts. Indoor SpectrAlert Advance products shall operate between 32 and 120 degrees Fahrenheit from a regulated DC or full-wave rectified unfiltered power supply. Strobes and horn strobes shall have field-selectable candela settings including 15, 15/75, 30, 75, 95, 110, 115, 135, 150, 177, and 185.

### Strobe

The strobe shall be a System Sensor SpectrAlert Advance Model \_\_\_\_\_ listed to UL 1971 and shall be approved for fire protective service. The strobe shall be wired as a primary-signaling notification appliance and comply with the Americans with Disabilities Act requirements for visible signaling appliances, flashing at 1 Hz over the strobe's entire operating voltage range. The strobe light shall consist of a xenon flash tube and associated lens/reflector system.

### Horn Strobe Combination

The horn strobe shall be a System Sensor SpectrAlert Advance Model \_\_\_\_\_ listed to UL 1971 and UL 464 and shall be approved for fire protective service. The horn strobe shall be wired as a primary-signaling notification appliance and comply with the Americans with Disabilities Act requirements for visible signaling appliances, flashing at 1 Hz over the strobe's entire operating voltage range. The strobe light shall consist of a xenon flash tube and associated lens/reflector system. The horn shall have three audibility options and an option to switch between a temporal three-pattern and a non-temporal (continuous) pattern. These options are set by a multiple position switch. On four-wire products, the strobe shall be powered independently of the sounder. The horn on horn strobe models shall operate on a coded or non-coded power supply.

### Synchronization Module

The module shall be a System Sensor Sync-Circuit model MDL listed to UL 464 and shall be approved for fire protective service. The module shall synchronize SpectrAlert strobes at 1 Hz and horns at temporal three. Also, while operating the strobes, the module shall silence the horns on horn strobe models over a single pair of wires. The module shall mount to a 4½/16 x 4½/16 x 2½/8-inch back box. The module shall also control two Style Y (class B) circuits or one Style Z (class A) circuit. The module shall synchronize multiple zones. Daisy chaining two or more synchronization modules together will synchronize all the zones they control. The module shall not operate on a coded power supply.

## Physical/Electrical Specifications

Standard Operating Temperature	32°F to 120°F (0°C to 49°C)
Humidity Range	10 to 93% non-condensing
Strobe Flash Rate	1 flash per second
Nominal Voltage	Regulated 12 DC/FWR or regulated 24 DC/FWR <sup>1</sup>
Operating Voltage Range <sup>2</sup>	8 to 17.5 V (12 V nominal) or 16 to 33 V (24 V nominal)
Input Terminal Wire Gauge	12 to 18 AWG
Ceiling-Mount Dimensions (including lens)	6.8" diameter x 2.5" high (173 mm diameter x 64 mm high)
Wall-Mount Dimensions (including lens)	5.6" L x 4.7" W x 2.5" D (142 mm L x 119 mm W x 64 mm D)
Horn Dimensions	5.6" L x 4.7" W x 1.3" D (142 mm L x 119 mm W x 33 mm D)
Wall-Mount Back Box Skirt Dimensions (BBS-2, BBSW-2)	5.9" L x 5.0" W x 2.2" D (151 mm L x 128 mm W x 56 mm D)
Ceiling-Mount Back Box Skirt Dimensions (BBSC-2, BBSCW-2)	7.1" diameter x 2.2" high (180 mm diameter x 57 mm high)
Wall-Mount Trim Ring Dimensions (sold as a 5 pack) (TR-HS, TRW-HS)	5.7" L x 4.8" W x 0.35" D (145 mm L x 122 mm W x 9 mm D)
Ceiling-Mount Trim Ring Dimensions (sold as a 5 pack) (TRC-HS, TRCW-HS)	6.9" diameter x 0.35" high (175 mm diameter x 9 mm high)

### Notes:

1. Full Wave Rectified (FWR) voltage is a non-regulated, time-varying power source that is used on some power supply and panel outputs.
2. P, S, PC, and SC products will operate at 12V nominal only for 15 and 15/75 cd.

## UL Current Draw Data

UL Max. Strobe Current Draw (mA RMS)					
	Candela	8-17.5 Volts		16-33 Volts	
		DC	FWR	DC	FWR
<b>Standard</b>	15	123	128	66	71
<b>Candela Range</b>	15/75	142	148	77	81
	30	NA	NA	94	96
	75	NA	NA	158	153
	95	NA	NA	181	176
	110	NA	NA	202	195
	115	NA	NA	210	205
<b>High</b>	135	NA	NA	228	207
<b>Candela Range</b>	150	NA	NA	246	220
	177	NA	NA	281	251
	185	NA	NA	286	258

UL Max. Horn Current Draw (mA RMS)					
Sound Pattern	dB	8-17.5 Volts		16-33 Volts	
		DC	FWR	DC	FWR
Temporal	High	57	55	69	75
Temporal	Medium	44	49	58	69
Temporal	Low	38	44	44	48
Non-temporal	High	57	56	69	75
Non-temporal	Medium	42	50	60	69
Non-temporal	Low	41	44	50	50
Coded	High	57	55	69	75
Coded	Medium	44	51	56	69
Coded	Low	40	46	52	50

UL Max. Current Draw (mA RMS), 2-Wire Horn Strobe, Standard Candela Range (15-115 cd)									
DC Input	8-17.5 Volts				16-33 Volts				
	15	15/75	15	15/75	30	75	95	110	115
Temporal High	137	147	79	90	107	176	194	212	218
Temporal Medium	132	144	69	80	97	157	182	201	210
Temporal Low	132	143	66	77	93	154	179	198	207
Non-Temporal High	141	152	91	100	116	176	201	221	229
Non-Temporal Medium	133	145	75	85	102	163	187	207	216
Non-Temporal Low	131	144	68	79	96	156	182	201	210
<b>FWR Input</b>									
Temporal High	136	155	88	97	112	168	190	210	218
Temporal Medium	129	152	78	88	103	160	184	202	206
Temporal Low	129	151	76	86	101	160	184	194	201
Non-Temporal High	142	161	103	112	126	181	203	221	229
Non-Temporal Medium	134	155	85	95	110	166	189	208	216
Non-Temporal Low	132	154	80	90	105	161	184	202	211

