

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

Permit No:	09-0605	Issue Date:	6/23/09	CBL:	027 C011001
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Location of Construction:	17 CHESTNUT ST	Owner Name:	BOODILLY LLC	Owner Address:	158 WOODVILLE RD	Phone:	
Business Name:		Contractor Name:	Dons Electric	Contractor Address:	767 Main Street Monmouth	Phone	2079334500
Lessee/Buyer's Name		Phone:		Permit Type:	Fire Alarm System	Zone:	B3

Past Use:	Commercial Restaurant "Grace"	Proposed Use:	Commercial Restaurant "Grace" - install a Fire Alarm System	Permit Fee:	\$320.00	Cost of Work:	\$29,328.00	CEO District:	1
Proposed Project Description:	Commercial Restaurant "Grace" - install a Fire Alarm System			FIRE DEPT:	<input checked="" type="checkbox"/> Approved	INSPECTION:	Use Group: A-2 Type: 3		
				<i>w/conditions</i>	<input type="checkbox"/> Denied	<i>4/6/09</i>	<i>IBC-2003</i>		
				<i>4/6/09</i>		<i>4/27/09</i>	<i>1477-72</i>		

Signature:	<i>[Signature]</i>	Signature:	<i>[Signature]</i>
Action:	<input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied	Date:	

Permit Taken By:	Ldobson	Date Applied For:	06/11/2009	Zoning Approval			
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1. This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules. 2. Building permits do not include plumbing, septic or electrical work. 3. Building permits are void if work is not started within six (6) months of the date of issuance. False information may invalidate a building permit and stop all work..	Special Zone or Reviews <input type="checkbox"/> Shoreland <input type="checkbox"/> Wetland <input type="checkbox"/> Flood Zone <input type="checkbox"/> Subdivision <input type="checkbox"/> Site Plan Mai <input type="checkbox"/> Minor <input type="checkbox"/> MM <input type="checkbox"/>	Zoning Appeal <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	Historic Preservation <input type="checkbox"/> Not in District or Landmark <input type="checkbox"/> Does Not Require Review <input type="checkbox"/> Requires Review <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied	
	Date:	<i>[Signature]</i>	Date:	<i>[Signature]</i>
		<i>6/11/09</i>		

CERTIFICATION

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

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



Fire Alarm Permit

JUN 11 2009

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: 17 Chestnut St., Portland/ME CBL

Exact location: (within structure) Main electrical Room at the rear entrance to the building

Type of occupancy(s) (NFPA & ICC): Restaurant-Commercial

Building owner: BOODILLY LLC

System Designer: Ames-Hewett & Gifford

Designer phone: (207) 377-6969

E-mail: chewett@gahgeng.com

Installing contractor: DBA Den's Electric

MC60016470

License No: MS00006000 3238

Contractor phone: (207) 933-4500

E-mail: bjohnson@donselelectric.net

This is a new application:

YES

NO

This is an amendment to an existing permit: YES

NO

Permit no: _____

The following documents have been provided with this application:

- Floor plans: YES NO
- Wiring diagram: YES NO
- Annunciator details: YES NO
- Bid specifications: YES NO
- Equipment data sheets: YES NO
- Battery & voltage drop calculations: YES NO
- Sequence of operations: YES NO
- Designer/ personnel qualifications: YES NO

COST OF WORK: \$ 29,328.00

PERMIT FEE: \$ 320.00

(\$10 PER \$1,000 + \$30 FOR THE FIRST \$1,000)

Please submit all of the information outlined on the checklist 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 NFPA 70, NFPA 72, and Fire Department Technical Standard(s).

Applicant signature: Benny C. Johnson Date: 6-10-09

land, Maine - Building or Use Permit

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

Permit No:	09-0605	Date Applied For:	06/11/2009	CBL:	027 C011001
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Construction: 5TNU1 ST	Owner Name: BOODILLY LLC	Owner Address: 158 WOODVILLE RD	Phone:
Name:	Contractor Name: Dons Electric	Contractor Address: 767 Main Street Monmouth	Phone (207) 933-4500
eBuyer's Name	Phone:	Permit Type: Fire Alarm System	

Proposed Use: Commercial Restaurant "Grace" - install a Fire Alarm System
 Proposed Project Description: Commercial Restaurant "Grace" - install a Fire Alarm System

Dept: Zoning Status: Approved Reviewer: Marge Schmuckel Approval Date: 06/11/2009
 Note: Ok to Issue:

- Dept: Building Status: Approved with Conditions Reviewer: Chris Hanson Approval Date: 06/23/2009
 Note: Ok to Issue:
- 1) Fire Alarm systems shall be installed per Sec. 907 of the IBC 2003
 - 2) Equipment must be installed in compliance per the manufacturer's specifications
 - 3) All penetrations through rated assemblies must be protected by an approved firestop system installed in accordance with ASTM 814 or UL 1479, per IBC 2003 Section 712.
 - 4) ANY exterior work requires separate review and approval thru Historic Preservation

Dept: Fire Status: Approved with Conditions Reviewer: Ben Wallace Jr. Approval Date: 05/16/2009
 Note: After the fact permit. Ok to Issue:

- 1) Alarm monitoring and service companys and contact information shall be identified at the annunciator
- 2) All fire alarm records required by NFPA 72 should be stored in an approved cabinet located at the FACP and keyed alike, labeled "FIRE ALARM RECORDS".
- 3) Smoke detection is not appropriate for bathrooms and kitchens.
- 4) Installation of a Fire Alarm system requires a Knox Box to be installed per city ordinance
- 5) Fire alarm shall be monitored by approved central station facility for supervisory and trouble signals.
- 6) Duct Smoke Detectors shall be treated as supervisory signals.
 Sprinkler waterflow and hood extinguishing system shall activate evacuation signal.
 Sprinkler system shall be supervised.
- 7) 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.
- 8) Fire alarm system requires a Masterbox connection per city ordinance.
 Masterbox design and installation shall be as approved by City Electrical Division.
- 9) The fire alarm system shall comply with NFPA 72 and Fire Department Technical Standard. A compliance letter is required.

BUILDING PERMIT INSPECTION PROCEDURES

Please call 874-8703 or 874-8693 (ONLY)

**to schedule your inspections as agreed upon
Permits expire in 6 months, if the project is not started or ceases for 6 months.**

The Owner or their designee is required to notify the inspections office for the following inspections and provide adequate notice. Notice must be called in 48-72 hours in advance in order to schedule an inspection:

By initialzing at each inspection time, you are agreeing that you understand the inspection procedure and additional fees from a "Stop Work Order" and "Stop Work Order Release" will be incurred if the procedure is not followed as stated below.

A Pre-construction Meeting will take place upon receipt of your building permit.

 X Final inspection required at completion of work.

Certificate of Occupancy is not required for certain projects. Your inspector can advise you if your project requires a Certificate of Occupancy. All projects DO require a final inspection.

If any of the inspections do not occur, the project cannot go on to the next phase, REGARDLESS OF THE NOTICE OR CIRCUMSTANCES.

CERTIFICATE OF OCCUPANCIES MUST BE ISSUED AND PAID FOR, BEFORE THE SPACE MAY BE OCCUPIED.

Signature of Applicant/Designee

Date

Signature of Inspections Official

Date

BUILDING PERMIT INSPECTION PROCEDURES

Please call 874-8703 or 874-8693 (ONLY)

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Signature of Applicant/Designee

Date

Signature of Inspections Official

Date

DON'S
ELECTRIC
ELECTRICAL
CONTRACTORS

767 Main Street, P. O. Box 445, Monmouth, Maine 04259-0445

Table of Contents

- 1) Floor Plans
- 2) Wiring Diagram
- 3) Annunciator details
- 4) Bid specifications
- 5) Equipment data sheets
- 6) Battery & voltage drop calculations
- 7) Sequence of operations
- 8) Designer/personnel qualifications

Tel. (207) 933-4500

Fax (207) 377-8800

E-Mail: donselectric@fairpoint.net

Grace Church

E. R. FIELD, INC.

CAD FILE: TRN05FAC.dwg

E. R. FIELD, INC.

FIRE SAFETY SYSTEMS
105 TAYLOR HILL ROAD
LEWISTON, ME 04240

1-800-222-7876 erfied@erfiel.net 207-782-8243

NOTES

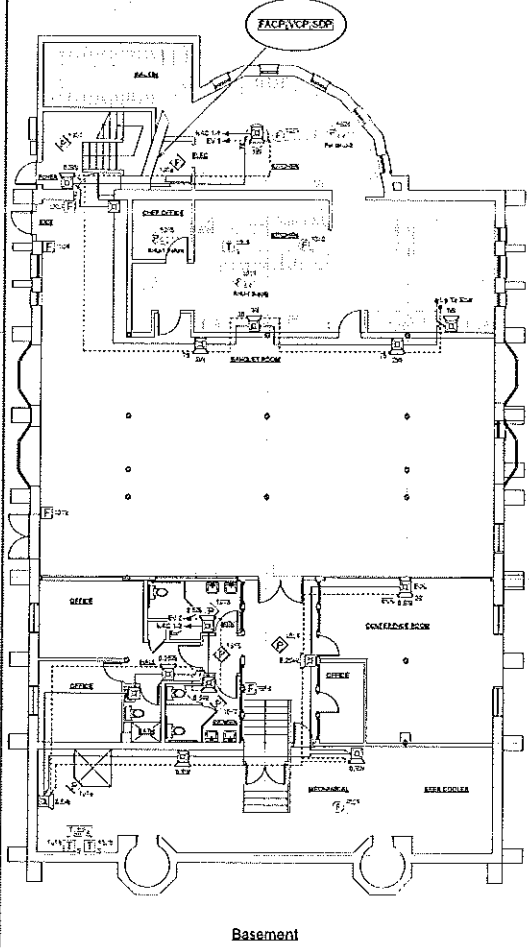
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- NAC (Notification Appliance Circuit)
- SLC (Signaling Line Circuit)
- LDC (Initiating Device Circuit)
- 24VDC
- Control Power Circuit

DEPENDENCIES

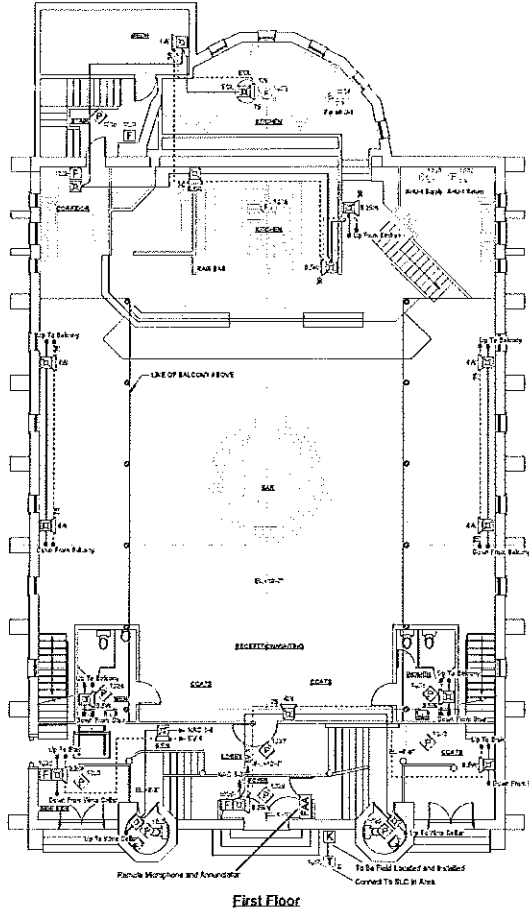
REVISION	DESCRIPTION	DATE

DESIGNED BY	AB	DATE	1/22/09
CHECKED BY	GF	DATE	1/26/09
CONTRACT NO.			
APPROVED BY			

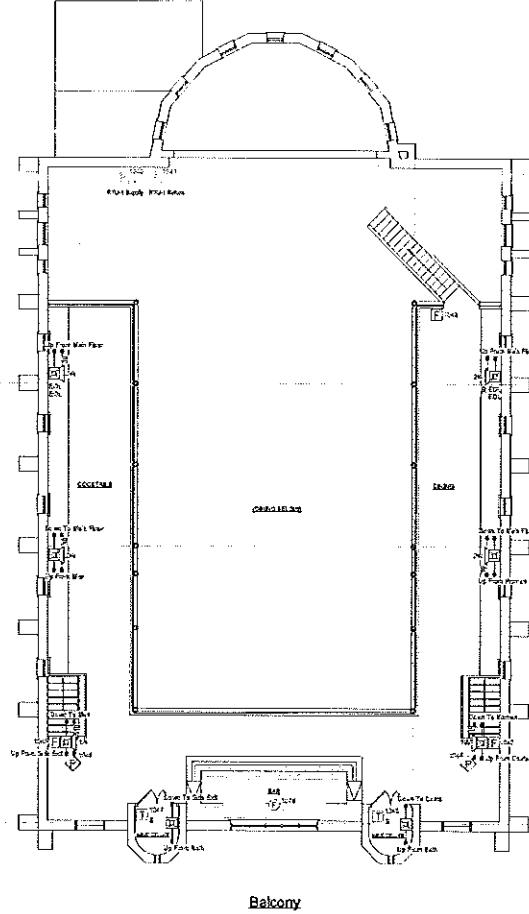
ISSUE CODES	
P - PRELIMINARY	B - BIDS
A - AS BUILT	C - CONSTRUCTION



Basement



First Floor



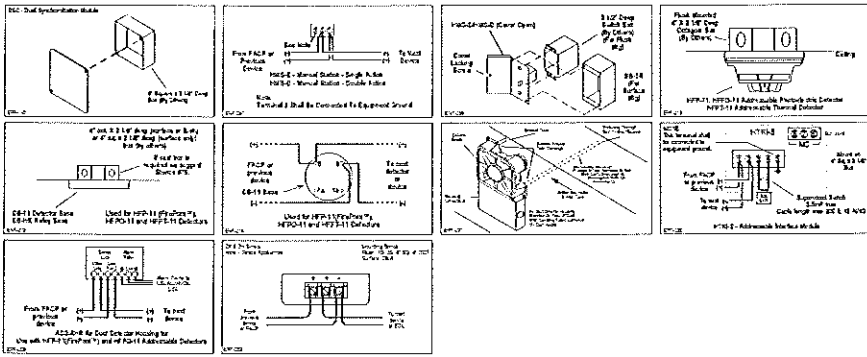
Balcony

Grace Church
Chestnut Street
Portland, Maine

Fire Alarm System
Basement, First and Balcony
Device Layout

DEV # **FA-2**

SCALE: 1/8" = 1'-0"
DATE: 1/26/09



NOTES:

1. Please call E.R. Field, Inc. at 1-800-222-PYRO (7978) if you have any questions regarding the interpretation of any notes or drawings provided by us.
2. It is strongly suggested that the installer carefully study the entire submittal package before starting installation of the system.
3. All final connections at the control panels will be made by an E.R. Field, Inc. technician.
4. Except at devices without terminals, no splices of any kind are allowed. All connections shall be made on appropriate terminal strips.
5. Without exception, no circuits of other classifications or systems will share any of the raceways or cables of this system. NEC 780-54.
6. When shielded cables are used, the shields/drains shall be made electrically continuous and insulated at each opening in the cable jacket and shall be grounded only at the control panel.
7. The electrical installation is to be in strict accordance with applicable NFPA codes with particular attention being given to Article 760 of NFPA 70, 2005.
8. Use mounting boxes that comply with manufacturers requirements and that are suitable for the environment.
9. Entry into FACP and SDP cabinets will be via factory KO's identified on drawing. Field KO's are prohibited in these panels.
10. Instructions for connections to each device type are detailed on the drawings and/or in the manufacturers literature.
11. Free length on each cable to be terminated at FAA, FATB, FAIG and/or FACP cabinets shall be not less than the total of length, width and depth of that cabinet.
12. Cables shall be labeled with at least two durable markers at each cabinet. One marker to be within 6 inches of point of entry and other to be within 3 inches of point of termination.
13. FACP and SDP cabinets are not pull boxes. Only wiring that will be terminated in a given cabinet may enter that cabinet.
14. Unless specifically indicated otherwise each cabinet shall be mounted with its top at 6'-0" AFF.
15. All NAC wiring shall be #14AWG copper, minimum size.
16. All SLC wiring shall be #18AWG copper shielded, minimum size.
17. All devices are polarity sensitive.

EQUIPMENT LIST AND LEGEND

QTY	SYMBOL	MODEL	DESCRIPTION	COMMENT
1	FACP	FS-250	Fire Alarm Control Panel	Mount Top at 6'-0" AFF
2	DACT	FD-DACT	Digital Alarm Communicator Transmitter	
3	SDP	PAO-3R	Power Supply	Mount Top at 6'-0" AFF
4	VCP	VoiceCom-4	Voice Evac Control Panel, 100 watt	Mount Top at 6'-0" AFF
5	N/A	121-SPK	Speaker Circuit Module	
6	N/A	T-DM	Accordar Message Module	
7	N/A	DSC	Dual Sync Module	
8	F	HMS-D	Manual Station	Mount on 1 Gang x 3-1/2" D Box 4'-0" AFF O.C. See EFF-207, -208
9	F	HFP-11	Smoke Detector	Mount on Item 10
10	N/A	DB-11	Smoke Detector Base	See EFF-212, -213, -214
11	N/A	AD-30R	Dual Smoke Detector	See EFF-250
12	N/A	ST-7	Stamping Tube Assembly (Specify length required)	See EFF-201
13	N/A	TSM-1	Test Switch Module	
14	F	HFT-11	Heat Detector	Mount on Item 10. See EFF-212, -213, -214
15	F	HTRIS	Addressable Interface Module, Single Point	See EFF-205
16	F	ZRAC-R	Smoke Notification Appliance	Mount Bottom at 6'-8" AFF. See EFF-203
17	F	SETAC-R	Speaker/Stroke Notification Appliance	Mount Bottom at 6'-8" AFF
18	F	SETAC-R	Speaker/Stroke Notification Appliance	Mount on Ceiling
19	N/A	NP7-12	Battery	Mount in Item 1 and 4
20	N/A	NP7-12	Battery	Mount in Item 3
21	F	N/A	Sprinkler Flow Switch	F.B.O.
22	F	N/A	Sprinkler Tamper Switch	F.B.O.

E. R. FIELD, INC.
 FIRE SAFETY SYSTEMS
 105 TAYLOR HILL ROAD
 LEWISTON, ME 04240

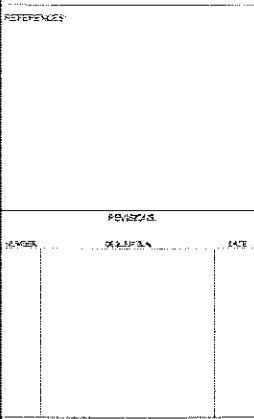
1-800-222-7978 erf@erfi.com 207-792-8243

NOTES:

.....EV (Speaker Circuit)
.....NAC (Notification Appliance Circuit)
.....SLC (Signaling Line Circuit)
.....SDC (Stroking Device Circuit)
.....24VDC
.....Control Power Circuit

REFERENCES:

.....NFPA 70
.....NEC 780-54
.....NFPA 72
.....NFPA 780



DATE	1/28/09
BY	GF
ISSUE CODES	
P - PRELIMINARY	B - BIDS
A - AS BUILT	C - CONSTRUCTION

Grace Church
 Chestnut Street
 Portland, Maine

Fire Alarm System
 Equipment List, Legend
 One Line Riser,
 Notes and Details

DAY# **FA-1**


SIEMENS

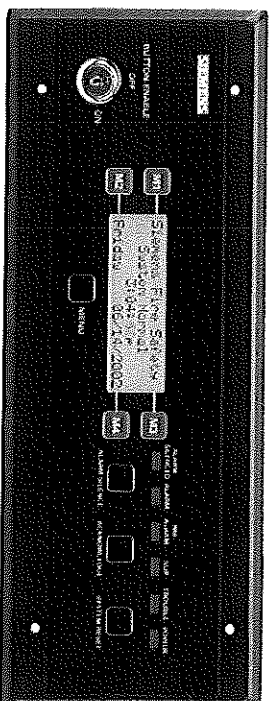
Fire Safety

FS-RD2

Remote LCD Annunciator for the FireSeeker FS-250 System

ENGINEER AND ARCHITECT SPECIFICATIONS

- 4 x 20 Character Backlit Display
- System Status LEDs
- Optional local sounder
- Built-in lamp test button
- Integral System Control Capabilities (with keyswitch)
- Integral System Maintenance access (with keyswitch and password)
-  UL Listed



The Model FS-RD2 Remote Display is used for annunciating system events remotely from the fire alarm control panel on the FireSeeker FS-250 system. The FS-RD2 will mimic the system status LEDs and the 80-character event message found on the main system panel. The 4 x 20 LCD backlit display will illuminate upon receiving any event from the system, or upon pressing any button on the FS-RD2.

System Acknowledge, Silence and Reset Capabilities are available on the FS-RD2. The control functions must be enabled using the integral keyswitch. Up to sixteen supervised FS-RD2 annunciators can be used simultaneously on the FireSeeker FS-250 system.

Mounting is accomplished using a standard 6 gang 2" deep electrical box. The FS-RD2 requires a 2-wire data connection from the RS-485 port on the FS-250, as well as 24VDC power. Maximum wire loop resistance is 25 ohms.

Ordering Information

Model Number	Description	Part Number
FS-RD2	Remote LCD display for the FS-250	500-648980

NOTICE: The use of other than Fire Safety detectors and bases with Fire Safety equipment will be considered a misapplication of Fire Safety equipment and as such voids all warranties either expressed or implied in regard to loss, damage, liabilities and/or service problems.

Fire Safety
8 Fernwood Road
Florham Park, NJ 07932
Tel: (973) 593-2600
FAX: (973) 593-8670
Website: www.spt.siemens.com/fts

1/04
SM
SFS:IG
Printed in U.S.A.

Fire Safety
2 Kenview Boulevard
Brampton, Ontario
Canada L6T 5E4
Tel: (905) 799-9837
FAX: (905) 799-9838

January 2004
Supersedes sheet dated 6/03

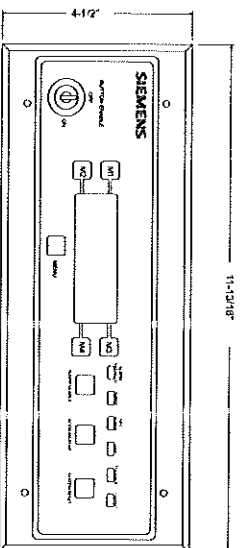
**Siemens Building Technologies
Fire Safety**

INSTALLATION INSTRUCTIONS Model FS-RD2/-R REMOTE LCD ANNUNCIATOR

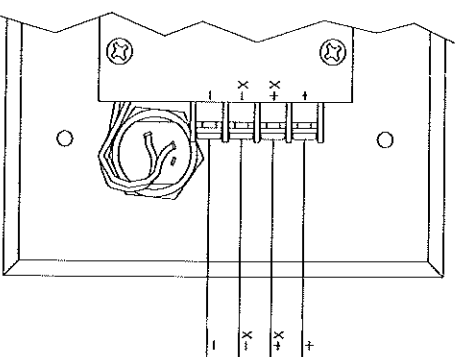
The FS-RD2 Remote LCD Annunciator is an optional accessory for the FS-250 and FS-500 Fire Alarm System Control Panels. The FS-RD2 is black and the FS-RD2-R is red. The FS-RD2/-R provides a 4x20 character LCD display along with the system status LEDs that display the event status of the system. The enable keyswitch allows system reset, trouble silence/acknowledge, alarm silence and menu access for partial system control. The lamp test operation is also enabled by the keyswitch and is limited to the annunciator. The annunciator mounts to a horizontally mounted 6-gang box, 2" deep minimum. The FS-RD-SB/-R Surface Backbox may be used for surface mounting. The FS-RD-SB is black and the FS-RD-SB-R is red.

PARTS SUPPLIED

- 1 FS-RD2/-R Remote LCD Annunciator
- 4 Mounting Screws
- 1 Instruction Sheet
- 1 Operating Instructions



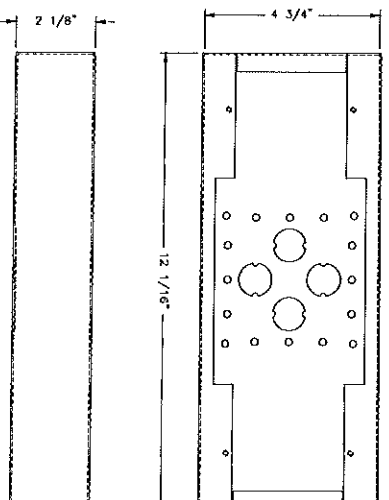
FS-RD2/-R DIMENSIONS



Cable for power (+ & -) and twisted pair cable for data (X+ & X-) from panel or previous remote and to next remote or 120 ohm termination resistor (P/N 140-820350) on the last remote.

FS-RD2/-R WIRING Power Limited and Supervised

- Step 1.) Installation is to be done by qualified personnel who have thoroughly read and understood this instruction sheet.
- Step 2.) Disconnect BATTERY and AC prior to working on equipment.
- Step 3.) Mount 6-gang backbox horizontally as required.
- Step 4.) Set dip switch for proper remote address (see page 2).
- Step 5.) Attach conduit and run wires as required.
- Step 6.) Connect IN wires from fire alarm system control unit or previous remote as required.
- Step 7.) Connect OUT wires to next remote or 120 ohm terminating resistor (P/N 140-820350), if last remote.
- Step 8.) Attach unit to backbox, using four mounting screws.
- Step 9.) Apply power to system.
- Step 10.) Check for proper operation of functions.



FS-RD-SB/-R DIMENSIONS

- Notes:
- 1.) Units to be installed in accordance with all local codes.
 - 2.) T-Tapping is not allowed! Communication wiring must be daisy chained from remote to remote.
 - 3.) Terminal block will accept a maximum of 12 AWG wiring and minimum of 18 AWG.
 - 4.) Use twisted pair cable with a characteristic impedance of approximately 120 ohms. 4000 feet maximum distance from panel to last remote.

FS-RD2/R ADDRESS SWITCH SETTING

The following table shows the address dip switch settings for the FS-RD2/R.



Address	Switch 1	Switch 2	Switch 3	Switch 4
1	On	On	On	On
2	Off	On	On	On
3	On	Off	On	On
4	Off	Off	On	On
5	On	On	Off	On
6	Off	On	Off	On
7	On	Off	Off	On
8	Off	Off	Off	On
9	On	On	On	Off
10	Off	On	On	Off
11	On	Off	On	Off
12	Off	Off	On	Off
13	On	On	Off	Off
14	Off	On	Off	Off
15	On	Off	Off	Off
16	Off	Off	Off	Off

The following table gives the currents necessary for power supply and battery calculations.

Model	Input Voltage Type & Designation	Input Current		Frequency	Ripple Voltage
		Normal Standby	Maximum (Alarm)		
FS-RD2/R	Regulated 24 V DC 31 VDC (max.)	0.020 A	0.085 A	N/A	N/A

CONTROLS AND INDICATORS

The RDC-2 has a sounder, 6 LEDs, 1 LCD display, 4 navigational push buttons (M1-M4), 4 dedicated push buttons and a keyswitch.

The LEDs operate as follows:

POWER (Green)

Normally ON (steady) – indicates that power is applied to the RDC-2.
OFF indicates that the RDC-2 is not powered up.

TROUBLE (Yellow)

Normally OFF – indicates that there is no trouble event in the system.
ON (flashing) – indicates that at least ONE trouble event is unacknowledged.
ON (steady) – indicates that ALL trouble events have been acknowledged.

SUPERVISORY (Yellow)

Normally OFF – indicates that there is no supervisory event in the system.
ON (flashing) – indicates that at least ONE supervisory event is unacknowledged.
ON (steady) – indicates that ALL supervisory events have been acknowledged.

PRE-ALARM

Normally OFF – indicates that there is no pre-alarm condition in the system.
ON (flashing) – indicates that at least ONE pre-alarm event is unacknowledged.
ON (steady) – indicates that ALL pre-alarm events have been acknowledged.

ALARM (Red)

Normally OFF – indicates that there is no alarm event in the system.
ON (flashing) – indicates that at least ONE alarm event is unacknowledged.
ON (steady) – indicates that ALL alarm events have been acknowledged.

ALARM SIL (Yellow)

Normally OFF – indicates that NACs are in the OFF state if the system is in normal supervisory mode.
If any event is present, it indicates that the silenceable NACs are in the OFF state.
ON (steady) – indicates that at least one silenceable NAC has been activated.

The sounder operates as follows:

SOUNDER

Normally OFF – indicates that the system is in supervisory mode or all events in the system have been acknowledged.
ON (steady) – indicates that at least ONE unacknowledged alarm is present in the system.
ON (pulsing) – indicates that at least ONE unacknowledged non-alarm (trouble, supervisory or pre-alarm) event is present in the system.

The pushbutton operates as follows:

BUTTON ENABLE

This key/switch must be in the ON position to activate the pushbutton. The keys can only be removed in the OFF position.

RESET

When pressed, initiates a system reset.

ACKNOWLEDGE

When pressed, acknowledges all events that are unacknowledged.

ALARM SILENCED

When pressed, silences all the activated silenceable NACs.

NOTE: Pressing this button after the NACs are silenced will not unsilence the NACs.

MENU

When pressed, gives access to USER menu to allow panel control to generate GENERAL ALARM, ALERT, DRILL and VIEW HISTORY (refer to the FS-250/-500 Owner's Manual, P/N 315-049353).

M1 – M4

These pushbuttons are used for navigation while in the USER screen.

If events are present in the system, M1 (UP button) is used to scroll up to the next event and M2 (DOWN button) is used to scroll to the previous event. M3 (TOP button) is used to place the list at the top of the queue and M4 (NEXT QUE) is used to go to the next queue (if present) of lower priority.

The LCD operates as follows:

Supervisory Mode:

```
Line 1 – First Custom Message and System ID  
Line 2 – Second Custom Message and System ID  
Line 3 – Current Time  
Line 4 – Day and Date
```

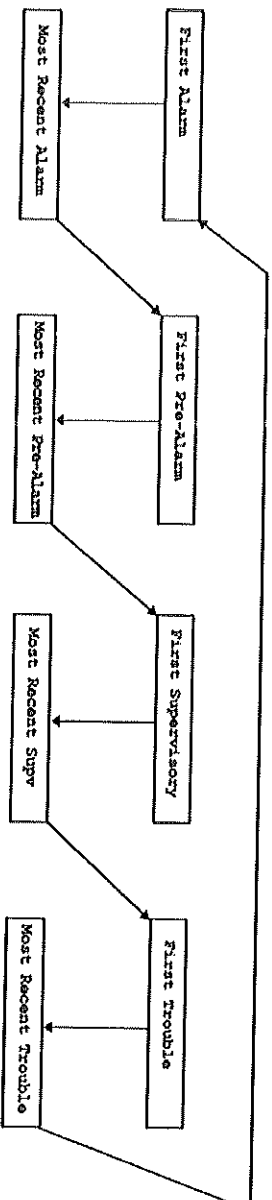
```
-Supervisory Msg 01-  
-Supervisory Msg 02-  
10:10:30 am  
Monday 12/01/04
```

Active Event Mode:

```
Line 1 – Acknowledged or unacknowledged event, Event type, Event location in the list and time the event occurred.  
Line 2 – First 20 character custom message.  
Line 3 – Second 20 character custom message.  
Line 4 –Address of the device where the event occurred and a generic description of the device or trouble type.
```

```
√R-SUP 100/100 10:14  
20 char custom msg01  
20 char custom msg02  
1003 Dual In/rel
```

The events are displayed one at a time and cycle through a circular list once the first event or last event message is reached.



EVENT PRIORITY

P/N 315-049103-4

SECTION 28 31 00 – FIRE ALARM SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. New building fire alarm system, including materials, labor, and services of a manufacturer trained installer, and related work.
2. Final adjustment and test of system.
3. Letter certifying that system has been properly installed and operates in accordance with applicable codes and these specifications.

1.2 REFERENCES

1. NFPA 70, National Electrical Code, 2008.
2. NFPA 72, Fire Alarm Code, 2007.
3. NFPA 101, Life Safety Code, 2006.

1.3 SUBMITTALS

A. Deliver submittals as directed in Section 16010 for:

1. Fire alarm control panel
2. Notification device power extenders
3. Manual stations
4. Smoke detectors
5. Duct smoke detectors
6. Heat detectors
7. Monitor modules
8. Control modules
9. Audible/visual devices
10. Telephone dialer
11. Wire and cable

B. Provide shop drawings and product data to indicate system components, size of components, location, floor plan drawings, and full one line schematic of wiring system showing every fire device and building and operation details. Indicate every fire alarm device, wire type, wire size, number of conductors, device location and room name for approval by the local Fire Department, Engineer, and Owner's representative.

C. Submit manufacturer's descriptive literature, operating instructions, and maintenance and repair data.

D. Have manufacturer submit, on completion of system verification, a point by point check list indicating the date and time of each item inspected and issue a certificate, confirming that the inspection has been completed and the system is installed and functioning in accordance with the specifications.

- E. Submit final test report and letter signed by an authorized representative of the manufacturer and installing company.

1.4 QUALITY ASSURANCE

- A. Approvals:
 - 1. The system shall have proper listing and approval by Underwriters Laboratories, Inc. (UL), and meet UL Standard 864.
 - 2. The system shall be listed and approved by UL for extinguishing release applications.
- B. Regulatory Requirements:
 - 1. Installation subject to approval, inspection, and test by manufacturer certified installer.
 - 2. Provide equipment listed by UL and FM, tested by a nationally recognized fire test laboratory, and compatible with the integrated fire alarm system.
 - 3. Equipment, wiring, and installation shall meet the requirements of NFPA 70, 72, 101, and Americans with Disabilities Act (ADA).

