



FX-2000 SERIES

Intelligent Analog Fire Alarm Control Panel

INSTALLATION and OPERATION MANUAL



NOTICE

All information, documentation, and specifications contained in this manual are subject to change without prior notice by the manufacturer.

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1.0 INTRODUCTION

Mircom's ***FX-2000 Intelligent Analog Fire Alarm Control Panels*** is designed to provide maximum flexibility of analog system requirements while also providing easy installation and operation at a cost effective price.

The FX-2000 base panel consists of one intelligent analog loop controller capable of supporting 99 Analog Sensors and 99 Addressable Modules which can be wired in Class A (Style 6 or 7) or Class B (Style 4). Loop adder modules are available for additional addressable loops. The ALC-198S provides one additional addressable loop, and the ALC-396S provides two addressable loops each capable of supporting 99 Analog sensors and 99 Addressable modules. In addition, the base panel supports 16 conventional hardwire adder modules such as the DM-1008A Initiating Circuit Module, SGM-1004A Indicating Circuit Module, and the RM-1008A Relay Circuit Module. The base panel also includes 4 Class A/B (Style Z/Y) Indicating Circuits rated at 1.7 amperes each, and either a 6 or 12 ampere Power Supply. The ALC-H16 adder board provides expansion for 16 additional hardwire/conventional modules.

Equipped with a large 4 line by 20 character alphanumeric LCD display, the FX-2000 utilizes a simple menu system complete with a keypad, common controls and LED indicators, and 16 configurable bi-coloured Zone LED indicators.

1.1 Overall Features:

- ✓ Large System Capacity and Modular Design.
- ✓ Each Analog Loop is capable of supporting 99 Analog Sensors and 99 Addressable Modules which can be wired as Class A (Style 6 or 7) or Class B (Style 4).
- ✓ The Base System supports 16 conventional hardwire Adder Modules.
- ✓ 6 or 12 Ampere Power Supply.
- ✓ Four Class A/B (Style Z/Y) Indicating Circuits rated at 1.7 Amperes each, which can be configured as Audible or Visual (silenceable or non-silenceable circuits). Audibles may be steady, Temporal Code, California Code, or March Time.
- ✓ Indicating circuits may be configured to provide additional auxiliary power or resettable auxiliary power.
- ✓ Fault isolators are present on all in panel addressable loops.
- ✓ Configurable Signal Silence Inhibit, Auto Signal Silence, Two-Stage Operation, One-Man Walk Test.
- ✓ Outputs for 4 Wire resettable Smoke Power Supply, Auxiliary Power Supply, and an interface to the Mircom RTI Remote Trouble Indicator.
- ✓ RS-485 Interface for Remote Multiplex Annunciators.
- ✓ Three Level Password Protection with field settable definition which enables the installer to determine what functions are accessible for each of the three levels of pass
- ✓ Four Queues for Alarm, Supervisory, Trouble, and Monitor, with LED indicators and selector keys.
- ✓ 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.
- ✓ Front Panel Auto-Configure and / or Personal Computer Configuration.
- ✓ Large 4 line by 20 character alphanumeric, back-lit LCD Display with user-friendly menu system.
- ✓ Common Controls and Indicators for System Reset, Lamp Test, Fire Drill, Signal Silence, General Alarm, Acknowledge, AC On, Pre-Alarm, and Ground Fault.
- ✓ Two Spare configurable Keys and LED Indicators.
- ✓ 16 Zone configurable LED(bi-coloured) Annunciator with slide-in labels for Zone Description.
- ✓ Supports the ALC-QIF Interface Module for use with Mircom's QX-5000 Emergency Zoned Audio System (ULC only).
- ✓ 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.
- ✓ Removable Terminal Blocks for easy wiring and service.
- ✓ Loop Adder modules ALC-198S and ALC-396S for expanding addressable loops by 1 and 2 respectively.
- ✓ Adder module ALC-H16 hardwire loop interface board for expanding conventional input, output, relay capability.

2.0 GENERAL NOTES

Circuits and Zones:

“Circuits” refers to an actual electrical interface, **Initiating** (Detection), **Indicating** (Signal), or **Relay**.
“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-2000 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.

Wiring Styles:

Initiating Circuits are configured by default as Class B (Style B). They may be globally (all or none) configured as Class A (Style D) as described in the Configuration Section. This operation uses odd and even pairs of two-wire Class B (Style B) circuits to make one four-wire Class A (Style D) circuit, thus halving the number of available Initiating Circuits.

Indicating Circuits may be individually wired as Class A (Style Z) or Class B (Style Y) without affecting the number of circuits available (see Module wiring instructions).

Addressable Loops may be configured system wide as Class B (Style 4) or Class A (Style 6). With the addition of isolators, a Class A (Style 6) will become a Class A (Style 7).

3.1 CHASSIS TYPES

- Model: **FX-2003-6** Main Chassis with one Analog Loop, 4 Style Y or Z Indicating Circuits, and a 6 ampere Power Supply. This compact main chassis comes complete with one Analog Loop Controller (99 Analog Sensors and 99 Addressable Modules), 4 Class A/B (Style Z/Y) Indicating Circuits(1.7 Amp each), a 4 line by 20 character back-lit LCD display, 16 Zone LED Annunciator and a 6 Amp Power Supply which charges 10-24 AH batteries. The FX-3003-6 supports 3 conventional adder modules and provides space for 3 adder modules. This unit mounts in the BBX-1024. See Module Specifications for more detail.
- Model: **FX-2003-12** Same as FX-2003-6, but with a 12 ampere Power Supply. See Module Specifications for more detail.
- Model: **FX-2017-12A** Same as FX-2003-12, but with space for mounting 3 adder modules on the main board plus additional space in the chassis for an additional 14 adder boards. The FX-2017-12A supports 16 conventional adder modules and has space for up to 17 adder modules 3 internal annunciator adder modules. This chassis mounts in the BBX-1072A.
- Model: **FX-2009-12** Same as FX-2003-6, but with a 12 ampere Power Supply for mounting in the BB-5008 or the BB-5014 enclosure. The FX-2009-12 supports 16 conventional adder modules and provides space for up to 9 adder modules and 2 internal annunciator adder modules.
- Model: **ECX-0012** Expander Chassis to use with the FX-2009-12. It provides space for 12 adder modules and 2 internal annunciation modules. This chassis mounts into the BB-5008 or BB-5014 backboxes.

3.2 FX-2000 ACCESSORIES

- Model: **MP-300** EOL Resistor Plate
- Model: **MP-300R** EOL Resistor Plate, Red
- Model: **MP-300S** EOL Resistor Plate, Stainless steel finish
- Model: **RTI-1** Remote Trouble Indicator (ULC and ULI Listed)
- Model: **BC-160** External Battery Cabinet (ULC and ULI Listed)
- Model: **RA-1000** Remote LED Annunciator (ULC and ULI Listed)
- Model: **RAX-LCD** Remote Shared Display Annunciator (ULC and ULI Listed)

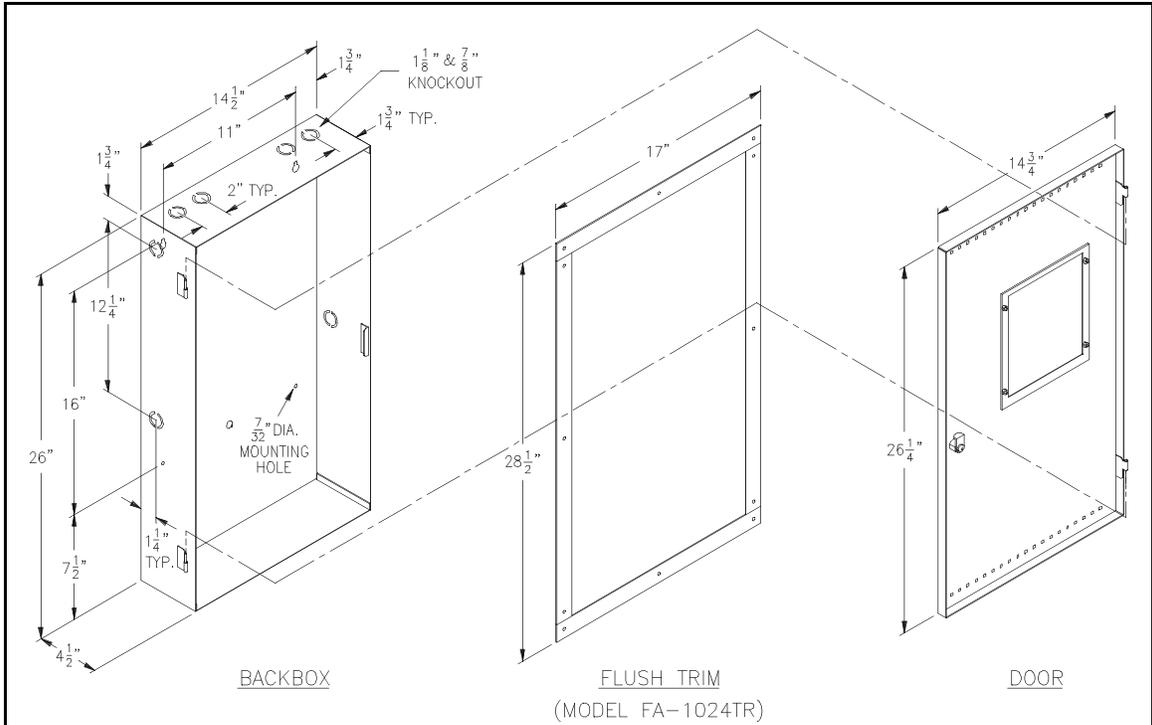
4.0 MECHANICAL INSTALLATION and DIMENSIONS

Install the BBX-1024 enclosures as shown ...

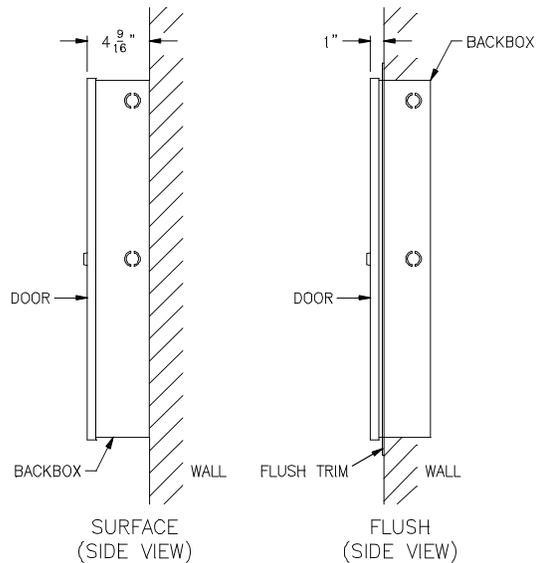
Material: 18GA (0.048") Thick
Cold Rolled Steel

Finish: Painted, Except for
Hinges

BBX-1024 SURFACE OR FLUSH INSTALLATION AND DIMENSIONS

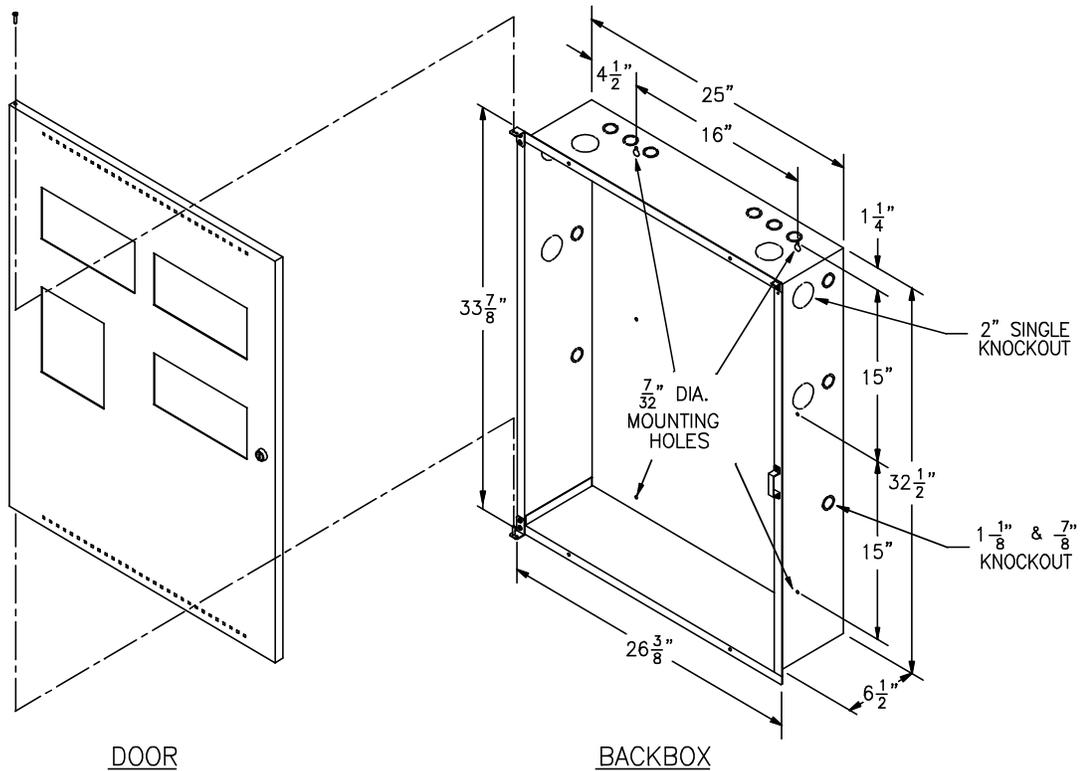
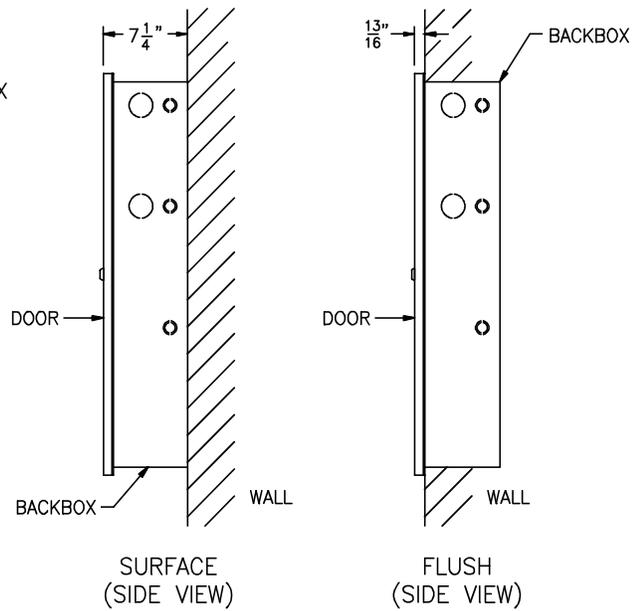


LEAVE BOTTOM OF BOX CONDUIT FREE FOR BATTERIES



NOTES

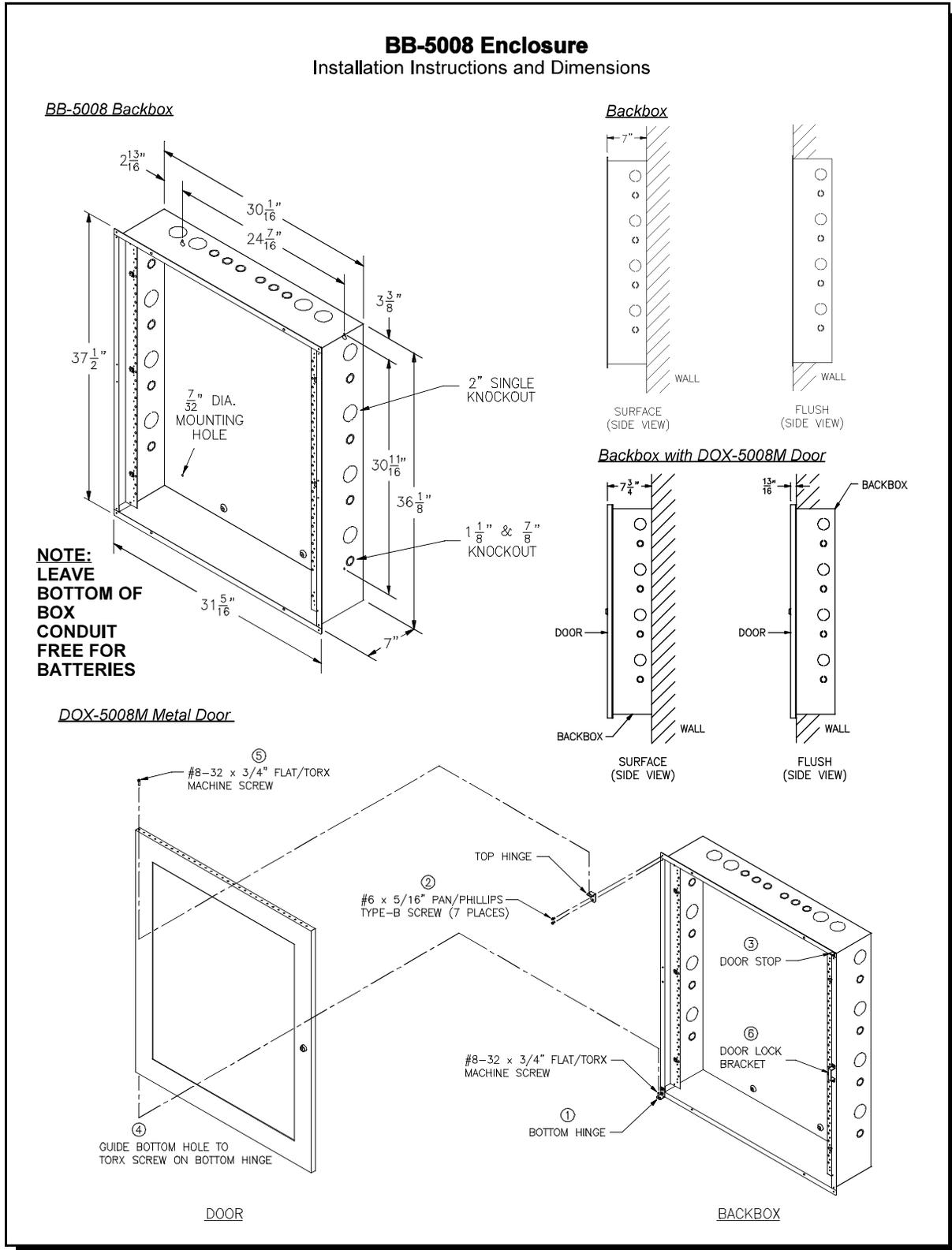
1. MATERIAL: COLD ROLLED STEEL
16GA (0.059") THICK FOR BACKBOX
14GA (0.075") THICK FOR DOOR
2. FINISH: PAINTED, EXCEPT FOR HINGES
3. LEAVE BOTTOM OF BOX CONDUIT FREE FOR BATTERIES.



**MODEL BBX-1072A ENCLOSURE (SURFACE or FLUSH)
INSTALLATION INSTRUCTION AND DIMENSIONS**

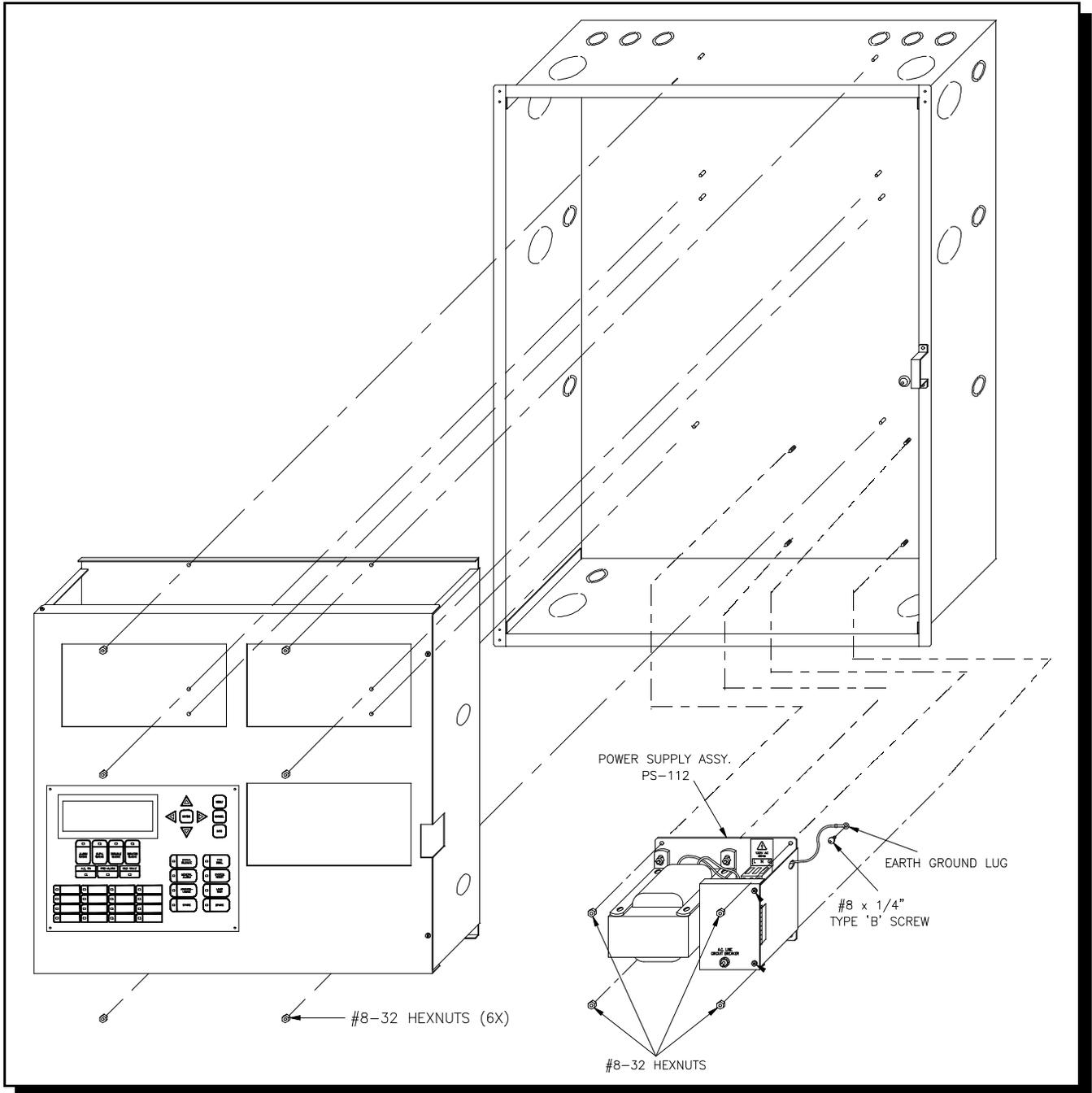
Door: Material: 14GA (0.075") Thick Cold Rolled Steel
 Finish: Painted
 Backbox: Material: 16GA (0.059") Thick Cold Rolled Steel
 Finish: Painted, Except for Hinges

Power Supply is mounted in the same manner as shown in Figure for Chassis Installation into BBX-1072A for chassis FX-2009-12.



