

# **SIEMENS**

## **FireSeeker Fire Alarm Control Panel Model FS-250**

**Installation, Operation and Maintenance Manual**



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# INTRODUCTION

## CONTROL PANEL LIMITATIONS

This control panel may not show an alarm condition without compatible initiating devices (smoke detectors, etc.) and notification devices (horn, lights, etc.) connected to it. Electrical ratings of the initiation and notification appliances must be compatible with the electrical ratings of the control panel and must be properly interconnected. The wiring used for interconnection must be large enough to carry the total current for all appliances without excessive voltage drop.

The control panel must be connected to a dedicated primary electrical source that has a high degree of reliability and adequate capacity for this control panel. The only means of disconnecting this power source shall be available only to authorized personnel and clearly marked "Fire Alarm Circuit Control".

The control panel must also have connected to it a battery set (24V) that has enough capacity to properly operate the system for 24 or 60 (depending on system type) hours standby and 5 minutes alarm per NFPA 72 (Chapter 1). These batteries do lose capacity with age. Batteries must be replaced when they fail to provide the control panel with the required standby and alarm power or after 4 years, whichever happens first. These batteries must be checked for performance at least two (2) times a year or more often if local requirements dictate.

Even though this control panel was made to last for the expected life of the fire alarm system, any part could fail at any time. Therefore a regular test program should be followed and documented to make sure that each part of the system is tested as in Chapter 7 of NFPA 72 or more often if dictated by local code requirements. Malfunctioning units must be replaced or repaired immediately by factory authorized service personnel.



**This control panel is designed to show an alarm condition when the initiating devices connected to it detect specific conditions. These conditions may or may not represent a life-threatening condition. Also, evacuation of a building or area unnecessarily may subject individuals to an unnecessary hazard. Therefore, it is most important that the building owner, manager, or representative promulgate, distribute, and/or post instructions describing steps to be taken when the fire alarm control panel signals an alarm condition. These instructions should be developed in cooperation and conformance with representatives of the local authority having jurisdiction.**

As a backup or precautionary measure, it is strongly suggested that one of these steps should be to notify the local fire department of an abnormal condition even where the DACT option (or similar device) is included in the system.

## **PREFACE**

Along with the use of this instruction manual, the appropriate following standards and the manufacturer's instructions for initiating and notification devices should be used to install and maintain a functioning fire alarm signaling system.

NFPA 70 National Electrical Code

NFPA 72 National Fire Alarm Code

NFPA 101 Life Safety Code

For other standards that may apply contact the authority having jurisdiction.

In order to comply with NFPA 12A, NFPA 13 and NFPA 2001, the FS-REL releasing module must be installed.

For NFPA publications, contact:

National Fire Protection Association  
Batterymarch Park  
Quincy, Massachusetts 02269



## **GENERAL DESIGN FEATURES**

### **Environmental**

The FS-250 panels and its subassemblies are suitable for use in a dry, interior or protected location.

### **Power Limiting**

The AC power and battery wiring are not power limited. All other circuits leaving the control panel are power limited, provided the proper installation rules are maintained.

### **Ground Fault Detection**

The control panel provides system ground fault detection and is annunciated as a trouble condition on the system. In addition, each addressable loop circuit has its own ground detection circuitry and indicator.

### **NAC Operation**

The notification appliance circuits are commanded and controlled by a microprocessor to provide more versatility than in a total hardware system.

- Output Sounding Patterns - The notification appliance circuits are operable in different sounding patterns. Any circuit is selectable to any of eight software-generated patterns or continuous sounding. For convenience, three of the patterns are preprogrammed for March Time, Temporal, and Siemens SYNC Protocol.
- Audible Silence Inhibit - In addition to designation of water flow zones, the entire control panel may be programmed to inhibit audible silence for 0, 1, 3, or 6 minutes from the last alarm. System reset may also be inhibited.

### **Transient Protection**

Transient protection devices are provided to meet UL864 requirements.

### **Security Features**

Processor control and addressing allow inclusion of several functions to assure security and proper programming of the system.

Multi-level password protection of programming functions prevents unauthorized configuration changes.

Device type supervision: If the type reported by an addressable detector or module does not agree with the configuration, the system reports a trouble.

Device address supervision: The system checks that all configured devices on the addressable device circuit and the Serial Interface Circuit responds to an address poll. If a configured device is missing, the system reports a trouble. The system also polls unused addresses periodically. If a device responds to such a poll of a non-configured device, the system reports a trouble. Two devices addressed the same also cause a trouble to be reported.

## **REGULATORY STANDARDS**

The FS-250 control panel meets the requirements of industry and government regulatory agencies as noted.

### **Federal Communications Commission**

The FS-DACT meets the Class A requirements of the Code of Federal Regulations (CFR 47), Part 15 for electromagnetic field emissions. The FS-DACT also meets the requirements of the Code of Federal Regulations (CFR 47), Part 68, for connection of equipment to the public switched telephone network.

### **Underwriters Laboratories**

The FS-250 Fire Alarm control panel is listed under UL Standard 864 for compliance to NFPA Standard 72 for fire service.

