

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK



# CITY OF PORTLAND BUILDING PERMIT



**This is to certify that**

MID-TOWN PROPERTIES LLC /Seacoast Security

**Located at**

13 GRANT ST

**PERMIT ID:** 2012-65687

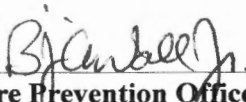
**CBL:** 036 D016001

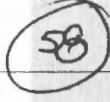
has permission to **install supervised fire alarm system.**

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**

**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

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> 201265687	<b>Date Applied For:</b> 12/26/2012	<b>CBL:</b> 036 D016001
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<b>Location of Construction:</b> 13 GRANT ST	<b>Owner Name:</b> MID-TOWN PROPERTIES LLC	<b>Owner Address:</b> PO BOX 641	<b>Phone:</b>
<b>Business Name:</b>	<b>Contractor Name:</b> Seacoast Security	<b>Contractor Address:</b> P.O. Box K 4 Summer Street Freeport	<b>Phone</b> (207) 865-0394
<b>Lessee/Buyer's Name</b>	<b>Phone:</b>	<b>Permit Type:</b> Fire Alarm System	

<b>Proposed Use:</b> 9 residential dwelling units	<b>Proposed Project Description:</b> install supervised fire alarm system.
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**Dept:** Zoning      **Status:** Approved w/Conditions      **Reviewer:** Marge Schmuckal      **Approval Date:** 12/31/2012

**Note:****Ok to Issue:** 

- 1) This property shall remain a nine (9) residential dwelling unit building. Any change of use shall require a separate permit application for review and approval.

**Dept:** Fire**Status:** Approved w/Conditions**Reviewer:** Ben Wallace Jr**Approval Date:** 01/02/2013**Note:****Ok to Issue:** 

- 1) Records cabinet, FACP, annunciator(s), and pull stations shall be keyed alike.
- 2) 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.
- 3) The fire alarm system shall be certified by a master fire alarm company and have a new fire alarm inspection sticker.
- 4) In field installation shall be installed per code as conditions dictate.
- 5) Manual Pull Stations are required per NFPA 101:30.3.4.2.1 at all exit doorways and within 200 feet of travel.
- 6) All smoke detectors shall be photoelectric.
- 7) Carbon Monoxide is detection required in accordance with NFPA 720, Standard for Installation of Carbon Monoxide (CO) Detection and Warning Equipment, 2009 edition.
- 8) Visible signals are not required within the dwelling units that are not designated for the hearing impaired. Audible signals shall be provided in accordance with NFPA 72:18.4. The fire alarm company shall verify sound level of each room with the doors closed.
- 9) 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> and no more than 3 ft. deep).
- 10) Supervising Station monitoring for addressable fire alarm systems shall be by point.
- 11) All fire alarm records required by NFPA 72 should be stored in an approved cabinet located at the FACP labeled "FIRE ALARM RECORDS".
- 12) A 4100 series Knox Box is required. A 3200 series Knox Box may be installed if the building is master keyed.
- 13) System acceptance and commissioning must be coordinated with alarm system contractor and the Fire Department. Call 874-8703 to schedule.

<b>Location of Construction:</b> 13 GRANT ST	<b>Owner Name:</b> MID-TOWN PROPERTIES LLC	<b>Owner Address:</b> PO BOX 641	<b>Phone:</b> -
<b>Business Name:</b>	<b>Contractor Name:</b> Seacoast Security	<b>Contractor Address:</b> P.O. Box K 4 Summer Street Freeport	<b>Phone</b> (207) 865-0394
<b>Lessee/Buyer's Name</b>	<b>Phone:</b>	<b>Permit Type:</b> Fire Alarm System	

14 Fire Alarm system 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 A master box connection is not authorized for this building.

16 Audible and visible notification signals are not required in exit stair enclosures by NFPA 101:9.6.3.5.5 and NFPA 101:9.6.3.6.4.

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

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

Permit No: 2012-65687	Issue Date:	CBL: 036 D016001
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<b>Location of Construction:</b> 13 GRANT ST	<b>Owner Name:</b> MID-TOWN PROPERTIES LLC	<b>Owner Address:</b> PO BOX 641 FREEPORT, ME 04032	<b>Phone:</b>
<b>Business Name:</b>	<b>Contractor Name:</b> Seacoast Security	<b>Contractor Address:</b> P.O. Box K 4 Summer Street Freeport ME 04032	<b>Phone:</b> (207) 865-0394
<b>Lessee/Buyer's Name</b>	<b>Phone:</b>	<b>Permit Type:</b> Fire Alarm System	<b>Zone:</b> B2b R6
<b>Past Use:</b> 9 residential dwelling units	<b>Proposed Use:</b> 9 residential dwelling units	<b>Permit Fee:</b> \$200.00	<b>Cost of Work:</b> \$18,000.00
		<b>FIRE DEPT:</b> 1/2/i3 <input checked="" type="checkbox"/> Approved <input type="checkbox"/> Denied <input type="checkbox"/> N/A	<b>INSPECTION:</b> Use Group: Type:
<b>Proposed Project Description:</b> Install Fire Alarm -permit		<b>Signature:</b> <i>[Signature]</i> (58)	<b>Signature:</b>
		<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> 12/26/2012	<b>Zoning Approval</b>	
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<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"/> Date: <i>9-12-3/1/12</i>	<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 Date:	<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>[Signature]</i>
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**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: 11-13 GRANT ST. CBL: \_\_\_\_\_

Exact location: (within structure) FACP LOCATED IN THE SIDE ENTRY FOYER (LEFT SIDE)

Type of occupancy(s) (NFPA & ICC): MULTI-FAMILY (RESIDENTIAL)

Building owner: CLASS ACTS MANAGEMENT - BILL SIMPSON  
Must be

System Designer (point of contact): STEVE SPEARINI

Designer phone: SAME AS BELOW E-mail: steves@seacoastsecurity.com

Installing contractor: SEACOAST SECURITY Certificate of Fitness No: 1006

Contractor phone: 1-800-654-7700 X 501 E-mail: johnmac@seacoastsecurity.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:

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

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

COST OF WORK: <u>18,000</u> <u>\$17,583.36</u>
PERMIT FEE: <u>205.60</u> (\$10 PER \$1,000 + \$30 FOR THE FIRST \$1,000)
RECEIVED DEC 26 2012 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: 12/20/12

# Seacoast Security

P.O. Box A  
290 West St.  
West Rockport ME. 040865  
1-800-654-8800 207-236-4876  
Fax 207-865-0852  
sale@seacoastsecurity.com



11 & 13 Grant St.  
11-13 Grant St.  
Portland, Maine 04101  
Attn: Bill Simpson  
classactspropertymanagement@yahoo.com

## Sales Quotation

Project: Type 7

Quote #: CBF010850M Date 12/17/2012  
Questions? Please call Chris H. Brown  
Quote Expires on: 1/16/2013

### Description

#### SCOPE OF WORK

**TO PROVIDE AND INSTALL THE LISTED EQUIPMENT FOR A WORKING CODE COMPLIANT ADDRESSABLE FIRE ALARM SYSTEM AT 11 - 13 GRANT ST., PORTLAND, ME**

**SEACOAST SECURITY HAS COMPLETED A WALK THROUGH THE BUILDING AND IS RESPONSIBLE FOR THE DESIGN, INSTALLATION, PROGRAMMING AND TESTING OF THE FIRE ALARM SYSTEM. EQUIPMENT INSTALLED WILL COMPLY WITH NFPA 72 CODE REQUIREMENTS AND THE CITY OF PORTLAND'S FIRE ALARM ORDINANCES.**

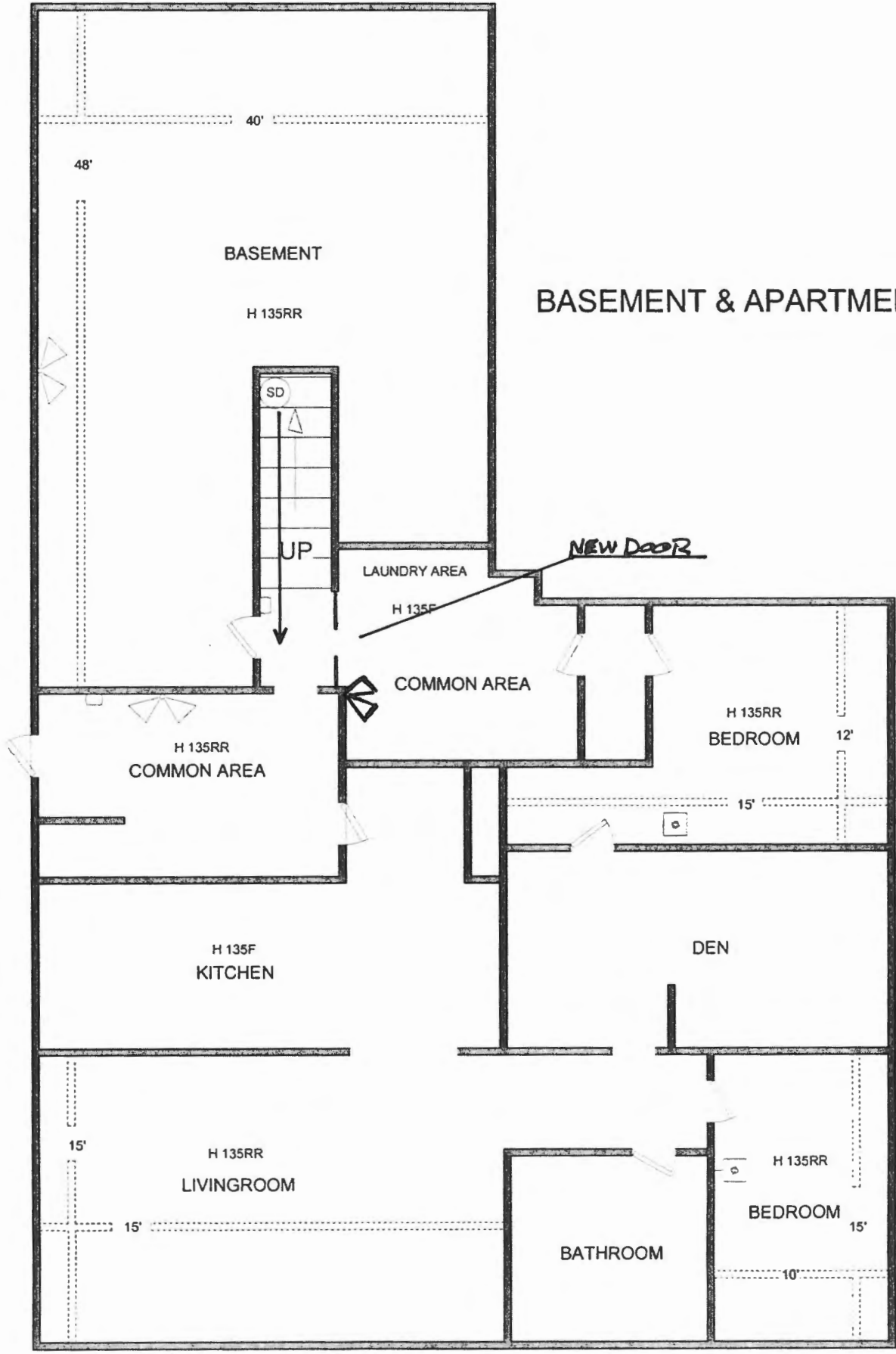
**BUILDING OWNER IS RESPONSIBLE FOR PROVIDING TWO(2) DEDICATED LOOP START PHONE LINES FOR MONITORING. TENANT PHONE LINES ARE NOT ACCEPTABLE.**

**QUOTE INCLUDES ALL REQUIRED PERMITTING FROM THE CITY OF PORTLAND.**

**SEACOAST SECURITY RESERVES THE RIGHT TO MAKE ANY ADDITIONAL CHANGES ONCE A MEETING WITH THE FIRE PREVENTION OFFICE TAKES PLACE AND RE-SUBMIT AS A CHANGE ORDER OR A NEW QUOTATION. QUOTE IS ONLY VALID UPON CITY APPROVAL.**

**KNOX BOX TO BE PURCHASED FROM THE CITY OF PORTLAND BY CLIENT**

BASEMENT & APARTMENT #10





GRANT ST.

1ST FLOOR COMMON AREAS & APARTMENTS 1, 2, 11 & 9

OUTDOOR BRACON →

APT. #11 →

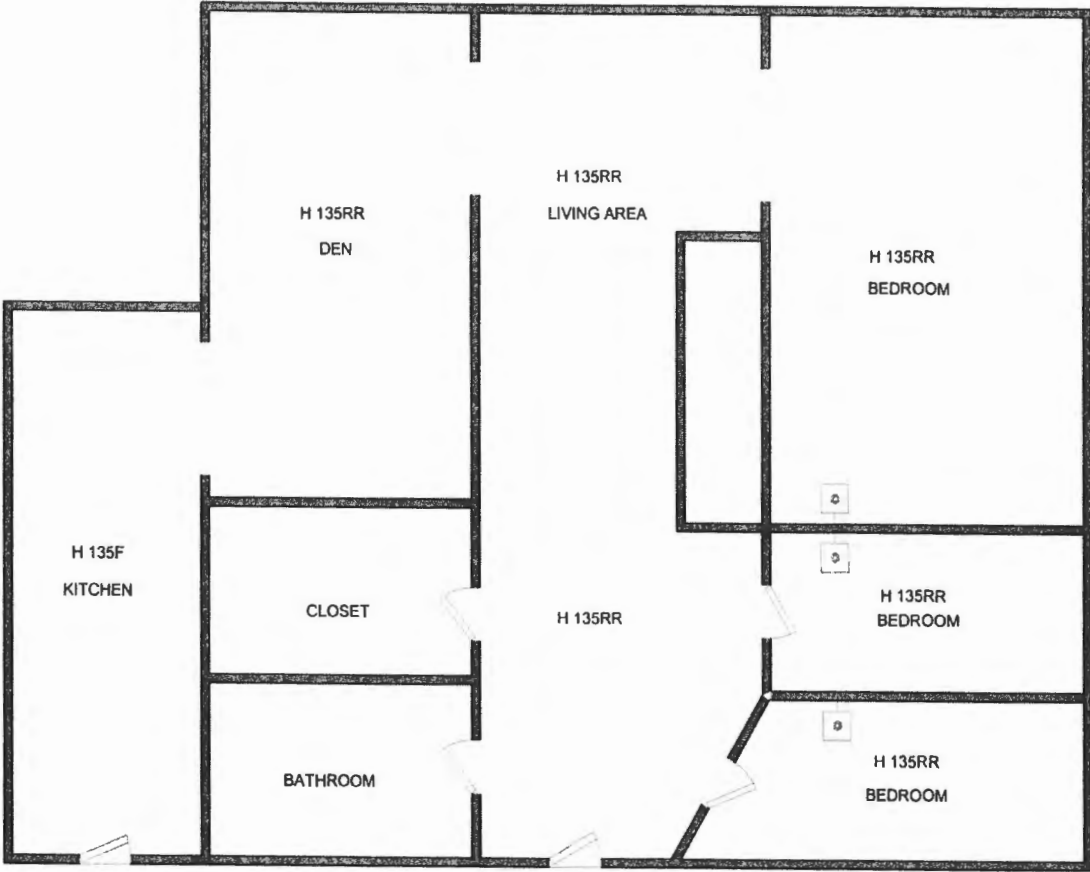
← APT. #1



APT. #9 →

← APT. #2

GRANT ST.  
APARTMENT 5

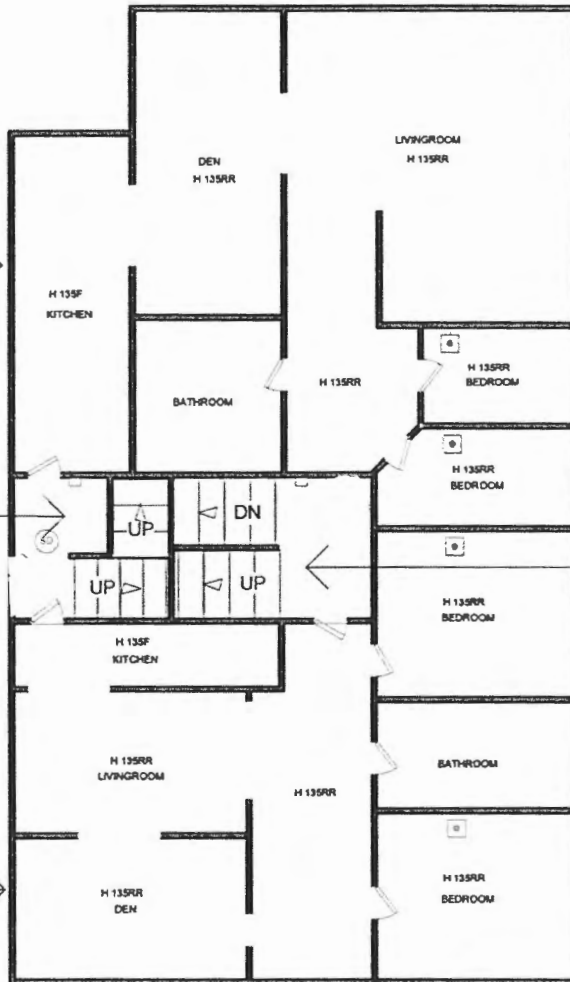


COMMON AREA  
STAIRWELL

COMMON AREA  
STAIRWELL

GRANT ST.

