FX-240N

Network Fire Alarm Control Panel

Installation and Operation Manual

LT-6788 Rev. 0
January 2026

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1.0 Introduction

1.1 About the FX-240N Network Fire Alarm Control Panel

Mircom's FX-240N network fire alarm control panel offers modular components for network systems providing a wide variety of applications. It is designed for peer to peer network communications using industrial standard ARCnet protocol. FX-240N allows for a maximum of 24 nodes (a node can be a control center or a floor panel) while providing reliability and flexibility.

Each panel consists of 4 class A or B notification appliance circuits (NACs) rated at 1.7 amperes each. There is one addressable loop capable of monitoring 240 MGC Protocol MIX-4000 series sensors and modules. A large 4 x 20 back-lit alphanumeric 8 line LCD display and a 24 line graphical display are available.

The configuration allows the FX-240N fire alarm control panels to be connected to a Mircom network which provides additional input circuits, visual zones, programmable notification appliance circuits and relays.

1.2 Overall Features

- Medium system capacity and modular design.
- Provides peer-to-peer network communications.
- Supports up to 24 nodes (including lobby panel).
- Supports copper and/or fiber optic network cable.
- Supports a request, grant, or deny system with all controls disabled on node annunciators (ancillary displays only) as per ULC 527.
- Supports a degraded mode of operation (more than one operating node) and a standalone mode of operation (only one operating node) as per ULC 527.
- The SLC loop functions with MGC MIX-4000 series addressable modules (240 sensors and modules) and can be wired as class A (class X) or class B.
- 12 ampere power supply.
- Four class A or B NACs rated at 1.7 amperes each, which can be configured as audible or visual (silenceable or non-silenceable circuits). Audibles can be steady, temporal code, California code, or march time.
- NAC circuits can be configured to provide additional auxiliary power or resettable auxiliary power. NACs can be expanded using the INX-10A intelligent booster power supply.
- Compatible with conventional detectors using DM-1008A eight initiating circuit module or MGC MIX-4042 conventional zone module. Refer to document LT-1023 for compatible detectors.
- Fault isolators are present on all in-panel addressable loops.
- Configurable signal silence inhibit, auto signal silence, two-stage operation, assisted walk test.
- Outputs for 4-wire resettable smoke power supply, auxiliary power supply, and an interface to the Mircom RTI-1 remote trouble indicator.
- RS-485 interface for remote annunciators. Remote annunciators do not occupy a node on the network. Up to seven annunciators can be connected per node.

- Three level password protection with field settable definition which enables the installer to determine what functions are accessible for each level of password.
- Four queues for acknowledge with alarm queue, supervisory queue, trouble queue, and BLDG (monitor) queue LED indicators and buttons.
- Auxiliary form C relay contacts for common alarm, common supervisory, and common trouble.
- RS-232 port for remote system printer or CRT terminal.
- Two event history logs; one for alarm related events and one for all events.
- Common controls and indicators for system reset, lamp test (visual indicator test), fire drill, signal silence, general alarm, general alarm cancel (automatic alarm signal stop), AC on, CPU fault, and ground fault.
- Two spare configurable switches and LED indicators.
- Optional DSPL-420-16TZDS 16 zone configurable LED (bi-coloured) annunciator with slide-in labels for zone description.
- Trouble annunciation for dirty detectors.
- Selection for Canadian (ULC) or USA (ULI) requirements for smoke sensor sensitivity.
- Extensive transient protection.
- Surface mountable enclosures with removable doors for easy installation and service. Flush trims available.
- Disconnectable terminal blocks for easy wiring and service.
- OpenGN software package allows 3D graphic display of premises and devices. Use the Ethernet port on the main board to connect to OpenGN graphics software. OpenGN is listed to UL864 9th edition and ULC-S527-99 replacement parts.

1.3 Document Conventions

1.3.1 Circuits and Zones

The term **circuits** refers to an actual electrical interface, initiating (detection), indicating (signal), or relay.

The term **zone** is a logical concept for a fire alarm protected area, and will consist of at least one circuit.

Often the terms **zone** and **circuit** are used interchangeably, but in this manual the term circuit is used.

On the FX-240N, circuits can be hardwired inputs and outputs or addressable inputs and outputs. Both hardwired inputs and outputs, and addressable inputs and outputs may be grouped together to form logical zones.

1.3.2 Wiring Styles

Initiating circuits are configured by default as class B. They may be configured as class A. This operation uses odd and even pairs of two-wire class B circuits to make one four-wire class A circuit, thus cutting in half the number of available initiating circuits.

Indicating circuits (NACs) may be individually wired as class A or class B without affecting the number of circuits available.

Addressable loops (SLC) may be configured system wide as class B (DCLB) or class A (DCLA). With the addition of isolators, a class A (DCLA) will become a class X (DCLC).

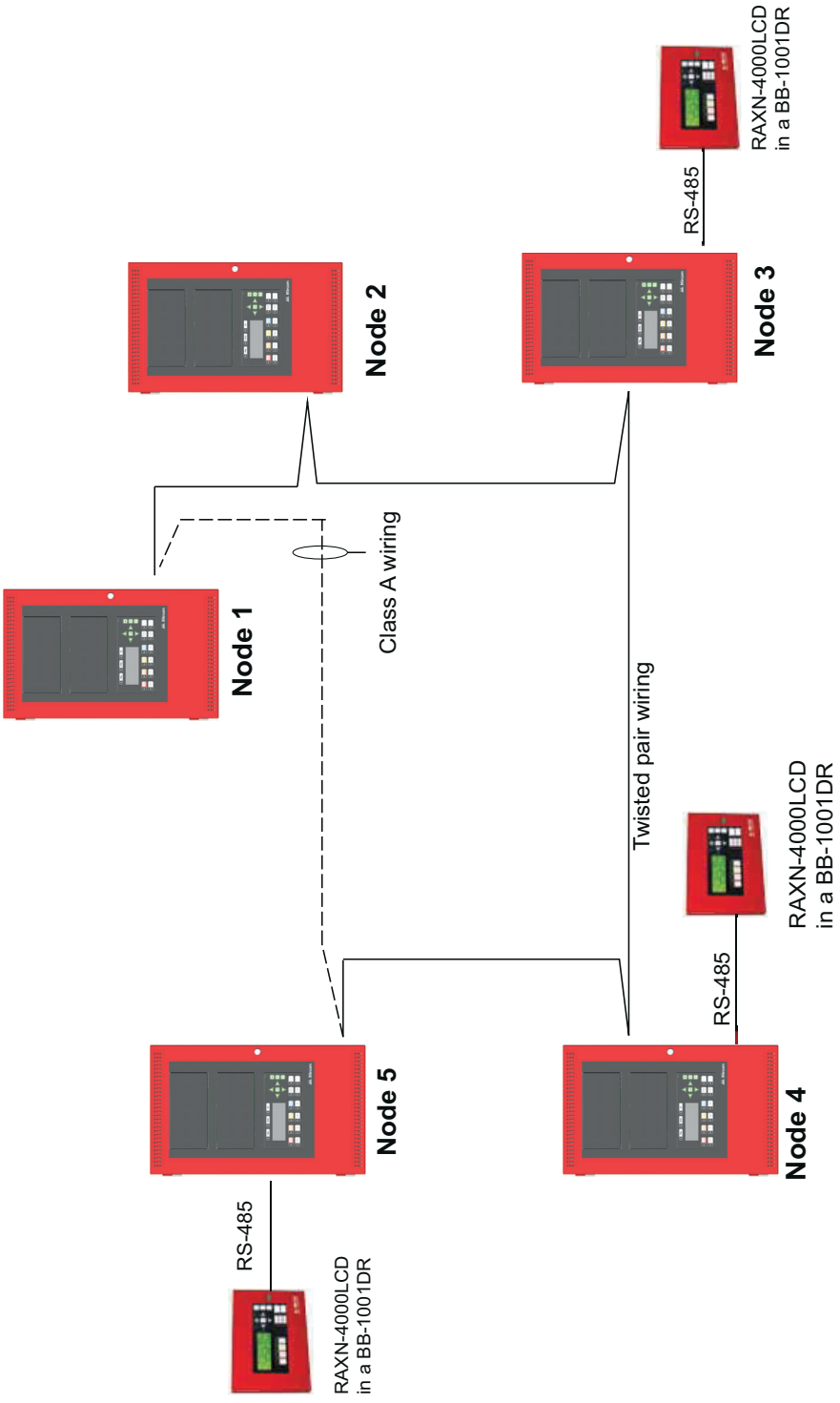


Figure 1 FX-240N Typical Wiring

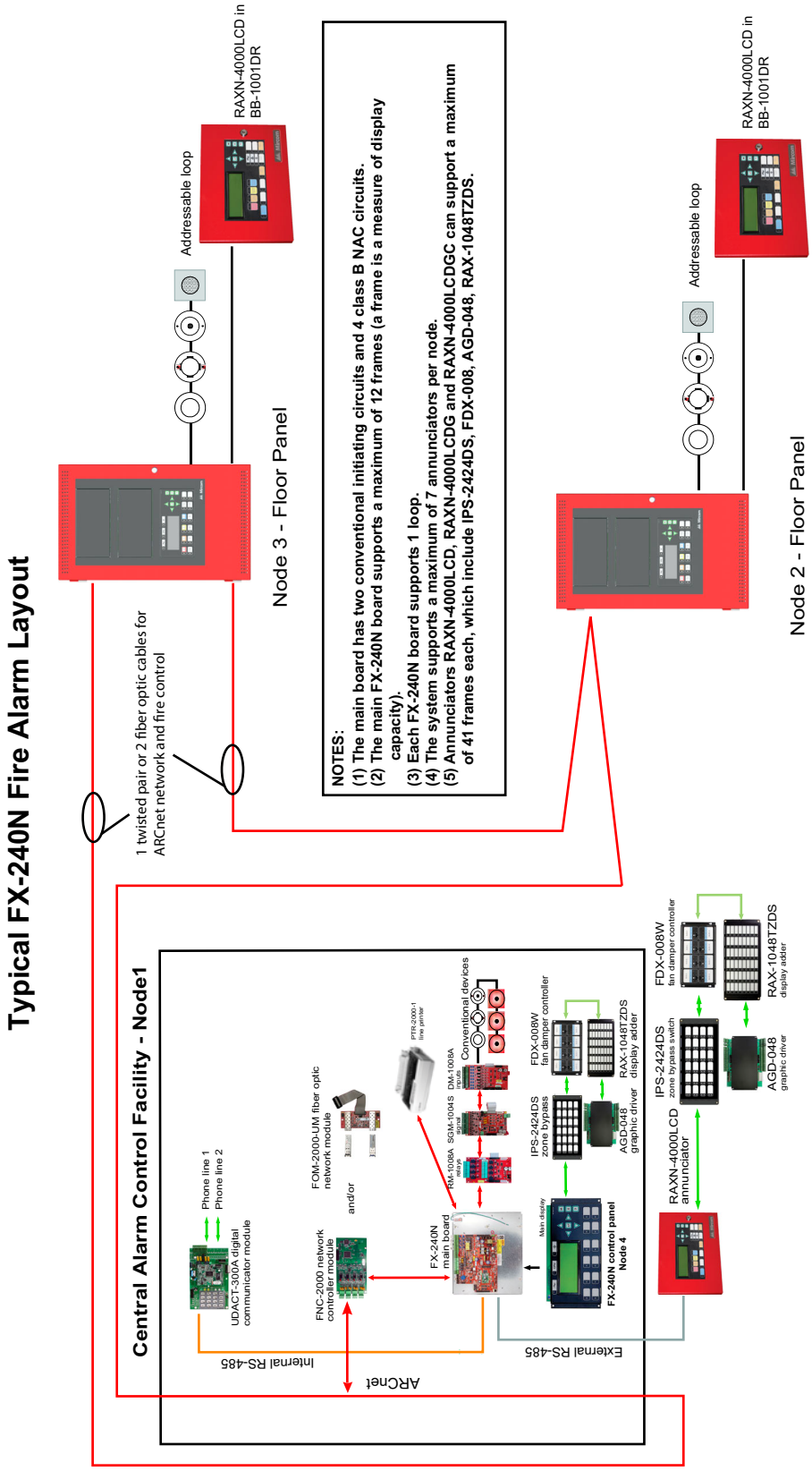


Figure 2 FX-240N Typical Layout

2.0 System Components

Table 1: Chassis

	Model	Description
	FX-240N	**12 Amp Main Chassis.** This main chassis provides four class A or B NACs (1.7 A each), and a 12 A power supply which charges 17-65 AH batteries. The FX-240N supports the FNC-2000 network controller module and 2 adder modules over the main board plus additional space in the chassis for 2 annunciator or programmable modules. The FX-240N comes with a black backbox and red door. Comes with a DSPL-420DS 4 line by 20 character LCD display.

Table 2: Optional Network Controller Modules

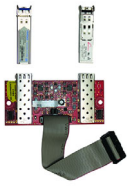
	Model	Description
	FNC-2000	Provides network capability for the main fire alarm control board. One module is required per one network node panel. The FNC-2000 network controller module is mounted in position 2 over the main fire alarm control board.
	FOM-2000-UM	Single mode or multi-mode fiber optics module (optional) Requires FOM-CONN-SM Fiber Optic Module Connector - Single Mode (pack of 2) or FOM-CONN-MM Fiber Optic Module Connector - Multi-Mode (pack of 2) Connects to the FNC-2000 fire alarm network controller module and allows fiber optics cabling.

Table 3: Optional Adder Modules

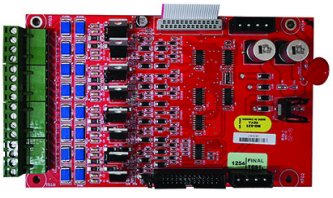
	Model	Description
	DM-1008A	Eight initiating circuit module

Table 3: Optional Adder Modules (Continued)

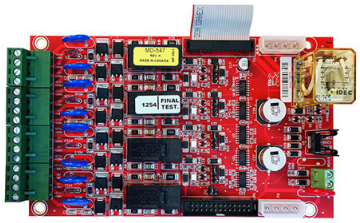
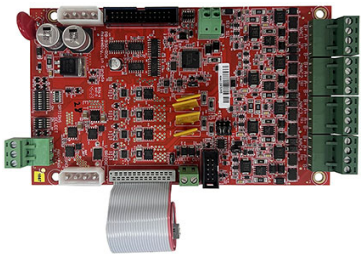
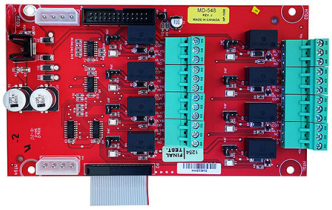
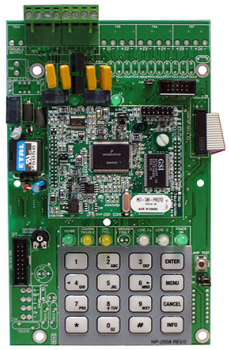
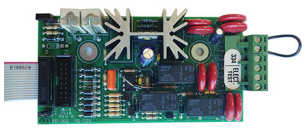
	SGM-1004A	Four NAC circuit module
	SGM-1004S	Four NAC circuit module with built-in synchronization
	RM-1008A	Eight relay circuit module
	UDACT-300A	Digital communicator/dialer module
	PR-300	Polarity reversal and city tie module

Table 4: Display Modules

	Model	Description
	DSPL-420DS	Factory installed alphanumeric display

Table 4: Display Modules (Continued)

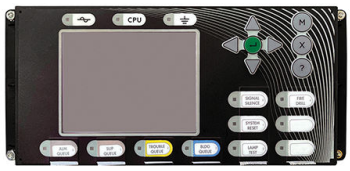
	DSPL-2440DS	Optional graphic display
	DSPL-420-16TZDS	Optional 4 line by 20 character display which provides 16 zone alarm and trouble indicators.

Table 5: Optional Programmable Modules

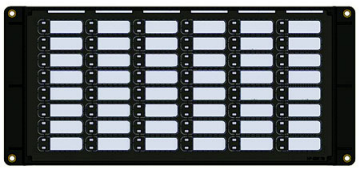
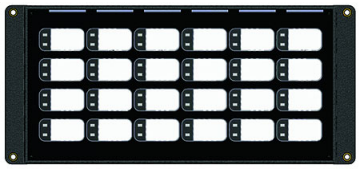
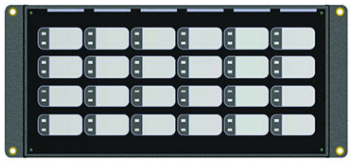
	Model	Description
	FDX-008W(KI)	Fan damper module with white LEDs for AUTO switch position indication. FDX-008W provides switch operation of 8 fan damper zones and the FDX-008WKI provides switch operation of 7 fan damper zones and one keyswitch operation of the 8th fan damper zone
	IPS-4848DS	Programmable input switches module
	IPS-2424DS	Programmable input switches module
	QAZT-5302DS	Addressable Telephone and Paging Selector Used for node control
	QAZT-5348DS	Addressable Telephone and Paging Selector Used for node control

Table 6: Optional Remote Annunciators

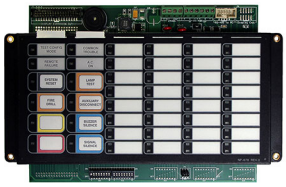
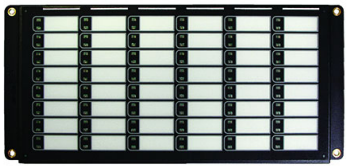
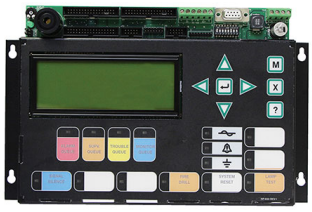
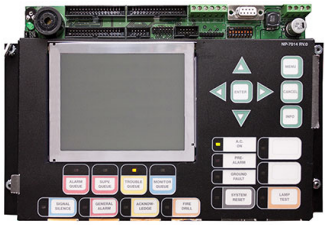
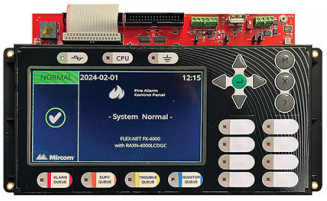
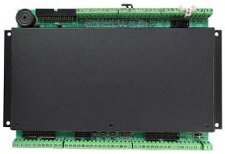
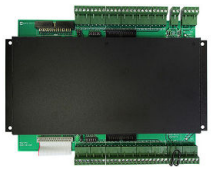
	Model	Description
	RAM-1032TZDS RAM-1032TZDS-CC	Model RAM-1032TZDS main chassis remote annunciator with 16 bi-coloured LEDs and 32 trouble LEDs. Model RAM-1032TZDS-CC is the same as the RAM-1032TZDS, except it has conformal coating and is to be used in a BB-1001WP(R)A or BB-1002WP(R)A weather protected box
	RAX-1048TZDS RAX-1048TZDS-CC	Model RAX-1048TZDS adder annunciator chassis with 48 bi-coloured LEDs and 48 trouble LEDs. Model RAX-1048TZDS-CC is the same as the RAX-1048TZDS, except it has conformal coating and is to be used in a BB-1002WP(R)A weather protected box
	RAXN-4000LCD	Remote shared display annunciator. Refer to LT-895MP RAXN-4000LCD manual for more information
	RAXN-4000LCDG	Remote shared graphical display annunciator. Refer to LT-6033MP RAXN-4000LCDG manual for more information
	RAXN-4000LCDGC	Remote shared graphical color display annunciator. Refer to LT-6738MP RAXN-4000LCDGC manual for more information
	MGD-32	Master graphic driver annunciator board
	AGD-048	Adder graphic driver board

Table 6: Optional Remote Annunciators (Continued)

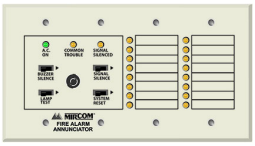
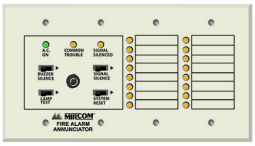
	RAM-216(R)	Annunciator with 16 bi-coloured LEDs
	RAM-208(R)	Annunciator with 8 bi-coloured LEDs
	RTI-1	Remote trouble indicator (single LED and trouble buzzer)

Table 7: Batteries

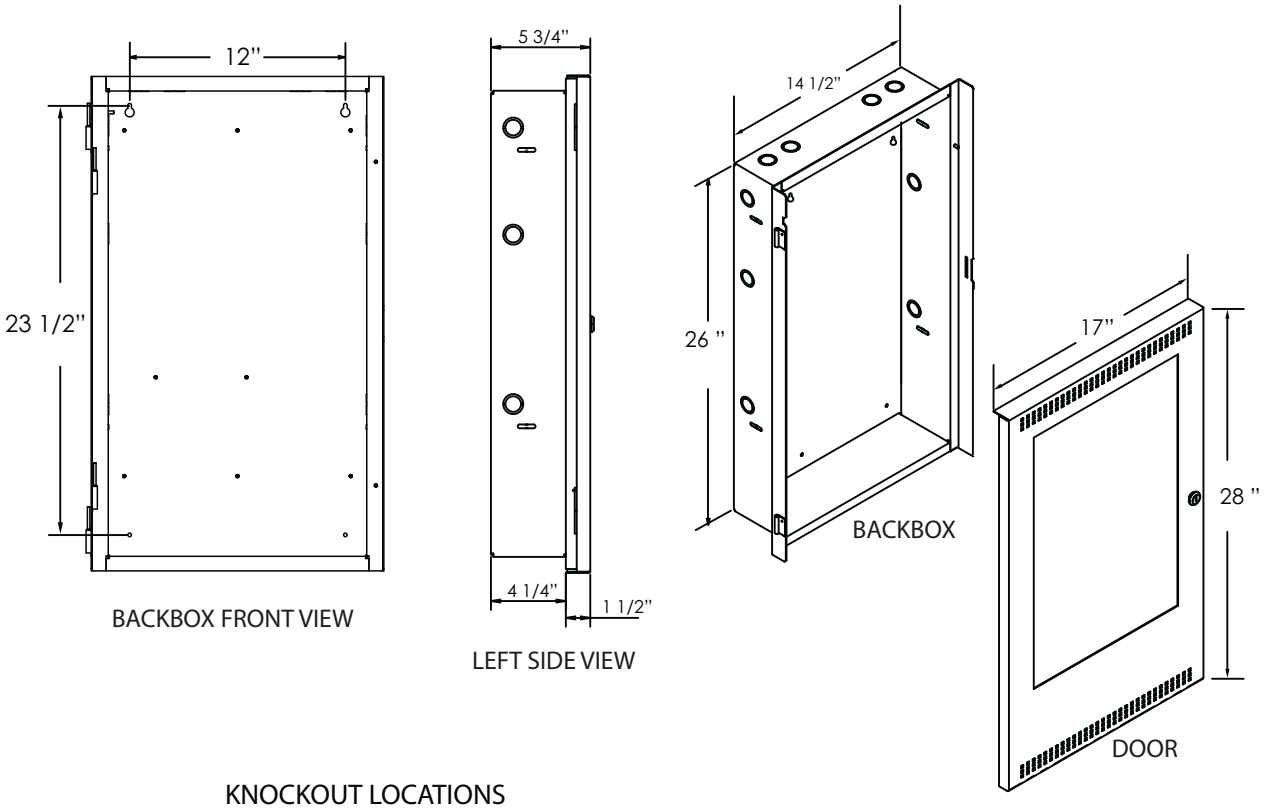
	Model	Description
	BAT-12V18A BAT-12V26A BAT-12V33A BAT-12V42A BAT-12V55A BAT-12V75A	Batteries available from 18 to 75 Ah Batteries larger than 18 Ah fit into a BC-160(R) battery cabinet FX-240N charging range is 17 to 65 Ah

Table 8: Optional Accessories

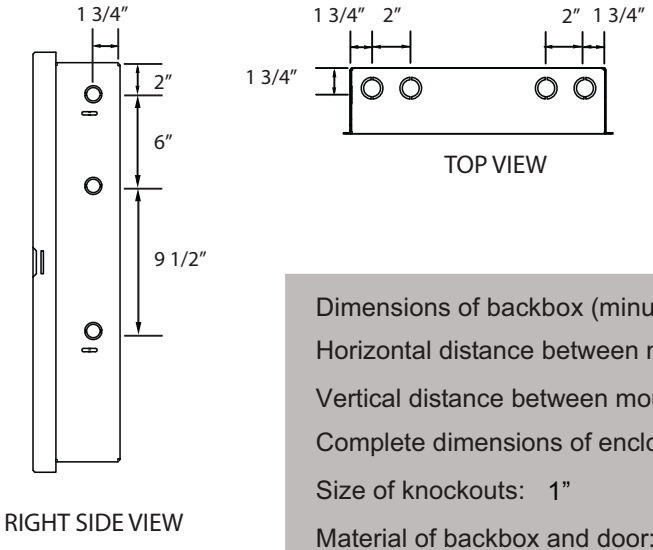
Model	Description
MP-300R/S	End-of-line resistor plate, R for red, S for stainless steel finish
BC-160(R)	External battery cabinet (ULC and UL listed)

3.0 Mechanical Installation and Dimensions

BACKBOX AND DOOR



KNOCKOUT LOCATIONS



Dimensions of backbox (minus built-in trim ring)	26"H x 14 1/2"W x 4 1/4" D
Horizontal distance between mounting screws	12"
Vertical distance between mounting screws	23 1/2"
Complete dimensions of enclosure with door	28"H x 17"W x 5 3/4"D
Size of knockouts:	1"
Material of backbox and door:	16 GA (0.059") thick cold rolled steel
Finish of backbox and door:	painted

Figure 3 Flush and Surface Enclosure Installation and Dimensions

3.1 General Chassis Installation

1. Group the incoming wires through the top of the enclosure to prepare it for wiring the modules. Do not run the wires in-between the modules since it could cause a short circuit.
2. Use a wire tie to group wires for easy identification and neatness.
3. Be sure to connect a solid earth ground (from building system ground / to a cold water pipe) to the chassis earth ground mounting lug, and to connect the earth ground wire lugs from the main chassis to the ground screw on the backbox.

