DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK

CITY OF PORTLAND

BUILDING PERMIT

This is to certify that   Cunningham Security

Located At   47 MIDDLE

PERMIT ISSUED

FEB 2 4 2011

City of Portland

has permission to   Install a 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 closed-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.
PENALTY FOR REMOVING THIS CARD.

PERMIT ISSUED

FEB 2 4 2011

City of Portland

City of Portland, Maine - Building or Use Permit Application
389 Congress Street, 04101 Tel: (207) 874-8703, FAX: (207) 8716

Permit No:FIRE ALARM-236	Issue Date:	CBL:028 - - P - 021 - 001

Location of Construction: 47 MIDDLE	Owner Name:HOLDINGS LLC SCARCROW	Owner Address: 30 HIGHLAND ST PORTLAND, ME - MAINE 04103	Phone:
Business Name:	Contractor Name:Cunningham Security, Cunningham Security	Contractor Address:	Phone:
Lessee/Buyer's Name:	Phone:	Permit Type:	Zone: B-2b

Past Use:	Proposed Use:	Permit Fee:	Cost of Work:	CEO District:

Fire approved w/ conditions
12/28/10

Proposed Project Description:

EASTENDER
Restaurant

Permit Taken By:	Date Applied For:

PERMIT ISSUED

FEB 2 4 2011

City of Portland

BUILDING PERMIT INSPECTION PROCEDURES
Please call 874-8703 or 874-8693 (ONLY)
### or email: 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.**

1. Close-In (Electrical)
2. Final Inspection

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 OCCU0PIED.
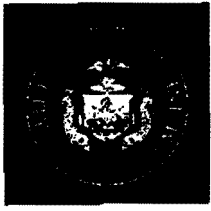
Director of Planning and Urban Development
Penny St. Louis Littell

Job ID: 2010-12-76-FAFS   **Located At:** <u>47 MIDDLE</u>   CBL <u>028</u> - - P - 021 - 001 - - - - -

Conditions of Approval:

Fire

1. The fire alarm system shall comply with the City of Portland Standard for Signaling Systems for the Protection of Life and Property. All fire alarm installation and servicing companies shall have a Certificate of Fitness from the Fire Department.
2. This permit is being approved on the basis of the plans submitted. Any deviation from the plans would require amendments and approval.
3. Central Station monitoring for addressable fire alarm systems shall be by point.
4. System acceptance and commissioning must be coordinated with alarm and suppression (hood) system contractors and the Fire Department. Call 874-8703 to schedule.
5. Fire Alarm system shall be maintained. If system is to be off line over 4 hours a fire watch shall be in place and Dispatch notified at 874-8576.
6. Installation of a Fire Alarm system requires a Knox Box to be installed per city ordinance.

Building

1. Fire Alarm systems shall be installed per Sec. 907 of the IBC 2009.
2. Separate permits are required for any electrical, plumbing, sprinkler, HVAC systems, heating appliances, commercial hood exhaust systems and fuel tanks. Separate plans may need to be submitted for approval as a part of this process

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.

RECEIVED

Installation address: 47 MIDDLE STREET   CBL: 28-P-214

Exact location: (within structure) BASEMENT

Type of occupancy(s) (NFPA & ICC): RESTAURANT

Dept. of Building Inspections
City of Portland Maine

Building owner: _____

Must be
System Designer (point of contact): MICHAEL MAJOR

Designer phone: 846-3350   E-mail: _____

Installing contractor: CUNNINGHAM SECURITY   Certificate of Fitness No: 1004

Contractor phone: 846-3350   10 Point 2   E-mail: _____
                              Yarmouth 04096

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

Amendment to an existing permit: YES ◯   NO ⊘   Permit no: _____

The following documents **shall** be provided with this application:

- [✓] Floor plans
- [✓] Wiring diagram
- [✓] Annunciator details
- [✓] Input/ Output Matrix
- [✓] Equipment data sheets
- [✓] Electrical Permit Pulled (check alarm/com)

- [✓] Scope of Work
- [✓] 11 ½ x 17s
- [✓] pdf copy (may be e-mailed)
- [✓] Designer qualifications
- [✓] Battery/ voltage drop calcs

COST OF WORK: #8560.°°

PERMIT FEE: 110
($10 PER $1,000 + $30 FOR THE FIRST $1,000)

Master box approval only: YES ◯   NO ◯
(If yes check _New AES Master Box_ above)

The **designer** shall be the responsible party for this application. Download a new copy of this application at
www.portlandmaine.gov/fire for every submittal. Submit all plans in electronic PDF in **addition** to readable 11 ½ x 17s to
the Building Inspections Department, 389 Congress Street, Room 315, Portland, Maine 04101.
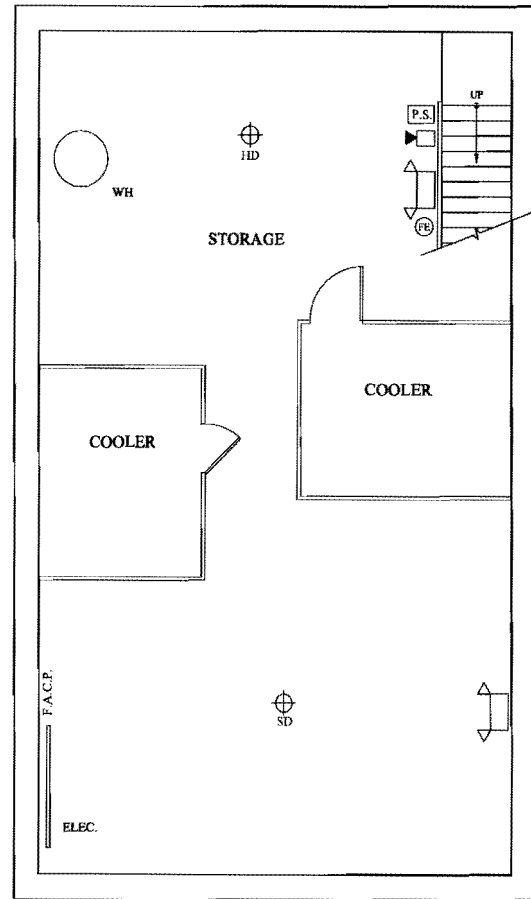
Prior to acceptance of any fire alarm system, a complete commissioning and acceptance test must be coordinated with all
fire system contractors and the Fire Department, and proper documentation of such test(s) provided.

All installation(s) must comply with the _City of Portland Technical Standard for Signaling Systems for the Protection of
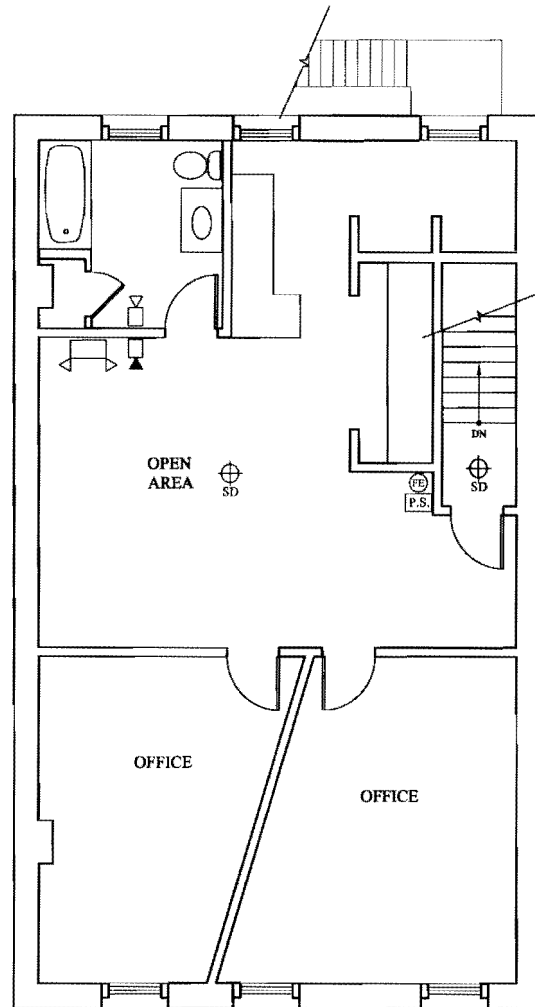Life and Property_, available at www.portlandmaine.gov/fire .

Applicant signature: _____   Date: 12·14·10
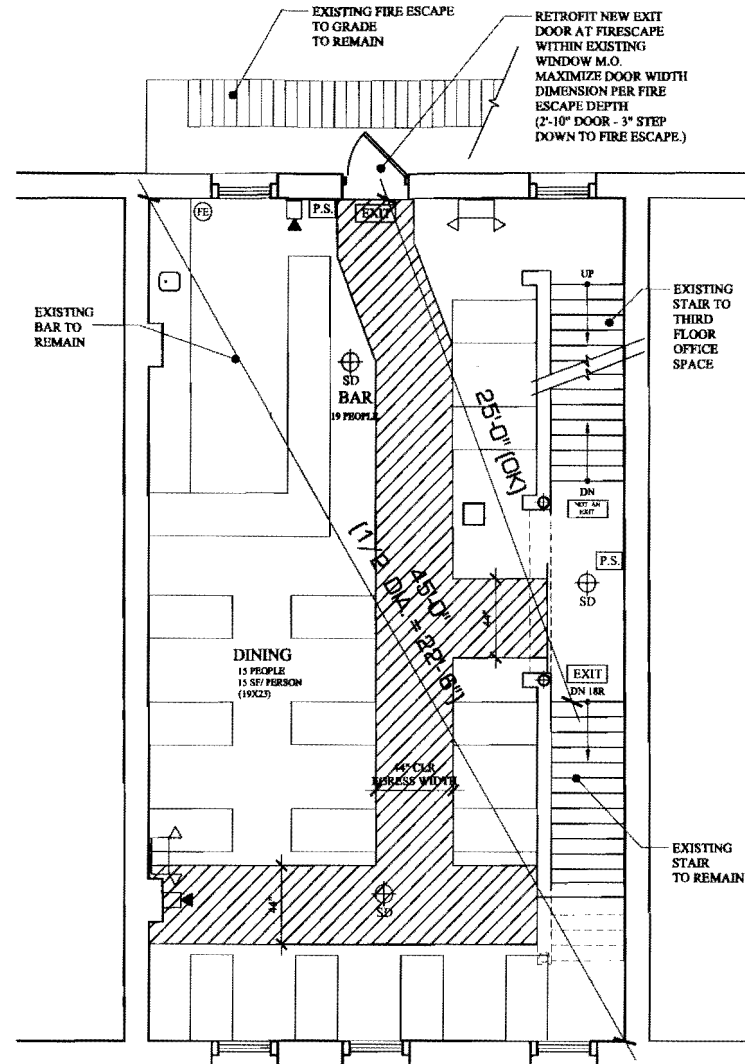
East Ender 47 Middle Street