2ND FLOOR COMMON AREAS &  
APTS. 3 & 4



NOTE: APARTMENTS 6 & 8 ARE IDENTICAL TO APARTMENT 4.

NOTE: APARTMENT 7 IS IDENTICAL TO APARTMENT 3

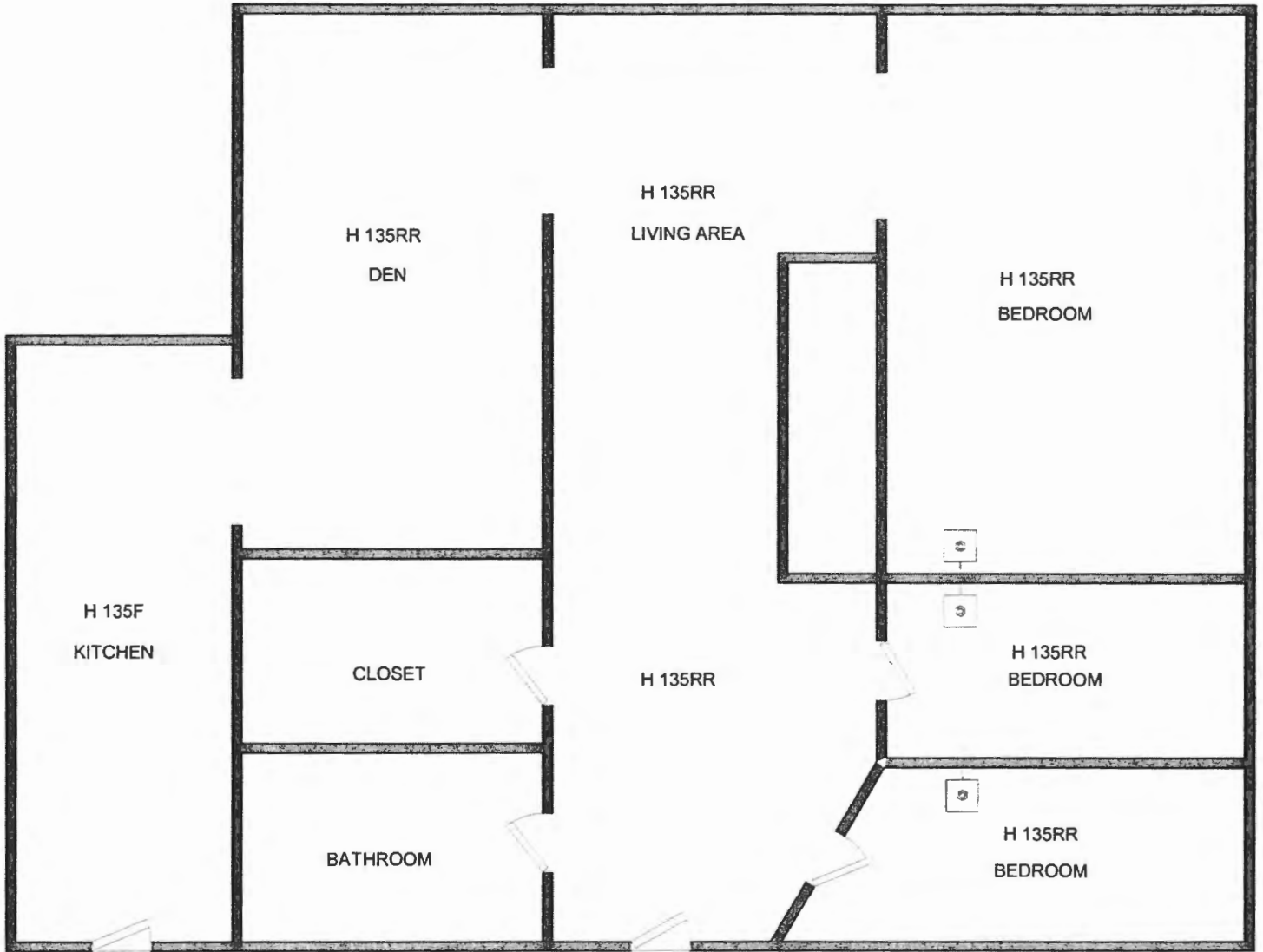
APT. 3 →

THIS STAIRWELL IS SPEC'D FOR A SMOKE DETECTOR ON LEVELS 2, 3, & 4.

THIS STAIRWELL IS OPEN FROM THE 1ST FLOOR TO THE 4TH FLOOR. ONE SMOKE DETECTOR ON THE 4TH FLOOR LEVEL IS SPEC'D FOR THIS JOB.

APT. 4 →

GRANT ST.  
APARTMENT 5



COMMON AREA  
STAIRWELL

COMMON AREA  
STAIRWELL

**...IN THE EVENT OF A FIRE ALARM:**

**1) IF AN ACTUAL ALARM OCCURS, EVACUATE THE PREMISES IMMEDIATELY! DO NOT SHUT OFF OR RESET THE SYSTEM. WAIT FOR THE FIRE DEPT. TO RESPOND. PREMISES IMMEDIATELY! DO NOT SHUT OFF OR RESET THE SYSTEM. WAIT FOR THE FIRE DEPT. TO RESPOND.**

**1) IF AN ACTUAL ALARM OCCURS, EVACUATE THE PREMISES IMMEDIATELY! DO NOT SHUT OFF OR RESET THE SYSTEM. WAIT FOR THE FIRE DEPT. TO RESPOND .**

# FIRE ALARM SYSTEM LEGEND

 = SMOKE DETECTOR

 = BEDROOM MINI SOUNDERS

 = HORN/LIGHTS

 = MANUAL PULL STATIONS

H 135RR = 135 DEGREE RATE OF RISE  
HEAT DETECTORS

H 135F = 135 DEGREE FIXED TEMP  
HEAT DETECTORS

# MS-9200UDLS(E) Rev 3

## Intelligent Addressable FACP with Built-In Communicator



### Addressable Fire Alarm Control Panel

#### General

The Fire-Lite MS-9200UDLS Rev 3 with Version 5.0 firmware is a combination FACP (Fire Alarm Control Panel) and DACT (Digital Alarm Communicator/Transmitter) all on one circuit board. This compact intelligent addressable control panel has an extensive list of powerful features.

While the MS-9200UDLS Rev 3 may be used with an SLC configured in the CLIP (Classic Loop Interface Protocol) mode, it can also operate in LiteSpeed™ mode—Fire-Lite's latest polling technology—for a quicker device response time. LiteSpeed's patented technology polls 10 devices at a time. This improvement allows a fully-loaded panel with up to 198 devices to report an incident and activate the notification circuits in under 10 seconds. With Litespeed polling, devices can be wired on standard twisted, unshielded wire up to a distance of 10,000 feet.

The MS-9200UDLS Rev 3's quick-remove chassis protects the electronics during construction. The backbox can be installed allowing field wiring to be pulled. When construction is completed, the electronics can be quickly installed with just two bolts.

**New features for Rev 3 with Version 5.0 firmware** include removable terminal blocks, improved transient protection, additional secondary ANN-BUS, and increased power for the resettable and remote sync outputs.

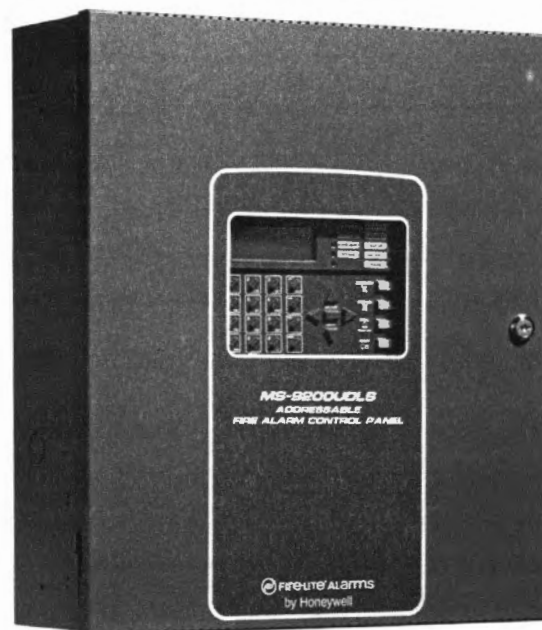
Available accessories include ANN-BUS devices as well as ACS LED, graphic and LCD annunciators, and reverse polarity/city box transmitter.

The integral DACT transmits system status (alarms, supervisories, troubles, AC loss, etc.) to a Central Station via the public switched telephone network. It also allows remote and local programming of the control panel using the PS-Tools Upload/Download utility. In addition, the control panel may be programmed or interrogated off-site via the public switched telephone network. Any personal computer with Windows® XP or greater, a compatible modem, and PS-Tools—the Fire-Lite Upload/Download software kit—may serve as a Service Terminal. This allows download of the entire program or upload of the entire program, history file, walktest data, current status and system voltages. The panel can also be programmed through the FACP's keypad or via a standard PS-2 computer keyboard, which can be plugged directly into the printed circuit board. This permits easy typing of address labels and other programming information.

Version 5.0 firmware supports the following: Primary and Secondary ANN-bus devices, AD355 (LiteSpeed), USB port, NAC circuit diagnostics, a new report has been added to the walktest that lists untested devices, new device types added: audio telephone type code for ACC 25/50ZST, Photo Supervisory and auto-resettable Drill (non-latching).

The FireWatch Series internet monitoring modules IPDACT-2 and IPDACT-2UD permit monitoring of alarm signals over the Internet saving the monthly cost of two dedicated business telephone lines. Although not required, the secondary telephone line may be retained providing backup communication over the public switched telephone line.

**NOTE:** Unless otherwise specified, the term MS-9200UDLS is used in this document to refer to both the MS-9200UDLS and the MS-9200UDLS(E) FACP's (Fire Alarm Control Panels).



#### Features

- Listed to UL standard 864, 9th edition.
- On-board DACT.
- Remote site or local USB port upload/download, using PS-Tools.
- Four (4) Style Y (Class B) NAC circuits, which can be converted to four (4) Style Z (Class A) circuits with optional ZNAC-92 converter module. (Up to 6.0 amps total NAC power when using optional XRM-24B.)
- Selectable strobe synchronization for System Sensor, Wheelock, and Gentex devices.
- Remote Acknowledge, Silence, Reset and Drill via addressable monitor modules or LCD-80F, ANN-80 or Legacy ACS Annunciators.
- ANN-BUS for connection to following optional modules (cannot be used if ACS annunciators are used):
  - ANN-80(-W) Remote LCD Annunciator
  - ANN-I/O LED Driver
  - ANN-S/PG Printer Module
  - ANN-RLY Relay Module
  - ANN-LED Annunciator Module
  - ANN-RLED Annunciator Module alarms only
  - ROME Relay Option Module Enclosure
- ACS/TERM:
  - ACS Annunciators: Up to 32 Legacy ACM Series annunciators (ACM-16AT or ACM-32 series). Cannot be used if ANN-BUS devices are used.
  - Terminal-mode Annunciators: Up to 32 Legacy LCD-80F remote annunciators.

- EIA-232 printer/PC interface (variable baud rate) on main circuit board, for use with optional UL-listed printer PRN-6F.
- Integral 80-character LCD display with backlighting.
- Real-time clock/calendar with automatic daylight savings control.
- Detector sensitivity test capability (NFPA 72 compliant).
- History file with 1,000-event capacity.
- Maintenance alert warns when smoke detector dust accumulation is excessive.
- Automatic device type-code verification.
- One person audible or silent walk test with walk-test log and printout.
- Point trouble identification.
- Waterflow (nonsilenceable) selection per monitor point.
- System alarm verification selection per detector point.
- PAS (Positive Alarm Sequence) and presignal delay per point (NFPA 72 compliant).

**NOTE:** Only detectors may participate in PAS.

#### **SLC LOOP:**

- SLC can be configured for NFPA Style 4, 6, or 7 operation.
- SLC supports up to 198 addressable devices per loop (99 detectors and 99 monitor, control, or relay modules).
- SLC loop maximum length 10,000 ft. (3,000 m.).  
See installation manual for wire tables.

#### **NOTIFICATION APPLIANCE CIRCUITS (NACS):**

- Four onboard NACs with additional NAC capability using output control modules (CMF-300 or CMF-300-6). The four Class B NACs can be converted to four Class A NACs with optional ZNAC-92 converter module.
- Silence Inhibit and Auto Silence timer options.
- Continuous, March Time, Temporal or California code for main circuit board NACs with two-stage capability.
- Selectable strobe synchronization per NAC.
- 2.5 amps maximum per each NAC circuit.

**NOTE:** Maximum 24VDC system power output is shared among all NAC circuits and 24VDC special-application auxiliary power outputs. Total available output is 3.0 amps. Using the optional XRM-24B transformer increases 24VDC output to 6.0 amps.

#### **PROGRAMMING AND SOFTWARE:**

- Autoprogram (learn mode) reduces installation time.
- Custom English labels (per point) may be manually entered or selected from an internal library file.
- Three Form-C relay outputs (two programmable).
- 99 software zones.
- Continuous fire protection during online programming at the front panel.
- Program Check automatically catches common errors not linked to any zone or input point.
- **OFFLINE PROGRAMMING:** Create the entire program in your office using a Windows®-based software package (order programming kit PS-Tools, separately). Upload/download system programming locally to the MS-9200UDLS Rev 3 in less than one minute.
- USB upload/download programming with standard Male-A to Male-B cable.

## **User Interface**

#### **LED INDICATORS**

- AC Power (green)
- Fire Alarm (red)

- Supervisory (yellow)
- Alarm Silenced (yellow)
- System Trouble (yellow)
- Maintenance/Presignal (yellow)
- Disabled (yellow)
- Battery Fault (yellow)
- Ground Fault (yellow)

#### **KEYPAD CONTROLS**

- Acknowledge/Step
- Alarm Silence
- Drill
- System Reset (lamp test)
- 16-key alpha-numeric pad (similar to telephone keypad)
- 4 cursor keys
- Enter

## **Product Line Information**

**MS-9200UDLS:** 198-point addressable Fire Alarm Control Panel, one SLC loop. Includes 80-character LCD display, single printed circuit board mounted on chassis, and cabinet. 120 VAC operation.

**MS-9200UDLSE:** Same as MS-9200UDLS, except with 240 VAC operation.

**4XTMF Reverse Polarity Transmitter Module:** Provides supervised output for local energy municipal box transmitter, alarm, and trouble.

**ZNAC-92:** Optional converter module which converts four (4) Style Y (Class B) NAC circuits to four (4) Style Z (Class A) circuits.

**PK-CD** Programming software for Windows®-based PC computer (cable not included), available on [www.firelite.com](http://www.firelite.com).

**DP-9692:** Optional dress panel for MS-9200UDLS Rev 3.

**TR-CE:** Optional trim Ring for semi-flush mounting.

**BB-26:** Battery backbox, holds up to two 25 AH batteries and CHG-75.

**BB-55F:** Battery box, houses two 55 AH batteries.

**CHG-75:** Battery charger for lead-acid batteries with a rating of 25 to 75 AH.

**CHG-120F:** Remote battery charging system for lead-acid batteries with a rating of 55 to 120 AH. Requires additional BB-55F for mounting.

**BAT Series:** Batteries, see data sheet DF-52397.

**XRM-24B(E):** Optional transformer. Increases system power output to 6.0 amps. Use XRM-24BE with MS-9200UDLS Rev 3(E).

**PRT/PK-CABLE:** Cable printer/personal computer interface cable; required for printer or for local upload/download programming and updating panel firmware.

**PRN-6F:** UL listed compatible event printer. Uses tractor-fed paper.

**IPDACT-2/2UD, IPDACT Internet Monitoring Module:** Mounts in bottom of enclosure with optional mounting kit (PN IPBRKT). Connects to primary and secondary DACT telephone output ports for internet communications over customer provided ethernet internet connection. Requires compatible Teldat VisorALARM Central Station Receiver. Can use DHCP or static IP. (See data sheet DF-60407 or DF-52424 for more information.)



**IPBRKT:** Mounting kit for IPDACT-2/2UD in common enclosure.

**IPSPLT:** Y-adaptor option allows connection of both panel dialer outputs to one IPDACT-2/2UD cable input.

### **COMPATIBLE ANNUNCIATORS**

**ANN-80(-W):** LCD Annunciator is a remote LCD annunciator that mimics the information displayed on the FACP LCD display. Recommended wire type is un-shielded. (Basic model is red; order -W version for white; see DF-52417.)

**ANN-LED:** Annunciator Module provides three LEDs for each zone: Alarm, Trouble and Supervisory. Ships with red enclosure (see DF-60241).

**ANN-RLED:** Provides alarm (red) indicators for up to 30 input zones or addressable points. (See DF-60241).

**ANN-RLY:** Relay Module, which can be mounted inside the cabinet, provides 10 programmable Form-C relays. (See DF-52431.)

**ROME:** Relay Option Module Enclosure. Provides one **ANN-RLY** Relay Module already installed. The **ROME** Series provides mounting space for one additional Relay Module or one addressable Multi-module. (See *Installation Sheet PN 53530*.)

**ANN-S/PG:** Serial/Parallel Printer Gateway module provides a connection for a serial or parallel printer. (See DF-52429.)