# CONTROL PANEL OPERATION

## OPERATION INSTRUCTIONS

### Standby Condition

In normal standby operation, the green AC POWER ON LED should be illuminated and no other indicator operating. The display will show the system name, "System Normal" announcement and the current date, day, and time.

### Alarm Conditions

- GENERAL ALARM
- When a general alarm occurs, all NACs with output type set to "ALARM" activate. To activate a general alarm, proceed as follows:
  - - Press "MENU".
  - - On the Menu display, select "GENERAL ALARM".
  - At the next screen, select "Yes".
- Silence and reset the system as with any alarm.

- NORMAL ALARM

In case of alarm, the system alarm LED activates (ON – flashing) and the buzzer activates (ON – steady). Local audible and visual signals and remote alarm signals operate, and the LCD panel display indicates the zone or point initiating the alarm.

On receipt of an alarm, proceed in accordance with the established emergency plan. Assure that all personnel are accounted for, and notify the Fire Department.

To silence the audible after evacuation, where permitted by the codes and control panel programming, press ALARM SILENCE. The alarm audible will be silenced, the alarm silence LED will be illuminated and a system trouble indicated.

Operating the ACKNOWLEDGE button will silence the local buzzer and change the LED alarm indicator from flashing to steady.

- WATERFLOW Alarms

Alarms detected on devices with usage designated as "waterflow" indicate sprinkler operation and the audible alarms cannot be silenced in this condition. Operation of alarm silence will produce no effect.

- POSITIVE Alarm Sequence (PAS)

Activation of an initiating device in an input group programmed for PAS, activates the Alarm LED, display, buzzer, system and user-programmed outputs, but delays additional programmed outputs for 15 seconds.

Operation of the ACKNOWLEDGE button within 15 seconds will add a number of seconds (60-180) to the PAS timer for the purpose of investigation. If the ACKNOWLEDGE button is not operated within 15 seconds, the additional user-programmed outputs activate.

If the initiating device and the panel are reset before the PAS timer times out, the alarm sequence is aborted.

During the investigation period, an alarm condition on a detector programmed for direct alarm response (such as the key switch on a manual station) will override the PAS timer and activate the additional user-programmed outputs.

See the FS-250 Programming Manual, P/N 315-049403, for additional details.

- **PRE-SIGNAL ALARMS**

Activation of an initiating device in an input group programmed for PRE\_SIGNAL, activates the Alarm LED< display, buzzer, system and user-programmed outputs.

The delay of activation of additional user-programmed outputs can be programmed from 60 to 180 seconds. If the system is not reset during this period, these additional user-programmed outputs will activate.

See the FS-250 Programming Manual, P/N 315-049403, for additional details.



**Do not reset the system until the alarm condition has been cleared. The LCD display will indicate the area in which the alarm was detected. The detector or module associated with the device initiating the alarm will display a light indicating activation (if applicable).**

When the alarm condition has been corrected, return the system to standby operation by pressing the SYSTEM RESET button.

- **ALARMS ON RELEASING ZONES**

Devices that will activate the releasing circuits must be assigned to the releasing group via the FS-CT2 configuration tool or front panel programming. The releasing group may be configured to activate on any one alarm, a number of alarms (between 2 – 10) or any one smoke plus any one thermal alarm.

For instance, if the threshold of the group was set at any 2, the following would occur: The first device activating will put the panel in a releasing group pre-alarm condition. When the second device in that zone activates, it will start the agent release timer and put the panel in pre-discharge condition. If the threshold were to be set at one, any device in that group activating would immediately start the agent release timer.

When the agent release timer is activated, the LCD display will display the timer as it counts down. The screen will display “agent release in XX seconds” and the “Pre-Discharge” LED will be ON-steady.

When the agent release timer expires, the panel goes to the discharge condition and activates the releasing zone. This is indicated by the “Discharge” LED turning ON-steady.

## **Abort Function**

Input modules may be assigned to the “Abort” function. The abort type is selected when programming the releasing group. Failure of the abort switch to communicate with the fire panel will automatically restart the agent release timer. When the abort input is activated, it puts the panel in abort condition and turns the “Abort” LED to steady-ON. The following abort functions may be assigned:

### ***ULI Standard UL Type Delay Timer***

If a monitor module is programmed for ULI, when it is activated the abort indicator will indicate and the timer will continue to count down until it reaches 10 seconds. At that point, the timer will stop as long as the abort switch is active. When the abort switch clears, the timer will restart at 10 seconds.

### ***IRI Type Delay Timer***

The IRI type delay timer functions identical to the ULI timer except that the Abort timer will only function if it is activated and held before the second activation of a cross zone.

### ***NYC Type Delay Timer***

If a module is programmed for NYC, when it is activated it will change to the timer value plus 90 seconds. The timer will not start as long as the abort switch is held.

### ***AHJ Local Jurisdiction Delay Timer***

Once the timer is started, activating this module will restore the timer to its full time. The timer will not start as long as abort is held. Releasing the abort switch will start the timer. Re-activating it will restore it to its full time.