	Activate Audible Alarm Indicator & Signals	Activate Supervisory Signal Indicator & Signals	Activate Common Trouble Indicator & Signals	Activates Graphic Smoke Control Panel
	A	B	C	D
Area Smoke Detectors				
Basement Smoke	●			
Second Floor Smokes	●			
Third Floor Smokes	●			
Heat Detectors	●			
Basement Heats	●			
Kitchen Heats	●			
Dining Room Heats	●			
Duct Smoke Detectors				
N/A				
Water Flows				
N/A				
Kitchen Ansul System	●			
Pull Stations				
Basement Pull	●			
First Floor Pulls	●			
Second Floor Pulls	●			
Trouble Points				
Open Circuit			●	
Ground Fault			●	
Notification Appliance Circuit Short			●	
Signal Line Circuit Short			●	
Supervisory Points				
Primary Dialer		●		
Secondary Dialer		●		
Fire Alarm A/C Power Loss		●		
Back Up Battery Power		●		

LIFE SAFETY LEGEND:

Symbol	Description
	EXIT LIGHT
EXIT	EMERGENCY BACKUP LIGHT
SD	SMOKE DETECTOR, BUSINESS
HD	HEAT & CO DETECTOR
	HORN/STROBE
	STROBE
FE	FIRE EXTINGUISHER
	ELEC. RECEPTACLE (INSTALL PER CODE & AS SHOWN)

- LIFE SAFETY AND FIRE ALARM SYSTEMS SHALL BE DESIGNED AND INSTALLED PER NFPA 72 AND PER CITY OF PORTLAND CODE.

- A SEPERATE PERMIT AND CITY APPROVED CONTRACTOR IS REQUIRED.

- ALL STROBES TO BE 30 CANDELA UNLESS OTHERWISE NOTED.

- SYSTEM SHALL BE SUPERVISED BY AN OFF-SITE CERTIFIED BY THE CITY OF PORTLAND THIRD PARTY

- INCLUDE HOOD SUPPRESSION SYSTEM INTO BUILDING LIFE SAFETY SYSTEM

BASEMENT PLAN
SCALE: 1/4"=1'-0"

STORAGE
COOLER
COOLER
WH
F.A.C.P.
ELEC.
UP
HD
SD
P.S

THIRD FLOOR PLAN
SCALE: 1/4"=1'-0"

OPEN AREA
OFFICE
OFFICE
DN
SD
SD
FE
P.S

SECOND FLOOR PLAN
SCALE: 1/4"=1'-0"

EXISTING FIRE ESCAPE TO GRADE TO REMAIN

RETROFIT NEW EXIT DOOR AT FIRESCAPE WITHIN EXISTING WINDOW M.O. MAXIMIZE DOOR WIDTH DIMENSION PER FIRE ESCAPE DEPTH (2'-10" DOOR - 3" STEP DOWN TO FIRE ESCAPE.)

EXISTING BAR TO REMAIN

EXISTING STAIR TO THIRD FLOOR OFFICE SPACE

BAR
55 PEOPLE

DINING
15 PEOPLE
15 SF PER PERSON
(19X23)

44"CLR EGRESS WIDTH

25'-0" (OK)

45'-0" - 23'-8"

EXISTING STAIR TO REMAIN

EXIT
DN 18R
FE
P.S.
SD
SD

FIRST FLOOR PLAN
SCALE: 1/4"=1'-0"

EXISTING KITCHEN EXHAUST SYSTEM W/ SUPPRESION TO REMAIN

HOOD SUPPRESION @ KITCHEN EXHAUST

EXISTING DOOR TO REMAIN

30" WIDE, 1 HOUR DOOR ON MAG-ON-HOLD OPEN

COMMUNICATION STAIR (NOT AN EXIT)

EXISTING STAIR DOOR TO REMAIN MAG-ON-HOLD OPEN

FIRE RATE NEW WALL TO UNDERSIDE OF STAIR OPENING

KITCHEN
2 PEOPLE
HD

KITCHEN PREP
1 PERSON
HD

DINING
19 PEOPLE
15 SF PER PERSON
(15X19)
HD

WAITING SPACE

ANNUNCIATOR PANEL

"NOT AN EXIT"

EXIT
FE
SS
UP
DN
NOT AN EXIT
UP 18R
P.S.
A.P.

TENANT FIT-UP FOR: 47 MIDDLE STREET

DECEMBER 08, 2010
REV. DECEMBER 10, 2010

LIFE SAFETY LEGEND:

- EXIT LIGHT
- EMERGENCY BACKUP LIGHT
- SD — SMOKE DETECTOR, BUSINESS
- HD — HEAT & CO DETECTOR
- HORN/STROBE
- STROBE
- FE — FIRE EXTINGUISHER
- ELEC. RECEPTACLE (INSTALL PER CODE & AS SHOWN)

- LIFE SAFETY AND FIRE ALARM SYSTEMS SHALL BE DESIGNED AND INSTALLED PER NFPA 72 AND PER CITY OF PORTLAND CODE.

- A SEPERATE PERMIT AND CITY APPROVED CONTRACTOR IS REQUIRED.

- ALL STROBES TO BE 30 CANDELA UNLESS OTHERWISE NOTED.

- SYSTEM SHALL BE SUPERVISED BY AN OFF- SITE CERTIFIED BY THE CITY OF PORTLAND THIRD PARTY

- INCLUDE HOOD SUPPRESSION SYSTEM INTO BUILDING LIFE SAFETY SYSTEM

BASEMENT PLAN
SCALE: 1/4"=1'-0"

- STORAGE
- COOLER
- COOLER
- WH
- HD
- P.S.
- UP
- FE
- SD
- ELEC.
- F.A.C.P.

THIRD FLOOR PLAN
SCALE: 1/4"=1'-0"

- OPEN AREA
- SD
- FE
- P.S.
- SD
- DN
- OFFICE
- OFFICE

SECOND FLOOR PLAN
SCALE: 1/4"=1'-0"

- EXISTING FIRE ESCAPE TO GRADE TO REMAIN
- RETROFIT NEW EXIT DOOR AT FIRESCAPE WITHIN EXISTING WINDOW M.O. MAXIMIZE DOOR WIDTH DIMENSION PER FIRE ESCAPE DEPTH (2'-10" DOOR - 3" STEP DOWN TO FIRE ESCAPE.)
- EXISTING BAR TO REMAIN
- EXISTING STAIR TO THIRD FLOOR OFFICE SPACE
- SD BAR — 19 PEOPLE
- 25'-0" (OK)
- DINING — 15 PEOPLE 15 SF/ PERSON (19X23)
- SD
- P.S.
- EXIT
- DN 18R
- EXISTING STAIR TO REMAIN
- FE
- P.S.
- EXIT
- UP

FIRST FLOOR PLAN
SCALE: 1/4"=1'-0"

- EXISTING KITCHEN EXHAUST SYSTEM W/ SUPPRESION TO REMAIN
- HOOD SUPPRESION @ KITCHEN EXHAUST
- EXISTING DOOR TO REMAIN
- EXIT
- P.S.
- 30" WIDE, 1 HOUR DOOR ON MAG-ON-HOLD OPEN
- COMMUNICATION STAIR (NOT AN EXIT)
- EXISTING STAIR DOOR TO REMAIN MAG-ON-HOLD OPEN
- SS
- KITCHEN — 2 PEOPLE
- HD
- FIRE RATE NEW WALL TO UNDERSIDE OF STAIR OPENING
- KITCHEN PREP — 1 PERSON
- HD
- "NOT AN EXIT"
- DINING — 19 PEOPLE 15 SF/ PERSON (15X19)
- HD
- WAITING SPACE
- ANNUNCIATOR PANEL
- UP 18R
- "NOT AN EXIT"
- P.S.
- EXIT
- FE
- UP
- DN
- 34"

DECEMBER 08, 2010
REV. DECEMBER 10, 2010

CITY OF PORTLAND, MAINE
Department of Building Inspections

Original Receipt

_____ 10. 11 20 10 _____

Received from _____ Cunningham _____

Location of Work _____ 47 India _____

Cost of Construction $_____   Building Fee: _____

Permit Fee $_____   Site Fee: _____

Certificate of Occupancy Fee: _____

Total: ___ 110 ___

Building (I.L) ___ Plumbing (I5) ___ Electrical (I2) ___ Site Plan (U2) ___

Other_____

CBL: ___ 28-P-21 ___

Check #: _____   **Total Collected** $ 110 _____

No work is to be started until permit issued.
Please keep original receipt for your records.

Taken by: _____

WHITE - Applicant's Copy
YELLOW - Office Copy
PINK - Permit Copy

SD355(A), SD355T(A), SD355R(A)

Addressable Photoelectric Smoke Detectors

Fire•Lite Alarms
by Honeywell

General

The **SD355(A)** and **SD355T(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 (P/N **RA100Z(A)**). The **SD355R** is a remote test capable detector for use with D355PL or DNR(W) duct smoke detector housings.

Features

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

Addressing:
- Addressable by device.
- Direct Decade entry of address: 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 (P/N RA100Z).

SD355 with B350LP base

SD355T with B350LP base

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 LEXAN®. SD355(T) plug-in, low-profile smoke detectors are designed to commercial standards and offer an attractive appearance.

Installation

SD355(T) plug-in detectors use a detachable mounting base to simplify installation, service and maintenance. Mount base on box which is at least 1.5 inches (3.81 cm) deep. Suitable boxes include:
- 4.0" (10.16 cm) square box with plaster ring.
- 4.0" (10.16 cm) octagonal box.
- 3.5" (8.89 cm) octagonal box.
- Single-gang box.

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 mounts in a D355PL or DNR(W) duct detector housing.

Operation

Each SD355/T/R 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 SD355/T/R addressable photoelectric sensor's unique unipolar chamber responds quickly and uniformly to a broad range of smoke conditions and 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/T/R 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 µA @ 24 VDC.

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

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

Diameter: 6.1" (15.5 cm) installed in B350LP base.

Height: 2.1" (5.33 cm) installed in B350LP base.

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(W) -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 and SD355T(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, file S1059.
- ULC Listed, file S1059.
- CSFM approved: file 7272-0075:194.
- MEA approved: file 243-02-E.
- FM approved.

Product Line Information

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

SD355: Adressable photoelectric detector; B350LP base included.