**ANN-I/O:** LED Driver Module provides connections to a user supplied graphic annunciator. (See DF-52430.)

**ACM-8RF:** Relay module provides 8 Form-C 5.0 amp relays.

**ACS-LED Zone Series:** LED-type fire annunciators capable of providing up to 99 software zones of annunciation. Available in increments of 16 or 32 points to meet a variety of applications.

**LDM Graphic Series:** Lamp Driver Module series for use with custom graphic annunciators.

**LCD-80F (Liquid Crystal Display) point annunciator:** 80-character, backlit LCD-type fire annunciators capable of displaying English-language text.

**NOTE:** For more information on Compatible Annunciators for use with the MS-9200UDLS Rev 3, see the following data sheets (document numbers) **ACM-8RF** (DF-51555), **ACS/ACMSeries** (DF-52378), **LDM Series** (DF-51384), **LCD-80F** (DF-52185).

### **LITESPEED COMPATIBLE ADDRESSABLE DEVICES**

All feature a polling LED and rotary switches for addressing.

**CP355:** Addressable low-profile ionization smoke detector.

**SD355:** Addressable low-profile photoelectric smoke detector.

**SD355T:** Addressable low-profile photoelectric smoke detector with thermal sensor.

**SD355R:** Addressable remote test capable detector for use with D355PL or DNR(W) duct smoke detector housings.

**H355:** Fast-response, low-profile heat detector.

**H355R:** Fast-response, low-profile heat detector with rate-of-rise option.

**H355HT:** Fixed high-temperature detector that activates at 190F/88C.

**AD355(A):** Low-profile, intelligent, "Adapt" multi-sensor detector (B350LP base included).

**BEAM355:** Intelligent beam smoke detector.

**BEAM355S:** Intelligent beam smoke detector with integral sensitivity test.

**D355PL:** Innovair Flex low-flow non-relay duct-detector housing. SD355R included.

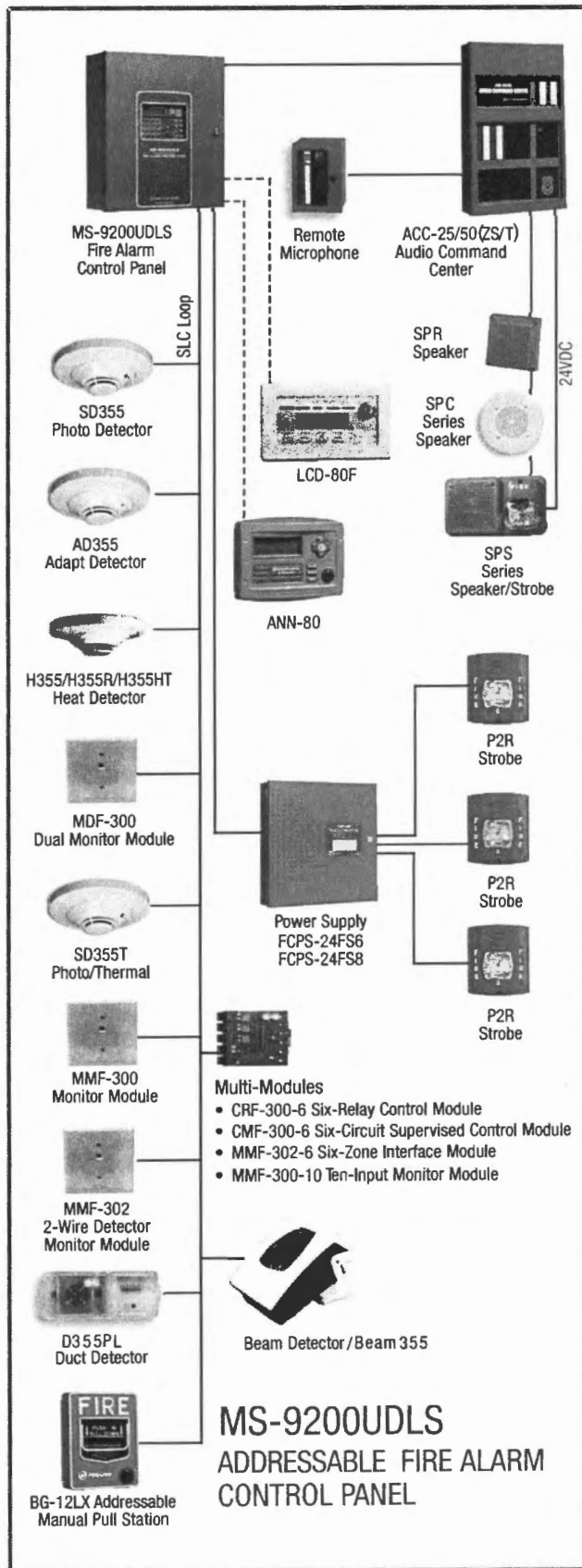
**DNRW:** Innovair Flex low-flow non-relay duct-detector housing, with NEMA-4 rating. Watertight. (Order SD355R separately.)

**MMF-300:** Addressable Monitor Module for one zone of normally-open dry-contact initiating devices. Mounts in standard 4.0" (10.16 cm.) box. Includes plastic cover plate and end-of-line resistor. Module may be configured for either a Style B (Class B) or Style D (Class A) IDC.

**MDF-300:** Dual Monitor Module. Same as MMF-300 except it provides two Style B (Class B) only IDCs.

**MMF-301:** Miniature version of MMF-300. Excludes LED and Style D option. Connects with wire pigtails. May mount in device backbox.

**MMF-302:** Similar to MMF-300, but may monitor up to 20 conventional two-wire detectors. Requires resettable 24 VDC power. Consult factory for compatible smoke detectors.



**CMF-300:** Addressable Control Module for one Style Y/Z (Class B/A) zone of supervised polarized Notification Appliances. Mounts directly to a 4.0" (10.16 cm.) electrical box. Notification Appliance Circuit option requires external 24 VDC to power notification appliances.

**CRF-300:** Addressable relay module containing two isolated sets of Form-C contacts, which operate as a DPDT switch. Mounts directly to a 4.0" (10.16 cm.) box, surface mount using the SMB500.

**BG-12LX:** Addressable manual pull station with interface module mounted inside.

**I300:** Fault Isolator Module. This module isolates the SLC loop from short circuit conditions (required for Style 6 or 7 operation).

**SMB500:** Used to mount all modules except the MMF-301 and M301.

**MMF-300-10:** Ten-input monitor module. Mount one or two modules in a BB-2F cabinet (optional). Mount up to six modules on a CHS-6 chassis in a BB-6F.

**MMF-302-6:** Six-zone interface module for compatible conventional two-wire detectors. Mount one or two modules in a BB-2F cabinet (optional). Mount up to six modules on a CHS-6 chassis in a BB-6F.

**CMF-300-6:** Six-circuit supervised control module. Mount one or two modules in a BB-2F cabinet (optional). Mount up to six modules on a CHS-6 chassis in a BB-6F.

**CRF-300-6:** Six Form-C relay control module. Mount one or two modules in a BB-2F cabinet (optional). Mount up to six modules on a CHS-6 chassis in a BB-6F.

**NOTE:** 1) For more information on Compatible Addressable Devices for use with the MS-9200UDLS Rev 3, see the following data sheets (document numbers): AD355 (DF-52324), BG-12LX (DF-52013), CMF-300-6 (DF-52365), CRF-300-6 (DF-60379), CMF/CRF Series (DF-52130), CP355 (DF-52383), D355PL (DF-52398), H355 Series (DF-52385), I300 (DF-52389), MMF-300 Series/MDF-300 (DF-52121), MMF-300-10 (DF-52347), MMF-302-6 (DF-52356), SD355/SD355T (DF-52384). 2) Legacy 300 Series detection devices such as the CP300/CP350, SD300(T)/SD350(T) and older modules such as the M300, M301, M302, C304, and BG-10LX are **not compatible** with LiteSpeed polling. If the SLC contains one of these devices, polling must be set for standard LiteSpeed protocol. Please consult factory for further information on previous 300 Series devices.

## Wiring Requirements

While shielded wire is not required, it is recommended that all SLC wiring be twisted-pair to minimize the effects of electrical interference. Wire size should be no smaller than 18 AWG (0.78 mm<sup>2</sup>) and no larger than 12 AWG (3.1 mm<sup>2</sup>). The wire size depends on the length of the SLC circuit. Refer to the panel manual for wiring details.



# SYSTEM SPECIFICATIONS

## System Capacity

- Intelligent Signalling Line Circuits..... 1
- Addressable device capacity ..... 198
- Programmable software zones ..... 99
- ACS Annunciators ..... 32
- ANN-bus devices ..... 16

## Electrical Specifications

**AC Power:** MS-9200UDLS Rev 3: 120 VAC, 60 Hz, 3.0 amps. MS-9200UDLS Rev 3E: 240 VAC, 50 Hz, 1.5 amps. Wire size: minimum 14 AWG (2.00 mm<sup>2</sup>) with 600 V insulation.

**Battery charger capacity:** 7 AH - 18 AH batteries. Up to two 18 Ah batteries can be housed in the FACP cabinet. Larger batteries require an external battery charger such as the CHG-75 or CHG-120, and a separate battery cabinet such as the BB-26 or NFS-LBB.

**Communication Loop:** Supervised and power-limited.

**Notification Appliance Circuits:** Each terminal block provides connections for two Style Y (Class B) for a total of four Style Y (Class B) or with an optional ZNAC-92 module converts to four Style Z (Class A) NACs. Maximum signaling current per circuit: 2.5 amps. End-of-Line Resistor: 4.7K ohm, 1/2 watt (P/N 71252 UL listed) for Style Y (Class B) NAC. Refer to panel documentation and *Fire-Lite Device Compatibility Document* for listed compatible devices.

**Two Programmable Relays and One Fixed Trouble Relay:** Contact rating: 2.0 amps @ 30 VDC (resistive), 0.5 amps @ 50 VAC (resistive). Form-C relays.

**Special Application Non-resettable Power (24 VDC Nominal):** Jumper selectable (JP4) for conversion to resettable power output. Up to 1.0 amp total DC current available from each output. Power-limited.

**Special Application Resettable Power (24 VDC nominal):** Jumper selectable (JP6) for conversion to non-resettable power. Up to 1.0 amp total DC current available. Refer to the *Fire-Lite Device Compatibility Document* for listed compatible devices.

**Remote Sync Output:** Remote power supply synchronization output. Nominal special application power: 24 VDC. Maximum current: 300 mA. End-of-Line Resistor: 4.7K ohm. Output linked to NAC 1 control. Supervised and power-limited.

**Telephone Interface:** Unless used with Teldat VISORALARM, requires dedicated business telephone number with a minimum of 5 volts DC (off-hook voltage). Obtain dedicated phone line directly from your local phone company. Do not use shared phone lines or PBX (digital) type phone line extensions.

## Cabinet Specifications

**Door:** 19.26" (48.92 cm.) high x 16.82" (42.73 cm.) wide x 0.12" (.30 cm.) deep. **Backbox:** 19.00" (48.26 cm.) high x

16.65" (42.29 cm.) wide x 5.20" (13.34 cm.) deep. **Trim Ring (TR-CE):** 22.00" (55.88 cm.) high x 19.65" (49.91 cm.) wide.

## Shipping Specifications

**Weight:** 26.9 lbs. (12.20 kg.) **Dimensions:** 20.00" (50.80 cm.) high x 22.5" (57.15 cm.) wide x 8.5" (21.59 cm.) deep.

## Temperature and Humidity Ranges

This system meets NFPA requirements for operation at 0 – 49°C/32 – 120°F and at a relative humidity 93% ± 2% RH (noncondensing) at 32°C ± 2°C (90°F ± 3°F). However, the useful life of the system's standby batteries and the electronic components may be adversely affected by extreme temperature ranges and humidity. Therefore, it is recommended that this system and its peripherals be installed in an environment with a normal room temperature of 15 – 27°C/60 – 80°F.

## NFPA Standards

The MS-9200UDLS Rev 3 complies with the following NFPA 72 Fire Alarm Systems requirements:

- **LOCAL** (Automatic, Manual, Waterflow and Sprinkler Supervisory).
- **AUXILIARY** (Automatic, Manual and Waterflow) (requires 4XTMF).
- **REMOTE STATION** (Automatic, Manual, Waterflow and Sprinkler Supervisory) (Where a DACT is not accepted, the alarm, trouble and supervisory relays may be connected to UL 864 listed transmitters. For reverse polarity signaling of alarm and trouble, 4XTMF is required.)
- **PROPRIETARY** (Automatic, Manual, Waterflow and Sprinkler Supervisory).
- **CENTRAL STATION** (Automatic, Manual, Waterflow and Sprinkler Supervisory).
- **OT, PSDN** (Other Technologies, Packet-switched Data Network)

## Agency Listings and Approvals

The listings and approvals below apply to the basic MS-9200UDLS Rev 3 control panel. In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL Listed:** S624
- **FM approved**
- **CSFM:** 7165-0075:0208
- **MEA:** 120-06-E

For ULC-listed version, see DF-60599.

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This document is not intended to be used for installation purposes.  
We try to keep our product information up-to-date and accurate.  
We cannot cover all specific applications or anticipate all requirements.  
All specifications are subject to change without notice.



Made in the U.S.A.

For more information, contact Fire-Lite Alarms. Phone: (800) 627-3473, FAX: (877) 699-4105.  
[www.firelite.com](http://www.firelite.com)



## **SEACOAST SECURITY**

4 Summer Street

Freeport, ME 04032

To: Ben Wallace, Jr. / Fire Prevention Officer  
Portland Fire Dept.

Re: Fire Alarm sequence of operation

December 20<sup>th</sup>. 2012

Whenever an initiating device, smoke detector, heat detector or manual pull station is activated, this in turn will sound all of the notification devices throughout the building. The notification devices consist of horn/strobes and strobe only in the common areas and mini sounders in all of the apartment bedrooms.

The procedure for the Fire Dept. when they arrive on site will be to go to the FACP annunciator location pre-determined by the Fire Dept. to pinpoint the area of the building the alarm has occurred. Each initiating device has its own specific zone number and description to easily locate alarm origins.

**SEE ENCLOSED DOCUMENTATION FOR ANNUNCIATOR INSTRUCTIONS**

## Section 4: Operating Instructions

### 4.1 Panel Control Buttons

#### 4.1.1 Acknowledge/Step

The first press of the *Acknowledge/Step* key silences the piezo sounder, changes flashing LEDs to steady and also changes the status field on the LCD display from capital letters to small letters. When the piezo is silenced, an *acknowledge* message is sent to the printer and the history file. *Acknowledge* also sends a *silence piezo* command to the optional annunciators connected to the FACP.

When more than one event exists, the first press of the Acknowledge/Step key functions as described in the preceding paragraph. Subsequent pressing of the key *steps* through each off-normal active event, with alarm events having a higher priority than trouble and supervisory events.

#### 4.1.2 Alarm Silence

The *Alarm Silence* key performs the same functions as Acknowledge/Step. In addition, if an alarm exists, it turns off all silenceable NACs (Notification Appliance Circuits) and causes the Alarm Silenced LED to turn on. It also sends an 'alarm silenced' message to the printer, history file and optional annunciators. A subsequent new alarm will resound the system NACs. *Note that the Alarm Silenced LED is turned off by pressing the Reset key, the Drill key or subsequent activation of the NACs.*

#### 4.1.3 Drill/Hold 2 Sec

When the *Drill* key is held for a minimum of two seconds (time required to prevent accidental activations), the FACP turns on both main panel NAC outputs and all silenceable circuits such as control modules that are programmed as silenceable, and turns off the Alarm Silenced LED if it was previously on. The *EVAC IN SYSTEM* message is shown on the LCD display. The same message is sent to the printer and history file. The *Alarm Silence* key can be used to turn off all silenceable NAC outputs following activation by the *Drill* key.

#### 4.1.4 Reset

Pressing and releasing the *Reset* key turns off all control modules and NACs, temporarily turns off resettable power to 4-wire detectors, causes a *RESET IN SYSTEM* message to be displayed on the LCD and sends the same message to the printer and history file. It also performs a lamp test by turning on all LEDs (except the Ground LED), piezo sounder and LCD display segments after the *Reset* key is released. Any alarm or trouble that exists after a reset will resound the system.

### 4.2 LED Indicators

The nine LED indicators, which are located on the front panel, operate as follows:

#### AC Power

This is a green LED which illuminates if AC power is applied to the FACP. A loss of AC power will turn off this LED

#### Fire Alarm

This red LED flashes when one or more alarms occur. It illuminates steady when the *Acknowledge/Step* or *Alarm Silence* key is pressed. The Fire Alarm LED turns off when the *Reset* key is pressed. The LED will remain off if all alarms have been cleared.

**Supervisory**

This is a yellow LED that flashes when one or more supervisory conditions occur, such as a sprinkler valve tamper condition. It illuminates steady when the *Acknowledge/Step* or *Alarm Silence* key is pressed. It turns off when the *Reset* key is pressed and remains off if all supervisory alarms have been cleared.

**Trouble**

This is a yellow LED that flashes when one or more trouble conditions occur. It stays on steady when the *Acknowledge/Step* or *Alarm Silence* key is pressed. The LED turns off when all trouble conditions are cleared. This LED will also illuminate if the microprocessor watchdog circuit is activated.