3.2 Module Mounting Locations

The FX-240N comes pre-assembled with a main fire alarm board. Install the adder modules of different types as shown in the following diagrams.

Note: For many adder modules to enable communication from the main module to all of the adder modules, it is necessary to add a continuity jumper on the last adder module in a chain (see the appropriate module settings section to verify the location of the continuity jumper on a particular circuit adder module). Only the last circuit adder module should have a jumper plug on its continuity jumper; all others must be left without a jumper plug.

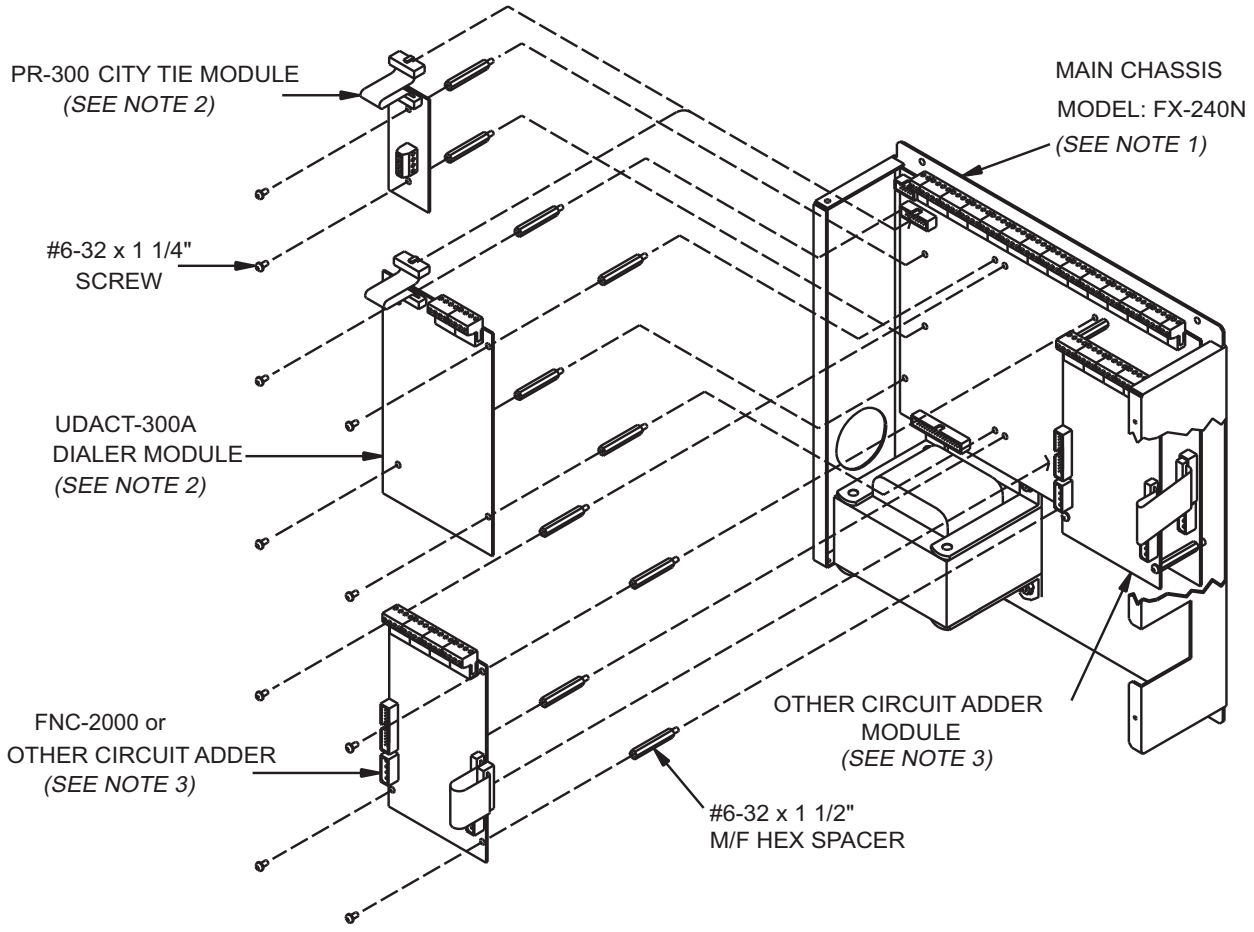


Figure 4 Module Mounting Locations View #1

1 Front plate is not shown.
2 Position reserved UDACT-300A.
3 Other circuit adder modules may include:

- FNC-2000
- DM-1008A detection circuit adder module
- SGM-1004S signal circuit adder module
- RM-1008A relay circuit adder module

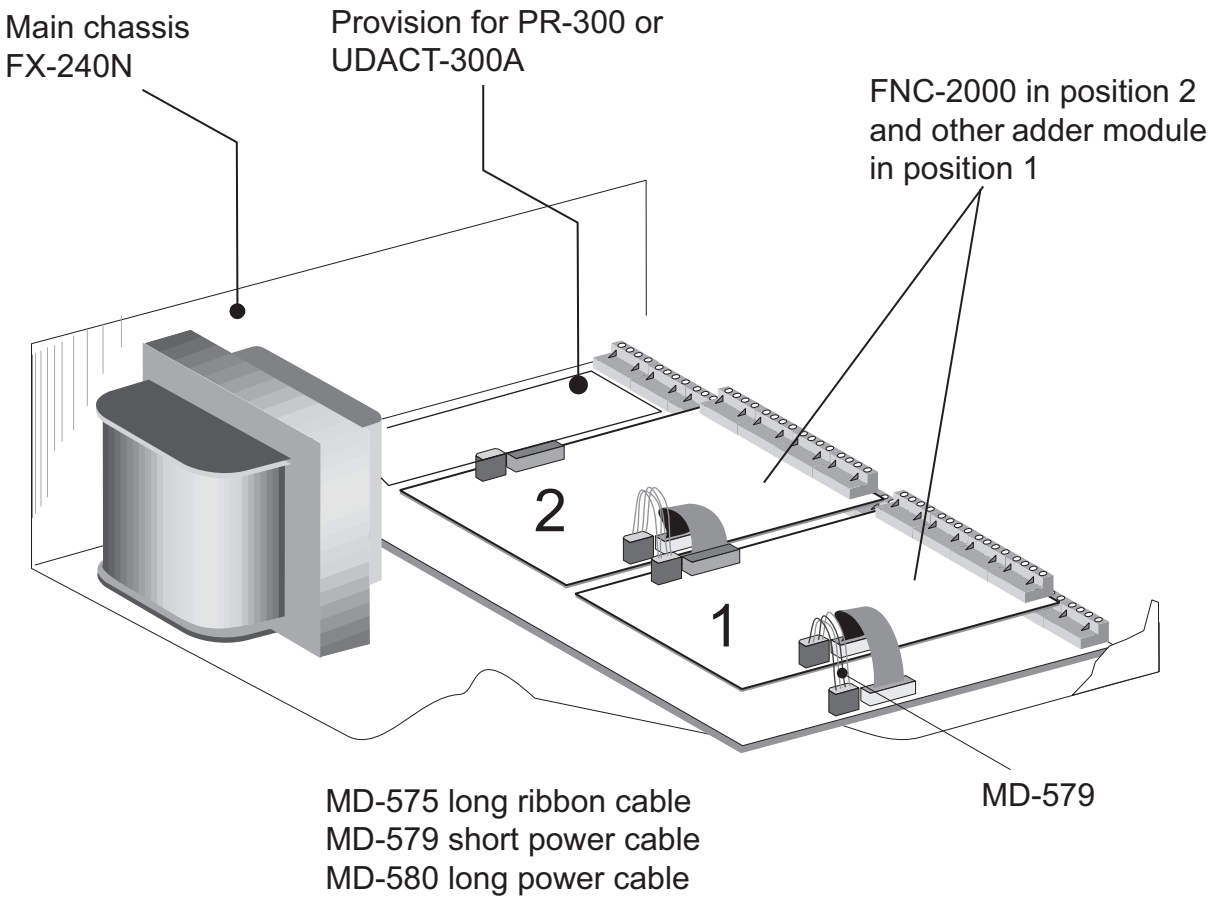
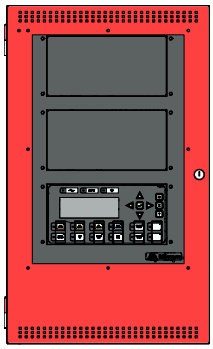


Figure 5 Module Mounting Locations View #2

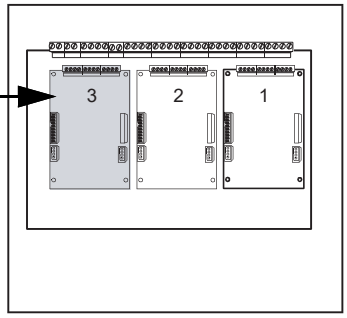
4.0 Display and Adder Modules Mounting Locations

Interior View



Inside Backbox View

Slot 3 is reserved for PR-300 or UDACT-300A. If not required, this slot can be used to mount any of the adder modules.



The recommended mounting position is 2 for the FNC-2000. The FOM-2000-UM board, if used, is mounted over the FNC-2000 board.

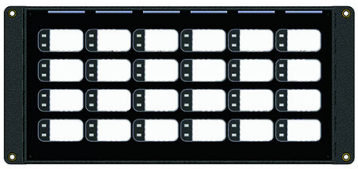
The FNC-2000 fire network controller module is mounted in position 2 over the main board. Each optional adder module occupies one module slot.

Each display module occupies one display position. “Frame” is a measure of display capacity, used in the programming of the system. These modules can also be mounted in the BBX-1000 series enclosures (requires RAXN-4000LCD as a driver).

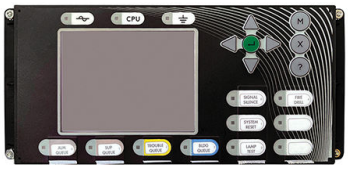
DSPL-420DS
Narrow display control (3 frames)

FDX-008W(KI)
Fan damper module (1 frame)

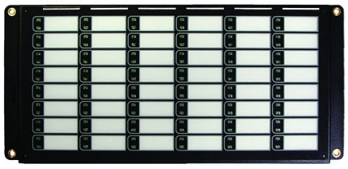
IPS-2424DS
Programmable input switches module (2 frames)



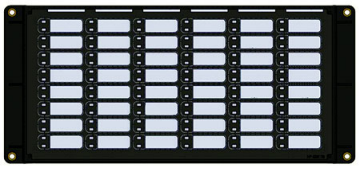
DSPL-2440DS
Graphic display control (3 frames)



RAX-1048TZDS
Programmable zone/trouble LED annunciator module (3 frames)



IPS-4848DS
Programmable input switches module (2 frames)



5.0 Module Settings

5.1 Main Fire Alarm Module (MD-871A "N" Version Main Chassis)

This main board has one addressable loop and network capability.

JW1	Jumper is removed if a PR-300 or UDACT-300A is installed.
JW2	Leave off (open).
JW3	Closed on pins 1 and 2 (2 leftmost pins)
JW4	Leave on (closed).
JW5	Off (open) by default, close to silence on-board buzzer.
JW6	On (closed) by default, open to enable external power supply supervision.
P1, P2	Factory connection to bridge rectifier.
P3	Connector to PC Configurator.
P4	Connector for PR-300 or UDACT-300A.
P5	Connector for next 8 conventional hardwire circuit adder modules (loop 1).
P6	Connector for first 8 conventional hardwire circuit adder modules (loop 0).
P7	Ethernet jack.
P8	Power connector for adder modules.
P9	RS-232C for printer.
P10, P11	Connection to 24 VDC battery. Observe polarity.
P12	Leave jumper on pins 1 and 2 (2 rightmost pins).
P14	Connector for display module.
P15	Not used.
P16	Not used.
P19	Connector for FNC-2000 fire network controller module.
J1	Not used.
SW2	DIP switch for node address. Refer to Appendix C. Available addresses are 1 to 24. DIP switch SW2-1 is the least significant digit.
TS2	Leave wire connecting positions E+ and I+ (the 2 top pins).
F1	20 A slow blow non-replaceable fuse.

Note: To enable communication from the main module to all of the adder modules, it is necessary to add a continuity jumper on the last adder module in a chain (see the appropriate module settings section to verify the location of the continuity jumper on a particular circuit adder module). Only the last circuit adder module should have a jumper plug on its continuity jumper; all others must be left without a jumper plug.

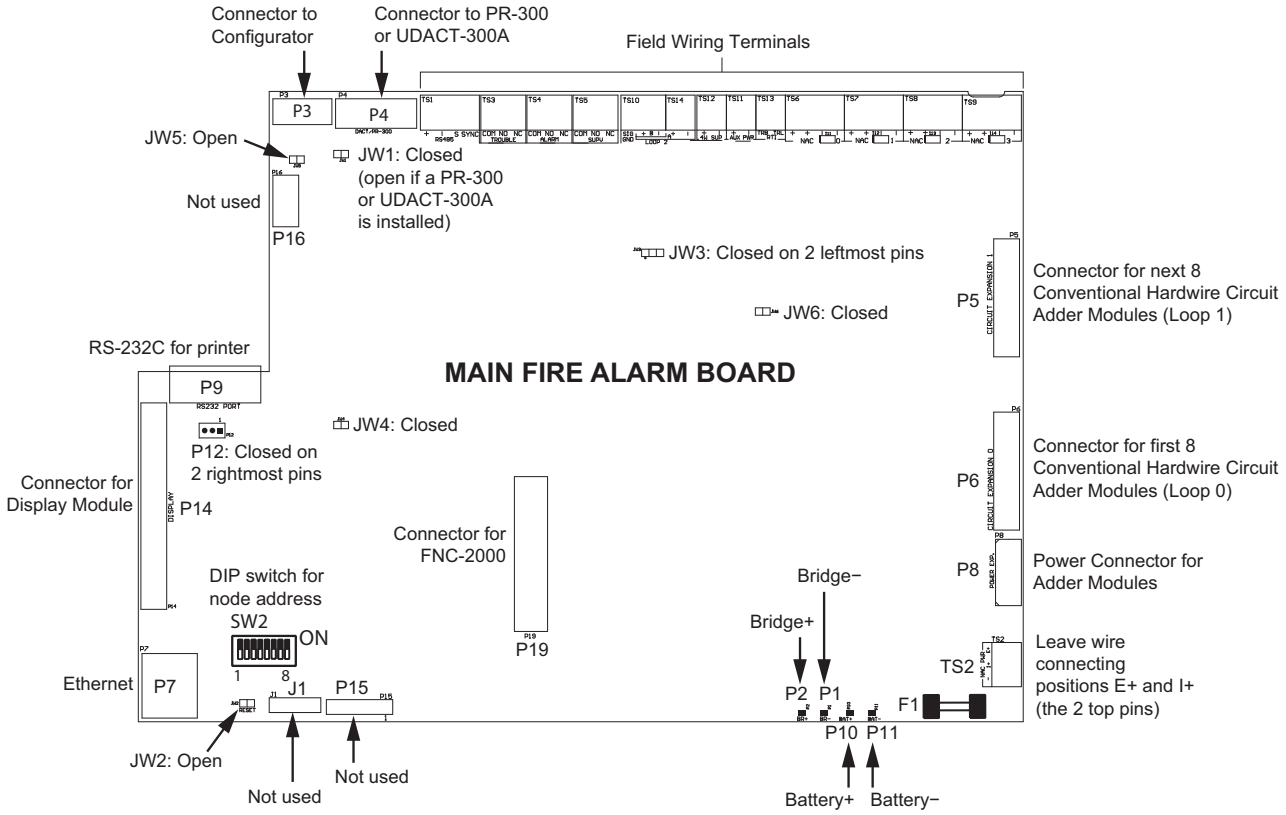


Figure 6 Main Fire Alarm Module (MD-871A “N” Version Main Chassis)

5.2 DSPL-420DS Main Display Module

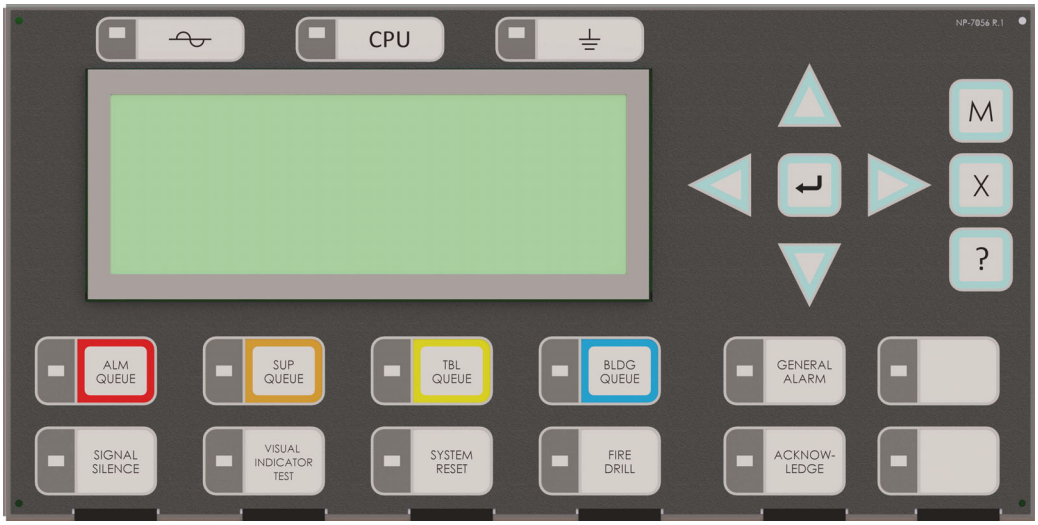


Figure 7 DSPL-420DS Main Display Module (Factory Installed)

P1: Cable connects to P14 of the main fire alarm board (Figure 6).

P2: Connection to P1 of any adder display module if used.

Note: The main display module comes with slide-in paper labels including both English and French slide-ins, and laser printer-compatible blanks for zone labelling.

5.3 DSPL-2440DS Graphical Main Display Module

The DSPL-2440DS is a separate item which can be installed in place of the DSPL-420DS.

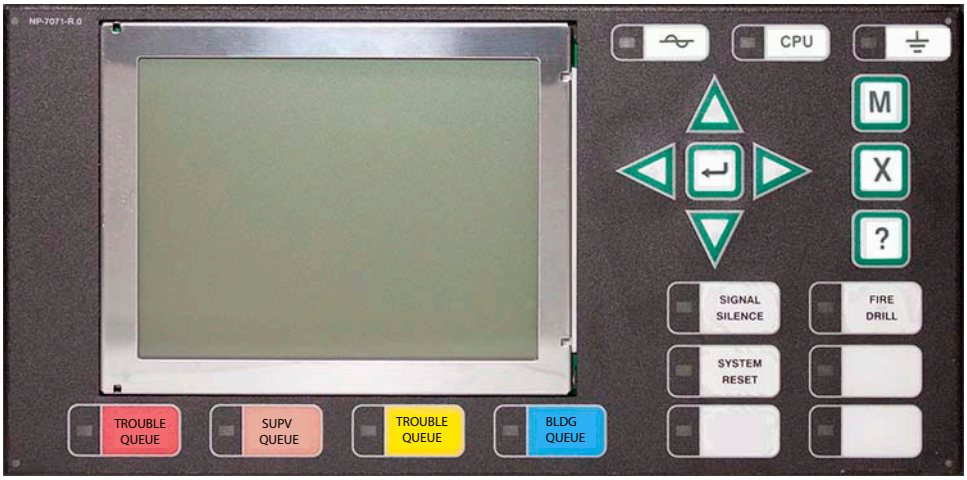


Figure 8 DSPL-2440DS Graphical Main Display Module

P1: Cable connects to P14 of the main fire alarm board (Figure 6).

P2: Connection to P1 of any adder display module if used.

Note: The main display module comes with slide-in paper labels including both English and French slide-ins, and laser printer-compatible blanks for zone labelling.

5.4 FNC-2000 Fire Network Controller Module

An FNC-2000 fire network controller module is required in each fire alarm node in the system. It mounts over the main fire alarm board, preferably in position 2. Use the four 2” spacers and four screws to secure the FNC-2000 to the main fire alarm board. The FNC-2000 also provides a connection for an optional FOM-2000-UM fiber optics module.

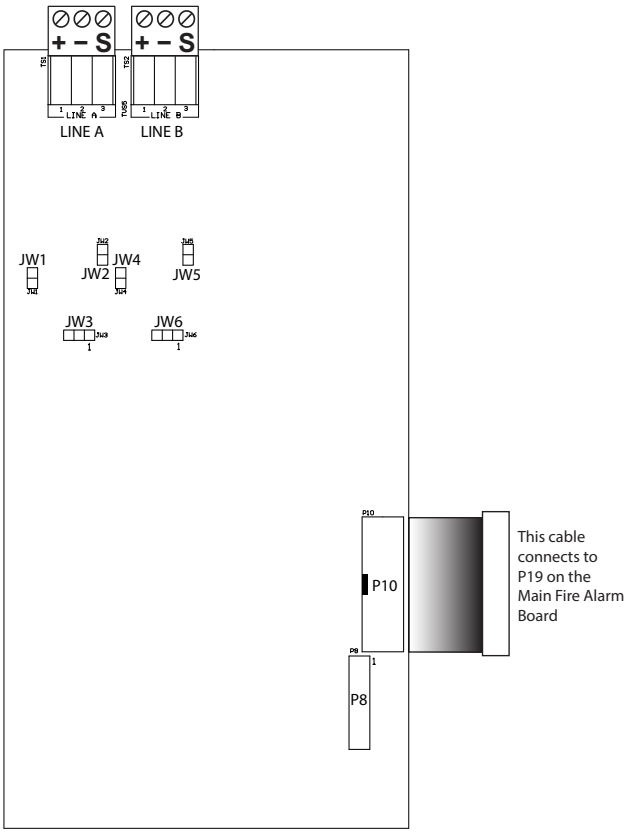


Figure 9 FNC-2000 Fire Network Controller Module

Table 9: FNC-2000 Module Connectors and Jumpers and Functions

Connector or Jumpers	Function
P8	Not used.
P10	Connects to **P1** of the FOM-2000-UM fiber optic network adder module if used.
JW1, JW2, JW4	Jumpers for **JW1**, **JW4** equal line termination. Always on (closed). Jumpers for **JW2** equal ground fault. Always on (closed).
JW5	Leave un-installed. Do not connect **JW5** (open).
JW3, JW6	Jumpers for **JW3**, **JW6** are between pins 2 and 3 (far left). Leave as is.

Note: Network connection is through twisted cable from Line A and B. Refer to Figure 27 for specific wiring and cable information.

5.5 FOM-2000-UM Fiber Optic Network Module

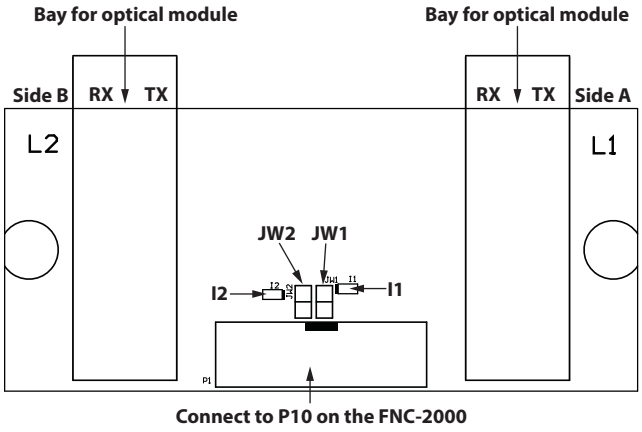


Figure 10 FOM-2000-UM Fiber Optic Network Module

One of these modules is required at each panel where fiber optics will be used between them. The FOM-2000-UM is mounted over the FNC-2000 (over the field wiring terminals) with two #6 Phillips screws and two hex spacers.

