

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

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

Job No: 2011-01-333-FAFS	Date Applied: 1/25/2011 24	CBL: 025 - - B - 014 - 001 - - - - -	
Location of Construction: 127 MARGINAL	Owner Name: COVE COMPANY BACK	Owner Address: 5 MILK ST PORTLAND, ME - MAINE 04112	Phone:
Business Name:	Contractor Name: MILLIKEN, BRIAN H	Contractor Address: 10 STEEVES WAY FALMOUTHMAINE04105	Phone:
Lessee/Buyer's Name:	Phone:	Permit Type: FIRE ALARM - Fire Alarm	Zone: B-7
Past Use: Retail (Walgreens)	Proposed Use: Same: Retail (Walgreens) installing Fire Alarm	Cost of Work: 7000.00	CEO District:
		Fire Dept: <input checked="" type="checkbox"/> Approved w' conditions <input type="checkbox"/> Denied <input type="checkbox"/> N/A	Inspection: Use Group: M Type: Fire Alarm JHC 2009 Signature: JMB
Proposed Project Description: *127 Marginal Way / Fire Alarm		Pedestrian Activities District (P.A.D.)	

Permit Taken By:	<b>Zoning Approval</b>		
<p>1. This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules.</p> <p>2. Building Permits do not include plumbing, septic or electrical work.</p> <p>3. Building permits are void if work is not started within six (6) months of the date of issuance. False informatin may invalidate a building permit and stop all work.</p> <p style="font-size: 2em; font-weight: bold; text-align: center;">PERMIT ISSUED</p> <p style="text-align: center;">FEB 10 2011</p>	<b>Special Zone or Reviews</b>	<b>Zoning Appeal</b>	<b>Historic Preservation</b>
	<input type="checkbox"/> Shoreland <input type="checkbox"/> Wetlands <input type="checkbox"/> Flood Zone <input type="checkbox"/> Subdivision <input type="checkbox"/> Site Plan <input type="checkbox"/> Maj <input type="checkbox"/> Min <input type="checkbox"/> MM Date: <i>1/25/11</i>	<input type="checkbox"/> Variance <input type="checkbox"/> Miscellaneous <input type="checkbox"/> Conditional Use <input type="checkbox"/> Interpretation <input type="checkbox"/> Approved <input type="checkbox"/> Denied Date:	<input checked="" type="checkbox"/> Not in Dist or Landmark <input type="checkbox"/> Does not Require Review <input type="checkbox"/> Requires Review <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied Date:

**CERTIFICATION**

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

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



125

# Fire Alarm Permit

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

Installation address: 127 MARGINAL WAY CBL: 125 A014

Exact location: (within structure) FRONT OF BUILDING

Type of occupancy(s) (NFPA & ICC): \_\_\_\_\_

Building owner: FORE RIVER COMPANY

System Designer (point of contact): Must be RBALIEN / BH MILLIKEN

Designer phone: 207-879-1877 E-mail: FL@bhmilliken.com

Installing contractor: BH MILLIKEN / RBALIEN Certificate of Fitness No: 51015

Contractor phone: 207-879-1877 E-mail: FL@bhmilliken.com

This is a new application: YES  NO

This is an amendment to an existing permit: YES  NO  Permit no: \_\_\_\_\_

The following documents shall be provided with this application:

- Floor plans
- Wiring diagram
- Annunciator details
- Equipment data sheets
- Battery & voltage drop calculations
- Input/ Output Matrix
- Designer qualifications
- Electrical Permit Pulled (check alarm/com)

COST OF WORK: 6,500

PERMIT FEE: 90  
(\$10 PER \$1,000 + \$30 FOR THE FIRST \$1,000)

**RECEIVED**

JAN 24 2011

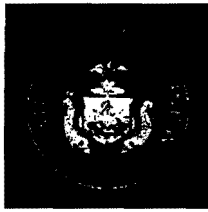
Dept. of Building Inspections  
City of Portland, Maine

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

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

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

Applicant signature: Francis Whelan Date: 1/24/11



# PORTLAND MAINE

*Strengthening a Remarkable City, Building a Community for Life* • [www.portlandmaine.gov](http://www.portlandmaine.gov)

Director of Planning and Urban Development  
Penny St. Louis Littell

Job ID: 2011-01-333-FAFS

Located At: 127 MARGINAL

CBL025 - - B - 014 - 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. In field installation shall be installed per code as conditions dictate.
3. Records cabinet, FACP, annunciation, and pull stations shall be keyed alike.
4. Central Station monitoring for addressable fire alarm systems shall be by point.
5. All fire alarm records required by NFPA 72 should be stored in an approved cabinet located at the FACP labeled "FIRE ALARM RECORDS".
6. Installation of a Fire Alarm system requires a Knox Box to be installed per city ordinance.
7. System acceptance and commissioning must be coordinated with alarm and suppression system contractors and the Fire Department. Call 874-8703 to schedule.
8. Fire Alarm system shall be maintained. If system is to be off line over 4 hours a fire watch shall be in place. Dispatch notification required 874-8576.

### **Building**

1. Separate permits are required for any electrical, plumbing, sprinkler, fire alarm, HVAC systems, heating appliances, including pellet/wood stoves, commercial hood exhaust systems and fuel tanks.
2. Separate plans may need to be submitted for approval as a part of this process. Fire Alarm systems shall be installed per Sec. 907 of the IBC 2003

PERMIT ISSUED

FEB 10 2011

City of Portland


WALGREENS  
PORTLAND, ME

<u>QTY.</u>	<u>CAT#</u>	<u>DESCRIPTION</u>	<u>DATA SHEET#</u>
1	MS9200UDLS	FIRELITE PANEL	DF-60415
4	BSL 1075	BATTERIES	POWER PATROL
2	SD355	SMOKE	DF-52384
1	D355PL	DUCT SMOKE	DF-60430
5	MMF-300	MONITOR MODULE	DF-52121
3	BG-12LX	PULL	DF-51094
1	CRF-300	RELAY	DF-60379
6	HSR	HORN STROBES	WHEELock
6	HSRC	CEILING HORN STROBES	WHEELock
2	STR	STROBES	WHEELock
1	ASWP24/75WFR	OUTSIDE WP HORN STROBE	DF-51898
1	KNOX 3200	KNOX BOX	KNOX
1	FACU	SPACE AGE FACU CABINET, PLANS CABINET	SPACE AGE

**Secondary Power Source Requirements**

Device Type	Standby Current (amps)			Secondary Alarm Current (amps)		
	Qty	Current Draw	Total	Qty	Current Draw	Total
Main Circuit Board	1	x 0.137000	= 0.137000	1	x 0.360000	= 0.360000
XRM-24B	0	x 0.000000	=	0	x 0.000000	=
4XTMF	0	x 0.005000	=	0	x 0.011000	=
IPDACT	0	x 0.100000	=	0	x 0.300000	=
IPDACT-2/2UD	0	x 0.098000	=	0	x 0.155000	=
<b>ANN-BUS Devices</b>						
ANN-80(-W)	0	x 0.015000	=	0	x 0.040000	=
ANN-LED	0	x 0.028000	=	0	x 0.068000	=
ANN-RLED	0	x 0.028000	=	0	x 0.068000	=
ANN-RLY	0	x 0.015000	=	0	x 0.075000	=
ANN-I/O	0	x 0.035000	=	0	x 0.200000	=
ANN-S/PG	0	x 0.045000	=	0	x 0.045000	=
<b>ACS Annunciators</b>						
ACM-8RF	0	x 0.030000	=	0	x 0.158000	=
ACM-16ATF	0	x 0.040000	=	0	x 0.056000	=
ACM-32AF	0	x 0.040000	=	0	x 0.056000	=
AEM-16ATF	0	x 0.002000	=	0	x 0.018000	=
AEM-32AF	0	x 0.002000	=	0	x 0.018000	=
AFM-16ATF	0	x 0.040000	=	0	x 0.056000	=
AFM-32AF	0	x 0.040000	=	0	x 0.056000	=
AFM-16AF	0	x 0.025000	=	0	x 0.065000	=
LDM-32F	0	x 0.040000	=	0	x 0.056000	=
LDM-E32F	0	x 0.002000	=	0	x 0.018000	=
LCD-80F	1	x 0.025000	= 0.025000	1	x 0.064000	= 0.064000
<b>Resettable Power</b>						
4-Wire Smoke Detectors	0	x 0.000000	=	0	x 0.000000	=
<b>Addressable Devices</b>						
BEAM355	0	x 0.002000	=			
BEAM355S	0	x 0.002000	=			
BEAM1224	0	x 0.017000	=			
CP355	0	x 0.000300	=			
SD355	5	x 0.000300	= 0.001500			
SD355T	0	x 0.000300	=			
AD355	0	x 0.000300	=			
H355	0	x 0.000300	=			
H355R	0	x 0.000300	=			
H355HT	0	x 0.000300	=			
D350P	0	x 0.000300	=			
D350RP	0	x 0.000300	=			
D350PL	6	x 0.000300	= 0.00180			
D350RPL	0	x 0.000300	=			
MMF-300	4	x 0.000400	= 0.001600			
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	3	x 0.000230	= 0.000690			
CMF-300	0	x 0.000390	=			
CMF-300-6	0	x 0.002250	=			
CRF-300	2	x 0.000270	= 0.000540			
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	=			
Maximum alarm draw for all Addressable devices						0.400000

EOLR-1	1	x	0.020000	=	0.020000	1	x	0.020000	=	0.020000	
Miscellaneous Device 1	0	x	0.000000	=		0	x	0.000000	=		
Miscellaneous Device 2	0	x	0.000000	=		0	x	0.000000	=		
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						1	x	0.040000	=	0.040000	
NAC 2						0	x	0.000000	=		
NAC 3						0	x	0.000000	=		
NAC 4						0	x	0.000000	=		
Current Draw from TB3			0.000000	=				0.000000	=		
<b>Total Standby Load</b>					<b>0.188130</b>	<b>Total Alarm Load</b>					<b>0.884000</b>

 <b>FIRE-LITE ALARMS</b> by Honeywell		<b>MS-9200UDLS Rev.2 Battery Calculation</b>	
Note 1: You are <b>fully responsible for verifying these calculations.</b>			
Note 2: Use the dropdowns in the <b>yellow</b> cells to enter values.			
<b>Calculation in Total Sheet</b>			
		<b>Require 1 Standby Time in Hours</b>	
		24 Hours	
Standby Load Current	0.18813 Amps	x	24 = 4.515 AH
		<b>Require 1 Alarm Time in Minutes</b>	
		15 Minutes	
Alarm Load Current (Amps)	0.88400 Amps	x	0.25 = 0.221 AH
		<b>Total Current Load</b>	
		<b>4.736 AH</b>	
Multiply by the Derating Factor		1.2	= x 1.20
		<b>Total Ampere Hours Required</b>	
		<b>5.68 AH</b>	
<b>Recommended Batteries:</b>		<b>BAT-1270 - 7AH Batteries</b>	
<b>Battery Check</b>			
The batteries can be charged by the MS-9200UDLS Charger.			
The batteries can be housed in the MS-9200UDLS Cabinet.			
<b>Current Draw Check</b>			
NAC#1 current is within the limitations of the circuit.			
NAC#2 current is within the limitations of the circuit.			
NAC#3 current is within the limitations of the circuit.			
NAC#4 current is within the limitations of the circuit.			
MS 9200UDLS Control Panel:			
The output current is within the panel's limitations.			