1.5 WARRANTY

- A. All work performed and all material and equipment furnished under this contract shall be free from defects and shall remain so for a period of at least one year from the date of acceptance. The full cost of maintenance, labor and materials required to correct any defect during this one year period shall be included as part of the work.

1.6 POST CONTRACT MAINTENANCE:

- A. Complete maintenance and repair service for the fire alarm system shall be available from a factory trained authorized representative of the manufacturer of the major equipment for a period of five (5) years after expiration of the guaranty.
- B. As part of the submittal, include a quote for a maintenance contract to provide all maintenance, test, and repair described below. Include also a quote of unscheduled maintenance/repair, including hourly rates for technicians trained on this equipment, and response travel costs. Submittals that do not identify all post contract maintenance costs will not be accepted. Rates and costs shall be valid for the period of five (5) years after expiration of the guaranty.
- C. Maintenance and testing shall be on a semiannual basis or as required by the AHJ. A preventive maintenance schedule shall be provided by the contractor that shall describe the protocol for preventive maintenance. The schedule shall include:
 - D. Systematic examination, adjustment and cleaning of all detectors, manual fire alarm stations, control panels, power supplies, relays, waterflow switches and all accessories of the fire alarm system.
- E. Each circuit in the fire alarm system shall be tested semiannually.
 - 1. Each smoke detector shall be tested in accordance with the requirements of NFPA 72 Chapter 5.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Acceptable Manufacturers
 - 1. Siemens
- B. System: Analog/addressable, annunciated, 24 volt DC, Siemens FS 250, containing a microprocessor based Central Processing Unit (CPU). The CPU shall communicate with and control system equipment such as intelligent detectors, addressable modules, printer, annunciators, and other system controlled devices.
- C. Fire alarm system components shall be by a single acceptable manufacturer, except as specifically approved by Engineer for unusual accessories.
- D. Provide fully supervised wiring and manual fire alarm stations, smoke detectors, audio/visual alarms, station detectors, annunciated circuits, and sprinkler devices.
- E. Design system to operate upon alarm initiation input from manual stations, automatic detectors and sprinkler circuits as follows:
 - 1. Actuate control panel to cause all evacuation alarm horns to sound in a three pulse temporal pattern per ANSI S3.41, Audible Emergency Evacuation Signal, and evacuation alarm lights to flash throughout the building.
 - 2. Indicate the zone in alarm on the front of the fire alarm control panel.
 - 3. Shut down heating and ventilating equipment fans.
 - 4. Summon the local fire department.
 - 5. Close doors that are held open electrically.
 - 6. Activate audible/visual communications for areas of rescue assistance.
 - 7. Monitor and control computer room pre-action sprinkler system.
- F. Operating power failure or disarrangement of the supervised circuits shall cause an audible signal to sound, and lamp to indicate, until all circuits are restored to normal, except equip the audible signal with a silencing switch. The audible signal shall re-activate in the event of a subsequent trouble event on another circuit.
- G. In the event commercial power is lost, the system shall automatically transfer to standby battery power. Transfer shall not cause disarrangement except trouble lamp shall indicate loss of prime power.
- H. Basic Performance:
 - 1. Encode alarm, trouble and supervisory signals from all intelligent reporting devices on an NFPA Style 4 (Class B) Signaling Line Circuit (SLC).
 - 2. Wire Initiation Device Circuits (IDC) to Class A (NFPA Style D) standard.
 - 3. Wire Notification Appliance Circuits (NAC) to Class A (NFPA Style Z).
 - 4. Digitized electronic signals shall employ check digits or multiple polling.
 - 5. A single ground or open on the system SLC shall not cause system malfunction, loss of operating power or the ability to report an alarm.
 - 6. Alarm signals arriving at the main FACP shall not be lost following a power failure until the alarm signal is processed and recorded.

- I. Manufacturer, or manufacturer's authorized representative shall have a minimum of five years experience and maintain a full-time service office within 150 miles of the building site. Service office shall be staffed with trained technicians and stocked with sufficient spare parts so as to provide repairs within 24 hours of time reported outage.

2.2 CONTROL PANEL

- A. Steel construction, painted manufacturer's standard finish, hinged front cover, key locked, semi-flush mounted with transparent pane(s) to view system status indicators.
- B. Equip panel with:
 1. Door mounted, 80 character, backlit LCD display, annunciator.
 2. Separate trouble light for each supervised circuit.
 3. Trouble buzzer light and trouble silence switch.
 4. Separate pilot lamp to supervise standby power.
 5. System reset switch.
 6. Alarm horn silence switch.
- C. Provide supervision of system as follows: A break or a ground on any supervised circuit causes trouble signal and trouble lamp illumination. Trouble signal silence switch silences buzzer but lamp remains illuminated. On restoration of the system, the trouble signal to remain energized until trouble signal silence switch is restored to normal. On loss of normal AC power, the trouble alarm operates and illuminates emergency power supervisory pilot lamp. Operation of the trouble alarm silence switch silences trouble signal but power supervisory lamp remains illuminated. On restoration of normal power, trouble alarm remains energized until the silence switch is restored to normal.
- D. Provide analog maintenance alert to warn when smoke detector dust accumulation is excessive, and three level (low, medium, high) manual individual detector sensitivity adjustment.
- E. Design control panel with integral digital communicator capable of reporting up to 56 zones or 198 points to a Central Station.
- F. System Capacity and General Operation:
 1. Include capability to monitor up to 252 intelligent/addressable devices.
 2. Provide Form-C alarm and trouble relays rated at a minimum of 2.0 amps @ 30 VDC. It shall also include four Class B (NFPA Style Y) programmable Notification Appliance Circuits.
 3. The system shall support up to 99 programmable ELA-485 driven relays for an overall system capacity of 301 circuits.
 4. Include a full featured operator interface control and annunciation panel that shall include a backlit Liquid Crystal Display, individual, color coded system status LEDs, and an alphanumeric keypad for the field programming and control of the fire alarm system.
 5. All programming or editing of the existing program in the system shall be achieved without special equipment and without interrupting the alarm monitoring functions of the Fire Alarm Control Panel.
- G. Provide the following features in the FACP:
 1. Drift Compensation to extend detector accuracy over life.
 2. Sensitivity Test, meeting requirements of NFPA 72, Chapter 5.

Fire Alarm System

Grace Chestnut St. Church

3. Maintenance Alert to warn of excessive smoke detector dirt or dust accumulation.
4. System Status Reports to display or printer.
5. Alarm Verification, with verification counters.
6. PAS presignal, meeting NFPA 72 3-8.3 requirements.
7. Rapid manual station reporting (under 2 seconds).
8. Non-Alarm points for general (non-fire) control.
9. Periodic Detector Test, conducted automatically by software.
10. Pre-alarm for advanced fire warning.
11. Cross Zoning with the capability of: counting two detectors in alarm, two software zones in alarm, or one smoke detector and one thermal detector.
12. March time and temporal coding options.
13. Walk Test, with check for two detectors set to same address.
14. UL 1076 Security Monitor Points.
15. Control-By-Time for non-fire operations, with holiday schedules.
16. Day/Night automatic adjustment of detector sensitivity.

H. Central Microprocessor:

1. The Microprocessor shall communicate with, monitor, and control all external interfaces with the control panel. It shall include EPROM for system program storage, non-volatile memory for building-specific program storage, and a "watch dog" timer circuit to detect and report microprocessor failure.
2. The microprocessor shall contain and execute all control-by-event programs for specific action to be taken if an alarm condition is detected by the system. Control-by-event equations shall be held in non-volatile programmable memory and shall not be lost even if system primary and secondary power failure occurs.
3. The microprocessor shall also provide a real-time clock for time annotation of system displays, printer, and history file. The time-of-day and date shall not be lost if system primary and secondary power supplies fail. The real time clock may also be used to control non-fire functions at programmed time-of-day, day-of-week, and day-of-year events.

I. Field Wiring Terminal Blocks: Panel I/O wiring terminal blocks shall be a removable, plug-in type and be designed for 18 to 12 AWG wire. Terminal blocks which are permanently fixed are not acceptable.

J. Operator's Controls:

1. Acknowledge Switch:
 - a. Activation of the control panel acknowledge switch in response to new alarms and/or troubles shall silence the local panel sander, change the alarm and trouble LEDs from flashing mode to steady-on mode. If multiple alarm or trouble conditions exist, depression of this switch shall advance the 80-character LCD display to the next alarm or trouble condition.
 - b. The Acknowledge switch shall also silence all remote annunciator sounders.
2. Signal Silence Switch: Activation of the Signal silence switch shall cause all programmed alarm notification appliances and relays to return to the normal condition after an alarm condition. The selection of notification circuits and relays that are silenceable by this switch shall be fully field programmable as permitted by applicable standards. The FACP software shall include silence inhibit and auto-silence timers.
3. System Reset Switch: The system reset switch shall cause all electronically-latched initiating devices, appliances or software zones, as well as all associated output devices and circuits, to return to their normal condition.

4. Holding the system RESET switch shall perform a lamp test function.
 5. Drill (Evacuate) Switch: The drill switch shall activate all notification appliance circuits. The drill function shall latch until the panel is silenced or reset.
- K. Field Programming:
1. The system shall be programmable, configurable and expandable in the field without the need for special tools or electronic equipment and not require field replacement of electronic integrated circuits.
 2. All programming can be done using the standard FACP keypad.
 3. All field defined programs shall be stored in non-volatile memory.
 4. The programming function shall be enabled with a password that may be defined specifically for the system when it is installed. Two levels of password protection shall be provided in addition to a key-lock cabinet. The lower level password is used for status level changes such as zone disable or manual on/off commands, and the higher-level is used for actual change of program information.
 5. Program edit shall not interfere with normal operation and fire protection. If a fire condition is detected during programming operation, the system shall exit programming and perform fire protection functions as programmed.
 6. Provide a special program check function to detect common operator errors.
 7. Include an Auto-Program (self-learn) function to quickly install initial functions and make the system operational.
 8. Provide an off-line programming with batch upload/download function.
 9. Specific System Operations:
 - a. Smoke Detector Sensitivity Adjust: Provide a means to adjust the sensitivity of any or all analog intelligent smoke detectors in the system from the control panel. Sensitivity range shall be within the allowed UL window.
 - b. Alarm Verification: Each intelligent addressable smoke detector in the system shall be independently selected and enabled to be alarm verified. The alarm verification delay shall be programmable from 5 to 30 seconds. The FACP shall keep a count of the number of times that each detector has entered the verification cycle. These counters may be displayed and reset by the proper operator commands.
 - c. Point Disable: Any device in the system may be enabled or disabled through the system keypad.
 - d. Point Read: The system shall be able to display or print the following point status diagnostic functions:
 - 1) Device status.
 - 2) Device types.
 - 3) Custom device labels.
 - 4) View analog detector values.
 - 5) Device zone assignments.
 - 6) All program Parameters.
 10. System Status Reports: Upon command by operator, generate a printed status report listing system status.
 11. System History Recording and Reporting: Provide a history buffer capable of storing up to 650 system alarms/troubles/operator actions, including time and date stamp of the activation. The contents of the History Buffer may be manually reviewed, one event at a time, or printed in its entirety.
 12. Although the foreground history buffer may be cleared for user convenience, a background, non-erasable buffer shall be maintained which provides the last 650 system events.

13. The History Buffer shall use non-volatile memory. Systems that use volatile memory for history storage are not acceptable.
 14. Automatic Detector Maintenance Alert: The FACP shall automatically interrogate each intelligent smoke detector and analyze the detector responses over a period of time.
 - a. If any intelligent smoke detector in the system responds with a reading that is below or above normal limits, then the system will enter the Trouble Mode, and the detector will be annunciated on the system display, and printed on the optional printer. This feature shall in no way inhibit the receipt of alarm conditions in the system, nor shall it require any special hardware, special tools or computer expertise to perform.
 15. Pre-alarm Function: The system shall provide two levels of pre-alarm warning to give advance notice of a possible fire situation. Both pre-alarm levels shall be fully field adjustable. The first level shall give an audible indication at the panel. The second level shall give an audible indication and may also activate control relays. The system shall also have the ability to activate local detector sounder bases at the pre-alarm level, to assist in avoiding nuisance alarms.
 16. Software Zones: The FACP shall provide 99 software zones. All addressable devices may be field programmed to be grouped into software zones for control activation and annunciation purposes.
- L. Display :
1. Provide all the controls and indicators used by the system operator to program all system operational parameters.
 2. Include status information and custom alphanumeric labels for all intelligent detectors, addressable modules, and software zones.
 3. Provide an 80-character back-lit alphanumeric Liquid Crystal Display (LCD). It shall also provide 5 Light-Emitting-Diodes (LEDs), that will indicate the status of the following system parameters: AC POWER, SYSTEM ALARM, SYSTEM TROUBLE, SIGNAL SILENCED, SUPERVISORY, and PRE-ALARM.
 4. Provide a 21-key touch key-pad with control capability to command all system functions, entry of alphabetic or numeric information, and field programming. Two different password levels shall be provided to prevent unauthorized system control or programming.
 5. Include the following operator functions: SIGNAL SILENCE, RESET, DRILL, and ACKNOWLEDGE.
- M. Signaling Line Circuit (SLC) Interface:
1. The SLC interface shall provide power to and communicate with up to 99 intelligent detectors (Ionization, Photoelectric, or Thermal) and 99 intelligent modules (monitor or control) for a system capacity of 198 devices. This shall be accomplished over a single SLC loop and shall be capable of supporting NFPA 72 Style 4, Style 6, or Style 7 wiring.
 2. The loop interface shall receive analog information from all intelligent detectors on the loop to determine whether normal, alarm, or trouble conditions exist for each detector. The software shall automatically maintain the detector's desired sensitivity level by adjusting for the effects of environmental factors, including the accumulation of dust in each detector. The analog information shall also be used for automatic detector testing and for the automatic determination of detector maintenance requirements.
 3. The detector software shall meet NFPA 72, chapter 7 requirements and be certified by UL as a calibrated sensitivity test instrument.
 4. The detector software shall allow manual or automatic sensitivity adjustment.

- N. Serial Interfaces:
1. Provide an EIA-232 interface between the Fire Alarm Control Panel and UL Listed Electronic Data Processing (EDP) peripherals.
 - a. Supports the use of printers, CRT monitors, and PC compatible computers.
 - b. Include special protocol methods that allow off-site monitoring of the FACP over standard dial-up phone lines. This ancillary capability shall allow remote readout of all status information, including analog values, and shall not interfere with or degrade FACP operations when used. It shall allow remote FACP Acknowledge, Reset, or Signal Silence in this mode. It shall also allow adjustment of detector sensitivity and readout of the history file.
 2. Provide an EIA-485 interface for the serial connection of remote annunciators and LCD displays that may be used for network connection to a Proprietary Receiving Unit.
 3. Protect all interfaces and associated equipment so that they will not be affected by voltage surges or line transients, consistent with UL standard 864.
- O. Digital Alarm Communicator Transmitter (FS-DACT):
1. The FS-DACT is an interface for communicating digital information between a fire alarm control panel and a UL-listed central station.
 2. It shall be compact in size, and mount in a standard module position of the fire alarm control cabinet.
 3. Include connections for dual telephone lines (with voltage detect), per UL/NFPA/FCC requirements, with the ability of split reporting of panel events to up to three different telephone numbers.
 4. Completely field programmable from a built-in keypad and 4 character red, seven segment display.
 5. Capable of transmitting events in at least 8 standard formats. This ensures compatibility with existing and future transmission formats.
 6. Communication shall include vital system status such as:
 - a. Independent Zone (Alarm, trouble, non-alarm, supervisory)
 - b. Independent Addressable Device Status
 - c. AC (Mains) Power Loss
 - d. Low Battery and Earth Fault
 - e. System Off/Normal
 - f. 12 and 24 Hour Test Signal
 - g. Abnormal Test Signal (per UL requirements)
 - h. EIA-485 Communications Failure
 - i. Phone Line Failure
 7. The FS-DACT shall support independent zone/point reporting when used in the Contact ID format. In this format the FS-DACT shall support transmission of up to 2,040 points. This enables the central station to have exact details concerning the origin of the fire or response emergency.
 8. An optional module shall be available which provides 8 Form-C relays rated at 5.0 amperes. The relays shall track programmable software zones.
- 2.3 Power Supply:
- A. Provide power supply unit as part of control panel or as separate unit to automatically maintain standby battery bank fully charged under normal conditions and sized to recharge standby batteries in 12 hours maximum, following emergency operation. Power supply shall operate the system when batteries are disconnected.

1. The Power Supply shall operate on 120 VAC, 60 Hz, and provide all necessary power for the FACP.
2. It shall produce 5.0 amps of usable Notification appliance power, using a switching 24 VDC regulator. An 3.0 amp Notification expansion power supply shall be available for UL 1971 and ADA devices, for a total system capacity of 8 amps.
3. Battery charger shall be dual-rate charging type for fast battery recharge and be power-limited per 1995 UL864 standards.
4. Provide a very low frequency sweep earth detect circuit, capable of detecting earth faults.
5. Provide optional meters to indicate battery voltage and charging current.

- B. Provide sealed nickel cadmium or lead acid batteries of sufficient capacity to operate system under supervised load conditions without recharging for 24 consecutive hours and then have sufficient power left to operate sounding devices for fifteen minutes. Batteries shall be warranted for 5 years full plus 5 years pro rata, total of 10 years. Mount batteries in the bottom of the FACP or in a steel locked enclosure located 6 inches minimum or 6 feet maximum above floor in a dry, clean location where ambient temperatures will be 40 degrees F maximum. Protect enclosure so that spillage of electrolyte will not damage FACP interior.

2.4 ADDRESSABLE DEVICES - GENERAL

- A. Detectors shall be intelligent and addressable, and connect with two wires to the Fire Alarm Control Panel Signaling Line Circuits.
- B. Provide dual alarm and power LEDs on addressable smoke and thermal detectors.
1. Both LEDs flash under normal conditions to indicate that the detector is operational and in regular communication with the control panel.
 2. Both LEDs shall continuously illuminate indicating that an alarm condition has been detected.
 3. The flashing mode operation of the detector LEDs shall be optional through the system field program.
 4. Provide an output connection in the base to connect an external remote alarm LED.
- C. Provide detector sensitivity adjustment through field programming of the system. Sensitivity shall be automatically adjusted by the panel on a time-of-day basis.
- D. Provide automatic detector compensation for dust accumulation and other slow environmental changes that may affect their performance. The detectors shall be listed by UL as meeting the calibrated sensitivity test requirements of NFPA Standard 72, Chapter 7.
- E. The detectors shall be ceiling-mount and shall include a separate twist-lock base with tamper proof feature. Provide the means to test detectors and report to the FACP by activating a built-in magnetic switch, or be initiated remotely on command from the FACP.
- F. Detectors shall also store an internal identifying type code that the control panel shall use to identify the type of device (ION, PHOTO, THERMAL).

2.5 ADDRESSABLE FIRE ALARM BOXES

- A. Manual: Non-coded, single action, flush mounted in new construction, surface mounted on matching back box (do not mount on standard electrical box) in existing construction. Station shall remain in actuated position until reset by key access, Siemens HMS series.
 - B. Back Boxes: For recessed applications, provide 4" x 4" x 2.5" deep, or larger, flush back box. For surface mounted applications, provide matching back box so that face of manual station does not overhang the box.
 - C. Addressable pull boxes shall, on command from the control panel, send data to the panel representing the state of the manual switch and the addressable communication module status. Provide a key operated test-reset lock to restore device to normal use.
 - D. Manual stations shall be solidly constructed of Lexan with clearly visible operating instructions provided on the cover. The word FIRE shall appear on the front of the stations in raised letters, 1.75 inches or larger.
- 2.6 INTELLIGENT HEAT DETECTORS
- A. Thermal detectors shall be intelligent addressable devices rated at 135 degrees Fahrenheit (58 degrees Celsius) and have a rate-of-rise element rated at 15 degrees F (9.4 degrees C) per minute. It shall connect via two wires to the fire alarm control panel signaling line circuit, Model HFP-11.
 - B. Detectors: Fixed temperature, combined fixed temperature rate of rise as indicated, 135E F for normal locations, 190E F for boiler room applications, complete with plug-in detector base for surface mounting on outlet box.
 - C. Rate of Rise: 14E F per minute.
 - 1. For elevator shunt trip applications, provide temperature rating 10° lower than adjacent sprinkler head rating.
 - D. Resetting: Provide fixed temperature detectors of automatic reset type.

2.7 INTELLIGENT PHOTOELECTRIC SMOKE DETECTORS

- A. The detectors shall use the photoelectric light-scattering principal to measure smoke density and shall, on command from the control panel, send data to the panel representing the analog level of smoke density, Model HFP-11.
- B. Capable of detecting products of combustion without requirements for presence of heat or smoke, unaffected by changes in environmental temperature, humidity, and pressure; semi flush mounted, with indicator lamp, provision for remote mounting, designed for operation on 24 volts DC. Provide complete with plug-in detector base for surface mounting on outlet box.
- C. Furnish duct mounting units complete with duct mounting enclosure and sampling tubes.
- D. Equip detectors with 30 mesh insect screen and closed back to prevent entry of dust and air turbulence and shield electronics to prevent false alarms caused by EMI and RFI.

- E. Design detector to be easily disassembled to facilitate cleaning.
- 2.8 ADDRESSABLE DRY CONTACT MONITOR MODULE
- A. Provide addressable monitor modules to connect one supervised IDC zone of conventional alarm initiating devices (any N.O. dry contact device) to one of the fire alarm control panel SLCs, Model HTR1-S.
 - B. The monitor module shall mount in a 4-inch square, 2-1/8 inch deep electrical box.
 - C. The IDC zone shall be suitable for Style D or Style B operation. Include an LED status light as specified above for addressable devices.
- 2.9 AUDIBLE/VISUAL ALARM DEVICES
- A. Provide combination vibrating horn/flashing strobe alarm devices mounted on a common housing, except where indicated, provide strobe unit without horn. Provide matching back box for all surface mounted units; do not mount on standard electrical box. In flush mounted applications, provide matching back box, or standard electrical box as needed.
 - B. Design horns for parallel type operation semi-flush mounted, with audio output of not less than 95 db at 10 feet on axis except 87 db rating may be used where the higher rated output is excessive.
 - C. Strobes shall be Xenon flash tube type meeting UL 1971 and NFPA 72 and having a minimum flash intensity of 15 candela polar distribution, or higher where indicated on drawings, with a maximum pulse duration of 0.2 second and maximum duty cycle of 40 percent. Strobes shall meet the ADA required 75 candela on axis distribution. The flash repetition rate shall be a minimum of 1 and maximum of 2 per second. Provide synchronizing control so that strobes in a common area flash simultaneously. Provide higher flash intensity units as indicated and/or as necessary to meet the requirements of NFPA 72 in large spaces.
 - D. Back Boxes: For recessed applications, provide 4" x 4" x 2.5" deep, or larger as needed, flush back box. For surface mounted applications, provide matching back box so that face of a/v unit does not overhang the box.
- 2.10 SPRINKLER DEVICES
- A. Monitor tamper switches for each OS&Y valve in sprinkler system.
 - B. Monitor flow and pressure switches and control pre-action sprinkler valve.
- 2.11 VOICE ALARM AND CONTROL
- A. Provide voice alarm control to issue prerecorded voice evacuation message to assembly area upon alarm activation by FACP.
 - B. Provide combination voice/flashing strobe alarm devices mounted on a common housing to match audible/visual devices.

- C. Design voice system with adequate power to be intelligible under all noise conditions in accordance with NFPA 72.
- 2.12 WIRE AND CABLE
 - A. Provide number and size of wires as recommended by the manufacturer of the alarm system, but not less than #18 AWG for initiating device circuits and #14 AWG for notification appliance circuits.
 - B. Wire in conduit:
 - 1. Type THHN building wire, minimum #14 AWG, stranded copper conductor, per Section 16050.
 - 2. Twisted or twisted shielded pair, as required by fire alarm system manufacturer, minimum #18 AWG, stranded copper conductor for digital circuits, and #14 AWG for alarm notification circuits, include overall PVC jacket.
 - C. Power Limited Fire Alarm System Cable
 - 1. Fire rated cable, UL rated, Type FPL, minimum #14 AWG stranded copper conductor.
 - 2. Cable marked type FPLP shall be used in ducts, plenums, and other space used for environmental air.
 - 3. Cable marked type FPLR shall be used in riser and all other applications.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install as recommended by the equipment manufacturer and in accordance with NFPA 70, NFPA 72 and local and State codes.
- B. The stations, detectors, audiovisual units, control panel, and batteries are approximately located on the drawings. Minor rearrangements to adjust for appearance and structural conditions are to be expected. Detectors have been arranged on floor plan to meet or exceed code required minimum spacing. Provide additional detectors where location adjustments prevent meeting these requirements. Provide additional audiovisual units as required to meet minimum evacuation alarm audible sound level requirements.
- C. Install fire alarm wires and cable in conduit per Section 16010, except where indicated, fire rated cable is permitted above accessible ceilings in accordance with Section 16010.
- D. Paint all fire alarm junction boxes red and stencil "FIRE ALARM" on each box cover, including existing boxes.
- E. Fire alarm conductor terminations in control panel and splice cabinets shall be made on terminal strips with a separate point for each conductor. All such strips to be number identified as shown in wiring diagram attached to inside of door of control panel. Connect wiring neatly to terminal strips; bundle wires, neatly arrange in straight runs with square corners and secure with nylon cable straps or lace with jute cord. Set up termination of cabling so that sections of the system may be isolated or shorted out for servicing.

- F. Mount end-of-line resistor for each circuit in control panel.
- G. Provide signal connection to elevator controller.
- H. Mount fire alarm boxes centered at 48 inches above finished floor. Fire alarm boxes shall not protrude more than 0'-4" from the mounting surface, and shall not protrude beyond the sides of the backbox..
- I. Protect smoke detectors from contamination due to construction dust or the like. In the event of false alarms due to dirty detectors, remove all detectors and clean or replace them and reinstall at no extra cost to Owner.
- J. Mount audiovisual devices 6'-8" AFF to underside of visual device, but not less than 1'-0" below ceilings. Any wall mounted device mounted less than 6'-8" AFF shall not protrude more than 0'-4" from the mounting surface.

3.2 FIELD QUALITY CONTROL

- A. Provide the service of a competent and NICET certified or factory-trained technician authorized by the manufacturer of the fire alarm equipment to technically supervise and participate during all of the adjustments and tests for the system. All testing shall be in accordance with NFPA 72, Chapter 7.
- B. Technician shall make a thorough inspection of the complete installed fire alarm systems including operation of all components such as manual stations, thermal detectors, smoke detectors, sprinkler flow valves, and controls, and open each circuit at its most remote point to ensure the following:
 - 1. Complete and functional system.
 - 2. Underwriters Laboratories requirements.
 - 3. Installed in accordance with manufacturer's instructions.
 - 4. Regulations covering supervision of components are adhered to.
 - 5. Make changes necessary to conform to Items 1, 2, 3, and 4 with technical assistance from the manufacturer.
- C. Before energizing the cables and wires, check for correct connections and test for short circuits, ground faults, continuity, and insulation and perform the following:
 - 1. Close each sprinkler system flow valve and verify proper supervisory alarm at the FACP.
 - 2. Verify activation of all flow switches.
 - 3. Open initiating device circuits and verify that the trouble signal actuates.
 - 4. Open and short signaling line circuits and verify that the trouble signal actuates.
 - 5. Open and short Notification Appliance Circuits and verify that trouble signal actuates.
 - 6. Ground all circuits and verify response of trouble signals.
 - 7. Check presence and audibility of tone at all alarm notification devices.
 - 8. Check installation, supervision, and operation of all intelligent smoke detectors using the Walk Test.
- D. Introduce each of the alarm conditions that the system is required to detect. Verify the proper receipt and the proper processing of the signal at the FACP and the correct activation of the control points.

- E. At the final inspection, technician shall demonstrate that the systems functions properly in every respect.

3.3 INSTRUCTION:

- A. Provide a typewritten "Sequence of Operation" and instruction as required for operating the system. Hands-on demonstrations of the operation of all system components and the entire system including program changes and functions shall be provided.
- B. The Contractor and/or the Systems Manufacturer's representatives shall provide
- C. Have fire alarm technician prepare a test report certifying that the system has been successfully tested in accordance with these specifications and regulatory requirements.
- D. Submit manufacturer's warranty for equipment and wiring to be free from mechanical and electrical defects for a period of one year from the date of acceptance. At the conclusion of the warranty period, manufacturer's technician shall re-inspect and service the system and furnish a letter to the Owner certifying that 100% of the system is operating properly.


END OF SECTION

SIEMENS

Fire Safety

FireSeeker Model FS-250 Addressable Fire Alarm Control Panel

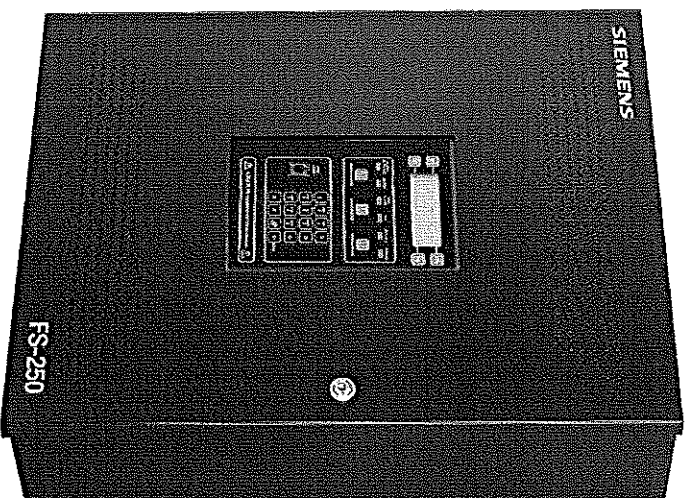
ENGINEER AND ARCHITECT SPECIFICATIONS

- One intelligent signaling line circuit (Style 4 or 6)
 - SureWire polarity insensitive loop wiring
 - Utilizes H-Series detectors and devices
 - Supports up to 252 addressable inputs AND signal/relay outputs
 - Devices operate on standard wire, no twist or shield required
 - FirePrint application specific fire detection
 - 4 Class B/2 Class A NAC circuits
 - Up to 6 amps of NAC power
 - Built in strobe synchronization protocol
 - One man walk test (silent or audible)
 - 80 Character backlit LCD display
 - Optional internal DACT capable of transmitting point or group information
 - Programmable from front keypad or Windows based PC configuration tool
 - Built in RS-232 port for computer programming
 - 2000 event history log
 - Alarm, trouble, supervisory and power fail relays built-in
 - Auto program feature makes system start-up faster
 - Maintenance and technician level passwords
-  .MEA and CSFM listed

The FS-250 addressable fire alarm control panel is a small, low cost fire alarm panel suited for stand-alone operation in small to medium sized facilities. It features a single addressable input device circuit and four notification appliance circuits. The system is available with both a black or red enclosure, with operating controls and indicators behind a locked door. The FS-250 is Listed by Underwriters Laboratories.

Main System

The FS-250 indicates alarm, trouble and supervisory conditions with an 80 character backlit LCD display and integral system status LEDs. Acknowledge, alarm silence, and system reset are accomplished with built-in membrane control buttons. Basic user and



maintenance level functions such as viewing history or system enable/disable are also accomplished through the membrane control buttons. Password protection of maintenance level functions is present. The main system can support up to 38 AH battery sets, up to 10 AH will fit inside the enclosure.

The basic FS-250 features a single addressable signaling line circuit (Style 4 or 6) capable of supporting up to 252 addressable input devices, whether they are detectors, manual pull stations, or contact monitoring points. Each detector can also have an optional audible detector base, relay detector base, or remote lamp associated with it. These auxiliary devices are completely controlled through logic, and are not required to activate simultaneously with the detector.

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The system also has four class B or 2 class A Notification Appliance Circuits built into the main board. Each circuit has a capacity of 1.5 amps of 24VDC for powering horns, strobes, chimes, and other notification appliances. The total base system capacity for the four circuits is 3.0 amps and can be expanded to 6A. Each NAC is fully programmable, and supports standard and custom coded outputs of audible devices. Systems can be configured to sound different codes on the same NAC to indicate different conditions.

The FS-250 has four Form C relays on the main board for monitoring alarm, supervisory, power fail and trouble conditions. Each relay is rated at 1 amp @ 28VDC. Auxiliary 24VDC power is also available on the main board, with a capacity of up to 0.5 amps.

The Loop

The FS-250 utilizes the advanced P-2 protocol for the detection circuit. The P-2 loops features include SureWire™ technology providing, 252 addresses (inputs AND outputs), polarity insensitivity, response time under 3 seconds, retrofit installations using almost any type of wire (shielded, non-shielded, twisted, etc.)

You can install an FS-250 using any of the H-series P-2 devices including the HFP-11 FirePrint™ detector. But we also offer a new low-cost HFP0-11 detector that is a non-FirePrint photoelectric device for the less-demanding, more cost-competitive applications.

If you require two detector accessories, such as a relay or audible base AND a remote lamp, you can install the new LED-HC or LED-HW Intelligent Remote L.E.D. that can be programmed to mimic the detector L.E.D. or can respond to panel logic (see LED installation or catalog sheet for details.)

Optional Modules

Remote LCD Annunciator

The FS-250 supports a remote LCD display called the FS-RD2. This remote display uses the same 80 character backlit LCD display found on the main system panel. The FS-RD2 has remote acknowledge, silence, and reset capability, secured with a keyswitch. User and maintenance level functions are also possible from this remote display. Maintenance level functions require the system maintenance password for activation. The FS-RD2 communicates with the main system board via an RS-485 communication network. Up to sixteen FS-RD2 remote displays can be supported on a single FS-250 system. The FS-RD2 mounts in a 2" deep 6 gang electrical box, and the plate on the display is suitable for flush mounting.