Table 10: FOM-2000-UM Fiber Optic Network Module Cable Connection

Connector	Function
P1	Attaches to **P10** of the FNC-2000 fire network controller module.
JW1	**JW1** must be on (closed) if an optical module is installed in L1. If there is no optical module in L1, remove the jumper from **JW1**.
JW2	**JW2** must be on (closed) if an optical module is installed in L2. If there is no optical module in L2, remove the jumper from **JW2**.

5.6 RAX-1048TZDS Zone Display Module

The RAX-1048TZDS provides 48 programmable bi-colored LEDs. It connects to the main control unit or main annunciator module when mounted remotely. It interconnects via one ribbon cable to the RAM-1032TZDS or to previous RAX-1048TZDS, adding up to 48 additional points of control with trouble annunciation.

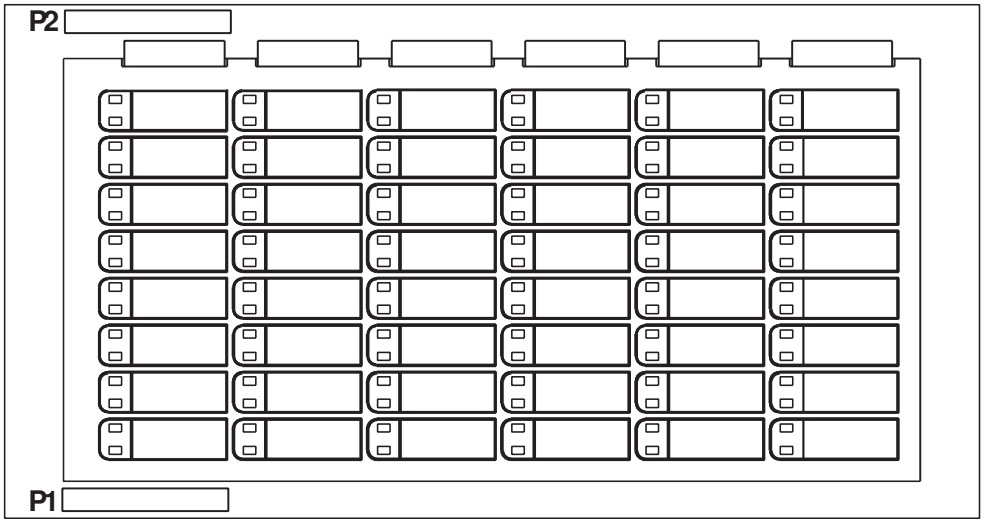


Figure 11 Zone Display Module RAX-1048TZDS

Table 11: RAX-1048TZDS Zone Display Module Cable Functions

Connector	Function
P1	Connects to P2 of previous display module.
P2	Connects to P1 of next display module

Note: The zone display module comes with laser printer-compatible slide-in paper labels for zone labelling.

5.7 IPS-4848DS Programmable Input Switches Module

The IPS-4848DS provides 48 programmable switches, 48 bi-coloured (red/amber) LEDs for fire alarm zone annunciation and 48 amber trouble LEDs.

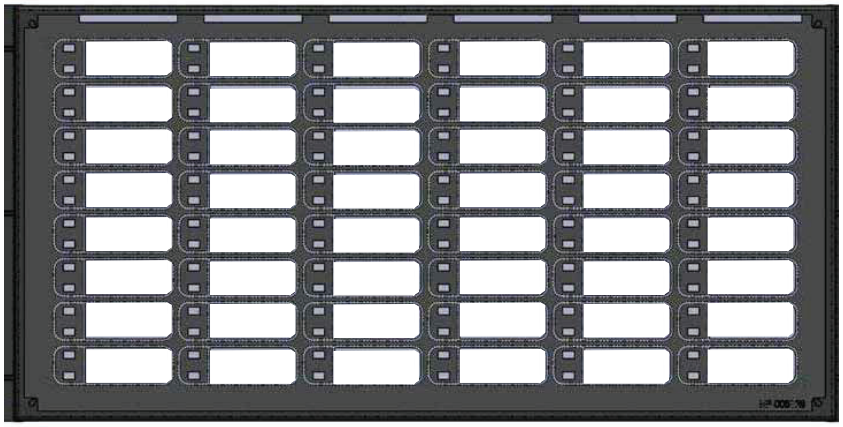


Figure 12 IPS-4848DS Programmable Input Switches Module

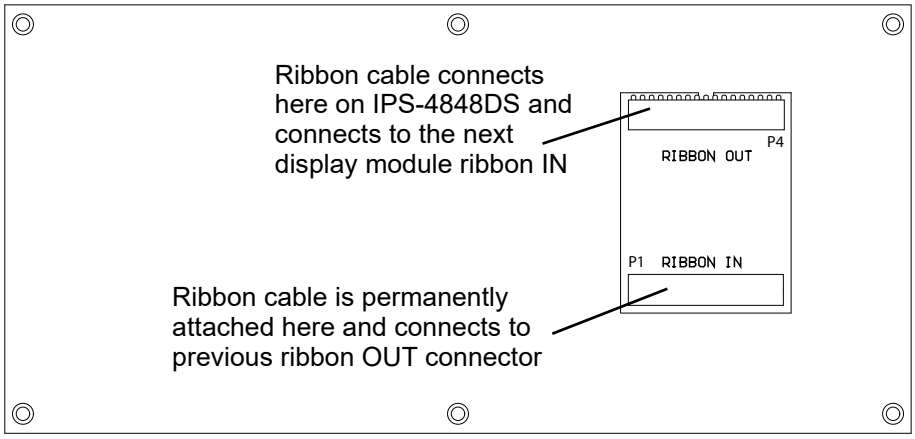


Figure 13 IPS-4848DS Wiring

Table 12: IPS-4848DS Programmable Input Switches Module Cable Function

Connector	Function
P1	Connects to P2(or P4) of previous display module.
P4	Connects to P1 of next display module

Note: The IPS-4848DS module comes with laser printer-compatible slide-in paper labels for zone labelling.

5.8 IPS-2424DS Programmable Input Switches Module

The IPS-2424DS programmable input switches module provides 24 programmable switches, 24 bi-coloured (red/amber) LEDs for fire alarm zone annunciation and 24 amber trouble LEDs.

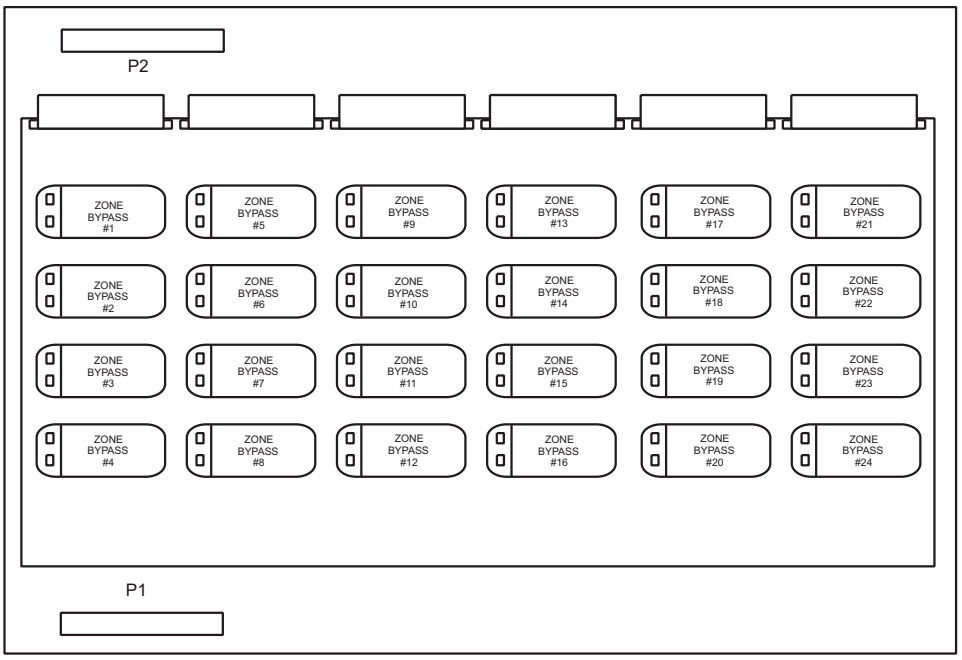


Figure 14 IPS-2424DS Programmable Input Switches Module

Table 13: IPS-2424DS Programmable Input Switches Module Cable Function

Connector	Function
P1	Connects to P2 of previous display module.
P2	Connects to P1 of next display module

Note: The IPS-2424DS module comes with laser printer-compatible slide-in paper labels for zone labelling.

5.9 FDX-008W(KI) Fan Damper Control Display Module

There are two models of the fan damper control display modules available. The FDX-008W provides switch control and LED indication of 8 fan damper zones. The FDX-008WKI provides switch control of 7 fan damper zones with the eighth zone activated by keyswitch. Both the FDX-008W and the FDX-008WKI provide a DIP switch for configuring the behavior of the LEDs. Refer to document number LT-966 for instructions on setting the DIP switch. LED indication is provided for all 8 fan damper zones on the FDX-008WKI. Both the FDX-008W and the FDX-008WKI are used in conjunction with an FX-240N fire alarm control panel.

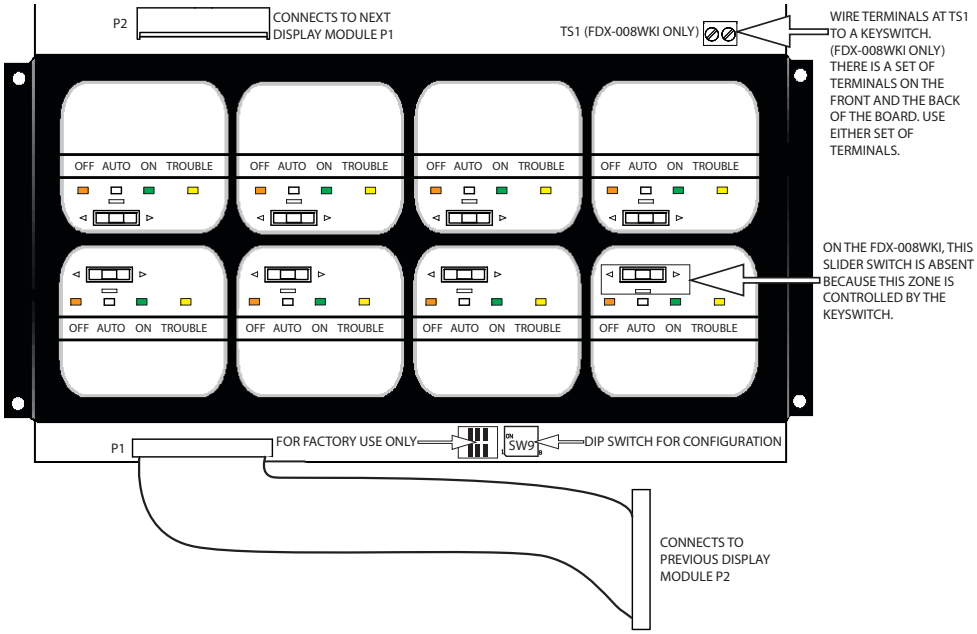


Figure 15 FDX-008W(KI) Fan Damper Control Display Module

Before mounting the FDX-008WKI module, if a keyswitch is to be connected, wire the keyswitch to terminals at TS1 as shown in Figure 15. Mount the FDX-008W and FDX-008WKI fan damper control display modules in any position on the front part of the FX-240N chassis and backbox.

Note: There are also terminals located behind TS1 on the other side of the board for the convenience of wiring the keyswitch. The last fan damper zone in the bottom right position of the FDX-008WKI is controlled by the keyswitch

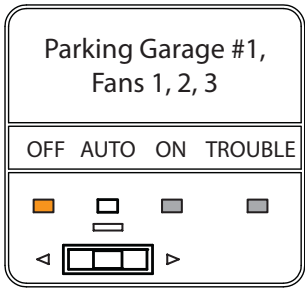
5.9.1 Fan Damper Operation

The FDX-008W fan damper control display module has eight configurable output circuits, each with a three position switch. The FDX-008WKI operates in the same manner as the FDX-008W except zone 8 is controlled by a remote keyswitch. Each switch has an ON and OFF position, plus an AUTO position. If the switch is placed in the AUTO position, the white AUTO LED will illuminate steady and the output will activate as programmed or configured. The output can be manually turned ON or OFF by placing the switch in the ON or OFF position, respectively.

Each switch can be configured to operate multiple fans or dampers. For each switch, there are 3 operations provided; outputs to turn ON, same outputs to turn OFF and inputs to bypass.

An example of the most common use of the FDX-008W or FDX-008WKI Fan Damper Control Display module is to operate exhaust fans and confirm fan operation (via monitor modules). See Figure 16 on the next page for a block diagram of fan and monitor set up.

5.9.2 Example



As shown in the figure to the right, Parking Garage #1 has 3 exhaust fans. The three position switch is configured to operate (to turn ON) fans 1, 2 and 3 in stairwell #1. The switch is set in the AUTO position (white AUTO LED on steady). Upon activation (via alarm or some other programmed trigger) with the switch in AUTO, the 3 fans (1,2, and 3) in stairwell #1 are turned ON automatically. Monitor modules in the Parking Garage #1 detect that all 3 fans are operating, therefore the ON LED will illuminate steadily. If one of the fans did not turn ON (due to malfunction), the ON and OFF LEDs will flash. The TROUBLE LED will flash yellow and the OFF LED will remain steady orange based on feedback from the monitor module (with proving timer) that one or more of the fans is not working.

- AUTO LED shows steady for switch in AUTO position.
- ON LED shows steady for all outputs operating and confirmed.
- OFF LED shows steady for all outputs NOT operating and confirmed.
- TRBL LED shows steady for one or more outputs NOT operating and confirmed.

Note: A bypass function always has priority, so that if a circuit is bypassed by moving the switch manually or by loop bypass (FX-240N Fire Alarm Panel), no other action will operate this switch other than again moving the switch manually or by un-bypassing the loop.

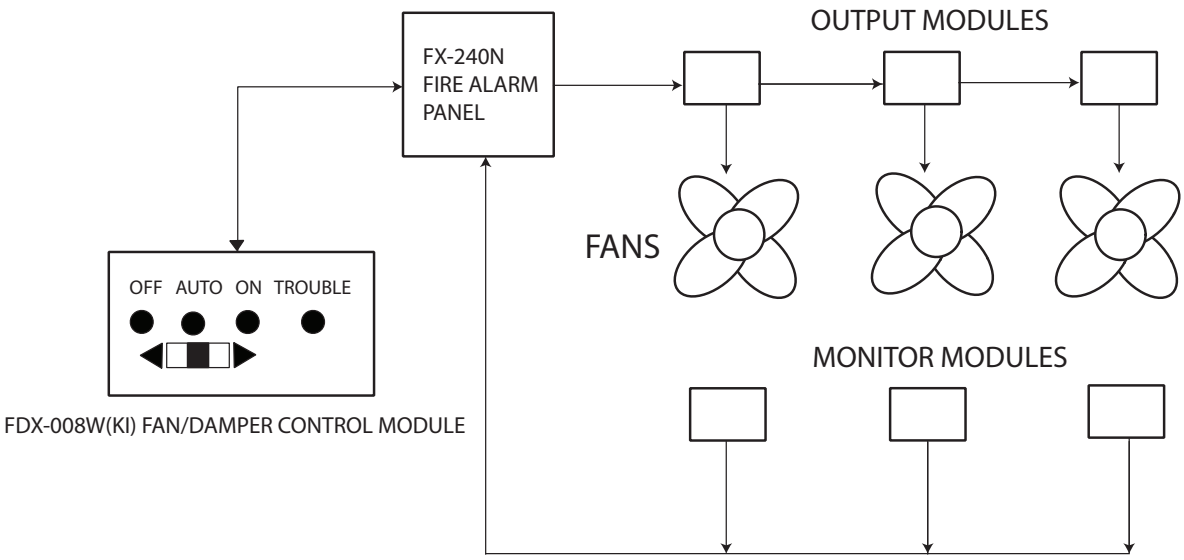


Figure 16 FDX-008W(KI) Block Diagram of Fan and Monitor Setup

5.9.3 UUKL with FDX-008W and FDX-008WKI

The models FDX-008W and FDX-008WKI can be effectively used to provide an automatic and manual control system for smoke. Refer to document number LT-966 for extensive instructions regarding UUKL applications.

5.10 DM-1008A Hardwire Detection Adder Module

The DM-1008A hardware detection adder module provides eight fire alarm initiating circuits.

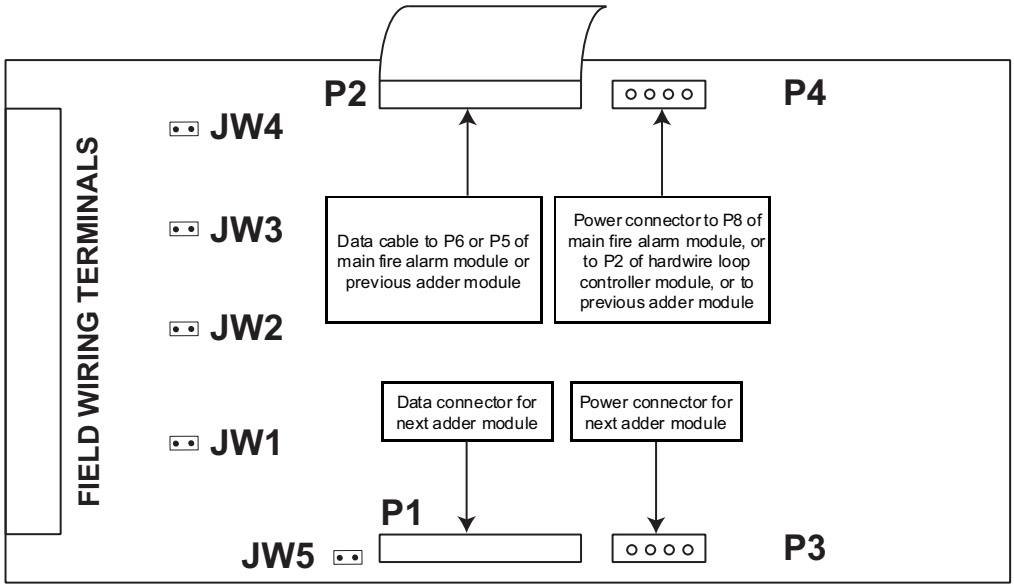


Figure 17 Hardwire Detection Adder Module DM-1008A

JW1: Install jumper for class A operation of initiating circuits 1 and 2.

JW2: Install jumper for class A operation of initiating circuits 3 and 4.

JW3: Install jumper for class A operation of initiating circuits 5 and 6.

JW4: Install jumper for class A operation of initiating circuits 7 and 8.

JW5: Remove continuity jumper if there are any more adder modules installed.

Note: For class A operation the FX-240N must be configured as class A via the configuration program.

5.11 SGM-1004A Hardwire Signal Adder Module

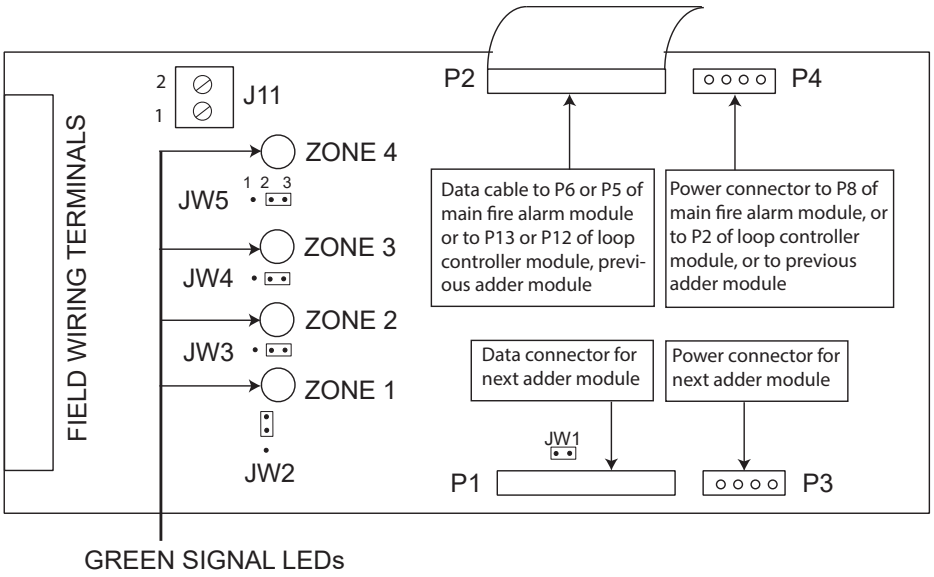


Figure 18 Hardwire Signal Adder Module SGM-1004A

5.11.1 Basic Mode

Jumpers on the SGM-1004A Signal Adder Module and their functions:

JW1: Remove continuity jumper if this is not the last adder module installed.

JW2, JW3, JW4, and JW5: Leave these jumpers open, on positions 2 and 3.

J11 Terminals: Not connected.

Components

There are four green LEDs on the board, one for each signal zone. The LED will illuminate or flash following the signal rate sent to its zone. It will be off when the system is normal and they will illuminate when a signal zone is activated. The LED does not reflect what is happening on the signal zone, just that it is receiving data to activate that signal zone.

Note: Jumpers JW2, JW3, JW4 and JW5 are positioned on pins 2 and 3 (right two pins with board orientation as shown above) from factory.

Operation

There are two modes of operation for this module. The basic mode of operation does not involve any isolators connected to the signal zones. For this case, leave jumpers JW2, JW3, JW4 and JW5 as they come on pins 2 and 3, and do not make any connection to terminal block J11. The second mode is used when isolators are to be connected to the signal circuits. For further information on bell cut relays or isolators, please refer to the specific fire alarm panel manual or the isolator instruction manual.

5.11.2 Isolator Mode

Jumpers for the Isolator Mode

JW2: Place jumper over pins 2 and 3 for the ability to connect an isolator on Zone 1.

JW3: Place jumper over pins 2 and 3 for the ability to connect an isolator on Zone 2.

JW4: Place jumper over pins 2 and 3 for the ability to connect an isolator on Zone 3.

JW5: Place jumper over pins 2 and 3 for the ability to connect an isolator on Zone 4.

Attention: Discard jumpers on zones that are not configured for isolators.

J11: Wire these terminals to an alarm relay. These may be tapped if more signal modules are used in this manner.

5.12 SGM-1004S 4 NAC Output Module with Built-in Sync

Refer to LT-6734 SGM-1004S Installation Manual for details and wiring instructions.

5.13 RM-1008A Hardwire Relay Adder Module

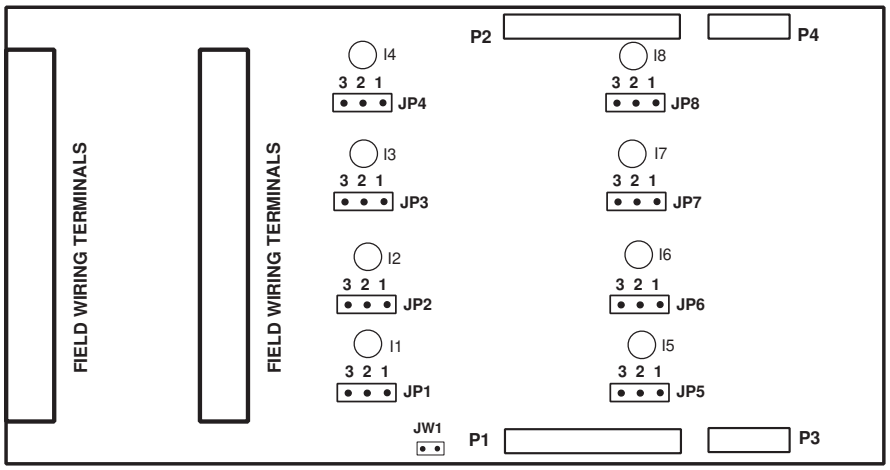


Figure 19 Hardwire Relay Adder Module RM-1008A

P2: Data cable to P6 or P5 of main fire alarm module, or to previous adder module.

P1: Data connector for next adder module.

P4: Power connector to P8 of main fire alarm module, or to previous adder module.

P3: Power connector for next adder module.