131 Lafayette Rd.  
P.O. Box 770  
No. Hampton, NH 03862

GAMEWELL FIRE ALARM SYSTEM  
WALGREENS  
PORTLAND, ME

PREPARED FOR:  
B H MILLIKEN ELECTRIC  
175 ANDERSON ST  
PORTLAND, ME 04101

R. B. ALLEN COMPANY, INC.

PREPARED BY: AR  
REVIEWED BY: TB

PHONE: 603-964-8140  
FAX: 603-964-8885

1/21/2011



EST Addressable Fire Alarm System  
 Walgreens marginal way


SEQUENCE OF OPERATION MATRIX

System Inputs	A	C	E	G	H	I	J	K	L	M	N	O	P	Q	R	S
	Activate Common Alarm Indicator at FACP and Annunciator w/ Device Location	Transmit Alarm to Central Station via Radiobox and UDACT	Activate Building Audible Evacuation Signals	Activate All Visual Circuits	Activate Building Exterior Strobe	Activate Elevator Shaft Damper(if needed)	Recall Elevator to Appropriate Floor level	Activate Common Supervisory Indicator at FACP and Annunciator w/ Device Location	Transmit Supervisory Signal to Central Receiving Station	Shut Down Associated HVAC Unit	Activate Common Trouble Indicator at FACP and Annunciator w/ Device Location	Transmit Trouble Signal to Central Receiving Station	Close Magnetically Held Fire Doors			
1 Manual Fire Stations	x	x	x	x	x	x										
2 System Smoke or Heat Detector	x	x	x	x	x	x						x	x			
3 Elevator Smoke or Heat Detector	x	x	x	x	x	x						x	x			
4 Duct Smoke Detector												x	x			
5 System Waterflow	x	x	x	x	x	x						x	x			
6 System Tamper Switch								x	x							
7 Fire Alarm - AC Failure										x	x					
8 Fire Alarm - Low Battery										x	x					
9 System Open Circuit										x	x					
10 System Ground Fault										x	x					
11 NAC Short Circuit									x							
12 NAC Open Circuit										x						
13																
14																
15																
16																

**Secondary Power Source Requirements**

Device Type	Standby Current (amps)			Secondary Alarm Current (amps)		
	Qty	Current Draw	Total	Qty	Current Draw	Total
Main Circuit Board	1	x 0.137000	= 0.137000	1	x 0.360000	= 0.360000
XRM-24B	0	x 0.000000	=	0	x 0.000000	=
4XTMF	0	x 0.005000	=	0	x 0.011000	=
IPDACT	0	x 0.100000	=	0	x 0.300000	=
IPDACT-2/2UD	0	x 0.098000	=	0	x 0.155000	=
<b>ANN-BUS Devices</b>						
ANN-80(-W)	0	x 0.015000	=	0	x 0.040000	=
ANN-LED	0	x 0.028000	=	0	x 0.068000	=
ANN-RLED	0	x 0.028000	=	0	x 0.068000	=
ANN-RLY	0	x 0.015000	=	0	x 0.075000	=
ANN-I/O	0	x 0.035000	=	0	x 0.200000	=
ANN-S/PG	0	x 0.045000	=	0	x 0.045000	=
<b>ACS Annunciators</b>						
ACM-8RF	0	x 0.030000	=	0	x 0.158000	=
ACM-16ATF	0	x 0.040000	=	0	x 0.056000	=
ACM-32AF	0	x 0.040000	=	0	x 0.056000	=
AEM-16ATF	0	x 0.002000	=	0	x 0.018000	=
AEM-32AF	0	x 0.002000	=	0	x 0.018000	=
AFM-16ATF	0	x 0.040000	=	0	x 0.056000	=
AFM-32AF	0	x 0.040000	=	0	x 0.056000	=
AFM-16AF	0	x 0.025000	=	0	x 0.065000	=
LDM-32F	0	x 0.040000	=	0	x 0.056000	=
LDM-E32F	0	x 0.002000	=	0	x 0.018000	=
LCD-80F	0	x 0.025000	=	0	x 0.064000	=
<b>Resettable Power</b>						
4-Wire Smoke Detectors	0	x 0.000000	=	0	x 0.000000	=
<b>Addressable Devices</b>						
BEAM355	0	x 0.002000	=			
BEAM355S	0	x 0.002000	=			
BEAM1224	0	x 0.017000	=			
CP355	0	x 0.000300	=			
SD355	0	x 0.000300	=			
SD355T	0	x 0.000300	=			
AD355	0	x 0.000300	=			
H355	0	x 0.000300	=			
H355R	0	x 0.000300	=			
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	=			
MMF-300	0	x 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	0	x 0.000230	=			
CMF-300	0	x 0.000390	=			
CMF-300-6	0	x 0.002250	=			
CRF-300	0	x 0.000270	=			
CRF-300-6	0	x 0.001450	=			
I300	0	x 0.000400	=			
B501BH-2	0	x 0.001000	=			
B501BHT-2	0	x 0.001000	=			
B224RB	0	x 0.000500	=			
B224BI	0	x 0.000450	=			
Maximum alarm draw for all Addressable devices ----->						0.400000

EOLR-1	0	x	0.020000	=	0	x	0.020000	=
Miscellaneous Device 1	0	x	0.000000	=	0	x	0.000000	=
Miscellaneous Device 2	0	x	0.000000	=	0	x	0.000000	=
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	=
<b>Total Standby Load</b>							<b>Total Alarm Load</b>	
			<b>0.137000</b>					

 <b>FIRE-LITE ALARMS</b> by Honeywell		<b>MS-9200UDLS Rev.2 Battery Calculation</b>	
Note 1: You are fully responsible for verifying these calculations.			
Note 2: Use the dropdowns in the yellow cells to enter values.			
<b>Calculation in Total Sheet</b>			
		<b>Required Standby Time in Hours</b>	
		24 Hours	
Standby Load Current	0.13700 Amps	x	24 = 3.288 AH
		<b>Required Alarm Time in Minutes</b>	
		5 Minutes	
Alarm Load Current (Amps)	0.76000 Amps	x	0.084 = 0.064 AH
		<b>Total Current Load</b>	
		<b>3.352 AH</b>	
Multiply by the Derating Factor		1.2	= x 1.20
		<b>Total Ampere Hours Required</b>	
		<b>4.02 AH</b>	
<b>Recommended Batteries:</b>		<b>BAT-1270 - 7AH Batteries</b>	
<b>Battery Check</b>			
The batteries can be charged by the MS-9200UDLS Charger.			
The batteries can be housed in the MS-9200UDLS Cabinet.			
<b>Current Draw Check</b>			
NAC#1 current is within the limitations of the circuit.			
NAC#2 current is within the limitations of the circuit.			
NAC#3 current is within the limitations of the circuit.			
NAC#4 current is within the limitations of the circuit.			
MS 9200UDLS Control Panel: The output current is within the panel's limitations.			

# 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.

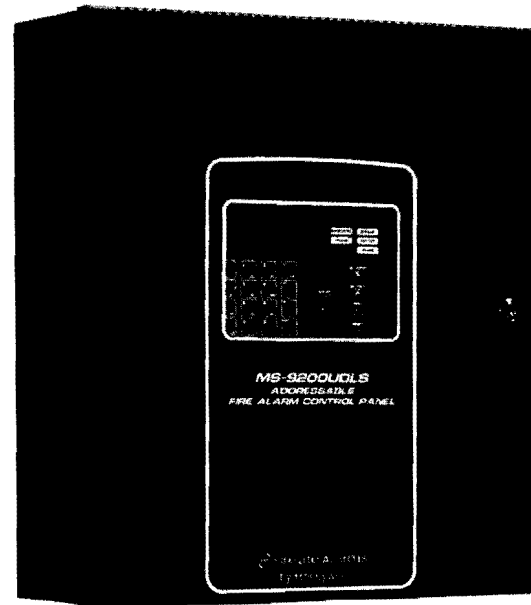
Available accessories include ANN-BUS devices as well as ACS LED, graphic and LCD annunciators, and reverse polarity/city box transmitter.

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) FACP's (Fire Alarm Control Panels).



### Features

- Listed to UL standard 864, 9th edition.
- On-board DACT.
- Remote site or local USB port upload/download, using PS-Tools.
- Four 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.

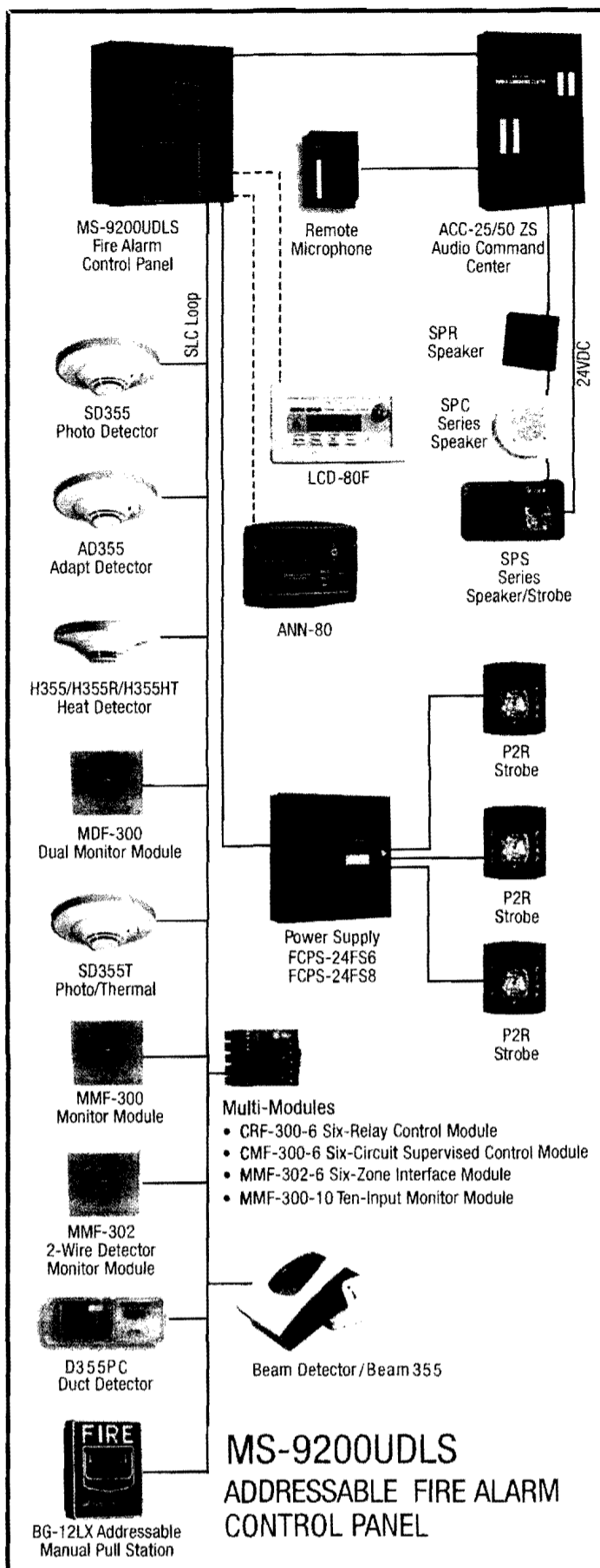
**BEAM355S:** Intelligent beam smoke detector with integral sensitivity test.

