TESTING SERVICE EFSI INSPECTIONS

SUBMITTAL DOCUMENTS

FOR

CARLTON COURT

PORTLAND, ME

CONTRACT WITH: WESTON ASSOCIATES MGMT INC.

STATE OF MAINE
MARC L. TARDIF
NO. 8105
LICENSED PROFESSIONAL ENGINEER

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CATALOG CUTS AND DESCRIPTIVE LITERATURE

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To: Portland Fire Department

From: Colby Malcolm

Re: Carlton Court Scope of Work

Carlton Court is an existing apartment building comprised of 12 dwelling units from 1 – 3 bedroom. The property has an existing fire alarm system but was deemed unfit for a City of Portland Fire Alarm Inspection Sticker at the time of the last performed inspection. The documentation enclosed in this package shows the proposal for a two phase upgrade to a new fire alarm system.

Phase 1: Phase 1 is to replace the existing conventional FACP with the proposed new addressable FACP. Conventional zone modules will be used to monitor existing devices for alarm, trouble, and supervisory while installation of new addressable devices is going on.

Phase II: Phase II is to install new addressable devices throughout the building for current code compliance. Once new devices are in place the old conventional ones will be disconnected and the new ones connected, finalizing the transition to a new complete fire alarm system in compliance with the City of Portland fire alarm requirements for existing apartment buildings.

If there are any questions about the scope of work or any enclosed documentation please feel free to call or email at any time. Thank you

Colby Malcolm

Eastern Fire Services

(207) 784-1507 ext. 242

malcolmcr@efp-efs.com

CARLTON COURT FIRE ALARM INPUT/OUTPUT MATRIX PHASE I

System Inputs	Activate Alarm LED on FACP	Activate Local Alarm Audible Signal	Activate Supervisory LED on FACP	Activate Local Supervisory Audible Signal	Activate Trouble LED on FACP	Activate Local Trouble Audible Signal	Indicate System Status & Zone Location on FACP Display	Activate Audible/Visual Evacuation Signals in Common Areas	Activate Audible Devices in Dwelling Units	Activate Alarm LED on Remote Annunciator	Activate Alarm Audible Signal	Activate Remote Alarm LED on Remote Annunciator	Activate Remote Alarm Audible Signal	Activate Remote Supervisory LED on Remote Annunciator	Activate Remote Supervisory Audible Signal	Activate Trouble LED on Remote Annunciator	Activate Remote Trouble Audible Signal	Indicate System Status and Location on Remote Display
Manual Pull Station	X	X					X	X										
Smoke Detector	X	X					X	X										
Heat Detector	X	X					X	X										
Low Battery					X	X	X											
Loss of AC Power					X	X	X											
Open Circiut					X	X	X											
Short Circuit					X	X	X											
Ground Fault					X	X	X											

CARLTON COURT FIRE ALARM INPUT/OUTPUT MATRIX PHASE II

System Inputs	Activate Alarm LED on FACP	Activate Local Alarm Audible Signal	Activate Supervisory LED on FACP	Activate Local Supervisory Audible Signal	Activate Trouble LED on FACP	Activate Local Trouble Audible Signal	Indicate System Status & Location on FACP Display	Activate Audible/Visual Evacuation Signals in Common Areas	Activate Audible Devices in Dwelling Units	Activate Alarm LED on Remote Annunciator	Activate Alarm Audible Signal	Activate Remote Alarm LED on Remote Annunciator	Activate Supervisory LED on Remote Annunciator	Activate Supervisory Audible Signal	Activate Trouble LED on Remote Annunciator	Activate Trouble Audible Signal	Indicate System Status and Location on Remote Display
Manual Pull Station	X	X					X	X	X	X	X						X
Smoke Detector	X	X					X	X	X	X	X						X
Heat Detector	X	X					X	X	X	X	X						X
Low Battery					X	X	X							X	X	X	
Loss of AC Power					X	X	X							X	X	X	
Open Circiut					X	X	X							X	X	X	
Short Circuit					X	X	X							X	X	X	
Ground Fault					X	X	X							X	X	X	

SIEMENS

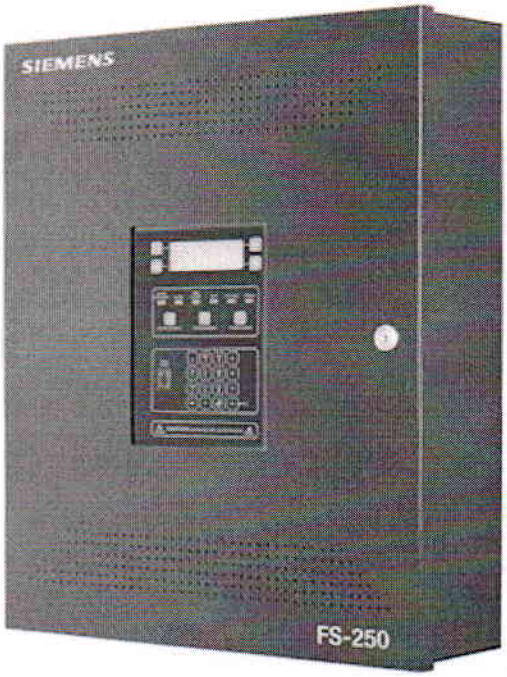
Catalog Sheet
Fire Safety & Security Products

FireSeeker Fire Alarm System

Addressable Fire Alarm Control Panel
Model FS-250

ARCHITECT AND ENGINEER SPECIFICATIONS

- One (1) Intelligent Signaling Line Circuit (Style 4 or Style 6)
- SLC loop supports up to 252 addressable Inputs and signal / relay outputs
  — 504 total inputs / outputs
- *SureWire*™ polarity insensitive addressable-device loop wiring
- Devices operate on standard wire; no twist or shield required
- *FirePrint*™ application-specific fire detection
- Four (4) Class B – Style Y / Two (2) Class A – Style Z notification-appliance circuits
- Up to 6 Amps. – NAC Power
- Built-in strobe synchronization protocol
- 80-character backlit LCD display
- One-man walk test (Silent or Audible)
- Auto Program Feature makes system commissioning more efficient
- Up to four (4) remote LCD displays with control capabilities
- Easily programmable from front keypad or Windows®-based PC configuration tool (not required)
- Maintenance and technician-level passwords for added security
- Optional internal DACT and city-tie module
- Up to 2,000-event history log
- Manual fan-restart feature



- Made in the USA, ISO 9001 quality crafted
- Three (3) on-board, programmable relays, plus one (1) non-programmable *Fail / Safe* relay for *Trouble* events
- ®UL 864 9th Edition Listed; FM, CSFM & NYMEA Approved

Product Overview

The Model FS-250 Addressable Fire Alarm Control Panel is a low-cost, small panel suited for standalone operation in small-to-medium-sized facilities. Model FS-250 features a single, addressable input-device circuit and four (4) notification-appliance circuits. The Model FS-250 system is available in either a black or red enclosure, with operating controls and indicators behind a locked door. Model FS-250 is ®UL 864 9th Edition Listed by Underwriters Laboratories.

Specifications

Model 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* commands 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. Maintenance-level functions are password protected.

The main system for Model FS-250 can support up to 38 AH battery sets – up to 12 AH will fit inside the enclosure.

The basic Model FS-250 fire alarm control panel 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.

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Building Technologies Division

Specifications — (continued)

Each detector can also have an optional, audible-detector base, relay-detector base or remote lamp. These auxiliary devices are completely controlled through logic, and are not required to activate simultaneously with the detector.

The Model FS-250 system also has four (4) Class B notification-appliance circuits built into the main board, which can be configured as two (2) Class A circuits. Each circuit has a capacity of 1.5 amps of 24VDC for powering horns, strobes, chimes, and other notification appliances, and the total base-system capacity for the four (4) circuits is 3.0 amps — expandable to 6A max. Each NAC is fully programmable, and supports standard and custom-coded outputs of audible devices.

Model FS-250 control panel has three (3) programmable 'Form C' dry-contact relays. One (1) additional non-programmable 'Form C' dry-contact relay is provided that activates only on *Trouble* events — operating in *Fail / Safe* mode in order to activate if there is a system power failure. Each relay is rated at 1 amp @ 28VDC. Up to 0.5A auxiliary 24VDC power is also available on the Model FS-250 main board.

Minimum Control Unit Configuration

Intelligent Signaling Line Circuit (SLC)

The main termination board for Model FS-250 has addressable-loop interface circuitry supporting one (1) SLC loop. Devices are polarity insensitive, and can operate on untwisted, unshielded wire.

Notification Appliance Circuits (NAC)

The Model FS-250 base panel has four (4) independent NACs. Each circuit can be configured to give continuous output, or one (1) of five (5) sounding patterns. NACs can be configured as: two (2) 'Class A — Style Z' or four (4) 'Class B — 'Style Y.'

Dry Contacts

Three (3) programmable 'Form C' dry-contact relays are provided on the Model FS-250 fire alarm control panel. One (1) additional 'Form C' dry-contact relay is provided that activates only on *Trouble* events. This relay operates in *Fail / Safe* mode, in order to activate if there is a power failure of the Model FS-250 system.

Power Supply

This component provides all operating power to the Model FS-250 panel for *Standby* and *Alarm* conditions.

Optional Control Unit Configuration

Digital-Alarm Communication Transmitter (FS-DACT)

Communication between the FS-250 fire alarm control panel and a monitoring station is accomplished with Model FS-DACT, which supports two (2) lines and two (2) accounts, and can transmit serial data, 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
- 4/2 2300 Hz

Model FS-DACT mounts within the Model FS-250 fire alarm control panel. Neither an external enclosure nor wires are required between the panel and the dialer. Programming of account and dialing data is done as part of the system configuration, and no external programmer for the dialer is required.

Municipal Tie / Leased Line (FS-MT)

For installations that require connection to a municipal call box or a leased line, the municipal tie module (Model FS-MT) is used. Model FS-MT provides a local-energy output for municipal call-box connection, and gives a reverse-polarity output for lease-line connection. Model FS-MT mounts within the FS-250 enclosure. Model FS-MT parameters are programmed at the time of system configuration.

Auxiliary Devices

Model FS-250 panel supports up to four (4) remote LCD displays and eight (8) serial annunciators or serial relay units.