Digital Alarm Communicator Transmitter (DACT)

Communication between the FS-250 and a monitoring station is accomplished with the Model FS-DACT Digital Alarm Communication Transmitter. The FS-DACT supports two lines and four accounts, and can transmit serial information by point to the Central or Remote station. Communication protocols available include SIA

DCS 8, SIA DCS 20, Ademco Contact ID, 3/1 1400 Hz, 3/1 2300 Hz, 4/2 1400 Hz and 4/2 2300 Hz. The FS-DACT mounts within the FS-250 enclosure on an 8-pin connection point on the main board. No external enclosure is required, and no wires are required between the panel and the dialer. Programming of account and dialing information is done as part of the system configuration. No external programmer for the dialer is required.

Municipal Tie/Leased Line

For installations that require connection to a municipal call box or a leased line, the Model FS-MT municipal module is used. The FS-MT provides a local energy output for municipal call box connection and a reverse polarity output for lease line connection. The unit mounts within the FS-250 enclosure on an 8-pin connection point on the main board. Configuration of the FS-MT parameters is done as part of the system configuration.

Programmable Relays

Programmable relays are available on the FS-250. A remote processor board communicates with the main system board via an RS-485 communication network. This processor board controls a relay board mounted adjacent to it. The relay board has eight Form C relay contacts, rated at 1 amp @ 28VDC maximum. Model FS-RU relay unit contains one processor board and one relay board to add eight relays to an FS-250 system. Each processor board can support up to three relay boards simultaneously, for a total of 24 programmable relays per processor board. Additional relay extender boards are available as Model FS-RE8. A total of eight processor boards (including serial annunciator processor boards) can be supported simultaneously by the FS-250. All programmable relay processors and modules can be mounted in a Model FS-AE accessory enclosure.

Programmable Serial Annunciator Drivers

Programmable serial annunciator drivers are available on the FS-250. A remote processor board communicates with the main system board via an RS-485 communication network. This processor board controls a serial annunciator driver board mounted adjacent to it. The driver board has sixteen outputs for LEDs. All serial annunciator outputs are supervised. Model FS-SAU-2 serial annunciator unit contains one processor board and one serial annunciator driver board to add 16 LED drivers to an FS-250 system. Each processor board can support up to four additional driver boards simultaneously, for a total of 64 programmable serial annunciator drivers per processor board. Additional serial annunciator extender boards are available as Model FS-SAE16. A total of eight processor boards (including relay processor boards) can be supported simultaneously by the FS-250. All programmable serial annunciator processors and modules can be mounted in a Model FS-AE accessory enclosure.

Programming/Configuration Options

Configuration of the FS-250 can be accomplished in two ways. The operator interface includes a 16 button keypad. This keypad can be used to configure all system parameters, including custom messages and logic, right at the panel with no other configuration tools. Alternately, the

Model FS-CT2 configuration tool can be used on a laptop computer to upload, download, and edit the system configuration. The Model FS-CT2 configuration tool includes a connection cable for use between the FS-250 and a 9-pin serial connection, and the FS-CT2 software. Use of the FS-CT2 software requires a computer running Windows 98, Windows 2000, or Windows XP. The FS-CT2 tool can be used to generate configuration reports and download and print history.

If an alarm or other system event occurs during system configuration, the event will cause the panel to announce the alarm and operate the appropriate outputs.

Custom messages for system addresses consist of two lines of twenty characters each. The characters include both upper and lower case letters as well as numbers, punctuation marks, and control characters. This forty character custom message will be displayed for all events at that address.

General Specifications

Environmental

Operating temperature: 32-120°F (0-49°C) Relative Humidity - 85% @ 86°F

Primary Supply

Primary input voltage -
120 Vac (50/60 Hz.)
Maximum primary input current -
1.3 amp @ 120 Vac

Secondary and Trouble Power Supply

24 volt lead-acid battery with 7 AH-38 AH capacity

Auxiliary Power Outputs

Current - 0.5 amp resettable/non-resettable power outputs

Status System Relays

4 relays rated @ 1 amp, 28 Vdc resistive

NAC Circuits

Rating per NAC circuit, 1.5A ea., 6 max.

Battery

Base cabinet will accommodate a 10 A battery set. Larger batteries will require separate enclosure

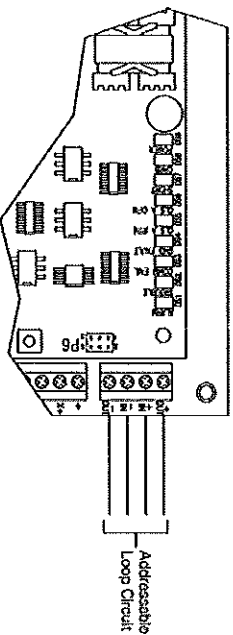
FS-250 Dimensions

22" x 18" x 5 1/4" deep – enclosure only
22 9/32" x 18 3/8" x 5 1/4" deep – enclosure with door

Ordering Information

Model Number	Description	Part Number
FS-250R	FS-250, Single Loop Panel, Red	599-049346
FS-250	FS-250, Single Loop Panel, Black	599-049345
FS-RD2	Remote Annunciator, Black	500-648980
FS-RU2	Relay Processor Card	500-648909
FS-RE8	8 Relay Extender	500-649307
FS-SAU2	Serial Annun. Processor Card	500-648946
FS-SAE16	16 Output Annunciator Extender	500-689469
FS-AE	Acc. Enclosure for Serial Drivers	500-689470
FS-DACT	Serial DACT	500-689484
FS-MT	Multiplex Tie Module	500-689482
FS-SFT-R	Semi Flush Trim, Red	500-648955
FS-SFT	Semi Flush Trim, Black	500-648954
FS-NPE	Nac Power Expander Transformer	500-649120
HFP0-11	Photo Only Detector	500-034800
FS-250-CON	FS-250 Electronics package	500-649110
FS-250-ENCL	FS-250 Enclosure, Black	500-648952
FS-250-ENCL-R	FS-250 Enclosure, Red	500-648953

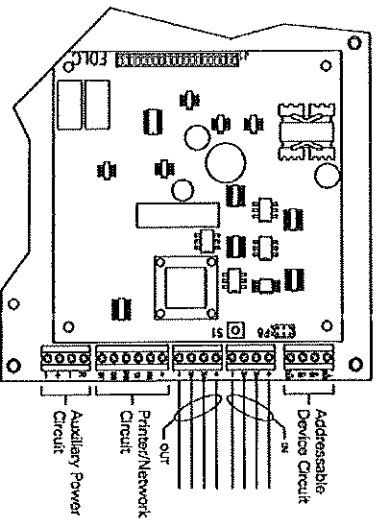
Wiring, Main Termination Board



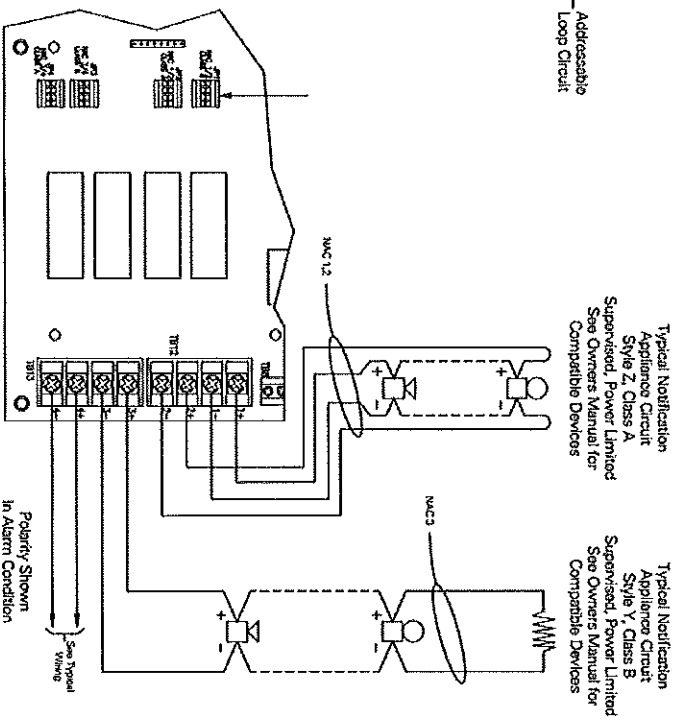
Addressable Device Circuit
 Style 4 or 6 Operation
 24VDC nominal
 Wire Resistance-50 ohms max
 (see Line Resistance Graph)
 Supervised, Power Limited
 See Owner's Manual for Compatible Devices

NAC Ratings:
 Alarm Voltage: 24V FV nominal
 Max. Alarm Current: 1.5mA/AC circuit
 Max. Ripple: 16VAC
 Max. Wire Voltage Drop: 1.0VDC
 Max. Standby Current: 1.0mA

NOTE:
 The maximum total current for the FS-250 NACs is 3.0A and 6.0A
 with the optional additional Transformer PIN FS-NPE

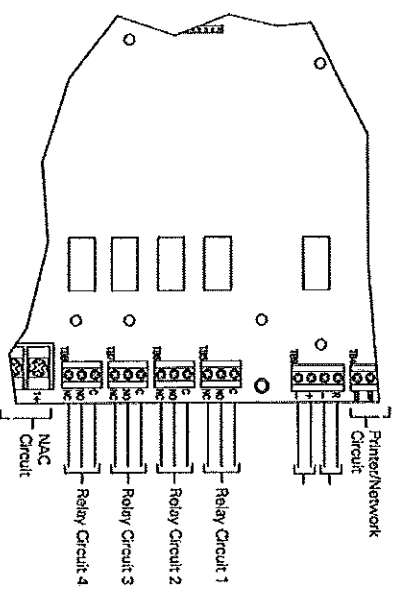


Serial Interface Circuit,
 (4-1) 24VDC nominal, 0.4 max
 (X-1) RS-485 loads
 Wire Type-Twisted Pair For Data
 Wire Resistance-11 ohm/line (4000' max)
 Supervised, Power Limited
 See Owner's Manual for
 Compatible Devices.



Typical Notification
 Appliance Circuit
 Style Z, Class A
 Supervised, Power Limited
 See Owner's Manual for
 Compatible Devices

Typical Notification
 Appliance Circuit
 Style Y, Class B
 Supervised, Power Limited
 See Owner's Manual for
 Compatible Devices



Auxiliary Power Outputs
 0.4A max @24VDC nominal
 Unsupervised, Power Limited
 Maximum current of all auxiliary outputs
 circuits, Serial Interface Circuit and
 option boards is: 0.5A

Status Relay Contacts
 (Shown in normal standby condition)
 1A 28VDC max Resistive For Power
 Limited Source, Unsupervised

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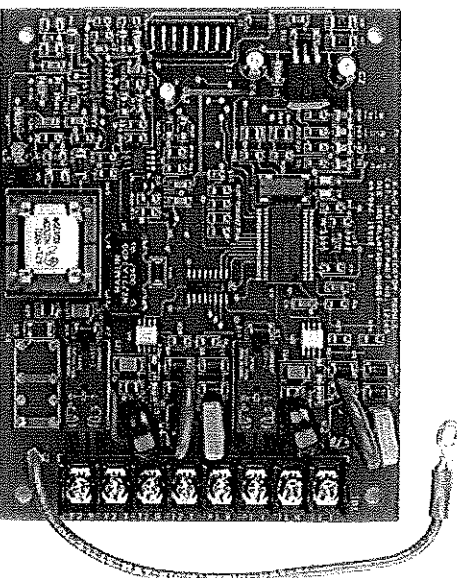
Fire Safety

FS-DACT

Digital Alarm Communication Transmitter
for the FireSeeker FS-250 System

ENGINEER AND ARCHITECT SPECIFICATIONS

-  UL Listed for Central Station/Remote Station Monitoring (NFPA 72 Chapter 4)
- Four separate monitoring accounts available
- Two phone lines available
- Can send serial information to monitoring station
- Reports in 8 standard communication formats
- Automatic 24 hour test available
- Mounts within the FS-250 enclosure directly on the main processor board
- All programming is done as part of the FS-250 configuration



Ordering Information

Model Number	Description	Part Number
FS-DACT	Digital dialer for the FS-250	500-699464

The Model FS-DACT Digital Alarm Communication Transmitter is used to provide communication between the FS-250 and a central or remote monitoring station. The FS-DACT supports two lines and four accounts, and can transmit serial information (including the address of the event) to the monitoring station. Any of the accounts can send alarm, supervisory, trouble, reset, or trouble restore information (or any combination) as required. Communication protocols available include SIA DCS 8, SIA DCS 20, Ademco Contact ID, 3/1 1400 Hz, 3/1 2300 Hz, 4/2 1400 Hz and 4/2 2300 Hz. The FS-DACT can perform the automatic 24 hour test required by NFPA.

The FS-DACT mounts within the FS-250 enclosure on an 8-pin connection point on the main board. No external enclosure is required, and no wires are required between the panel and the dialer. Programming of account and dialing information is done as part of the system configuration. No external programmer for the dialer is required, and dialer information can be downloaded as part of the system configuration.

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NOTICE: The use of other than Fire Safety detectors and bases with Fire Safety equipment will be considered a misapplication of Fire Safety equipment and as such voids all warranties either expressed or implied in regard to loss, damage, liabilities and/or service problems.

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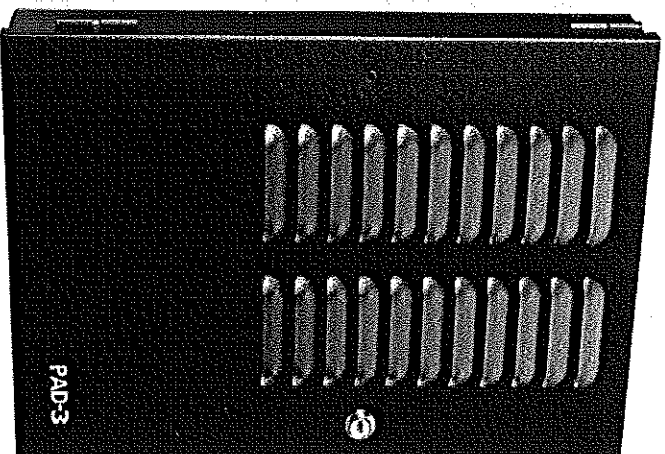
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Fire Safety

PAD 3

Auxiliary Power Supply - Notification Appliance Extender ENGINEER AND ARCHITECT SPECIFICATIONS

- 6 amps of Notification Appliance Power
- Advanced Microprocessor Control
- 24 VDC Output Voltage
- Four Power-Limited Notification Outputs
- Strobe Synchronization Option Built In
- Synchronized ANSI Temporal Pattern
- Class X Selectable
- Ground Fault Detection
- Battery Supervision
- 3 Amp Auxiliary Power Output
- Trouble Contact for Monitoring
- Multiple Module Mounting in System 3 Enclosures
- Multiple Modules Share Battery Set
-  UL, UL C Listed, CSFM, NYMEA and FM Approved



Introduction

The Model PAD-3 (PAD-3C for Canada) is a notification appliance circuit expander with a built-in auxiliary power output. It is designed for use with Siemens Building Technologies, Fire Safety Division fire alarm control panels. This power source is designed to provide the extra power required in buildings conforming to the Americans with Disabilities Act.

Features

The PAD-3 provides 6 amps of 24 VDC power for multiple uses. All 6 amps can be directed to 4 Notification Appliance Circuits (NAC s). Each is rated at 3 amps and its power limited. Either 1 or 2 inputs can control the four outputs. These outputs are compatible with all Fire Safety 24VDC notification appliances.

The PAD-3 can be configured so that the inputs can be programmed as steady outputs, ANSI temporal outputs, or synchronized strobe outputs. It can also be programmed so that one input will silence U-MHU-Series horn/strobe horns while the strobes remain on using one set of wires.

The PAD-3 also offers a 3 amp auxiliary output for driving other portions of your fire alarm system such as door holders. This 24VDC filtered output is power limited. When using this output, the total power available from the PAD-3 will not exceed 6 amps.

A trouble contact is provided for monitoring the PAD-3 with a fire alarm panel through the input. It also has a Form C dry contact for trouble monitoring. Therefore, the user has the option of connecting it to a conventional fire alarm panel's existing notification circuit, or controlling it with a TR1 Series device on Intelligent fire systems.

The PAD-3 offers battery supervision and management as is required of fire alarm system components. Ground faults are transmitted as are any other trouble conditions. Trouble conditions not only change the state of the trouble contact in the unit, but they also break the notification circuit input to create a trouble signal in the fire alarm control unit.

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This product is packaged in its own sheet metal enclosure with enough space to house the 7 amp-hour battery set required for back-up. The enclosure comes in black or red. System 3 enclosures may also be used to house multiple PAD-3 modules in a single enclosure. Two modules are capable of sharing the same battery set when mounted in the same enclosure.

Options

One or both PAD-3 signal inputs control the notification outputs, depending on the specific configuration setup. Possible configurations for the PAD-3 are:

For Option:	These Inputs:	Control These Outputs:	As:
1	Input 1	All Outputs	Class B Circuits
2	Input 1 Input 2*	All Outputs Silences horns on 1	Class B Circuits
3	Input 1 Input 2	Outputs 1 and 2 Outputs 3 and 4	Class B Circuits Class B Circuits
4	Input 1 Input 2	Output 1 Outputs 2, 3 and 4	Class B Circuits Class B Circuits
5	Input 1	Outputs 1-2, 3 and 4	Class A Circuit Pairs
6	Input 1 Input 2*	Outputs 1-2, 3 and 4 Silences horns on 1	Class A Circuit Pairs
7	Input 1 Input 2	Outputs 1 and 2 Outputs 3 and 4	Class A Circuit Pairs Class A Circuit Pairs
8	Input 1 Input 2	Outputs 1-2 Outputs 3 and 4	Class A Circuit Pairs Class B Circuits

*When used with U-MHU-Series horn/strobe units

Supervision

The Model PAD-3 supervises a variety of functions including:

- Low AC power
- Low battery condition
- Earth ground fault
- Auxiliary output power limit condition
- EOL supervision trouble or power limited condition at an output

When a trouble condition occurs, the PAD-3 creates a trouble condition on the fire control signal circuits to which it is connected. It still maintains the ability to be activated by the fire control. In addition, the PAD-3 provides a Form 'C' trouble relay output as an alternative to using the notification circuit trouble.

Electrical Specifications

AC Input: 120 VAC @ 2.5 amps

Output: 24VDC @ 6 amps

Auxiliary Power Circuit: 1

Notification Circuits: 4

Output Configuration: 2 Class A or 4 Class B or 1 Class A & 2 Class B

Amps per Output

Circuit: 3.0

Notification Circuit

Outputs:

24 VDC at 3.0 amps each,
24K ohm EOL resistor
required on each Class
B circuit

No. of Inputs:

2

Input Configuration: 2 Class B or 2 Class A

Input Voltage Range:

9-32VDC

Battery Charging

Capacity: 15.0 A.H

Trouble contact rating: 2.5A @250 VAC, 30 VDC

Ambient Temperature: 32°F to 120°F

Mechanical Specifications

Single Module Enclosure Model EN-PAD

Dimensions: 12"W x 16"H x 3"D

Color: Black

Indicator Lights

AC Power On: Green

Battery/Trouble: Yellow

Ground Fault: Yellow

Auxiliary/Trouble: Yellow

Output 1/Trouble: Yellow

Output 2/Trouble: Yellow

Ordering Information

Model	Description	Part Number
PAD-3	Aux. power supply w/black enclosure	599-699189
PAD-3R	Aux. power supply w/red enclosure	599-699190
PAD-3-MB	Aux. power supply - main board only	500-699080
EN-PAD	Black enclosure for PAD-3	310-099073
EN-PADR	Red enclosure for PAD-3	310-099150

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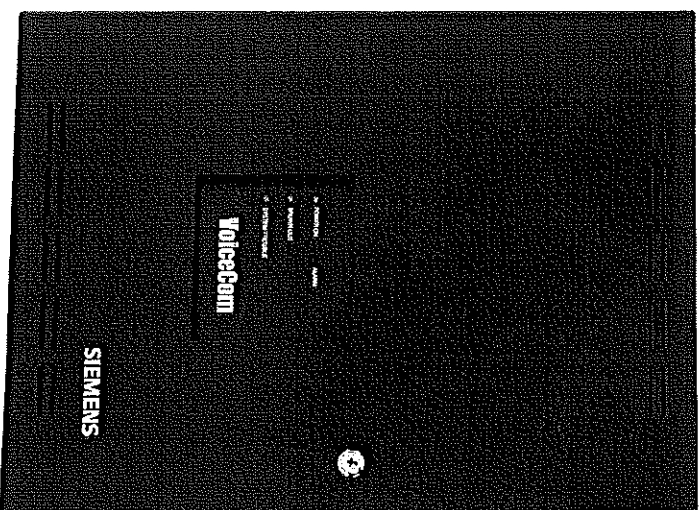
Fire Safety

VoiceCom

Emergency Voice Alarm Communication System

ENGINEER AND ARCHITECT SPECIFICATIONS

-  Listed 864
- CSFM, NYMEA Approved
- Style Y (Class B) and Style Z (Class A) speaker and strobe circuits
- Power Supply and Battery Charger with output over-voltage protection
- Dry contact or polarity reversal activation
- Activation inputs are fully supervised
- High efficiency digital amplifier
- True 100 Watts RMS output capacity
- 25 or 70.7 VRMS audio (field selected)
- Up to 11 optional Speaker and Strobe supervision modules in one cabinet
- All outputs are power limited
- Stand-alone or for use with any Fire Alarm/Suppression Control panel
- Optional digital MessageMaker is field programmable
- Coded tone option
- Backup evacuation tone option



Description

The VoiceCom is a PRE-BUILT emergency voice and tone alarm communication system. The VoiceCom can be used as a stand alone system or in conjunction with any listed/approved fire alarm control panel. The VoiceCom is completely self-contained and has its own power supply, battery charger, brown-out supervision and transfer, earth-ground detection, trouble and trouble ring-back circuitry. It also incorporates an emergency paging microphone, tone generator, 50Watt RMS audio amplifier and a speaker supervisory circuit. The power supply is capable of a full 3.5 Amps DC at 24 volts. A set of dry form "C" trouble contacts is provided for external connection to a fire alarm control panel or fire suppression system. Speaker and strobe circuits are supervised by the VoiceCom panel. The power supply is capable of charging up to 24 AH batteries although only 6 AH batteries are required for 24 hours of standby and 15 minutes of maximum alarm load operation.

Optional expansion of the VoiceCom system can be achieved with the use of speaker (101-SPK) and strobe (101-STRB) supervisory modules. Up to five speaker and/or strobe supervisory modules will mount in the same VoiceCom enclosure in any combination. An

optional digital message unit called the MM-1 (MessageMaker) can be added in the place of two speaker or strobe zone modules (three zone spaces in the large cabinet option). The MM-1 comes pre-installed in the VoiceCom-MM system package. The MM-1 comes with 20 seconds of field programmable digital voice message capacity and 18 seconds of capacity for virtually any evacuation tone(s) required. Through the use of up to two optional 20 second "VOICE-CHIP" expansion devices, up to 60 seconds of a digital message can be recorded. The digital message can be recorded through audio coupling using the microphone on the MM-1 or electrically (with a tape recorder) using the headphone jack on the MM-1. The MM-1 MessageMaker comes with a standard test message, alert tone, alarm tone and a standard evacuation message which can be overwritten if a specific message and tone are required. The MM-1 MessageMaker has a built-in sequencer which provides an ALERT tone followed by the emergency message, and in turn followed by the ALARM tone. The ALARM tone can be coded to conform to any local and national codes. The emergency message can be set to repeat up to

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seven times with the setting of DIP switches. The digital message can also be programmed to repeat until the system is reset. The MM-1 MessageMaker uses non-volatile memory thus retaining its messages indefinitely. As a further safeguard the 101-AMP amplifier module will activate an evacuation tone backup in the event of a MessageMaker failure.

Another optional digital message unit called the T-GEN can be added to the VoiceCom system. The T-GEN mounts directly onto the amplifier and requires no expansion module space. The tone and message repeats continuously when activated. The T-GEN comes with a standard alert tone, evacuation message, and whoop tone. This standard tones and message can be overwritten if another tone or message is required. The tone and message can be recorded using the built-in microphone or pre-recorded and downloaded using the telephone jack. Up to 60 seconds of alert tone, digital message, and alarm tone can be recorded on the T-Gen.

The auxiliary audio input can be used for connection to a remote paging microphone RMT-PPG, telephone paging, or other required audio signal. The auxiliary audio input can be set to the lowest priority so that it will be disabled in the event of an alarm condition or when the system microphone button is pressed. The auxiliary audio input can also be set to the highest priority ensuring that the remote microphone RMT-PPG has precedence over the VoiceCom microphone.

All the VoiceCom modules/options are centrally monitored for ground faults and supervision troubles. Troubles are annunciated on the panel via a LED and an audible trouble signal. A form "C" system trouble relay is used to create a trouble at the fire alarm control panel. The audible trouble signal may be silenced by activating the trouble silence button. Full annunciation of troubles is provided at both the main control panel and the individual modules. LEDs are provided for short circuit and open circuit trouble annunciation at every module. The system can be configured to give a reminder audible signal after the trouble has been acknowledged.

The basic VoiceCom provides 50Watts RMS of voice and tone audio power per amplifier. Up to two amplifiers can be housed in VoiceCom's larger enclosure. The system can be configured in the field for 25 or 70.7V/RMS operation. It will meet the requirements of an "Assembly Occupancy" and other locations where voice and tone broadcasting is required. The VoiceCom incorporates a high efficiency amplifier that requires minimal energy for its operation. Up to 100Watts RMS can be split in any ratio by up to twelve speaker circuits. Up to eleven strobe circuits can be housed in the VoiceCom cabinet to comply with requirements such as ADA. A remote reset input is available to reset VoiceCom from a distant control panel. The VoiceCom can be made latching or non-latching thus requiring only two wires from the control panel for both alarm and reset functions.

The VoiceCom is capable of recognizing a short on a zone while the speech, tone, or strobe is active on other zones. Short circuited zones are isolated from the system and cause a zone trouble. The type of zone fault is annunciated at the zone card and a general system trouble audible signal and LED are activated at the main

control module. Because of its full speaker zone isolation capabilities the VoiceCom meets the requirements specified by NFPA 72 for survivability.

For compatible notification appliances, see Siemens Fire Safety P/N 315-096363.

Engineer And Architect Specification

The emergency voice and tone communication system shall be the Siemens Fire Safety model VoiceCom. The VoiceCom shall be a pre-built system and shall only require two wires from a polarity reversal circuit or a dry contact for activation. It shall supervise the "NO" dry contact (if used) and provide a form "C" trouble relay activation in the event of a system fault. The VoiceCom shall incorporate 50Watts true RMS amplifiers for both tone and speech amplification. The system shall have a lead capacity of up to 100 watts. Optional, the VoiceCom system shall be capable of providing 50 watts of audio with full backup. The VoiceCom shall be capable of operating as a stand alone system or follow the activation of the fire alarm/suppression system. The VoiceCom shall include a regulated power supply and shall be capable of charging and housing its own batteries. There shall be no need to calculate the load requirements or draw any energy from the fire alarm/suppression system. The VoiceCom shall come with one speaker supervisory zone as a standard and shall be capable of supervising any combination of up to eleven speaker (101-SPK) and/or strobe (101-STRB) monitoring modules.

A full set of control switches including an "all call", "tone interrupt", "trouble silence" and "reset" shall be available at the VoiceCom. The VoiceCom control panel shall also have a green "Power On" LED, a red "Alarm" LED, a yellow "Brown Out" LED and a yellow "System Trouble" LED.

The VoiceCom shall be able to detect a short on any speaker or strobe zone during the normal and alarm mode. The shorted zone shall be isolated from the system and a dedicated LED on the supervised zone shall indicate the short circuit condition. The system shall produce an audible and visual signal indicating that a trouble condition has occurred. Similarly an open circuit shall create a trouble condition and corresponding LED annunciation at the affected zone and at the main control module. Zones that are not shorted or opened shall remain operational.

The VoiceCom shall be able to detect a Brown-Out condition on the AC supply. In the Brown-Out condition the VoiceCom shall activate a dedicated LED and an audible trouble signal. Ground faults shall activate the system trouble LED and the audible trouble signal, as well as specific LEDs indicating negative and positive ground faults.

The VoiceCom shall be field configurable for 25 or 70.7 volt RMS audio output via program jumpers.

The VoiceCom shall have a digital message player/recorder option (MM-1). The digital message player/recorder shall be capable of storing alert and evacuation tones as well as an emergency voice message. It shall be possible to modify the digital message and tones in

the field using a built-in acoustic microphone or a head-
phone jack connected to a tape recorder. There shall be
no need for the burning of eprints in order to program the
digital message player/recorder. The digital message
player/recorder shall be supervised by the VoiceCom. The
VoiceCom shall provide a backup evacuation tone in the
event of a digital message player/recorder failure.

An alarm condition shall cause an audible signal and a red
LED to activate. A VoiceCom with a digital message
player/recorder shall produce an ALERT tone followed by
an emergency voice message, and in turn followed by an
ALARM tone. The number of tone repetitions shall be

configurable by the setting of DIP switches on the digital
message player/recorder. A VoiceCom without a digital
message player/recorder shall produce an evacuation
"whoop" tone in the event of an alarm.

The sheet metal enclosure shall include a hinged
deadfront allowing easy access to all the VoiceCom
components for the purposes of wiring, setting the
system configuration and servicing. A flush trim (CAB-
TRIM) shall be available. A door with a key lock shall be
part of the VoiceCom enclosure.

Chart 1. Ordering Information

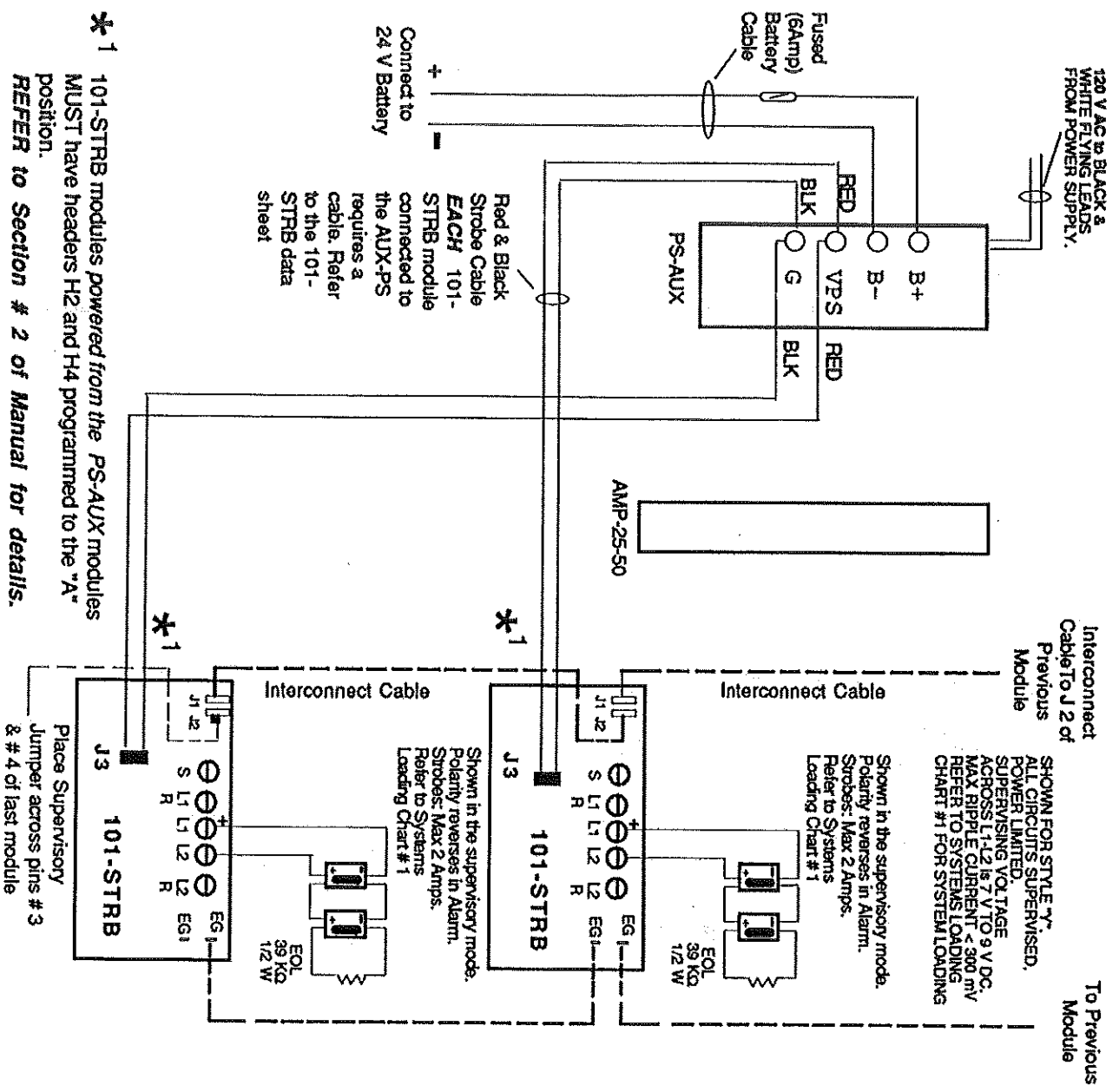
Model Number	Description	Part Number
VoiceCom	Pre-built system comes with: 3.5 Amp power supply and battery charger 50 Watt high efficiency amplifier (25/70.7 VRMS) Battery cables Main control board with one speaker circuit Paging microphone Black enclosure with deadfront (space for 5 zone module).	500-693713
VoiceCom-R	Same as VoiceCom with red cabinet	500-694228
VoiceCom-L	VoiceCom system components in large enclosure with: Auxiliary power supply (PS-AUX), extra 50 Watt amplifier (AMP-25-50) Space for 11 zone modules 4 PS-AUX Strobe Zone Cables 1 AMP-25-50 Speaker Zone Cable (SYSTEM HAS A TOTAL OF 100 WATTS AMPLIFICATION)	500-694227
VoiceCom-LS	VoiceCom-L System components with the 50 Watt amplifier configured for standby only. (SYSTEM HAS A TOTAL OF 50 WATTS AMPLIFICATION)	500-694228
VoiceCom-LR	VoiceCom-L system in red enclosure	500-694229
VoiceCom-SR	Same as the VoiceCom-LS in red enclosure	500-694230
VoiceCom-MM	Pre-built system comes with: VoiceCom components plus the MM-1 digital MessageMaker (Pre-installed). System has space for 3 zone modules	500-693714
VoiceCom-MMR	Same as VoiceCom-MM in red enclosure	500-694231
VoiceCom-MML	Same as VoiceCom-MMM components in large black enclosure. Comes with auxiliary power supply (PS-AUX), additional 50 Watt amplifier (AMP-25-50) 4 PS-AUX Strobe Zone Cables System has space for 8 zone modules (SYSTEM HAS A TOTAL OF 100 WATTS AMPLIFICATION)	500-694232
VoiceCom-MMIS	Same as VoiceCom-MML with the 50 Watt amplifier configured for standby only. (SYSTEM HAS A TOTAL OF 50 WATTS AMPLIFICATION)	500-694233
VoiceCom-MMLR	Same as VoiceCom-MML in a red enclosure	500-694234
VoiceCom-MMISR	Same as VoiceCom-MMIS in a red enclosure	500-694235
Flush Trim for VoiceCom and VoiceCom-MM		
CAB-TRIM	Small cabinet semi-flush trim	500-693720
CAB-TRIM2	Large cabinet semi-flush trim	500-694240
Speaker and Strobe Expansion Modules		
101-SPK	One supervised speaker zone	500-693715
101-STR8	One supervised strobe zone	500-693716
MessageMaker with 20 Second Message (Takes 2 Module Spaces in small cabinet, 3 in large cabinet)		
MM-1	Digital MessageMaker	500-693719
Voice Message Expansion Chip (2 Maximum per MessageMaker)		
VOICE-CHIP	20 sec message expansion	500-693767
Automatic Tone/Voice Message Module		
T-GEN	T-Gen Tone/Message Unit	500-694239
Remote Paging Microphone		
RMT-PG	Remote paging mike	500-693721
Batteries		
BT-33	6 AH Battery Set	175-387141
BT-34	10 AH Battery Set	175-387140

50 Watt VoiceCom System with Standby Wiring Diagram

Figure 3

CONNECTING Strobe Supervisory Modules (101-STRB) to the PS-AUX

The AMP-25-50 Amplifier and PS-AUX are assembled in the following VoiceCom Systems:
 The System provides 50 watts Standby Audio Power.
 VoiceCom-LS
 VoiceCom-LSR
 VoiceCom-MMLS
 VoiceCom-MMLSR



*1 101-STRB modules powered from the PS-AUX modules MUST have headers H2 and H4 programmed to the "A" position. REFER to Section # 2 of Manual for details.