JW1: Remove continuity jumper if there are any more adder modules installed. If this is the last module installed, leave JW1 on.

JP1-JP8: Move jumpers from pins 1 and 2 to 2 and 3 to connect relay commons between two or more relays.

5.14 PR-300 Polarity Reversal and City Tie Module

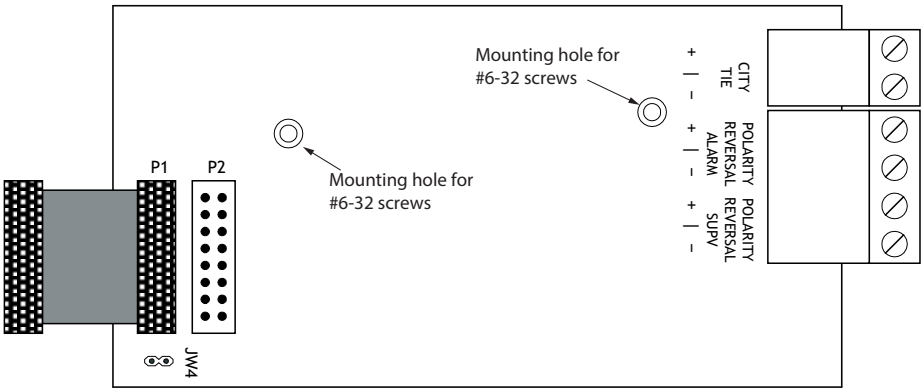


Figure 20 Polarity Reversal and City Tie Module PR-300

The following hardware configuration must be performed before installing the PR-300.

Table 14: PR-300 Connectors and Jumper Settings

P1	Cable connects to P4 on the FX-240N main fire alarm board
P2	Not used. If a UDACT-300A is used in conjunction with a PR-300, then the UDACT-300A ribbon cable P1 is connected to header P2 of the PR-300.
JW4	Jumper JW4 is closed by default and must not be changed.

The alarm transmit signal to the PR-300 can be programmed to turn OFF when signal silence is active (Not allowed by UL 864; refer to section 9). This allows the city tie box to be manually reset. On subsequent alarms the silenceable signals will resound and the city tie box will be retriggered. Please refer to the Configurator for more information.

The trouble transmit signal to the PR-300 can be programmed to delay AC power fail. Please refer to the Configurator for more information.

Note: Jumper JW1 on the FX-240N main fire alarm board must be removed if a city tie module is installed.

5.15 UDACT-300A Main Board

There are two jumpers on the UDACT-300A which are used for operation/configuration purposes. Jumper JW1 is used to reset the default passcode. Jumper JW2 is required for configuring (which can be done using the FX-240N Configurator Software) the UDACT-300A. Refer to Figure 21 below for location of jumpers, cable connections, pushbutton and LEDs. Table 15 following, provides a description of the user items on the UDACT-300A.

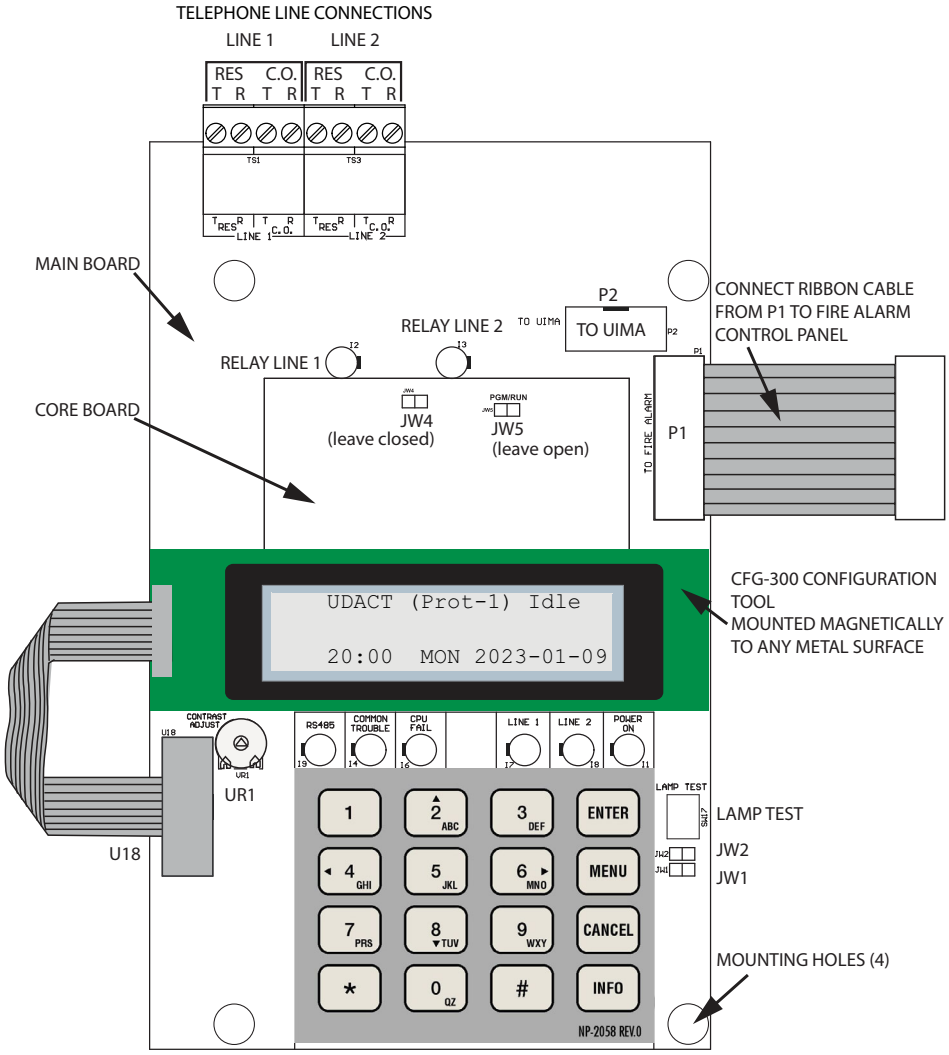


Figure 21 UDACT-300A Board Layout

Table 15: UDACT-300A Connectors

Cable Connector	Function
P1	Ribbon cable for connecting to P4 of FX-240N main fire alarm board or to P2 header on the PR-300 if used.
P2	RS-232C/RS-485 connection for computer configuration.
U18	Connector for CFG-300 Configuration Tool.
Lamp Test button	Press and hold this button to test all the UDACT-300A LEDs.
UR1 Potentiometer	This potentiometer is for adjustment of the CFG-300 LCD contrast.

Table 16: UDACT-300A LEDs

LEDs	LED Function
Relay Line 1	Located below Line 1 terminal block. When Line 1 relay is energized, this green LED will illuminate.
Relay Line 2	Located below Line 2 terminal block. When Line 2 relay is energized, this green LED will illuminate.
RS-485	Status LED for communication, will flash when RS-485 communication is active.
Common Trouble	Steady amber for any troubles on the fire alarm panel or UDACT-300A..
CPU Fail	Steady amber for any on board CPU trouble.
Telephone Line 1	Telephone status indicator LED; red when the line is in use, amber when there is a line trouble.
Telephone Line 2	Telephone status indicator LED; red when the line is in use, amber when there is a line trouble.
Power ON	Green LED is ON steady when power is supplied to the board.

Table 17: UDACT-300A Jumpers

Jumper Number	Jumper Function
JW1	The default is open. Place jumper here and power down the UDACT-300A by disconnecting P1 or power down the fire alarm panel (AC and batteries), then power back to revert to default passcode. After reset, remove the jumper.
JW2	The default is open to block remote configuration via modem, PC with a UIMA converter module or using the LCD and keypad at the UDACT-300A. Place jumper here to allow any type of configuration. Remove jumper once configuration is complete.
JW4	Default is closed (on). Do not change.
JW5	Default is open (off). Do not change.

Note: This module cannot be installed if a city tie module is used.

Jumper JW1 on the FX-240N main fire alarm board must be removed if a UDACT-300A is installed.

See LT-888 UDACT-300A Installation and Operation Manual for more information.

6.0 Field Wiring

6.1 Main Fire Alarm Board Terminal Connections

Wire devices to terminals as shown in Figure 22 below. Refer to Appendix A for specifications and to LT-1023 for compatible devices.

Do not exceed power supply ratings: total current for NACs is 10 A max.

Note: All wiring shall be in accordance with NFPA 70 and CSA C22.1, Safety Standard for Electrical Installations, Canadian Electrical Code.

Note: The terminal blocks are removable for ease of wiring. All power limited circuits must use type FPL, FPLR, or FPLP power limited cable

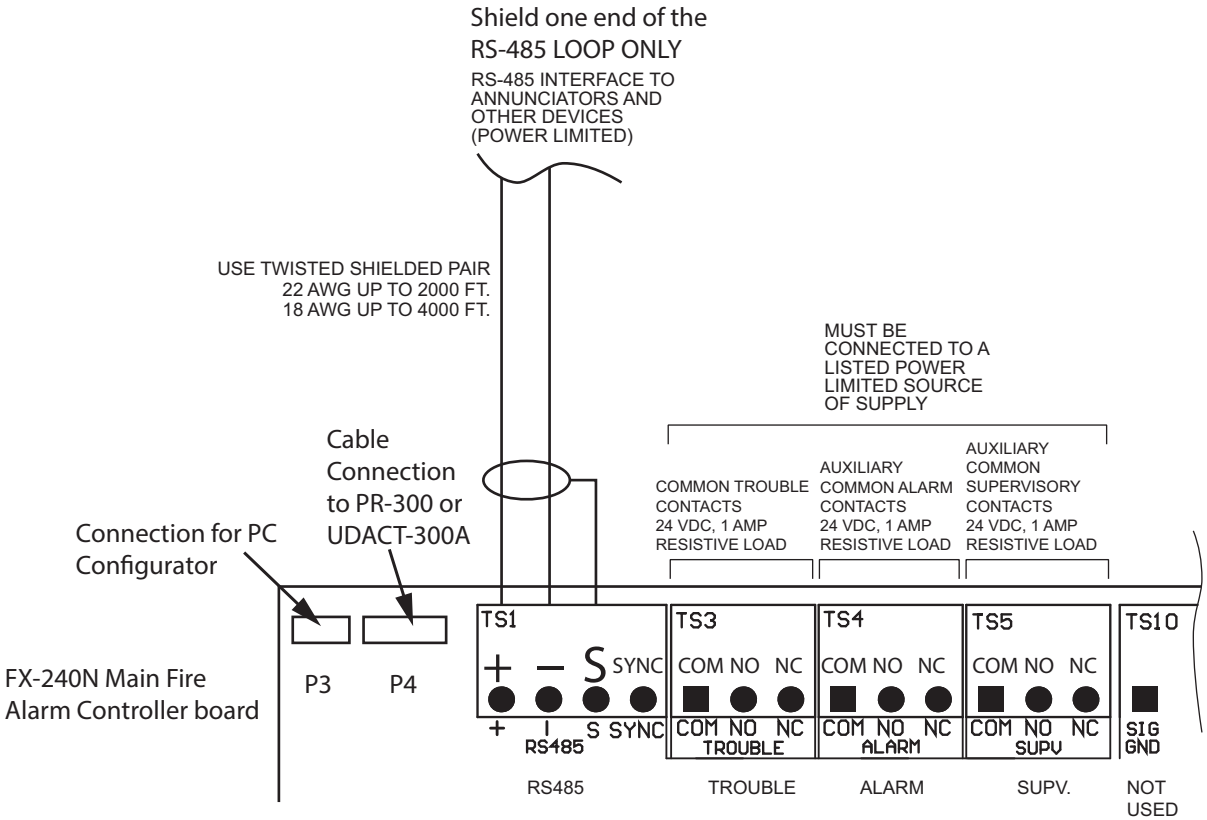


Figure 22 Main Fire Alarm Controller Board Field Terminal Connections

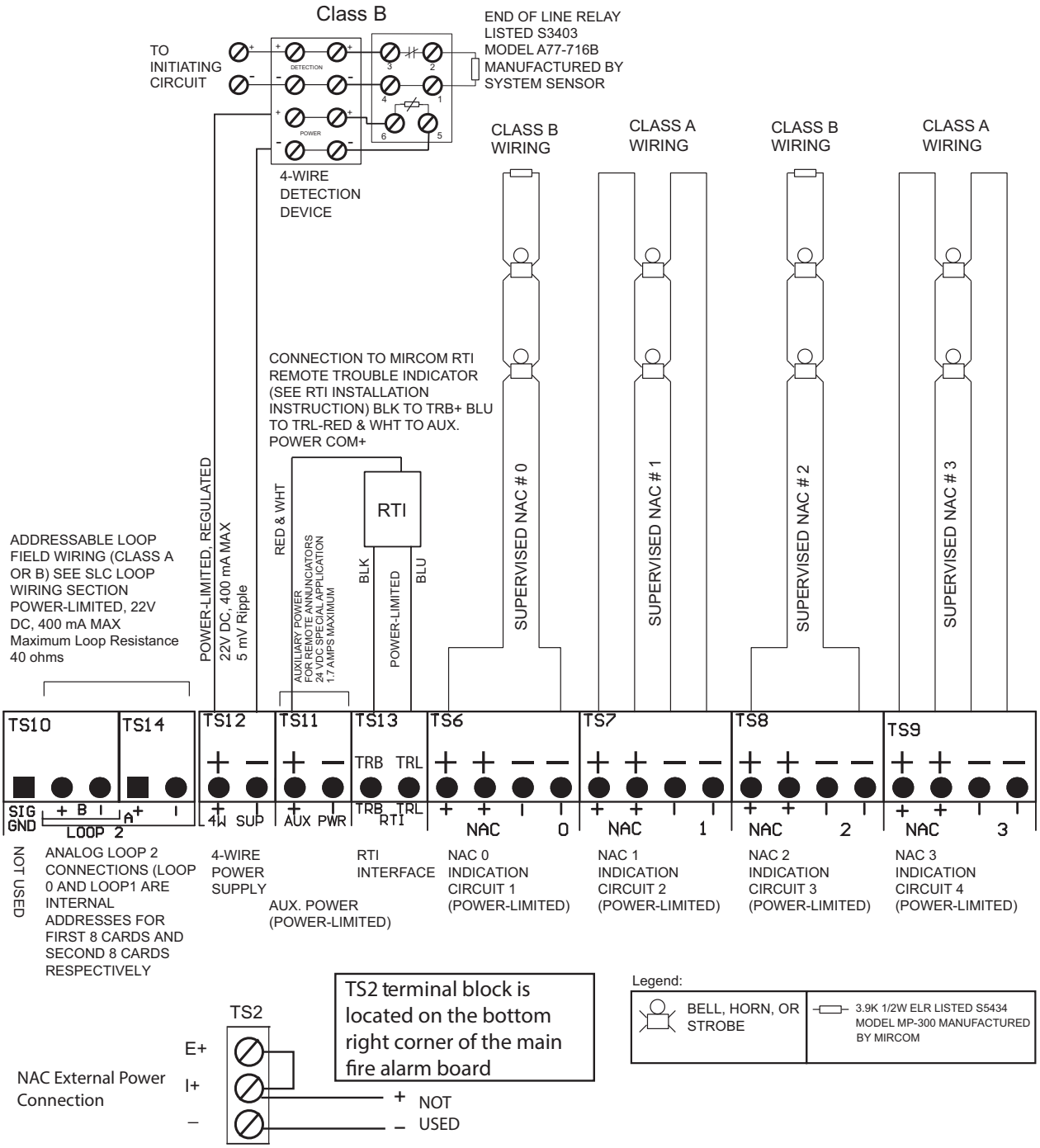


Figure 23 Main Fire Alarm Control board Field Terminal Connections (continued)

Note: All circuits are power limited (unless marked otherwise) and must use type FPL, FPLR, or FPLP power limited cable.

NACs are fully supervised and rated for Regulated 24 FWR, 1.7A max. They must be wired as shown in section 6.12.

6.2 MGC Protocol SLC Loop Wiring

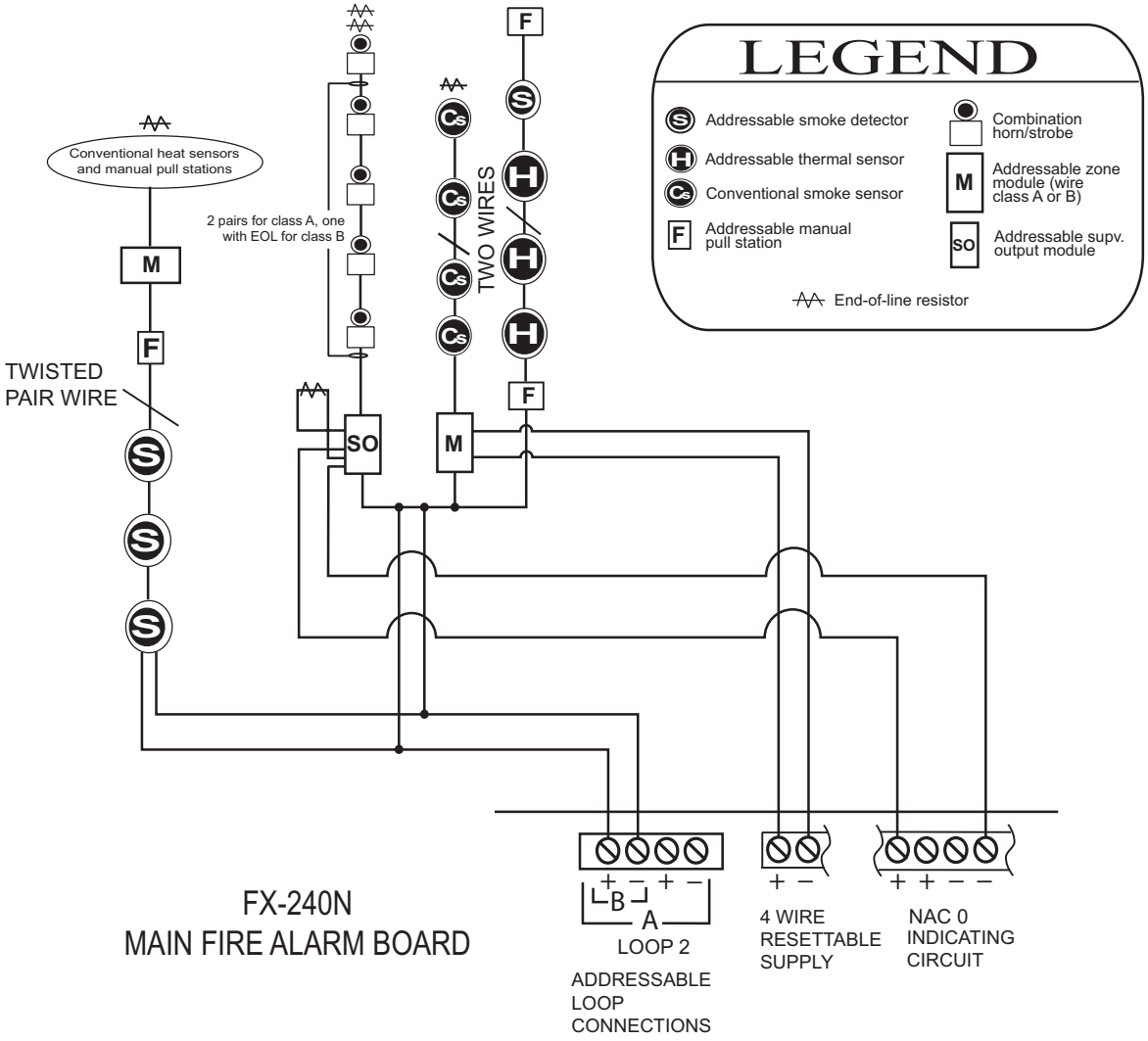


Figure 24 SLC Loop Terminal Connections - Class B (DCLB)

Notes:
Terminal blocks are depluggable for ease of wiring.
All power limited circuits must use type FPL, FPLR, or FPLP power limited cable.
Loop wiring: maximum loop resistance is 40 Ω at 250 mA and 25 Ω at 400 mA during alarm condition. These lines are power limited and fully supervised.
Observe in and out polarity when using module and base isolators.

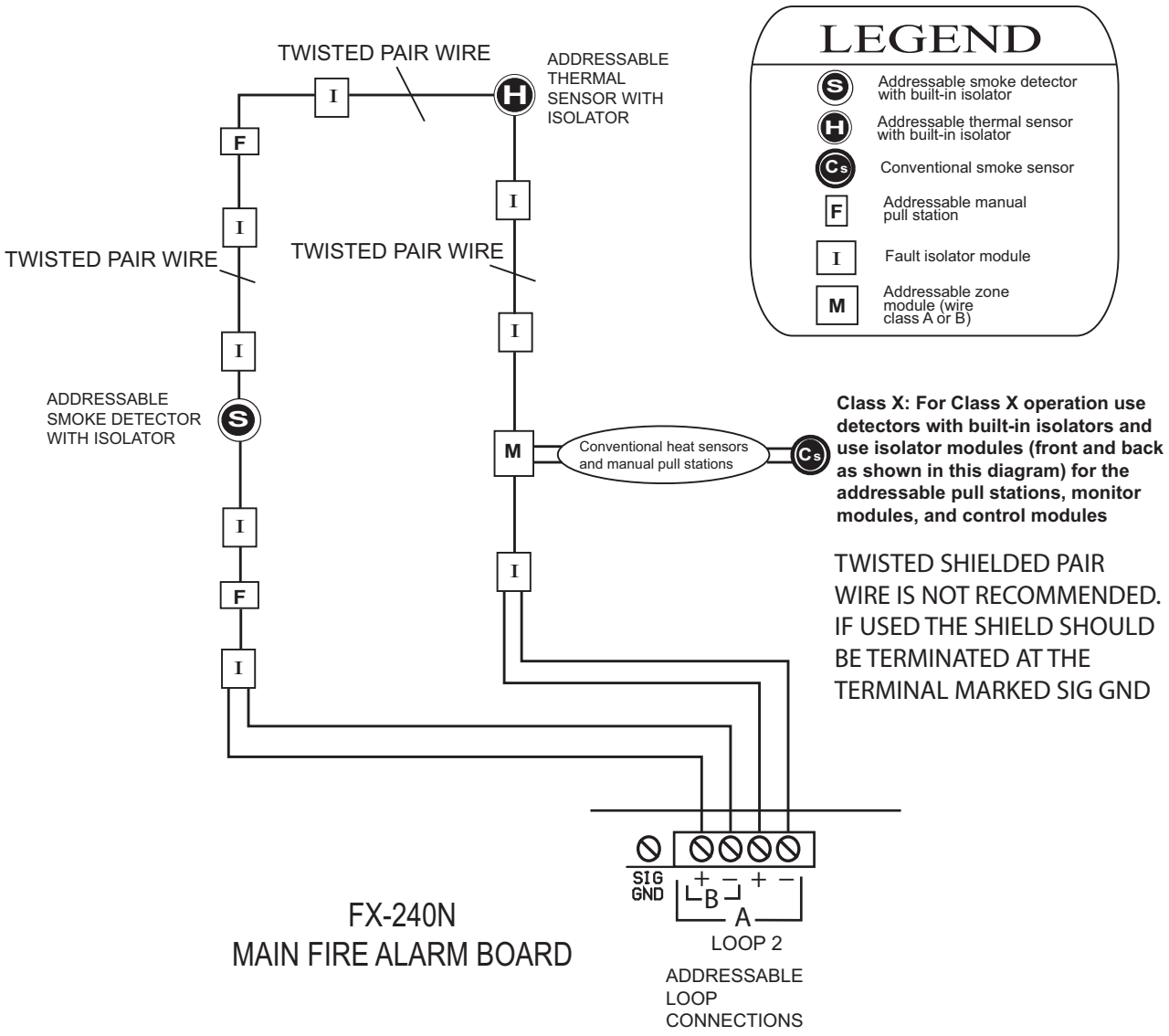


Figure 25 SLC Loop Terminal Connections - Class X (DCLC)

Notes:
All power limited circuits must use type FPL, FPLR, or FPLP power limited cable.
Isolators need to be close nipple connected to the device being protected.
Loop wiring: maximum loop resistance is 40 Ω at 250 mA and 25 Ω at 400 mA during alarm condition. These lines are power limited and fully supervised.