**Maintenance**

This is a yellow LED that flashes to indicate that a smoke detector requires cleaning or replacement due to an invalid chamber reading or excessive drift.

**Alarm Silenced**

This is a yellow LED that turns on after the *Alarm Silence* key is pressed while an alarm condition exists. It turns off when the *Drill* or *Reset* key is pressed.

**Disabled**

This is a yellow LED that flashes to indicate that a zone, NAC, detector or module has been temporarily disabled in programming by the user.

**Battery**

This is a yellow LED that flashes to indicate a low battery voltage condition.

**Ground**

This is a yellow LED that flashes to indicate a ground fault condition (zero impedance from the FACP to ground).

**Primary Line Active**

This is a red LED that indicates the primary phone line is active.

**Secondary Line Active**

This is a red LED that indicates the secondary phone line is active

**Kiss-off**

This is a green LED that blinks when a Central Station has acknowledged receipt of each transmitted message or when a portion of upload or download data has been accepted from a Service Terminal

### 4.3 Normal Operation

With no alarms or troubles in the system, the display message is *System All Normal* along with the current time and date as shown below. To set the time and date, refer to the appropriate section in this manual.

```

HONEYWELL
LIFE SAFETY
SYSTEM ALL NORMAL
10:00A 012110

```

The MS-9200UDLS performs the following functions at regular intervals while in Normal mode:

- ✓ Monitors AC input voltage and battery voltage
- ✓ Monitors and reports status of SLC loop, option cards and control panel
- ✓ Polls all devices on the SLC loop and flashes each device LED while checking for valid replies, alarms, troubles, etc.
- ✓ Refreshes LCD display and updates time
- ✓ Scans control panel keypad for key presses
- ✓ Performs autotest for all SLC devices
- ✓ Tests memory
- ✓ Updates and reads all communications busses (EIA-485, EIA-232, etc.)

### 4.4 Trouble Operation

With no alarms in the system, the detection of a trouble will cause the following:

- The piezo pulse 1 second On and 1 second Off
- The system Trouble LED to flash one second On and one second Off
- The trouble relay to activate
- *TROUBL* with device type, noun/adjective, address and trouble description will appear on the LCD display
- The same message, along with the time and date, is sent to the optional printer and the history buffer.
- Communicate the trouble conditions to the Central Station
- Terminate upload or download communications

Note that specific troubles will initiate additional actions; for example, loss of AC power will turn off the AC Power LED, a ground fault will turn on the Ground LED, etc.

Addressable Smoke Detectors, Monitor Modules and Control Modules

For addressable devices connected to the SLC loop, the following is a typical message that could appear on the LCD display for a device trouble:

```

TROUBL SMOKE (PHOTO)
<ADJ> <NOUN>
INVREP
10:00A 010806 1D001

```



The information displayed in the above example provides the following information:

- First line in display:
  - ✓ The type of event; in this example *TROUBL* indicating a device trouble
  - ✓ Device type identifier; in this example, *SMOKE (PHOTO)* indicates a Photoelectric smoke detector. Other device type identifiers which can be displayed include *SMOKE (ION)* for Ionization Detector, *HEAT* for Heat Detector, *CONTROL* for Control Module and *MONITOR* for Monitor Module, *PULL STATION* for a manual pull box, etc. Refer to “*Edit Detector*” on page 67, “*Edit Module Screen for Monitor Module*” on page 77 and “*Edit Module Screen for Control Modules*” on page 86 for information on additional device types.
- Second line in display:
  - ✓ <ADJ>; refers to the user programmed adjective descriptor from library list resident in the control panel or custom entry via PC.
  - ✓ <NOUN>; refers to the user programmed noun descriptor from library list resident in the control panel or custom entry via PC.
- Third line in display: *INVREP* indicates an invalid reply from the addressable device. Other possible troubles include:
  - *SHORT* - indicating a shorted circuit on an addressable device
  - *OPEN* - indicating an open circuit on an addressable device
  - *DIRTY1* - maintenance alert indicating that a detector is near but below the allowed alarm limit and is in need of maintenance before the performance is compromised
  - *DIRTY2* - maintenance alert indicating that a detector needs immediate maintenance since it has been within 80% of its alarm threshold for 24 hours
  - *INVREP* - maintenance alert indicating a hardware or communication problem in the detector
  - *TEST F* - indicating a detector has failed the automatic test operation which functionally checks its sensing chamber and electronics
  - *INV ID* - indicating that an incorrect device code (Type ID) has been programmed for an installed device (for example, Photo has been programmed but an Ion detector has been installed)
  - *SW TBL* - indicating a module has failed the testing of its Class A switching relay
  - *BLOCK* - indicating that a beam detector’s beam is totally blocked
  - *ALIGN* - indicating that a beam detector is in beam alignment mode
- Fourth line in display:
  - ✓ Time; the current time in this example is *10:00A* which represents 10:00 AM
  - ✓ Date; the current month, day and year in this example is *01* for January, *08* for the 8th day of the month and *01* for the year 2001
  - ✓ Device Address; *1D001* in this example *1* represents SLC Loop, *D* represents a detector and *001* represents device address 001

Pressing the *Acknowledge/Step* or *Alarm Silence* key will cause the pulsing piezo to silence and the system Trouble LED to change from flashing to on steady. This block acknowledgment occurs regardless of the number of troubles, alarms and supervisory events active in the system. When the *Acknowledge/Step* key is pressed and at least one new alarm or trouble exists in the system, the ‘acknowledge’ message is sent to the printer and history file. If the trouble clears, either before or after the *Acknowledge/Step* key is pressed, the ‘clear trouble’ message is sent to the printer and history file.

If all troubles clear and there are no supervisory or fire conditions active in the system, the system returns to normal mode operation and the *System All Normal* message is shown on the LCD display and sent to the history and printer files. The auto-restore feature will restore cleared troubles even

if the troubles were never acknowledged. Note that pressing the *Alarm Silence* key when only troubles exist in the system will have the same effect as pressing the *Acknowledge/Step* key except the Alarm Silenced LED will light.

## 4.5 Alarm Operation

Alarm operation is similar to trouble operation with the following differences:

- The piezo sounder produces a steady output as opposed to a pulsed output
- The Fire Alarm LED flashes 1 second On and 1 second Off
- The LCD displays *Alarm* along with the device name, type, address, adjective/noun, associated zones and time/date
- Communicate the alarm to the Central Station
- Alarms latch and *are not allowed to clear automatically*
- Alarms activate software zones if so programmed
- Timers for Silence Inhibit, Autosilence and Trouble Reminder are started
- Alarms activate the general alarm relay and general alarm zone Z00
- The trouble relay is not activated
- Store event in history buffer
- Terminate upload or download communications
- Alarms must be Acknowledged before the FACP can be reset

A typical alarm display would be as illustrated below:

```

ALARM PULL STATION
  <ADJ> <NOUN>
           Z000
10:00A 010810 1M001
  
```

Note that the device type, which in this example is *PULL STATION*, can be any other programmable alarm type.

The information displayed in the above example provides the following information:

- First line in display:
  - ✓ The type of event; in this example *ALARM* indicating an alarm condition
  - ✓ Device type identifier; in this example, *PULL STATION* indicates a manual pull box. Other device type identifiers which can be displayed include *SMOKE (ION)* for Ionization Detector, *HEAT* for Heat Detector, *CONTROL* for Control Module and *MONITOR* for Monitor Module, *PULL STATION* for a manual pull box, etc. Refer to “*Edit Detector*” on page 67, “*Edit Module Screen for Monitor Module*” on page 77 and “*Edit Module Screen for Control Modules*” on page 86 for information on additional device types.
- Second line in display:
  - ✓ <ADJ>; refers to the user programmed adjective descriptor from library list resident in the control panel or custom entry via PC.
  - ✓ <NOUN>; refers to the user programmed noun descriptor from library list resident in the control panel or custom entry via PC.
- Third line in display: *Z000* indicates the zone programmed to this device which, in this example, is general alarm Zone 000. Note that a single device can be programmed to five different zones but only the first zone will be displayed.
- Fourth line in display:
  - ✓ Time; the current time in this example is *10:00A* which represents 10:00 AM

- ✓ Date; the current month, day and year in this example is 01 for January, 08 for the 8th day of the month and 01 for the year 2001
- ✓ Device Address; 1M001 in this example 1 represents SLC Loop, M represents a module and 001 represents device address 001

## 4.6 Supervisory Operation

Supervisory operation is similar to alarm operation but with the following differences:

- The piezo sounder pulses ½ second On and ½ second Off
- The Supervisory LED flashes ½ second On and ½ second Off
- The LCD displays the status label *Active Supervisory* along with the device name, type, address, adjective/noun, associated zones, and time/date
- Communicate the supervisory condition to the Central Station
- The supervisory relay is activated
- The alarm relay is not activated
- Silenced alarms are resounded
- Timers are not started
- Store event in history buffer
- Terminate upload or download communications

A typical Supervisory event would be displayed as illustrated in the following:

```

ACTIVE SUPERVISORY
<ADJ> <NOUN>
                Z000
10:00A 012110 1M001
  
```

Note that, like alarms, supervisory signals latch (except when programmed for supervisory autore-settable) and can be assigned to software zones. Supervisory alarms do not cause resound as do other alarm conditions. Open circuits in supervisory wiring are processed by the control panel the same way as other trouble conditions. Refer to “Alarm Operation” on page 162, for a description of the information displayed on the control panel LCD.

## 4.7 Process Monitor Operation

Process Monitor operation will initiate the following events:

- The piezo sounder pulses ¼ second On and ¼ second Off
- The LCD displays a process monitor message along with the device name, type, address, adjective/noun, associated zones, and time/date
- Communicate the process monitor condition to the Central Station (if the default event code has been changed from 000 to a reportable event code)
- Relays programmed for process monitoring will be activated
- The alarm relay is not activated
- Fire Alarm NACs will not activate
- SLC NACs (control modules) will activate
- Timers are not started
- Store event in history buffer
- Activate appropriate LED on the ANN-LED annunciator (required for this application)

## 4.10 NAC Operation

There are four programmable NACs (Notification Appliance Circuits) resident on the MS-9200UDLS main circuit board. All NACs may be programmed as silenceable or nonsilenceable and may also be programmed for steady or coded operation. Coded operation provides a choice between March Time, Temporal or California coding.

## 4.11 Programmed Zone Operation

Each addressable detector and monitor module can be assigned to a maximum of five software alarm zones. A general alarm zone Z00 may be listed for output (control) points, but it is not necessary to list Z00 for input points, since this is the default zone for all alarm input devices. Zone Z00 is not activated by supervisory points.

When an input device alarms and is not disabled, it activates all software zones assigned to it. An output device that is not disabled is turned on when any of the software zones to which it is programmed become active. Only alarms, hazards/tornado alerts can turn on any of the four main NACs.

## 4.12 Disable/Enable Operation

Input points which are disabled do not cause an alarm or any zone activation. Disabled output points are held in the off state. All disabled points are treated as if they were in trouble, with the exception being the status label that will be displayed is *DISABL*.

## 4.13 Waterflow Circuits Operation

If an alarm exists from a monitor module point that has a waterflow type code and its mapped NAC control module outputs are programmed for nonsilenceable operation, the Alarm Silence key will not function. Also, any output zone activated by a waterflow device will not be silenceable if the Waterflow Silenceable option is set to NO in system programming.

## 4.14 Detector Functions

### Maintenance Alert

Each addressable detector is monitored by the control panel for its maintenance status. If a detector is near but below the allowed alarm limit, a 'maintenance alert' message will automatically be displayed, signaling that the detector is in need of servicing.

### Automatic Test Operation

An automatic test of an addressable detector is performed each minute, resulting in a complete SLC loop test in approximately 5 hours (if the loop has the maximum number of devices installed). The detector's sensing chamber and electronics are functionally tested for normal, safe operation. A trouble message is displayed upon failure of this test. A System Reset will clear this trouble.

### Type Code Supervision

The FACP monitors addressable hardware device codes at slow intervals. Mismatch of any type code, compared to the system program, will cause a device trouble.

### System Alarm Verification

The control panel may be programmed to perform alarm verification to help eliminate the nuisance of false alarms. Alarm verification applies to smoke detectors only.

### Smoke Detector Data

Smoke detector data is monitored by the FACP, eliminating the need to test the sensitivity of each detector at its location. A printout of each detector's data can be retrieved from the FACP using an optional printer or Windows® HyperTerminal. Detector sensing ability can decrease with age and should be monitored as part of a system's routine maintenance.

## 4.15 Time Functions: Real-Time Clock

The MS-9200UDLS includes a crystal-based clock that provides time of day, date and day of week. Time is displayed as 12 or 24 hour time with month/day/year and is stored in RAM. Daylight savings time change-over is programmable and automatic. If both AC and battery are lost, the time must be reset.

## 4.16 Synchronized NAC Operation

Synchronization is a panel feature that controls the activation of notification appliances in such a way that all devices will turn on and off at exactly the same time. This is particularly critical when activating strobes which must be synchronized to avoid random activation and a potential hazard or confusion. The FACP can be programmed to operate with a variety of manufacturer's devices. NAC synchronization can only be supported properly by the Remote Power Supply Sync Terminal, which follows NAC 1 programming.

**Important:** When a Notification Appliance Circuit with a mix of audible and visual devices is programmed for silenceable and the synchronization feature is selected, only the audible devices will be turned off if the Silence key is pressed. The visual devices (strobes, etc.) will continue to operate.

## 4.17 Coded Operation

The NAC circuits resident on the control panel main circuit board can be programmed for coded operation. The available pulse rates which can be programmed for coded operation are as follows:

- Continuous: Steady output with no pulsing
- March Time: Pulses at 120 ppm (pulses per minute)
- Temporal Code: Pulses at ½ second On, ½ second Off, ½ second On, ½ second Off, ½ second On, 1½ second Off
- California Code: 10 seconds On, 5 seconds Off
- Two-Stage: Pulses at 20 ppm (pulses per minute) for 3 or 5 minutes (depending on programming) and then changes to Temporal

## 4.18 Presignal

Presignal option programs an initiating device to delay the activation of NACs and/or control modules while allowing visual verification by a person. Once a detector or monitor module triggers an alarm, the onboard piezo sounds immediately, but the NACs are not activated for a user programmed time duration of up to three minutes. Note that the alarm relay and communicator will respond to the initial alarm immediately. In addition, Zone 98 will activate. This zone can be programmed to a control module which may be used to activate a sounder or indicator which the installer designates as a Presignal indication. *Do not assign Zone 98 to a Notification Appliance Circuit when using this zone to indicate a Pre-signal condition.*

After the programmed delay, the NACs will activate if the source of the alarm is not cleared. Note that if a second alarm occurs during the programmed time delay, the alarm will be processed immediately, causing activation of the appropriate output zones. The events which occur upon Presignal activation are as follows:

- ✓ onboard piezo sounds immediately
- ✓ control panel LCD display will indicate a presignal event and the active point
- ✓ control points programmed to Zone 98 will activate
- ✓ annunciators (if enabled) will sound the local piezo, and pulse the alarm LED and zone LED
- ✓ outputs (NACs and control modules) of associated zones will be inhibited from activating for a user programmed time delay of up to three minutes
- ✓ second alarm occurring anytime during the time delay will cause immediate activation of all associated outputs

Presignal does not affect monitor modules programmed as waterflow, supervisory, process monitoring or remote switches. *Presignal operation requires the approval of the local Authority Having Jurisdiction.*

## 4.19 Positive Alarm Sequence

PAS (Positive Alarm Sequence) option will program a smoke detector to delay panel activation (including alarm relay and communicator) for a period of 15 seconds. Zone 97, however, will activate immediately and may be used to connect a signaling device to indicate PAS activation. *Do not assign Zone 97 to a Notification Appliance Circuit when using this zone to indicate a PAS condition.*

When a detector triggers an alarm, the onboard piezo sounds immediately, but the NACs are prevented from activating for 15 seconds. This inhibit time is factory set and cannot be changed. Pressing the Alarm Silence or Acknowledge/Step key during the 15 second inhibit time will silence the piezo sounder and start a timer which prevents activation of NACs for an additional time duration which can be user programmed for up to three minutes. After the programmed delay, the NACs will activate if the source of the alarm is not cleared. Note that if a second alarm occurs during either time delay, the alarm will be processed immediately, causing activation of the appropriate output zones. The events which occur upon PAS activation are as follows:

- ✓ onboard piezo sounds immediately
- ✓ control panel LCD display will indicate a presignal event and the active point
- ✓ control points programmed to Zone 97 will activate
- ✓ ACS annunciators (if enabled) will pulse the Zone 97 PAS LED immediately upon PAS activation. They will sound the local piezo, and pulse the alarm, associated zone and detector address point LEDs after 15 seconds of an unacknowledged PAS activation. Note that if the Alarm Silence or Acknowledge/Step button is pressed, the annunciators will be inhibited from activating for an additional time delay
- ✓ outputs (NACs and control modules) of associated zones will be inhibited from activating for a factory set duration of 15 seconds
- ✓ pressing the Alarm Silence or Acknowledge/Step key will start a timer which inhibits output activation for additional time delay of up to three minutes which is user programmable
- ✓ second alarm occurring anytime during either time delay will cause immediate activation of all associated outputs

*PAS operation requires the approval of the local Authority Having Jurisdiction.*

Note that the *PAS BYPASS* monitor type code, when activated, will inhibit the PAS capability until the *PAS BYPASS* monitor is deactivated. While PAS is inhibited, signaling devices will immediately place the control panel into alarm. This feature may be employed by wiring a normally open device, such as a switch, to a monitor module which has been programmed for *PAS BYPASS*.