**Siemens Building Technologies
Fire Safety**

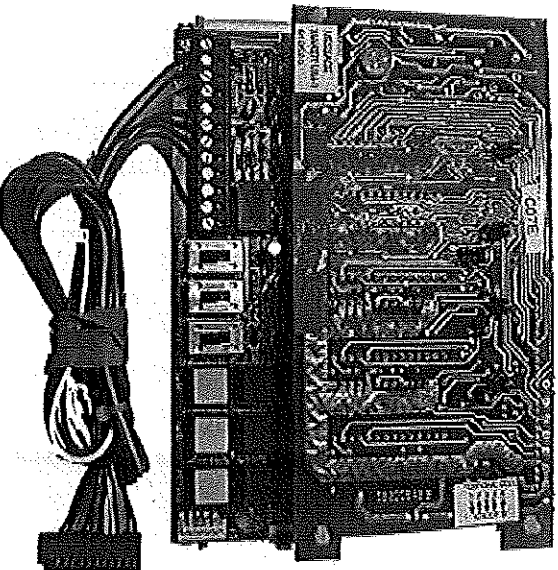
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May 2002
Supersedes sheet dated 7/00

Digital Message Repeaters MessageMaker MM-1, T-GEN, and T-GEN-SP



MessageMaker MM-1

Part # 910520

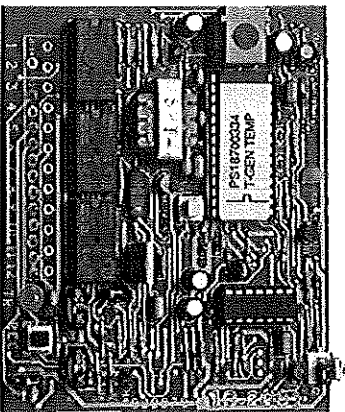
Size: 7" W x 4.5" D x 2" H

MM-1 MessageMaker:
The Message Repeater Unit has a pre-recorded Alert Tone, followed by the Emergency Voice Message (repeated three times but programmable to repeat up to seven times), followed by a Temporal Coded Alarm Tone that persists until the system is reset. Dip-switches permit a Slow Whoop alarm tone to replace the Temporal Coded Tone. The MM-1 may also be dip-switch programmed to repeat the emergency message continuously until the unit is reset.

The MM-1 has a built-in microphone, that allows the user to make on-location recordings. There is also a jack, that permits downloading messages and tones from tape or other sources. The unit is supplied with a harness for connection to AATI's EVAC series of controls.

A header is provided for independent selection of the Alert, Alarm, and Message sections of the recording.

The messages and tones are recorded in non-volatile memory.



T-GEN

Part # 900879-1

Size: 4" L x 4.4" W

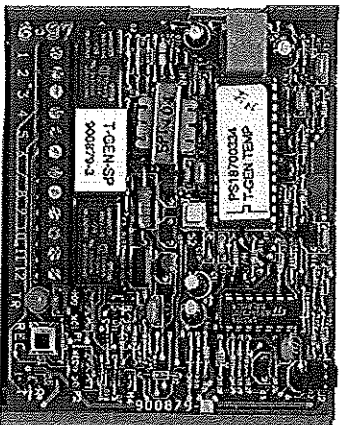
T-GEN:

Tone and Message Repeater plugs into a header on the AMP-101 amplifier of the EVAC 101-RMT.

The T-GEN has a pre-recorded Temporal Coded Alarm Tone repeated three times followed by the Emergency Evacuation Message. This sequence is repeated until the unit is reset. The unit is continuously supervised. If the recording is absent, or if the level is too low, the unit indicates a trouble condition.

A diagnostic LED on the unit indicates a trouble condition. A potentiometer is provided to adjust the audio output level.

A phone jack is provided that permits the user to make recordings. The tone and message are recorded in non-volatile memory.



T-GEN-S

Part # 900879-3

Size: 4" L x 4.4" W

T-GEN-S:

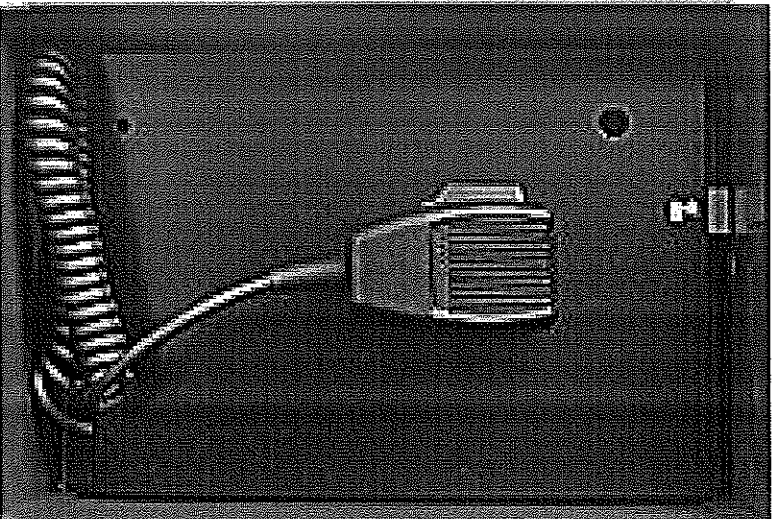
Tone and Message Repeater assembled on a snap-track that has a self-adhesive backing. It has a pre-recorded Temporal Coded Alarm Tone repeated three times followed by the Emergency Evacuation Message. This sequence is repeated until the unit is reset.

The T-GEN has a volume control and is continuously supervised. A trouble contact transfer if the unit fails or recording is absent. A diagnostic LED on the unit indicates a trouble condition.

The audio output is transformer-isolated. The unit may be programmed for a continuous output of the Alarm Tone and Message or for the output to be switched only when required.

A phone jack is provided that permits the user to make recordings. The tone and message are recorded in non-volatile memory.

Remote Microphone Paging Unit



RM-T-PG-A shown without lid

Part # 910591

Size: 12.25" x 8.25" x 4.5"

RM-T-PG

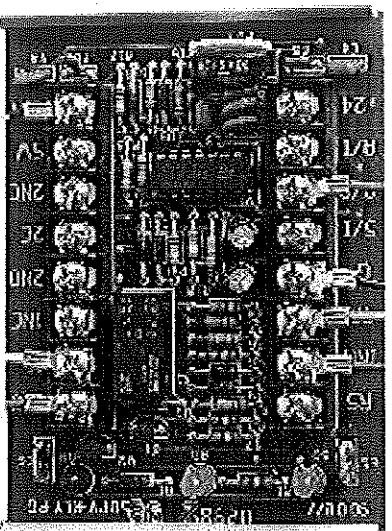
The RM-T-PG consists of both the RM-T-PG-PA transmitter *and* a SUPV-RLY-PG receiver.

The RM-T-PG-PA is the remote paging unit transmitter. It consists of a locked cabinet with a supervised Microphone and Amplifier. The amplifier provides up to 20 volts peak-to-peak output for superior signal-to-noise transmission. Power is supplied from the host control via a 4-wire supervised interconnect cable.

The RM-T-PG-PA requires four wires to connect it directly to the EVAC 2101 Common Equipment (CE) Module. It does not require the SUPV-RLY-PG module when used with the EVAC 2101 as the supervisory and audio processing functions is provided at the EVAC 2101 "CE" Module.

The SUPV-RLY-PG is only required for the EVAC 101-RMT or when more than one Remote Paging Stations are required for an EVAC 2101 system

Additional Remote Paging Units may be used to provide paging from multiple locations. Each additional remote paging unit requires a SUPV-RLY-PG module for supervision and to provide priority paging.



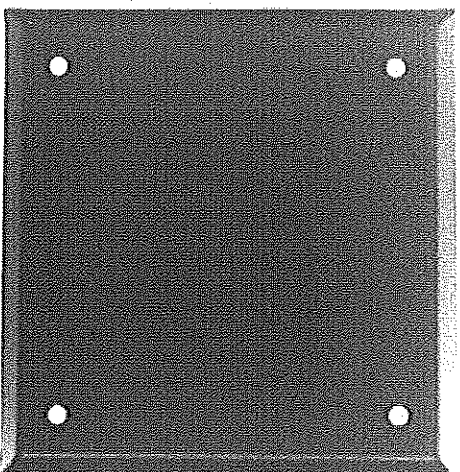
SIEMENS

Fire Safety

Model DSC Dual Synchronization Control Module

ENGINEER AND ARCHITECT SPECIFICATIONS

- Standard 4" square back box mounting
- Synchronizes The Adapter™/U-MCS series field selectable candela strobes and Siemens Fire Safety S17S, and S110S strobes
- Synchronizes Siemens Fire Safety models U-MHST and U-MHU series temporal horns
- Temporal horn silence while strobes continue on 2 wires
- Output configuration can be two Style Y, (class B) or one Style Z (class A) notification circuit(s) up to 3A per circuit
- Usable on any listed polarity reversal type notification appliance circuit (NAC)
 - UL 1971 listed, CSFM listed, UL/C, FM and MEA approvals
- Terminals accept up to #12 awg wire
- Made in USA, ISO 9001 Quality Crafted



Description

The Dual Sync Control Module provides synchronization of the Siemens Building Technologies, Inc. Fire Safety Division Adapter/U-MCS field selectable candela strobes and synchronization and silenceability to U-MHST and U-MHU series electronic audible signals.

When connected to a polarity reversal notification appliance circuit, there is supervision of the wiring from the Fire Safety Control Panel through the Dual Sync Module to the End-of-Line device. The Dual Sync Module triggers the strobes to flash at a rate of 1 flash per second. The Dual Sync Module also provides a synchronized temporal or march time horn pattern when used with the Fire Safety U-MHST and U-MHU

series. These audible signals may also be silenced while the strobes continue to flash, all on two wires.

The module can support two Style Y (class B) or one Style Z (class A) notification appliance circuit(s). The Dual Sync Module may be alternatively configured to synchronize audible conventional notification appliances in a march time or temporal horn pattern from steady 24 Vdc NACs.

CATALOG NUMBER **2553**

Replaces Catalog Sheet Number 2548

Engineering Specifications

The synchronization modules shall be Fire Safety Series Dual Sync module shall be listed to UL 1971 (Standard for Safety Signaling for the Hearing Impaired). The Series Dual Sync Module shall be specifically designed to be compatible with Fire Safety notification appliances which are equipped with the Fire Safety Adapter/MCS series field selectable strobes, or the S17S and S110S strobes, as well as Fire Safety U-MHST and U-MHU Series Horns and Strobes. When controlling NAC's that have these Fire Safety notification appliances, all strobes shall be synchronized in the minimum 1 flash per second flash rate, and the U-MHST and U-MHU Series Horns and Strobes shall be synchronized in the field selectable march time or temporal horn pattern. In addition, it shall be possible to silence the U-MHST and U-MHU Series Horns and Strobes while the strobes continue to flash.....all on 2 wire circuits. The module shall have provision to control one class A (style Z) NAC, or two class B (style Y) NAC's. Each circuit shall be rated up to 3A at 24 Vdc. It shall be possible to interconnect up to 600 sync modules to insure mutual synchronization of appliances on multiple NAC's. Inputs shall be compatible with standard reverse polarity circuit supervision by a Fire Safety Control Panel.

The Fire Safety Dual Sync Module can be alternatively field configured to synchronize conventional audible appliances in a march time or temporal pattern, when powered by steady 24 Vdc NAC's.

The module shall mount to a standard 4" square backbox, as well as Fire Safety FBX-S and FBX-F Surface Boxes.

Specifications

Environmental

32°F to 120°F (0°C to 49°C) with 85% humidity

Primary Input Voltage

16 to 32 Vdc or VFWR

Operating Current

55 mA

Mounting

Standard 4" square box

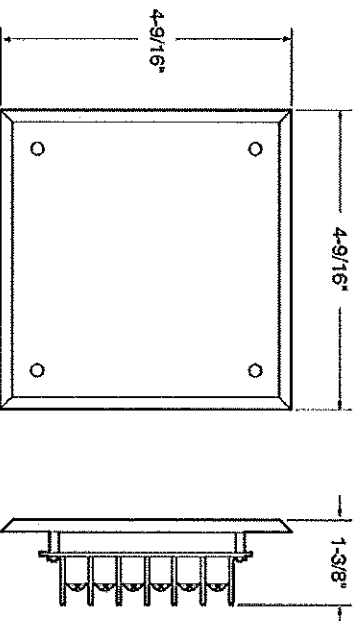
Output Current

3A max. (supplied by FACP)

Shipping Weight

10 oz. approx.

Physical Dimensions



Ordering Information

Model Number	Description	Part Number
DSC	Dual Sync Control Module - Red	500-696872
DSC-W	Dual Sync Control Module - White	500-696873

Canadian Ordering Information

Model Number	Description	Part Number
C-DSC	Dual Sync Control Module - Red	500-696872C
C-DSC-W	Dual Sync Control Module - White	500-696873C

Siemens Building Technologies

Fire Safety

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May 2004

Supersedes sheet dated 1/03

SIEMENS

Fire Safety


HMS Series Intelligent Initiating Devices

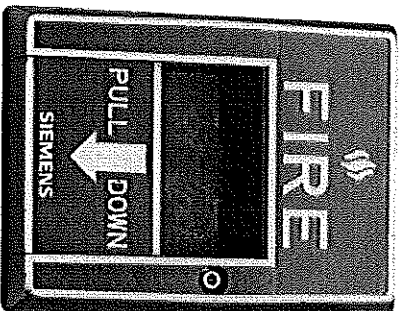
Manual Fire Alarm Boxes

ENGINEER AND ARCHITECT SPECIFICATIONS

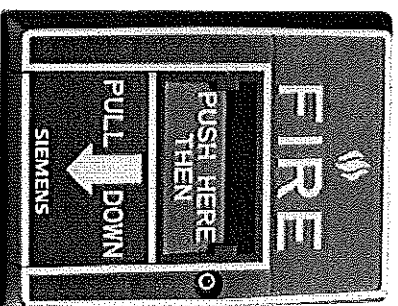
HMS-S and HMS-D Intelligent Manual Fire Alarm Boxes for FireFinder XLS

Control Panels

- Durable Design
- Shock and Vibration Resistant
- Pull Down Lever Remains Down Until Reset
- Custom Microcomputer Chip Technology
- Dynamic Supervision
- Polarity Insensitive with SureWire™ Technology
- Reset with Allen Key
- No Break Rods Necessary
- Two Wire Operation
- Surface or Semiflush Installation
- DPU Programs and Verifies Device's Address and Tests Device's Functionality
- Electronic Address Programming is Easier and More Dependable
- Single and Double Action Models Available
-  Listed, CSFM, FM and NYMCA Submitted



HMS-S
Single-Action Station



HMS-D
Dual-Action Station

Introduction

HMS-S and HMS-D intelligent manual fire alarm boxes provide the markets' most advanced method of address programming and supervision, combined with sophisticated control panel communication. Each HMS manual fire alarm box incorporates custom microcomputer chip. The microcomputer chip technology, and its sophisticated bi-directional communication capabilities with the control panel, achieves the state of an "Intelligent Initiating Device."

Description

The HMS-S and HMS-D are constructed of durable molded polycarbonate material which is matte finished in red with raised white lettering. The housing accommodates a "pull-down" lever which, when operated, locks in position indicating the manual fire alarm box has been activated. The pull down lever remains down and locked until the manual fire alarm box is reset. The manual fire alarm box is reset only by opening the hinged housing cover with an allen key and then closing and locking the cover.

The HMS-S and HMS-D manual fire alarm boxes operate with FireFinder XLS Series control panels.

The manual fire alarm box's microcomputer chip has the capacity of storing, in memory, identification information as well as important operating status information.

Siemens Building Technologies Inc., Fire Safety Division innovative technology also allows all HMS Series Intelligent manual fire alarm boxes to be programmed by using the Model DPU Programmer/Tester. The Programmer/Tester is a compact, portable, menu driven accessory which makes programming and testing a manual fire alarm box device faster, easier and more dependable than previous methods. The DPU eliminates the need for the device's mechanical addressing mechanisms, such as program jumpers, dipswitches or rotary dials because the DPU electronically sets the manual fire alarm box's address into

CATALOG NUMBER

6306

The HMS-S and HMS-D are fitted with screw terminals for connection to an addressable circuit. They can be either surface or semiflush mounted.

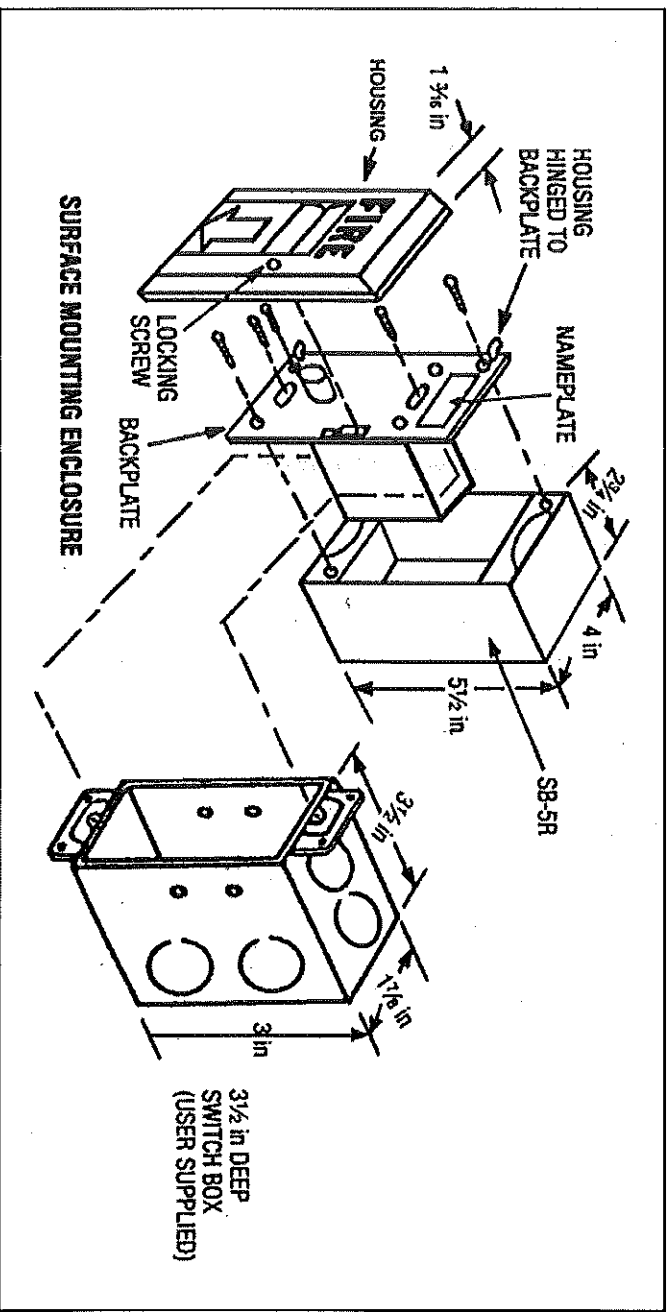
The HMS Series manual fire alarm boxes derive their power, communicate information and receive commands over a single pair of wires.

The HMS Series is compatible on the same circuit with all H Series detectors, interfaces or addressable conventional zone modules.

Ordering Information

Model	Description	Shipping Lbs.	Weight Kg.	Part Number
HMS-S	Addressable Manual Fire Alarm Box Single Action	2.0	.90	500-033200
HMS-D	Addressable Manual Fire Alarm Box, Double Action	2.5	1.13	500-033400
SB-SR	Surface Mounting Box	1.5	.88	310-019950
LTP	Reset/Tool Package (contains 2 tools)	.5	.23	500-620450

Mounting Data



Electrical Ratings

Current Draw (Active or Standby): 1.5mA

NOTICE: The use of other than Fire Safety detectors and bases with Fire Safety equipment will be considered a misapplication of Fire Safety equipment and as such void all warranties other expressed or implied with regard to loss, damage, liabilities and/or service problems.

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Fire Safety

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January 2003
 Supersedes r1ber dated 12/01

SIEMENS


Fire Safety

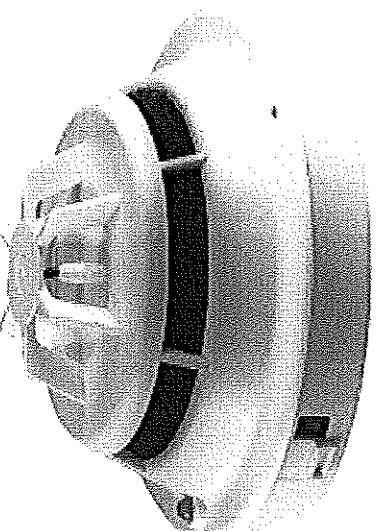
HFP-11 FireFinder™ Detector

Intelligent Fire Detector for FireFinder XLS and FS-250 Control Panels

ENGINEER AND ARCHITECT SPECIFICATIONS

Model HFP-11

- Most Sophisticated "Detector Intelligence" available today
- Multi-Criteria fire detection for the price of a photoelectric detector
- FirePrint™ Technology to discriminate between deceptive phenomena and an actual fire
- Easily programmed to match specific hazard profiles from the control panel
- Polarity Insensitive with SureWire™ Technology
- Pre-Alarm reporting based on fire profile selected
- Remote sensitivity measurement capability
- System logic activation based on any of three inputs from detector (smoke, heat or neural network)
- Detectors are self-testing, completing diagnostics every 4 seconds
- Field cleanable chamber with replaceable chamber parts available
- Multi-color detector status LED
- Two-wire operation
- Compatible Model DPU field device programmer/tester unit
- Supports software based automatic environmental compensation
- Optional fully programmable relay base, audible base, and duct housing
-  UL Listed, CSFM, FM, NFM/MEA Approved



Introduction

The Siemens Building Technologies, Fire Safety Division HFP-11 Intelligent Fire Detector provides the life safety industry with the most highly evolved detection system available today. The HFP-11 utilizes advanced detection technology that allows the detector to distinguish non-threatening deceptive phenomena, such as cigarette smoke, from actual fire hazards, while optimizing detection for the area in which it is installed. No other detection system available today offers a higher level of protection or nuisance alarm immunity. The HFP-11 uses state-of-the-art microprocessor circuitry with error check, detector self-diagnostics and supervision programs.

The HFP-11 intelligent fire detector is compatible with the Fire Safety Model DPU field device programmer/tester unit, which is a compact, portable, menu-driven accessory for electronically programming and testing detectors, easily and reliably. The DPU eliminates the need for cumbersome, unreliable mechanical programming methods, such as dials or switches and reduces installation and service costs by electronically programming and testing the detector prior to installation. The HFP-11 fire detector is compatible with the Fire Finder XLS series of control panels.

CATALOG NUMBER **6301**

Description

The HFP-11 is a plug-in, two-wire, multi-sensor detector with both photoelectric and thermal inputs and is compatible with Fire Finder XLS and FS-250 series of control panel systems. Each detector consists of a dust resistant, field-cleanable photoelectric chamber, a solid state non-mechanical thermal sensor, and microprocessor based electronics with a low-profile plastic housing. The HFP-11 utilizes state-of-the-art ASIC circuitry and surface mount technology for maximum reliability. Every HFP-11 fire detector is shipped with a protective dust cover. The HFP-11 fire detector utilizes an infrared light emitting diode (IRLED), and light sensing photodiode. Under normal conditions, light transmitted by the LED is directed away from the photodiode and scattered through the smoke chamber in a controlled pattern. The smoke chamber is designed to manage light dissipation and extraneous reflections from dust particles or other non-smoke airborne contaminants in such a way as to maintain stable, consistent detector operation. When smoke enters the detector chamber, light emitted from the IRLED is scattered by the smoke particles and is received by the photodiode.

The HFP-11 also utilizes a modern, accurate, shock-resistant thermistor to sense temperature changes. The "on-board" FirePrint technology allows the detector to gather smoke and thermal data, and to analyze this information in the detector's "neural network." By comparing data received with the common characteristics of fires, or fire fingerprints, the HFP-11 can compare these "Fire Prints" to those of deceptive phenomena that cause other detectors to false alarm. The advanced FirePrint technology allows the HFP-11 to accurately determine a true fire hazard from a non-threatening deceptive phenomena WITHOUT needing to use alarm delaying verification and confirmation techniques, which can increase the probability of losses due to fire. The HFP-11 provides the highest level of detector intelligence available today with a detector/control panel link that allows the user to program the detector for the specific hazard profile using a simple software menu selection. Detectors are optimized by selecting one of the following eleven applications:

- Office/Retail
- Lobby
- Computer Room
- Dormitory
- Healthcare
- Parking Garage
- Utility/Transformer Room
- Hostile Environment
- Precious Storage
- Air Duct
- Warehouse/Light Manufacturing

The software does the rest; no guessing on detector sensitivities or alarm verification; the control panel programs the HFP-11 detector for the protected area without hassle and without confirmation delays. Once optimized for the hazards in the protected area, the HFP-11 provides the best detection you can buy.

Should the operator or installer forget to program the detector, the HFP-11 will revert to a default setting that allows it to operate as an office environment detector.

The HFP-11's FirePrint technology monitors input from both the photo chamber and the thermal sensor, evaluating this information with sophisticated mathematical formulas, or algorithms, comparing this input to characteristics of both threatening fires and deceptive phenomena that would "fool" any ordinary detector. This technology was developed over years of research and reviewing the results of over 20 years of fire test data in one of the world's most advanced fire research centers.

The results of this research are the mathematical models that form the algorithms used in FirePrint. No other fire detector has this level of intelligence or this amount of research and development supporting its design. The microprocessor's software can identify and disregard false input caused by radio frequency (RFI) and electromagnetic (EMI) interference, and validates all trouble conditions before announcing or reporting to the control panel. The HFP-11 detector's microprocessor uses an integral EEPROM to store the detector's address and other critical operating parameters which include the assigned program values for alarm and trouble thresholds.

Communications within the detector itself and between the HFP-11 and the control panel, or with the DPU field device programmer/tester unit, are supervised and safe-guarded against disruption by reliable, microprocessor based error checking routines. Additionally, the micro-processor supervises all EEPROM memory locations and provides a high degree of EEPROM failure fault tolerance.

The HFP-11 determines its operating status to be normal, in alarm, or in trouble depending on the difference between the alarm threshold values stored in the detector's memory and the detector's latest analog measurement. The detector then communicates changes in its status to the control panel. In addition, the FireFinder XLS control panel will sample the value of the HFP-11's analog signal over a period of time in order to determine if those values indicate excessive buildup in the photo chamber; if so, the FireFinder XLS control panel will indicate that the particular detector requires maintenance.

The HFP-11 is listed as a self-testing device. The HFP-11's visible light emitting diode (LED) flashes green every 4 seconds to indicate it is communicating with the control panel and that it has passed its internal self-test. Should the detector sense a fault or failure within its systems, the LED will flash amber and the detector will transmit that information to the control panel. A quick visual inspection is sufficient to indicate the condition of the detector at any time. If more detailed information is required, a printed report can be provided from the Fire Finder XLS panel indicating the status and settings assigned to each individual detector. When the HFP-11 moves to the alarm mode, it will flash red and to continue flashing until the system is reset at the control panel. At that

same time, any user defined system alarm functions programmed into the system are activated. Detector sensitivity, calibration, and identification are dynamically supervised by the control panel. Detector sensitivity and pre-alarm levels are a function of the application chosen at the control panel and are controlled by the panel. If an alternate, non-FirePrint mode is selected, then the sensitivity can be changed from the control panel.

The DPU Device Program/Test Unit accessory is used to program and verify the detector's address. The technician selects the accessory's program mode to enter the desired address. The DPU automatically sets and verifies the address and tests the detector. The DPU operates on AC power or rechargeable batteries, providing flexibility and convenience in programming and testing equipment almost anywhere.

When in the test mode, the DPU will perform a series of diagnostic tests without altering the address or other stored data, allowing technicians to determine if the detector is operating properly. The HFP-11 fire detector may be installed on the same initiating circuit with HMS series manual stations, HTRI series interfaces, HCP output control devices, or HZM series of addressable, conventional zone modules. All HFP-11 detectors can be cleaned in the field, when required, by simply removing the detector cover and unsnapping the photo chamber. There is also the option of cleaning the interior of the detector with a clean, soft cloth or brush, or replacing the labyrinth and bug screen included in the detector maintenance kit, model DMK-11.

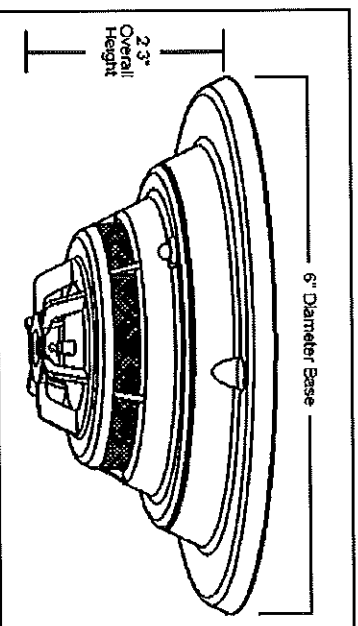
The HFP-11 uses the low-profile surface mounting base, model DB-11. This base mounts on a 4-inch octagon, square, or a single gang electrical box. The base utilizes screw clamp contacts for electrical connections and self-wiping contacts for increased reliability. The base can be used with the optional LK-11 detector locking kit which contains 50 detector locks and an installation tool, to prevent unauthorized removal of the detector head. The DB-11 base has integral decorative plugs to cover the outer mounting screw holes. All HFP-11 detectors are approved for operation within the UL specified temperature range of 32 to 100 degrees F (0 to 38 degrees C).

Application Data

Installation of the HFP-11 series of fire detectors requires a two-wire circuit. In many retrofit cases, existing wiring may be used. "T-tapping" is permitted only for Style 4 (Class B) wiring. The HFP-11 is polarity insensitive. This feature can greatly reduce installation and debugging time. HFP-11 fire detectors can be applied within the maximum 30 foot center spacing (900 sq. ft. areas) as referenced in NFPA 72. This applications guideline is based on ideal conditions, specifically, smooth ceiling surfaces, minimal air movement, and no physical obstructions between potential fire sources and the detector. Do not mount detectors in close proximity to ventilation or heating and air conditioning outlets. Exposed joints or beamed

ceilings may also affect safe spacing limitations for detectors. Should questions arise regarding detector placement, observe NFPA 72 guidelines. Good fire protection system engineering and common sense dictate how and when fire detectors are installed and used. Contact your local Fire Safety distributor or sales office whenever you need assistance applying FirePrint in unusual applications. Be sure to follow NFPA guidelines and UL/ULC approved installation instructions, which are included with every Fire Safety detector, and local codes as for all fire protection equipment.