Remote LCD Annunciator (FS-RD2)

Model FS-250 supports a remote LCD display — Model FS-RD2, which uses the same 80-character, backlit LCD display found on the main FS-250 fire alarm control panel. Model FS-RD2 has remote *Acknowledge*, *Alarm Silence*, and *System Reset* capability that is secured with a keyswitch. User-level functions are accessible from Model FS-RD2.

Model FS-RD2 communicates with Model FS-250's main system board, via a RS-485 communication network. Up to four (4) Model FS-RD2 remote displays can be supported on a single FS-250 fire alarm control panel. Model FS-RD2 mounts in a 2"-deep, 6-gang electrical box, and the plate on the display is suitable for flush mounting.

Programmable Remote Relays (FS-RU2)

Programmable relays are available on the Model FS-250 control panel. A remote processor board (Model FS-RU2) communicates with the main system board, via a RS-485 communication network. Model FS-RU2 processor board controls a relay board mounted adjacent to it.

Specifications — (continued)

The relay board has eight (8) Form C relay contacts – rated at 1 amp at 28VDC maximum. Model FS-RU2 relay unit contains one (1) processor board and one (1) relay board, totaling eight (8) relays.

Each processor board can support up to three (3) relay boards simultaneously, totaling 24 programmable relays per processor board. Additional relay extender boards are available, Model FS-RE8. A total of eight (8) processor boards can be supported simultaneously by each FS-250 control panel.

Programmable Serial Annunciator Drivers (FS-SAU2)

Programmable serial annunciator drivers are available on the Model FS-250 control panel. A remote processor board communicates with the main system board, via a RS-485 communication network. This processor board controls a serial-annunciator driver board mounted adjacent to the remote processor board. The driver board has 16 outputs for LEDs. All serial-annunciator outputs are supervised.

Model FS-SAU2 serial-annunciator unit contains one (1) processor board and one (1) serial-annunciator driver board to add 16 LED drivers. Each processor board can support up to four (4) additional driver boards simultaneously, totaling 64 programmable serial-annunciator drivers per processor board.

Additional serial annunciator extender boards are available as Model FS-SAE16. A total of eight (8) processor boards can be supported simultaneously by each Model FS-250 control panel.

Programming / Configuration Options

Configuration of the FS-250 control panel can be accomplished in two ways: First, the operator interface includes a 16-button keypad. This keypad can be used to configure all system parameters – including custom messages and logic – directly at the panel with no other configuration tools. Secondly, the Model FS-CT2 configuration tool can be used on a laptop computer to upload, download, and edit the system configuration.

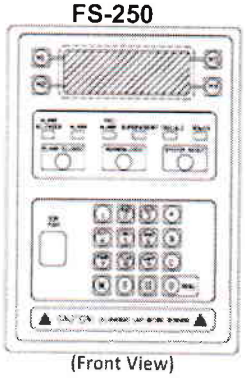
Model FS-CT2 configuration tool includes a connection cable for use between the FS-250 fire alarm control panel and a 9-pin serial connection on a laptop computer running Model FS-CT2 software. Use of Model FS-CT2 software requires a computer that runs on a Windows®-based PC operating system. Model FS-CT2 configuration tool can be used to generate configuration reports and download and print history.

Custom messages for system addresses consist of two (2) lines – 20 characters per line. The characters include upper and lower case letters as well as numbers, punctuation marks, and control characters. This 40-character custom message will be displayed for all events at that address.

Technical Data

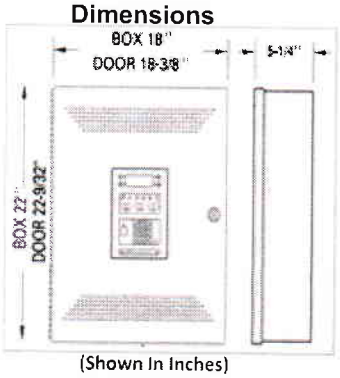
Environmental:	Operating Temperature: 32-120°F (0-49°C) Relative Humidity: up to 93% @ 90°F (32°C)
Primary Power Supply:	Primary Input Voltage: 120 VAC (60 Hz.) Maximum Primary Input Current: 2.4 Amps. @ 120 VAC
Secondary Power Supply:	24-volt, lead-acid battery with 7AH - 38AH capacity
Auxiliary Power Outputs:	Current - 0.5 Amp with resettable and non-resettable power outputs
System Status Relays:	Four (4) relays rated @ 1 Amp, 28 VDC resistive
Notification Appliance Circuits:	Rating per NAC circuit, 1.5A each, 6A max.
Battery:	Base cabinet accommodates a 12 AH battery set. Larger batteries require separate enclosures.

FS-250



(Front View)

Dimensions



(Shown In Inches)

Details for Ordering

Model Number	Part Number	Description
FS-250-EKIT	599-050586	FS-250 Electronics Package Includes: FS-250-CON (1 Qty.) FS-NPE (2 Qty.)
FS-250-ENCL	500-648952	FS-250 Enclosure, Black
FS-250-ENCL-R	500-648953	FS-250 Enclosure, Red

Optional Accessories

Model Number	Part Number	Description
FS-RD2-R	500-649400	Remote Annunciator, Red
FS-RD2	500-648980	Remote Annunciator, Black
FS-RU2	500-649308	Relay Processor Card
FS-RE8	500-699467	8-Relay Extender
FS-SAU2	500-649307	Serial Annunciator Processor Card
FS-SAE16	500-699469	16-Output Annunciator Extender
FS-DACT	500-699464	Serial Digital Alarm Comm. Transmitter (DACT)
FS-MT	500-699462	Municipal Tie Module
FS-SFT-R	500-648955	Semi-Flush Trim, Red
FS-SFT	500-648954	Semi-Flush Trim, Black
FS-NPE	500-649120	NAC Power Expander Transformer
HFPO-11	500-034800	Photo-Only Detector

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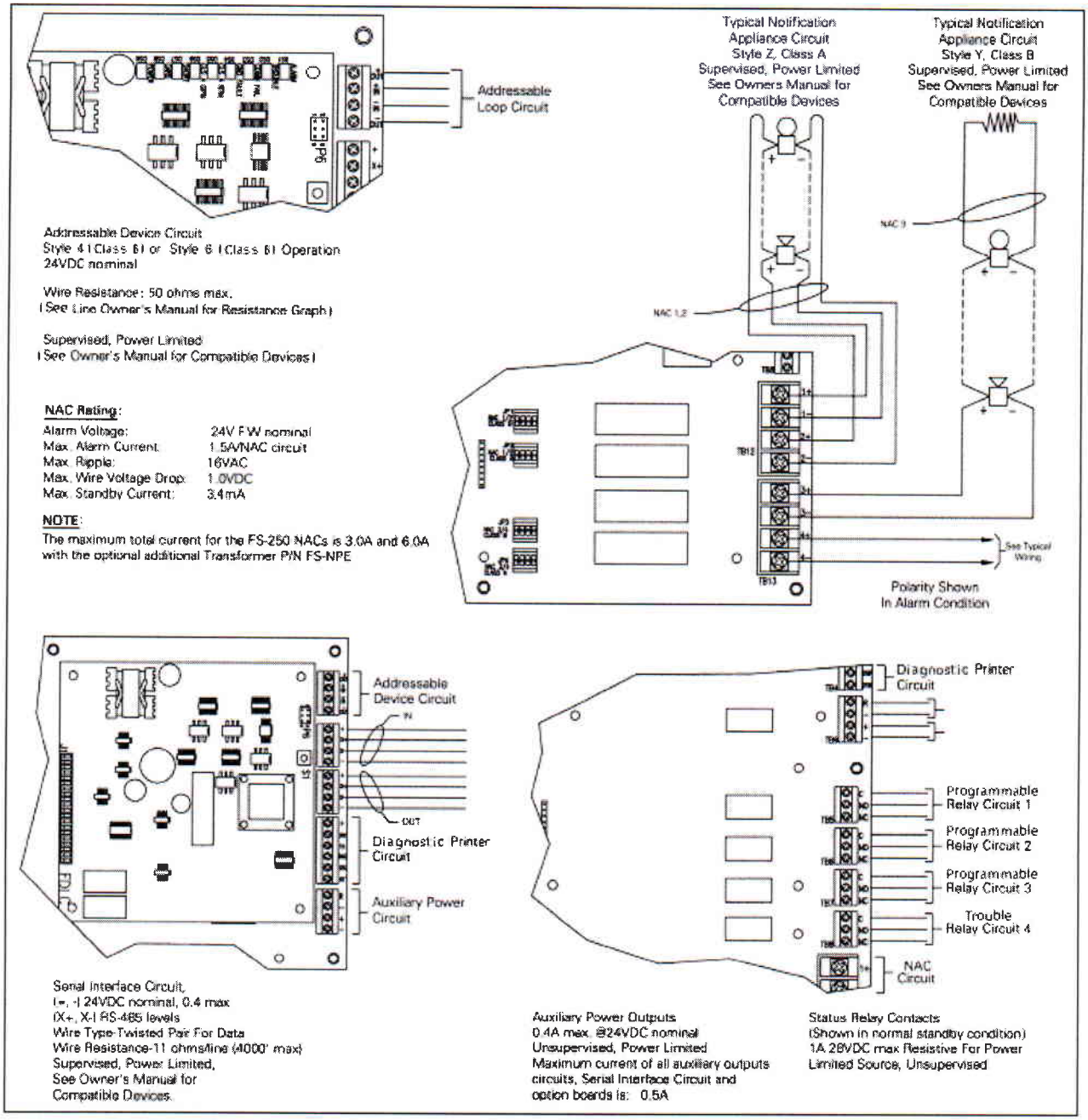
Building Technologies Division

Wiring Diagram
Main Termination Board



Addressable Device Circuit
Style 4 (Class B) or Style 6 (Class B) Operation
24VDC nominal

Wire Resistance: 50 ohms max.
(See Line Owner's Manual for Resistance Graph)

Supervised, Power Limited
(See Owner's Manual for Compatible Devices)

NAC Rating:

Alarm Voltage:	24V FW nominal
Max. Alarm Current:	1.5A/NAC circuit
Max. Ripple:	16VAC
Max. Wire Voltage Drop:	1.0VDC
Max. Standby Current:	3.4mA

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

Serial Interface Circuit,
(-, -) 24VDC nominal, 0.4 max
(X+, X-) RS-485 levels
Wire Type-Twisted Pair For Data
Wire Resistance-11 ohms/line (4000' max)
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

Notice: This marketing catalog sheet is not intended to be used for system design or installation purposes. For the most up-to-date information, refer to each product's installation instructions.