SD355A: Sames as SD355 with ULC Listing (B350LPA base included).

SD355T: Same as SD355 but with *thermal* element; B350LP base included.

SD355TA: Same as SD355T with ULC Listing (B350LPA base included).

SD355R: Remote test capable addressable photoelectric detector for use with a D355PL or DNR(W) duct detector housing.

B350LP(A): Plug-in detector base. Dimensions: 6.1" (15.5 cm). Mounting: 4.0" (10.16 cm) square box with or without plaster ring, 4.0" (10.16 cm) octagonal box, 3.5" (8.89 cm) octagonal box, or single-gang box. All mounting boxes have a minimum depth of 1.5" (3.81 cm).

B224RB(A): Plug-in System Sensor **relay** detector base. *Diameter:* 6.2" (15.75 cm). *Mounting:* 4.0" (10.16 cm) square box with or without plaster ring, 4.0" (10.16 cm) octagonal box, or 3.5" (8.89 cm) octagonal box. All mounting boxes have a minimum depth of 1.5" (3.81 cm).

B224BI(A): Plug-in System Sensor **isolator** detector base. Maximum 25 devices between isolator bases *(see DF-52389)*. *Diameter:* 6.2" (15.75 cm). *Mounting:* 4.0" (10.16 cm) square box with or without plaster ring, 4.0" (10.16 cm) octagonal box, or 3.5" (8.89 cm) octagonal box. All mounting boxes have a minimum depth of 1.5" (3.81 cm).

B200SR: Sounder base capable of producing temporal-3 or steady sound output.

ACCESSORIES:

RA100Z(A): Remote LED annunciator. 3 – 32 VDC. Mounts to a U.S. single-gang electrical box. *For use with B501(A) and B350LP(A) bases only.*

SMK400E: Surface mounting kit provides for entry of surface wiring conduit. *For use with B501(A) base only.*

RMK400: Recessed mounting kit. *For use with B501(A) base only.*

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, box of 10 .

WCK-200B: White detector covers, box of 10 .

ANN-80
80-Character LCD
Serial Annunciator

FIRE·LITE·ALARMS
by Honeywell

General

The ANN-80 annunciator is a compact, backlit, 80-character LCD fire annunciator that mimics the Fire Alarm Control Panel (FACP) display. It provides system status indicators for AC Power, Alarm, Trouble, Supervisory, and Alarm Silenced conditions. The ANN-80 and the FACP communicate over a two-wire serial interface employing the ANN-BUS communication format. Connected devices are powered, via two additional wires, by either the host FACP or a remote UL-listed, filtered power supply. ANN-80 is red; for white, order ANN-80-W.

The ANN-80 displays English-language text of system point information including device type, zone, independent point alarm, trouble or supervisory status, as well as any custom alpha labels programmed into the control panel. It includes control switches for remote control of critical system functions. (A keyswitch prevents unauthorized operation of the control switches.)

Up to eight ANN-80s may be connected to the ANN-BUS of each FACP. No programming is required, which saves time during system commissioning.

Features

- Listed to UL Standard 864, 9th Edition.
- Backlit 80-character LCD display (20 characters x 4 lines).
- Mimics all display information from the host panel.
- Control switches for System Acknowledge, Signal Silence, Drill, and Reset.
- Control switches can be independently enabled or disabled at the FACP.
- Keyswitch enables/disables control switches and mechanically locks annunciator enclosure
- Keyswitch can be enabled or disabled at the FACP.
- Enclosure supervised for tamper.
- System status LEDs for AC Power, Alarm, Trouble, Supervisory, and Alarm Silence.
- Local sounder can be enabled or disabled at the FACP.
- ANN-80 connects to the ANN-BUS terminal on the FACP and requires minimal panel programming.
- Displays device type identifiers, individual point alarm, trouble, supervisory, zone, and custom alpha labels.
- Time-and date display field.
- Surface mount directly to wall or to single, double, or 4" square electrical box.
- Semi-flush mount to single, double, or 4" square electrical box. Use ANN-SB80KIT for angled view mounting.
- Can be remotely located up to 6,000 feet (1,800 m) from the panel.
- Backlight turns off during AC loss to conserve battery power but will turn back on if an alarm condition occurs.
- May be powered by 24 VDC from the host FACP or by remote power supply (requires 24 VDC).
- Up to eight ANN-80s can be connected on the ANN-BUS.

Controls and Indicators

- AC Power
- Alarm
- Trouble
- Supervisory
- Alarm Silenced

Specifications

- **Operating voltage range:** 18 VDC to 28 VDC.
- **Current consumption @** 24 VDC nominal (filtered and non-resettable): 40 mA maximum.
- **Ambient temperature:** 32°F to 120°F (0°C to 49°C).
- **Relative humidity:** 93% ± 2% RH (noncondensing) at 32°C ± 2°C (90°F ± 3°F).
- 5.375" (13.65 cm.) high x 6.875" (17.46 cm.) wide x 1.375" (3.49 cm.) deep.
- For use indoors in a dry location.
- All connections are power-limited and supervised.

Agency Listings and Approvals

The listings and approvals below apply to the ANN-80. 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:** S2424
- **FM approved**
- **CSFM:** 7120-0075:211
- **MEA:** 442-06-E

The ANN-BUS

POWERING THE DEVICES ON THE ANN-BUS FROM AUXILIARY POWER SUPPLY

The ANN-BUS can be powered by an auxiliary power supply when the maximum number of ANN-BUS devices exceeds the ANN-BUS power requirements. See the FACP manual for more information.

ANN-BUS DEVICE ADDRESSING

Each ANN-BUS device requires a unique address (ID Number) in order to communicate with the FACP. A maximum of 8 devices can be connected to the FACP ANN-BUS communication circuit. See the FACP manual for more information.

WIRE REQUIREMENTS: COMMUNICATIONS CIRCUIT

The ANN-80 connects to the FACP ANN-BUS communications circuit. To determine the type of wire and the maximum wiring distance that can be used with FACP ANN-BUS accessory modules, it is necessary to calculate the total worst case current draw for all modules on a single 4-conductor bus. The total worst case current draw is calculated by adding the individual worst case currents for each module.

NOTE: *For total worst case current draw on a single ANN-BUS refer to appropriate FACP manual.*

After calculating the total worst case current draw, the following table specifies the maximum distance the modules can be located from the FACP on a single wire run. The table ensures 6.0 volts of line drop maximum. In general, the wire length is limited by resistance, but for heavier wire gauges, capacitance is the limiting factor.

These cases are marked in the chart with an asterisk (*). Maximum length can never be more than 6,000 feet (1,800 m), regardless of gauge used. See table below.

WIRE REQUIREMENTS: POWER CIRCUIT

- 14 to 18 AWG (0.75 - 2.08 mm²) wire for 24 VDC power circuit is acceptable. Power wire distance limitation is set by 1.2 volt maximum line drop form source to end of circuit.
- All connections are power-limited and supervised.
- A maximum of eight ANN-80 modules may be connected to this circuit.

Communication Pair Wiring Distance: FACP to Last ANN-BUS Module

Total Worst Case Current Draw (amps)	22 Gauge	18 Gauge	16 Gauge	14 Gauge
0.100	1,852 ft.	4,688 ft.	* 6,000 ft.	*6,000 ft.
0.200	926 ft.	2,344 ft.	3,731 ft.	5,906 ft.
0.300	617 ft.	1,563 ft.	2,488 ft.	3,937 ft.
0.400	463 ft.	1,172 ft.	1,866 ft.	2,953 ft.
0.500	370 ft.	938 ft.	1,493 ft.	2,362 ft.
0.600	309 ft.	781 ft.	1,244 ft.	1,969 ft.
0.700	265 ft.	670 ft.	1,066 ft.	1,687 ft.
0.800	231 ft.	586 ft.	933 ft.	1,476 ft.
0.900	206 ft.	521 ft.	829 ft.	1,312 ft.
1.000 (max.)	185 ft.	469 ft.	746 ft.	1,181 ft.

WIRING CONFIGURATION

The following figure illustrates the wiring between the FACP and ANN-BUS devices.

ANN-BUS and power wiring are supervised and power-limited.

ANN-BUS Device

MS-9050UD
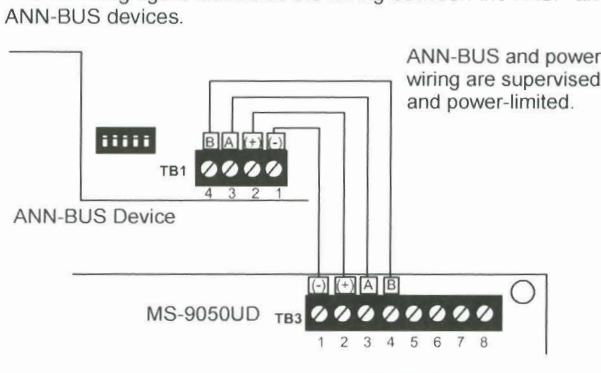
FACP Wiring to ANN-BUS Device

ORDERING OPTIONS:

ANN-80: Red 80 character LCD Annunciator.

ANN-80-W: White, 80 character LCD Annunciator.

ANN-SB80KIT-R: Red surface mount backbox with angled wedge.

ANN-SB80KIT-W: White surface mount backbox with angled wedge.

DITEK's HW series of surge protectors are designed and manufactured to meet the exacting standards of the life safety industry. These compact parallel mount surge protectors are widely used to protect fire alarm panels and other dedicated branch circuit loads.

