FireNET 4127
Analog Addressable Fire Alarm System
Installation and Operation Manual

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Notice to Users, Installers, Authorities Having Jurisdiction, and other involved parties			
This product incorporates field-programmable software. In order for the product to comply with the requirements in the Standard for Control Units and Accessories for Fire Alarm Systems, UL 864 9th Edition, certain programming features or options must be limited to specific values or not used at all as indicated below.			
Program Feature or Option	**Permitted in UL 864? (Y/N)**	**Possible settings**	**Settings permitted in UL864**
AC Fail Delay	Yes	0 - 24 hours	1 – 3 hours
Alarm Verification	Yes	5 – 60 seconds	60 second setting
Disable Buzzer	Yes	Enable/Disable	Enable
Disable Ground Trouble	Yes	Enable/Disable	Enable
Set Buzzer Silence Access Level	Yes	1 or 2	2

Section 1 – Introduction

The FireNET 4127 is an analog addressable fire alarm system that meets the requirements of UL 864 9th Edition.

1.1 Basic Features

- ❑ The basic FireNET 4127 control panel includes two SLC (Signaling Line Circuit) loops. Each loop is capable of supporting 127 analog addressable points (can be any combination of sensors and modules) for a total of 254 analog addressable points on the basic panel. Two additional SLC loops can be added to the panel increasing the analog addressable point capacity to 508. When analog sounder bases are used, the upper addresses 128 – 254 are allocated to increase loop capacity to 254 analog addressable points. This doubles the analog addressable point capacity of the panel. The combination of analog addressable points derived from sensors, modules, and sounder bases cannot exceed 800 addresses and sub-addresses maximum.

- ❑ Up to 4.0 amps of power is available to drive the system, SLC loops, notification appliances, and auxiliary equipment.

- ❑ Four Class B notification appliance circuits rated at 2.5 amps each (see Section 2.7 and 2.8 for additional details regarding NAC circuit ratings).

- ❑ Five programmable Form C relays are built-in to the control panel.

- ❑ 500 network-wide zones for device and circuit grouping.

- ❑ Analog Smoke Detector Features:
    - Automatic Drift Compensation
    - Maintenance Alert
    - Adjustable Day/Night Sensitivity
    - Calibration checking meets sensitivity test requirements of NFPA 72.

- ❑ Auto-Learn utility identifies system devices, which makes initial system start-up easier.

- ❑ 8 line by 40 character graphic display provides the most intuitive operator interface in the industry (320 characters total).

- ❑ Help screens are available from the front panel and annunciator user interface to assist in programming and operation.

- ❑ 512 additional points can be added to the system using the FN4127-IO 16 channel input/output boards. Each of these points can be programmed individually to be an input or low current output. These points are for secondary use only.

1.2 System Devices and Equipment

The following boards, expanders and devices are available from Hochiki America Corp. to be used with the FireNET 4127 analog addressable fire alarm system. For a complete description and installation instructions of each product, please see the appropriate section of this manual and the literature supplied with the device itself.

Model	Description
Control Panels	
FN-4127*	Analog/Addressable Fire Alarm Control Panel (2 SLC Loop, expandable to 4 SLC Loop)
NOTE: There are several ordering models (i.e. 2 loop, 4 loop, network options, 120/240VAC, colors, etc.). Hochiki America's order entry department will establish exact model and configuration at time of order. Different ordering models are also reflected on the FireNET product datasheets.	
Control Panel Expanders	
FN-4127-NIC	Network Interface Card
FN-4127-SLC	Dual SLC Loop Expander Card
FN-4127-IO	16 Channel Input Output Board
FN-CTM	City-Tie Module
Annunciators	
FN-LCD-N	Network LCD Annunciator
FN-LCD-S	Serial LCD Annunciator
SLC Loop Devices	
ALG-V	Analog Photoelectric Smoke Sensor
AIE-EA	Analog Ionization Smoke Sensor
ATG-EA	Analog Heat Sensor
YBN-NSA-4	4" Base for Analog Sensors
HSB-NSA-6	6" Base for Analog Sensors
DH98-A	Analog Duct Smoke Detector
DH98-AR	Analog Duct Smoke Detector w/Relay
MS-RA, MS-RA/R, MS-KA/R	Remote Test Station for DH98A & DH98AR
FRCME-4	Input Module 4" Box Mount
FRCME-S	Mini Input Module w/ Terminal Block
FRCME-P	Mini Input Module w/Pigtail Leads
SOM	Supervised Output Module
R2M	Dual Relay Module
SCI	Short Circuit Isolator Module
DIMM	Dual Input Monitor Module
CZM	Conventional Zone Module
ASB	Analog Sounder Base
AMS/KL/LP	Addressable Manual Pull-Station
Accessories	
TCH-B100-NS	Hand-held Programmer
FN-ACC	Battery/Accessory Enclosure (houses up to 33AH size batteries)
FN-ETR	Enclosure Trim Ring for Panel Flush Mount

1.2.1 System Replacement Parts

Control Panel Repair / Replacement Parts	
FN-4127-BO	FireNET 4127 Control Unit Board Only (K6002)
FN-4127-CPA-BO	FireNET 4127 Panel Annunciator Board Only (K6001)
FN-PS4	FireNET 4 Amp Power Supply (UL864 8th Edition Compliant)
FN-PS402*	FireNET 4 Amp Power Supply (UL864 9th Edition Compliant)
FN-ENC	FireNET Enclosure Complete
FN-ENC-DO	FireNET Enclosure Door Only
FN-ENC-BC	FireNET Enclosure Back-Can Only
FN-PMP	FireNET Panel Mounting Plate
FN-KEY	FireNET Enclosure Key Lock
FN-PBS	FireNET Panel Bonding Strap
FN-PGB	FireNET Panel Grounding Block
FN-EOL	FireNET Panel EOLR (package)
FN-STO	FireNET Panel Standoffs (for panel covers)
FN-PRC	FireNET Panel Ribbon Cables (package)
FN-FUS	FireNET Main AC Input Fuse
FN-FUS-BATT	FireNET Battery Input Fuse
FN-BLJ	FireNET Battery Leads & Jumper
FN-MAN	FireNET Installation Manual
FN-PDL	FireNET Panel Door Label
FN-LSW	Loop Explorer Software CD
FN-X187	Programming Cable (Standard)
FN-S187	Programming Cable (Jacketed)
FN-SKDK	Spare Keys for Door Keyswitch
FN-SKCK	Spare Keys for Controls Keyswitch
FN-ECK	Enable Controls Keyswitch
FN-BLE	Battery Leads for Accessory Enclosure (extended length 3.28ft)
FN-LCD-N-ETR	Enclosure Trim Ring for Network Annunciator Flush Mount
FN-LCD-N-BB	Network Annunciator Back-box
FN-LCD-N-CPA-BO	Network Annunciator Annunciator Board Only (K6001 R version)
FN-LCD-N-BO	Network Annunciator Control Unit Board Only (K6007)
FN-LCD-S-BO	Serial Annunciator Control Unit Board Only (K6017)
FN-LCD-S-BB	Serial Annunciator Back-box
FN-EBS	Expansion Boards Standoffs (SLC board & I/O board stacking)

*NOTE: 240VAC option available

1.3 Limitations of Fire Alarm Systems

Follow Recommended Installation Guidelines: To achieve early fire detection, fire detection sensors should be installed in all rooms and areas of a house, apartment, or building in accordance with the recommendations of the National Fire Protection Association Standard 72 (NFPA 72), manufacturer's recommendations, state and local codes, and the recommendations contained in Guide for the Proper Use of System Smoke Detectors, which is made available at no charge to all installing dealers. Generally, the standards and recommendations include the following (but installers should refer to the specific guidelines above before installing):

- Sleeping Rooms: Smoke detectors should be installed in every sleeping room.
- Hallways: More than one smoke detector should be installed in a hallway if it is more than 30 feet long.
- At least Two Smoke Detectors: There should never be less then two smoke detectors per apartment or residence.
- Smoke Detectors in Alarm, Electrical, or Phone Locations: Smoke detectors should be located in any room where an alarm control is located or an alarm control connects to an electrical source or phone line. If detectors are not so located, a fire within the room could prevent the alarm control from reporting a fire.
- Notification Systems: All fire alarm systems require notification devices, including sirens, bells, horns, and/or strobes. In residential applications, each automatic alarm initiating device when activated should cause the operation of alarm notification device that should be clearly audible in all bedrooms over ambient or background noise levels (at least 15dB above noise) with all intervening doors closed.
- Alarm in Every Bedroom and Level of Residence: A smoke detector with an integral sounder (smoke alarm) should be located in every bedroom and an additional notification device should be located on each level of a residence.
- Maintenance: A maintenance agreement should be arranged through the local manufacturer's representative and maintenance should be performed annually by authorized personnel only. To keep a fire alarm system in excellent working order, ongoing maintenance is required per the manufacturer's recommendations and UL and NFPA standards. At a minimum the requirements of Chapter 7 of NFPA 72 (1999) shall be followed.
- Test Weekly: The alarm system should be tested weekly to make sure all sensors and transmitters are working properly. The most common cause of an alarm system not functioning when a fire occurs is inadequate maintenance.

Alarms Cannot Guarantee Warning or Protection: Fire alarm system cannot guarantee warning or protection against fire in every potential situation. A study by the Federal Emergency Management Agency (an agency of the United States government) indicated that smoke detectors may not go off or give early warning in as many as 35% of all fires.

<u>Limitation on Fire Alarm Effectiveness:</u> A fire alarm system may not provide timely or adequate warning, or simply may not function, for a variety of reasons. For example:

- <u>No Detection:</u> Particles of combustion or smoke from a developing fire may not reach the sensing chambers of smoke detectors because:
    1. ***Barriers*** (such as closed or partially closed doors, walls, or chimneys) may inhibit particle or smoke flow.
    2. Smoke particles may become ***cold, stratify, or not reach*** the ceiling or upper walls where detectors are located.
    3. Smoke particles may be ***blown away*** from detectors by air outlets.
    4. Smoke particles may be ***drawn into air returns*** before reaching the detector.
- <u>No Multi-Floor Detection:</u> In general, smoke detectors on one level of a structure cannot be expected to sense fires developing on another level.
- <u>Insufficient Smoke:</u> The amount of smoke present may be insufficient to alarm smoke detectors. Smoke detectors are designed to alarm, at various levels of smoke density. If such density levels are not created by a developing fire at the location of the detector, the detector will not go into alarm.
- <u>Smoldering vs. Flaming Fires:</u> Smoke detectors, even when working properly, have sensing limitations. Detectors that have photoelectric sensing chambers tend to detect smoldering fires better than flaming fires, which have little visible smoke. Detectors that have ionizing-type sensing chambers tend to detect fast flaming fires better than smoldering fires. Because fires develop in different ways and are often unpredictable in their growth, neither type of detector is necessarily best and a given type of detector may not provide adequate warning of a fire.
- <u>False Alarms and Pre-Fire Disconnection:</u> Smoke detectors are subject to false alarms and nuisance alarms and may have been disconnected by users. For example, a smoke detector located in or near a kitchen may go into nuisance alarm during normal operation of kitchen appliances. In addition, dusty or steamy environments may cause a smoke detector to falsely alarm. If the location of a smoke detector causes an abundance of false alarms or nuisance alarms, do not disconnect the smoke detector, call a professional to analyze the situation and recommend a solution.
- <u>Fast Fires and Explosions:</u> Smoke detectors cannot be expected to provide adequate warning of fires caused by arson and children playing with matches (especially within bedrooms), smoking in bed, violent explosions (caused by escaping gas, improper storage of flammable materials, etc.).
- <u>Heat Detectors:</u> Heat detectors do not sense particles of combustion and are designed to alarm only when heat on their sensors increases at a predetermined rate or reaches a predetermined level. Heat detectors are designed to protect property, not life.

- Unheeded Warning: Warning devices (including horns, sirens, and bells) may not alert people or wake up sleepers who are located on the other side of closed or partially open doors. A warning device that activates on a different floor or level of a dwelling or structure is less likely to awaken or alert people. Even persons who are aware may not notice the warning if the alarm is muffled by noise from a stereo, radio, air conditioner or other appliance, or by passing traffic. Audible warning devices may not alert the hearing impaired (strobes or other devices should be provided to warn these people). Any warning device may fail to alert people with a disability, deep sleepers, people who have recently used alcohol or drugs, or people on medication or sleeping pills.

    - Strobes: Strobes can under certain circumstances, cause seizures in people with conditions such as epilepsy.
    - Drills: Studies have shown that certain people, even when they hear a fire alarm signal, do not respond or comprehend the meaning of the signal. It is the property owner's responsibility to conduct fire drills and other training exercises to make people aware of fire alarm signals and instruct on the proper reaction to alarm signals.
    - Hearing Loss: In rare instances, the sounding of a warning device can cause temporary or permanent hearing loss.

- Telephone Transmissions Problems: Telephone lines needed to transmit alarm signals from a premises to a central station may be out of service or temporarily out of service. For added protection against telephone line failure, backup radio transmission systems are recommended.
- System Failure With Age or Lack of Maintenance: System components, though designed to last many years, can fail at any time. As a precautionary measure, it is recommended that smoke detectors be checked, maintained, and replaced per manufacturer's recommendations.
- Electrical Power Problems: System components will not work without electrical power. If system batteries are not serviced or replaced regularly, they may not provide battery backup when AC power fails.
- High Air Velocity or Dusty or Dirty Environments: Environments with high air velocity or that are dusty or dirty require more frequent maintenance.

Importance of Maintenance: In general, fire alarm systems and devices will not work without power and will not function property unless they are maintained and tested regularly.

Alarm is Not Substitute for Insurance: While installing a fire alarm system may make the owner eligible for a lower insurance rate, an alarm system is not a substitute for insurance. Property owners should continue to act prudently in protecting the premises and the people in their premises and should properly insure life and property and buy sufficient amounts of liability insurance to meet their needs.

1.4 Agency Listings, Approvals, Requirements

1.4.1 Federal Communications Commission (FCC)

The FireNET 4127 has been verified to comply with FCC Rules Part 15, Class A Operation is subject to the following conditions:

1. This device may not cause radio interference.
2. This device must accept any interference received, including any that may cause undesired operation.

1.4.2 Underwriters Laboratories (UL)

The FireNET 4127 is UL864 9th Edition listed and is suitable for use as a commercial protected premises control unit as follows:

-Local signaling unit

-Types of signaling services are automatic, manual, waterflow, & sprinkler supervisory.

-Style 4, 6, or 7 for Signaling Line Circuits

-Style Y for Notification Appliance Circuits

-Non-coded signaling

-Central Station Service – DACT type (protected premise)

-Auxiliary Service – local energy type (protected premise)

1.4.3 National Fire Protection Association (NFPA)

Install and configure the FireNET system in accordance with NFPA 72 and 13.

All field wiring must be installed in accordance with NFPA 70 National Electric Code (Article 760).

Section 2 – Control Panel Installation

2.1 What's in the Box?

The FireNET 4127 control panel includes the following components and hardware:

- ❑ Control panel cabinet with hinged door.

- ❑ Power supply module pre-mounted in cabinet

- ❑ Control panel annunicator & RS232 interface pre-mounted in cabinet

- ❑ Main control unit pre-mounted in cabinet.

- ❑ Two keys for the cabinet lock, and two keys for the Enable Controls keyswitch.

- ❑ (2) 10k ohm EOL resistors PN# 0400-01046, (4 or 8) zero ohm jumpers PN# 0400-01025, (1) 1N4004S diode PN# 0400-01024, and (4) EOLD devices PN# 0400-1023.

- ❑ Battery jumper for series connection of 2 – 12 volt batteries.

- ❑ Installation Manual (PN# 1700-09948)

2.2 Environmental Specifications

The FireNET 4127 main control panel should be installed in locations where it will NOT be exposed to temperatures outside the range of 32° F – 120°F or humidity outside the range of 10%-85% non-condensing.

The FireNET 4127 control panel must be installed so that it is not subjected to damage by water and condensation. AVOID mounting the control panel cabinet directly on exterior masonry walls, in areas subject to plumbing leaks, in areas subject to splash from sprinkler test valves, or in high humidity areas.

The FireNET control panel is intended for installation in indoor environments in a dry location.

2.3 Control Panel Layout

2.3.1 Front Panel Layout

8-Line x 40 character LCD

Front Panel Indicators

Front Panel Controls

Enable Controls Key-switch (Access Level 2)
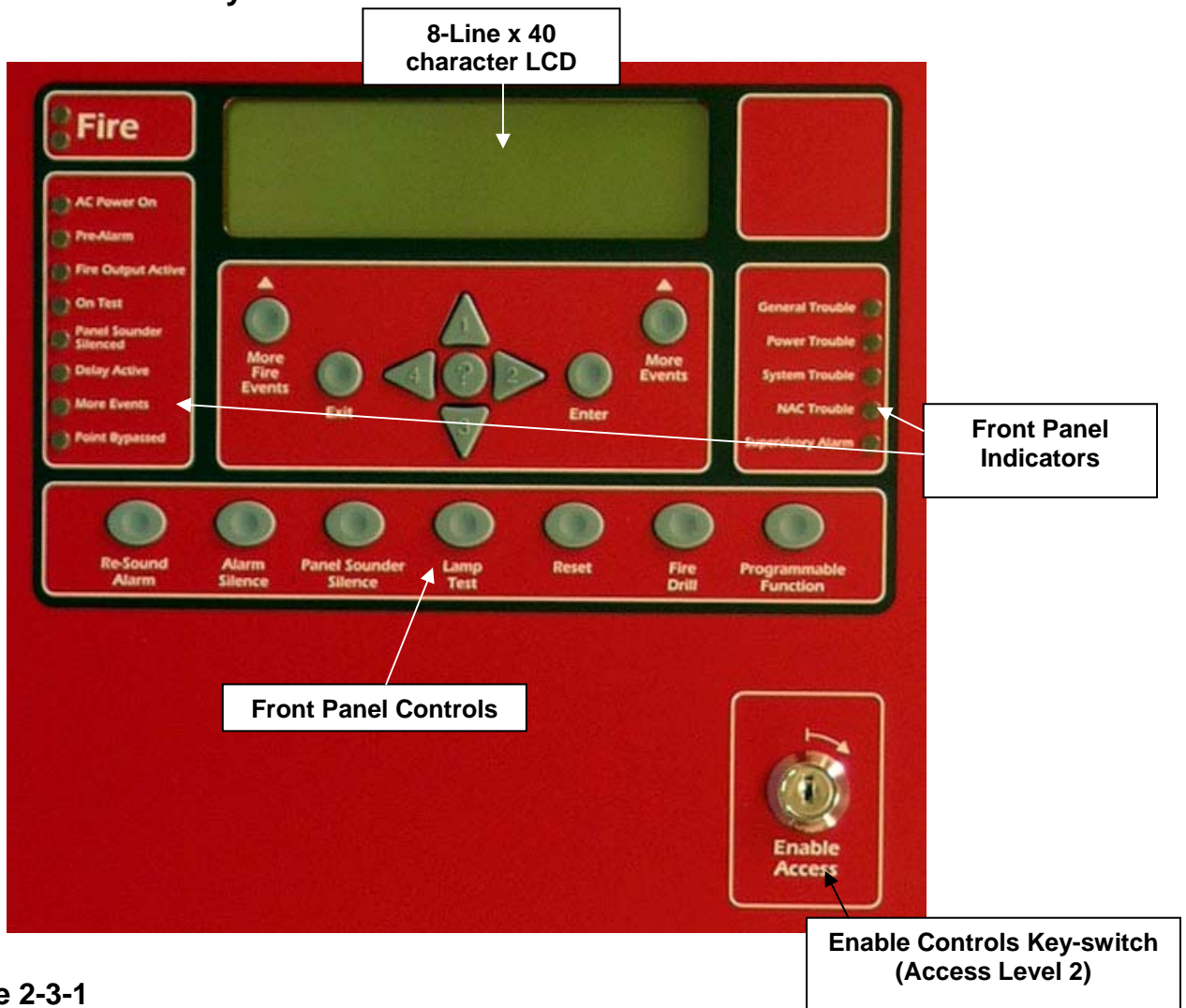
Figure 2-3-1

2.3.2 Control Panel Annunciator, Control Unit and Power Supply Layout
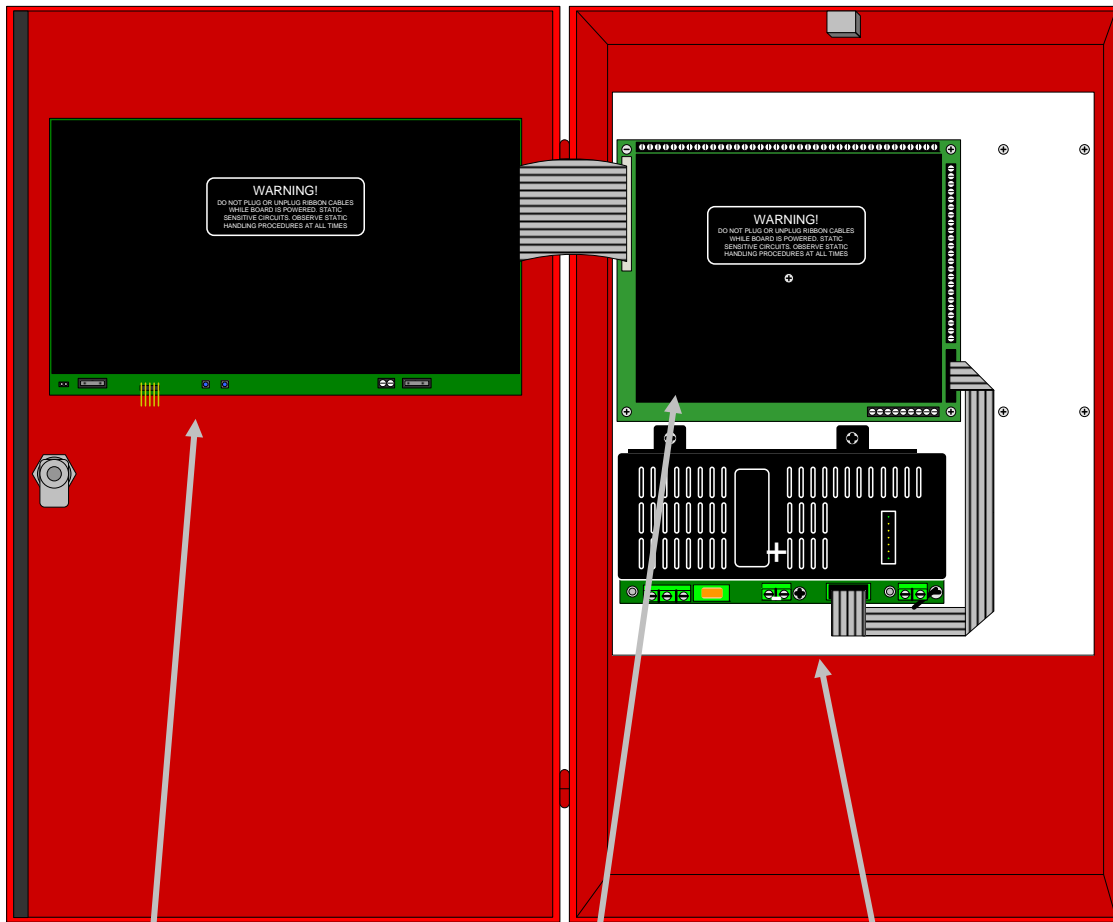
Control Panel Annunciator & RS 232 Interface
- Printer Connection
- PC Connection
- Front Panel Controls

Main Control Unit
- SLC Loops
- Programmable Relays
- Notification Appliance Circuits
- Programmable Outputs
- Remote Control and Aux Inputs
- Expansion Board Connections
- Network Connections
- Aux Power Output

Power Supply Module
- AC Power Connection
- Battery Connection

Figure 2-3-2

2.4 Mounting the Control Panel

Consult the environmental specifications listed in Section 2.2 to determine a suitable location to mount the FireNET 4127 main control panel.

The panel should be mounted so that it is accessible to service personnel and located in a secure area.

Do not mount directly to a concrete wall. Use a suitable standoff material such as plywood to keep condensation away from the control panel.

2.5 Wiring Specifications

Care should be taken when wiring the system to avoid situations that would contribute to inducing electrical noise from one wire to another. Induced noise can interfere with telephone communications or cause erratic system operation. Follow these guidelines to plan your system wiring prior to installation.

- Route high and low voltage wiring separately. Maintain a minimum 2" separation between high and low voltage wiring throughout the building.

- Route control panel wiring around the perimeter of the enclosure. A minimum .25" separation is required between high and low voltage wiring.

- Identify which group each wire or cable is associated with from the list below. Isolate each groups wiring as much as possible. Avoid running a single multi-conductor cable for multiple groups of conductors.

    - AC Power - Main Power Supply
    - Notification Appliances
    - SLC Circuits
    - Relay Outputs
    - Voltage Outputs
    - Remote Control and Auxiliary Inputs
    - Network Wiring (Shielded wire required)
    - RS485 Bus Wiring (Shielded wire required)

- Keep wiring from different groups separated as much as possible. If you must share the same conduit with different conductor groups consider using shielded cable.

- If shielded cable is used terminate the shield to the earth ground terminal block in the main control panel and leave open at field side of cable. Do not ground at both ends of cable.

- All terminals on the FireNET control can accept wire gauges from 22AWG and 12AWG.

2.5.1 Suggested Routing of AC Power

Route the AC input power wiring as outlined below. Follow recommendations outlined in section 2.5 regarding the separation of high and low voltage wiring.
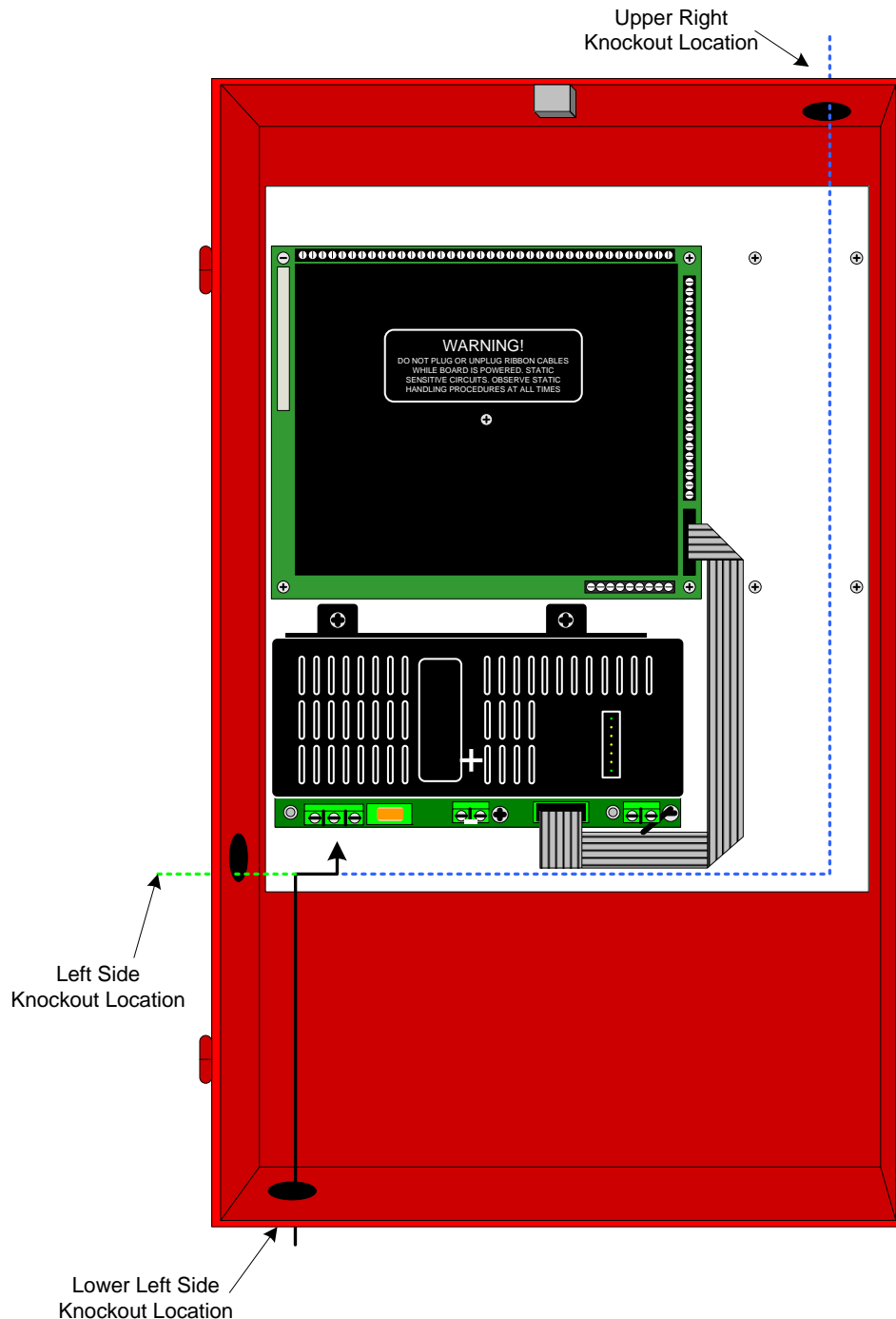
The preferred entry location for AC input power is via the left side knock-out (see green dotted line above). DO NOT route AC input power across the main control board (K6002), the ribbon cable interconnects, or directly across or adjacent to the low-voltage connections made on terminal strips X1 (top) or X2 (side).

2.6 Battery Calculations

HOCHIKI america corporation *FireNET* Battery Calculator Tool

The FireNET Battery Calculator Tool will help you determine the batteries needed for your installation. In order to use this tool you must know the number and type of devices that will be attached to your control panel, and the current requirements of any auxiliary devices being powered by the control panel. To begin, answer the following questions...

How much **Standby Time** is required for the installation (24 or 60 Hours)? Hours

How much **Alarm Time*** is required for the installation (5 or 15 Minutes)? Minutes

Panel Hardware		Device Standby Current	Total Standby Current	Device Alarm Current	Total Alarm Current	Stdby 24VDC Aux. Pwr
FN2127 2-Loop Panel		0.260	0.260	0.620	0.716	
FN4127-SLC Loop Expander	Enter Expander Standby and Alarm Current (if used)	0.100		0.100		
FN4127-NIC Network Card	Enter Network Standby and Alarm Current (if used)	0.060		0.060		
SLC Device Communication Current	= # Loops Used X .00675A (Standby and Alarm) 110	0.00675		0.00675		
5 Device Alarm LEDs	= # Loops Used X 0.040A (Alarm)			0.040		
	Enter the number of devices on each loop below. Total the devices on all loops and multiply by the Standby and Alarm Currents.	**TOTAL**				

SLC Devices	Loop 1	Loop 2	Loop 3	Loop 4	Device Standby Current	Total Standby Current	Device Alarm Current	Total Alarm Current	
ALG-V Analog Photo Smoke					0.00039		0.00039		
AIE-EA Analog Ion Smoke					0.00035		0.00035		
ATG-EA Analog Heat Sensor					0.00035		0.00035		
DH98-A Analog Duct Smoke					0.00039		0.00039		
Number of Alarm LEDs							0.008		
DH98-AR Analog Duct w/Relay					0.00039		0.00039		
★ **Panel Aux. 24V Power**					0.010		0.060		0.000
Number of Remote Alarm LEDs							0.015		0.000
Number of Remote Power LEDs					0.015		0.015		0.000
FRCME-4 Input Module					0.00055		0.00055		
FRCME-S Input Module w/Term Blk					0.00055		0.00055		
FRCME-P Input Module w/Pigtails					0.00055		0.00055		
DIMM Dual Input Monitor Module					0.00060		0.00060		
AMS Addressable Pull Station					0.00055		0.00055		
CZM Conventional Zone Module					0.000675		0.000675		
★ **Panel Aux. 24V Power**					0.00775		0.060		0.000
ASB Analog Sounder Base					0.00011		0.00011		
★ **Panel Aux. 24V Power**					0.00055		0.018		0.000
SOM Supervised Output Module					0.00022		0.0003		
See Aux. Devices Below for Power									
R2M Dual Relay Module					0.00015		0.00015		
SCI Short Circuit Isolator					0.00027		0.010		
Device Total									
SLC TOTAL						A			0.000 A

When using SLC devices that require auxiliary power, it is important to consider the source. Auxiliary Power on the FireNET control panel is limited to 0.500A Max. If FireNET Auxiliary Power is used, enter the current required into the table above. If another 24VDC auxiliary power supply is used, do not include the auxiliary current draw in this calculation.

Notification Appliance Circuits	NAC 1	NAC 2	NAC 3	NAC 4	NAC Total Standby Current		Total Alarm Current	
Total Current per NAC Circuit								A
Constant / Resettable Power								

Enter the NAC current required for each NAC circuit in the table above. If using the NAC constant/ resettable power option, enter the current value to the approriate NAC circuit box and total for NAC Standby Current. When using the constant power option, add the NAC Total Standby Current to the NAC Total Alarm Current box to include Constant Power in the Alarm calculation.

When using devices that require auxiliary power, it is important to consider the source. Auxiliary Power on the FireNET
control panel is limited to 0.500A Max. If FireNET Auxiliary Power is used, enter the current required into the table below.
If another 24VDC auxiliary power supply is used, do not include the auxiliary current draw in this calculation.

Auxiliary Devices		Device Quantity		Standby Current	Alarm Current		Total Standby Current		Total Alarm Current
# of SOM(s) X Total Current/$_{SOM}$				0					
FN-LCD-N Network Annunciator				0.150	0.270				
FN-LCD-S Serial Annunciator				0.020	0.110				
Bosch D9068 Contact Dialer				0.150	0.190				
			AUXILIARY TOTAL				A		A

The amount of current needed to power the I/O Board varies with application. Large amounts of current may be necessary if
I/O Board outputs are used. If the FireNET Auxiliary Power is used, enter the current required into the table below.
If another 24VDC auxiliary power supply is used, do not include the auxiliary current draw in this calculation. Multiply the number
of inputs/outputs required in standby and alarm by the current required by the application. Enter values in the table below.

I/O Boards		I/O in Standby	Standby I/O Current	I/O in Alarm	Alarm I/O Current		Total Standby Current		Total Alarm Current
I/O Board Address #1							0.008		0.008
Number of Inputs			0.001		0.001				
Number of Outputs									
I/O Board Address #2							0.008		0.008
Number of Inputs			0.001		0.001				
Number of Outputs									
I/O Board Address #3							0.008		0.008
Number of Inputs			0.001		0.001				
Number of Outputs									
I/O Board Address #4							0.008		0.008
Number of Inputs			0.001		0.001				
Number of Outputs									
I/O Board Address #5							0.008		0.008
Number of Inputs			0.001		0.001				
Number of Outputs									
I/O Board Address #6							0.008		0.008
Number of Inputs			0.001		0.001				
Number of Outputs									
I/O Board Address #7							0.008		0.008
Number of Inputs			0.001		0.001				
Number of Outputs									
I/O Board Address #8							0.008		0.008
Number of Inputs			0.001		0.001				
Number of Outputs									
			I/O TOTAL				A		A

Up to 32 I/O Boards can be connected to a single FireNET control panel. To determine total current requirements, the number
of inputs and outputs in the table above per I/O Board can be mutiplied to reflect a fully loaded 32 I/O Board system.
Note: Each I/O Board has 2 banks of 8 I/O channels. The maximum current output per channel is 0.100A with a total of 0.500A per bank.

Total the Standby and Alarm currents from the following sections: Panel Hardware, SLC Devices, Auxiliary Devices, and I/O Devices
Enter the total current in the total boxes below.

Site Information

Total Standby Current Draw =		AMPS
x Standby Time		Hours
Standby Total=		AH
Total Alarm Current Draw =		AMPS
x Alarm Time		Hours*
Alarm Total=		AH

Standby Amp-Hours Required =		AH
Alarm Amp-Hours Required =		AH
Total AH Required=		AH

x Derating Factor	1.20	%
Battery Size Needed ---		AH

Site Name-	
Address-	
Address 2-	
City-	
State & ZIP-	
Phone-	
Panel Info-	
Install Date-	
Misc.-	

The FireNET panel can support batteries up to 60 AH.

*   0.083 equals 5 minutes of alarm time, 0.25 equals
      15 minutes of alarm.

⭐Enter quantity if using control panel "Aux. Power" to power
    the moduel for auxiliary device.
  Note: A limited amount of current (**500mA**) is available
    for this function. If Aux. Power from another source is used,
    do not include the current draw in this calculation.

2.7 Electrical Ratings

Table 2.7.1 (X1) Top Terminal Strip Electrical Ratings for Main Control Unit

Terminal # and Label			Description	Rating	
				Voltage	Current
1	- OUT	SLC 1	Signaling Line Circuit. Out terminals used for Class B or A wiring.	32VDC	400mA
2	+ OUT			32VDC	400mA
3	- IN		Signaling Line Circuit. In terminals used for Return Loop for Class A wiring.	32VDC	400mA
4	+ IN			32VDC	400mA
5	- OUT	SLC 2	Signaling Line Circuit. Out terminals used for Class B or A wiring.	32VDC	400mA
6	+ OUT			32VDC	400mA
7	- IN		Signaling Line Circuit. In terminals used for Return Loop for Class A wiring.	32VDC	400mA
8	+ IN			32VDC	400mA
9	- OUT	SLC 3	Signaling Line Circuit. Out terminals used for Class B or A wiring.	32VDC	400mA
10	+ OUT			32VDC	400mA
11	- IN		Signaling Line Circuit. In terminals used for Return Loop for Class A wiring.	32VDC	400mA
12	+ IN			32VDC	400mA
13	- OUT	SLC 4	Signaling Line Circuit. Out terminals used for Class B or A wiring.	32VDC	400mA
14	+ OUT			32VDC	400mA
15	- IN		Signaling Line Circuit. In terminals used for Return Loop for Class A wiring.	32VDC	400mA
16	+ IN			32VDC	400mA
17	NC	Fire 1	Fire condition relay contacts #1.	30VDC	1 A
18	C			30VDC	1 A
19	NO			30VDC	1 A
20	NC	Trouble	Trouble condition relay contacts.	30VDC	1 A
21	C			30VDC	1 A
22	NO			30VDC	1 A
23	NC	Fire 2	Fire condition relay contacts #2.	30VDC	1 A
24	C			30VDC	1 A
25	NO			30VDC	1 A
26	NC	Supervisory	Supervisory relay contact.	30VDC	1 A
27	C			30VDC	1 A
28	NO			30VDC	1 A
29	NC	Auxiliary	Programmable auxiliary relay contacts.	30VDC	1 A
30	C			30VDC	1 A
31	NO			30VDC	1 A
32	+	NAC 1	Notification Appliance Circuit #1. 10K EOLR Required.	24VDC	2.5 A*
33	-			24VDC	2.5 A*
34	+	NAC 2	Notification Appliance Circuit #2. 10K EOLR Required.	24VDC	2.5 A*
35	-			24VDC	2.5 A*
36	+	NAC 3	Notification Appliance Circuit #3. 10K EOLR Required.	24VDC	2.5 A*
37	-			24VDC	2.5 A*
38	+	NAC 4	Notification Appliance Circuit #4. 10K EOLR Required.	24VDC	2.5 A*
39	-			24VDC	2.5 A*

*Note: See Section 2.8 for additional details regarding NAC circuit ratings

Table 2.7.2 (X2) Side Terminal Strip Electrical Ratings for Main Control Unit

Terminal # and Label		Description	Rating	
			Voltage	Current
1	+	Fire Routing	Supervised fire signaling output	24VDC	500mA
2	-			24VDC	500mA
3	+	Trouble Routing	Supervised trouble signaling output	24VDC	500mA
4	-			24VDC	500mA
5	+	Programmable Output	Supervised programmable output	24VDC	500mA
6	-			24VDC	500mA
7	TBL	Trouble Input	Remote control input	0V	30mA
8	RES	Reset Input	Remote control input	0V	30mA
9	INT	Intermittent Input	Remote control input	0V	30mA
10	CNT	Continuous Input	Remote control input	0V	30mA
11	SIL	Silence/Ack Input	Remote control input	0V	30mA
12	0V	DC Ground	Signal for activating remote inputs	0V	500mA
13	PR1	Programmable Input 1	Auxiliary input	0V	30mA
14	PR2	Programmable Input 2	Auxiliary input	0V	30mA
15	PR3	Programmable Input 3	Auxiliary input	0V	30mA
16	+	COMMS	RS485 to I/O boards	12VDC	100mA
17	-		RS485 to I/O boards	12VDC	100mA
18	+	AUX 24V	Auxiliary 24V supply	24VDC	500mA
19	-		Auxiliary 24V supply	24VDC	500mA
20	+	NETWORK IN	RS485 to other panels	12VDC	100mA
21	-		RS485 to other panels	12VDC	100mA
22	+	NETWORK OUT	RS485 to other panels	12VDC	100mA
23	-		RS485 to other panels	12VDC	100mA

Table 2.7.3 Terminal Strip Electrical ratings for the Power Supply Module

Connector	Terminal	Description	Rating	
			Voltage	Current
TB6	G	Earth Ground	N/A	N/A
	N	AC Neutral	120 VAC, 50/60Hz	2.1A
			240 VAC, 50/60Hz	1.1A
	L	AC Line	120 VAC, 50/60Hz	2.1A
			240 VAC, 50/60Hz	1.1A
TB4	+24VDC	+ DC Output	+24 VDC	0 - 4 Amps
	DC RTN	- DC Output	DC Common	0 - 4 Amps
TB3		+ Battery	+24 VDC	5A
		- Battery	DC Common	5A

NOTE: Earth ground fault detection impedance is approximately 500K ohms between earth ground and the FireNET internal floating DC supply.

2.8 Specifications

Primary AC:	120VAC @ 2.1 amps 50/60hz (or) 240VAC @ 1.1 amp 50/60hz
Output DC:	24VDC @ 4 amps
Power Supply:	4 amp integrated
Max Charger Current:	1.5 amps
Dimensions:	14.5"W x 24" H x 5"D
Weight:	31 lbs (without batteries)
Color:	Red (optional charcoal)
Material:	ABS/steel enclosure
Display:	8 line x 40 character LCD (320 characters total)
Network:	Dual RS485 ports (64 panels max.)
Zones:	500 network wide software zones per system (Output zones allocated to zones 1 to 253 only for SOM 2.0 and earlier)
SLC loops:	2 or 4 (class A or B)
Devices per Loop:	127 sensors & modules, plus 127 analog sounder bases, 254 total
Addresses per Panel	(800 addresses + sub-addresses max per panel)
NAC Outputs:	(4) 2.5 amp@24VDC (class B)*
Relay Outputs:	(5) Form C contact 1amp@30VDC
Voltage Outputs:	(3) 500mA@24VDC
Aux. Power:	500mA@24VDC
Aux. Inputs:	(8) digital pull downs
PC Port:	RS232
Printer Port:	RS232

*NOTE: FireNET panels dated 1/24/05 or later with s/n 411-00412 or later have NAC circuits rated at 2.5AMPS each. All FireNET panels dated earlier than 1/24/05 with s/n prior to 411-00412 have NAC circuits rated at 1.6AMPS each.

Section 3 - Power Supply and Main Control Unit Connections

3.1 AC Power Connection

The AC power connection terminals are located in the lower left hand corner of the power supply module. (See Figure 3.3) Observe the wiring polarity and connect as shown. Local electrical codes may require that a licensed electrician make these connections.

NFPA 72 requires that the AC connection be made from a dedicated branch circuit that is mechanically protected. The circuit must be marked in red and identified as a "FIRE ALARM CIRCUIT". The location of the circuit and its disconnecting means shall be permanently noted at the fire alarm control panel. The circuit breaker must be rated at 20 amps maximum.

Fuse Replacement: To replace the power supply fuse F2, power down the fire system by removing the AC power first, then disconnect the backup batteries to the fire alarm control panel. Remove the blown fuse and replace with a 3A 250VAC, slow blow, 5X20mm fuse. When the fuse replacement is completed, restore AC power to the control panel and connect the back up batteries observing polarity of connections.

3.2 Battery Connection

The FireNET 4127 fire alarm control panel can charge up to 60AH batteries. Up to 17 AH will fit in the control panel enclosure, as well as larger sizes that have the same size footprint as 17AH batteries. Batteries larger than 17AH may be mounted remotely in the FN-ACC accessory cabinet. Use the current draw and battery calculation worksheet in section 2.6 to determine the appropriate size battery to use.

Two battery leads come pre-connected to the power supply module. Connect two 12-volt batteries in series to the battery leads as shown in Figure 3.3. Both batteries must be of the same AH rating. Do not try to parallel multiple batteries together to obtain a higher AH rating. Use only UL Recognized Sealed Lead Acid Batteries.

Fuse Replacement: . To replace the in-line battery fuse, remove the battery lead (RED) from the positive battery terminal and twist the bayonet fuse holder to open. Remove the blown fuse and replace with a "Bussman AGC-10" (10A) type fuse or equivalent.   Reassemble bayonet fuse holder and attach the battery lead to the + terminal of the battery.

NOTE: The standby batteries cannot power the system until the main 120VAC power has been established. Once the system has been initially powered from them 120VAC source the batteries will operate the system in the event of a power failure.

3.3 Auxiliary Power Connection

24 VDC auxiliary power is available on the main control unit X2 terminal strip from terminals 18 and 19. (See Figure 3.4) This auxiliary power is intended to run expansion boards or other low current auxiliary devices.

The total output from the Auxiliary Power terminals must not exceed .500 amps.

Any devices powered from the auxiliary power terminals should be entered into Table 2.6 and taken into consideration for standby battery size.
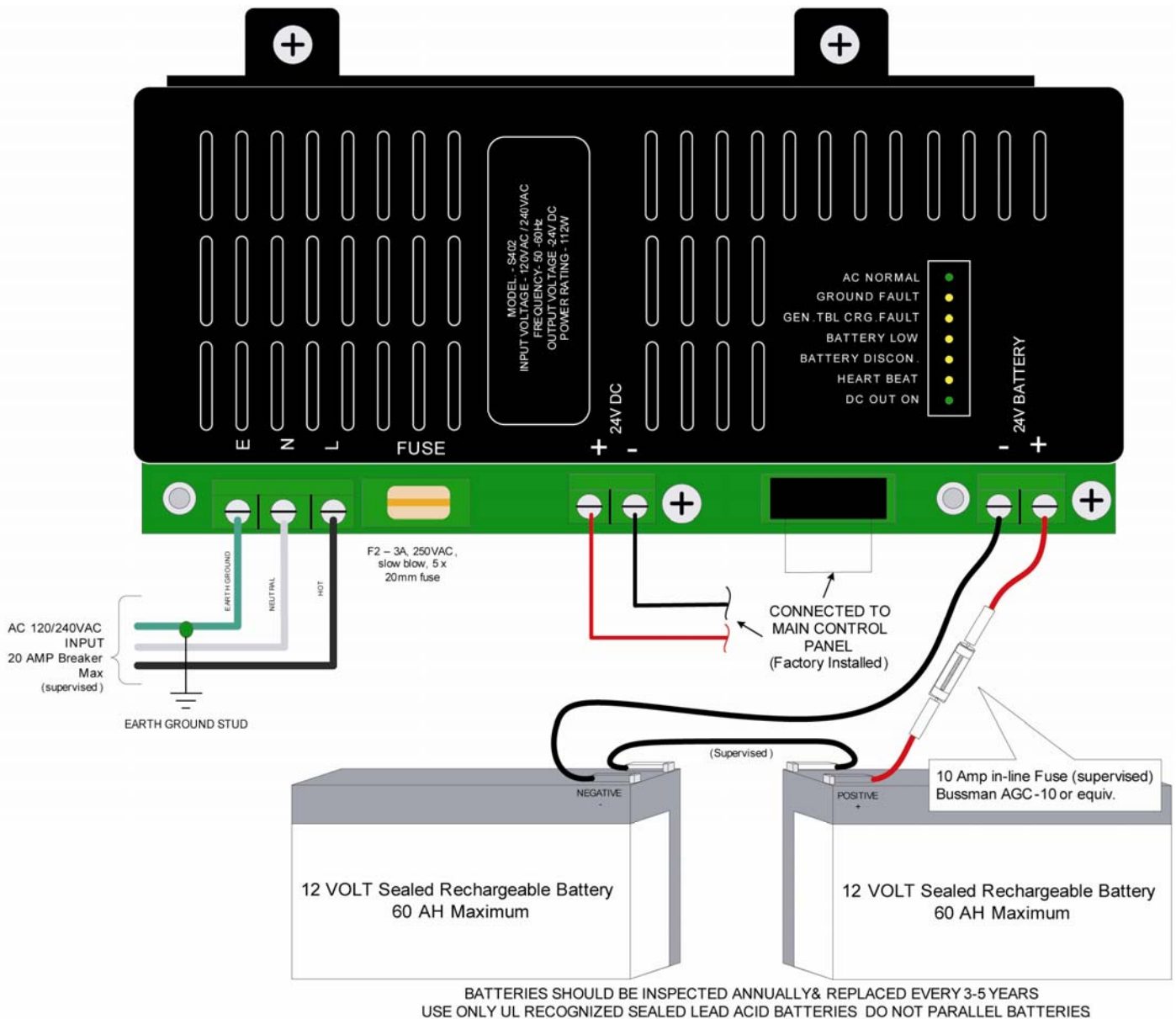
Figure 3.3 Four-Amp Power Supply Detail

X1 Top Terminal Strip

X2 Side Terminal Strip

Main Control Unit

NAC 1 NAC 2 NAC 3 NAC 4

FIRE ROUTING

TROUBLE ROUTING

PROGRAMMABLE OUTPUT

1. TBL
2. RES
3. INT
4. CNT
REMOTE CONTROL AND AUX. INPUTS
5. SIL
0V
6. PR1
7. PR2
8. PR3

ADDITIONAL I/O BOARDS

COMMS

AUX 24V

AUX 24VDC Power 500mA Max
Used for expansion boards and
low current auxiliary devices
(See Section A.4 for compatible
24VDC Devices)

NETWORK IN

NETWORK OUT

Figure 3.4 Auxiliary Power Connection Detail

3.4 Notification Appliance Circuit Connection

- NAC output rated @ 2.5 Amp each.
- See Appendix A.3 for compatible NAC Devices.
- See Section 8 and 9 of this manual for programming.