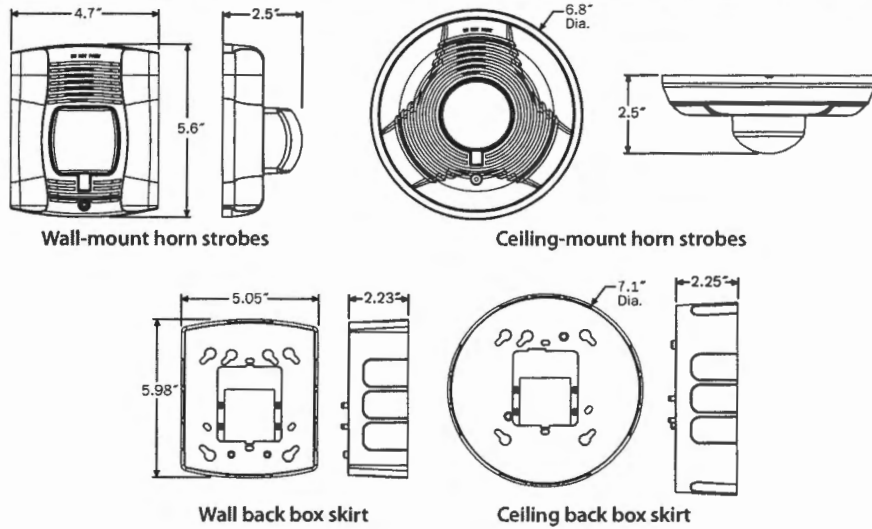
UL Max. Current Draw (mA RMS), 2-Wire Horn Strobe, High Candela Range (135-185 cd)									
DC Input	16-33 Volts				FWR Input	16-33 Volts			
	135	150	177	185		135	150	177	185
Temporal High	245	259	290	297	Temporal High	215	231	258	265
Temporal Medium	235	253	288	297	Temporal Medium	209	224	250	258
Temporal Low	232	251	282	292	Temporal Low	207	221	248	256
Non-Temporal High	255	270	303	309	Non-Temporal High	233	248	275	281
Non-Temporal Medium	242	259	293	299	Non-Temporal Medium	219	232	262	267
Non-Temporal Low	238	254	291	295	Non-Temporal Low	214	229	256	262

## Horn Tones and Sound Output Data

Horn and Horn Strobe Output (dBA)										
Switch Position	Sound Pattern	dB	8-17.5 Volts		16-33 Volts		24-Volt Nominal			
			DC	FWR	DC	FWR	Reverberant		Anechoic	
							DC	FWR	DC	FWR
1	Temporal	High	78	78	84	84	88	88	99	98
2	Temporal	Medium	74	74	80	80	86	86	96	96
3	Temporal	Low	71	73	76	76	83	80	94	89
4	Non-Temporal	High	82	82	88	88	93	92	100	100
5	Non-Temporal	Medium	78	78	85	85	90	90	98	98
6	Non-Temporal	Low	75	75	81	81	88	84	96	92
7†	Coded	High	82	82	88	88	93	92	101	101
8†	Coded	Medium	78	78	85	85	90	90	97	98
9†	Coded	Low	75	75	81	81	88	85	96	92

†Settings 7, 8, and 9 are not available on 2-wire horn strobe.

## SpectrAlert Advance Dimensions



## SpectrAlert Advance Ordering Information

Model	Description
<b>Wall Horn Strobes</b>	
P2R*†	2-Wire Horn Strobe, Standard cd‡, Red
P2RH*	2-Wire Horn Strobe, High cd, Red
P2W*	2-Wire Horn Strobe, Standard cd, White
P2WH*	2-Wire Horn Strobe, High cd, White
P4R*	4-Wire Horn Strobe, Standard cd, Red
P4RH	4-Wire Horn Strobe, High cd, Red
P4W	4-Wire Horn Strobe, Standard cd, White
<b>Wall Strobes</b>	
SR*†	Strobe, Standard cd, Red
SRH*†	Strobe, High cd, Red
SW*	Strobe, Standard cd, White
SWH*	Strobe, High cd, White
<b>Ceiling Horn Strobes</b>	
PC2R*	2-Wire Horn Strobe, Standard cd, Red
PC2RH	2-Wire Horn Strobe, High cd, Red
PC2W*†	2-Wire Horn Strobe, Standard cd, White
PC2WH*	2-Wire Horn Strobe, High cd, White
PC4R	4-Wire Horn Strobe, Standard cd, Red
PC4RH	4-Wire Horn Strobe, High cd, Red
PC4W	4-Wire Horn Strobe, Standard cd, White

Model	Description
<b>Ceiling Strobes</b>	
SCR	Strobe, Standard cd, Red
SCRH	Strobe, High cd, Red
SCW*	Strobe, Standard cd, White
SCWH	Strobe, High cd, White
<b>Horns</b>	
HR	Horn, Red
HW	Horn, White
<b>Accessories</b>	
BBS-2	Back Box Skirt, Wall, Red
BBSW-2	Back Box Skirt, Wall, White
BBSC-2	Back Box Skirt, Ceiling, Red
BBSCW-2	Back Box Skirt, Ceiling, White
TR-HS	Trim Ring, Wall, Red
TRW-HS	Trim Ring, Wall White
TRC-HS	Trim Ring, Ceiling, Red
TRCW-HS	Trim Ring, Ceiling, White

### Notes:

\* Add \*-P\* to model number for plain housing (no "FIRE" marking on cover), e.g., P2R-P.

† Add \*-SP\* to model number for "FUEGO" marking on cover, e.g., P2R-SP.

‡ "Standard cd" refers to strobes that include 15, 15/75, 30, 75, 95, 110, and 115 candela settings. "High cd" refers to strobes that include 135, 150, 177, and 185 candela settings.



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A05-0395-007 - 4/09 - #2132



# 5140MPS-1 / 5140MPS-2 Manual Pull Stations

## PRIMARY FEATURES

- ADA COMPLIANT
- KEY TEST OR ALLEN RESET
- KEYED TO ADEMCO CONTROLS
- STYLIZED HIGH TECH DESIGN
- ALUMINUM DIE CAST HOUSING
- TERMINAL BLOCK OR WIRE LEADS
- GOLD CONTACTS
- UL LISTED

## ■ GENERAL DESCRIPTION

Ademco's manual fire alarm stations are designed to be non-code single action devices for use in UL listed fire alarm applications. The attractive die-cast aluminum-alloy housing meets ADA pull requirements and has been tested at Underwriter's Laboratory.

For ADA compliance, manual stations must be mounted less than 48" above the floor for front wheelchair access and less than 54" above the floor for side wheelchair access.

A key reset feature on the 5140MPS-1 is designed for positive authorized resetting action. The key is designed to operate and match Ademco controls. The 5140MPS-1 utilizes a terminal block for secure terminations. The 5140MPS-2 is furnished with an Allen hex fitting and is equipped with wire leads.

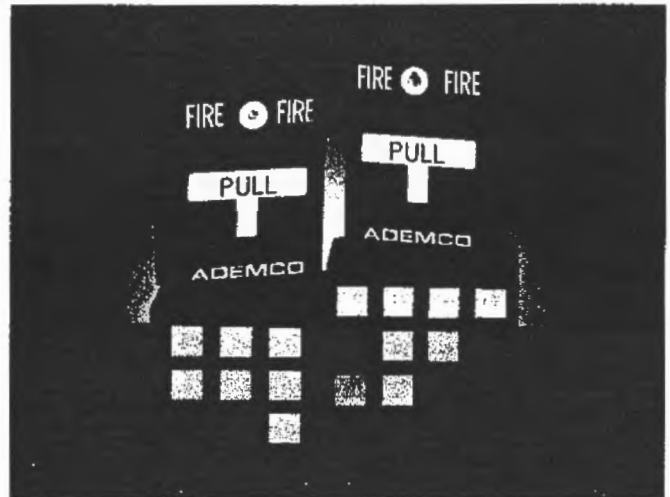
Two alarm deterrent break tubes are supplied with each manual station; one tube is visible from the front, and the spare is stored in a compartment within the unit.