DTK-120HW   DTK-120/240HW

Product Features
• Diagnostic LED indicates ground presence, system power and SPD function
• Small footprint enables installation in a variety of locations
• Available for popular 120V, and 120/240V systems
• Ten Year Limited Warranty

Specifications

Agency Approvals: UL 1449, 3rd Edition, cUL
IEEE Location Category: Category B
Protector Type: SPD Type 2
Protection Modes: L-G, L-N, N-G
Response Time: <1ns
Temperature Range: -40°F – 185°F (-40°C – 85°C)
Maximum Humidity: 95% non-condensing
Operating Frequency: 0Hz – 400Hz
Dimensions: 2.93" x 2.83" x 1.68"
                   (74.4mm x 71.9mm x 42.7mm)
Connection: ¾" diameter threaded fitting
Weight: .5lb. (227g)
Housing: ABS
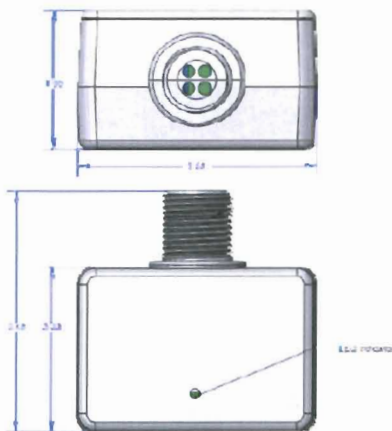
Model Selection: DTK-	Service Wiring	Peak Surge Current	MCOV	UL 1449, 3rd Ed. V.P.R.	Short Circuit Current Rating	UL1449, 3rd Ed. I$_n$ Rating
120HW	Single Φ (2W + G), 120VAC	19,500A	130V	700V L-N, L-G; 600V N-G	10,000A	3,000A
120/240HW	Split Φ (3W + G), 120/240VAC	13,000A/ Phase 6,500A/ Mode	130/260V	700V L-N, L-G; 600V N-G; 1200V L-L	10,000A	3,000A

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Document: SPS-100057-001 Rev 7 10/10
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Specification Subject to Change

System Sensor®

Selectable-Output Horns, Strobes, and Horn Strobes

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

SpectrAlert

Features

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

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

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

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

Agency Listings

SIGNALING
UL LISTED

FM APPROVED

MEA approved

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 1⅞-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 SyncoCircuit™ 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 SyncoCircuit Module, 12-volt-rated notification appliance circuit outputs shall operate between 9 and 17.5 volts, 24-volt-rated notification appliance circuit outputs shall operate between 17 and 33 volts. Indoor SpectrAlert Advance products shall operate between 32 and 120 degrees Fahrenheit from a regulated DC or full-wave rectified unfiltered power supply. Strobes and horn strobes shall have field-selectable candela settings including 15, 15/75, 30, 75, 95, 110, 115, 135, 150, 177, and 185.

Strobe

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

Horn Strobe Combination

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

Synchronization Module

The module shall be a System Sensor SyncoCircuit 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 4⁹⁄₁₆w x 4⁹⁄₁₆w x 2⅛-inch back box. The module shall also control two Style Y (Class B) circuits or one Style Z (class A) circuit. The module shall synchronize multiple zones. Daisy chaining two or more synchronization modules together will synchronize all the zones they control. The module shall not operate on a coded power supply.

Physical/Electrical Specifications

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

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

A75-1869-00?

UL Current Draw Data

UL Max. Strobe Current Draw (mA RMS)

Candela	8-17.5 Volts		16-33 Volts	
	DC	FWR	DC	FWR
Standard Candela Range				
15	123	128	66	71
15/75	142	148	77	81
30	NA	NA	94	96
75	NA	NA	158	153
95	NA	NA	181	176
110	NA	NA	202	195
115	NA	NA	210	205
High Candela Range				
135	NA	NA	228	207
150	NA	NA	246	220
177	NA	NA	281	251
185	NA	NA	286	258

UL Max. Horn Current Draw (mA RMS)

Sound Pattern	dB	8-17.5 Volts		16-33 Volts	
		DC	FWR	DC	FWR
Temporal	High	57	55	69	75
Temporal	Medium	44	49	58	69
Temporal	Low	38	44	44	48
Non-temporal	High	57	56	69	75
Non-temporal	Medium	42	50	60	69
Non-temporal	Low	41	44	50	50
Coded	High	57	55	69	75
Coded	Medium	44	51	56	69
Coded	Low	40	46	52	50

UL Max. Current Draw (mA RMS), 2-Wire Horn Strobe, Standard Candela Range (15-115 cd)

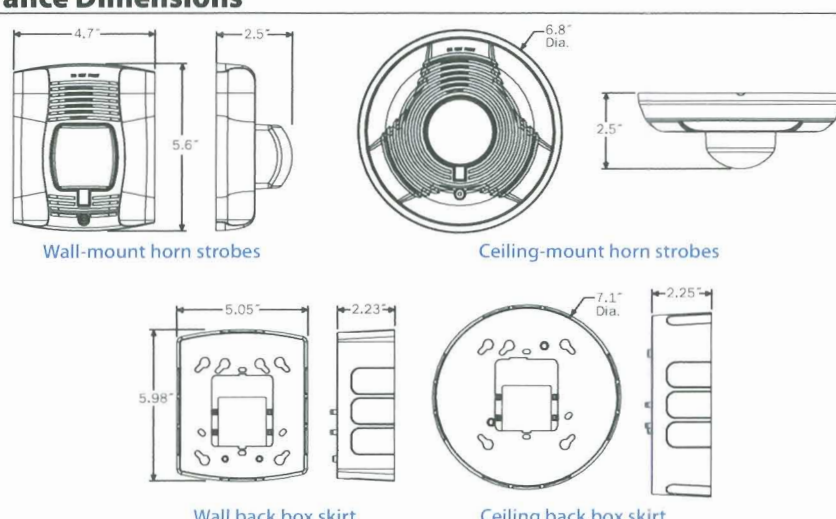| DC Input	8-17.5 Volts		16-33 Volts						
	15	15/75	15	15/75	30	75	95	110	115
Temporal High	137	147	79	90	107	176	194	212	218
Temporal Medium	132	144	69	80	97	157	182	201	210
Temporal Low	132	143	66	77	93	154	179	198	207
Non-Temporal High	141	152	91	100	116	176	201	221	229
Non-Temporal Medium	133	145	75	85	102	163	187	207	216
Non-Temporal Low	131	144	68	79	96	156	182	201	210
FWR Input									
Temporal High	196	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	223	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 Reverberant		Anechoic	
			DC	FWR	DC	FWR	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	79	85	85	90	90	98	98
6	Non-Temporal	Low	75	75	81	81	88	84	96	92
7[1]	Coded	High	82	82	88	88	93	92	101	101
8[1]	Coded	Medium	78	78	85	85	90	90	97	98
9[1]	Coded	Low	75	75	81	81	88	85	96	92

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

SpectrAlert Advance Dimensions

Wall-mount horn strobes

Ceiling-mount horn strobes

Wall back box skirt

Ceiling back box skirt

SpectrAlert Advance Ordering Information

Model	Description		Model	Description
Wall Horn Strobes			**Ceiling Strobes**	
P2R†*	2-Wire Horn Strobe, Standard cd‡, Red		SCR†	Strobe, Standard cd, Red
P2RH*	2-Wire Horn Strobe, High cd, Red		SCRH	Strobe, High cd, Red
P2W*	2-Wire Horn Strobe, Standard cd, White		SCW*	Strobe, Standard cd, White
P2WH*	2-Wire Horn Strobe, High cd, White		SCWH	Strobe, High cd, White
P4R*	4-Wire Horn Strobe, Standard cd, Red		**Horns**	
P4RH	4-Wire Horn Strobe, High cd, Red		HR	Horn, Red
P4W	4-Wire Horn Strobe, Standard cd, White		HW	Horn, White
Wall Strobes			**Accessories**	
SR†*	Strobe, Standard cd, Red		BBS-2	Back Box Skirt, Wall, Red
SRH*	Strobe, High cd, Red		BBSW-2	Back Box Skirt, Wall, White
SW*	Strobe, Standard cd, White		BBSC-2	Back Box Skirt, Ceiling, Red
SWH*	Strobe, High cd, White		BBSCW-2	Back Box Skirt, Ceiling, White
Ceiling Horn Strobes			TR-HS	Trim Ring, Wall, Red
PC2R*	2-Wire Horn Strobe, Standard cd, Red		TRW-HS	Trim Ring, Wall, White
PC2RH	2-Wire Horn Strobe, High cd, Red		TRC-HS	Trim Ring, Ceiling, Red
PC2W*	2-Wire Horn Strobe, Standard cd, White		TRCW-HS	Trim Ring, Ceiling, White
PC2WH†	2-Wire Horn Strobe, High cd, White			
PC4R	4-Wire Horn Strobe, Standard cd, Red			
PC4RH	4-Wire Horn Strobe, High cd, Red			
PC4W	4-Wire Horn Strobe, Standard cd, White			

Notes:
* Add "-P" to model number for plain housing (no "FIRE" marking on cover), e.g., P2RP
† Add "-SP" to model number for "FUEGO" marking on cover, e.g., P2RSP
‡ "Standard cd" refers to strobes that include 15, 75/75, 30, 75, 95, 110, and 115 candela settings. "High cd" refers to strobes that include 135, 150, 177, and 185 candela settings.

MMF-300(A) Series, MDF-300(A)
Addressable Monitor Modules

ꙮ Fire·Lite Alarms
by Honeywell

General

Four different monitor modules are available for Fire•Lite's intelligent control panels to suit a variety of applications. Monitor modules are used to supervise a circuit of dry-contact input devices, such as conventional heat detectors and pull stations, or monitor and power a circuit of two-wire smoke detectors (MMF-302).

MMF-300 is a standard-sized module (typically mounts to a 4" [10.16 cm] square box) that supervises either a Class A (Style D) or Class B (Style B) circuit of dry-contact input devices.

MMF-301 is a miniature monitor module (a mere 1.3" (3.302 cm) H x 2.75" (6.985 cm) W x 0.5" (1.270 cm) D) used to supervise a Class B (Style B) circuit of dry-contact input devices. Its compact design allows the MMF-301 to often be mounted in a single-gang box behind the device it monitors.

MMF-302 is a standard-sized module used to monitor and supervise compatible two-wire, 24 volt, smoke detectors on a Class A (Style D) or Class B (Style B) circuit.

MDF-300 is a standard-sized dual monitor module used to monitor and supervise two independent two-wire Style B (Class B) dry-contact initiating device circuits (IDCs) at two separate, consecutive addresses in intelligent, two-wire systems.

LiteSpeed™ is a communication protocol developed by Fire•Lite Engineering that greatly enhances the speed of communication between analog intelligent devices. Intelligent devices communicate in a grouped fashion. If one of the devices within the group has new information, the panel CPU stops the group poll and concentrates on single points. The net effect is response speed greater than five times that of other designs.

MMF-300 Monitor Module

- Built-in type identification automatically identifies this device as a monitor module to the control panel.
- Powered directly by two-wire SLC loop. No additional power required.
- 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 and latches on steady to indicate alarm.

The MMF-300 Monitor Module is intended for use in intelligent, two-wire systems, where the individual address of each module is selected using the built-in rotary switches. It provides either a two-wire or four-wire fault-tolerant Initiating Device Circuit (IDC) for normally-open-contact fire alarm and supervisory devices. The module has a panel-controlled LED indicator. The MMF-300 can be used to replace M300 modules in existing systems.