Class B (Style Y) - For Indicating Devices
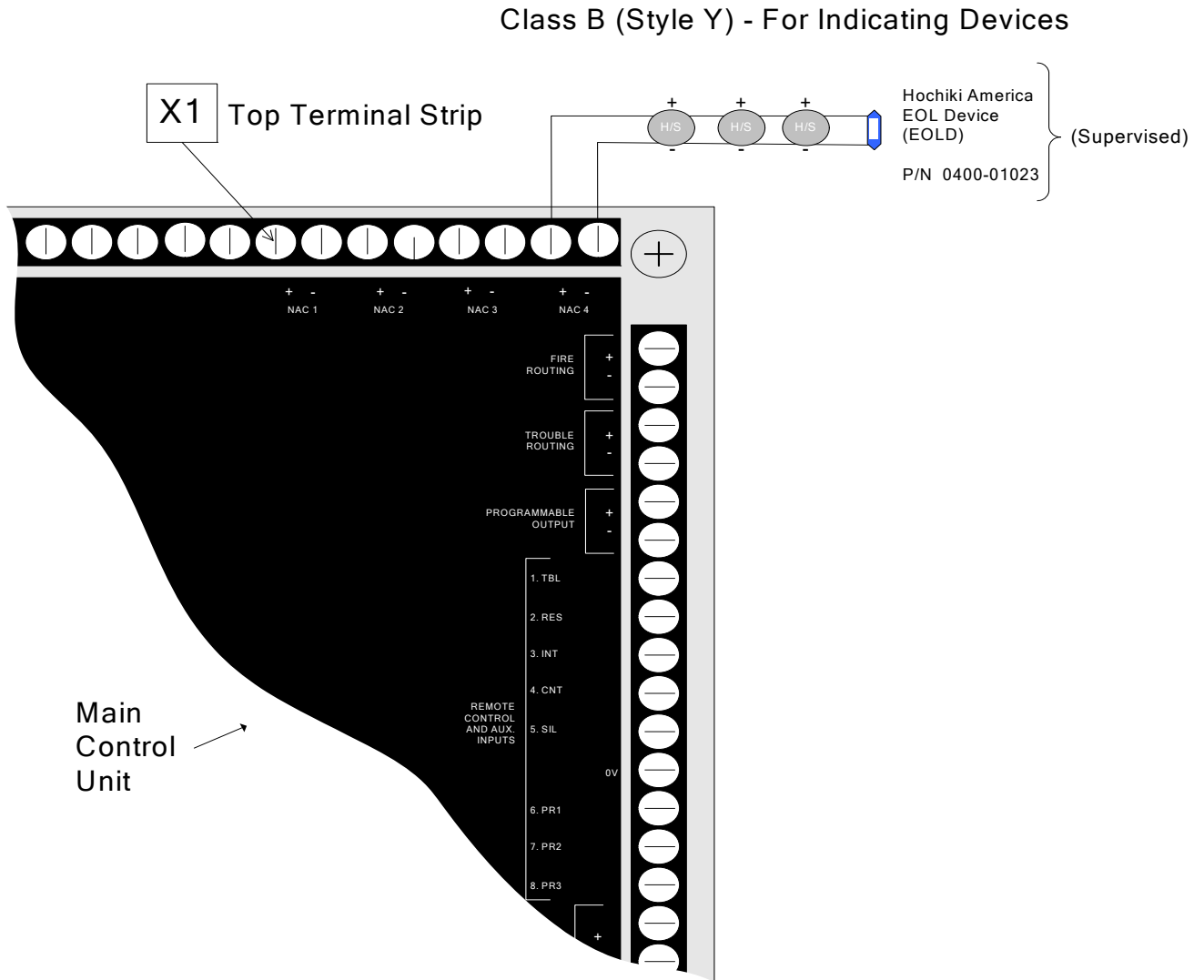
Figure 3.5 Notification Appliance Circuit Connection Detail

3.5 Voltage Routing and Relay Output Connection

3.5.1 Voltage Routing Outputs

- Outputs are fully programmable.
- Outputs are rated @ 500mA Max.
- Outputs are polarity reversing.
- See Appendix A.4 for compatible devices.
- See Section 8 and 9 of this manual for programming.

X2

EXAMPLE OF FIRE ROUTING, TROUBLE
ROUTING, & PROGRAMMABLE OUTPUT

POLARITY
REVERSING DEVICE
500 mA @ 24VDC max.

10K OHM
END-OF-LINE
RESISTOR (EOLR)
P/N 0400-01046   (Supervised)

10K OHM END-OF-LINE RESISTOR (EOLR)
P/N 0400-01046 (Supervised)

1N4004S END-OF-LINE DIODE (EOLD)
P/N 0400-01024 (Supervised)

NAC 2   NAC 3   NAC 4

FIRE
ROUTING

TROUBLE
ROUTING

PROGRAMMABLE
OUTPUT

1. TBL
2. RES
3. INT
4. CNT
5. SIL

REMOTE
CONTROL
AND AUX.
INPUTS

Main Control
Unit

Figure 3.6 Voltage Routing Outputs Detail

3.5.2 Relay Outputs

- Relays are fully programmable except for the supervisory relay.
- The auxiliary relay defaults to reset function that can be used to reset conventional devices requiring power reset. This inherent function is negated when the auxiliary is assigned a function.
- Relays are dry form "C" contacts.
- Fire 2 Relay can optionally be programmed as an AC Fail relay with a delay value.
- See section 8 and 9 of this manual for programming.
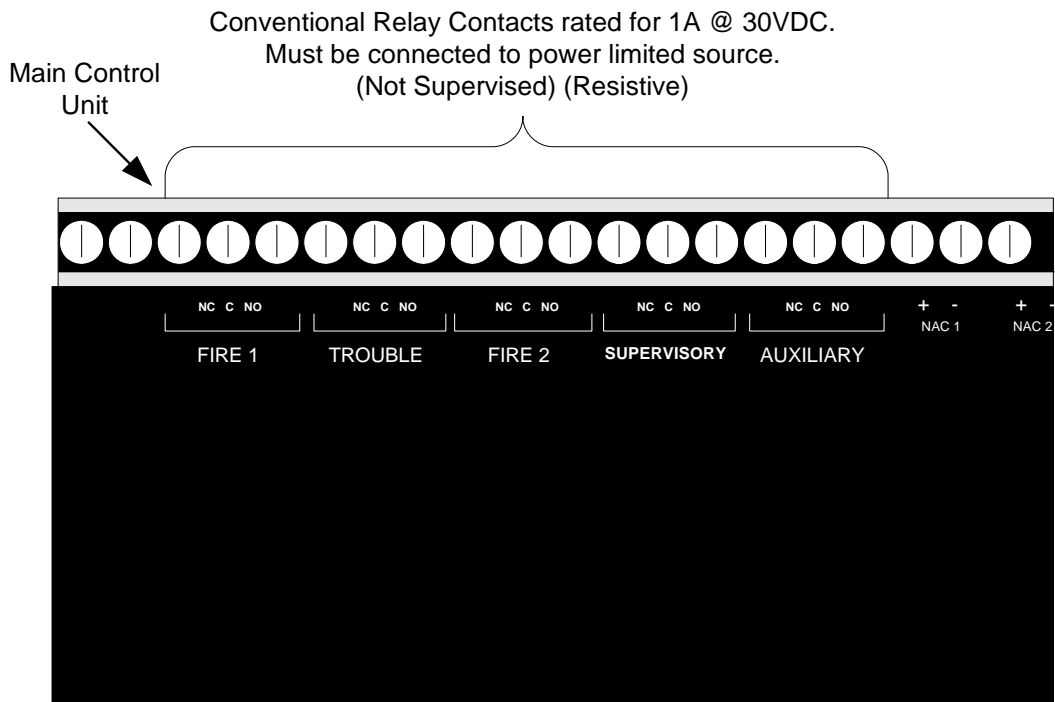
Figure 3.7 Relay Outputs Detail

3.6 Digital Input Connection

- Digital Inputs are fully programmable.
- Digital Inputs are for secondary use only.
- Digital Inputs are pull-down type.
- Digital Inputs are not supervised.
- Digital Inputs are not intended for use with primary initiating devices for fire conditions.
- These inputs are activated via N.O. dry contact or switch by connecting terminal 12 on X2 to the input.
- See Section 8 and 9 of this manual for programming.

X2

+ -   + -   + -
NAC 2   NAC 3   NAC 4

FIRE
ROUTING

TROUBLE
ROUTING

PROGRAMMABLE
OUTPUT

1. TBL

2. RES

3. INT   DIGITAL INPUTS
                          USE DRY CONTACTS ONLY
4. CNT

REMOTE
CONTROL   5. SIL   (EXAMPLE FOR INPUTS 1-8)
AND AUX. INPUTS   (Not Supervised)
             0V

6. PR1

Main Control Unit

7. PR2

8. PR3
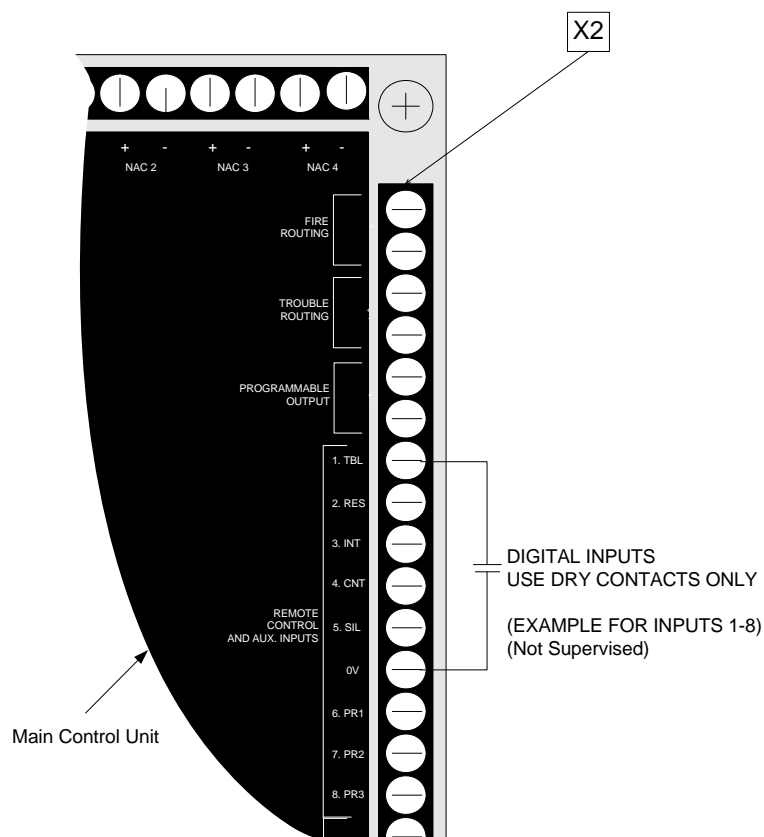
Figure 3.8 Remote Control Input Connection Detail

3.7 Using a Printer

The FireNET panel will support a local serial printer. The printer connects to the J10 RS-232 port (labeled Printer) on the inside of the front door. J10 is located in the bottom left-hand corner of the circuit board. The printer cable must be no longer than 20 feet in length. The printer can be used for real-time logging of events. It can also be used to print the panel's configuration (see section 8.2.4) or to print the panel's history log (see section 10.2.2).

Serial Printer Properties:
- 19.2K Baud
- 8 Bits
- No Parity
- 1-Stop Bit

Section 4 – Expander Board Installation

4.1 Compatible Expander Boards

The following Hochiki America Corp. expander boards are listed as compatible with the FireNET 4127 analog addressable fire alarm system.

Expanders

- FN-4127-SLC - Dual SLC Loop Expander (Local FACP Expander)
- FN-4127-IO – 16 Channel Input/Output Board (RS-485 Bus Device)
- FN-LCD-S Serial LCD Annunciator (RS-485 Bus Device)

This section covers the installation of the devices listed above. For proper operation each of these devices must be programmed from the FireNET front panel, or by using the Loop Explorer software. Please refer to Sections 8 and 9 of this manual for more information on programming the functionality of expander boards.

4.2 General Installation of RS-485 Bus Devices

4.2.1 Wiring Distance and Mounting Locations

RS485 bus devices can be mounted either in the main control panel on the standoffs provided to the right of the control unit, or in an accessory cabinet (FN-ACC). When mounting remotely in an accessory cabinet the distance from the panel to the RS485 bus device must not exceed 4000 feet. A suitable communications cable for RS485 applications must be used for the RS485 bus devices.

Specific wiring connections for each device are included later in this section. For specific wiring distance, connections, and mounting of the FN-LCD-S serial LCD Annunciator, see Section 4.7.

4.2.2 Addressing

Up to 32 RS485 bus devices can be added to the system. Each RS485 bus device must be set to a unique address 1-32.

The address for each RS485 bus device is set using a position DIP-switch in binary fashion. Switches 1-5 represent the values 1, 2, 4, 8, and 16, respectively. Switch 6 is not used. To set the address, move only the switches whose values when added equal the address value you wish to set, to the "ON" position. For example moving switches 1 and 3 (whose values are 1 and 4 respectively) to the "ON" position sets the address of 5 into the RS485 bus device. See the other examples below:

ADDRESS 1   ADDRESS 5   ADDRESS 21

Shows switch actuator in the ON position.

Switch Number – 1 2 3 4 5 6
Value – 1 2 4 8 16 not used
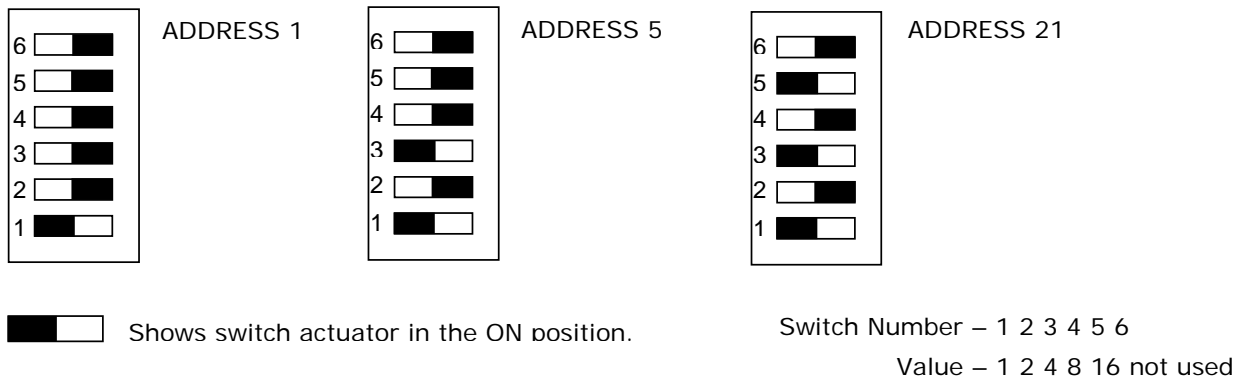
Addresses must be set with no power applied to the system.

4.2.3 Terminating

The last board connected to the RS485 bus must have a terminating jumper installed at position J3 as shown in figure 4.2.3.1

Even if only 1 RS485 bus device is connected to the panel this jumper must be installed.

Jumper J3
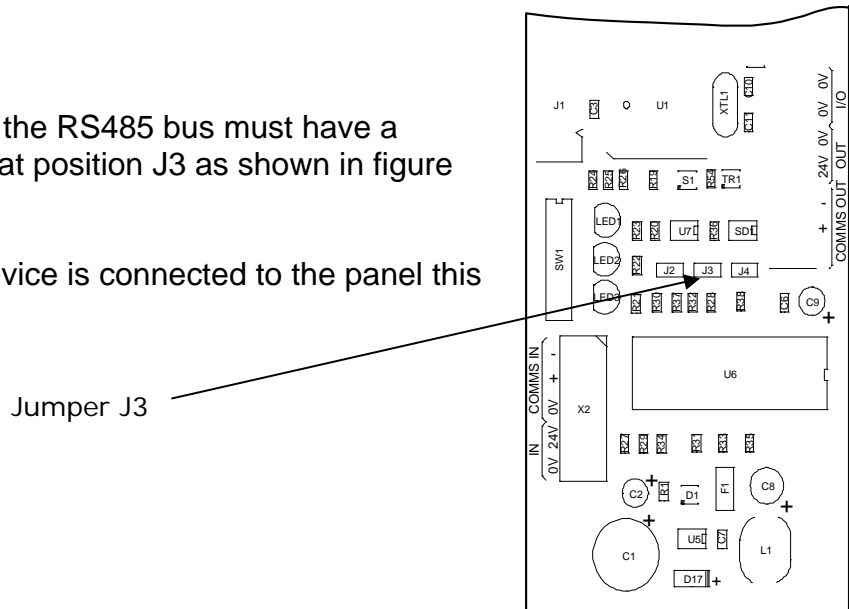
Figure 4.2.3.1

4.2.4 Power Connections

All RS485 bus devices require 24 VDC to operate. The AUX 24V terminals of the FN-4127 can supply this voltage (500 milliamps maximum) or you may use an external power supply that provides 24 VDC output.

Connections are provided on each RS485 bus device for both incoming and outgoing power.

4.2.5 COMMS Connection

In addition to power, each RS485 bus device requires a pair of conductors for data communication. This wiring is connected to the COMMS + and - terminals on the FN-4127 control panel or can be connected to the COMMS OUT + and - terminals of another RS485 bus device.
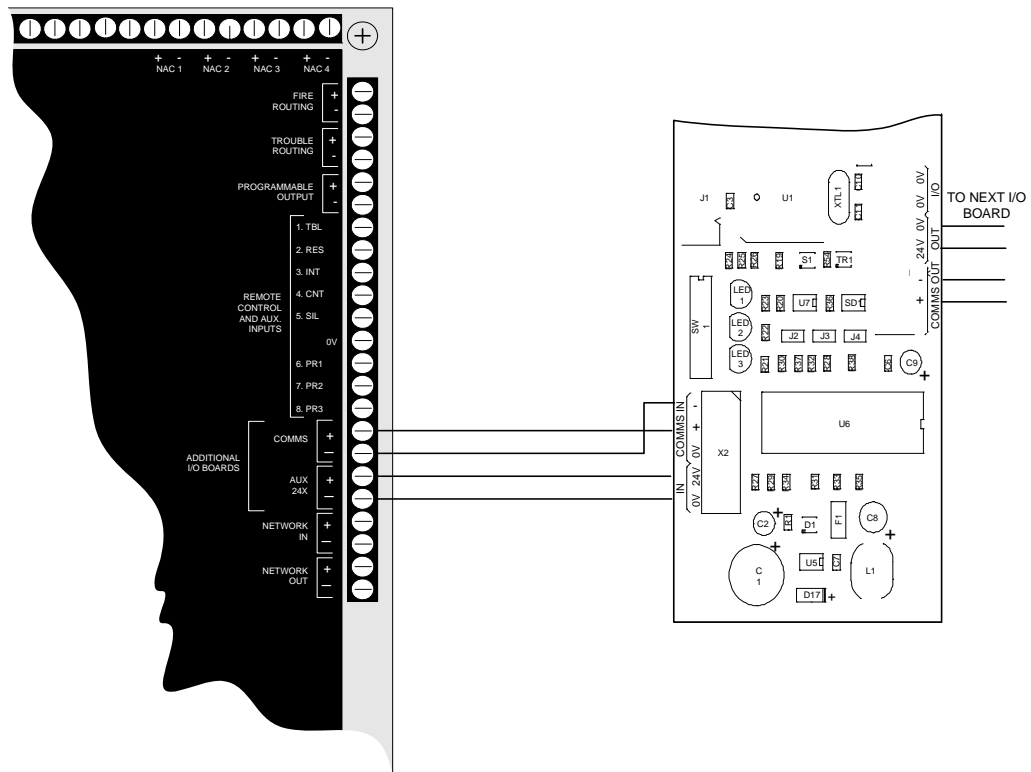
4.3 FN-4127-IO - Input / Output Board

In addition to the basic 508 points that the FireNET 4127 can accommodate on the SLC loops additional input and output points can be added by using FN-4127-IO Input/Output boards on the RS485 bus.

The FN-4127-IO has 16 channels. Each channel can be individually configured as either an input or an output. Up to 32 FN-4127-IO boards can be connected to the system via the RS485 bus giving the system an additional 512 inputs/outputs.

4.3.1 Configuring Inputs

Inputs to the FN-4127-IO are optically isolated and connected to the board by installing a normally open contact with a resistance no greater than 500 ohms to any input and a terminal marked 0V. The current switched by the contact will be a maximum of 3 milliamps.
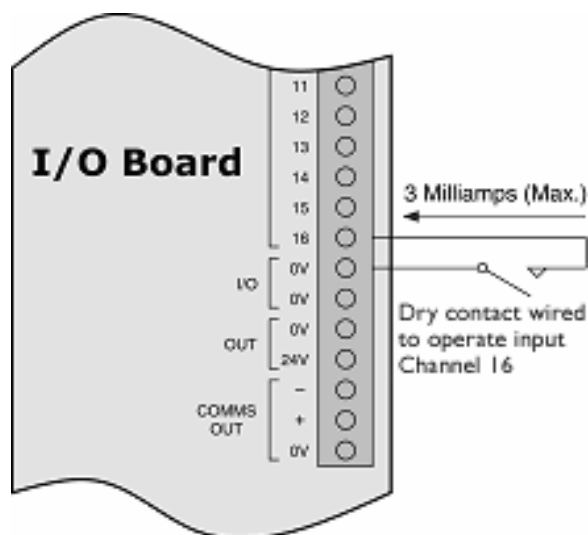
| NOTE: | Inputs on the I/O board are not supervised. These inputs are not for primary initiating or detection of fire or life safety conditions. These inputs are for secondary use only. All primary initiating or detection inputs must be connected to applicable SLC devices listed for fire. See Section 5 of this manual for SLC devices. |

4.3.2 Configuring Outputs

When configured as outputs, the I/O board channels supply a negative voltage (with respect to the I/O board 24V power supply) via a transistor.

Because transistor elements can be damaged by excessive current drain, great care should be taken when connecting to outputs. Particular care should be taken to ensure that suppression diodes on relay coils are correctly polarized. Wrongly connected diodes will damage the outputs. Diodes should be connected with the band to the positive 24V.

Individual channels can supply current up to 100 milliamps but this must be limited to 500 milliamps for each bank of eight (500 milliamps for 1-8 and 500 milliamps for 9-16). The power supply to the I/O board should also be considered to ensure that its rating is not exceeded if multiple channels are switched on. Overall current draw for the I/O board is 1010mA max.
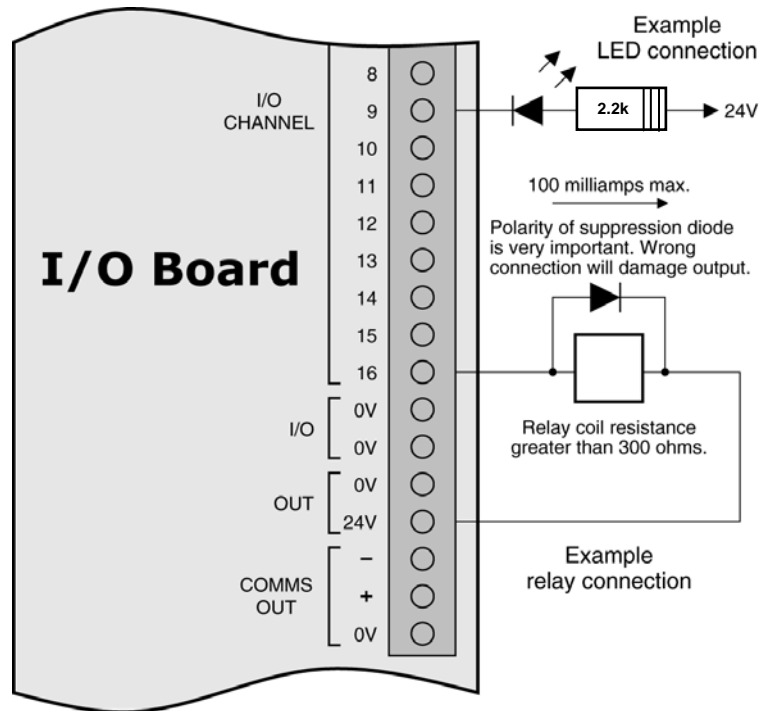
| NOTE: | Outputs on the I/O board are not supervised. These outputs are not for primary notification of fire conditions (i.e. not for use as NAC circuits). These outputs are for secondary use only. All primary notification output devices must be connected to applicable NAC circuits on the FireNET panel. See Section 3.4, Appendix A, and B for details on NAC circuits and compatible NAC devices. |

When powering the I/O board from the FireNET Aux 24VDC power (limited to 500ma), the following maximum wiring distances apply at the gauges noted:

Wire	Distance
18AWG	875ft
16AWG	1400ft
14AWG	2300ft
12AWG	3700ft

When powering the I/O board from a separate Aux 24VDC UL Fire listed supply the maximum voltage drop cannot exceed 4VDC.

4.3.3 LED Indicators

LED indicators on the I/O board give some simple diagnostic information and show that the boards are communicating with the control panel. The red LED (LED1) is on during receipt of a message from the control panel and will turn off if the I/O board feels the communication is normal.

- **If the LED is flickering more or less continuously** - the board is operating normally.
- **If this LED is not lit** - the board is not receiving data from the control panel and the comms connection should be checked.
- **If this LED is permanently lit** - then it is likely that data is being received but that it is being corrupted. In this case the quality of the comms connection should be checked for interference from mains or other noise generating sources.

The yellow LED (LED2) will flicker briefly every few seconds when the I/O board responds to the main panel. If this LED does not flicker then it is not responding to the control panel and the comms connection should be checked.

LED 1

LED 2
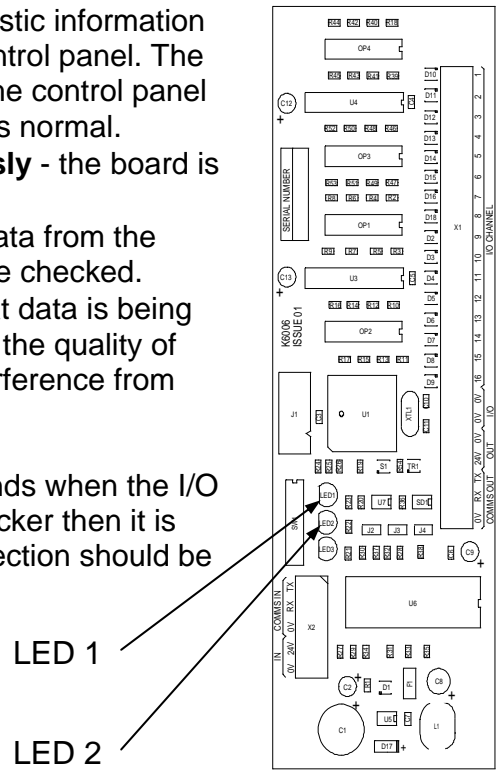
4.4 Reserved for Future Use

4.5 Reserved for Future Use

4.6 FN-4127-SLC – Dual SLC Loop Expander

The FN-4127 FireNET control panel is provided with two SLC Loops, however an additional two SLC Loops may be added at the factory or a later date if required through the use of a FN-4127-SLC expander board.

The main control unit has terminations for connecting all four SLC loops, but on the basic 2-loop control panels not using an SLC loop expander there is no circuitry for SLC loops 3 & 4. The FN-4127-SLC dual loop expander board adds circuitry for loops 3 & 4.

4.6.1 Installation of the FN-4127-SLC

1. To install the additional SLC Loops, the control panel must have its 120V AC line and battery power removed.
2. The metal cover on the terminal board should be removed by loosening the single screw in the center of the cover.
3. The circuit board containing the additional loop circuits is supplied in a static dissipative bag and should remain in this bag until it is to be installed.

NOTE: As with all electronic components, this circuit board is very sensitive and can be easily damaged by electrostatic discharge.

4. The loop board mounts on the left hand side of the terminal board and fits upside down compared with the existing circuit. The additional 2-loop circuit board is supplied with 2 ribbon cables of different sizes and the board should be oriented so that the ribbon cables match the connectors.
5. Install the four mounting standoffs to the main board, then attach the additional 2-loop board using the M3 screws and fiber washers.
6. After checking that the new circuit board is properly installed and making good contact with its connectors, the metal cover should be replaced. Connect the SLC loop wiring, then re-apply power to the control panel.
7. Unused detection circuits must have the "loop + out" to "loop + in" and "loop - out" to "loop - in" terminals wired together to prevent open circuit troubles from being reported. Class B SLC circuits also require the 0 ohm jumpers to be installed – please see Section 5.3.1.

Once the detection circuits have been connected, the devices for the new detection circuits can be automatically detected using the auto learn feature from the menu on the control panel (see Section 8 of this manual).

4.7 FN-LCD-S Serial Liquid Crystal Display Annunciator

The FN-LCD-S Serial LCD Annunciator duplicates the indications of the FN-4127 fire alarm control panels. The FN-LCD-S connects to the control panel via RS485 serial buss that is designated "Additional I/O boards – COMMS" on the K6002 board. Up to 15 FN-LCD-S units can be connected via RS485 serial port to a single FireNET panel.

4.7.1 Installation of the FN-LCD-S

Refer to section 2.2 of this manual for environmental installation specifications. The FN-LCD-S should be mounted so that it is accessible to service personnel and located in an area in compliance with local regulations.

The FN-LCD-S may be surface or flush mounted. Do not mount directly to a concrete wall. Use a suitable standoff material such as plywood to keep condensation away from the annunciator.

For operations and programming, refer to Sections 7 and 8 of this manual. The FN-LCD-S operates in the same manner as the main panel operator interface and controls.
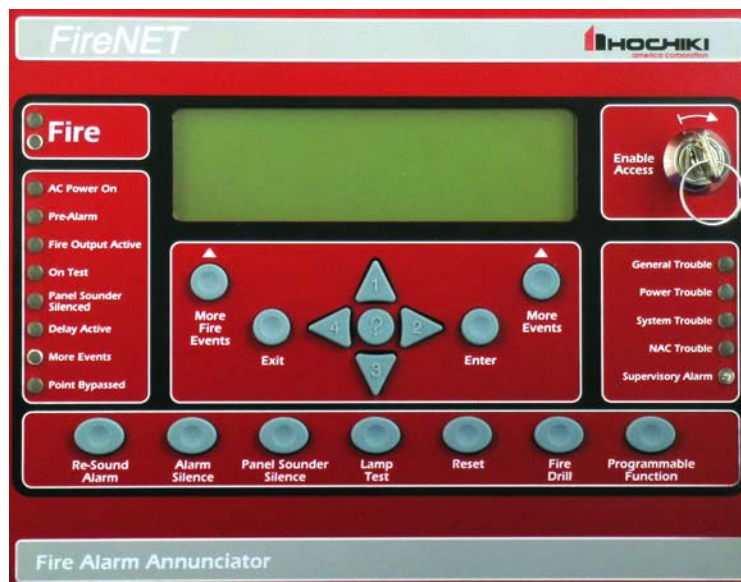
Figure 4.7.2 FN-LCD-S Serial LCD Annunciator

When powering the FN-LCD-S from the FireNET Aux 24VDC power (limited to 500mA) or an external UL864/1481 Listed AUX 24VDC supply, the following maximum wiring distances apply to the power cables at the gauges noted:

Wire Run	Wire AWG				
	20	**18**	**16**	**14**	**12**
1000 ft.	6	9	15	15	15
2000 ft.	3	4	7	12	15
3000 ft.	2	3	5	8	13
4000 ft.	1	2	3	6	10

RESET W/ DOG   RESET

ADDRESS

ON   K S
1 2 3 4

COMM1   0V   +24V   COMM2

FIT JUMPER
FOR END OF LINE
COMM1   COMM2

COMMS
ACTIVE

Reset
Switch

Not Used

Not Used

DIP Switch used to set
the FN-LCD-S address
between 1 -15

RS485 End-of-line jumper. Put
jumper in place when FN-LCD-S
is the last device on the RS485
buss "I/O Comm".

7. PR2

8. PR3

COMMS   +
            −

ADDITIONAL
I/O BOARDS

AUX   +
24X   −

NETWORK   +
IN   −

NETWORK   +
OUT   −

(+)   24 VDC
(-)

(+)   RS-485
(-)

To next
serial
FN-LCD-
S or
other
RS485
Buss
Device

FireNET Control Panel
(section)

To AUX 24VDC of control
panel (as shown) or to UL
864/1481 listed AUX
24VDC Power Supply

Figure 4.7.3 FN-LCD-S Wiring Detail

NOTE:	When connecting I/O boards to the FN-LCD-S via the COMMS terminals shown above, the I/O boards must be powered by a UL864/1481 listed local Auxiliary 24VDC power supply, or the Aux 24VDC output of the FN-LCD-S within the limits outlined below.

DO NOT connect the I/O board power input to the Aux 24VDC output terminals of the FN-LCD-S unless the sum current load of the I/O board is within the 500mA max 24VDC output rating of the FN-LCD-S and within the 500ma max 24VDC output rating of the FN-4127 control panel that provides power to the FN-LCD-S. Failure to make this consideration may result in overloading the FN-LCD-S and/or the control panel Aux 24VDC output (500ma max. each).

The current limits during both standby and in alarm shall not exceed the 500mA rating of the FN-4127 Panel Aux 24VDC output or FN-LCD-S.

The FN-LCD-S current draw is rated as follows:

Standby: 20mA @ 24VDC
Alarm: 110mA @ 24VDC

Section 5 – SLC Device Installation

5.1 Compatible SLC Devices

The following Hochiki America Corp. SLC devices are listed as compatible with the FireNET 4127 analog addressable fire alarm system.

Detectors (Sensors)

- ALG-V Analog Photoelectric Smoke Detector

- AIE-EA Analog Ionization Smoke Detector

- ATG-EA Analog Heat Detector

- DH98-A Analog Duct Smoke Detector, no Relay

- DH98-AR Analog Duct Smoke Detector with Relay

Smoke sensors will undergo automatic sensitivity testing and verification every 24 hours.

Modules

- DCP FRCME-4 Addressable Input Module

- DCP FRCME-S Mini Addressable Input Module (with Terminal Blocks)

- DCP FRCME-P Mini Addressable Input Module (with Pigtail)

- DCP R2M Addressable Dual Relay Module

- DCP SOM Addressable Supervised Output module

- DCP SCI Short Circuit Isolator

- DCP DIMM Dual Input Monitor Module

- CZM Conventional Zone Module

- ASB Analog Sounder Base

- DCP AMS Addressable Manual Pull-Station

NOTE: The "DCP" prefix listed above on several devices indicates the device's formal model name as specified by Underwriters Laboratories within each device's individual listing. The "DCP" prefix will be dropped throughout the body of this manual and the shortened model name will be used. Please take note of this when referencing these devices within this manual.

5.2 Number of Devices

The FireNET 4127 comes with 2 SLC loops built-in to the panel. Each loop can support up to 127 analog addressable detectors and modules as well as 127 analog sounder bases for a total of 254 possible per loop. By adding the FN-4127-SLC expander card, 2 additional SLC loops can be added to the panel for a total of 4 loops.

Addresses 1 – 127 are reserved for any combination of detectors and modules. Addresses 128 – 254 are reserved for analog sounder bases. Detectors and modules cannot be addressed to the upper address 128 - 254. Each device on the SLC loop must have a unique address. Refer to section 5.4 for instructions on programming the address into each analog addressable device.

5.3 SLC Loop Wiring

The FireNET 4127 uses the patented Hochiki DCP Digital Communication Protocol to communicate with each of the analog addressable devices located on the SLC loops. This extremely fast and reliable protocol allows the use of standard non-twisted, non-shielded wiring for the SLC loops.

The SLC loop wiring may be any solid or stranded cabling that meets the requirements for power limited fire protective signaling circuits listed in NFPA 70 (National Electrical Code) Article 760. The wiring resistance on the SLC loop must be less than 50 ohms. Loop capacitance must be less than 1μF. Loop inductance must be less than 1mH.

The SLC loop terminals are located on the upper left hand corner of the main control board. See Figure 5.3.

MAIN CONTROL UNIT
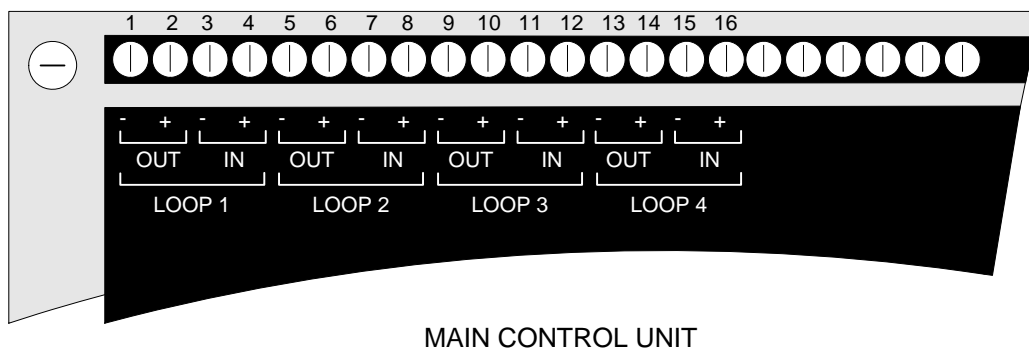
Figure 5.3 SLC Loop Terminals

5.3.1 Class B SLC Loop Wiring Distance

Refer to Figure 5.3.1 to determine the maximum distance an analog addressable detector or module is allowed to be located from the control panel for Class B SLC loops. The total wire length of all branches of the SLC loop must not exceed 40,000 feet using #14 AWG. When using a Class B SLC wiring configuration, be sure that the 0 ohm jumpers supplied with the panel are properly installed between –OUT to –IN and +OUT to +IN (Hochiki part # 0400-01025).

Wire Guage	Maximum Distance From Control Panel to Furthest Device
18 AWG	3900 Feet
16 AWG	6200 Feet
14 AWG	10,000 Feet

Furthest device must be less than 10,000 feet from the control panel when using #14 AWG
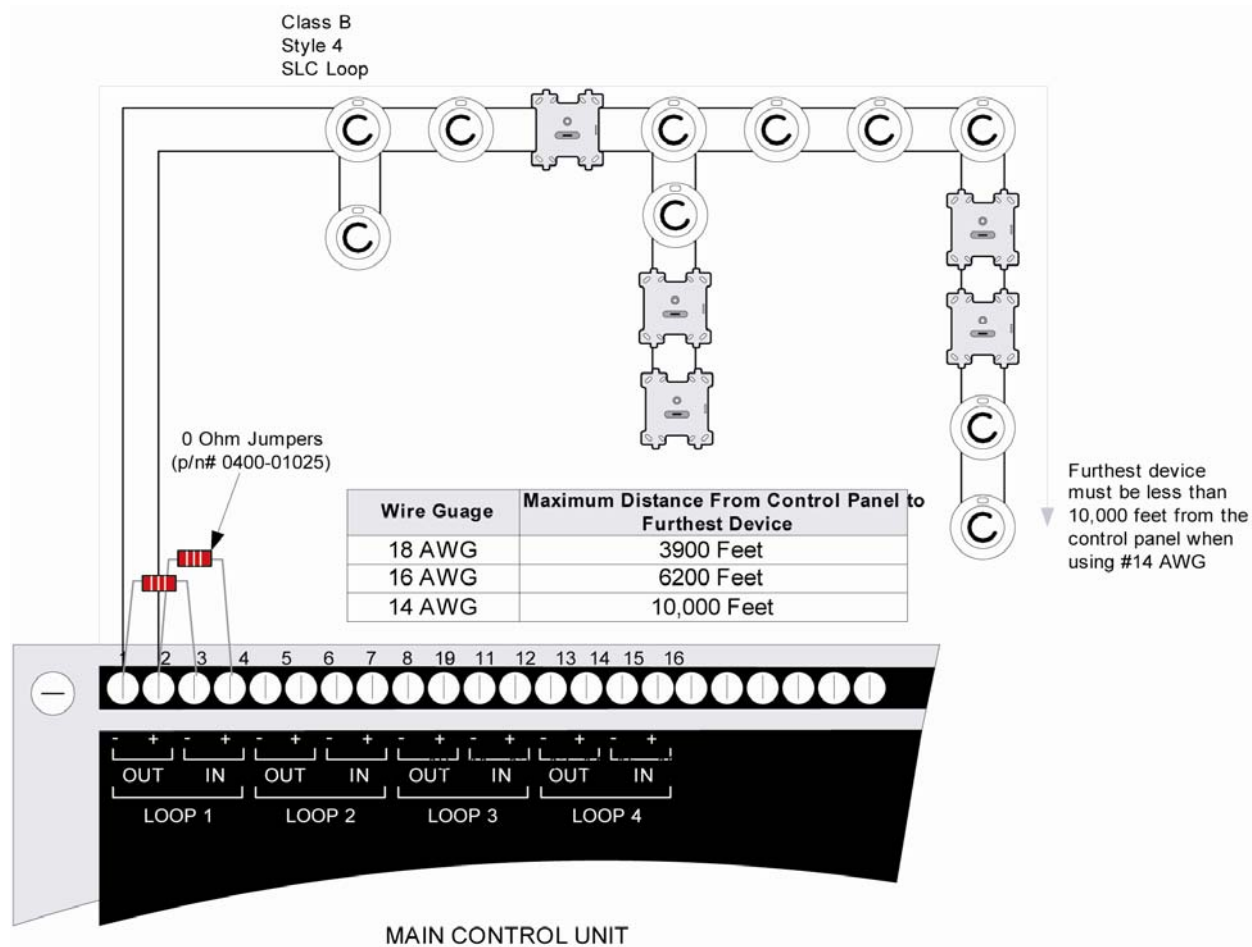
Figure 5.3.1 Maximum Wiring Distance for Class B SLC Circuits

5.3.2 Class A SLC Loop Wiring Distance

Refer to Figure 5.3.3 to determine the maximum distance an analog addressable detector or module is allowed to be located from the control panel for Class A SLC loops.

Class A
Style 6 or 7
SLC Loop

NOTE: For Details on Style 7, refer to Section 5.14.1

Calculate total loop length out and back to determine appropriate wire gauge for Class A SLC loops

Wire Guage	Maximum Wire Length From Control Panel Out and Back to Control Panel
18 AWG	3900 Feet
16 AWG	6200 Feet
14 AWG	10,000 Feet

MAIN CONTROL UNIT
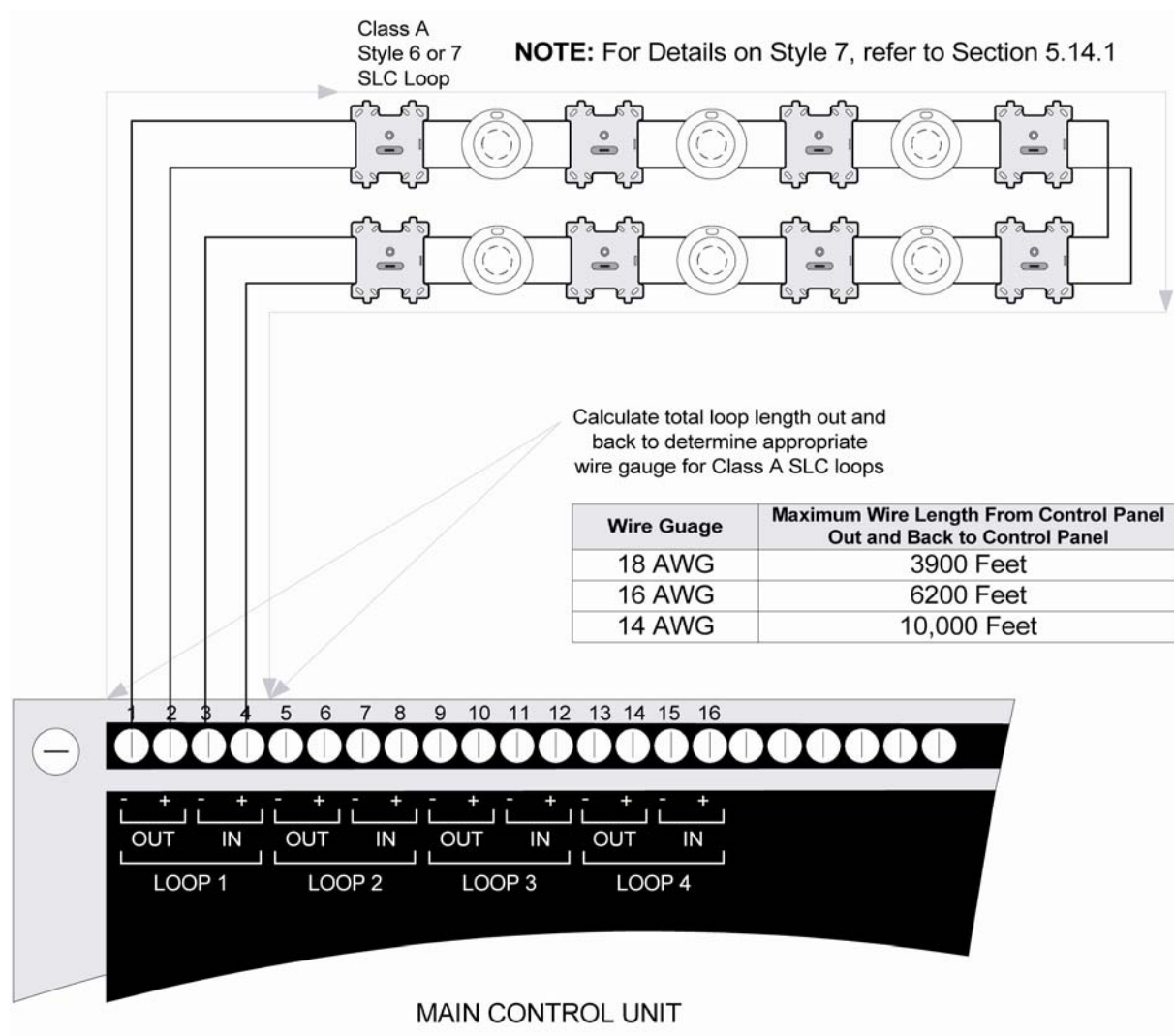
Figure 5.3.3 Maximum Wiring Distance for Class A SLC Circuits

Additional Notes Regarding Class A Style 6 and Style 7 SLC loops:

- No t-taps are allowed on Class A SLC loops.

- The return side of the loop must be routed separately from the outgoing loop.

- The return side may not share the same conduit or cable as the outgoing side of the SLC loop.

- When using Class A Style 7 wiring, the SCI Short Circuit Isolator must be installed before and after each analog addressable device on the SLC loop. The wiring from the control panel to the first SCI and from the last SCI back to the control panel must be in conduit. Refer to Section 5.14 for more information on installing the SCI module and for installation method to satisfy Style 7 criteria per NFPA 72.

- Refer to NFPA 72 for additional requirements of Class A circuits.

5.4 Addressing Devices

Prior to installation, all of the addressable devices installed on each of the FireNET 4127 SLC loops must be programmed with a unique address ranging from 1 to 127. The analog sounder bases will automatically derive their address from the host sensor (detector) attached to them. The ASB address will be the sensor address + 127 (i.e. N + 127). Example: The sensor address is 36. 36 +127 = 163. The ASB will have an address of 163. This address is what the FireNET 4127 control panel uses to identify each addressable device and control its functionality. All Hochiki addressable devices come from the factory preset to address 127. This preset address can be reprogrammed using the Hochiki TCH-B100-NS programmer. Follow these instructions to set/reprogram the address.

1. Identify each analog addressable device that will be installed on an SLC loop and label it with a unique address ranging from 1 to 127.

2. Using the Hochiki TCH-B100-NS programmer as shown in Figure 5.4, program the appropriate address into each analog addressable device.
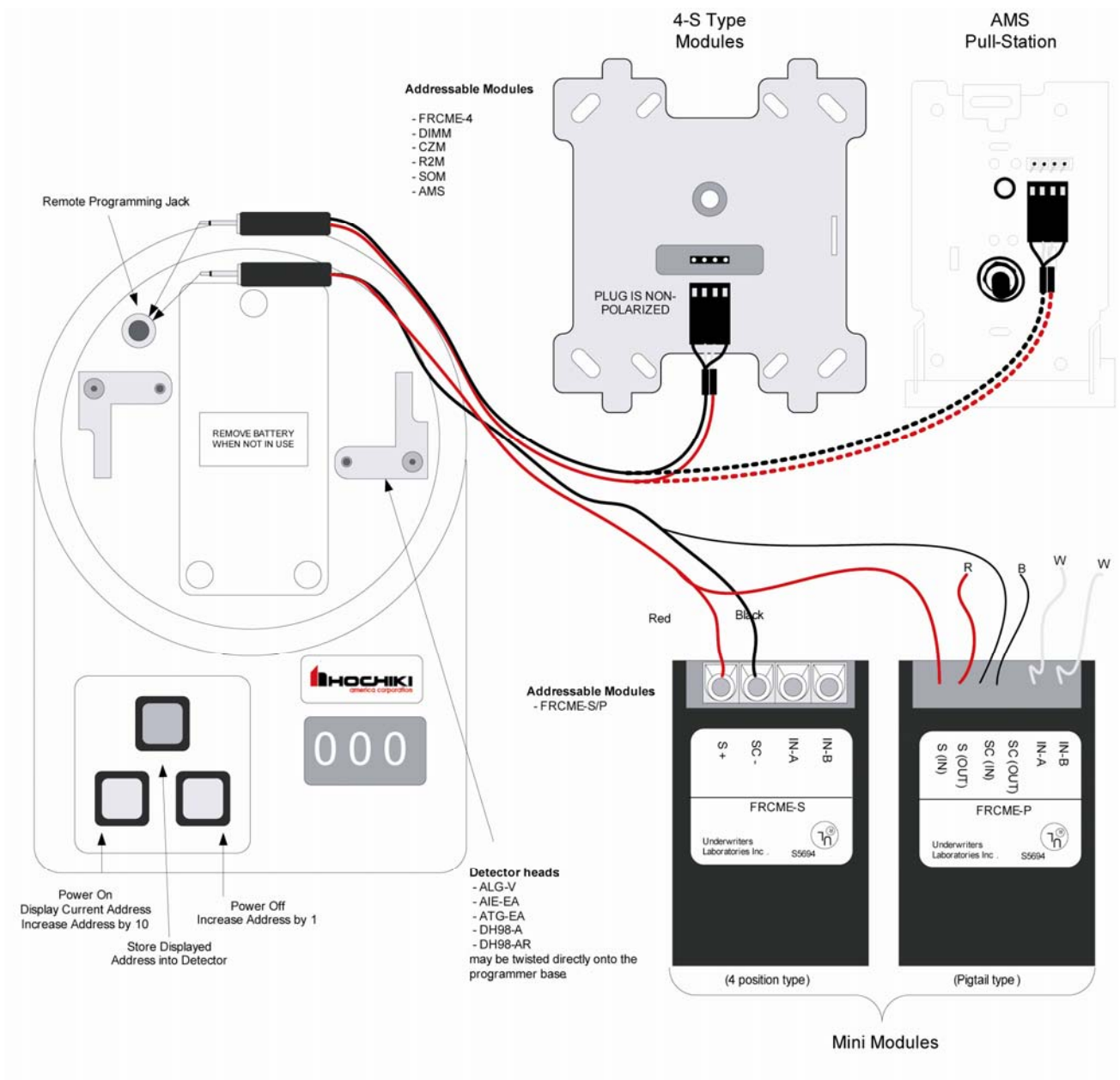
Figure 5.4 Hochiki TCH-B100-NS Programmer Connections

1. ASB Automatically derive address from host sensor (N + 127).
2. Devices must not be powered when using the TCH-B100-NS programmer to set addresses.
3. Mini-modules such as the FRCME-S and FRCME-P should not be connected to the SLC loop when using the TCH-B100-NS programmer to set addresses.
4. When programming the AMS, use the same method as the 4-S type addressable modules.