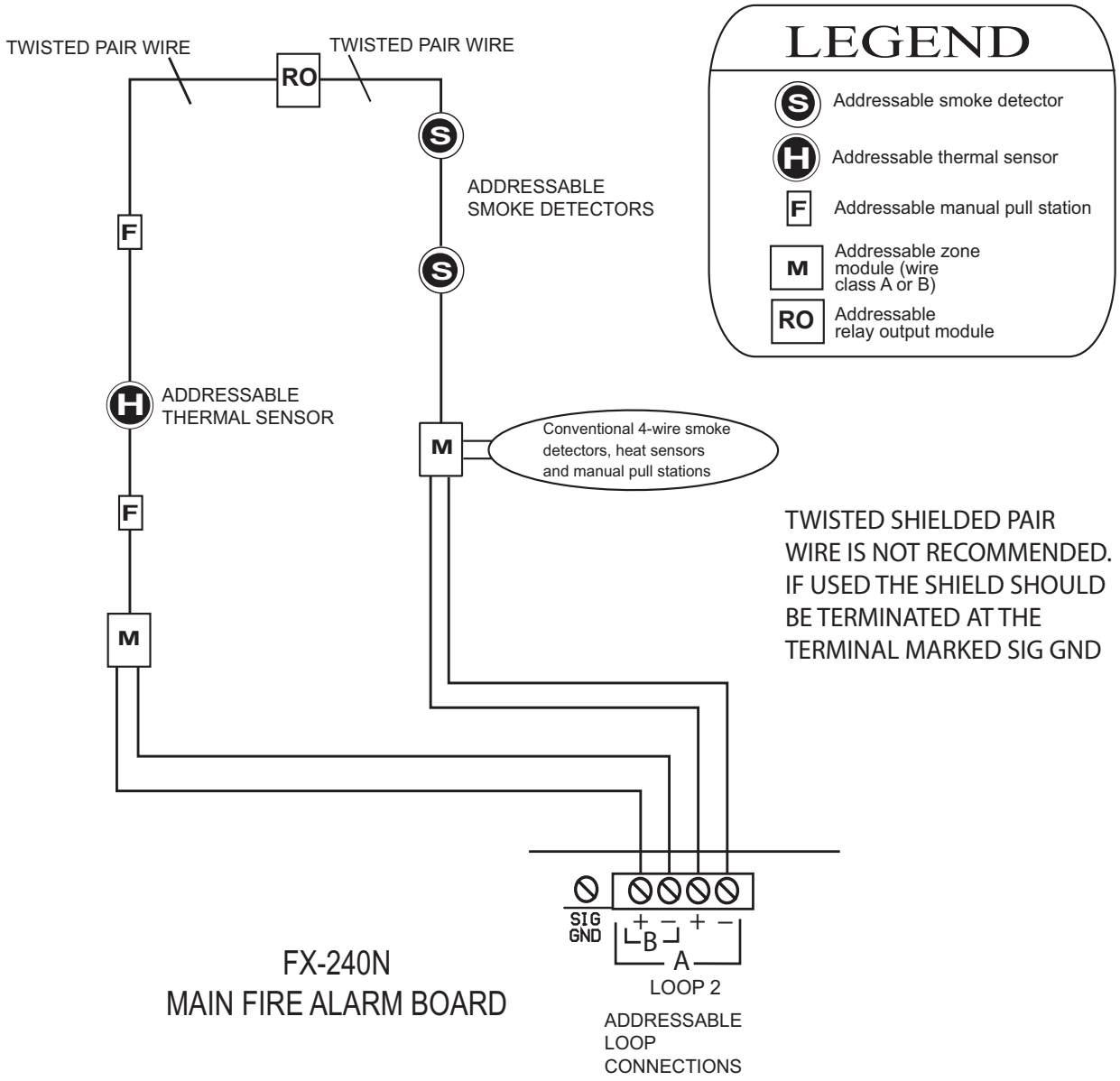


Figure 26 SLC Loop Terminal Connections - Class A (DCLA)

Notes:
All power limited circuits must use type FPL, FPLR, or FPLP power limited cable.
Loop wiring: maximum loop resistance is 40 Ω at 250 mA and 25 Ω at 400 mA during alarm condition. These lines are power limited and fully supervised.

6.3 FNC-2000 Fire Network Controller Module

The FNC-2000 fire network controller modules are wired from terminals marked Line A, positive and negative (see specific cable recommended in Figure 27) to the Line B terminals of the next FNC-2000 module. **Use of shielded cable is not recommended**. Wire from Line B terminals to Line A of the next FNC-2000 module. Start from the lobby panel and wire to all the FNC-2000, wiring the last FNC-2000 back to Line B of the first FNC-2000 at the lobby panel for class X.

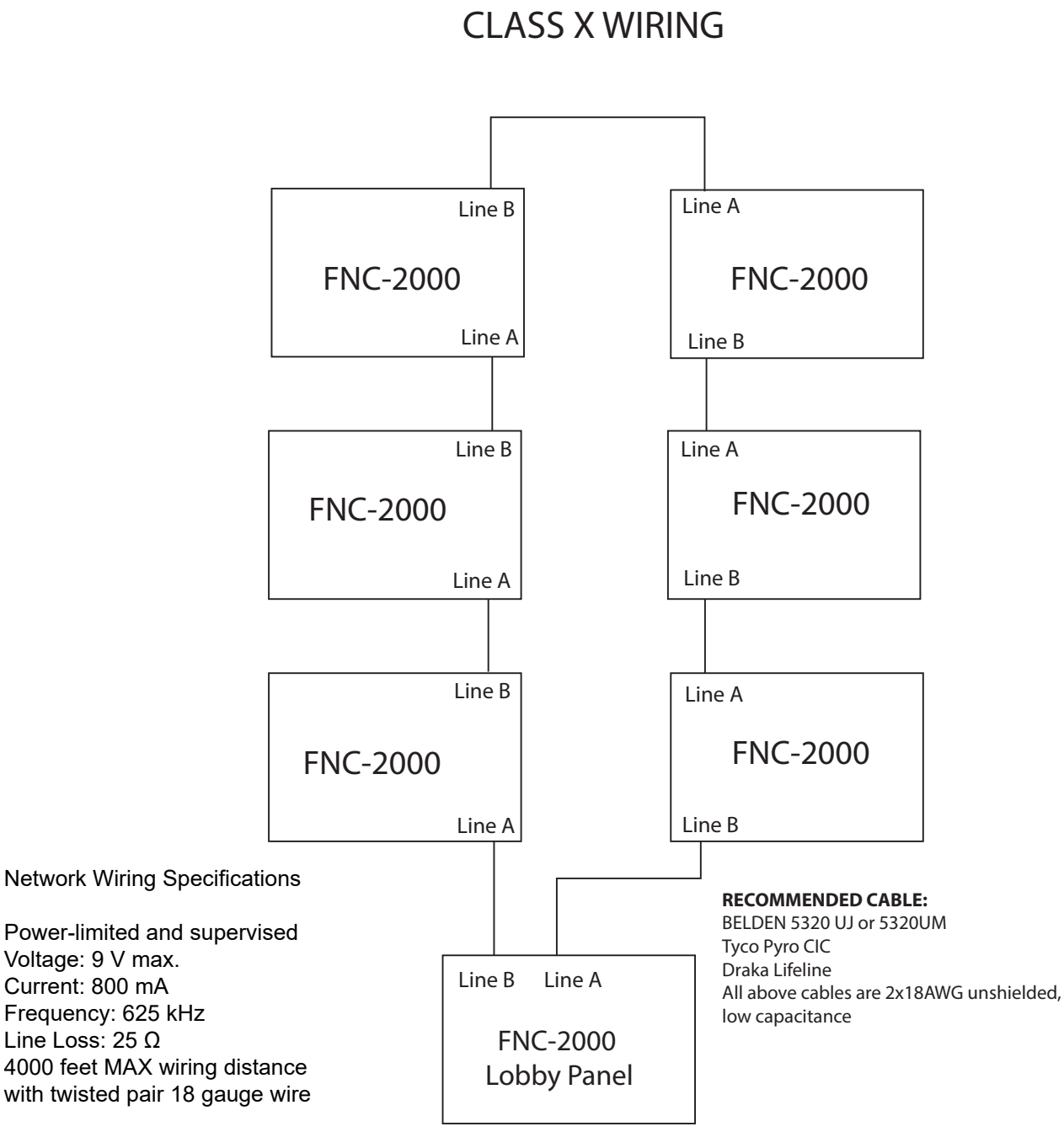


Figure 27 Class X (DCLC) Wiring for the FNC-2000 Module

6.4 FOM-2000-UM Fiber Optic Network Adder Module

The FOM-2000-UM Fiber Optic Network Adder Module is connected with fiber optic cable. Connect L1 to L2 and L2 to L1 as shown in the class A wiring of Figure 28. Refer to LT-6907 document for more wiring and installation information.

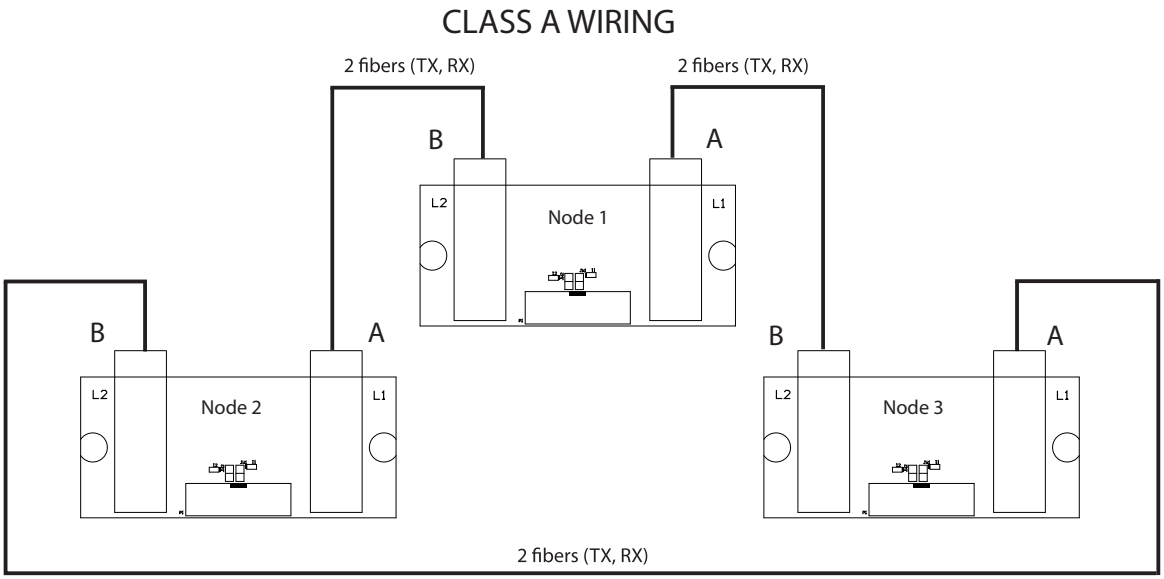


Figure 28 FOM-2000-UM Fiber Optic Network Adder Module Wiring

6.5 Detection Module DM-1008A Terminal Connections

Wire devices to terminals as shown below. See section 6.12 and Appendix A for electrical specifications and see document LT-1023 for compatible devices.

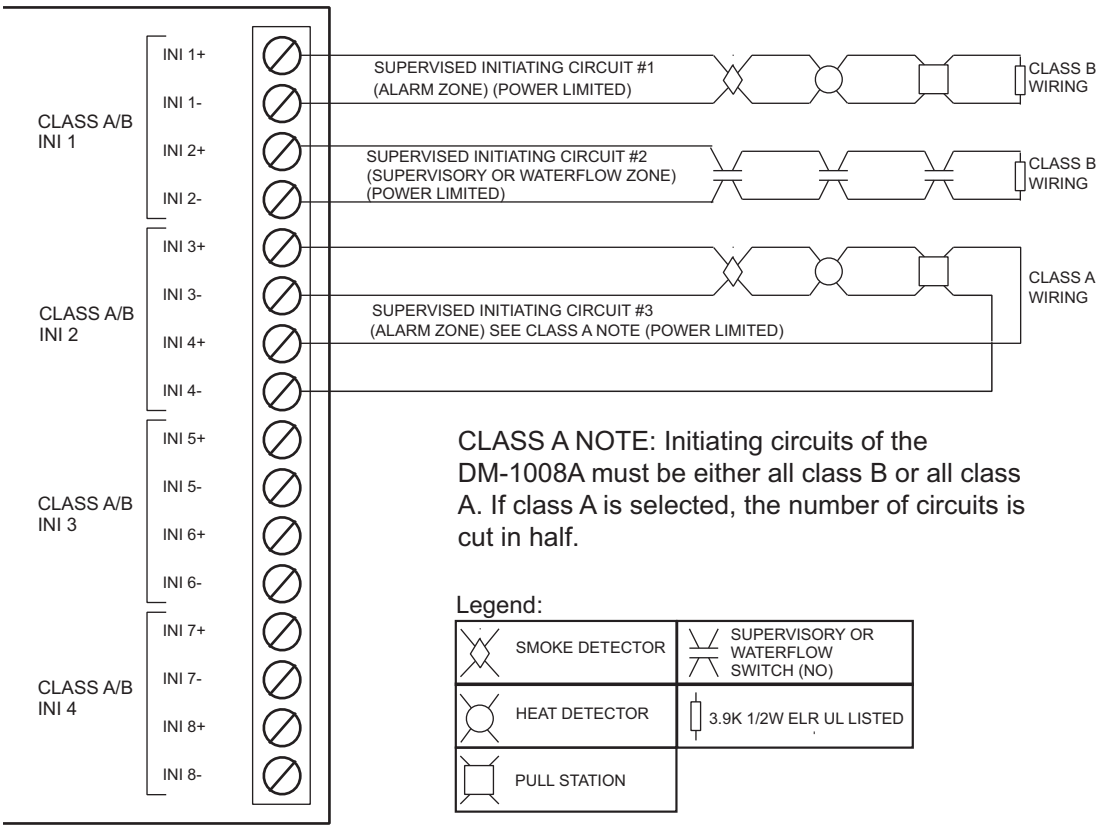


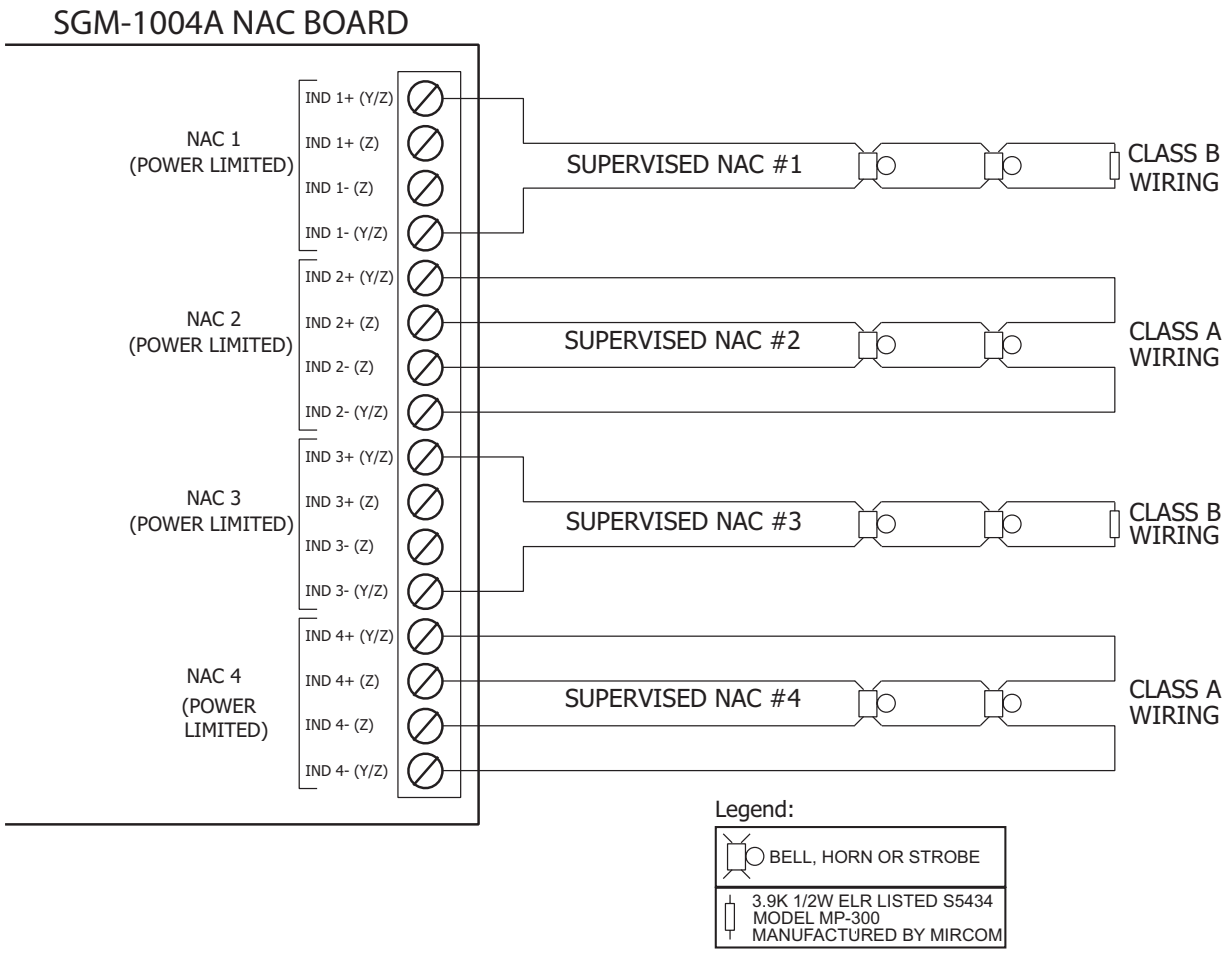
Figure 29 Hardwire Detection Module DM-1008A Terminal Connections

Note: Terminal blocks are “depluggable” for ease of wiring.
All power limited circuits must use type FPL, FPLR, or FPLP power limited cable.
Initiating circuits are fully supervised and rated for 22 VDC, 3 mA standby, 5 mV ripple, 50 mA max alarm. They may be configured as required. The alarm threshold is 21 mA. Maximum loop resistance is 100 Ω, 50 Ω per side.
All conventional hardwire initiating circuits are Compatibility ID "A".

6.6 Signal Module SGM-1004A Terminal Connections

Wire devices to terminals as shown in Figure 30 below. See Appendix A for signal module specifications, and LT-1023 for compatible devices.

Figure 30 Hardwire Signal Module SGM-1004A Terminal Connections



Note: The terminal blocks are depluggable for ease of wiring.
All power limited circuits must use type FPL, FPLR, or FPLP power limited cable.
SGM-1004A NACs are fully supervised and rated for Regulated 24 FWR, 1.7A max. See section 6.12 for wire gauges and lengths.

6.7 Signal Module SGM-1004S Terminal Connections

Wire devices to terminals as shown in Figure 31 below. See Appendix A for electrical specifications, and LT-1023 for compatible devices.

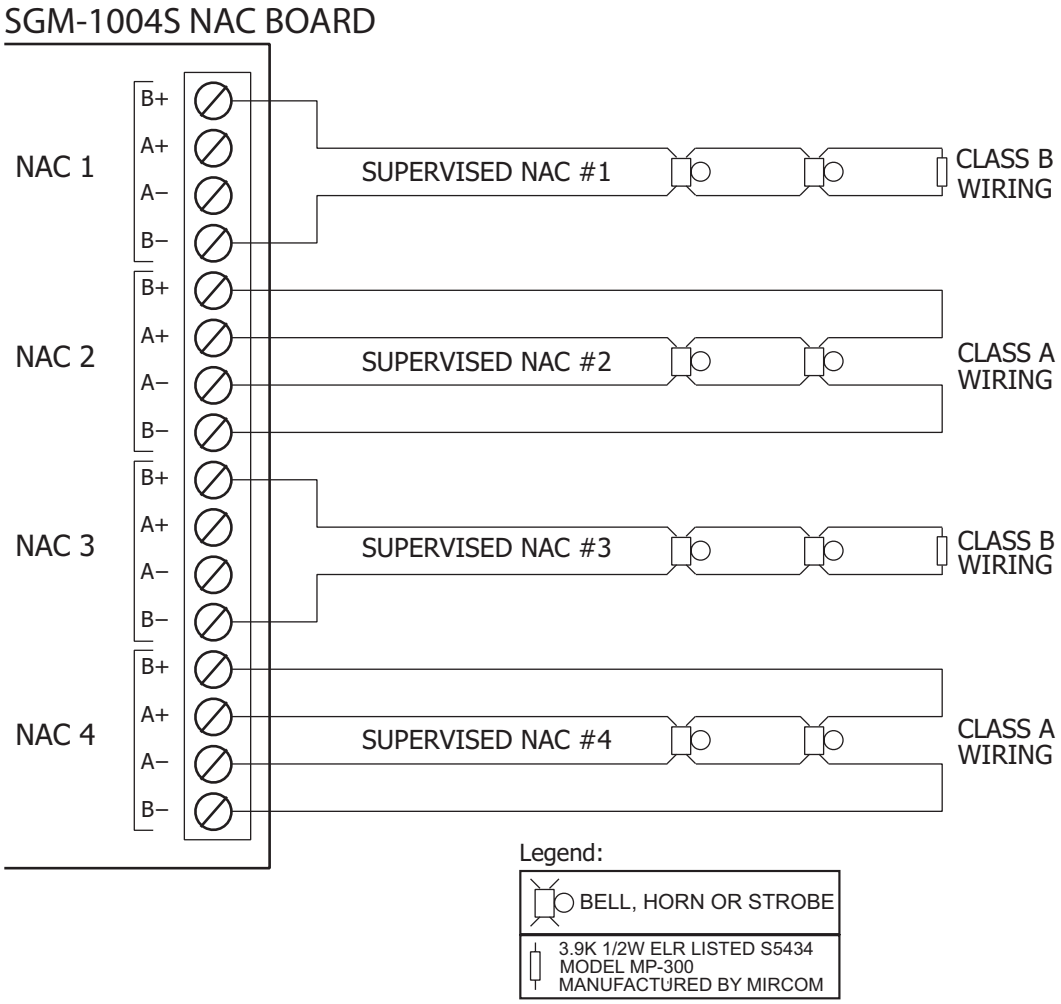


Figure 31 Hardwire Signal Module SGM-1004S Terminal Connections

Note: The terminal blocks are depluggable for ease of wiring.
The SGM-1004S NACs are either all power limited or all non-power limited. See LT-6734.
All power limited circuits must use type FPL, FPLR, or FPLP power limited cable.
See Appendix A for the ratings. See section 6.12 for wire gauges and lengths.

6.8 Relay Module RM-1008A Terminal Connections

Relays are available as shown below.

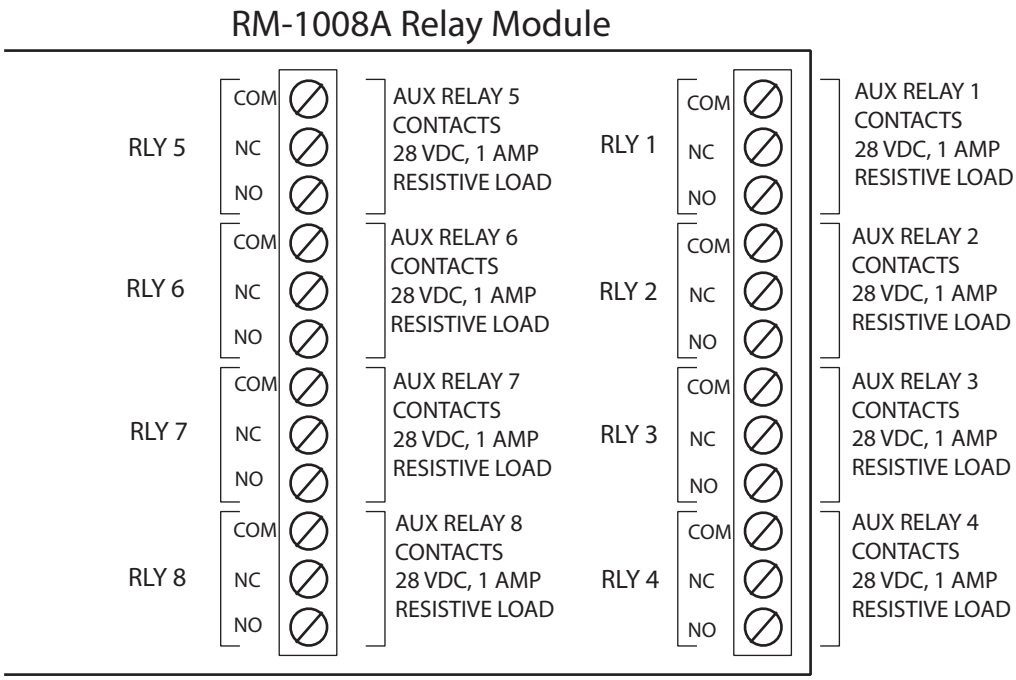


Figure 32 Hardwire Relay Module RM-1008A Terminal Connections

Note: All relay circuits are power limited and must use type FPL, FPLR, or FPLP power limited cable.
All relay circuits must be connected to a listed power limited source of supply.