## ■ OPERATION

Pulling the handle down causes the manual stations to latch in the down position and to close the normally open switch. The handle is restored manually by using the key to unlock the station and pivot the station forward for resetting the pull handle to its normal position. The crush tube is then inserted in the cavity and the station assembly is then locked in the normal upright position.

## ■ CONSTRUCTION

The 5140MPS-1 and 5140MPS-2 manual stations are constructed of a durable die-cast aluminum-alloy and



provide a neat and distinctive appearance. The housing is finished in red with white raised lettering and the "T-bar" handle is white with raised red lettering for enhanced visibility. The units are adaptable to both surface and semi-flush mounting configurations.

## ■ MOUNTING

### SEMI-FLUSH MOUNT

Most semi-flush mount installations can be attached to a standard single-gang switch box using two 6-32 screws inserted through the slots that are centered on the unit's metal mounting plate.

### SURFACE MOUNT

Use Ademco Backbox model number 5140MPS-BB for surface mount installations. The Backbox has four pre-drilled mounting holes of 0.187 inch diameter and conduit knockouts. Secure the Backbox to a wall with screws of size 8 or smaller. After the Backbox is in place, attach the conduit.

The housing is locked by using a key or Allen wrench lock. Unlock the housing by turning the key clockwise and swinging down the front of the housing to make the sheet metal mounting plate accessible. Mount the metal plate to the Backbox using the four 1/4" long, 8-32 screws (supplied).

## ■ DIMENSIONS

4.75" H x 3.12" W x 2" D

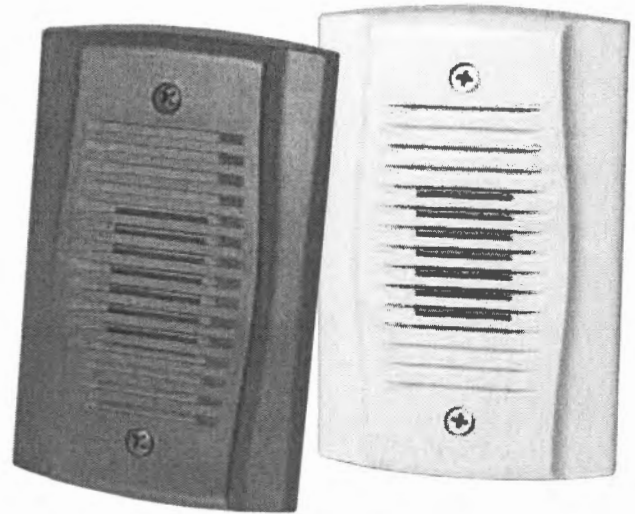
**ADEMCO**  
The Technology Leader



**SYSTEM  
SENSOR®**

## Mini-Horns

*The SpectrAlert® Advance series of mini-horn sounders are designed to simplify installations to provide primary and secondary signaling for fire and security applications.*



**SPECTRAlert**  
**ADVANCE**  
from System Sensor

### Features

---

- 12 and 24V operation
- High and low volume settings
- Temporal and non-temporal tones
- Mounts to single gang back box
- Compatible with MDL sync module
- Mechanically and electrically compatible with PA400 series Mini-Alert™ sounders

The MHR and MHW mini-horns operate at 12 and 24 volts and are ideal for hotel, motel or residential fire system applications, where a smaller notification device is desired. The mini-horns offer high and low volume settings, and temporal or non-temporal tones. The horns can be mounted to single gang back boxes for aesthetically sensitive applications. Synchronization is also provided when using the MDL module.

The MHR and MHW mini-horns can operate between 32 and 120 degrees Fahrenheit from a regulated DC or full-wave rectified, unfiltered power supply. They are listed to Underwriter's Laboratories Standard UL 464 for fire protective signaling systems.

### Agency Listings

---



## SpectrAlert® Advance Mini-Horn Specifications

### Architectural/Engineering Specifications

Mini-horns shall be a System Sensor Model MHR or MHW capable of operating at nominal 12 or 24VDC and shall mount to a deep single gang back box. Mini-horn shall be listed to Underwriter's Laboratories Standard UL464 for fire protective signaling systems. Mini-horns shall operate between 32 and 120 degrees Fahrenheit from a regulated DC, or full-wave rectified, unfiltered power supply. When used with the Sync-Circuit™ Module, 12-volt rated notification appliance circuit outputs shall operate between nine and 17.5 volts; 24-volt rated notification appliance circuit outputs shall operate between 17 and 33 volts.

### Physical Specifications

Dimensions	4.6"L x 2.9"W x .45"D
Weight	2.67 oz.
Operating Temperature Range	32°F to 120°F (0°C to 49°C)
Mounting	Surface: deep single-gang back box (2¾" deep) Flush: Standard 4" x 4" back box

### Electrical Specifications

Input Terminals	12 to 18 AWG
Nominal Voltage	Regulated 12DC/FWR or regulated 24DC/FWR
Operating Voltage	8-33
Operating Voltage with MDL	9-33

## UL Sound Output and Current Draw Data

### Sounder Output (dBA)

Switch Setting	Pattern	Output Level	8-17.5 VDC	8-17.5 VFWR	Nominal 12 VDC	Nominal 12 VFWR	16-33 VDC	16-33 VFWR
1	Temporal	High	68	67	71	70	78	76
2	Temporal	Low	66	65	69	68	76	75
3	Non-temporal	High	72	71	75	74	80	79
4	Non-temporal	Low	70	69	73	72	78	77

### Sounder Current Draw (mA RMS)

Switch Position	Sound Pattern	Volume	8-17.5 Volts		16-33 Volts	
			DC	FWR	DC	FWR
1	Temporal	High	12	10	17	15
2	Temporal	Low	10	9	14	13
3	Non-temporal	High	22	17	29	25
4	Non-temporal	Low	17	13	21	19

## Ordering Information

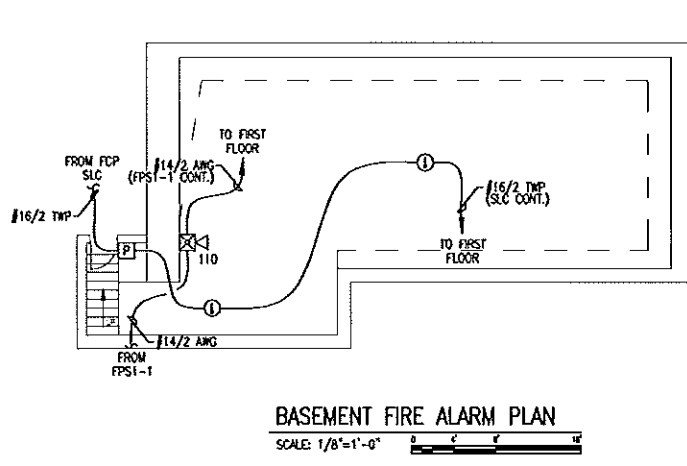
Part No.	Description
MHR	Mini-Horn, Red
MHW	Mini-Horn, White