5.4.1 Detector Addressing

This section applies to the following Hochiki analog detectors - ALG-V, AIE-EA, DH-98 and ATG-EA. Follow these steps to program a new address into any one of these analog detectors. (Refer to Figure 5-4)

1. Twist an analog detector head on to the programmer terminals.

2. Press the left gray button to turn on the programmer and read/display the current address in the detector head. (Factory default is address 127)

3. Using the left gray button you can increase the tens digit one number at a time. Using the right gray button you can increase the ones digit one number at a time. Using these buttons change the displayed address to the appropriate value.

4. Press the red button to store the displayed address into the detector head.

5.4.2 4-S Module and AMS Addressing

This section applies to the following Hochiki addressable modules - FRCME-4, R2M, DIMM, CZM, SOM, and AMS. Follow these steps to program a new address into any of these addressable modules. (Refer to Figure 5-4)

1. Using the dual-end programming plug provided with the programmer, plug one end into the jack on the programmer and plug the other end into the programming plug located on the front of the module plate. The plug is non-polarized and can be connected in either orientation.

2. Press the left gray button to turn on the programmer and read/display the current address in the module.

3. Using the left gray button you can increase the displayed address 10 numbers at a time. Using the right gray button you can increase the displayed address one number at a time. Using these buttons change the displayed address to the appropriate value.

4. Press the red button to store the displayed address into the addressable module.

5.4.3 Mini Module Addressing

This section applies to the Hochiki FRCME-S and FRCME-P addressable mini-module. Follow these steps to program a new address into any of these addressable modules. (Refer to Figure 5-4)

1. Using the single ended programming plug, plug the end with the jack on it into the programming jack on the programmer. The programming plug with alligator clips may also be used.

2. Connect the Red wire of the single ended programming plug into the terminal labeled **S (IN)** on the addressable module. Connect the Black wire of the single ended programming plug into the terminal labeled **SC (IN)** on the addressable module.

3. Press the left gray button to turn on the programmer and read/display the current address in the module.

4. Using the left gray button you can increase the displayed address 10 numbers at a time. Using the right gray button you can increase the displayed address one number at a time. Using these buttons change the displayed address to the appropriate value.

5. Press the red button to store the displayed address into the addressable module.

5.5 Smoke and Heat Detector Wiring

This section includes wiring instructions for connecting the following analog detectors to the FireNET 4127 fire alarm control panel: ALG-V Photoelectric Smoke Detector, AIE-EA Ionization Smoke Detector, ATG-EA Heat Detector. All FireNET analog detectors must be installed using a YBN-NSA-4 four-inch detector base, or a HSB-NSA-6 six-inch detector base.

For detailed instructions on the physical mounting of FireNET analog smoke and heat detectors please refer to the installation instructions that are included with each analog detector.

Prior to installing any analog detector or module you must set its address as described in section 5.4.

Wire the analog smoke and heat detector bases as indicated in Figure 5.5.

YBN-NSA-4 Four Inch Detector Base Shown
Follow same instructions for HSB-NSA-6 Six Inch Base

To next SLC detector or module

MAIN CONTROL UNIT
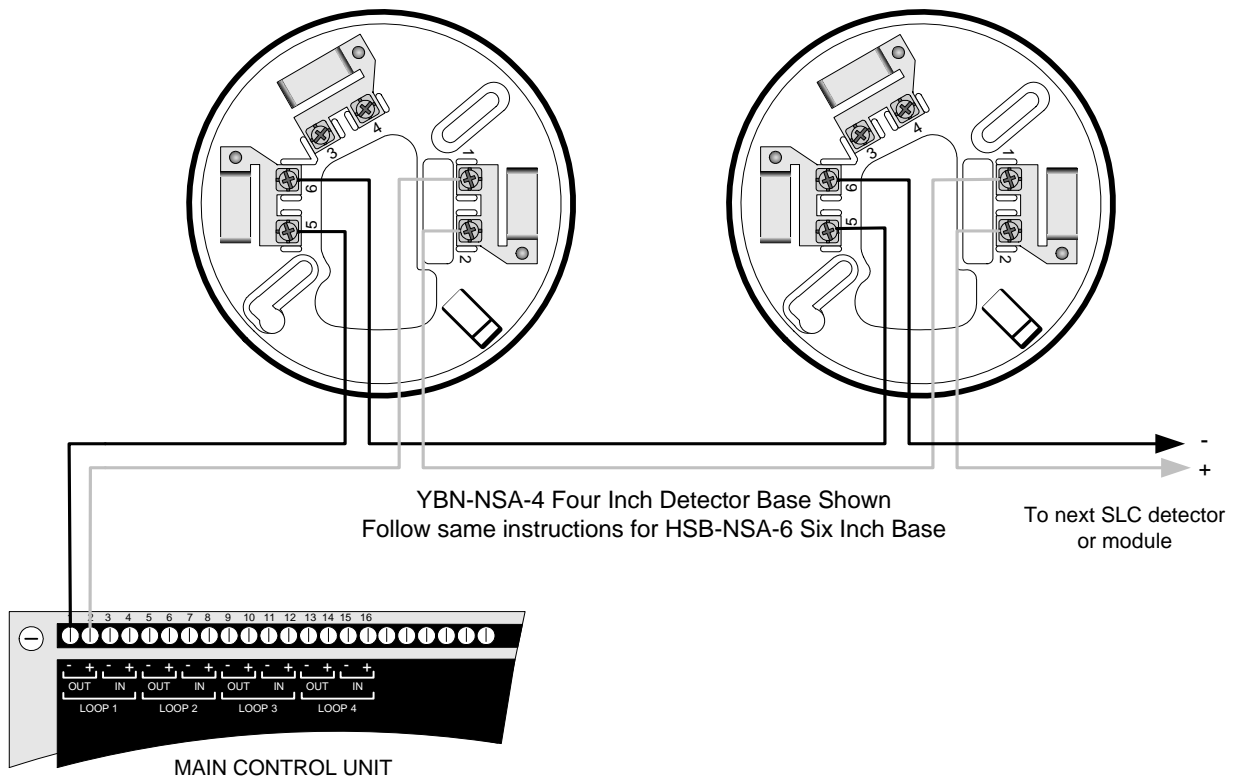
Figure 5.5 Analog Detector Base Wiring

5.6 Analog Duct Detector Wiring

This section includes wiring instructions for connecting the DH98-A analog duct detector, and the DH98-AR analog duct detector with relay, to the FireNET 4127 control panel SLC loop.

For detailed instructions on the physical mounting and wiring of FireNET analog duct detectors please refer to the installation instructions that are included with each device.

Prior to installing any analog detector or module you must set its address as described in section 5.4. You will need to remove the smoke detector head from the base in the duct detector in order to program it.

Duct Detector Model #	DH98-A
Operating Voltage	DCP Powered Loop
Detector Head Model	ALS-V
Detector Head Type	Analog Photoelectric
Sensitivity Test Method	Control Panel

To next SLC device

Remote LED 24 VDC
@ .008 amps max

LOOP 1 LOOP 2 LOOP 3 LOOP 4

MAIN CONTROL UNIT
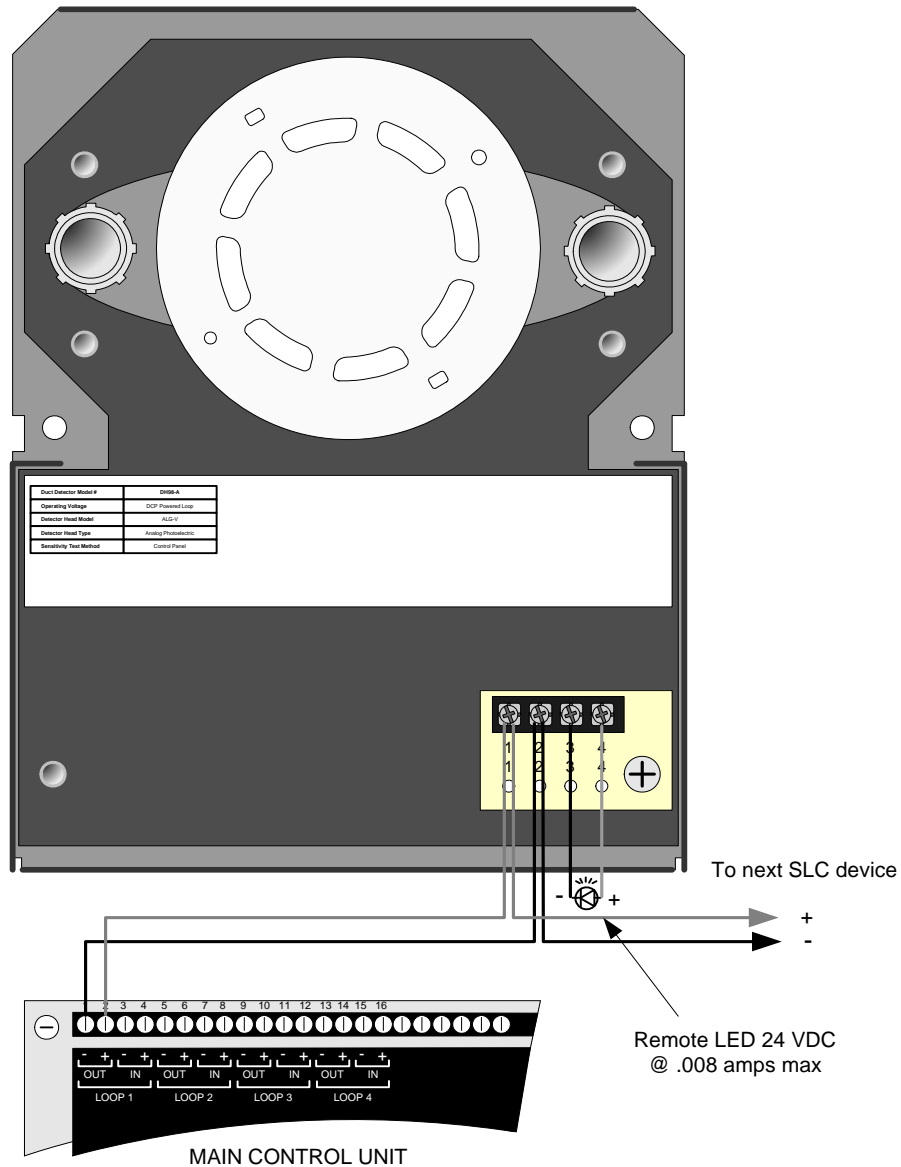
Figure 5.6.1 DH98-A

5.6.1 DH98-A Analog Duct Detector

Connect the DH98-A analog duct detector to the FireNET 4127 control panel SLC loop as shown in Figure 5.6.1.

Terminals 3 and 4 can be used to power a remote alarm LED. The ratings on these terminals are 24 VDC at .008 amps maximum. Please note the number of alarm LED's that can be illuminated at one time is limited to 5 addresses per SLC loop by the control panel.

NOTE: The duct sensor LED and remote LED output only activate momentarily when in alarm.

The figure shows a DH98-AR duct detector with terminal connections. Table on detector label:

Duct Detector Model #	DH98-A
Operating Voltage	DCP Powered Loop
Detector Head Model	ALG-V
Detector Head Type	Analog Photoelectric
Sensitivity Test Method	Control Panel

Terminal labels: +24V, 0V, +REM, LED-
Terminals 7, 8, 9: NC, C, NO (K1)
Terminals 10, 11, 12: NC, C, NO (K2)

To 24VDC auxiliary power from control panel or external power supply. 24VDC Power is not Supervised. An EOL Relay must be used at the end of line. The EOL relay must be monitored for power loss trouble.

To next SLC device

Relays for fan shutdown and auxiliary functions rated at 10.0A @ 250VAC

LOOP 1, LOOP 2, LOOP 3, LOOP 4 (OUT / IN)

MAIN CONTROL UNIT

Figure 5.6.2 DH98-AR

5.6.2 DH98-AR Analog Duct Detector with Relay

Connect the DH98-AR analog duct detector with relays, to the FireNET 4127 control panel as shown in Figure 5.6.2.

In addition to the SLC loop connections, the DH98-AR requires 24-volt reset-able auxiliary power (10mA standby and 55mA alarm) connected to terminals 3+ and 4-. This power may come from the FireNET 4127 main control panel auxiliary power (500 mA max.) connections (terminals 18 and 19) or from an external power supply.

The DH98-AR analog duct detector contains 2 sets of form C alarm contacts rated at 10.0 amps @ 250 VAC that can be used for fan shutdown and other auxiliary functions.

In addition to the alarm contacts the DH98-AR also has connections for a remote test switch as well as outputs for a remote alarm and remote pilot light LED's.

NOTE: Test switch only activates output relays, and does not place the detector into alarm.

5.7 FRCME-4 Input Module Wiring

The FRCME-4 input module is used to connect standard normally open dry contact types of fire alarm devices such as pull stations, waterflow, or tamper switches to the FireNET 4127 SLC loop. More than one switch can be connected to a FRCME-4 however you must not mix multiple switch types on a single FRCME-4. *For example: three waterflow switches connected to a single FRCME-4 is acceptable. However, two waterflow switches and one valve tamper switch connected to a single FRCME-4 is not.* NFPA and local codes may also apply.

The FRCME-4 must be programmed with a unique address from 1-127. All of the switches connected to a single FRCME-4 appear at the main control panel as a single address. Please refer to section 5.4 of this manual for instructions on programming an address into the FRCME-4 input module.

Connect the FRCME-4 to the FireNET as shown in figure 5.7.1. Refer to the installation instructions included with the FRCME-4 for more detailed installation and wiring instructions.
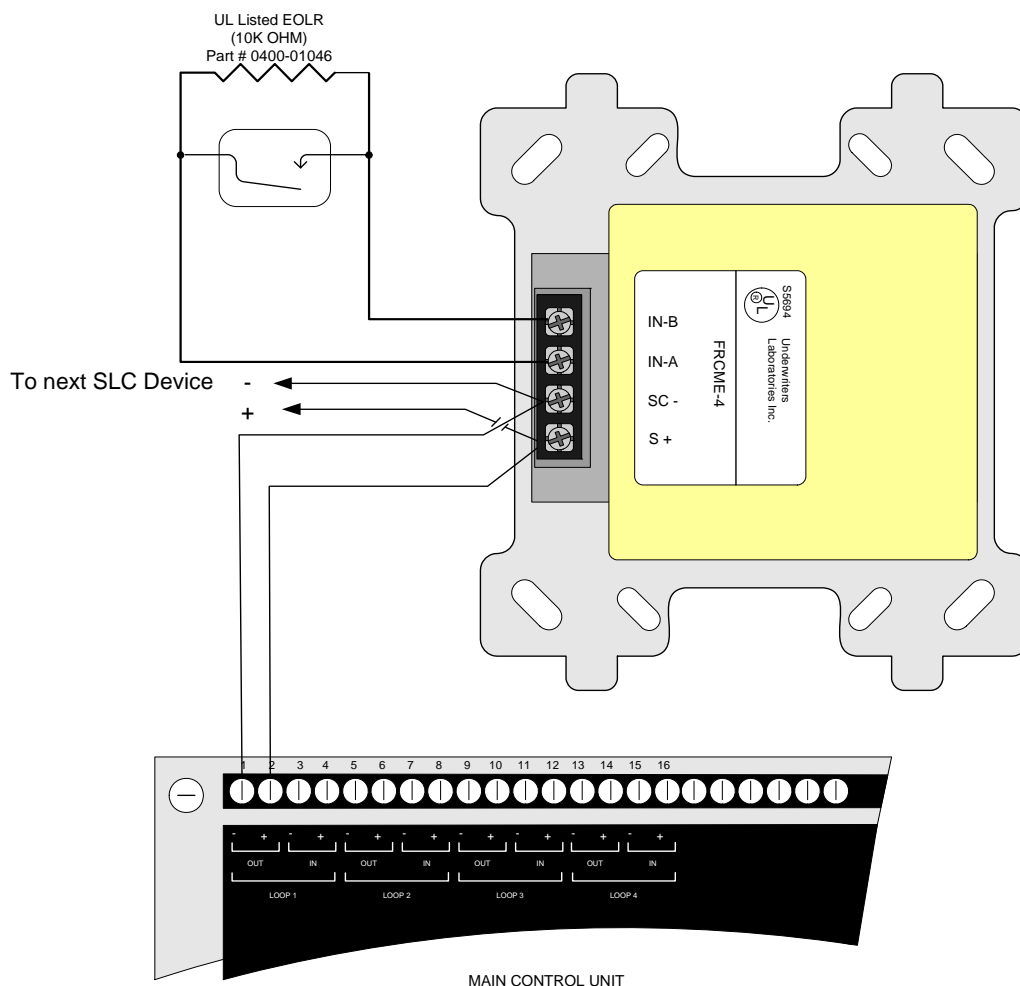
Figure 5.7.1 FRCME-4 Input Module Wiring Detail

5.8 FRCME-S Mini Input Module (w/ Terminal Blocks)

The FRCME-S input module is used to connect standard normally open dry contact types of fire alarm devices such as manual pull stations to the FireNET 4127 SLC loop.

The FRCME-S must be programmed with a unique address from 1-127. All of the dry contact type devices connected to a single FRCME-S appear at the main control panel as a single address. Please refer to section 5.4 of this manual for instructions on programming an address into the FRCME-S input module.

Connect the FRCME-S to the FireNET as shown in figure 5.8.1. Refer to the installation instructions included with the FRCME-S for more detailed installation and wiring instructions.
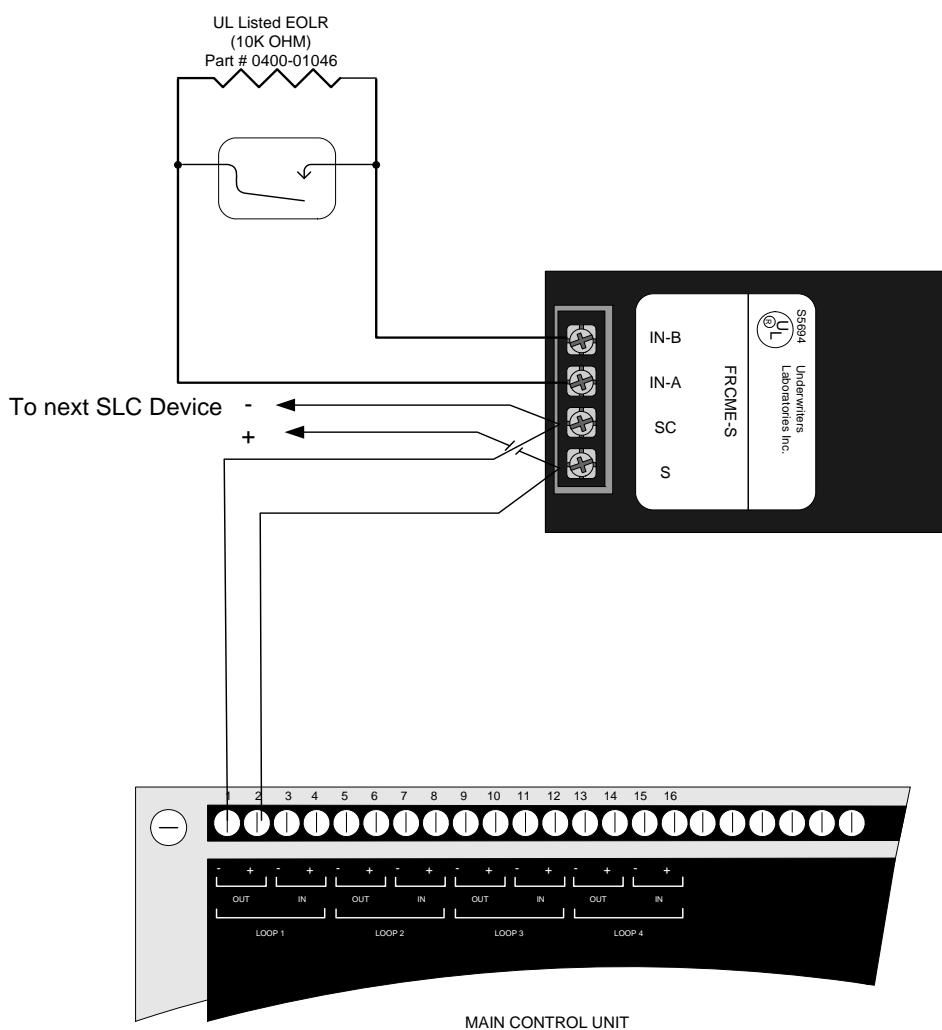
Figure 5.8.1 FRCME-S Mini Input Module (w/ Terminal Blocks) Detail

5.9 FRCME-P Mini Input Module (w/ Pigtails)

The FRCME-P input module is used to connect standard normally open dry contact types of fire alarm devices such as manual pull stations to the FireNET 4127 SLC loop.

The FRCME-P must be programmed with a unique address from 1-127. All of the dry contact type devices connected to a single FRCME-P appear at the main control panel as a single address. Please refer to section 5.4 of this manual for instructions on programming an address into the FRCME-P input module.

Connect the FRCME-P to the FireNET as shown in figure 5.9.1. Refer to the installation instructions included with the FRCME-P for more detailed installation and wiring instructions.
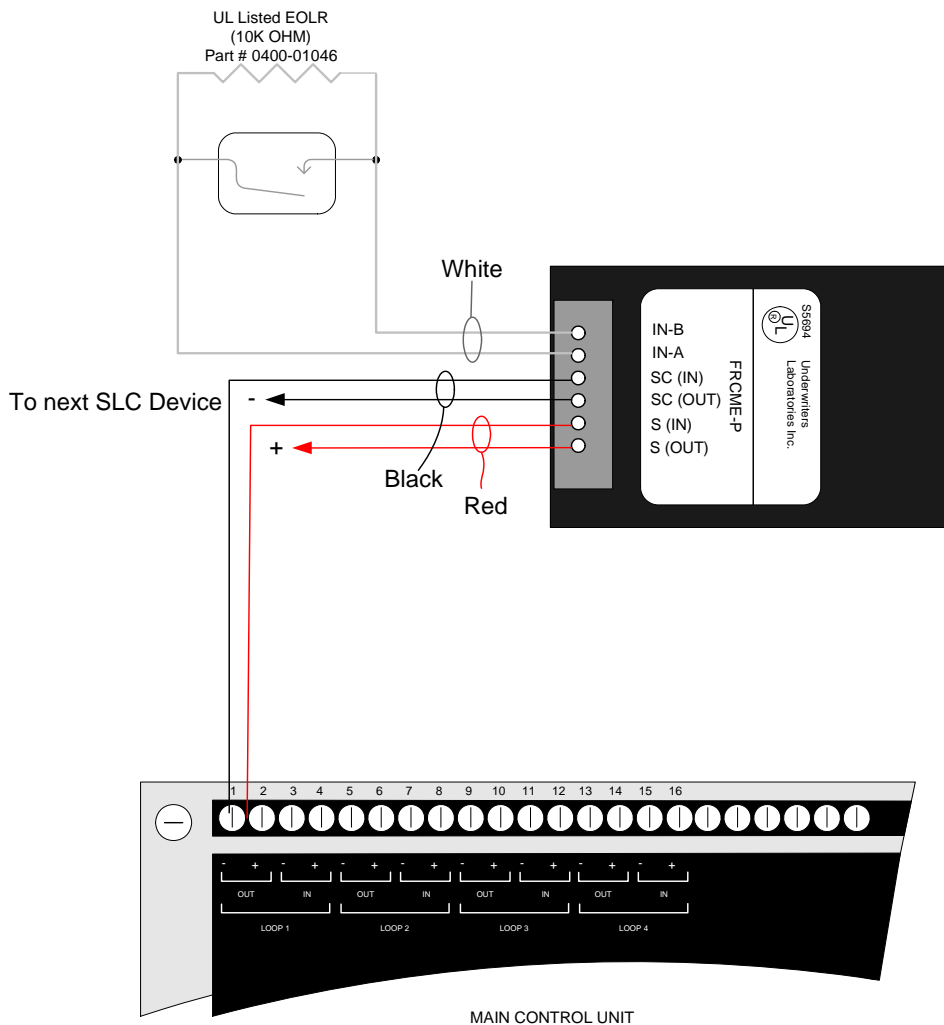
Figure 5.9.1 FRCME-P Mini Input Module (w/ Pigtails) Detail

NOTE: For Sections 5.7, 5.8, and 5.9 common for all FRCME devices

Reference the input wiring distance limitation table below for all types of FRCME modules:

Maximum Distance Between Module and EOL Device	
14 AWG	1500 Ft.
16 AWG	900 Ft.
18 AWG	550 Ft.

5.10 R2M Dual Relay Module Wiring

The R2M provides two separately programmable relay outputs on the FireNET 4127 SLC loop. These outputs may be used for a variety of purposes including door holders, elevator recall, and other fire safety functions.

The programmable relay contacts are rated at 1.0A @ 30VDC or 0.5A @ 125VAC, 0.35 Power Factor. Connect the R2M as shown in Figure 5.10.1. Refer to the installation instructions included with the R2M for more detailed wiring and installation instructions.
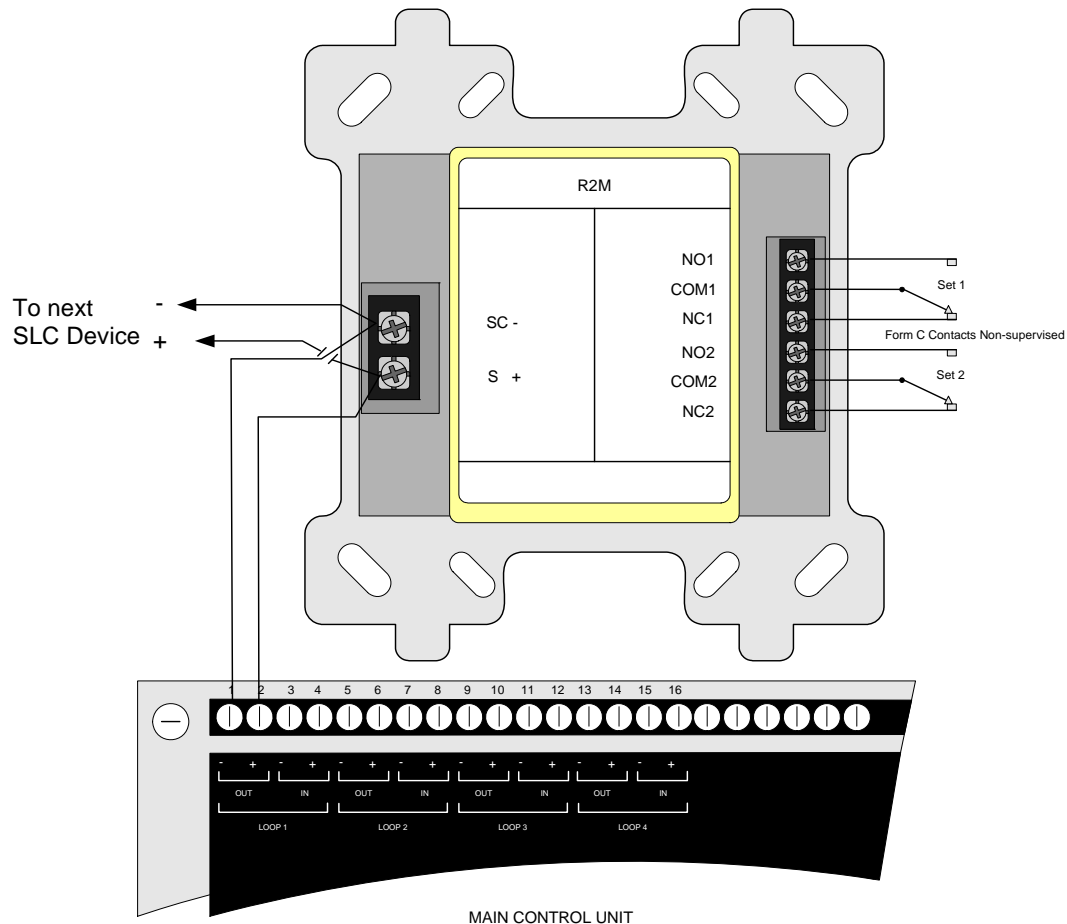
Figure 5.10.1 R2M Dual Relay Module Wiring Detail

5.11 SOM Supervised Output Module

The SOM provides a supervised 24VDC polarity reversing output on the SLC loop most commonly used for audible and visual signaling appliances or triggering a remote notification appliance circuit power expander.

In addition to the SLC circuit the SOM requires a 24 VDC auxiliary input voltage. This voltage may be connected to the FN-4127 control panel terminals 18 and 19 (500ma max) or to any other UL listed fire alarm power supply providing 24 VDC. The supervised voltage output of the SOM is rated at 2.0A maximum.

Connect the SOM to the FN-4127 control panel as shown in Figure 5.11.1. Riser conductors shall be installed in accordance with the survivability from attack by fire requirements in National Fire Alarm Code, NFPA 72, sections 6.8.6.3, and 6.9.4. Riser conductors shall have a 2 hour rated cable or cable system, or performance alternatives approved by the AHJ (authority having jurisdiction). One alternative requires the SOM to be installed in a NFPA Style 7 configuration. Refer to the installation instructions included with the SOM for more detailed wiring and installation instructions. The DCP-SOM is suitable for use only with non-synchronized audible devices.
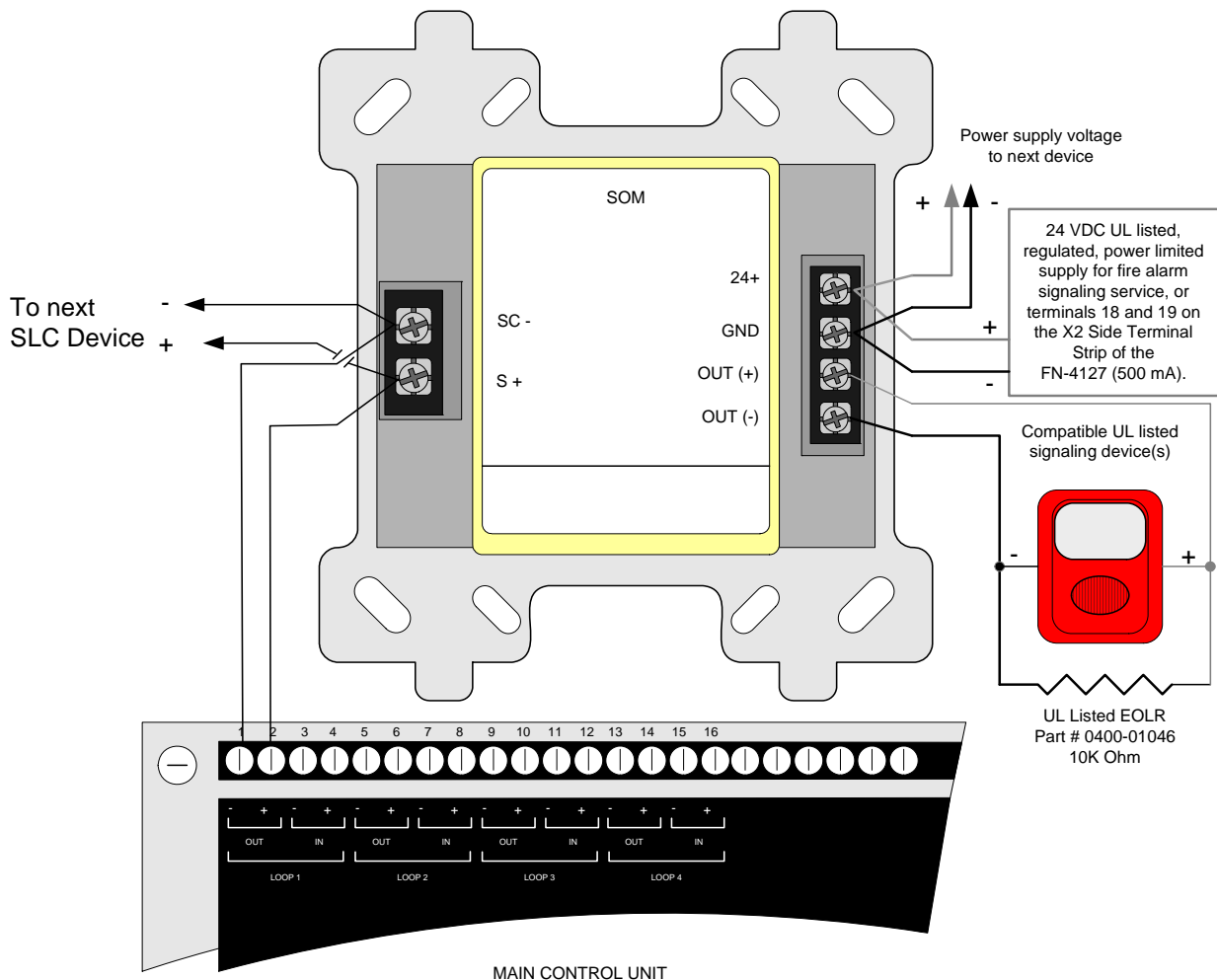
Figure 5.11.1 SOM Supervised Output Module Detail

5.12 CZM Conventional Zone Module

The Conventional Zone Module (CZM) connects to the Signal Line Circuit (SLC). The module allows the analog panel to interface and monitor conventional devices such as pull stations and two-wire smoke detectors. The CZM is typically used in retrofit situations where pre-existing conventional zones are removed from a conventional system and then connected to the analog panel for discrete monitoring of that zone. All conventional devices connected to a single CZM are reported as a single input. Status conditions are reported as normal, open or alarm. It supervises the external power supply as well as the entire zone of devices. Refer to the installation instructions included with the CZM for more detailed wiring and installation instructions.
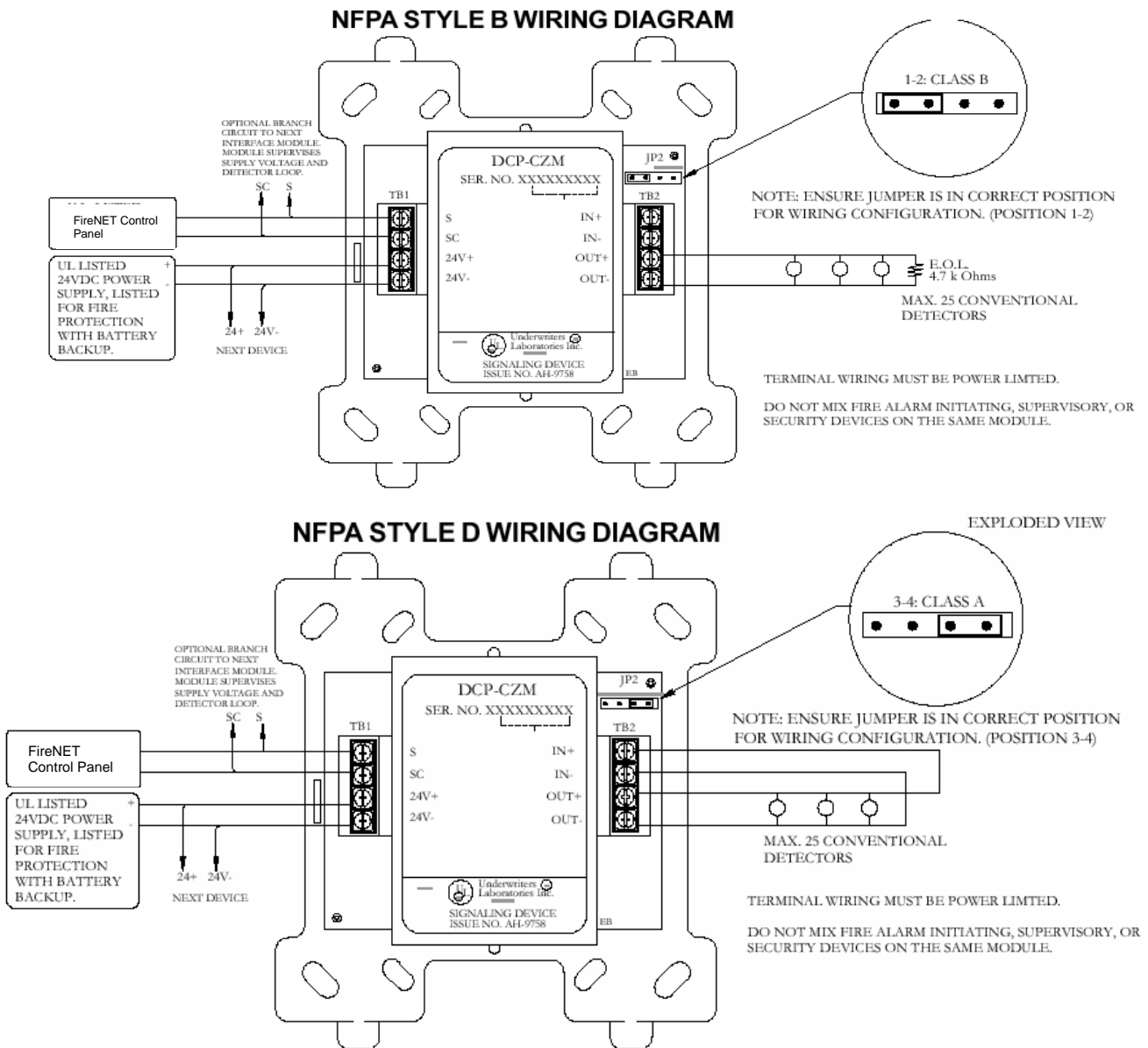
Figure 5.12 CZM Conventional Zone Module

5.13 DIMM Dual Input Monitor Module

The Hochiki DIMM Dual Input Monitor Modules were designed to work with pull stations, water flow switches, and other applications requiring the monitoring of dry contact alarm initiating devices. The DIMM can monitor two independent inputs with discrete reporting, yet the module only requires a single address on the SLC Loop. A typical example would be for use with a waterflow and tamper application. One input would be connected to the waterflow switch for a fire alarm condition. The second input would be connected to the tamper switch for a supervisory condition. A single DIMM module would be used instead of two single input modules such as the FRCME. The DIMM inputs operate in a similar fashion to the FRCME input. Refer to the installation instructions included with the DIMM for more detailed wiring and installation instructions.
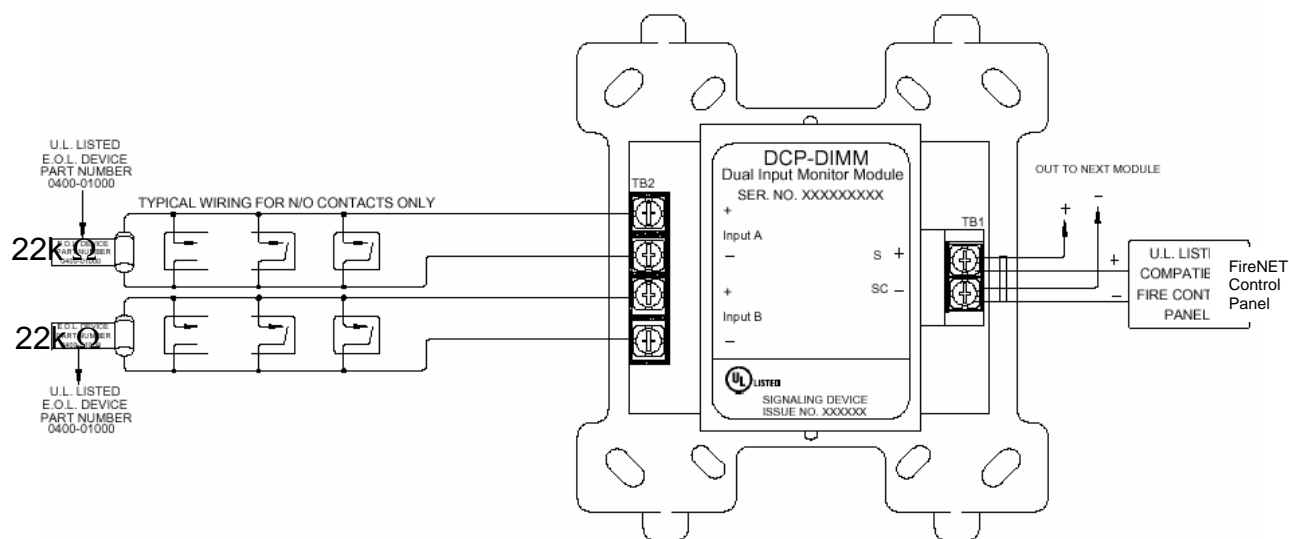
5.14 SCI Short Circuit Isolator Module

The SCI short circuit isolator module is designed to help maintain partial SLC loop operation in the event that the SLC loop becomes shorted, positive to negative. In the event of an SLC loop short circuit the SLC loop is typically inoperative. By installing SCI modules throughout the SLC loop only a portion of the loop will be inoperative in the case of an SLC short circuit. When SCI modules are installed adjacent to every device for true Style 7 (see Section 5.14.1), no devices are lost from a single short on the SLC loop.

Connect the SCI module to the FireNET 4127 control panel as shown in Figure 5.14.1. Refer to the installation instructions included with each SCI for more detailed wiring and installation instructions.


To FN-4127 control panel SLC loop -or- previous SLC loop device

+   -

(IN) S

(IN) SC

SCI

(OUT) S

(OUT) SC

-    +

To next SLC loop device or return back to FireNET 4127 control panel
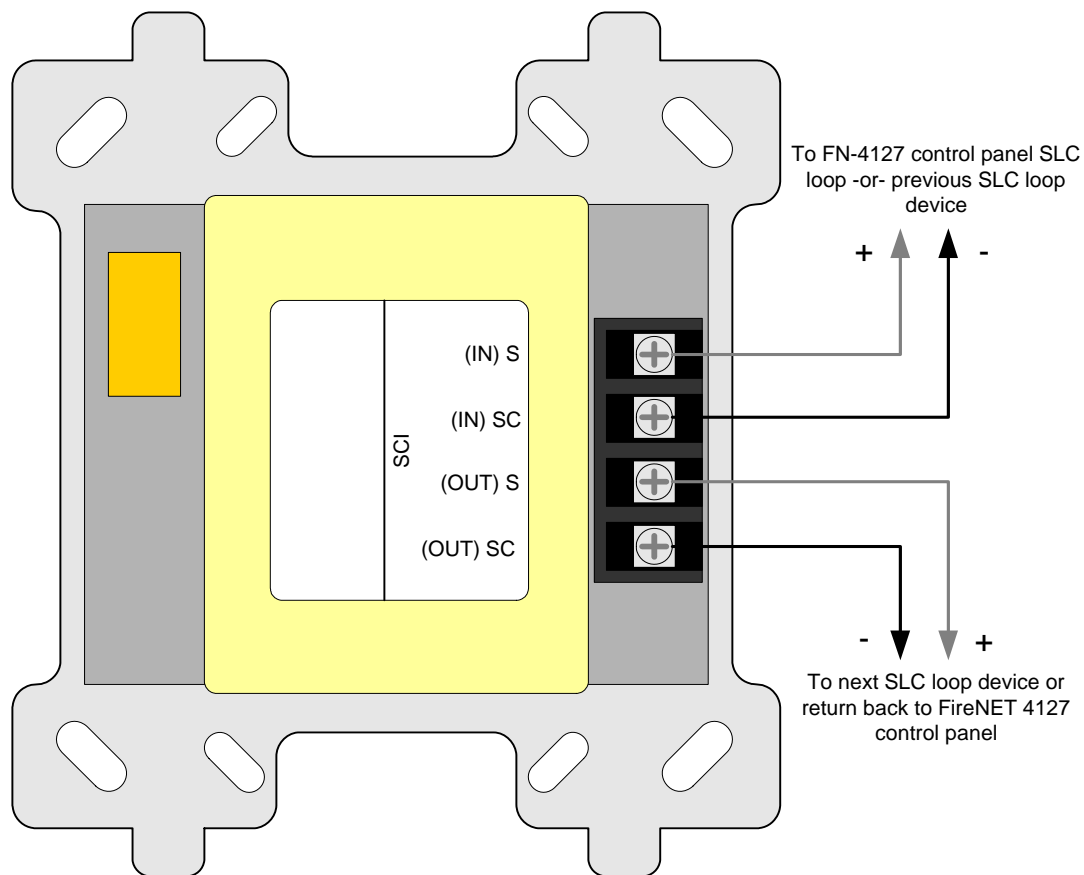
Figure 5.14.1

5.14.1 Class A Operation

The SCI should be located within 5 feet of the FN-4127 control panel on both the outgoing and incoming SLC loop legs. In addition an SCI should be located between every SLC loop detector and module as shown in figure 5.14.2 and is required for NFPA 72 Class A Style 7 compliance. For Class A Style 6 compliance the SCI modules may be located at strategic locations based on the installer's or system designer's discretion.

In the event of a short circuit on the SLC loop the 2 adjacent SCI modules to the short (closest SCI on the left and the right of the short) will activate and its LED will turn on. All the devices between the two SCI modules will be isolated and inoperative. All other devices on that SLC loop will remain operational. The FN-4127 control panel will indicate a trouble condition. When installing SCI modules for true Style 7 compliance, the SCI modules must be installed in a "closed nipple" fashion (see Figure 5.14.2). By using this method, no devices are lost from a single short on the SLC Loop.

Class A Style 7 SLC loop with SCI Short Circuit Isolator Modules

NOTE: For NFPA 72 Style 7 compliance, SCI Modules and protected detectors or modules must be installed in "closed-nipple" fashion. This can be accomplished by either installing two (2) SCI modules and one (1) protected detector or module in a single enclosure or raceway, or by nippling all three devices together using three separate backboxes nippled together creating an enclosed raceway.

First and last SCI modules must be located with 5 feet of the FN-4127 control panel.

MAIN CONTROL UNIT

Figure 5.14.2

5.14.2 Class B Operation

The SCI modules may be strategically located based on the installer or designer's discretion. Typically they are located at the beginning of each branch of the SLC loop as indicated in figure 5.14.3.

In the event of a short circuit on the SLC loop, the closest SCI to the short circuit will activate and it's LED will turn on. All devices following the SCI module will be isolated and inoperative. All devices preceding the SCI module will remain operational.

Class B Style 4 SLC
Loop with SCI Short
Circuit Isolator
Modules

0 Ohm Jumpers
(p/n# 0400-01025)

If a short circuit
occurs, all of the
devices following the
closest SCI module
will be inoperative.

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

- + - + - + - + - + - + - + - +
OUT   IN   OUT   IN   OUT   IN   OUT   IN
LOOP 1   LOOP 2   LOOP 3   LOOP 4

MAIN CONTROL UNIT
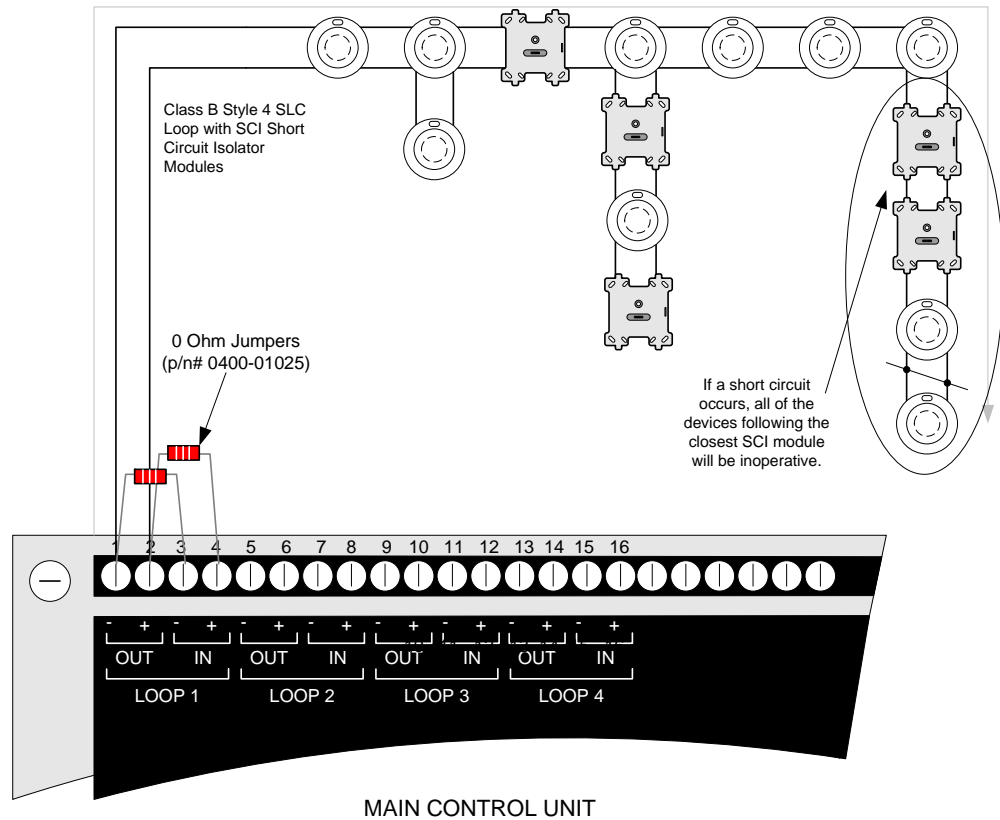
Figure 5.14.3

5.15 ASB Analog Sounder Base

The Analog Sounder Base (ASB) connects to the SLC Loop and requires 24VDC aux power to operate. The ASB contains an addressable sounder that is controlled by the control panel. The ASB derives its address from the Host detector (ALG, AIE, or ATG) upon power up. The address is the detector address + 127. See section 5.4 for additional details. The addressable sounder is independently controlled by the control panel, and does not have to follow the detector status to activate.