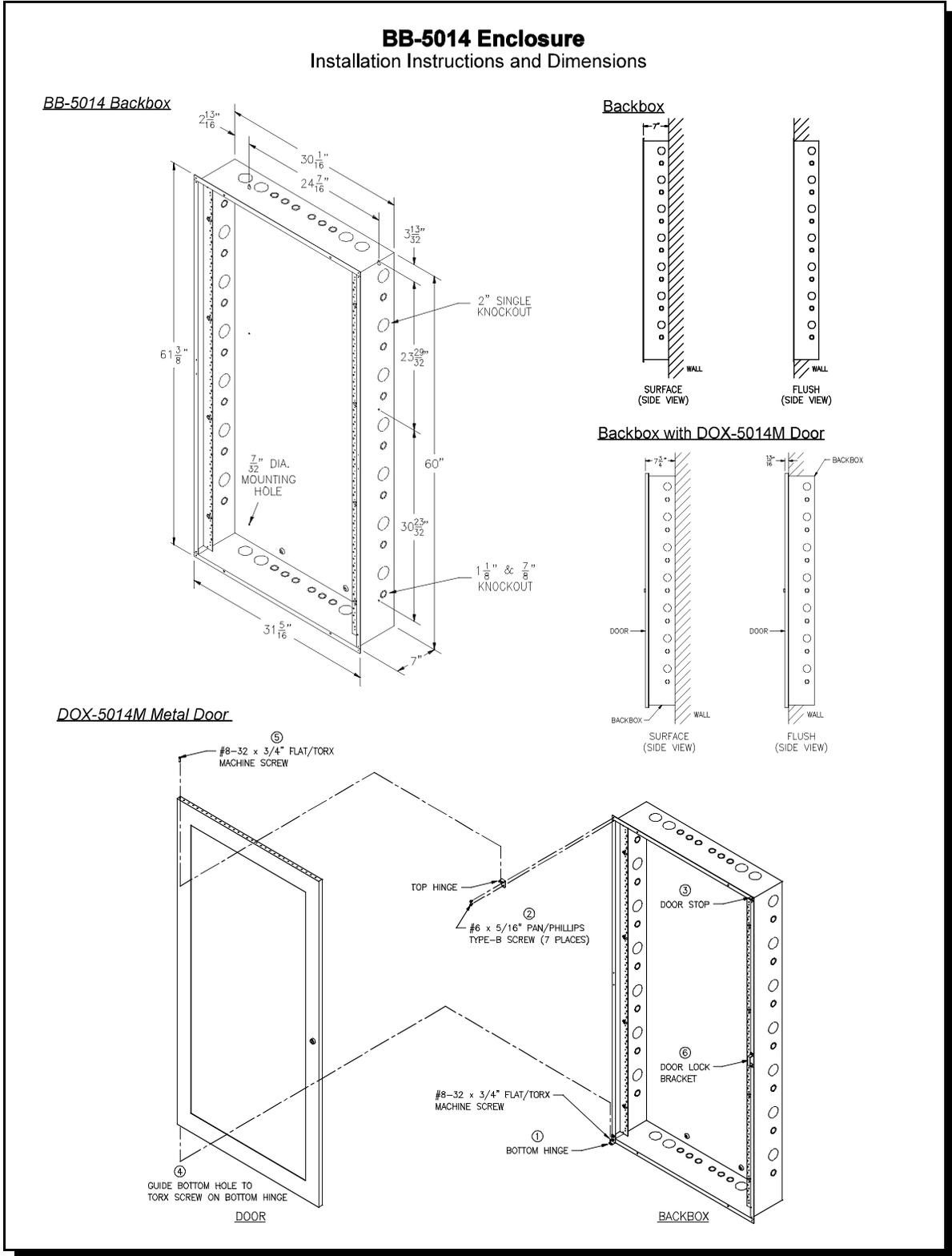
Mount Chassis FX-2017-12A into backbox BBX-1072A as shown below.

Chassis Installation into BBX-1072A



Door: Material: 14GA (0.075") Thick Cold Rolled Steel
 Finish: Painted
 Backbox: Material: 16GA (0.059") Thick Cold Rolled Steel
 Finish: Painted, Except for Hinges

Power Supply is mounted in the same manner as shown in Figure for Chassis Installation into BBX-1072A, for chassis FX-2009-12 into backbox BB-5014.

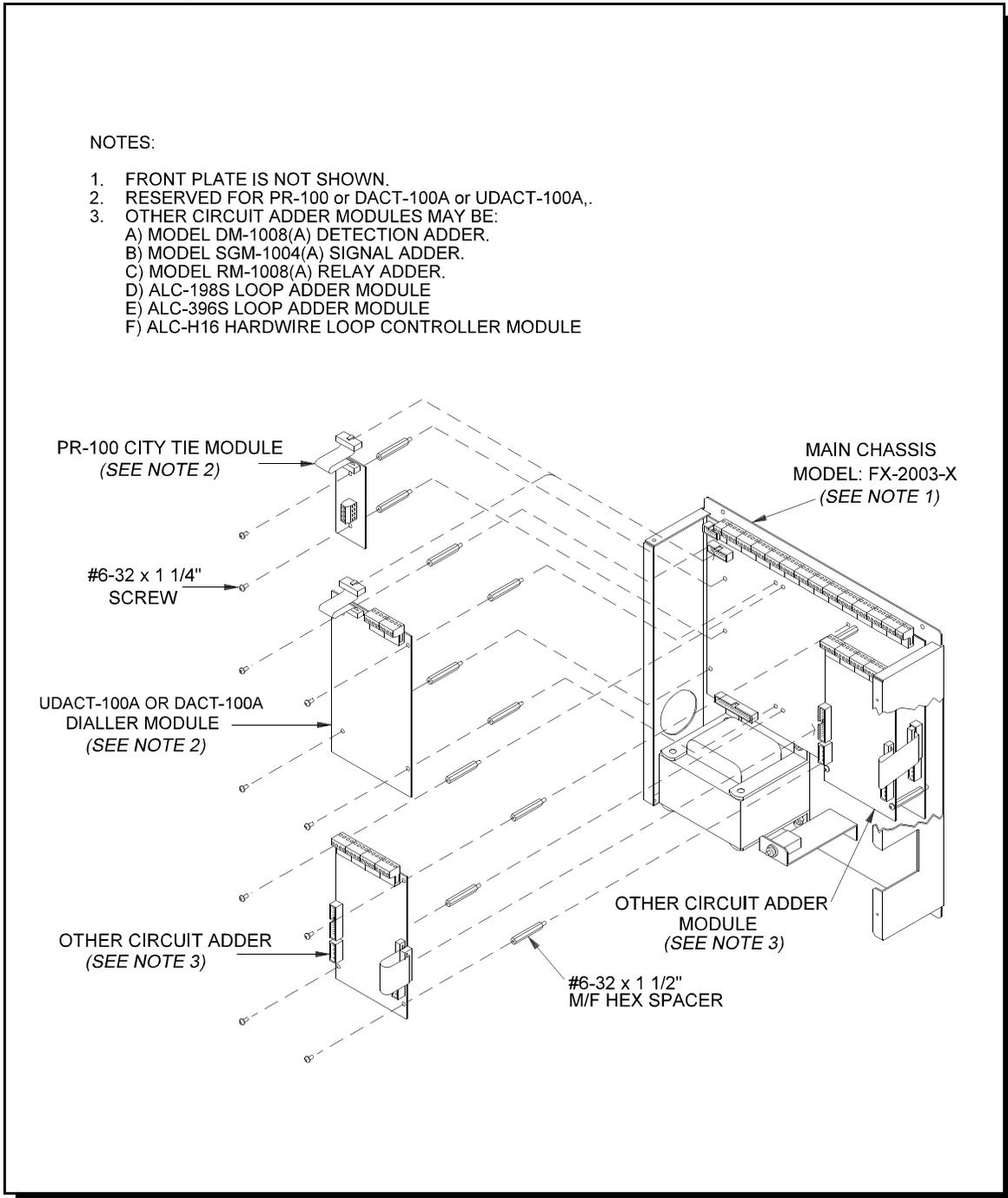


5.0 MODULES MOUNTING LOCATIONS

The **FX-2003-6/12** or **FX-2017-12A Main Chassis**' come pre-assembled with main panel, display components and boards. Adder Modules of different types are installed as shown in the diagrams below.

Note that 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 !!**

Module Mounting Locations #1

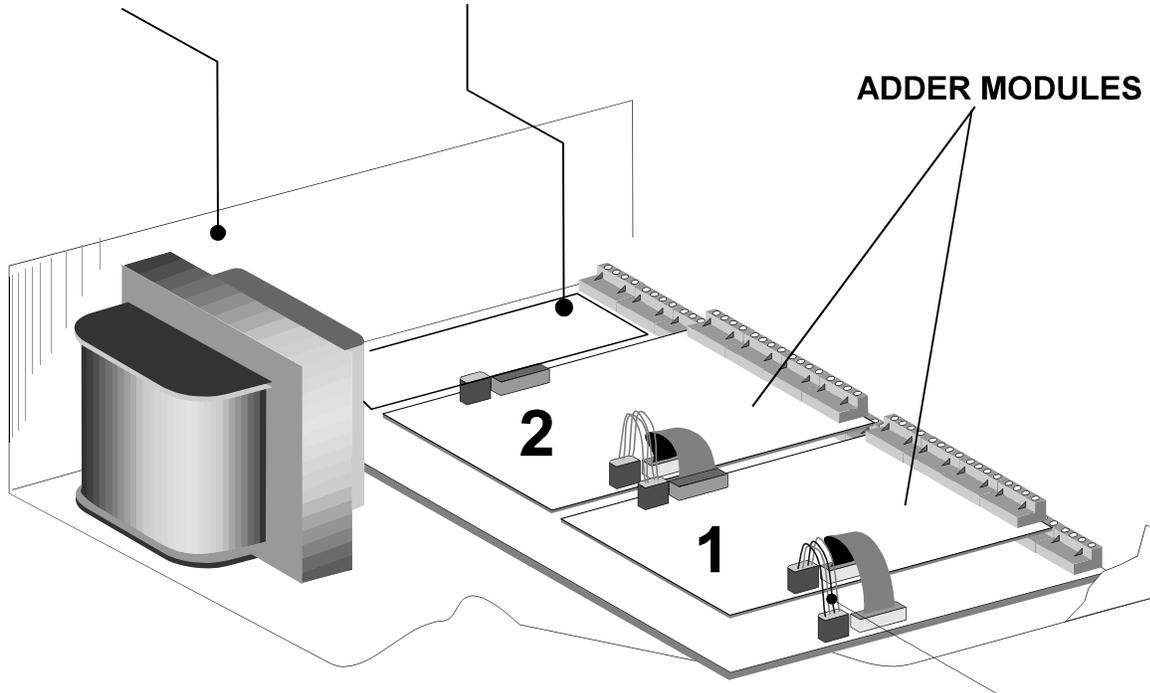


Module Mounting Locations #2

**Main Chassis
FX-2003-X**

**Provision for PR-100 or
DACT-100A or UDACT-100A**

ADDER MODULES



MD-575 Long Ribbon Cable

MD-579

MD-579 Short Power Cable

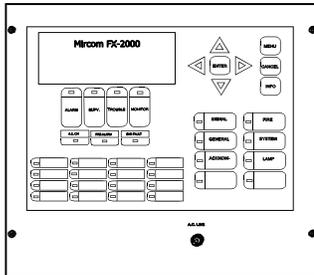
MD-580 Long Power Cable

The following diagrams show the module mounting locations for the FX-2000.

FX-2000 Display Modules and Adder Modules Layout

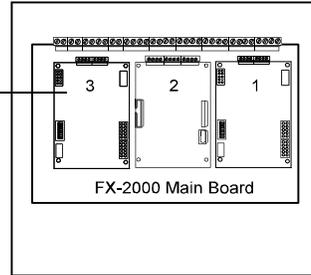
FX-2003-6/FX-2003-12 Compact Main Chassis (Mounts in the BBX-1024 Enclosure)

Exterior View



Interior View

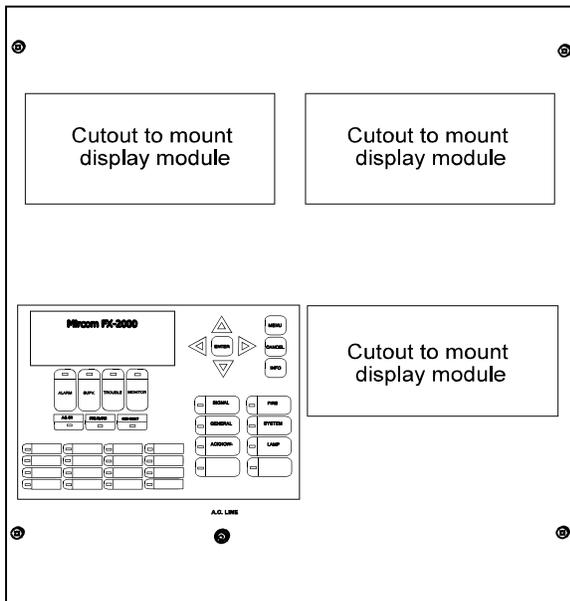
Slot is reserved for PR-100, DACT-100A or UDACT-100A. If none is required, this slot can be used to mount any of the adder modules.



Supports 3 Adder Modules.

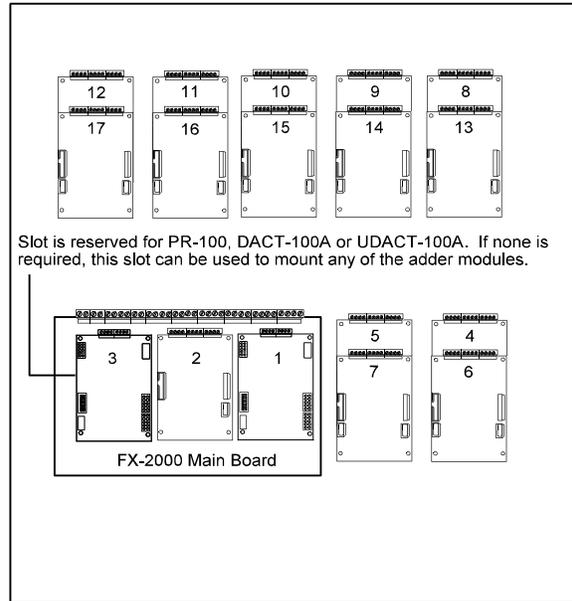
FX-2017-12A Mid-Size Main Chassis (Mounts in the BBX-1072A Enclosure)

Exterior View



Supports 3 Display Modules.

Interior View

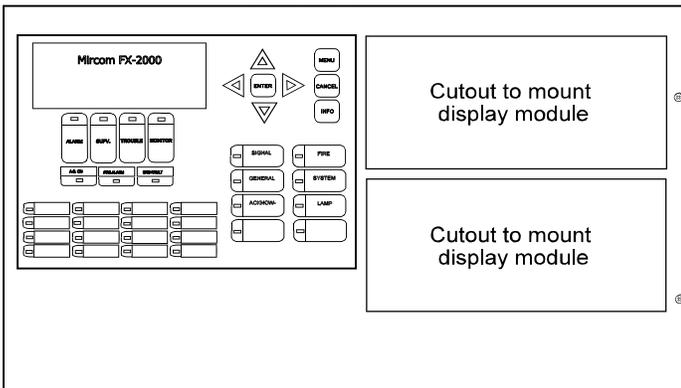


Slot is reserved for PR-100, DACT-100A or UDACT-100A. If none is required, this slot can be used to mount any of the adder modules.

Supports 17 Adder Modules.

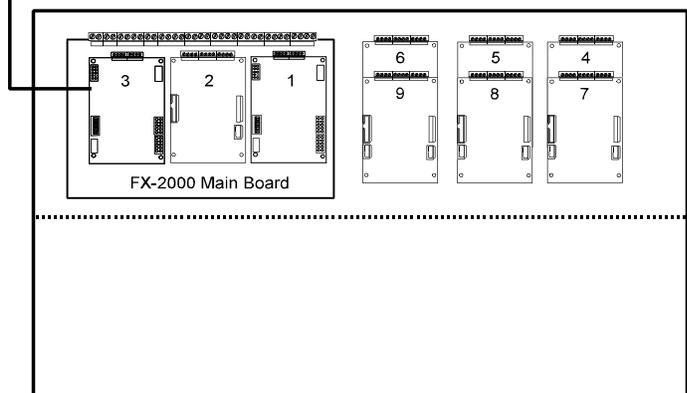
FX-2009-12 Large Main Chassis (Mounts and occupies 4 display positions in BB-5008 or BB-5014 Enclosures)

Exterior View



Supports 2 Display Modules.

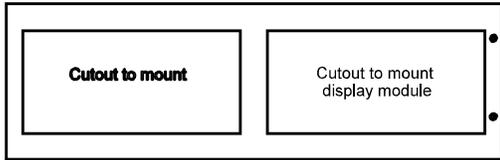
Interior View



Supports 9 Adder Modules.

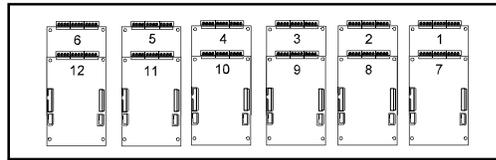
ECX-0012 Expander Chassis for FX-2009-12
 (Mounts and occupies 2 display positions in BB-5008 or BB-5014 Enclosures)

Exterior View



Supports 2 Display Modules.

Interior View

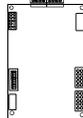


Supports 12 Adder Modules.

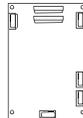
Adder Modules



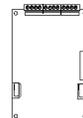
ALC-198S
Single Intelligent
Analog Loop
Controller Module



ALC-396S
Dual Intelligent
Analog Loop
Controller Module



ALC-H16
Hardwire Loop
Controller Module



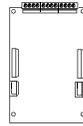
DACT-100A
Digital Alarm
Communicator
Module



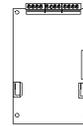
DM-1008A
Eight Initiating
Circuit Module



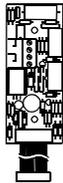
SGM-1004A
Four Indicating
Circuit Module



RM-1008A
Eight Relay
Circuit Module



UDACT-100A
Digital Alarm
Communicator
Module



PR-100
Polarity Reversal/City Tie Module
(Mounts in 3rd position of FX-2000 Main Chassis)

Each of these Adder modules occupy one module slot and mount inside the following chassis:

- FX-2003-6/FX-2003-12 Compact Main Chassis*
- FX-2017-12A Mid-Size Main Chassis*
- FX-2009-12 Large Main Chassis*
- ECX-0012 Expander Chassis for FX-2009-12*

6.0 MODULE SETTINGS

6.1 MAIN FIRE ALARM MODULE (Part of Main Chassis)

JW1 Jumper is removed if a PR-100 or DACT-100A or UDACT-100A is installed.

JW2 to JW4 Jumpers are Factory Set and should not be changed.

P1 RS-485A Connector - NOT USED.

P2 Connects to the RS-485IM for programming the FX-2000, refer to Configuration Guide

P3 Connects to the Adder Loop ALC-198S, ALC-396S or ALC-H16 if used.

P4 Connector for **PR-100 Module or DACT-100A or UDACT-100A**.

P6 Connector for first 8 Conventional **Hardwire Circuit Adder Modules** (Loop 0).

P5 Connector for next 8 Conventional **Hardwire Circuit Adder Modules** (Loop 1).

P8 Power Connector for **Adder Modules**.

P7 Connector for Factory Use Only.

P9 RS-232C for Printer or "CRT" Monitor.

P10,11 Factory connection to Bridge Rectifier.

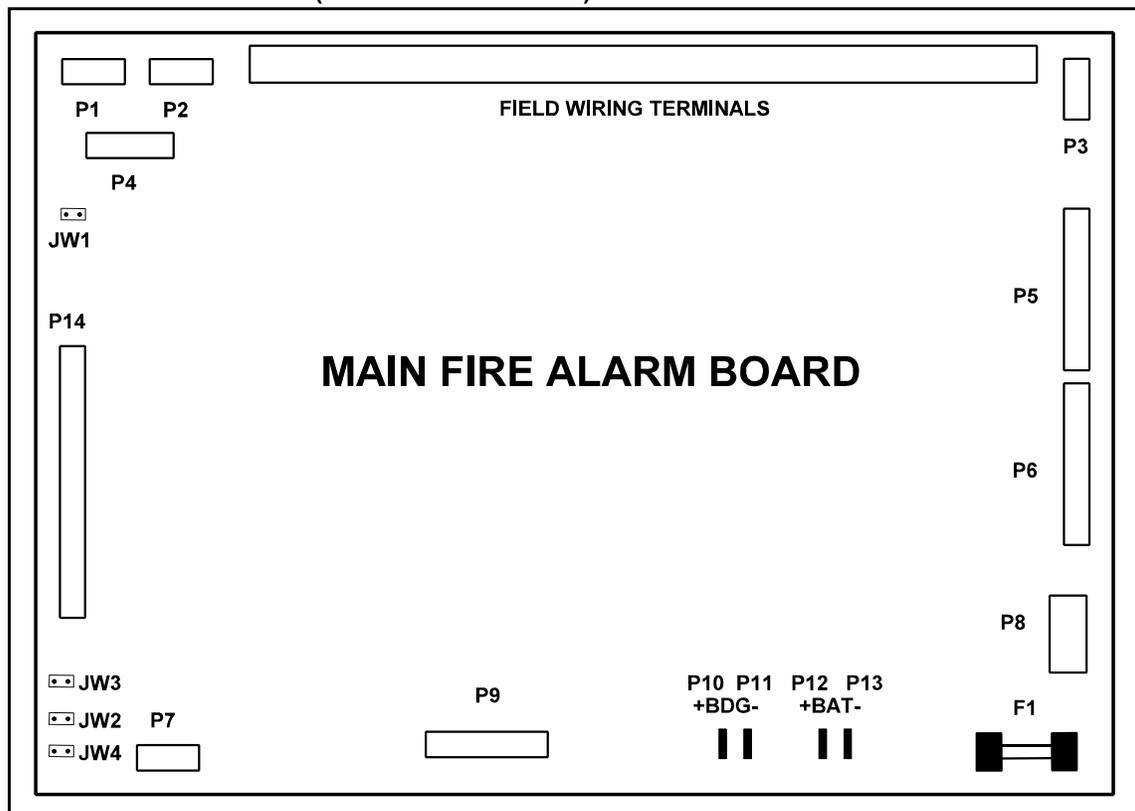
P12,13 Connection to **24 VDC Battery**. Observe Polarity.

P14 Connector for **Display Module**.