**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.)



**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-52365), 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 mm<sup>2</sup>) and no larger than 12 AWG (3.1 mm<sup>2</sup>). The wire size depends on the length of the SLC circuit. Refer to the panel manual for wiring details.





# SYSTEM SPECIFICATIONS

## System Capacity

- Intelligent Signalling Line Circuits..... 1
- Addressable device capacity ..... 198
- Programmable software zones ..... 99
- ACS Annunciators ..... 32
- ANN-bus devices..... 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 mm<sup>2</sup>) 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 @ 24 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 power: 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" (3.0 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

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We try to keep our product information up-to-date and accurate.  
We cannot cover all specific applications or anticipate all requirements.  
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Made in the U.S. A.

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



Sealed Lead-Acid Batteries

**BSL1075**  
(PC1270)

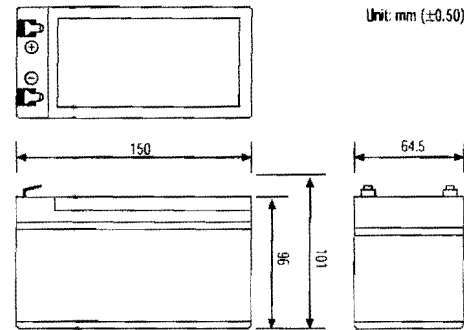
**Capacity Specifications**

Cut-off Voltage	20 Hr Rate (0.36 A)	7.2 Ah
1.75 v/c @ 25°C	10 Hr Rate (0.65 A)	6.5 Ah
1.70 v/c	5 Hr Rate (1.14 A)	5.7 Ah
1.55 v/c	1 Hr Rate (4.1 A)	4.1 Ah
	Bloc	Per Cell
Charge Voltage (constant)	Float	13.5-13.8
	Cycle	14.4-14.7
Discharge Current Amps (5 seconds maximum)	80	
Discharge Current Amps (maximum continuous)	50	
Max. Charge Current	2.16 A	
Approx Final Charge Current (2.25 v/c Float)	0.014 (14 mA)	
Approx Final Charge Current (2.45 v/c Cycle)	0.07 (70 mA)	
Terminal Type	Type A / (G optional)	
Self Discharge	9 months @ 21°C	
Case Material	ABS - Gray* or Black	

Due to changes in the manufacturing processes, specifications may change without notice.  
\*Gray option is Flame Retardant ABS.

**Technical Specifications**

Nominal Voltage	12V
Nominal Capacity	7.2 Ah (20 Hr Rate)
Dimensions	Length: 150 mm
	Width: 64.5 mm
	Height: 95 mm
Total Height/Terminal:	101 mm
Weight	Approx 2.75 Kg



Cut Off Voltage	Time	5 Min.	10 min.	15 min.	30 min.	45 min.	60 min.
		1.75 v/c	W	45.4	30.77	23.28	12.9
25°C	A	25.94	17.58	13.3	7.37	5.89	4.61
1.67 v/c	W	47.76	31.4	23.9	13.09	10.04	8.07
25°C	A	28.6	18.8	14.31	7.84	6.01	4.83
1.60 v/c	W	49.28	31.52	24.0	13.3	9.3	7.79
25°C	A	30.8	19.7	15.0	8.31	5.81	4.87

## OPERATION

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

The SD355(T) 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) 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 10 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.

## SPECIFICATIONS

**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).

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

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

## LISTINGS

Listings and approvals below apply to the SD355(A) 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 S6963.
- 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:** Addressable photoelectric detector; B350LP base included.

**SD355A:** Same 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).

**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).

**B501BH-2(A):** Plug-in System Sensor **sounder** detector base. **Diameter:** 6.0" (15.24 cm). **Mounting:** 4.0" (10.16 cm) square box with or without plaster ring. Mounting box has a minimum depth of 1.5" (3.81 cm).

**B501BHT-2(A):** Plug-in System Sensor **temporal tone** sounder detector base.

### ACCESSORIES:

**RA400Z(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.

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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.  
[www.firelite.com](http://www.firelite.com)

# InnovairFlex

## Intelligent Non-Relay Photoelectric Duct Smoke Detector

 **FIRE·LITE·ALARMS**  
by Honeywell

Intelligent Addressable Devices

### General

The Fire•Lite InnovairFlex D355PL intelligent non-relay photoelectric duct smoke detector and DNRW watertight non-relay photoelectric duct smoke detector feature a pivoting housing that fits both square and rectangular footprints capable of mounting to a round or rectangular duct.

DNRW duct smoke detector, with its NEMA-4 rating, is listed as a watertight enclosure providing protection against falling dirt, rain, and windblown dust, splashing and hose directed water, allowing operators to use the detector in the most extreme environments.

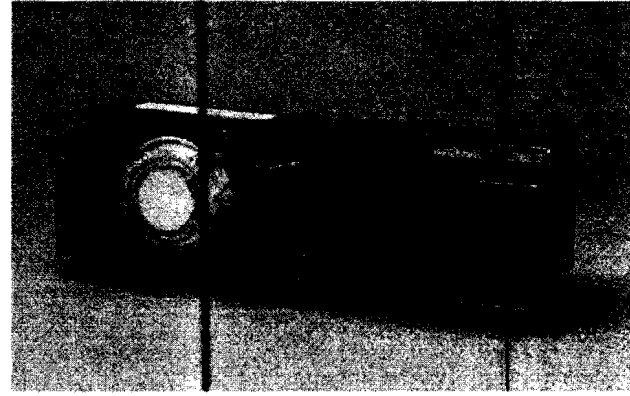
These units sense smoke in the most challenging conditions, operating in airflow speeds of 100 to 4,000 feet per minute, temperatures of -4 degrees F to 158 degrees F, and a humidity range of 0 to 95 percent (non-condensing.)

An improved cover design isolates the sensor head, which allows for ease of maintenance. A cover tamper feature indicates a trouble signal for a removed or improperly installed sensor cover. The Fire•Lite InnovairFlex housing provides a 3/4-inch conduit knockout and ample space to facilitate easy wiring and mounting of a relay module.

The Fire•Lite InnovairFlex duct smoke detector can be customized to meet local codes and specifications without additional wiring. The new InnovairFlex product line is compatible with all previous Innovair models, including remote test accessories.

### Features

- Photoelectric, integrated low-flow technology
- Air velocity rating from 100 ft/min to 4,000 ft/min (0.5 m/s to 20.32 m/s)
- Versatile mounting options: square or rectangular configuration
- Broad ranges for operating temperature (-4F to 158F) and humidity (0% to 95% non-condensing)
- Patented sampling tube installs from front or back of the detector with no tools required
- Cover tamper signal
- Increased wiring space with a newly added 3/4" conduit knockout
- Available space within housing to accommodate mounting of a relay module
- Easily accessible code wheels on sensor head (sold separately)
- Clear cover for convenient visual inspection
- Remote testing capability
- Requires com line power only
- Accommodates the installation of an addressable relay module, sold separately, (CRF-300) for applications requiring a form-C relay



### Specifications

**Size: (Rectangle)** 14.38 in (37 cm) Length; 5 in (12.7 cm) Width, 2.5 in (6.6 cm) Depth

**Size: (Square)** 7.75 in (19.7 cm) Length; 9 in (22.9 cm) Width; 2.5 in (6.35 cm) Depth

**Weight:** 1.6 lb (0.73 kg)

**Environmental Rating:** NEMA-4 (DNRW) only

**Operating Temperature Range:** -4 degrees F to 158 degrees F (-20 degrees C to 70 degrees C)

**Storage Temperature Range:** -22 degrees F to 158 degrees F (-30 degrees C to 70 degrees C)

**Operating Humidity Range:** 0% to 95% relative humidity (non-condensing)

**Air Duct Velocity:** 100 to 4,000 ft/min (0.5 to 20.32 m/s)

### Accessories

Fire•Lite provides system flexibility with a variety of accessories, including two remote test stations and different means of visible and audible system annunciation. As with our duct smoke detectors, all duct smoke detectors accessories are UL listed.

### ACCESSORY CURRENT LOADS AT 24 VDC

Device	Standby	Alarm
RA400Z	0mA	12 mA Max
RTS451/ RTS451KEY	0mA	12mA Max

### Agency Listings and Approvals

Consult product manual for lists of compatible UL-Listed devices. 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: 268A

## Product Line Information

**D355PL:** Intelligent non-relay photoelectric low flow smoke detector housing.

**DNRW:** Watertight intelligent non-relay photoelectric low flow duct smoke detector housing. .

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

**DCOIL:** Remote test coil required with RTS451/RTS451KEY

**DST1:** Metal sampling tube duct width up to 1 ft (0.3m)

**DST1.5:** Metal sampling tube duct widths up to 1 ft to 2 ft (0.3 to 0.6 m)

**DST3:** Metal sampling tube duct widths up to 2 ft to 4 ft (0.6 to 1.2 m)

**DST5:** Metal sampling tube duct widths up to 4 ft to 8 ft (1.2 to 2.4 m)

**DST10:** Metal sampling tube duct widths up to 8 ft to 12 ft (2.4 to 3.7 m)

**DH400OE-1:** Weatherproof enclosure

**ETX:** Metal exhaust tube duct, width 1 ft (0.3 m)

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

**P48-21-00:** End cap for metal sampling tubes

**RA400Z:** Remote annunciator alarm LED

**RTS451:** Remote test station

**RTS451KEY:** Remote test station with key lock

## Important Notes

- The use of either RTS451 or RTS451KEY requires the installation of an accessory coil, DCOIL, sold separately. Please refer to the DNR or DNRW installation manual for more information.
- The RTS451 / RTS451KEY test coil circuit requires an external 24VDC power supply which must be UL listed.

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[www.firelite.com](http://www.firelite.com)

# MMF-300(A) Series, MDF-300(A)

## Addressable Monitor Modules

 **FIRE-LITE Alarms**  
by Honeywell

Addressable Devices

### 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.

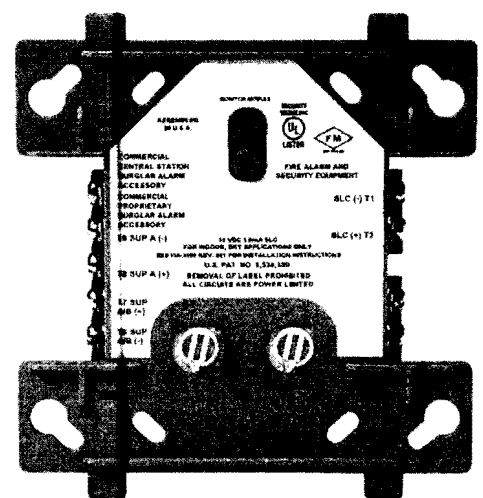
### MMF-300 Monitor Module

- 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  $\mu$ A (LED flashing).

**Maximum IDC wiring resistance:** 1,500 ohms.

**EOL resistance:** 47K ohms.

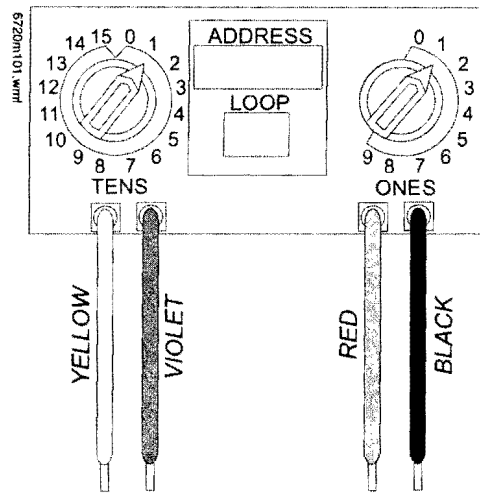
**Temperature range:** 32°F to 120°F (0°C to 49°C).