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(SII)
Printed in U.S.A.

February 2010
Supersedes sheet dated 8/05
(Rev. 1)

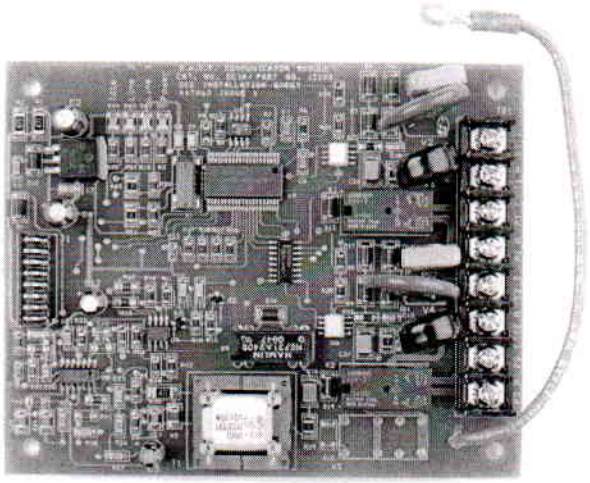
SIEMENS

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



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.

Ordering Information

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

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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January 2004
Supersedes sheet dated 6/03

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 24 VDC 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

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January 2004
Supersedes sheet dated 6/03

SIEMENS

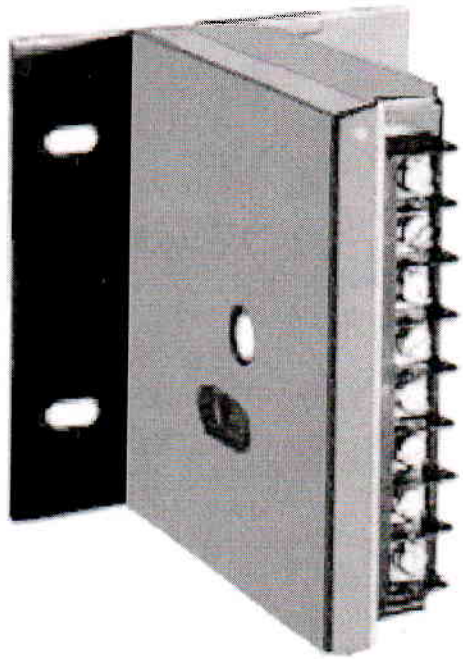
Catalog Sheet
Fire Safety & Security Products

FireFinder XLS

Remote Conventional Zone Module
Model HZM

ARCHITECT AND ENGINEER SPECIFICATIONS

- Provides distributed conventional zoning
- One (1) conventional initiating device circuit
- Connects to FireFinder XLS circuits
- Powers up to 15 Series 3 or 11 smoke detectors
- Powers one (1) beam detector (PBA-1191) with no additional devices
- Unlimited shorting devices per circuit
- Class A (Style D) or Class B (Style B)
- Multicolor LED for status indication
- 32-character, custom alphanumeric message
- Alarm-verification capability
- *WalkTest* capability
- No mechanical-address programming required
- Includes metal cover plate
- Circuits power limited, per NEC 760
- ®UL 864 9th Edition Listed and ®ULC Listed; FM, CSFM & NYMEA Approved



Product Overview

Model HZM is a FireFinder XLS intelligent device that connects a single zone of conventional devices to an analog loop. Model HZM can power up to 15 Series 3 and Series 11, two-wire ionization and photoelectric smoke detectors. Model HZM can power one (1) beam detector (PBA1191) with no additional devices, and can also monitor listed alarm-causing shorting devices, such as: water-flow switches, thermal detectors, manual stations, etc.

Each Model HZM can be assigned a 32-character, custom alphanumeric message. The multicolor LED – visible through the cover plate – indicates the condition of the circuit. The multicolor LED displays 'red' for *Alarm*, 'yellow' for *Trouble* and 'green' for *Normal* operation.

Model HZM supports Class A (Style D) or Class B (Style B) wiring. Model HZM occupies one (1) address on the Model DLC circuit, and does not require any mechanical address programming. Model HZM is programmed and tested using the Siemens Industry, Inc. – Fire Safety Division's Device Program / Test Unit (Model DPU).

Application

Use of Model HZM modules allows a system to be designed using a combination of intelligent and conventional devices with a substantial reduction in wire.

Intelligent devices can be employed in those areas requiring pinpoint annunciation, as well as analog-detection features. Common or other areas can be protected using conventional-zone detection connected to Model HZM circuits.

The method of 'distributed conventional zoning' through the use of modules connected to intelligent circuits can result in a substantial installed cost savings.

Temperature and Humidity Range

Products are ®UL 864 9th Edition listed for indoor dry locations within a temperature range of 120+/-3°F (49+/-2°C) to 32+/-3°F (0+/-2°C) and at a relative humidity of 93+/-2% at a temperature of 90+/-3°F (32+/2°C).

SIEMENS Industry, Inc.
Building Technologies Division

Technical Data

– HZM Electrical Ratings –

Initiating Device Zone	
Max. Zone Resistance	35 ohms Total
Supervisory Voltage Range	18-24.5VDC
Max. Zone Current	34mA
24VDC Power	
Voltage Range	18.8-28.2VDC
Max. Current	100mA

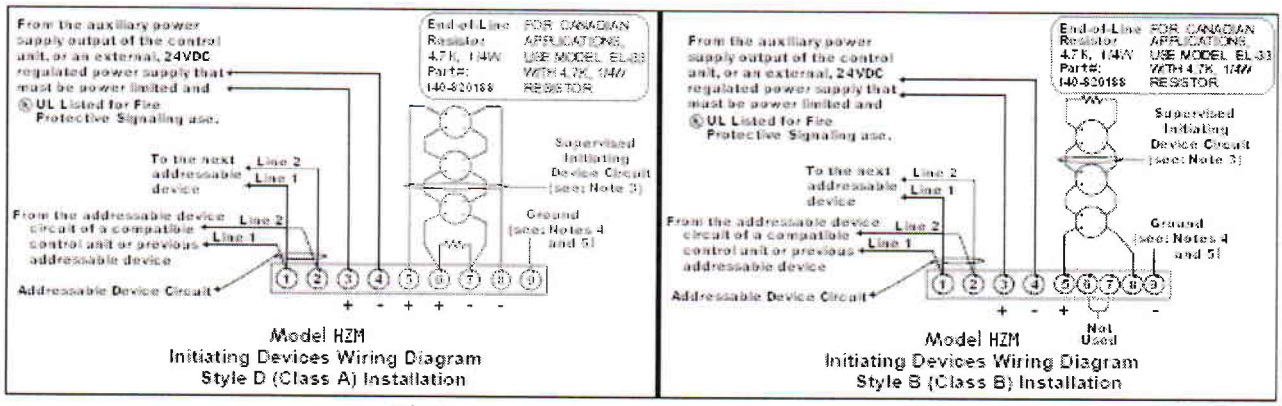
Compatibility Devices

– For use with HZM –

Detector	Base	Installation Instructions
DI-3/3H	DB-3S	315-081943-17
DI-A3/A3H	DB-3S	315-081943-17
DI-B3/B3H	AD-3I	315-093234-6
DT-3P-135	DE-3S	315-017545-3
DT-11	DB-11, DB-3S with DB-ADPT	315-095429-2
PB-1191	PBB-1191	315-095424-3
PE-3	DB-3S AD-3ILP	315-090875-7 315-093234-6
PE-11/11T	DB-11, DB-3S with DB-ADPT AD-11P	315-094198-9 315-095659-8

- ✓ Use up to 15 detectors, any combination of those listed
- ✓ Only one (1) Model PB-1191 and no additional devices can be connected to each Model HZM
- ✓ Detector operated accessories cannot be used with Model HZM
- ✓ Model DT-3P-135 is considered a shorting device. You may use an unlimited number of shorting devices
- ✓ The model numbers listed are the ®UL Listed compatibility identifiers

Wiring Diagrams



NOTES:
1. All circuits are power limited.
2. Initiating Device Circuit cable requirements: Wire size 18 to 14 AWG
3. If Earth Ground is available, the green wire should be connected to earth ground.
4. If Earth Ground is NOT available, the IDC wiring should be limited to the same room.
5. Model HZM draws 1mA from the addressable device circuit.

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September 2010
Supersedes sheet dated 5/10
(Rev. 3)

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Catalog Sheet
Fire Safety & Security Products

FireFinder XLS & FS-250 Control Panels

Addressable *FirePrint*™ Detector
Model HFP-11

ARCHITECT AND ENGINEER SPECIFICATIONS

- Most sophisticated 'detector intelligence' available
- Multi-criteria fire detection for the price of a photoelectric detector
- *FirePrint*™ technology to differentiate between deceptive phenomena and an actual fire
- Easily programmed to match specific hazard profiles from the control panel
- Polarity insensitive utilizing *SureWire*™ technology
- Pre-alarm reporting based on fire profile selected
- Remote sensitivity-measurement capability
- System logic activation based on any of three (3) inputs from the detector (smoke, heat or neural network)
- Detectors are self-testing:
  - complete diagnostics every four (4) seconds
- Two-wire operation
- Multi-color detector status LED
- Field-cleanable chamber with replaceable chamber parts available
- Compatible with Model DPU (device programmer / tester unit)
- Supports software-based automatic environmental compensation
- Optional fully programmable relay base, audible base and duct housing
- ®UL and ®ULC Listed;
  FM, CSFM & NYMEA Approved

Product Overview

Model 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 it is intended to detect. Model HFP-11 uses state-of-the-art microprocessor circuitry with error check, detector self-diagnostics and supervision programs.

Model HFP-11 is compatible with the Siemens — Fire Safety field device program / test unit (Model DPU), which is a compact, portable, menu-driven accessory for electronically programming and testing detectors, easily and reliably. Model 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. Model HFP-11 is compatible with FS-250 and Fire Finder XLS-series control panels.

Model HFP-11 is ®Underwriters' Laboratory and ®Underwriters' Laboratory of Canada listed.