F1 20 AMP FUSE

Note that 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 !!**

Main Fire Alarm Module (Part of Main Chassis)

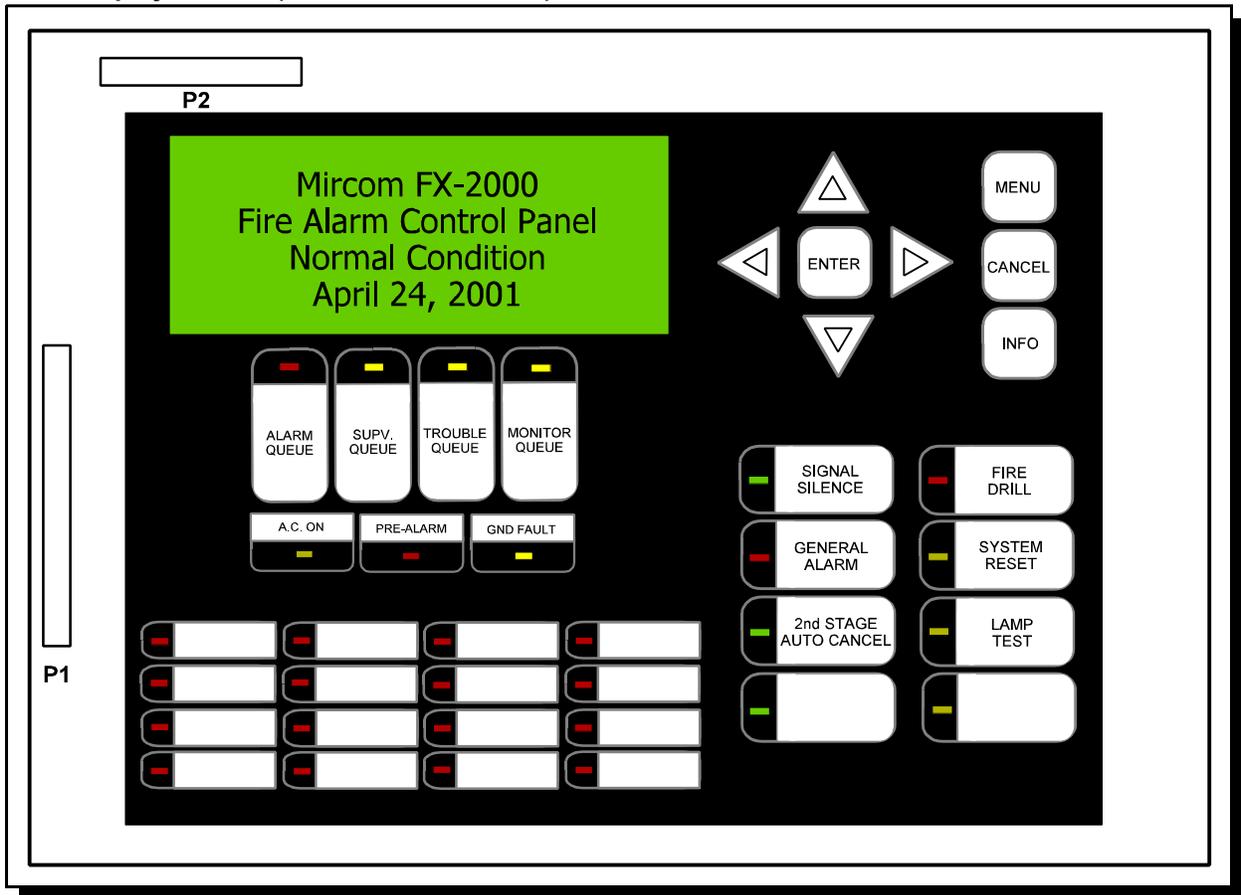


6.2 MAIN DISPLAY MODULE (Part of Main Chassis)

- P1 Cable connects to P14 of Main Fire Alarm Module.
- P2 Connection to P1 of any Adder Display Module if used.

Note that 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 purposes.

Main Display Module (Part of Main Chassis)

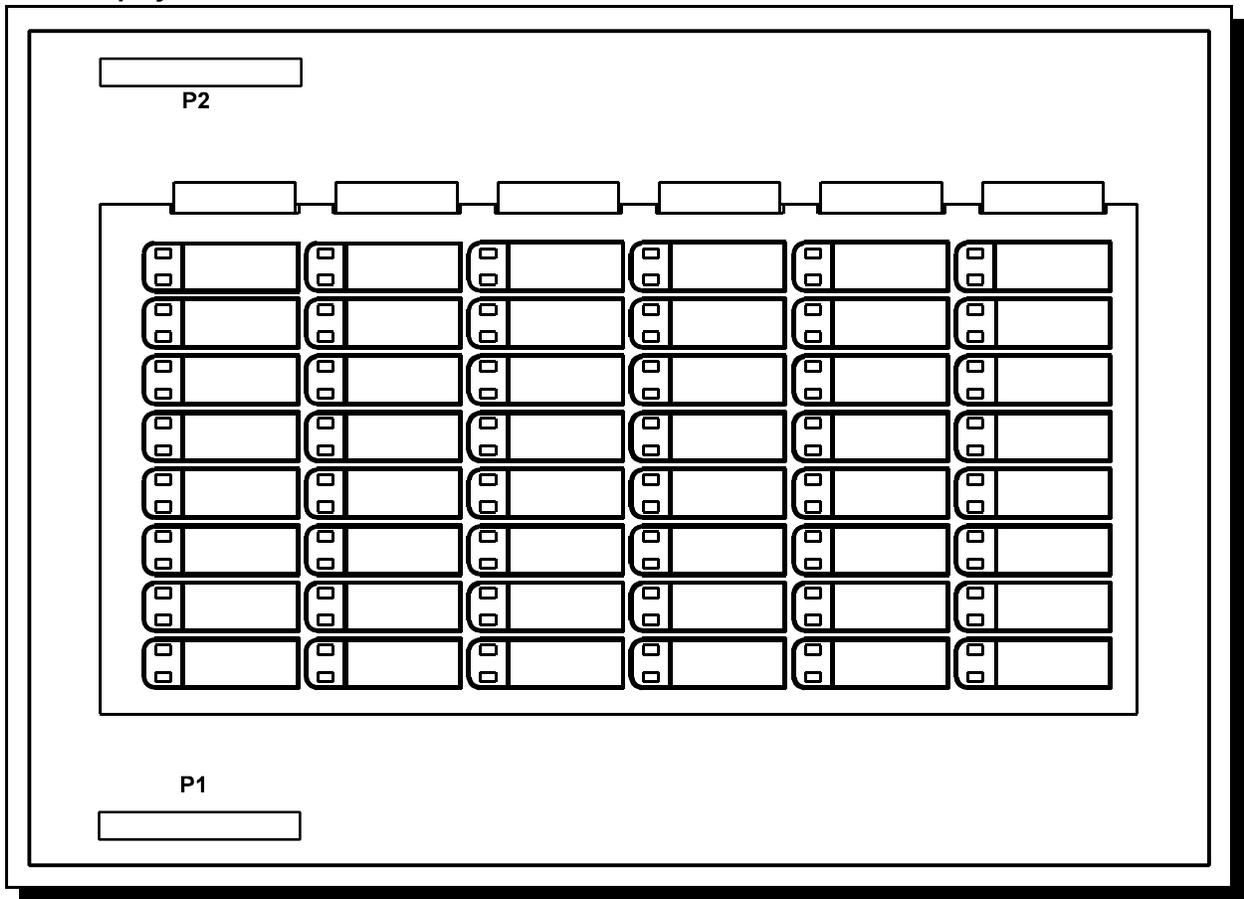


6.3 ZONE DISPLAY MODULE RAX-1048 or RAX-1048TZ

- P1 Cable connects to P2 of previous Display Module.
- P2 Cable connects to P1 of next Display Module.

Note that the Display Module comes with Laser Printer compatible **Slide-In Paper Labels** for Zone labelling purposes.

Zone Display Module

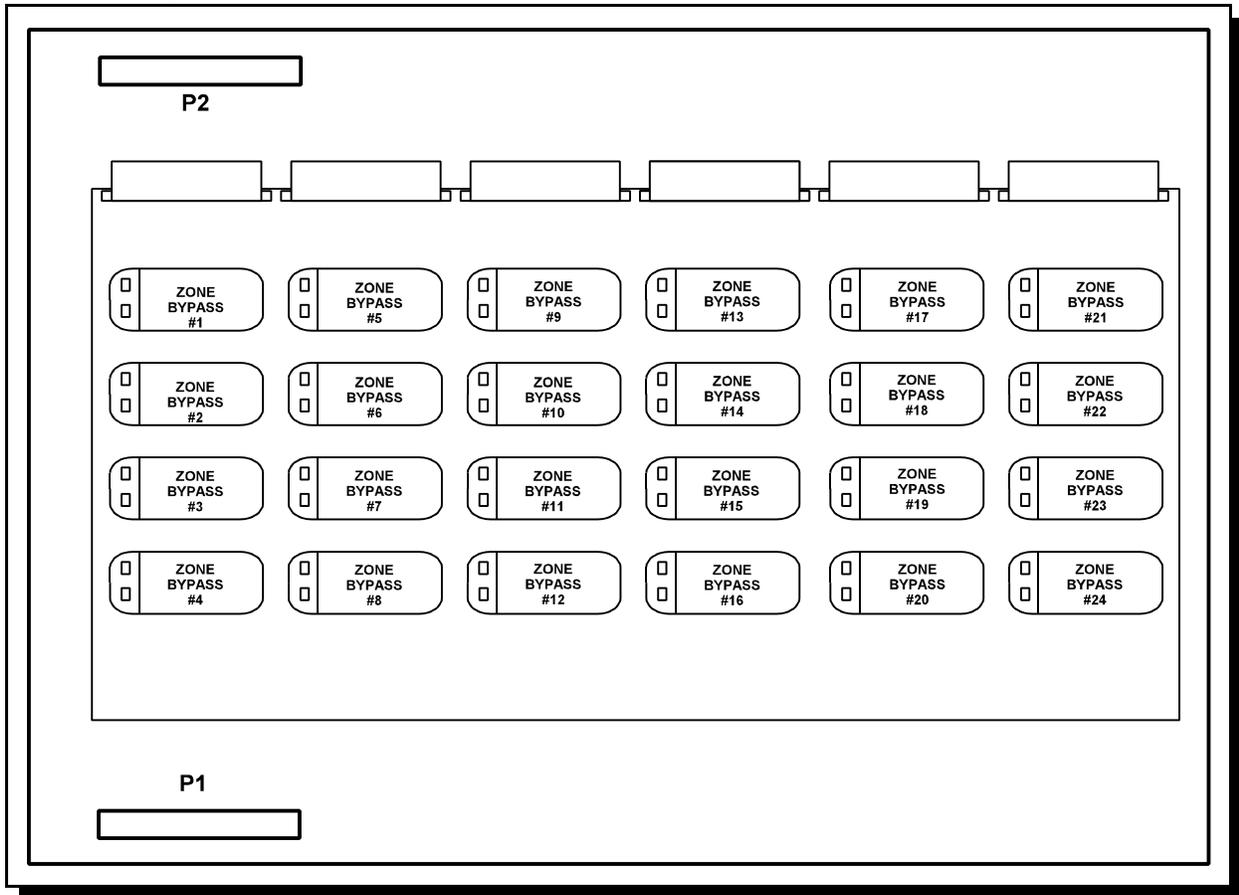


6.4 IPS-2424 PROGRAMMABLE INPUT SWITCHES MODULE

- P1 Cable connects to P2 of previous Display Module.
- P2 Cable connects to P1 of next Display Module.

Note that the Display Module comes with Laser Printer compatible **Slide-In Paper Labels** for Zone labelling purposes. This module is used for group bypass.

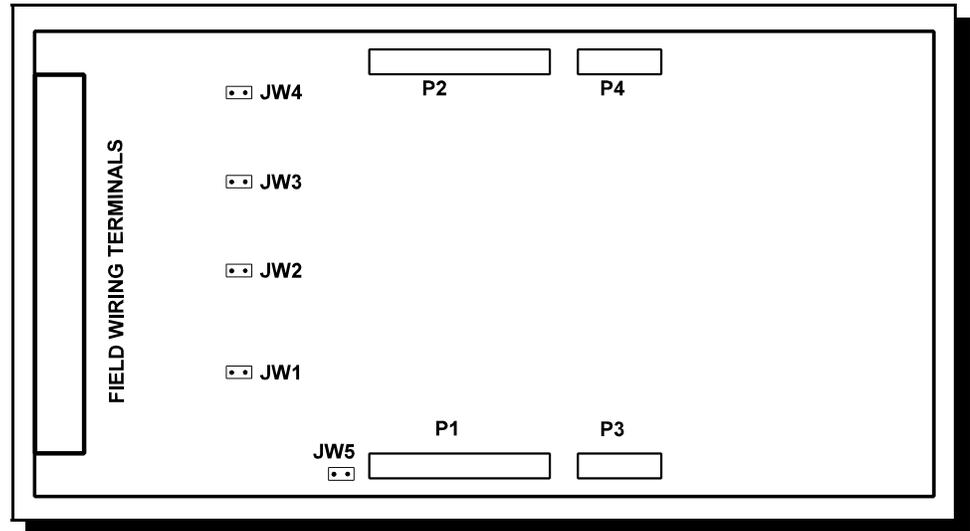
IPS-2424 Programmable Input Switches Module



6.5 HARDWARE DETECTION ADDER MODULE (Model DM-1008A)

- P2** Data Cable to P6 or P5 of Main Fire Alarm Module, or to P12 or P13 of Hardwire Loop Controller 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 P2 of Hardwire Loop Controller Module, or to previous Adder Module.
- P3** Power Connector for next Adder Module.
- JW1** Jumper installed for Class A (Style D) operation of Initiating Circuits 1 and 2.
- JW2** Jumper installed for Class A (Style D) operation of Initiating Circuits 3 and 4.
- JW3** Jumper installed for Class A (Style D) operation of Initiating Circuits 5 and 6.
- JW4** Jumper installed for Class A (Style D) operation of Initiating Circuits 7 and 8.

Hardwire Detection Adder Module

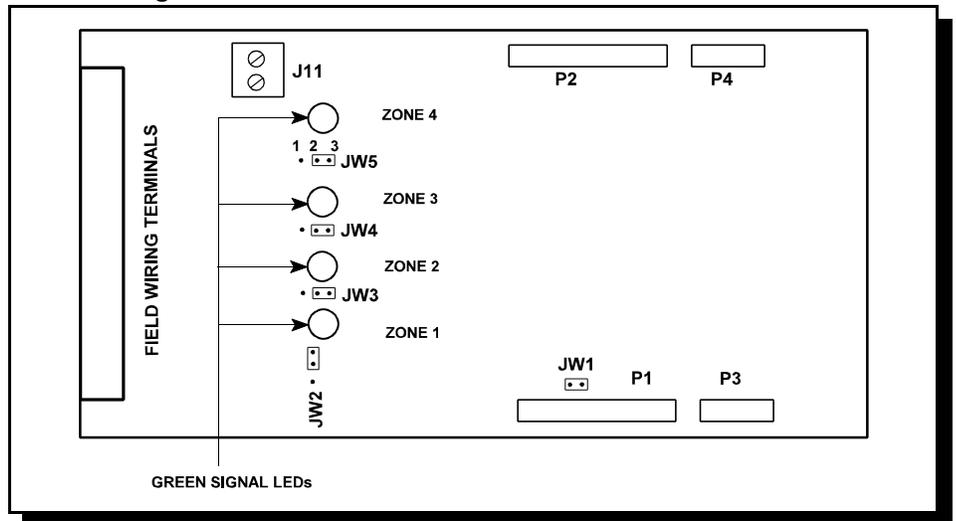


NOTE: FOR CLASS A (STYLE D) OPERATION, THE FX-2000 MUST BE CONFIGURED AS CLASS A VIA THE CONFIGURATION PROGRAM.
JW5 Continuity Jumper removed if this is **not** the last **Adder Module** installed.

6.6 HARDWARE SIGNAL ADDER MODULE (Model SGM-1004A)

- P2** Data Cable to P6 or P5 of Main Fire Alarm Module, or to P12 or P13 of Hardwire Loop Controller 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 P2 of Hardwire Loop Controller Module, or to previous Adder Module.
- P3** Power Connector for next Adder Module.
- JW1** **Continuity Jumper** removed if there are any more **Adder Modules** installed. If this is the last module installed, leave **JW1** on.
- JW2** Jumper these two pins for the ability to remotely silence the bells on Zone 1.
- JW3** Jumper these pins for the ability to remotely silence the bells on Zone 2.
- JW4** Jumper these pins for the ability to remotely silence the bells on Zone 3.
- JW5** Jumper these pins for the ability to remotely silence the bells on Zone 4.
- J11** Wire these terminals to a Bell Cut Relay, see LT-686

Hardwire Signal Adder Module



COMPONENTS:

There are 4 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.

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 3 modes of operation for this module. The basic mode of operation does not involve any bell cut relay or 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 provides **bell cut** operation which allows the silencing of the bells. The third mode is used when **isolators** are to be connected to the signal circuits. Refer to specific Fire Alarm Panel Instruction Manual for further Bell Cut information and to isolator instruction for further detail.

For the Bell Cut Mode:

JW2 Place jumper over pins 2 and 3 for the ability to remotely silence the bells on Zone 1.

JW3 Place jumper over pins 2 and 3 for the ability to remotely silence the bells on Zone 2.

JW4 Place jumper over pins 2 and 3 for the ability to remotely silence the bells on Zone 3.

JW5 Place jumper over pins 2 and 3 for the ability to remotely silence the bells on Zone 4.

CAUTION: Discard jumpers on zones that are not configured for bell cut.

J11 Wire these terminals to a Bell Cut Relay, see LT-686 Instructions.

For the Isolator Mode:

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

JW3 Place jumper over pins 1 and 2 for the ability to connect an isolator on Zone 2.

JW4 Place jumper over pins 1 and 2 for the ability to connect an isolator on Zone 3.

JW5 Place jumper over pins 1 and 2 for the ability to connect an isolator on Zone 4.

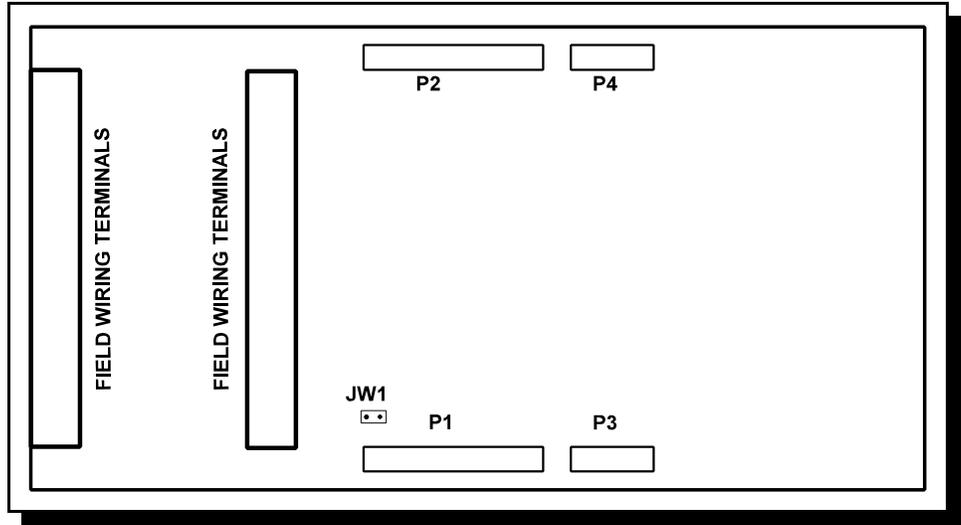
CAUTION: Discard jumpers on zones that are not configured for isolators.

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

6.7 HARDWIRE RELAY ADDER MODULE (Model RM-1008A)

Hardwire Relay Adder Module

- P2** Data Cable to P6 or P5 of Main Fire Alarm Module, or to P12 or P13 of Hardwire Loop Controller 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 P2 of Hardwire Loop Controller Module, or to previous Adder Module.
- P3** Power Connector for next Adder Module.
- JW1** Continuity Jumper removed if there are any more **Adder Modules** installed. If this is the last module installed, leave **JW1** on.

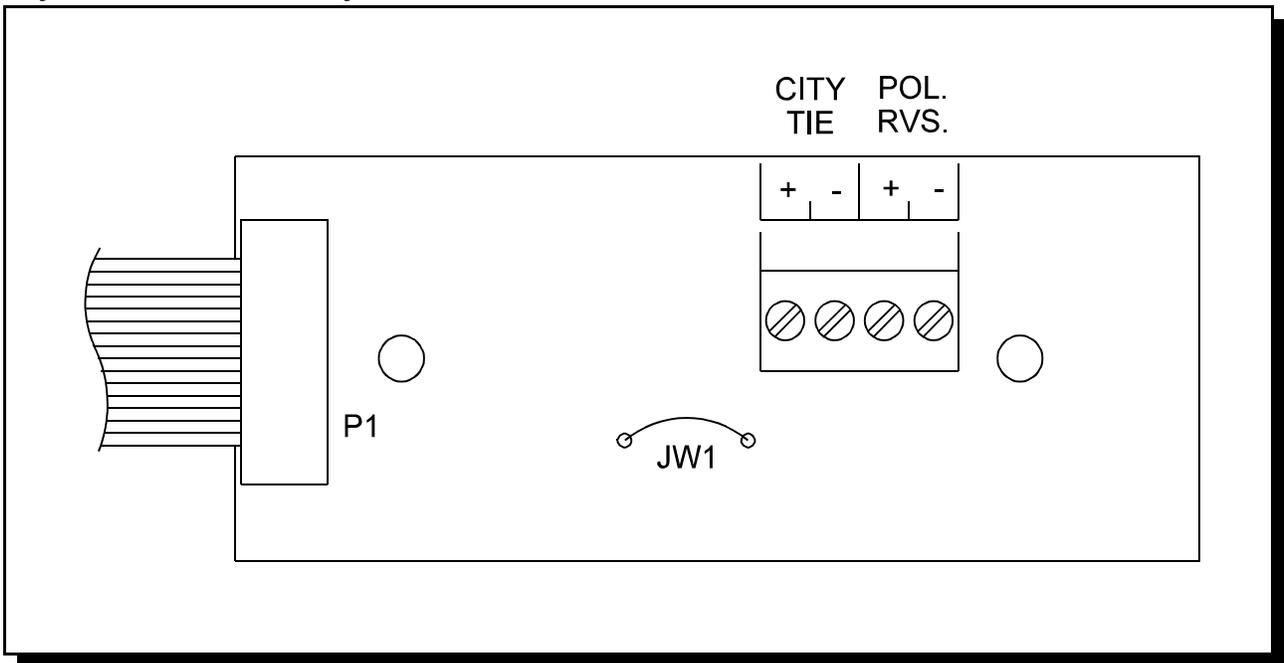


6.8 POLARITY REVERSAL and CITY TIE MODULE (MODEL: PR-100)

- P1** Cable to P2 of Main Fire Alarm Module.
- JW1** Cut this jumper for Trouble transmission. When this jumper is cut and a system trouble occurs, the designated terminals will transmit a "zero volts" or "open" circuit. Please note that at normal condition, the terminals polarity is read exactly as labelled on the circuit board.