## **Manual Release**

Input modules will also have an input usage “Manual Release”. If an input module programmed for Manual Release is activated, it will override all abort timers and automatically activate the releasing circuit, putting the panel in discharge condition.

## **Trouble Conditions**

In case of a trouble condition, the system trouble LED and any programmed trouble LEDs activate (ON – pulsing), the LCD display identifies the problem, and the buzzer sounds (pulsing). Refer to the applicable section of the system manual to determine the probable cause of the trouble and the action to be taken.

When a trouble has been noted, the buzzer may be silenced by pressing the ACKNOWLEDGE button. The trouble LEDs will change to ON - steady. If the trouble has not been corrected when the trouble resound reminder expires, the trouble display reverts to its original condition and the buzzer resounds (pulsing).

If the control panel is programmed for “trouble acknowledge required”, when the indicated trouble condition has been cleared, the system reverts to standby condition only after the ACKNOWLEDGE button is pressed.



**Some trouble conditions are latching troubles that require a system reset to restore the control panel to supervisory mode.**

## **Supervisory Conditions**

In case of a supervisory condition, the system supervisory LED activates (ON – flashing) and the sounder activates (ON – pulsing). When the supervisory has been listed, the buzzer is silenced by pressing the “ACKNOWLEDGE” button. The supervisory trouble LED changes to ON –steady. When the supervisory is cleared, the supervisory condition is still indicated until it is acknowledged. The releasing zone will indicate a supervisory condition when it is disabled.

## **Pre-Alarm Conditions**

- A pre-alarm condition is annunciated by Pre-alarm LEDs and buzzers on the control panel and LCD Annunciators and Remote Processors. The LEDs flash and buzzers are on steady until acknowledgment.
- Acknowledging the Pre-alarm condition puts LEDs on steady and buzzers off.
- If pre-alarm has been acknowledged and the system restores to normal, the condition clears. If the system proceeds into an alarm condition, the pre-alarm condition clears whether or not it has been acknowledged and is replaced by alarm.

## **Maintenance**

In order to insure continued safe and reliable operation of the fire alarm system, periodic inspection and testing should be performed in accordance with applicable NFPA 72 standards.



**If the system has remote connections to the Fire Department or other monitor, be sure to disable the remote signals and/or notify the remote monitoring station before performing test operations.**

For any required service, refer to the system manual or contact a factory authorized representative.

To access the Panel Firmware Version Number:

- Press “MENU” on the Keypad.
- Select the “Maintenance” mode.
- Enter the maintenance password.
- If the password is correct, the firmware version will be shown on the LCD screen.

## **ADDITIONAL OPERATING PROCEDURES**

In addition to the basic fire alarm instructions above, several features are included to facilitate maintenance and increase the versatility of the system. Following are procedures to call up these functions.

### **Lamp Test**

Lamp Test activates the buzzer and turns on all the LEDs on the user interface for 2 seconds, then reverts to its previous state.

To operate the lamp test, press the MENU button. The LCD display will change to a MENU screen. Press the button next to the "More" indication twice. Then press the button by the "Lamp Test" indication. All lamps on the unit being operated will then light. Operating the button next to "Esc" will then return the control panel to normal display. Note that the lamp test operates the indicators only on the unit being operated, and no record is reported to system history.

### **Drill**

When selected, activates all NACs assigned to the Output Zone selected for "Drill".

To activate a fire alarm drill, proceed as follows:

- Press "MENU".
- On the MENU display, select "More".
- At the next screen, select "DRILL".
- At the next screen, select "Yes".
- Operate ALARM SILENCE to terminate drill signal.

### **Recall**

When selected, activates all NACs assigned to Output Ones selected for "Recall".

To signal recall after a drill, proceed as follows:

- Press "MENU".
- At the next screen, select "More".
- Select "RECALL".
- At the next screen, select "Yes".
- Operate ALARM SILENCE to terminate recall signal.

### **Alert**

To activate alert alarm, proceed as follows:

- Press "MENU".
- On the MENU display, select "ALERT".
- At the next screen, select "Yes".
- Operate ALARM SILENCE to terminate alert signal.

## **History**

The last 2000 system events are time-tagged and recorded for review in the user level event history. This history is available to anyone with the door key, but may be erased only at the maintenance security level.

- Operation of history:
  - New events overwrite old when filled.
  - Printer (if used) records all events.
  - For more information see the event history section.
  
- Access to history:
  - To recall past events, proceed as follows:
    - Press "MENU" button.
    - Operate button identified as "More".
    - Operate button identified as "More".
    - Operate button identified as "View History".
    - Operate upper left button (M1) for previous event display.
    - Operate lower left button (M2) for next event display.
    - Operate upper right button (M3) to exit to MENU DISPLAY.

The display reverts to its previous state if there is no action performed within 30 seconds.



# FS-250 OPERATING INSTRUCTIONS

## Alarm Operation

In case of alarm, the *Alarm* LED flashes, LCD displays alarm condition and the panel buzzer sounds steady. Local audible and visual signals and remote alarm signals operate.

When an alarm occurs, proceed according to the established emergency plan. Assure that all personnel are accounted for, and notify the Fire Department to advise of the alarm and/or verify that an automatic signal has been received at the Fire Department.