Specifications

Model HFP-11 is a plug-in, two-wire and multi-sensor detector (with both photoelectric and thermal inputs) that is compatible with Fire Finder XLS and FS-250 series of control-panel systems. Each detector consists of a dust-resistant, field-cleanable and photoelectric chamber; a solid state, non-mechanical thermal sensor, and microprocessor-based electronics with a low-profile plastic housing. Model HFP-11 utilizes state-of-the-art ASIC circuitry and surface-mount technology for maximum reliability.

Every Model HFP-11 fire detector is shipped with a protective dust cover. Model HFP-11 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.

SIEMENS Industry, Inc.
Building Technologies Division

Specifications – (continued)

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.

Model HFP-11 also utilizes a modern, accurate and shock-resistant thermistor to sense temperature changes. The 'on-board' *FirePrint*™ technology allows the detector to first gather smoke and thermal data, and then analyze this information in the detector's 'neural network.' By comparing data received with the common characteristics of fires or fire fingerprints, Model HFP-11 can compare these 'fire prints' to those of deceptive phenomena that cause other detectors to false alarm.

FirePrint

The advanced *FirePrint* technology allows Model HFP-11 to accurately determine a true fire hazard from unthreatening, deceptive phenomena. Further, the advanced *FirePrint* technology will not require a need to use alarm-delaying verification and confirmation techniques, which can increase the probability of losses due to fire. Model 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.

Model HFP-11's *FirePrint* application 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 mislead any ordinary detector.

Detectors are optimized by selecting one (1) of the following 11 applications:

- Office / Retail
- Lobby
- Computer room
- Dormitory
- Healthcare
- Parking garage
- Utility / Transformer room
- Hostile environment
- Precious storage
- Air Duct
- Warehouse / Light Manufacturing

The control panel programs Model HFP-11 detector for the protected area without hassle and without confirmation delays. Once optimized for the hazards in the protected area, Model HFP-11 provides the best detection. Should the operator or installer forget to program the detector, Model HFP-11 will revert to a default setting, allowing operation as an office-environment detector.

The *FirePrint* 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, while validating all *Trouble* conditions before annunciating or reporting to the control panel.

Model HFP-11

The Model 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.

Communication within the detector, as well as between Model HFP-11 and the control panel, or with Model DPU (field device programmer / test 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. Model HFP-11 determines its operating status to be *Normal* in *Alarm* or in *Trouble* modes, 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 analog signal for Model HFP-11 over a period of time, in order to determine if those values indicate excessive buildup in the photo chamber. If such is the case, the FireFinder XLS control panel will indicate the particular detector requires maintenance.

Model HFP-11 is listed as a self-testing device. The visible light emitting diode (LED) for Model HFP-11 flashes 'green' every four (4) seconds to indicate it is communicating with the control panel, as well as to indicate 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 data to the control panel.

A quick visual inspection is enough 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 Model HFP-11 moves to the *Alarm* mode, it will flash 'red,' and will continue flashing until the system is reset at the control panel. Simultaneously, any user-defined, system-alarm functions programmed into the system are activated.

Specifications – (continued)

Detector sensitivity, calibration and identification are dynamically supervised by the fire-alarm control panel (FACP). 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.

All Model HFP-11 detectors use a surface mounting base, Model DB-11, which mounts on a 4-inch octagonal, square or single gang electrical box. The base utilizes screw-clamp contacts for electrical connections and
self-wiping contacts for increased reliability. Model DB-11 can be used with the optional Model LK-11 detector locking kit, which contains 50 detector locks and an installation tool to prevent unauthorized removal of the detector head. Model DB-11 has integral decorative plugs to cover the outer mounting screw holes.

Model HFP-11 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 Model 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 by replacing the labyrinth and bug screen included in the detector maintenance kit, Model DMK-11.

All Model HFP-11 detectors are approved for operation within the ®UL-specified temperature range of 32 to 100°F (0 to 38°C).

Model DPU

The Device Program / Test Unit accessory is used to program and verify the address of the detector. The technician selects the accessory's program mode, and enters the desired address. Model DPU automatically sets and verifies the address and tests the detector.

Model DPU operates on AC power or rechargeable batteries, providing flexibility and convenience in programming and testing equipment from practically any location.

When in the test mode, Model 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.

Application Data

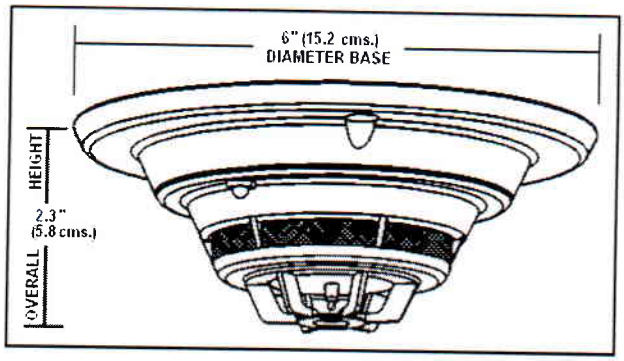
Installation of the Model HFP-11 series of fire detectors requires a two-wire circuit. In many retrofit cases, existing wiring may be used. 'T-tapping' is permitted only for Style 4 (Class B) wiring. Model HFP-11 is polarity insensitive, which can greatly reduce installation and debugging time. Model HFP-11 fire detectors can be applied within the maximum 30 foot center spacing (900 sq. ft. areas,) as referenced in NFPA 72. This application guideline is based on ideal conditions, specifically, smooth ceiling surfaces, minimal air movement, and no physical obstructions between potential fire sources and the actual 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 Siemens Industry – Fire Safety distributor or sales office whenever you need assistance applying *FirePrint* in unusual applications. Be sure to follow NFPA guidelines and ®UL Listed / ®ULC Listed installation instructions – included with every Siemens – Fire Safety detector – and local codes as for all fire protection equipment.

Technical Data

Operating Temperatures:	+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 Square Feet), per NFPA 72 Chapter 5 and ®ULC-S524

Mounting Diagram



Details for Ordering

Model Number	Part Number	Description
HFP-11	500-033290	Addressable *FirePrint*™ Fire Detector
DB-11	500-094151	Detector Mounting Base for Series 11
DB-11E	500-094151E	Detector Base {small}
AD2-P	500-649706	Air-Duct Housing
AD2-XHR	500-649708	Air-Duct Housing {with relay}
DB-HR	500-033220	Relay Base for H-Series Intelligent Detectors
ADBH-11	500-033210	Audible Base
RL-HC	500-033230	Remote Alarm Indicator: 4" octagon-box mount, red
RL-HW	500-033310	Remote Alarm Indicator: single-gang box mount, red
LK-11	500-695350	Base Locking Kit for Series 11 Detectors
DMK-11	500-695338	Series 11 Maintenance Kit {replacement labyrinth and bug screen}

In Canada, order:

Model Number	Part Number	Description
DB-11C	500-095687	Detector Mounting Base for Series 11 Detectors (ULC)

Notice: This marketing catalog sheet is not intended to be used for system design or installation purposes. For the most up-to-date information, refer to each product's installation instructions.

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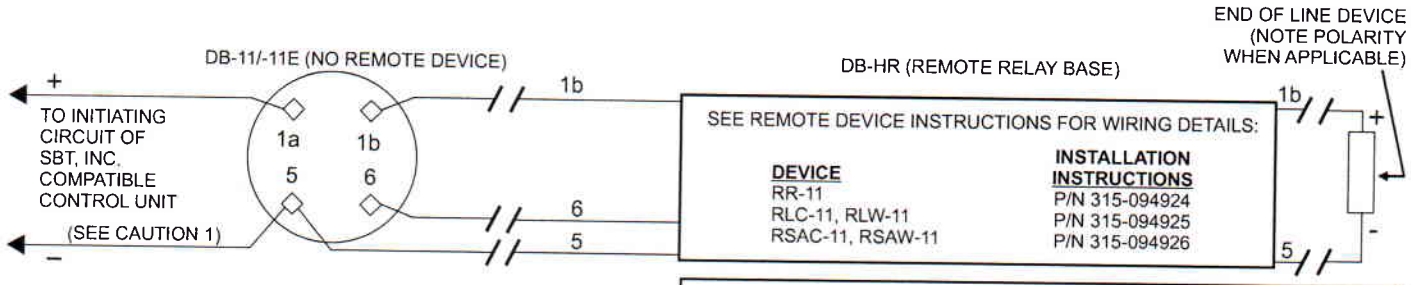
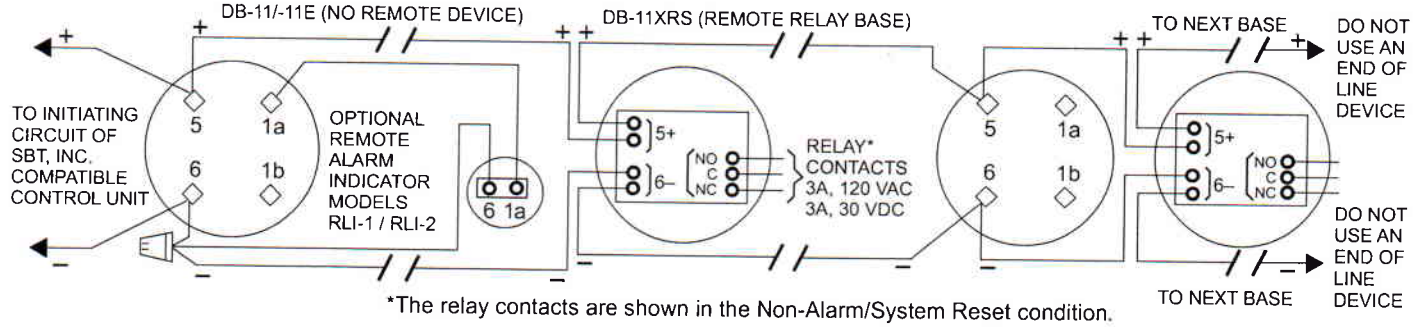


CAUTION:

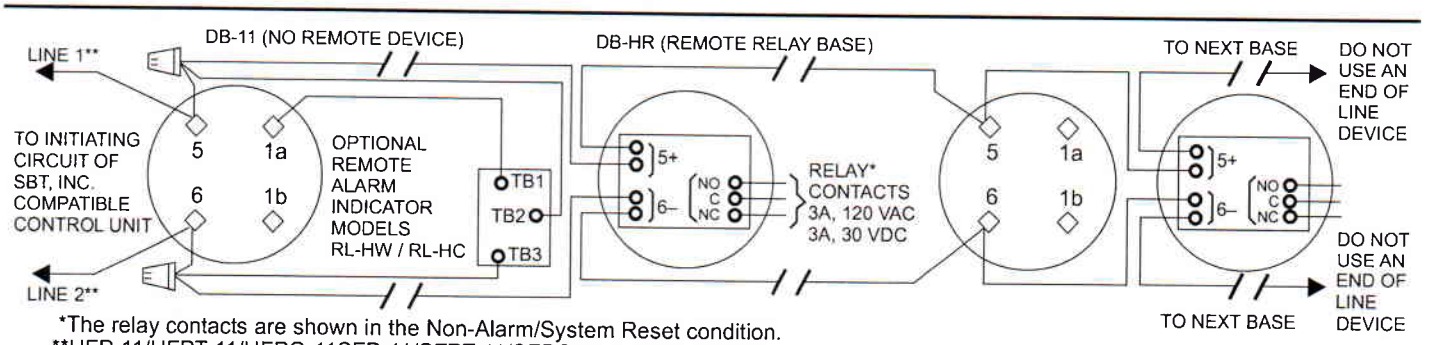
MULTIPLE REMOTE DEVICES

If remote devices are supported by the initiating circuit, each detector/base may have up to 2 remote devices with the following configurations and restrictions only:

Remote Device 1	Remote Device 2	Restrictions
RR-11	RLC-11, RLW-11	See Caution 2
RR-11	RSAC-11, RSAW-11	See Caution 2
RLC-11, RLW-11	RSAC-11, RSAW-11	Wire from base to
RLC-11, RLW-11	RLC-11, RLW-11	RSAC-11/RSAW-11 to RL-11



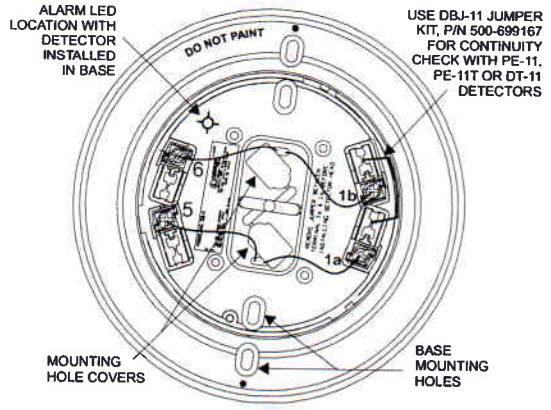
*The relay contacts are shown in the Non-Alarm/System Reset condition.

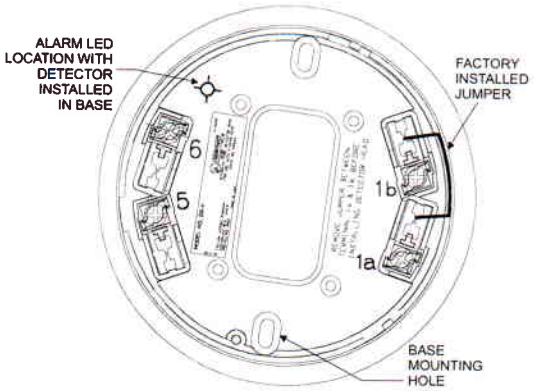


*The relay contacts are shown in the Non-Alarm/System Reset condition.

**HFP-11/HFPT-11/HFPO-11SFP-11/SFPT-11/SFPO-11 is a polarity insensitive detector. Line 1 and Line 2 can be either line of the loop.

NOTE: SFP-11 Series detectors are approved for use in Canada only.


ALARM LED LOCATION WITH DETECTOR INSTALLED IN BASE
DO NOT PAINT
USE DBJ-11 JUMPER KIT, P/N 500-699167 FOR CONTINUITY CHECK WITH PE-11, PE-11T OR DT-11 DETECTORS
6
5
1b
1a
MOUNTING HOLE COVERS
BASE MOUNTING HOLES


ALARM LED LOCATION WITH DETECTOR INSTALLED IN BASE
FACTORY INSTALLED JUMPER
6
5
1b
1a
BASE MOUNTING HOLE

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SIEMENS

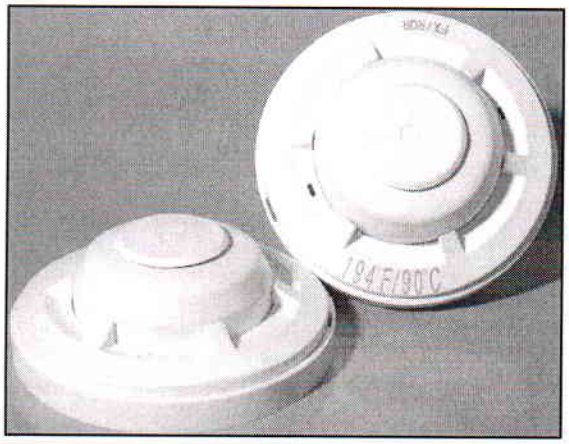
Data Sheet
Fire Safety & Security Products

Conventional Fire Detectors

Thermal Fire Detectors
Models DT-135R, DT-135F, DT-200R and DT-200F

ARCHITECT AND ENGINEER SPECIFICATIONS

- UL Listed
- FM Approved



Product Overview

The Siemens Building Technologies — Fire Safety Division Thermal Fire Detectors are fixed temperature or a combination of fixed-temperature / rate-of-rise type. The combination detectors consist of two, independently operated thermal elements. The rate-of-rise element is self-restoring. However, the fixed temperature is of the non-restoring type.

Underwriter's Laboratories, Inc., recommends the combination-type thermal detector be used to protect a maximum of 2,500 square feet (50-foot spacing), and the fixed-temperature type be used to protect a maximum of 625 square feet (25-foot spacing). However, job conditions and engineering judgment often dictate closer spacing to provide faster detection.

The thermal fire detector shall be Fire Safety Model ____ (insert number), and shall operate at a temperature of ____°F (insert temperature). The detectors shall be listed by Underwriters' Laboratories, Inc. and Factory Mutual for use with Siemens Building Technologies, — Fire Safety Division systems.

Specifications

Rate-of-Rise Principle of Operation

The rate-of-rise element consists of an air chamber; a flexible, metal diaphragm and a moisture-proof, trouble-free vent that is carefully calibrated.

It is well known air expands as it is heated, and will contract as it is cooled. For normal, day-to-day fluctuations of temperature, the expansion and contraction of the air within the chamber is automatically compensated by the 'breathing' action of the vent.

However, when a fire occurs, air temperatures rise very rapidly and the air in the chamber expands faster than it can be vented. This creates a pressure which distends the diaphragm and closes electrical contacts.

The rate-of-rise action is not related to any fixed temperature level, but responds with the utmost promptness when the rate of temperature rise exceeds 15°F per minute. If the heat is removed, the air within the chamber contracts and the switch moves to a normally open circuit position.

SIEMENS Industry, Inc.
Building Technologies Division

Specifications — (continued)

Fixed Temperature Principle of Operation

In a slow-developing fire, the temperature may not increase rapidly enough to operate a rate-of-rise element. Therefore, a fixed-temperature principle of operation is needed.

The detector utilizes a fixed-temperature element made of fusible alloy and is of the non-restorable type.

The fusible alloy will melt and activate the detector when the surrounding air rises above the preset level of 135°F or 194°F.

The external heat collector drops away when the detector is activated therefore giving a quick visual confirmation that the detector has alarmed.

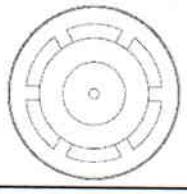
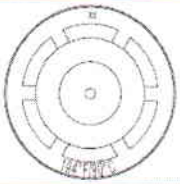
Installation

Each detector includes a thermoplastic, reversible mounting plate. In one position, it easily attaches to a 4" octagon junction box, 3" octagon box or plaster ring.

In reverse, the plate can be used for open wiring without a junction box. A 1/4" space between detector and mounting surface allows for wire connections. All mounting screws are concealed.

The detector simply attaches to the mounting plate with a push-and-twist motion — no tools are required.

Details for Ordering

Model Number	DT-135R	DT-200R	DT-135F	DT-200F
Description	Rate-of-rise and fixed temperature 135°F	Rate-of-rise and fixed temperature 194°F	Fixed temperature only, 135°F	Fixed temperature only, 194°F
Applications	Normal temperature fluctuations and ceiling temperatures not exceeding 100°F	Normal temperature fluctuations and ceiling temperatures exceeding 100°F but not 150°F	Unusually violent temperature fluctuations and ceiling temperatures not exceeding 100°F	Unusually violent temperature fluctuations and ceiling temperatures exceeding 100°F but not 150°F
Identification on Heat Collector				

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[SII-FS]
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Supersedes sheet dated 11/02
(Rev. 1)

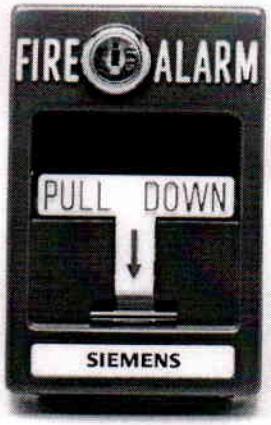
SIEMENS

MSM SERIES

Metal Manual Fire Alarm Box

ENGINEER AND ARCHITECT SPECIFICATIONS

- Rugged Die-Cast Metal Housing
- Reset Key Matches Control Panel
- Optional Break Glass Operation
- Single-Gang Semi-Flush Mount
- Optional Surface Mount Backbox
- Double-Action Institutional, Weather-Proof and Explosion-Proof Models Available
- UL Listed, ULC Listed, CSFM, FM and NYMEA Approved



Standard Model Or Weatherproof

Institutional Model

Description

The MSM Series manual stations feature a rugged die-cast metal housing that satisfies both architectural and code requirements for manual fire alarm box initiation devices. The MSM-Series box features keyed reset using the same key as the control panels.

The MSM Series models are low-profile with all surfaces either painted or plated to inhibit corrosion. These boxes have raised lettering and are shipped with two reset keys and a break glass rod (use of rod is optional.) Options include: double action, institutional, weatherproof, and explosion-proof.

These stations are equipped with a S.P. S.T. switch rated at 10amps @ 120 VAC and all connections are made to a terminal block. The explosion-proof model has a D.P. D.T. switch. **Both the weatherproof and explosion-proof models are shipped complete with backbox.** (Backbox is optional with other models, or you can mount to standard single-gang box.)