Jumper JW1 on the Main Fire Alarm Module must be removed if a **Polarity Reversal and City Tie Module** is installed.

City Tie Module and Polarity Reversal Module



6.9 DIGITAL ALARM TRANSMITTER (DACT-100A or UDACT-100A)

P1 Cable to P4 on the Main Fire Alarm Board.

P2 NOT USED.

P3 NOT USED.

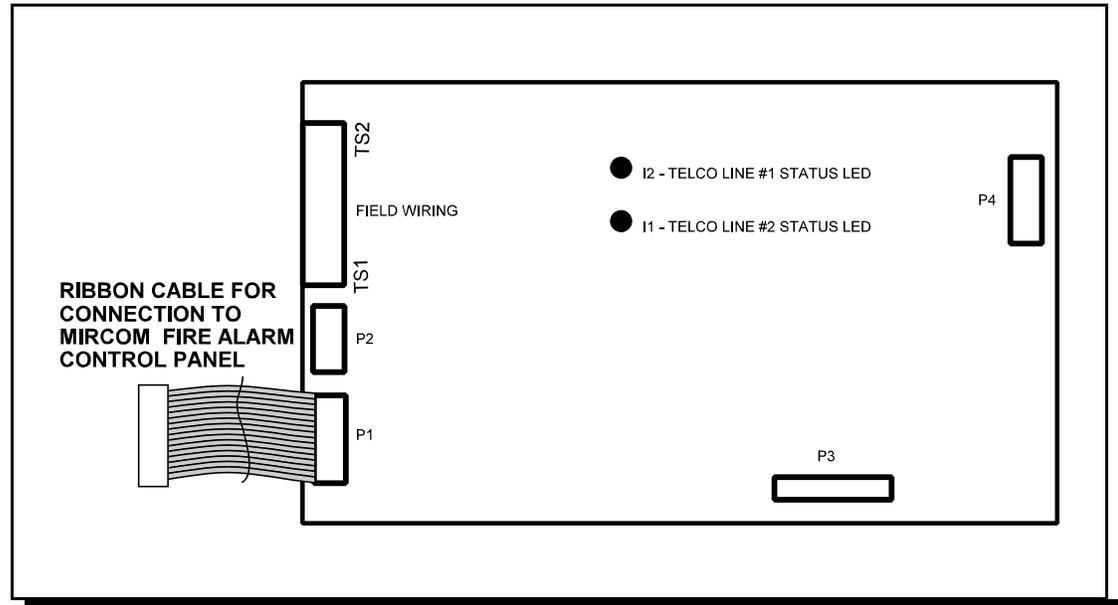
P4 Connector for CFG-100 Configuration Module for the DACT-100A/UDACT-100A.

I1 Status Indicator LED for Telco Line #1; Red when line is in use, Amber when there is a line fault.

I1 Status Indicator LED for Telco Line #2; Red when line is in use, Amber when there is a line fault.

TS1 AND TS2 are terminals for field wiring. Jumper **JW1** on the Main Fire Alarm Module must be removed if a **DACT-100A** or **UDACT-100A** is installed. Note that this module cannot be installed if a **City Tie Module** is used.

DACT-100A or UDACT-100A Dialer Module



Please see the DACT-100A or UDACT-100A Manual for more information.

6.10 ALC-198S SINGLE INTELLIGENT ANALOG LOOP CONTROLLER MODULE

The ALC-198S Single Intelligent Analog Loop Controller module provides a single addressable loop. It may be mounted over the main chassis of the FX-2000 Fire Alarm Panel or on any chassis which supports adder boards. Refer to pages 14 and 15 for mounting applications. The module is mounted using 4 #6 screws and (if necessary) 4 1 1/2" spacers.

POWER: The power is supplied to the board via cable from the main chassis board or from the previous loop controller module into the P1 Power IN connector. The P2 Power OUT connector is connected to the next loop controller module or other adder module. Two power cables are supplied with the module.

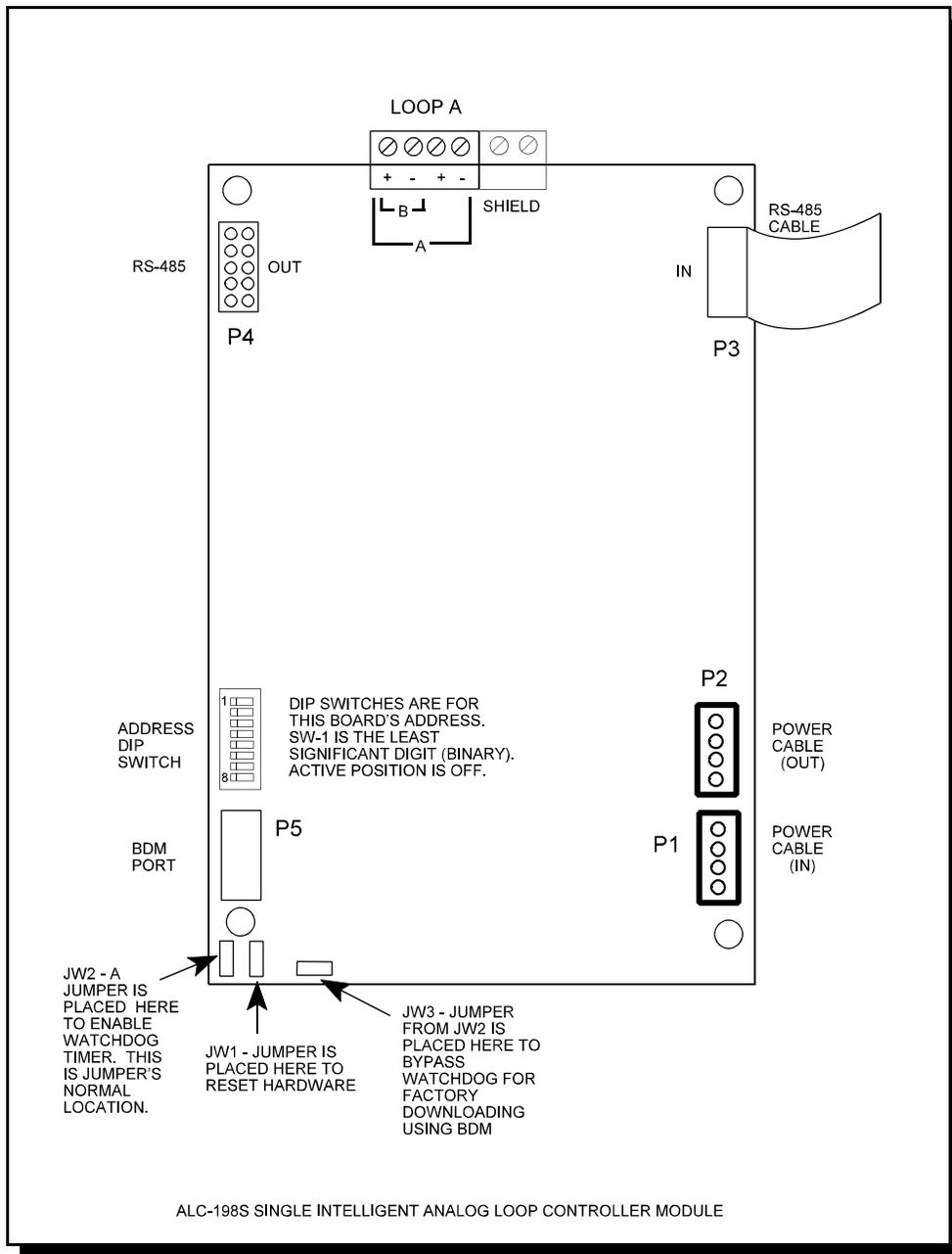
RS-485: The RS-485 cable comes attached at P3 and is connected to the main chassis board or from the previous loop controller module or other adder board. The RS-485 OUT at P4 is connected to the next loop controller module if used or left without connection.

DIP SWITCHES: The dip switches are used to set the address of the board. The address is binary, with the SW-1 switch as the lowest significant digit and OFF being active. For example an address of two is SW-1 ON, SW-2 OFF, and all the other dip switches SW-3 to SW-8 ON. Refer to DIP Switch settings in Appendix E for more information.

LOOP 1: This is the addressable loop for all initiating devices. Wire the loop as shown on page 34 for Class B or page 35 for Style 7 or page 36 for Style 6 (Class A).

JUMPERS: A jumper is provided at JW2 for normal operation. To reset the board the jumper is left at JW2 and the pins at position JW1 are shorted momentarily.

BDM PORT: This connection is for Factory Use Only.



Mount the ALC-198S Single Intelligent Analog Loop Controller module as shown on pages 14 and 15. The module may be mounted over the main chassis board or in any position that an adder module is mounted.

6.11 ALC-396S DUAL INTELLIGENT ANALOG LOOP CONTROLLER MODULE

The ALC-396S Dual Intelligent Analog Loop Controller module provides a two addressable loops. It may be mounted over the main chassis of the FX-2000 Fire Alarm Panel or on any chassis which supports adder boards. Refer to pages 14 and 15 for mounting applications. The module is mounted using 4 #6 screws and (if necessary) 4 1 1/2" spacers.

POWER: The power is supplied to the board via cable from the main chassis board or from the previous loop controller module into the P1 Power IN connector. The P2 Power OUT connector is connected to the next loop controller module or other adder module. Two power cables are supplied with the module.

RS-485: The RS-485 cable comes attached at P3 and is connected to the main chassis board or from the previous loop controller module or other adder board. The RS-485 OUT at P4 is connected to the next loop controller module if used or left without connection.

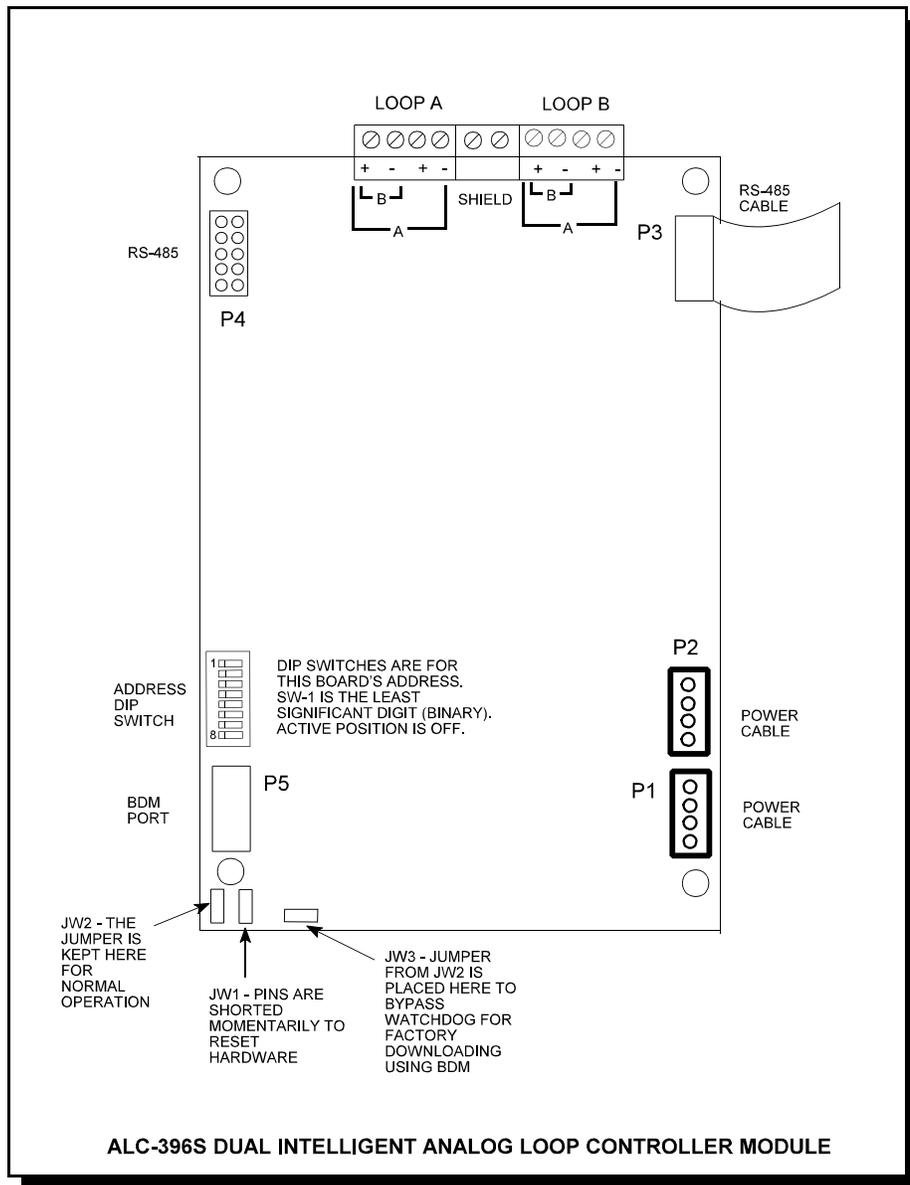
DIP SWITCHES: The dip switches are used to set the address of the board. The address is binary, with the SW-1 switch as the lowest significant digit and OFF being active. For example an address of **TWO** is SW-1 ON, SW-2 OFF and all the other dip switches SW-3 to SW-8 are ON. Refer to DIP Switch settings in Appendix E for more information.

LOOP 1: This is the addressable loop for all initiating devices. Wire the loop as shown on page 34 for Class B or page 35 for Style 7 and Style 6 (Class A) on page 36.

LOOP 2: This is a second addressable loop for all initiating devices. Wire this loop in the same manner as shown on page 34 for Class B or page 35 for Style 7 and page 36 for Style 6 (Class A).

JUMPERS: A jumper is provided at JW2 for normal operation. To reset the board the jumper is left at JW2 and the pins at position JW1 are shorted momentarily.

BDM PORT: This connection is for Factory Use Only.



Mount the ALC-396S Dual Intelligent Analog Loop Controller module as shown in the FX-2000 manual. The module may be mounted over the main chassis board or in any position that an adder module is mounted.

WIRING THE ADDRESSABLE LOOPS

There are two addressable loops present on this board (ALC-396S) that are wired in the same manner as shown in the wiring diagrams on page 33, 34 and 35. Although these drawings show only Loop 1, Loop 2 is wired in the same way as Loop 1 is. Note Loop 1 and Loop 2 do not have to be wired in the same class, such as Class A or Class B or Style 7. Therefore Loop 1 may be wired as Class A and Loop 2 may be wired as Class B.

6.12 ALC-H16 HARDWIRE LOOP CONTROLLER MODULE

The ALC-H16 Hardwire Loop Controller module provides an interface in order to add 16 conventional adder boards. This board may be mounted over the main chassis of the FX-2000 Fire Alarm Panel or on any chassis which supports adder boards. Refer to pages 14 and 15 for mounting applications. The module is mounted using 4 #6 screws and (if necessary) 4 11/2" spacers.

POWER: The power is supplied to the board via cable from the main chassis board or from the previous loop controller module into the P1 Power IN connector. The P2 Power OUT connector is connected to the next loop controller module or other adder module. Two power cables are supplied with the module.

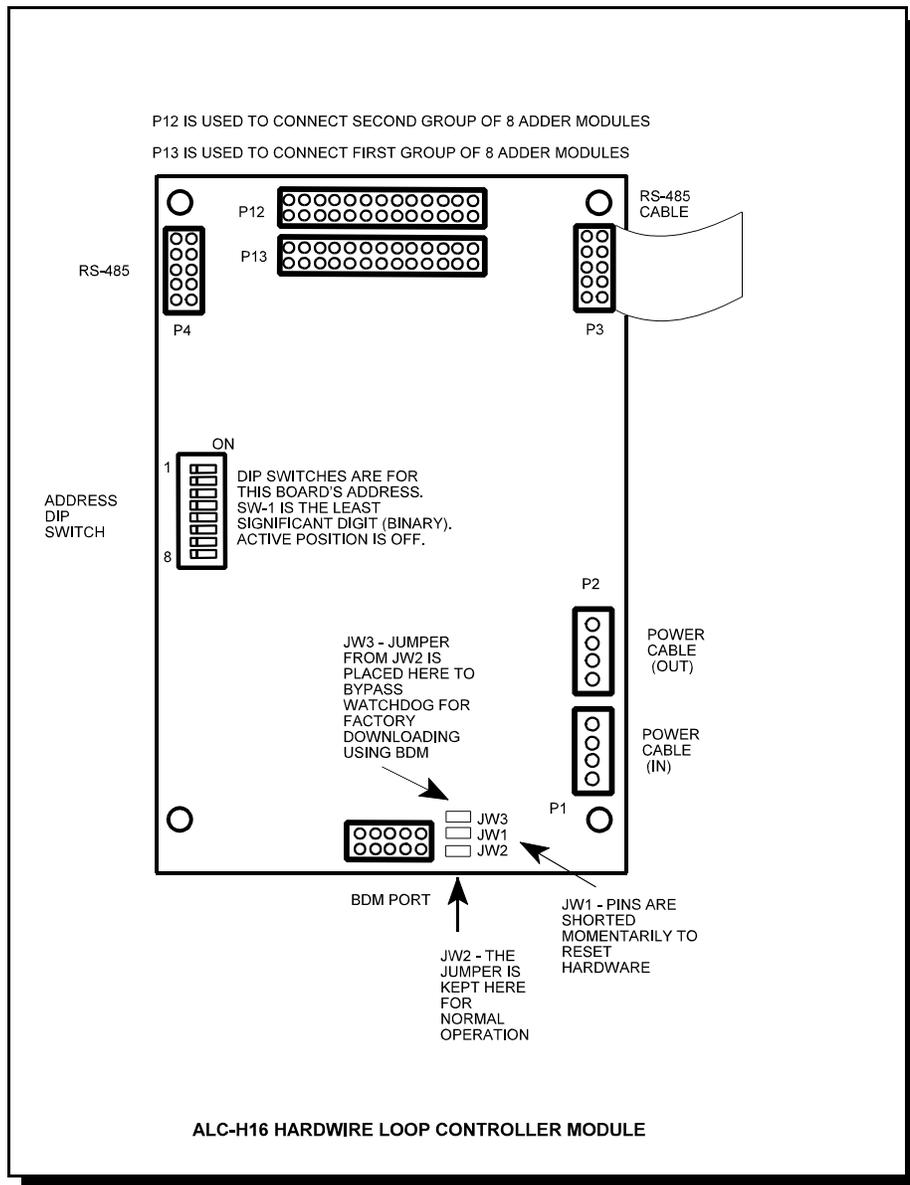
RS-485: The RS-485 cable comes attached at P3 and is connected to the main chassis board or from the previous loop controller module or other adder board. The RS-485 OUT at P4 is connected to the next loop controller module if used or left without connection.

DIP SWITCHES: The dip switches are used to set the address of the board. The address is binary, with the SW-1 switch as the lowest significant digit and OFF being active. For example an address of two is SW-1 ON, SW-2 OFF, and all the other dip switches SW-3 to SW-8 ON.

JUMPERS: A jumper is provided at JW2 for normal operation. To reset the board the jumper is left at JW2 and the pins at position JW1 are shorted momentarily.

BDM PORT: This connection is for Factory Use Only.

P13 and P12 Connectors: The P13 connector is connected (via ribbon cable included with this module) to the first module of the first group of 8 conventional adder modules and the P12 connector is connected (via ribbon cable included with this module) to the first module of the second group of 8 conventional adder modules.



Mount the ALC-H16 Hardwire Loop Controller module as shown on pages 14 and 15. The module may be mounted over the main chassis board or in any position that an adder module is mounted.

There is no wiring at the ALC-H16 Hardwire Loop Controller module, but there is wiring at the 16 standard conventional adder modules. For conventional hardwire circuit wiring refer to pages 37, 38 and 39 for the specific module you are wiring.

7.0 FIELD WIRING

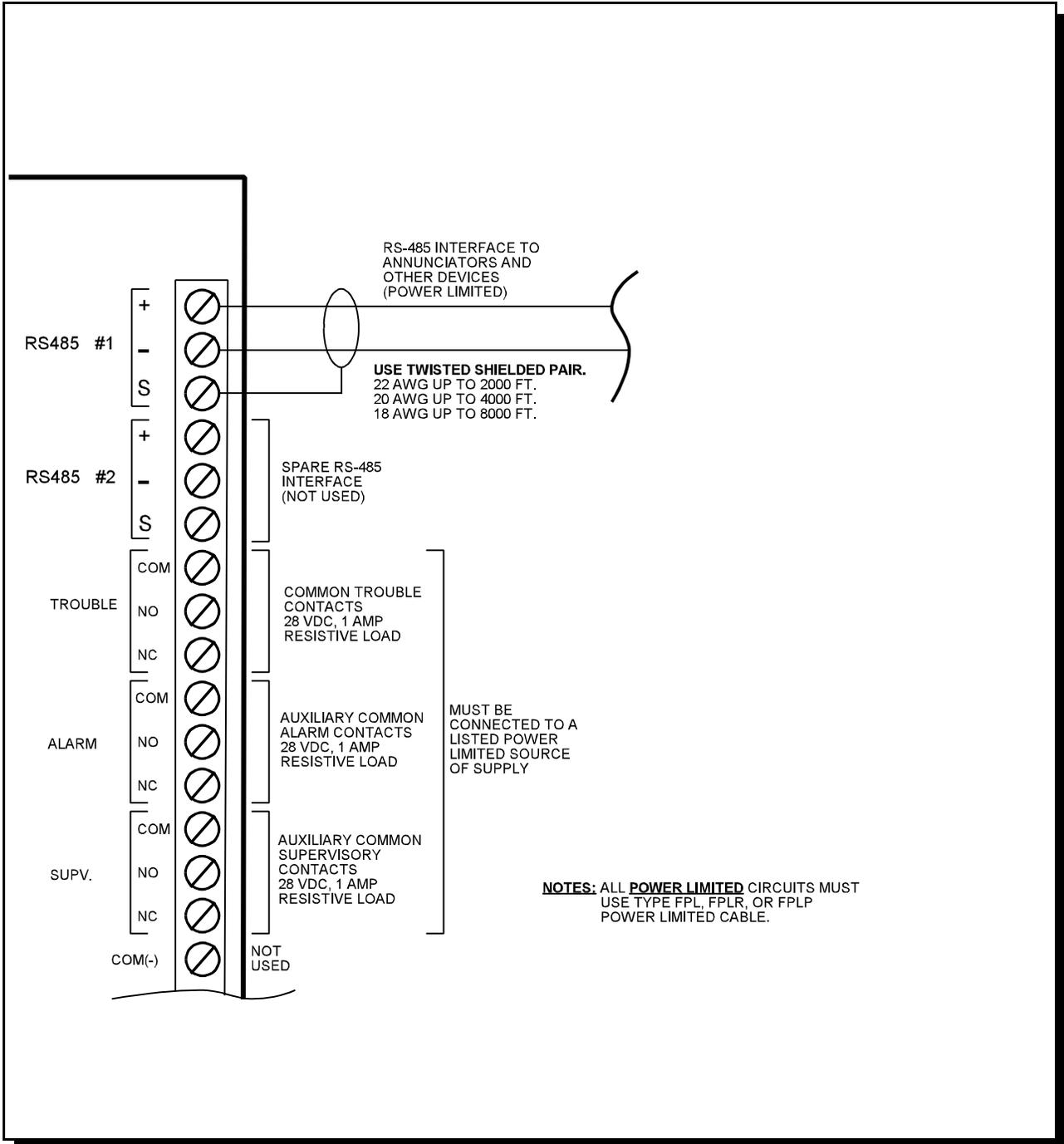
7.1 MAIN FIRE ALARM MODULE TERMINAL CONNECTIONS

Wire devices to terminals as shown. See wiring tables and **Appendix A** for compatible devices and **Appendix C** for specifications.