## Authorized Personnel Only

### To acknowledge the alarm:

To acknowledge the alarm, press the *Acknowledge* button. The local buzzer will be silenced and the *Alarm* LED will change from on-flashing to on-steady.

### To silence the alarm:

To silence the notification appliances after evacuation, where permitted, press the *Alarm Silenced* button. The silenceable notification appliances will be silenced. The *Alarm Silenced* LED will be on-steady.

**Note: Do not reset the panel until the alarm has been cleared.**

**Warning: Alarm silence inhibit (if set) prevents the alarm from being silenced for a predetermined time.**

### To reset panel after alarm:

When the alarm condition is corrected, return the panel to normal standby operation by pressing the *System Reset* switch.

## Trouble Operation

### Trouble is indicated by:

*Trouble* LED flashes  
LCD will display trouble conditions  
Panel buzzer sounds on-pulsing

### To acknowledge the trouble buzzer:

Press the *Acknowledge* button. The *Trouble* LED turns on-steady and the buzzer turns off. When the trouble condition has been cleared, you may need to reset the panel to restore to a normal standby condition.

**Warning: Leaving the panel in a trouble condition may cause a fire alarm condition not to initiate a fire alarm sequence.**

## Normal Standby Condition

The green *AC Power On* LED will be lit and no other indicators on.

**For service, contact:** \_\_\_\_\_

Telephone Number: \_\_\_\_\_

Frame these instructions and mount them near the control panel for operator reference.

# FS-RD2 OPERATING INSTRUCTIONS

## Alarm Operation

In case of alarm, the *Alarm* LED flashes, LCD displays alarm condition and the buzzer activates on-steady. Local audible and visual signals and remote alarm signals operate.

When an alarm occurs, proceed according to the established emergency plan. Assure that all personnel are accounted for, and notify the Fire Department to advise of the alarm and/or verify that an automatic signal has been received at the Fire Department.

## Authorized Personnel Only

### To acknowledge the alarm:

To acknowledge the alarm, press the *Acknowledge* button. The local buzzer will be silenced and the *Alarm* LED will change from on-flashing to on-steady.

### To silence the alarm:

To silence the notification appliances after evacuation, where permitted, operate the *Button Enable* key switch and press the *Alarm Silence* switch. The notification appliances will be silenced. The *Alarm Silenced* LED will be on-steady.

**Note: Do not reset the panel until the alarm has been cleared.**

**Warning: Alarm silence inhibit (if set) prevents the alarm from being silenced for a predetermined time.**

### To reset panel after alarm:

When the alarm condition is corrected, return the panel to normal standby operation by placing the *Button Enable* key switch in the *OK* position and then pressing the *System Reset* switch.

## Trouble Operation

### Trouble is indicated by:

*Trouble* LED flashes  
LCD will display trouble conditions  
Buzzer activates on-pulsing

### To silence the trouble buzzer:

Operate the *Button Enable* key switch to the *ON* position and press the *Acknowledge* button. The *Trouble* LED changes to on-steady. When the trouble condition has been cleared, you may need to reset the panel to restore to a normal standby condition.

**Warning: Leaving the panel in a trouble condition may cause a fire alarm condition not to initiate a fire alarm sequence**

## Normal Standby Condition

The green *Power On* LED will be lit and no other indicators on.

**For service, contact:** \_\_\_\_\_  
**Telephone Number:** \_\_\_\_\_

Frame these instructions and mount them near the annunciator for operator reference.

# FS-250 WITH RELEASING OPERATING INSTRUCTIONS

## Pre-Alarm Operation

In case of an alarm on one of the devices on a releasing zone, the *Pre-Alarm* LED flashes, the LCD displays pre-alarm condition, the buzzer activates on-steady and any NACs configured to sound Pre-alarm will sound.

## Alarm Operation

When another alarm occurs and the set threshold is satisfied on a releasing zone, the agent release timer is activated. The LCD display will display the timer as it counts down. The screen will display "agent release in XX seconds" and the "Pre-Discharge" LED will be on. Proceed according to the established emergency plan. Assure that all personnel are accounted for and notify the Fire Department to advise of the alarm and/or verify that an automatic signal has been received at the Fire Department.

## Authorized Personnel Only

### To Abort the suppression release

Press the *Abort* switch, depending on the configuration of the panel the pre discharge timer will be halted or reset. Proceed to clearing and acknowledging the alarm.

### To acknowledge the alarm:

To acknowledge the alarm, press the *Acknowledge* button. The local buzzer will be silenced and the *Alarm* LED will change from on-flashing to on-steady.

### To silence the alarm:

To silence the notification appliances after evacuation, press the *Alarm Silence* switch. The notification appliances will be silenced. The *Alarm Silenced* LED will be on-steady.

**Note: Do not reset the panel until the alarm has been cleared.**

**Warning: Alarm silence inhibit (if set) prevents the alarm from being silenced for a predetermined time.**

### To reset panel after alarm:

When the alarm condition is corrected, return the panel to normal standby operation by pressing the *System Reset* switch.