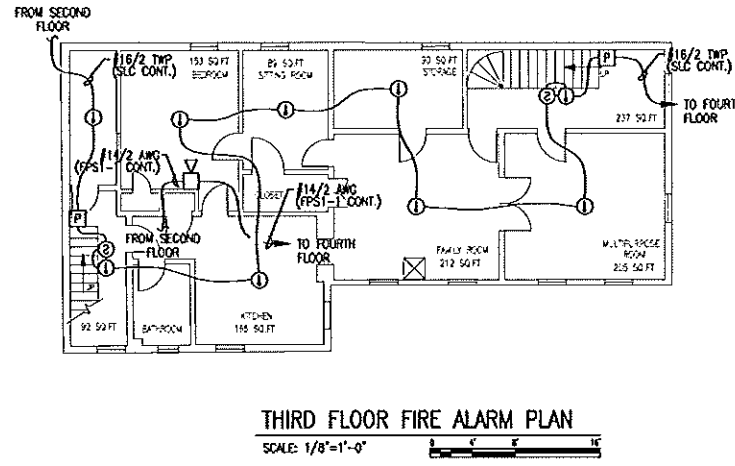
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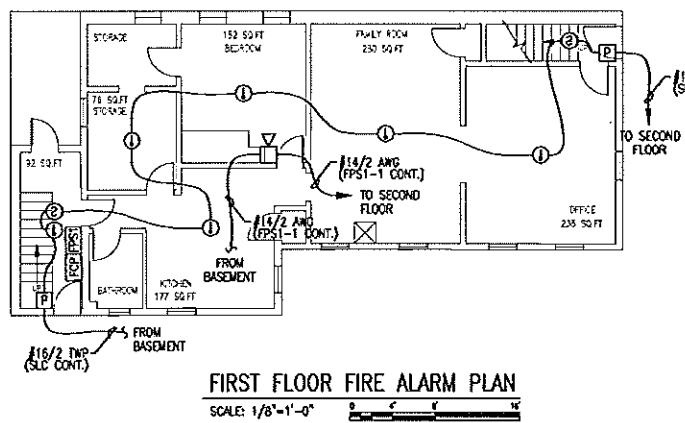




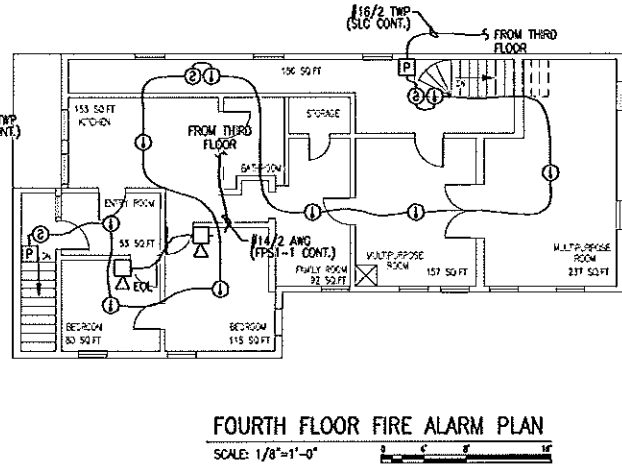
**BASEMENT FIRE ALARM PLAN**  
SCALE: 1/8"=1'-0"



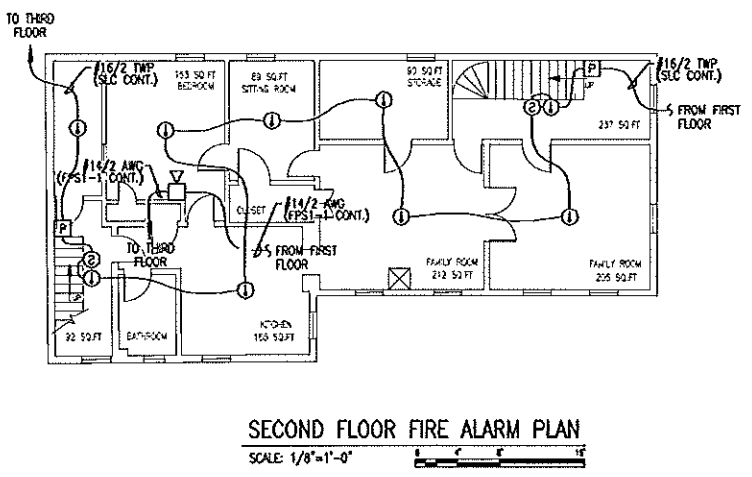
**THIRD FLOOR FIRE ALARM PLAN**  
SCALE: 1/8"=1'-0"