**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  $\mu$ A.

**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  $\mu$ A (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  $\mu$ A (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.

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**ISO 9001**  
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ENGINEERING & MANUFACTURING  
QUALITY SYSTEMS

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[www.firelite.com](http://www.firelite.com)

# BG-12LX

## Addressable Manual Pull Station

 **FIRE-LITE Alarms**  
by Honeywell

Addressable

### 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 mm<sup>2</sup> 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 LEXAN® (or polycarbonate equivalent) with a textured finish.

### Specifications

- Normal operating voltage: 24 VDC.
- Maximum SLC loop voltage: 28.0 VDC.
- Maximum SLC loop current: 230  $\mu$ A.
- Ambient Temperature: 32°F to 120°F (0°C to 49°C)
- Relative Humidity: 93%  $\pm$  2% RH (noncondensing) at 32°C  $\pm$  2°C (90°F  $\pm$  3°F)
- 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).



### 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, 1 – 99 and 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 LEXAN (or polycarbonate equivalent) 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.

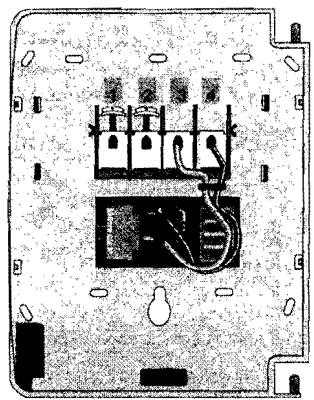
**BG12TR:** Optional trim ring.

**17003:** Keys, set of two.

**Agency Listings and Approvals**

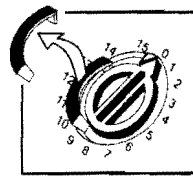
In some cases, certain modules or applications may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

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

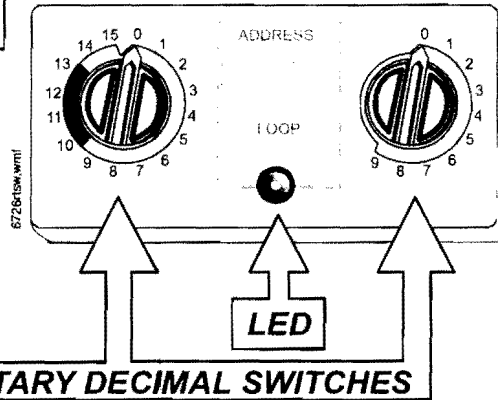


**Back of station without door**

Terminal Connections:  
1 SLC (-); 2 SLC (+)

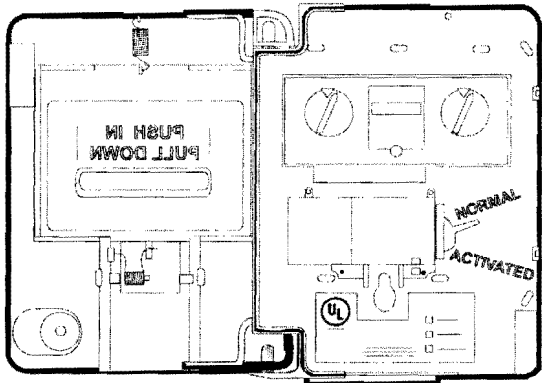


**Detail of BREAKAWAY TAB\***



**ROTARY DECIMAL SWITCHES**

\* Remove tab to select addresses above 99.



**Cover open to show easy access to miniature monitor module, rotary switch, and UL label.**

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

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[www.firelite.com](http://www.firelite.com)

# CRF-300

## Relay Module


**Addressable Devices**

### General

The **CRF-300** Addressable Relay Module provides the system with a dry-contact output for activating a variety of auxiliary devices, such as fans, door holders, dampers, control equipment, etc. Addressability allows the dry contact to be activated through panel programming, on a select basis.

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.

### Features

- Built-in type identification automatically identifies these devices to the control panel.
- Internal circuitry and relay powered directly by two-wire SLC loop.
- Integral LED "blinks" green each time a communication is received from the control panel and turns on in steady red when activated.
- High noise immunity (EMF/RFI).
- Wide viewing angle of LED.
- SEMS screws with clamping plates for wiring ease.
- Direct-dial entry of address: 01– 159 for MS-9600 series panels, 01 – 99 on MS-9200UDLS and MS-9050UD.

### Applications

The CRF-300 may be programmed to operate dry contacts for door holders, Air Handling Unit shutdown, etc., and to reset four-wire smoke detector power.

### Construction

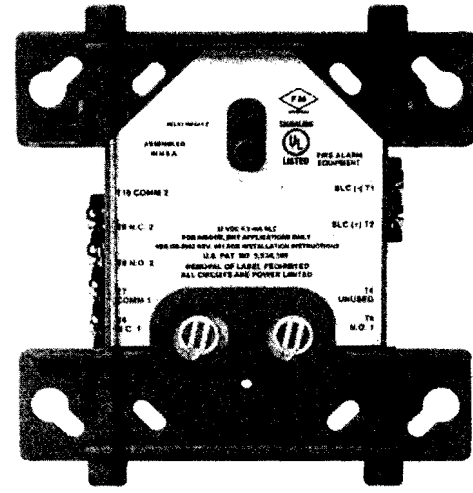
- The face plate is made of off-white heat-resistant plastic.
- Controls include two rotary switches for direct-dial entry of address setting.
- The CRF-300 is configured for a single Class B (Style Y) or Class A (Style Z) Notification Appliance Circuit.
- The CRF-300 provides two Form-C dry contacts that switch together.

### Operation

Each CRF-300 uses one of the addresses on a SLC loop. It responds to regular polls from the control panel and reports its type and status, including the open/normal/short status of its Notification Appliance Circuit (NAC). The LED blinks with each poll received. On command, it activates its internal relay.

**NOTE:** Open/short supervision is suspended with the CRF-300.

Rotary switches set a unique address for each module. The address may be set before or after mounting. The built-in TYPE CODE (not settable) will identify the module to the control panel, so as to differentiate between a control module and a relay module.


**CRF-300**

### Specifications

**Normal operating voltage:** 15 to 32 VDC.

**Maximum SLC current draw:** 6.5 mA (LED on).

**Average operating current:** 230 µA direct poll (CLIP mode), 255 µA group poll (LiteSpeed mode) with LED flashing.

**EOL resistance:** not used.

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

**Humidity range:** 10% to 93% non-condensing.

**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 mm) deep box.

### Relay Contact Ratings

Load Description	Application	Maximum Voltage	Current Rating
Resistive	Non-Coded	30 VDC	3.0 A
Resistive	Coded	30 VDC	2.0 A
Resistive	Non-Coded	110 VDC	0.9 A
Resistive	Non-Coded	125 VAC	0.9 A
Inductive (L/R=5ms)	Coded	30 VDC	0.5 A
Inductive (L/R=2ms)	Coded	30 VDC	1.0 A
Inductive (PF=0.35)	Non-Coded	125 VAC	0.5 A

## 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:** CS3965
- **FM approved**
- **CSFM:** 7300-0075:185
- **MEA:** 72-01-E

## Product Line Information

**CRF-300:** Intelligent addressable relay module.

**SMB500:** Optional surface-mount backbox.

**NOTE:** For installation instructions, see document I56-1190-005 and refer to the SLC Wiring Manual, document 51309.

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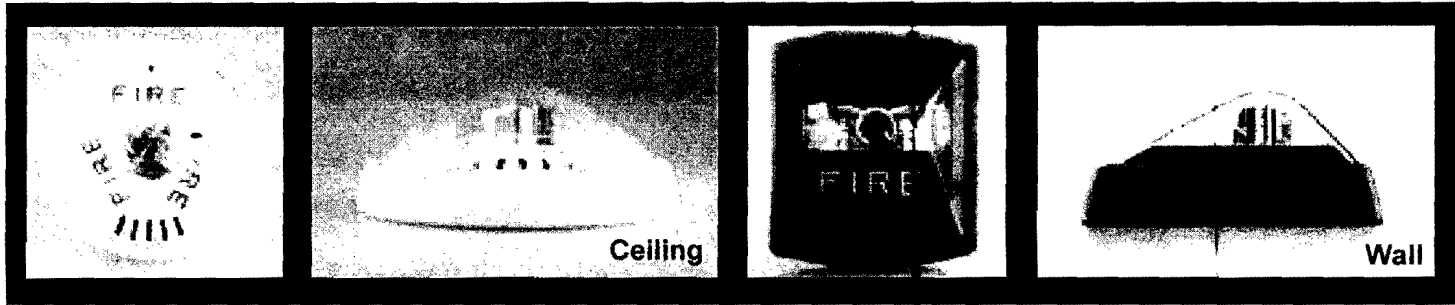


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## Finally, Design and Safety Meet...











### Description:

The Wheelock® Exceder™ Series of notification appliances feature a sleek modern design that will please building owners with reduced total cost of ownership. Installers will benefit from its comprehensive feature list, including the most candela options in one appliance, low current draw, no tools needed for setting changes, voltage test points, 12/24 VDC operation, universal mounting base and multiple mounting options for both new and retrofit construction.

The Wheelock® Exceder™ Series incorporates high reliability and high efficiency optics to minimize current draw allowing for a greater number of appliances on the notification appliance circuit. All strobe models feature an industry first of 8 candela settings on a single appliance. Models with an audible feature 3 sound settings (90, 95, 99 dB). All switches to change settings, can be set without the use of a tool and are located behind the appliance to prevent tampering. Wall models feature voltage test points to take readings with a voltage meter for troubleshooting and AHJ inspection.

The Wheelock® Exceder™ Series of wall and ceiling notification appliances feature a Universal Mounting Base (UMB) designed to simplify the installation and testing of horns, strobes, and combination horn strobes. The separate universal mounting base can be pre-wired to allow full testing of circuit wiring before the appliance is installed and the surface is finished. It comes complete with a Contact Cover for protection against dirt, dust, paint and damage to the contacts. The Contact Cover also acts as a shunting device to allow pre-wire testing for common wiring issues. The Contact Cover is polarized to prevent it from being installed incorrectly and prevents the appliance from being installed while it is on the UMB. When the Contact Cover is removed the circuit will show an open until the appliance is installed. The UMB allows for consistent installation and easy replacement of appliances if required. Wall models provide an optional locking screw for extra secure installation, while the ceiling models provide a captivated screw to prevent the screw from falling during installation.

- Save up to **48%** in current draw\*
- Up to **9** models now in **1** appliance
- Save up to **14%** cost of installation\*\*

-  Sleek Modern Aesthetics
-  Finger Slide Switches
-  Voltage Test Points
-  Multiple Voltages
-  3 Audible Settings  
90, 95, 99 dB
-  8 Candela Settings \*\*\*  
Wall - 15/1575/30/75/95/110/135/185  
Ceiling - 15/30/60/75/95/115/150/177
-  Universal Mounting Base \*\*\*  
Ceiling and Wall  
Mounts to 5 Backbox Types
-  Environmentally Friendly  
Low Current Draw

### Compatibility and Requirements

- Synchronize using the Wheelock® Sync Modules or panels with built-in Wheelock® Patented Sync Protocol
- Compatible with UL "Regulated Voltage" using filtered VDC or unfiltered VRMS input voltage
- Strobes produce 1 flash per second over the "Regulated Voltage" range

\* Compared to competitive models    \*\*\* Patented  
\*\* Compared to previous models

NOTE: All CAUTIONS and WARNINGS are identified by the symbol **▲**. All warnings are printed in bold capital letters.