### To initiate manual release:

Press the *Manual Release* switch. This will immediately activate the releasing zone and put the panel to discharge condition regardless of the previous condition of the panel.

**NOTE: Manual release and abort switch are installed external to the panel and normally monitored by contact devices.**

## Trouble Operation

### Trouble is indicated by:

*Trouble* LED flashes  
LCD will display trouble conditions  
Buzzer activates on-pulsing

### To silence the trouble buzzer:

Operate the *Button Enable* key switch to the *ON* position and press the *Acknowledge* button. The *Trouble* LED changes to on-steady. When the trouble condition has been cleared, you may need to reset the panel to restore to a normal standby condition.

**Warning: Leaving the panel in a trouble condition may cause a fire alarm condition not to initiate a fire alarm sequence**

## Normal Standby Condition

The green *Power On* LED will be lit and no other indicators on.

**For service, contact:** \_\_\_\_\_  
**Telephone Number:** \_\_\_\_\_

Frame these instructions and mount them near the annunciator for operator reference.

# MAINTENANCE

## GENERAL

The FS-250 provides a maintenance mode to allow for the setting and controlling of various features in the system.

The maintenance functions are protected by a four digit password. To access the maintenance features press the "MENU" button four times and select "Maint. Level" from the display, enter the four digit code when prompted and then press "Enter". The functions listed below are now accessible to the user by using the function buttons on either side of the display.

Disable/Enable Devices

Disable/ Enable Groups

Disable Zones

Disable NACs

Disable City Tie

Disable DACT

Disable Status Relays

Disable/Enable Detector Applications

Quick Test

Print History

Print Sensor Levels

Edit Device Labels

Edit System Labels

Program a Device

Set the Time

Set the Date

Change the Password

Clear the History

Refer to the programming manual for more information about accessing and using the maintenance level functions.

## QUICK TEST



**If the control unit has remote connections to the Fire Department or other monitor, be sure to disable the remote signals and notify the remote monitoring station before performing test operations, since an off-normal condition will be indicated.**

The Quick Test mode makes it fast and easy to test a system by eliminating the need to reset the panel after each device is activated. Quick test is done on a loop basis so that the remainder of the system will continue to operate normally. Once the loop is placed into quick test, the NACs will sound for a short configurable period as each device on the loop is activated. In this way a single person is able to quickly check that each device is working and activating the system.

The printer may also be enabled or disabled during “Quick Test” as desired.

Refer to the programming manual for the details of accessing the Quick test functions.



**For any required service, contact a factory-authorized representative.**

# APPENDIX-C: TROUBLESHOOTING

## DEFINITIONS FOR EVENT HISTORY ENTRIES

### A. General

ENTRY	INDICATES
ALARM	General alarm
ALRM	Alarm
AVCntr	Alarm Verify counter
Blank	Plain alarm
CrossZone	cross zone point
CZ1A	Cross zone
CZ1B	Cross zone
CZ2A	Cross zone
CZ2B	Cross zone
DETECTOR	General alarm
HEAT	Thermal detector
ION	Ion detector
LCDxx	LCD Annunciator xx
MAIN	Main panel
MANL PULL	Manual pull station
Mntc	Detector maintenance alert
PAS	Positive alarm sequence
PAS INHBT	PAS inhibit switch
PHOTO	PE detector
PRE SIGNAL	pre-signal
PreA	Pre-alarm
SUPERVSRY	Supervisory
SUPR	Supervisory
TRBL	Trouble
TROUBLE	Trouble
USERx	User-defined input x
WATERFLOW	Waterflow

## B. System Troubles

ENTRY	INDICATES
AC Trouble	AC input low or off
AddrLp 1 DBLSHT	Double short trouble on addressable loop 1
AddrLp 1 OPEN	Open circuit trouble on addressable loop 1
AddrLp 1 SHORT	Short circuit trouble on addressable loop 1
BATT Trouble	Battery input low or off
CITY Trouble	Local Energy circuit open
DACT Acct Trb	DACT account reporting trouble
DACT Com Trouble	DACT communication trouble with main processor
DACT PL x Trouble	Open or short on DACT phone line x
FLASH FATAL Trb	Configuration Flash memory trouble
GRND FAULT Trbl	Ground Fault trouble
LCDxx NoRespons	LCD Annunciator xx programmed but is not responding
LCDxx Not Pgmd	LCD Annunciator xx is not programmed but is responding
LCDxx Trouble	LCD Annunciator xx reports trouble
MNLP Bad Msg	Main processor to loop processor communication trouble
MNLP Fifo Xmit	Main processor to loop processor communication trouble
MNLP NoRespons	Main processor to loop processor communication trouble
NACxx Trouble	NAC xx wiring is open or shorted
PC Pgrmr Trb	Control panel is not receiving communication from PC
QuickTest Abort	Quick Test Timer expired causing abnormal exit of Quick Test
Trb Reminder	Trouble Reminder timer expired