**FIRST FLOOR FIRE ALARM PLAN**  
SCALE: 1/8"=1'-0"



**FOURTH FLOOR FIRE ALARM PLAN**  
SCALE: 1/8"=1'-0"



**SECOND FLOOR FIRE ALARM PLAN**  
SCALE: 1/8"=1'-0"

**GENERAL NOTES:**

- THESE DRAWINGS ARE DIAGRAMMATIC. REFER TO THE ARCHITECTURAL DRAWINGS FOR EXACT DIMENSIONS.
- INSTALLATION SHALL COMPLY WITH NEC, NFPA 72 AND ALL OTHER APPLICABLE CODES AS REQUIRED BY THE LOCAL AUTHORITY HAVING JURISDICTION.
- WIRING DEPICTED ON THESE PLANS IS SCHEMATIC - ACTUAL WIRE LOCATIONS MAY DIFFER FROM THESE PLANS. WIRING SHALL BE PERFORMED AS ACTUAL BUILDING CONSTRUCTION CONDITIONS ALLOW AND TO MINIMIZE PENETRATIONS THROUGH AREA SEPARATION WALLS AND FIRE WALLS. THE USE OF A RACEWAY IS PERMITTED AS LONG AS NO 110V OR HIGHER VOLTAGE CABLES ARE IN THE SAME RACEWAY.
- FIRE RATINGS SHALL BE MAINTAINED FOR ALL PENETRATIONS THROUGH FIRE-RATED CONSTRUCTION.
- POWER FOR ALL FIRE ALARM PANELS AND FIRE ALARM POWER SUPPLIES MUST BE PROVIDED BY A DEDICATED AC BRANCH CIRCUIT.
- POWER-LIMITED AND NONPOWER-LIMITED CIRCUIT WIRING MUST REMAIN SEPARATED IN CABINET. ALL POWER-LIMITED CIRCUIT WIRING MUST REMAIN AT LEAST 0.25" AWAY FROM ANY NONPOWER-LIMITED CIRCUIT WIRING. FURTHERMORE, ALL POWER-LIMITED AND NONPOWER-LIMITED CIRCUIT WIRING MUST ENTER AND EXIT THE CABINET THROUGH DIFFERENT KNOCK OUTS AND/OR SEPARATE CONDUITS.
- WHEN UTILIZING CLASS "A" CIRCUITS, SEPARATE OUTGOING AND RETURN CONDUCTORS OF CLASS "A" CIRCUITS BY A MINIMUM OF 12" WHERE RUN VERTICALLY AND 48" WHERE RUN HORIZONTALLY.
- WHEN UTILIZING SHIELDED CABLE TIE SHIELDS THROUGH AND INSULATE AT EACH JUNCTION BOX. INSULATE AND TAPE BACK AT END.
- ALL FIRE ALARM CABLING SHALL BE ACCEPTABLE TO THE FIRE ALARM EQUIPMENT MANUFACTURER FOR THE INTENDED PURPOSE.
- SMOKE DETECTORS SHALL NOT BE INSTALLED UNTIL AFTER CONSTRUCTION CLEAN-UP IS COMPLETED AND FINAL.
- LOCATE SMOKE DETECTORS A MINIMUM OF THREE (3) FEET FROM MECHANICAL DIFFUSERS. WALL-MOUNTED SMOKE DETECTORS SHALL BE LOCATED A MINIMUM OF 4" AND A MAXIMUM OF 12" FROM CEILING. CEILING-MOUNTED SMOKE DETECTORS SHALL BE MOUNTED ON CEILINGS AND NOT ON THE BOTTOMS OF BEAMS OR JOISTS.
- PROVIDE SYNCHRONIZATION OF ALL VISUAL NOTIFICATION APPLIANCE CIRCUITS. PROVIDE ALL REQUIRED SYNC MODULES. PROVIDE A MULTI-SYNC MODE SLAVE CONNECTION BETWEEN ALL SYNC MODULES.
- VERIFY ALL FIELD SELECTABLE AUDIBILITY SETTINGS OF NOTIFICATION APPLIANCES WITH FIRE ALARM CONTRACTOR.
- UPON COMPLETION OF THE FIRE ALARM SYSTEM INSTALLATION AND PROGRAMMING, THE INSTALLING CONTRACTOR SHALL PERFORM FINAL TESTING OF THE ENTIRE SYSTEM, PER ALL APPLICABLE CODES, AND SHALL COORDINATE AND PERFORM A FINAL FIRE ALARM SYSTEM INSPECTION.
- PROVIDE OFF-SITE MONITORING AS REQUIRED BY THE INTERNATIONAL FIRE CODE, SECTION 907.15 AND THE LOCAL AUTHORITY HAVING JURISDICTION.
- INSTALLING CONTRACTOR SHALL, PHYSICALLY, LABEL ALL INITIATING DEVICES AND NOTIFICATION APPLIANCE CIRCUIT END OF LINE (WHEN WIRING CLASS "B"). THESE LABELS SHALL BE IN PLACE PRIOR TO START-UP AND TESTING.

FIRE ALARM SYMBOL LEGEND		
SYMBOL	DESCRIPTION	MOUNTING
[FACP]	FIRE ALARM CONTROL PANEL	WALL-TOP @ 66"
[FAPS]	FIRE ALARM POWER SUPPLY	FIELD VERIFY
[FSA]	FIRE SYSTEM ANNUNCIATOR	WALL-TOP @ 66"
[FSD]	FIRE/SMOKE DAMPER	BY OTHERS
⊙	SMOKE DETECTOR	CEILING
⊙	DUCT SMOKE DETECTOR	BY OTHERS
⊙	HEAT DETECTOR	CEILING
[SIM]	SERIAL INTERFACE MODULE	FIELD VERIFY
[AMM]	ADDRESSABLE CONTROL MODULE	FIELD VERIFY
[AMM]	ADDRESSABLE MONITOR MODULE	FIELD VERIFY
[P]	MANUAL PULL STATION	WALL @ 48"
[R]	CONTROL RELAY (MULTI-VOLTAGE)	FIELD VERIFY
[ARM]	ADDRESSABLE RELAY MODULE	FIELD VERIFY
[M]	MAGNETIC DOOR HOLDER	FIELD VERIFY
[WFS]	WATER FLOW SWITCH	BY OTHERS
[VTS]	VALVE TAMPER SWITCH	BY OTHERS
[B]	BELL	BY OTHERS
⊙	CEILING MOUNT STROBE	FIELD VERIFY
⊙	CEILING MOUNT HORN / STROBE	FIELD VERIFY
⊙	CEILING MOUNT SPEAKER / STROBE	FIELD VERIFY
[MH]	MINI HORN	WALL @ 10'-0"
[HS]	HORN / STROBE	WALL 80"-96"
[SS]	SPEAKER / STROBE	WALL 80"-96"
[S]	SPEAKER	WALL @ 90"
[STR]	STROBE	WALL 80"-96"

ABBREVIATION	DESCRIPTION
E	EXISTING
D	WITH GUARD
P	PENDENT MOUNT
R	RESIDENTIAL (110V)
S	SQUANDER BASE
WP	WEATHER PROOF
ELR	END OF LINE RESISTOR
ELR	END OF LINE RELAY
AWG	AMERICAN WIRE GAUGE
TWP	TWISTED PAIR
TWSP	TWISTED SHIELDED PAIR
FPLP	FIRE POWER LIMITED PLENUM
FPLR	FIRE POWER LIMITED RISER

OPERATIONS MATRIX		FIRE ALARM OUTPUT		FIRE ALARM INPUT	
		FIRE ALARM OUTPUT	TRANSMIT	TRANSMIT	TRouble SIGNAL
FIRE ALARM INPUT					
SMOKE DETECTORS		●	●	●	●
HEAT DETECTORS		●	●	●	●
PULL STATIONS		●	●	●	●
FIRE ALARM AC POWER FAIL		●	●	●	●
FIRE ALARM LOW BATTERY		●	●	●	●
OPEN CIRCUIT		●	●	●	●
GROUND FAULT		●	●	●	●
NAC SHORT CIRCUIT		●	●	●	●
LOSS OF AC TO BUILDING		●	●	●	●

**CUNNINGHAM**  
**Security Systems**

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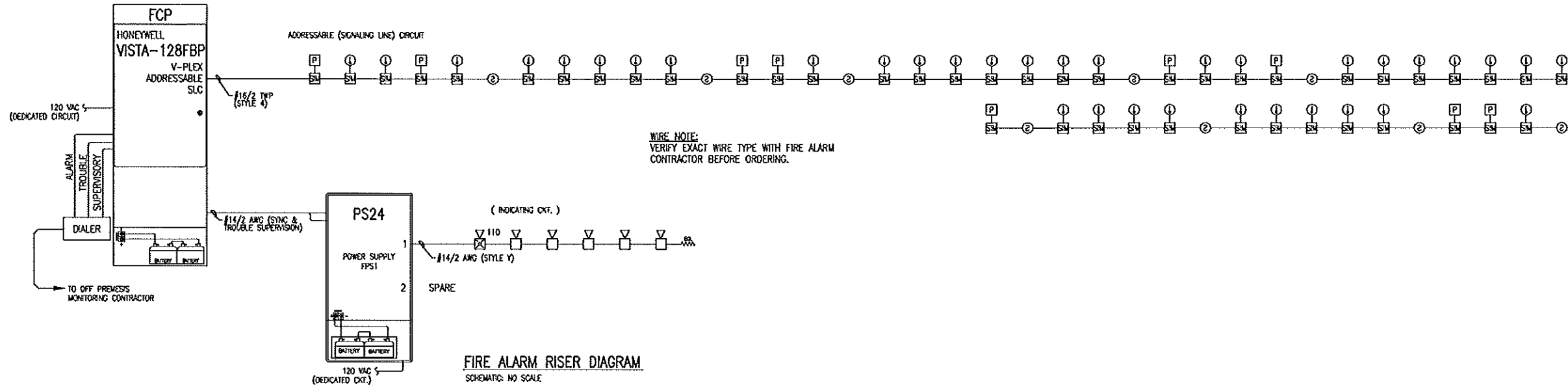
**33 HAMPSHIRE STREET**  
**PORTLAND, MAINE**  
**FIRE ALARM PLAN**