## 4.20 Special System Timers

### 4.20.1 Silence Inhibit Timer

This option, if selected, prevents the *Alarm Silence* key from functioning for 60 seconds following an alarm. A new alarm during the initial 60 second period will not cause the timer to restart with a new 60 seconds. *Silence Inhibit operation requires the approval of the local Authority Having Jurisdiction.*

### 4.20.2 Autosilence Timer

If Autosilence is selected, the notification appliances, programmed as silenceable, will automatically be silenced after a programmable duration of from 5 to 30 minutes. Pressing the *Drill* key will restart the timer. *Autosilence operation requires the approval of the local Authority Having Jurisdiction.*

### 4.20.3 Trouble Reminder

If selected, this feature causes a reminding 'beep' every 15 seconds during an alarm (after the *Alarm Silence* key is pressed) and every two minutes during a trouble condition (after the *Acknowledge/Step* or *Alarm Silence* key is pressed). The 'beeps' from the onboard piezo sounder will occur until the alarm or fault is cleared.

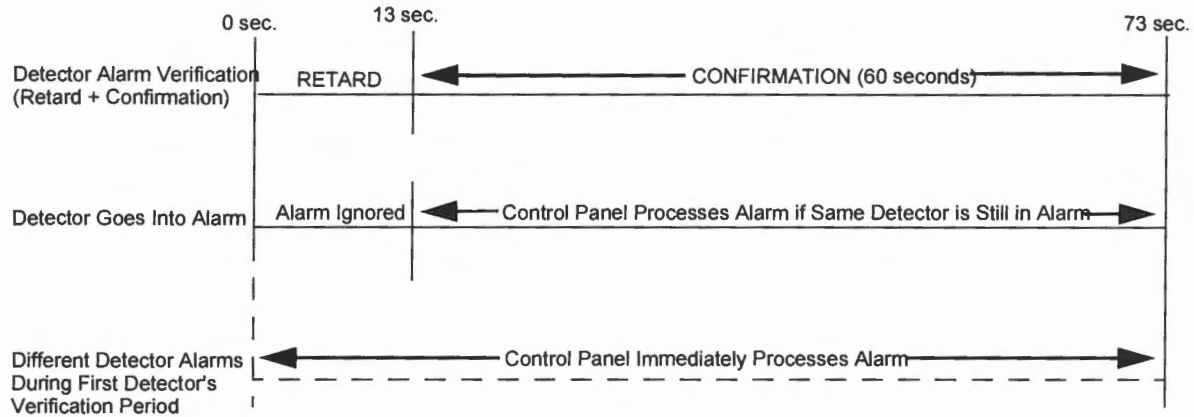
Note that if the trouble is not cleared within 24 hours, the piezo will resound, indicating that the trouble condition still exists.

### 4.20.4 Waterflow Retard Timer

If selected, this option will delay the activation of a waterflow type alarm for a programmable time duration from 1 to 90 seconds. This delay is in addition to any time delay inherent in the waterflow device. *This feature requires the approval of the local Authority Having Jurisdiction.*

### 4.20.5 Alarm Verification (None or One Minute)

If alarm verification is selected, an addressable smoke detector's alarm is ignored for a retard time of 13 seconds and the detector's alarm condition is automatically reset. There will be no alarm indication at the FACP during the Retard period. A confirmation period of 60 seconds follows, during which a subsequent alarm from the same detector will cause the panel to immediately activate the appropriate outputs and indicate the alarm condition at the FACP. If a different detector alarms any time during the first detector's verification period, the panel will immediately activate all appropriate outputs and indicate the alarm condition at the FACP. If no additional detector alarms occur within 73 seconds of the first alarm (13 second retard plus 60 second confirmation), the timer resets and the panel is ready to verify any new detector alarms which may occur. The following is a graphic representation of Alarm Verification.



**NOTE:** Alarm Verification is available only for addressable smoke detectors, not conventional smoke detectors.

## 4.21 Walktest

Walktest is a feature which allows one person to test the fire alarm system. An audible walktest will momentarily sound the Notification Appliance Circuits in the building and store the walktest information in a file at the panel. A silent walktest will not sound the NACs but will store the walktest information in a file which can be viewed at the panel. Disabled NAC devices will not activate during walktest.

### Alarm/Shorted Condition

When in audible Walktest, the panel responds to each new alarm and activates its programmed control outputs for four seconds, if those outputs have been programmed for silenceable activation. It also stores each alarm in the walktest history file which can be sent to an optional printer. The stored display will be the same as if the device actually activated except the colon (:) in the time stamp is replaced with an asterisk (\*).

Note that if the system under test includes one or more enabled MMF-302 monitor modules, the following may apply:

If the MMF-302 monitor module is used for a supervised, 2-wire smoke zone, alarming any monitor module in the system will result in the activation of programmed control outputs for an additional eight seconds or less. This is caused by the temporary removal of 24 VDC resettable power from the MMF-302. The MMF-302 reports this loss of power as an open condition in addition to the alarm condition.

### Open Condition

Addressable devices are monitored for fault conditions during Walktest mode. When a new trouble condition occurs, the FACP will activate all NACs and control modules programmed for Walktest and mapped to the faulty device, then shut them off after eight seconds.

While in Walktest, the trouble relay is activated and the system Trouble LED flashes (as in all of the Program and status change operations). The alarm relay is not activated.

## 4.22 Read Status

Read Status functions do not require a password. The control panel will continue to provide fire protection while in Read Status mode. This mode can be entered while the control panel is in alarm or trouble. If a new alarm or trouble occurs during these functions, the Read Status is exited to prevent confusion.



**Read Status Entry**

When the operator presses the control panel ENTER key, the LCD will display the following:



Pressing 1, while this screen is being displayed, will cause the control panel to enter the Read Status mode which allows the user to view and print the programmed features and status of the control panel.

The following screens will be displayed:



Read Status Screen #1



Read Status Screen #2



Read Status Screen #3



Read Status Screen #4



Read Status Screen #5



Read Status Screen #6

### 4.22.1 System Point

```

READ STATUS
1=SYSTEM POINT
2=ZONES
3=POWER

```

Read Status Screen #1

Pressing *1* while viewing Read Status Screen #1 will cause the following screen to be displayed:

```

READ SYSTEM POINT
SELECT TYPE
1=DETECTOR
2=MODULE

```

The operator selects the type of device which is to be viewed by pressing *1* for Detector or *2* for Module. If *1* is pressed, the display will change to the following screen:

```

READ SYSTEM POINT
ENTER DETECTOR#
***

```

Entering the three digit detector address will cause the control panel to display the current status of the selected device. For example, if a detector with address *001* on the SLC loop is entered, a display similar to the following will appear:

```

NORMAL SMOKE<PHOTO>
NORTH CLASSROOM
      Z005
      V  1D001

```

The information in the preceding display includes:

- *NORMAL* - the present status (could also be ALARM, TROUBL, DISABL, etc.)
- *SMOKE (PHOTO)* - the device type which is a photoelectric smoke detector (could also be ION for ionization smoke detector)
- *NORTH CLASSROOM* - the Adjective/Noun label for this device
- *Z005* - the first of five possible assigned software zones
- *1D001* - *1* = SLC Loop, *D* = Detector, *001* = Address 001
- *V* - Alarm Verification Enabled (*V* = Yes, \* = No)
- *S* - Silenceable for control modules (*S* = Yes, \* = No)
- *W* - Walktestable for control and monitor modules (*W* = Yes, \* = No)

Pressing the down arrow key, while viewing the screen shown above, will allow the operator to view additional programming information about the selected device, such as:

- Enable/Disable Status
- Device Type
- Alarm Verification On/Off (for detectors)

- Walktest Yes/No
- PAS (Positive Alarm Sequence) Yes/No (for detectors only)
- Pre-Signal Yes/No (for detectors and monitor modules)
- Zone Assignments (five maximum)
- Chamber Value
- Adjective/Noun descriptor
- Silenceable Yes/No (for control modules)

### 4.22.2 Zones

```

READ STATUS
1=SYSTEM POINT
2=ZONES
3=POWER

```

Read Status Screen #1

Pressing 2 while viewing Read Status Screen #1 will cause the following screens to be displayed:

```

          ZONES
1=ZONES INSTALLED
2=ZONES ENABLED
3=ZONES DISABLED

```

Zones Screen #1

```

          ZONES
1=SPECIAL PURPOSE
2=ZONE TYPE
3=ZONE MESSAGE

```

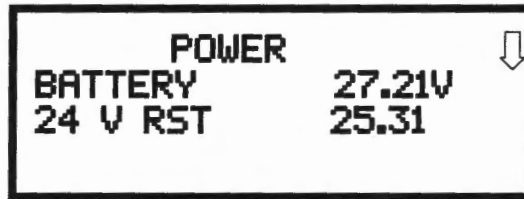
Zones Screen #2

From the preceding screens, the control panel operator can view:

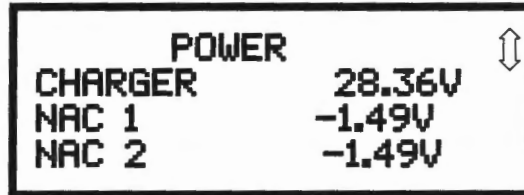
- *Zones Installed* - all software zones programmed into the system (99 maximum)
- *Zones Enabled* - all software zones that are enabled
- *Zones Disabled* - all software zones that have been disabled
- *Special Purpose* - on or off programming for Special Purpose Zones 97 reserved for PAS, 98 reserved for Pre-signal and 99 reserved for Two Stage
- *Zone Type* - the Type assigned to each installed zone (default is Alarm)
- *Zone Message* - the Message assigned to each installed zone

### 4.22.3 Power

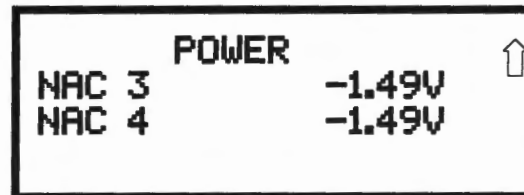
Pressing 3 while viewing Read Status Screen #1 will cause the following screens to be displayed:



Power Screen #1



Power Screen #2



Power Screen #3

The following table lists the circuit being measured, possible conditions and their respective voltage ranges:

Circuit	Condition	Voltage Range
Battery	Normal Battery (nominal)	27.05 to 28.15 VDC
	Low Battery	20.0 to 20.8 VDC
	No Battery	0 to 18.36 VDC
24V Resettable	Normal	21.25 to 27.50 VDC
24V Nonresettable	Normal	21.25 to 27.50 VDC
Charger	Normal	21.87 to 29.84 VDC
NAC 1 - NAC 4	Normal	-1.3 to -1.6 VDC
	Open Circuit	-2.3 to -2.5 VDC
	Short Circuit	0 to 1.0 VDC

### 4.22.4 Trouble Reminder

READ STATUS  
 1=TROUBLE REMINDER  
 2=TIMERS  
 3=NAC

Read Status Screen #2

Pressing 1 while viewing Read Status Screen #2 will display the following screen:

```

    TROUBLE REMINDER
    TROUBLE REM      ON
    
```

The screen indicates whether the Trouble Reminder feature is On or Off.

### 4.22.5 Timers

Pressing 2 while viewing Read Status Screen #2 will cause the following Timer screens to be displayed:

```

    TIMERS
    PAS DELAY      000
    PRE SIGNAL     000
    WATERFLOW     000
    
```

```

    TIMERS
    AC LOSS DELAY  4
    
```

These screens will indicate the delay time, in seconds, for each of the first three possible delay options. The AC Loss Delay time is displayed in hours.

### 4.22.6 NAC

Each NAC can be programmed individually with unique settings with the exception of Canadian Mode. When the Canadian Option is selected in programming (see “Canadian Option” on page 112), all NAC settings are changed to that of NAC 1. While in Canadian Mode, if any NAC is setting is changed, all other NACs will get those same settings. Pressing 3 while viewing Read Status Screen #2 will display the following screen:

```

          NAC
1=NAC 1   3=NAC 3
2=NAC 2   4=NAC 4
  
```

The operator can press 1 to view the programmed options for NAC 1, 2 to view the programmed options for NAC 2, 3 to view the programmed options for NAC 3, or 4 to view the programmed options for NAC 4. The resulting screens will display the following information:

- Enable/Disable Status
- Circuit Type (Bell, Strobe, etc.)
- Silenceable/Nonsilenceable
- Auto Silence Enable/Disable and time delay (in minutes)
- Coding Selection (Temporal, Steady, etc.)
- Zone Assignments
- Silence Inhibit Enabled/Disabled
- Synchronization Type (System Sensor, Wheelock, or Gentex)

### 4.22.7 Relays

Pressing 1 while viewing Read Status Screen #3 will display the following screen:

```

READ STATUS
1=RELAYS
2=PROGRAM CHECK
3=HISTORY
  
```

Read Status Screen #3

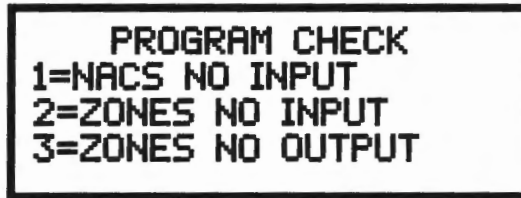
```

          RELAY
1=RELAY 1
2=RELAY 2
3=RELAY 3
  
```

The operator can view the programmed option for each relay by pressing the corresponding number key.

### 4.22.8 Program Check

Pressing 2 while viewing Read Status Screen #3 will cause a screen similar to the following to be displayed:



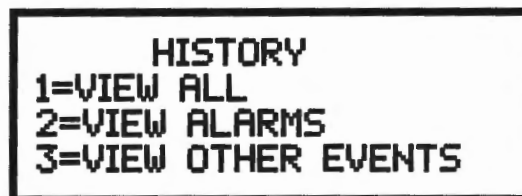
Pressing 1 while viewing the Program Check screen will display a screen which will indicate if any input zones have not been programmed to one of the Notification Appliance Circuits. Use the up and down arrow keys to view all NACs.

Pressing 2 while viewing the Program Check screen will display a screen which will indicate if any output zones have not been programmed to at least one input zone. Use the up and down arrow keys to view all zones.

Pressing 3 while viewing the Program Check screen will display a screen which will indicate if any input zones have not been programmed to at least one output zone. Use the up and down arrow keys to view all zones.

### 4.22.9 History

Pressing 3 while viewing Read Status Screen #3 will display the following screen:



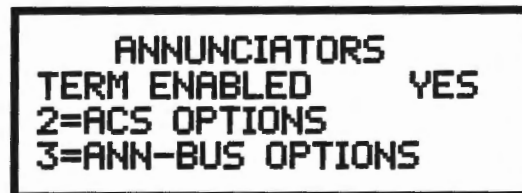
The operator can view all events which have been stored in the history file, only alarms or other events, such as troubles or supervisories, by pressing the corresponding number key.

### 4.22.10 Annunciators



Read Status Screen #4

Pressing 1 while viewing Read Status Screen #4 will display the following screens:



Annunciator Screen

The Annunciator Screen indicates if Terminal mode options are enabled or disabled.

Pressing 2 for *ACS Options* while viewing the Annunciator Screen allows the operator to view the ACS Options screen:

```

  ACS OPTIONS
  ACS ENABLED      NO
  2=ACS ADDRESSES
  UDACT ENABLED   NO
  
```

ACS Options Screen

The ACS Options screen indicates if the ACS option has been enabled *YES* or disabled *NO*.

Pressing 2 for *ACS Addresses* while viewing the ACS Options screen will display screens with ACS addresses 1 -31 and whether a device is installed at that address *YES* or not installed *NO*.

The ACS Options screen indicates if a UDACT is installed *YES* or if a UDACT is not installed *NO*.

Pressing 3 for *ANN-BUS Options* while viewing the Annunciator Screen will display the following screens:

```

  ANN-BUS
  ENABLED          NO
  2=MODULES INSTALLED
  3=ANN-S/PG OPTIONS
  
```

ANN-BUS Screen #1

```

  ANN-BUS
  1=ANN-80 OPTIONS
  
```

ANN-BUS Screen #2

The ANN-BUS Screen #1 indicates if the ANN-BUS has been enabled *YES* or disabled *NO*.

Pressing 2 for *Modules Installed* while viewing ANN-BUS Screen #1 will display screens for ANN-BUS Addresses 1 -8 and the devices installed at each address. Subscreen will display the options that have been programmed for each device.

Pressing 3 for *ANN-S/PG Options* while viewing ANN-BUS Screen #1 will display the options selected for the installed serial or parallel printer.

Pressing 1 for *ANN-80 Options* while viewing ANN-BUS Screen #2 will display the options selected for the installed ANN-80 annunciators.



### 4.22.11 Phone Line

Pressing 2 while viewing Read Status Screen #4 will display the following screen:

```

PHONE LINE
PRIMARY TOUCHTONE
SECONDARY TOUCHTONE
3=SUPERV PHONE LINE
    
```

The second and third lines of this screen indicate that both the Primary and Secondary phone lines have been configured for touchtone dialing operation.