Refer to the installation instructions included with the ASB for more detailed installation and wiring instructions.
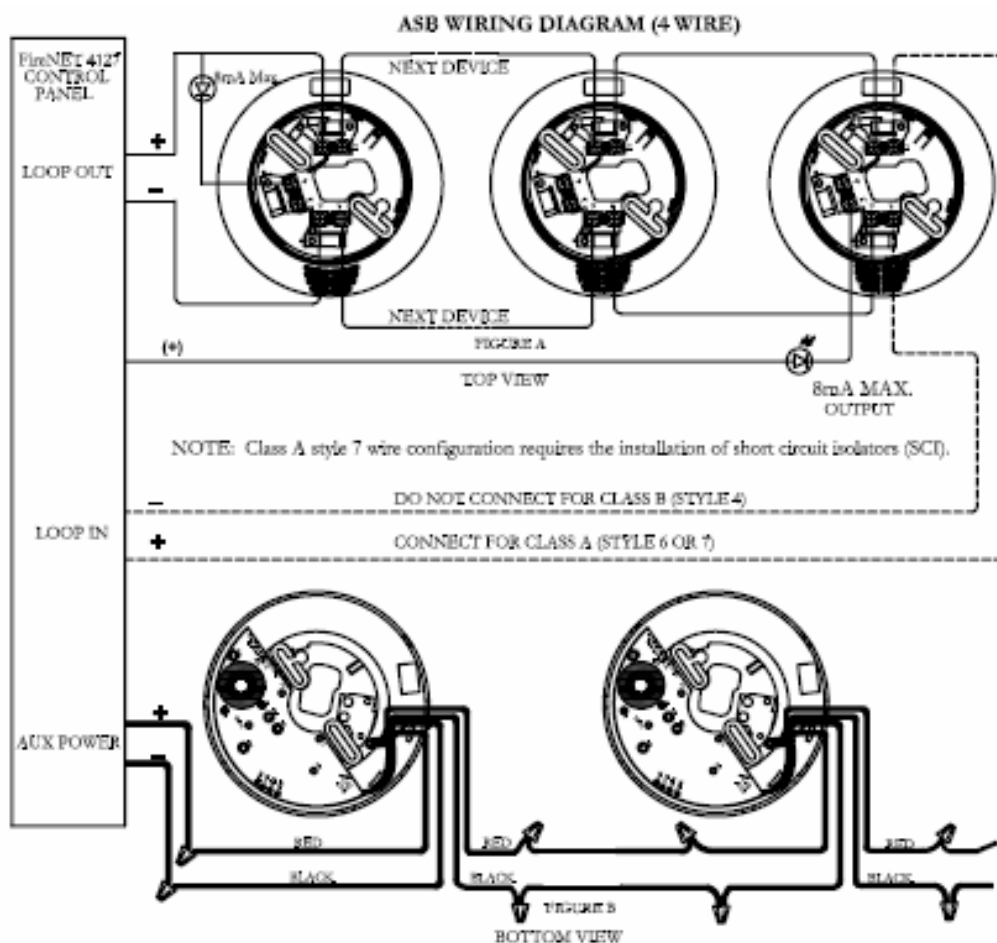
5.16 AMS Addressable Manual Pull-Station

The AMS Addressable Manual Pull-Station is an integrated device that includes an input module and a manual pull-station in a single package.

The AMS is designed to be directly connected to the FN-4127 control panel SLC loop.

The AMS must be programmed with a unique address between 1 – 127. Each AMS will report individually to the panel based on its unique address. Please refer to Section 5.4 of this manual for instructions on programming an address into the AMS device.

Connect the AMS to the FireNET control panel as shown in Figure 5.16.1. Refer to the installation instructions included with the AMS device for more detailed installation and wiring instructions.
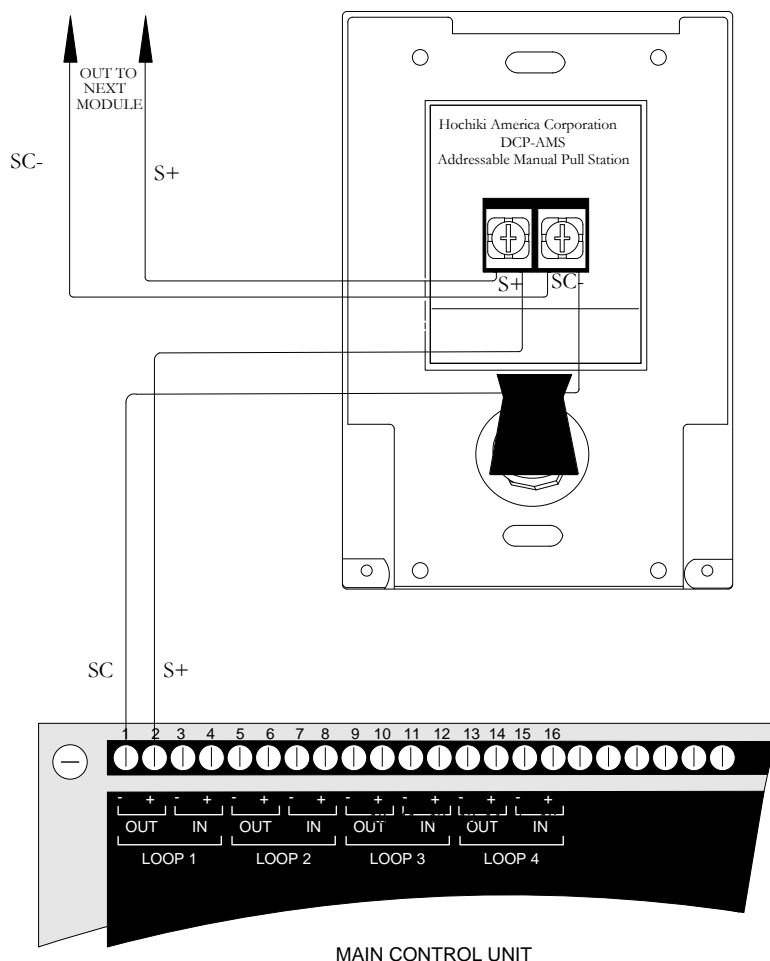
Figure 5.16.1 AMS Addressable Manual Pull Station Wiring Detail

Section 6 - Network Connections

6.1 Compatible Network Devices

The following Hochiki America Corp. FireNET network devices are listed as compatible with the FireNET 4127 analog addressable fire alarm system.

Network Interface Card

- FN-4127-NIC

Network Devices

- FN-LCD-N Network LCD Annunciator

This section covers the installation of the devices listed above. For proper operation each of these devices must be programmed using the Loop Explorer software. Please refer to Section 9 of this manual for more information on programming the functionality of network devices.

The FireNET system enables information to be transmitted between control panels using a secure network connection. Up to sixty-four control panels and network annunciators (nodes) can be connected together and the system can be configured such that selected information can be displayed or acted upon at each panel.

6.1.1 FN-4127-NIC Network Interface Card

To enable control panels to be connected together as a network, a network card must be installed in each panel. This card connects to the FN-4127 on the rear of the panel door and is held in position by two M3 screws. The network card is installed in the exact same fashion for the FN-LCD-N Network LCD annunciator.

To install a network card, the AC and battery power must first be switched off and the metal cover over the front panel PCB removed. The network card can then be plugged into the two connectors (J1 and J3) in the bottom right of the main panel PCB and secured in position with the M3 screws.

Front Panel PCB

M3 Screws
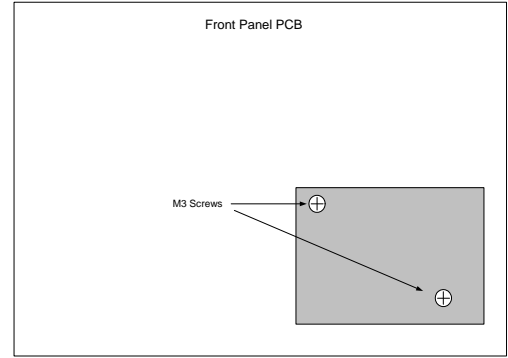
OBSERVE STATIC PRECAUTIONS WHEN HANDLING CIRCUIT BOARDS

Each network node must be allocated a unique network address. This is done by setting the DIP switches on the network card to the required binary number as shown above. It is important that each panel has a different address for correct operation so care must be taken to set and record the network card address for each panel. Always set the address on the DIP switches with power to the panel **switched off**.
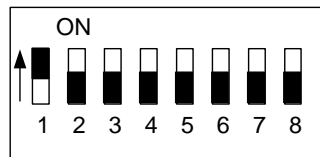
ON

1 2 3 4 5 6 7 8

This switch setting shows address number one.

Switch position up selects the binary digit, so a switch with 1,2 and 3 up would represent address number 7.

(The black part shows the switch actuator)
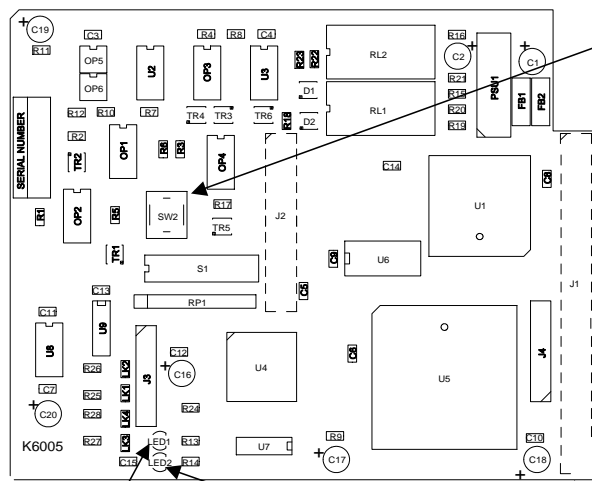
Processor reset switch

LED1-GREEN = OUTGOING CONNECTION OK   LED2-RED = INCOMING CONNECTION OK

This switch setting shows address number one. Switch position up selects the binary digit, so a switch with 1,2 and 3 up would represent address number 7.

The network card has a green and a red LED indicator to show the status of the incoming and outgoing communications. Under normal circumstances, both LEDs will be lit, indicating that the card is communicating properly. If one or both of the LEDs are not lit then the connection to neighboring panels is not functioning properly.

6.1.1.1 Cable Length

The FireNET network communications protocol has been designed to be extremely tolerant to interference and data corruption, however as with any system, limitations must be set to guarantee correct operation. The specified transmission distance limit for the communications method used is 4000 ft. (1200m) and because the data is re-transmitted at each network card, in theory, there can be 4000 ft. (1200m) between each card if required. The minimum cable size for the FireNET network is #20 AWG. The network communications uses RS485 technology.

Using the above cable distances however, does not take into account the failure of a network card to communicate with the system through total power failure or a card trouble. In this situation, the network card would disconnect itself from the network and connect the network cable such that it bypasses the card in question. This means that the total cable length between the cards either side of the disconnected one could be 8000 ft. (2400m), which is outside of the specification for the communications method used (RS485). This trouble scenario could clearly be extended to more network cards and this would add 4000 ft. (1200m) of cable length in each case.

A sensible trouble tolerance limit must therefore be suggested to enable the performance of the system to be predicted. Because of the nature of the fire protection system, its design is biased towards inherent reliability and failure of a network card, although possible, is very unlikely. Fire control panels also have substantial back up power systems, therefore, the likelihood of a total power failure under operational conditions, is also extremely rare. A suggested tolerance level of one card failure is therefore recommended. To guarantee operation of the system with one card failure it is necessary to arrange the network so that a failure will not introduce more than 4000 ft. (1200m) of cable between the two cards, which would be connected together by the failure. This means that the total cable length between adjacent nodes should not be more than 4000 ft. (1200m). It is not important how the 4000 ft. (1200 meters) is made up i.e. it could be 350 ft. (100m) and 3650 ft. (1100m) or 2000ft. (600m) and 2000ft. (600m).

Using these general rules and the specified or equivalent cable types will provide a guaranteed performance of networks with plenty of tolerance.

6.1.1.2 Wiring Scheme
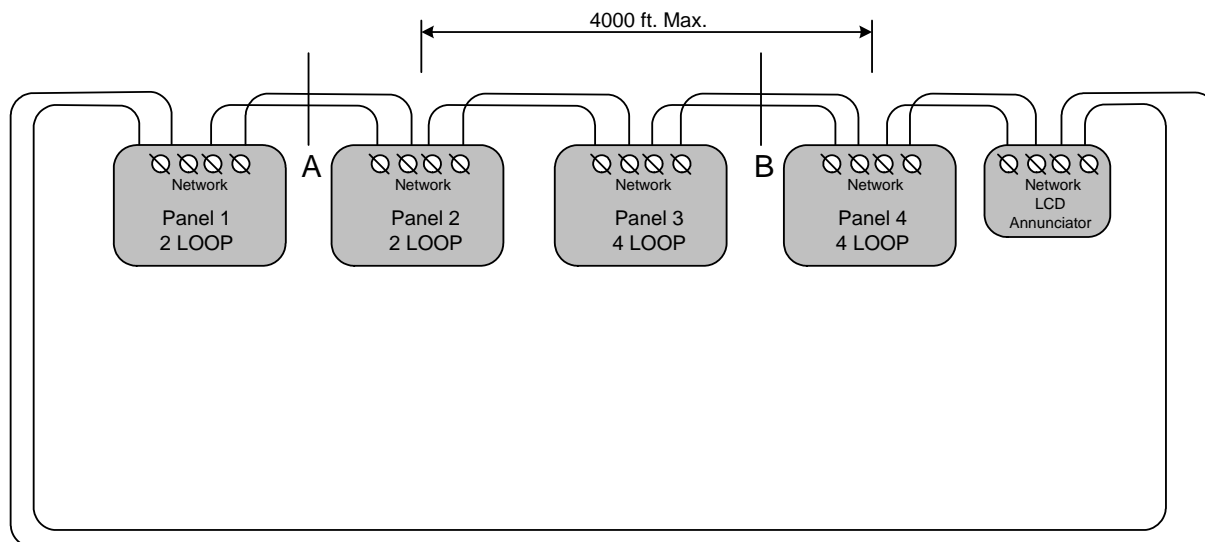
When designing or installing a network of FireNET panels and annunciators, always be aware of the following:

1. The panel network must be wired as a ring (Class A).
2. There should be no more than 4000 ft. (1200m) maximum cable length between two adjacent segments.
3. A short circuit at **Point A** should automatically disconnect the shorted section and announce a trouble condition at all panels but the entire network will continue communicating.
4. A short circuit at **Points A and B** should automatically disconnect both sections and announce trouble at all panels. Communication will continue between panels1 and 4 and between panels 2 and 3.
5. Open circuit troubles should allow the network to continue operating in the same way as short circuit troubles.
6. Network cabling should be standard RS485 type for up to 64 nodes.
7. The minimum cable size for the FireNET network is #20 AWG.

6.1.1.3 Cable Type

The cable type used for the network connection should be suitable for RS-485 applications. Minimum wire size should be 20ga. twisted, shielded, stranded. RS485 communications cable is typically standard Class 2 communications cable. However, depending on the AHJ, FPL or FPLR cable may be required. Follow local jurisdictional and AHJ requirements. NFPA 70 national electric code compliance may be required for network cabling depending on local jurisdiction, AHJ, regulations, and/or codes.

6.1.1.4 Proper Shield Termination of the Network Cable

In many installations, interference from RFI, EMI or other noise sources can create problems. In order to reduce the effects of such noise, terminate the shield to the earth ground terminal block in the main control panel. DO NOT ground the shield at both ends of the cable!

6.1.1.5 Connecting the network cable

All panels will have two cables connected to another panel or panels. If either of these is not connected then a trouble will be displayed. The connection is polarity sensitive. The + and – from one panel must connect to the + and – of the next panel and so on. The temperature of the cable should not exceed 131 degrees F (55 C).

NOTE: It is important to ensure that the connection from the OUT+ from one panel connects to the IN+ terminal of the next and the OUT- from one panel connects to the IN- of the next panel and so on.
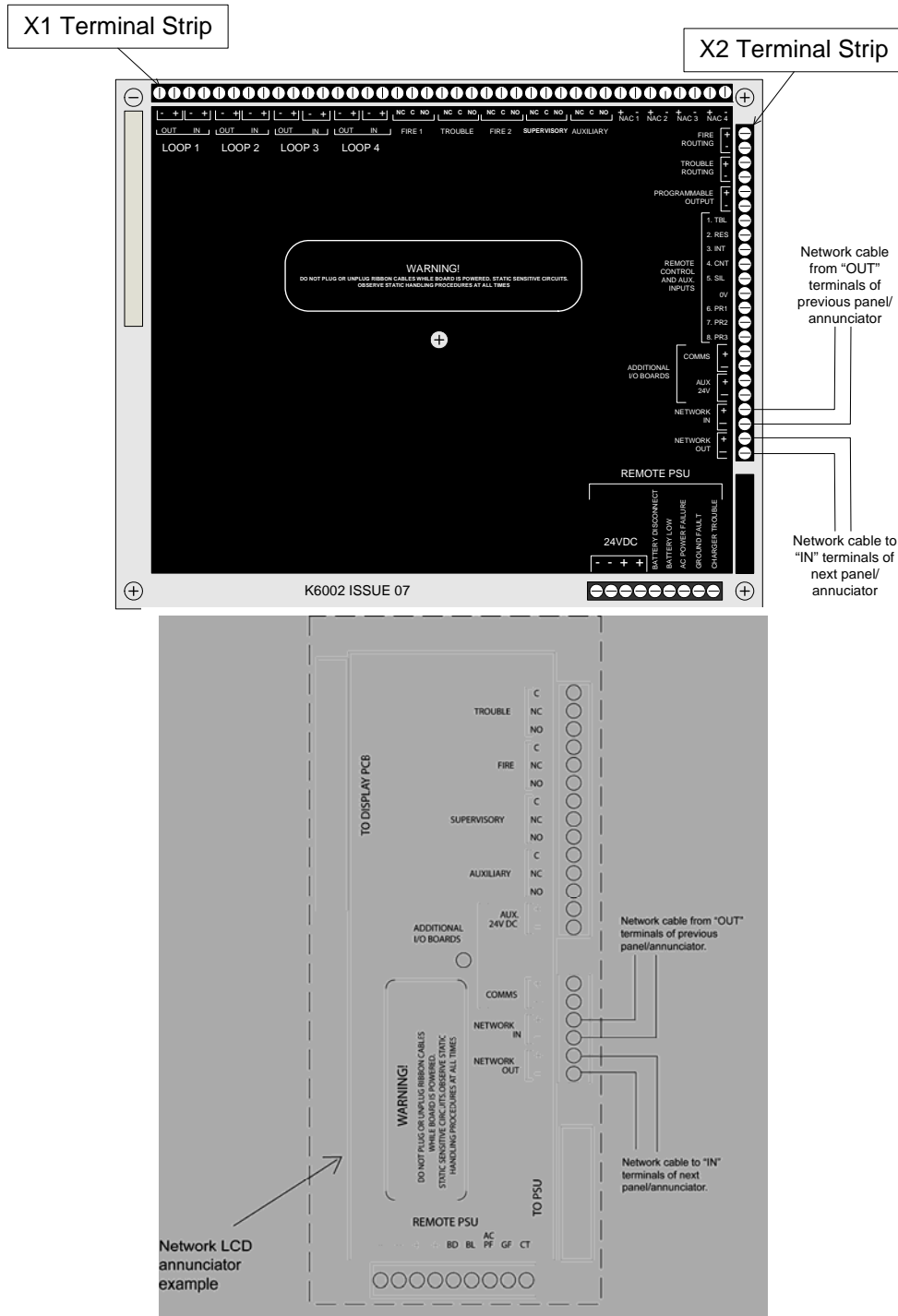
6.1.2 FN-LCD-N Network Liquid Crystal Display Annunciator

The FN-LCD-N Network Annunciator duplicates the indications of the FN-4127 fire alarm control panels connected to the same network. The FN-LCD-N connects to the control panel via the network interface and requires that the main control panel have an FN-4127-NIC network card fitted.

The FN-LCD-N Network Annunciator is connected to the network and any number of panels can be connected up to the maximum number of nodes allowed by the network specification, which is 64 (including control panels).

Specific network attributes and routing information from any or all control panels may be assigned to the FN-LCD-N. The LCD display and user interface on the FN-LCD-N operate and indicate in the same manner as the control panel.

The FN-LCD-N is considered a network "node" to the FireNET network just like the control panels.

For operations and programming refer to Sections 7, 8 and 9 of this manual.

Figure 6.1 FN-LCD-N Network LCD Annunciator

When powering the FN-LCD-N from the FireNET Aux 24VDC power (limited to 500ma), the following maximum wiring distances apply at the gauges noted:

Wire	Distance
18AWG	925ft
16AWG	1500ft
14AWG	2400ft
12AWG	3900ft

The following labels appear in the diagram:

- TO DISPLAY PCB
- TROUBLE: C, NC, NO
- FIRE: C, NC, NO
- SUPERVISORY: C, NC, NO
- AUXILIARY: C, NC, NO
- Conventional Relay Contacts rated for 1A @ 30 VDC. Must be connected to power-limited source. (Not Supervised) (Resistive)
- ADDITIONAL I/O BOARDS
- AUX. 24V DC: +, −
- 24VDC Outputs (500 mA max) typically used for low current devices (see Section A.4 for compatible devices - see note below for current considerations.)
- COMMS: +, −
- RS485 to I/O Boards
- NETWORK IN: +, −
- NETWORK OUT: +, −
- Network Connections, see section 6.1.1.5 for details
- WARNING! DO NOT PLUG OR UNPLUG RIBBON CABLES WHILE BOARD IS POWERED. STATIC SENSITIVE CIRCUITS. OBSERVE STATIC HANDLING PROCEDURES AT ALL TIMES
- TO PSU
- REMOTE PSU: − − + + BD BL PF AC GF CT
- Network LCD annunciator example
- No Connection. Do Not Use
- to AUX 24VDC of control panel (terminal 18 and 19 of X2), or UL 864 Listed AUX 24VDC Power Supply

Figure 6.2 FN-LCD-N Wiring

NOTE: When connecting I/O boards to the FN-LCD-N via the COMMS terminals shown above, the I/O boards must be powered by a UL864 listed local Auxiliary 24VDC power supply, or the Aux 24VDC output of the FN-LCD-N within the limits outlined below.

DO NOT connect the I/O board power input to the Aux 24VDC output terminals of the FN-LCD-N unless the sum current load of the I/O board is within the 500ma max 24VDC output rating of the FN-LCD-N and within the 500ma max 24VDC output rating of the FN-4127 control panel that provides power to the FN-LCD-N. Failure to make this consideration may result in overloading the FN-LCD-N and/or the control panel Aux 24VDC output (500ma max. each).

The current limits during both standby and in alarm shall not exceed the 500 mA rating.

Section 7 - Basic Front Panel Operations and Programming

(Access Level 1, 2, and Real-Time Operation)

This section covers the basic user operations of the FN-4127 and is intended to provide the casual user a basic understanding of how to complete common system operations. In addition to providing an overview of the front panel controls this section also includes instructions on how to:

- Perform a Lamp Test
- Silence the Panel Sounder
- View Multiple Fire Alarms on the Panel Display
- View Multiple System Events on the Panel Display
- Use the Menu Navigation Buttons
- Use the Help Function
- Silence an Alarm
- Resound an Alarm
- Reset an Alarm
- Initiate a Fire Drill
- Disable Portions of the System
- View the Status of System Devices
- Set system time

All of these operations are performed from the front panel keypad.

Please refer to the front panel photo in Figure 7.1 below while reading through this section.
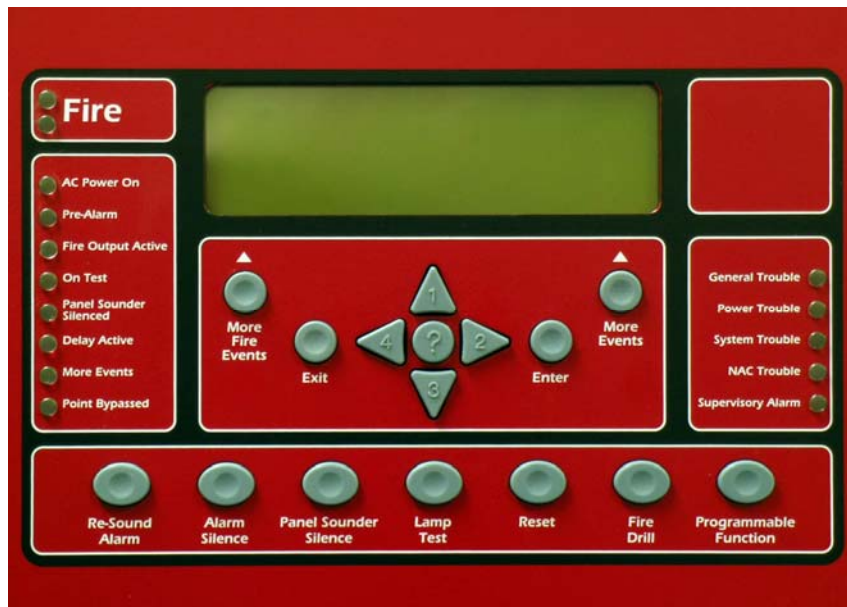
Figure 7.1 Front Panel Control

7.1 Operating Modes

This section provides a brief overview of Access Level 1, 2, and 3 operating modes. Access Level 1 and 2 operating modes are used in the basic system operations described in this chapter. Access Level 3 is typically used only by installation and service personnel and is explained in greater detail in Section 8 of this manual.

7.1.1 Access Level 1

When the FN-4127 control panel is in **Normal Standby** condition only the green **AC Power On** LED will be lit, and the date and time displayed on the LCD display. **Normal Standby** is considered to be in Access Level 1. Some very basic operations can be done in Access Level 1 by simply pushing the corresponding button(s) on the front panel controls. For information on which basic user operations can be done from Access Level 1 see section 7.2.

7.1.2 Access Level 2

Many of the front panel controls and their operations require the user to enter a more secure operating mode called Access Level 2. This more secure operating mode prevents unauthorized individuals from operating the FN-4127 fire alarm system. For information on which basic user operations are done from Access Level 2 see section 7.3.

7.1.3 Access Level 3

A higher security mode called Access Level 3 is also available to system administrators, installers, and service personnel to make critical changes to the system. For more information on Access Level 3 refer to Section 8 of this manual. None of the basic operations covered in this section require entry to Access Level 3 operating mode. Access Level 3 operating mode should be restricted to qualified installation and service personnel only.

7.2 Access Level 1 Operations

7.2.1 Performing a Lamp Test

Press the "**Lamp Test**" button on the front panel to illuminate all front panel LED indicators, LCD display, and validate correct operation. Release the button to conclude the test.

7.2.2 More Fire Events

The front panel display is capable of displaying the information for up to two different points that are in alarm condition. If more than two points are in an alarm condition simultaneously the front panel display above the "**More Fire Events**" button will indicate how many additional alarms are active. For example the display may indicate

"**1 More Fire**". In this case there is one additional point in fire alarm condition that is not currently shown on the display. By pressing the "**More Fire Events**" button, the user can display these additional alarms.

7.2.3 More Events

Similar to the "More Fire Events" button, the "**More Events**" button allows the user to display more non-fire alarm events if more than 2 events are active on the system at one time.

7.2.4 Menu Navigation (Up, Down, Left, Right Arrows, Enter / Exit Buttons)

These buttons are used to navigate the FN-4127 menu structure. The arrow buttons (**up, right, down, left**) also represent the digits 1, 2, 3, and 4 respectively when entering codes for Access Level 2 or Access Level 3 modes.

7.2.5 Help (?)

The "**Help**" button offers additional information relating to the current status of the FN-4127 control panel and provides assistance in basic operation of the system. Press and hold the "**Help**" button to display this additional information.

7.3 Access Level 2 Operations

The following operations can only be done after the panel is placed into Access Level 2 operating mode. To place the FN-4127 into Access Level 2 follow these instructions:

7.3.1 Entering Access Level 2

1. Press any navigational arrow key to enable the panel.

2. Using the arrow keys enter the 5 digit code. Digit values are 1 - 4 only and correspond to the value on each arrow key. (Up = 1, Right = 2, Down = 3, Left = 4) The factory default for the Access Level 2 code is 22222.
3. Press the Enter key. The front panel graphic display will confirm you are in Access Level 2.
4. If there is no activity for 120 seconds on the front panel controls once the system is in Access Level 2 operating mode, the system will time out and revert back to Access Level 1 operating mode automatically.
5. You may also use the Enable Access keyswitch on the front door of the panel to enter Access Level 2. Simply insert the key and turn it to the right. The panel display will confirm that you are in Access Level 2.

   NOTE: The FireNET panel will NOT time out to Level 1 when using the key. Be sure to return the key to the OFF position and remove it when not in use!

7.3.2 Silencing an Alarm

To silence an alarm condition place the panel into Access Level 2 operating mode as described in 7.3.1. Press the "**Alarm Silence**" button. The "**Alarm Silence**" button acknowledges any current alarm conditions and typically silences any audible and visual notification appliances such as horns and strobes. In some cases the system may be programmed so that the "Alarm Silence" button silences the audible notification appliances but allows the visual notification appliances such as strobes to remain flashing. Your system installer can inform you how your system is set up to operate. After an alarm has been silenced, the flashing fire LED's will go steady, and "alarm silenced" will display in the upper right corner of the LCD display.

7.3.3 Resounding an Alarm

To resound an alarm condition place the panel into Access Level 2 operating mode as described in 7.3.1. Press the "**Resound Alarm**" button. Pressing the "**Resound Alarm**" button will reactivate any audible or visual notification appliances that were previously silenced using the Alarm Silence operation.

7.3.4 Resetting an Alarm

Once a fire or other alarm condition has been verified and cleared it is necessary to reset the panel. To reset the FN-4127; place the panel into Access Level 2 operating mode as described in 7.3.1. Press the "Reset" button. All latched outputs such as relays used for elevator recall will return to their normal state.

Prior to resetting the panel it is necessary to clear the condition that caused the alarm. For example, if a manual pull station was activated to cause the alarm, that manual pull station must be physically reset in order to reset the panel. If you attempt to reset a panel that has an existing alarm condition that has not been cleared, the panel will go back into alarm immediately after trying to reset.

7.3.5 Initiating a Fire Drill

To initiate a fire drill place the FN-4127 panel into Access Level 2 operating mode as described in 7.3.1. Press the "Fire Drill" button to engage fire drill mode. The fire drill activates NAC and SOM indication circuits, but does not activate fire relays, R2M, programmable relays, etc. A subsequent press of the fire drill button will deactivate fire drill mode. Any actual fire alarms during a Fire Drill will automatically override fire drill mode.

7.3.6 Silence the Panel Sounder

Many system conditions such as system troubles will activate the sounder in the FN-4127 main control panel. The user can silence the panel sounder by pressing the "**Panel Sounder Silence**" button on the front panel. This silences only the panel sounder. Other audible outputs such as horns or strobes require a different operation to silence.

7.4 Advanced Access Level 2 Operations

7.4.1 Access Level 2 Main Menu

Once you have entered Access Level 2 operating mode you can view the Access Level 2 Main Menu, which gives the user the ability to perform additional system operational functions.   To view the menu, enter Access Level 2, and then press any one of the navigational arrow keys.

ACCESS LEVEL 2 MAIN MENU
DISABLEMENTS
VIEW DEVICES
TEST ZONES
SET SYSTEM TIME
SENSOR MAINTENANCE EARLY WARNING
ACCESS LEVEL 3

Table 7.4 Main menu items at Access Level 2

Once this menu is displayed you can scroll up or down using the navigational arrow keys to highlight each of the six menu options. A menu option is highlighted when a triangular arrow symbol appears to its left.

Each menu option may be selected by first highlighting it using the up/down arrow keys, then pressing the right arrow key to select. The six Access Level 2 Main Menu option functions are described in the following sections.

7.4.2 Disablements

The Disablements menu allows the user to disable individual points, circuits, zones, or loops on the FN-4127 fire alarm system. This is typically done while the system is being serviced or tested or to temporarily remove a faulty system device. CAUTION: Any portion of the system that is disabled will not report an alarm condition.

All disablements have two options, timed or untimed. For disablements up to 24 hours in length the timed disablement option should be used. This will prompt the user to enter a disablement time in 30-minute increments from 30 minutes to 24 hours. Once the disablement begins the FN-4127 will countdown the selected disablement time. When the time expires the disablement is cancelled automatically.

Untimed disablements should be used only when it is necessary to disable a portion of the system for over 24 hours. Untimed disablements remain active until they are manually reset at the panel through the Access Level 2 Main Menu / Disablements command.

Once you select timed or untimed disablement you can choose to disable loops, zones, addresses, NAC, or I/O circuits through sub-menus to the Access Level 2 Main Menu / Disablements option.

As previously discussed highlighting the desired menu option and then pressing the right navigational arrow selects that option. Pressing the left navigational arrow at any time backs out of the current menu returning to the previous menu.

Note: The FN-4127 fire alarm system will indicate a disabled condition any time there is an active disablement on the system, via LCD display text and the "point bypassed" LED on the front panel. Any item disabled is considered an off-normal condition and will generate a common trouble condition until the disabled item is returned to normal.

7.4.2.1 Disabling Loops

The Disable Loops sub-menu option to Disablements, allows you to disable an entire SLC loop with one command. The SLC loop may contain up to 127 analog detectors and addressable input and/or output modules, as well as up to 127 analog sounder bases. Disabling an entire SLC loop disables all inputs and outputs on the loop and should be used only in extreme cases such as a service related problem affecting all the devices on the SLC loop.

WARNING: Loop disablement does not electrically isolate the panel from the SLC loop wiring. The SLC loop should be disconnected from the panel before any diagnostic testing is performed.

Disabling Zones

Each device on the system is assigned to a zone by the system installer. Refer to the installation records in Section 11 of this manual for a list of all points on the system and the zones they are assigned to. A zone may consist of one or many points. Disabling a zone disables all the points assigned to that zone.

Disabling Addresses

Each SLC loop device on the system is assigned a unique address. In some cases an SLC loop device may have sub addresses as well. Using the Disable Address sub-menu command the user can individually disable any single address on the system.

Disabling NAC Outputs

The disable Audible Device output sub-menu option allows the user to disable all of the local NAC, SOM, and ASB outputs on the system. This is typically done for periodic tests so the building occupants are not disturbed while activating each alarm device. When you choose this option all of the notification appliances connected to the panel notification appliance circuits and SOM are disabled, as well as any analog sounder bases.

Disable Panel I/O

The Disable Panel I/O sub-menu option allows a user to disable an individual panel input or output. This includes individual notification appliance (NAC) circuits, on-board panel relays, and the on-board digital inputs. This option applies only to on-board inputs and outputs – SLC loop devices must be disabled by using the Disable Addresses option.

View / Restore Disablements

The View/Restore Disablements sub-menu option is used to quickly display any system disablements and optionally reset them to normal. Scroll to the View/Restore Disablements sub-menu option, press the right navigational arrow to select, and then follow the prompts on the panel display to view/reset any disablements on the system.

7.4.3 View Devices

The View Devices menu option allows the user to view every SLC loop device. For each device the panel display will indicate the device type, zone, and location text. In addition, analog devices such as smoke and heat detectors will also be displayed with their current analog value. This analog value can be useful in determining if a smoke detector requires cleaning. Photoelectric detectors also display in terms of obscuration (%/ft) and the heat detectors in terms of temperature (F°).

For non-analog input devices the current status will be displayed as Off or On. For non-analog output devices the current status will be displayed as either Off or Activated.
Service personnel who want to verify system devices and troubleshoot potential problems typically use the View Devices sub-menu option.

7.4.4 Test Zones

The Test Zones sub-menu option is used by service personnel to quickly and easily perform periodic system tests. Please refer to Section 10 of this manual for a more detailed explanation. This feature is typically referred to as a "One Man Walk Test."

7.4.5 Set System Time

This sub-menu option is used to adjust the FN-4127 internal clock. It is important to make sure the clock is accurate so that events logged in the event log are recorded with the correct time.

To set the system clock select the Set System Time sub-menu option by highlighting it with the up/down arrow keys. Select it by pressing the right arrow key. The resulting menu allows you to individually set the Year, Month, Day, Hour, Minute, and Daylight Savings. Highlight each option by using the up/down arrow keys. Press the right arrow key to select it. Use the up/down arrow keys to change the current values. Pressing the left arrow key in any menu, backs you out to the previous menu.

7.4.6 Sensor Maintenance Early Warning

This option is used by service personnel to identify sensors that require cleaning or replacement.

7.5 Panel Operation

This section summarizes the operations described earlier in this section of the manual for handling Fire, Trouble, and Supervisory conditions.

7.5.1 Fire Condition

In the event a device on the FN-4127 fire alarm system activates in a fire alarm condition the following will happen:

- Both FIRE LED indicators on the front panel will turn on and flash.

- Details of the device that caused the fire alarm condition will be given in the LCD status display on the front panel.

- If there are more than two fire conditions, press the "**More Fire Events**" button on the front panel to view the additional fire alarms.

- Audible and visual notification appliances (horn and strobes) will activate throughout the building.

- Output relays and circuits will operate performing fire alarm functions such as closing doors, recalling elevators, shutting down air handling equipment etc.

- The panel buzzer will be pulsing.

The operator actions required following a fire alarm condition are as follows:

- Silence the panel buzzer by pressing the "**Panel Sounder Silence**" button.

- Silence the notification appliances by entering Access Level 2 and pressing the "**Alarm Silence**" button. (See section 7.3.1 for instructions on entering Access Level 2). When the Fire condition is silenced, both fire LED indicators change from flashing to steady and the LCD display will indicate "Alarm Silenced".

- Resound the audible and visual notification appliances if necessary by entering Access Level 2 and pressing the "**Resound Alarm**" button.

- Once the fire department has cleared the building, physically reset any devices such as manual pull stations that require a manual reset.

- Reset the FN-4127 fire alarm control panel by entering Access Level 2 and pressing the "**Reset**" button.

7.5.2 Trouble Condition

Trouble conditions occur when problems with the FN-4127 fire alarm system components and wiring are detected.

When the FN-4127 fire alarm control panel senses a trouble condition, the following will occur.

- The General Trouble LED will illuminate on the front panel.

- Other trouble LED's indicating the nature of the trouble may also illuminate.

- The trouble relay contact and voltage output in the control panel will activate

- Details of the trouble condition will be shown on the LCD status display on the front panel.

- If there are two or more trouble events press the "**More Events**" button to view them in the LCD status display on the front panel. (See section 7.3.1 for instructions on entering Access Level 2).

- The panel buzzer will sound.

The operations required following a trouble condition are as follows:

- Press the "Panel Sounder Silence" button to silence the panel buzzer. (See section 7.3.1 for instructions on entering Access Level 2).

- Note the LCD status display and any messages that may appear so these can be relayed to service personnel.

- Investigate the cause of the trouble. It may be as simple as a detector that was inadvertently removed.

- If the trouble condition cannot be resolved, contact your service company.

There is no need to reset trouble conditions. They are non-latching and reset themselves after the trouble condition is corrected.

NOTE: Loop Open/Short troubles are latching and require a panel reset to clear.

7.5.3 Supervisory Condition

A supervisory condition is detected when a portion of a building system that controls the spread of fire or smoke is disabled. This is most commonly a fire sprinkler valve that is turned off for maintenance purposes.

When the FN-4127 fire alarm control panel senses a supervisory condition the following will occur:

- The Supervisory Alarm LED will illuminate on the front panel.

- The supervisory relay contact in the control panel will activate.

- Details of the supervisory condition will be shown on the LCD status display on the front panel.

- The panel buzzer will sound.

The operations required following a supervisory condition are as follows:

- Press the "Panel Sounder Silence" button to silence the panel buzzer. (See section 7.3.1 for instructions on entering Access Level 2).

- Note the LCD status display and any messages that may appear so these can be relayed to service personnel, fire department, and/or central station.

- Investigate the cause of the supervisory conditions.

- If the supervisory condition cannot be resolved, contact your service company.

- Once the supervisory condition has been cleared, reset the FN-4127 fire alarm control panel by entering Access Level 2 and pressing the "Reset" button.

7.5.4 Pre-Alarm Condition

A Pre-Alarm condition occurs when an analog sensor reaches its pre-alarm threshold, or when an input whose type is set to pre-alarm activates. This condition typically occurs as the sensor approaches its fire point.

When the FN-4127 fire alarm control panel senses a pre-alarm condition, the following will occur:

- The Pre-Alarm LED will illuminate on the front panel.

- Details of the pre-alarm condition will be shown on the LCD status display on the front panel.

- If there are two or more events, press the "More Events" button to view them in the LCD status display on the front panel.

- The panel buzzer will sound.

The operations required following a Pre-Alarm condition are as follows:

- Press the "Panel Sounder Silence" button to silence the panel buzzer. (See section 7.3.1 for instructions on entering Access Level 2).

- Note the LCD status display and any messages that may appear so these can be relayed to service personnel.

- Investigate the cause of the Pre-Alarm, such as a significant presence of smoke, heat, or an actual fire starting.

- If the Pre-Alarm condition cannot be resolved, contact your service company.

- Once the Pre-Alarm condition has been cleared, reset the FN-4127 fire alarm control panel by entering access level 2 and pressing the "reset" button.

Section 8 - Advanced Front Panel Operations and Programming
(Access Level 3)

8.1 Access Level Overview

The FireNET 4127 has 3 modes of operation. Access Levels 1 and 2 are operational levels that allow the user to perform operational commands such as silencing an alarm or resetting the panel. Access Levels 1 and 2 are explained in further detail in Section 7 - Basic Front Panel Operation and Programming.

Access Level 3 is an installer level operating mode that allows the user to perform some of the basic programming commands used to configure the FN-4127 fire alarm system.

Some of the basic programming functions for the FireNET 4127 control panel can be done from the front panel controls. To fully program the FireNET 4127 fire alarm system however, you should use a PC running the Loop Explorer software package (See Section 9).

This section covers the basic programming functions that can be done from the front panel controls of the FN-4127 fire alarm control panel.

8.1.1 Entering Access Level 3

In order to enter Access Level 3 operating mode you must first enter Access Level 2 operating mode. From the Access Level 2 Main Menu you can select Access Level 3.

To enter into **Access Level 3** follow these steps:

1. Press any arrow key to enable the panel.

2. Using the arrow keys enter the 5 digit code for Access Level 2. You can only use digit values of 1-4. The up/down arrow keys represent the values 1-4. Up = 1, Right = 2, Down = 3, and Left = 4. The default Access Level 2 code is 22222

3. Press the Enter key. The front panel graphic display will confirm you are in Access Level 2.

4. Press the right arrow key to access the Access Level 2 Main Menu.

5. Press the down arrow key until **Access Level 3** is highlighted with a triangular arrow to the left of it.

6. Press the right arrow key to select **Access Level 3**.

7. Using the arrow keys enter the 5 digit Access Level 3 code. Digit values are 1-4 only. The default Access Level 3 code is 33333.

8. Press Enter.

    Note: If you back out of the Access Level 3 menu using the **Exit** button or the left arrow key, you will have to re-enter the code to go back into Access Level 3 operating mode.

8.2 Access Level 3 Menu

Table 8.2 shows the menu structure of the Access Level 3 main menu. You can scroll up and down using the arrow keys to highlight each menu option. Once the option is highlighted with a triangular arrow to the left of it, you can select the option by pressing the right arrow key.

Table 8.2 Access Level 3 Menu Structure

```
          ACCESS LEVEL 3 MENU

    ►EDIT CONFIGURATION
      SET TIMES
      VIEW PRINT EVENT LOG
      PRINT CONFIGURATION
      SYSTEM DISABLEMENTS
      LOOP DATA TEST
```

8.2.1 Edit Configuration

The Edit Configuration menu option displays a sub-menu with even more options to select. Table 8.2.1 indicates these options.

Table 8.2.1 Edit Configuration Menu Structure

```
        EDIT CONFIGURATION MENU

    ► EDIT SUPPLIERS NAME
      EDIT GENERAL ALARM MODE
      EDIT I/O
      ADD/DELETE DEVICE
      EDIT DEVICE ATTRIBUTES
      AUTO LEARN
```

8.2.1.1 Edit Suppliers Name

The suppliers name is a custom message that is displayed on the front panel LCD status display in normal operation, just under the time/date information at the top of the screen.

The suppliers name can be any text message up to 40 characters long. The default suppliers name message is "Auto Configured Panel".

From the EDIT CONFIGURATION MENU, highlight "EDIT SUPPLIERS NAME" by using the up down arrow keys then select it by pressing the right arrow key.

Using the left and right arrow keys, select the character you want to edit. Using the up and down arrow keys scroll through available characters that can be used. Refer to the on-screen instructions for additional information.

8.2.1.2 General Alarm Mode

The FN-4127 can be programmed to operate in three different ring modes.

"Common" ring mode activates all audible and visual notification appliance circuits when a fire alarm is activated. This is the default mode of the FN-4127 panel.

"Zonal" ring mode activates only the audible and visual notification appliances that are programmed into the same zone as the device causing the alarm.

Select EDIT GENERAL ALARM MODE from the EDIT CONFIGURATION MENU and use the arrow keys to scroll between "Common" and "Zonal". Follow the on screen prompts or use the Help (?) button for additional information.

8.2.1.3 Edit I/O

The EDIT I/O menu option allows the user to set the attributes of all the FN-4127 control panel input and output circuits. Selecting EDIT I/O displays a sub-menu giving the user the choice of "Edit Panel I/O" or "Edit Remote I/O".

8.2.1.3.1 Edit Panel I/O

Edit Panel Inputs

Selecting "Edit Panel Inputs" allows the user to scroll between the following panel input circuits. These inputs are utilized by installing a normally open switch contact between Terminal 12, which is 0V, and each input listed below. Please refer to Section 3.6 Digital Inputs for more detail on wiring & limitations of these inputs.

- Trouble Input (Terminal 7)
- Reset Input (Terminal 8)

- Intermittent Input (Terminal 9)
- Continuous Input (Terminal 10)
- Sil. Alarm Input (Terminal 11)
- Programmable Input 1 (Terminal 13)
- Programmable Input 2 (Terminal 14)
- Programmable Input 3 (Terminal 15)
- Programmable Function Button on Front Panel

Each input circuit has the following properties that can be edited. Select each menu option and follow the on screen prompts or press the Help (?) button for further information.

- Zone
  - Selecting this option allows the user to program which software zone the input will be placed in. Default is 0.
- Input Delay
  - Input delays can be programmed (where acceptable by the Authority Having Jurisdiction) in 10-second increments up to 2 minutes.
- Input Latch
  - Each input can be programmed as latching or non-latching. Latching requires the panel to be reset before the condition is cleared. Non-latching resets the condition automatically when the input returns to normal.
- Input Action
  - Input action is the type of event that occurs when the input is activated. Choose between Trouble, Pre-Alarm, Supervisory, Auxiliary, Silence Alarm, Reset, Transparent, Disablement, Test, or Fire.
- Edit Location Text
  - This option allows the user to scroll through the available characters using the arrow keys, and create a custom text message up to 40 characters describing this input.

Edit Panel Outputs

Selecting "Edit Panel Outputs" allows the user to scroll between the following panel output circuits.

- Notification Appliance Circuit 1 (Terminals 32 & 33)
- Notification Appliance Circuit 2 (Terminals 34 & 35)
- Notification Appliance Circuit 3 (Terminals 36 & 37)
- Notification Appliance Circuit 4 (Terminals 38 & 39)
- Fire1 Contact (Terminals 17-19)
- Trouble Contact (Terminals 20-22)
- Fire2 Contact (Terminals 23-25)
- Supervisory Relay (Terminals 26-28) [Not User Programmable]
- Auxiliary Relay (Terminals 29-31)
- Fire Routing Voltage Output (Terminals 1 & 2)
- Trouble Routing Voltage Output (Terminals 3 & 4)
- Programmable Voltage Output (Terminals 5 & 6)

Each output circuit has the following properties that can be edited. Select each menu option and follow the on screen prompts or press the Help (?) button for further information.

- Zone
    - Selecting this option allows the user to program which software zone the input will be placed in. Default is 0.
- Attributes
    - This option allows you to select the output attributes flags for general alarm, silenceable, output, pre-alarm output, trouble output, and Strobe Output. (Strobe option for NAC outputs only).
- Delay Stage 1
    - If you are using staged evacuation. This option sets the delay for stage 1 in 30 second increments up to 5 minutes maximum (Not Available for NAC outputs).
- Delay Stage 2
    - If you are using staged evacuation. This option sets the delay for stage 2 in 30 second increments up to 5 minutes maximum (Not Available for NAC outputs).
- Test Device Output
    - This option allows the output to be manually turned on or off by the user.
- Configure Output as Auxiliary (NAC only)
    - This option allows NAC Outputs to be alternately programmed as power outputs such as constant power, door holder power or resetable power.

NOTE:	Panel Outputs can be programmed into three primary categories:
	- <u>Common</u>
	    ○ When output attribute flags are set for general event categories, the output operation will follow the common activation of that event type. General Alarm mode should be set to "common" for this operation.
	- <u>Zone</u>
	    ○ When outputs are assigned to zones, the output operation can be triggered on a zoned basis. General alarm mode should be set to "zonal" for this operation.
	- <u>Programmable</u>
	    ○ When outputs are not assigned to general event categories via output attributes, the output operation is programmable by using Cause and Effect.