Dimensions



Technical Specifications

Operating Temperature: +32°F (0°C) to 100°F (38°C)
per UL 268/268A

Humidity: 0-93% Relative Humidity
Non-Condensing

Maximum spacing: 30 foot centers (900 sq. ft.)
per NFPA 72 Chapter 5 and
CAN/ULC-SS524

Model	Description	Part Number
HFP-11	Addressable FirePrint Fire Detector	500-033290
DB-11	Detector Mounting Base for Series 11	500-094151
DB-11E	Detector Base Isomall	500-094151E
AD-11P	Air Duct Housing for Series 11	500-093695
AD-HR	Air Duct Housing w/Relay for H-Series Intelligent Detector	500-033280
DB-HR	Relay Base for H-Series Intelligent Detectors	500-033220
ADB4-11	Adjustable base	500-033210
REL-11C	Remotely reset alarm indicator w/ octagon box mount	500-033287
REL-11V	Remotely reset alarm indicator- single gang box mount	500-033410
LK-11	Base Locking Kit for Series 11 detectors	500-093630
DMK-11	Series 11 Maintenance Kit (replacement labyrinth and bug screen)	500-093638
In Canada Order:		
HFP-11C	Addressable FirePrint Fire Detector (ULC)	500-093112C
DB-11C	Detector Mounting Base for Series 11 (ULC)	500-093287
AD-11PC	Air Duct Housing (ULC)	500-093694
DB-HRC	Relay Base for Series 11 Intelligent Detectors (ULC)	500-033220C
ADB4-11C	Adjustable Base for Series 11 Intelligent Detector (ULC)	500-033210C

NOTICE: The use of other than Fire Safety detectors and bases with Fire Safety equipment will be considered a misapplication of Fire Safety equipment and as such void all warranties either expressed or implied with regard to loss, damage, liabilities and/or services problems.

**Siemens Building Technologies
Fire Safety**

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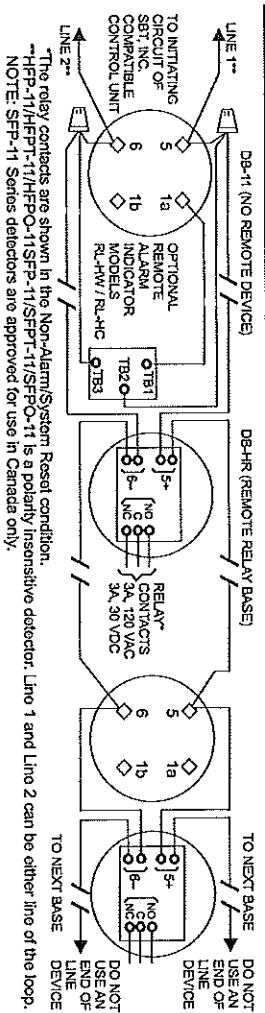
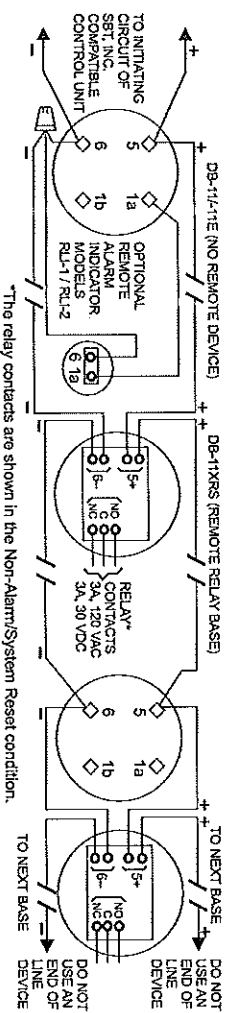
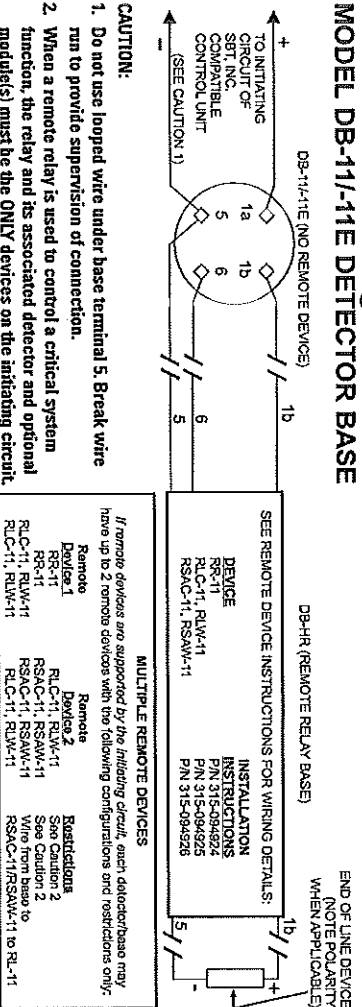
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October 2005
Supersedes sheet dated 7/03

SIEMENS

Fire Safety

Installation/Wiring Instructions MODEL DB-11/-11E DETECTOR BASE



Siemens Building Technologies, Inc. 8 Fernwood Road Florham Park, New Jersey 07932

Siemens Building Technologies, Ltd. 2 Kenview Boulevard Brampton, Ontario, Canada L6T 5E4

Model DB-11/-11E (P/N 500-094151/500-094451E)

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Model DB-11/-11E
(P/N 500-094151/500-094151E)

DETECTOR AND BASE PLACEMENT

Detector and base locations shall follow the drawings provided or approved by Siemens Building Technologies, Inc. or its authorized distributors. This is extremely important! The detector placements shown on these drawings were chosen after a careful evaluation of all facets of the protected area. When drawings are not available, refer to *Detector Placement* section of detector Installation/Wiring Instructions and to NFPA Standard 72 and CAN/ULC-S524.

BASE WIRING

Siemens Building Technologies, Inc.'s detectors should be interconnected as shown in Figures 1, 2 or 3 and wired to the control panel following the wiring connection drawing installed on the inside face of each control panel cover. NOTE: H Series devices are wired to the DLC or FS-DLC; S Series devices are wired to the FDLC. **Note any limitations on the number of detectors and restrictions on the use of remote devices permitted for each circuit.**

DETECTOR MOUNTING USING THE DB-11/-11E BASE

The detector is provided with a separate base which attaches to a standard 4 inch square, 4 inch octagonal, or single gang electrical box, with the box size and depth required by the NEC for the number and size of conductors used. Wire size: max – 14 AWG, min – 18 AWG.

Refer to Figures 4 and 5, as applicable.

1. Route all wires outward from outlet box.
2. When ALARM LED viewing is critical, position the LED mark in the base in the intended direction.
3. Route wires through the hole in the center of the base and mount base to outlet box. Make connections directly to the base terminals. Refer to Figures 1, 2 and 3 for details.
4. After all bases are installed, check loop continuity. Refer to the System Manual for the loop continuity check procedure. To allow for the continuity check with PE-11, PE-11T or DT-11 detectors, use DBJ-11 Jumper Kit, P/N 500-699167 (between terminals 1a and 1b) to complete the loop. Do not use a jumper for FP-11/HFP-11/FS/SFP-11 family devices.
5. Continuity jumper must be removed from each base prior to installing detector.
6. To insure proper installation of the detector head into the base:
 - a. Route wires away from connector terminals.
 - b. Take up all slack in the outlet box.
 - c. Properly dress and position all wires flat against the base.
 - d. Check that screw terminals are tight.
7. (DB-11 only) Break off the two mounting hole covers, and insert in two outer base mounting holes.

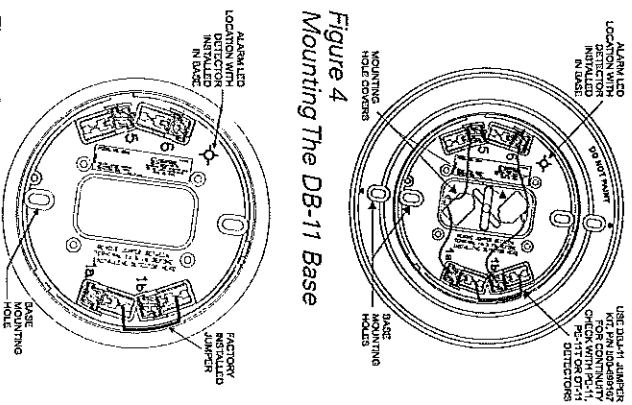
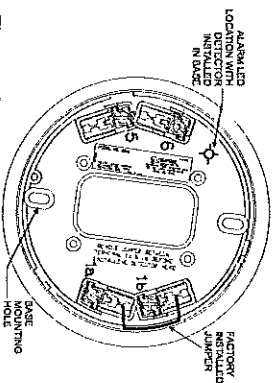


Figure 5
Mounting The DB-11E Base




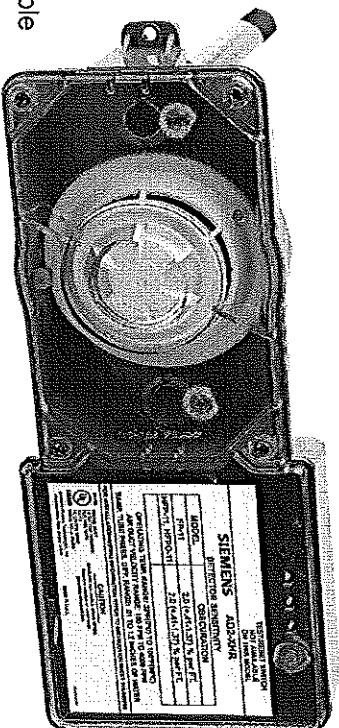
SIEMENS

Fire Safety

Air Duct Housings-AD2 Series

ENGINEER AND ARCHITECT SPECIFICATIONS

- For Series 11 Detectors
- Relay Models Available
- Design for Air Velocity Range of 100 to 4000 fpm
- Alarm LED Visible From Front
- Clear Housing Cover for Quick Identification of Detector Type Removable With Only Four Captive Screws
-  UL Listed, CSFM Approved, ULC Listed



Introduction

The Siemens Building Technologies, Fire Safety Division air duct detector housings are designed to be used with the 11-Series detectors. Designed for installation directly to heating, ventilating and air conditioning duct systems, they comply with National Fire Protection Association Standard No. 90A. When equipped with photoelectric detectors, these units will signal the presence of hazardous quantities of products of combustion or smoke being carried through the duct system. Air duct detectors are not intended to be substituted for open area detection.

Air duct housings can be equipped with optional relays. These relays are utilized to operate any supplementary equipment when smoke or particles of combustion are detected.

Note: Most conventional time control equipment guarantee only one detector per zone when the detector operated relay function is critical. The connection of a remote lamp and a remote relay per detector is allowed with PXL or System 3™ only; other conventional systems may use either a remote lamp or a relay.

With the MXL series of control panels, up to 60 detectors per circuit having relays may be used. The connection of a remote lamp or a remote relay is allowed for each detector but not both.

With the FireFinder XLS series of control panels, up to 252 detectors per circuit having relays may be used. The Connection of an intelligent remote lamp and a remote Relay (ILED), is also allowed.

Air duct housings (see Ordering Information) are Underwriters Laboratories, Inc. listed.

Description

The Fire Safety air duct housing is uniquely designed to use the photoelectric detector.

Sensitivity of PE-11 detectors can be checked by viewing the LED or an RSSAW-11 or RSAC-11 multicolor remote lamp. A green flash indicates the detector has passed its self test. Amber indicates a trouble condition, and red indicates an alarm state.

HFP-11, HFPQ-11 and FP-11 sensitivity may be viewed from the multi-color LED on the detector or preferably may be printed by command on an optional printer from the MXL control panel.

The detector unit employs a cross-sectional sampling principle of operation. Inlet sampling tubes are available in four lengths (see table on reverse side). Outlet sampling tubes are one common length. A continuous cross-sectional sample of air moving through the duct stratification or skin effect phenomena occurring in the duct that could prevent combustion product or smoke (especially in large ducts) from reaching a spot type detector.

In addition, the unique design of the sampling chamber insures uniform sensitivity in air velocities, ranging from a low of 100 feet per minute to as high as 4000 feet per minute. The housing comes with two ½" conduit

CATALOG NUMBER

6185

knockouts and one ½” conduit opening for a number of 3 wiring entry ports.

The inlet sampling tube length is determined by the width of the air duct being protected. The inlet tube nearest to but greater than the duct width should be used (see table). The inlet tube can then be trimmed at the job site to the exact width of the duct. The outlet sampling tube for all ducts, irrespective of width, has a fixed length of approximately 5.5 inches and is supplied with the duct housing.

When the use of a remote relay is required, order model AD2-PR for conventional systems; AD2-XHR for addressable systems. When required the WP-2000 weatherproof enclosure for Duct Housing is available. For full details, refer to installation instructions part number 315-049708.

Sampling Tube Selection Table

Duct Width	Sampling Tube Model No.
For duct widths 6" to 1'	ST-10
For duct widths over 1' to 3'	ST-25
For duct widths over 3' to 5' (requires support)	ST-50
For duct widths over 5' to 10' (requires support)	ST-100

Maintenance of the detector is easily accomplished by the removal of the Series 11 duct housing sampling chamber cover. The detector, which plugs into the housing, is easily removed for cleaning by a trained technician.

All that is necessary for installation of the air duct detector is the cutting of three small holes for the sampling tube installation (template included) and the drilling of four holes for mounting the air duct housing. The unit is then easily mounted in place and connection made to the existing wires or terminals if optional accessories are utilized.

ST-50 and ST-100 require support. ST-100 is shipped in two five foot pieces with a coupling for field assembly.

Technical Data

Temperature Range	32°F (0°C) -100°F (38°C)
Altitude Range	No Altitude Limitations
Relative Humidity	10-85% (non-condensing/non-freezing)
Air Duct Velocity Range	100 - 4000 Ft/Min.
Sampling Tube Pressure Range of Differences	Greater than 0.01 amps less than 1.2 inches of water column

Note to Architect: When building codes regulate the location of detectors within ventilating systems, make sure that the number and locations of detectors is in accordance with the code regulations.

Order Information

Model	Description	Part Number
AD2-P	Air Duct Housing for use with PP-11, HRP-11, HPP0-11, PE-11	500-649706
AD2-PR	Air Duct Housing for use with PE-11 with relay	500-649707
AD2-XHR	Air Duct Housing for use with PP-11, HRP-11, HPP0-11, with relay	500-649708
ST-10	Sampling Tube for Ducts 6" to 1'	500-649710
ST-25	Sampling Tube for Ducts over 1' to 3'	500-649711
ST-50	Sampling Tube for Ducts over 3' to 5'	500-649712
ST-100	Sampling Tube for Ducts over 5' to 10'	500-649713

Product Includes

- One Short Return (outlet) Tube
- One Stopper
- Two #12 + ¾" Sheet Metal Screws
- Mounting Template

Note: Detector and sampling tube to be purchased separately

Note: Minimum hardware required is one Air Duct Housing Assembly, one Sampling Tube and one Detector.

NOTICE: The use of other than Fire Safety detectors and bases with Fire Safety equipment will be considered a misapplication of Fire Safety equipment and as such voids all warranties either expressed or implied in regard to loss, damage, liabilities and/or service problems

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September 2006
Supersedes sheet dated 4/06

Installation Instructions

MODEL TSM-1

Test Switch Module

INTRODUCTION

The SIEMENS Model TSM-1 Test Switch Module is a key activated momentary switch for use with intelligent duct detectors on the MXL System. It is used in conjunction with a TRI, whose CSG-M usage is set to TEST. When the TRI senses the TSM-1 switch closure, it will cause its associated intelligent duct detector to go into alarm. This alarm condition will cause all logic associated with the duct detector to activate. The TSM-1 is mounted on a switch plate and can be installed in a single gang box.

Remove all power from the system until the installation is complete and ready for testing.

All work of any kind shall be performed to meet the requirements of all local and national codes and/or standards required by the authority having jurisdiction.

WIRING INSTRUCTIONS

Refer to the wiring diagrams in Figures 2 and 3 and wire the addressable interface module according to the appropriate operation for your system.

Note: The recommended wire size is as follows:

- 18 AWG minimum
- 14 AWG maximum

POWER LIMITED WIRING FOR THE TSM-1 TEST SWITCH MODULE

In compliance with NFPA 70—National Electrical Code, all power limited fire protective signaling conductors must be separated by a minimum of 1/4 inch from all of the following items located within an outlet box:

- Electric light
- Power
- Class 1 or non-power limited fire protective signaling conductors

INSTALLATION

1. Remove the module from its protective bag. Mount the TSM-1 in a user supplied standard single gang mounting box (1½ in deep is recommended). Refer to Figure 1.
2. Terminate all field wires to the TSM-1 as required for your application. Refer to the connection diagrams shown in Figures 2 and 3.
3. Attach the switch frame to the box.
4. Check that jumper JP1 is NOT installed. (JP1 is not used in this application.)
5. Attach the keyswitch connector to its mating plug on the bottom of the circuit board.
6. Insert the face plate and attach the cover plate with the two screws provided.

Note: A yellow and green LED are included in the kit. Do not use them in this application.

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P/N 315-098285-4

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PROGRAMMING

1. Use the **SIEMENS FPI-32 Programmer/Tester** to program the TRI to the desired address. Select **STATUS** as the usage.
2. To operate the **TSM-1 LED** by the **TRI-R relay contacts**:
In the **CSG-M**, configure the TRI by setting its usage to **TEST** and assign the detector's address to the **TRI-R**. Add a logic function with the intelligent detector that will be tested as the input, and assign the output as the **TRI-R**. Refer to Figure 2.
3. To operate the **TSM-1 LED** by the **air duct detectors**:
In the **CSG-M**, configure the TRI by setting its usage to **TEST**. Add a logic function with the intelligent detector that will be tested as the input, and assign the output as the fan shutdown control operated by the air duct detector. Refer to Figure 3.

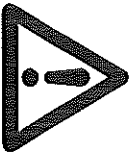
OPERATION

Reset the **MXL System** until **SYSTEM NORMAL** is displayed on the panel. Insert the key into the manual **keyswitch** input point on the **TSM-1**. Activate the momentary switch by turning the key to the right.

When the **TSM-1** **keyswitch** is activated, the supervised switch input of the **TRI-R** is closed. The **TRI-R** activation is received by the **MXL** panel. The **MXL** panel then sends a reduced alarm threshold to the detector through the **TEST** usage of the **TRI-R**. This causes the detector to alarm.

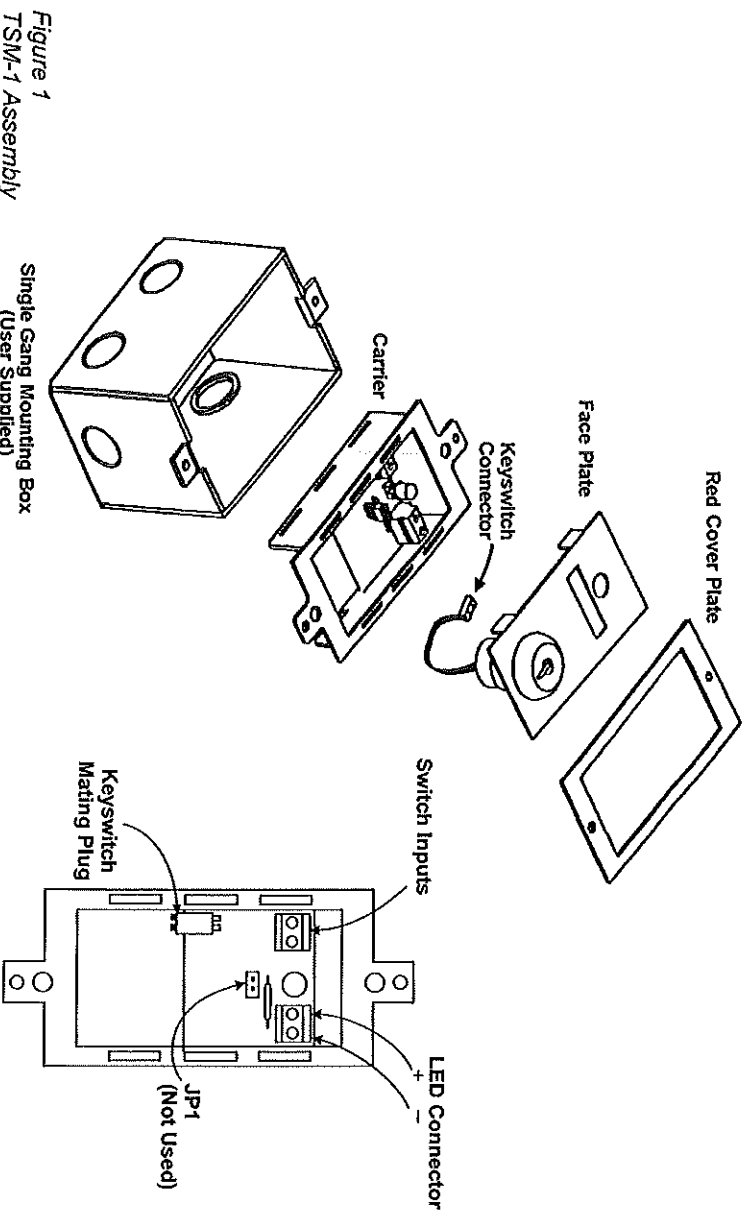
When the detector goes into alarm and sends alarm data back to the **MXL** panel, the **MXL** panel sends command data to the **TRI-R** or air duct to close the relay, which activates the fan controller through the logic function. The **MXL** panel sends a signal to the intelligent detector, turning on the red LED in both the detector and the **TSM-1**, indicating the detector is in alarm.

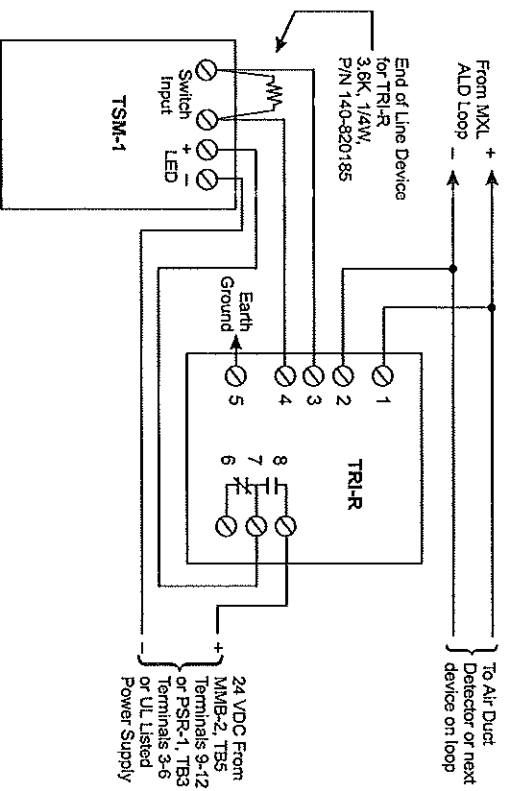
Reset the system. The **MXL System** will restore the detector's alarm threshold and display **SYSTEM NORMAL** on the panel.



CAUTION:

The **TSM-1** switch does not perform all of the required smoke detector tests as specified in **NFPA Standard 72**. Please refer to the instructions that accompany the smoke detector for the complete test requirements.



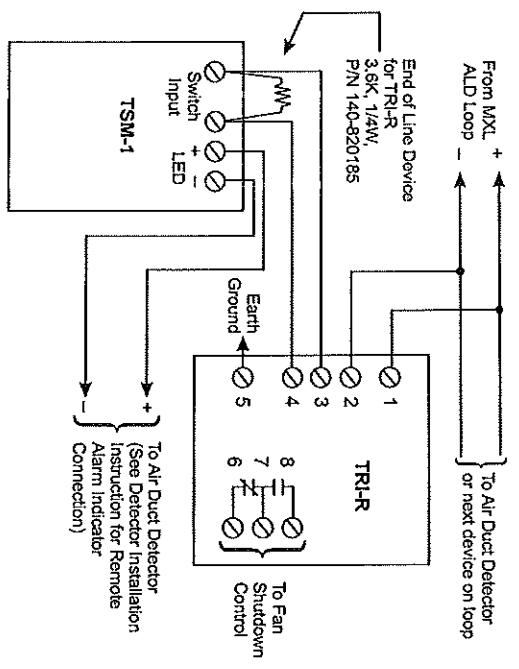


NOTES:

1. For use only with Air Ducts with an incorporated relay.
2. Refer to the *TRI Installation Instructions*, P/N 315-096242, for specific interface module wiring requirements.
3. Refer to the *AD-11PR, AD-11XPR Installation Instructions*, P/N 315-095659, or the *AD-31/-31LP Installation Instructions*, P/N 315-093234, for specific duct detector wiring requirements, as applicable.

Figure 2

**TSM-1 Interface to MXL System
TSM-1 LED operated by the TRI-R relay contacts**



NOTES:

1. For use only with Air Ducts without an incorporated relay.
2. Refer to the *TRI Installation Instructions*, P/N 315-096242, for specific interface module wiring requirements.
3. Refer to the *AD-11P Installation Instructions*, P/N 315-095659, or the *AD-31/-31LP Installation Instructions*, P/N 315-093234, for specific duct detector wiring requirements, as applicable.

Figure 3

**TSM-1 Interface to MXL System
TSM-1 LED operated by the Air Duct Detector**

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SIEMENS


Fire Safety

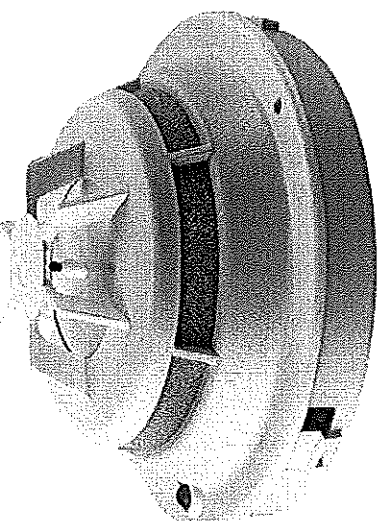
HFPPT-11 Intelligent Thermal Detector

For FireFinder XLS™ and FS-250 Fire Alarm Control Panel

ENGINEER AND ARCHITECT SPECIFICATIONS

HFPPT-11

- Microprocessor Based Design
- Rate of Rise and Fixed Temperature
- Innovative Technology Provides High Speed, Fault Tolerant System/Detector Communications
- Multi-Color Detector Status LED
- Polarity Insensitive Utilizing SureWire™ Technology
- Detectors are Self-Testing, Complete Diagnostics Every 4 Seconds
- Two-Wire Operation
- Compatible with DPU Device Programmer/Tester Unit
-  UL Listed, CSFM, FM, NYMBA Approved



Introduction

The HFPPT-11 intelligent thermal detectors provide an advanced method of detection, address programming and supervision, combined with sophisticated control panel communication. The HFPPT-11 detector uses a state-of-the-art thermistor providing 135°F fixed temperature and 15° per minute rate-of-rise alarm points. The user also has the option of disabling the rate-of-rise feature leaving just a fixed temperature sensor.

The HFPPT-11 intelligent thermal detector is compatible with the Device Program/Test Unit (DPU). The DPU is a compact, portable, menu-driven accessory which makes programming and testing detectors faster, easier and more reliable than other methods. The DPU eliminates the need for cumbersome, unreliable mechanical programming methods and reduces installation and service costs by electronically programming addresses and functionally testing the HFPPT-11's performance before the detector is installed.

The HFPPT-11 thermal detector operates with the FireFinder XLS and FS-250 families of control panels.

The HFPPT-11 intelligent thermal detector is Underwriters Laboratory and Underwriters Laboratory of Canada listed.

Description

The HFPPT-11 is a plug-in, two-wire thermal detector, compatible with FireFinder XLS and FS-250 families of control

panels. Each FPP-11 has microcomputer chip technology and highly stable solid state electronic circuitry.

The FPP-11 utilizes a modern, accurate, shock-resistant thermistor to sense temperature changes. This electronic sensing method virtually eliminates thermal lag associated with mechanical temperature sensing devices and provides almost instantaneous temperature information to the control panel. The HFPPT-11, in its default mode, is a combination 135°F fixed temperature and 15° per minute, rate-of-rise detector. It can be programmed from the control panel as a fixed temperature detector without rate-of-rise, at the users option.

The HFPPT-11 detector's microprocessor uses an integral EEPROM to store the detector's address. Communications within the detector itself and between the HFPPT-11 and the control panel, or with the DPU, are supervised and safeguarded against disruption by reliable, microprocessor based error checking routines. Additionally, the microprocessor supervises all EEPROM memory locations and provides a high degree of EEPROM failure fault tolerance.

The HFPPT-11 is listed as a self-testing device. The HFPPT-11's visible light emitting diode (LED) flashes green every 4 seconds to indicate it is communicating with the control panel and that it has passed its internal self-test. Should the detector sense a fault

CATALOG NUMBER

6302

or failure within its systems, the LED will flash amber and the detector will transmit that information to the control panel. A quick visual inspection is sufficient to indicate the condition of the detector at any time. If more detailed information is required, a printed report can be provided from the FireFinder XLS panel indicating the status and settings assigned to each individual detector.

When the HFPT-11 moves to the alarm mode, it will flash red and continue flashing until the control panel is reset. At that same time, any user defined system alarm functions programmed into the system are activated.

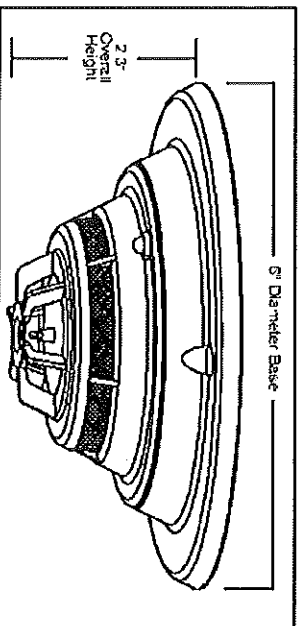
A Device Program/Test Unit (DPU) is used to program and verify the detector's address. The user selects the Program Mode to enter the desired address. The DPU Programmer/Tester then automatically sets and verifies the address as well as tests the detector. The DPU has rechargeable batteries, so a detector's address can be programmed by the user from the most convenient location. The user can also separately test the detector for functionality. When the user selects the Test Mode, a series of tests are automatically conducted and the user is informed whether the detector has passed or failed.

The HFPT-11 detector is compatible on the same FireFinder XLS or FS-250 initiating circuit with other H Series detectors, HMS manual stations, HTRI Series addressable interfaces, or HZM Series addressable conventional zone modules.

The HFPT-11 detectors use a surface mounting base, Model DB-11, which mounts on a 4-inch octagonal, square or single gang electrical box. Relay base Model DB-HR mounts to a 4-inch square deep electrical box.

Audible base Model ADBH-11 also mounts to a 4-inch square deep electrical box.

The DB-11, and the DB-HR and ADBH-11 use screw-clamp terminals for all electrical connections and self-wiping contacts for reliability. The bases also contain a provision for an optional concealed locking mechanism to prevent unauthorized removal of the detector head, Model LK-11.



Application Data

The FireFinder XLS and FS-250 control panels use loop circuits with each circuit capable of supporting up to 252 HFPT-11 intelligent detectors.

Locate the HFPT-11 on the ceiling, at least 4 inches from the side walls. For an ideal, smooth ceiling condition, place the detectors at a maximum center spacing of 50 feet (2500 square feet). 25 feet from side walls or room partitions.

Actual job conditions and sound engineering judgement must determine detector spacing. Consider environmental factors including ambient temperature fluctuation, and the nature of the fire hazard. Room or area configuration and ceiling type (sloped or flat, smooth or beamed) also dictates placement.

Should questions arise regarding detector placement, follow the drawing provided and/or approved by Siemens Fire Safety or by its authorized distributors. This is extremely important! The detector placements shown on these drawings were chosen after a careful evaluation of the area being protected. Extensive experience in design of the system assures the best detector placement by following these drawings.

Technical Specifications

Operative Temperatures: +32°F (0°C) to 100°F (38°C)

Humidity: 0-93% Relative Humidity
Non-condensating

Maximum Spacing: 50 Foot Centers
(2500 Square Feet)

Current Draw: 1 mA in alarm or supervisory mode

Ordering Information

Model	Description	Part Number
HFPT-11	Addressable Thermal Fire Detector	500-033380
DB-11	Detector Mounting Base	500-094151
DB-HR	Relay Base	500-033220
ADBH-11	Audible Base	500-033210
RL-HC	Remote (red) alarm indicator-octogan box mount	500-033230
RL-HW	Remote (red) alarm indicator-single gang box mount	500-033310
LK-11	Base Locking Kit for Series 11 detectors	500-695350
In Canada Order:		
ADBH-11C	Audible Base (ULC)	500-033210C
HFPT-11C	Addressable Thermal Fire Detector (ULC)	500-033380C
DB-11C	Detector Mounting Base (ULC)	500-095687
DB-HR-C	Relay Base (ULC)	500-033220C

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December 2004
Supersedes sheet dated 10/02

SIEMENS

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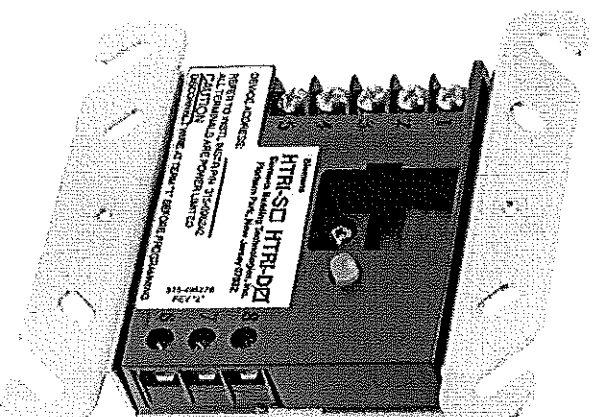
HTRI Series

FireFinder XLS and FS-250 Intelligent Initiating Devices Interface Modules

ENGINEER AND ARCHITECT SPECIFICATIONS

Intelligent Interface Modules for FireFinder XLS and FS-250 Series Fire Alarm Control Panels HTRI-S, HTRI-D, HTRI-R

- Interfaces and Supervises Normally Open or Normally Closed Contacts
- Integral SPDT Relay (up to 4 amps) on HTRI-R Model
- Dual Input on HTRI-D Model using a single address
- Polarity Insensitive with SureWire™ Technology
- Multi-color L.E.D. indicates status (green, amber, red)
- Easy front access to programming port and wiring terminals
- Mounts 4 inch square 2 1/4 deep box, or double gang box
- Dynamic Supervision
- Comes with 5x5 inch faceplate
- Two wire operation
- DPU Device Program/Test Unit programs and Verifies Device's Address and Tests Devices functionality
- Electronic Address Programming is Easy and Dependable
- ULC Listed
- UL CFMSM, FM, NYMMA Approved



Introduction

The HTRI Series intelligent interface modules are designed to provide the means of interfacing direct shorting devices to the FireFinder XLS and FS-250 Fire Alarm Control Panel loop circuit.