### C. System Events

ENTRY	INDICATES/NOTES
Alarm Silenced	MAIN, LCDxx shown on bottom line
All AV Ctrs Clr	All AV counters cleared
AutoProgram Run	Auto programming function run
Backup Cnfg Check	Backup configuration validated, result on bottom line
Backup Cnfg Edit	Backup configuration edited
ConfigsCompared	Backup and primary configurations compared, result on bottom line
ConfigsSwapped	Backup and Primary configurations swapped
EventHist Clear	Event History cleared
Mnt Levl Enter	Entered Maintenance level
Mnt Levl Exit	Exited Maintenance level
Mnt Levl PW Changed	Changed Maintenance level password
NACxx Active Confirm	NAC activation confirmed
Panel Reset	MAIN, LCDxx shown on bottom line
Power Up	
PriConfigCopied	Primary configuration copied to backup
QuickTest Exit	Exited Quick Test, MAIN or LCDxx shown on bottom line
QuickTest Start	Started Quick Test, MAIN or LCDxx shown on bottom line
System Date Changed	Changed system date, old and new dates shown on lines 3 and 4
System Time Changed	Changed system time, old and new times shown on lines 3 and 4
Tech Levl Enter	Entered Tech level
Tech Levl Exit	Exited Tech level
Tech Levl PW Changed	Changed Tech level password
User Levl Enter	Entered User level
User Levl Exit	Exited User level



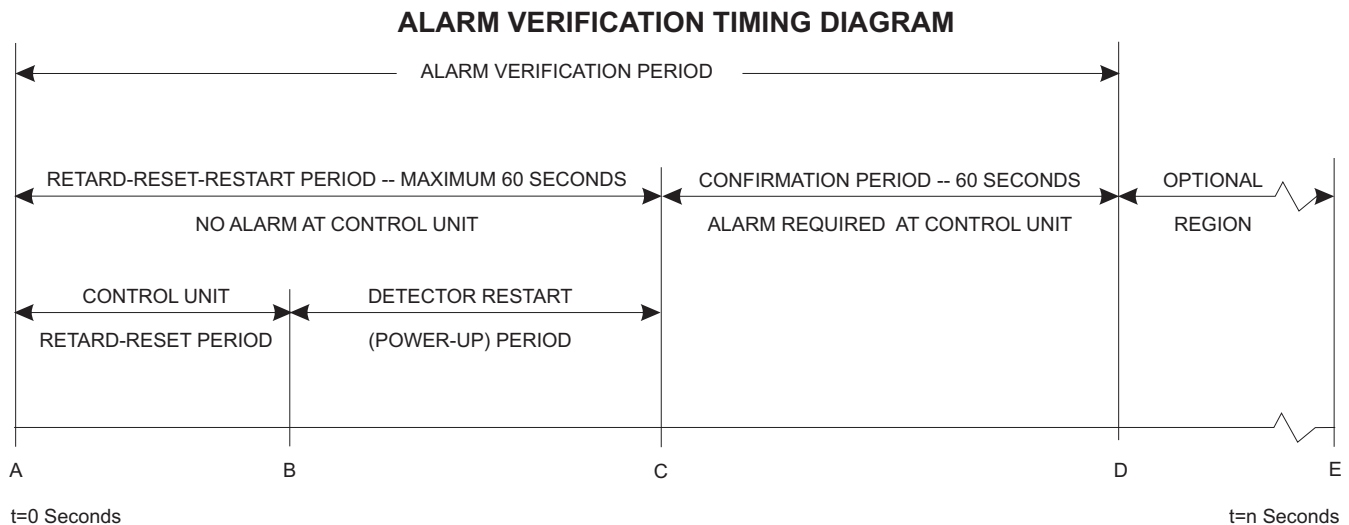
# APPENDIX-E: ALARM VERIFICATION

Alarm verification provides FS-250 with a way to verify an alarm from area type addressable smoke detectors connected to intelligent loops (FS-DLC). This feature reduces the incidence of false alarms. Only detectors that do not contain an integral alarm verification feature can be used.

Addressable detectors connected to FS-DLCs indicate that an alarm condition has been detected. If the device is subject to alarm verification, the FS-DLC alerts the control panel that the device has entered verification but is not yet considered to be in alarm. The FS-DLC starts a timer using the FS-250 system Retard-Reset Period. When the timer expires, the FS-DLC begins the fixed 60-second confirmation period. If the device is no longer in alarm during the confirmation period, the verification cycle is considered complete and detection of a subsequent alarm from that device results in the verification cycle restarting. If the device still reports in the alarm state during this confirmation period, the alarm condition is reported to the control panel and the system annunciates the alarm condition.

See the figure below for a graphic illustration of Alarm Verification.

**NOTE: For devices connected to the FS-DLC, the Detector Restart period is 0 seconds.**



A - Smoke detector goes into alarm.

AB - RETARD-RESEST PERIOD (Control Unit) - Control unit senses detector in alarm and retards (delays) alarm signal, usually by de-energizing power to the detector. Length of time varies with design. (11 to 55 seconds)

BC - RESTART PERIOD (Detector Power-up Time) - Power to the detector is reapplied and time is allowed for detector to become operational for alarm. Time varies with detector design.

AC - RETARD-RESEST-RESTART PERIOD - No alarm obtained from control unit. Maximum permissible time is 60 seconds.