Caution: Do not exceed power supply ratings: **Main Chassis FX-2003-6**, total current for Indicating Circuits is 5 A max.
Main Chassis FX-2003-12 or FX-2017-12A, total current for Indicating Circuits is 10 A max.
Main Chassis FX-2009-12, total current for Indicating Circuits is 10A max.

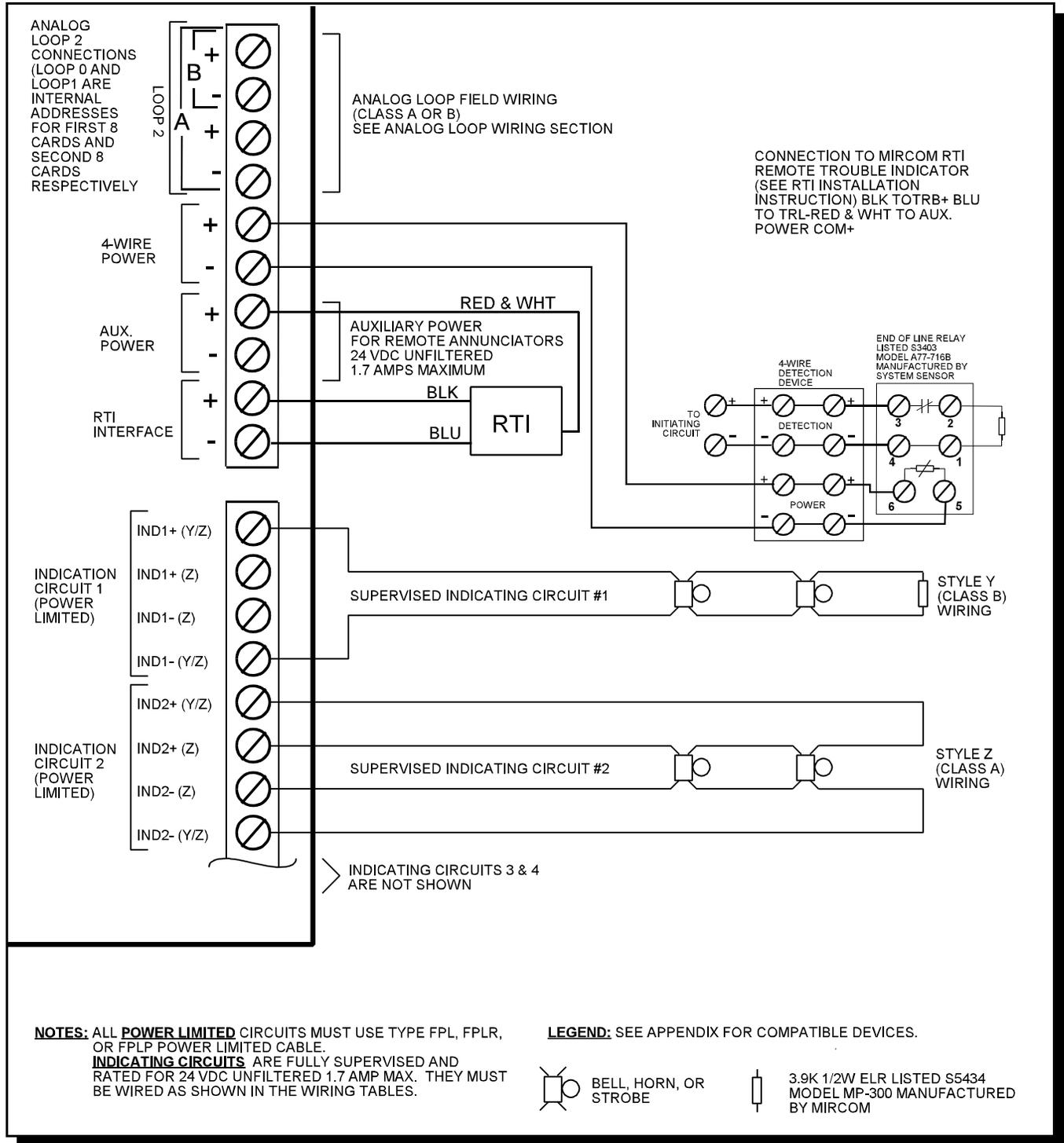
Note: *The Terminal Blocks are "depluggable" for ease of wiring.*

Main Fire Alarm Module Terminal Connections



Wire devices to terminals as shown. See the following **Analog Loop Field Wiring Instructions** for more information. Loop 2 is the addressable loop, whereas Loop 0 (internal address for first 8 modules detection and/or signals) and Loop 1 (address for second set of 8 modules) are for the conventional circuits.

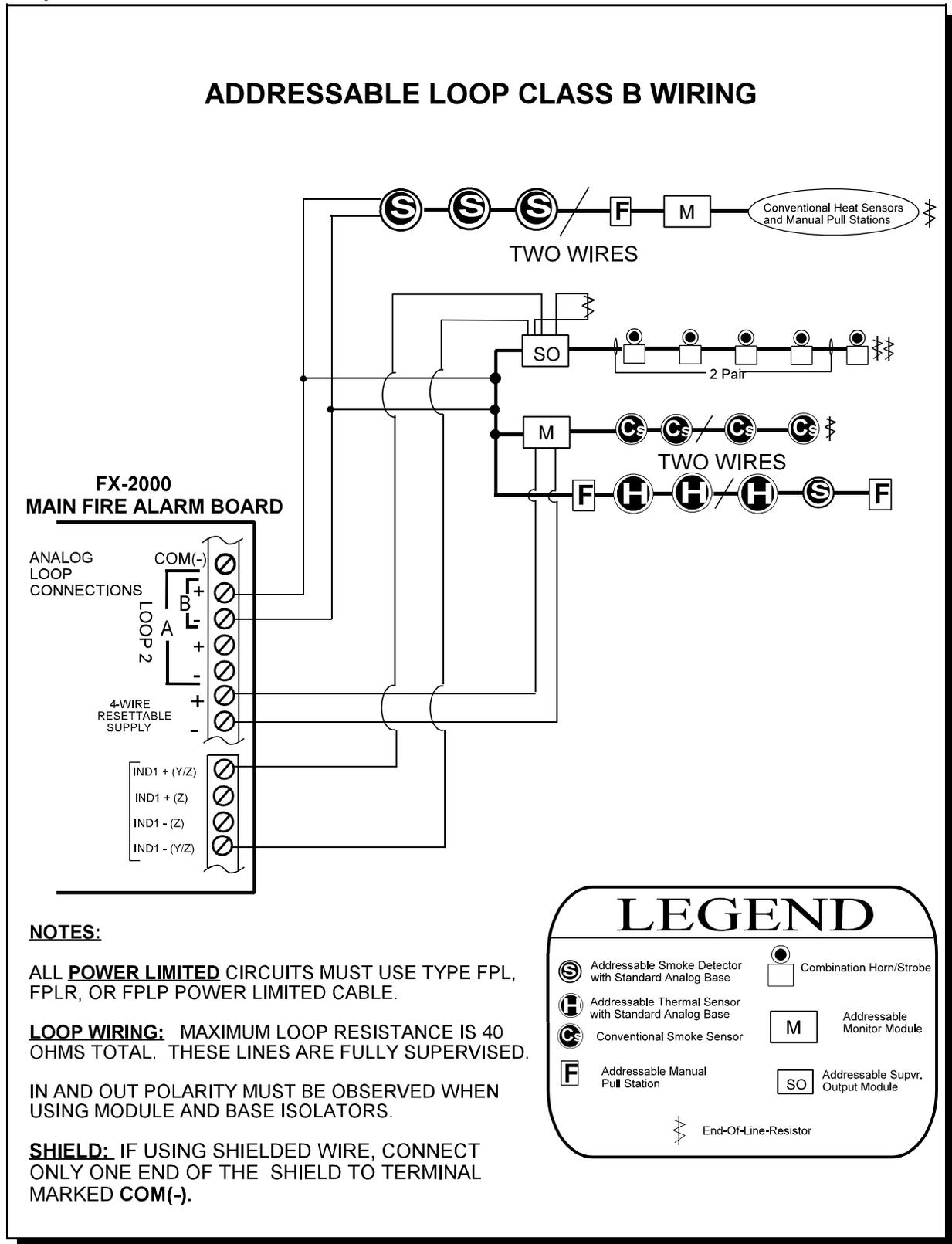
Main Fire Alarm Module Terminal Connections (continued)



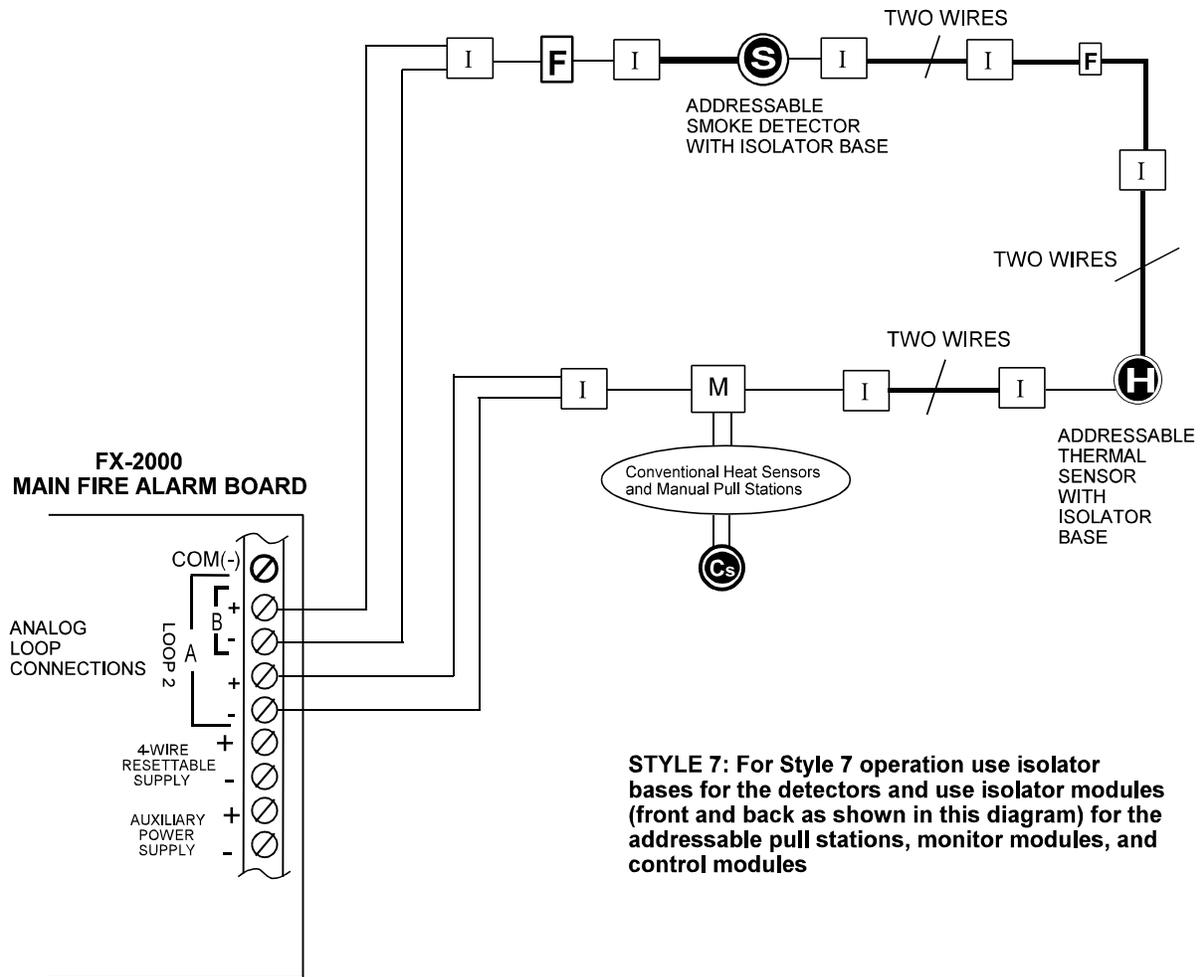
7.2 ANALOG LOOP WIRING

Note: The Terminal Blocks are “depluggable” for ease of wiring.

Loop Terminal Connections - Class B



ADDRESSABLE LOOP STYLE 7 WIRING



STYLE 7: For Style 7 operation use isolator bases for the detectors and use isolator modules (front and back as shown in this diagram) for the addressable pull stations, monitor modules, and control modules

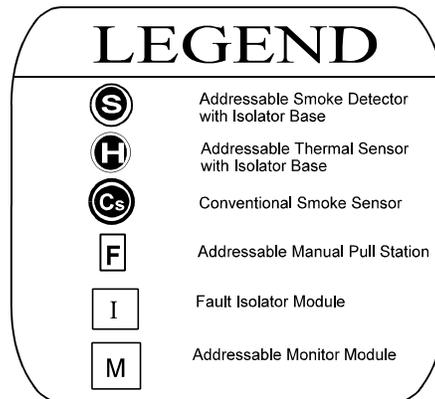
NOTES:

ALL POWER LIMITED CIRCUITS MUST USE TY, FPL, FPLR OR FPLP POWER LIMITED CABLE.

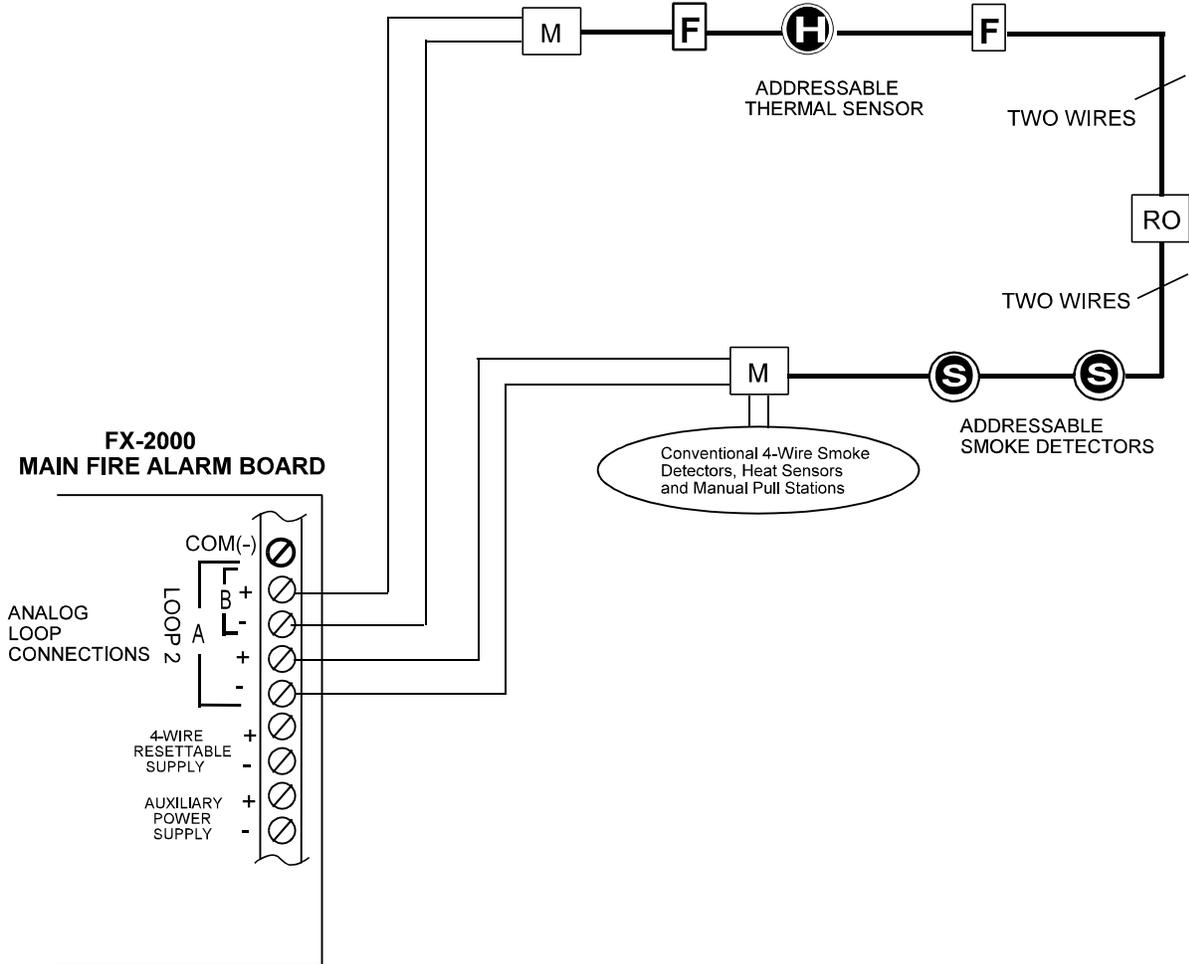
ISOLATORS NEED TO BE CLOSE NIPPLE CONNECTED TO THE DEVICE BEING PROTECTED.

LOOP WIRING: MAXIMUM LOOP RESISTANCE 40 OHMS TOTAL. THESE LINES ARE FULLY SUPERVISED.

SHIELD: IF USING SHIELDED WIRE, CONNECT ONLY ONE END OF THE SHIELD TO TERMINAL MARKED COM(-).



ADDRESSABLE LOOP STYLE 6 WIRING (FORMERLY CLASS A)



NOTES:

ALL POWER LIMITED CIRCUITS MUST USE TYPE FPL, FPLR OR FPLP POWER LIMITED CABLE.

LOOP WIRING: MAXIMUM LOOP RESISTANCE 40 OHMS TOTAL. THESE LINES ARE FULLY SUPERVISED.

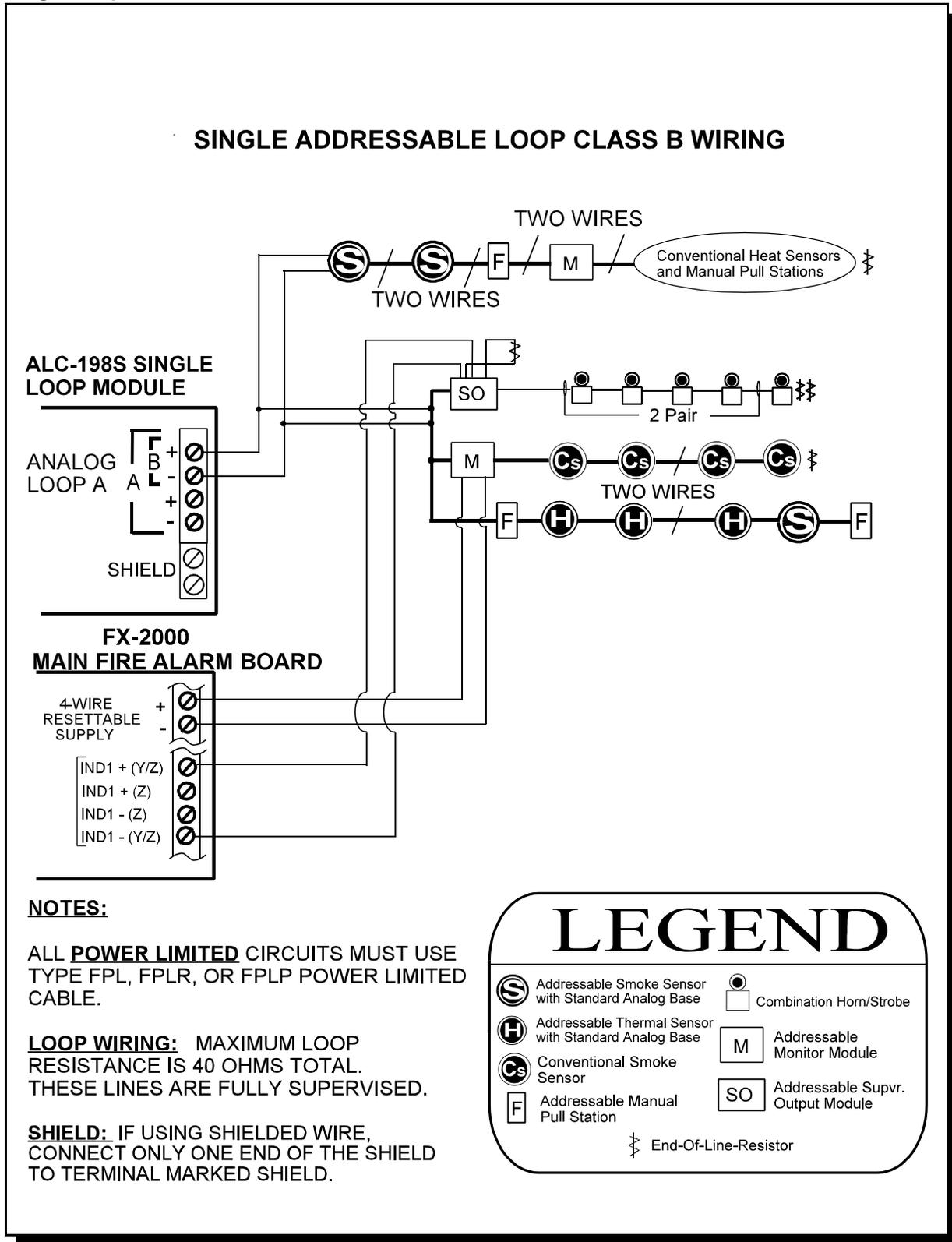
SHIELD: IF USING SHIELDED WIRE, CONNECT ONLY ONE END OF THE SHIELD TO TERMINAL MARKED **COM(-)**.