The HTRI Series intelligent interface modules provide the market's most advanced method of address programming and supervision, combined with sophisticated control panel communication. Each HTRI Series interface module incorporates a microcomputer chip. The HTRI Series microcomputer chip technology and its sophisticated bi-directional communication capabilities with the control panel, achieve the state of an "Intelligence Device."

Description

The HTRI Series intelligent interface modules are available in three models. The HTRI-S and HTRI-R are designed to monitor a normally open or closed dry contact. The interface module reports the contact's status to the control panel. The HTRI-S model can only

monitor and report the status of the contact, while the HTRI-R incorporates an addressable Form C relay. The HTRI-R relay and contact device input are controlled at the same address. For the control panel system, the relay and input contact can be controlled as a separate function. The relay is typically used where control or shunting of external equipment is required.

The HTRI-D is a dual input module and is designed to supervise and monitor two sets of dry contacts. The Dual Input Module only requires one address but responds independently to each input. The HTRI-D is ideal for monitoring a water flow switch and its respective valve tamper switch.

The HTRI has a multi-color Light Emitting Diode that flashes green when operating normally, amber if unit is in trouble condition, and red to indicate a change of state. The HTRI-D flashes twice, once for each address, the HTRI-R red L.E.D. indicates a change of state in the relay.

CATALOG NUMBER

6304

The device's microcomputer chip has the capacity of storing, in memory, identification information as well as important operating status information.

Siemens Building Technologies, Inc., Fire Safety Division innovative technology allows all HTRI Series intelligent interface modules to be programmed by using the DPU Device Programming/Test Unit. The DPU is a compact, portable, menu driven accessory that makes programming and testing an interface device faster, easier and more dependable than previous methods. The DPU eliminates the need for mechanical addressing mechanisms, such as program jumpers, DIP switches or rotary dials, because the DPU electronically sets the HTRI interface's address into the interface's microcomputer chip nonvolatile memory. Vibration, corrosion and other conditions that deteriorate mechanical addressing mechanisms are no longer a cause for concern.

The HTRI Series is fitted with screw terminals for connection to an addressable circuit.

The HTRI Series is fully compatible on the same FireFinder XLS and FS-250 circuits with all intelligent H Series detectors, HMS Series addressable manual stations or any other addressable intelligent modules, such as the HZM or HCP.

All HTRI Series intelligent interface modules are UL listed.

Environmental operating conditions for all HTRI Series modules are 32°F (°C) to 120°F (49°C) with a relative humidity of not greater than 93% non-condensating.

Ordering Information

Model	Description	Shipping Wt. Lb. Kg.	Part Number
HTRI-S	Single Input	7 oz. 2	500-033370
HTRI-R	Single Input w/Relay	7 oz. 2	500-033300
HTRI-D	Dual Input	7 oz. 2	500-033360

Mounting Data

Addressable Interface Model HTRI-S, HTRI-D, HTRI-R mounts directly into a 4 inch square 2 ¼ deep box or a double gang box (user supplied). A 5 inch square off-white faceplate is included with each HTRI.

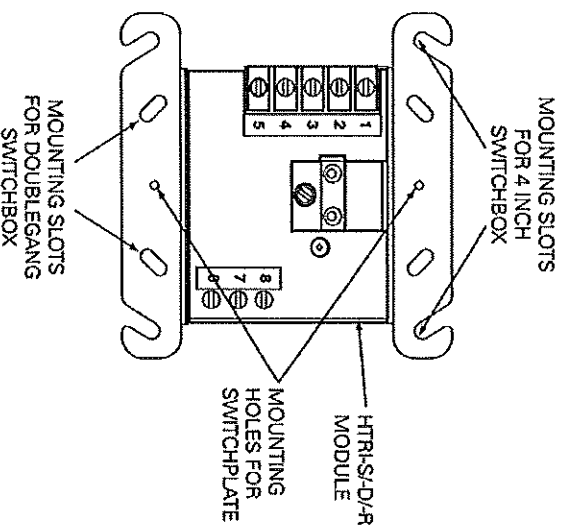


Figure A
Mounting the HTRI-S/D/R

Electrical Ratings

Current Draw (Active or Standby): 1mA

HTRI-R Relay Ratings

Resistive: 4A, 125 VAC

4A, 30 VDC

Inductive: 3.5A, 120 VAC (0.6PF)

3.0A, 30 VDC (0.6PF)

2.0A, 120 VAC (0.4PF)

2.0A, 120 VAC (0.35PF)

2.0A, 30 VDC (0.35PF)

NOTICE: The use of other than Fire Safety detectors and bases with Fire Safety equipment will be considered a misapplication of Fire Safety equipment and as such void all warranties either expressed or implied with regard to loss, damage, liabilities and/or service problems.

Fire Safety

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Fire Safety

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12/04
SM
SFS-IG
Printed in U.S.A.

December 2004

Supersedes sheet dated 1/03

SIEMENS

Fire Safety

Z

Strobes, Horns, Horn/Strobes

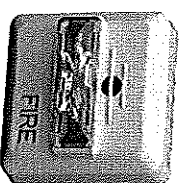
ENGINEER AND ARCHITECT SPECIFICATIONS

- UL listed. ULC, CSFM, and FM pending.
- ADA/NFPA compliant
- EZ Mount design, with separate base plate, provides ability to pre-wire the base and test the circuit wiring before the walls are covered
- The base plate is protected by a disposable cover and the appliances can quickly snap onto the base after the walls are painted.
- EZ Mount Universal Mounting Plate (ZBB) – uses single plate for ceiling and wall mount installations
- Wall Mount models feature field selectable candela settings of 15/30/75/110cd and 135/185cd
- Ceiling Mount models feature field selectable candela settings of 15/30/75/95cd and 115/177cd
- Strobes can be synchronized using the Siemens DSC sync modules, FS-250 panel, XLS panel, or PAD-3 power supply with built-in sync protocol
- "Special Applications" listed with Siemens panels
- Strobes produce 1 flash per second
- Selectable Continuous Horn or Temporal (Code-3) Tones with selectable 90 or 95 dBA setting (ZH model)

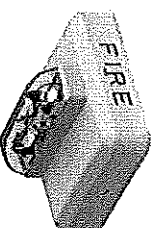
Description

The Siemens Series Z notification appliances feature an easy snap on base that is designed to simplify the installation and testing of horns, strobes, and horn/strobes. The separate Series Z snap on base can be pre-wired so circuit wiring can be fully tested before the appliance is installed and before the walls are covered. Once all surrounding work is complete, the appliance can be simply installed by snapping it on the base. Shorting contacts in the base, which provide continuity for circuit testing, are permanently opened when the appliance is installed so any subsequent removal of the appliance will indicate a trouble condition on that circuit at the control panel when circuit supervision is enabled. The same base is used for all Series Z horns, strobes and horn/strobes to provide consistent installation and easy replacement of appliances if required. A locking screw is also included for the appliance to provide extra secure installation.

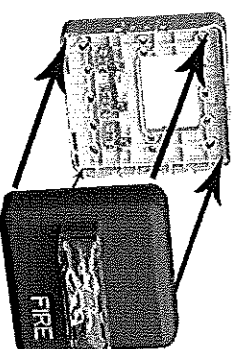
The Siemens Series Z appliances incorporate the same dependable circuitry and high efficiency optics that are used in Siemens ST strobes, NS horn/strobes and NH horns and have the same high performance ratings. The Series Z appliances are "Special Applications" listed with Siemens panels.



Series ZH



Series ZR



ZR AND ZH Mounting

Engineering Specifications

General

Audible/visual notification appliances shall be listed for indoor use and shall meet the requirements of FCC Part 15 Class B. These appliances shall be listed under UL Standard 1971, (Standard for Safety Signaling Devices for Hearing Impaired) and UL Standard 464 (Fire Protective Signaling). The appliances shall use a universal backplate that shall allow mounting to a single-gang, double-gang, 4-inch square, 4" octal, or a 3-1/2" octal backbox. Two wire appliance wiring shall be capable of directly connecting to the mounting back plate. Continuity checking of the entire NAC circuit prior to attaching any audible/visual notification appliances shall be allowed. A dust cover shall fit and protect the mounting plate. The dust cover shall be easily removed when the appliance is installed over the backplate. Removal of an appliance shall result in a trouble condition by the Fire Alarm Control Panel (FACP).

Strobes

Strobe appliances shall produce a minimum flash rate of 60 flashes per minute (1 flash per second) over the Regulated Input Voltage Range and shall incorporate a

Xenon flashtube enclosed in a rugged Lexan® lens. The strobes shall be available with two or four field selectable settings in one unit and shall be rated, per UL 1971, for up to 185 cd for wall mounting and 177 cd for ceiling mounting. The strobes shall operate over an extended temperature range of 32°F to 120°F (0°C to 49°C) and be listed for maximum humidity of 95% RH. Strobe inputs shall be polarized for compatibility with standard reverse polarity supervision of circuit wiring by a Fire Alarm Control Panel (FACP).

Audibles and Audible/Strobe Combinations

Horns and horn/strobes shall be listed for indoor use under UL Standard 464. The horns shall be able to produce a continuous output or a temporal code-3 output that can be synchronized. The horns shall have at least 2 sound level settings of 90 and 95 dBA.

Synchronization Modules

When synchronization of strobes or temporal Code-3 audibles is required, the appliances shall be synchronized using the Siemens DSC sync modules, FS-250 panels, XLS panels, or PAD-3 power supplies with built-in sync protocol. The strobes shall not drift out of synchronization at any time during operation. Audibles and strobes

shall be able to be synchronized on a 2-wire circuit with the capability to silence the audible if required. If the sync module or power supply fails to operate (i.e., contacts remain closed), the strobes shall revert to a non-synchronized flash rate. All notification appliances shall be listed for "Special Applications".

- Strobes are designed to flash at 1 flash per second minimum over their "Regulated Input Voltage Range".
- All candela ratings represent minimum effective strobe intensity based on UL Standard 1971.
- Series ZH 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% ($\pm 2\%$).
- Series ZH horns are listed under UL Standard 464 for audible signal appliances (indoor use only).

Technical Information

For complete technical information, please consult the relevant installation sheets as well as the Siemens Compatibility Guide.

Ordering Information / Mounting Requirements / Approvals

Model Number	Order Code	Mounting Options#	Agency Approvals			
			UL	ULC	CSFM	FM
ZH-MC-R	500-636161	B, D, E, F	X	#	#	#
ZH-MC-W	500-636162	B, D, E, F	X	#	#	#
ZH-HMC-R	500-636163	B, D, E, F	X	#	#	#
ZH-HMC-W	500-636164	B, D, E, F	X	#	#	#
ZH-R	500-636159	B, D, E, F	X	#	#	#
ZH-W	500-636160	B, D, E, F	X	#	#	#
ZH-MC-CR	500-636165	B, D, E, F	X	#	#	#
ZH-MC-CW	500-636166	B, D, E, F	X	#	#	#
ZH-HMC-CR	500-636167	B, D, E, F	X	#	#	#
ZH-HMC-CW	500-636168	B, D, E, F	X	#	#	#
ZR-MC-R	500-636169	B, D, E, F	X	#	#	#
ZR-MC-W	500-636170	B, D, E, F	X	#	#	#
ZR-HMC-R	500-636171	B, D, E, F	X	#	#	#
ZR-HMC-W	500-636172	B, D, E, F	X	#	#	#
ZR-MC-CW	500-636174	B, D, E, F	X	#	#	#
ZR-MC-CR	500-636173	B, D, E, F	X	#	#	#
ZR-HMC-CR	500-636175	B, D, E, F	X	#	#	#
ZRS-HMC-CW	500-636176	B, D, E, F	X	#	#	#
ZBB-R	500-636193	Accessory - Includes base, dust cover, mounting screws and installation sheet				
ZBB-W	500-636194	Accessory - Includes base, dust cover, mounting screws and installation sheet				

X = listed/approved # = pending * = Refer to Data Sheet #2585 for mounting options.

WARNING: PLEASE READ THESE SPECIFICATIONS AND INSTALLATION INSTRUCTIONS CAREFULLY BEFORE USING, SPECIFYING OR APPLYING THIS PRODUCT. FAILURE TO COMPLY WITH ANY OF THESE 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.

Siemens Building Technologies Fire Safety

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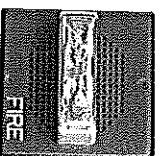
July 2007
New Issue

SIEMENS SET

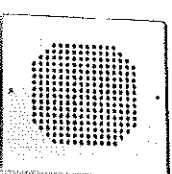
Speakers and Speaker Strobes

ENGINEER AND ARCHITECT SPECIFICATIONS

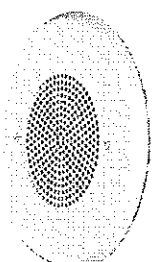
- UL listed. ULQ, CSFM, and FM pending.
- ADA/NFPA compliant
- Wall mount models are available with Field Selectable Candela Settings of 15/30/75/110cd or 135/185cd (multi-candela models) or 15/75cd (Single-Candela model)
- Ceiling mount models are available with field selectable candela settings of 15/30/75/95cd or 115/177cd.
- Strobes can be synchronized using the Siemens DSC sync modules, FS-250 panel, XLS panel, or PAD-3 power supply with built-in sync protocol
- Field selectable taps for 25 or 70 VRMS operation from 1/8 watt to 8 watts
- High efficiency design for maximum output at minimum wattage across a frequency range of 400 to 4000 HZ
- Fast installation with IN/OUT screw terminals using #12 to #18 AWG wires



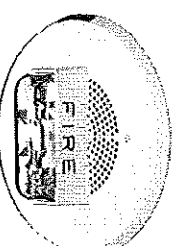
SET-MC-R



SET-W



SET-CW



SET-MC-CW

Description

The Siemens high performance Series SET Speakers and Series SET Speaker Strobes provide high audio output, clear audibility, dual voltage (25/70 VRMS) capability and field selectable taps from 1/8 to 8 watts. They are designed to meet the critical needs of the life safety industry for effective emergency voice communications, tone signaling and visible signaling to alert the hearing impaired.

The low profile design incorporates a speaker mounting plate for faster and easier installation. Each model has a built-in level adjustment feature a two (2) screw grille cover.

The Series SET Speaker Strobe models incorporate low current draw strobes.

Strobe options for wall mount models include Siemens MC multi-candela strobe with field selectable candela settings of 15/30/75/110cd or the high intensity HMC multi-candela strobe with field selectable candela settings of 135/185cd or single candela 15/75.

Ceiling mount models are available in Siemens MC multi-candela ceiling strobe with field selectable intensities of 15/30/75/95cd or the high intensity HMC strobe with field selectable 115/177cd.

The strobe portion of all Series SET Strobes may be synchronized when used in conjunction with the Siemens DSC sync modules, FS-250 panel, XLS panel, or PAD-3 power supply with built-in sync protocol.

Siemens synchronized strobes offer an easy way to comply with ADA recommendations concerning photosensitive epilepsy.

Series SET Speaker Strobes are UL Listed for indoor use under Standard 1971 (Signaling Devices for the Hearing Impaired) and Standard 1480 (Speaker Appliances), and use a Xenon flashtube with solid state circuitry enclosed in a rugged Lexan® lens to provide maximum reliability for effective visual signaling. All inputs are supervised and employ IN/OUT wiring terminals for fast installation using #12 to #18 AWG wiring.

Engineering Specifications

The speaker appliances shall be Siemens Series SET Speakers and speaker strobe appliances shall be Siemens Series SET Speaker Strobes or approved equals. The speakers shall be UL Listed under Standard 1480 for Fire Protective Service and speakers equipped with strobes shall be listed under UL Standard 1971 for Signaling Devices for the Hearing-Impaired. In addition, the strobes shall be certified to meet the requirements of FCC Part 15, Class B.

All speakers shall be designed for a field selectable input of either 25 or 70 VRMS, with selectable power taps from 1/8 watt to 8 watts. All models shall have listed sound output of up to 93 dB at 10 feet and a listed

frequency response of 400 to 4000 Hz. The speaker shall also incorporate a sealed back construction. All inputs shall employ terminals that accept #12 to #18 AWG wire sizes.

The strobe portion of the appliance shall produce a flash rate of one (1) flash per second and shall incorporate a Xenon flashtube enclosed in a rugged Lexan® lens. The strobe shall be of low current design. Where, Multi-Candela Speaker Strobes are specified, the strobe intensity shall have field selectable settings and shall be rated per UL Standard 1971 at 15/30/75/110cd, 135/185cd, or single candela 15/775 for wall mount and 15/30/75/95 cd or 115/177cd for ceiling mount. The selector switch for selecting the candela shall be tamper resistant.

When synchronization is required, the strobe portion of the appliance shall be compatible with the Siemens DSC sync modules, FS-250 panel, XLS panel, or PAD-3 power supply with built-in sync protocol. The strobes shall not drift out of synchronization at any time during operation. If the sync module or Power Supply fails to operate, (i.e., contacts remain closed), the strobe shall revert to a non-synchronized flash rate.

The speaker and speaker strobe appliances shall be designed for indoor surface or flush mounting. The speaker and speaker strobe shall incorporate a speaker mounting plate with a grille cover which is secured with two screws for a level finish and shall mount to standard electrical hardware requiring no additional trimplate or adapter.

The finish of the Series SET speakers and speaker strobes shall be white or red.

All speakers and speaker strobes shall be listed for Special Applications.

- Strobes are designed to flash at 1 flash per second minimum. Note that NFPA-72 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.

Technical Information

For complete technical information, please consult the relevant installation sheets as well as the Siemens Compatibility Guide.

Ordering Information / Mounting Requirements / Approvals

Model	Order Code	Mounting Options	Agency Approvals			
			UL	ULC	CSFMI	FM
SET-HMC-R	500-636051	L.P.Q.U.Y	X	#	#	#
SET-HMC-W	500-636052	L.P.Q.U.Y	X	#	#	#
SET-HMCR	500-636053	L.P.Q.U.Y	X	#	#	#
SET-HMCW	500-636054	L.P.Q.U.Y	X	#	#	#
SET-S17-R-WMP	500-636058	M (Outdoor)	X	#	#	#
SET-S17-W-WMP	500-636059	M (Outdoor)	X	#	#	#
SET-S17-CW-WMP	500-636057	M (Outdoor)	X	#	#	#
SET-HMC-CW	500-636063	Q.U.Y	X	#	#	#
SET-HMC-CR	500-636062	Q.U.Y	X	#	#	#
SET-HMC-CW	500-636065	Q.U.Y	X	#	#	#
SET-HMCCR	500-636064	Q.U.Y	X	#	#	#
SET-R	500-636055	P.Q.U.Y	X	#	#	#
SET-W	500-636056	P.Q.U.Y	X	#	#	#
SET-CW	500-636067	Q.U	X	#	#	#
SET-I17-CR-WMP	500-636189	MT-SUR-BOX, MT-SUR-BOX+WPS-KIT, WFPS	X	#	#	#
SET-I17-CW-WMP	500-636190	MT-SUR-BOX, MT-SUR-BOX+WPS-KIT, WFPS	X	#	#	#
SET-I85-R-WMP	500-636191	MT-SUR-BOX, MT-SUR-BOX+WPS-KIT, WFPS	X	#	#	#
SET-I85-W-WMP	500-636192	MT-SUR-BOX, MT-SUR-BOX+WPS-KIT, WFPS	X	#	#	#

X = listed/approved # = pending * = Refer to Data Sheet #2585 for mounting options.

WARNING: PLEASE READ THESE SPECIFICATIONS AND INSTALLATION INSTRUCTIONS CAREFULLY BEFORE USING, SPECIFYING OR APPLYING THIS PRODUCT. FAILURE TO COMPLY WITH ANY OF THESE 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.

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July 2007
New Issue

SIEMENS

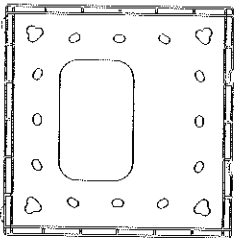
Fire Safety

MOUNTING DETAILS

Mounting Matrix / Details

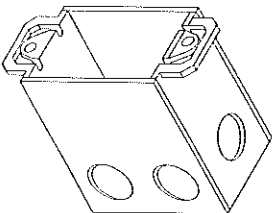
ENGINEER AND ARCHITECT SPECIFICATIONS

(A) UNIVERSAL MOUNTING PLATE



AS Mounting (Item included with AS series devices)

(B) SINGLE-GANG, FLUSH (BO)

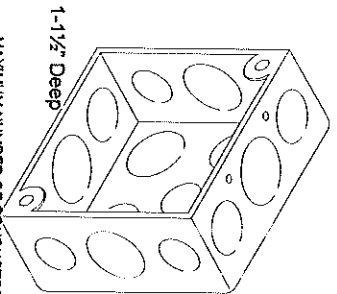


MAXIMUM NUMBER OF CONDUCTORS

AWG. #18	AWG. #16	AWG. #14	AWG. #12
4	4	4	4

Used with Series AH, AS, MH, NH, NS, ST

(D) 4" SQUARE, FLUSH (BO)

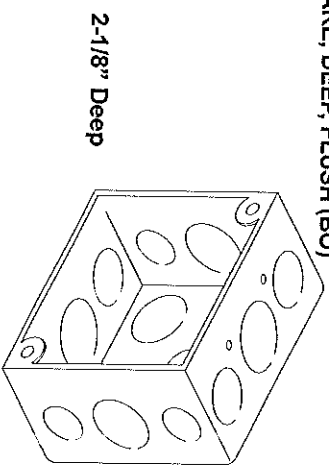


MAXIMUM NUMBER OF CONDUCTORS

AWG. #18	AWG. #16	AWG. #14	AWG. #12
4	4	4	4

Used with Series MH115, B6, B10, AH, AS, HS, MBDC, MTH, NH, NS, ST

(E) 4" SQUARE, DEEP, FLUSH (BO)



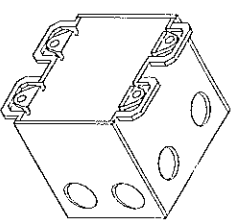
2-1/8" Deep

MAXIMUM NUMBER OF CONDUCTORS

AWG. #18	AWG. #16	AWG. #14	AWG. #12
8	8	8	8

Used with Series MH115, B6, B10, AH, AS, SETSF, SET-ULC, HS, MBDC, MTH, NH, NS, ST

(F) DOUBLE-GANG, FLUSH (BO)



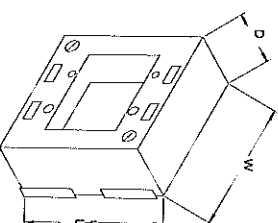
MAXIMUM NUMBER OF CONDUCTORS

AWG. #18	AWG. #16	AWG. #14	AWG. #12
4	4	4	4

Used with Series AH, AS, HS, MT, NH, NS, ST

(G) DOUBLE-GANG, SURFACE (BO)

L	W
4-3/4"	4-3/4"
D	GANG #
1-3/4"	2

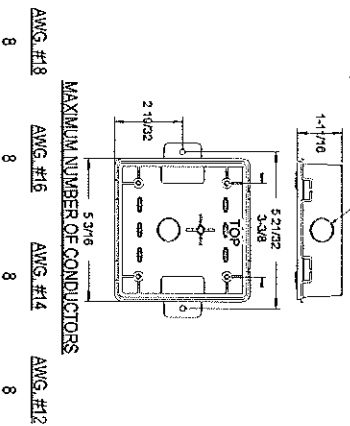


MAXIMUM NUMBER OF CONDUCTORS

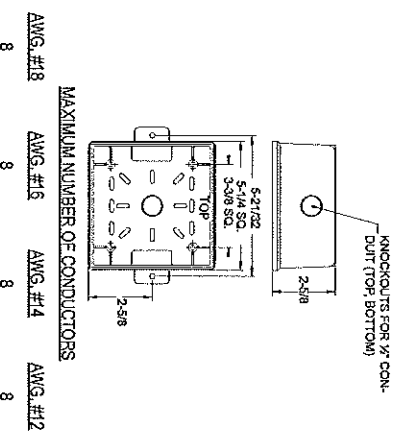
AWG. #18	AWG. #16	AWG. #14	AWG. #12
4	4	4	4

Used with Series AH, AS, NH, NS, ST

(I) WPBBS (ORDER CODE: RED 500-636137)
 Plastic backbox for surface mounting series AS weather-proof outdoor products.

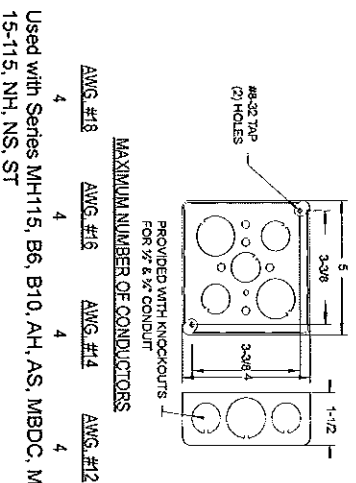


(M) MT-SUR-BOX BACKBOX (ORDER CODES: RED 500-693168, WHITE 500-636118)



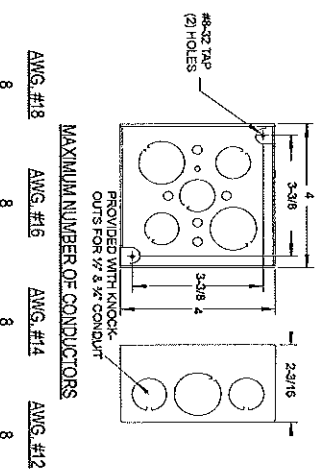
Used with Series SET, HS, MTH, MTWP. For surface mounting MT products.

(J) BBS BACKBOX (ORDER CODES: RED 500-636110)
 Standard steel backbox with knockouts for interior surface mounting, concealed conduit mounting or semi-flush applications.



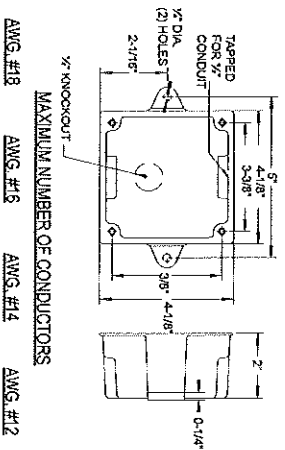
Used with Series MH115, B6, B10, AH, AS, MBDC, MTH-15-115, NH, NS, ST

(N) DBBS BACKBOX (ORDER CODE: RED 500-636111)
 Standard steel backbox provided with knockouts for interior surface mounting, concealed conduit mounting or semi-flush applications.



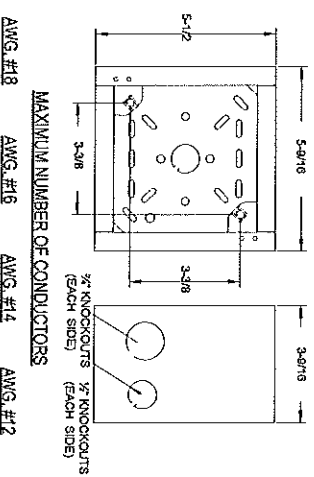
Used with Series MH115, B6, B10, AH, AS, SETSF, HS, MBDC, MTH, NH, NS, ST

(K) WBBS WEATHER RESISTANT BACKBOX (ORDER CODES: RED 500-636129, WHITE 500-636131)
 Sturdy die cast housing, threaded conduit hole and knockout for outdoor applications.



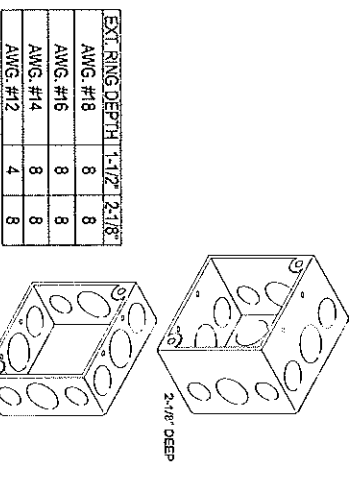
Used with Series MH115, B6, B10, SETSF, MBDC, MTH-15-115

(P) SBBS BACKBOX (ORDER CODES: RED 500-636119, WHITE 500-636120)
 For surface mounting speakers, chimes, and electronic applications.



Used with Series B6, B10, CH, SEF, SET, SETFL, HS, MBDC, MTH, NH, NS, ST

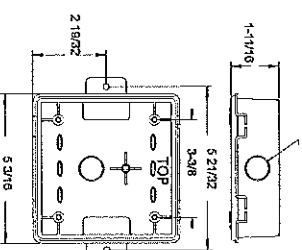
(Q) 4" SQUARE DEEP W/ EXTENSION RING, FLUSH (BO)



EXTENSION RING DEPTH	1-1/2"	2-1/2"
AWG. #18	8	8
AWG. #16	8	8
AWG. #14	8	8
AWG. #12	4	8

Used with Series CH, SEF, SET, SETFL

(T) WPSBBS (ORDER CODES: RED 500-636139, WHITE 500-636140)

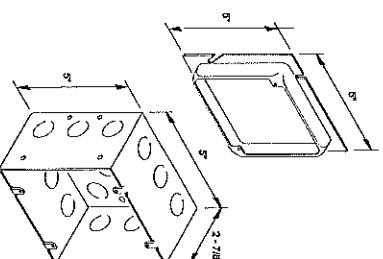


MAXIMUM NUMBER OF CONDUCTORS

AWG. #18	AWG. #16	AWG. #14	AWG. #12
8	8	8	8

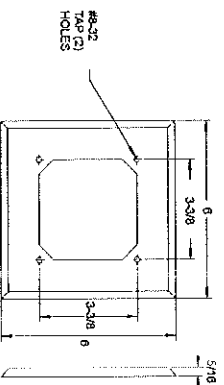
Used with Series ST-WP

(U) 5" SQUARE BACKBOX W/ EXTENSION RING, FLUSH (BO)



(R) SFPS SEMI-FLUSH PLATE (ORDER CODES: RED 500-636124, WHITE 500-636125)

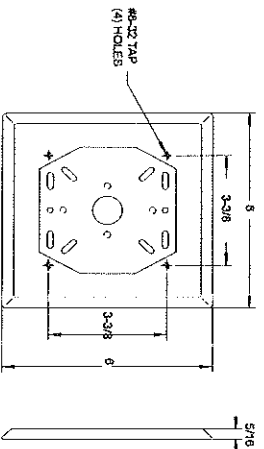
Stamped aluminum surface wall plate which mounts behind the basic unit and serves to cover recessed backboxes in semi-flush mounting applications.



Used with Series MT, SET, SE, NH, NS, ST

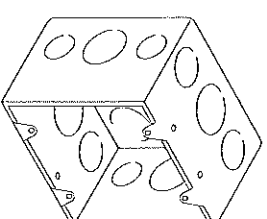
(S) APS ADAPTER PLATE (ORDER CODE: RED 500-630109)

Stamped aluminum adapter plate designed for applications where semi-flush installations cannot be used. The plate can be mounted to standard octagon or round backboxes single or double gang boxes or plaster rings. The backbox and basic unit are then fastened to the plate. This type mounting is referred to as a concealed conduit installation.