CD - CONFIRMATION PERIOD - Detector is operational for alarm at point C. If detector is still in alarm at point C, control unit will alarm. If detector is not in alarm, system returns to standby. If the detector re-alarms at any time during the confirmation period the control unit will alarm.

DE - OPTIONAL REGION - Either an alarm can occur at control unit or restart of the alarm verification cycle can occur.

AD - ALARM VERIFICATION PERIOD - Consists of the retard-reset-restart and confirmation periods.

# APPENDIX-F: APPLICATION SPECIFIC DETECTION

Application Specific Detection (ASD) allows the system designer to program an HFP-11 detector's sensitivity, pre-alarm threshold, and other alarm-related parameters using English descriptions of the detector's environment (application). This eliminates the need for detailed knowledge of smoke detector terminology and operation. The designer can set all of the critical detector parameters by simply selecting an application description that closely fits the one where the detector is to be installed.

For example, to use ASD to select the optimal parameters for a detector in a hotel lobby, select the LOBBY application in the FS-CT2 tool for that device. The system will automatically transmit the factory determined sensitivity, pre-alarm threshold, and detection algorithm (R-algorithm) to the corresponding device. This eliminates the guesswork of selecting these parameters for different environments.

ASD APPLICATIONS

ASD Application	ASD Description
Disable	No Applications (Standard Photo/thermal Detector)
Office (Retail)	Reasonably clean, climate controlled atmosphere
Warehouse (Light Manufacturing)	Airborne dust, equipment, fork truck and light to medium dock area exhaust fumes
Lobby	Relatively clean area, temperature changes, cellular phones, smoking
Computer Room	Very controlled environment, clean, temperature closely regulated, high cost clean machinery operating, no smoking, high air velocity
Dormitory	Airborne dust and temperature changes, living quarters, cooking fumes, smoking
Healthcare	Higher level risk, relatively clean, electronic equipment
Parking Garage	Airborne dust, car and diesel fumes, temperature swings
Utility (Transformer) Room	Normal to somewhat dirty environment, heat from running equipment
Precious Storage (Sensitive Environment)	Sensitive materials or equipment storage, clean dust-free environment, earliest warning desired
Hostile Environment	Dirty, dusty, humid, operating equipment, RF present, wide temperature swings
Duct (Open air or duct housing)	Dirty, dusty, humid, wide temperature swings, high air velocity

## **APPENDIX-G: TESTING/MAINTENANCE**

If the system is connected to the fire department, etc., or actuates an internal system, disarm the appropriate outputs before servicing to prevent actuation. Notify the fire department and personnel at your facility that a System test is being performed so that any alarm sounding can be ignored during the test. Notify the fire department before resetting the system.

Inspection, Testing, and Maintenance of the fire alarm system should be performed in accordance with NFPA 72, The National Fire Alarm Code and all applicable local codes.

# APPENDIX-H: LCD, CONTROLS AND INDICATORS

The FS-250 has a sounder, 6 LEDs, 4 navigational push buttons adjacent to the LCD display (M1-M4), 3 dedicated push buttons, alphanumeric keypad and communication port connector.

## Communication Port Connector

The communication port is connected to the serial output terminal of the computer that has the FS-CT2 programming tool. This is used to upload and/or download panel configuration if this method of programming is used.

The computer must be disconnected from the panel if not in use.

## LEDS, Sounder and Dedicated Push Buttons

The LEDs operate as follows:

POWER (Green)	Normally ON (steady) – indicates that power is applied to the panel. OFF indicates that the panel is not powered up.
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 (pulsing) – 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.
PRE-ALARM (Yellow)	Normally OFF – indicates that there is no pre-alarm event 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.
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.
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.
DISCHARGE LED (Yellow)	Indicates that one of the releasing circuits is active
PRE-DISCHARGE LED (yellow)	Indicates that the panel is counting down the release delay timer before discharge
ABORT Led (Yellow)	Indicates that one of the devices which have been assigned to abort the discharge is active

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.

Dedicated Push Buttons:

- ALARM SILENCED When pressed when ALARM SILENCED LED is OFF, silences all the activated silenceable NACs.  
When pressed when the ALARM SILENCED LED is ON, reactivates all previously silenced NACs.
- ACKNOWLEDGE When pressed, acknowledges all events that are unacknowledged.
- RESET When pressed, initiates a system reset.
- M1 – M4 These push buttons 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.

### Alphanumeric Keypad:

The alphanumeric keypads are used to enter the password to access the maintenance and technician modes of the panel. It allows the user to program the panel using these keypads without using the FS-CT2 programming tool.

Refer to the FS-250 Programming Manual (P/N 315-049403).