Edit Default Pattern

"Edit Default Pattern" allows you to select the on-board NAC circuit output pattern. The available options are Continuous, Temporal and March. The default is Temporal.

Edit Alarm Verification

The alarm verification time value can be set between 5 and 60 seconds. This value must be to 60 seconds to be compliant with UL864 9th Edition. Default value is 60 seconds. (See the prefix of this manual for additional details).

Edit AC Fail Report Delay

The AC Fail report delay time value can be set between 0 and 24 hours. Default value is one (1) hour. This value must be set between 1 and 3 hours to be compliant with UL864 9th Edition. (See the prefix of this manual for additional details).

8.2.1.3.2 Edit Remote I/O

I/O Board Addresses 1 – 32 can be selected within this menu. Input Channels can be edited within this menu. Programming attributes are the same as described in panel input menu. Output Channels can be edited within this menu. Programming attributes are the same as described in panel output menus. Each I/O board has 16 input/output channels. Each I/O Channel can be selected to be either an input or an output.

8.2.1.4 Add/Delete Device

Selecting the ADD/DELETE DEVICE Menu Option allows the user to add or delete a single SLC loop device to any of the 4 possible SLC loops on the system. To add an SLC loop device using this menu option follow these instructions.

8.2.1.4.1 To Add a SLC Loop Device

1. Select ADD DEVICE from the EDIT CONFIGURATION MENU by highlighting it, then pressing the right arrow key to select.

2. A sub-menu listing each of the 4 possible SLC loops is displayed. Highlight one of the SLC loops then select it by pressing the right arrow key.

3. Using the up/down arrow keys scroll to the address value that the new SLC loop device is programmed to (1-127 for Sensors and Modules, 128 – 254 for ASB). Only open address values will be displayed which helps to eliminate duplicate address problems. Press the right arrow key to select.

4. Scroll through the list of possible SLC loop devices by using the up/down arrow keys. Press the right arrow key to select.

5. Press the "Enter" button to accept the new device.

6. Follow the prompts on screen or use the Help (?) button for further information.

8.2.1.4.2 To Delete a SLC Loop Device

1. Select the ADD/DELETE DEVICE menu.

2. Using the scroll keys to navigate, select the applicable loop that the device resides on, and then select the device to be deleted.

3. Press the "ENTER" button to perform the deletion.

8.2.1.5 Edit Device Attributes

Selecting EDIT DEVICE ATTRIBUTES from the EDIT CONFIGURATION MENU allows the user to set attributes specific to each SLC loop device on the system. After selecting the SLC loop (1-4) where the device is located, the user can scroll through each SLC device on that loop and set attributes specific to that device.

The device attributes are different for the three different point types - Detector, Input, or Output. Following is a description of the attributes that can be set for each point type.

- Detector (Sensor)
  - Set Zone
    - This option allows the user to set the software zone this device will reside in. Do not use zone 0 for SLC loop devices.
  - Edit Location Text
    - This option allows the user to scroll through and enter up to 40 characters describing the device location
  - Change Sensor Type
    - This option allows you to change the type of sensor currently assigned to this address. Choices are ALG-V Photoelectric Smoke, AIE-EA Ionization Smoke, ATG-EA Heat Detector, or ALG-DH analog duct sensor.
  - Set Sensitivity
    - This option allows the user to set both the day and night sensitivity levels for this device. Setting the percent per foot obscuration of smoke that must occupy the detectors chamber to cause an alarm, programs smoke detector sensitivity. Setting the temperature that must be reached to cause an alarm (degrees F) programs the heat detector sensitivity. Day and night sensitivity times are configured in another menu location.
  - Set Input Action
    - This option allows the user to change the detector's (sensor) action type to Fire or Supervisory.
  - Test Device Output (LED)
    - This option allows the detector LED Output to be manually turned on or off by the user. This is helpful for locating installed detectors by turning on their indicator.

- Output Modules (R2M, SOM, ASB and DH98AR Relay)
  - Set Zone

- This option allows the user to set the software zone this device will reside in. Do not use zone 0 for SLC loop devices.
- o Edit Location Text
  - This option allows the user to scroll through and enter up to 40 characters describing the device location.
- o Delay Stage 1
  - If you are using staged controls. This option sets the delay for stage 1 in 30 second increments up to 5 minutes maximum (R2M and DH98AR Relay only).
- o Delay Stage 2
  - If the attribute 'Silenceable' is set to Yes (see below), Delay Stage 2 will become visible. This option sets the delay for stage 2 in 30 second increments up to 5 minutes maximum (R2M only).
- o Output Attributes
  - General Alarm mode (Common Fire Alarm): This option allows a user to enable or disable the global General Alarm mode for a selected output(s). When enabled, the output follows the panels General Alarm mode (see 8.2.1.2). When disabled, the output will not follow the General Alarm mode, allowing control by cause and effect logic statements.
  - Silienceable: This option allows a user to program whether the selected output is silenceable via the alarm silence button on the front panel or not (not available for DH98AR Relay).
  - Pre-Alarm Output: This option allows a user to assign a selected output(s) to the Pre-Alarm Group. When assigned to this group, any sensor going into pre-alarm will cause this output group to activate.
  - Trouble Output: This option allows users to assign a selected output(s) to the Trouble Group. Any input assigned to this group, or any panel trouble will activate all the outputs assigned to this group.
  - Pattern (SOM and ASB only): This option allows the user to select the output pattern for the SOM module. Selections are Continuous, Temporal and March.
  - Test Device Output: This option allows the output to be manually turned on or off by the user.

NOTE: Panel Outputs can be programmed into three primary categories:

- Common
  - When output attribute flags are set for general event categories, the output operation will follow the common activation of that event type. General Alarm mode should be set to "common" for this operation.
- Zone
  - When outputs are assigned to zones, the output operation can be triggered on a zoned basis. General alarm mode should be set to "zonal" for this operation.
- Programmable
  - When outputs are not assigned to general event categories via output attributes, the output operation is programmable by using Cause and Effect.

- Input Modules (FRCME-S, FRCME-4, FRCME-P, DIMM, CZM)
  - Set Zone
    - This option allows the user to set the software zone this device will reside in. Do not use zone 0 for SLC loop devices.
  - Edit Location Text
    - This option allows the user to scroll through and enter up to 40 characters describing the device location.
  - Set Input Delay
    - Input delays can be programmed (where acceptable by the Authority Having Jurisdiction) in 10-second increments up to 2 minutes.
  - Set Input Latch
    - Each input can be programmed as latching or non-latching. Latching requires the panel to be reset before the condition is cleared. Non-latching resets the condition automatically when the input returns to normal.
  - Set Input Action
    - Input action defines the type of event that occurs when the input is activated. Choose between Trouble, Pre-Alarm, Supervisory, Auxiliary, Silence Alarm, Reset, Transparent, Disablement, Test, or Fire.
  - Set Input Type (FRCME and DIMM only)
    - This option allows the programmer to define the type of device being monitored, and if the initiating circuit is configured as normally open or normally closed. Available selections are Pull Station, Waterflow, Valve Monitor N/O, Valve Monitor N/C, Duct Detector, Detector, Reset Alarm, Temperature, Pressure, Level, Position, Power, General Supervision, General Purpose N/O EOL, General Purpose N/C EOL, General Purpose N/C no EOL, and Waterflow Non-Silence. The selected Input Type will appear as part of the message on the LCD display during device activation.

- o Test Device Ouput (LED)
  - ▪ This option allows the module LED output to be manually turned on or off by the user. This is helpful for locating installed modules by turned on their indicator.

8.2.1.6 Auto Learn

Auto Learn is a utility that can be run to quickly identify and enroll all of the SLC loop devices on the FN-4127 control panel as well as the panel's internal structure and default network routing and nodes.

Auto Learn can be run from the AUTO LEARN sub-menu at any time. When Auto Learn is run, the panel searches each of the 4 possible SLC loops for SLC devices. When it finds a device it identifies which type of device it is, and creates a basic configuration for that device. The installer can then go back and customize the configuration accordingly.

WARNING: Running Auto Learn will erase all system programming.

8.2.2 Set Times

```
            ACCESS LEVEL 3 MENU

    EDIT CONFIGURATION
  ►SET TIMES
    VIEW PRINT EVENT LOG
    PRINT CONFIGURATION
    SYSTEM DISABLEMENTS
    LOOP DATA TEST
```
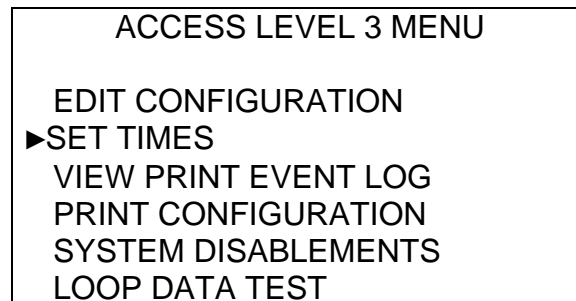
The SET TIMES menu option allows the installer to set the smoke detector calibration time, the day / night sensitivity times, and the Sounder Time-Out for the FireNET panel.

8.2.2.1 Calibration Time

This menu option sets the time of day that the panel will perform calibration on the system smoke detectors. Default is 02:00. The time may be adjusted with the up/down arrow keys. The calibration time should be chosen based on an expected time of day when the environmental conditions in the building are stable.

8.2.2.2 Day / Night Times

Day / Night sensitivity is used when you expect environmental conditions to regularly change in the building. By setting the sensitivity lower or higher at certain times of the day or night, false alarms caused by changing environmental conditions may possibly be avoided or reduced.

This menu option allows the installer to program the start and end times for each day of the week for day sensitivity mode. Any times that fall outside of the programmed day start and stop times are considered to be night sensitivity mode.

8.2.2.3 Set Sounder Time-Out

This option allows the user to program the NAC circuit activation time during a Fire alarm. At the end of the programmed time, the notification appliance circuits will turn off automatically. Valid selections are from 5 minutes to 60 minutes, in 5-minute increments. The default setting is 0 minutes, which disables the sounder time-out feature.

NOTE: This value must be set to zero (0) minutes to be compliant with UL864 9th Edition. (See Prefix of this manual for additional details).

8.2.3 View Print Event Log
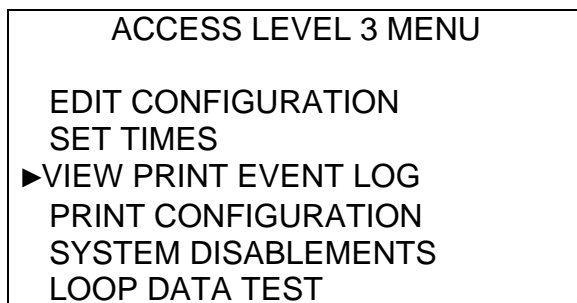
```
         ACCESS LEVEL 3 MENU

      EDIT CONFIGURATION
      SET TIMES
    ►VIEW PRINT EVENT LOG
      PRINT CONFIGURATION
      SYSTEM DISABLEMENTS
      LOOP DATA TEST
```

The View Print Event Log menu command allows the user to view the system's 500-event memory log. Any condition outside of normal panel operation generates an entry into the event log. The event log is a very useful tool for troubleshooting system problems or verifying that certain activities, such as Fire Drills, actually took place.

The View Print Event Log menu option is covered in greater detail in Section 10 - Testing and Troubleshooting.

8.2.4 Print Configuration

```
┌─────────────────────────────────────┐
│         ACCESS LEVEL 3 MENU          │
│                                      │
│      EDIT CONFIGURATION              │
│      SET TIMES                       │
│      VIEW PRINT EVENT LOG            │
│     ►PRINT CONFIGURATION             │
│      SYSTEM DISABLEMENTS             │
│      LOOP DATA TEST                  │
└─────────────────────────────────────┘
```
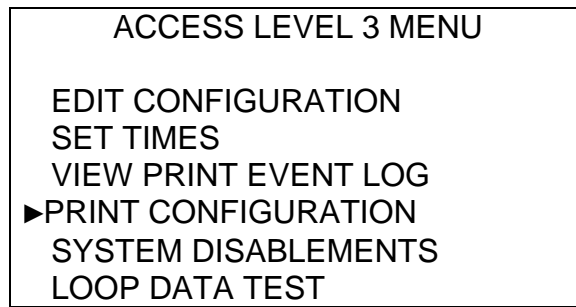
If the system is equipped with a printer, all SLC Loop configuration information can be printed using this menu option. See Section 3.7 for information on adding a printer to the FireNET system.

You can filter the printout by loop or by zone if desired.

8.2.5 System Disablements

```
┌─────────────────────────────────────┐
│         ACCESS LEVEL 3 MENU          │
│                                      │
│      EDIT CONFIGURATION              │
│      SET TIMES                       │
│      VIEW PRINT EVENT LOG            │
│      PRINT CONFIGURATION             │
│     ►SYSTEM DISABLEMENTS             │
│      LOOP DATA TEST                  │
└─────────────────────────────────────┘
```
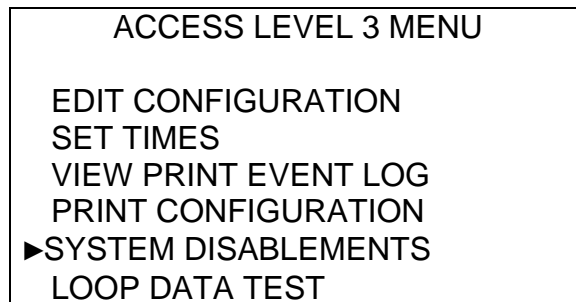
The System Disablements menu option allows the installer to temporarily disable the system printer (if equipped), the panel buzzer, ground fault detection, and set buzzer silence access level. The panel buzzer and ground fault detection are enabled in the panel's default condition. The buzzer silence access level is set to 2 by default.

Disabling any of these options places the panel in a trouble condition. Each disablement of these system devices must be manually reset.

Disabling system devices is typically used on systems where there are intermittent problems, while the problems are being corrected. It is important to note that these features should not be permanently disabled (except printer option). The installer must make sure buzzer and ground fault detection are re-enabled after corrections to the system are complete.

NOTE:	The following values must be set to be compliant with UL864 9th Edition. See prefix of this manual for additional details.
	• Buzzer – Enabled
	• Ground Trouble – Enabled
	• Buzzer Access Level - 2

8.2.6 Loop Data Test

```
         ACCESS LEVEL 3 MENU

      EDIT CONFIGURATION
      SET TIMES
      VIEW PRINT EVENT LOG
      PRINT CONFIGURATION
      SYSTEM DISABLEMENTS
    ►LOOP DATA TEST
```
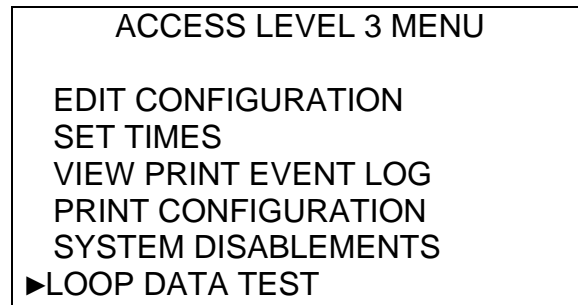
Loop Data Test is an installer or service level diagnostic test that is explained in greater detail in Section 10 - Testing and Troubleshooting.

Section 9 - Loop Explorer Software Programming

This section covers the use of the FireNET Loop Explorer software package. The FireNET 4127 is an extremely flexible and robust system that can grow modularly as the application requires. To take full advantage of the power and flexibility of the FireNET 4127 the Loop Explorer software must be used for programming the system.

This section is intended to be an overview of the Loop Explorer programming process.

Loop Explorer includes a very comprehensive Help system that can help answer any questions not covered in this manual.

9.1 PC Requirements

FireNET Loop Explorer software requires the following minimum PC requirements.

- PC with Pentium II 300 MHz or higher processor; Pentium III recommended.
- Microsoft Windows 98SE or later operating system; Windows 2000 or XP recommended.
- 100 MB of available disk space
- 64 MB RAM
- PS2 Microsoft Mouse or compatible pointing device and PS2 Keyboard
- CD ROM Drive
- VGA 256 color monitor. SVGA recommended @ 1024 x 768. Hardware acceleration minimized.
- Serial communication port that can be configured as COM1-8
- FN-X187 or FN-S187 RS232 serial programming cable (See table 1.2.1)

NOTE: Revision level of software and firmware at the time this manual was released:
- Loop Explorer: 5.0TXX
- FireNET panel firmware: 3.7XX

9.2 Installing Loop Explorer

The Loop Explorer software CD includes an Autorun file which automatically launches the Loop Explorer installation routine when the CD is placed in the PC's CD ROM drive. Follow the directions that appear on the screen to install FireNET Loop Explorer to your PC hard drive. Open the ReadMe file provided on the Loop Explorer CD for additional details on how to install Loop Explorer software.

9.3 Launching Loop Explorer

Once FireNET Loop Explorer is installed to your PC's hard drive, you can launch it from your Start Menu under Programs - Hochiki - FireNET Loop Explorer. Click the FireNET Loop Explorer icon to launch the program.

9.4 Connecting Your PC to the FireNET 4127

The easiest way to transfer your system configuration data between the FN-4127 and the PC running the FireNET Loop Explorer software is to directly connect your PC to the panel. This section provides instructions on how to connect the PC to the FireNET 4127 control panel.

1. Obtain or locate a FN-X187 or FN-S187 serial programming cable.
2. Plug the DB9 connector into an open COM port on the PC. (You will need to note what COM port number this has been configured as)
3. Plug the other end of the serial cable into the RS232 port on the back of the cabinet door - (J5 labeled "PC").
4. In the File menu, click on Options and set the COM port to the appropriate setting (COM 1-8)

9.4.1 Using PC Connect

9.4.1.1 Using Transfer

1. Click on the Connect icon on the tool bar or click File, P.C. Connect, to search the panel Network for attached panels and config in Loop Explorer.

2. A Password window will appear. Enter the correct password for access to the panel.

3. Press the **Connect** button.
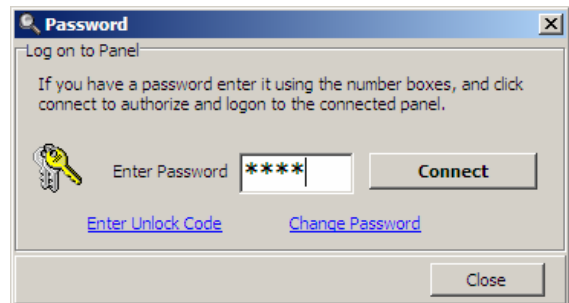
> **NOTE:** This password protects the panel's configuration data from unauthorized access. It is important to set and record the password that has been assigned to the panel for future and ongoing access to the configuration. This allows each FireNET installation to have security protection for the site specific programming.

4. Wait until Loop Explorer has searched all 64 possible panels, and it will then show the PC connection window.

5. The Network tab allows you to transfer or retrieve data to the selected panel or panels. The panels that are on the network are shown as a list. Depending on the time stamp information (Modified) of both, Loop Explorer will suggest a transfer from PC to panel, or panel to PC.

Synchronize

Upload/Download to Panel Arrow
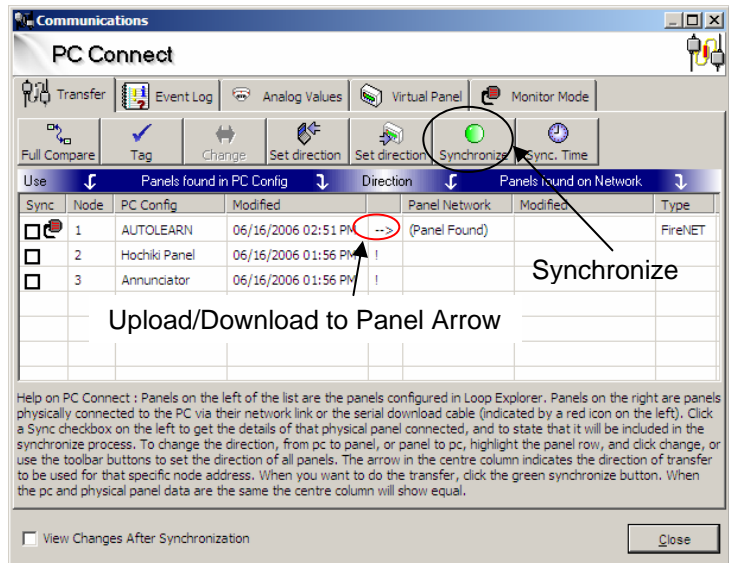
6. Click the checkbox to select the panels desired for synchronization. Direction of Config transfer can be changed by clicking **Change**, in the toolbar, above the PC connect detail view. Click **Synchronize** to activate the process. This will upload or download a configuration according to the orientation of change, indicated by an arrow in between Modified heading, and Panel Network.

7. Click **Full Compare** to compare panel configuration data against the PC configuration.

- "=" means the configuration data is the same.

- "←" or "→" means they are not, and arrow suggests the transfer direction for correct synchronization.
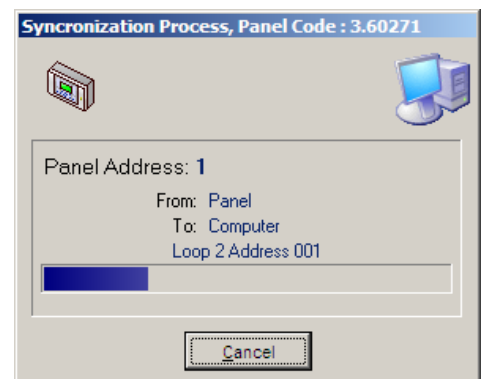
8. Click the **Synchronize Time** button to set the time and date in the FireNET panel. This operation will set the time/date in all networked panels to the time/date in the PC being used for programming

WARNING: Before downloading or uploading panel/network configuration, the user should be aware of the resultant effect of transferring configuration data. When downloading to a panel/network from the PC (Loop Explorer), the configuration data in the panel/network will be erased and overwritten with the configuration data from Loop Explorer project file (*.hsa). When uploading from a panel/network to the PC, the opposite will occur. The Loop Explorer project file will be erased and overwritten. Uploading from the panel/network should only be performed for emergency recovery in the event that the Loop Explorer project file has been lost or corrupted. Upload operation is not intended for routine use. The derivative uploaded project file will include panel/network configuration data, but will not include common Loop Explorer data not stored in the panel/network memory. Common practice should be to always use the source Loop Explorer project file and download to the panel/network.

9.4.1.2 Using the Hochiki Unlock Code

IF you do not have the correct password, the Hochiki Unlock Code must be used to remove the existing password and create a new one.

1. If you input the incorrect password an additional window will appear, asking if you wish to request an unlock code from Hochiki. Press the **Yes** button.

2. An additional window will appear, showing the encrypted unlock code. The code will automatically be saved to the Windows clipboard. Paste this code in to an email. From the **Tool** menu, select **Submit Bug/Comment Report** to create an email that will send the encrypted unlock code to techsupport@hochiki.com for decryption.
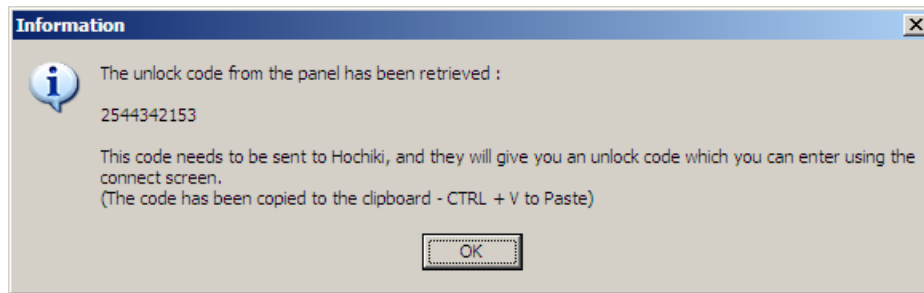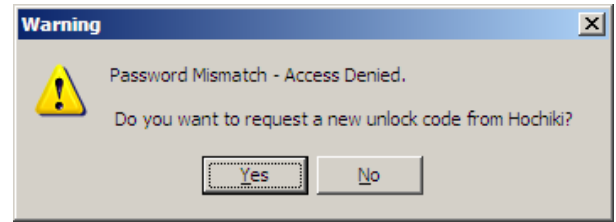
3. Upon customer verification, Hochiki will email the decrypted unlock code to the user. Upon receipt, open P.C. Connect.

4. In the Password window, click on the Enter Unlock Code.

5. The Password window will increase in size to show the Enter Unlock Code section.

6. Enter the decrypted unlock code in the appropriate box.

7. Press the Unlock button. The panel will revert back to a default password (1111).

8. A new password can now be installed for the panel.
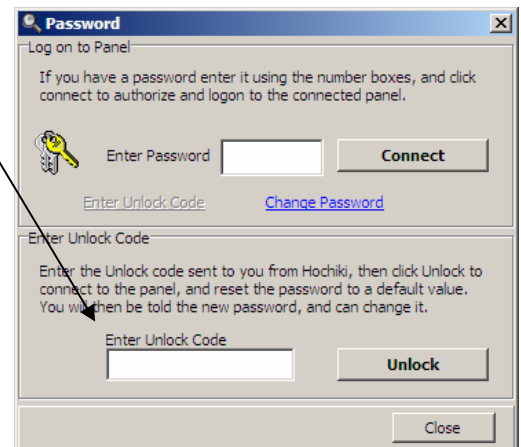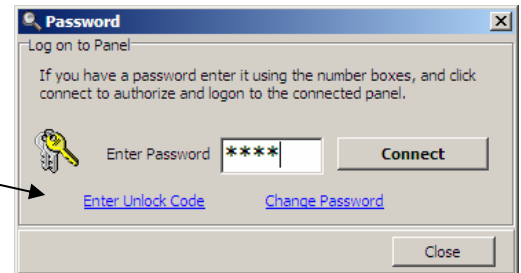
> **NOTE**: The encrypted unlock code and its decrypted counterpart is only valid for 24 hours. After 24 hours, the panel will create a new encrypted unlock code.

9.4.1.3 Using the Event Log

The Event log screen gives you the option of uploading the event log from a given panel from its stored memory, and to view it from your computer. The panel event log is capable of storing up to 500 events. The events are stored in order of priority and occurrence. When the event log is full, the oldest and lowest priority event will be dropped as new events occur.

1. Select the panel from the drop-down list box on the Event Log tab.
2. Click Fetch to obtain the log from the panel and display it Event Log window.
3. You may export the panel event log by saving the log to a file. Press Save to create/save the event log as an Excel spreadsheet file (*.csv).

9.4.1.4 Device Analog Values

Sensors (detectors) on a SLC loop have Analog Values which represent current value (clean air), last calibrated zero point, and last calibrated fire point. These Analog Values relate to the health of the sensor. These values can be retrieved using the Analog Values window.

1. Choose a panel from the drop-down list box on the Analog Values tab.
2. Select a Loop on the panel using the buttons.
3. Click Fetch to retrieve the values of all sensors on the chosen Loop.
4. Click and select a device from the list to show the reading, and the calculated percentage of the Health. Press Save to create/save the Analog Values as an Excel spreadsheet file (*.csv).
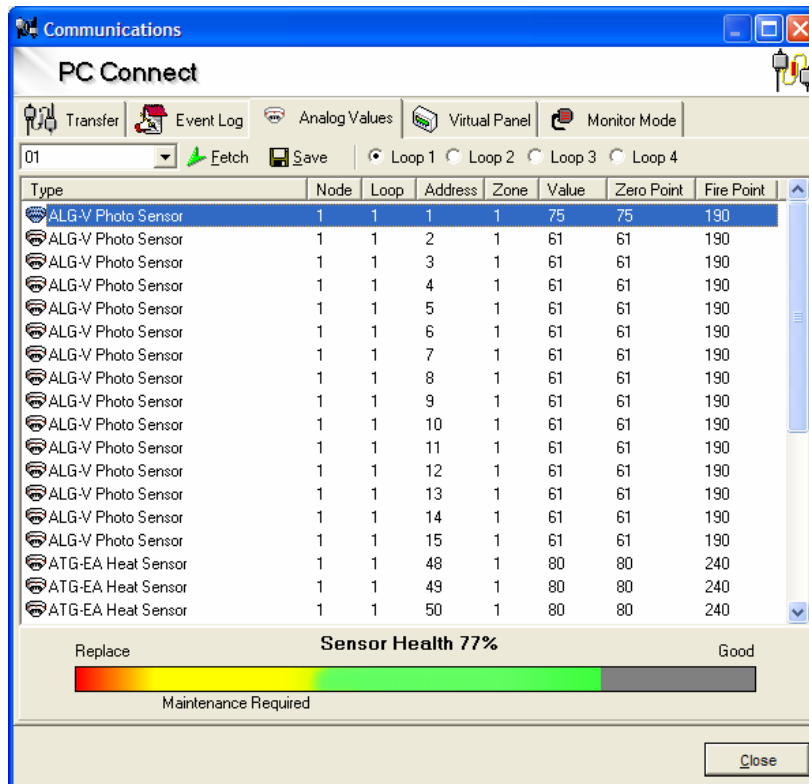
9.4.1.5 Using Virtual Panel

The virtual panel will replicate the display and controls of the selected panel. Choose a panel from the drop-down box, then click start to mimic the panel display; you will be able to use all the buttons in the normal way. The LED's and LCD screen on the Virtual Panel display will indicate real-time status of the FireNET control panel selected.
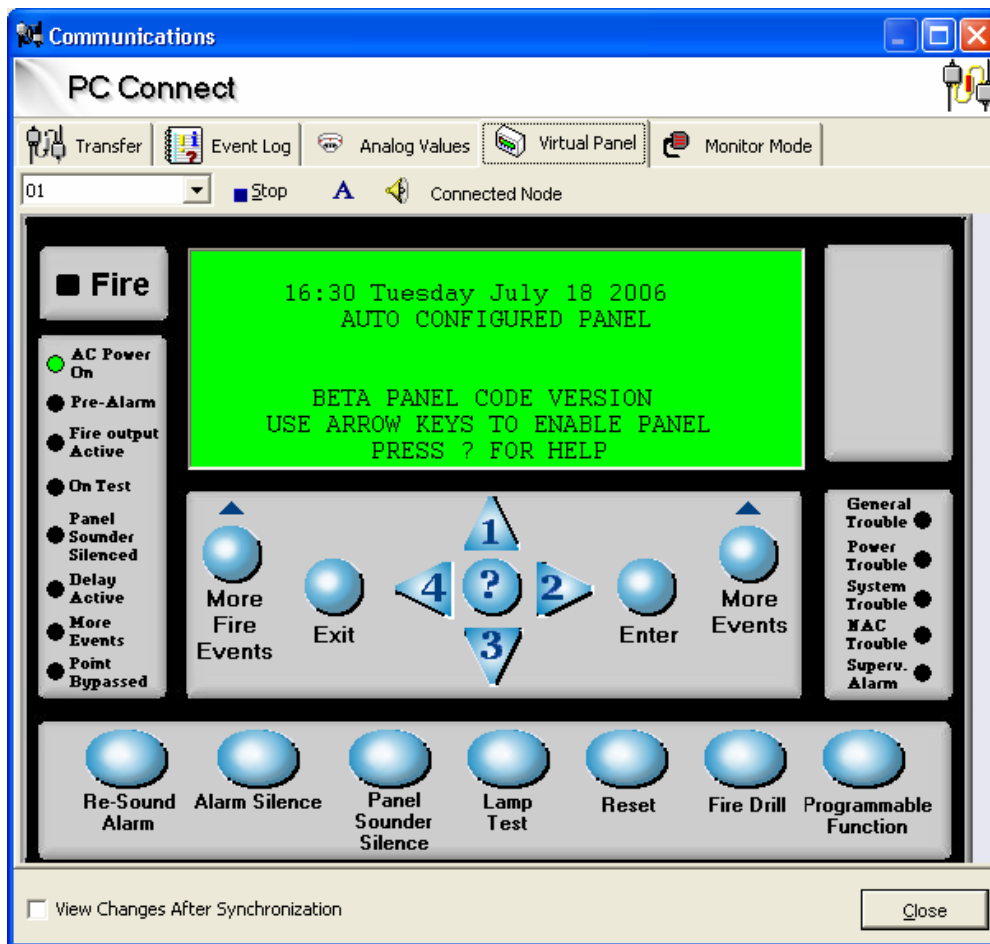
9.4.1.6 Using the Monitor window

The Monitor Mode window allows you to monitor the actual ASCII event text via direct serial output from the panel connected on the chosen COM port. All event data will be displayed as it occurs from the connected panel. This is useful for seeing the real-time panel events being sent over the panel's COM port. Press Save to create/save the Monitor Mode activity as a Word file (*.rtf).

9.4.2 Setting a COM Port

If you cannot connect to your panels, it may be necessary to adjust your COM Port settings

On some computers, it may be necessary to change the communications port used to transfer data to and from the panel. The default is COM 1, however it is fairly easy to change the selected COM port.

To Change the COM port:
1. Open File: Options from the Menu bar drop-down list.
2. An **Application Options** window (as shown) will appear, with the first tab COM Port selected.
3. Select the COM port you wish to use.

NOTE: Windows COM Port settings should be as follows:
- 9600 Baud
- 8 Data Bits
- No Parity
- 1 Stop Bit
- Flow Control None
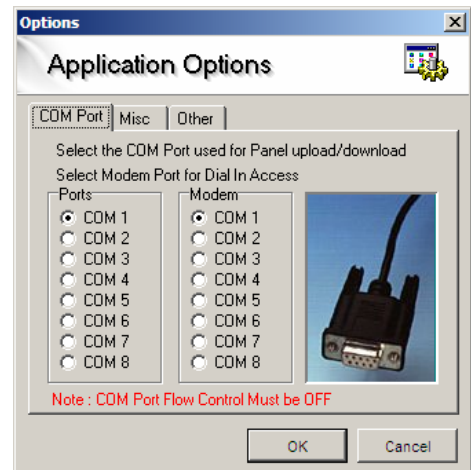
NOTE: For computers that do not have COM (serial) ports, a USB-to-COM adapter will be needed. There are several 3rd party brands, types, and models available. They do not all perform the same and many have unique idiosyncrasies. Hochiki recommends the brand **IO Gear** model **GUC232A** unit or equivalent.

9.5 Getting Familiar with Loop Explorer

The FireNET Loop Explorer main screen contains a user-friendly interface that allows the installer or service person to easily navigate to any panel, circuit, loop, zone, or device on the system and quickly make any configuration changes required. (See Figure 9.5) This section provides a basic overview of the various elements of the FireNET Loop Explorer user interface.
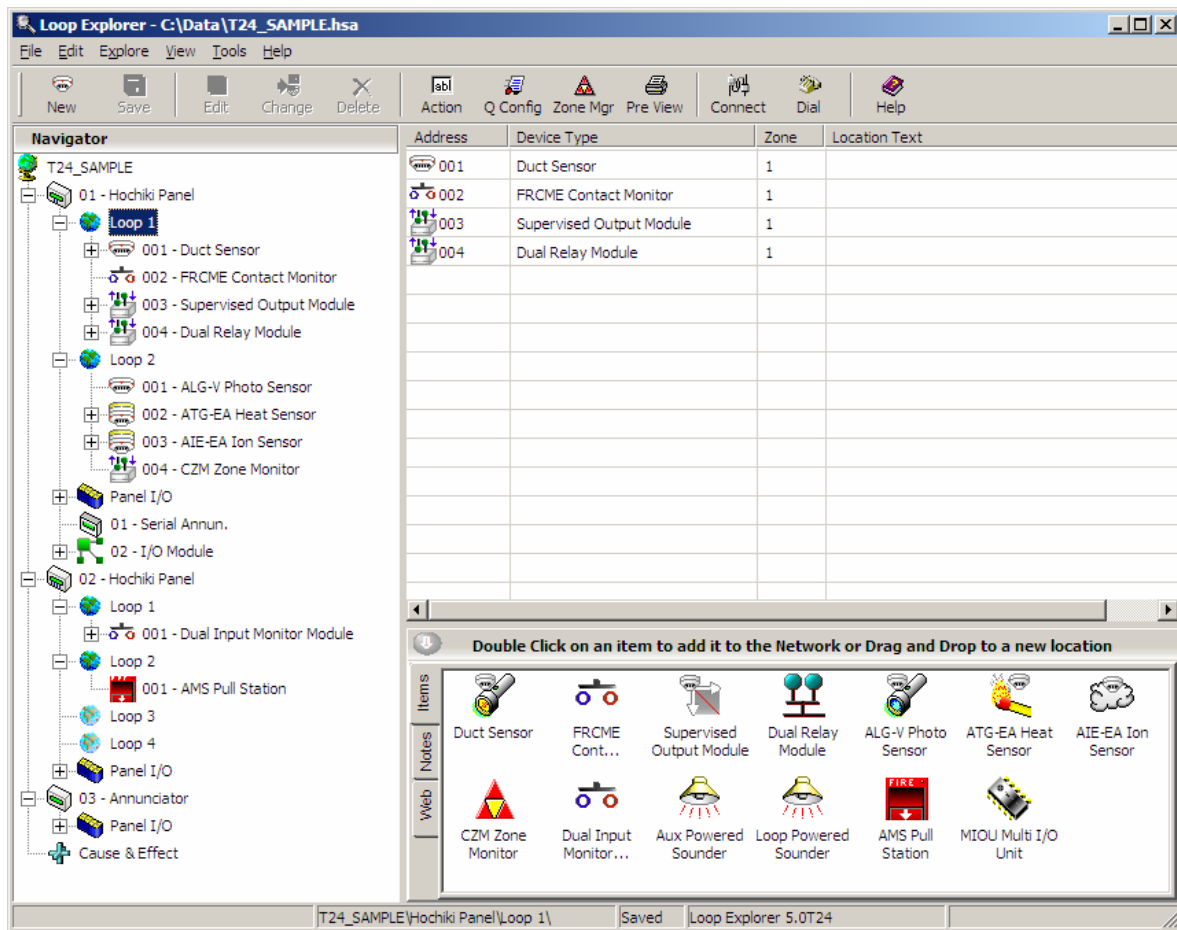
Figure 9.5 FireNET Loop Explorer Main Screen

9.5.1 User Interface

As shown in Figure 9.5, the Loop Explorer main interface has several different sections that make programming the FN-4127 control panel fast and easy to do.

The main screen has two main windows, the navigation tree on the left and the detail view on the right. The toolbar at the top allows the user to quickly carry out any action, just by clicking one of the buttons.

The Navigation tree acts like Windows Explorer allowing you to expand and contract levels using the + and - boxes, situated to the left of the items.

The detail on the right shows the selected items content. In Figure 9.5 the table shows what devices are currently connected to a loop. The detail view reveals extra information not given in the tree such as device type, location text and zone information. These cannot be changed through the detail viewer, but must be changed using the edit menus. Selecting the item from the table will expand that level. Or you may do so by clicking an expansion box in the site tree. The menus at the top can be expanded in the usual fashion and some toolbar options will also appear in the menus. All of the options at the top on the toolbar will become active or inactive according to what is selected in the Navigation tree and Device table.

9.5.1.1 Expanding and contracting windows in Loop Explorer

You may Expand and contract any levels, in the navigation tree, shown as positive [+] or negative [-] boxes. To expand one level, click on the positive box next to the level you wish to expand. In figure 9.5, Hochiki Panel will be expanded. Click on the [+] box, and the level is expanded, revealing, it has two loops, and a local panel I/O (all panels have a local panel I/O). You may further expand each level by clicking on its [+] box, or double clicking on the name of it, i.e. showing the devices in a loop. To contract a level, do the reverse, click on its [-] box, which will contract that level, hiding the detail.

To completely expand or contract all positive and negative boxes, select the very top level, which will be the site name in the navigation tree, then use the right click option menu to select either Full Expand, or Full Contract.

9.5.1.2 Menu

Across the top of the main Loop Explorer screen is the menu bar. The menu bar contains 6 pull down menus **File**, **Edit**, **Explore**, **View**, **Tools**, and **Help**, which will be explained later in this section.

9.5.1.3 Toolbar

The toolbar is located directly under the menu bar at the top of the main screen. The most common Loop Explorer menu commands are duplicated on the toolbar and represented by name and graphical icon.

9.5.1.4 Navigator Pane

Along the left hand side on the main screen is the Navigator pane. The navigator pane is similar to the Windows Explorer style directory tree used in Windows operating systems. The Navigator pane displays all of the components of the system in a tree type structure. System components such as an SLC loop, that have the ability to have additional devices connected to it, can be expanded to show all of the connected devices, or contracted to show just the loop name by clicking on the [+] or [-] sign next to its name.

9.5.1.5 Device Table

The device table is the table of cells that take up the most space on the main screen. This table displays a list of all the devices, circuits, or sub-addresses that are associated with the device currently selected in the Navigator pane. Devices in the Device Table can be double-clicked on to configure the attributes of that device.

9.5.1.6 Items / Notes / Web Section

The **Items/Notes/Web** section at the bottom of the main screen has tabs along the left side that switch the content of the section from **Items**, **Notes or Web** view. In **Items** view, a list of items that can be added to the device currently selected in the Navigator pane is displayed. You can double click or drag and drop these items from the Items Pane to the Navigation tree. The **Notes** view provides a small amount of space to keep notes about the project. Basic word processing type formatting tools are available from a toolbar that is displayed above the Notes section. If the formatting tools are not visible you can display them from the **View** menu by clicking on **Notes Toolbar**. The **Web** view allows a user to connect to the Hochiki web site and access application and technical support services, as well as providing contact information for relevant questions.

9.5.2 Menu and Toolbar Overview

Across the top of the screen is the main menu and just below that is the toolbar. Many of the options on the menu and toolbar are similar to what you have experienced in other Windows based programs. The functions on the toolbar are the more frequently used features of the Loop Explorer software. If you prefer, the toolbar commands also appear in the drop down menus above.

The following sections will give you a brief overview of each of the menu and toolbar functions.

9.5.2.1 File Menu

The File menu is very similar to what you have seen in other Windows based programs. Following is a brief overview of each command on the File menu and its associated function.

New - (Also appears as an icon on the toolbar)
The New menu has two sub menus Config and Device. Config allows you to start a new FN-4127 project or network. Device will give you a choice of devices that can be added to the current project. The Device menu option will change and display only those devices that can be added to the section of the panel you are currently working on.

Reopen
Reopen allows a user to select from the 10 most recently opened databases, without the need to search for it on a user's hard drive or server.

Save - (Also appears as an icon on the toolbar)
Saves the current project to disk.
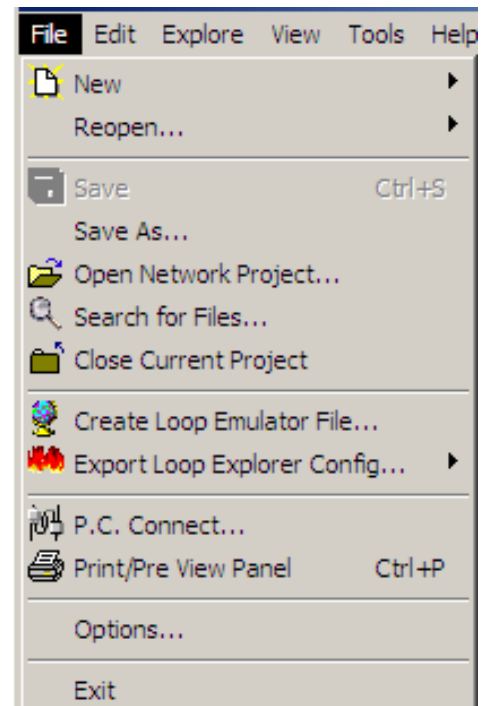
Save As
Saves the current project to disk with another file name or to a different file location.

Open Network Project
Opens a previously saved FireNET Loop Explorer project.

Close Current Project
Closes the current project being worked on. You will be prompted to save the project if it was not saved prior to selecting this menu option.

Create Loop Emulator File
Allows the selected panel configuration to be exported as a *.hle file, which can be used with the Hochiki True Loop Emulator tool that will be released in the future.

Export Loop Explorer Config
Allows the selected panel network configuration to be exported as a *.lx2 file which can be imported into a Hochiki graphics software package that will be released in the future.

PC Connect - (Also appears as an icon on the toolbar)
Establishes communication between the FN-4127 and the PC. The FN-X187 or FN-S187 serial programming cable must be installed between the PC and the FN-4127. The COM port of the PC must be identified to the Loop Explorer software through the Options menu for the communication link to operate properly.

Print/Pre View Panel - (Also appears as an icon on the toolbar)
Print/Pre View will allow you to print a report of all the configuration data for the current project. Several filters are available that allow you to add or delete various sections of the report.

Options
Brings up a new window that will allow you to set global parameters for the Loop Explorer software such as COM Port number, and default file location that Loop Explorer saves projects to.

Exit
Close the FireNET Loop Explorer application.

9.5.2.2 Edit Menu

Edit Settings - (Also appears as an icon on the toolbar marked Edit)
Edit Settings will allow you to change the configuration of any device that is currently selected in the Navigator pane. For example if you have clicked on the FN-4127 control panel in the Navigator pane, the configure panel window will open up allowing you to change the options specific to that FN-4127 control panel.
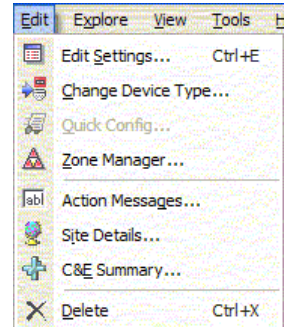
Change Device Type - (Also appears as an icon on the toolbar)
This menu option will only be active if an SLC loop device is selected in the Navigator pane or the device list table. By selecting Change Device Type you can easily change any SLC loop device to another type of device. For example you can change an R2M dual relay module to an FRCME-4 input module.

Quick Config - (Also appears as an icon on the toolbar)
The quick config menu option is only active when a panel has been selected in the Navigator pane. Quick config opens up a table that shows every SLC device on the loop and allows you to edit the zone number and location text of each SLC device shown.

Zone Manager - (Also appears as an icon on the toolbar)
The Zone Manager menu option brings up a new window with a list of zones 0-500 available on each system. By clicking on each zone number in the list, you can quickly view all of the SLC devices, or panel inputs and outputs that are assigned to that zone. Zone Manager also allows you to drag and drop SLC devices and panel I/O to a particular zone. The alarm verification feature can be enabled or disabled from Zone Manager on a per zone basis.

Action Messages- (Also appears as an icon on the toolbar)
The FN-4127 has 11 predefined action messages that can be assigned to inputs on the system. These action messages appear on the main panel LCD status display when the input they are assigned to activates. The 11 predefined action messages that the system includes are:

- Fire
- Trouble
- Pre Alarm
- Supervisory Alarm

- Auxiliary
- Silence
- Reset
- Fire Drill
- Transparent

In addition to these 11 predefined action messages you can add 9 custom action messages of your choosing. These custom messages can be up to 15 characters long.

Select the **Action Messages** menu option to create/edit these custom action messages.

Site Details
Loop Explorer defines a Site as a single FN-4127 panel or multiple FN-4127 panels configured in a network. The default name for a site is "New Site". Using the Site Details menu option you can give the site a new custom name of up to 25 characters. The site name only appears in the Loop Explorer software and does not appear on the panel display.

C&E Summary
The C&E Summary menu option opens a new window that has a summary view of all Cause and Effect relationships on the system. A cause and effect relationship is a custom program you create to link any input or group of inputs on the system, to any output or group of outputs. The cause and effect relationships on the FN-4127 system can be extremely powerful and are explained later in this section of the manual.

Delete - (Also appears as an icon on the toolbar)
The delete menu option will delete the device that is selected in the Navigator pane from the system. As a safeguard to inadvertently deleting an entire panel, Loop Explorer requires that all of the devices on the SLC loops be deleted before a panel can be removed from the configuration.

9.5.2.3 Explore Menu

The Explore Menu has basic commands that allow the user to navigate and change the appearance of the Navigator pane.
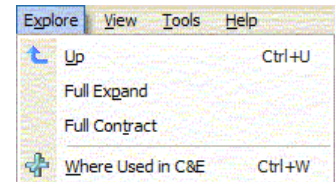
Up
The Up menu command moves the selection in the Navigator pane up one level. For example, if an SLC loop device is selected, clicking Up will move the selection to the Loop level. If a loop is selected, clicking Up moves the selection up to the Panel level.

Full Expand
The Full Expand command fully expands the item currently selected in the Navigator Pane. If a panel is selected, Full Expand will show all of the panel's Loops, SLC Devices and I/O circuits with a single click. If the Site is selected, all panels will be expanded, along with all Loops, SLC Devices and I/O for every panel. With a single click Full Expand is the equivalent of clicking the [+] box next to every panel and loop in the Navigator pane.

Full Contract
Full Contract is the opposite of Full Expand. When you click on Full Contract, the selected item is contracted to show only the very top level of that item.

Where Used in C&E
The Where Used in C&E option will display the name of all Cause and Effect relationships assigned to the selected SLC or I/O device. This summary can help establish where and how an input or output is being used in your custom C&E programming.

9.5.2.4 View Menu

Normal Details / List Icons
The first two menu options change the appearance of
the Device Table. By choosing **Normal Details**, the
Device Table displays the standard table data with
separate cells for Item, Type, Location Text, and Zone.

By choosing **List Icons**, the Device Table shows only
icons and the addresses of the system devices.

Show Task Pane
The task pane is a small window that has a hyperlink
list of the most common tasks or operations that are
done to configure a typical system. Clicking this menu option shows or hides
the task pane.

Show Long Device Names
This option changes the display of the Navigator pane. If **Long Device Names**
is selected (checkbox next to menu option) the full name of each device (Dual
Relay Module) is shown in the Navigator pane. If **Long Device Names** is not
selected the part number only (R2M) displays in the Navigator pane.

Show Notes Toolbar
If selected, this option displays the formatting toolbar on the Notes section at
the bottom of the main screen. If not selected the formatting toolbar is not
displayed.

Show Toolbar
The main toolbar is located just below the menu bar at the top of the main
screen. Clicking this menu option shows or hides the main toolbar.

Show Grid Lines
Clicking this menu option shows or hides the grid lines in the Device Table.

Show Status Bar
The status bar is the small gray bar located at the very bottom of the main
screen. It is divided into sections that provide information related to the
operation you are performing in Loop Explorer. Clicking this menu option shows
or hides the status bar.