DATE	2/7/2013
DESCRIPTION	ISSUED FOR REVIEW & APPROVAL
REVISION	0

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DRAWN	JPB UNICAD JOB #13041
CHECKED	WAYNE B. HARRIS NICET # 90496
DATE	2/4/2013
REVISION	0
SCALE	1/8"=1'-0"

**FA-1**



Facility Information		Standby and Alarm Times		Battery Endurance	
Honeywell Security		Location:	33 HAMPSHIRE STREET	Battery Standby (hours):	24
Battery & Power Budget Calculator		Account #:	Vista-128FBP	Alarm Duration (minutes):	5
3rd Revised Manual Rev. 10/99 Honeywell		Model:		Recommended Battery (LR):	13.8
		Engineer:		Recommended Battery Capacity (Ah) for 48-Hr Recharge:	
		Date:	2/7/2013		

SELECTED PANEL MAXIMUM OUTPUT RATINGS										
PANEL:	Panel 1 (V-plex)	Panel 2 (V-plex)	Panel 3 (V-plex)	Panel 4 (V-plex)	Panel 5 (V-plex)	Panel 6 (V-plex)	Panel 7 (V-plex)	Panel 8 (V-plex)	Panel 9 (V-plex)	Panel 10 (V-plex)
Vista-128FBP	128	128	128	128	128	128	128	128	128	128
Calculated Current Draw	78.8	78.8	78.8	78.8	78.8	78.8	78.8	78.8	78.8	78.8
Power Budget	31.2	31.2	31.2	31.2	31.2	31.2	31.2	31.2	31.2	31.2

MAINLINE POWERED DEVICES	Panel Quantity	How many powered by 48V?	Standby (max amp)	Alarm (Current (mA))	Panel Code	Total Standby (mA)	Total Alarm (mA)	Total Standby (mA)	Total Alarm (mA)
PS24 24 VOLT POWER SUPPLY MODULE	1	0	30	100		30	100	30	100
PULLING LOOP DEVICES									
118354 TWO ZONE SM	4	0	1.2	60		4.8	240	4.8	240
518290 SMOKE DETECTOR	4	0	1.2	10.0		4.8	40.0	4.8	40.0

Facility Information		Standby/Alarm Durations		Battery Endurance	
Honeywell Security		Location:	33 HAMPSHIRE STREET	Battery Standby (hours):	24
Battery & Power Budget Calculator		Account #:	Vista-128FBP	Alarm Duration (minutes):	5
3rd Revised Manual Rev. 10/99 Honeywell		Model:		Required Capacity (LR):	1.108
		Engineer:		Recommended Battery (LR):	7.0
		Date:	2/7/2013	Recommended Battery Capacity (Ah) for 48-Hr Recharge:	

PS24 POWER SUPPLY MODULE MAXIMUM CAPACITIES									
Panel 1 (V-plex)	Panel 2 (V-plex)	Panel 3 (V-plex)	Panel 4 (V-plex)	Panel 5 (V-plex)	Panel 6 (V-plex)	Panel 7 (V-plex)	Panel 8 (V-plex)	Panel 9 (V-plex)	Panel 10 (V-plex)
47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2
Calculated Current Draw	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Power Budget	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2

KEY NOTIFICATION APPLIANCES	Panel Quantity	How many powered by 48V?	Standby (max amp)	Alarm (Current (mA))	Panel Code	Total Standby (mA)	Total Alarm (mA)	Total Standby (mA)	Total Alarm (mA)
48V NOTIFICATION APPLIANCES									
48V HORN	1	0	0	60		0	60	0	60
HORN STRONGS (11000)	1	0	0	212		0	212	0	212

NAC Circuit Voltage Drop Calculation				2/7/2013	
Project Name:	33 HAMPSHIRE STREET	Wire:	20.4	Resistance:	15
Circuit Number:	IFPS1-1	Capacity:	15	Per 1000:	6.14
Normal System Voltage:	20.4	Distance from source to 1st device:	14	Wire Gauge for balance of circuit:	14
Minimum Device Voltage:	20	Max Output Current:	2.0		
Distance from source to last device:	20	Total Circuit Current:	0.557		
Wire Gauge for balance of circuit:	14				

Device	Device Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop
Device 1	0.212	30	20.33	0.07	0%
Device 2	0.069	25	20.27	0.15	1%
Device 3	0.069	10	20.23	0.17	1%
Device 4	0.069	20	20.21	0.19	1%
Device 5	0.069	12	20.20	0.20	1%
Device 6	0.069	12	20.19	0.21	1%
<b>Totals</b>	<b>0.557</b>	<b>117</b>			

REVISION	DESCRIPTION	DATE
0	ISSUED FOR REVIEW & APPROVAL	2/7/2013

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33 HAMPSHIRE STREET  
PORTLAND, MAINE