Pressing 3 while viewing the Phone Line screen will cause the following screen to be displayed:

```

SUPERVISE PHONE LINE
PHONE LINE 2      NO
    
```

This screen indicates whether or not Phone Line 2 is being supervised. In this example, Phone Line 2 No indicates the phone line is not being supervised.

### 4.22.12 Central Station

```

READ STATUS
1=ANNUNCIATORS
2=PHONE LINE
3=CENTRAL STATION
    
```

Read Status Screen #4

Pressing 3 while viewing Read Status Screen #4 will display the following screens:

```

CENTRAL STATION  ↓
REPORTING        ENABLED
REPORT           BOTH
CALL LIMIT       10
    
```

Central Station Screen #1

```

CENTRAL STATION  ↑
1=PRIMARY
2=SECONDARY
3=REPORT STYLE
    
```

Central Station Screen #2

Central Station Screen #1 indicates whether the Central Station Reporting is enabled or disabled, if the Reports will be sent to one or both the Primary and Secondary Central Station phone numbers and the Call Limit for DACT trouble calls within a 24 hour period.

Central Station Screen #2 provides information on the Primary and Secondary Central Station programming which includes:

- Test Time Interval
- Account Code
- 24 Hour Test Time
- Phone Number
- Communication Format
- Event Codes

#### 4.22.13 Service Terminal

READ STATUS  
1=SERVICE TERMINAL  
2=PRINTER/PC  
3=PRINT

Read Status Screen #5

Pressing 1 while viewing Read Status Screen #5 will display the following screens:

SERVICE TERMINAL  
RING COUNT

Service Terminal Screen

The Panel ID number is displayed as the first item in Service Terminal Screen #1.

To view the phone number for each Service Terminal, press 2 for Terminal 1 or 3 for Terminal 2 while viewing Service Terminal Screen #1.

The Ring Count is displayed in Service Terminal Screen #2.

#### 4.22.14 Printer/PC

Pressing 2 while viewing Read Status Screen #5 will display the following screen:

PRINTER PC  
PRINTER PC PR4800

Printer/PC Screen

The display will inform the operator as to whether the control panel is configured for a printer or a PC. In the example above, PR4800 indicates that the panel is configured for a printer with a baud rate of 4,800.

### 4.22.15 Print

**READ STATUS**  
**1=FUTURE USE**  
**2=PRINTER/PC**  
**3=PRINT**

Read Status Screen #5

To print program data or control panel status, press 3 while viewing Read Status Screen #5. The following screens will be displayed:

**PRINT**   
**1=HISTORY**  
**2=WALKTEST LOG**  
**3=DETECTOR DATA**

Print Screen #1

**PRINT**   
**1=EXIT PRINTING**

Print Screen #2

Pressing 1 while viewing Print Screen #1 allows the user to print the History file which will detail all of the system activities since the file was last cleared from memory.

Pressing 2 while viewing Print Screen #1 allows the user to print the Walktest log which will detail all of the system activations during walktest since the log was last cleared. Refer to "Walktest" on page 114 for additional information on the display.

Pressing 3 while viewing Print Screen #1 allows the user to print the detector data for each addressable smoke detector connected to the system. A printout, similar to the following example, will be generated if an optional printer is connected to the FACP.

DEVICE #	DEVICE TYPE	% DRIFT COMP	CHAMBER	TIME/DATE
1D001	SMOKE (PHOTO)	20	1281	12:01 AM 01-08-2001
1D002	SMOKE (PHOTO)	20	1281	12:01 AM 01-08-2001
1D003	SMOKE (PHOTO)	21	1259	12:01 AM 01-08-2001
1D004	SMOKE (PHOTO)	20	1309	12:02 AM 01-08-2001
1D005	SMOKE (PHOTO)	21	1281	12:02 AM 01-08-2001
1D006	SMOKE (PHOTO)	20	1322	12:02 AM 01-08-2001
1D007	SMOKE (PHOTO)	20	1280	12:02 AM 01-08-2001
1D008	SMOKE (PHOTO)	20	1215	12:02 AM 01-08-2001
1D009	SMOKE (PHOTO)	20	1310	12:02 AM 01-08-2001

#### Chamber Value

The Chamber value should be within the indicated range for the following smoke detectors:

- SD355, SD350(T) D350P(R) and SD300(T) Addressable Photoelectric Smoke Detectors: **405 - 2100** (obscuration of 1.00%/ft to 3.66%/ft.)
- CP355, CP350, and CP300 Addressable Ionization Smoke Detectors: **750 - 2100** (obscuration of 0.50%/ft. to 1.44%/ft.)

If the addressable smoke detector's Chamber reading is not within the acceptable range, clean the detector and check the Chamber value again. If the reading is still not within the acceptable range, immediately replace the detector.

### Drift Compensation

Drift compensation uses software algorithms that identify and compensate for long-term changes in the data readings from each addressable smoke detector. These long-term changes in detector data readings are typically caused by dirt and dust accumulation inside the smoke chamber. Drift compensation performs the following functions:

- Samples photoelectric smoke detectors every 6 seconds and ionization smoke detectors every 3 seconds
- Allows a smoke detector to retain its original ability to detect actual smoke and resist false alarms, even as dirt and dust accumulate
- Reduces maintenance requirements by allowing the control panel to automatically perform the periodic sensitivity measurements required by NFPA Standard 72

The FACP software also provides filters to remove transient noise signals, usually caused by electrical interference.

### Maintenance Alert

The software determines when the drift compensation for a detector reaches an unacceptable level that can compromise detector performance. When a detector reaches an unacceptable level, the control panel indicates a maintenance alert. Table 4.1 summarizes the three levels of maintenance alert:

Maintenance Level:	FACP Status Displays:	Indicates:
Low Chamber Value	INVREP	A hardware problem in the detector
Maintenance Alert	DIRTY1	Dust accumulation that is near but below the allowed limit. <i>DIRTY 1</i> indicates the need for maintenance before the performance of the detector is compromised
Maintenance Urgent	DIRTY2	Dust accumulation above the allowed limit.

Table 4.1 Maintenance Alert Levels

Figure 4.1 illustrates a graphic representation of the maintenance levels:

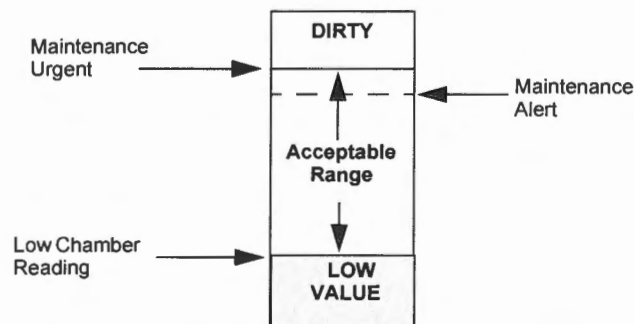


Figure 4.1 Diagram of Maintenance Levels

### 4.22.16 Time-Date

READ STATUS  
1=TIME-DATE

The operator can view the daylight savings time and the month and week when daylight savings time will begin and end. Pressing 1 while viewing Read Status Screen #6 will display the following screens:

Read Status Screen #6

DAYLIGHT SAVINGS		↓
ENABLED	YES	
START MONTH	MAR	
START WEEK	WEEK-2	

DAYLIGHT SAVINGS		↑
END MONTH	NOV	
END WEEK	WEEK-1	

**Secondary Power Source Requirements**

Device Type	Standby Current (amps)				Secondary Alarm Current (amps)			
	Qty		Current Draw	Total	Qty		Current Draw	Total
Main Circuit Board	1	x	0.137000	= 0.137000	1	x	0.360000	= 0.360000
XRM-24B	0	x	0.000000	=	0	x	0.000000	=
4XTMF	0	x	0.005000	=	0	x	0.011000	=
IPDACT-2	0	x	0.093000	=	0	x	0.136000	=
IPDACT-2/2UD	0	x	0.098000	=	0	x	0.155000	=
<b>ANN-BUS Devices</b>								
ANN-80(-W)	0	x	0.015000	=	0	x	0.040000	=
ANN-LED	0	x	0.028000	=	0	x	0.068000	=
ANN-RLED	0	x	0.028000	=	0	x	0.068000	=
ANN-RLY	0	x	0.015000	=	0	x	0.075000	=
ANN-I/O	0	x	0.035000	=	0	x	0.200000	=
ANN-S/PG	0	x	0.045000	=	0	x	0.045000	=
<b>ACS Annunciators</b>								
ACM-8RF	0	x	0.030000	=	0	x	0.158000	=
ACM-16ATF	0	x	0.040000	=	0	x	0.056000	=
ACM-32AF	0	x	0.040000	=	0	x	0.056000	=
AEM-16ATF	0	x	0.002000	=	0	x	0.018000	=
AEM-32AF	0	x	0.002000	=	0	x	0.018000	=
AFM-16ATF	0	x	0.040000	=	0	x	0.056000	=
AFM-32AF	0	x	0.040000	=	0	x	0.056000	=
AFM-16AF	0	x	0.025000	=	0	x	0.065000	=
LDM-32F	0	x	0.040000	=	0	x	0.056000	=
LDM-E32F	0	x	0.002000	=	0	x	0.018000	=
LCD-80F	0	x	0.025000	=	0	x	0.064000	=
<b>Resettable Power</b>								
4-Wire Smoke Detectors	0	x	0.000000	=	0	x	0.000000	=
<b>Addressable Devices</b>								
BEAM355	0	x	0.002000	=				
BEAM355S	0	x	0.002000	=				
BEAM1224	0	x	0.017000	=				
CP355	0	x	0.000300	=				
SD355	8	x	0.000300	= 0.002400				
SD355T	0	x	0.000300	=				
AD355	0	x	0.000300	=				
H355	1	x	0.000300	= 0.000300				
H355R	53	x	0.000300	= 0.015900				
H355HT	0	x	0.000300	=				
D350P	0	x	0.000300	=				
D350RP	0	x	0.000300	=				
D350PL	0	x	0.000300	=				
D350RPL	0	x	0.000300	=				
D355PL	0	x	0.000300	=				
MMF-300	0	x	0.000400	=				
MMF-300-10	0	x	0.003500	=				
MDF-300	0	x	0.000750	=				
MMF-301	9	x	0.000375	= 0.003375				
MMF-302	0	x	0.000270	=				
MMF-302-6	0	x	0.002000	=				
BG-12LX	0	x	0.000230	=				
CMF-300	0	x	0.000390	=				
CMF-300-6	0	x	0.002250	=				
CRF-300	0	x	0.000270	=				
CRF-300-6	0	x	0.001450	=				
I300	0	x	0.000400	=				
B501BH-2	0	x	0.001000	=				
B501BHT-2	0	x	0.001000	=				
B224RB	0	x	0.000500	=				
B224BI	0	x	0.000450	=				

B200SR	0	x	0.000500	=						
Maximum alarm draw for all Addressable devices ----->									0.400000	
EOLR-1	0	x	0.020000	=		0	x	0.020000	=	
MHR Mini Sounders	20	x	0.007800	=	0.156000	20	x	0.000000	=	
P2R Horn/Strobes	3	x	0.014600	=	0.043800	3	x	0.000000	=	
Beacon	1	x	0.200000	=	0.200000	1	x	0.000000	=	
Miscellaneous Device 4	0	x	0.000000	=		0	x	0.000000	=	
Miscellaneous Device 5	0	x	0.000000	=		0	x	0.000000	=	
NAC 1						0	x	0.000000	=	
NAC 2						0	x	0.000000	=	
NAC 3						0	x	0.000000	=	
NAC 4						0	x	0.000000	=	
Current Draw from TB3			0.000000	=				0.000000	=	
<b>Total Standby Load</b>					<b>0.558775</b>	<b>Total Alarm Load</b>				<b>0.760000</b>

## MS-9200UDLS Rev.2 Battery Calculation

### Calculation in Total Sheet

		<b>Required Standby Time in Hours</b>		
		24 Hours		
<b>Standby Load Current</b>	<b>0.55878 Amps</b>	x	24	= 13.411 AH
		<b>Required Alarm Time in Minutes</b>		
		5 Minutes		
<b>Alarm Load Current (Amps)</b>	<b>0.76000 Amps</b>	x	0.084	= 0.064 AH
<b>Total Current Load</b>				<b>13.474 AH</b>
Multiply by the Derating Factor			1.2	= x 1.20
<b>Total Ampere Hours Required</b>				<b>16.17 AH</b>

<b>Recommended Batteries:</b>	<b>BAT-12180 - 18AH Batteries</b>
-------------------------------	-----------------------------------

<b>Battery Check</b>
The batteries can be charged by the MS-9200UDLS Charger.
The batteries can be housed in the MS-9200UDLS Cabinet.

<b>Current Draw Check</b>
NAC#1 current is within the limitations of the circuit.
NAC#2 current is within the limitations of the circuit.
NAC#3 current is within the limitations of the circuit.
NAC#4 current is within the limitations of the circuit.
MS 9200UDLS Control Panel:
The output current is within the panel's limitations.





### BG-12SL Single Action Pull Station

Document: 51860 Revision: A ECN: 01-500 09/14/01  
 Patented, U.S. Patent No. Des. 428,351 Other Patents Pending

### Description

The BG-12SL Pull Station is a non-coded manual pull station which provides a Fire Alarm Control Panel (FACP) with a single alarm initiating input signal.

The pull station is a single-action model equipped with a key lock/reset. Pigtail wires are provided for connection to the FACP Initiating Device Circuit.

It is UL listed and meets the ADA requirement of a 5-lb. maximum pull force to activate. Operating instructions are molded into the handle along with Braille text.

### Switch Contact Rating

All Switch contacts are rated for 0.25 A at 30 volts (AC or DC).

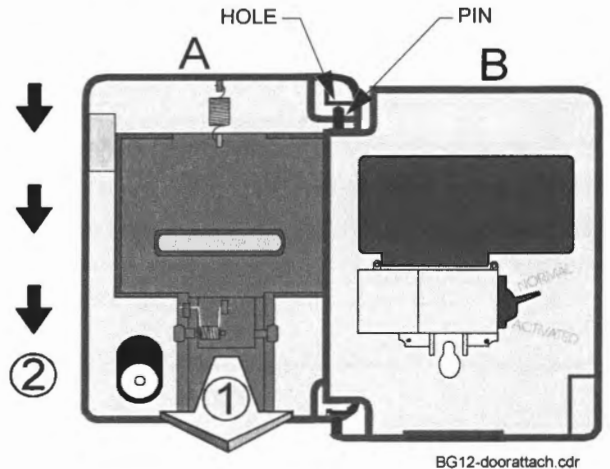
### Installation

The pull station can be surface mounted to a Surface Backbox (SB-10) or semi-flush mount to a standard double-gang, or 4-inch (10.16cm) square electrical box. An optional Trim Ring (BG-TR) may be used when semi-flush mounting the unit.

**CAUTION:** The door of the pull station may detach from the backplate and cannot be re-attached if backplate is installed on an SB-10 surface backbox or an electrical box.

### To re-attach the door---

Hold door (A) to the rear of the backplate (B) as shown in the figure below. Bring door forward (1) to align pins with holes. Slide door down (2) onto backplate. Close door partially to lock into place.



### Operation

To activate the pull station, simply pull down the handle. The word 'ACTIVATED' appears after the handle is pulled down. This will remain until the pull station is reset.



This pull station includes one Single Pole, Single Throw (SPST) Normally Open (N/O) switch which closes upon activation of the pull station.

## Resetting the Pull Station

1. Insert the key into the lock and rotate 1/4 turn counterclockwise.
2. Open the door until the handle returns to normal.
3. Close and lock the door.

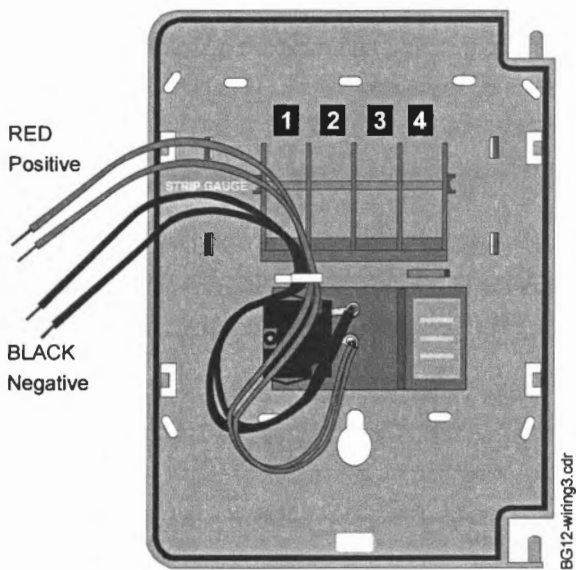
**Note:** Closing the door automatically resets the switch to the 'Normal' position. Opening the door will not activate or deactivate the alarm switch.

## Wiring Instructions for BG-12SL

Prior to wiring the pull station, pull all necessary wiring through a mounted backbox and the optional trim ring.

Connect the field wiring from the FACP's IDC, or previous device on the IDC, to the pull station's pigtail wires.

1. Connect the positive (+) FACP's IDC wire to a red pigtail wire and the negative (-) FACP's IDC wire to a black pigtail wire.
2. Connect the positive (+) wire going to the next device, or an ELR, to the remaining red pigtail wire and the negative (-) wire going to the next device, or an ELR, to the remaining black pigtail wire.
3. Maintain consistent polarity with all connections throughout the IDC.