Bold Fonts
When selected, the fonts are bolded in the Navigation Pane and the Device
Table.
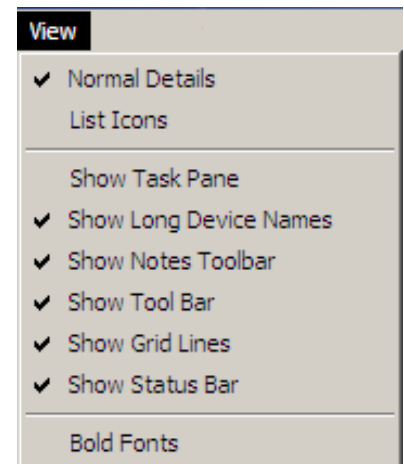
9.5.2.5 Tools Menu
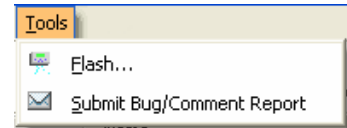
Flash

The flash memory that the FN-4127 panel firmware utilizes can easily be upgraded as Hochiki adds new features to the product in future releases. This menu option will open a new window that will allow you to "flash" upgrade the FN-4127 panel firmware. This utility should only be used under the direction of Hochiki America technical support by Hochiki certified service professionals.

NOTE: The Flash utility only supports COM1-4

WARNING! Improper use of the Flash option can result in damage to the panel's firmware and operation.

When performing a "flash" upgrade to a panel, contact Hochiki Tech Support to ensure proper firmware versions and compatibility.

Before beginning the "flash" upgrade process, be sure to review and then follow the exact instructions outlined in the Flash Upgrade window when executing the process.
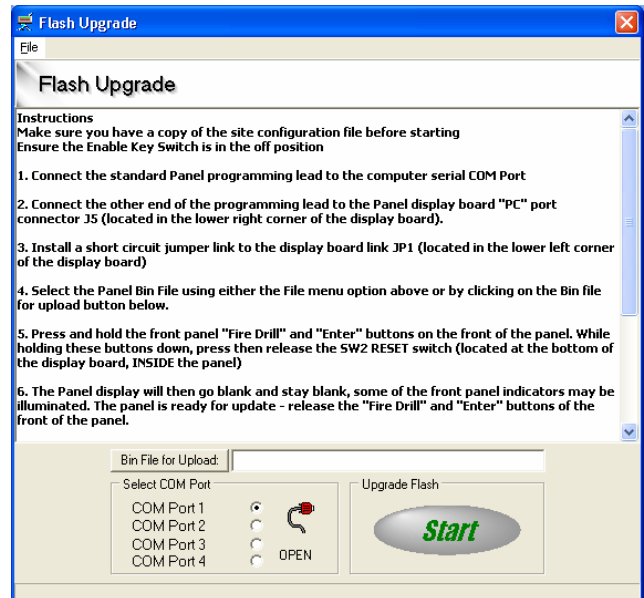
Submit Comment / Bug Report

Selecting this menu option will launch your computers email program and open a new email addressed to Hochiki America technical support. You may use this to send comments or bug reports to Hochiki via email.

9.5.2.6 Help Menu

Loop Explorer contains a very comprehensive help system that can answer most of your programming questions.
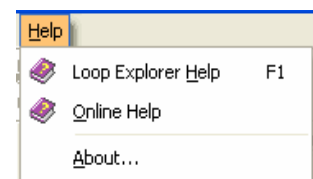
9.5.3 Main Tool Bar Icons

Though Loop Explorer uses menu items, it also uses Navigation Icons for those actions that are more frequent.

Icon	Name	Description
New	New Panel	Allows you to add another Panel to your site. You will only see this icon on the icon toolbar if you have selected the Site at the top of the Navigation tree.
New	New Option Board	Allows you to add another Option board to your panel. You will only see this icon on the icon toolbar if you have selected a panel in the Navigation tree.
New	New Device	Allows you to add another device to a loop. You will only see this icon toolbar if you have selected a loop in the Navigation tree.
Save	Save	Saves the current project to disk.
Edit	Edit Settings	Edit Settings will allow you to change the configuration of any device that is currently selected in the Navigator pane. For example if you have clicked on the FN-4127 control panel in the Navigator pane, the configure panel window will open up allowing you to change the options specific to that FN-4127 control panel.
Change	Change Device Type...	This menu option will only be active if an SLC loop device is selected in the Navigator pane or the device list table. By selecting Change Device Type you can easily change any SLC loop device to another type of device. For example you can change an R2M dual relay module to an FRCME-4 input module.
Delete	Delete	The delete menu option will delete the device that is selected in the Navigator pane from the system. As a safeguard to inadvertently deleting an entire panel, Loop Explorer requires that all of the devices on the SLC loops be deleted before a panel can be removed from the configuration.

	Where Used in C&E Summary	The Where Used in C&E option will display the name of all Cause and Effect relationships assigned to the selected SLC or I/O device. This summary can help establish where and how an input or output is being used in your custom C&E programming.
	Action Messages	The FN-4127 has 11 predefined action messages that can be assigned to inputs on the system. These action messages appear on the main panel LCD status display when the input they are assigned to activates. The 11 predefined action messages that the system includes are: • Fire • Trouble • Pre Alarm • Supervisory Alarm • Auxiliary • Silence • Reset • Fire Drill • Transparent In addition to these 11 predefined action messages you can add 9 custom action messages of your choosing. These custom messages can be up to 15 characters long.
	Quick Config	Opens a new window in Loop Explorer that allows a user to define the Zone and text for each device connected to each loop on a panel.
	Zone Manager	The Zone Manager icon brings up a new window with a list of zones 0-500 available on each system. By clicking on each zone number in the list, you can quickly view all of the SLC devices, or panel inputs and outputs that are assigned to that zone. Zone Manager allows you to drag and drop SLC devices and panel I/O to a particular zone. The alarm verification feature can be enabled or disabled from Zone Manager on a per zone basis.
	Print/Preview Panel	Print/PreView will allow you to print a report of all the configuration data for the current project. Several filters are available that allow you to add or delete various sections of the report.

	PC Connect	Establishes communication between the FN-4127 and the PC. The Loop Explorer serial cable must be installed between the PC and the FN-4127, and the COM port of the PC must be identified to the Loop Explorer software through the Options menu for the communication link to operate properly.
	Help	Loop Explorer contains a very comprehensive help system that can answer most of your programming questions.

9.5.4 Items Pane Icons

The Items Pane gives a user the ability to drag and drop icons into the Navigation Pane. All hardware items (panels, option boards and devices) are available for a user to pull directly into the user's site quickly and simply.

9.5.4.1 Panel Icons

	FireNET 4127 2 Loop Control Panel	Adds a 2-Loop Panel to the site.
	FireNET 4127 4 Loop Control Panel	Adds a 4-Loop panel to the site
	Network Annunciator	Adds a FN-LCD-N Network Annunciator to the site

9.5.4.2 Option Board Icons

	I/O Module	Adds a 16 channel I/O board to a panel
	Serial Annuciator	Adds a FN-LCD-S Serial Annunciator to a panel

9.5.4.3 Device Icons

Duct Sensor	DH98-A DH98-AR	Adds a DH98-A or a DH98-AR analog duct detector to a Loop
FRCME Cont...	FRCME	Adds an addressable FRCME contact monitor module
Supervised Output Module	SOM	Adds an addressable Supervised Output Module to a Loop
Dual Relay Module	R2M	Adds an addressable Dual Relay Module to a Loop
ALG-V Photo Sensor	ALG-V	Adds an Analog Photoelectric Smoke Detector to a Loop
ATG-EA Heat Sensor	ATG-EA	Adds an Analog Heat Detector to a Loop
AIE-EA Ion Sensor	AIE-EA	Adds an Analog Ionization Smoke Detector to a Loop
CZM Zone Monitor	CZM	Adds an addressable Conventional Zone Module to a Loop
Dual Input Monitor...	DIMM	Adds an addressable Dual Input Module to a Loop
Aux Powered Sounder	ASB	Adds a Aux Powered Sounder to a device
AMS Pull Station	AMS	Adds an addressable AMS Pull-Station

9.5.4.4 Cause and Effect Icons

	Cause and Effect Action	Opens the Cause and Effect wizard for creating a Cause and Effect Action.
	Cause and Effect Disablement	Opens the Cause and Effect wizard for creating a Cause and Effect Disablement.
	Test Mode	Opens the Cause and Effect wizard for creating a Cause and Effect Test Mode.

9.5.4.5 Notes Pane

The **Notes** pane allows the user to add notes about the project. It includes many features found in a word processor program which are listed in the right click options menu. The Notes feature operates much like a simple version of Microsoft Word®.
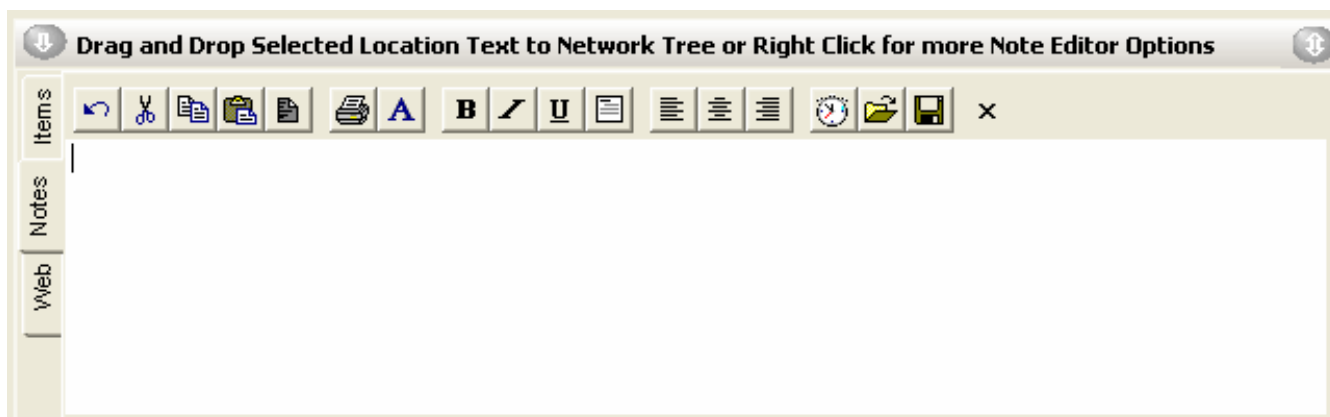
The menu icons items in the Notes toolbar are as follows:

Undo-
This action will undo the last change made to the text in the box.

Cut, Copy, Paste-
These allow you to Cut or Copy text, and to Paste text into the Notes. You can use Cut, Copy and Paste to move text to and from other applications.

Select All-
This will select all the text in the text box, ready for a change that will affect the entire text.

Print-
This will bring up the usual print dialog, from where it's possible to select a printer, and print out the contents of the Notes.

Font-
Select this to bring up a Font Dialog box, which allows you to change the font size, and style of the selected text, and any text written after the cursor.

Bold-
This will change the selected text to Bold

Italic-
This will change the selected text to italic.

Underline-
This will change the selected text to <u>underlined</u>.

Word Wrap-
Word wrap is useful if you want to make sure you view all the text in the box at the same time. If there is more text than the length of the Notes pane, then the text will wrap to the next line.

Left Justify-
This will change the selected text to a left justification, like the text on this page.

Center Justify-
This will change the selected text to a center justification.

Right Justify-
This will change the selected text to a right justification.

Insert Date and Time-
Use this to insert the current date and time, in the format to which your computer has been set to.

Import Text from File-
You may import text from a .txt or .rtf file, but note that all text in the text box will be overwritten with the text in the file. If you do not want this to happen, select the text in another application, and copy and paste it into the Loop Explorer Notes.

Save to File
This will save the contents of the Notes pane to a selected file with the .rtf format file extension, which can then be used in any other text editor.

Hide Toolbar-
Check this option to hide the toolbar, which attaches to the top of the Notes page. The toolbar has the same options as the Right click menu.

9.6 Developing a Site

9.6.1 Creating a New Site

1. When starting Loop Explorer you will be presented with a Loop Explorer window.

2. If you wish to start a new Network Project, Click on **Blank FireNet Network Project**, and click **OK.**

3. You will now be asked to save the project. Select a suitable location and click save. This will now save the empty project. Any further changes made to the new site will automatically be saved to the file just created if **AutoSave** is enabled in **Options**. If not, you must click the **Save** icon after changes are made. You will now be presented with a blank project with only **Cause and Effect** in your navigation tree, and the "Welcome to Loop Explorer" task pane.
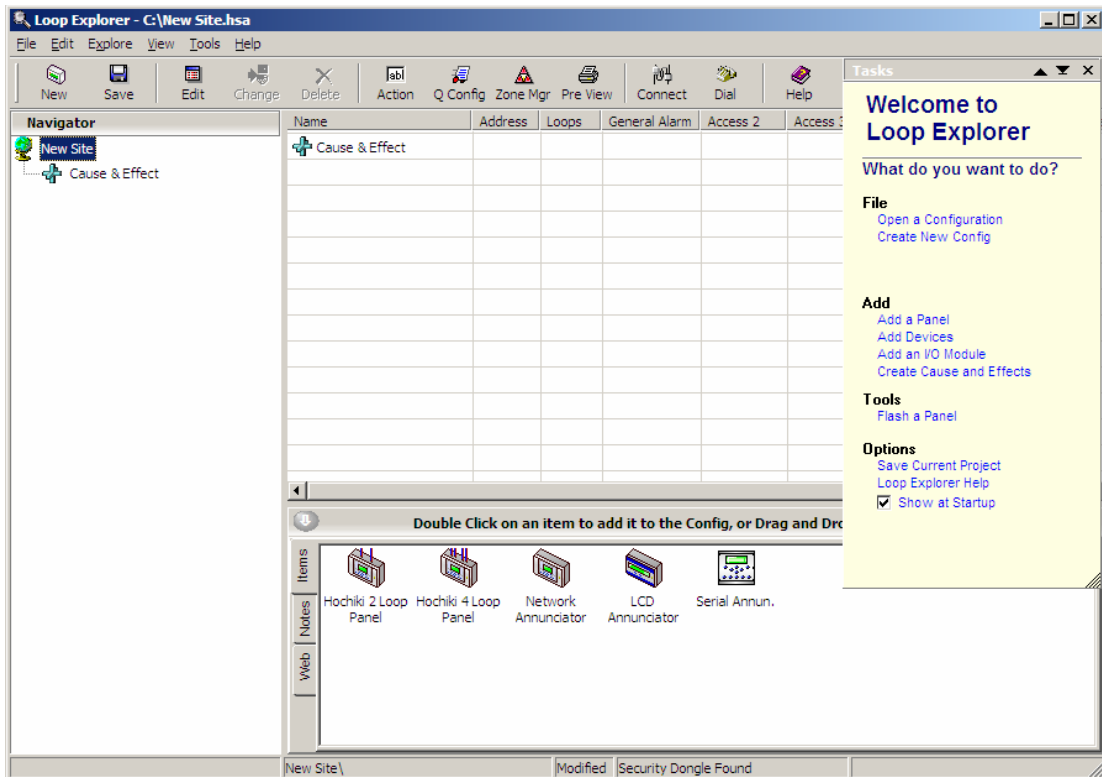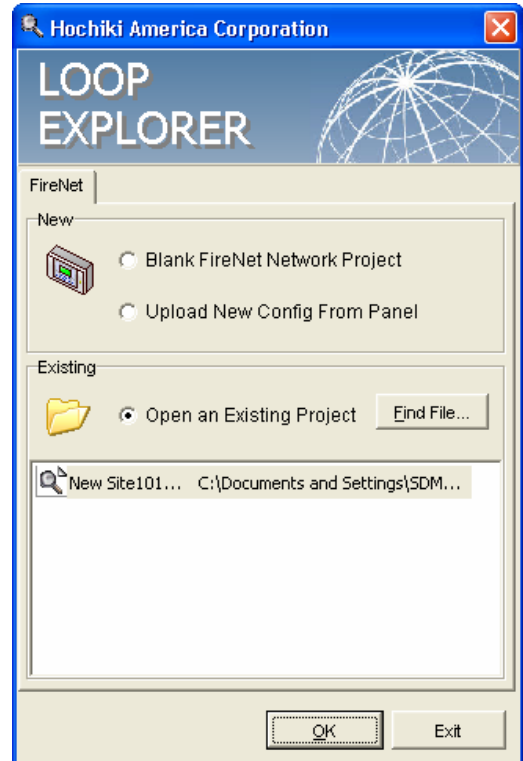
9.6.2 Editing an Existing Site

Click on **Open an Existing Project** and either enter the path by typing it in or click Find File to browse and find the site you wish to open. Click Open to open it. The displayed file format is .HSA, which is unique to Loop Explorer, and you will only see Loop Explorer files (.hsa) in the directory you are viewing.
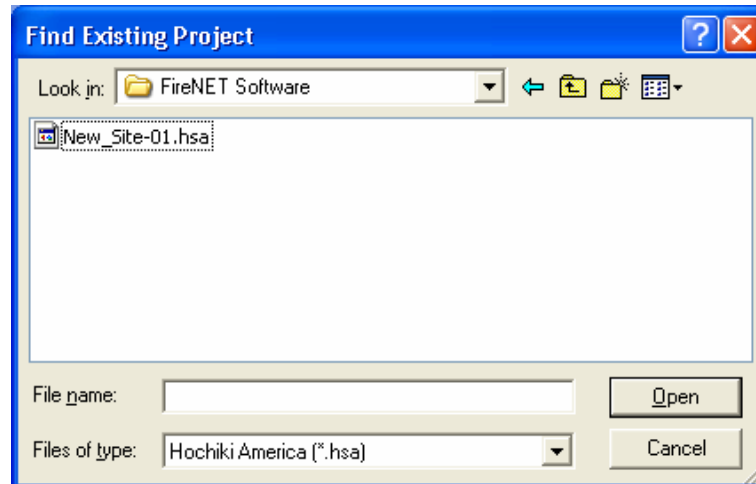
9.6.2.1 Finding a Recent Project
1. Open Loop Explorer.
2. In the menu, click the **File: Reopen**.
3. Then choose the file from the list. Only the ten most recently opened files will be displayed.

9.6.2.2 Opening a new project file while within a Loop Explorer project file
1. Click **File, New> Config...** This will ask if you wish to open a different site.
2. Click the Close box in the top right-hand corner to exit this window and return to your current site, or you may continue to open and create a new project. Click Exit to exit the Loop Explorer program.

NOTE: You may also close a project by clicking **File: Close Current Project**.

9.6.2.3 Opening an existing project while in a different Loop Explorer project file
1. Click **File: Open Network Project**. This will show a browsing window.
2. Select the desired project and click OK to open it or Cancel to exit the window.

9.6.2.4 To Change the Name of a New Site
1. Click on the Site name in the Navigation tree after creating a new site.
2. Click on Edit from either the right click menu or the toolbar.
3. Enter the desired site name (25 characters maximum).

9.6.3 Saving a Site

You may save the project you are working on at any moment, just by clicking on the Save icon in the toolbar. This will save all changes you have made since your last save point. The Save option will only become available if you make changes to an existing project, otherwise it will be inactive. By clicking Save, you will overwrite the current project file, and replace it with the new configuration.

If you have never saved the particular project before now, it will prompt you to choose a filename and folder to be saved into. This can be done at any time, using the **Save As…** option.

If you try to close a project without saving it, Loop Explorer will ask for confirmation before closing the project.

9.6.3.1 Using Autosave

A user has the option to set up Autosave, which will automatically save the project at a specific interval. Saving will not be done if the PC connect screen is open.

To Enable Auto Save:
4. Open File: Options from the Menu bar.
5. An **Application Options** window (as shown) will appear, click on the **Other** tab.
6. Select the **Autosave Current Project** checkbox.
7. Select the appropriate **Interval** you wish the project to Autosave.
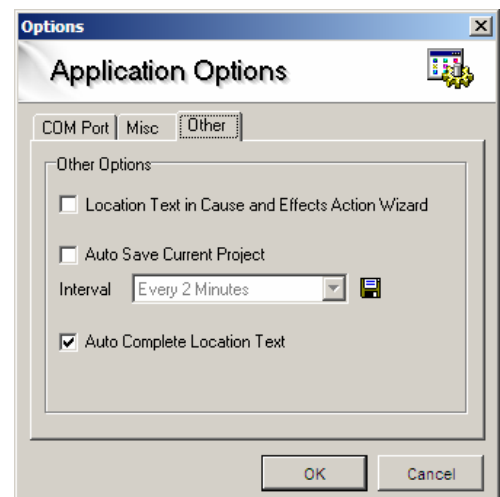
9.7 Configuring Panels to a Network

The FireNET 4127 analog addressable fire system is capable of supporting a maximum of 64 nodes (panels and network annunciators) and a maximum of 500 network-wide zones. Any number of devices can be allocated to any zone ensuring that any system configuration can be easily accommodated.

To ensure that the system is installed and commissioned with the minimum of trouble, it should be carefully planned before the installation is begun. This involves allocating an address to each device and allocating a message of up to 40 characters (including spaces) to each address to assist in the location of the devices. Devices should then be grouped into zones in accordance with the appropriate fire detection systems design standard, building plans, and local fire codes. The FireNET 4127 control panel offers an extensive list of features and options for fire alarm control and monitoring that can be configured via Loop Explorer or the front panel controls.

9.7.1 Adding a Panel

Upon starting a new network you will automatically be asked if you want to add a new panel to the project by using the Panel Wizard. Click yes, and the Panel Wizard will start, or click No to directly edit the configuration settings of the new panel.

To add another new panel to the configuration you may do it several different ways, using the main menus, toolbar, and right click menu.

9.7.1.1 Using the Panel Wizard

The Panel Wizard will easily help you to add a panel to your network, and will set up a lot of the default values for you. These default values can be edited or changed later using the panel configuration screen.

1. Click on the **Site** in the Navigation tree.
2. Click **File: New: New Panel.**
3. You will be asked if you want to use the **Panel Wizard**. Click the **Yes** button.
4. You will see the **New Panel Wizard** window open. Click the **Next** button.
5. The first screen will be **Panel Text**. You will be asked to give the new panel a name (up to 15 characters). If you wish you can add some descriptive text that will be displayed on the panel's LCD screen when it is in the idle state (i.e. Second-floor lobby). Click the **Next** button when finished.

NOTE: When adding panels via the Panel Wizard, Loop Explorer will automatically assign addresses to the panels, starting from 1, and going up in order.

6. Choose the number of **Loops** the panel will have (2 or 4), and then click the **Next** button.
7. Choose the **General Alarm Mode** for the panel (Common, Zonal, 2-Stage), and then click the **Next** button.

8. A Review screen will appear. If your selected values from the previous screens are correct, click the **Next** button. If you wish to make changes, click on the Back button.
9. You will come to the Finish screen. You will be given three choices:
   - Edit location text using Quick Config
   - Edit the Advanced Panel Settings
   - Return to Explorer

   Select the appropriate the choice and click the **Finish** button.

9.7.1.2 Using the Menu bar
1. Click on the **Site** in the Navigation tree.
2. Click **File: New: New Panel**
3. You will be asked if you want to use the **Panel Wizard**. Click the **No** button.
4. You will see a **Protocol Options** window; select the panel you wish to use.

NOTE: To select either a 2 Loop or a 4 Loop panel, select **Hochiki America Panel**.

5. You will immediately be asked to configure the panel using the **Configure Panel Settings** window.
6. Once the panel has been configured, press the **OK** button.

9.7.1.3 Using the Tool bar
1. Click the **New Panel** button on the toolbar
2. You will be asked if you wish to use the Panel Wizard. If you wish to use Panel Wizard, follow Steps 3-9 of 9.7.1.1. If you DO NOT wish to use Panel Wizard, follow Steps 4-6 of 9.7.1.2.

9.7.1.4 Using Navigation Tree
1. Right click over the site in the Navigation tree, and click New Panel.
2. You will be asked if you wish to use the Panel Wizard. If you wish to use Panel Wizard, follow Steps 3-9 of 9.7.1.1. If you DO NOT wish to use Panel Wizard, follow Steps 4-6 of 9.7.1.2.

9.7.1.5 Use the Items Pane
1. Select the icon that represents the panel you have selected
2. Drag-and-drop the icon on the Site at top of the Navigation tree.
3. (or) Double-click on the Icon to automatically place the panel in the Navigation Tree.

9.7.2 Configuring and Editing a Panel
In order to edit the features of a panel, select the appropriate panel icon either in the Navigation tree or in the Table (if Site is selected in the Navigation tree). To open the Configuration Node, either:
   - In Menu bar, select **Edit: Edit Settings…**

Or

- Right click the panel icon and select **Edit Settings…**

Or

- Click the **Edit** icon on the Toolbar…

The Configuration Node will open, allowing you to add or change values in three tabs: Panel Data, Times, and Network Interface.

9.7.2.1 Configure Node: Panel Data

From the configuration window you can change any of the options from their current settings. The example shows a panel's default values.

Panel Name
The name of the panel does not have to be unique and it may contain any characters. It is suggested that panels be assigned meaningful names. If panels are not named they will be allocated sequential numbers.

Panel Address
The node number of a panel on a Multi-Panel Network. The panel address will be incremented every time you add a new panel. It is possible to set the address to a free address by using the drop down menu.
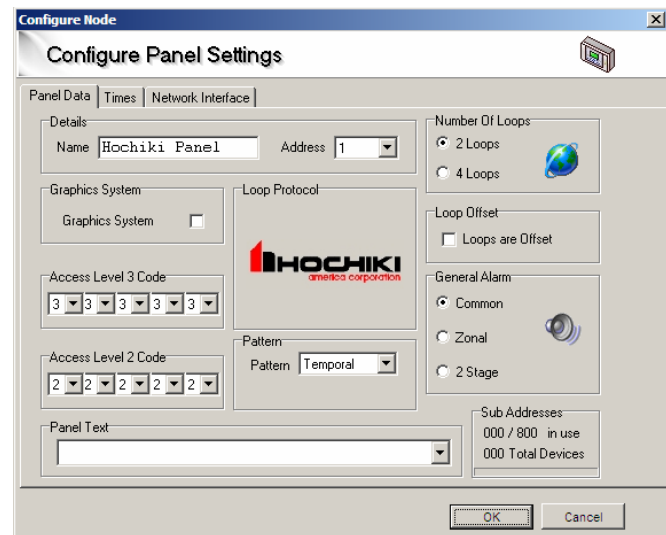
Access Level 3 passcode
Passcode for high-level access to operate all functions of a FireNET panel (i.e. editing the configuration).

Access Level 2 passcode
Passcode for Intermediate access to operate commonly used functions of a FireNET panel, such as silencing an alarm, resetting an alarm, and operating primary panel functions.

Number of Loops
The panel can have 2 or 4 loops. You may not decrease the number of loops unless the loops to be removed have zero devices attached to them.

Loop offset
This option will offset all panel loops by the total of the previous loop count. This is typically used when more than one panel is installed in a network, so that the loop numbering will be sequential across several panels.

The changes to the loop numbering will be shown in the Navigation tree, and all other places where loop numbers are mentioned throughout the program. So if a network had three panels, with 4 loops each at address 1 2 and 3, panels 2 and 3 could be offset, so their loops would change to loops 5,6,7,8 for panel 2, and 9,10,11,12 for panel 3.

General Alarm Mode
There are three options for Gen. Alarm Mode: -

- **Common Alarm** - All NAC outputs activate from any fire input regardless of which zone they are in.
- **Zoned Alarm** – NAC outputs in the same zone as the input, which caused the alarm, will activate.
- **Two Stage Alarm** - Outputs that are in the same zone as the input which caused the alarm will activate while outputs in all other zones will pulse 1 second on - 1 second off.

The factory default setting for the panel General Alarm Mode is Common Alarm. This normally applies to notification appliances and would normally be accompanied by the Silenceable attributes.

Note: Panel outputs mapped to zone 0 will operate as common general alarm, regardless of the general alarm setting. Do not assign loop outputs to zone 0.

Pattern
This option allows you to select the output Pattern for the panel's on-board NAC circuits. Available options are -

- **OFF**- No pattern is assigned to the NAC outputs
- **Continuous**- Continuous pattern is assigned to the NAC outputs
- **Temporal**- A temporal pattern is assigned to the NAC outputs
- **March Code**- A march code is assigned to the NAC outputs.
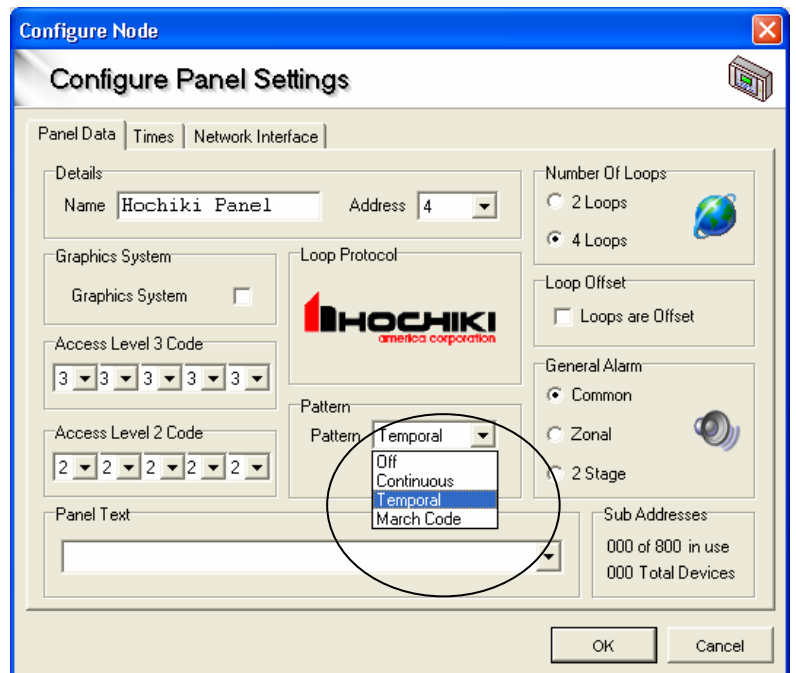
Graphics System
If a Graphics system is connected to the panel, check this box (future feature).

Panel Text
Panel Text is text displayed on the panel when there are no events showing on the LCD. The panel text is limited to 40 alpha/numeric characters max.

9.7.2.2 Configure Node: Times

This tab also allows you to set timed features common to panel operations. Click on the tab Times to reveal these settings.

Day/Night Start and End Times

The start and end times are used to define the Day and Night mode of the panel. During Day mode the sensors Day sensitivity is used, during Night mode, the Night sensitivity is used. All the default start times are set to 8:00, and the end time is 18:00 (6:00pm). The night-time is considered to be between these two times. You may change the minutes in increments of whole minutes. If you set a start and a finish time the same you will receive an error message. Click on an up or down arrow to change the number in the number box.
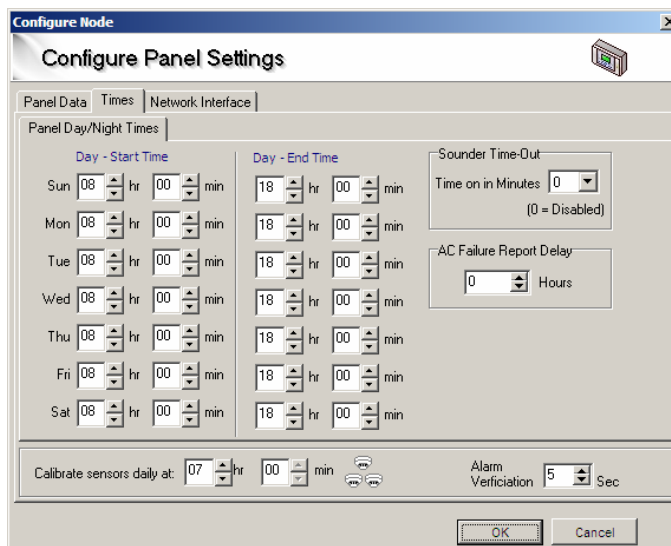
Daily Calibration Time

This is the time each day that the sensors will perform their calibration routine. Calibration occurs once per day and can only be set in increments of 30-minutes. Choose a Calibration time when building environmental conditions are most stable, for example, early in the morning before daily activities begin.

Sounder Time Out

The FireNET NAC circuits can be programmed to automatically silence after a period of time. The Sounder Time Out option allows you to set the NAC alarm time. The panel default is 00, which disables the feature. Valid selections are from 5 to 60 minutes, in 5-minute increments.

Alarm Verification

The alarm verification time value can be set between 5 and 60 seconds. This value must be to 60 seconds to be compliant with UL864 9th Edition. Default value is 60 seconds. (See the prefix of this manual for additional details).

AC Failure Report Delay

The AC Fail report delay time value can be set between 0 and 24 hours. Default value is one (1) hour. This value must be set between 1 and 3 hours to be compliant with UL864 9th Edition. (See the prefix of this manual for additional details).

9.7.2.3 Configure Node: Network Interface

Up to 64 nodes (panels/network annunciators) can be networked together. The Network Interface tab allows you to select the network events that a panel will respond to, and define the way in which it will respond. All the panels, except the one you are editing, will be shown in the list. To expand the responses to the event types, click on the [+] next to the panel you wish to edit. The properties of the node will expand, and you can select how the panel will respond to network events. The Network Interface tab allows a given panel to have a unique profile that defines how it will respond to the rest of the nodes and event types on the network. Each network node can have a unique profile.
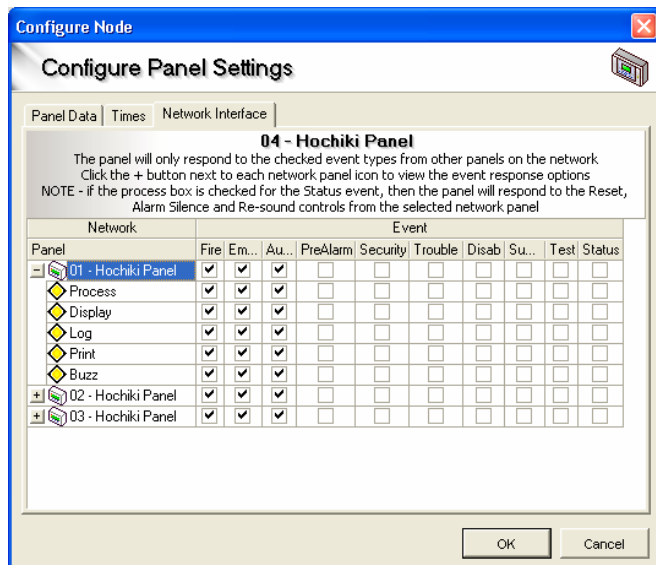
Types of node (panels/network annunciators):

Process
The process option instructs the node receiving a network event to behave exactly as it would if it were a local node event. For example, if a fire event activates, the panel would be expected to operate the NAC outputs and fire relays. Selecting the process option ensures that the panel does this from network fire events. If the process option was not selected, the panel would not process the event to actuate related inherent functionality…i.e. operate the NAC outputs or fire relays when a fire event is received from the network.

Display
The display option instructs the node receiving the network event to display the event on the LCD display exactly as it would if it were a local node event.

Log
This gives the option to store the network event in the local node event log. For example if a panel is designated as a master panel, it may be required that the panel logs all events on the network, whereas other panels log only their own events. Each node can store up to 500 events in the event log.

Print
This gives the option to print the network event. The node will then print both local events and network events assigned to it. It may be that a master panel is required to print all events (both local and network wide), while other panels print only local events.

Buzz

This gives the option to operate the node (panel/network annunciator) buzzer upon receipt of a network event.

Types of events:
- **Fire** - All Fire events
- **Supervisory** - All Supervisory events
- **PreAlarm** - All PreAlarm events
- **Trouble** - All Trouble events
- **Disablements** - All Disablement (bypass) events
- **Auxiliary** - All Auxiliary events
- **Test** - All Test modes occurring.
- **Status** - All Status events occurring.

9.7.2.4 Editing the number of Loops on a Panel

9.7.2.4.1 Editing using the Configure Node

1. Open the Configure Node of the panel you wish to edit. For instruction on how to edit the Configure Node, see section 9.7.2.
2. To change the number of loops in a panel, edit the settings on the **Number of Loops**. If there are devices on a loop(s) you wish to delete, you must delete the loop devices first, then you can delete the loops themselves.
3. Click **OK** to accept the changes, and exit from the window. Or click **Cancel** to cancel all changes, and exit from the window
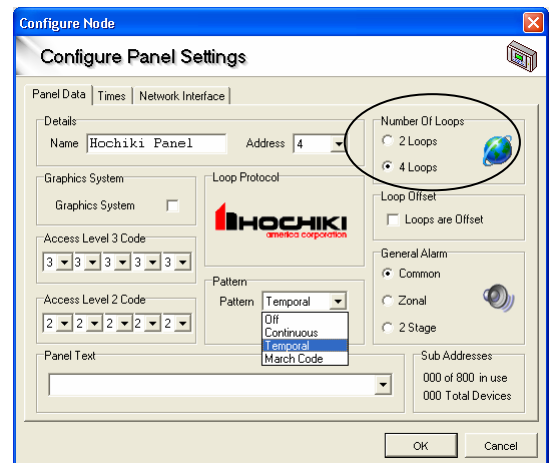
9.7.3 Editing a FN-LCD-N Network LCD Annunciator

The Network Annunciator editable attributes are exactly the same as a panel except there are no SLC loops or NAC pattern properties to edit. The numbers of loops, loop offset, and NAC pattern options are grayed out.

NOTE: See Section 9.7.2 for the proper method to access the Configure Node.

9.7.4 Reserved for Future Use

9.7.5 Editing a Local Panel I/O

Editing the Local I/O is slightly different from editing a panel. It is not possible to delete the Panel I/O, however each of its inputs and outputs can be edited using appropriate Configure Input or Output windows.

Inputs	Outputs
Trouble Input	Notification Output 1
Reset Input	Notification Output 2
Intermittent Input	Notification Output 3
Continuous Input	Notification Output 4
Silence Alarm Input	Supervisory Output (cannot be edited)
Input 1	Auxiliary
Input 2	Fire 1 Contact
Input 3	Fire 2 Contact
Fire Drill Input (cannot be edited)	Fire Routing
Programmable Function	Programmable Output
	Trouble Contact
	Trouble Routing

To learn more about the proper setting of Inputs, see section 9.9.2.1. For more information on the proper setting of Outputs, see section 9.9.2.2.

9.7.6 Removing a Panel

Deleting a component of your site is a simple process.

1. Just select the item you wish to delete
2. Click the **Delete** button in the toolbar *or* right click over the selected item and click the **Delete** option in the menu.
3. You will see this confirmation window when you delete a panel. Click **Yes** if you still want to delete it or click **No** to abort the deletion.
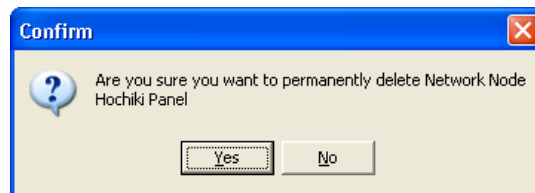
> **NOTE**: If you try to delete a panel when it still has devices attached to it, you will see an error message telling you to delete all of the devices attached to the Loops before attempting to delete the panel.

9.8.1 Adding an Option Board/Serial LCD Annunciator

1. To add an Option Board, click on a panel in the Navigation tree where you want the module to be added.
2. Choose the icon representing the appropriate Option board in the Items pane or select the option from the right-click menu.

   NOTE: A maximum of 32 option boards may be added to a panel.

3. To add a FN-LCD-S Serial LCD Annunciator, click on the project level in the Navigation tree and select the Serial Annunciator. Once this is selected, choose which panel (or node) that the Serial Annunciator will be added to.

   NOTE: A maximum of 15 FN-LCD-S Serial Annunciators may be added to a panel (or node).

9.8.1.1 Adding a SLC Board

An SLC Expander board adds an additional two Loops to a Hochiki 2 Loop Panel. Follow the steps below to add an SLC expander to a 2 loop panel -

1. Open the Configure Node of the panel you wish to edit. For instructions on how to access the Configure Node, see section 9.7.2.
2. To add loops in a panel, change the **Number of Loops** from 2 Loops to 4 Loops

   NOTE: If you are deleting Loops, you must delete all devices attached to the Loops first

3. Click **OK** to accept the changes, and exit from the window. Or click **Cancel** to cancel all changes, and exit from the window
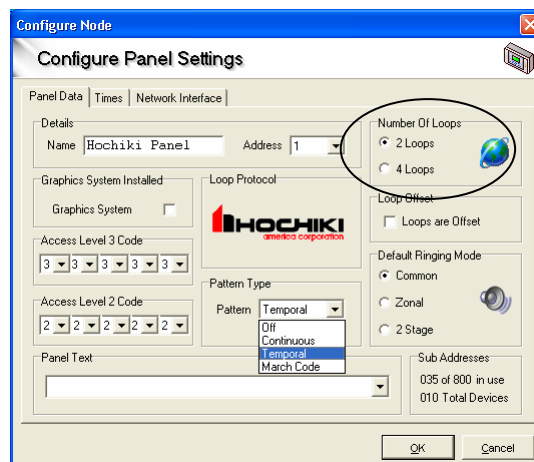
9.8.2 Editing an Option Board/Serial LCD Annunciator

To configure an Option Board/Serial LCD Annunciator, select the module you wish to configure, and select **Edit** from the toolbar or **Edit Settings…** from the right click menu.

9.8.2.1 Editing an I/O Board

Standard I/O Modules have 16 Channels, which can each be configured to be an input or an output. The default for all channels is set to inputs. After creation, you may not delete individual channels, only the entire module. By editing the settings of the existing module, you may change:

- the name
- the address
- inputs to an output or vice versa

To edit the settings of a channel, click on an existing I/O module channel in the Navigation tree and select Edit settings. These settings will either be for an input or an output.

Also by using the tabs labelled 1-8 and 9-16, it is possible to configure the location text and zones of all the channels, and clear all text and zone settings at once.
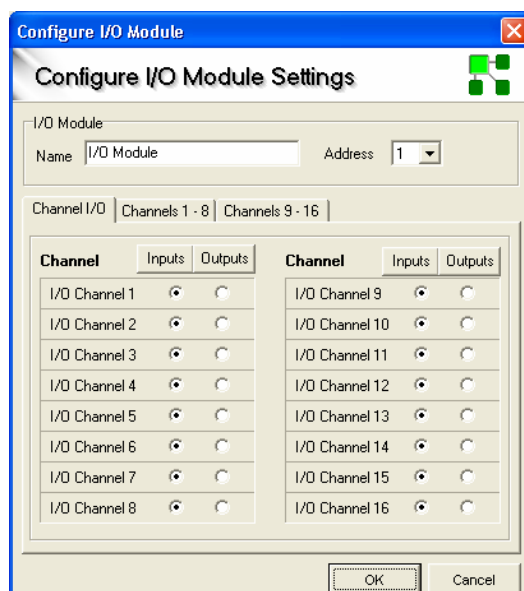
9.8.2.2 Editing a FN-LCD-S Serial LCD Annunciator

The Serial LCD Annunciator window has only two areas that require an individual to enter data:

- Serial LCD Annunciator Name
- Serial LCD Annunciator Address
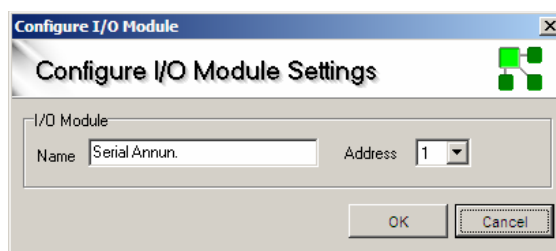
> **NOTE**: A maximum of 15 FN-LCD-S Serial Annunciators may be added to a panel (or node).

9.8.3 Removing an Option Board/Serial LCD Annunciator

1. Select the Option board/Serial LCD Annunciator you wish to delete.
2. Click on the Delete button in the menu or the delete button from the right-click button.
3. You will be given a confirmation window. To complete the deletion, click the **Yes** button. To cancel, click the **No** button.
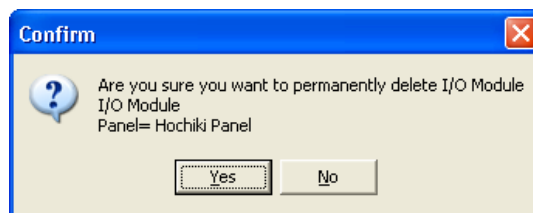
9.9.1 Adding a Device on a Loop

New devices can be added to the configuration in several different ways; using the main menus, toolbar, right click menu, or Items pane.
Click on a loop in the Navigation tree, then:
    Click File, New, New Device, or
        Click New on the toolbar, or
        Right click over the loop in the Navigation tree, and click New Device.
        Use the Items Pane to add a device.

Select a single device, by highlighting it, then select the Address using the drop down box, and choose a zone. Edit or add Location Text, this can be new text or previously entered, and click add. The device will have been added. Click on another device and add it, or click Close. You may edit the settings of the particular device after you have added it to the loop. You can also specify the number of devices to be added to allow multiple or "Block" device additions.

If you have reached the maximum number of devices on a loop, you will be prompted with a message that indicates you have reached the maximum addresses allowed.

NOTE: The maximum number of addresses and sub-addresses possible per panel is 800. To check the current total address usage for any panel, right-click on the desired panel in the Navigation tree and select Edit Settings. In the lower right hand corner of Configure Panel Settings screen, the total will be displayed.

9.9.2 Editing Panel I/O and Devices on a Loop

9.9.2.1 Editing Devices on a Loop

You may configure any device and all of its sub addresses using Loop Explorer. There are several ways to edit and configure a chosen device

To edit the settings of a device, click on the device you wish to configure in the Navigation tree and select the edit settings option from the toolbar. You may also right click and select Edit Settings from the option menu, or double-click on the device itself.

The item you initially select from the Navigation tree or Device Table will determine the configuration window that will appear. For example, the configuration window options for an FRCME input module will be different than those of an SOM module.

9.9.2.2 Setting inputs (Panel I/O and Devices on a Loop)

The input settings window can be accessed by right-clicking on the Navigation tree input item, and clicking on **Edit Settings...**

After making the changes click **OK** to accept the settings, and exit from the window. Or click **Cancel** to cancel all changes and exit from the window.

Options: Fire

Fire inputs activate outputs that are General Alarm mode in accordance with the rules of General Alarm mode. Control panel outputs will include the following:

- Common Fire LEDs
- Pulsing Buzzer
- NAC Outputs
- Fire 1 Contact
- Fire 2 Contact
- Fire Routing Output
- Outputs (if flag set)
- LCD Fire Message, Address And Location Text Of Input

Options: Trouble

Trouble inputs activate any output configured as a trouble output. Trouble inputs will be annunciated by the control panel as follows:

- General Trouble LED
- Continuous Buzzer
- Trouble Contact
- Trouble Routing Output
- Outputs (if flag set)
- LCD Trouble Message, Address And Location Text Of Input

Options: Pre-Alarm

Sensors or inputs can generate a Pre-Alarm. This activates any outputs configured to respond to a pre-alarm. The control panel will respond as follows to a Pre-Alarm:

- Pre-Alarm LED
- Continuous Buzzer
- Outputs (if flag set)
- LCD Pre-Alarm Message, Address And Location Text Of Input

Options: Supervisory Alarm

Input modules, sensors and duct sensors can be configured to create a Supervisory alarm when activated. A Supervisory alarm will produce the following response by the panel:

- Supervisory Alarm LED
- Continuous Buzzer
- Supervisory Contact
- Outputs (if flag set)
- LCD Supervisory Alarm Message, Address And Location Text Of Input

Options: Auxiliary

The Auxiliary action allows all sounder outputs to be activated from an input anywhere on the system when outputs have "Auxiliary" flag set with the following response at the panel:

- Continuous Buzzer
- Outputs (if flag set)
- LCD Fire Auxiliary Message, Address And Location Text Of Input

Options: Silence

When a Silence input activates, it is as if the Alarm Silence button had been pressed at the panel.

Note: A Silence Action will not latch. Therefore, input must be set to non-latching.

Options: Reset

Reset will be displayed on the LCD and recorded in the event log. When a reset input activates, it is as if the Reset button had been pressed at the panel.

Note: A Reset Action will not latch. Therefore, input must be set to non-latching.

Options: Fire Drill

This option is not programmable for the onboard panel input. The Fire Drill button activates SOM and NAC alarm outputs that are programmed for General Alarm mode. Panel relays are not activated during a Fire Drill.

Note: A Fire Drill Action will not latch. Therefore, input must be set to non-latching.

Options: Transparent

A transparent input will have no effect on the panel. The only result of a transparent input is to control outputs via cause and effects configuration. The input activity will not be recorded in the event log.

Options: Disablement

Disablement inputs are used to disable a part or parts of the system via cause and effects configuration (normally for testing or maintenance purposes).
When an input designated as a disablement is operated, the panel will display the following:

- General Disablement Indicator
- Continuous Buzzer For 5 Seconds
- Address (1-127)

- Zone (1-500)
- LCD Disablement Message, Address And Location Text Of Input

Options: Test

Inputs given the test mode attribute are used to activate a special type of cause and effect which enables the system to be placed in "Walk Test" Mode through a cause and effect action rather than from manually entering Walk Test Mode via the front panel menus.

When a test mode input is operated, the panel will execute the Cause and Effect action associated with it.

Input Latch

Input latch is used to "lock" an input into the ON state. Even if the input circuit restores to normal, the panel will still show the input to be ON. The input will remain latched unit a reset event occurs.

Note: A latched input may not be set to reset type.

Output Delay: Bypass

When an input is operated with this attribute any outputs activated will bypass their delay time (if programmed) and switch on immediately. This attribute is useful if an input should respond immediately.

Input Delay

Input delay may be used to help prevent false alarms from inputs that fluctuate rapidly from alarm to normal state. The panel will not respond to the input until it has been activated for the programmed delay time. This feature is only available to "Non Fire" type inputs and other inputs allowed for delay per NFPA72/UL864. (Use of this feature may be subject to AHJ and other local requirements).

Action message

An Action message is the action related text displayed at the panel when the input is operated (i.e. Fire, Trouble etc). For some inputs, the message is user definable, such as a General Purpose input.