Attention: Do not connect any voltage greater than 30 VAC directly to these relays.

6.9 Polarity Reversal and City Tie Module PR-300 Wiring

Wire PR-300 Polarity Reversal and City Tie Module (if used) as shown in Figure 33 below. Power Limited cable type FPL, FPLR or FPLP must be used.

For USA installation, the installer must use **Atlantic Scientific (Tel: 407-725-8000), Model #24544 Protective Device**, or similar **UL-Listed QVRG secondary protector**, as shown.

For use in Canada, the Protective Device is not required but still recommended.

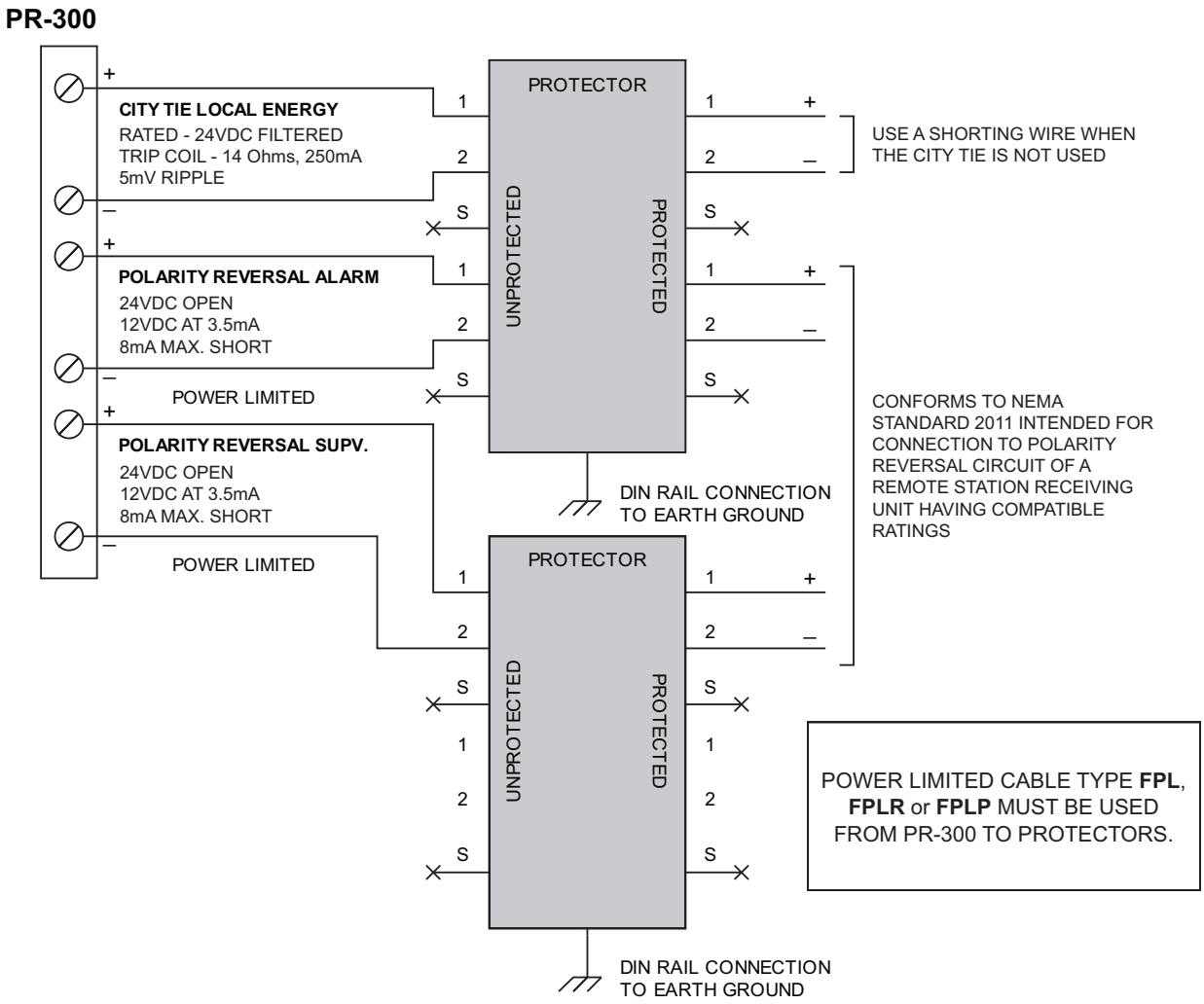


Figure 33 Polarity Reversal and City Tie Module PR-300 Terminal Connection

Note: Either the PR-300's city tie or polarity reversal interface may be used, but not both.
The city tie interface is not power limited.
Plug PR-300 ribbon cable P1 into connector P4 of the FX-240N main fire alarm board.
Cut jumper JW1 on the PR-300 module in order to transmit a trouble condition to the monitoring station.
Remove jumper plug from jumper JW1 on the main fire alarm module.
The polarity reversal interface is power limited and must use type FPL, FPLR, or FPLP power limited cable.
For polarity reversal operation, short the city tie connection.

6.10 UDACT-300A Main Board Terminal Connections

Refer to LT-888 UDACT-300A Installation Manual for wiring instructions.

6.11 Power Supply Connections

The power supply is part of the main chassis. The ratings are outlined in the table below.

Electrical Input Ratings	Power Supply Total Current	Battery Fuse on Main Module
120 VAC, 60 Hz, 4A / 240VAC, 50 Hz, 2A	12 amps maximum	20 amp, 1-1/4" slow blow non-replaceable fuse
IN-LINE 20 amp, 1 1/4” fast acting fuse, positive side of battery connection		

See Appendix A for more power supply specifications. Wire as shown below with proper gauge wire.

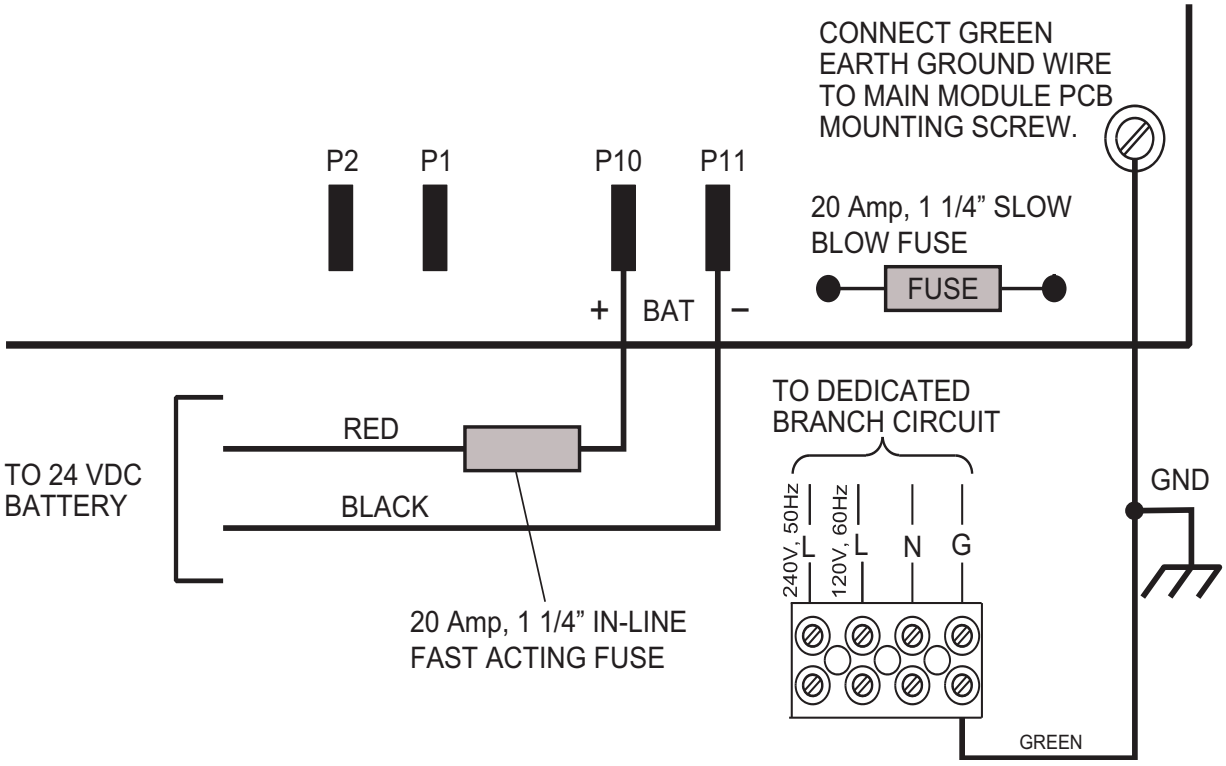


Figure 34 Power Supply Connections

CAUTION: To prevent sparking, connect batteries after the system’s main A.C. power is turned ON.

Do not exceed power supply ratings.

Adhere to voltage markings as specified on labels.

6.12 Wiring Tables and Information

Table 18: Wiring Table for Initiating Circuits

Wire Gauge	Maximum Wiring Run to Last Device (ELR)	
AWG	ft.	m
22	2990	910
20	4760	1450
18	7560	2300
16	12000	3600
14	19000	5800
12	30400	9200

Note: Maximum loop resistance should not exceed 100 Ohms.

Table 19: Wiring Table for NACs

Total Signal Load	Maximum Wiring Run to Last Device (ELR)								Max Loop Resistance
	18AWG		16AWG		14AWG		12AWG		
Amperes	ft.	m	ft.	m	ft.	m	ft.	m	Ohms
0.06	2350	716	3750	1143	6000	1829	8500	2591	30
0.12	1180	360	1850	567	3000	915	4250	1296	15
0.30	470	143	750	229	1200	366	1900	579	6
0.60	235	71	375	114	600	183	850	259	3
0.90	156	47	250	76	400	122	570	174	2
1.20	118	36	185	56	300	91	425	129	1.5
1.50	94	29	150	46	240	73	343	105	1.2
1.7	78	24	125	38	200	61	285	87	1.0

Note: Maximum voltage drop should not exceed 3.3 volts for class A and 3.7 volts for class B and 3 volts for the SGM-1004S.

Main board NACs are rated for 1.7 amps each. See LT-6743 for SGM-1004S NAC ratings.

Table 20: Addressable Loop Wiring

Wire Gauge (use twisted pair)	Loop Total (Out and In) Maximum Twisted Pair Wire Run		Max Loop Resistance
AWG	ft.	m	Ohms
12	10,000	3049	31.7
14	7950	2423	40.0
16	4980	1518	39.9
18	3132	955	39.9

Note:

- Line capacitance shall not exceed 0.5 µF.
- Inductance shall not exceed 1 mH.
- Resistance shall not exceed 40 ohms at 250 mA, and shall not exceed 25 ohms at 400 mA.

Remote Annunciator Power Wiring: Use Table 19 for the wiring information for the remote annunciator being used.

RS-485 Wiring: See the wiring information for the remote annunciator being used.

4-Wire Smoke Wiring: The maximum allowable current is 0.2 amperes. The maximum allowed voltage drop is 1 volt. Refer to Table 18.

Shield for Addressable Loop Wiring: Only twisted pair is recommended, but if shielded twisted pair is used, wire shield at the start and the end of the loop to the terminals marked Shield at the loop adder board.

7.0 System Checkout

7.1 Before Turning the Power On

1. To prevent sparking, *do not* connect the batteries. Connect the batteries after powering the system from the main AC supply.
2. Check that all modules are installed in the proper location with the proper connections.
3. Check all field (external) wiring for opens, shorts, and ground.
4. Check that all interconnection cables are secure, and that all connectors are plugged in properly.
5. Check all jumpers and switches for proper setting.
6. Check the AC power wiring for proper connection.
7. Check that the chassis is connected to EARTH GROUND (cold water pipe). Refer to NFPA 70.
8. Make sure to *close the front cover plate* before powering the system from main AC supply.

When using class A and isolators on an addressable loop, configure system as class B, wire loop as class A, except do not connect the last device back to the panel. Do a system checkout. Then connect the return of the class A circuit and configure as class A.

7.2 Power-Up Procedure

1. After completing the above procedures, power up the panel (AC only). The green AC On LED and the Common Trouble LED should illuminate, and the buzzer should sound.
2. Press the System Reset button. Since the batteries are not connected, the Battery Trouble LED should illuminate, the trouble buzzer should sound intermittently, and the Common Trouble LED should flash.
3. Connect the batteries while observing correct polarity: the red wire is positive (+) and the black wire is negative (−). All indicators should extinguish except for the AC On LED and the LCD should show a normal status condition.
4. Auto-Configure or PC Configure the fire alarm control panel as described in the Configurator Guide.

7.3 Troubleshooting

Message	Description
Ground Fault	The FX-240N panel has a Common Ground Fault Detector. To correct the fault, check for any external wiring touching the chassis or other earth ground connection.
Battery Trouble	Check for the presence of batteries and their condition. Low voltage (below 20.4V) will cause a battery trouble. If battery trouble condition persists, replace the batteries as soon as possible.

8.0 Indicators, Controls, and Operation

Table 21: Settings Permitted in UL864

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, 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 UL 864
Two stage operation	N	Single stage operation Two stage operation	Single stage operation
Auto Test Time	Y	Day of month and Time of day. The Auto test time can be configured to: 12:00 a.m. to 5:59 a.m.: test every 24 hours 6:00 a.m. to 11:59 a.m.: test every 6 hours 12:00 p.m. to 23:59 p.m.: test every 12 hours	Set Auto Test Time to any time between 6:00 a.m. to 11:59 a.m. : test every 6 hours
Proving Circuit Delay	Y	5-90 seconds	Maximum 60 seconds for fan, 75 seconds for damper
Alarm Transmit Silence	Y	Enabled and disabled	Disabled
Auto Signal Silence	Y	Disabled, 30 seconds or 1, 3, 5, 10, 15, 20, 30 minutes	Disabled, or 3, 5, 10, 15, 20, 30 minutes
Sounder base ignores power supply fault	Y	Enabled and disabled	Disabled
Convention Reset Timer	Y	0-60 seconds	14 seconds maximum
New Alarm Active status	N	Associated or not associated with outputs	New Alarm Active status must not be associated with outputs

Table 22: Settings Permitted in CAN/ULC-S527and CAN/ULC-S559

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 CAN/ULC S527 Standard for Control Units for Fire Alarm Systems and CAN/ULC-S559 Standard for Equipment for Fire Signal Receiving Centers and Systems 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 CAN/ULC-S527, S559? (Y/N)	Possible settings	Settings permitted in CAN/ULC-S527, S559
Auto Test Time	Y	Day of month and Time of day. The Auto test time can be configured to: 12:00 a.m. to 5:59 a.m.: test every 24 hours 6:00 a.m. to 11:59 a.m.: test every 6 hours 12:00 p.m. to 23:59 p.m.: test every 12 hours	Set Auto Test Time to any time between 6:00 a.m. to 11:59 a.m. : test every 6 hours
Supervisory alarm	Y	Non-latching and latching	Latching
Manual Signal Silence	Y	Enabled and disabled	Enabled
Proving Circuit Delay	Y	5-90 seconds	Maximum 60 seconds for fan, 75 seconds for damper
Addressable manual station or monitor module configured as a manual station	Y	Addresses 1-240	Addresses 1-224
Alarm Transmit Silence	Y	Enabled and disabled	Disabled
Auto Signal Silence	Y	Disabled, 30 seconds or 1, 3, 5, 10, 15, 20, 30 minutes	Disabled, or 5, 10, 15, 20, 30 minutes
Sounder base ignores power supply fault	Y	Enabled and disabled	Disabled
Subsequent Alarm Per Zone	Y	Enabled and disabled	Enabled
Conventional smoke detectors	Y	Possible types include alarm input and verified alarm	Must not be set to verified alarm
Second stage alarm relay	Y	Enabled and disabled	Disabled
Waterflow Retard Operation	Y	Enabled and disabled	If enabled, maximum retard may not exceed 90 seconds
New Alarm	Y	10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120 seconds	60, 70, 80, 90, 100, 110, 120 seconds
Auto Resound	Y	5-12 minutes	5-10 minutes

Refer to Figure 35 below for LED indicators, control buttons, and switches locations.

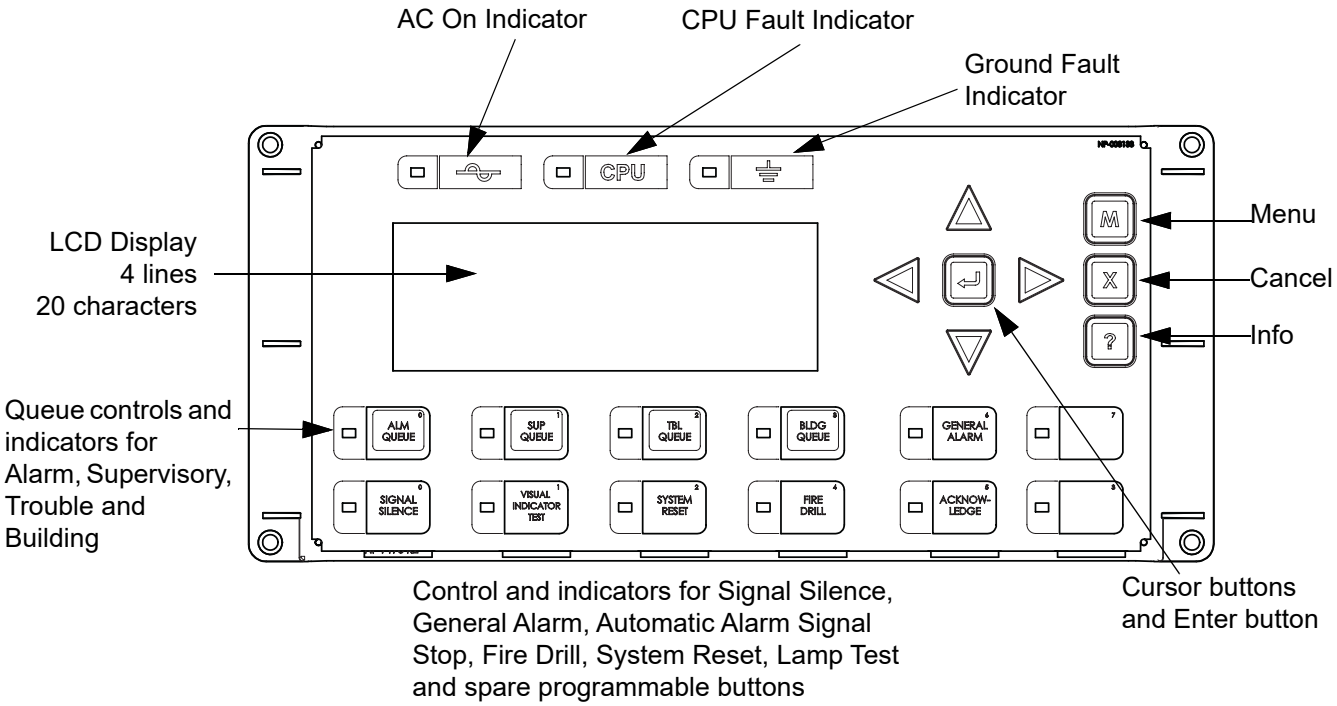


Figure 35 Indicators and Control Location

LED indicators are amber (trouble or supervisory), red (alarm), or green (AC On), and may illuminate continuously (steady) or at the rate of 20 flashes per minute.

Note: The General Alarm LED and pushbutton are active on a system configured as one stage or two stage. The General Alarm Cancel LED and pushbutton are active only on a system configured as two stage.

Buttons and indicators are supplied with paper labels. These labels slide into the plastic label templates on the face of the panel. Paper labels allow for easy English or French selection.

8.1 Common Indicators

Indicators	Description
Buzzer	The Buzzer is activated by any of the following Fire Alarm - Steady Supervisory Alarm - Fast Rate Trouble - Trouble Rate Monitor -Configurable to sound at Trouble Rate If the Buzzer is turned on in response to a Non-Latching Trouble or Supervisory, it will be turned off if the condition causing it goes away and there is no other reason for it to be on.
AC On LED	The AC On Indicator is activated steady green while the main AC power is within acceptable levels. It is turned off when the level falls below the power-fail threshold and the panel is switched to standby (battery) power.
Alarm Queue LED	The Common Alarm LED flashes red whenever the Panel is in Alarm. An alarm results from any alarm on any point or input programmed as Alarm or activation of the manual red General Alarm Button (if the Panel is set for Two Stage Operation). The Alarm Queue LED will go steady, once all alarms in the queue have been reviewed using the Alarm Queue button. Since all Alarms are latched until the Panel is reset, the Common Alarm LED will remain on until then.
Supervisory Queue LED	The Common Supv. (Supervisory) LED flashes amber at the Fast Flash Rate when there is a Supervisory Alarm in the Panel, as the result of any Latching or Non-Latching Supervisory Circuit. The LED turns off if all Non-Latching Supervisory Circuits are restored and there are no Latching Supervisory Circuits active. The Supv. Queue LED will go steady, once all supervisory alarms in the supervisory queue have been reviewed using the Supv. ACK button. Latching Supervisory Alarms remain active until the Panel is reset.
Trouble Queue LED	The Common Trouble LED flashes amber at the Trouble Flash Rate when there is any Trouble condition being detected on the panel. It is turned off when all Non-Latching Troubles are cleared. The Trouble Queue LED will go steady, once all troubles in the trouble queue have been reviewed using the Trouble Queue button.
BLDG Queue LED	The BLDG Queue LED flashes amber at the Trouble Flash Rate when there is any monitored building condition being detected on the panel. It is turned off when all building monitors are cleared.
CPU Fault LED	The CPU Fault Indicator is flashed yellow at the Trouble Flash Rate if the CPU is faulty.
Fire Drill LED	The Fire Drill Indicator turns on steady amber while Fire Drill is active.
Automatic Alm Sig Stop (Ack) or General Alarm Cancel LED	If the Panel is configured as Two Stage, the General Alarm Cancel Indicator flashes amber at the Fast Flash Rate while the Auto General Alarm Timer is timing out. It turns on steady amber when that Timer is cancelled by activating the General Alarm Cancel or Signal Silence buttons. If the Auto General Alarm Timer times-out and puts the Panel into General Alarm, the Indicator is turned off.
General Alarm LED	In Two Stage Operation only, the General Alarm LED is steady red when general alarm is activated due to the red General Alarm button being pushed, a General Alarm Initiating Circuit being activated, or the Auto General Alarm Timer timing out. Once the General Alarm LED has been turned on it will stay active until the Panel is reset.
Signal Silence LED	The Signal Silence indicator is flashed amber, at the trouble rate when Indication Circuits are Silenced either by the Signal Silence button, or by the Auto Signal Silence Timer. It is turned off when the Signals are re-sounded by a subsequent Alarm.
Ground Fault LED	The Ground Fault Indicator flashes amber at the Trouble Rate when the Ground Fault Detector detects a Ground Fault on any field wiring. It turns off immediately when the Ground Fault is cleared.

8.2 Common Controls

8.2.1 LCD Display

The display is a large 4 line by 20 character back-lit alphanumeric LCD. It displays information on the panel and its devices. There are cursor buttons for menu selection and control. Information provided by the LCD display is an alarm log, an event log, current levels, device information, verification and maintenance reports.

8.2.2 Queue Buttons

Use the queue buttons to select a particular queue to review.

Press the **Alarm Queue** button to cycle through all the unacknowledged alarms. Press  and  to cycle through all the alarms, both acknowledged and unacknowledged. Press the right cursor button  to scroll up by 10 events at a time. Press the left cursor button  to scroll down by 10 events at a time.

Press the **Supervisory Queue** button to cycle through all the unacknowledged supervisory conditions. Press  and  to cycle through all supervisory conditions, both acknowledged and unacknowledged. Press the right cursor button  to scroll up by 10 events at a time. Press the left cursor button  to scroll down by 10 events at a time.

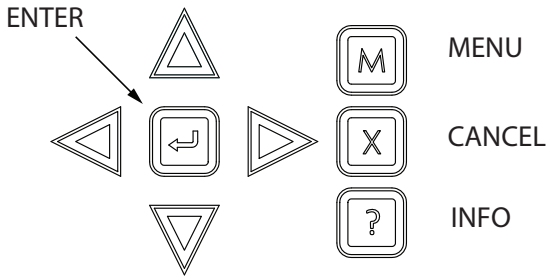
Press the **Trouble Queue** button to cycle through all the unacknowledged trouble conditions. Press  and  to cycle through all troubles, both acknowledged and unacknowledged. Press the right cursor button  to scroll up by 10 events at a time. Press the left cursor button  to scroll down by 10 events at a time.