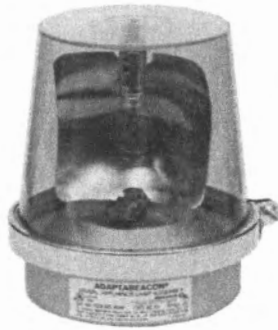
## Caution

Install the pull station in accordance with the supplied instructions, applicable NFPA standards, national and local Fire and Electrical codes and the requirements of the Authority Having Jurisdiction (AHJ). Conduct regular testing of the devices using appropriate NFPA standards. Fire•lite Alarms is not responsible for devices that have not been properly installed, tested and maintained.

## ADA Compliance

For ADA compliance, if the clear floor space only allows forward approach to an object, the maximum forward reach height allowed is 48-inches (121.92cm). If the clear floor space allows parallel approach by a person in a wheelchair, the maximum side reach allowed is 54-inches (137.16cm).

Document: 51860 Revision: A ECN: 01-500 09/14/01



## AdaptaBeacon® Rotating Lights

*Weatherproof*

### 53 Series

#### FEATURES

- > Weatherproof
- > Light intensifying reflector
- > 75 revolutions per minute
- > Bayonet lamp socket for easy replacement
- > Cast base can be utilized as junction box
- > May be mounted vertically, facing up or down in 3 ways:
  - Direct Surface
  - 4" (102mm) octagon box
  - 1/2" (13mm) NPT conduit

Rotating signal designed to provide maximum brilliance and long term durability with minimum maintenance. The polycarbonate dome allows for easy cleaning.

For direct mounting applications, unit is supplied complete with gasket and rubber expansion plugs. For weatherproof installation unit must be mounted vertically with the dome facing up. May be corner mounted using the Cat. No. CBR, corner mount bracket, or wall mounted using the Cat. No. WBR, wall mount bracket. See AdaptaBeacon Accessories, page 3-118.

Designed to attract attention or indicate equipment malfunctions in noisy areas. Used in security systems to visually show indication of an intrusion. Also used in factory and distribution facilities to alert workers of oncoming fork truck traffic.

D-04

3-22

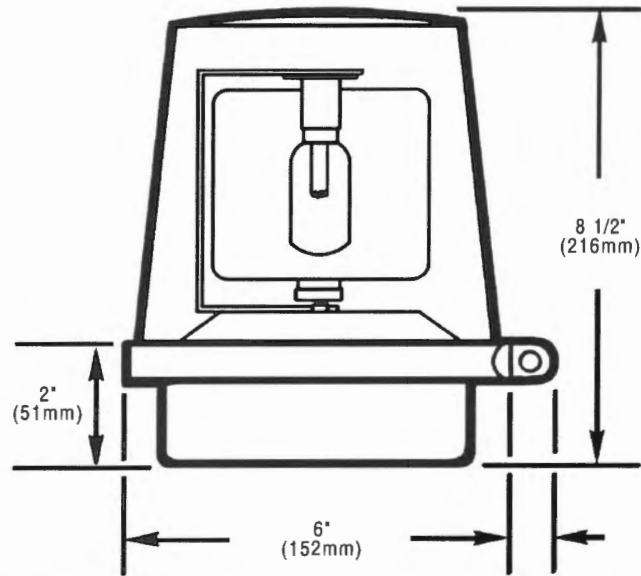
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[www.edwards-signals.com](http://www.edwards-signals.com)

**Edwards Signaling  
& Security Systems®**

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## TECHNICAL INFORMATION



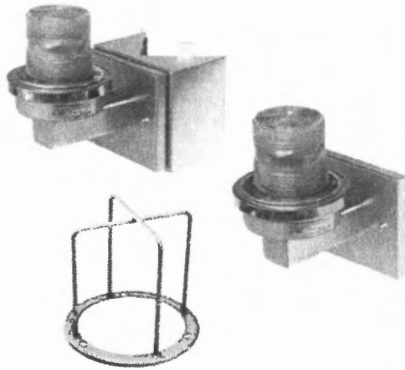
Cat. No.	Lens Color	Replacement Lens Cat. No.	Lamp Ratings	Revolution Rate	Electrical Ratings	Replacement Lamp Cat. No.
53C-E1	Clear	52-LC	25 Watts	75 rpm	12V DC	Industry Trade
53R-E1	Red	52-LR	402 lumens*		1.8 Amps	No. 1076
53A-E1	Amber	52-LA	5049 candlepower			
53B-E1	Blue	52-LB	200 hours**			
53G-E1	Green	52-LG				
53C-G1	Clear	52-LC	25 Watts	75 rpm	24V DC	Industry Trade
53R-G1	Red	52-LR	402 lumens*		1.0 Amp	No. 1638
53A-G1	Amber	52-LA	5049 candlepower			
53B-G1	Blue	52-LB	500 hours**			
53G-G1	Green	52-LG				

\*Manufacturer's lumen rating.

\*\*Projected lamp life based on manufacturer's calculated lamp life @ 65 FPM and 50% duty cycle.



## VISUAL SIGNALS



# AdaptaBeacon® Accessories

### FEATURES

- > Adds versatility and protection to many AdaptaBeacons
- > Easy to install/attach
- > Mounting brackets for use with any beacon which has either 3/4" or 1/2" conduit opening.

The Edwards Mounting Brackets for walls or corners simply the installation of Edwards AdaptaBeacons. They may be used for mounting beacons that have either a 3/4" (19 mm) or 1/2" (12 mm) conduit opening. Backplates are made of stainless steel and bracket arms are cold rolled steel.

The Corner Mount Bracket, Cat. No. CBR, can be used with surface installed 1/2" (12 mm) or 3/4" (19 mm) conduit mounting.

The Wall Mount Bracket, Cat. No. WBR, can be used with either surface installed 1/2" (12 mm) or 3/4" (19 mm) conduit or concealed wiring. The Wall Mount Bracket mounts to a 4" (102 mm) square or 4" (102 mm) octagon electrical box or a 4" (102 mm) outdoor box.

The Catalog Number 92-GRD Protective Lens Guard is an easily installed guard that provides protection against lens breakage.

D-04

3-118

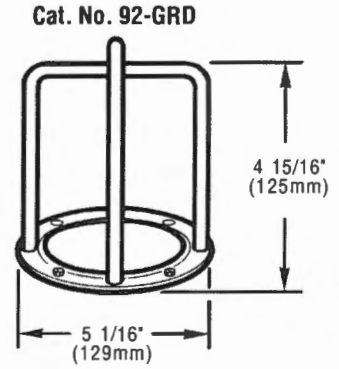
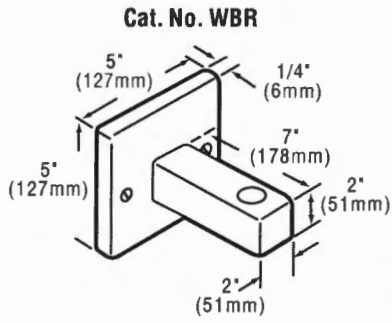
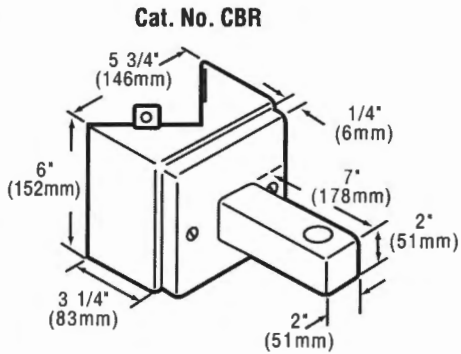
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## TECHNICAL INFORMATION



Cat. Series	WBR	Can be used with:		
		CBR	92-GRD	
48 Series	X	X		
49 Series	X	X		
50 Series	X	X		X
50SIN Series	X	X		X
51 Series	X	X		X
51SIN Series	X	X		X
52 Series	X	X		
53 Series	X	X		
53D Series	X	X		
58 Series	X	X		
90 Series	X	X		
91B Series	X	X		
92 Series	X	X		X
93 Series	X	X		
93DF Series	X	X		
95 Series	X	X		X
96B Series	X	X		X
97 Series	X	X		
97DF Series	X	X		
98B Series	X	X		
101 Series	X	X		

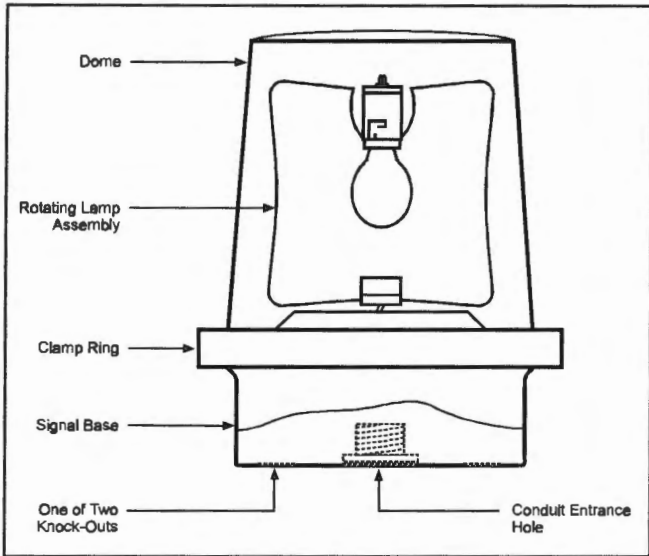


Figure 1. Catalog Series 53 Rotating Light

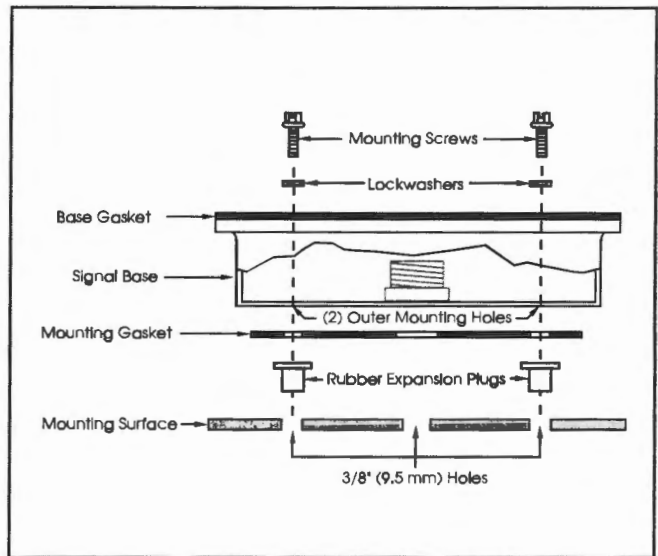


Figure 2. Direct Surface Mounting of Signal

### Replacement Parts

The replacement parts listed below for the 53 series signals are available from your local Edwards distributor.

Catalog Number	Replacement Lamp	Replacement Dome
53(*)-E1	1076	52-L(*)
53(*)-G1	1638	
53(*)-FY	1062	
53(*)-K1	P-041695-0086	

\*Specify color of the replacement dome by adding the letter A, B, C, G, M or R to the catalog number; for example, a red dome for the 53(\*)-E1 series signal is 52-LR.

# Installation and Maintenance Instructions for Catalog Series 53 AdaptaBeacon® Signals

## Description

The catalog series 53 Adaptabeacon signals are dc operated rotating lights. The signals may either be conduit mounted or direct surface mounted and are suitable for indoor or outdoor (weatherproof) installation. A hardware kit is included with the signals for direct mounting applications.

## Specifications

Catalog Number	Rated Voltage	Current
53(*)-E1	12V DC	1.8A
53(*)-G1	24V DC	1.0A
53(*)-FY	36V DC	1.0A
53(*)-K1	48V DC	0.7A

\*The letter in this position of the catalog number signifies the color of the supplied dome. A - amber, B - blue, C - clear, G - green, M - magenta, or R - red

## Installation

### CAUTION

Ensure that power is disconnected before installing the signal.

1. See Figure 1. Remove the screw in the clamp ring, remove the ring and lift off the dome.
2. Install the base using one of the following applicable procedures.

### CAUTION

When installing indoors, the signal may be mounted with the dome facing either directly up or down. For outdoor installation, the signal must be installed with the dome facing directly up.

### Conduit Mounting

- a. Route the wiring from the required power source for the signal (refer to the signal's label for voltage rating) through a 1/2" (13 mm) NPT conduit (not supplied) and through the conduit entrance hole in the base.
- b. Install the base on the conduit.

### Direct Surface Mounting

- a. Remove the two knock-outs for the mounting screws from the bottom of the base. See Figure 1 for the location of knock-outs.
  - b. Place the gasket provided in the hardware kit on the mounting surface and mark the center of the three holes in the gasket on the surface. Remove the gasket and drill a 3/8" (9.5 mm) hole at each of the marked positions.
  - c. Install the two rubber expansion plugs provided in the hardware kit into the two outer holes in the mounting surface as indicated in Figure 2.
  - d. Route the wiring from the required power source for the signal (refer to the signal's label for the voltage rating) through the center holes in the mounting surface, gasket and base.
  - e. Align the holes in the gasket with the holes in the base. Insert the two screws with lockwashers provided in the hardware kit through the mounting holes inside the base and align the screws with the rubber expansion plugs as shown in Figure 2. Press the base firmly against the mounting surface.
3. Using wire nuts (not supplied), connect the signal's red wire lead to the positive (+) power source lead and connect the white wire lead to the negative (-) power source wire. Place the connected wires inside of the base and reassemble the signal on the base.

## Maintenance

### CAUTION

Always disconnect power before disassembling the signal.

### Lamp Replacement

Refer to the "Replacement Parts" for the required lamp. Disconnect the power, remove the screw in the clamp ring, remove the ring and lift the dome off the signal. Replace the lamp.

### Cleaning

### CAUTION

Abrasive materials or cleaners must not be used to clean the dome.

The signal's dome should be periodically cleaned to maintain optimum light visibility. The dome may be cleaned with a soft cloth or sponge using a mild detergent. Dry the dome thoroughly before replacing.





## Indoor Selectable-Output Horns, Strobes, and Horn Strobes for Wall Applications

*SpectrAlert® Advance audible visible notification products 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 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 units
- Mounting plate shorting spring checks wiring continuity before device installation
- Electrically Compatible with legacy SpectrAlert devices
- Compatible with MDL sync module
- Listed for ceiling or wall mounting

**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, wall-mount 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, making installations fast and foolproof while virtually eliminating costly and time-consuming ground faults.

To further simplify installation and protect devices from construction damage, SpectrAlert Advance utilizes a universal mounting plate with an onboard shorting spring, so installers can test wiring continuity before the device is installed.

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

### Agency Listings



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



3023572



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 17/8-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 8 and 17.5 volts; 24-volt-rated notification appliance circuit outputs shall operate between 16 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 411/16 x 411/16 x 21/8-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

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

### 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 12 V nominal only for 15 and 15/75 cd.

## UL Current Draw Data

UL Max. Strobe Current Draw (mA RMS)						UL Max. Horn Current Draw (mA RMS)					
	Candela	8-17.5 Volts		16-33 Volts		Sound Pattern	dB	8-17.5 Volts		16-33 Volts	
		DC	FWR	DC	FWR			DC	FWR	DC	FWR
Standard Candela Range	15	123	128	66	71	Temporal	High	57	55	69	75
	15/75	142	148	77	81	Temporal	Medium	44	49	58	69
	30	NA	NA	94	96	Temporal	Low	38	44	44	48
	75	NA	NA	158	153	Non-temporal	High	57	56	69	75
	95	NA	NA	181	176	Non-temporal	Medium	42	50	60	69
	110	NA	NA	202	195	Non-temporal	Low	41	44	50	50
	115	NA	NA	210	205	Coded	High	57	55	69	75
High Candela Range	135	NA	NA	228	207	Coded	Medium	44	51	56	69
	150	NA	NA	246	220	Coded	Low	40	46	52	50
	177	NA	NA	281	251						
	185	NA	NA	286	258						

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			30	75	95	110	115
	15	15/75	15	15/75	30	75					
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

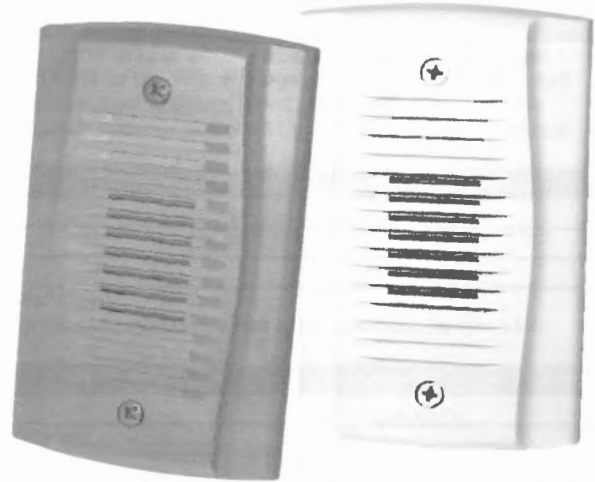
Horn and Horn Strobe Output (dBA)										
Switch Position	Sound Pattern	dB	8-17.5 Volts		16-33 Volts		24-Volt Nominal			
			DC	FWR	DC	FWR	Reverberant		Anechoic	
							DC	FWR	DC	FWR
1	Temporal	High	78	78	84	84	88	88	99	98
2	Temporal	Medium	74	74	80	80	86	86	96	96
3	Temporal	Low	71	73	76	76	83	80	94	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 strobes.