LEGEND

-  Addressable Smoke Detector
-  Addressable Thermal Sensor
-  Addressable Manual Pull Station
-  Addressable Monitor Module
-  Addressable Relay Output Module

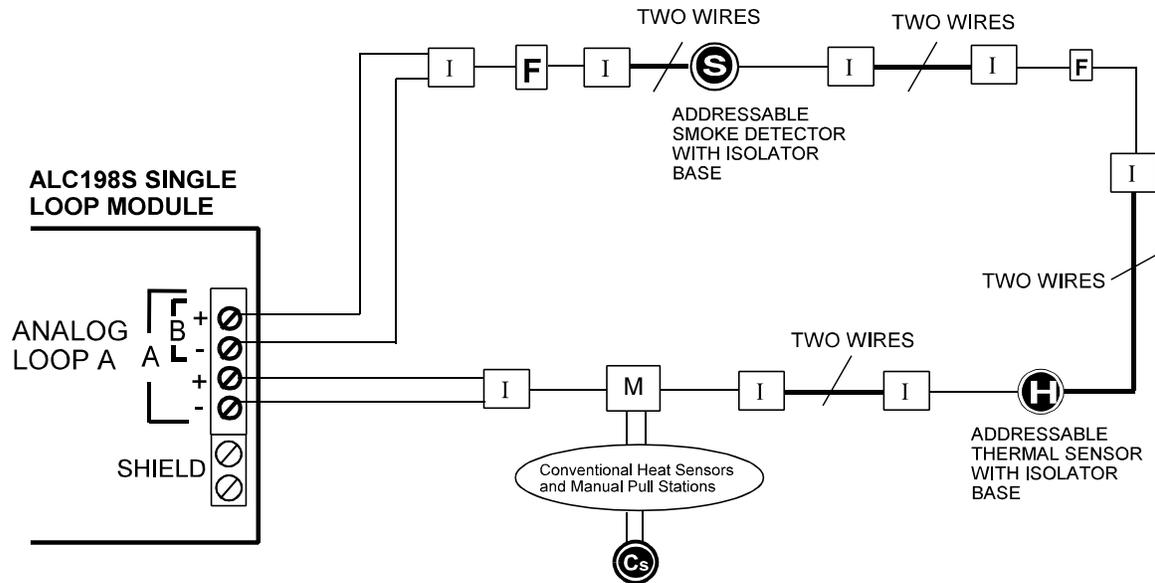
7.3 SINGLE LOOP ADDER MODULE WIRING

Single Loop Terminal Connections - Class B



Single Loop Terminal Connections - Style 7

SINGLE ADDRESSABLE LOOP STYLE 7 WIRING



STYLE 7: For Style 7 operation use isolator bases for the detectors and use Isolator modules (front and back as shown in this diagram) for the addressable pull stations, monitor modules, and control modules

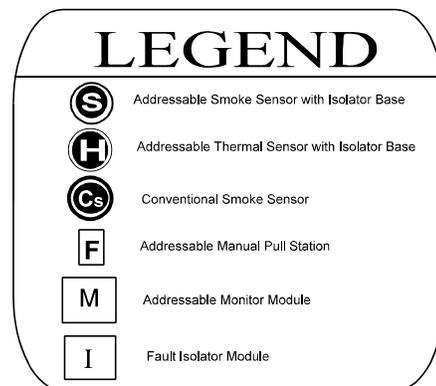
NOTES:

ALL POWER LIMITED CIRCUITS MUST USE TY, FPL, FPLR OR FPLP POWER LIMITED CABLE.

ISOLATORS NEED TO BE CLOSE NIPPLE CONNECTED TO THE DEVICE BEING PROTECTED.

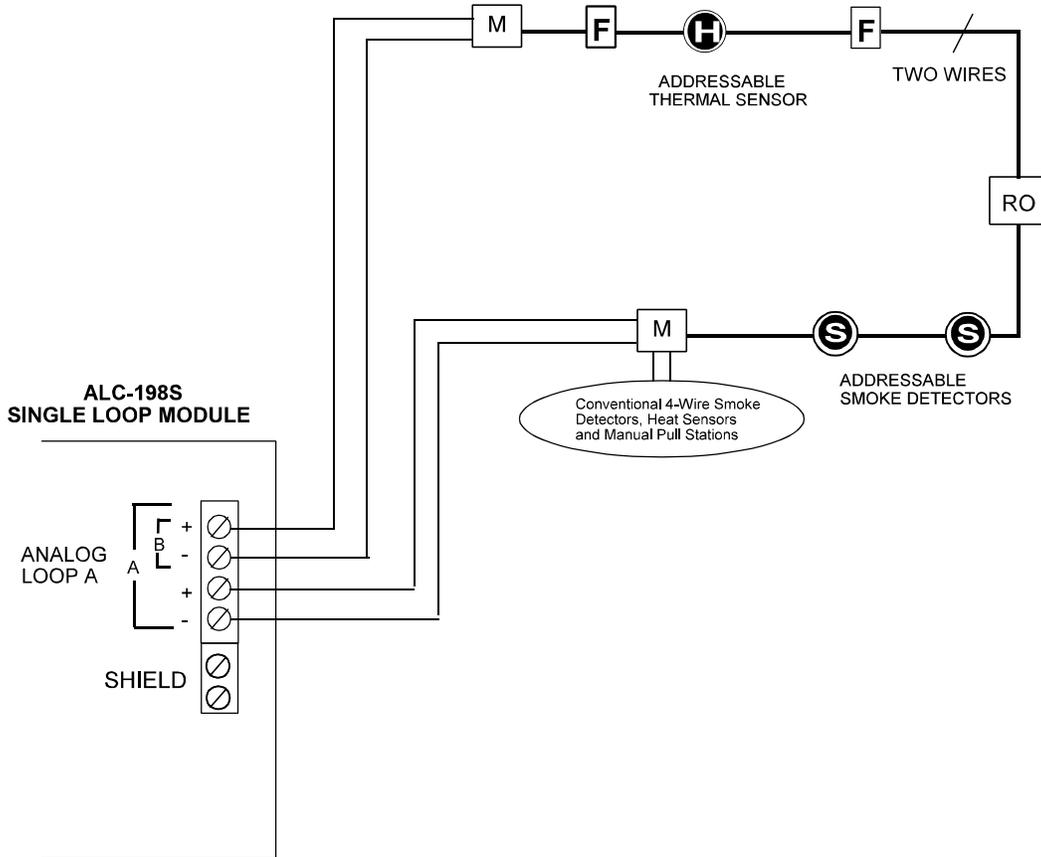
LOOP WIRING: MAXIMUM LOOP RESISTANCE 40 OHMS TOTAL. THESE LINES ARE FULLY SUPERVISED.

SHIELD: IF USING SHIELDED WIRE, CONNECT ONLY ONE END OF THE SHIELD TO TERMINAL MARKED SHIELD ON THE LOOP ADDER BOARD.



Single Loop Terminal Connections - Style 6

SINGLE ADDRESSABLE LOOP STYLE 6 WIRING



NOTES:

ALL POWER LIMITED CIRCUITS MUST USE TY, FPL, FPLR OR FPLP POWER LIMITED CABLE.

LOOP WIRING: MAXIMUM LOOP RESISTANCE 40 OHMS TOTAL. THESE LINES ARE FULLY SUPERVISED.

SHIELD: IF USING SHIELDED WIRE, CONNECT ONLY ONE END OF THE SHIELD TO TERMINAL MARKED SHIELD ON THE LOOP ADDER BOARD.

LEGEND

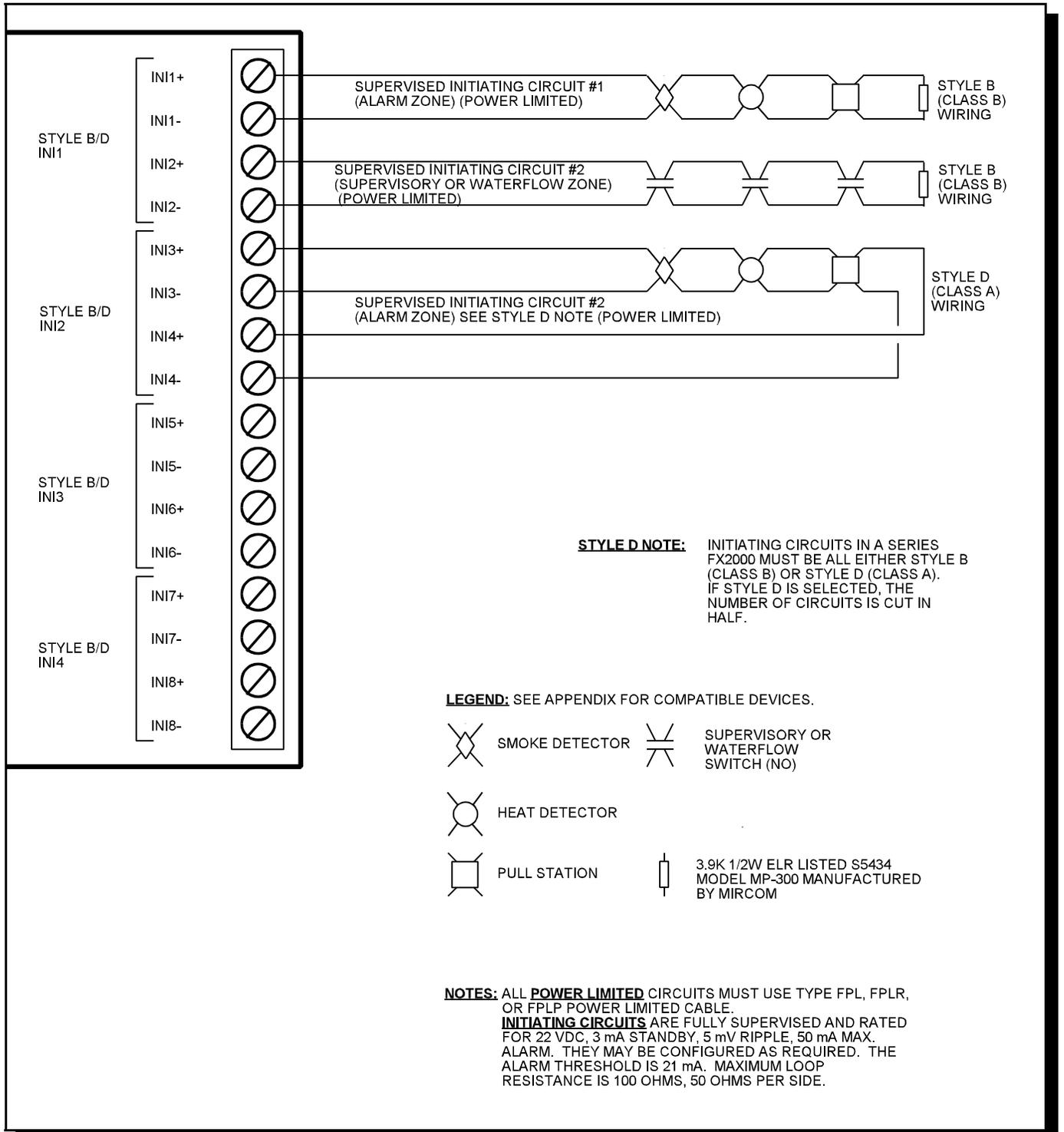
- Addressable Smoke Sensor
- Addressable Thermal Sensor
- Addressable Manual Pull Station
- Addressable Monitor Module
- Addressable Relay Output Module

7.4 HARDWARE DETECTION MODULE (DM-1008A) TERMINAL CONNECTIONS

Wire devices to terminals as shown. See wiring tables and Appendix A for compatible devices. See Appendix C for Module specifications. Jumpers are required for Class A operation, refer to section 6.5 for more information.

Note: The Terminal Blocks are “depluggable” for ease of wiring.
All Conventional Hardwire Initiating Circuits are **Compatibility ID “A”**.

Hardwire Detection Module Terminal Connections

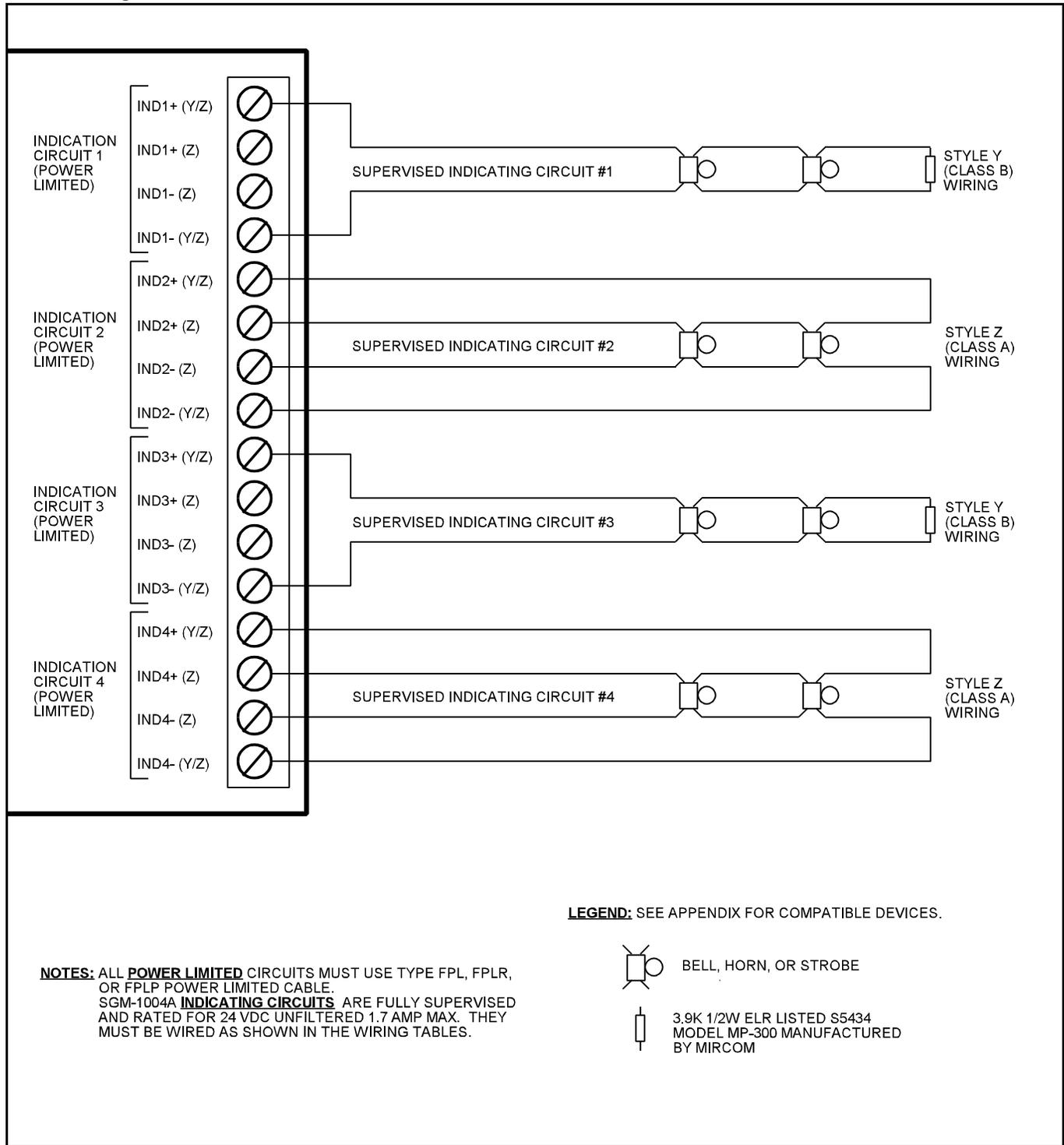


7.5 HARDWARE SIGNAL MODULE (SGM-1004A) TERMINAL CONNECTIONS

Wire devices to terminals as shown. See wiring tables and Appendix A for compatible devices. See Appendix C for module specifications. See section 6.6 for information on jumper features.

Note: The Terminal Blocks are “depluggable” for ease of wiring.

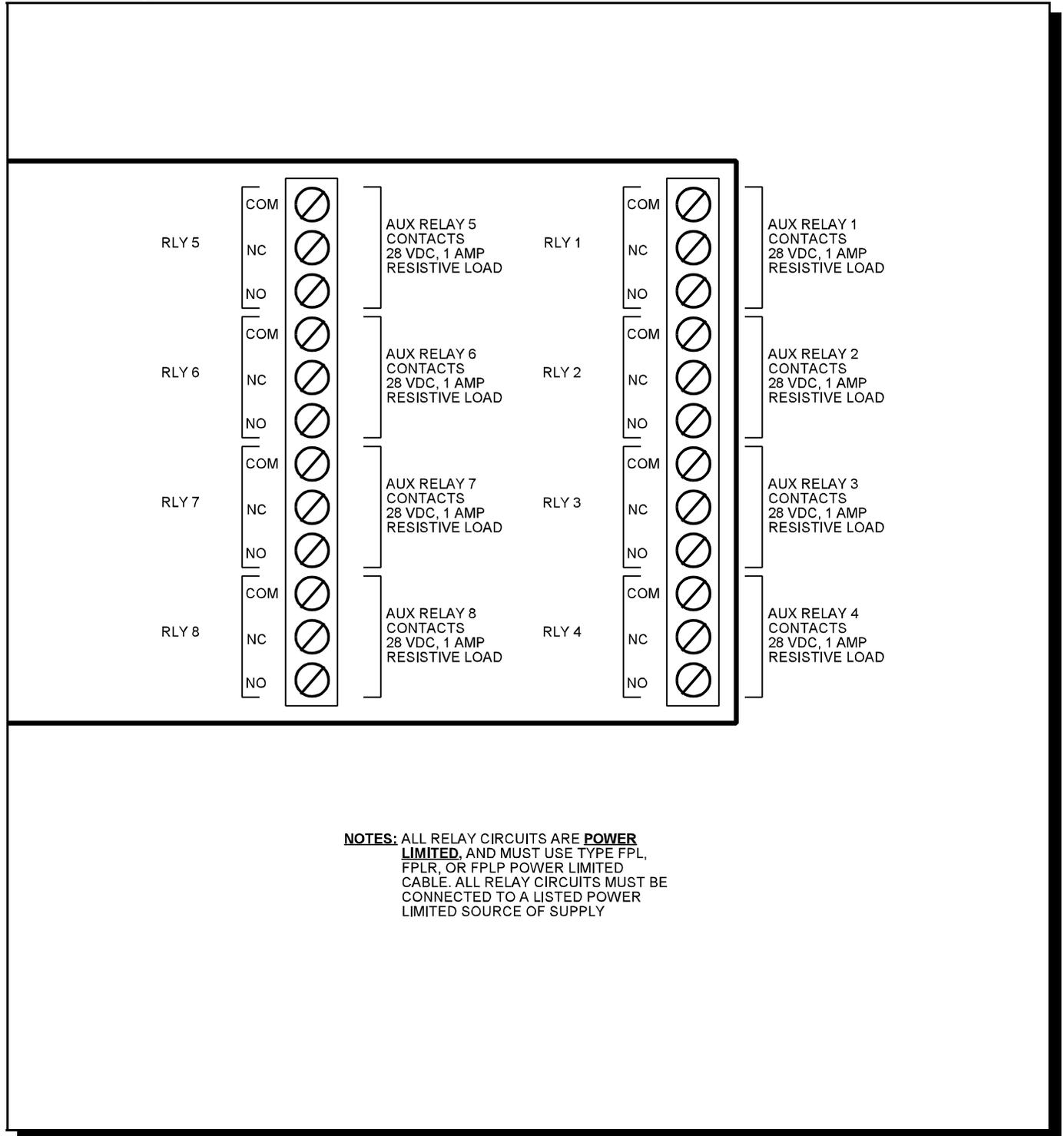
Hardware Signal Module Terminal Connections



7.6 HARDWIRE RELAY MODULE (RM-1008A) TERMINAL CONNECTIONS

Relays are available as shown below. NOTE: DO NOT CONNECT 120 V AC DIRECTLY TO THESE RELAYS.

Hardwire Relay Module Terminal Connections



NOTES: 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

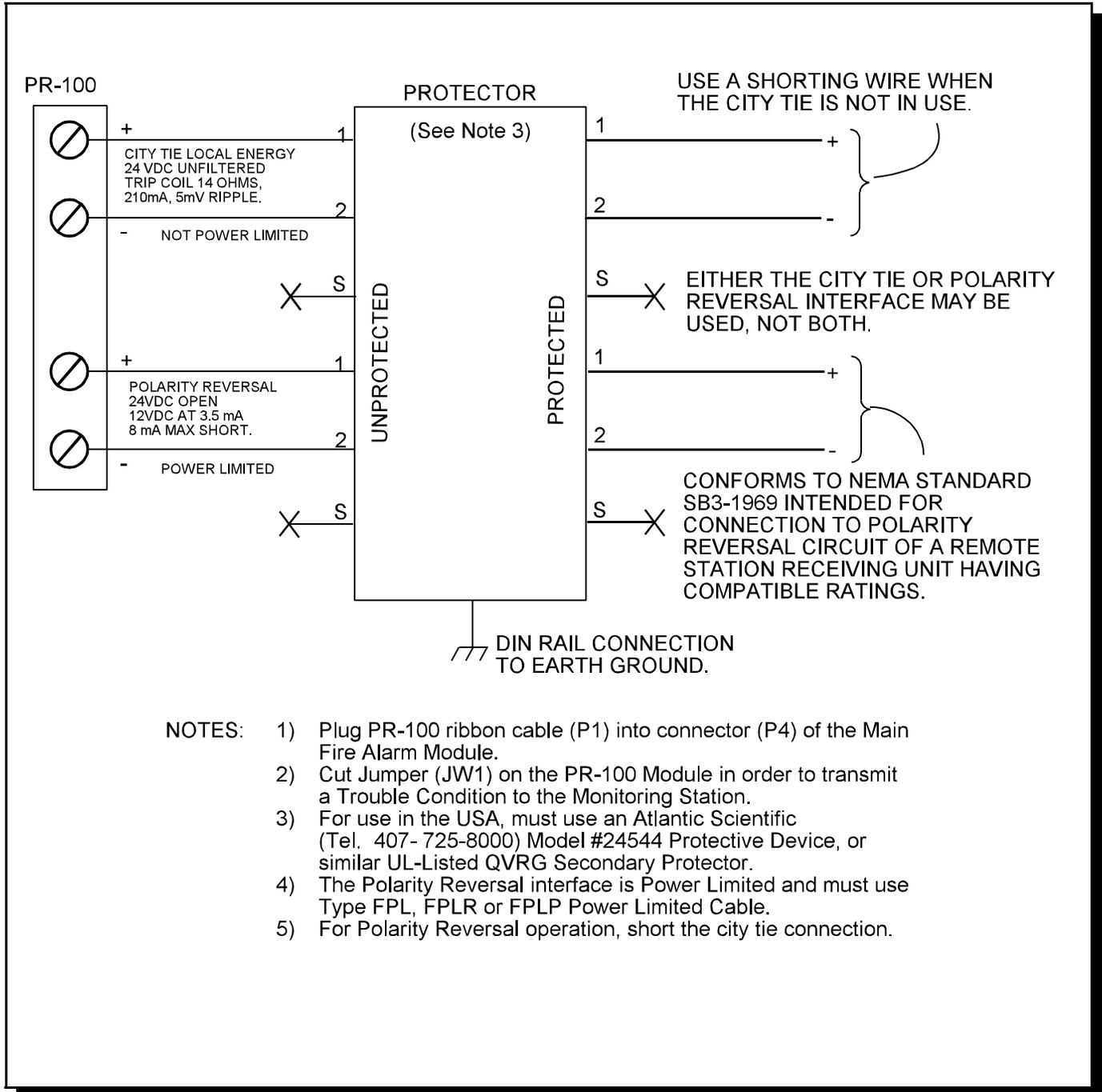
7.7 POLARITY REVERSAL and CITY TIE MODULE (MODEL: PR-100) TERMINAL CONNECTIONS

See Appendix C for Module specifications. Wire as shown using proper wire gauges.