MMF-300 APPLICATIONS

Use to monitor a zone of four-wire smoke detectors, manual fire alarm pull stations, waterflow devices, or other normally-open dry-contact alarm activation devices. May also be used to monitor normally-open supervisory devices with special supervisory indication at the control panel. Monitored circuit may be wired as an NFPA Style B (Class B) or Style D (Class
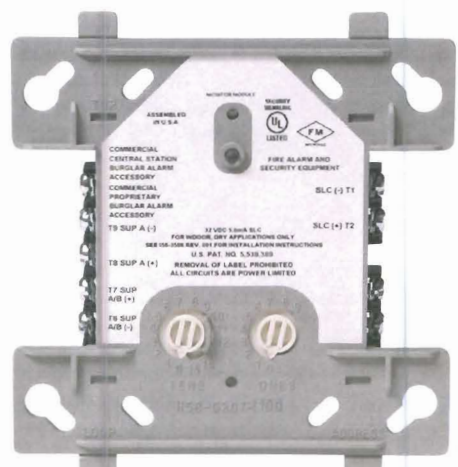
MMF-300 (Type H)

A) Initiating Device Circuit. A 47K ohm End-of-Line Resistor (provided) terminates the Style B circuit. No resistor is required for supervision of the Style D circuit.

MMF-300 OPERATION

Each MMF-300 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-300 SPECIFICATIONS

Nominal operating voltage: 15 to 32 VDC.

Maximum current draw: 5.0 mA (LED on).

Maximum operating current: 375 µA (LED flashing).

Maximum IDC wiring resistance: 1,500 ohms.

EOL resistance: 47K ohms.

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.

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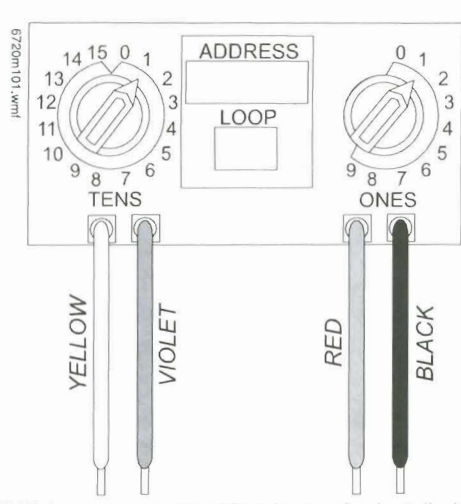
The MMF-301 Mini Monitor Module can be installed in a single-gang junction directly behind the monitored unit. Its small size and light weight allow it to be installed without rigid mounting. The MMF-301 is intended for use in intelligent, two-wire systems where the individual address of each module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

MMF-301 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 OPERATION

Each MMF-301 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 SPECIFICATIONS

Nominal operating voltage: 15 to 32 VDC.

Maximum operating current: 375 µA.

Maximum IDC wiring resistance: 1,500 ohms.

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 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 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 can be used to replace M302 modules in existing systems.

MMF-302 APPLICATIONS

Use the MMF-302 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 OPERATION

Each MMF-302 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 SPECIFICATIONS

Nominal operating voltage: 15 to 32 VDC.

Maximum current draw: 5.1 mA (LED on).

Maximum IDC wiring resistance: 25 ohms.

Maximum operating current: 270 µA (LED flashing).

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.

MDF-300 Dual Monitor Module

The MDF-300 Dual Monitor Module is intended for use in intelligent, two-wire systems. It provides two independent two-wire initiating device circuits (IDCs) at two separate, consecutive addresses. It is capable of monitoring normally open contact fire alarm and supervisory devices. The module has a single panel-controlled LED.

NOTE: The MDF-300 provides two Class B (Style B) IDC circuits ONLY. Class A (Style D) IDC circuits are NOT supported in any application.

MDF-300 SPECIFICATIONS

Normal operating voltage range: 15 to 32 VDC.

Maximum current draw: 6.4 mA (LED on).

Maximum operating current: 750 µA (LED flashing).

Maximum IDC wiring resistance: 1,500 ohms.

EOL resistance: 47K ohms.

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

Humidity range: 10% to 93% (non-condensing).

Dimensions: 4.5" (11.43 cm) high x 4" (10.16 cm) wide x 2.125" (5.398 cm) deep.

MDF-300 AUTOMATIC ADDRESSING

The MDF-300 automatically assigns itself to two addressable points, starting with the original address. For example, if the MDF-300 is set to address "26", then it will automatically assign itself to addresses "26" and "27".

NOTE: "Ones" addresses on the MDF-300 are 0, 2, 4, 6, or 8 only. Terminals 6 and 7 use the first address, and terminals 8 and 9 use the second address.

⚠ **CAUTION:**
Avoid duplicating addresses on the system.

Installation

MMF-300, MMF-302, and MDF-300 modules mount directly to a standard 4" (10.16 cm) square, 2.125" (5.398 cm) deep, electrical box. They may also be mounted to the SMB500 surface-mount box. Mounting hardware and installation instructions are provided with each module. All wiring must conform to applicable local codes, ordinances, and regulations. These modules are intended for power-limited wiring only.

The MMF-301 module is intended to be wired and mounted without rigid connections inside a standard electrical box. All wiring must conform to applicable local codes, ordinances, and regulations.

Agency Listings and Approvals

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:** *S2424*
- **ULC:** *S3705 ("A" suffix models)*
- **FM Approved**
- **CSFM:** 7300-0075-185
- **MEA:** 72-01-E

Product Line Information

NOTE: "A" suffix indicates ULC Listed model.

MMF-300(A): Monitor module.

MMF-301(A): Monitor module, miniature.

MMF-302(A): Monitor module, two-wire detectors.

MDF-300(A): Monitor module, dual, two independent Class B circuits.

SMB500: Optional surface-mount backbox.

NOTE: See installation instructions and refer to the SLC Wiring Manual, PN 51309.

Architects'/Engineers' Specifications

Specifications of these devices and all FireLite products are available from FireLite.

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.

ISO 9001
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ENGINEERING & MANUFACTURING
QUALITY SYSTEMS

BG-12LX

Addressable Manual Pull Station

Fire·Lite Alarms
by Honeywell

Addressable Devices

General

The Fire·Lite BG-12LX is a state-of-the-art, dual-action (i.e., requires two motions to activate the station) pull station that includes an addressable interface (mounted inside) for Fire·Lite's addressable fire alarm control panels (FACPs). Because the BG-12LX is addressable, the control panel can display the exact location of the activated manual station. This leads fire personnel quickly to the location of the alarm.

Features

- Maintenance personnel can open station for inspection and address setting without causing an alarm condition.
- Built-in bicolor LED, which is visible through the handle of the station, flashes in normal operation and latches steady red when in alarm.
- Handle latches in down position and the word "ACTIVATED" appears to clearly indicate the station has been operated.
- Captive screw terminals wire-ready for easy connection to SLC loop (accepts up to 12 AWG/3.25 mm² wire).
- Can be surface mounted (with SB-10 or SB-I/O) or semi-flush mounted. Semi-flush mount to a standard single-gang, double-gang, or 4" (10.16 cm) square electrical box.
- Smooth dual-action design.
- Meets ADAAG controls and operating mechanisms guidelines (Section 4.1.3[13]); meets ADA requirement for 5 lb. maximum activation force.
- Highly visible.
- Attractive shape and textured finish.
- Key reset.
- Includes Braille text on station handle.
- Optional trim ring (BG12TR).
- Meets UL 38, Standard for Manually Actuated Signaling Boxes.

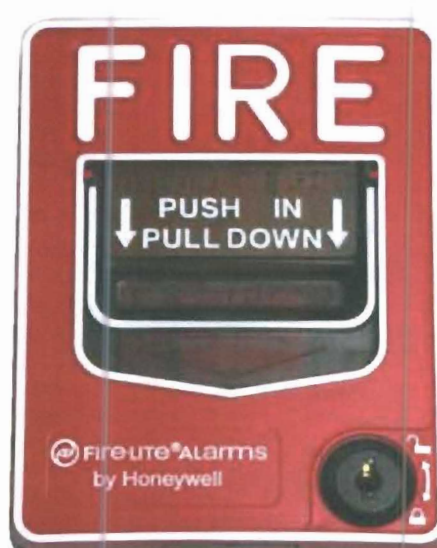

Construction

Shell, door, and handle are molded of durable polycarbonate material with a textured finish.

Specifications

- **Shipping Weight:** 9.6 oz. (272.15 g)
- **Normal operating voltage:** 24 VDC.
- **Maximum SLC loop voltage:** 28.0 VDC.
- **Maximum SLC loop current:** 230 μA.
- **Temperature Range:** 32°F to 120°F (0°C to 49°C)
- **Relative Humidity:** 10% to 93% (noncondensing)
- **For use indoors in a dry location**

Installation

The BG-12LX will mount semi-flush into a single-gang, double-gang, or standard 4" (10.16 cm) square electrical outlet box, or will surface mount to the model SB-10 or SB-I/O surface backbox. If the BG-12LX is being semi-flush mounted, then the optional trim ring (BG12TR) may be used. The BG12TR is usually needed for semi-flush mounting with 4" (10.16 cm) or double-gang boxes (not with single-gang boxes).

FIRE
PUSH IN
PULL DOWN
Fire·Lite Alarms
by Honeywell

FLPullStation.jpg

Operation

Pushing in, then pulling down on the handle causes it to latch in the down/activated position. Once latched, the word "ACTIVATED" (in bright yellow) appears at the top of the handle, while a portion of the handle protrudes from the bottom of the station. To reset the station, simply unlock the station with the key and pull the door open. This action resets the handle; closing the door automatically resets the switch.

Each manual station, on command from the control panel, sends data to the panel representing the state of the manual switch. Two rotary decimal switches allow address settings (1 – 159 with Breakaway Tab removed for MS-9600 Series, 1 – 99and MS-9200UDLS, 1 – 50 for MS-9050UD).

Architectural/Engineering Specifications

Manual Fire Alarm Stations shall be non-coded, with a key-operated reset lock in order that they may be tested, and so designed that after actual Emergency Operation, they cannot be restored to normal except by use of a key. An operated station shall automatically condition itself so as to be visually detected as activated. Manual stations shall be constructed of red-colored polycarbonate material with clearly visible operating instructions provided on the cover. The word FIRE shall appear on the front of the stations in white letters, 1.00 inches (2.54 cm) or larger. Stations shall be suitable for surface mounting on matching backbox SB-10 or SB-I/O; or semi-flush mounting on a standard single-gang, double-gang, or 4" (10.16 cm) square electrical box, and shall be installed within

the limits defined by the Americans with Disabilities Act (ADA) or per national/local requirements. Manual Stations shall be Underwriters Laboratories listed.