## 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

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- 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
- Listing for ceiling or wall mounting

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.

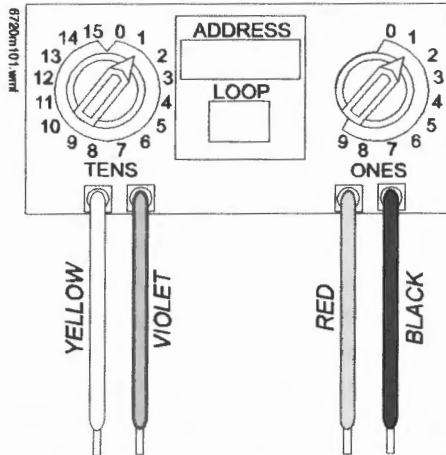
### Agency Listings

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## MMF-301(A) Mini Monitor Module

- Built-in type identification automatically identifies this device as a monitor module to the panel.
- Powered directly by two-wire SLC loop. No additional power required.
- High noise (EMF/RFI) immunity.
- Tinned, stripped leads for ease of wiring.
- Direct-dial entry of address: 01 – 159 on MS-9600 series panels, 01 – 99 on other compatible systems



The MMF-301(A) Mini Monitor Module can be installed in a single-gang junction directly behind the monitored unit. Its small size and light weight allow it to be installed without rigid mounting. The MMF-301(A) is intended for use in intelligent, two-wire systems where the individual address of each module is selected using rotary switches. It provides a two-wire initiating device circuit for normally-open-contact fire alarm devices. The MMF-301(A) can be used to replace M301(A) modules in existing systems.

### MMF-301(A) APPLICATIONS

Use to monitor a single device or a zone of four-wire smoke detectors, manual fire alarm pull stations, waterflow devices, or other normally-open dry-contact devices. May also be used to monitor normally-open supervisory devices with special supervisory indication at the control panel. Monitored circuit/device is wired as an NFPA Style B (Class B) Initiating Device Circuit. A 47K ohm End-of-Line Resistor (provided) terminates the circuit.

### MMF-301(A) OPERATION

Each MMF-301(A) uses one of the available module addresses on an SLC loop. It responds to regular polls from the control panel and reports its type and the status (open/normal/short) of its Initiating Device Circuit (IDC).

### MMF-301(A) SPECIFICATIONS

Nominal operating voltage: 15 to 32 VDC.

Average operating current: 350  $\mu$ A, 1 communication every 5 seconds, 47k EOL; 600  $\mu$ A Max. (Communicating, IDC Shorted).

Maximum IDC wiring resistance: 40 ohms.

Maximum IDC Voltage: 11 Volts.

Maximum IDC Current: 400  $\mu$ A.

EOL resistance: 47K ohms.

Temperature range: 32°F to 120°F (0°C to 49°C).

Humidity range: 10% to 93% noncondensing.

Dimensions: 1.3" (3.302 cm) high x 2.75" (6.985 cm) wide x 0.65" (1.651 cm) deep.

Wire length: 6" (15.24 cm) minimum.

## MMF-302(A) Interface Module

- Supports compatible two-wire smoke detectors.
- Supervises IDC wiring and connection of external power source.
- High noise (EMF/RFI) immunity.
- SEMS screws with clamping plates for ease of wiring.
- Direct-dial entry of address: 01 – 159 on MS-9600 series panels, 01 – 99 on other compatible systems.
- LED flashes during normal operation.
- LED latches steady to indicate alarm on command from control panel.

The MMF-302(A) Interface Module is intended for use in intelligent, addressable systems, where the individual address of each module is selected using built-in rotary switches. This module allows intelligent panels to interface and monitor two-wire conventional smoke detectors. It transmits the status (normal, open, or alarm) of one full zone of conventional detectors back to the control panel. All two-wire detectors being monitored must be UL compatible with the module. The MMF-302(A) can be used to replace M302(A) modules in existing systems.

### MMF-302(A) APPLICATIONS

Use the MMF-302(A) to monitor a zone of two-wire smoke detectors. The monitored circuit may be wired as an NFPA Style B (Class B) or Style D (Class A) Initiating Device Circuit. A 3.9 K ohm End-of-Line Resistor (provided) terminates the end of the Style B or D (class B or A) circuit (maximum IDC loop resistance is 25 ohms). Install ELR across terminals 8 and 9 for Style D application.

### MMF-302(A) OPERATION

Each MMF-302(A) uses one of the available module addresses on an SLC loop. It responds to regular polls from the control panel and reports its type and the status (open/normal/short) of its Initiating Device Circuit (IDC). A flashing LED indicates that the module is in communication with the control panel. The LED latches steady on alarm (subject to current limitations on the loop).

### MMF-302(A) SPECIFICATIONS

Nominal operating voltage: 15 to 32 VDC.

Maximum current draw: 5.1 mA (LED on).

Maximum IDC wiring resistance: 25 ohms.

Average operating current: 300  $\mu$ A, 1 communication and 1 LED flash every 5 seconds, 3.9k eol.

EOL resistance: 3.9K ohms.

External supply voltage (between Terminals T3 and T4): DC voltage: 24 volts power limited. Ripple voltage: 0.1 Vrms maximum. Current: 90 mA per module maximum.

Temperature range: 32°F to 120°F (0°C to 49°C).

Humidity range: 10% to 93% noncondensing.

Dimensions: 4.5" (11.43 cm) high x 4" (10.16 cm) wide x 1.25" (3.175 cm) deep. Mounts to a 4" (10.16 cm) square x 2.125" (5.398 cm) deep box.

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All specifications are subject to change without notice.



Made in the U.S. A.

For more information, contact Fire-Lite Alarms. Phone: (800) 627-3473, FAX: (877) 699-4105.  
[www.firelite.com](http://www.firelite.com)

# H355(A) Series

## Intelligent Addressable Thermal Detectors



Addressable Devices

### General

The Fire-Lite Alarms H355(A) Series thermal detectors are addressable sensors that use a state-of-the-art thermistor sensing circuit for fast response. These sensors provide open-area protection and are intended for use with the Fire-Lite's addressable Fire Alarm Control Panels (FACPs).

The H355(A) and H355R(A) sensors provide fixed temperature alarm detection at 135°F (57°C). The H355R(A) sensor also responds to rate-of-rise conditions of greater than 15°F (8.3°C) per minute. The H355HT(A) is a fixed high-temperature detector that activates at 190°F (88°C). These thermal detectors provide addressable property protection in a variety of applications.

Two LEDs on each sensor light to provide a local, visible sensor indication. Remote LED annunciator capability is available as an optional accessory, RA100Z.

### Features

#### SLC loop:

- Two-wire SLC loop connection.
- Unit uses base for wiring.

#### Addressing:

- Addressable by device.
- Rotary, decimal addressing: 01 – 159 with MS-9600 series, 01 – 99 with MS-9200 series.

#### Architecture:

- Sleek, low-profile, stylish design.
- State-of-the-art thermistor technology for fast response.
- Integral communications and built-in device-type identification.
- Built-in tamper resistant feature.
- Built-in functional test switch activated by external magnet.

#### Operation:

- Factory preset at 135°F (57°C) for the H355(A) and H355R(A); 190°F (88°C) for the H355HT(A).
- Rate-of-rise triggers at 15°F (8.3°C) per minute for the H355R(A).
- 360°-field viewing angle of the visual alarm indicators (two bicolor LEDs). LEDs blink green in Normal condition and turn on steady red in Alarm.
- Visible LEDs "blink" every time the unit is addressed.

#### Mechanicals:

- Sealed against back pressure.
- SEMS screws for wiring of the separate base.
- Designed for direct-surface or electrical-box mounting.
- Plugs into separate base for ease of installation and maintenance.
- Separate base allows interchange of photoelectric, ionization and thermal sensors.

#### Other system features:

- Remote test feature from the panel.
- Walk test with address display.
- Low standby current.



H355(A) in B210LP(A) Base

B210-Z251.jpg

- 94-5V plastic flammability rating.

#### Options:

- Remote LED output connection to optional RA100Z remote LED annunciator.
- Flanged surface mounting kit.

### Installation

H355(A) Series plug-in intelligent thermal detectors use a detachable base to simplify installation, service and maintenance. Installation instructions are shipped with each detector.

Mount base (all base types) on an electrical backbox which is at least 1.5" (3.81 cm) deep. For a chart of compatible junction boxes, see DF-60059.

**NOTE:** Because of the inherent supervision provided by the SLC loop, end-of-line resistors are not required. Wiring "T-taps" or branches are permitted for Style 4 (Class "B") wiring only.

### Applications

Use thermal detectors for protection of property.

### Construction

These detectors are constructed of off-white fire-resistant plastic. The H355(A) Series plug-in intelligent thermal detectors are designed to commercial standards and offer an attractive appearance.

### Operation

Each H355(A) Series detector uses one of 159 (MS-9600 series) or 99 (MS-9200 series) possible addresses on a control panel SLC loop. It responds to regular polls from the control panel and reports its type and the status. If it receives a test command from the panel (or a local magnet test), it stimulates its electronics and reports an alarm. It blinks its LEDs when polled and turns the LEDs on when commanded by the panel. The H355(A) Series offers features and performance that represent the latest in thermal detector technology.

# SD355(A) Series

## Addressable Photoelectric Smoke Detectors



Addressable Devices

### General

The SD355(A), SD355T(A), and SD355R(A) addressable, low-profile plug-in photoelectric detectors use a state-of-the-art photoelectric sensing chamber with communications to provide open area protection and are used exclusively with Fire-Lite's Addressable Fire Alarm Control Panels (FACPs). The SD355T(A) adds thermal sensors that will alarm at a fixed temperature of 135°F (57°C). Since these detectors are addressable, they will help emergency personnel quickly locate a fire during its early stages, potentially saving precious rescue time while also reducing property damage. Two LEDs on each sensor light to provide a local, visible sensor indication. Remote LED annunciator capability is available as an optional accessory, PN RA100Z(A). The SD355R(A) is a remote test capable detector for use with D355PL(A) or DNR(A)/DNRW duct smoke detector housings.

### Features

#### SLC loop

- Two-wire loop connection.
- Unit uses base for wiring.

#### Addressing

- Addressable by device.
- Rotary, decimal addressing: 01 – 99 with MS-9200 series, and 01 – 159 with MS-9600 series.

#### Architecture

- Unique single-source, dual-chamber design to respond quickly and dependably to a broad range of fires.
- Sleek, low-profile design.
- Integral communications and built-in type identification.
- Built-in tamper-resistant feature.
- Removable cover and insect-resistant screen for simple field cleaning.

#### Operation

- Withstands air velocities up to 4,000 feet-per-minute (20 m/sec.) without triggering a false alarm.
- Factory preset at 1.5% nominal sensitivity for panel alarm threshold level.
- Visible LED "blinks" when the unit is addressed (communicating with the fire panel) and latches on in alarm.

#### Mechanicals

- Sealed against back pressure.
- Direct surface mounting or electrical box mounting.
- Mounts to: single-gang box, 3.5" (8.89 cm) or 4.0" (10.16 cm) octagonal box, or 4.0" (10.16 cm) square electrical box (using a plaster ring — included).

#### Other system features

- Fully coated circuit boards and superior RF/transient protection.
- 94-V0 plastic flammability rating.
- Low standby current.

#### Options

- Remote LED output connection, PN RA100Z(A).



SD355(A) in B210LP(A) Base

B210-2061.jpg

### Applications

Use photoelectric detectors in life-safety applications to provide a broad range of fire-sensing capability, especially where smoldering fires are anticipated. Ionization detectors are often better than photoelectric detectors at sensing fast, flaming fires.

### Construction

These detectors are constructed of off-white fire resistant plastic. SD355(A) series plug-in, low-profile smoke detectors are designed to commercial standards and offer an attractive appearance.

### Installation

SD355(A) series plug-in detectors use a detachable mounting base to simplify installation, service and maintenance.

Mount base (all base types) on an electrical backbox which is at least 1.5" (3.81 cm) deep. For a chart of compatible junction boxes, see DF-60059.

**NOTE:** Because of the inherent supervision provided by the SLC loop, end-of-line resistors are not required. Wiring "T-taps" or branches are permitted for Style 4 (Class B) wiring. SD355R(A) mounts in a D355PL(A) or DNR(A)/DNRW duct detector housing.

### Operation

Each SD355(A) series detector uses one of 99 possible addresses on the MS-9200 series and up to 318 (159 on each loop) on the MS-9600 series Signaling Line Circuit (SLC). It responds to regular polls from the system and reports its type and status.

The addressable photoelectric sensor in the SD355(A) series has a unique unipolar chamber that responds quickly and uniformly to a broad range of smoke conditions. It can withstand wind gusts up to 4,000 feet-per-minute (20 m/sec.) without sending an alarm level signal. Because of its unipolar chamber, the SD355(A) series is approximately two times more responsive than most photoelectric sensors. This makes it a more stable detector.



## Detector Sensitivity Test

Each detector can have its sensitivity tested (required per NFPA 72, Chapter 14 on *Inspection, Testing and Maintenance*) when installed/connected to a MS-9200 series or MS-9600 series addressable fire alarm control panel. The results of the sensitivity test can be printed off the MS-9200 series or MS-9600 series for record keeping.

## Specification

**Voltage range:** 15 – 32 VDC (peak).

**Standby current:** 300  $\mu$ A @ 24 VDC.

**LED current:** 6.5 mA @ 24 VDC (latched "ON").

**Air velocity:** 4,000 ft./min. (20 m/sec.) maximum.

**Size:** 2.1" (5.33 cm) high; base determines diameter.

– B210LP(A): 6.1" (15.5 cm) diameter.

– B501(A): 4.1" (10.4 cm) diameter.

– B200SR(A): 6.875" (17.46 cm) diameter.

– B224RB(A): 6.2" (15.748 cm) diameter.

**Weight:** 3.6 oz. (102 g).

**Operating temperature range:** for SD355(A): 0°C to 49°C (32°F to 120°F); for SD355T(A): 0°C to 38°C (32°F to 100°F). SD355R(A): installed in a DNR(A)/DNRW -20°C to 70°C (-4°F to 158°F).

**Temperature:** 0°C – 49°C (32°F – 120°F).

**Relative humidity:** 10% – 93%, non-condensing.

## Listings

Listings and approvals below apply to the SD355(A), SD355T(A), and SD355RT(A) detectors. In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- UL Listed: S1059.
- UL Listed: S1059.
- CSFM: 7272-0075:0194.
- MEA: 243-02-E.
- FM approved.

## Product Line Information

**NOTE:** "A" suffix indicates ULC Listed model.

**SD355:** Addressable photoelectric detector; B210LP base included.

**SD355A:** Same as SD355 with ULC Listing; B210LPA base included.

**SD355T:** Same as SD355 but with *thermal* element; B210LP base included.

**SD355TA:** Same as SD355T with ULC Listing; B210LPA base included.

**SD355R:** Remote test capable addressable photoelectric detector for use with a D355PL(A) or DNRA/DNRW duct detector housing; B210LP base included.

**SD355RA:** Same as SD355R with ULC Listing for use with a D355PLA or DNRA duct detector housing; B210LPA base included.

## INTELLIGENT BASES

**NOTE:** "A" suffix indicates ULC Listed model.

**NOTE:** The detector's plug-in base can be changed off for special applications. For details about intelligent bases and their mounting, see DF-60059.

**B210LP(A):** Plug-in detector base (included); standard U.S. flanged low-profile mounting base.

**B210LPBP:** Bulk pack of B210LP; package contains 10.

**B501(A):** Standard European flangeless mounting base.

**B501BP:** Bulk pack of B501; package contains 10.

**B200SR(A):** Intelligent sounder base capable of producing sound output with ANSI Temporal 3 or continuous tone. Replaces B501BH series bases in retrofit applications.

**B224RB(A):** Plug-in System Sensor relay base. Screw terminals: up to 14 AWG (2.0 mm<sup>2</sup>). Relay type: Form-C. Rating: 2.0 A @ 30 VDC resistive; 0.3 A @ 110 VDC inductive; 1.0 A @ 30 VDC inductive.

**B224BI(A):** Plug-in System Sensor isolator detector base. Maximum 25 devices between isolator bases (see DF-52389).

## ACCESSORIES

**F110:** Retrofit flange to convert B210LP(A) to match the B350LP(A) profile, or to convert older high-profile bases to low-profile.

**F110BP:** Bulk pack of F110; package contains 15.

**F210:** Replacement flange for B210LP(A) base.

**RA100Z(A):** Remote LED annunciator. 3 – 32 VDC. Mounts to a U.S. single-gang electrical box. For use with B501(A) and B210LP(A) bases only.

**SMB600:** Surface mounting kit

**M02-04-00:** Test magnet.

**M02-09-00:** Test magnet with telescoping handle.

**XR2B:** Detector removal tool. Allows installation and/or removal of detector heads from bases in high ceiling applications.

**XP-4:** Extension pole for XR2B. Comes in three 5-foot (1.524 m) sections.

**T55-127-010:** Detector removal tool without pole.

**BCK-200B:** Black detector covers for use with SD355(A) only; box of 10.

**WCK-200B:** White detector covers for use with SD355(A) only; box of 10.

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