These models are intended for use with all Siemens Building Technologies, Fire Safety Division conventional zones, but can also be used with addressable zones when used in conjunction with a TRI-Series addressable module.

Dimensions

Station

Width 3.20 in.
Height 4.75 in.
Depth 1.20 in. (2.30 in. overall, including back of switch)

Station w/Double Action

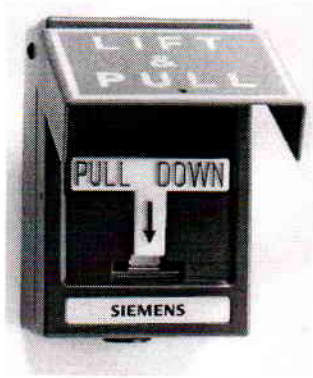
Width 3.33 in.
Height 4.57 in.
Depth 1.50 in. (2.60 in. overall, including back of switch)

Weatherproof Model

Width 3.20 in.
Height 4.75 in.
Depth 2.75 in.

Explosion-proof Model

Width 3.20 in.
Height 4.75 in. (6.00 in. overall, including mounting ears)
Depth 3.50 in.



Double Action Model

Explosion-proof Model

Ordering Information

Model Number	Description	Part Number
MSM-K	Manual Station, Metal w/Key	500-698215
MSM-KD	Manual Station, Metal w/Key, Double Action	500-698216
MSM-K-WP	Manual Station, Metal w/Key, Weatherproof	500-698217
MSM-KD-WP	Manual Station, Metal w/Key, Weatherproof, Double Action	500-698218
MSM-EXP	Manual Station, Metal w/Key, Explosion-proof	500-698219
MSM-INST	Manual Station, Metal w/Key, Institutional	500-698220
MSM-BOX	Surface Backbox for MSM-series Manual Stations	500-698221

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Supersedes sheet dated 6/03

SIEMENS

Installation Instructions
Model HTRI-M

Addressable Interface Module

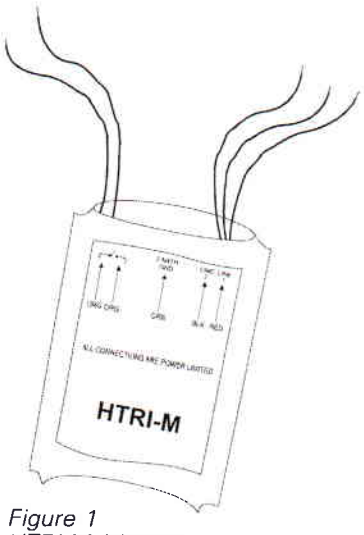


Figure 1
HTRI-M Module

The **SIEMENS** Model HTRI-M Series Addressable interface module interfaces direct shorting devices to the DLC loop of the FireFInder-XLS System or the FS-DLC loop of the FS-250 System. It is also approved for 1076, Proprietary Burglary.

The HTRI-M can monitor a normally open or closed dry contact and it can report the status of the contact.

PROGRAMMING

Refer to Figure 1 to locate the red and black DLC/FS-DLC loop circuit wires of the HTRI-M.

Connect the Addressable Loop Driver circuit wires of the HTRI-M to the **SIEMENS** Model DPU Programmer/Tester. Use the cable provided with the Programmer/Tester and the 2 alligator clip to banana plug adapters provided.

CAUTION

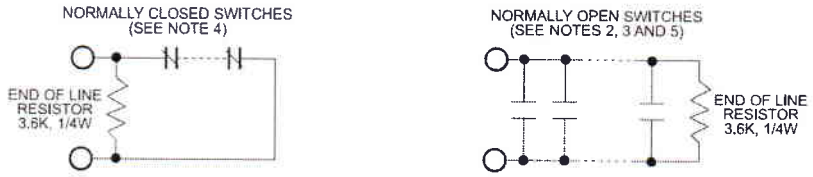
To Prevent Damage To The DPU:
DO NOT connect a HTRI-M to the DPU until all field wiring is removed from the red and black DLC/FS-DLC loop circuit wires of the HTRI-M.

NOTE

Connection from the DPU to the HTRI-M is not polarity sensitive. Refer to Figure 3 for the proper connections to the control panel.

(Refer to Figure 2.) Follow the instructions in the **DPU Programmer/Tester Manual** (P/N 315-033260) to program the desired address into HTRI-M.

Record the device address on the label located on the HTRI-M. The HTRI-M can now be installed and wired to the system.



NOTES:
1. There can be any number of normally closed or normally open switches.
2. The end of line resistor must be located at the last switch.
3. Do not wire a normally closed switch across the end of line resistor.
4. Only for use with security and status applications.
5. Do not use N.O. switches for security applications.

Figure 2
Wiring Switches

P/N 315-034000-3

Siemens Building Technologies
Fire Safety

WIRING

(Refer to Figure 3.) Refer to the wiring diagram and wire the addressable interface module accordingly.

NOTE

Recommended wire size: **18 AWG minimum**
14 AWG maximum

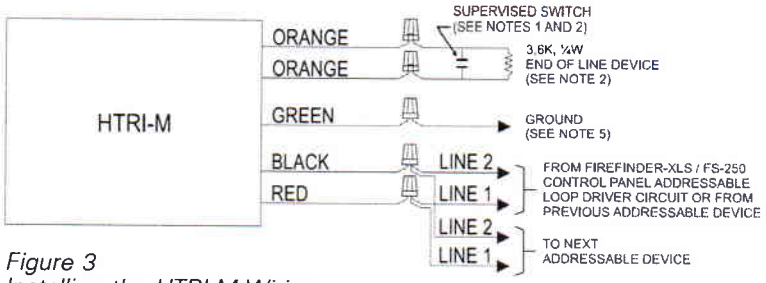


Figure 3
Installing the HTRI-M Wiring

NOTES:

1. **All supervised switches must be held closed and/or open for at least a quarter of a second to guarantee detection.**
2. End of line device: 3.6K, 1/4W resistor, P/N 140-820185. For Canadian applications, use Model EL-33 with 3.6K, 1/4W resistor.
3. HTRI-M is polarity insensitive. Line 1 and Line 2 can be either line of the loop.
4. The supervised switches have the following ratings:
   Voltage maximum: 27 VDC
   Current maximum: 3.5mA during polling
   Contact resistance maximum: 10 ohms
   Maximum cable length: 200 feet (18 AWG)
   $C_{Line\ to\ line}$: 0.02uF
   Max line size: 14 AWG
   $C_{Line\ to\ shield}$: 0.04uF
   Min line size: 18 AWG

CAUTION

Ground shield ONLY at the specified location on the Control Panel.

5. The green wire must be connected to earth ground.
   a. Use wire nuts to pass the shield wire through the electrical box with **NO** connection to the device green wire.
   b. Use shielded wire to connect the switch wiring.
   c. Tie the switch wiring shield to earth ground.
6. For proprietary burglary application:
   a. Use aTSW-1/2 tamper switch to monitor the main enclosure.
   b. Monitor each HTRI-M related to this application continuously by using a listed motion detector (to prevent tampering).
7. In supervisory: HTRI-M draws 1.5mA
8. All circuits are power limited.

MOUNTING

The SIEMENS Model HTRI-M mounts directly into a single gang switchbox (user supplied)

Connect the appropriate wires using wire nuts. Tuck the HTRI-M module inside the electrical box and dress the wiring as required. (See Figure 4.)

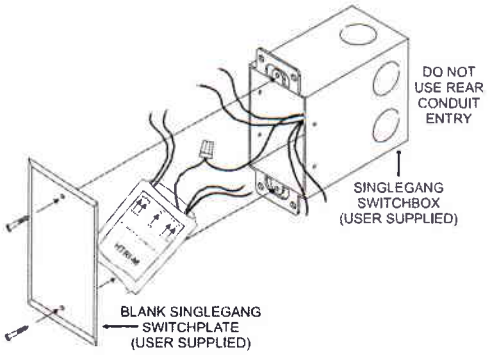


Figure 4
Mounting the HTRI-M

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Florham Park, New Jersey 07932

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Brampton, Ontario L6T 5E4 CN

SIEMENS

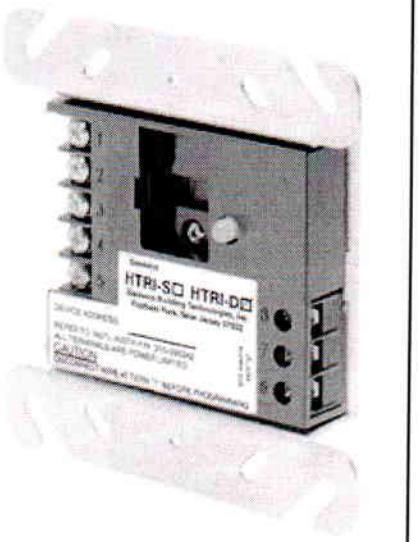
Catalog Sheet
Fire Safety & Security Products

FireFinder XLS and FS-250 Panels

HTRI Series Interface Modules
Models HTRI-D, HTRI-R and HTRI-S

ARCHITECT AND ENGINEER SPECIFICATIONS

- Interfacing and supervising normally open (NO) or normally closed (NC) contacts
- Integral SPDT relay on Model HTRI-R (up to 4 amps)
- Dual input on Model HTRI-D, using a single address
- Polarity insensitive with *SureWire*™ technology
- Multi-color light-emitting diode (LED) indicates status [green / amber / red]
- Easy front access to programming port and wiring terminals
- Mounts 4-inch square, 2-¼"-deep box (or double-gang box)
- Dynamic supervision
- Comes with 5-x-5" faceplate
- Two-wire operation
- Model DPU programs and verifies address of the device and tests for proper functionality
- Electronic address programming is easy and dependable
- ®UL Listed & ®ULC Listed; FM, CSFM and NYMEA Approved



Product Overview

The Siemens Industry, Inc. — Fire Safety 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 modules provide the most advanced method of address programming and supervision on the market — 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 'intelligent device.'

Specifications

The HTRI Series intelligent interface modules are available in three (3) models. Models HTRI-S and HTRI-R are designed to monitor a (NO) or (NC) dry contact.