Manual stations shall connect with two wires to one of the control panel SLC loops. The manual station shall, on command from the control panel, send data to the panel representing the state of the manual switch. Manual stations shall provide address setting by use of rotary decimal switches.

Product Line Information

BG-12LX: Dual-action addressable pull station. Includes key locking feature.

SB-10: Surface backbox; metal.

SB-I/O: Surface backbox; plastic.

BG12TR: Optional trim ring.

17003: Keys, set of two.

Agency Listings and Approvals

In some cases, certain modules or applications may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL Listed:** S711
- **MEA:** 67-02-E
- **CSFM:** 7150-0075:184
- **FM** Approved

Patented:
U.S. Patent No. D428,351; 6,380,846; 6,314,772; 6,632,108.

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

Made in the U.S.A.

Fire-Lite Alarms by Honeywell
MS-9200UDLS Rev.2 Battery Calculation
Secondary Power Source Requirements

Device Type	Qty		Standby Current (amps) Current Draw		Total	Qty		Secondary Alarm Current (amps) 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	=	
ANN-BUS Devices										
ANN-80(-W)	1	x	0.015000	=	0.015000	1	x	0.040000	=	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	=	
ACS Annunciators										
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	=	
Resettable Power										
4-Wire Smoke Detectors	0	x	0.000000	=		0	x	0.000000	=	
Addressable Devices										
BEAM355	0	x	0.002000	=						
BEAM355S	0	x	0.002000	=						
BEAM1224	0	x	0.017000	=						
CP355	0	x	0.000300	=						
SD355	6	x	0.000300	=	0.001800					
SD355T	0	x	0.000300	=						
AD355	0	x	0.000300	=						
H355	0	x	0.000300	=						
H355R	4	x	0.000300	=	0.001200					
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	1	x	0.000400	=	0.000400					
MMF-300-10	0	x	0.003500	=						
MDF-300	0	x	0.000750	=						
MMF-301	0	x	0.000375	=						
MMF-302	0	x	0.000270	=						
MMF-302-6	0	x	0.002000	=						
BG-12LX	6	x	0.000230	=	0.001380					
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	4	x	0.020000	=	0.080000	4	x	0.020000	=	0.080000
Miscellaneous Device 1	3	x	0.020000	=	0.060000	3	x	0.142000	=	0.426000
Miscellaneous Device 2	7	x	0.020000	=	0.140000	7	x	0.147000	=	1.029000
Miscellaneous Device 3	0	x	0.000000	=		0	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	=		

Total Standby Load	0.436780	
Total Alarm Load	2.335000	

Fire-Lite Alarms
by Honeywell

MS-9200UDLS Rev.2 Battery Calculation

Calculation in Total Sheet

			Required Standby Time in Hours			
			24 Hours			
Standby Load Current	0.43678 Amps	x	24	=	10.483 AH	
			Required Alarm Time in Minutes			
			15 Minutes			
Alarm Load Current (Amps)	2.33500 Amps	x	0.25	=	0.584 AH	
		Total Current Load			11.066 AH	
	Multiply by the Derating Factor		1.2	=	x 1.20	
		Total Ampere Hours Required			13.28 AH	
	Recommended Batteries:	BAT-12180 - 18AH Batteries				

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

Current Draw Check
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.

System Sensor

Mini-Horns

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

SPECTRAlert
ADVANCE

Features

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

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

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

Agency Listings

SpectrAlert® Advance Mini-Horn Specifications

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

Physical Specifications

Dimensions	4.63 x 2.9 W x .45 D
Weight	2.67 oz.
Operating Temperature Range	32°F to 120°F (0°C to 49°C)
Mounting	Surface: deep single-gang back box (2¾" deep)
	Flush: Standard 4" x 4" back box

Electrical Specifications

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

UL Sound Output and Current Draw Data

Sounder Output (dBA)

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

Sounder Current Draw (mA RMS)

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

Ordering Information

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

Selectable-Output Horns, Strobes, and Horn Strobes

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

Features

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

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

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

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

Agency Listings

SpectrAlert Advance Specifications

General

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

Strobe

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

Horn Strobe Combination

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

Synchronization Module

The module shall be a System Sensor Sync-Circuit model MDL listed to UL 464 and shall be approved for fire protective service. The module shall synchronize SpectrAlert strobes at 1 Hz and horns at temporal three. Also, while operating the strobes, the module shall silence the horns on horn strobe models over a single pair of wires. The module shall mount to a 4½× × 4½× × 2⅛-inch back box. The module shall also control two Style-Y (class B) circuits or one Style-Z (class A) circuit. The module shall synchronize multiple zones. Daisy chaining two or more synchronization modules together will synchronize all the zones they control. The module shall not operate on a coded power supply.

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

Notes:
1. Full Wave Rectified (FWR) voltage is a non-regulated, time-varying power source that is used on some power supply and panel outputs.
2. If 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)

	Candela	8–17.5 Volts		16–33 Volts	
		DC	FWR	DC	FWR
Standard Candela Range	15	123	178	66	71
	15/75	142	148	77	81
	30	NA	NA	94	96
	75	NA	NA	158	153
	95	NA	NA	181	176
	110	NA	NA	202	195
	115	NA	NA	210	205
High Candela Range	135	NA	NA	228	207
	150	NA	NA	246	220
	177	NA	NA	281	251
	185	NA	NA	288	258

UL Max. Horn Current Draw (mA RMS)

Sound Pattern	dB	8–17.5 Volts		16–33 Volts	
		DC	FWR	DC	FWR
Temporal	High	57	55	66	75
Temporal	Medium	44	49	58	59
Temporal	Low	38	44	44	48
Non-temporal	High	57	56	66	75
Non-temporal	Medium	42	50	60	69
Non-temporal	Low	43	44	50	50
Coded	High	57	55	66	75
Coded	Medium	44	51	56	60
Coded	Low	40	46	52	50

UL Max. Current Draw (mA RMS), 2-Wire Horn Strobe, Standard Candela Range (15–115 cd)

DC Input	8–17.5 Volts		16–33 Volts						
	15	15/75	15	15/75	30	75	95	110	115
Temporal High	137	147	79	92	102	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
FWR Input									
Temporal High	116	155	88	97	117	166	190	210	218
Temporal Medium	129	157	78	88	103	160	184	202	206
Temporal Low	129	157	76	86	101	160	184	194	201
Non-Temporal High	142	161	103	112	126	181	203	221	226
Non-Temporal Medium	131	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	251	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	213	248	275	281
Non-Temporal Medium	242	254	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 Reverberant		Anechoic	
			DC	FWR	DC	FWR	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	71	76	76	83	80	94	89
4	Non-Temporal	High	82	82	88	88	93	92	110	100
5	Non-Temporal	Medium	78	78	85	85	90	90	94	98
6	Non-Temporal	Low	75	75	81	81	88	84	96	92
7*	Coded	High	82	82	88	88	93	92	101	101
8*	Coded	Medium	78	78	85	85	90	90	97	98
9*	Coded	Low	75	75	81	81	88	85	96	92

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

SpectrAlert Advance Dimensions

Wall-mount horn strobes

Ceiling-mount horn strobes

Wall back box skirt

Ceiling back box skirt

SpectrAlert Advance Ordering Information

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

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

Notes:
* Add "-P" to model number for plain housing (no "FIRE" marking on cover), e.g., P2R-P.
† Add "-SP" to model number for "FUEGO" marking on cover, e.g., P2R-SP.
‡ "Standard cd" refers to strobes that include 15, 15/75, 30, 75, 95, 110, and 115 candela settings. "High cd" refers to strobes that include 135, 150, 177, and 185 candela settings.

FCPS-24FS8

8-Amp, 24-Volt Power Supply

Fire•Lite Alarms
by Honeywell

General

The **Fire•Lite FCPS-24FS8(C/E)** is a compact, cost-effective, 8-amp remote power supplies with battery charger. The FCPS-24FS8C(C/E) may be connected to any 12 or 24 volt fire alarm control panel (FACP) or may stand-alone. Primary applications include notification appliance (bell) circuit (NAC) expansion (to support ADA requirements and NAC synchronization) or auxiliary power to support 24 volt system accessories. The FCPS provides *regulated and filtered* 24 VDC power to four notification appliance circuits configured as either two Class B (Style Y) and Class A (Style Z, with ZNAC-4 option module) or four class B only. Alternately, the four outputs may be configured as any combination of resettable/non-resettable power outputs (optimal for powering four-wire smoke detectors. The FFCPS-24FS8C(C/E) also contains a battery charger capable of charging up to 18.0 Amp hour batteries. FCPS-24FS8C(C/E) is ULC-listed.

NOTE: Unless otherwise specified, the term FCPS-24FS8 used in this document refers to the standard FCPS-24FS8, FCPS-24FS8C, FCPS-24FS8E

Features

- UL-Listed Notification Appliance Circuit (NAC) synchronization using System Sensor, Wheelock, or Gentex "Commander²" appliances.
- Operates as a "sync-follower" or as a "sync-generator" (default). *See note on page 2.*
- Contains two fully-isolated input/control circuits - triggered from FACP NAC (NAC expander mode) or jumped permanently "ON" (stand-alone mode).
- Two Class B (Style Y) or Class A (Style Z, with ZNAC-4 module) NACs (circuits 1 & 3)
- 8-amp full load output, with 3 amps maximum/circuit, in NAC expander mode (UL 864).
- 6-amp continuous output in stand-alone mode (UL 1481).
- Compatible with coded inputs; signals passed through.
- Compatible with power-limited NACs.
- Optional power-supervision relay (EOLR-1).
- In stand-alone mode, output power circuits may be configured as: resettable, (reset line from FACP required), non-resettable, or a mix of two and two.
- Fully regulated and filtered power output - optimal for powering four-wire smoke detectors, annunciators, and other system peripherals requiring regulated/filtered power.
- Power-limiting technology meets UL power-limiting requirements.
- Form-C normally-closed trouble relay.
- Fully supervised power supply, battery, and NACs.
- Selectable earth fault detection.
- AC trouble report selectable for immediate 2-hour delay.
- Works with virtually any UL 864 fine alarm control which utilizes an industry-standard reverse-polarity notification circuit (including unfiltered and unregulated bell power).
- Requires input trigger voltage of 9 - 32 VDC.
- Self-contained in compact, locking cabinet - 15"H x 14.5"W x 2.75"D (cm: 38.1H x 36.83W x 6.985D).

- Includes integral battery charger capable of charging up to 18 AH batteries. Cabinet capable of housing 7.0 AH batteries.
- Battery charger may be disabled via DIP switch for applications requiring larger batteries.
- Fixed, clamp-type terminal blocks accommodate up to 12 AWG (3.1mm²) wire.