Used with Series MBDC

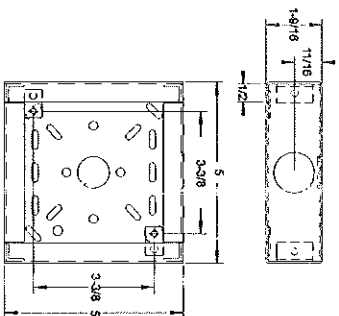
(W) 4-1/16" SQUARE, DEEP SURFACE (BO)



MAXIMUM NUMBER OF CONDUCTORS

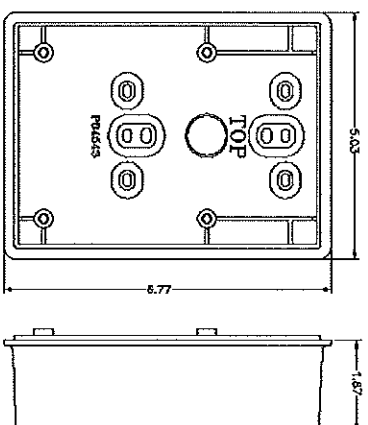
AWG. #18	AWG. #16	AWG. #14	AWG. #12
10	10	10	10

(X) SHBBS SQUARE, SURFACE BACKBOX
 (Order Codes: Red 500-636126, White 500-636127)



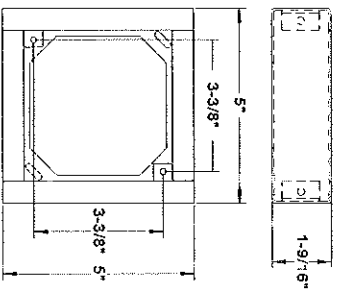
Used with Series AS, AH, NS, Z

(BB) SPSSB (ORDER CODES: RED 500-636114,
 WHITE 500-636115)



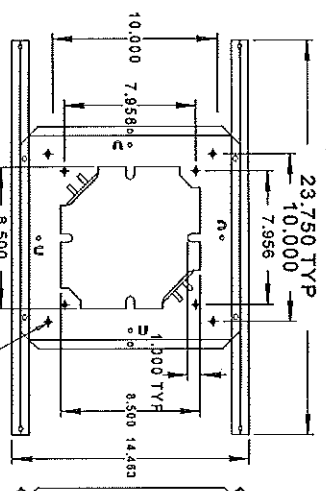
Used with Series SE-MC/HMC
 (wall mount speaker/ strobe)

(Y) SERS SQUARE SEMI-FLUSH EXTENSION RING (Order
 Codes: Red 500-636122, White 500-636123)



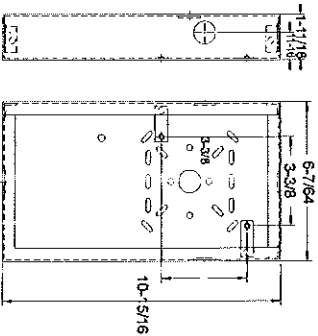
Used with Series CH, SEF, SET

(CC) SB-W 8" CEILING SUPPORT BRIDGE (ORDER CODE:
 WHITE 500-634882)

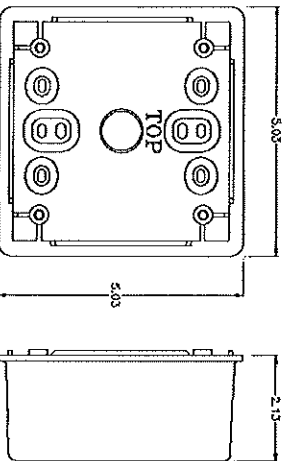


Used with Series S 8" Ceiling Speakers

(Z) SBL2S BACKBOX (Order Codes: RED 500-636121)

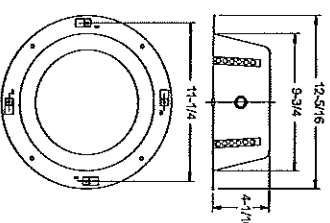


(AA) SPSB (Order Codes: Red 500-636112, White
 500-363113)



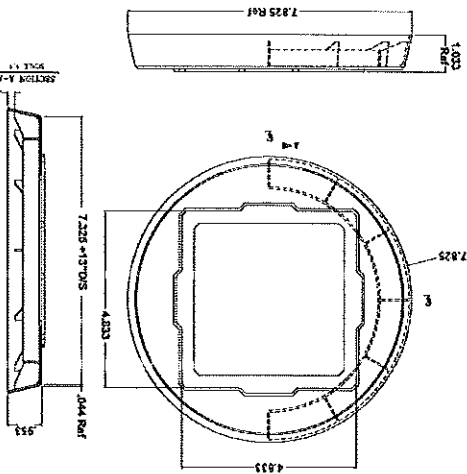
Used with Series SE Speakers

(DD) SE-1 8" CEILING SPEAKER BACKBOX (ORDER
 CODE: WHITE: 500-634881)



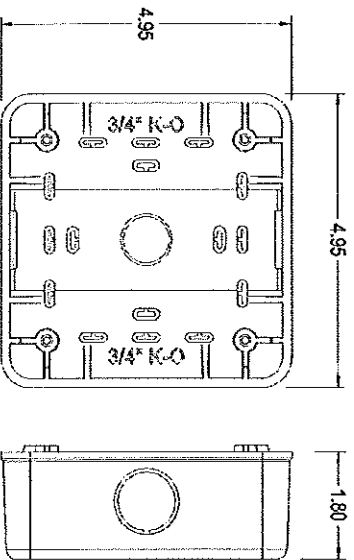
Used with 8" Ceiling Speakers

(EE) SPEXT EXTENSION RING (ORDER CODE: RED 500-636116, WHITE 500-636117)



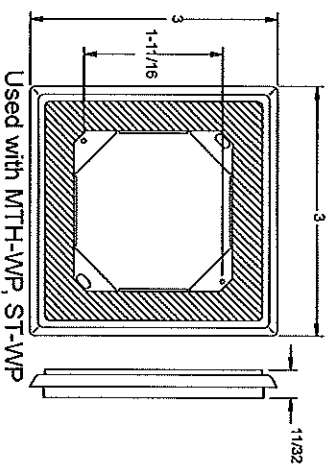
Used with Series SE-MC-C (ceiling mount strobe)

(FF) ZBB (ORDER CODES: RED 500-636193, WHITE 500-636194)



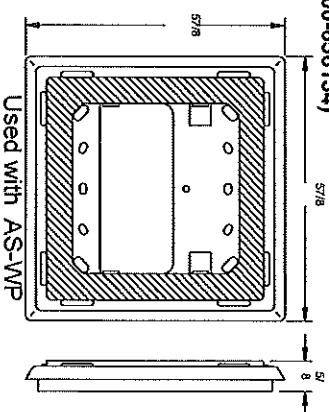
Used with Series Z

(GG) WFPS PLATE (ORDER CODES: RED 500-636135, WHITE 500-636136)



Used with MTH-WP, ST-WP

(HH) WFPAS PLATE (Order Codes: Red 500-363133, White 500-656134)



Used with AS-WP

BACKBOX MOUNTING HEIGHTS for SIEMENS WALL MOUNTED HORIZONTAL STROBE APPLIANCES NFPA-72 (2007)

7.5.4.1* Wall-mounted appliances shall be mounted such that the entire lens is not less than 2030 mm (80 in.) and not greater than 2440 mm (96 inc.) above the finished floor or at the mounting height specified using the performance-based alternative 7.5.4.5

7.5.4.2 Where low ceiling heights do not permit mounting at a minimum of 2030 mm (80 in.), visible appliances shall be mounted within 150 mm (6 in.) of the ceiling. The room size covered by a strobe of a given value shall be reduced by twice the difference between the minimum mounting height of 2030 mm (80 inc.) and the actual, lower mounting height.

Backbox Mounting Options*	Series AS/AH Audible Strobe		Series ST-MC-RETRO Flush and Surface Retrofit Plate		Series NS Horn Strobe		Series Z and ST Strobe		Series MTH Multitone	
	80 IN	6 IN	80 IN	6 IN	80 IN	6 IN	80 IN	6 IN	80 IN	6 IN
(B) 1-Gang x 2" Deep - Flush (BO)	77 1/2"	8 1/2"			78 3/8"	7 5/8"	79 1/8"	6 7/8"		
(D) 4" x 4" x 1.5" Deep - Flush (BO)	77"	9"	83 15/16"		77 7/8"	8 1/8"	78 5/8"	7 3/8"	79 13/16"	6 1/16"
(E) 4" x 4" x 2.125" Deep - Flush (BO)	77"	9"	83 15/16"		77 7/8"	8 1/8"	78 5/8"	7 3/8"	79 13/16"	6 1/16"
(F) 2-Gang x 3.5" Deep - Flush (BO)	77 1/2"	8 1/2"			78 3/8"	7 5/8"	79 1/8"	6 7/8"	80 9/16"	5 7/16"
(G) 2-Gang x 1.75" Deep - Surface (BO)	77 1/2"	8 1/2"			78 3/8"	7 5/8"	79 1/8"	6 7/8"	80 9/16"	5 7/16"
(M) MT-SUR-BOX Surface & Weatherproof (SP)									79 3/8"	6 5/8"
(P) SBBS Surface (SP)									79 1/4"	6 3/4"
(O) 4" x 4" x 2.125" Box w/ 1.5" Extension Ring - Flush (BO)										
(U) 5" Square Backbox w/ Extension Ring, Flush (BO)	69 1/2"	8 1/2"	83 7/16"		77 3/8"	7 5/8"	78 1/8"	6 7/8"	79 7/16"	5 9/16"
(X) SHBBS (SP) Shallow Surface	76 1/2"	9 1/2"			77 3/8"	8 5/8"	78 1/8"	7 7/8"		
(Y) 4" x 4" x 1.5" Box w/ 1.5" Extension Ring Plate (BO)										
(Z) SBL2S Surface (SP)			78"						78 1/8"	7 7/8"
(FF) ZBB										

Backbox Mounting Options*	Series CH Chime Strobe		Series SET-V Speaker Strobe		Series SEFC Speaker Strobe		Series SET-C Speaker Strobe	
	80 IN	6 IN	80 IN	6 IN	80 IN	6 IN	80 IN	6 IN
(P) SBB Surface (SP)	77 3/4"	8 1/4"	79 3/16"	6 13/16"	77 3/4"	8 1/4"	77 3/4"	8 1/4"
(O) 4" x 4" x 2.125" Box w/ 1.5" Extension Ring - Flush (BO)	77 1/2"	7 1/2"	80	6"	78 1/2"	7 1/2"	78 1/2"	7 1/2"
(U) 5" Square Backbox w/ Extension Ring - Flush (BO)	78"	7"	79 1/2"	5 1/2"	78"	7"	78"	7"
(X) SHBB (SP) Shallow Surface								
(Y) 4" x 4" x 1.5" Box w/ 1.5" Extension Ring Plate - Flush (BO)	78 1/2"	7 1/2"	80"	6"				

* Measured from Bottom of Backbox

NOTES: (BO) = By Others (SP) = Siemens Product

WARNING: PLEASE READ THESE SPECIFICATIONS AND INSTALLATION INSTRUCTIONS CAREFULLY BEFORE USING, SPECIFYING OR APPLYING THIS PRODUCT. FAILURE TO COMPLY WITH ANY OF THESE 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.

**Siemens Building Technologies
Fire Safety**

Fire Safety
8 Fernwood Road
Florham Park, NJ 07932
Tel: (973) 593-2600
FAX: (973) 593-6670
Website: www.sbt.siemens.com/ff

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Fire Safety
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Brampton, Ontario
Canada L6T 5E4
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June 2007
New Issue



EN ESPAÑOL

CUSTOMER LOG-IN

SEARCH

System Accessories

ACCESSORIES

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 - AES-MultiNet Receiver
 - Portable Alarm Receiver
 Application Transceivers
 - File
 - Security
 - Home Arrest
 - Vehicle Tracking
 - Remote Control
 Full Data Module
 System Accessories
 Certifications/Listings

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ANTENNAS

Casetop Flex "Rubber Duck" Antenna, 2.5db - 460-470 MHz, 5W, 10" high, black vinyl clad flexible antenna, mounts on subscriber case, TNC connector, cable included, Indoor use, order part no. 72114

Standard Antenna, 3db - 460-470 MHz, 50W, 18", stainless steel mast, universal mount, includes ground radials, in/outdoor use, order part no. 7210-3-UM

Stealth Antenna, 3db, 460-470MHz, 50W, 18", vinyl clad, easy hang mount, TNC connector on 10' cable included, indoor use, order part no. 7211

Hi Gain Antenna, 5db, 460-470MHz, 50W, 36", stainless steel mast, universal mount, includes ground radials, "N" connector, in/outdoor use, order part no. 7210-5-UM

Rugged Hi Gain Antenna, 6db, 460-470 MHz, 150W, 60" high, fiberglass mast, pipe mount, ground radials included, in/outdoor use, order part no. 7210-6-UC

Higher Gain Antenna, 7db, 460-470 MHz, 200W, 72" high, fiberglass mast, pipe mount, includes ground radials, in/outdoor use, order part number 7210-7-US

Central Station Antenna, 9db, 460-470 MHz, 200W, 96" high, fiberglass mast, pipe mount, includes ground radials, in/outdoor use, order part number 7210-9-UC

Low Loss Antenna Cable / RG58 low loss type, connectors are BNC male to N male, use

with any AES subscriber and antenna with "N" type connectors.

25 foot Cable, part no. 7220-25-N
10 foot Cable, part no. 7220-10-N

Bandpass Cavity Filter - Enhances radio performance by filtering out unwanted RF energy. Custom tuned to specified frequency. Connectors are N female to N female. Custom ordered, call for details.

Lightning Protector - N female to N female Coax Inline. A MUST for systems with outdoor antennas, order part number 7230

OTHER ACCESSORIES

Portable Programmer / Terminal for setting parameters of subscriber units. Also sends and receives text messages, monitors data flow and can be used for initial set up of receivers. Order part number 7041.

Cable / adapter for 7041 programmer for use on 7050-DLR, 7750/UJ and receiver. Order part number 7241-E.

PC Programmer / Adapter provides programming of subscriber from a PC using a terminal program (use in place of the portable programmer). Order part no. 7043.

Output Cable & Connector for trouble output on 7050-E, 7450, 7750-F series subscriber units. Sold in packages of 10, order part no. 7240.

Weather Resistant Cases for AES Subscriber units are available, contact us for details.

Expansion Modules for 7050-DLR Subscriber Unit only

7065 Relay Output Module - provides 8 Form C relay outputs for the 7050-DLR. Relay are controlled from the central receiver through Net7K, or through custom designed applications. Up to 64 relays can be controlled by on 7050-DLR. Order part no. 7065.

7070 Zone Expansion Module - provides 16 additional zones for the 7050-DLR, programmable for EOL /NC/NO operation. Up to 4 modules can be added, providing an additional 64 zones to the original 8 for a total of 72 zones. Order Part No. 7070.

7072 Multi-Function Module - provides power supply for the 7050-DLR subscriber unit, plus inputs for tamper, AC and battery status. Also provides an output to report an antenna cut. Order Part No. 7070.

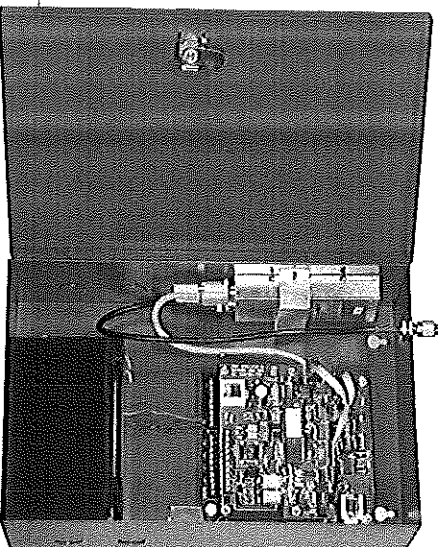
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7750F



RF Subscriber Unit UL Fire and AA Burglary Listed NFPA-72 Compliant

UL Listed
UL Listed Central station
Remote Station
864.827.1610,365,681
CSFM



Advanced Wireless Alarm Monitoring

The 7750-F smart subscriber unit links an alarm panel to an alarm monitoring central station. This 2-way transceiver and repeater in one is housed in a full size locking steel cabinet for superior performance. The 7750-F supports a wide range of inputs such as NO/NC/EOL and direct voltage. It automatically senses phone line cuts and antenna cuts, and monitors battery and AC power status. Advanced status reporting, self-diagnostics and a built-in power supply make the 7750-F the first choice for all wireless alarm communication needs.

Full Data for Fire and Burglary

Use with the optional Firetap for full fire data or the IntellITap for full burglary data.

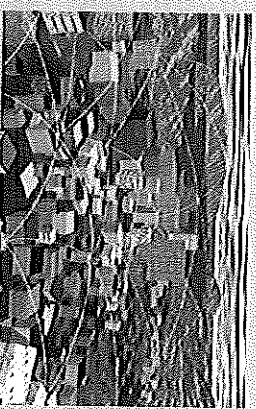
Available Configurations

7750 F 4x4 – 4 reversing polarity inputs plus 4 programmable EOL inputs
7750 F 8 – 8 programmable EOL inputs

Available Options

FireTap 7768
IntellITap 7067
NEMA 4 Enclosure
High Gain Antenna
Back Up Battery
Available in Burglary Beige or Fire Red

- UL Listed (Fire & AA Burglary)
- NFPA-72 Compliant
- 864, 827, 1610,365, 681
- Options for Full Data for Fire and Burglary
- Available in 4 & 8 Zone Configurations
- Built-in Power Supply and Battery Charger



Wireless mesh networking is an innovative technology adopted by many industries with applications that need to communicate data over a large geographic area with a high level of reliability at a low total cost of ownership.

The advanced design and 2-way communications capability provides easy installation, expansion, and management when compared to alternative communication methods, both wired and wireless.

7750F RF Subscriber Unit

Technical Specifications

Radio

Standard CSAA frequency ranges:
450-470 MHz and 130-174 MHz,
VHF and UHF. Others available

Standard Output Power

2 watts (requires FCC license)

Power Input

16.5 VAC, 40VA UL listed
Class II transformer required

Voltage

12 VDC nominal

Current

175mA standby; 800mA transmit

Alarm Signal Inputs

- 4 individually programmable
Zones: NO/NC/EOL, trouble
restore
- RS-232

Operating Temperature Range

0° to 50°C, 32° to 122°F

Storage Temperature Range

-10° to 60°C, 14° to 140°F

Relative Humidity Range

0-85% RHC non-condensing

Back up Battery

12V, 7 AH option

Low Battery Reporting

22.5-minute test cycle

AC Status

Reports to central station after
approximately 4 minutes without
AC power, reports power restored
after approximately 4 minutes of
restored power

Antenna Cut (local reporting)

12 VDC signal output at output4,
200 mA max load

Open Collector Output

200mA maximum load

Size

13.25"H x 8.5"W x 4.3"D
34cm x 21.5cm x 11cm

Weight

6.4 lbs, 2.9 kilograms
(excluding battery)

Colors

Available in standard
Burglary Beige or Fire Red
Please specify when ordering

Available Options

- 7750F-8 RF subscriber unit
with 8 EOL inputs
 - 7750F-4x4 RF subscriber unit
with 4 EOL inputs and 4 reverse
polarity inputs
 - 7768 - FireTap
 - 7067 - IntelliTap
- Please specify when ordering

AES-IntelliNet™ is the industry leader in delivering high quality wireless mesh networks to the fire and security industry in commercial, corporate, government, and educational applications with its broad line of products and advanced network management tools. Users of AES-IntelliNet networks have gained significant revenue, communications, and cost advantages while meeting the high standards of reliability required for the fire and security industry. AES-IntelliNet alarm monitoring systems are deployed at hundreds of thousands of locations in over 130 countries.



For more information

Call 800-AES-NETS (800-237-6387)

AES Corporation | 285 Newbury Street | Peabody, MA 01960 USA
Tel. +1 978-535-7310 | Fax +1 978-535-7313 | Email Info@aes-intellinet.com
Web www.aes-intellinet.com

Available configurations

- 4 EOL Inputs
- 8 EOL inputs
- 4 EOL inputs w/4 reverse
polarity inputs
- NEMA 4 Enclosure

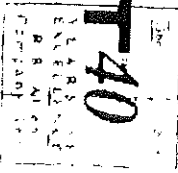


R.B. Allen
Co., Inc.

CA-2X4SR

Dual-Band VHF/UHF antenna

COMET 40



Specifications

- Dualband : VHF and UHF
140-160MHz / 435-465MHz
- VSWR: Less than 2:1
- Gain: 3.8/6.2dBi
- Length: 40 inches
- Max Power: 150W FM
- Connector: PL-259 (Male UHF)
- Black anodized metal whip with three phasing coils



FEATURES

- Omni-directional dualband antenna is VHF and/or UHF capable, while simultaneous transmit and receive on both VHF and UHF is also possible
- High gain for extended coverage area and receive range
- No tuning or adjustments required

R. B. ALLEN CO., INC.
131 LAFAYETTE ROAD
NORTH HAMPTON, NH 03862
SERVICE AND TESTING
(603) 928-8140

DIGITIZE INTELLITIZE RF

NFPA Fire & UL Burglary Listed

RF Communicator replaces expensive telephone lines for alarm transmission.

UL-AA/NFPA-72 Listed
RF Subscriber Unit

Links to All Types of Burglary and Fire Control Panels and Sensors using:

Repeating RF Network

- Choice of input modules:
F-4x4 module with 4 reversing polarity inputs, plus 4 programmable EOL inputs.
- F-8 module** with 8 programmable EOL inputs.

Smart Multiple Routing is Built In

Digitize Intelligent Rf provides multiple repeating routes over the web-like network structure.

Easier to Install!

The new Intelligent Rf is easier than ever to program with a handheld terminal or from the central receiver.

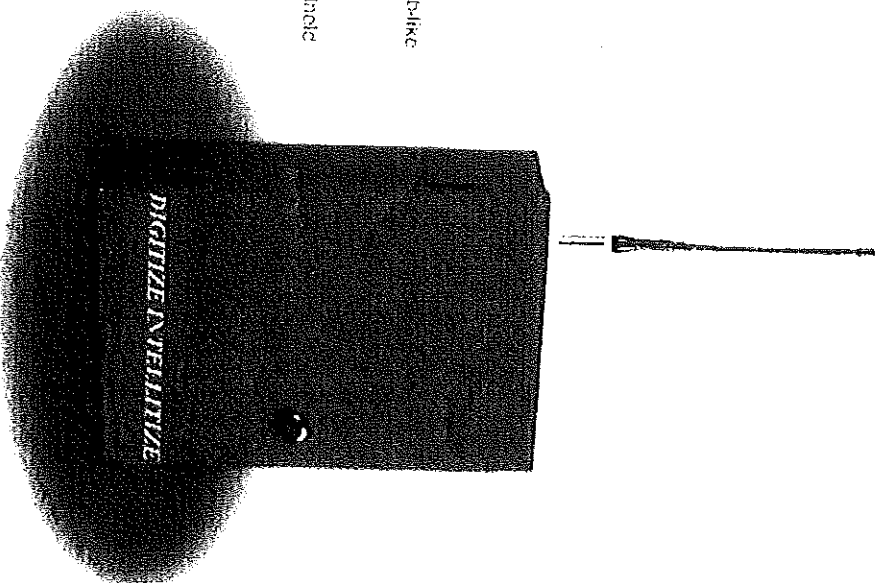
Built-In Power Supply and Battery Charger

UL-AA and NFPA-72 Listed

Current listings for the *Digitize Intelligence* RF Radio Network include UL Standards & Categories 864, 1610, 365 and 689. It is listed for use in Alarm systems installed according to UL Standards 827, 661, 2050 and NFPA 72 Local Remote Station, Central Station and Proprietary Protective Signaling Systems.

FREE Repeater in Every Box!

The *Digitize Intelligence* RF serves us both a transmitter and a Repeater adding to the strength and range of the system.



- NFPA 72 Chapter 4 Compliant
- UL Listed
Central Station,
Remote Station,
UL 864, 827,
1610, 365, 681



This illustration shows the adaptive multi routing Digitize Intelligence RF network. Each subscriber is also a Repeater. Alarm data is retransmitted to the nearest RF repeater.

DIGITIZE, INC.

158 Edison Road, Lake Hopatcong, NJ 07849 USA; 973-663-1011 FAX: 973-663-4333
© 1992 DIGITIZE, INC.

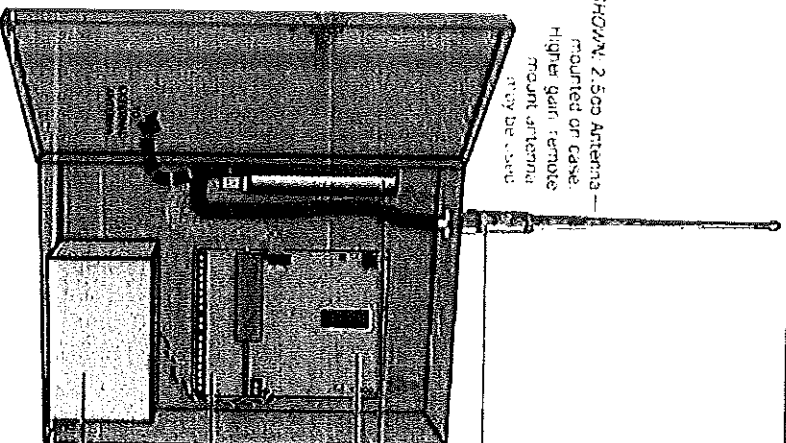
DIGITIZE INTELLITIZE RF

UL-RA/NFP-A-72 Listed
RF Subscriber Unit

Options

- **Digitize Intelligence RF** - Optional module monitors telephone line and acts as a "tailgater" central station receiver should the phone line fail or be cut. Provides secondary path for dialer data, detects line cuts and more.
- **FDX Full Data Transfer** links directly to alarm panel - no dialers, no phone charges!

SHOWN: 2.5watt Antenna -
mounted on case -
Higher gain remote
mount antenna
may be used



Typical Configuration

- Antenna:** Omnidirectional, choose from 2.5watt to 9db (2.5db shown)
- Transceiver:** 2.5 watts typical. UHF and VHF available.
- Smart Controller for Transceiver and Reporter**
Reports alarms, troubles, restores, low battery, AC status and more. Dynamically adapts to maximize performance.
- Opto-isolated Input Board Options**
 - 7750-F-4x4 4 - EOL Fire/Burglary Inputs - 4 Reversing Polarity Inputs
 - OR
 - 7750-F-8 8 EOL Fire/Burglary Inputs
- Built-In Power Supply/Battery Charger**

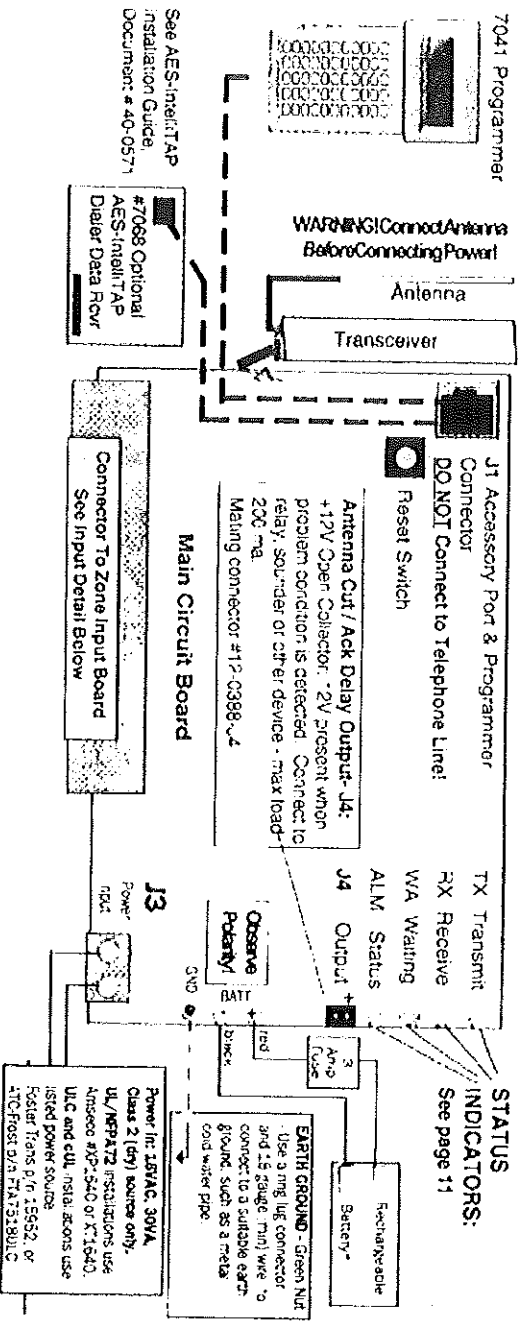
DIGITIZE Subscriber Unit Specifications

- Radio:** Standard Frequency Ranges: 450-470 MHz. (others available)
- Standard Output Power:** 2 Watts (others available) All radio systems require FCC licensing
- Power Input:** 16.5VAC, 40VA UL listed Class II transformer required
- Voltage:** 12VDC nominal
- Current:** 175ma standby, 300ma transmit (2W transmitter)
- Zone Input Options:** Shipped with your choice of the following:
 - 4x4 - 4 Reversing Polarity Inputs, plus 4 EOL inputs, or
 - 8 - 8 Programmable EOL Fire/Burg inputs
- Digital Dialer Input:** Digital Dialer Receiver (option)
- Operating Temperature Range:** 0° to 50° C
- Storage Temperature Range:** -10° to 60° C
- Relative Humidity Range:** 0 to 25% RH, Non Condensing
- Back-Up Battery:** 12V / AH minimum
- Low Battery Reporting:** 22.5 Minute Test Cycle (approx.)
- AC Status Reporting:** Reports to central station after approximately 4 minutes without AC power reports AC power restored after approximately 4 minutes of restored power.
- Antenna Cut (local reporting):** 12VDC signal output at output J4 200 mA max load
- Size:** 13.25" h x 8.5" w x 4.3" d / 34 cm x 21.5 cm x 11 cm
- Weight:** 6.4 pounds / 2.9 kilograms (excluding battery)
- Colors:** Available in standard Burglary Beige or Fire Red. Please specify when ordering
- Ordering Options:** 7750-F-4x4 RF Subscriber Unit with 4 reversing polarity inputs and 4 EOL inputs
7750-F-8 - RF Subscriber Unit with 8 EOL inputs. Please specify when ordering.

DIGITIZE, INC.

158 Edison Road, Lake Hopatcong, NJ 07849 USA: 973-663-1011 FAX: 973-663-4333

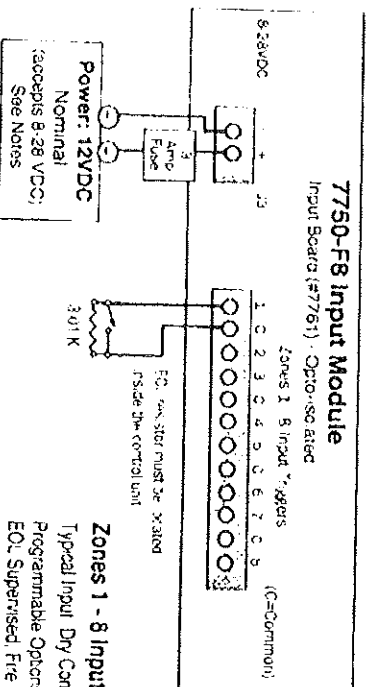
Wiring and Parts Location Diagram AES 7750-F Series Radio Subscriber Unit



R. B. ALLEN CO., INC.
131 LAFAVETTE ROAD
NORTH HAMPTON, NH 03862
SERVICE AND TESTING
(603) 564 8140

7750-F8 Zone Inputs

Power must be provided to 7750-F8 input board. Requires 8-25VDC to terminals (J3) at lower left of input board. Internal battery may be used, but earth ground will be tied to common terminals. This may affect connection to other panels. If earth ground cannot be used, supply the input board with power from the alarm panel.



Zones 1 - 8 Input Triggers

Typical Input Dry Contact

Programmable Options:

EOU Supervised; Fire Bypass; Restraints

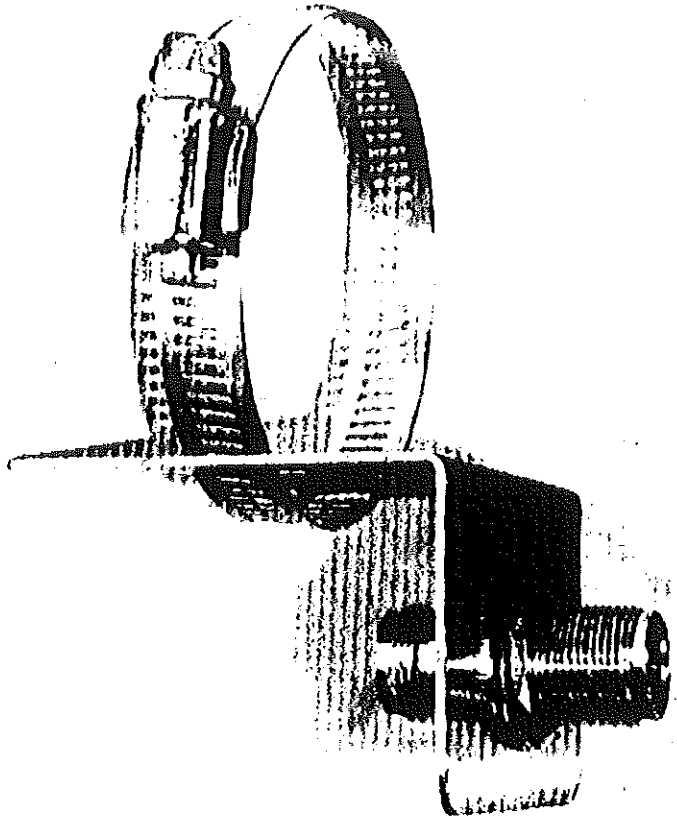
Shown Wired for Fire/EOU:

3.01K resistor = Normal; Close = Alarm; Open = Trouble; Max Line Impedance = 300 ohms plus EOU resistor.

To monitor power on Input Board when powered by an alarm panel, for all Commercial Fire UL Burglar and Canadian UL burglar alarm installers use one of the zones as a power fail report. Install a 3.01K resistor on the designated zone terminals. Program the zone for Fire. When power to the input board is lost, zone will report a "Trouble". Flag this as a power failure at the central station - automation software



R.B. Allen Co., Inc.



MB100

R. B. ALLEN CO., INC.
131 LAFAYETTE ROAD
NORTH HAMPTON, NH 03862
SERVICE AND TESTING
(603) 964-8140

NP SERIES - NP12-12

Reliability is your Security

Yuasa NP, NPC and NPH Batteries. Utilising the latest advance design Oxygen Recombination Technology, Yuasa have applied their 80 years experience in the lead acid battery field to produce the optimum design of Sealed Lead Acid batteries.

FEATURES

- Superb recovery from deep discharge.
- Electrolyte suspension system.
- Gas Recombination.
- Multipurpose: Float or Cyclic use.
- Usable in any orientation (except continuous inverted).
- Superior energy density.
- Lead calcium grids for extended life.
- Manufactured World wide.
- Application specific designs.

Technical Features

Sealed Construction

Yuasa's unique construction and sealing technique ensures no electrolyte leakage from case or terminals

Electrolyte Suspension System

All NP batteries utilize Yuasa's unique electrolyte suspension system incorporating a microfine glass mat to retain the maximum amount of electrolyte in the cells. The electrolyte is retained in the separator material and there is no free electrolyte to escape from the cells. No gels or other contaminants are added.