Press the **Building Queue Button** to cycle through all the unacknowledged building (monitor) conditions. Press  and  to cycle through all queued monitor conditions, both acknowledged and unacknowledged. Press the right cursor button  to scroll up by 10 events at a time. Press the left cursor button  to scroll down by 10 events at a time.

Queues are displayed on the screen according to a priority sequence. Queue priority ranking from highest to lowest is as follows: alarm, supervisory, trouble, and monitor. If, for example, you are viewing a monitor queue and an alarm occurs, the display will immediately display the alarm condition. Also, if there is no activity on the system for 10 seconds after you have pressed a queue button, the display will switch to the highest priority condition.

8.2.3 Cursor Buttons

Located around the Enter button, the cursor buttons up (previous), down (next), right, and left allow you to select items on the LCD display. The up and down buttons scroll through lists in a continuous loop.



Enter Button

Use this button to select a displayed item on the LCD display.

Cancel Button

Use this button to cancel an operation or exit a menu.

Menu Button

Use this button to view the Command Menu.

Info Button

Push and hold this button to get detailed information about any displayed item.

8.2.4 System Reset Button

The System Reset button causes the Fire Alarm Control Panel, and all Circuits, to be reset:

- Resets all Latching, Trouble Conditions
- Resets all Initiating Circuits
- Resets 4-Wire Smoke Supply and Aux. Power Supply
- Turns off all NACs
- Turns off Signal Silence, Ack and GA Indicators
- Turns off Fire Drill
- Stops and resets all Timers
- Processes inputs as new events
- Aux Disconnect is not affected
- Reset cannot be activated until the Signal Silence Inhibit timer has expired.

8.2.5 Signal Silence Button

Activation of the Signal Silence button when the Panel is in Alarm, turns on the Signal Silence Indicator and deactivates any Silenceable NACs. Non-Silenceable Circuits are unaffected. Signals will re-sound upon any subsequent Alarm. This button does not function during any configured Signal Silence Inhibit Timer period. It also does not function if the NACs are active as the result of a Fire Drill. In a Two Stage System, if the Auto General Alarm Timer has timed out, this Signal Silence button also performs the same function as the General Alarm Cancel button.

8.2.6 Fire Drill Button

The Fire Drill button activates all programmed and non-Disconnected NACs, but does not transmit any Alarms via the City Tie, or Common Alarm Relay. Fire Drill may be programmed to operate specific NACs. Fire Drill is cancelled by pressing the button again (toggle switch), or if the Panel goes into a real Alarm.

8.2.7 General Alarm Cancel Button (Two Stage Only)

If the Panel is not configured for Two Stage Operation, this button does nothing. If the Panel is configured for Two Stage Operation, activation of the General Alarm Cancel button while the Auto General Alarm Timer is timing (there is an Alarm in the Panel, but it is still in the First Stage), that timer is cancelled, and the General Alarm Cancel Indicator is on steady amber.

8.2.8 General Alarm Button

If the Panel is configured for Single Stage Operation, activation of the General Alarm button immediately sends the Panel into general alarm. If the Panel is configured for Two Stage Operation, activation of the General Alarm button immediately sends the Panel into Second Stage - General Alarm. It will also re-activate the Signals if they have been Silenced during General Alarm. The General Alarm condition remains active until the Panel is reset.

8.2.9 Lamp Test Button

Activation of the Lamp Test button turns all front panel Indicators on steady in whichever colour they would normally be activated and turns the buzzer on steady. If Lamp Test is active for more than 10 seconds, Common Trouble is activated.

8.3 Single Stage Operation

In a single stage system, all alarm inputs are treated in a similar manner. Alarm inputs include any of the following: non-verified alarm, verified alarm, sprinkler alarm, water-flow alarm, and general alarm circuits. Any of these alarm inputs occurring when the panel is not already in alarm cause the following:

- The buzzer sounds steadily
- If fire drill is active, it is cancelled
- The Common Alarm LED turns on
- The Common Alarm relay activates if Aux disconnect is not active
- The Auto Signal Silence timer, if configured, starts
- The Signal Silence Inhibit timer, if configured, starts
- All non-disconnected NACs programmed to the input are activated provided that Aux disconnect is not active
- Non-disconnected strobes associated with the input are activated
- Non-disconnected signals associated with the input are activated at the evacuation rate

Subsequent alarms when the panel is already in alarm, cause the following:

- The buzzer sounds steadily
- If Signals have been silenced, they are resounded, the Signal Silence LED turns off, and the Auto Signal Silence timer, if configured, is restarted

- Any additional non-disconnected strobes associated with the input are activated continuously
- Any additional non-disconnected signals associated with the new input are activated at the evacuation rate

8.4 Two Stage Operation

In a two stage system, alarm inputs are either first stage (alert) inputs or second stage (general alarm) inputs. First stage inputs include inputs from the following types of circuits: non-verified alarm, verified alarm, sprinkler alarm, and water-flow alarm. Second stage inputs include alarms on the general alarm circuits, activation of the General Alarm button, or expiration of the Auto General Alarm timer. Any of these alarm inputs occurring when the panel is not already in alarm cause the following:

- The buzzer sounds steadily
- If fire drill is active, it is cancelled
- The Common Alarm LED turns on
- The Common Alarm relay activates if Aux disconnect is not active
- The Auto Signal Silence timer, if configured, starts
- The Signal Silence Inhibit timer, if configured, starts
- All Non-disconnected indicating programmed to the input are activated provided that Aux disconnect is not active

If the alarm is a second stage alarm,

- All non-disconnected strobe circuits are activated continuously
- All non-disconnected signal circuits are activated at the evacuation rate
- The General Alarm LED turns on.

If the alarm is a First Stage alarm,

- Non-disconnected strobe circuits programmed to that circuit are activated continuously
- Non-disconnected signal circuits programmed to that circuit are activated with the alert code
- The Auto General Alarm timer, if configured, starts
- The General Alarm Cancel LED starts flashing.

Subsequent First Stage alarms when the panel is already in alarm, cause the following:

- The buzzer sounds steadily
- If signals have been silenced as a result of the silence button or the Auto signal silence timer, signals are resounded as they were before signal silence, the Signal Silence LED turns off, and the Auto Signal Silence timer, if configured, is restarted
- If the panel is not already in General Alarm, additional non-disconnected signals programmed to the new input are activated with the Alert Code (see section 8.6.2).
- If the panel is not already in General Alarm and if the General Alarm Cancel LED is on steady indicating that the Auto General Alarm timer has been Acknowledged the timer is restarted and the General Alarm Cancel LED is extinguished.

A second stage alarm (general alarm) when the panel is already in alarm causes the following:

- The buzzer sounds steadily

- All non-disconnected signals are activated at the evacuation rate
- If the Signal Silence LED is on, it turns off and the Auto Signal Silence timer, if configured, is restarted
- The General Alarm Cancel LED if on, turns off

Alarm inputs are latching: they remain active until system reset.

Note: If the system is configured for correlations, any second stage / general alarm condition activates all NACs whether they are correlated or not.

8.5 Pre-Signal Operation

To configure the panel for pre-signal, all alarm inputs must be correlated to one NAC circuit that is wired to a Notification Appliance in the Control Room that is constantly monitored by an Operator. Using the FX-240N Configurator, “Subsequent Alarm” in “Common System Status” must be correlated to turn on the Remaining NAC circuits in the system. To confirm the alarm (i.e. subsequent alarm) the operator can press the “General Alarm” button on the panel or activate a Manual Station in the Control Room.

Note: Pre-Signal is not permitted to be used in Canada, unless approved by the AHJ.

8.6 Circuit Types

The term **circuits** refers to an actual electrical interface, either initiating (detection) or indicating (signal). The term **zone** is a logical concept for a fire alarm protected area, and will consist of at least one circuit. Often the terms zone and circuit are used interchangeably, but in this manual the term circuit is used.

8.6.1 Initiating (Detection) Circuit Type

Initiating (Detection) Circuit Type	Description
Non-Verified Alarm	This is a "normal" type of alarm which may have pull stations, smoke detectors, or heat detectors attached. Any activation of these devices will immediately result in an alarm condition in the fire alarm control panel. An alarm condition causes the associated circuit Status LED and the Common Alarm LED to illuminate red.
Verified Alarm	These alarms are verified by a reset and timing procedure, and may have Manual Stations, smoke detectors attached. Any activation of Manual Stations will result in an alarm condition in the fire alarm control panel within four seconds. Smoke detectors will be verified for a real alarm within 60 seconds depending upon the start-up time of the smoke detectors being used. If four seconds is too long a response time for pull stations, then they should be wired separately on a non-verified alarm circuit. An alarm condition causes the associated circuit Status LED and the Common Alarm LED to illuminate red. Verified Alarm is not permitted for heat detectors, 4-wire smoke detectors and smoke detectors with built-in alarm verification. Refer to Appendix D for details.
Water-Flow Alarm	An alarm for water-flow sensors. These alarms are identical to normal non-verified alarms except that any NACs programmed to these circuits (all are by default) are non-silenceable. Also, if water-flow retard operation is enabled, then these circuits are sampled every one second; if ten samples are active within any 15 second interval, the water-flow alarm is confirmed and processed. An alarm condition causes the associated circuit Status LED and the Common Alarm LED to illuminate red. **Note: Do not use the retard operation with any external retarding device. To comply with CAN/ULC S527, maximum retard may not exceed 90 seconds.**
Sprinkler Alarm	An alarm for sprinkler flow sensors. These alarms are identical to normal non-verified alarms unless the water-flow retard operation is enabled. If water-flow retard operation is enabled, then these circuits are sampled every one second; if ten samples are active within any 15 second interval, the sprinkler alarm is confirmed and processed. An alarm condition causes the associated circuit Status LED and the Common Alarm LED to illuminate red. **Note: Do not use the retard operation with any external retarding device. To comply with CAN/ULC S527, maximum retard may not exceed 90 seconds.**
General Alarm	These alarms provide remote general alarm such as for remote key switches. In a two stage system, these inputs perform exactly the same function as the front panel or remote annunciator General Alarm button. In a single stage system, these inputs act the same as non-verified alarms, but if correlations are enabled, general alarm initiating circuits are correlated to *all* NACs.
Non-Latching Supervisory	These alarms are for supervisory devices. An activation on these circuits will cause the Circuit Status LED and the Common Supervisory LED to illuminate amber. The buzzer will sound continuously. If the circuit activation is removed, the supervisory condition will clear (so long as there are no other supervisory conditions in the system) and the circuit Status LED will extinguish.

Initiating (Detection) Circuit Type	Description
Latching Supervisory	These alarms are for supervisory devices. An activation on these circuits will cause the Circuit Status LED and the Common Supervisory LED to illuminate amber. The buzzer will sound continuously. If the circuit activation is removed, the Supervisory condition will *not* clear.
Monitor (BLDG)	This is a supervised general purpose non-latching input used mainly for correlating to a relay circuit. No other system condition occurs as a result of its activation (short-circuit), although it is supervised for trouble (open-circuit).
Trouble-Only	This circuit is used for monitoring a trouble condition from an external device. Both open and short circuits generate a non-latching trouble condition.

8.6.2 Indicating (Signal) Circuits Types

Indicating (Signal) Circuit Type	Description
Silenceable Signal	For audible devices such as bells and horns that may be silenced either manually or automatically. While sounding, these follow the pattern appropriate for the condition: the configured evacuation code (default is temporal code) during single-stage alarm, or two stage general alarm, or the alert code during a two stage system's alert (first) stage.
Non-Silenceable Signal	For audible devices such as bells and horns that may not be silenced either manually or automatically. While sounding, these follow the pattern appropriate for the condition: the configured evacuation code (default is temporal code) during single-stage alarm, or two-stage general alarm, or the alert code during a two stage system's alert (first) stage.
Coded Signal	The code consists of 4 digits with each digit consisting of 1-15 pulses on the signals. Each coded circuit can sound the complete code 1 to 15 times after which signals go silent or revert to programmed General Alarm rate. **Note: The NFPA-72 and ULC-S527 specify temporal tone. However, for retrofits of systems that were previously approved, coded signalling is allowed.**
Strobe	For visual devices such as strobes that use no code patterns (they are continuous).

8.6.3 Evacuation Codes

Single stage codes

Continuous	On 100% of the time
Temporal Code 3	3 of 0.5 second on, 0.5 second off then, 1.5 second pause
March Code	0.5 second on, 0.5 second off
California Code	5 seconds on, 10 seconds off

Two-stage codes

Alert Code	0.5 second on, 2.5 seconds off
General Alarm	Evacuation code as selected from above.

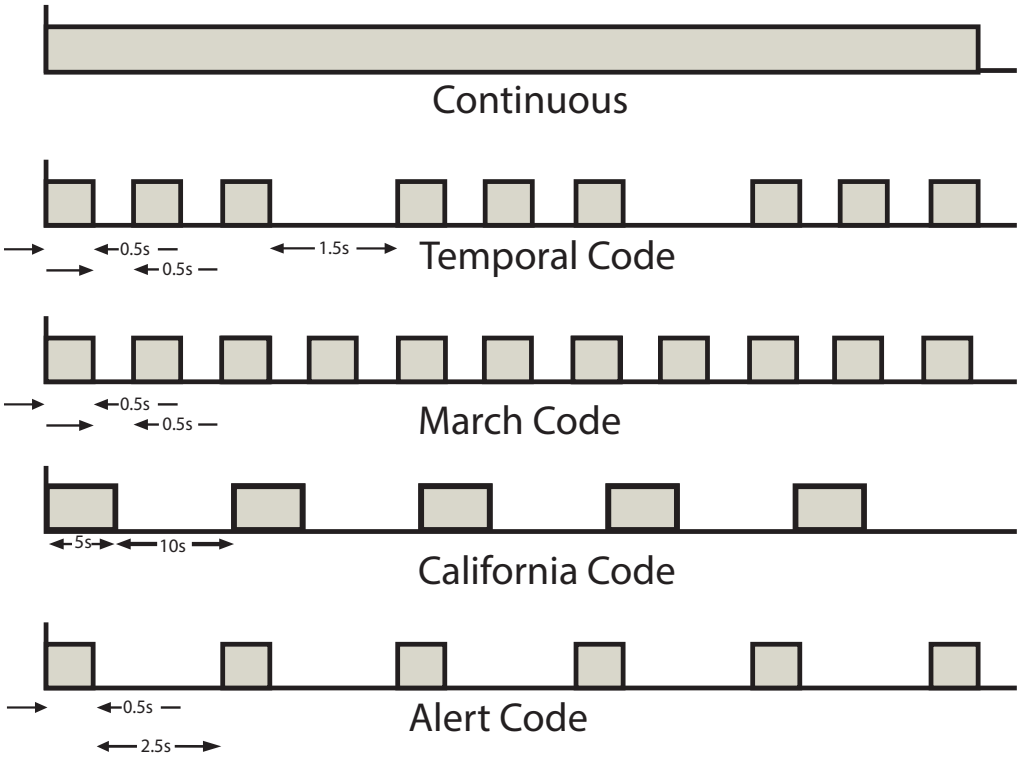


Figure 36 Audible Signal Codes

9.0 Configuration

The FX-240N network system is configured using MGC software.

NOTE: When setting up a system to use the Request, Grant, Deny functionality, if any nodes within that system have annunciators attached, the controls must be disabled on those annunciators (ancillary displays only).

Configuration Backup, Query and Fast-Forward

The panel supports three stored configurations. The panel can be configured without taking the panel off-line. Configuration moves through stored configurations through front-panel menu.

Open Graphic Navigator Software Package

This software package (OpenGN) allows 3D graphic display of premises and devices. It provides unlimited floor plans and events, node and job support. It supports input file formats for floors such as: .svg, .dxf, .pdf, .png, .wmf, .jpeg. Device icons and state animations can be customized.

Ethernet Port

Integrated TCP/IP stack, hardware based MAC address. Provides a fully configurable IP address. Use this Ethernet port to connect to OpenGN graphics software. This port also provides web server for diagnostic and system report via LAN or WAN connection on-site or remotely.

Appendix A: Specifications

Main Fire Alarm Chassis FX-240N

General

One addressable loop capable of monitoring 240 MGC MIX-4000 Series sensors and modules

Power limited: 22 VDC, 200 mA normal standby and 400 mA max. Max. loop resistance 40 Ω at 250 mA and 25 Ω at 400 mA during alarm condition

Four class B or A indicating circuits; configurable as strobes or audibles. Terminals are labelled "NAC"

Power limited: Regulated 24 FWR, 1.7 A @ 49°C per circuit

Displays (incl LCD) and controls for all common functions

Optional PR-300 City Tie Module

Aux. Power Supply (for remote annunciators). Terminals are labelled "AUX PWR"

Power limited: 24 VDC, 1.7 A @ 49°C

Resettable 4-Wire Smoke Supplies. Terminals are labelled "4-WIRE"

Power limited: 22 VDC, 425 mA max., 5mV ripple

One RS-485 Connection for remote annunciators. Terminals are labelled "RS485"

Power Limited to 300 mA

Auxiliary relays: (resistive loads)

Must be connected to a listed power limited source of supply. Terminals are labelled "ALARM, TROUBLE, SUPV"

Common Alarm:	Form C, 1 amp, 24 VDC
Common Supv:	Form C, 1 amp, 24 VDC
Common Trouble:	Form C, 1 amp, 24 VDC

Micro-controller based design

Fully configurable with PC software

Full walk test function

Ground Fault Threshold 3.3 kΩ or less

Open circuit fault 100 kΩ or more

Short circuit fault 0.1 Ω or less

Electrical Ratings

AC Line Voltage:	120V 60Hz / 240V, 50Hz
	4 Amps / 2 Amps (primary)
Power Supply ratings:	12 Amps. max. (secondary)
For NAC Circuits:	24VDC unfiltered
	10 Amps. max.
Battery:	24VDC, gel-cell/sealed lead-acid
Charging capability:	17-65 Ah batteries
Current Consumption:	standby: 310 mA
	alarm: 733 mA

Fiber Optic Module FOM-2000-UM

Current Consumption:

standby: 16mA (single mode) or 42mA (multi-mode)

alarm: 16mA (single mode) or 42mA (multi-mode)

Detection Adder Module DM-1008A

Eight supervised class B initiating circuits; fully configurable. Terminals are labelled "INI"

Initiating circuits are Compatibility ID "A"

Current Consumption:	standby: 80 mA	
	alarm:	1 zone active: 125 mA
		2 zones active: 170 mA
		4 zones active: 275 mA
		6 zones active: 370 mA
		8 zones active: 465 mA

Signal Adder Module SGM-1004A

Four Class B or A indicating circuits; configurable as strobes or audibles. Terminals are labelled "IND"

Power Limited:	Regulated 24 FWR	
	max. 1.7 amps @ 49C per circuit	
Current Consumption:	standby:	60 mA
	alarm:	258 mA

Signal Adder Module SGM-1004S

Four class B or A indicating circuits; configurable as strobes or audibles. Terminals are labelled "NAC"

Regulated 24 FWR/regulated 24 DC. See compatibility document LT-1023 for more information

Power limited where applicable:

Regulated 24 FWR/regulated 24 DC

Max. 1.7 A @49 °C per NAC circuit

Max. 5 A per SGM-1004S

Max. 8 A for 6 SGM-1004S with external synchronization (not to exceed the max. 5 A per SGM-1004S)

Note: The NACs are regulated 24VDC when powered by the batteries, and regulated 24VFWR when powered by the AC mains.

Current Consumption:	standby: 31 mA
	alarm: 96 mA

Special application for connecting FHS-400/FH-400/FS-400 series notification appliances. See compatibility document LT-1023 for more information

Max. voltage 33V DC/FWR

Max. 2.1 A @49 °C per NAC circuit

Max. 5 A per SGM-1004S with internal synchronization

Note: The maximum voltage is 33 VDC when powered by the batteries, and 33 VFWR when powered by the AC mains.

Current Consumption:	standby: 31 mA
	alarm: 96 mA

Relay Adder Module RM-1008A (resistive loads)

Must be connected to a listed power limited source of supply. Terminals are labelled "RLY"

Eight fully configurable Form C indicating.

Form C, 1 amp., 28 VDC (resistive loads)

Current Consumption: standby: 25 mA
alarm: 150 mA

DSPL-420DS and DSPL-2440DS Displays

Current Consumption: standby: 25mA and 30mA
alarm: 30mA and 35mA

Fan Damper Display Module FDX-008W(KI)

24V DC nominal, range of 20 to 39V DC.

Current Consumption: standby: 15mA Max.
alarm (all LEDs On): 35mA Max.

Digital Communicator Module UDACT-300A

Transmit alarm, supervisory, and trouble to a central monitoring station

Current Consumption: standby: 45 mA
alarm: 120 mA

Programmable Input Switches Module IPS-4848DS

Current Consumption: standby: 10 mA
alarm (one zone active): 22 mA

Programmable Input Switches Module IPS-2424DS

Current Consumption: standby: 5 mA
alarm (one zone active): 22 mA

Polarity Reversal and City Tie Module PR-300

Supervised city tie--not power limited

24VDC unfiltered, 210 mA max., Trip coil: 14 Ω

Terminals are labelled "City Tie"

Polarity reversal power limited

Terminals are labelled "Polarity Reversal"

24VDC open

12VDC @ 3.5 mA, 8 mA max. (shorted)

Current Consumption: standby: 35 mA
alarm: 300 mA

Network Controller Module FNC-2000

Current Consumption: standby: 190 mA
alarm: 190 mA

Adder Annunciator Module RAX-1048TZDS

48 Display Points

Current Consumption: standby: 139 mA
alarm: 1 zone LED active: 26 mA
2 zone LEDs active: 30 mA
3 zone LEDs active: 35 mA
4 zone LEDs active: 39 mA
48 zone LEDs active: 262 mA

RAXN-4000LCD Annunciator

24V DC nominal, range of 20 to 39V DC

Standby: 139 mA max., All LEDs On: 164 mA max.

RAXN-4000LCDG Annunciator

24V DC nominal.

Standby: 139 mA max., All LEDs On: 164 mA max.

RAXN-4000LCDGC Annunciator

24V DC nominal

Standby: 225 mA max., All LEDs ON: 235 mA max.

Compliance

System Model: FX-240N

System Type: Local, auxiliary (using PR-300), remote protected premise station (using PR-300 or UDACT-300A), central station protected premises (using UDACT-300A), PPU and Smoke Control

Type of Service: A, M, WF, SS, PPU

Type of Signalling: Non-coded

Applicable Standards: NFPA 70 and 72, UL-864, ULC S-524, ULC S-527

Appendix B: Power Supply and Battery Calculations

Power Requirements (All currents are in amperes)							
Model Number	**Description**	**Qty**		**Standby**	**Total Standby**	**Alarm**	**Total Alarm**
FX-240N	Main Chassis (12 Amp)		X	0.310	=	0.733	=
FNC-2000	Fire Network Controller Module		X	0.190	=	0.190	=
FOM-2000-SP	Fiber Optics Module		X	0.015	=	0.014	=
DM-1008A	8 Initiating Circuit Module		X	0.080	=	1 zone active: 0.125 2 zone active: 0.170 4 zone active: 0.275 6 zone active: 0.370 8 zone active: 0.465	=
SGM-1004A	4 Indicating Circuit Module		X	0.060	=	0.258	=
SGM-1004S	4 Indicating Circuit Module		X	0.031	=	0.096	=
RM-1008A	8 Relay Circuit Module		X	0.025	=	0.150	=
FDX-008W(KI)	Fan Damper Control Module		X	0.015	=	0.035	=
DSPL-420DS	Narrow Display		X	0.025	=	0.025	=
DSPL-2440DS	Graphic Display		X	0.029	=	0.035	=
UDACT-300A	Dialer Module		X	0.045	=	0.120	=
PR-300	City Tie Module		X	0.035	=	0.300	=
RAX-1048TZDS	Adder Annunciator Chassis		X	0.022	=	1 zone active: 0.026 2 zone active: 0.030 3 zone active: 0.035 4 zone active: 0.039 48 zone active: 0.262	=
RAM-1032TZDS	Adder Annunciator Chassis		X	0.050	=	32 zone active: 0.300	=
AGD-048	Adder Graphic Driver Board		X	0.035	=	__(#of LEDs) x 4mA (Refer to LT-847 if using lamps)	=
IPS-4848DS/ **IPS-2424DS**	Programmable Input Switches Module		X	0.010/**0.005**	=	0.022	=
MIX-4040	Dual input module		**X**	0.0020	=	0.0033	=
MIX-4041	Mini dual input module		**X**	0.0020	=	0.0033	=
MIX-4042	Conventional zone module		**X**	0.0016	=	0.0030	=
MIX-4045	Dual relay module		**X**	0.0015	=	0.0031	=
MRI-4046	Supervised output module		**X**	0.0018	=	0.0025	=
MIX-4070	Short circuit isolator module		**X**	0.0006	=	0.0096	=
MIX-4010	Photoelectric smoke detector		**X**	0.000160	=	0.0032	=
MIX-4010-ISO	Photoelectric smoke detector with isolator		**X**	0.000160	=	0.0032	=
MIX-4020	Multi-sensor detector		**X**	0.000160	=	0.0032	=
MIX-4020-ISO	Multi-sensor detector with isolator		**X**	0.000160	=	0.0032	=
MIX-4030	Tri-mode heat detector		**X**	0.000160	=	0.0032	=
MIX-4030-ISO	Tri-Mode heat detector with isolator		**X**	0.000160	=	0.0032	=
MIX-4011	Photoelectric smoke detector		**X**	0.000160	=	0.0032	=
MIX-4011-ISO	Photoelectric smoke detector with isolator		**X**	0.000160	=	0.0032	=
MIX-4021	Multi-sensor detector		**X**	0.000160	=	0.0032	=
MIX-4021-ISO	Multi-sensor detector with isolator		**X**	0.000160	=	0.0032	=

MIX-4003-R	Relay base		X	0.00116	=	0.00118	=
MIX-4003-S	Sounder base		X	0.00156	=	0.00234	=
MIX-4003-LF	Low frequency sounder base		X	0.00156	=	0.00234	=
MIX-4040-M	Multi-input module		X	0.004	=	0.0083	=
MIX-4045-M	Multi-relay module		X	0.0019	=	0.0083	=
MIX-4070-M	Multi-isolator module		X	0.00056 per used section	=	0.0095 per activated section	=
MIX-4010-DUCT	Duct detector		X	0.000160	=	0.0032	=
Two-Wire Smoke Detectors				♦ 0.00005		*0.39	= 0.39
Signal Load (bells, horns, strobes, etc.)			X				=
Auxiliary Power Supply for **Remote Annunciators**					=	Alarm	=
Total currents (Add above currents)				STANDBY	(**A**)		(**B**)

Legend: * Assuming three initiating circuits in alarm.
♦ Using the **2W-B** or **C2W-BA** 2-wire smoke detector. See LT-1023 Compatibility List for other compatible smoke detectors.