Note that for use in the USA, the installer MUST add an 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 still recommended, but the PR-100 may be connected directly to Polarity Reversal or City Tie wiring.

- Notes:**
- 1) **Either the PR-100's City Tie or Polarity Reversal interface may be used, but not both.**
 - 2) **The City Tie interface is Not Power Limited.**
 - 3) **The Terminal Blocks are "depluggable" for ease of wiring.**

Polarity Reversal and City Tie Module Terminal Connections



7.8 DACT / DIALER MODULE (DACT-100A or UDACT-100A) TERMINAL CONNECTIONS

The following show the wiring connection information, refer to the DACT-100A or UDACT-100A Manual for further details.

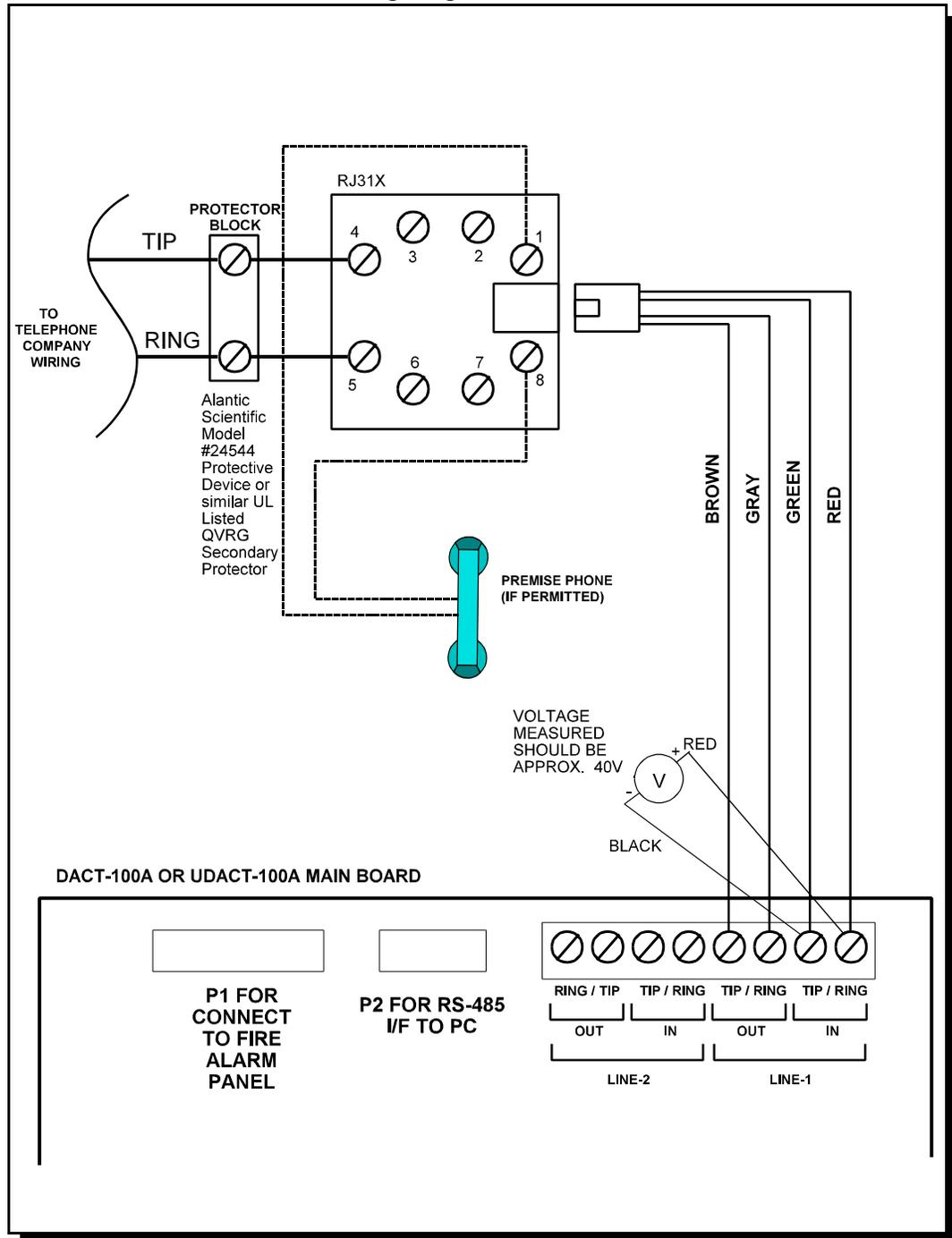
Wire the two telephone lines devices to terminals as shown.

- Line 1 Input (Tip/Ring):** To the first Telephone Line via the required RJ31X Connector.
- Line 1 Output (Tip/Ring):** To an optional Premise Telephone on the first Telephone Line via the required RJ31X Connector.
- Line 2 Input (Tip/Ring):** To the second Telephone Line via the required RJ31X Connector.
- Line 3 Output (Tip/Ring):** To an optional Premise Telephone on the second Telephone Line via the required RJ31X Connector.

Note that most AHJ's do not allow the connection of Premise Telephones. See wiring tables and specifications for more information.

Note: The Terminal Blocks are "depluggable" for ease of wiring.

DACT-100A or UDACT-100A Wiring Diagram



7.9 POWER SUPPLY CONNECTIONS

The power supply is part of the Main Chassis. The ratings are:

Model **FX-2003-6** Main Chassis:

Electrical input ratings: 120 VAC, 60 Hz, 4 A main primary circuit breaker
 Power supply total current: 6 A maximum
 Battery Fuse on Main Module: Replace with 20 Amp, 1-1/4" Fast Acting Fuse

Model **FX-2003-12 & FX-2017-12A** Main Chassis:

Electrical input ratings: 120 VAC, 60 Hz, 4 A main primary circuit breaker
 Power supply total current: 12 A maximum
 Battery Fuse on Main Module: Replace with 20 Amp, 1-1/4" Fast Acting Fuse

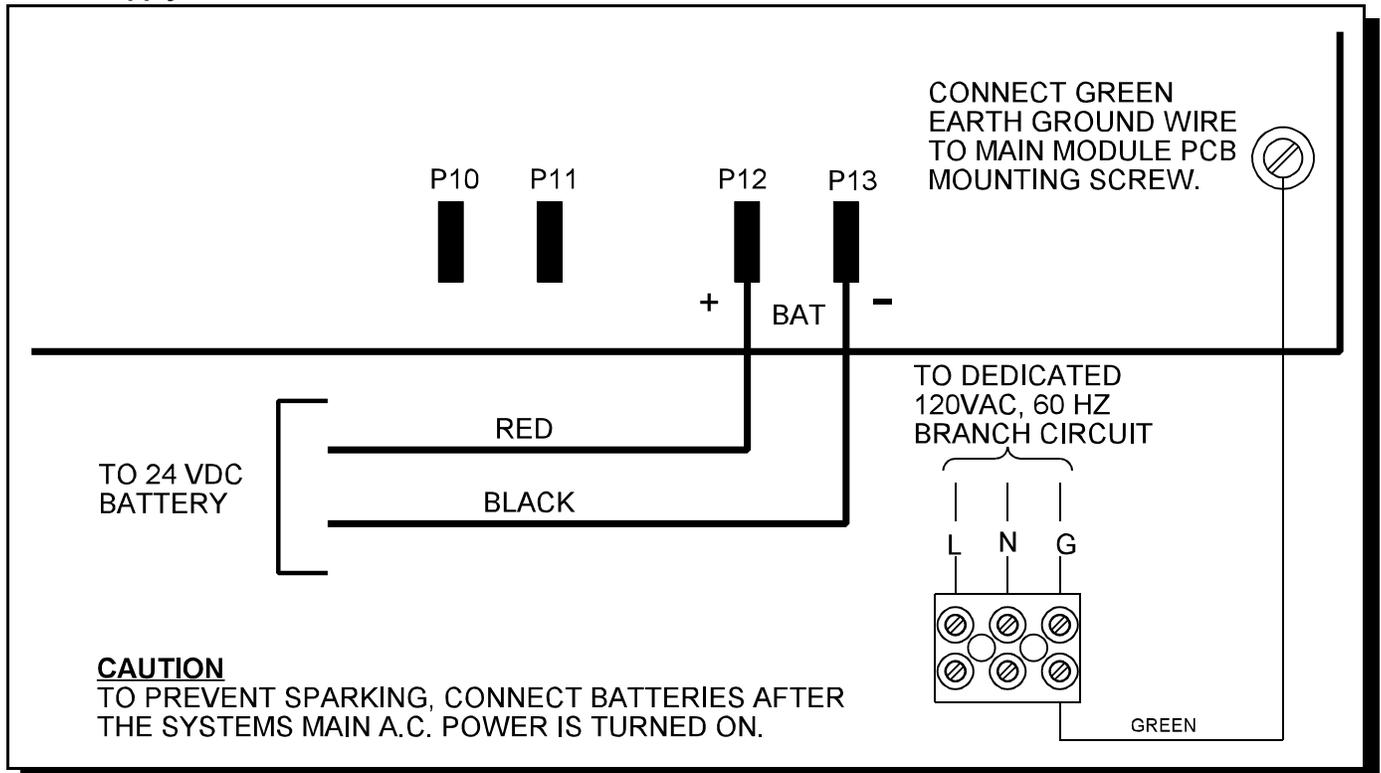
Model **FX-2009-12** Main Chassis:

Electrical input ratings: 120VAC, 60 Hz, 4 A main primary circuit breaker
 Power supply total current: 12 A maximum
 Battery Fuse on Main Module: Replace with 20 Amp, 1-1/4" Fast Acting Fuse

CAUTION: Do not exceed power supply ratings.

See Appendix C for specifications. Use the following Wiring Table for Indicating Circuits for proper wire gauges.

Power Supply Connections



7.10 WIRING TABLES & INFORMATION

WIRING TABLE FOR CONVENTIONAL HARDWIRE INITIATING CIRCUITS

WIRE GAUGE (AWG)	MAXIMUM WIRING RUN TO LAST DEVICE (ELR)	
	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

WIRING TABLE FOR CONVENTIONAL HARDWIRE INDICATING CIRCUITS

(Main Board Indicating Circuits are rated for 1.7 Amperes each, SGM-1004A Indicating Circuits are rated for 1.7 Amperes each.)

TOTAL SIGNAL LOAD Amperes	MAXIMUM WIRING RUN TO LAST DEVICE (ELR)								MAX. LOOP RESISTANCE Ohms
	18AWG		16AWG		14AWG		12AWG		
	ft	m	ft	m	ft	m	ft	m	
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
1.70	78	24	125	38	200	61	285	87	1.0

NOTE : MAXIMUM VOLTAGE DROP SHOULD NOT EXCEED 1.8 VOLTS

ANALOG LOOP WIRING:

USE TWISTED PAIR WIRE SIZE (GAUGE)	LOOP TOTAL(OUT AND IN) WIRE RUN	
	FEET	METRE S
12	20,000	6098
14	15942	4859
16	9960	3036
18	6265	1910

**NOTE: Line capacitance shall not exceed 0.5 μ F
Inductance shall not exceed 1mH and
resistance shall not exceed 40 Ω .**

POWER WIRING:

Use the Wiring Table for Indicating Circuits, and see 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 the Indicating Circuit Wiring Table above.

8.0 SYSTEM CHECKOUT

8.1 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.
6. Check all Jumpers and Switches for proper setting.
7. Check the AC power wiring for proper connection.
8. Check that the chassis is connected to **EARTH GROUND** (cold water pipe).
9. Make sure to close the front cover plate before powering the system from main AC supply.
10. **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.**

8.2 POWER-UP PROCEDURE:

1. After completing the System Checkout procedures, power-up (AC ONLY) the panel. The "AC-ON" green LED should light, the "Common Trouble" LED should light, the buzzer should sound, and the LCD Display should show status information. Press the System Reset button. **NOTE: ON INITIAL POWER UP, THE SYSTEM MUST BE RESET.**
2. Since the batteries are not connected, "Battery Trouble" should be displayed on the LCD, and the trouble buzzer should sound intermittently and the Trouble Queue LED should flash.
3. Connect the batteries while observing correct polarity; the red wire is positive (+) and black wire is negative (-).
4. All indicators should extinguish except for normal power "AC-ON" green LED, and the LCD should show a normal status condition.
5. Auto-Configure or PC Configure the Fire Alarm Control Panel as described in the Configuration Guide.

8.3 TROUBLESHOOTING:

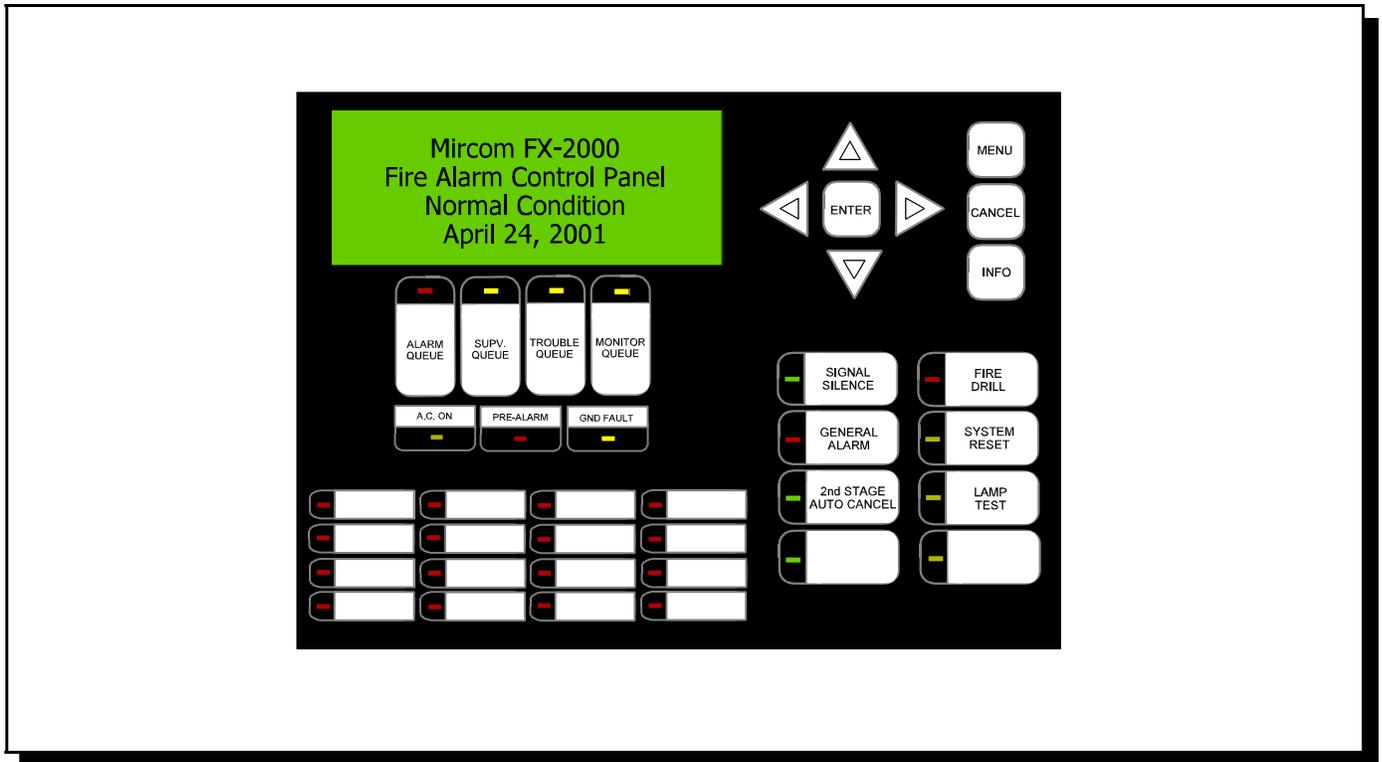
The LCD and individual LED Indicators will give a concise description of any Panel or Wiring Faults detected. The Queue buttons can be used to select a type of event, and the cursor buttons to select individual events. Additional details are available by pressing and holding the Info button.

Circuit Trouble	Check for open wiring on that particular Circuit loop or if the Circuit is set for Bypass/ Disconnect. <i>Please note: Bypassing / Disconnecting a Circuit will cause a system trouble.</i>
Ground Fault	This panel has a <u>common ground fault detector</u> . 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 conditions. Low voltage (below 20.4V) will cause a battery trouble. If battery trouble condition persists, replace batteries as soon as possible.

9.0 INDICATORS, CONTROLS, & OPERATION

Refer to the following Indicators and Controls locations ...

Indicators and Control Location



The Main Display Panel on the Fire Alarm Control Unit consists of ...

4x20 LCD Display

Menu Controls for Cursor, Enter, Menu, Cancel, Info

Queue Controls & Indicators for Alarms, Supervisory, Trouble, and Monitor

Indicators for AC On, Pre-Alarm, and Ground Fault

Controls & Indicators for Signal Silence, General, Alarm, Acknowledge (2nd Stage Auto Cancel), Fire Drill, System Reset, Lamp Test

16 configurable Bi-coloured Zone Indicators

2 configurable Controls & Indicators

BOTH THE GENERAL ALARM LED AND PUSHBUTTON AND THE ACKNOWLEDGE (2nd STAGE AUTO CANCEL) LED AND PUSHBUTTON ARE ACTIVE ONLY ON A SYSTEM CONFIGURED FOR TWO STAGE.

LED Indicators are Amber, Red, or Green, and may illuminate continuously (steady), or at one of two Flash Rates...

- Fast Flash** - 120 flashes per minute, 50% duty cycle
- Trouble Flash** - 20 flashes per minute, 50% duty cycle

Red indicators are use for Alarm, amber for trouble or supervisory functions.

Note that Displays are supplied with Laser Printer printable paper labels for sliding into the plastic Label Templates. This allows for easy English / French selection, and for custom printed Zone information.

9.1 COMMON INDICATORS:

Buzzer:

The Buzzer is activated by any of the following ...

Fire Alarm	-	Steady
Supervisory Alarm	-	Steady
Trouble	-	Trouble Flash 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 Indicator turns on steady red whenever the Panel is in Alarm as a result of an 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). Since all Alarms are latched until the Panel is reset, the Indicator will remain on until then.

Supervisory Queue LED:

The Common Supervisory Indicator turns on steady amber when there is a Supervisory Alarm in the Panel, as the result of any Latching or Non-Latching Supervisory Circuit. The Indicator is turned off if all Non-Latching Supervisory Circuits are restored and there are no Latching Supervisory Circuits active. Latching Supervisory Alarms remain active until the Panel is reset.

Trouble Queue LED:

The Common Trouble Indicator 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.

Monitor Queue LED:

The Monitor Trouble Indicator flashes amber at the Trouble Flash Rate when there is any Monitor condition being detected on the panel. It is turned off when all Monitors are cleared.

Pre-Alarm LED:

The Pre-Alarm Indicator is flashed red at the Trouble Flash Rate if there is a Sensor Pre-Alarm condition detected.

Fire Drill LED:

The Fire Drill Indicator turns on steady amber while Fire Drill is active.

2nd Stage Auto Cancel LED:

If the Panel is configured as Two Stage, the Acknowledge (2nd STAGE AUTO 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 Acknowledge 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 Indicator is activated 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 Indicator 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.

9.2 COMMON CONTROLS:

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.

Cursor Buttons:

These four buttons around the Enter Button are used for up (previous), down (latest), left, and right selection of items on the LCD Display.

Queue Buttons:

These are used to select a particular Queue to review using the cursor buttons and LCD Display. The Alarm Queue Button is used to view all alarms, when this button is pressed it will display the last alarm on the LCD display. Use the cursor buttons to view all previous alarms. The Supervisory Queue Button is used to view all supervisory conditions and pressing this button will show the latest supervisory information on the LCD display. Use the cursor buttons to view all previous supervisory conditions on the LCD display. The Trouble Queue button is used to view all trouble conditions, press this button and LCD will display the last trouble condition in the queue. Use the cursor keys to view any previous troubles. The Monitor Queue Button is used to show all monitor conditions and displays this information on the LCD display. Use the cursor keys to view all queued monitor conditions.

Enter Button:

This button is used to select a displayed item on the LCD Display.

Cancel Button:

This button is used to cancel an operation.

Menu Button:

This button is used to initiate the FX-2000 Menu System.

Info Button:

This button is used to get more details about a displayed item.

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 4-Wire Smoke Supply and Aux. Power Supply
Turns off Signal Silence, Ack & GA Indicators
Stops and resets all Timers
Aux Disconnect is not affected

Resets all Initiating Circuits
Turns off all Indicating Circuits
Turns off Fire Drill
Processes inputs as new events
Reset cannot be activated until the Signal Silence Inhibit timer has expired.

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 Indicating Circuits. 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 Indicating Circuits 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 Acknowledge button.

Fire Drill Button:

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

Acknowledge (2nd STAGE AUTO 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 Acknowledge (2nd STAGE AUTO 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 Acknowledge (2nd STAGE AUTO CANCEL) Indicator is on steady amber.

General Alarm 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 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.

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.

9.3 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, and Water-flow 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 Indicator 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 Relays 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 alert buzzer sounds steadily
- If Signals have been silenced as a result of the Signal Silence button or the Auto Signal Silence Timer, Signals are resounded as they were before Signal Silence, the Signal Silence Indicator is turned 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

9.4 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 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 Indicator 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 Relays programmed to the input are activated provided that Aux Disconnect is not active

If the alarm is a Second Stage alarm all programmed (specified) and non-Disconnected Strobe Circuits are activated continuously, all programmed (specified) non-Disconnected Signal Circuits are activated at the evacuation rate, and the General Alarm indicator is turned 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 (see Indicating Circuit Types, in following section) and the Auto General Alarm Timer starts, and the Acknowledge Indicator 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 Indicator is turned 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 Indicating Circuit Types, in following section).
- If the Panel is not already in General Alarm and if the Acknowledge Indicator is on steady indicating that the Auto General Alarm Timer has been Acknowledged the timer is restarted and the Acknowledge LED is extinguished.

A Second Stage Alarm (General Alarm) when the Panel is already in Alarm causes the following:

- The Buzzer sounds steadily
- All programmed (specified) non-Disconnected Signals are activated at the evacuation rate
- If the Signal Silence Indicator is on, it is turned off and the Auto Signal Silence Timer, if configured, is restarted
- The Acknowledge Indicator if on, is turned off

Alarm inputs are latching: they remain active until system reset. Note that if the System is configured for **Correlations**, any **Second Stage / General Alarm** (caused by the Auto General Alarm Timer, the General Alarm button on the Front Panel or Remote Annunciator, or by a General Alarm Initiating Circuit) condition activates **ALL Programmed Indicating Circuits**.

9.5 CIRCUIT TYPES:

“**Circuits**” refers to an actual electrical interface, either **Initiating** (Detection) or **Indicating** (Signal), whether Conventional Hardwire, or an Analog Loop Device. “**Zone**” is a logical concept for a Fire Alarm Protected Area, and will consist of at least one Circuit.