CALCULATIONS AND RISER DIAGRAM

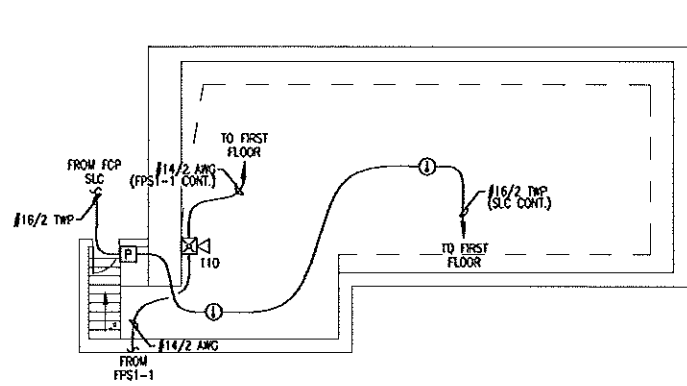
  

DRAWN	JPB UNICAD JOB #13041
CHECKED	WAYNE B. HARRIS NCEET # 90496
DATE	2/4/2013
REVISION	0
SCALE	NONE

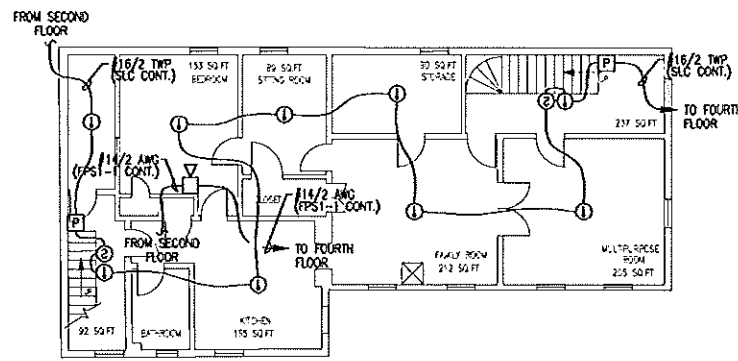
FA-2





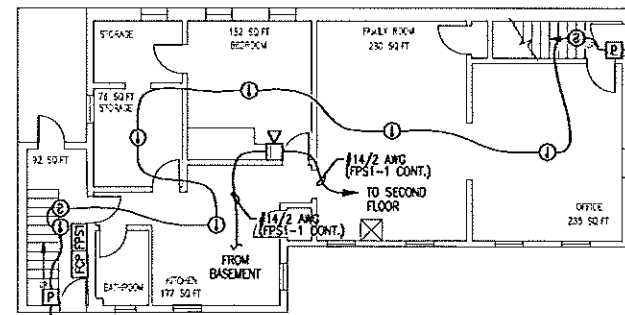
**BASEMENT FIRE ALARM PLAN**

SCALE: 1/8"=1'-0"



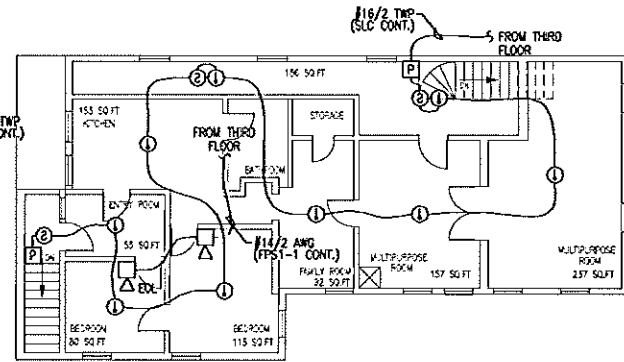
**THIRD FLOOR FIRE ALARM PLAN**

SCALE: 1/8"=1'-0"



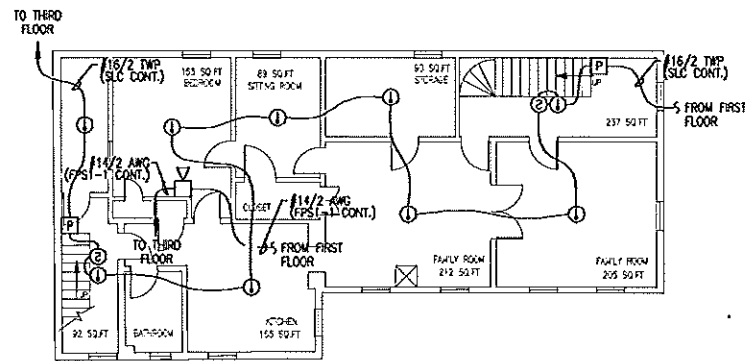
**FIRST FLOOR FIRE ALARM PLAN**

SCALE: 1/8"=1'-0"



**FOURTH FLOOR FIRE ALARM PLAN**

SCALE: 1/8"=1'-0"



**SECOND FLOOR FIRE ALARM PLAN**

SCALE: 1/8"=1'-0"

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FIRE ALARM SYMBOL LEGEND		
SYMBOL	DESCRIPTION	MOUNTING
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[FAPS]	FIRE ALARM POWER SUPPLY	FIELD VERIFY
[FSA]	FIRE SYSTEM ANNUNCIATOR	WALL-TOP @ 66"
[FSD]	FIRE/SMOKE DAMPER	BY OTHERS
⊙	SMOKE DETECTOR	CEILING
⊙	DUCT SMOKE DETECTOR	BY OTHERS
⊙	HEAT DETECTOR	CEILING
[SIM]	SERIAL INTERFACE MODULE	FIELD VERIFY
[AMM]	ADDRESSABLE CONTROL MODULE	FIELD VERIFY
[AMM]	ADDRESSABLE MONITOR MODULE	FIELD VERIFY
[P]	MANUAL PULL STATION	WALL @ 48"
[R]	CONTROL RELAY (MULTI-VOLTAGE)	FIELD VERIFY
[AMM]	ADDRESSABLE RELAY MODULE	FIELD VERIFY
[M]	MAGNETIC DOOR HOLDER	FIELD VERIFY
[WFS]	WATER FLOW SWITCH	BY OTHERS
[VTS]	VALVE TAMPER SWITCH	BY OTHERS
[B]	BELL	BY OTHERS
[CS]	CEILING MOUNT STROBE	FIELD VERIFY
[CHS]	CEILING MOUNT HORN / STROBE	FIELD VERIFY
[CMS]	CEILING MOUNT SPEAKER / STROBE	FIELD VERIFY
[MH]	MINI HORN	WALL @ 10'-0"
[HS]	HORN / STROBE	WALL 80"-96"
[SS]	SPEAKER / STROBE	WALL 80"-96"
[S]	SPEAKER	WALL @ 90"
[STR]	STROBE	WALL 80"-96"

ABBREVIATION	DESCRIPTION
E	EXISTING
WG	WIRE GUARD
P	PENDENT MOUNT
R	RESIDENTIAL (110V)
S	SQUANDER BASE
WP	WEATHER PROOF
EOL	END OF LINE RESISTOR
EOLR	END OF LINE RELAY
AWG	AMERICAN WIRE GAUGE
TWP	TWISTED PAIR
TWSP	TWISTED SHIELDED PAIR
FPLP	FIRE POWER LIMITED PLENUM
FPLR	FIRE POWER LIMITED RSSR

OPERATIONS MATRIX						
FIRE ALARM INPUT	FIRE ALARM OUTPUT					
	ACTIVE ALARM INDICATOR	ACTIVE AUDIBLE ALARM	ACTIVE TROUBLE INDICATOR	ACTIVE AUDIBLE TROUBLE INDICATOR	TRANSMIT ALARM SIGNAL	TRANSMIT TROUBLE SIGNAL
SMOKE DETECTORS	●	●	●	●	●	●
HEAT DETECTORS	●	●	●	●	●	●
PULL STATIONS	●	●	●	●	●	●
FIRE ALARM AC POWER FAIL	●	●	●	●	●	●
FIRE ALARM LOW BATTERY	●	●	●	●	●	●
OPEN CIRCUIT	●	●	●	●	●	●
GROUND FAULT	●	●	●	●	●	●
NAC SHORT CIRCUIT	●	●	●	●	●	●
LOSS OF AC TO BUILDING	●	●	●	●	●	●