To Calculate Battery Size:

Add all the alarm currents in column (B), and use this value to determine the battery capacity requirement.

Total Current Requirement: ALARM (total from column **B**)_____ Amps.

Use the total from column (A) as the standby current required. Multiple this value by 24 hours or 60 hours depending on AHJ. Add this total to the total of column (B) multiplied by the time in hours to sustain alarm.

♣ Use **0.084** for five minutes of alarm or **0.5** for thirty minutes of alarm as a multiplier figure.

Battery Capacity Requirement:

([STANDBY (**A**) _____] X [(24 or 60 Hours) ___]**)** + **(**[ALARM (**B**) _____] X [♣Alarm in Hr.] _____**)** = (**C**) _____Ah

Battery Selection: Multiply (total from column **C**) by 1.20 to derate battery.

Batteries:

- BAT-12V18 (18 Ah) fits in the FX-240N
- BAT-12V26A (26 Ah) and larger fits in the BC-160(R) battery cabinet

9.1 RAXN-4000LCD/RAXN-4000LCDG/RAXN-4000LCDGC

The RAXN-4000LCD remote shared display is a remote annunciator that provides the same functions as the main display on the fire alarm control panel, less 16 zone LEDs. The RAXN-4000LCDG is similar to the RAXN-4000LCD except its display is a graphical LCD. It is equipped with expanded memory of more than 18,000 system points, large 4 line x 20 character backlit alphanumeric LCD display (or for the RAXN-4000LCDG a graphical display) which uses a simple menu system complete with a directional key pad and switches for Enter, Menu, Cancel and Info. The RAXN-4000LCDGC provides an exact replica of the main FX-240N display (except with an 8-event 16-line color graphical display) at a remote location or as a main display. It is equipped with a simple menu system complete with a directional keypad

and switches for Enter, Menu, Cancel and Info. For more information see documents LT-895MP, LT-6033MP, and LT-6738MP.

9.2 Annunciator Models

- **RAXN-4000LCD or RAXN-4000LCDG or RAXN-4000LCDGC:** Main annunciator chassis with common indicators and controls.
- **RAX-1048TZDS:** Adder annunciator chassis with 48 circuit capacity.
- **IPS-4848DS:** Programmable input switches module with 48 display points and 24 buttons.
- **IPS-2424DS:** Programmable input switches module with 48 display points and 24 buttons
- **RAM-1032TZDS:** Programmable zone LED annunciator module (3 frames

9.2.1 Enclosures for RAXN-4000LCD, RAXN-4000LCDG and RAXN-4000LCDGC, IPS-2424DS, IPS-4848DS, FDX-008W(KI), RAM-1032TZDS, RAX-1048TZDS

- **BB-1001D/DR/DS** With capacity for one annunciator chassis.
- **BB-1002D/DR/DS** With capacity for two annunciator chassis.
- **BB-1003D/DR/DS** With capacity for three annunciator chassis.
- **BB-1008D/DR/DS** With capacity for eight annunciator chassis.
- **BB-1012D/DR/DS** With capacity for twelve annunciator chassis.
- **BB-1001WP(R)A** rated for outdoor environment, wet location with capacity for one annunciator chassis.
- **BB-1002WP(R)A** rated for outdoor environment, wet location with capacity for two annunciator chassis.

Material:18 G.A. cold roll steel (CRS)

Finish: Painted, textured, off-white (standard) (for other paint available colours and finishes, please contact factory)

Appendix C: DIP Switch Settings

9.3 FX-240N Network Main Board Address Setting (DIP SWITCH SW2)

FX-240N Network Main Board Address Setting	Node Address	SW2 DIP SWITCHES							
		SW2-1	SW2-2	SW2-3	SW2-4	SW2-5	SW2-6	SW2-7	SW2-8
	1	ON	OFF	OFF	OFF	OFF	OFF	Leave in "OFF" position as Factory Set.	Leave in "OFF" position as Factory Set.
	2	OFF	ON	OFF	OFF	OFF	OFF		
	3	ON	ON	OFF	OFF	OFF	OFF		
	4	OFF	OFF	ON	OFF	OFF	OFF		
	5	ON	OFF	ON	OFF	OFF	OFF		
	6	OFF	ON	ON	OFF	OFF	OFF		
	7	ON	ON	ON	OFF	OFF	OFF		
	8	OFF	OFF	OFF	ON	OFF	OFF		
	9	ON	OFF	OFF	ON	OFF	OFF		
	10	OFF	ON	OFF	ON	OFF	OFF		
	11	ON	ON	OFF	ON	OFF	OFF		
	12	OFF	OFF	ON	ON	OFF	OFF		
	13	ON	OFF	ON	ON	OFF	OFF		
	14	OFF	ON	ON	ON	OFF	OFF		
	15	ON	ON	ON	ON	OFF	OFF		
	16	OFF	OFF	OFF	OFF	ON	OFF		
	17	ON	OFF	OFF	OFF	ON	OFF		
	18	OFF	ON	OFF	OFF	ON	OFF		
	19	ON	ON	OFF	OFF	ON	OFF		
	20	OFF	OFF	ON	OFF	ON	OFF		
	21	ON	OFF	ON	OFF	ON	OFF		
	22	OFF	ON	ON	OFF	ON	OFF		
	23	ON	ON	ON	OFF	ON	OFF		
	24	OFF	OFF	OFF	ON	ON	OFF		

9.4 RAXN-4000LCD/RAXN-4000LCDG Remote Annunciator Address Setting (DIP SWITCH SW1)

RAXN-4000LCD(G)	ADDR	SW1-1	SW1-2	SW1-3	SW1-4	SW1-5	SW1-6	SW1-7	SW1-8
	33	ON	OFF	OFF	OFF	OFF	ON	Leave in "OFF" position as Factory Set.	
	34	OFF	ON	OFF	OFF	OFF	ON		
	35	ON	ON	OFF	OFF	OFF	ON		
	36	OFF	OFF	ON	OFF	OFF	ON		
	37	ON	OFF	ON	OFF	OFF	ON		
	38	OFF	ON	ON	OFF	OFF	ON		
	39	ON	ON	ON	OFF	OFF	ON		

9.5 RAXN-4000LCDGC Address Setting

Each RAXN-4000LCDGC must be assigned a unique address on the 2 dials SW4 and SW5 located on the back of the unit.

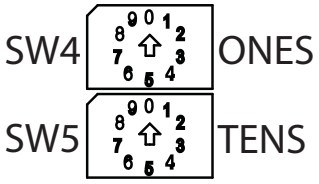
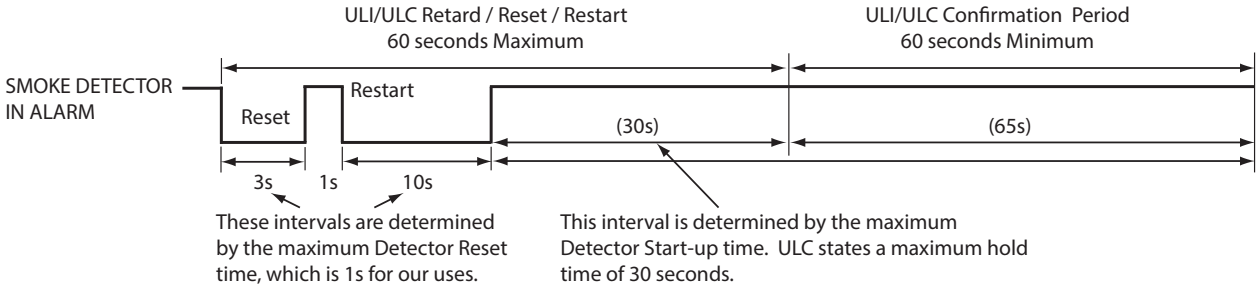


Figure 37 RAXN-4000LCDGC Address Dials

For example, to set the address 34, turn SW4 to 4 and SW5 to 3.

The valid range of addresses is 33 to 39.

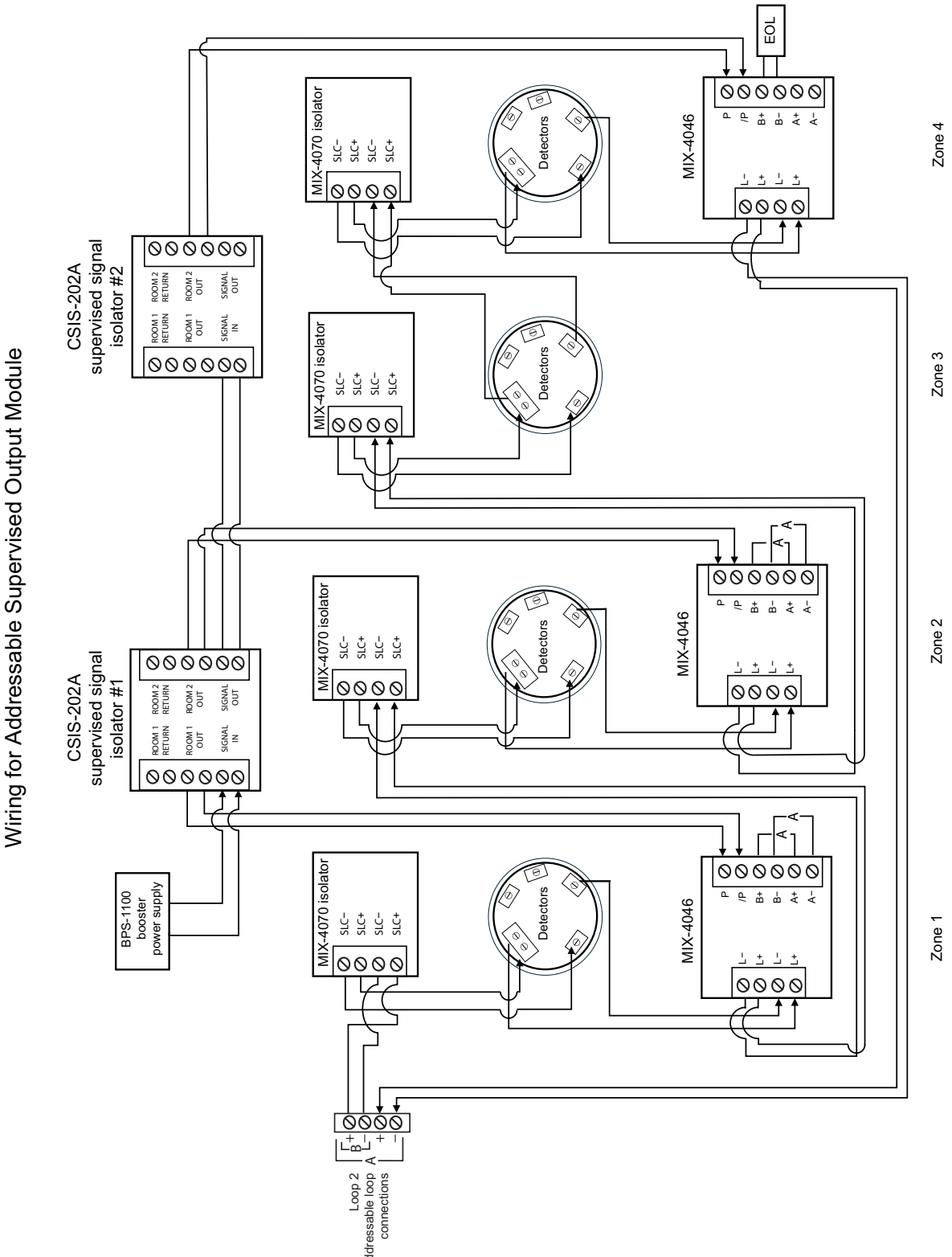
Appendix D: Alarm Verification Timing



A manual station, or other contact-closure device, would remain shorted and be detected during the very short zone power burst within the first three seconds. A smoke detector will have been reset, and will require some minimum time to power-up, thus the verification cycle will be entered.

Appendix E: Wiring For Addressable Supervised Output Module

Wiring for Addressable Supervised Output Module



Appendix F: Label Requirements for Zone Identification

If individual zones are used for various applications, the labelling of these zones must be in accordance with ULC/CAN S527-19 Table 4.1; of which is partially included below:

LABEL DESIGNATIONS IN ENGLISH	DESCRIPTION OF FUNCTION
XXX[a] Alarm Signal Activation or XXX[a] Alarm Signal ON	Circuit Or Area Evacuation Manual Control
XXX[a] Alert Signal Activation or XXX[a] Alert Signal ON	Circuit Or Area Alert Manual Control
XXX[a] By-pass	Ancillary Bypass
XXX[a] ON	Ancillary Device Indication
XXX[a] OFF	Ancillary Device Indication
Building Safety or Bldg Safety	Common Indication Associated With Property And Building Safety
XXX[b]	Specific Indication Associated With Property And Building Safety
Emergency and building events	Common Indication Associated With Emergency And Building Events
XXX[b]	Specific Indication Associated With Emergency And Building Events
XXX[b]	Emergency Or Building Event Manual Control
XXX[a] Bypass or Disable	Bypass or Disable of Input
Activate XXX[a] or equivalent followed by XXX[a]	Initiate Manual Control Function
Remote Connection Bypass or equivalent	Bypass Connection For Fire Service Response
Signal Circuit Trouble	Signal Circuit Fault Indication
Signal Silence Inhibit	Prevent Silence Of Signal For A Preset Time
Supervisory	Common Indication Associated With Supervisory Inputs
XXX[a]	Specific Indication Associated With Supervisory Inputs
Supervisory Signal Silence	Manual Signal Silence Control For Supervisory Signal
Trouble	Common Trouble Signal Indicator
XXX[a] Trouble	Specific, Circuit Or Area Trouble Signal Indicator
a replace XXX with location and/or device specific description.	
b such as alarms, life safety, supervisory, building safety and trouble	

Warranty and Warning Information

WARNING!

Please read this document **CAREFULLY**, as it contains important warnings, life-safety, and practical information about all products manufactured by the Mircom Group of Companies, including Mircom and Secutron branded products, which shall include without limitation all fire alarm, nurse call, building automation and access control and card access products (hereinafter individually or collectively, as applicable, referred to as "**Mircom System**").

NOTE TO ALL READERS:

1. **Nature of Warnings.** The within warnings are communicated to the reader out of an abundance of caution and create no legal obligation for Mircom Group of Companies, whatsoever. Without limiting the generality of the foregoing, this document shall NOT be construed as in any way altering the rights and obligations of the parties, governed by the legal documents that apply in any given circumstance.
2. **Application.** The warnings contained in this document apply to all Mircom System and shall be read in conjunction with:
    a. the product manual for the specific Mircom System that applies in given circumstances;
    b. legal documents that apply to the purchase and sale of a Mircom System, which may include the company's standard terms and conditions and warranty statements;
    c. other information about the Mircom System or the parties' rights and obligations as may be application to a given circumstance.
3. **Security and Insurance.** Regardless of its capabilities, no Mircom System is a substitute for property or life insurance. Nor is the system a substitute for property owners, renters, or other occupants to act prudently to prevent or minimize the harmful effects of an emergency situation. Building automation systems produced by the Mircom Group of Companies are not to be used as a fire, alarm, or life-safety system.

NOTE TO INSTALLERS:

All Mircom Systems have been carefully designed to be as effective as possible. However, there are circumstances where they may not provide protection. Some reasons for system failure include the following. As the only individual in contact with system users, please bring each item in this warning to the attention of the users of this Mircom System. Failure to properly inform system end-users of the circumstances in which the system might fail may result in over-reliance upon the system. As a result, it is imperative that you properly inform each customer for whom you install the system of the possible forms of failure:

4. **Inadequate Installation.** All Mircom Systems must be installed in accordance with all the applicable codes and standards in order to provide adequate protection. National standards require an inspection and approval to be conducted by the local authority having jurisdiction following the initial installation of the system and following any changes to the system. Such inspections ensure installation has been carried out properly.
5. **Inadequate Testing.** Most issues and/or problems that would prevent a Mircom System alarm from operating as intended, can be identified through regular testing and maintenance. The complete system should be tested by the local authority having jurisdiction immediately after a fire, storm, earthquake, accident, or any kind of construction activity inside or outside

the premises. The testing should include all sensing devices, keypads, consoles, alarm indicating devices and any other operational devices that are part of the system.

NOTE TO USERS:

All Mircom Systems have been carefully designed to be as effective as possible. However, there are circumstances where they may not provide protection. Some reasons for system failure include the following. The end user can minimize the occurrence of any of the following by proper training, testing and maintenance of the Mircom Systems:

6. **Inadequate Testing and Maintenance.** It is imperative that the systems be periodically tested and subjected to preventative maintenance. Best practices, local codes, applicable laws and industry regulations, and any local authority having jurisdiction to do so, determine the frequency and type of testing that is required at a minimum. Mircom System may not function properly, and the occurrence of other system failures identified below may not be minimized, if the periodic testing and maintenance of Mircom Systems is not completed with diligence and as required.
7. **Improper Operation.** It is important that all system users be trained in the correct operation of the alarm system and that they know how to respond when the system indicates an alarm. A Mircom System may not function as intended during an emergency situation where the user is unable to operate a panic or emergency switch by reason of permanent or temporary physical disability, inability to reach the device in time, unfamiliarity with the correct operation, or related circumstances.
8. **Insufficient Time.** There may be circumstances when a Mircom System will operate as intended, yet the occupants will not be protected from the emergency due to their inability to respond to the warnings in a timely manner. If the system is monitored, the response may not occur in time enough to protect the occupants or their belongings.
9. **Carelessness or Safety Hazards.** Moreover, smoke detectors may not provide timely warning of fires caused by carelessness or safety hazards such as smoking in bed, violent explosions, escaping gas, improper storage of flammable materials, overloaded electrical circuits or children playing with matches or arson.
10. **Power Failure.** Some Mircom System components require adequate electrical power supply to operate. Examples include: smoke detectors, beacons, HVAC, and lighting controllers. If a device operates only by AC power, any interruption, however brief, will render that device inoperative while it does not have power. Power interruptions of any length are often accompanied by voltage fluctuations which may damage Mircom Systems or other electronic equipment. After a power interruption has occurred, immediately conduct a complete system test to ensure that the system operates as intended.
11. **Battery Failure.** If the Mircom System or any device connected to the system operates from batteries it is possible for the batteries to fail. Even if the batteries have not failed, they must be fully charged, in good condition, and installed correctly. Some Mircom Systems use replaceable batteries, which have a limited life-span. The expected battery life is variable and in part dependent on the device environment, usage and type. Ambient conditions such as high humidity, high or low temperatures, or large temperature fluctuations may reduce the expected battery life. Moreover, some Mircom Systems do not have a battery monitor that would alert the user in the event that the battery is nearing its end of life. Regular testing and replacements are vital for ensuring that the batteries function as expected, whether or not a device has a low-battery monitor.
12. **Physical Obstructions.** Motion sensors that are part of a Mircom System must be kept clear of any obstacles which impede the sensors' ability to detect movement. Signals being communicated by a Mircom System may not reach the receiver if an item (such as metal, water, or concrete) is placed on or near the radio path. Deliberate jamming or other inadvertent radio signal interference can also negatively affect system operation.

13. **Wireless Devices Placement Proximity.** Moreover all wireless devices must be a minimum and maximum distance away from large metal objects, such as refrigerators. As the end user, you are required to consult the specific Mircom System manual and application guide for any maximum distances required between devices and suggested placement of wireless devices for optimal functioning.
14. **Failure to Trigger Sensors.** Moreover, Mircom Systems may fail to operate as intended if, motion, heat, carbon monoxide (CO) and/or smoke sensors, are not triggered.
    a. Sensors in a fire system may fail to be triggered when the fire is in a chimney, walls, roof, or on the other side of closed doors. Smoke and heat detectors may not detect smoke or heat from fires on another level of the residence or building. In this situation the control panel may not alert occupants of a fire.
    b. Sensors in a nurse call system may fail to be triggered when movement is occurring outside of the motion sensors' range. For example, if movement is occurring on the other side of closed doors or on another level of the residence or building the motion detector may not be triggered. In this situation the central controller may not register an alarm signal.
15. **Interference with Audible Notification Appliances.** Audible notification appliances may be interfered with by other noise sources such as stereos, radios, televisions, air conditioners, appliances, or passing traffic. Audible notification appliances, however loud, may not be heard by a hearing-impaired person.
16. **Other Impairments.** Alarm notification appliances such as sirens, bells, horns, or strobes may not warn or waken a sleeping occupant if there is an intervening wall or door. It is less likely that the occupants will be alerted or awakened when notification appliances are located on a different level of the residence or premise.
17. **Software Malfunction.** Most Mircom Systems contain software. No warranties are provided as to the software components of any products or stand-alone software products within a Mircom System. For a full statement of the warranties and exclusions and limitations of liability please refer to the company's standard Terms and Conditions and Warranties.
18. **Telephone Line/Network Malfunction.** Telephone service can cause system failure where telephone lines/networks are relied upon by a Mircom System. Alarms and information coming from a Mircom System may not be transmitted if a phone line/network is out of service or busy for a certain period of time. Alarms and information may not be transmitted where telephone lines/networks have been compromised by criminal tampering, local construction, storms or earthquakes.
19. **Component Failure.** Although every effort has been made to make this Mircom System as reliable as possible, the system may fail to function as intended due to the failure of a component.
20. **Integrated Products.** Mircom System might not function as intended if it is connected to a non-Mircom product or to a Mircom product that is deemed non-compatible with a particular Mircom System. A list of compatible products can be requested and obtained.
21. A Mircom System's Auto Configuration feature is intended to assign the Alarm process type to all inputs and to provide an initial set up by detecting connected devices and generates a basic job configuration upon the initial installation of the Mircom System. Mircom makes no representations, warranties or guarantees regarding the accuracy or suitability of the basic job configuration generated upon installation, for any specific site requirements.
    The end user shall be solely and exclusively responsible to thoroughly review the basic job generated by the auto configuration feature upon initial installation and to implement necessary adjustments and modifications to customize the job configuration in accordance with the functional and/or technical requirements of the site. Mircom expressly disclaims any responsibility or liability for any failure, malfunction or defective operation of a Mircom System and any associated components, resulting from the end user's failure to customize or adjust the job configuration accordingly.

By installing and utilizing the Mircom System, the user acknowledges and agrees that Mircom shall not be liable for any claims, losses, damages, or defects arising from the failure of the user or installer and those for whom it is responsible at law, to customize the basic job configuration generated on the initial set-up in accordance with the requirements of the site.

Warranty

Purchase of all Mircom products is governed by:

https://www.mircom.com/product-warranty

https://www.mircom.com/purchase-terms-and-conditions

https://www.mircom.com/software-license-terms-and-conditions

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