The interface module reports the status of the (NO) or (NC) contact to the control panel. Model HTRI-S can only monitor and report the status of the contact, while Model HTRI-R incorporates an addressable Form C relay.

The Model 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 Model HTRI-D is a dual-input module that is designed to supervise and monitor two (2) sets of dry contacts. Model HTRI-D only requires one (1) address, but responds independently to each input. Model HTRI-D is ideal for monitoring a water-flow switch and its respective valve tamper switch.

Model HTRI has a multi-color LED that flashes 'green' when operating in *normal*; 'amber' if unit is in *trouble* condition, and 'red' to indicate a change of state.

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Building Technologies Division

Specifications (continued)

Model HTRI-D flashes twice — once for each address, and Model HTRI-R LED indicates a change of state in the relay. The device's microcomputer chip has the capacity of storing, in memory, identification information; as well as important operating-status information.

Siemens Industry, Inc., — Fire Safety innovative technology allows all HTRI Series intelligent interface modules to be programmed by using the Device Programming / Test Unit. Model DPU is a compact, portable and menu-driven accessory that makes programming and testing an interface device faster, easier and more dependable than previous methods.

Model DPU eliminates the need for mechanical addressing mechanisms, such as: program jumpers, DIP switches or rotary dials, since Model DPU electronically sets the HTRI Series interface address into the interface microcomputer-chip non-volatile 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 Model HZM or Model 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 no greater than 93%, non-condensing.

Electrical Ratings

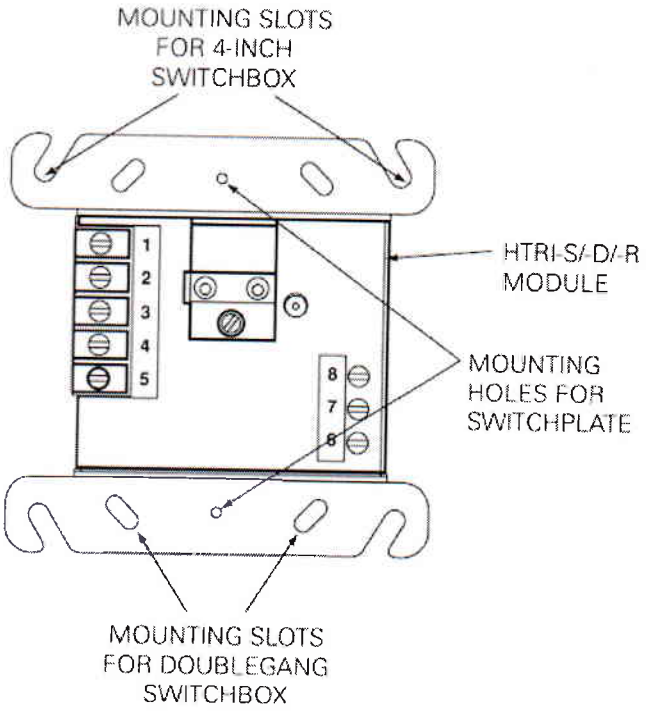
Current Draw
(Active or Standby) 1mA

Model HTRI-R Relay Ratings
Resistive: 4 Amps, 125 VAC
4 Amps, 30 VDC

Inductive: 3.5A, 120 VAC (0.6P.F.)
3.0A, 30 VDC (0.6P.F.)
2.0A, 120 VAC (0.4P.F.)
2.0A, 120 VAC (0.35P.F.)
2.0A, 30 VDC (0.35P.F.)

Mounting Diagram

Models HTRI-S, HTRI-D and HTRI-R mount 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 Series module.



Details for Ordering

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

Notice: This marketing catalog sheet is not intended to be used for system design or installation purposes. For the most up-to-date information, refer to each product's installation instructions.

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(Sii)
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June 2010
Supersedes sheet dated 12/04
(Rev. 1)

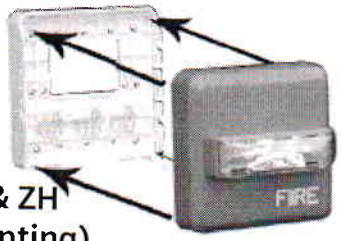
'08 Series Notification Appliances

ZH & ZR – Strobes, Horns, & Horn / Strobes

Application: Indoor

ZH Series

ZR Series



(ZR & ZH Mounting)

Product Overview

- 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
- Selectable Continuous Horn or Temporal (Code-3) Tones with 90 or 95 dBA selectable setting (ZH)
- Ceiling-mount models feature field-selectable Candela settings of 15/30/75/95cd and 115/177cd
- Wall-mount models feature field-selectable Candela settings of 15/30/75/110cd and 135/185cd
- Base plate is protected by a disposable cover, and the appliances can quickly snap onto the base after the walls are painted
- Strobes produce 1 flash per second
- "Special Applications" listed with Siemens panels
- EZ Mount Universal Mounting Plate (ZBB) – uses single plate for ceiling and wall mount installations
- EZ Mount design – with separate base plate – provides ability to pre-wire the base and test the circuit wiring before the walls are covered
- ®UL Listed & ®ULC Listed; FM, CSFM & NYMEA Approved
- ADA / NFPA compliant

Specifications

- **General**

- Audible/Visual notification appliances shall be listed for indoor use only
- Appliances shall be listed under ®UL Standard 1971 (Standard for Safety Signaling Devices for Hearing Impaired) and ®UL Standard 464 (Fire Protective Signaling)
- Appliances shall use a universal back plate, which 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 check shall occur for entire NAC circuit prior to attaching any audible / visual-notification appliances
- Dust cover shall fit and protect the mounting plate
- Dust cover shall be easily removed when the appliance is installed over the back plate
- Removal of an appliance shall result in a trouble condition by the Fire Alarm Control Panel (FACP)

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Specifications – (continued)

- **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
- Strobes shall be available with two or four field-selectable settings in one unit, and shall be rated – per ®UL 1971 – for up to:
  - 15/30/75/110cd for wall mounted
  - 135/185cd for wall mounted
  - 15/30/75/95cd for ceiling mounted
  - 115/177cd for ceiling mounted
- 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)

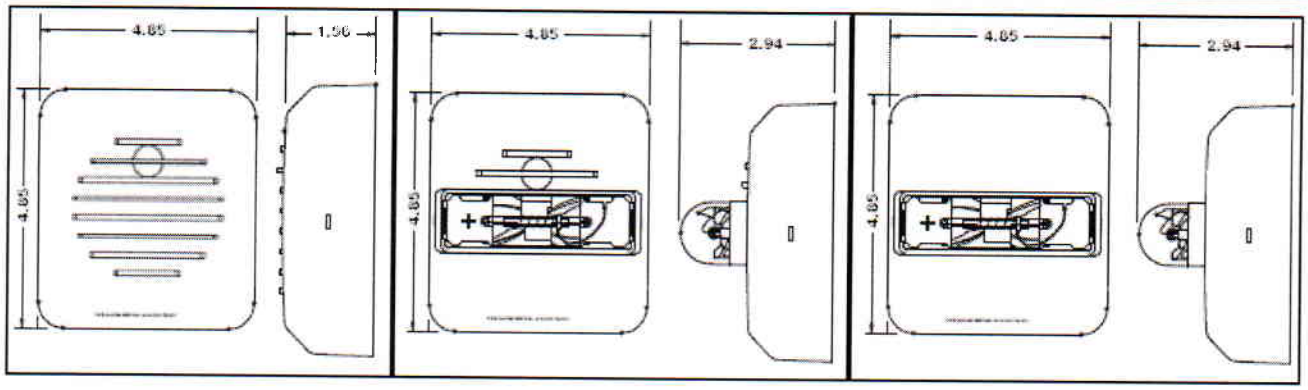
- **Audibles and Audible / Strobe Combinations**

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

- **Synchronization Modules**

- The strobe portion, when synchronization is required, shall be compatible with 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
- Audibles and strobes shall be able to synchronize on a 2-wire circuit with the capability to silence the audible, if required
- Strobes shall revert to a non-synchronized flash-rate, if the sync module or Power Supply should fail to operate (i.e. – contacts remain closed)
- 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"
    - **Note:** 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
  - 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% (± 2%)
  - Series ZH horns are listed under ®UL Standard 464 for audible signal appliances (Indoor use only)

Mounting Diagram



(Shown In Inches)

Mounting Options

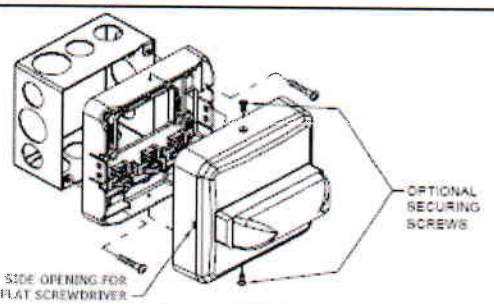


Figure 3 Installation

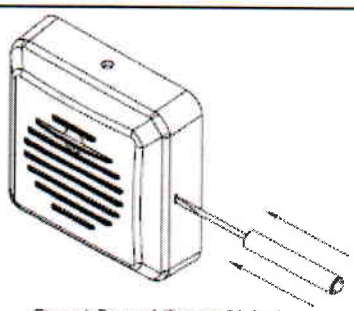


Figure 4: Removal (See step 8 below)

1. Install mounting plate as shown in figure 1 to a single-gang, double-gang, 4" square, 4" octagon, or a 3 ½" octagon backbox with the provided pan head screws. To remove dust cover, place thumb and index finger on top edges of cover and pull off cover.
2. Connect field wiring per figures 2 and 3.
3. Address wires back into backbox.
4. Place dust cover over mounting plate to protect the terminals while performing wiring continuity check.
5. Remove dust cover before snapping or installing the appliance onto the mounting plate per fig 3.
6. Important: Device only has one mounting orientation. Match the top of the base to the top of the device.
7. If it is desired to further secure the device to the base, then two optional screws are provided. To install these screws punch out the screw holes located at the top and bottom of the device.
8. To remove the appliance, push a small flat-bladed screwdriver into the side opening. The screwdriver must clear the snap release opening by ¼" to disengage the snap. Do not pry off housing with the screw driver. Apply pressure with screw driver, inserted in either side opening, as shown in Fig 4 to release the housing.