Specifications

Primary (AC) Power:

- FCPS-24FS8: 120 VAC, 60 Hz, 3.2A maximum.
- FCPS-24FS8/E: 240 VAC, 50 Hz, 1.6A maximum.
- Wire Size: minimum #14 AWG (2.0mm²) with 600 V insulation.

Control Input Circuit:

- **Trigger Input Voltage:** 9 to 32 VDC.
- **Trigger Current:** 2.0 mA (16 - 32 V); Per Input: 1.0 mA (9 - 16 V).

Trouble Contact Rating: 5 A at 24 VDC.

Auxiliary Power Output: Specific application power 500 mA maximum.

Output Circuits:

- +24 VDC filtered, regulated.
- 3.0 A maximum for any one circuit.
- Total continuous current for all outputs (stand-alone mode):
  – FCPS-24FS8: 6.0 A maximum.
- Total short-term current for all outputs (NAC expander mode):
  – FCPS-24FS8: 8.0 A maximum.

Secondary Power (Battery) Charging Circuit:

- Supports lead-acid batteries only.
- Float-charge voltage: 27.6 VDC.
- Maximum current charge: 250 mA.
- Maximum battery capacity: 7.0 AH.

Applications

Example 1: Expand notification appliance power an additional 8.0 A. Use up to four Class B (Style Y) outputs or four Class A (Style Z) outputs (using ZNAC-4). For example, the FACP notification appliance circuits will activate the FCPS when reverse-polarity activation occurs. Trouble conditions on the FCPS are sensed by the FACP through the notification appliance circuit.

Example 2: Use the FCPS to expand auxiliary regulated 24-volt system power up to 6.0 A. Both resettable and non-resettable power options are available. Resettable outputs are created by connecting the resettable output from the FACP to one or both of the FCPS inputs.

Example 3: Use addressable control modules to activate the FCPS instead of activating it through the FACP notification appliance circuits. This typically allows for mounting the FCPS at greater distances* away from the FACP while expanding system architecture in various applications.

For example, an addressable control module is used to activate the FCPS, and an addressable monitor module is used to sense FCPS trouble conditions. Local auxiliary power output from the FCPS provides power to the addressable control module.

***NOTE:** Addressable FACPs are capable of locating control and monitor modules at distances of up to 10,000 feet (3,046 meters) .*

Sync Follower/Generator Note

In some installations, it is necessary to synchronize the flash timing of all strobes in the system for ADA compliance. Strobes accomplish this by monitoring very short timing pulses on the NAC power which are created by the FACP. When installed at the end of a NAC wire run, the FCPS-24FS8 can track (i.e. "follow") the strobe synchronization timing pulses on the existing NAC wire run. This maintains the overall system flash timing of the additional strobes attaches to the FCPS.

When the FCPS-24FS8 is configured (via DIP switch settings) as a "sync follower," the FCPS's NAC outputs track the strobe synchronization pulses present at the FCPS's sync input terminal. The pulses originate from an upstream FACP or other power supply.

When the FCPS-24FS8 is configured (via DIP switch settings) as a "sync generator," the FCPS's sync input terminals are not used. Rather, the FCPS is the originator of the strobe synchronization pulses on the FCPS's NAC outputs. In "sync generator" mode, the sync type (System Sensor, Wheelock, or Gentex) is selectable via DIP switch settings.

Standards and Codes

The FCPS-24FS8 complies with the following standards:

- **NFPA 72** National Fire Alarm Code.
- **UL 864** Standard for Control Units for Fire Alarm Systems (NAC expander mode).
- **UL 1481** Power Supplies for Fire Alarm Systems.

Agency Listings and Approvals

These listings and approvals apply to the modules specified in this document. In some cases, certain modules or applications may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL Listed:** S2424
- **ULC Listed:** S2424
- **CSFM Approved:** 7315-0075:206
- **MEA:** 219-02E
- **FM Listed**

Ordering Information

FCPS-24FS8: 6.0 A, 120 VAC remote charger power supply. Includes main printed circuit board, transformers, enclosure (15"H x 14.5"W x 2.75"D [cm: 38.1H x 36.83W x 6.985D]), and installation instructions.

FCPS-24FS8 is ULC-listed.

FCPS-24FS8E: 6.0 A, 240 VAC remote charger power supply. Includes main printed circuit board, transformers, enclosure (15"H x 14.5"W x 2.75"D [cm: 38.1H x 36.83W x 6.985D]), and installation instructions.
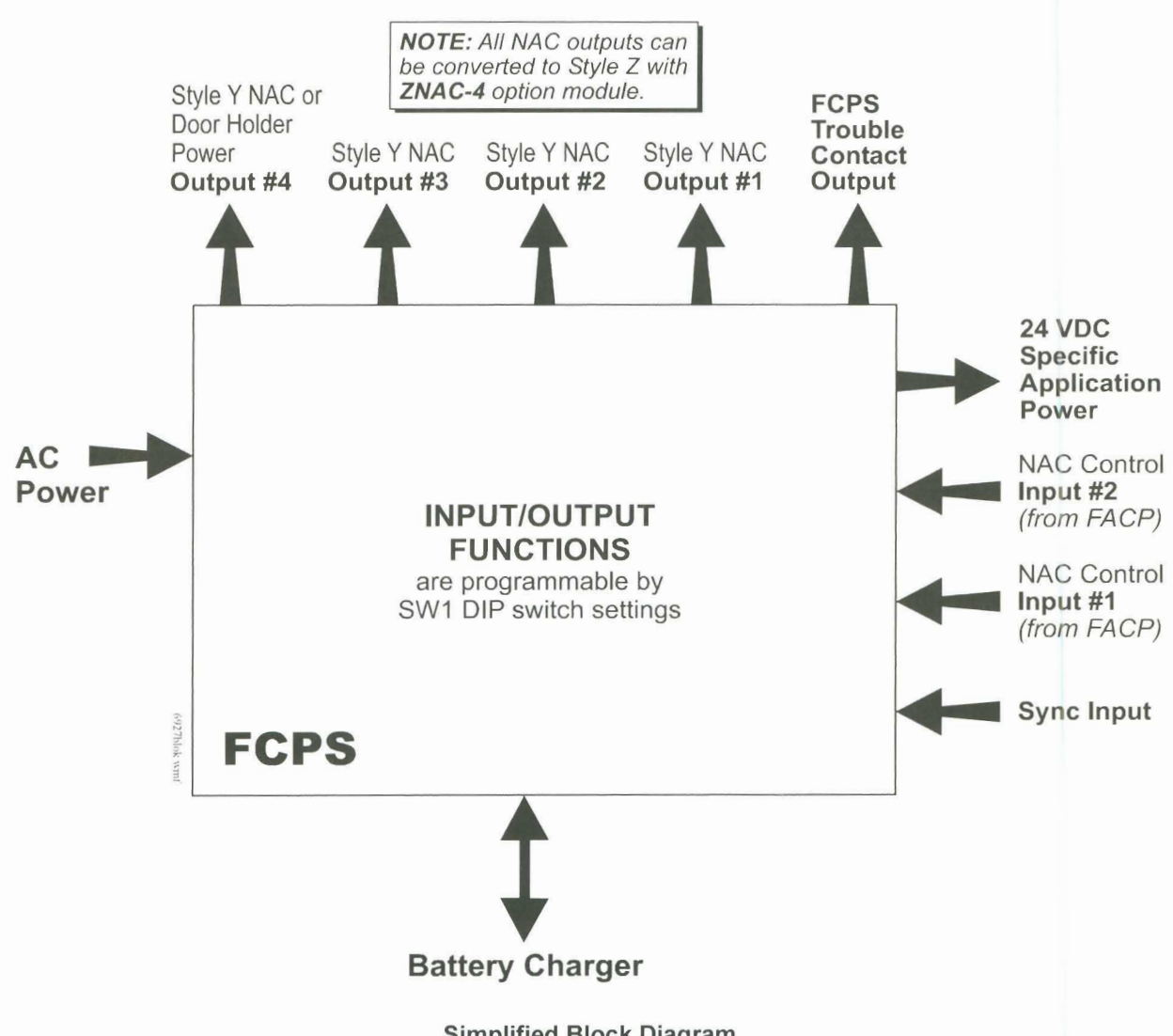
ZNAC-4: Class A (Style Y) NAC option module.

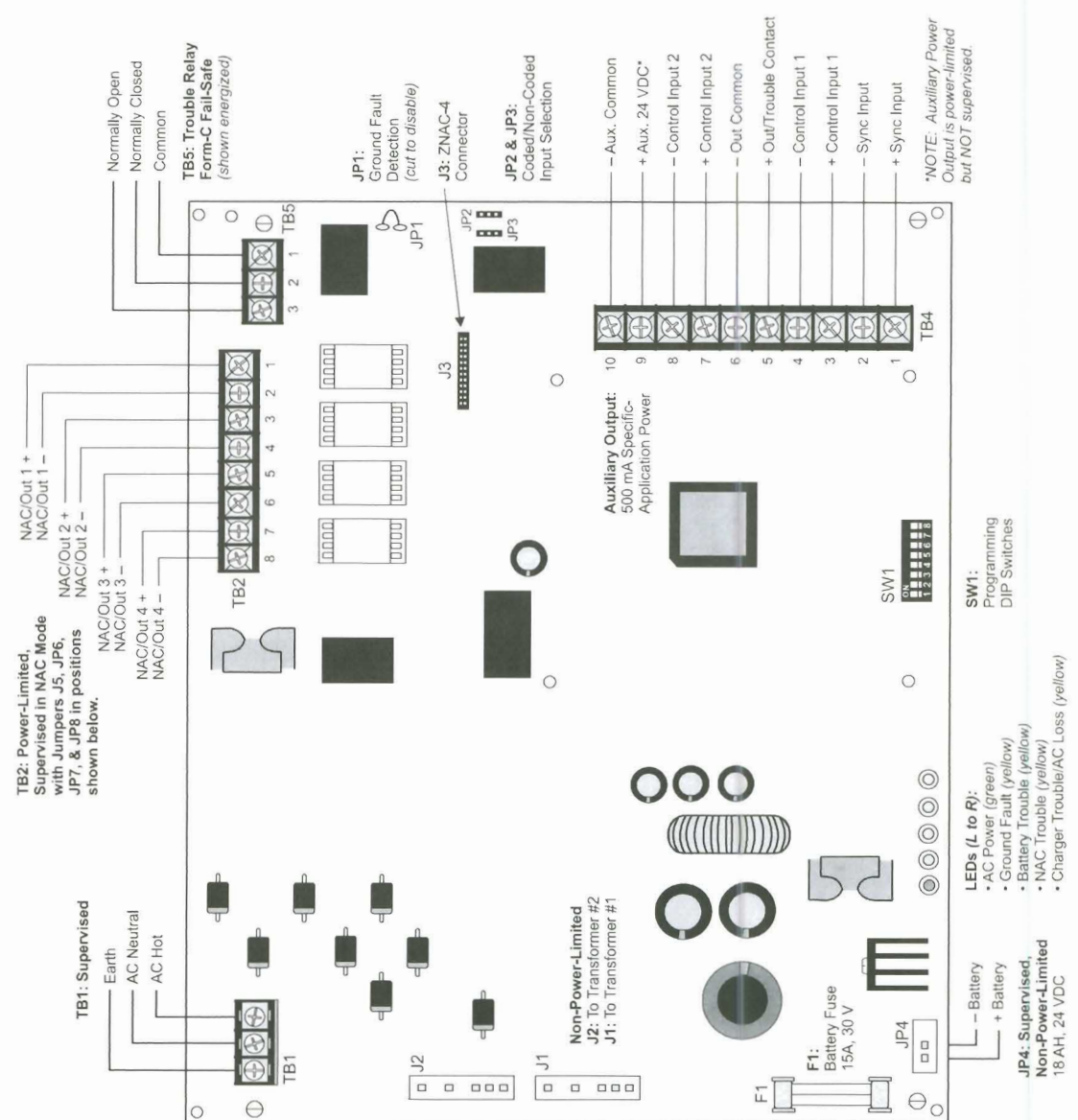**EOLR-1:** 12/24 VDC end-of-line relay for monitoring four-wire smoke detector power.