There are also nine user-defined messages that can be changed for specific use.

Zone

Each input can be assigned to a zone. It is useful to place inputs into zones if the output is required to respond in a zonal fashion, or is to be controlled by a cause and effect entry. Zones are also used to group devices into logical groups or per the building and code requirements.

NOTE: Do not assign SLC loop devices to zone 0.

Location Text

Each input can be given location text of up to 40 characters. As well as being useful in identifying devices and locations, the location text can be useful in identifying the device when compiling cause and effects programs.

9.9.2.3 Setting Outputs (Panel I/O and Devices on a Loop)

All outputs have a set of default attributes, which can be modified by using the edit window of an output. After making the changes, click **OK** to accept the settings and exit from the window. Or click **Cancel** to cancel all changes and exit from the window. Below is a list of programming options for outputs:

Options: Gen. Alarm Mode (Common Fire Alarm)

Normally applicable to NAC outputs, Gen. Alarm Mode will turn the output on upon a fire condition as defined by the global General Alarm Mode set on the **Configure Panel Settings** window, or as set via the **Edit Configuration** menus on the panel. Other outputs can be assigned to General Alarm Mode as well when this flag is selected.

Options: Auxiliary

The output will operate upon any auxiliary event.

Options: Pre-Alarm Output

The output will operate upon any pre-alarm event.

Options: Supervisory Alarm

The output will operate upon any supervisory event.

Options: Trouble Output

The output will operate upon any trouble event.

Alarm Silence: Silenceable

Silenceable is normally applicable to NAC, SOM, ASB, & R2M outputs and ensures that the output turns off when the alarm is silenced (acknowledged) by the front panel pushbutton or operation of an input that is configured as silence alarm.

Delay: Stage one delay

Outputs can be delayed from 0 to 5 minutes in half-minute steps by changing the default delay of zero to the desired setting (on-board relays, routing outputs, R2M, and DH98AR Relays only).

Delay: Stage two delay

If the output is Silenceable, the stage two delay option becomes available. The stage two delays gives additional time from 0 to 5 minutes in half-minute steps before the output operates after the alarm is acknowledged during the stage one delay period.

Strobe Output (NAC only)

The panel NAC circuits have an additional option called Strobe Output. If this option is selected, it will change the NAC circuit to a continuous output during alarm, regardless of the panel's programmed output pattern. This allows for the connection of four-wire horn/strobes that require a Temporal or March pattern for the horn circuit, but a continuous pattern (steady) for the strobe circuit. It is also useful when driving strobe only circuits or speaker/strobe circuits when the audio power is being driven from a separate voice evacuation audio system, but the strobe power is being driven from the fire alarm system.

NAC Aux 24VDC (NAC only)

The panel NAC circuits have an additional option called "NAC Aux 24VDC". By using this feature the NAC outputs can be alternatively programmed as an auxiliary power outputs rather than notification appliance circuits. This allows NAC outputs to function as 24VDC power outputs. Below is the list of power options:

- **OFF** – When set to this option, the NAC output functions as a standard NAC circuit and the Aux 24VDC options have no effect. This is the default setting.
- **Continuous Power** – When set to this option, the NAC output becomes a constant 24VDC output that always remains on.
- **Door Holder Power** – When set to this option, the NAC output releases when a fire event occurs or AC power is lost. The output returns after the panel is reset and the conditions are clear.
- **Reset-able Power** – When set to this option, the NAC output drops out upon panel reset and returns after 5 seconds. This is used for duct or 4-wire detectors that require power reset.

Zone

Each output can also be put into a zone as required. It is useful to put outputs into zones if the output is required to respond to general alarm mode or is to be controlled by a cause and effect entry. Zones are also used to group devices into logical groups or per the building and code requirements.

NOTE: Do not assign SLC loop outputs to zone 0.

Location Text

Each output can be given location text of up to 40 characters. As well as being useful in identifying devices and locations, the location text can be useful in identifying the device when compiling cause and effects programs.

> **NOTE**: Panel Outputs can be programmed into three primary categories:
> - Common
>   - When output attribute flags are set for general event categories, the output operation will follow the common activation of that event type. General Alarm mode should be set to "common" for this operation.
> - Zone
>   - When outputs are assigned to zones, the output operation can be triggered on a zoned basis. General alarm mode should be set to "zonal" for this operation.
> - Programmable
>   - When outputs are not assigned to general event categories via output attributes, the output operation is programmable by using Cause and Effect.

9.9.3 Changing a Device on a Loop

You may change a device type using Loop Explorer very easily. Click on the device you wish to change and either click on the toolbar option Change or use the right click menu and select Change device type. Changing is quicker than deleting and adding another device because it will keep the universal settings of all devices, such as Zone and Location text.

9.9.4 Deleting a Device on a Loop

Deleting a component of your site is a simple process.
1. Just select the item you wish to delete
2. Click on the **Delete** button in the toolbar *or* right click over the selected item and click the **Delete** option in the menu.
3. You will see a confirmation window when you delete a device. It will have a list of all information that is attached to the device. Click **Yes** if you still want to delete it or click **No** to abort the deletion.

9.10 Loop Explorer Abilities

9.10.1 Reserved for Future Use

9.10.2 Cause & Effect Summary

The C&E Summary will show all cause and effect entries in the project, and the total number of inputs and outputs currently being used.
At the bottom of the window it will show you the totals for the Project, and how close to the maximum number of entries the Project is.

It is also possible to add Cause and Effects from the Summary, by clicking on the appropriate symbol. This will bring up the usual wizard, and from there you can view the input and output totals if a large number of Cause and Effects are going to be created. You may also copy a cause and effect, or delete it from here. Please see section 9.15 for more details on Cause and Effect programming.

9.10.3 Reserved for Future Use

9.10.4 Zone Manager

The Zone manager is a tool used for quickly viewing all panel and loop devices mapped to selected zones and for configuring them to particular zones. Access the Zone manager by using the toolbar or the Edit menu.

The List on the left shows Zones 0 - 500, the highlighted icons contain items, where the shaded ones do not.
Select a Panel to start viewing the contents of the selected zone from the list on the left.
Select one or more items - to select multiple items hold Ctrl or Shift on the keyboard and click on the desired items. Next drag and drop them onto a new zone from the list of zones. This will remove the icon from the view on the right, as they have been moved to the new zone.
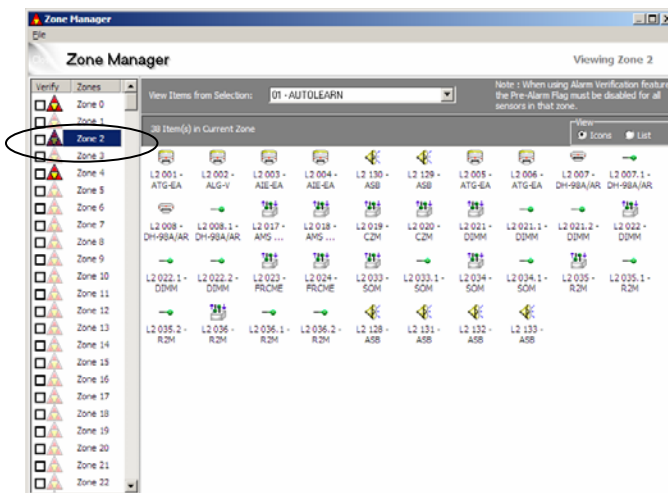
The Alarm Verification Feature is also enabled from this menu on a per zone basis. To enable Alarm Verification operation, you must select the "Verify" check box for that zone. Alarm Verification only applies to photo and ion smoke sensors in that zone.

For more information on using Zones, see section 9.13.

9.10.5 Reserved for Future Use

9.11.1 Getting it working

With all network cards allocated a unique address and all nodes (panels & network annunciators) connected as described in Section 6, it is now possible to get the panels communicating with each other by doing an AUTOLEARN at each one. In this default configuration all panels will respond to the default network settings. Default network settings are to process, display, log, print and operate the panel buzzer for all network events (except status events) from all other panels. This is fine for initial testing and getting the network talking, but may need to be updated to suit the specific project needs.

9.11.2 Using the Loop Explorer PC configuration

To enable selection of which panels respond to which events it is necessary to configure panels using the Loop Explorer configuration program.
Loop Explorer allows extensive configuration of the system and the details of this are contained within the program help files and elsewhere in this manual. See section 9.7.2.3 for programming network attributes in Configure Panel Settings. For the purposes of this section, only network processing and event details are discussed.

There are five options for each network event type as to how it will be handled by the recipient node:

Process
The process option instructs the panel receiving a network event to inherently operate exactly as it would if it were a local panel event. For example, if a fire event activates, the panel would be expected to operate the NAC outputs and fire relays as programmed. Selecting the process option ensures that the network panel does this. If the process option were not selected, the panel would not operate the NAC outputs and fire relays as programmed.

Display
The display option instructs the panel receiving the network event to display the event exactly as it would be displayed if it were a local panel event.

Log
This gives the option to store the network event in the event log. For example if a panel is designated as a master panel, it may be required that the master panel logs all events on the network whereas other panels log only their own local events.

Print
This gives the option to print the network event. It may be that a master panel is required to print all events and that other panels print only local events.

Buzz
This gives the option to operate the panel buzzer upon a network event from other panels.

The ease and versatility of programming the network interface ensures that changing site requirements can be swiftly accommodated with a minimum of effort. A brief description of all network event types is listed below:

9.11.3 Fire action

Being a fire control panel, the fire action will probably be the most widely used and a fire input will be announced by the following:
- COMMON FIRE LEDS
- PULSING BUZZER
- NAC OUTPUTS
- FIRE 1 CONTACT
- FIRE 2 CONTACT
- FIRE ROUTING OUTPUT
- LCD FIRE MESSAGE, ADDRESS AND LOCATION TEXT OF INPUT

9.11.4 Auxiliary action

The Auxiliary action allows outputs to be activated from an input anywhere on the system with the Auxiliary flag set with the following response at the panel:
- CONTINUOUS BUZZER
- NAC OUTPUTS
- LCD FIRE AUXILIARY MESSAGE, ADDRESS AND LOCATION TEXT OF INPUT

9.11.5 Pre-alarm action

Sensors or inputs can generate a pre-alarm. The control panel will respond as follows to a pre-alarm:
- PRE-ALARM LED
- CONTINUOUS BUZZER
- LCD PRE-ALARM MESSAGE, ADDRESS AND LOCATION TEXT OF INPUT

9.11.6 Trouble action

Inputs attributed the trouble action, or panel trouble events such as AC Failure, will be announced by the control panel as follows:
- GENERAL TROUBLE LED
- CONTINUOUS BUZZER
- TROUBLE CONTACT
- TROUBLE ROUTING OUTPUT
- LCD TROUBLE MESSAGE, ADDRESS AND LOCATION TEXT OF INPUT OR EVENT

9.11.7 Disablement action

Disablement inputs are used to disable a part or parts of the system via cause and effects configuration (normally for testing or maintenance purposes). When an input designated as a disablement is operated, the panel will respond as follows:

- POINT BYPASSED INDICATOR LED
- CONTINUOUS BUZZER
- CAUSE AND EFFECT ACTION
- LCD DISABLEMENT MESSAGE, ADDRESS AND LOCATION TEXT OF INPUT
- GENERAL TROUBLE LED

9.11.8 Supervisory Alarm action

Supervisory Alarm input is available which produces the following response by the panel:

- SUPERVISORY ALARM LED
- CONTINUOUS BUZZER
- LCD SUPERVISORY ALARM MESSAGE, ADDRESS AND LOCATION TEXT OF INPUT
- SUPERVISORY RELAY

9.11.9 Test action

Inputs given the test mode attribute activate a special type of cause and effect which enables the system to be placed in Walk Test Mode without having to manually invoke the Walk Test Mode through the front panel controls and menus. When a test mode input is operated, the panel will respond as follows:

- ON TEST LED
- LCD ON TEST MESSAGE
- CAUSE AND EFFECT ACTION
- GENERAL TROUBLE LED

9.11.10 Status

If the Process Status event is enabled, then pressing Alarm Silence, Re-sound Alarm, and Reset controls from that panel will cause the same response on the selected panel as if the local buttons have been pressed. This allows panel controls to be sent over the network to other panels. Therefore if a panel is set to Process / Display a fire event from another panel, the local outputs cannot be silenced, resounded, or reset by that panel unless the Process Status event is set. The Display Status event allows the local panel to show Status events from other panels (Initializing etc). However, these events cannot be processed, as there is not a process associated with them.

- INITIALIZING A DEVICE
- INITIALIZING A PANEL
- AUTOLEARNING A PANEL
- RE-CONFIGURE BY PC
- SILENCE
- RESOUND
- RESET

9.11.11 Network Trouble Messages

While commissioning a networked system there are various trouble messages which may appear. Listed below are the messages, which may appear, and a brief description of what they mean.

9.11.11.1 Network open or short circuit trouble

This is quite self explanatory and indicates a cabling trouble between two nodes. However, by observing the green and red LEDs on the network card it is possible to see whether the trouble is on the upper two terminals of the network connector (incoming) or the lower two (outgoing). If the red LED is off then the trouble is on the cable connected to the upper two terminals and if the green LED is off the trouble is on the lower two terminals. Thus, if there are two panels with network LEDs not lit (a red on one and a green on the other) the trouble can be identified as between those two panels.

9.11.11.2 Unexpected network card

Should a network card be installed in a control panel that is already configured and working, the panel does not expect to have a network card installed, therefore this trouble message will appear. The panel must be re-configured by Autolearn or Loop Explorer to enable it to expect a network card.

9.11.11.3 Unexpected network node

If a new network panel is connected to an already working network, the rest of the network will not expect to see an additional node and will announce this trouble. The unexpected network panel will respond to network events as per the default configuration and all other panels will respond to events from the new network panel as per the default configuration. All panels must be configured to see the total number of panels connected to the overall panel network by using Loop Explorer or by Autolearn.

9.11.11.4 Network node missing

This message will be displayed on all panels if a network node they are expecting to communicate with does not answer within approximately 100 seconds. This may occur if a control panel loses all power or if both the in and out network connections are disconnected from the panel.

9.11.11.5 Network card not installed

If a control panel is configured to be part of a network by Autolearn or Loop Explorer, and a network card is not installed, the panel will display this message.

9.11.11.6 Network card address incorrect

Once a panel is configured to expect a network card to be present it will also know which address (set on the network card DIP switch) to expect. If it detects that a card is installed but the address does not match the one expected, then this trouble message will be displayed. If the address of a network card must be changed then this should be done with both the AC and battery backup power off. Once the address is set and the panel is powered up, the panel must be re-programmed to see the new address via Autolearn or Loop Explorer software.

9.11.11.7 Network comms trouble

Highly sophisticated error checking and filtering is used in the FireNET network protocol. It is possible under extreme conditions for data packets to become corrupted and not be received by a panel. In these circumstances this trouble message will be displayed. This indicates a very degraded transmission path and occurrence of this trouble should be investigated. Possible causes are cable lengths greater than those specified, cable specification other than that specified or high levels of electromagnetic interference.

9.11.11.8 Unknown network type

As the FireNET product line is updated and newer versions of software, firmware, and hardware are released, when a network object detects other network objects with differing versions, this trouble message will be displayed. This mechanism has been put in place to enable a control panel to identify a network object with a differing version than its own.

9.11.11.9 Unspecified network event

The development of the FireNET system is ongoing and new features and functionality will be added from time to time. This mechanism has been put in place to enable a control panel to identify a new or unknown network event type differing than its own.

9.12 Loop Explorer Networking - Keeping a record

When a network has been configured, the configuration data file keeps a record of the configuration that can be copied into other documents as shown in the example below by using the Print/Pre View feature.

FIRENET NETWORK CONFIGURATION

D:\Storage\storage\Laptop_Sync_Folder\FireNet-4127_Software\Project Files\HC_Seminar_Example1.hsa
02/07/2005 15:03

Panel - Facp #1
Panel Text   Hochiki Analog/Addressable Panel 1
Network Address   1
Default Pattern   Temporal
First Node Address   0
Last Node Address   0
Access 2 Code   22222
Access 3 Code   33333
Number of Loops   2
Number of Zones   500
Calibration Time   07:00
Day of week   Start   End
   Sunday   08:00   18:00
   Monday   08:00   18:00
   Tuesday   08:00   18:00
   Wednesday   08:00   18:00
   Thursday   08:00   18:00
   Friday   08:00   18:00
   Saturday   08:00   18:00

Facp #1 - Network Interface

Panel	Fire	Emerg.	Aux.	Pre Al	Trouble	Disab.	Superv.	Test	Status

02 - Facp #2

Process	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No

Display	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Log	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Print	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Buzz	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No

03 - LCD Annun #3

Process	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Display	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Log	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Print	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Buzz	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No

<u>Facp #1 - Loop 1 (3 Devices)</u>

Device	Name	Type	Zone	Flags	Action	Setting	1st Delay	2nd Delay	Text
001.00	ALG-V	Sensor	01	L	Fire	D2.50 N2.50	00		1st Floor Lobby Smoke Detector
002.00	ATG-EA	Sensor	02	LP	Fire	D135 N135	00		Electrical Room Heat Sensor
003.00	AIE-EA	Sensor	03	LP	Fire	D-Hi N-Nrm	00		3rd Floor Kitchen Ion Sensor

<u>Facp #1 - Loop 2 (0 Devices)</u>

<u>Facp #1 - Local I/O</u>

I/O	Type	Zone	Flags	Action	1st Delay	2nd Delay	Text
Trouble Input	Input	00		Trouble	00		
Reset Input	Input	00		Reset	00		
Intermittent Input	Input	00		Auxiliary	00		
Continuous Input	Input	00			00		
Silence Alarm Input	Input	00		Silence	00		
Input 1	Input	00		Transparent	00		
Input 2	Input	00		Transparent	00		
Input 3	Input	00		Transparent	00		
Fire Drill Input	Input	00		Fire Drill	00		
Programmable Func	Input	00		Transparent	00		
Notification Output 1	Output	01	M		0.00	0.00	Strobe Output 1st Floor
Notification Output 2	Output	01	MS		0.00	0.00	Bell/Horn Output 1st Floor
Notification Output 3	Output	500			0.00	0.00	C&E controlled NAC output - Special
Notification Output 4	Output	05	MS		0.00	0.00	Bell/Horn Output 5th Floor
Supervisory Output	Output	00			0.00	0.00	
Auxiliary	Output	00			0.00	0.00	
Fire 1 Contact	Output	00	EM		0.00	0.00	
Fire 2 Contact	Output	00	EMS		0.00	0.00	
Fire Routing	Output	00	EM		0.00	0.00	

Programmable Out.	Output 00			0.00	0.00	
Trouble Contact	Output 00	F		0.00	0.00	
Trouble Routing	Output 00	F		0.00	0.00	

<u>Panel - Facp #2</u>

Panel Text	Hochiki Analog/Addressable Panel 2
Network Address	2
Default Pattern	Temporal
First Node Address	0
Last Node Address	0
Access 2 Code	22222
Access 3 Code	33333
Number of Loops	2
Number of Zones	500
Calibration Time	07:00

Day of week	Start	End
Sunday	08:00	18:00
Monday	08:00	18:00
Tuesday	08:00	18:00
Wednesday	08:00	18:00
Thursday	08:00	18:00
Friday	08:00	18:00
Saturday	08:00	18:00

<u>Facp #2 - Network Interface</u>

Panel	Fire	Emerg.	Aux.	Pre Al	Trouble	Disab.	Superv.	Test	Status
01 - Facp #1									
Process	No	No	No	No	No	No	No	No	Yes
Display	No	No	No	No	No	No	No	No	Yes
Log	No	No	No	No	No	No	No	No	Yes
Print	No	No	No	No	No	No	No	No	Yes
Buzz	No	No	No	No	No	No	No	No	Yes
03 - LCD Annun #3									
Process	No	No	No	No	No	No	No	No	Yes
Display	No	No	No	No	No	No	No	No	Yes
Log	No	No	No	No	No	No	No	No	Yes
Print	No	No	No	No	No	No	No	No	Yes
Buzz	No	No	No	No	No	No	No	No	Yes

Facp #2 - Loop 3 (6 Devices)

Device	Name	Type	Zone	Flags	Action	Setting	1st Delay	2nd Delay	Text
001.00	SOM	Common	01						SOM Module
001.01	SOM	Output	01	MS			0.00	0.00	SOM Bell Output 1st Floor
002.00	FRCME	Input	01	LB	Fire		00		1st Floor Lobby Pullstations
003.00	R2M	Common	13						R2M Module
003.01	R2M	Output	13				0.00	0.00	Relay 1: Elevator recall
003.02	R2M	Output	13				0.00	0.00	Relay 2: Air Handler Shutdown
004.00	CZM	Input	03	L	Fire		00		3rd Floor Conventional Devices
005.00	DIMM	Common	13						DIMM Module
005.01	DIMM	Input	13	L	Fire		00		Waterflow Switch PIV#1
005.02	DIMM	Input	13	L	Supervisory Al		00		Valve Position Tamper PIV#1
006.00	FRCME	Input	05	LB	Fire		00		5th Floor Lobby Pullstations

Facp #2 - Loop 4 (0 Devices)

Facp #2 - Local I/O

I/O	Type	Zone	Flags	Action	1st Delay	2nd Delay	Text
Trouble Input	Input	00		Trouble	00		
Reset Input	Input	00		Reset	00		
Intermittent Input	Input	00		Auxiliary	00		
Continuous Input	Input	00			00		
Silence Alarm Input	Input	00		Silence	00		
Input 1	Input	00		Test Mode	00		Input to Start Walk Test Script
Input 2	Input	00		Disablement	00		Input to Start Disablement Script
Input 3	Input	00		Transparent	00		
Fire Drill Input	Input	00		Fire Drill	00		
Programmable Func	Input	00		Transparent	00		
Notification Output 1	Output	00	EMS		0.00	0.00	
Notification Output 2	Output	00	EMS		0.00	0.00	
Notification Output 3	Output	00	EMS		0.00	0.00	
Notification Output 4	Output	00	EMS		0.00	0.00	
Supervisory Output	Output	00			0.00	0.00	
Auxiliary	Output	00			0.00	0.00	
Fire 1 Contact	Output	00	EM		0.00	0.00	
Fire 2 Contact	Output	00	EMS		0.00	0.00	
Fire Routing	Output	00	EM		0.00	0.00	
Programmable Out.	Output	00			0.00	0.00	
Trouble Contact	Output	00	F		0.00	0.00	

Trouble Routing   Output 00   F   0.00   0.00

Facp #2 - I/O Module 32 - 32

Channel	Type	Zone	Flags	Action	1st Delay	2nd Delay	Text
Channel 01	Input	00		Trouble	00		
Channel 02	Input	00		Trouble	00		
Channel 03	Input	00		Trouble	00		
Channel 04	Input	00		Trouble	00		
Channel 05	Input	00		Trouble	00		
Channel 06	Input	00		Trouble	00		
Channel 07	Input	00		Trouble	00		
Channel 08	Input	00		Trouble	00		
Channel 09	Output	00	M		0.00	0.00	
Channel 10	Output	00	M		0.00	0.00	
Channel 11	Output	00	M		0.00	0.00	
Channel 12	Output	00	M		0.00	0.00	
Channel 13	Output	00	M		0.00	0.00	
Channel 14	Output	00	M		0.00	0.00	
Channel 15	Output	00	M		0.00	0.00	
Channel 16	Output	00	M		0.00	0.00	

Panel - LCD Annun #3

Panel Text	Shinagawa Hotel Project LCD #3
Network Address	3
First Node Address	0
Last Node Address	0
Access 2 Code	22222
Access 3 Code	33333
Number of Loops	0
Number of Zones	500

LCD Annun #3 - Network Interface

Panel	Fire	Emerg.	Aux.	Pre Al		Trouble	Disab.	Superv.	Test	Status
01 - Facp #1										
Process	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	No
Display	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	No
Log	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	No

Print	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Buzz	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No

02 - Facp #2

Process	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Display	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Log	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Print	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Buzz	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No

LCD Annun #3 - Local I/O

I/O	Type	Zone	Flags	Action	1st Delay	2nd Delay	Text
Fire Drill Input	Input	00		Fire Drill	00		
Programmable Func	Input	00		Transparent	00		
Supervisory Output	Output	00			0.00	0.00	
Auxiliary	Output	00			0.00	0.00	
Fire 2 Contact	Output	00	EMS		0.00	0.00	
Trouble Contact	Output	00	F		0.00	0.00	

Action : Air Handler Shutdown Logic for Zone 10
Cause (OR)
    Facp #1 - Loop 1 Address 001.00
    Facp #1 - Input 1
    Facp #2 - I/O Module 32 32 - Channel 04
    Zone 10
Effect (Temporal)
    Facp #2 - Loop 1 Address 003.02
    Facp #2 - I/O Module 32 32 - Channel 12
    Zone 10

Action : Fire Pump Startup Logic from Waterflow
Cause (OR)
    Facp #2 - Loop 1 Address 005.01
Effect (Temporal)
    Facp #1 - Programmable output
    Facp #2 - I/O Module 32 32 - Channel 16
    Zone 10

Disablement : Disable Script Lobby & 1st Floor
Cause (OR)
    Facp #2 - Input 2

Effect (Disablement)
    Facp #1 - Loop 1 Address 001.00
    Facp #2 - Loop 1 Address 002.00
    Facp #2 - Loop 1 Address 001.01
    Facp #1 - Notification Output 1
    Facp #1 - Notification Output 2
    Facp #2 - I/O Module 32 32 - Channel 03
    Facp #2 - I/O Module 32 32 - Channel 11
    Facp #2 - Loop 4
    Zone 1

Test Mode : Walk Test Script Zones 3, 6, 10, 13
Cause (OR)
    Facp #2 - Input 1
Effect - (Test)
    Sounders: Audible
    Zone 3
    Zone 6
    Zone 10
    Zone 13

Flags -
M = General Alarm
P = Pre Alarm
D = Day mode N = Night Mode
S = Silenceable
R = Resetable
L = Latching
O = Delayed Output
F = Trouble
A = PreAlarm Output
B = Output Delay Bypass

9.13 Loop Explorer Networking - Using zones

The use of zones on a FireNET network is an important issue and employs a philosophy that may be unfamiliar to some. This page has been included to highlight the importance of understanding how zones are used on this system and should be fully understood before system design is started. Unlike some other networked systems, zones on the FireNET system are network wide.

This means that for example, device number 1 on loop 1 of panel 1 can be in the same zone as device number 126 on loop 4 of panel 64 and so on. This gives the system great flexibility where zones need to be shared across panels such as risers or elevator shafts but this philosophy must be understood from the outset to enable a system design to be implemented effectively.

The system can have up to 500 zones and any device or input, on any panel, can be placed in any zone. Identification of the alarm is by a unique address in the form: -
Event type, Device type, Zone, Address, Loop, Panel name, Location text.

NOTE: Do not use Zone 0 for field devices. This is the panels internal master zone.

System designers must be aware however that the entire system can only have one zone 1, one zone 2 etc. On smaller systems where the numbers of zones is likely to be much less than 500, spare zones can be used to good effect to simplify network wide cause and effects by using zones as groups and operating upon these rather than individual devices to achieve the required functionality.

See Section 9.10.4 for additional details regarding programming zones.

9.14 Loop Explorer Options

9.14.1 COM Port

On some computers, it may be necessary to change the communications port used to transfer data to and from the panel.

The default is COM 1. Click File, Options. Select the COM port you wish to use. See section 9.4.2 for exact details on how to set COM ports.

9.14.2 Default Project Folder/ Memory Management

The default project folder is the initial folder location offered for opening and saving Loop Explorer projects. To modify the folder location, click File, Options, then click the MISC tab.

Either type the path in or click Find, if you wish to change the folder location. Select the folder using the browser window, then click OK to continue, and click OK in the original screen, or click cancel to exit the window.

It is also possible from this screen to set the computer's RAM available to Loop Explorer. Be sure not to set this value larger than the computer's physical RAM memory size.

Under the Options/Misc screen it is possible to make Loop Explorer use less of the computer's RAM for use on older computer's with less RAM to utilize.
The default will be set to medium, 32MB – 128 MB RAM installed which most computers have. If the computer is an older computer, using Windows 98, it may have a small amount of RAM to use, as Windows takes a lot by itself just to load. Upon changing the amount Loop Explorer has to use, the program will have to be closed and opened again, in order to free up the memory. If Loop Explorer is set to having Low RAM, you may only add up to approximately 12 panels, full of devices. If it is set to Medium, it may hold about 32 panels, and high, will be all 64. When a project file (*.hsa) is first opened, the Quick Load option allows use of less RAM memory such that more panels are possible and the initial Loop Explorer start-up time may be reduced. If any problems are experienced using Loop Explorer, such as illegal operations or the system running low on resources, setting the RAM usage to Low may help as well.

9.14.3 Splash Screen

The splash screen is a bitmap image file (.BMP), which is displayed when Loop Explorer initially starts. The default splash screen may not be altered, but you have the option to turn the default splash screen off. A custom splash screen may be used in place of default one. A custom splash screen can only be a file up to 2Mb in size, so as not to increase the loading time of the application.

9.14.4 Other

Within this screen it is possible to set whether Loop Explorer loads Location text in the Cause and Effect Action wizard. This is because this may be a lengthy operation for some computers, and may take some time to load the wizard, if its a slow computer with a large site.

The Autosave feature is also enabled within this screen. Once enabled, you may also set the time interval in which the Autosave occurs.

9.15 Cause and Effect Programming

9.15.1 Cause & Effect Types

Cause and Effect programming allows you to link an input or group of inputs to an output or group of outputs. Cause and Effect is a powerful feature of the FireNET system, and is very flexible, allowing for very creative input and output mapping.

There are three basic types of C&E:
1. Action
2. Test Mode
3. Disablement

An **Action type C&E** will create some sort of action output in response to an input activation. One example of an Action C&E is a relay that follows the state of an input. A common application might be relays for elevator recall, door release functions, or damper control.

A **Test Mode type C&E** allows you to create an input (with an Action of Test) that puts a zone or zones into Test Mode. This is very similar to the panel's 'Test Zones' feature, but is not subject to the same 15-minute time out (see section 10.1).

A **Disablement type C&E** allows you to create an input (with an Action of Disablement) that disables devices or loops or zones on a panel or panels.

All C&E types are created using OR, AND, or Coincidence logic.

To create a new C&E, select Cause and Effect on the Navigator Pane. You may then right-click and select New Cause and Effect from the right-click menu, or select New on the Toolbar. You may also double-click or drag and drop the type of C&E you wish to build from the Items Pane to the Device Table. Any of these actions will open the Cause and Effect Wizard.

First you must select the "Cause", the event that will stimulate the output. This could be a smoke sensor in an elevator lobby. It could be an analog duct detector. It can be any input on the system, including an entire zone. Notice across the top of the window that you may select from Loop Inputs, I/O Channel Inputs, Fire Zone Inputs, and Panel Inputs. These may be selected in any number and combination. Notice too that all inputs from all panels are available to you. This means that your C&E statements can operate across the network on any or all panels!

You must also choose an Action Operator for a C&E. There are three types of action operators:
- AND/All
- OR/Single
- Coincidence/Any Two

AND logic states that all inputs must be activated before the programmed output(s) will take place (input 1 AND input 2 AND input 3, etc.)

OR logic is also called Single, since a single input is all that is required to activate the desired output(s) (input 1 OR input 2 OR input 3, etc.)

Coincidence/Any Two logic says that any two inputs can activate the desired output(s), it does not matter which two it is.

After the 'Cause' has been selected along with the appropriate Action Operator, click on the Next button. This will move you to the 'Effect' screen, where you will select the output(s) that will be activated by this C&E. Depending on the type of C&E you are creating (Action, Test Mode or Disablement) you will see different things. For example:

- An **Action type C&E** will display Loop, I/O, Zone and Panel outputs that you may select. In addition, you must select the Output Type; Temporal, Continuous or March. The Output Type only applies to NAC circuits and SOM/ASB devices, as relays do not follow Temporal or March activation patterns.

> **NOTE**: To activate an SOM module using a C&E, you must choose the zone that the SOM is assigned to. To do this, simply select Zone Outputs and check the zone box that the SOM is assigned to. Remember, older version SOM (v2.0 or earlier) are limited to zones 1-253. In later release SOM and FireNET, the upper zones will be supported.

- A **Test Mode type C&E** will display all 500 Zones – you may select one or more of them at this point. You must also choose the Test Type, either Silent or Audible. This selection determines if the notification circuits will momentarily activate to confirm that an input has been tested.

- A **Disablement type C&E** will display all items that can be disabled, including loops, zones and devices. You may choose one or more items that will be disabled when the C&E executes.

After you have selected the 'Effect', click on the Next button. You may now assign a name to your C&E. The name can be up to 40 characters long, including spaces. It is important to be as descriptive as possible when naming your C&E, particularly if your project has a lot of them.

When building C&E entries, remember that panel and loop outputs can be programmed to activate from various events.

> **NOTE**: If you want an output to activate ONLY from a C&E, be sure that General Alarm, and all other options are not selected in the Output's Properties. Otherwise your output may activate at unexpected times.

9.15.2 Cause & Effect Examples

To assist you in building C&E entries, some examples are provided below. Please note that these examples are given for instructional purposes only, and are not intended to be used for your actual application! In some cases, local code or other restrictions may apply. When in doubt, check with the Authority Having Jurisdiction for your project.

Example #1 "Action" Type C&E

A four-story building with a single elevator needs two outputs to be used for elevator recall. The first-floor smoke detector in the elevator lobby will be used to recall the elevator to the alternate floor. The elevator lobby smoke detectors on floors 2 – 4 will be used for primary recall to the first floor (this example does not consider elevator machine room or shaft detectors, etc. If needed, they can simply be added to the appropriate C&E).

This application will require two C&Es to be created – one for Primary recall, and a second one for Alternate Recall. In our example one R2M module will be used to provide both outputs. To keep things simple, the smoke detector on the first floor is installed at loop 1, address 1. The second floor is address 2, third floor is 3 and fourth floor is 4. The R2M is at address 5, outputs are 5.01 and 5.02.

Both C&Es will be an Action type. For the first one, select address 1 (first floor elevator lobby smoke) as the 'Cause', with an Action Operator of OR. Click on Next, and select the 'Effect', the R2M output at 5.01. Click on Next, name the C&E 'Alternate Elevator Recall' and click Finish. This will link the first floor smoke detector to R2M 5.01, which can then be used to recall the elevator to the alternate floor in the event of a fire in the first floor elevator lobby.

Next, create the second Action C&E. Select addresses 2-4, with an Action Operator of OR (we want the elevator to recall on a single activation). Click Next, and select R2M 5.02. Click Next, name it 'Primary Elevator Recall' and click Finish.

The last thing to check is the Output Properties of the R2M relays. Be sure that General alarm, etc. are NOT checked.

System operation will be as follows – during a fire alarm, the panel will respond as it normally does, but the R2M at address 5 will do nothing UNLESS the alarm comes from one of the smoke detectors used in the C&E statement. In this case the panel will respond normally but one of the R2M relays will activate too.

Example #2 "Test Mode" type C&E with AND logic

One of your FireNET installations is at a very large school, and they want to test the system on a monthly basis. This testing must be done outside of school hours, and since it requires access to locked classrooms, the school maintenance personnel have decided to do the testing themselves. They do have one request though – a set of security keyswitches that, when activated, will put the panel into Test Mode. This feature will require that both of them be present in order to test the system.

In order to set this up, you must program 2 panel or loop inputs with an Action of Test. Now, begin a Test Mode C&E. You will notice that only devices or inputs with an Action of Test will be displayed on the 'Cause' screen. Select both of the inputs, and select AND as the Action Operator. Click Next to continue. Select all zones that must be included in the testing. If audible feedback is desired during the testing, select Audible. If not, select Silent, then click Next. Select a descriptive name for the C&E and click Finish.

Here is how it will work – The panel will recognize if any one of the inputs is activated, but will do nothing until BOTH of them are activated. At this time, the C&E will execute, and all selected zones will be put into Test Mode. The Test Mode will remain active until one (or both) keys are turned off.

Example #3 "Disablement" type C&E

False alarms from smoke detectors in a commercial laundry have led to a request to be able to disable smoke detectors during working hours. The manager wants to use the Programmable Function button on the front panel to do this.

First you must edit the Programmable Function button and change the Action to Disablement. Also, be sure that Latching is selected. Now, begin a new Disablement-type Cause and Effect. Select the Programmable Function button from the Panel Inputs list, and select an Action Operator of OR/Single. Click Next, and select all of the smoke detectors that need to be disabled. Click Next, then name the C&E…that's it.

Here's how it will work – the manager pushes the Programmable Function button from the Access Level 2 menu, which disables the smoke detectors. At the end of the day, the panel is reset and the disablement clears immediately. This option allows the manager to disable many detectors with relatively few key presses at the panel.

As you can see from these examples, FireNET's Cause and Effect statements open up many possibilities.

Section 10 - Testing and Troubleshooting

10.1 One Man Walk Test - TEST ZONES

The one-man walk test feature is intended to allow a single service person the ability to test each device without having to reset the panel each time a device is activated. While in test mode, the panel will automatically reset after 3 seconds following any device activation. This allows a service person to activate a device, verify the panel responds by sounding the audible and visual notification appliances, then move on to the next device without going back to the main panel to reset. TheTest Zone feature will only activate outputs & devices that are assigned to General Alarm Mode based on the options enabled as described below.

One-man walk test mode is implemented by selecting the TEST ZONES option from the Access Level 2 Main Menu.

Follow these steps to implement a one-man walk test using the TEST ZONES option:

1. Enter Access Level 2 operating mode as described in Section 7.3.1
2. Press the right navigational arrow key to access the Main Menu.
3. Scroll down to highlight the TEST ZONES option.
4. Press the right arrow key to select TEST ZONES.
5. From the Test Zones Menu use the up/down arrow keys to select which zone to test.
6. Press the right navigational arrow key to display the test options.

Local NAC ON - OFF
Use the up/down arrow keys to select ON or OFF. Setting this option to ON will make all of the audible and visual notification circuits (NAC 1-4) activate for the 3-second duration of each device tested. Setting this option to OFF disables the audible and visual notification appliance outputs during test mode.

Panel Outputs ON-OFF
Use the up/down arrow keys to select ON or OFF. Setting this option to ON will make all panel relay and voltage outputs function as they have been configured. Setting this option to OFF disables the panel relay and voltage outputs during test mode.

Loop Outputs ON-OFF
Use the up/down arrow keys to select ON or OFF. Setting this option to ON will activate SLC loop output devices such as SOM modules for audible and visual devices, but will not activate R2M modules. Turning this option to OFF disables the SOM modules during test mode.

Once the test options have been set press "Enter" to start the test or "Exit" to cancel. If you start test mode and want to cancel it anytime within the 15-minute test period, enter Access Level 2 and navigate to TEST ZONES. Enter TEST ZONES and use the right arrow key then Enter to toggle test mode to off.

When a zone is placed into test mode a 15-minute timer is started. If the 15-minute timer expires with no testing done, the test is automatically terminated and the panel is placed back into normal operation. The 15-minute timer is re-started each time a device is tested.

NOTE The FN-4127 will be placed in a trouble condition during test mode. The "ON TEST" LED will also illuminate.

10.2 *View / Print Event Log*

The View Print Event Log menu command allows the user to view the systems 500-event memory log. Any condition outside of normal operation of the system generates an entry into the event log. The event log is very useful tool for troubleshooting system problems or verifying certain activities such as Fire Drills actually took place.

```
ACCESS LEVEL 3 MENU

 EDIT CONFIGURATION
 SET TIMES
►VIEW PRINT EVENT LOG
 PRINT CONFIGURATION
 SYSTEM DISABLEMENTS
 LOOP DATA TEST
```
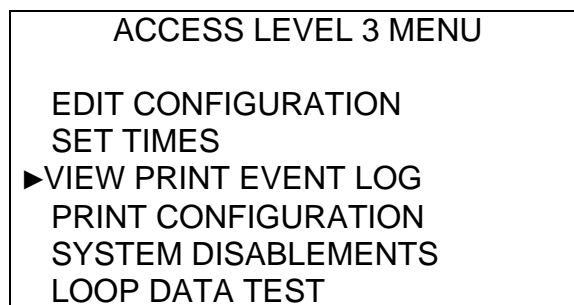
10.2.1 View Event Log

To view the event log, you must first enter Access Level 3 (see section 8.1.1). Once in Access Log 3, select VIEW PRINT EVENT LOG. Then select "View Event Log".

```
VIEW/PRINT EVENT LOG MENU

► View  Event Log
  Print  Event Log
  Clear Event Log

```
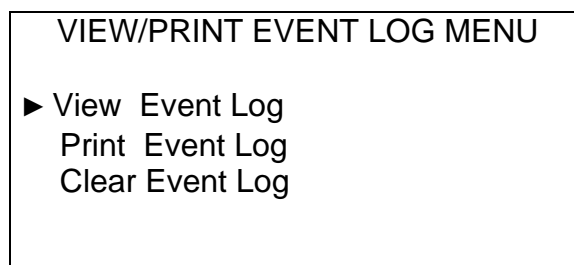
Then select the Event Type Option:

```
  SELECT EVENT TYPES TO VIEW

    Fire              -  4
    Pre-Alarm         -  0
 ► Trouble            -  120
    Disablements      -  0
    Other Events      -  94
    All Events        -  218

```

Then select the Individual Events as needed:

```
  VIEW TROUBLE EVENTS 120/120


      * TROUBLE:SOM ZONE 02 *
 ADR=012.00 LOOP=2 ND=1 AUTOLEARN
 TIME   14:35 05/08/2003
 Disconnected trouble Cleared

 Use UP/DOWN arrow keys to scroll events
```

10.2.2 Print Event Log

To print the event log, you must enter Access Level 3 as noted above (see section 8.1.1). Once in Access Level 3, select VIEW PRINT EVENT LOG. Then select the "Print Event Log".

```
  VIEW/PRINT EVENT LOG MENU

    View  Event Log
 ► Print  Event Log
    Clear Event Log


```

Then select the Event Type Option

```
  SELECT EVENT TYPES TO PRINT

 ► Fire              -  4
    Pre-Alarm         -  0
    Trouble           -  120
    Disablements      -  0
    Other Events      -  94
    All Events        -  218

```

Then press the Enter key to start printing those event types.

```
            PRINT FIRE EVENTS

Press ENTER to start print.


Press EXIT to quit
Press < to go back.
```

See Section 3.7 for information on adding a printer to the FireNET panel.

10.2.3 Clear Event Log

To clear the event log, you must enter Access Level 3 as noted above (see section 8.1.1).
Once in Access Level 3, select VIEW PRINT EVENT LOG. Then select the "Clear Event
Log".

```
     VIEW/PRINT EVENT LOG MENU

        View  Event Log
        Print  Event Log
    ▶  Clear Event Log

```

Then press the Enter key to clear the Event Log, or EXIT to cancel.

```
         CLEAR EVENT LOG MENU

Event Log has 218 entries

Press ENTER to clear Event Log.

Press EXIT to quit
Press < to go back.
```

10.3 Loop Data Test

To start the Loop Data Test function, you must first enter Access Level 3 as noted above (see section 8.1.1). Once in Access Level 3, you then must select the Loop Data Test option.

The Loop Data Test Function is a troubleshooting tool that is most cases will never be necessary. When the time does come at that problem job site, the Loop Data Test Function can be easily activated to monitor communication between the FireNET and loop devices. This tool displays the time and date of the test activation, the number of successful and unsuccessful communications on the loop, and the current date and time. The Loop Data Test Function runs in the background and has no affect on the FireNET's ability to perform its intended functions of detection, notification, and control. It is therefore possible to start a Loop Test during a normal business day and let it monitor an individual loop overnight, over a weekend, or during the week. The maximum number of readings is 9,999,999. This will allow a loop to be monitored in excess of one week.

In the event that a large number of bad data readings are received, a review of the installation conditions must be conducted. Possible sources of communications problems are bad wiring, poor wiring practices, large sources of electrical noise (large machines, radio transmitters), improper grounding practices, and the like. When used with good engineering practices, the Loop Data Test Function serves as an integral method to verify loop integrity.

```
          ACCESS LEVEL 3 MENU

       EDIT CONFIGURATION
       SET TIMES
       VIEW PRINT EVENT LOG
       PRINT CONFIGURATION
       SYSTEM DISABLEMENTS
    ►  LOOP DATA TEST
```
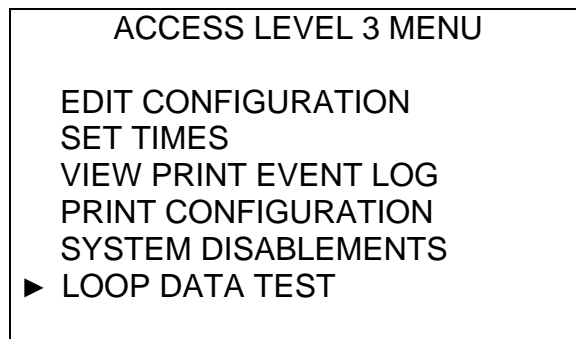
Then select which Loop you wish to test.

```
            LOOP DATA TEST

    ►  SELECT LOOP 1
       SELECT LOOP 2
```

Then select "START TEST".
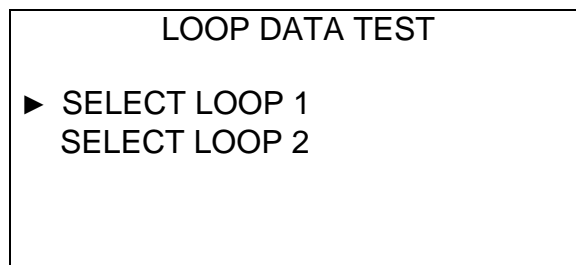
```
┌─────────────────────────────────────┐
│          LOOP DATA TEST             │
│                                     │
│   ► START TEST                      │
│                                     │
│                                     │
└─────────────────────────────────────┘
```
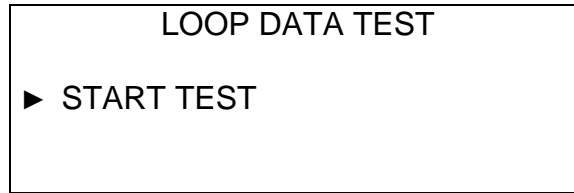
The Loop Data Test result will then display in real time on the screen.

```
┌─────────────────────────────────────┐
│       LOOP DATA TEST (LOOP: 2)      │
│                                     │
│  Start Date  :       9/05/2003 12:28:00 │
│  Good Readings:  0017824            │
│  Bad   Readings:  0000000           │
│                                     │
│  Current Date:      9/05/2003 13:06:01 │
│                                     │
└─────────────────────────────────────┘
```
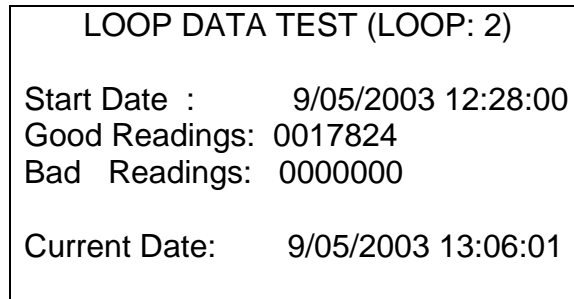
Press the Exit button when the Loop Data Test is completed.

10.4 Troubleshooting

This section is currently being developed from data collected from installation sites and technical support inquiries.

The following is an example (in FAQ format) of the information being developed:

Q – **I am using a network annunciator and the Reset and Alarm Silence button don't work - Why?**

    A – These features must be enabled in the Network Interface settings. Using Loop Explorer, right-click on the panel, select Edit Settings, then select the Network Interface tab. Check the Status event box.

Q – **I am using Cause and Effect to activate a relay for elevator recall, but the relay activates on all alarms. How do I get it to follow only the C&E?**

    A – Check the Output Settings of the relay. Be sure that the General Alarm box is unchecked; otherwise, the relay will activate during a general alarm condition.

Q – **When I try to connect to the panel using Loop Explorer there are no panels found.**

    A – Be sure the correct COM port is selected in Loop Explorer. Click on the File menu, and then select Options. Select the COM port that you are using on the computer.

Q – **I need to change an ALG-V smoke sensor to an ATG-EA heat sensor. Do I have to auto-learn the loops again?**

    A – No, you can change the device type from smoke sensor to heat sensor. From the Access Level 3 menu choose Edit Configuration then Edit Device Attributes. Select the loop and address of the smoke sensor, then select Change Sensor Type. Select the new sensor type then press Enter. The change will take place immediately.

Q – **My strobes are not flashing correctly when there is an alarm.**

    A – Check the output pattern; strobes usually require a Continuous (Steady) output pattern. From the Access Level 3 menu choose Edit Configuration then choose Edit I/O. Select Edit Panel I/O, then Edit Default Pattern. Use the up and down arrow keys to highlight the selected pattern, then press the Enter button.

Q – **I am installing analog sounder bases (ASB) on my FireNET panel, but when I do an auto-learn the panel does not find them.**

    A – Check the firmware revision of the panel. It must be 3.60238 or higher to use the ASB. Also be sure that each ASB is provided with 24 VDC auxiliary power.

Q – **When I try to change the input action of an FRCME or DIMM using Loop Explorer I am unable to make changes.**

    A – Be sure the module is not assigned to any Cause and Effect programming. Input action must be changed before the device is assigned to C&E.

Q – **What are the settings for the serial printer port on the FireNET panel?**

    A – 19,200 baud, 8 data bits, no parity, 1 stop bit.

Q – **I am using the DH-98AR duct detector and I need reset-able aux power. How can I do this?**

    A – The Auxiliary relay defaults to a reset relay when there is no programming assigned to it. Use the N/C and Common connections of the relay. When the reset button is pressed, the relay will reset power to the devices.

Q – **Can I order extra keys for the FireNET panel?**

    A – Yes, spare keyswitch models are FN-SKDK/FN-SKCK. Use this part number when ordering; 0100-03380. This includes one key for the door, and one key for the enable keyswitch.

Q – **Is there a quick way to find out how many devices and sub-addresses are being used on a panel?**

    A – Yes. Using Loop Explorer, right-click on a panel and select Edit Settings. The device and sub-address count will appear in the bottom right-hand corner of the Configure Panel Settings window. You can also use the Battery Calculator spreadsheet software included on the Loop Explorer software CD.