**▲ WARNING:** PLEASE READ THESE SPECIFICATIONS AND ASSOCIATED INSTALLATION INSTRUCTIONS CAREFULLY BEFORE USING, SPECIFYING OR APPLYING THIS PRODUCT. VISIT [WWW.COOPERNOTIFICATION.COM](http://WWW.COOPERNOTIFICATION.COM) OR CONTACT COOPER NOTIFICATION FOR THE CURRENT INSTALLATION INSTRUCTIONS. FAILURE TO COMPLY WITH ANY OF THESE INSTRUCTIONS, CAUTIONS OR WARNINGS COULD RESULT IN IMPROPER APPLICATION, INSTALLATION AND/OR OPERATION OF THESE PRODUCTS IN AN EMERGENCY SITUATION, WHICH COULD RESULT IN PROPERTY DAMAGE, AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.

**General Notes:**

General Notes:

- Strobes are designed to flash at 1 flash per second minimum over their "Regulated Voltage Range".
- All candela ratings represent minimum effective strobe intensity based on UL Standard 1971.
- Series Exceder Strobe products are Listed under UL Standards 1971 and 464 for indoor use with a temperature range of 32°F to 120°F (0°C to 49°C) and maximum humidity of 93% (± 2%) UL 464 (85% UL 1971).
- Series Exceder horns are under UL Standard 464 for audible signal appliances (Indoor use only).

<b>Low Current Draw = Fewer Power Supplies</b>															
Strobe Ratings per UL Standard 1971															
		UL Max Current*													
		24 VDC / 24 FWR												12 VDC	
Model	Regulated Voltage Range VDC	15	15/75	30	60	75	95	110	115	135	150	177	185	15	15/75
ST	8.0-33.0	0.057	0.070	0.085		0.135	0.163	0.182		0.205			0.253	0.110	0.140
STC	8.0-33.0	0.061		0.085	0.103	0.135	0.163		0.182		0.205	0.253		0.110	

Horn Strobe Ratings per UL 1971 & UL 464 at 24 VDC															
		UL Max Current* at 99 c BA													
		24 VDC												12 VDC	
Model	Regulated Voltage Range VDC	15	15/75	30	60	75	95	110	115	135	150	177	185	15	15/75
HS	8.0-33.0	0.082	0.095	0.102		0.148	0.176	0.197		0.242			0.282	0.125	0.159
HSC	8.0-33.0	0.082		0.102	0.141	0.148	0.176		0.197		0.242	0.282		0.125	

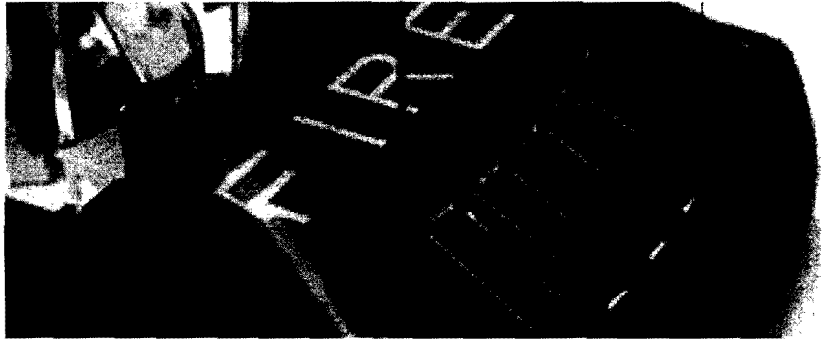
  

		UL Max Current* at 95 d 3A													
		24 VDC												12 VDC	
Model	Regulated Voltage Range VDC	15	15/75	30	60	75	95	110	115	135	150	177	185	15	15/75
HS	8.0-33.0	0.073	0.083	0.087		0.139	0.163	0.186		0.230			0.272	0.122	0.153
HSC	8.0-33.0	0.073		0.087	0.128	0.139	0.163		0.186		0.230	0.272		0.122	

		UL Max Current* at 90 d 3A													
		24 VDC												12 VDC	
Model	Regulated Voltage Range VDC	15	15/75	30	60	75	95	110	115	135	150	177	185	15	15/75
HS	8.0-33.0	0.065	0.075	0.084		0.136	0.157	0.184		0.226			0.267	0.120	0.148
HSC	8.0-33.0	0.065		0.084	0.120	0.136	0.157		0.184		0.226	0.267		0.120	

Horn Ratings per UL 464				
Model	Regulated Voltage Range VDC	99 dB	95 dB	90 dB
HN	16-33.0	0.064	0.044	0.022
HNC	16-33.0	0.084	0.044	0.022
HN	8.0-17.5	0.047	0.026	0.017
HNC	8.0-17.5	0.047	0.026	0.017



\* UL max current rating is the maximum RMS current within the listed voltage range (16-33 VDC for 24 VDC units). For strobes the UL max current is usually at the minimum listed voltage (16 VDC for 24 VDC units). For audibles the max current is usually at the maximum listed voltage (33 VDC for 24 VDC units). For unfiltered ratings, see installation instructions.



**Specification & Ordering Information**

Model	Strobe Candela	Sync w/ SM, DSM or PS-6 & PS-8	12/24 VDC*	Mounting Options
<b>Easy to remember model codes</b>				
<b>8 candelas on 1 device</b>				
<b>Horn Strobes</b>				
HSR	15/1575/30/75/95/110/135/185	X	X	UMB**
HSW	15/1575/30/75/95/110/135/185	X	X	UMB**
HSRC	15/30/60/75/95/115/150/177	X	X	UMB**
HSWC	15/30/60/75/95/115/150/177	X	X	UMB**
<b>Strobes</b>				
STR	15/1575/30/75/95/110/135/185	X	X	UMB**
STW	15/1575/30/75/95/110/135/185	X	X	UMB**
STRC	15/30/60/75/95/115/150/177	X	X	UMB**
STWC	15/30/60/75/95/115/150/177	X	X	UMB**
<b>Horn</b>				
HNR		X	X	UMB**
HNW		X	X	UMB**
HNRC		X	X	UMB**
HNWC		X	X	UMB**

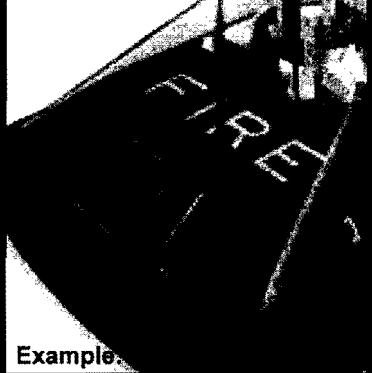
\*12 VDC models feature 15 & 15/75 settings

\*\*UMB = Universal Mounting Base


**Model Legend**

- HN = Horn
- ST = Strobe
- HS = Horn Strobe
- C = Ceiling Mount
- W = White
- R = Red

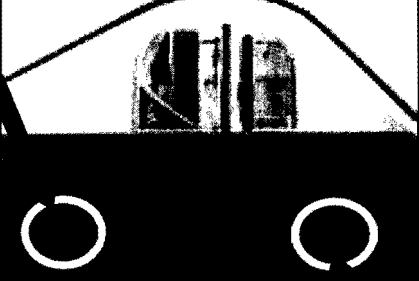
Example 1: STRC = Strobe, Red, Ceiling Mount  
 Example 2: HSR = Horn Strobe, Red, Wall Mount  
 Example 3: HSW = Horn Strobe, White, Wall Mount




Example: HSWC



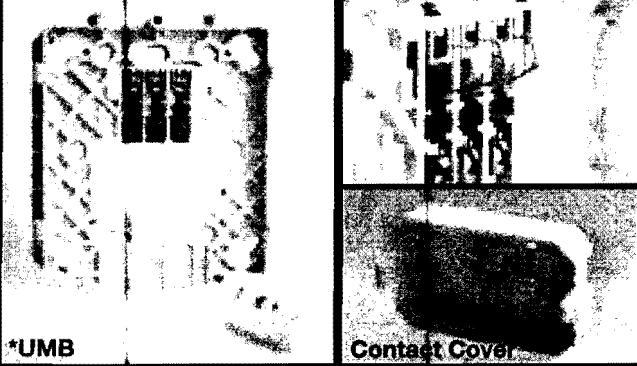
Example: HSWC



Voltage test points for quick troubleshooting and easy spot checking (wall models only)



8 candela settings



Common base for wall and ceiling with 5 mounting options

**NOTE:** Due to continuous development of our products, specifications and offerings are subject to change without notice in accordance with Cooper Wheelock Inc., dba Cooper Notification standard terms and conditions.

## Architects and Engineers Specifications

The notification appliances shall be Wheelock® Exceder™ Series HS Audible Strobe appliances, Series ST Visual Strobe appliances and Series HN Audible appliances or approved equals. The Series HS and ST Strobes shall be listed for UL Standard 1971 (Emergency Devices for the Hearing-Impaired) for Indoor Fire Protection Service. The Series HS and HN Audibles shall be UL Listed under Standard 464 (Fire Protective Signaling). All Series shall meet the requirements of FCC Part 15 Class B. All inputs shall be compatible with standard reverse polarity supervision of circuit wiring by a Fire Alarm Control Panel (FACP) with the ability to operate from 8 to 33 VDC. Indoor wall models shall incorporate voltage test points for easy voltage inspection.

The Series HS Audible Strobe and ST Strobe appliances shall produce a flash rate of one (1) flash per second over the Regulated Voltage Range and shall incorporate a Xenon flashtube enclosed in a rugged Lexan® lens. The Series shall be of low current design. Where Multi-Candela appliances are specified, the strobe intensity shall have 8 field selectable settings at 15, 15/75, 30, 75, 95, 110, 135, 185 candela for wall mount and 15, 30, 60, 75, 95, 115, 150, 177 candela for ceiling mount. The selector switch for selecting the candela shall be tamper resistant. The 15/75 candela strobe shall be specified when 15 candela UL Standard 1971 Listing with 75 candela on-axis is required (e.g. ADA compliance). Appliances with candela settings shall show the candela selection in a visible location at all times when installed.

The audible shall have a minimum of three (3) field selectable settings for dBA levels and shall have a choice of continuous or temporal (Code 3) audible outputs.

The Series HS Audible Strobe, ST Strobe and Series HN Audible shall incorporate a patented Universal Mounting Base that shall allow mounting to a single-gang, double-gang, 4-inch square, 3.5-inch octal, 4-inch octal or 100mm European type back boxes. Two wire appliance wiring shall be capable of directly connecting to the mounting base. Continuity checking of the entire NAC circuit prior to attaching any notification appliances shall be allowed. Product shall come with Contact Cover to protect contact springs. Removal of an appliance shall result in a supervision fault condition by the Fire Alarm Control Panel (FACP). The mounting base shall be the same base among all horn, strobe, horn strobe, wall and ceiling models. All notification appliances shall be backwards compatible.

The Series HS and ST wall models shall have a low profile measuring 5.24" H x 4.58" W x 2.19" D. Series HN wall shall measure 5.24" H x 4.58" W x 1.6" D. The Series HSC and STC shall be round and have a low profile with a diameter of 6.68" x 2.63" D. Series HNC ceiling shall have a diameter of 6.68" x 1.50" D.