Technical Data

		ZH and ZH-MC Horn Reverberant dBA per UL464 [ZH-MC and ZH at 24V]		
		16.0V	24V	33.0V
Continuous Horn	High	83	87	90
	Low	77	81	83
Code 3 Horn or March Time*	High	79	82	86
	Low	72	76	79

*Available in sync mode only

In (Amps)	*ZH Horn Current Draw*	
	Horn Setting	16-33 Volts
DC	High*	0.044
	Low*	0.018
FWR	High*	0.075
	Low*	0.045

*Current Draw is the same for the Continuous Horn, Code 3 Horn and March Time Settings.

Technical Data – (continued)

Models*	Operating Voltage (Special Application) [Per UL1971] (VDC/VRMS)	Voltage Range [Per ULC-S526-02] (VDC/VRMS)	Horn	Mounting	Strobe Candela (cd)
ZR-MC	16.0-33.0	20.0-31.0	—	Wall	15/30/75/110
ZR-HMC	16.0-33.0	20.0-31.0	—	Wall	135/185
ZR-MC-C	16.0-33.0	20.0-31.0	—	Ceiling	15/30/75/95
ZR-HMC-C	16.0-33.0	20.0-31.0	—	Ceiling	115/177
ZH-MC	16.0-33.0	20.0-31.0	X	Wall	15/30/75/110
ZH-HMC	16.0-33.0	20.0-31.0	X	Wall	135/185
ZH-MC-C	16.0-33.0	20.0-31.0	X	Ceiling	15/30/75/95
ZH-HMC-C	16.0-33.0	20.0-31.0	X	Ceiling	115/177
ZH	16.0-33.0	20.0-31.0	X	Wall or Ceiling	— —

*Available in red and white

UL Current Ratings (ZR Strobe Only)
Maximum RMS Current *(AMPS)*

		MC				HMC		MC-C				HMC-C	
		15cd	30cd	75cd	110cd	135cd	185cd	15cd	30cd	75cd	95cd	115cd	177cd
DC	16-33VDC	0.064	0.098	0.175	0.233	0.318	0.445	0.069	0.111	0.200	0.264	0.318	0.445
FWR	16-33VRMS	0.108	0.164	0.268	0.368	0.482	0.684	0.117	0.180	0.297	0.398	0.482	0.684

UL Current Ratings ZH Horn/Strobe
Maximum RMS Current *(AMPS)*

		Horn Setting	MC				HMC		MC-C				HMC-C	
			15cd	30cd	75cd	110cd	135cd	185cd	15cd	30cd	75cd	95cd	115cd	177cd
DC	16-33VDC	High*	0.078	0.113	0.195	0.259	0.371	0.506	0.087	0.131	0.222	0.292	0.371	0.506
		Low *	0.070	0.107	0.188	0.246	0.324	0.455	0.075	0.121	0.213	0.277	0.324	0.455
FWR	16-33VRMS	High*	0.141	0.200	0.302	0.406	0.521	0.722	0.149	0.216	0.331	0.436	0.521	0.722
		Low *	0.123	0.179	0.290	0.391	0.497	0.699	0.131	0.195	0.319	0.421	0.497	0.699

* Current Draw is the same for the Continuous Horn; Code 3 Horn and March Time Settings

Details for Ordering — (Including Mounting Options & Agency Approvals)

Model Number	Part Number	Description	Mounting Options*	Agency Approvals UL	ULC	FM	CSFM
ZH-R	500-636159	Z Horn: Red	B,D,E,F	X	X	X	X
ZH-W	500-636160	Z Horn: White	B,D,E,F	X	X	X	X
ZH-MC-R	500-636161	Z Horn: Multi Candela (Wall), Red	B,D,E,F	X	X	X	X
ZH-MC-W	500-636162	Z Horn: Multi Candela (Wall), White	B,D,E,F	X	X	X	X
ZH-HMC-R	500-636163	Z Horn: Hi Multi Candela (Wall), Red	B,D,E,F	X	X	X	X
ZH-HMC-W	500-636164	Z Horn: Hi Multi Candela (Wall), White	B,D,E,F	X	X	X	X
ZH-MC-CR	500-636165	Z Horn: Multi Candela (Ceiling), Red	B,D,E,F	X	X	X	X
ZH-MC-CW	500-636166	Z Horn: Multi Candela (Ceiling), White	B,D,E,F	X	X	X	X
ZH-HMC-CR	500-636167	Z Horn: Hi Multi Candela (Ceiling), Red	B,D,E,F	X	X	X	X
ZH-HMC-CW	500-636168	Z Horn: Hi Multi Candela (Ceiling), White	B,D,E,F	X	X	X	X
ZR-MC-R	500-636169	Z Strobe: Multi Candela (Wall), Red	B,D,E,F	X	X	X	X
ZR-MC-W	500-636170	Z Strobe: Multi Candela (Wall), White	B,D,E,F	X	X	X	X
ZR-HMC-R	500-636171	Z Strobe: Hi Multi-Candela (Wall), Red	B,D,E,F	X	X	X	X
ZR-HMC-W	500-636172	Z Strobe: Hi Multi-Candela (Wall), White	B,D,E,F	X	X	X	X
ZR-MC-CR	500-636173	Z Strobe: Multi Candela (Ceiling), Red	B,D,E,F	X	X	X	X
ZR-MC-CW	500-636174	Z Strobe: Multi Candela (Ceiling), White	B,D,E,F	X	X	X	X
ZR-HMC-CR	500-636175	Z Strobe: Hi Multi Candela (Ceiling), Red	B,D,E,F	X	X	X	X
ZRS-HMC-CW	500-636176	Z Strobe: Hi Multi Candela (Ceiling), White	B,D,E,F	X	X	X	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 * = Refer to catalog sheet #: 2585 for detailed mounting options

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December 2009
Supersedes sheet dated 7/07
(Rev. 1)

Siemens FACP Battery Calculations

Job Name: Carlton Court
Date: 1/2/2013

TOTAL SYSTEM CURRENT

STANDBY	ALARM
0.376	1.728

TOTAL FACP BATTERY CALCULATIONS

TOTAL STANDBY CURRENT	A/H REQ'D		A/H STANDBY
0.376 Amps X	24	HRS.	**9.034**
TOTAL ALARM CURRENT	A/H REQ'D		A/H ALARM
1.728 Amps X	5	MIN.	**0.180**

Required Battery Capacity	**9.214**
Always use a battery with higher AH rating than required.	

BATTERY SUPPLIED: 2x12 AH

NAC Circuit Voltage Drop Calculation

Project Name	**Carlton Court**
Date	**1/2/2013**
Circuit Number	**1**
Area Covered	**Front of Builing**
NAC Source Alarm Voltage	20.4
Minimum Device Voltage	16
Distance to first appliance	25
Total Circuit Current	0.908

Wire Gauge	Resistance Per MFt Cable
14	5.84

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	0.044		20.27	0.13	0.6%
Appliance	0.078	15	20.19	0.21	1.0%
Appliance	0.078	15	20.12	0.28	1.4%
Appliance	0.064	15	20.06	0.34	1.7%
Appliance	0.044	15	20.00	0.40	1.9%
Appliance	0.044	25	19.92	0.48	2.4%
Appliance	0.078	15	19.87	0.53	2.6%
Appliance	0.078	15	19.83	0.57	2.8%
Appliance	0.044	15	19.79	0.61	3.0%
Appliance	0.078	15	19.76	0.64	3.1%
Appliance	0.078	25	19.72	0.68	3.3%
Appliance	0.044	15	19.70	0.70	3.4%
Appliance	0.078	15	19.69	0.71	3.5%
Appliance	0.078	15	19.68	0.72	3.5%
END	0.000	0	19.68	0.72	3.5%
END	0.000	0	19.68	0.72	3.5%
END	0.000	0	19.68	0.72	3.5%
END	0.000	0	19.68	0.72	3.5%
END	0.000	0	19.68	0.72	3.5%
END	0.000	0	19.68	0.72	3.5%
END	0.000	0	19.68	0.72	3.5%
END	0.000	0	19.68	0.72	3.5%
END	0.000	0	19.68	0.72	3.5%
END	0.000	0	19.68	0.72	3.5%
END	0.000	0	19.68	0.72	3.5%
Totals	0.908	240			

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

Note. Wire resistance is based on the 1996 NEC Table 8 Uncoated DC resistance. Solid conductors except gauges 10 and 12 which are for stranded.

NAC Circuit Voltage Drop Calculation

Project Name	**Carlton Court**
Date	**1/2/2013**
Circuit Number	**2**
Area Covered	**Left Basement & Left Rear Stair**
NAC Source Alarm Voltage	20.4
Minimum Device Voltage	16
Distance to first appliance	40
Total Circuit Current	0.625

Wire Gauge	Resistance Per MFt Cable
14	5.84

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	0.259		20.25	0.15	0.7%
Appliance 2	0.078	50	20.15	0.25	1.2%
Appliance 3	0.044	15	20.12	0.28	1.4%
Appliance 4	0.078	25	20.09	0.31	1.5%
Appliance 5	0.044	15	20.07	0.33	1.6%
Appliance 6	0.078	25	20.05	0.35	1.7%
Appliance 7	0.044	15	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
Totals	0.625	185			

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

Note. Wire resistance is based on the 1996 NEC Table 8 Uncoated DC resistance. Solid conductors except gauges 10 and 12 which are for stranded.

NAC Circuit Voltage Drop Calculation

Project Name	**Carlton Court**		
Date	**1/2/2013**		
Circuit Number	**3**		
Area Covered	**Right Basement & Right Rear Stair**		
NAC Source Alarm Voltage	20.4	Wire Gauge	Resistance Per MFt Cable
Minimum Device Voltage	16		
Distance to first appliance	40	14	5.84
Total Circuit Current	0.625		
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	0.259		20.25	0.15	0.7%
Appliance 2	0.078	50	20.15	0.25	1.2%
Appliance 3	0.044	15	20.12	0.28	1.4%
Appliance 4	0.078	25	20.09	0.31	1.5%
Appliance 5	0.044	15	20.07	0.33	1.6%
Appliance 6	0.078	25	20.05	0.35	1.7%
Appliance 7	0.044	15	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
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END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
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Appliance circuit voltage drop calculations start at "end of battery life" as NAC Source Alarm Voltage and use 20% below nameplate rating for Minimum Appliance Voltage.

Note. Wire resistance is based on the 1996 NEC Table 8 Uncoated DC resistance. Solid conductors except gauges 10 and 12 which are for stranded.