BAT-1270: Battery, 12-volt, 7.0 AH (two required).

PS-1270: Battery, 12-volt, 7.0 AH (two required).

90286: Optional module mounting kit, is required to install an addressable module on the power supply main circuit board.

Simplified Block Diagram

Diagram labels:

- Style Y NAC or Door Holder Power **Output #4**
- Style Y NAC **Output #3**
- Style Y NAC **Output #2**
- Style Y NAC **Output #1**
- **FCPS Trouble Contact Output**

NOTE: All NAC outputs can be converted to Style Z with **ZNAC-4** option module.

- **AC Power**
- **INPUT/OUTPUT FUNCTIONS** are programmable by SW1 DIP switch settings
- **FCPS**
- **Battery Charger**
- **24 VDC Specific Application Power**
- NAC Control **Input #2** *(from FACP)*
- NAC Control **Input #1** *(from FACP)*
- **Sync Input**

Board Layout

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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.

For more information, contact FireLite Alarms. Phone: (800) 627-3473, FAX: (877) 699-4105.
www.firelite.com

Made in the U.S.A.

MS-9200UDLS(E) Rev 2

Intelligent Addressable FACP with Built-In Communicator

Fire•Lite Alarms
by Honeywell

Addressable

General

The Fire•Lite MS-9200UDLS Rev 2 with Version 4.0 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 2 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 2'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.

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 4.0 firmware supports the following: ANN-bus devices, AD355 (LiteSpeed), USB port, NAC circuit diagnostics, a new report has been added to the walk-test 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) FACPs (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 Style Y (Class B) or two Class A (Style Z) NAC circuits. (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 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
- ACS/TERM:
  – ACS Annunciators: Up to 32 ACM Series annunciators (ACM-16AT or ACM-32 series). Cannot be used if ANN-BUS devices are used.
  – Terminal-mode Annunciators: Up to 32 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 two Class A NACs with NACKEY (included).
- 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(E) Rev 2 in less than one minute.
- USB 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 Rev 2: 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 Rev 2: Same as **MS-9200UDLS Rev 2,** except with 240 VAC operation.

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

PK-CD: Contains PS-Tools Programming software for Windows®-based PC computer (cable not included).

DP-9692: Optional dress panel for MS-9200UDLS Rev 2.

TR-CE: 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 2(E).

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

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 dis-

play. 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.)

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 2, 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.

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).
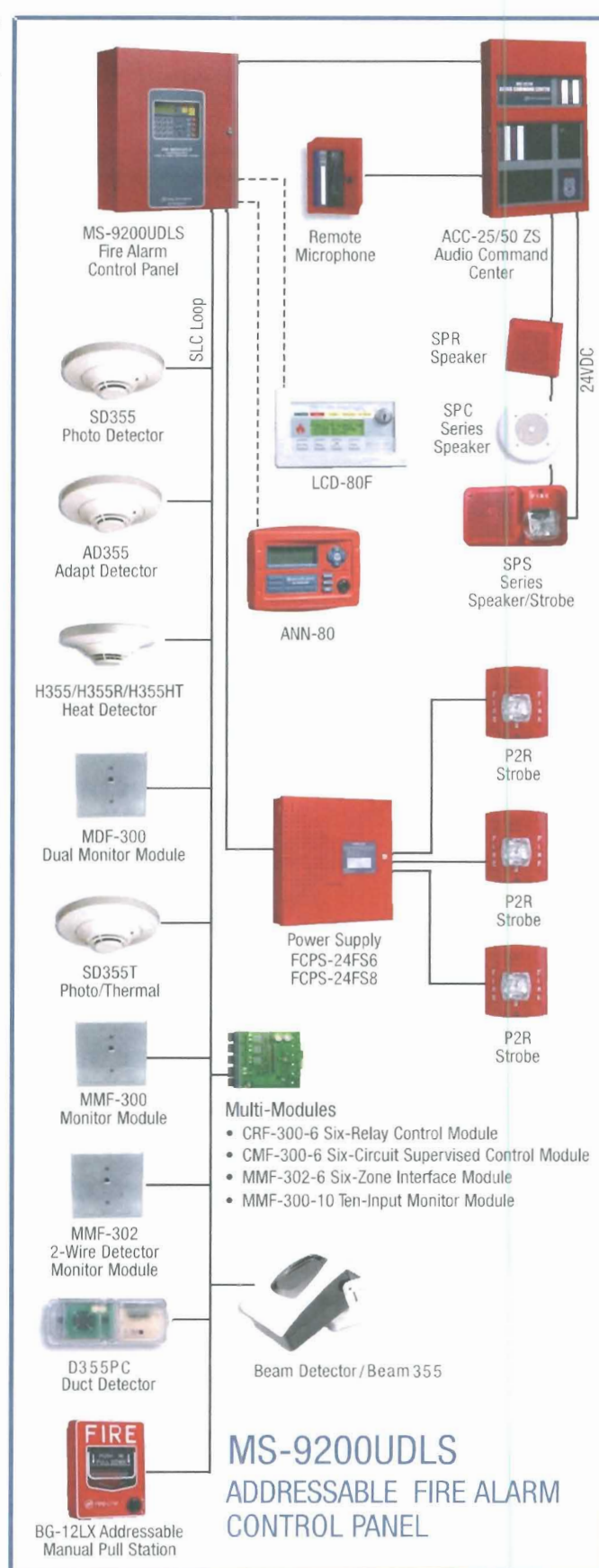
BEAM355: Intelligent beam smoke detector.

BEAM355S: Intelligent beam smoke detector with integral sensitivity test.

D350PL: Photoelectric low-flow duct smoke detector.

D350RPL: Photoelectric low-flow duct smoke detector with relay option.

DNR(A): Innovair Flex low-flow non-relay duct-detector housing. (Order SD355 separately.)

DNRW: Innovair Flex low-flow non-relay duct-detector housing, with NEMA-4 rating. Watertight. (Order SD355 separately.)

MS-9200UDLS
Fire Alarm
Control Panel

Remote
Microphone

ACC-25/50 ZS
Audio Command
Center

SLC Loop

SPR
Speaker

SPC
Series
Speaker

SD355
Photo Detector

LCD-80F

SPS
Series
Speaker/Strobe

AD355
Adapt Detector

ANN-80

H355/H355R/H355HT
Heat Detector

P2R
Strobe

SD355T
Photo/Thermal

MDF-300
Dual Monitor Module

Power Supply
FCPS-24FS6
FCPS-24FS8

P2R
Strobe

P2R
Strobe

MMF-300
Monitor Module

Multi-Modules
- CRF-300-6 Six-Relay Control Module
- CMF-300-6 Six-Circuit Supervised Control Module
- MMF-302-6 Six-Zone Interface Module
- MMF-300-10 Ten-Input Monitor Module

MMF-302
2-Wire Detector
Monitor Module

D355PC
Duct Detector

Beam Detector / Beam 355

BG-12LX Addressable
Manual Pull Station

MS-9200UDLS
ADDRESSABLE FIRE ALARM CONTROL PANEL

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 2, see the following data sheets (document numbers): AD355 (DF-52386), BG-12LX (DF-52013), CMF-300-6 (DF-52385), CRF-300-6 (DF-52374), CMF/CRF Series (DF-52130), CP355 (DF-52383), D350PL/ D350RPL (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 mm²) and no larger than 12 AWG (3.1 mm²). 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 8

Electrical Specifications

AC Power: MS-9200UDLS Rev 2: 120 VAC, 60 Hz, 3.0 amps. MS-9200UDLS Rev 2E: 240 VAC, 50 Hz, 1.5 amps. Wire size: minimum 14 AWG (2.00 mm²) with 600 V insulation.

Battery: Two 12 V 18AH lead-acid batteries.

Battery charger capacity: 7 – 18 AH. MS-9200UDLS Rev 2 cabinet holds maximum of two 18 AH batteries.

Communication Loop: Supervised and power-limited.

Notification Appliance Circuits: Each terminal block provides connections for two Style Y (Class B) or one Style Z (Class A) for a total of four Style Y (Class B) or two 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 @ 30 VAC (resistive). Form-C relays.

Special Application Power (24 VDC Nominal): Jumper selectable (JP4) for conversion to resettable power output. Up to 0.3 amps total DC current available from each output. Power-limited.

Four-Wire Resettable Special Application Smoke Detector Power (24 VDC nominal): Up to 0.3 amps for powering four-wire smoke detectors. Power-limited. Refer to the *Fire•Lite Device Compatibility Document* for listed compatible devices.

Remote Sync Output: Remote power supply synchronization output. Nominal special application output: 24 VDC. Maximum current: 40 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 2 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 2 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:** S624
- **FM approved**
- **CSFM:** 7165-0075:208
- **MEA:** 120-06-E

ISO 9001
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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.

For more information, contact Fire•Lite Alarms. Phone: (800) 627-3473, FAX: (877) 699-4105.
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