When synchronization is required, the appliance shall be compatible with Wheelock®'s SM, DSM Sync Modules, Wheelock® Power Supplies or other manufacturer's panels with built-in Wheelock® Patented Sync Protocol. The strobes shall not drift out of synchronization at any time during operation. If the sync protocol fails to operate, the strobe shall revert to a non-synchronized flash-rate and still maintain (1) flash per second over its Regulated Voltage Range. The appliance shall also be designed so that the audible signal may be silenced while maintaining strobe activation when used with Wheelock® synchronization protocol.

**Wall Appliances** – UL Standard 1971, UL Standard 464, California State Fire Marshal (CSFM), ULC  
**Ceiling Appliances** – UL Standard 1971, UL Standard 464, California State Fire Marshal (CSFM), ULC



WE ENCOURAGE AND SUPPORT NICET CERTIFICATION  
3 YEAR WARRANTY

Exceder - Spec Sheet 11/09

**NJ Location**  
273 Branchport Ave.  
Long Branch, NJ 07740  
P: 800-631-2148  
F: 732-222-8707  
www.coopernotification.com

**FL Location**  
7565 Commerce Ct.  
Sarasota, FL 34243  
P: 941-487-2300  
F: 941-487-2389

**VA Location**  
4401 Wilson Boulevard, Suite 22  
Arlington, VA 22203  
P: 877-459-7726  
F: 703-294-6560

Cooper Notification is Wheelock®    

**COOPER**Notification

**GENERAL**

Wheelock's patented 2-wire Series AS Audible Strobe Appliances and Series AH Audible Devices offer more features with low current draw.

Strobe options for wall mount models include 1575 cd or Wheelock's patented MCW multi-candela wall strobes with field selectable candela settings of 15/30/75/110cd.

Ceiling mount models incorporate Wheelock's patented MCC multi-candela ceiling strobe with field selectable intensities of 15/30/75/95cd.

The audible provides a selectable choice of either a continuous horn or temporal pattern (Code 3) when constant voltage from a Fire Alarm Panel (FACP) is applied. Each tone has 3 dBA settings to choose from.

When used with the Wheelock Series SM or DSM Sync Module or power supply with patented Wheelock sync protocol, synchronization of the continuous horn tone provides the temporal (code 3) tone (mandated by NFPA 72) simultaneously for all audible appliances. This ensures a distinct temporal (code 3) pattern when 2 or more audibles are within hearing distance. If not synchronized, the temporal sound could overlap and not be distinctive; at the same time the strobes will be synchronized. This provides the ability to comply with ADA guidelines concerning photosensitive epilepsy and the NFPA standards when installing 2 or more visual appliances within the field of view. All of this, plus the ability to silence the audible, is achieved by using only 2 wires.

**FEATURES**

- ADA/NFPA/UFC/ANSI Compliant
- **AS Series Audible Strobe Devices are available in wall and ceiling-mount models:**  
*Wall mount models offered* are available with Field Selectable Candela Settings of 15/30/75/110cd or 1575cd (single candela model)  
*Ceiling mount models offered* are available with field selectable candela settings of 15/30/75/95cd
- Selectable Continuous Horn or Temporal (Code 3)
- 3 Selectable dBA settings (99, 95 and 90 dBA) in both tones
- **Patented 2-Wire Audible Strobe Appliance**
- Patented Universal Mounting Plate
- Weatherproof models are available for outdoor use
- Strobes produce 1 flash per second over the regulated voltage range
- 12 and 24 VDC models with wide UL "Regulated Voltage Range" using filtered DC or unfiltered FWR input voltage
- Synchronize with Wheelock SM, DSM or power supply with built-in Wheelock sync protocol
- Fast installation with IN/OUT screw terminals using #12 and #18 AWG wires



CS 356


**LISTED**

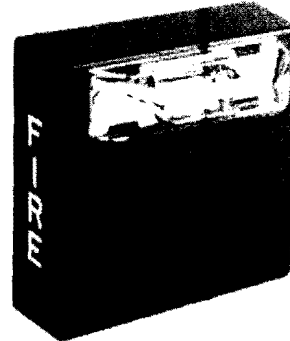
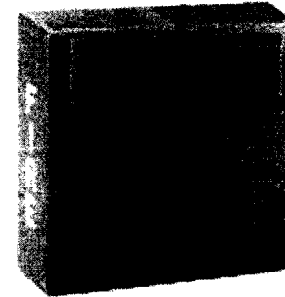
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**APPROVED**

 California  
State Fire  
Marshal  
7125-0785:131

**MEA**

151-92-E


**AS Audible Strobe**

**AH Audible**
**GENERAL NOTES**

- Strobes are designed to flash at 1 flash per second minimum over the Regulated Voltage Range. Note that NFPA-72 (1999) specifies a flash rate of 1 to 2 flashes per second and ADA Guidelines specify a flash rate of 1 to 3 flashes per second.
- All candela ratings represent minimum effective Strobe intensity based on UL Standard 1971.
- AS Series Strobe products are listed under UL Standard 1971 for indoor use with a temperature range of 32° F to 120° F (0° C to 49° C) and maximum humidity of 93% (±2%)
- AH-24 Series horns are listed under UL Standard 464 for audible signal appliances (indoor use only).
- AH-24WP Series audible appliances are listed under UL Standard 464 for indoor/outdoor use with a temperature range of -31° F to 150° F (-35° C to 66° C) and maximum humidity of 95%.
- **"Regulated Voltage Range" is the newest terminology used by UL to identify the voltage range. Prior to this change, UL used the terminology "Listed Voltage Range".**

Fire-Lite® Alarms is a Honeywell company.

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**, One Fire-Lite Place, Northford, Connecticut 06472. Phone: (800) 627-3473, Toll-Free FAX: (877) 699-4105.

**ISO 9001**  
**CERTIFIED**  
 ENGINEERING & MANUFACTURING  
 QUALITY SYSTEMS

**! WARNING!**

PLEASE READ THESE SPECIFICATIONS AND ASSOCIATED INSTALLATION INSTRUCTIONS CAREFULLY BEFORE USING, SPECIFYING, OR APPLYING THIS PRODUCT. FAILURE TO COMPLY WITH ANY OF THE FOLLOWING INSTRUCTIONS, CAUTIONS, AND WARNINGS COULD RESULT IN IMPROPER APPLICATION, INSTALLATION AND/OR OPERATION OF THESE PRODUCTS IN AN EMERGENCY SITUATION, WHICH COULD RESULT IN PROPERTY DAMAGE, AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.

**ORDERING INFORMATION**

MODEL	STROBE CANDELA	NON-SYNC	SYNC W/SM, DSM	VDC	WALL/CEILING MOUNT	MOUNTING OPTIONS*	AGENCY APPROVALS				
							UL	MEA	CSFM	FM	BFP
AS-24MCW-FR	15/30/75/110	X	X	24	WALL	A,B,D,E,F,G,H,J,N,O,R,X	X	X	X	X	X
AS-24MCW-FW	15/30/75/110	X	X	24	WALL	A,B,D,E,F,G,H,J,N,O,R,X	X	X	X	X	X
AS-241575W-FR	15 (75 on Axis)	X	X	24	WALL	A,B,D,E,F,G,H,J,N,O,R,X	X		X	X	X
AS-121575W-FR	15 (75 on Axis)	X	X	12	WALL	A,B,D,E,F,G,H,J,N,O,R,X	X		X	X	X
AS-24MCC-FW	15/30/75/95	X	X	24	CEILING	A,B,D,E,F,G,H,J,N,O,R,X	X	X	X	*	*
ASWP-2475W-FR	75 @ -31°F	X	X	24	WALL	I	X	X	X	X	X
AH-24-R	-	X	X	24	WALL/CEILING	A,B,D,E,F,G,H,J,N,O,R,X	X	X	X	X	X
AH-12-R	-	X	X	12	WALL/CEILING	A,B,D,E,F,G,H,J,N,O,R,X	X	X	X	X	X
AH-24WP-R	-	X	X	24	WALL/CEILING	K	X	X	X	X	X
AH-12-WP-R	-	X	X	12	WALL/CEILING	K	X	X	X	X	X

\*Refer to data sheet DN6111 for Mounting Options

NOTE: Due to continuous development of our products, specifications and offerings are subject to change without notice in accordance with Notifier's standard terms and conditions

**TABLE 1: RATINGS PER UL 1971**

MODEL	INPUT VOLTAGE VDC	REGULATED VOLTAGE RANGE VDC/FWR	STROBE CANDELA (cd)
AS-24MCW	24	16.0 - 33.0	15/30/75/110
AS-241575W	24	16.0 - 33.0	15 (75 on axis)
AS-121575W	12	8.0 - 17.5	15 (75 on axis)
AS-24MCC	24	16.0 - 33.0	15/30/75/95
ASWP-2475W	24	16.0 - 33.0	75 @ -31°F

**TABLE 2: DBA RATINGS FOR 12 VDC & 24 VDC SERIES AS/AH 12 & 24 VDC AUDIBLE**

DESCRIPTION	VOLUME	REVERBERANT DBA PER UL 464 @ 10 FT.	ANECHOIC DBA @ 10 FT.
Continuous Horn	High	91	99
	Medium	88	95
	Low	83	90
Code 3 Horn	High	87	99
	Medium	84	95
	Low	79	90

**SYNC MODELS/POWER SUPPLY**

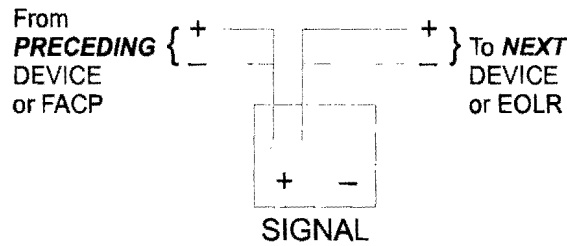
MODEL NUMBER	INPUT VOLTAGE (VDC)	AVERAGE MEAN CURRENT @ 24 VDC	MOUNTING OPTIONS
SM-12/24-R	24	.028	W
DSM-12/24-R	24	.035	W

**NOTES:**

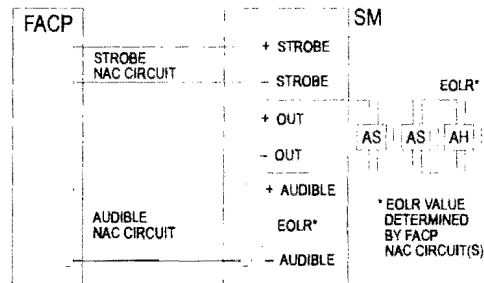
SM Sync Module is rated for 3.0 amperes @ 24 VDC.  
 DSM Sync Module is rated for 3.0 amperes per circuit. The maximum number of interconnected DSM modules is twenty (20).

**WIRING DIAGRAMS**

AS device non-synchronized.