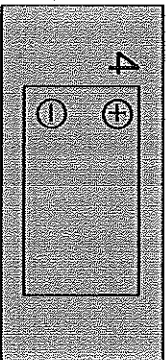
Control of Gas Generation

The design of Yuasa's NP batteries incorporates the very latest oxygen recombination technology to effectively control the generation of gas during normal use.

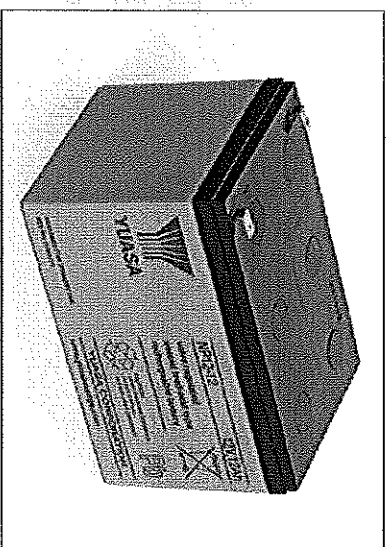
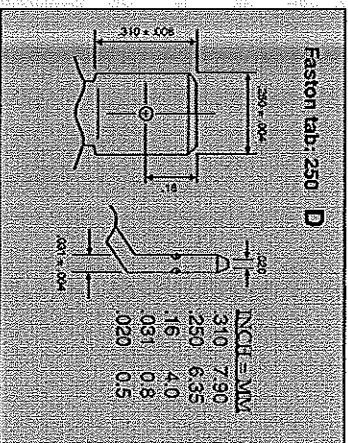
Low Maintenance Operation

Due to the perfectly sealed construction and the recombination of gasses within the cell, the battery is almost maintenance free.

Layout



Terminals



Terminals

NP batteries are manufactured using a range of terminals which vary in size and type. Please refer to details as shown.

Operation in any Orientation

The combination of sealed construction and Yuasa's unique electrolyte suspension system allows operation in any orientation, with no loss of performance or fear of electrolyte leakage. (Excluding continuous use inverted)

Valve Regulated Design

The batteries are equipped with a simple, safe low pressure venting system which releases excess gas and automatically reseals should there be a build up of gas within the battery due to severe overcharge. Note. On no account should the battery be charged in a sealed container.

General Specifications

Nominal Capacity (Ah)	NP12-12
20hr to 1.75Vpc 30°C	12
10hr to 1.75Vpc 20°C	11.1
5hr to 1.75Vpc 20°C	10
1hr to 1.60Vpc 20°C	7.2
Voltage	12
Energy Density (Wh/L 20°C)	104
Specific Energy (Wh/kg 20°C)	36
Int. Resistance (m Ohms)	16
Maximum discharge (A)	75
Short Circuit Current (A)	360
Dimensions (mm)	
Length	151
Width	98
Height Overall	97.5
Weight (kg)	4.05
Terminal	D
Layout	4
Terminal Torque Nm	-

NP SERIES - NP12-12

Data Sheet

Lead Calcium Grids

The heavy duty lead calcium alloy grids provide an extra margin of performance and life in both cyclic and float applications and give unparalleled recovery from deep discharge.

Long Cycle Service Life

Depending upon the average depth of discharge, over a thousand discharge/charge cycles can be expected.

Float Service Life

The expected service life is five years in float standby applications.

Separators

The use of the special separator material provides a very efficient insulation between plates preventing inter-plate short circuits and prohibiting the shedding of active materials.

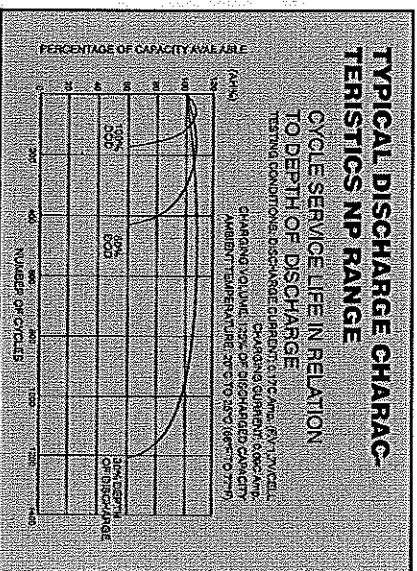
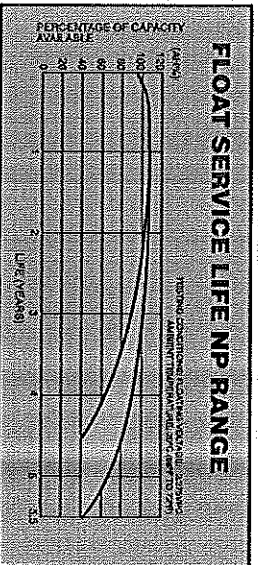
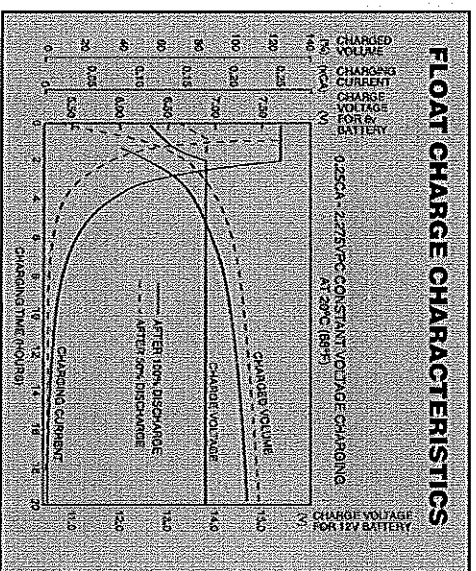
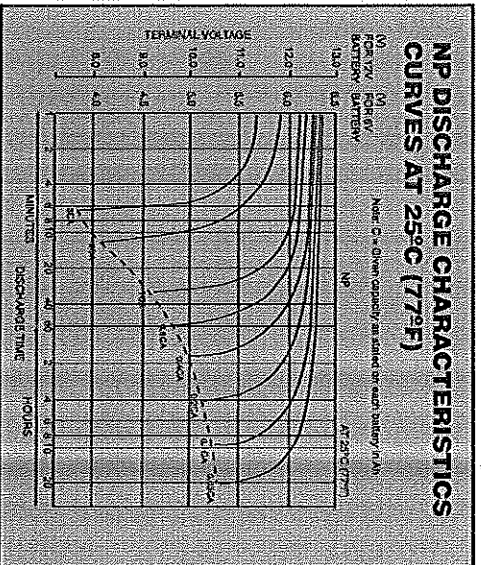
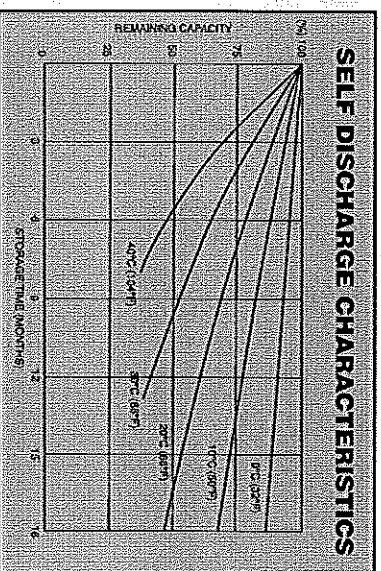
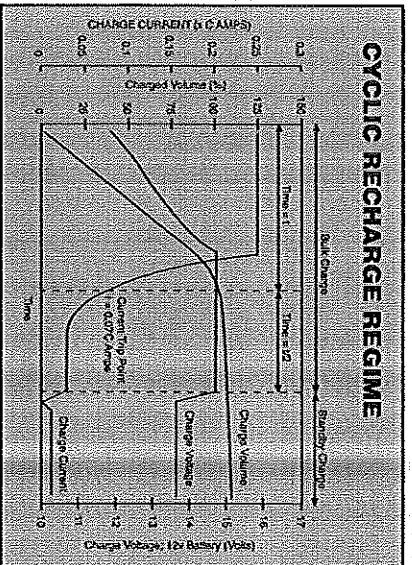
Long shelf Life

The extremely low self discharge rate allows the battery to be stored for extended periods up to one year at normal ambient temperatures with no permanent loss of capacity.

Operating Temperature Range

The batteries can be used over a broad temperature range permitting considerable flexibility in system design and location.

- Charge -15°C to 50°C
- Discharge -20°C to 60°C
- Storage -20°C to 50°C (fully charged battery)



NP SERIES - NP7-12

Reliability is your Security

Yuasa NP, NPC and NPH Batteries. Utilising the latest advance design Oxygen Recombination Technology, Yuasa have applied their 80 years experience in the lead acid battery field to produce the optimum design of Sealed Lead Acid batteries.

FEATURES

- Superb recovery from deep discharge.
- Electrolyte suspension system.
- Gas Recombination.
- Multipurpose: Float or Cyclic use.
- Usable in any orientation (except continuous inverted).
- Superior energy density.
- Lead calcium grids for extended life.
- Manufactured World wide.
- Application specific designs.

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Yuasa's unique construction and sealing technique ensures no electrolyte leakage from case or terminals

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All NP batteries utilize Yuasa's unique electrolyte suspension system incorporating a microfine glass mat to retain the maximum amount of electrolyte in the cells. The electrolyte is retained in the separator material and there is no free electrolyte to escape from the cells. No gels or other contaminants are added.

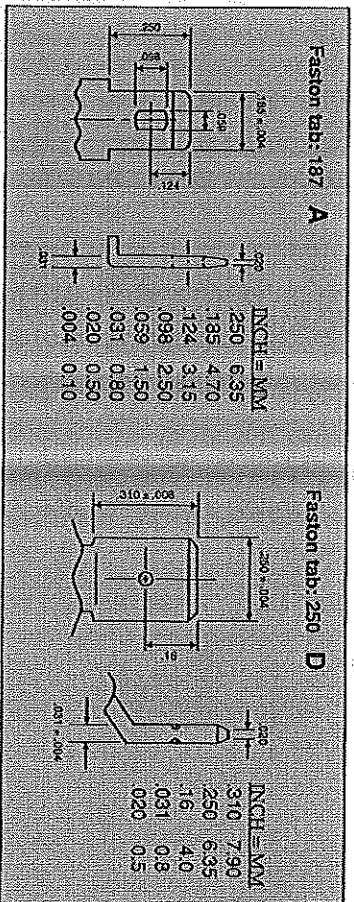
Control of Gas Generation

The design of Yuasa's NP batteries incorporates the very latest oxygen recombination technology to effectively control the generation of gas during normal use.

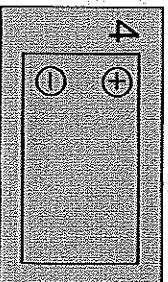
Low Maintenance Operation

Due to the perfectly sealed construction and the recombination of gasses within the cell, the battery is almost maintenance free.

Terminals



Layout



Terminals

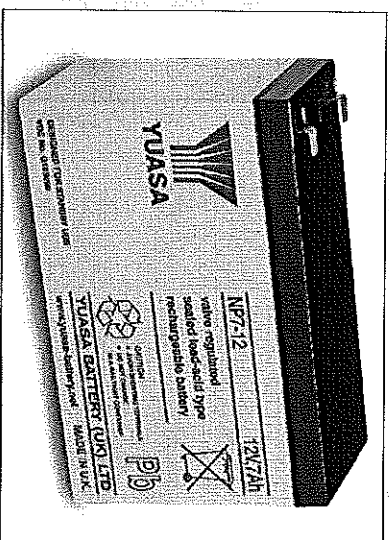
NP batteries are manufactured using a range of terminals which vary in size and type. Please refer to details as shown.

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The batteries are equipped with a simple, safe low pressure venting system which releases excess gas and automatically reseals should there be a build up of gas within the battery due to severe overcharge. Note: On no account should the battery be charged in a sealed container.



General Specifications

Nominal Capacity (Ah)	NP7-12
20hr to 1.75Vpc 30°C	7
10hr to 1.75Vpc 20°C	6.4
5hr to 1.70Vpc 20°C	5.9
1hr to 1.60Vpc 20°C	4.2
Voltage	12
Energy Density (Wh/L)	91
Specific Energy (Wh/kg)	32
Int. Resistance (m Ohms)	25
Maximum discharge (A)	40/75
Short Circuit current (A)	210
Dimensions (mm)	
Length	151
Width	65
Height overall	97.5
Weight (kg)	2.65
Terminal	A/D
Layout	4
Terminal Torque Nm	-

NP SERIES - NP7-12

Data Sheet

Lead Calcium Grids

The heavy duty lead calcium alloy grids provide an extra margin of performance and life in both cyclic and float applications and give unparalleled recovery from deep discharge.

Long Cycle Service Life

Depending upon the average depth of discharge, over a thousand discharge/charge cycles can be expected.

Float Service Life

The expected service life is five years in float standby applications.

Separators

The use of the special separator material provides a very efficient insulation between plates preventing inter-plate short circuits and prohibiting the shedding of active materials.

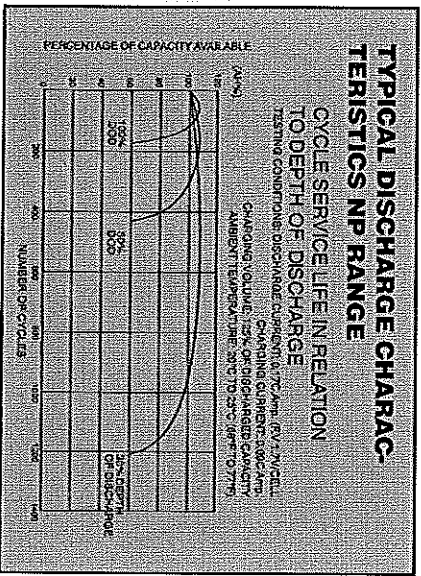
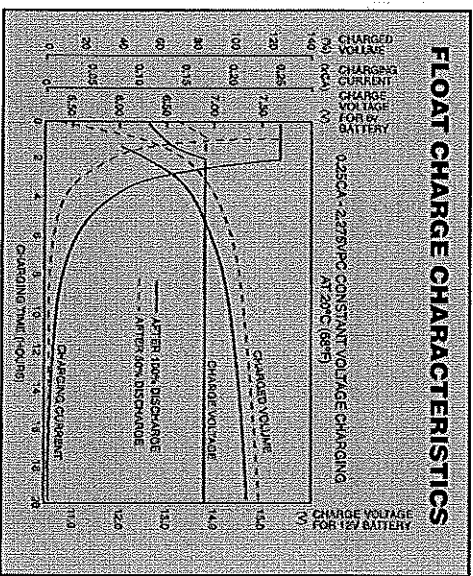
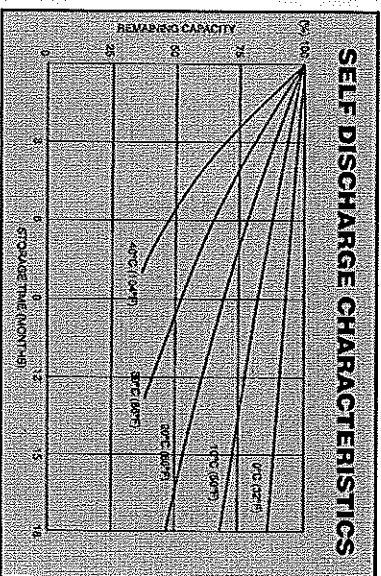
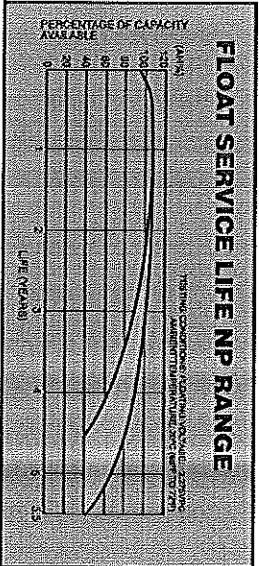
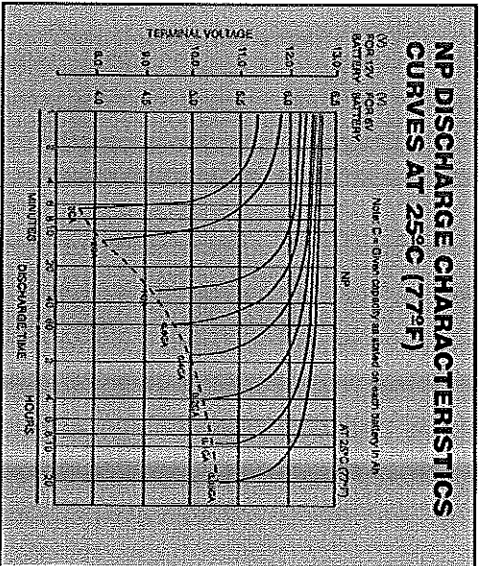
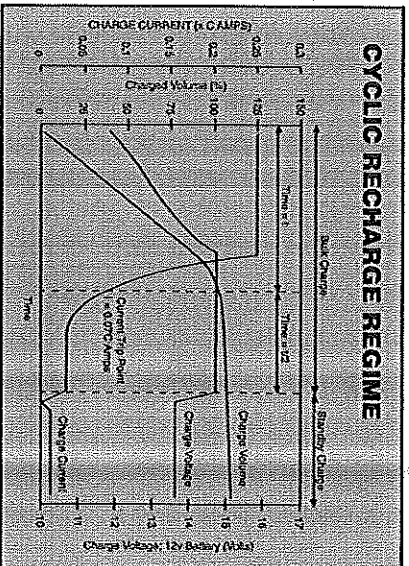
Long shelf Life

The extremely low self discharge rate allows the battery to be stored for extended periods up to one year at normal ambient temperatures with no permanent loss of capacity.

Operating Temperature Range

The batteries can be used over a broad temperature range permitting considerable flexibility in system design and location.

- Charge -15°C to 50°C
- Discharge -20°C to 60°C
- Storage -20°C to 50°C (fully charged battery)



NP SERIES - NP7-12

Data Sheet

INTELLIGENT BATTERY CHARGERS

Manufactured to BS3456, IEC335, UL 1236, EN60335, CE mark to EN5008-1

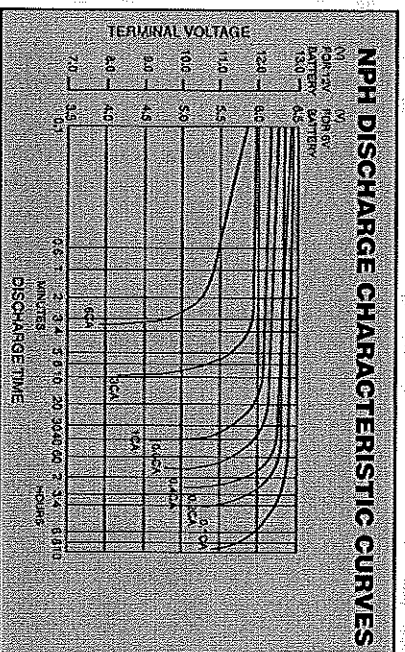
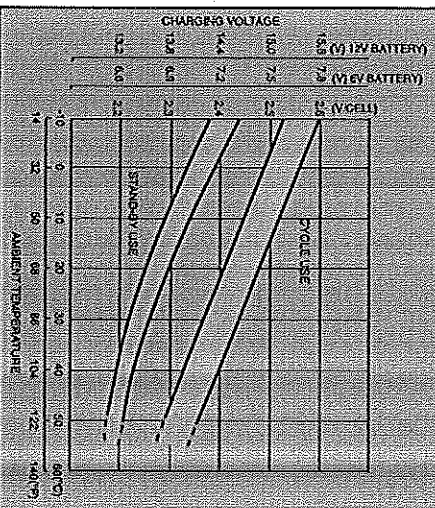
Features

- Micro processor controlled
- Short circuit protection
- Reverse polarity protection
- High temperature protection
- Soft start current control
- Fast constant current bulk charge
- 3 stage charging C1-CV-float
- Constant voltage float/standby
- Proportional tiring
- Flexibility, to match battery specification.

Standard Range

YCP03A12	300mA 12V
YCP03A24	300mA 24V
YCP03A6	300mA 6V
YCP06A12	600mA 12V
YCP06A6	600mA 6V
YCP1.5A12	1.5A 12V
YCP1.5A24	1.5A 24V
YCP1.5A6	1.5A 6V
YCP1A12	1A 12V
YCP1A6	1A 6V
YCP2A12	2A 12V
YCP2A24	2A 24V
YCP2A6	2A 6V
YCP3A12	3A 12V
YCP4A12	4A 12V
YCP6A12	6A 12V
YCP8A12	8A 12V
YCP10A12	10A 12V
YCP8A24	8A 24V

RELATIONSHIP BETWEEN CHARGING VOLTAGE AND TEMPERATURE



Standard NP

Available in a wide range of sizes to suit general applications.

NPH/NPW

High performance batteries specially designed for applications requiring high rate discharge, supplying up to 50% (NPH), (NPW) more power (Watts) for short durations when compared to conventional NP models.

NPC

Specifically designed to suit the arduous requirements of cyclic applications allowing increased cycle life (at least double that of conventional types). (NPC Shortform refers)

NPL

Long Life Model also to BS6290pt4 (FFR Options) Dedicated literature available on request. (NPL Shortform refers).

Applications

Yuasa NP batteries, having excellent deep discharge recovery characteristics coupled with long life on float standby, are ideal for numerous applications in both cyclic and standby modes. For advice on the use of NP batteries in your particular application please contact our Sales Office.

Charging For Float Standby Applications

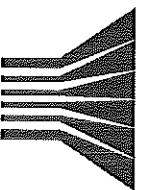
Charged at 2.275 volts per cell continuous. The battery will seek its own current level and float fully charged. However, users should be aware that when charging from fully discharged, the battery can draw an initial charge current of approximately 2cA. Care should therefore be taken to ensure that this initial charge current (if uncontrolled) is within the output capability of the equipment. Final charge current at 2.275 volts per cell is typically between 0.0005cA to 0.004cA.

Charging For Cyclic Applications

See cyclic recharge regime graph.

CAUTION

- Do not Short Circuit
- Do not charge in a sealed container
- Service life and operational characteristics will be affected by temperature
- AC Ripple reduces service life.



YUASA

Yuasa Battery Sales (UK) Ltd

Unit 22 Passau Industrial Estate
Ebbw Vale, Gwent, NP23 5SD
Tel: 08708 500312 Fax: 08708 500317
E-mail: enquiries@yuasa-sales.co.uk

Registered number 1548820

Cat. No. NP7-12 February 07

E&O.E

Distributed by

VOICECOM
Battery Calculation Worksheet

A	B	C	D	E	F
Device	Quantity	Standby Current	Total Current (B x C)	Alarm Current	Total Alarm Current (B x E)
1 VOICECOM standby w/1-101-SPK	1	0.080	0.080	3.500	3.500
2 Additional 101-SPK	2	0.010	0.020	0.000	
3 Remote mike	1	0.015	0.015	0.000	
4 PS-AUX	1	0.015	0.015	0.000	3.500
5					
6					
Notification Appliances [supplemental strobe use]					
7					
8 NO STROBE LOAD CONNECTED TO THIS VOICECOM					
9					
10 ALARM LOAD BASED ON MAX POWER SUPPLY LOAD					
11 WHICH IS MORE THAN ACTUAL CONNECTED LOAD					
12					
13					
14					
15					
16					
17					
18					
19					
TOTAL STANDBY CALCULATIONS					
20 Total standby current, add column D, lines 1 through 19			0.130		
21 Multiply by 24 or 60 for standby hours needed.					24.000
22 Total standby AH (Amp Hours)					3.120
ALARM CURRENT CALCULATIONS					
23 Total alarm current. Add column F, lines 1 through 19					7.000
24 Multiply by 0.083 for 5 min or 0.25 for 15 minutes of alarm					0.250
25 Total alarm current.					1.750
BATTERY BACKUP REQUIREMENTS					
26 Sub total, add line 22+25					5.460
27 Multiply by 1.25 for AH (Amp Hours) needed					1.250
28 Total AH (Amp Hours)					6.83
29 BATTERY SIZE PROVIDED:	7AMP HOUR				

PAD-3 Battery Calculations

Project: Grace Church [SO 14032]

Date: 6/3/09

Job #: 13983

BATTERY CALCULATIONS FOR SDP-1

MODEL	DESCRIPTION	CURRENT PER CIRCUIT		CURRENT (Amps)	
				STANDBY	ALARM
PAD-3	A notification and auxiliary power expander that provides up to 6 amps. It requires its own 120 VAC power connection. The standby current listed for the PAD-3 includes EOL supervisory current for all four NAC outputs. Batteries are charged/supervised by the PAD-3 and are housed in its enclosure.	PAD-3	STANDBY	0.035	
			ALARM		0.140
		AUX power	STANDBY		
			ALARM		
		NAC Output #1	STANDBY		
			ALARM		1.446
		NAC Output #2	STANDBY		
			ALARM		0.610
		NAC Output #3	STANDBY		
			ALARM		1.139
		NAC Output #4	STANDBY		
			ALARM		0.964
TOTAL CURRENT OF DEVICES IN THIS PAD-->				0.035	4.299
NUMBER OF STANDBY (HR)-->		24	STANDBY AMPERE HOURS-->		0.840
ALARM PERIOD (HR)-->		0.25	ALARM AMPERE HOURS-->		1.075
REQUIRED SYSTEM AMPERE HOURS-->				1.915	
<i>1.25 battery aging allowance (TO INSURE DESIRED PERFORMANCE)--></i>				2.3	<-TOTAL AMP-HR
Battery Selection -- standard for one PAD on battery pack					
Description of selected battery		Voltage	Number required		
7 Ampere Hour		12V	2		

EACP Battery

FS-250 Control Panel Battery Calculations

MODEL NUMBER	CURRENT REQUIRED ma		QUANTITY USED	SUPPLY CURRENT		ALARM CURRENT
	SUPV	ALARM		CURRENT	CURRENT	
FS-250	190	190	1	190	190	
FS-MT	5	28				
FS-RD2	20	85	1	20	85	
FS-RU2	32	192				
FS-RE8	18	70				
FS-SAU2	5					
FS-DACT	38	54	1	38	54	
DSC		55				
PAD-3 (BOTH INPUTS)	12		1	12		
HLIM	1.8	1.8				
HFP-11	1.8	1.8	26	46.8	46.8	
HFP0-11	1.8	1.8				
HFP1-11	1.8	1.8	6	10.8	10.8	
HTRLR-D-S-M	1.8	1.8	17	30.6	30.6	
HMS-S	1.8	1.8				
HZM	1.8	1.8				
AD-HR	1.8	1.8	8	14.4	14.4	
DB-HR	1.8	1.8				
RL-HC	1.8	1.8				
RL-HW	1.8	1.8				
ILED-HC-HW	1	1				
ADBH-11		24				
U-MCS [15]		82				
U-MCS [30]		107				
U-MCS [75]		182				
U-MCS [110]		234				
U-MHU-MCS [15]		103				
U-MHU-MCS [30]		128				
U-MHU-MCS [75]		203				
U-MHU-MCS [110]		255				
U-MHU		21				
TOTALS				362.6	431.6	

STANDBY HRS

STANDBY AH

ALARM MINS

ALARM AH

REQUIRED BATTERY AH

ADD FOR AGING

BATTERY SIZE SELECTED

NAC LOADING ~ VOLTAGE DROP CALCULATIONS

Project Name	Grace Church		
Date	1/26/09		
Circuit Number	NAC 1-2		
Area Covered	Basement		
NAC Source Alarm Voltage	20.4	Wire Gauge	Resistance Per Mft Cable
Minimum Device Voltage	16	14	5.84
Distance to first appliance	88		
Total Circuit Current	0.610		

Wire Gauge for balance of circuit

14	5.84
----	------

Circuit is within limits	Device Current	Distance from previous device	Voltage at Device	Drop from source	Percent Drop
Appliance 1	0.064	11	20.09	0.31	1.5%
Appliance 2	0.064	10	20.05	0.35	1.7%
Appliance 3	0.064	10	20.02	0.38	1.8%
Appliance 4	0.064	10	20.00	0.40	2.0%
Appliance 5	0.064	30	19.94	0.46	2.3%
Appliance 6	0.064	27	19.89	0.51	2.5%
Appliance 7	0.064	27	19.86	0.54	2.7%
Appliance 8	0.064	21	19.84	0.56	2.8%
Appliance 9	0.098	26	19.82	0.58	2.8%
END	0.000	0	19.82	0.58	2.8%
END	0.000	0	19.82	0.58	2.8%
END	0.000	0	19.82	0.58	2.8%
END	0.000	0	19.82	0.58	2.8%
END	0.000	0	19.82	0.58	2.8%
END	0.000	0	19.82	0.58	2.8%
END	0.000	0	19.82	0.58	2.8%
END	0.000	0	19.82	0.58	2.8%
END	0.000	0	19.82	0.58	2.8%
END	0.000	0	19.82	0.58	2.8%
END	0.000	0	19.82	0.58	2.8%
Totals	0.610	250	19.82	0.58	2.8%

Appliance circuit voltage drop calculations start at "end of battery life" as NAC Source Alarm Voltage and use 20% below name plate rating for Minimum Appliance Voltage.

Grace Church

Fire Alarm Sequence of Operation

Any ALARM condition shall cause the following responses:

- FACP red ALARM pilot to flash
- FAA red ALARM pilot to flash
- AES radio box to transmit alarm signal to PFD
- All strobes to flash synchronously
- All speakers to sound alert tone followed by digitized voice message
- All HVAC fans to shut down

Any SUPERVISORY condition shall cause the following responses

- FACP yellow SUPERVISORY pilot to flash
- FAA yellow SUPERVISORY pilot to flash
- DACT to dial customers alarm center

Any TROUBLE condition shall cause the following responses

- FACP yellow TROUBLE pilot to flash
- FAA yellow TROUBLE pilot to flash
- DACT to dial customers alarm center

EDUCATION

University of Arizona – B.S., Electrical Engineering

WORK EXPERIENCE

Over 20 years of experience as Project Engineer for varied projects including new construction, renovations, and design. Project work involved all phases of electrical engineering as applied to power distribution, emergency systems, lighting design, electric heating, communications, fire and security systems. Project examples are Androscoggin Home Care & Hospice, Medomak Middle School, Breakwater Marketplace, Riverview Psychiatric Center, MDOT Office Building, Waterville Fire Station, Williamson Art and Technology Center and Kennebec Valley YMCA. Air Force duties included Officer in Charge (OIC) of Environmental and Contract Planning, OIC of Resource Management, OIC of Readiness Management, electrical engineering design, project electrical inspections and contract management.

HISTORY

Ames, Hewett & Gifford

1998 – present: Principal, Project Engineer

1993 – 1997: Electrical Engineer

Hewett Farn, Inc.

1992 – 1993: Self-employed

United States Air Force

1979 – 1992: Honorable Discharge under the Volunteer Incentive Separation Program with the rank of Captain.

AFFILIATIONS

Past Elected Member Board of Selectman – Readfield, Maine

Past Elected Chairman Board of Selectman – Readfield, Maine

PROFESSIONAL ORGANIZATIONS

National Society of Professional Engineers, Licensed Member

Maine Society of Professional Engineers, Past President

Illuminating Engineering Society, President, Down East Section

U.S. Green Building Council - LEED AP – Leadership in Energy and Environmental Design Accredited Professional

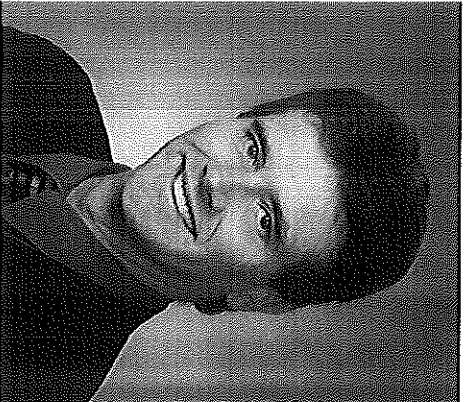
PROFESSIONAL REGISTRATIONS

Licensed Engineer – State of Maine No. 8374

Licensed Engineer – State of New Hampshire No. 10929

Licensed Engineer – State of Connecticut No. 23543

Licensed Engineer – State of Vermont No. 8209



Colin C. Hewett

Principal



State of Maine

DEPARTMENT OF PROFESSIONAL & FINANCIAL REGULATION
ELECTRICIANS' EXAMINING BOARD

License # MC60016470

Be it known that: **JOHNSON MANAGEMENT CORP DBA DONS
ELECTRIC**

has qualified as required by Title 32 MRSA Chapter 17 and is licensed
as an
ELECTRICAL COMPANY
affiliated with **BARRY C. JOHNSON**

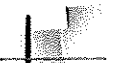
ISSUE DATE
Mar 01, 2008

Anne L. Heath

EXPIRATION DATE
Feb 28, 2010

Director, Office of Licensing & Registration
Authorizing signature

ME444076



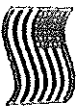
Dan's Electric

Barry Johnson
President

767 Main St., P.O. Box 445, Wernmouth, ME 04295-0445

Commercial & Industrial Electrical Contracting

Tel: 207-933-4500
Fax: 207-377-9800
Cell: 207-740-0911
Email: BJohnson@cdnselectric.net





State of Maine

DEPARTMENT OF PROFESSIONAL & FINANCIAL REGULATION
ELECTRICIANS' EXAMINING BOARD

License # **MS60003238**

Be it known that: **BARRY C. JOHNSON**

has qualified as required by Title 32 MRSA Chapter 17 and is licensed

as a

MASTER ELECTRICIAN

ISSUE DATE
Mar 01, 2008

EXPIRATION DATE
Feb 28, 2010

Anne L. Head

Director, Office of Licensing & Registration
Authorizing signature

ME444075

Barry Johnson
President

Star's Electric

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