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**Security Systems**

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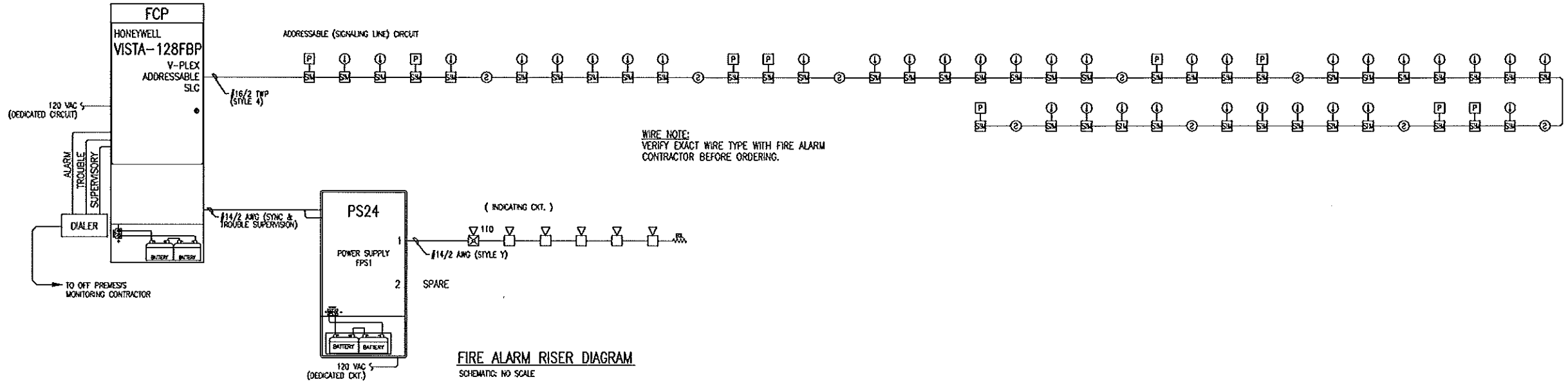
**33 HAMPSHIRE STREET  
PORTLAND, MAINE  
FIRE ALARM PLAN**

DATE	2/7/2013
DESCRIPTION	ISSUED FOR REVIEW & APPROVAL
REVISION	0

DRAWN	JPB UNICAD JOB #13041
CHECKED	WAYNE B. HAWES NICET N 50496
DATE	2/4/2013
REVISION	0
SCALE	1/8"=1'-0"

**FA-1**





Facility Information		Standby and Alarm Times		Battery Capacity	
Location	33 HAMPSHIRE STREET	Battery Standby (hours)	24	10%	
Account #	Vista-128FBP	Alarm Duration (minutes)	5		
Escalator		Recommended Battery (LR)	13.8		
Date	8/7/2013	Recommended Battery Capacity (LR) for 48-Hr. Recharge			

SELECTED PANEL MAXIMUM OUTPUT RATINGS										
Panel	Panel 12V Output (mA)	Panel 24V Output (mA)	Panel Alarm Output (mA)	Panel Standby Output (mA)	Panel Alarm Output (mA)	Panel Standby Output (mA)	Panel Alarm Output (mA)	Panel Standby Output (mA)	Panel Alarm Output (mA)	Max. Battery Capacity (LR)
Vista-128FBP	128	128	128	256	256	256	256	256	256	34.4
Calculated Current Draw	128	128	128	256	256	256	256	256	256	
Power Budget	312	312	312	624	624	624	624	624	624	

Quantity	Panel 12V Output (mA)	Panel 24V Output (mA)	Panel Alarm Output (mA)	Panel Standby Output (mA)	Panel Alarm Output (mA)	Panel Standby Output (mA)	Panel Alarm Output (mA)	Panel Standby Output (mA)	Panel Alarm Output (mA)	Max. Battery Capacity (LR)
PS24 24 VOLT POWER SUPPLY MODULE	0	0	0	0	0	0	0	0	0	110
POLYDIP LOOP DEVICES	44	0	0	1.5	66	0	0	0	0	
51825H TWO ZONE SM	0	0	0	1.2	10.8	0	0	0	0	
51825D SMOKE DETECTOR	0	0	0	0	0	0	0	0	0	

Facility Information		Standby and Alarm Times		Battery Capacity	
Location	33 HAMPSHIRE STREET	Battery Standby (hours)	24	10%	
Account #	Vista-128FBP	Alarm Duration (minutes)	5		
Escalator		Recommended Battery (LR)	7.0		
Date	8/7/2013	Recommended Battery Capacity (LR) for 48-Hr. Recharge			

PS24 POWER SUPPLY MODULE MAXIMUM CAPACITIES										
Panel 12V Output (mA)	Panel 24V Output (mA)	Panel Alarm Output (mA)	Panel Standby Output (mA)	Panel Alarm Output (mA)	Panel Standby Output (mA)	Panel Alarm Output (mA)	Panel Standby Output (mA)	Panel Alarm Output (mA)	Panel Standby Output (mA)	Max. Battery Capacity (LR)
472	472	472	944	944	944	944	944	944	944	34.4
Calculated Current Draw	472	472	472	944	944	944	944	944	944	
Power Budget	472	472	472	944	944	944	944	944	944	

Quantity	Panel 12V Output (mA)	Panel 24V Output (mA)	Panel Alarm Output (mA)	Panel Standby Output (mA)	Panel Alarm Output (mA)	Panel Standby Output (mA)	Panel Alarm Output (mA)	Panel Standby Output (mA)	Panel Alarm Output (mA)	Max. Battery Capacity (LR)
33V NOTIFICATION APPLIANCES	0	0	0	0	0	0	0	0	0	
HORN STRIKES (11000)	1	1	0	212	0	0	212	0	0	

NAC Circuit Voltage Drop Calculation				2/7/2013	
Project Name	33 HAMPSHIRE STREET				
Circuit Number	FPS1-1				
Nominal System Voltage	20.4	Volts	Wire Gauge	14	Resistance Per 1000
Minimum Device Voltage	18	Volts	Wire Gauge	14	Resistance Per 1000
Distance from source to 1st device	20	Feet	Wire Gauge	14	Resistance Per 1000
Wire Gauge for balance of circuit			Wire Gauge	14	Resistance Per 1000
Max Output Current	2.0	amps			
Total Circuit Current	0.557	amps			

Device	Current	Distance from source	Voltage at Device	Drop from source	Percent Drop
Device 1	0.212	30	20.13	0.07	0%
Device 2	0.069	25	20.27	0.13	1%
Device 3	0.069	10	20.23	0.17	1%
Device 4	0.069	20	20.21	0.19	1%
Device 5	0.069	12	20.20	0.20	1%
Device 6	0.069	12	20.19	0.21	1%
<b>Totals</b>	<b>0.557</b>	<b>117</b>			

REVISION	DESCRIPTION	DATE
0	ISSUED FOR REVIEW & APPROVAL	2/7/2013

**CUNNINGHAM**  
**Security Systems**

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33 HAMPSHIRE STREET  
PORTLAND, MAINE

CALCULATIONS AND RISER DIAGRAM

DRAWN	JPH UNICAD JOB #13041
CHECKED	WAYNE B. HAWES NICET # 90496
DATE	2/4/2013
REVISION	0
SCALE	NONE

FA-2