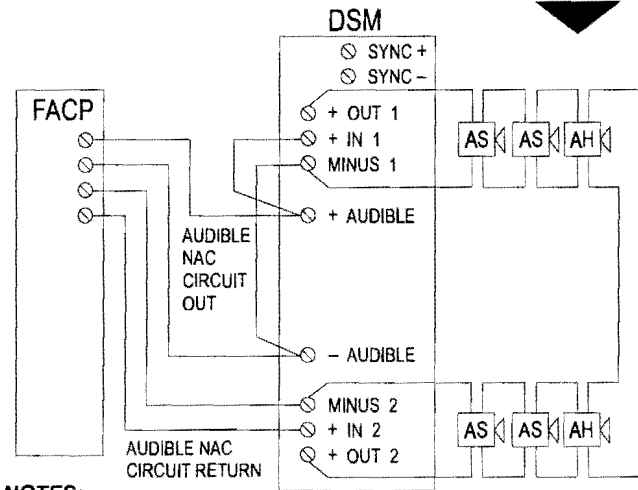


AS devices synchronized with SM Module single Class "B" (Style Y) circuit WITH audible silence feature.



## WIRING DIAGRAMS

AS and AH devices synchronized with DSM Module dual Class "A" (Style Z) circuit with NO audible silence feature.



**NOTES:**

- AS/AH must be set on continuous horn tone, and connected to the SM or DSM Sync Module, to achieve synchronized temporal (Code 3) tone.

AS and AH devices synchronized with multiple DSM Modules.

INTERCONNECTING WIRING SHOWN. MAXIMUM OF TWENTY (20) DSM MODULES.

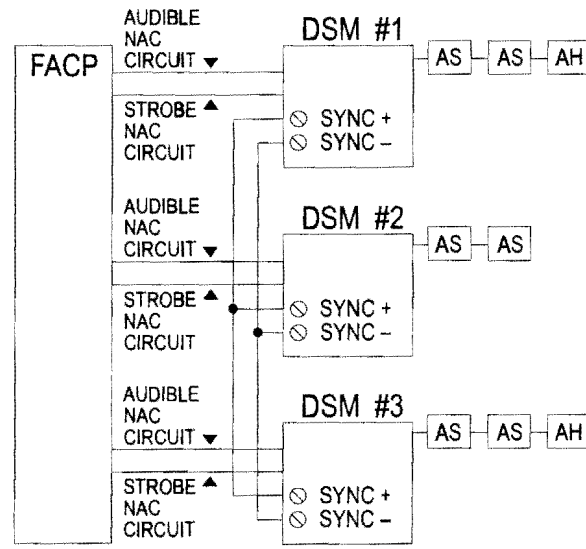


TABLE 3: AVERAGE RSM CURRENT*															
24 VDC MODELS		AUDIBLE		WALL MOUNT AUDIBLE STROBE MODELS						CEILING MOUNT STROBE MODELS					
		AH-24	AS-241575W	AS-24MOW			AS-24MOWH			AS-24MOC			AS-24MOC H		
			1575cad	15cad	30cad	75cad	110cad	135cad	185cad	15cad	30cad	75cad	95cad	115cad	177cad
HIGH (99)cBA	16 vdc	0.035	0.0130	0.099	0.135	0.219	0.303	0.355	0.480	0.105	0.145	0.238	0.330	0.355	0.480
	24 vdc	0.050	0.0107	0.093	0.114	0.157	0.197	0.250	0.320	0.970	0.120	0.169	0.213	0.250	0.320
	33 vdc	0.069	0.0105	0.098	0.108	0.138	0.166	0.210	0.250	0.101	0.113	0.146	0.177	0.210	0.250
MEDIUM (95)cBA	16 vdc	0.020	0.114	0.078	0.116	0.203	0.282	0.340	0.465	0.084	0.126	0.222	0.309	0.340	0.465
	24 vdc	0.026	0.085	0.065	0.088	0.133	0.179	0.230	0.305	0.069	0.094	0.145	0.195	0.230	0.305
	33 vdc	0.035	0.075	0.065	0.078	0.206	0.134	0.180	0.230	0.068	0.083	0.114	0.145	0.180	0.230
LOW (90)cBA	16 vdc	0.014	0.108	0.070	0.111	0.201	0.279	0.335	0.460	0.076	0.121	0.220	0.306	0.335	0.460
	24 vdc	0.014	0.075	0.052	0.077	0.126	0.169	0.220	0.295	0.056	0.084	0.138	0.185	0.220	0.295
	33 vdc	0.021	0.060	0.046	0.063	0.094	0.121	0.170	0.215	0.049	0.068	0.102	0.132	0.170	0.215
12 VDC MODELS		AUDIBLE	WALL MOUNT AUDIBLE STROBE	12 VDC MODELS		AUDIBLE	WALL MOUNT AUDIBLE STROBE	12 VDC MODELS		AUDIBLE	WALL MOUNT AUDIBLE STROBE				
		AH-12	AS-121575W			AH-12	AS-121575W			AH-12	AS-121575W				
HIGH (99) cBA	8 vdc	0.093	0.320		8 vdc	0.037	0.275		8 vdc	0.030	0.265				
	12 vdc	0.108	0.260	MEDIUM (95)cBA	12 vdc	0.049	0.195	LOW (90)cBA	12 vdc	0.035	0.175				
	17.5 vdc	0.128	0.220		17.5 vdc	0.069	0.160		17.5 vdc	0.042	0.133				

\*Average RSM Current is per UL average method and Average Mean Current is per UL average mean method. AH and AS-12 models use average mean current. For rated in Rush and Peak current across the UL listed voltage range for both filtered DC and unfiltered VRMS (FWR), see installation instructions.

**WARNING!** CONTACT WHEELOCK FOR "INSTALLATION INSTRUCTIONS" (Wheelock #P83509 [AS], #P83641 [AH-WP], and #P83519 [AH]) AND "GENERAL INFORMATION" SHEET (Wheelock #P82380) ON THESE PRODUCTS. THESE MATERIALS UNDERGO PERIODIC CHANGES. IT IS IMPORTANT THAT YOU HAVE CURRENT INFORMATION ON THESE PRODUCTS. THESE MATERIALS CONTAIN IMPORTANT INFORMATION THAT SHOULD BE READ PRIOR TO SPECIFYING OR INSTALLING THESE PRODUCTS, INCLUDING:

- TOTAL CURRENT REQUIRED BY ALL DEVICES CONNECTED TO SYSTEM PRIMARY AND SECONDARY POWER SOURCES.
- FUSE RATINGS ON NAC CIRCUITS TO HANDLE PEAK CURRENTS FROM ALL DEVICES ON THOSE CIRCUITS.
- COMPOSITE FLASH RATE FROM MULTIPLE STROBES WITHIN A PERSON'S FIELD OF VIEW.
- VOLTAGE APPLIED: THE VOLTAGE APPLIED TO THESE PRODUCTS MUST BE WITHIN THEIR RATED INPUT VOLTAGE RANGE.
- INSTALLATION OF 100/110 CANDELA STROBE PRODUCTS IN SLEEPING AREAS.
- INSTALLATION IN OFFICE AREAS AND OTHER SPECIFICATION AND INSTALLATION ISSUES.
- **Note:** USE AS/AH ONLY ON CIRCUITS WITH CONTINUOUSLY APPLIED OPERATING VOLTAGE. DO NOT USE AS SERIES ON CODED OR INTERRUPTED NAC CIRCUITS IN WHICH THE APPLIED VOLTAGE IS CYCLED ON AND OFF, AS THE STROBE MAY NOT FLASH.
- CONDUCTOR SPECIFICATIONS: CONDUCTOR SIZE (AWG), LENGTH AND AMPACITY SHOULD BE TAKEN INTO CONSIDERATION PRIOR TO DESIGN AND INSTALLATION OF THESE PRODUCTS, PARTICULARLY IN RETROFIT INSTALLATIONS.

**FAILURE TO COMPLY WITH THE INSTALLATION INSTRUCTIONS OR GENERAL INFORMATION SHEETS COULD RESULT IN IMPROPER INSTALLATION, APPLICATION, AND/OR OPERATION OF THESE PRODUCTS IN AN EMERGENCY SITUATION, WHICH COULD RESULT IN PROPERTY DAMAGE AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.**

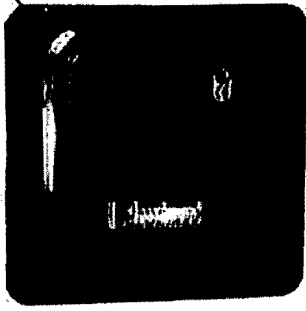
Wheelock products must be used within their published specifications and must be PROPERLY specified, applied, installed, operated, maintained, and operationally tested in accordance with their installation instructions at the time of installation and at least twice a year or more often and in accordance with local, state, and federal codes, regulations, and laws. Specification, application, installation, operation, maintenance, and testing must be performed by qualified personnel for proper operation in accordance with all of the latest National Fire Protection Association (NFPA), Underwriters' Laboratories (UL), National Electrical Code (NEC), Occupational Safety and Health Administration (OSHA), local, state, county, province, district, federal, and other applicable building and fire standards, guidelines, regulations, laws, and codes including, but not limited to, all appendices and amendments and the requirements of the local authority having jurisdiction (AHJ).

### ARCHITECTS' & ENGINEERS' SPECIFICATIONS

- The notification appliances shall be Wheelock's patented AS Series Audible Strobe and AH Series Audible Horn devices, and when synchronization is required, companion SM and DSM Sync Modules, or approved equivalents. AS Series devices and SM and DSM Sync Modules shall be listed under UL Standard 1971 (Emergency Devices for the Hearing Impaired for Indoor Fire Protection Service). AH Series Audible Horn shall be listed under Standard 464 (Fire Protective Signaling). AS, AH, SM, and DSM devices shall be certified to meet FCC Part 15, Class B.
- The devices shall be designed for two-wire operation and shall provide either a continuous or temporal (Code 3) tone when constant voltage from a Notification Appliance Circuit (NACs) of the Fire Alarm Control Panel (FACP) is applied; or synchronized temporal (Code 3) horn and synchronized strobe when used in conjunction with the SM or DSM Sync Modules.
- The AS Series shall be designed so that the audible signal may be silenced while maintaining strobe activation (when used with the SM or DSM Sync Modules). The SM and DSM Sync Modules shall incorporate two inputs from Notification Appliance Circuits (NACs) for power connection from the Fire Alarm Control Panel (FACP): one for the strobe circuit (NAC), and one for the audible circuit (NAC). A single two-wire output shall control both the audible and visual appliances. Upon activation of the audible silence function of the FACP, the audible signal shall be silenced while maintaining strobe activation.
- Sound output at 10 feet (3.048 m) shall be field-selectable for 90, 95, or 99 dBA anechoic for both continuous or temporal (Code 3) tone. The AS Series shall provide listed strobe intensities of 15, 15/75, 30, 75, and 110 candela for wall-mount and/or 75 or 100 candela for ceiling-mount applications; with a flash rate of one flash per second minimum across the listed voltage range. The strobe shall incorporate a Xenon® flashtube enclosed in a rugged LEXAN® lens. The maximum allowable current at 24 VDC shall be 87 mA @ 15 cd, 102 mA @ 15/75 cd, 120 mA @ 30 cd, 177 mA @ 75 cd, and 202 mA @ 110 cd. All devices shall incorporate a reduced inrush circuit design. The strobe shall have a horizontal plane.
- The Sync Module shall be designed and available in two versions: the **SM-12/24**, for control of a single Class "B" NAC circuit; and a dual-output version, the **DSM-12/24**, for control of either a single Class "A" or two Class "B" NAC circuits. The DSM dual-circuit version shall provide the additional capability of "daisy-chaining," i.e., the ability to interconnect multiple DSM's for synchronous horn and strobe operation on multiple NAC circuits. DSM-12/24 interconnection capability shall be for a maximum of 20 modules (40 Class "B" NAC circuits or 20 Class "A" NAC circuits). Rated average current requirement for the SM-12/24 shall be 0.014 amperes @ 12 VDC and 0.025 amperes @ 24 VDC; the DSM-12/24 shall be 0.020 amperes @ 12 VDC and 0.038 amperes @ 24 VDC. The SM Sync Module shall be capable of handling a three-ampere load at 12 or 24 VDC. The DSM Sync Modules shall be capable of handling a load of three amperes *per circuit* in the Class "B" mode, and three amperes *per module* in the Class "A" mode at 12 or 24 VDC.
- SM or DSM Sync Modules and AS Audible Strobes shall be designed as a **system** for continuous activation of the strobes should the Sync Module contacts fail in the passive state (i.e., contacts remain closed). In this default mode, the strobes shall revert to a non-synchronized default flash rate.
- AS/AH Series devices shall be designed for operation at 12 or 24 VDC, over their respective listed voltage ranges of 10.5 to 15.6 VDC; and 20.0 to 31.0 VDC. The units shall be designed for operation on filtered DC, or unfiltered  $V_{RMS}$ . Rated average current for AS Series devices shall depend upon voltage and strobe intensity; current shall be as low as 0.058 amperes for 24 VDC versions and 0.145 amperes for 12 VDC versions. Rated average current for AH Series devices (volume set at high-dB output) shall be 0.041 amperes for 24 VDC versions and 0.113 amperes for 12 VDC versions.
- All versions shall be polarized for DC supervision and shall incorporate screw terminals for in/out field wiring of size #18 AWG (0.75 mm<sup>2</sup>) to #12 AWG (3.25 mm<sup>2</sup>).
- AS/AH shall incorporate a patented Universal Mounting Plate which shall allow mounting to single-gang, double-gang, 4" (10.16 cm) square, 100 mm European backboxes or Wheelock's SHBB surface backbox. No additional trim plate shall be required for flush mounting.
- Dimensions for AS/AH appliances shall be 4.625" (11.7475 cm) square by 1.5" (3.81 cm) deep.