Section 11 - Installation Records

This section of the manual can be used to record the SLC points, RS485 addresses, and Network nodes you have installed on the system. The tables included in this section can be filled out with this information to be referred back to later for service or troubleshooting purposes. In the near future, all of these tables are available in electronic format from the Hochiki America Corp. web site - www.hochiki.com. These installation records should be filled out for all installations and are useful in restoring the system configuration if the Loop Explorer backup file is missing or corrupt.

11.1 SLC Loop Point Record

Use the example below to complete the information in Table 11.1 for the SLC loop points on the system:

Loop (1-4)	Address (Sub)	Zone (1-500)	Description		Loop (1-4)	Address (Sub)	Zone (1-500)	Description
1	**015**	1	(FRCME-P) Main Entry Pull Station		2	**015**	35	(ATG-EA) Office Closet Heat Detector
	001		N/A			001	N/A	
	002		N/A			002	N/A	
1	**016**		(R2M Module w/sub addresses)		2	**016**	35	(ALG-V) Office Smoke Detector
	001	2	Primary Floor Elevator Recall			001	N/A	
	002	3	Secondary Floor Elevator Recall			002	N/A	

11.2 RS485 Bus Device Record

Use the example below to complete the information in Table 11.2 for the RS485 bus devices installed on the system.

Address (1-32)	Device	Description	Location
1	FN-4127-IO	I/O board used for graphic annunciator driver	FN-4127 Control Panel
2	FN-LCD-S	Local Serial LCD Annunciator	Main Lobby

11.3 Network Node Device Record

Use the example below to complete the information in Table 11.3 for the Network devices installed on the system.

Node (1-64)	Device	Description	Location
1	FN-4127	FireNET FACP for the main building	South wall of the main entry lobby
2	FN-LCD-N	Remote Network Annunciator for system wide annunciation	Building Engineer's Office

Table 11.1 FireNET 4127 SLC Loop Point Record

Loop (1-4)	Address (Sub)	Zone (1-500)	Description		Loop (1-4)	Address (Sub)	Zone (1-500)	Description
	001					**001**		
	001					001		
	002					002		
	002					**002**		
	001					001		
	002					002		
	003					**003**		
	001					001		
	002					002		
	004					**004**		
	001					001		
	002					002		
	005					**005**		
	001					001		
	002					002		
	006					**006**		
	001					001		
	002					002		
	007					**007**		
	001					001		
	002					002		
	008					**008**		
	001					001		
	002					002		
	009					**009**		
	001					001		
	002					002		
	010					**010**		
	001					001		
	002					002		
	011					**011**		
	001					001		
	002					002		
	012					**012**		
	001					001		
	002					002		
	013					**013**		
	001					001		
	002					002		
	014					**014**		
	001					001		
	002					002		

Loop (1-4)	Address (Sub)	Zone (1-500)	Description		Loop (1-4)	Address (Sub)	Zone (1-500)	Description
	015					**015**		
	001					001		
	002					002		
	016					**016**		
	001					001		
	002					002		
	017					**017**		
	001					001		
	002					002		
	018					**018**		
	001					001		
	002					002		
	019					**019**		
	001					001		
	002					002		
	020					**020**		
	001					001		
	002					002		
	021					**021**		
	001					001		
	002					002		
	022					**022**		
	001					001		
	002					002		
	023					**023**		
	001					001		
	002					002		
	024					**024**		
	001					001		
	002					002		
	025					**025**		
	001					001		
	002					002		
	026					**026**		
	001					001		
	002					002		
	027					**027**		
	001					001		
	002					002		
	028					**028**		
	001					001		
	002					002		

Loop (1-4)	Address (Sub)	Zone (1-500)	Description		Loop (1-4)	Address (Sub)	Zone (1-500)	Description
	029					**029**		
	001					001		
	002					002		
	030					**030**		
	001					001		
	002					002		
	031					**031**		
	001					001		
	002					002		
	032					**032**		
	001					001		
	002					002		
	033					**033**		
	001					001		
	002					002		
	034					**034**		
	001					001		
	002					002		
	035					**035**		
	001					001		
	002					002		
	036					**036**		
	001					001		
	002					002		
	037					**037**		
	001					001		
	002					002		
	038					**038**		
	001					001		
	002					002		
	039					**039**		
	001					001		
	002					002		
	040					**040**		
	001					001		
	002					002		
	041					**041**		
	001					001		
	002					002		
	042					**042**		
	001					001		
	002					002		

Loop (1-4)	Address (Sub)	Zone (1-500)	Description		Loop (1-4)	Address (Sub)	Zone (1-500)	Description
	043					043		
	001					001		
	002					002		
	044					044		
	001					001		
	002					002		
	045					045		
	001					001		
	002					002		
	046					046		
	001					001		
	002					002		
	047					047		
	001					001		
	002					002		
	048					048		
	001					001		
	002					002		
	049					049		
	001					001		
	002					002		
	050					050		
	001					001		
	002					002		
	051					051		
	001					001		
	002					002		
	052					052		
	001					001		
	002					002		
	053					053		
	001					001		
	002					002		
	054					054		
	001					001		
	002					002		
	055					055		
	001					001		
	002					002		
	056					056		
	001					001		
	002					002		

Loop (1-4)	Address (Sub)	Zone (1-500)	Description		Loop (1-4)	Address (Sub)	Zone (1-500)	Description
	057					**057**		
	001					001		
	002					002		
	058					**058**		
	001					001		
	002					002		
	059					**059**		
	001					001		
	002					002		
	060					**060**		
	001					001		
	002					002		
	061					**061**		
	001					001		
	002					002		
	062					**062**		
	001					001		
	002					002		
	063					**063**		
	001					001		
	002					002		
	064					**064**		
	001					001		
	002					002		
	065					**065**		
	001					001		
	002					002		
	066					**066**		
	001					001		
	002					002		
	067					**067**		
	001					001		
	002					002		
	068					**068**		
	001					001		
	002					002		
	069					**069**		
	001					001		
	002					002		
	070					**070**		
	001					001		
	002					002		

Loop (1-4)	Address (Sub)	Zone (1-500)	Description		Loop (1-4)	Address (Sub)	Zone (1-500)	Description
	071					071		
	001					001		
	002					002		
	072					072		
	001					001		
	002					002		
	073					073		
	001					001		
	002					002		
	074					074		
	001					001		
	002					002		
	075					075		
	001					001		
	002					002		
	076					076		
	001					001		
	002					002		
	077					077		
	001					001		
	002					002		
	078					078		
	001					001		
	002					002		
	079					079		
	001					001		
	002					002		
	080					080		
	001					001		
	002					002		
	081					081		
	001					001		
	002					002		
	082					082		
	001					001		
	002					002		
	083					083		
	001					001		
	002					002		
	084					084		
	001					001		
	002					002		

Loop (1-4)	Address (Sub)	Zone (1-500)	Description		Loop (1-4)	Address (Sub)	Zone (1-500)	Description
	085					**085**		
	001					001		
	002					002		
	086					**086**		
	001					001		
	002					002		
	087					**087**		
	001					001		
	002					002		
	088					**088**		
	001					001		
	002					002		
	089					**089**		
	001					001		
	002					002		
	090					**090**		
	001					001		
	002					002		
	091					**091**		
	001					001		
	002					002		
	092					**092**		
	001					001		
	002					002		
	093					**093**		
	001					001		
	002					002		
	094					**094**		
	001					001		
	002					002		
	095					**095**		
	001					001		
	002					002		
	096					**096**		
	001					001		
	002					002		
	097					**097**		
	001					001		
	002					002		
	098					**098**		
	001					001		
	002					002		

Loop (1-4)	Address (Sub)	Zone (1-500)	Description		Loop (1-4)	Address (Sub)	Zone (1-500)	Description
	099					**099**		

	001					001	
	002					002	
100					**100**		
	001					001	
	002					002	
101					**101**		
	001					001	
	002					002	
102					**102**		
	001					001	
	002					002	
103					**103**		
	001					001	
	002					002	
104					**104**		
	001					001	
	002					002	
105					**105**		
	001					001	
	002					002	
106					**106**		
	001					001	
	002					002	
107					**107**		
	001					001	
	002					002	
108					**108**		
	001					001	
	002					002	
109					**109**		
	001					001	
	002					002	
110					**110**		
	001					001	
	002					002	
111					**111**		
	001					001	
	002					002	
112					**112**		
	001					001	
	002					002	
113					**113**		
	001					001	
	002					002	

Loop (1-4)	Address (Sub)	Zone (1-500)	Description		Loop (1-4)	Address (Sub)	Zone (1-500)	Description
	114					**114**		
	001					001		
	002					002		
	115					**115**		
	001					001		
	002					002		
	116					**116**		
	001					001		
	002					002		
	117					**117**		
	001					001		
	002					002		
	118					**118**		
	001					001		
	002					002		
	119					**119**		
	001					001		
	002					002		
	120					**120**		
	001					001		
	002					002		
	121					**121**		
	001					001		
	002					002		
	122					**122**		
	001					001		
	002					002		
	123					**123**		
	001					001		
	002					002		
	124					**124**		
	001					001		
	002					002		
	125					**125**		
	001					001		
	002					002		
	126					**126**		
	001					001		
	002					002		
	127					**127**		
	001					001		
	002					002		

Table 11.2 RS485 Bus Device Record

Address (1-32)	Device	Description	Location
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
32			

Table 11.3 Network Node Device Record

Node (1-64)	Device	Description	Location
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
32			

Node (1-64)	Device	Description	Location
33			
34			
35			
36			
37			
38			
39			
20			
41			
42			
43			
44			
45			
46			
47			
48			
49			
50			
51			
52			
53			
54			
55			
56			
57			
58			
59			
60			
61			
62			
63			
64			

These tables may be photocopied if additional pages are necessary.

Appendix A - Compatible Devices

A.1 Two-Wire Smoke Detectors

Table A.1 lists the 2-wire smoke detectors that are compatible with the CZM conventional zone module.

Table A.1: Compatible 2-Wire Smoke Detectors with the Hochiki FireNET CZM Module

| Manufacturer | Model Number | Compatibility ID | | | | Number of Detectors per CZM Module |
		Detector	Detector Identifier	Base	Base Identifier	
Hochiki	SLK-24F	Photoelectric	HD-3	HSB-224	HB-53	25
	SIH-24F	Ionization	HD-3	HSB-224	HB-53	25
	SLR-24H	Photoelectric w/ heat	HD-3	NS4-224, NS6-224	HB-5	25
	SLR-24V	Photoelectric	HD-3	NS4-224, NS6-224	HB-5	25
	SLR-835/-835W	Photoelectric (8-35V)	HD-3	NS4-224, NS6-224, NS4-224W, NS6-224W	HB-5	18
	SLR-835H/-835HW	Photoelectric (8-35V) w/ thermal	HD-5	NS4-224, NS6-224, NS4-224W, NS6-224W	HB-5	18
	SLR-835B-2	Photoelectric (8-35V) (baseless)	HD-6	N/A	N/A	18
	SLR-835BH-2	Photoelectric (8-35V) w/ thermal (baseless)	HD-6	N/A	N/A	18
	SIJ-24	Ionization	HD-3	NS4-224, NS6-224	HB-5	25
	DCD-135/-90	Heat Fixed Temp/ Rate of Rise	HD-3	NS4-224, NS6-224	HB-5	25
	DFE-135/-190	Heat Fixed Temp	N/A	HSC –224L	HB-62	25

A.2 Reserved for Future Use

A.3 Compatible Notification Appliances

The A.3 tables list notification appliances that have been verified and listed to be compatible with the FireNET fire alarm control panel per UL864 9th Edition.

When **non-synchronized** notification appliances are used on the NAC outputs, they are rated as "**Special Application"** by UL Laboratories. In this case specific device compatibility is not required. For these types of notification appliances the Hochiki 10K end of line resistor PN# 0400-01046 may be used in lieu of the end of line device PN# 0400-01023 if desired.

When **synchronized** notification appliances are used on the NAC outputs, they are rated as "**Special Application"** by UL Laboratories with a range of compatibility from 19.3 ~ 25.95 VDC. In this case specific device compatibility is required as outlined in the tables A.3.1-A.3.3 below. For proper operation use polarized notification appliances with a Hochiki end of line device PN# 0400-01023.

NOTE:
Synchronized audible notification appliances connected to one NAC output are not to be installed within hearing range of the synchronized audible notification appliances on another NAC circuit.

Synchronized visual notification appliances connected to one NAC output are not to be installed within line of site of the synchronized visual notification appliances on another NAC circuit.

A.3.1 Amseco/Potter Notification Appliances (24VDC models):

Per UL864 9th edition Special Application testing for worst case strobe loading (synchronized visual notification appliance) is as follows:

Max number of representative devices for worst case in-rush current (SH24W-153075) = 28
Max amount of allowable line impedance = 2.5 ohms

Manufacturer	Model Number	Type
AMSECO/POTTER	SMD10-3A	Dual Zone/Daisy Chain Sync Module
	SMS1-3A	Single Zone Sync Module
	TMP Series	Temporal Pattern Module
	SH Series	Select-A-Horn/Strobe Series
	SZ Series	Select-A-Horn/Strobe Series (motor driven horn)
	SL Series	Select-A-Strobe Strobes Series
	H Series	Select-A-Horn Series
	HP Series	Mini-Horn Series
	SAD Series	Stand Alone Strobe Series
	RSD Series	Retrofit Strobe Series
	SLB Series	Outdoor Strobe Series
	SHB Series	Outdoor Horn/Strobe Series
	SHP Series	Select-A-Horn/Strobe Series (mini-horn)
	SSC Series	Select-A-Speaker/Strobe Series
	SFH Series	Select-A-Speaker/Strobe Series (low profile/hi-wattage)
	CM Series	Chime Series
	SCM Series	Select-A-Chime Strobe Series
	MBA Series	Motor Bell Series
	SB Series	Select-A-Bell/Strobe Series
	RSB Series	Retrofit Select-A-Bell/Strobe Series
	FS Series	Slow Whoop Sounder Series
	BZ Series	Motor Driven Horn Series

NOTE 1: Please refer to the notification appliance device instructions per the appropriate model and series noted above for specific installation instructions and details required by the manufacturer and UL listing for that device.

NOTE 2: Please refer to the sync module instructions per the appropriate model and series noted above for specific installation instructions and details required by the manufacturer and UL listing for that device.

A.3.2 Cooper/Wheelock Notification Appliances (24VDC models):

Per UL864 9th edition Special Application testing for worst case strobe loading (synchronized visual notification appliance) is as follows:

Max number of representative devices for worst case in-rush current (RSS-24MCW) = 41
Max amount of line impedance = 2 ohms

Manufacturer	Model Number	Type
COOPER/WHEELOCK	SM/DSM Series	Sync Modules
	NS Series	Horn/Strobe Series
	NH Series	Horn Series
	AS Series	Audible/Strobe Series
	AH Series	Audible Series
	HS4 Series	Horn/Strobe Series
	HS Series	Horn Series
	MT Series	Multi-tone Horn/Strobes Series
	AMT Series	Multi-tone Horn/Strobes Series
	CH Series	Chimes/Strobe Series
	CSX Series	Explosion Proof Bell Series
	MB Series	Motor Bell Series
	RSS/R/P Series	Strobe Series
	MIZ Series	Mini-Horn Series
	E50/60 Series	Speaker/Strobe Series (high-efficiency)
	E70/90 Series	Speaker/Strobe Series (low profile)
	ET70/90 Series	Speaker/Strobe Series
	ET80/1010/1080 Series	Speaker/Strobe Series (vandal resistant)
	S8 series	Speaker/Strobe Series (8" size)
	STH Series	Cluster Speaker/Strobe Series
	PS Series	NAC Booster Series

NOTE 1: Please refer to the notification appliance device instructions per the appropriate model and series noted above for specific installation instructions and details required by the manufacturer and UL listing for that device.

NOTE 2: Please refer to the sync module instructions per the appropriate model and series noted above for specific installation instructions and details required by the manufacturer and UL listing for that device.

A.3.3 Gentex Notification Appliances (24VDC models):

Per UL864 9th edition Special Application testing for worst case strobe loading (synchronized visual notification appliance) is as follows:

Max number of representative devices for worst case in-rush current (GEC3-24WR) = 32
Max amount of line impedance = 2 ohms

Manufacturer	Model Number	Type
GENTEX	AVSM/AVS-44 Series	Sync Modules
	GCS/GCC Series	Commander 4 Horn/Strobe Series
	GES3/GEC3 Series	Commander 3 Horn/Strobe Series
	GES/GEC/GEH Series	Commander 2 Horn/Strobe Series
	ST/HS Series	Commander 1 Horn/Strobe Series
	WGES/WGEC Series	Weatherproof Horn/Strobe Series
	GB Series	Alarm Bell Series
	GX91/93	Remote Horn Series
	SSPK Series	Speaker/Strobe Series
	SSPKC Series	Speaker/Strobe Series (ceiling mount)
	GE3A/GE3B/GE3G/GE3R Series	Commander 3 Horn/Strobe Series (mass notification)
	GCA/GCB/GCG/GCR Series	Commander 4 Horn/Strobe Series (mass notification)

NOTE 1: Please refer to the notification appliance device instructions per the appropriate model and series noted above for specific installation instructions and details required by the manufacturer and UL listing for that device.

NOTE 2: Please refer to the sync module instructions per the appropriate model and series noted above for specific installation instructions and details required by the manufacturer and UL listing for that device.

A.3.4 System Sensor Notification Appliances (24VDC models):

Per UL864 9th edition Special Application testing for worst case strobe loading (synchronized visual notification appliance) is as follows:

Max number of representative devices for worst case in-rush current (P1224MC) = 42
Max amount of line impedance = 2 ohms

Manufacturer	Model Number	Type
SYSTEM SENSOR	MDL Series	Sync Modules
	P1224 Series	SpectrAlert Horn/Strobe Series
	S1224 Series	SpectrAlert Strobe Series
	PC24 Series	SpectrAlert Horn/Strobe Series (ceiling)
	SC24 Series	SpectrAlert Strobe Series (ceiling)
	H12/24 Series	SpectrAlert Horn Series
	HC12/24 Series	SpectrAlert Horn Series
	SP2C Series	SpectrAlert Speaker/Strobe Series (ceiling)
	SP2R Series	SpectrAlert Speaker/Strobe Series
	SP2W Series	SpectrAlert Speaker/Strobe Series
	SP3R Series	SpectrAlert Speaker/Strobe Series (hi-output)
	SP3W Series	SpectrAlert Speaker/Strobe Series (hi-output)
	CH24 Series	SpectrAlert Chime/Strobe Series
	CH1224 Series	SpectrAlert Chime Series
	PA400 Series	Mini-Horn Series

NOTE 1: Please refer to the notification appliance device instructions per the appropriate model and series noted above for specific installation instructions and details required by the manufacturer and UL listing for that device.

NOTE 2: Please refer to the sync module instructions per the appropriate model and series noted above for specific installation instructions and details required by the manufacturer and UL listing for that device.

A.4 Compatible 24VDC Devices

For proper operation use 24VDC polarized devices. When used on a supervised output or NAC, be sure to use with a Hochiki 10K end of line resistor PN# 0400-01046. When used on the AUX24VDC output the supervision resistor is not necessary.

The AUX24VDC and supervised voltage outputs are rated as **Regulated** by UL Laboratories. In this case specific device compatibility is not required. Be sure to verify current loading of the panel when attaching devices to these outputs by using the battery calculator shown in section 2.6 of this manual.

Table A.4 lists 24VDC devices that are compatible with the FN-4127 fire alarm control panel **Regulated** outputs, though specific compatibility is not required when outputs are rated as **Regulated** by UL.

Table A.4: Compatible 24VDC Devices with the FN-4127 Fire Alarm Control Panel

Manufacturer	Model Number	Type
Hochiki America	FN-LCD-N	Network LCD Annunciator
	FN-4127-IO	16 Channel Input Output Board
	SRA-24	Reflective Beam Detector
	SPB-24N	Beam Detector
	FN-LCD-S	Serial LCD Annunciator
	FN-CTM	City-Tie Module
	SOM	Supervised Output Module
	CZM	Conventional Zone Module
	ASB	Analog Sounder Base
	DH-98A/AR	Analog Duct Dectector
	DH-98P/I/HV	Conventional Duct Dectector
Bosch	D9068/D7033	Contact Dialer (DACT)/Programmer
Hochiki/Altronix	ULADA Series	NAC Boosters (6, 8, & 10 Amp)
Hochiki/Altronix	ULX Series	AUX 24VDC Power Supplies (2.5, 4, 6, & 10 Amp)
GE/IFS	D1300	RS485 to Fiber Optic Converter (24VDC model)
RSG	DH24 Series	Door Holder Series (24VDC models)

A.5.1 Using the Bosch D9068 Contact Dialer with FireNET (Diagram)

Bosch D9068 Dialer

Phone Line 1

Phone Line 2

LINE 1
LINE 2
SYS TROUBLE
HEARTBEAT

Common Fire
Common Trouble
A/C Fail Delay Trouble (*)
Common Supervisory
Auxiliary / Programmable

ECL = 2.2K
Bosch PN# 24899

+ - A B   1 2 3 4 5   KEYPAD   NC C NO

24VDC AUX Power

Dialer Trouble Output

LOOP 1   LOOP 2   LOOP 3   LOOP 4

NC C NO   NC C NO   NC C NO   NC C NO   NC C NO
OUT   IN   OUT   IN   OUT   IN   OUT   IN   FIRE 1   TROUBLE   FIRE 2   SUPERVISORY   AUXILIARY
NAC 1   NAC 2   NAC 3   NAC 4

FIRE ROUTING
TROUBLE ROUTING
PROGRAMMABLE OUTPUT

TROUBLE INPUT

1. TBL
2. RES
3. INT
4. CNT
5. SIL
0V
6. PR1
7. PR2
8. PR3

REMOTE CONTROL AND AUX. INPUTS

WARNING!
DO NOT PLUG OR UNPLUG RIBBON CABLES WHILE BOARD IS POWERED. STATIC SENSITIVE CIRCUITS.
OBSERVE STATIC HANDLING PROCEDURES AT ALL TIMES

COMMS
AUX 24X
ADDITIONAL I/O BOARDS

AUX 24VDC POWER TO I/O BOARDS 500 mA max. (Supervised)

NETWORK IN
NETWORK OUT

REMOTE PSU

24VDC

BATTERY DISCONNECT
BATTERY LOW
AC POWER FAILURE
GROUND FAULT
CHARGER TROUBLE

- - + +

FireNET Main Control Board

Installation of the FireNET panel and the Bosch D9068 Dialer shall be in accordance with the manuals listed below:

FireNET Installation Manual
Hochiki PN# 1700-09948 Ver. 1.2

Bosch D9068 O&I Manual
Bosch PN# 45386C

Using the Bosch D9068 Dialer with FireNET

DATE 9/09/05

A.5.2 Programming FireNET for use with the Bosch D9068 Dialer

There are two methods possible when programming the FireNET for use with the Bosch D9068 dialer. The FireNET front panel controls or Loop Explorer configuration software may be used:

When using the front panel controls to program the FireNET panel for use with the Bosch D9068 dialer, use the following steps:

1. Program the onboard "Fire 2" relay for "AC Fail Delay" operation:

-> First enable the AC Fail Delay option in the "Access Level 3 \ Edit Configuration \ Edit I/O \ Edit Panel I/O \ Edit Panel Outputs \ Edit Fire 2 Contact" screen:

```
   EDIT PANEL OUTPUT ATTRIBUTES MENU
             FIRE 2 CONTACT
>Gen. Alarm Mode    - NO
 Silenceable        - NO
 Emergency Output   - NO
 Pre-alarm Output   - NO
 Trouble Output     - NO
 AC Fail Report     - YES
```
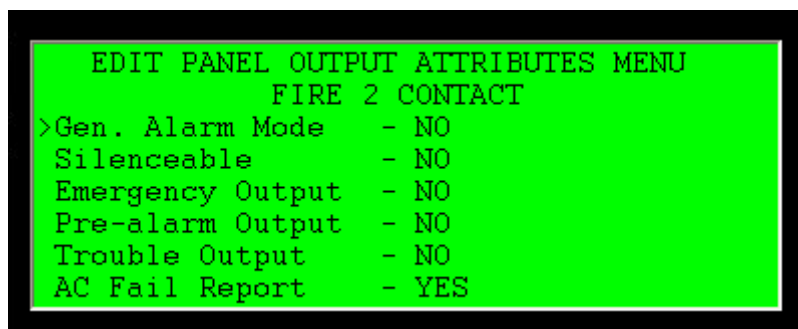
-> Second select an AC Fail Delay time value in the "Access Level 3 \ Edit Configuration \ Edit I/O \ Edit Panel I/O \ Edit AC Fail Report Delay" screen:

```
      EDIT AC FAIL REPORT DELAY MENU

 AC FAIL REPORT DELAY: 10 hr


 Use UP/DOWN arrow keys to set value.
  Press ENTER to apply.
 Press < to go back. Press EXIT to quit.
```
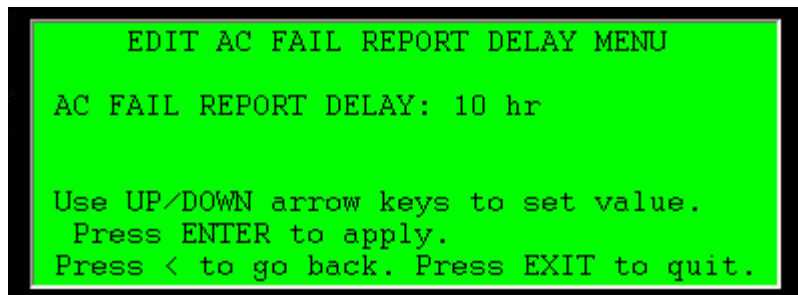
2. Make sure the panel and outputs listed below are left at the default values in the Panel I/O screens:

- Fire 1 Contact (General Alarm / Common Fire)
- Trouble Contact (Common Trouble)
- Supervisory Output (Common Supervisory)
- Trouble Input (Common Trouble)

3. The auxiliary contact connected to Bosch D9068 Dialer Input #1 is a spare and can be programmed for any function.

When using the Loop Explorer configuration software to program the FireNET panel for use with the Bosch D9068 dialer, use the following steps:

1. Program the onboard "Fire 2" relay for "AC Fail Delay" operation:
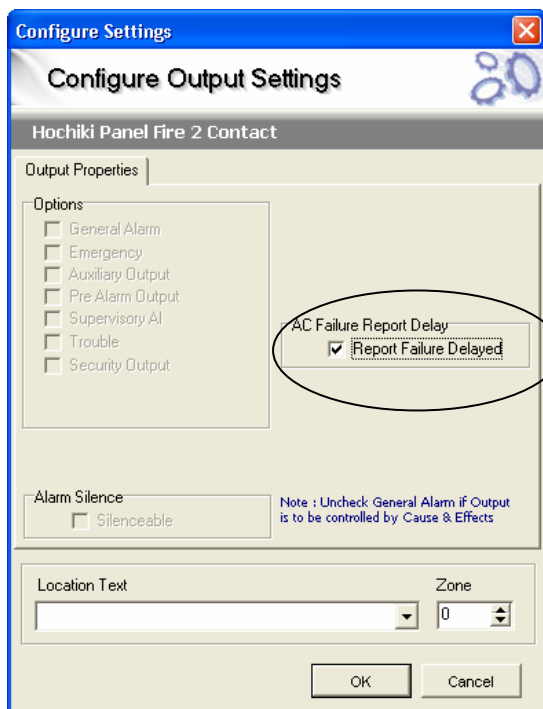
Select AC Fail Delay when using the Bosch D9068 Dialer with FireNET.

2. Programming the AC Fail Delay value…
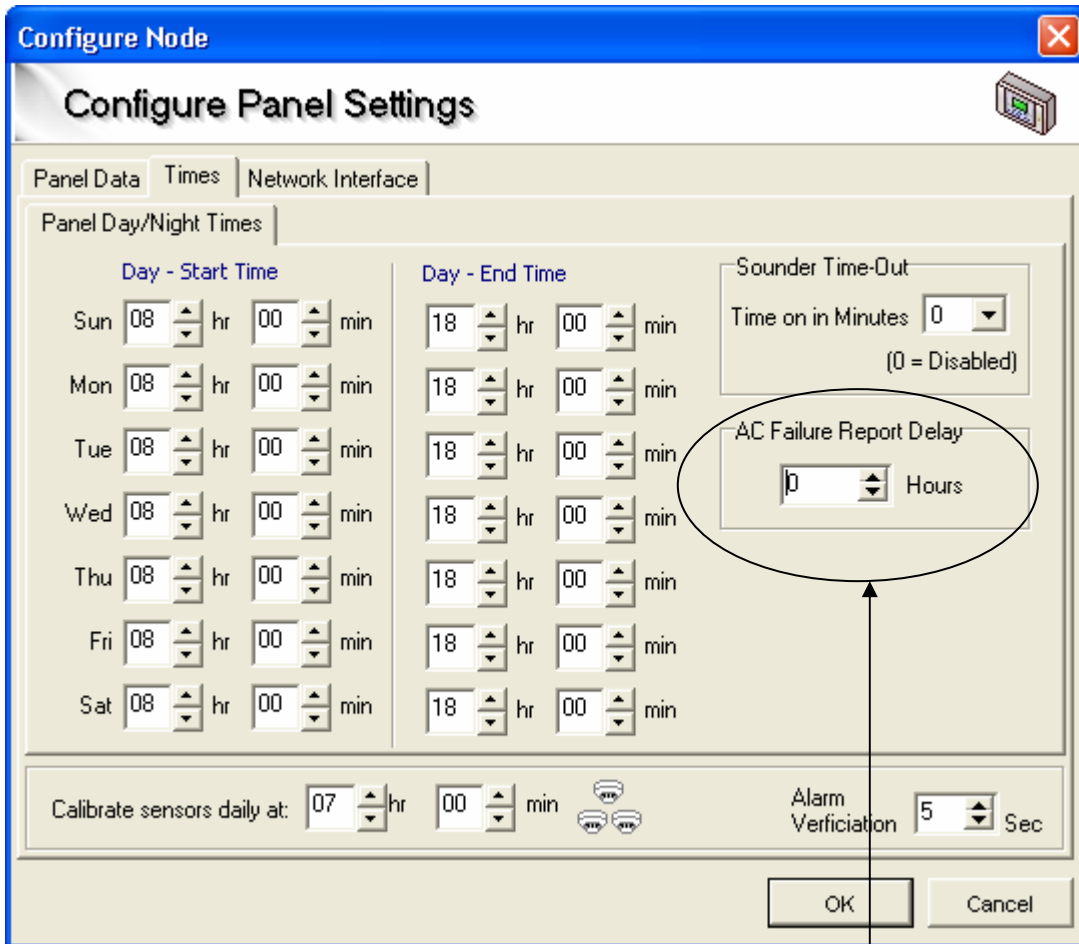
Program the AC Fail delay
value between 0 – 24 Hours.

3. Make sure the panel and outputs listed below are left at the default values in the
   Panel I/O screens:
   - Fire 1 Contact (General Alarm / Common Fire)
   - Trouble Contact (Common Trouble)
   - Supervisory Output (Common Supervisory)
   - Trouble Input (Common Trouble)

4. The auxiliary contact connected to Bosch D9068 Dialer Input #1 is a spare and can be
   programmed for any function.

5. Input/Output Table:

FireNET Panel	Bosch D9068 Dialer
Fire 1 Relay	Dialer Input 5
Trouble Relay	Dialer Input 4
Fire 2 Relay	Dialer Input 3
Supervisory Relay	Dialer Input 2
Auxiliary Relay	Dialer Input 1
Trouble Input 1	Dialer Trouble Relay Output

A.5.3 Installation notes when using the Bosch D9068 Dialer with FireNET

NOTE 1:

The Bosch D9068 slave contact dialer must be installed within 20ft, in conduit, and within the same room as the FireNET control panel.

NOTE 2:

Both the AC Fail Relay in FireNET and the Bosch trigger input assigned to AC Fail functionality have the ability to program an AC Fail Delay time value. The user must choose and program one or the other, not both, or the AC Fail Delay values of each unit will be combined.

NOTE 3:

When programming the AC Fail Relay value in FireNET, the value can be set between 0 and 24 hours. UL864 9th Edition only recognizes setting this value between 1-3 hours. Setting this value to 0 or between 4 – 24 hours is not in compliance with the UL864 Edition 9 standard. See summary below.

- AC Fail Delay = 1 – 3 hours (complies with UL864 Ed. 9)
- AC Fail Delay = 0, 4 – 24 hours (does not comply with UL864 Ed. 9)

Please see the beginning of this manual for a list of all program settings that can be adjusted outside compliance of the UL864 Edition 9 standard.

A.6 Using the FN-CTM City Tie module with FireNET

When using the FN-CTM City Tie module for Local Energy City-Tie applications, use the Fire Routing supervised output (see section 3.5). This output by default is programmed for general fire alarm operation.

The supervised NAC outputs of the FireNET panel may also be used. The NAC outputs must be programmed for General Alarm with a Continuous output pattern (see Section 3.4).

Please reference the FN-CTM City Tie module installation instructions included with the module for additional details.

Note: When City Tie wiring leaves the building, install 26 AWG wire between the City Tie module and the Trip Coil. A short length of 24 AWG wire must be used to interface between the 26 AWG and the City Tie Module terminal block. Maximum coil resistance and wire resistance must not exceed 30 Ohms.

Wiring Diagram

Ground Wire

24 AWG

26 AWG

Local Energy
City Tie
Trip Coil

Hochiki America Corporation
FN-CTM
City Tie Module
SERIAL NO.XXXXX
For Dry Indoor Use Only

+
City Tie
−

+
NAC Input
−

EOL
Connections shown in Alarm condition
S8255   For Proper Installation
see HA-06-137 Rev 5/06
Signaling Devices
ISSUE NO. BF-8887

E.O.L. DEVICE
PART NUMBER
0400-01046

E.O.L. DEVICE
PART NUMBER
0400-01046
10K OHM 1/4W

UL Listed
Fire Alarm
Control Panel
NAC Circuit

Wiring Polarity Shown in
Alarm Condition.

Use either Fire
Routing or NAC
output on the
FireNET control
panel. See
Section 3.4 &
3.5 for details **

All Wiring is Power Limited, Connect only to Power Limited Circuits.
For Use Only With Supervised Circuits.

A.7 Changing the FN-PS402 Power Supply to 240VAC operation

When converting the FN-PS402 four amp power supply to 240VAC, please follow the directions described in this section. The FN-PS402 can operate with 120VAC **or** 240VAC input. By default, the power supply is configured for 120VAC operation. To change it to 240 volts AC, follow the steps below –

1) Be sure that the FireNET control panel is NOT powered during this procedure!
2) Carefully remove the cover of the power supply.

3) In the upper left hand corner of the circuit board you will see a jumper labeled R72. Remove this jumper from the pins, and re-install the cover. The power supply is now properly configured for 240 VAC operation.

The FN-PS402 is set for 120VAC operation when the R72 jumper is in place.

The FN-PS402 is set for 240VAC operation when the R72 jumper is removed.
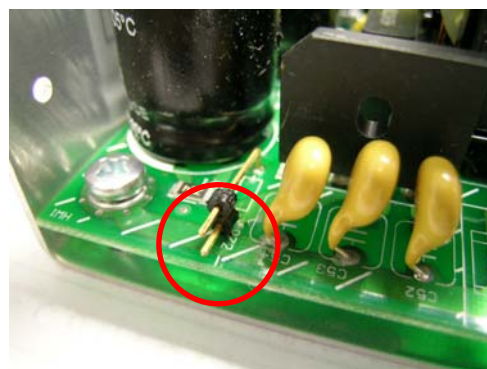
WARNING – Do NOT apply 240 VAC to the FireNET control panel unless the power supply has been configured to operate at 240 volts! Doing so will damage the panel, requiring it to be returned to the factory for repair!

Appendix B – Panel Door Label Drawing

AGENCY LISTINGS AND REQUIREMENTS

NFPA
Install in accordance with NFPA 13 and NFPA 72

The FireNET 4127 is suitable as follows:
- Commercial Protected- Premises Control Unit for Local signaling. Install Indoors Only in a dry environment.
- Types of signaling services are automatic, manual, waterflow, & sprinkler supervisory.
- Style 4, 6, or 7 for Signaling Line Circuits
- Style Y for Notification Appliance Circuits
- Non-coded signaling
- Central Station Service (DACT)
- Auxiliary Service (Local Energy)

F.C.C. Information
The FireNET 4127 has been verified to comply with FCC Rules Part 15, Class A Operation is subject to the following conditions:

1. This device may not cause radio interference.
2. This device must accept any interference received, including any that may cause undesired operation.

F.C.C. registration number: _____
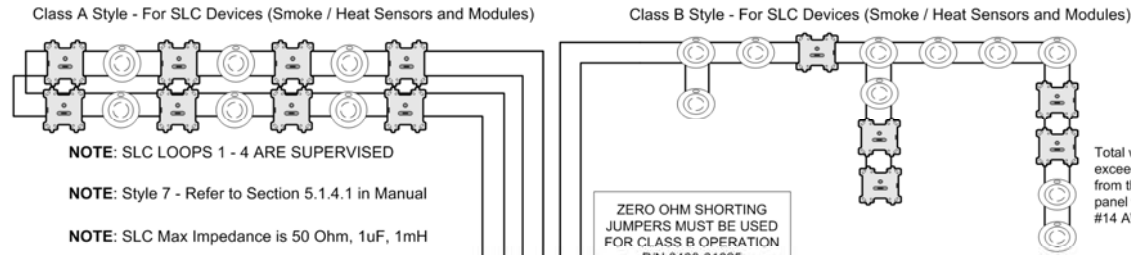
SLC INITIATING DEVICES

Wire Guage	Maximum Distance From Control Panel to Furthest Device
18 AWG	3900 Feet
16 AWG	6200 Feet
14 AWG	10,000 Feet

NOTE: See FireNET Installation Manual as noted below for SLC branch circuit cable requirments

NOTE: FireNET employs an option for Sounder Time-Out (for NAC/SOM/ASB), which can be programmed in 5 min. increments between 5-60 min. Option is disabled by setting the value to 0 (default condition).

Class A Style - For SLC Devices (Smoke / Heat Sensors and Modules)
Class B Style - For SLC Devices (Smoke / Heat Sensors and Modules)

NOTE: SLC LOOPS 1 - 4 ARE SUPERVISED
NOTE: Style 7 - Refer to Section 5.1.4.1 in Manual
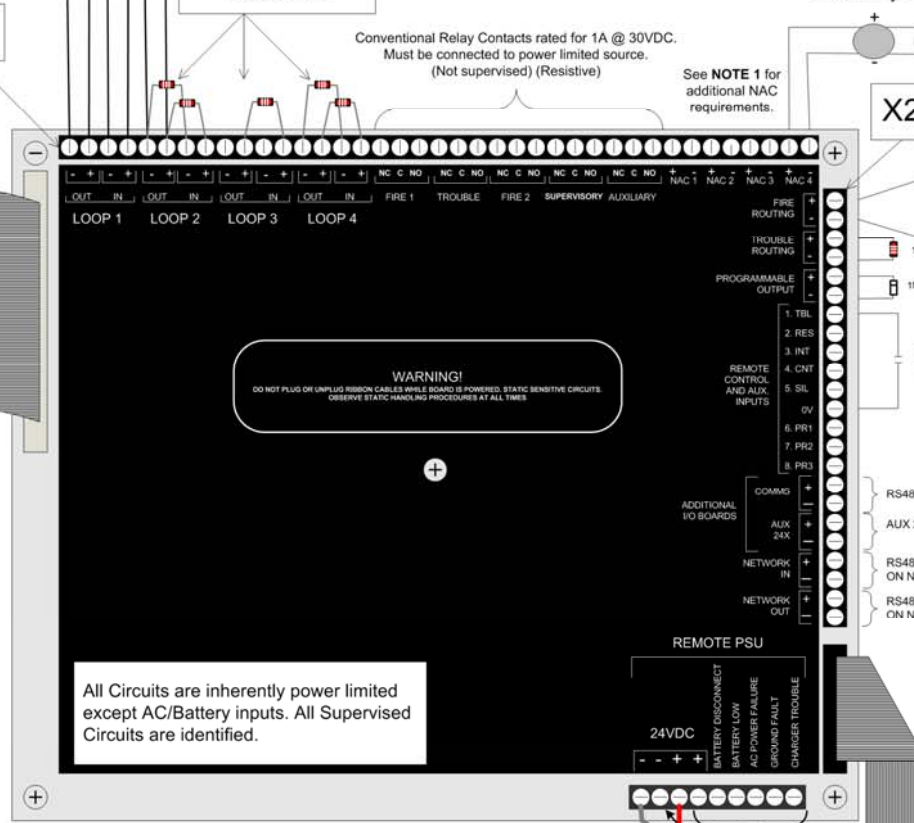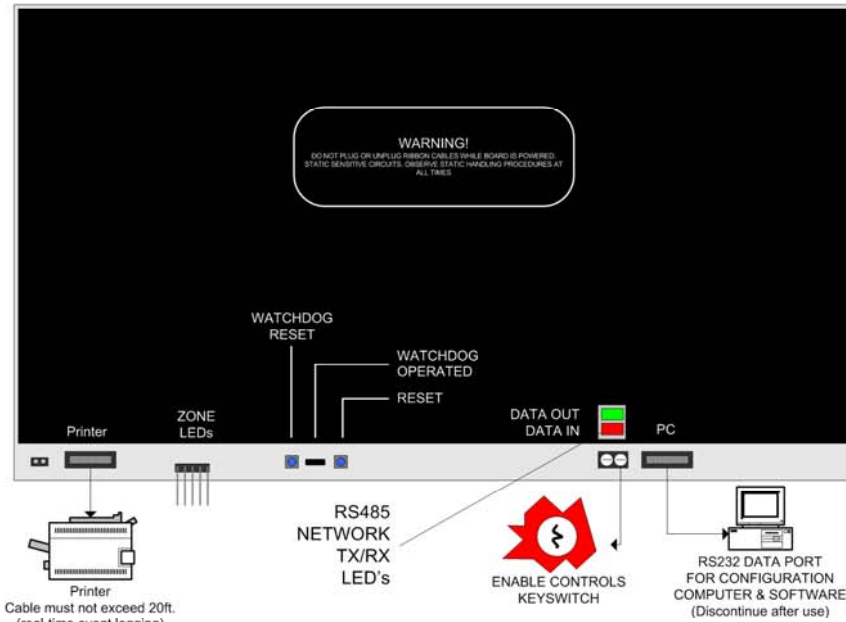**NOTE:** SLC Max Impedance is 50 Ohm, 1uF, 1mH

Total wire must not exceed 10,000 feet from the control panel when using #14 AWG

ZERO OHM SHORTING JUMPERS MUST BE USED FOR CLASS B OPERATION P/N 0400-01025

Class B Style - For Indicating Devices

Conventional Relay Contacts rated for 1A @ 30VDC. Must be connected to power limited source. (Not supervised) (Resistive)

See **NOTE 1** for additional NAC requirements.

EXAMPLE OF FIRE ROUTING, TROUBLE ROUTING, & PROGRAMMABLE OUTPUT

10K OHM END-OF-LINE RESISTOR (EOLR) P/N 0400-01046 (Supervised)

1N4004S END-OF-LINE DIODE (EOLD) P/N 0400-01024 (Supervised)

DIGITAL INPUTS (EXAMPLE FOR INPUTS 1-8) USE DRY CONTACTS ONLY (Not Supervised)

Refer to A.4 for Compatible Devices (Regulated)

RS485 TO I/O BOARDS (Supervised)
AUX 24VDC POWER TO I/O BOARDS 500 mA max. (Supervised)
RS485 FROM PREVIOUS FireNET PANEL ON NETWORK (Supervised)
RS485 TO NEXT FireNET PANEL ON NETWORK (Supervised)

Refer to A.4 for Compatible Devices (Regulated)

WATCHDOG RESET
WATCHDOG OPERATED
RESET

Printer
ZONE LEDs
DATA OUT DATA IN
PC

RS485 NETWORK TX/RX LED's

ENABLE CONTROLS KEYSWITCH

RS232 DATA PORT FOR CONFIGURATION COMPUTER & SOFTWARE (Discontinue after use)

Printer
Cable must not exceed 20ft. (real-time event logging)

All Circuits are inherently power limited except AC/Battery inputs. All Supervised Circuits are identified.

TERMINAL STRIP ELECTRICAL RATINGS FOR THE POWER SUPPLY MODULE

Connector	Terminal	Description	Rating Voltage	Rating Current
TB6	G	Earth Ground	N/A	N/A
	N	AC Neutral	120VAC, 50/60Hz	2.1A
			240VAC, 50/60Hz	1.1A
	L	AC Line	120VAC, 50/60Hz	2.1A
			240VAC, 50/60Hz	1.1A
TB4	+24VDC	+DC Output	+24VDC	0 - 4 Amps
	DC RTN	-DC Output	DC Common	0 - 4 Amps
TB3	+ Battery	+ Battery	+24VDC	5A Max
	- Battery	- Battery	DC Common	5A Max

WARNING

THIS UNIT INCLUDES AN OPTIONAL ALARM VERIFICATION FEATURE that will result in a delay of the system alarm signal from the indicated circuits. The total delay time (control plus smoke detectors) shall not exceed 60 seconds. No other smoke detector shall be connected to these circuits unless also approved by the local Authority Having Jurisdiction.

*Zone(s)_____
*where alarm verification is used

Programmed Delay is 60 seconds by Default. The delay is programmable from 5 - 60 seconds.

X1 - TOP TERMINAL STRIP ELECTRICAL RATINGS FOR MAIN CONTROL UNIT

Terminal # and Label		Description	Rating Voltage	Rating Current
1, 5, 9, 13	- OUT		32V	400mA
2, 6, 10, 14	+ OUT	SLC LOOPS 1 - 4	32V	400mA
3, 7, 11, 15	- IN		32V	400mA
4, 8, 12, 16	+ IN		32V	400mA
17, 20, 23, 26, 29	NC		30V	1 A
18, 21, 24, 27, 30	C	RELAYS	30V	1 A
19, 22, 25, 28, 31	NO		30V	1 A
32, 34, 36, 38	+	NAC 1-4	28V	2.5A
33, 35, 37, 39	-		28V	2.5A

Signaling Line Circuit. Out terminals used for Class B or A wiring.
Signaling Line Circuit. In terminals used for return loop for Class A wiring.
Fire 1, Trouble , Fire 2, Supervisory, and Auxiliary condition relay contacts
Notification Appliance Circuits #1-4. 10K EOLR Required.

X2- SIDE TERMINAL STRIP ELECTRICAL RATINGS FOR MAIN CONTROL UNIT

Terminal # and Label		Description	Rating Voltage	Rating Current
1, 3, 5	+	VOLTAGE OUTPUTS	24V	500mA
2, 4, 6	-		24V	500mA
7, 8, 9, 10, 11, 13, 14, 15		REMOTE/AUX INPUTS	0V	30mA
12	0V	DC GROUND	0V	500mA
16	+	COMMS	12V	100mA
17	-		12V	100mA
18	+	AUX 24V	24V	500mA
19	-		24V	500mA
20, 22	+	NETWORK IN/OUT	12V	100mA
21, 23	-		12V	100mA

SUPERVISED POLARITY REVERSING SIGNALING OUTPUTS FOR FIRE, TROUBLE, PROGRAMMABLE
REMOTE CONTROL DIGITAL PULL-DOWN INPUTS
SIGNAL FOR ACTIVATING REMOTE INPUTS
RS485 TO I/O BOARDS
RS485 TO I/O BOARDS
AUXILIARY 24V SUPPLY
AUXILIARY 24V SUPPLY
RS485 TO OTHER PANELS
RS485 TO OTHER PANELS

REMOTE PSU

24VDC

NOT USED

AC 120VAC INPUT
20 AMP Breaker Max
(supervised)

EARTH GROUND STUD

(Supervised)

NEGATIVE
POSITIVE

10 Amp in-line Fuse (supervised) Bussman AGC-10 or equiv.

12 VOLT Sealed Rechargeable Battery 60 AH Maximum
12 VOLT Sealed Rechargeable Battery 60 AH Maximum

F2-3A, 250VAC, slow blow, 5 x 20mm fuse

BATTERIES SHOULD BE INSPECTED ANNUALLY & REPLACED EVERY 3-5 YEARS (DO NOT PARALLEL BATTERIES) USE ONLY UL RECOGNIZED SEALED LEAD ACID BATTERIES

NOTE 1:
(Single Circuit Synchronization)

Synchronized audible notification appliances connected to one NAC output are not to be installed within hearing range of the synchronized audible notification appliances on another NAC circuit.

Synchronized visual notification appliances connected to one NAC output are not to be installed within line of site of the synchronized visual notification appliances on another NAC circuit.

For synchronized NAC applications, the outputs are Special Application with a compatibility range of 19.3 - 25.95 VDC.

This Product shall be installed in accordance with FireNET Installation Manual:
PN # 1700-09948

Version # 1.2   Issued: 1/5/07

FireNET WIRING DIAGRAM

P/N 1700-04345   DATE 1/5/07

Appendix C - WARRANTY

Hochiki America Corporation manufactured equipment is guaranteed to be free from defects in materials and workmanship for a period of one (1) year from date of original shipment. HOCHIKI will repair or replace, at its option, any equipment which it determines to contain defective material or workmanship. Said equipment must be shipped to HOCHIKI prepaid. Return equipment will be prepaid by HOCHIKI. We shall not be responsible to repair or replace equipment which has been repaired by others, abused, improperly installed, altered or otherwise misused or damaged or exposed to conditions outside the products specifications in any way. Unless previously contracted by HOCHIKI, HOCHIKI will assume no responsibility for determining the defective or operative status at the point of installation, and will accept no liability beyond the repair or replacement of the product at our factory service department. Please contact HOCHIKI's Sales department for proper procedure for claims and return of merchandise.

Hochiki America Corporation
7051 Village Drive, Suite 100
Buena Park, CA 90621-2268
1-800-845-6692
technicalsupport@hochiki.com

End of Manual

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