### LCD Display:

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

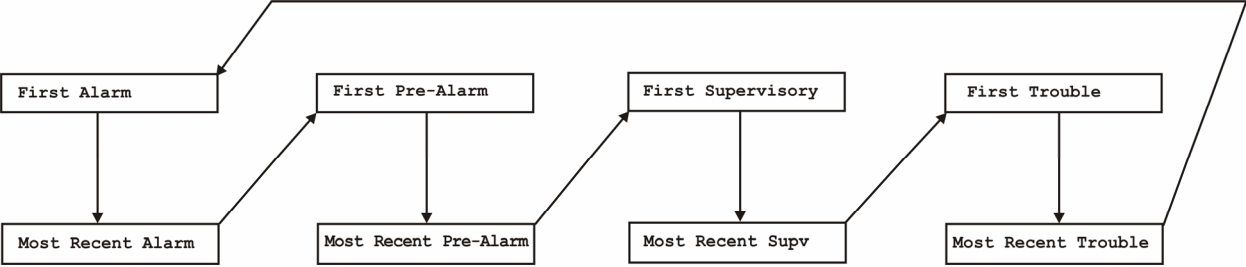
```
20 supervisory msg01
20 supervisory msg02
    10:16:30 am
Monday      07/26/04
```

Active Event Mode:

- Line 1 – 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 – acknowledged or unacknowledged event, 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.



# APPENDIX-I: GLOSSARY

**Alarm Signal.** A signal indicating an emergency requiring immediate action, such as an alarm for fire from a manual station, a waterflow alarm, or an automatic smoke detector.

**Alarm Silence Inhibit.** An option that prevents a human operator from silencing the notification appliances for a preset period of time.

**Alarm System.** A combination of compatible initiating devices, control panels, and notification appliances designed and installed to produce an alarm signal in the event of a fire.

**Alarm Verification.** A preset option that causes the control panel to verify alarms originated by smoke detectors before indicating an alarm.

**Annunciator.** A remotely located, electrically powered display, separate from the control panel, containing LEDs or lamps to indicate the states of the fire alarm system.

**Audible Signal.** An audible signal is a sound made by one or more audible notification appliances, such as bells or horns, in response to the operation of an initiating device.

**Authority Having Jurisdiction (AHJ).** The organization, office, or individual responsible for approving equipment, installation or procedure.

**Auto-Silence.** The capability of a control to automatically silence the notification appliances after a preset period of time.

**Auxiliary Relays.** Control relays that energize only during alarm conditions that are used to either apply power to or remove power from other equipment during an alarm condition.

**Class A Circuit.** An initiating device or notification appliance circuit within which all components remain fully functional, even though a single open or ground exists in the circuit.

**Class B Circuit.** An initiating device or notification appliance circuit within which some or all components may be disabled with a single open or ground exists in the circuit.

**Detector - FirePrint™.** An intelligent fire detector that blends photoelectric, thermal and neural network technologies for superior protection without false alarms.

**Detector - Smoke, Photoelectric Type.** A detector employing the photoelectric principle of reflection or obstruction of light by smoke.

**Detector - Thermal Type.** An addressable thermal sensor that is programmable as either a fixed temperature (135° F) or as a rate of rise detector.

**End Of Line (EOL).** A device used to terminate a supervised circuit.

**General Alarm.** A term usually applied to the simultaneous operation of all the notification appliances on a system.

**Ground Fault.** A trouble condition in which a low resistance has been detected between the system wiring and conduit ground.

**Initiating Device.** A manually or automatically operated device such as a manual pull station, smoke detector, heat detector, waterflow switch or tamper switch.

**Initiating Device Circuit (IDC).** A circuit to which initiating devices are connected.

**Labeled.** Equipment or materials to which have been attached a label, symbol, or other identifying mark of an organization acceptable to the authority having jurisdiction and concerned with product evaluation, that maintains periodic inspection of the production of such labeled equipment or materials. And by whose labeling the manufacturer indicates compliance with appropriate standards or performance in a specified manner.

**Listed.** Equipment or materials included in a list published by an organization acceptable to the authority having jurisdiction and concerned with product evaluation, that maintains periodic inspection of production of listed equipment or materials. And whose listing states either that the equipment or material meets appropriate standards or has been tested and found suitable for use in a specified manner.

**NEC.** National Electrical Code also published as NFPA standard 70.

**Notification Appliance.** An electrically operated appliance used to indicate the system status such as a bell, horn, strobe light or speaker.

**Notification Appliance Circuit (NAC).** A circuit to which notification appliances are connected.

**Power Supply.** That portion of the fire alarm control panel, which provides the power needed to operate all control panel modules, as well as that, needed to operate all electrically powered initiating devices and all notification appliances.

**Quick Test.** A term pertaining to the test mode of the system, that automatically resets after a service technician tests initiating devices.

**Supervisory Alarm.** A signal indicating the operation of a supervisory device.

**Supervisory Device.** A device that monitors the condition of a sprinkler system such as a gate-valve switch, water-level switch, low pressure switch, low temperature switch or fire pump monitor.

**Trouble Signal.** An audible signal indicating trouble of any nature, such as a circuit break or ground, occurring in the device or wiring associated with a fire alarm signal.

**Waterflow Switch.** An assembly approved for service and so constructed and installed that any flow of water from a sprinkler system equal to or greater than that from a single automatic sprinkler head will result in activation of this switch and subsequent indication of an alarm condition.

**Zone.** A designated area of a building. Commonly, zone, is interchanged with initiating device circuit.