## Knox-Box® 3200 Series

### KNOX-BOX® 3200 Series w/ Lift-Off Door - Heavy Duty



#3227 Recessed



#3208 Surface

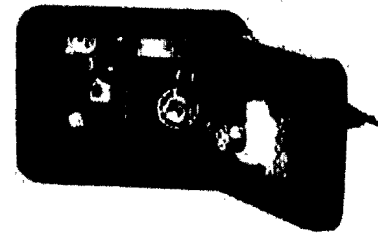
- Heavy-duty, high security construction
- Capacity for up to 10 keys and access cards
- 1/2" solid steel door
- Dimensions: Surface 5" H x 4" W x 3-3/4" D  
Recessed 7" H x 7" W Flange
- Ship Weight: 10 lbs.
- Colors: Black, Aluminum, Dark Bronze
- Finish: Knox-Coat® Weather resistant proprietary coating system



### KNOX-BOX® 3200 Series w/ Hinged Door



#3275 Recessed



#3266 Surface

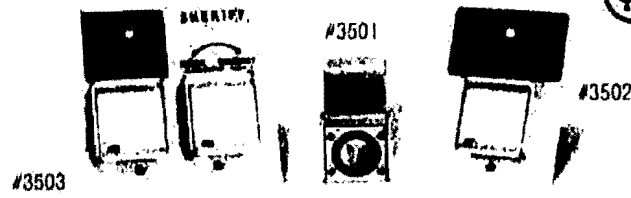
- Allows single-handed operation
- Stores both keys and access cards
- Ensures efficient emergency response
- Door attached with hinge, it's all one unit
- Dimensions: Surface 4" H x 5" W x 3-3/4" D  
Recessed 7" H x 7" W Flange
- Ship Weight: 10 lbs.
- Colors: Black, Aluminum, Dark Bronze
- Finish: Knox-Coat® Weather resistant proprietary coating system

- Options:
- Alarm tamper switches
  - Multi-purpose electrical switch
  - Recessed Mounting Kit available for new masonry construction

## Key Switches



### Knox® Key Switch 3500 Series



- Electric override for perimeter gates, parking garages, gated communities, HVAC controls and industrial equipment lockout
- For fire, EMS & law enforcement
- Single or dual-key options
- All stainless steel dust cover
- Ship Weight: 1 lb.

**NO  
EXCUSES!**



# FDB

## Fire Alarm Control Unit (FACU) Records & Document Box

The Space Age FDB has been developed to be a code compliant solution to a mandated item specified by the National Fire Code (NFPA 72).

An internal galvanized sleeve holds the documents safely and securely. Access to the documents is via a high security CAT 30 Lock Set.

The galvanized sleeve also contains 2 hooks for key rings or thumb drives, a place for several business cards, a cutout for a 1.4 Oz. can of test gas and a slot where a standard CD "jewel" case can be stored.

Held in by two "wing nuts" the sleeve is easily removable to allow storage of a 1.5" 3 ring binder.

The door reads "FACU MAINTENANCE RECORDS" in 1" tall white lettering. Custom Logo and Lock Sets are available upon request.

NFPA 72 section 6.2.2.1 states, "A record of installed software and firmware version numbers shall be maintained at the location of the fire alarm control unit." The FDB is large enough to hold Operating Manuals, Permits, Shut-Down Instructions and more.

### Standard Features:

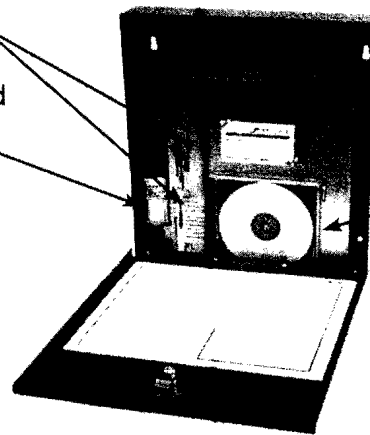
- Overall Dimensions are:  
12" Wide x 13.1" High x 2.25" Deep
- CAT 30 Secured Locking Door
- Piano Hinged Door w/Notes Sticker
- Removable document holder can hold 1" of 8.5" x 11" paperwork
- Powder Coat Red Finish
- 16 Gauge CRS construction
- Embossed:  
Key Ring Hooks  
Business Card Holder  
CD Case Slot
- 1.4 Oz. can of detector test gas
- Private labeling available

Key Ring  
Hooks

Canned  
Smoke

Business  
Card Holder

CD Jewel  
Case



ISO 9001  
REGISTERED  
COMPANY



**BOX**

Space Age Electronics, Inc.  
www.1sae.com  
800.486.1723 Toll Free  
508.485.0966 Local  
508.485.4740 Fax

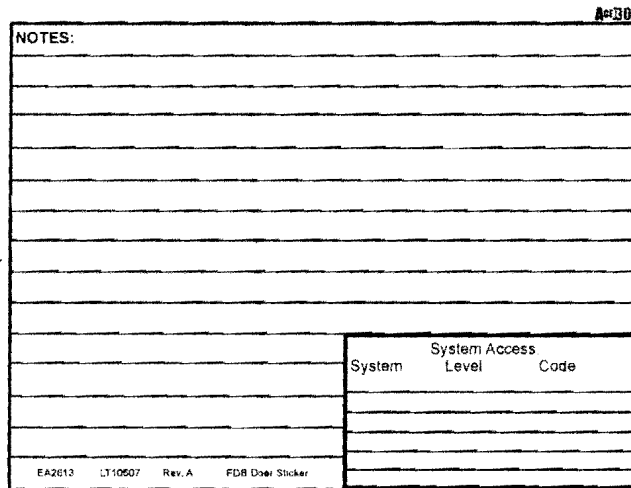
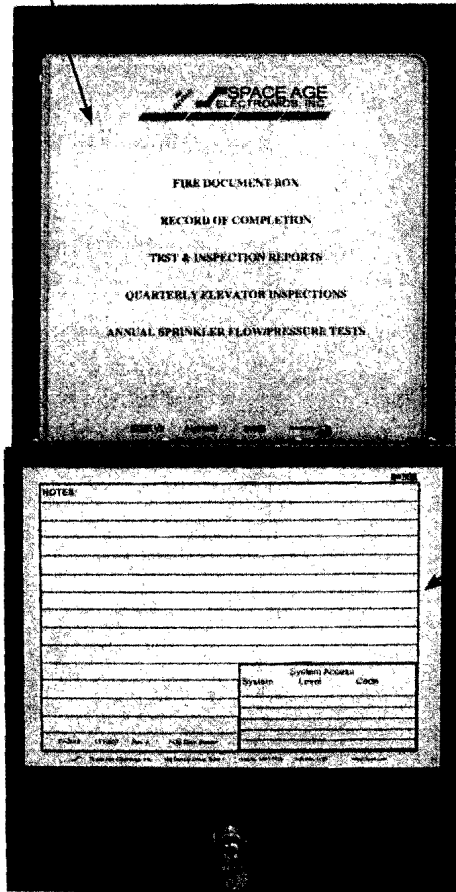


**Specifications:**

The Fire Document Box (FDB) shall be constructed of 16 gauge cold rolled steel (CRS), it shall be painted with a durable red powder coat paint. The front door shall be lettered with the words "FACU MAINTENANCE RECORDS" in White indelible letters 1" in height. The door of the FDB shall be locked with a keyed lock (standard shall be CAT 30, but others shall be available along with Private Labeling).

Inside the cabinet shall contain a 16 gauge galvanized CRS sleeve. This sleeve shall allow for the storage of 1" of paper, test and inspection records, manuals and other important documents. The sleeve shall also facilitate the hanging of key rings and thumb drives (for data storage) along with business cards and space for a CD 'jewel' case. The unit shall also contain a 1.4oz can of smoke detector test gas. Inside the door shall have a "Notes" label for the recording of valuable information such as AHJ approvals, various system codes and the location of hard to find devices.

If so desired, the internal sleeve (held in by 2 wing nuts) may be removed and the space used to insert a 1.5" 3 ring binder.



Notes Sticker inside FDB Door

**Ordering Information:**

Part #	Description
SSU00672	FDB Fire Document Box
SSU00673	FDB Custom Logo/lock (ask for Form FD10498 to order custom box)
CK1	Replacement 1.4 Oz Test Gas

**BOX**  
Space Age Electronics, Inc.  
www.1sae.com  
800.486.1723 Toll Free  
508.485.0966 Local  
508.485.4740 Fax

*No Excuses, Just Solutions!*

This document is subject to change without notice, see doc # ED0479 for legal disclaimer



# CITY OF PORTLAND, MAINE

Department of Building Inspections

## Original Receipt

1-24-20 11

Received from \_\_\_\_\_

Location of Work

125 Marginal Way

Cost of Construction \$ \_\_\_\_\_ Building Fee: \_\_\_\_\_

Permit Fee \$ \_\_\_\_\_ Site Fee: \_\_\_\_\_

Certificate of Occupancy Fee: \_\_\_\_\_

Total: 90

Building (IL) \_\_\_\_\_ Plumbing (I5) \_\_\_\_\_ Electrical (I2) \_\_\_\_\_ Site Plan (U2) \_\_\_\_\_

Other \_\_\_\_\_

CBL: \_\_\_\_\_

Check #: 17010 Total Collected \$ 90

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

Taken by: S. J. [Signature]

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