INITIATING (DETECTION) CIRCUIT TYPES:

- Non-Verified Alarm** = This is a “Normal” type of Alarm which may have Pull-Station, 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 any associated Zone Status LED and the Alarm Queue LED to illuminate Red.
- Verified Alarm** = These Alarms are verified by a reset and timing procedure, and may have Pull-Station, Smoke Detectors, or Heat Detectors attached. Any activation of Pull-Station or Heat Detectors will result in an Alarm condition in the Fire Alarm Control Panel within 4 seconds. Smoke Detectors will be verified for a real Alarm within 60 seconds depending upon the startup time of the Smoke Detectors being used. If 4 seconds is too long, a response time for Pull-Station, then they should be wired separately on a Non-Verified Alarm Circuit. An Alarm condition causes any associated Zone Status LED and the Alarm Queue LED to illuminate Red.
- Water-Flow Alarm** = For Water-flow Sensors. These alarms are identical to normal Non-Verified Alarms except that any Indicating Circuits programmed to these circuits (all are by default) are Non-Silenceable and Water-Flow Retard Operation is enabled. These circuits are sampled every one second; if 10 samples are active within any 15 second interval, the Water-Flow Alarm is confirmed and processed. An Alarm condition causes any associated Zone Status LED and the Alarm Queue LED to illuminate Red. **Note: Do not use Retard Operation with any external Retarding device; maximum Retard may not exceed 120 seconds.** If your waterflow devices have a retard function, use on a standard non-verified alarm zone and program as non-silenceable.
- General Alarm** = To 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. Activating a general alarm will activate all indicating and/or output zones as they are programmed (through configuration). General Alarm is not applicable in a Single Stage System.
- Non-Latching Supervisory** = For Supervisory Devices. An activation on these circuits will cause any associated Zone Status LED and the Supervisory Queue 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 Zone Status LED will extinguish.
- Latching Supervisory** = For Supervisory Devices. An activation on these circuits will cause any associated Zone Status LED and the Supervisory Queue LED to illuminate Amber. The buzzer will sound continuously. If the circuit activation is removed, the Supervisory condition will NOT clear until reset.
- Monitor** = 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). Activation of the monitor zone will cause any associated Zone Status LED and the Monitor Queue LED to illuminate amber and the trouble buzzer to sound intermittently (if programmed to do so).
- Trouble-Only** = This is a for monitoring a Trouble Condition from an external device such as a Mircom Series 5000 Audio System. Both open and short circuits generate a non-latching Trouble condition. The trouble condition will cause any associated Zone status LED and the Trouble Queue LED to illuminated steady amber and the trouble buzzer to sound intermittently.

APPENDIX "A" - COMPATIBLE DEVICES

UNDERWRITER'S LABS CANADA (ULC) CANADIAN: 2-WIRE SMOKE DETECTOR CONTROL PANEL COMPATIBILITY

ANALOG LOOP DEVICE COMPATIBILITY:

Mircorn	MIX-1551A	Analog Ionization Smoke Sensor
System Sensor	1251A	Low-Profile Analog Ionization Smoke Sensor
Mircorn	MIX-2551A	Analog Photoelectronic Smoke Sensor
System Sensor	2251A	Low-Profile Analog Photoelectronic Smoke Sensor
System Sensor	5551A	Analog Thermal Sensor
System Sensor	5551RA	Analog Rate of Rise Thermal Sensor
System Sensor	5251PA	Low-Profile Analog Thermal Sensor
System Sensor	5251RPA	Low-Profile Analog Rate of Rise Thermal Sensor
Mircorn	MIX-M500MA	Monitor Module(Universal)
Mircorn	MIX-M500CHA	Addressable Control Module
Mircorn	MIX-M501MA	Addressable Mini-Monitor Module
System Sensor	M500X	Fault Isolator Module
System Sensor	B524BIA	Analog Base with Isolator
System Sensor	B501B	Analog Base

NOTES:

Whether mixing different models of compatible smoke detectors, or using the same model on the same Circuit, total standby current of all detectors must not exceed 3 mA.

SMOKE DETECTOR		
MAKE MODEL / BASE	MAKE MODEL / BASE	MAKE MODEL / BASE
<u>HOCHIKI</u>	<u>EDWARDS</u>	<u>FENWAL</u>
DCD -135/NS6-220	6249C	PSD-7131 / 70-201000-001
DCD-135/NS4-220	6250C	PSD-7131 / 70-201000-002
DCD-135/HSC-220R	6264C	PSD-7131 / 70-201000-003
DCD-190/NS6-220	6266C	PSD-7131 / 70-201000-005
DCD-190/NS4-220	6269C	PSD-7130 / 70-201000-001
DCD-190/HSC-220R	6270C	PSD-7130 / 70-201000-002
SIJ-24/NS6-220	6269C-003	PSD-7130 / 70-201000-003
SIJ-24/NS4-220	6270C-003	PSD-7130 / 70-201000-005
SIJ-24/HSC-220R		PSD-7128 / 70-201000-001
SLR-24/NS6-220	<u>CERBERUS PYROTRONICS</u>	PSD-7126 / 70-201000-002
SLR-24/NS4-220	D1-2	PSD-7126 / 70-201000-003
SLR-24/HSC-220R	D1-3 / DB-3S	PSD-7126 / 70-201000-005
SLR-24H/NS6-220		PSD-7129 / 70-211002-000
SLR-24H/NS4-220	<u>MIRCOM</u>	PSD-7125 / 70-201000-001
SLR-24H/HSC-220R	MIR-525	PSD-7126 / 70-201000-002
SLR-835/NS6-220	MIR-525T	PSD-7125 / 70-201000-003
SLR-835/NS4-220		PSD-7125 / 70-201000-005
SLR-835/HSC-220R	<u>MIRTONE</u>	CPD-7021 / 70-201000-001
SLR-835B-2	73471	CPD-7021 / 70-201000-002
	73494	CPD-7021 / 70-201000-003
<u>SYSTEM SENSOR</u>	73575	CPD-7021 / 70-201000-005
1400-A	73495/73486	
2400-A	73495/73487	<u>NAPCO</u>
1451-A / B401B	73595/73486	FW-2
1451-A / B406B	73595/73497	
2451-A / B401B	73594/73400	<u>SIMPLEX</u>
2451-A / B406B	73405/73400	2098-9110
1451DH / DH400A	73594/73401	
2451-A / DH400A	73405/73401	

UNDERWRITER'S LABS INC. (UL)
UNITED STATES: 2-WIRE SMOKE DETECTOR CONTROL PANEL COMPATIBILITY

ANALOG LOOP DEVICE COMPATIBILITY:

System Sensor	1251	Low-Profile Analog Ionization Smoke Sensor
System Sensor	2251	Low-Profile Analog Photoelectronic Smoke Sensor
System Sensor	5251P/RP	Low-Profile Analog Thermal Sensor/Rate of Rise
System Sensor	M500M	Monitor Module(Universal)
System Sensor	M500CH	Addressable Control Module
System Sensor	M501M	Addressable Mini-Monitor Module
System Sensor	M500X	Fault Isolator Module
System Sensor	B524BI	Analog Base with Isolator
System Sensor	B501B	Analog Base

HARDWARE 2-WIRE SMOKE DETECTOR COMPATIBILITY:

- 1) Whether mixing different models of compatible smoke detectors, or using the same model on the same Circuit, total standby current of all detectors **must not** exceed 3 mA.
- 2) The below listed Smoke Detectors are compatible with Initiating Circuits having Compatibility Identifier "A".

SMOKE DETECTOR MAKE MODEL / BASE	COMPATIBILITY IDENTIFIER HEAD / BASE	RATED STANDBY CURRENT	SMOKE DETECTOR MAKE MODEL / BASE	COMPATIBILITY IDENTIFIER HEAD / BASE	RATED STANDBY CURRENT
<u>HOCHIKI</u>			2451 / B406B	A - A	0.12 mA
DCD-190/HSC-220R	HD-3/HB-72	0.035mA	2451 / DH400	A - A	0.12 mA
DCD-190/NS6-220	HD-3/HB-3	0.035mA	2451TH / B401	A - A	0.12 mA
DCD-190/NS4-220	HD-3/HB-3	0.035mA	2451TH / B401B	A - A	0.12 mA
DCD-135/HSC-220R	HD-3/HB-3	0.035mA	2451TH / B406B	A - A	0.12 mA
DCD-135/NS6-220	HD-3/HB-3	0.035mA	4451HT / B401	A - A	0.12 mA
DCD-135/NS4-220	HD-3/HB-3	0.035mA	4451HT / B401B	A - A	0.12 mA
SIJ-24/HSC-220R	HD-3/HB-72	0.040mA	4451HT / B406B	A - A	0.12 mA
SIJ-24/NS6-220	HD-3/HB-3	0.040mA	5451 / B401	A - A	0.12 mA
SIJ-24/NS4-220	HD-3/HB-3	0.040mA	5451 / B401B	A - A	0.12 mA
SLR-24/HSC-220R	HD-3/HB-72	0.045mA	5451 / B406B	A - A	0.12 mA
SLR-24/NS6-220	HD-3/HB-3	0.045mA			
SLR-24/NS4-220	HD-3/HB-3	0.045mA	<u>SENTROL - ESL</u>		
SLR-24H/NS6-220	HD-3/HB-3	0.045mA	429C	S10A - N/A	0.10 mA
SLR-24H/NS4-220	HD-3/HB-3	0.045mA	429CT	S10A - N/A	0.10 mA
SLR-24H/HSC-220R	HD-3/HB-72	0.045mA	429CST	S11A - N/A	0.10 mA
SLR-835/NS6-220	HD-3/HB-3	0.045mA	429CRT	S11A - N/A	0.10 mA
SLR-835/NS4-220	HD-3/HB-3	0.045mA	711U / 701E, 701U, 702E, 702U	S10A - S00	0.10 mA
SLR-835/HSC-220R	HD-3/HB-72	0.045mA	712U / 701E, 701U, 702E, 702U	S10A - S00	0.10 mA
SLR-835B-2	HD-6	55uA @ 24VDC	713-5U / 701E, 701U, 702E, 702U	S10A - S00	0.10 mA
			713-6U / 701E, 701U, 702E, 702U	S10A - S00	0.10 mA
			721U / 702E, 702U	S10A - S00	0.10 mA
			721UT / 702E, 702U	S10A - S00	0.10 mA
<u>SYSTEM SENSOR</u>			722U / 702E, 702U	S10A - S00	0.10 mA
1100	A - N/A	0.12 mA	731U / 702E, 702U, 702RE, 702RU	S11A - S00	0.10 mA
1151 / B110LP	A - A	0.12 mA	732U / 702E, 702U, 702RE, 702RU	S11A - S00	0.10 mA
1151 / B116LP	A - A	0.12 mA			
1400	A - N/A	0.10 mA	<u>DETECTION SYSTEMS INC.</u>		
1451 / B401	A - A	0.12 mA	DS250	B - N/A	0.10 mA
1451 / B401B	A - A	0.12 mA	DS250TH	B - N/A	0.10 mA
1451 / B406B	A - A	0.12 mA	DS282	B - N/A	0.10 mA
1451DH / DH400	A - A	0.12 mA	DS282TH	B - N/A	0.10 mA
2100	A - N/A	0.12 mA			
2100T	A - N/A	0.12 mA			

2151 / B110LP	A - A	0.12 mA	MIRCOM		
2151 / B116LP	A - A	0.12 mA	MIR-525U	FDT-1	0.10 mA
2400	A - N/A	0.12 mA	MIR-525TU	FDT-1	0.10 mA
2400TH	A - N/A	0.12 mA			
2451 / B401	A - A	0.12 mA			
2451 / B401B	A - A	0.12 mA	NAPCO		
			FW-2	HD-6	55uA @ 24VDC

HARDWIRE 4-WIRE SMOKE DETECTOR CONTROL PANEL COMPATIBILITY

Mircom	MIR-545U	MIR-545TU		
Sentrol - ESL	541C	541CXT	709-MV-21	709-24V-21
	741U with 702U or 702E Base	449AT, 449C, 449CT, 449CRT, 449CST, 449CSTE, 449CSRT, 449CSRH, 449CSST, 449CSSTE, 449CTE, 449CLT, 449CSLT		
System Sensor	1424	6424	6424A	A77-716B
	DH400ACDCI	DH400ACDCP	DH400ACDCIHT	

UNDERWRITER'S LABS INC. (UL) HARDWIRE SIGNALLING DEVICE CONTROL PANEL COMPATIBILITY

System Sensor - SpecrAlert				
P2415	P2415W	P241575	P241575W	P2475
P2475W	P24110	P24110W	S2415	S2415W
S241575	S241575W	S2475	S2475W	S24110
S24110W	H12/24	H12/24W	MDL	MDLW
Wheelock				
AS-2415W-24-FR	AS-241575W-FR	AS-2430W-FR	AS-2475W-FR	AS-24110W-FR
AS-2415C-FW	AS-2430C-FW	AS-2475C-FW	AS-24100C-FW	AH-24-R
AH-24-WP-R	NS-2415W-FR	NS-241575W-FR	NS-2430W-FR	NS-2475W-FR
NS-24110W-FR	NS4-2415W-FR	NS4-241575W-FR	NS4-2430W-FR	NS4-2475W-FR
NS4-24110W-FR	RS-2415W-FR	RSS-241575W-FR	RSS-2415W-FR	RSS-241575W-FR
RSS-2430W-FR	RSS-2475W-FR	RSS-24110W-FR	RSS-2415C-FW	RSS-2430C-FW
RSS-2475C-FW	RSS-24100C-FW	MT-12/24-ULC	MT-24-LS-VFR-ULC	MT-24-WS-VFR-ULC
AMT-12/24-R-ULC	AMT-24-LS-VFR-ULC	MB-G6-24-R	MB-G10-24-R	SM-12/24-R
DSM-12/24-R				
Gentex				
ST24-15	ST24-15/75	ST24-30	ST24-60	ST24-75
ST24-110				
HS24-15	HS24-15/75	HS24-30	HS24-60	HS24-75
HS24-110				

UNDERWRITER'S LABS INC. (UL) AUXILIARY POWER CONTROL PANEL COMPATIBILITY

The Power Limited (24 VDC unfiltered, 1.7 A @ 49 C) **Auxiliary Power Supply** on the FX-2000 Main Board (terminals are marked **AUX PWR +** and **AUX PWR -**) are for use with the Mircom **RA-1000** and **RAX-LCD Series Annunciators** only.

APPENDIX "B" - REMOTE ANNUNCIATOR PANELS

RA-1000 Series:

The RA-1000 Series of Remote Annunciators are units with electrical Modules and Enclosures matching the configurations of the FX-2000 Fire Alarm Control Panels. For more detailed information see Mircom Document LT-617. The Models available are...

- **RAM-1032:** Main Annunciator Chassis with Common Indicators and Controls, and 32 Circuit Capacity.
- **RAX-1048:** Adder Annunciator Chassis with 48 Circuit Capacity.
- **RAM-1016:** Non-Expandable Annunciator Chassis with Common Indicators and Controls, and 16 Circuit Capacity.

ENCLOSURES:

BB-1001	With capacity for one Annunciator Chassis.
BB-1002	With capacity for two Annunciator Chassis.
BB-1003	With capacity for three Annunciator Chassis.
BB-1008	With capacity for eight Annunciator Chassis.
BB-1012	With capacity for twelve Annunciator Chassis.

- Notes:**
1. *Finish:* Painted textured Off-White (standard)
(For other paint available colours and finishes, please contact factory)
 2. *Material:* 18 G.A. Cold Roll Steel (CRS)

RAX-LCD:

The RAX-LCD 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. It is equipped with a large 4 line x 20 character back-lit alphanumeric LCD display which uses a simple menu system complete with a directional key pad and switches for Enter, Menu, Cancel and Info. For more information see Mircom document LT-856.

- **RAX-LCD:** Main Annunciator Chassis with Common Indicators and Controls.
- **RAX-1048(TZ):** Adder Annunciator Chassis with 48 Circuit Capacity.
- **IPS-2424:** Programmable Input Switches module with 48 display points and 24 buttons.

ENCLOSURES:

BB-1001	With capacity for one Annunciator Chassis.
BB-1002	With capacity for two Annunciator Chassis.
BB-1003	With capacity for three Annunciator Chassis.

- Notes:**
1. *Finish:* Painted textured Off-White (standard)
(For other paint available colours and finishes, please contact factory)
 2. *Material:* 18 G.A. Cold Roll Steel (CRS)

APPENDIX "C" - MODULE SPECIFICATIONS and FEATURES

Main Fire Alarm Chassis (FX-2003-6)

General:

- One Analog Loop capable of monitoring 99 Sensors and 99 Modules.
Power Limited: 22 VDC, 400 mA max, max loop resistance 40Ω
- 4 **Style Y or Z** (Class B or A) Indicating Circuits; configurable as strobes or audibles. Terminals are labelled "IND".
Power Limited: 24 VDC unfiltered
1.7 A @ 49° C per Circuit
- **Displays (incl LCD) and Controls** for all Common Functions, and 16 Zone Displays.
- Optional **PR-100 City Tie Module**.
- **Aux. Power Supply** (for Remote Annunciators). Terminals are labelled "AUX PWR".
Power Limited: 24 VDC unfiltered
1.7 A @ 49° C
- **Resettable 4-Wire Smoke Supplies**. Terminals are labelled "4-WIRE".
Power Limited: 22 VDC, 400 mA max., 5mV ripple
- 1 **RS-485 Connection** for Remote Annunciators or interface to Audio Systems. Power Limited to 300 mA. Terminals are labelled "RS485".
- **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, 28 VDC
Common Supv: Form C, 1 Amp, 28 VDC
Common Trouble: Form C, 1 Amp, 28 VDC
- **Micro-controller Based Design.**
- **Fully Configurable** with PC Software.
- Full **Walk-Test** function.

Electrical ratings:

- *AC Line Voltage:* 102 to 132 VAC.
4 Amps. (primary)
- *Power Supply ratings:*
6 Amps. max. (secondary)
- For Indicating Circuits: 24VDC unfiltered
5 Amps. max.
- *Battery:* 24VDC, Gel-Cell/Sealed Lead-Acid
Charging capability: 10-24 AH batteries
- *Current Consumption:*
Standby: 230 mA, Alarm: 380 mA

Main Fire Alarm Chassis (FX-2003-12)

Same as FX-2003-6 except for ...

- *Power Supply ratings:* 12 Amps. max. (secondary)
- For Indicating Circuits: 24VDC unfiltered
10 Amps. max.
- *Battery:* 24VDC, Gel-Cell/Sealed Lead-Acid
Charging capability: 17-40 AH batteries
- *Current Consumption:*
Standby: 230 mA, Alarm: 380 mA

Main Fire Alarm Chassis (FX-2017-12A)

Same as FX-2003-12 except for ...

- *Larger Chassis incl. capacity for 48 Zone Displays, and 48 Configurable Displays and Controls.*
- *Current Consumption:*
Standby: 230 mA, Alarm: 380 mA

Single Intelligent Analog Loop Module (ALC-198S)

- One Analog Loop capable of monitoring 99 Sensors and 99 Modules.
Power Limited: 22 VDC, 400 mA max, max loop resistance 40Ω
- *Current Consumption:*
Standby: 35 mA, Alarm: 50 mA

Dual Intelligent Analog Loop Module (ALC-396S)

- Two Analog Loops capable of monitoring 198 Sensors and 198 Modules.
Power Limited: 22 VDC, 400 mA max, max loop resistance 40Ω
- *Current Consumption:*
Standby: 35 mA, Alarm: 50 mA

Hardwire Loop Controller Module (ALC-H16)

- Provides connection for adding up to 16 FA-1000 style Adders DM-1008A, SGM-1004A and RM-1008A.
- *Current Consumption:*
Standby: 35 mA, Alarm: 50 mA

Hardwire Detection Adder Module (DM-1008A)

- 8 supervised **Style B** (Class B) or 4 **Style D** (Class A) Initiating Circuits; fully configurable. Terminals are labelled "INI". Initiating Circuits are Compatibility ID "A".
Power Limited: 22VDC, 3 mA standby, 5mV ripple, 50 mA max. (alarm)
- *Current Consumption:*
Standby: 80 mA, Alarm: 100 mA

Hardwire Signal Adder Module (SGM-1004A)

- 4 **Style Y or Z** (Class B or A) Indicating Circuits; configurable as strobes or audibles. Terminals are labelled "IND".
Power Limited: 24 VDC unfiltered
1.7 A @ 49° C per Circuit
- *Current Consumption:*
Standby: 35 mA, Alarm: 150 mA

Hardwire Relay Adder Module (RM-1008A) (resistive loads)

- Must be connected to a Listed Power Limited Source of Supply. Terminals are labelled "RLY".
- 8 fully Configurable **Form C Relays**.
Form C, 1 Amp., 28 VDC (resistive loads)
- *Current Consumption:*
Standby: 25 mA, Alarm: 150 mA

Polarity Reversal and City Tie Module (PR-100)

- Supervised City Tie *Not Power Limited*
24VDC unfiltered, 210 mA max., *Trip coil:* 14 ohms. 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

Digital Communicators (DACT-100A or UDACT-100A)

- Transmits alarm, supervisory and trouble to a Central Monitoring Station.
- *Current Consumption:*
Standby: 45mA, Alarm: 120mA

System Model:

System Type:

Type of Service:

Applicable Standards:

SERIES FX-2000, Fire Alarm Control Panel

Local, Auxiliary (using PR-100), Remote Protected Premise Station (using PR-100 or DACT/UDACT-100A), Central Station Protected Premises (using DACT/UDACT-100A), A, M, WF, SS (with DACT/UDACT-100A)

Type of Signalling: Non-Coded

NFPA 70 and 72, UL-864, ULC S-524, ULC S-527.

APPENDIX "D" - POWER SUPPLY & BATTERY CALCULATIONS (SELECTION GUIDE)

Use the form below to determine the required Main Chassis and Secondary Power Supply (batteries).

IMPORTANT NOTICE

The main AC branch circuit connection for Fire Alarm Control Unit must provide a dedicated continuous power without provision of any disconnect devices. Use #12 AWG wire with 600-volt insulation and proper over-current circuit protection that complies with the local codes. Refer to appendix "C" for specifications.

POWER REQUIREMENTS (ALL CURRENTS ARE IN AMPERES)

Model Number	Description	Qty		STANDBY	TOTAL STANDBY	ALARM	TOTAL ALARM
FX-2003-6/12	Main Chassis (6A/12A)		X	0.230	=	0.380	=
FX-2017-12A	Main Chassis (12 Amp)		X	0.230	=	0.380	=
FX-2009-12	Large Main Chassis (12A)		X	0.230	=	0.380	=
ALC-198S	Single Analog Loop		X	0.035	=	0.050	=
ALC-396S	Double Analog Loop		X	0.035	=	0.050	=
ALC-H16	Hardwire Adder Controller		X	0.035	=	0.050	=
DM-1008A	8 Initiating Circuit Module		X	0.080	=	0.10	=
SGM-1004A	4 Indicating Circuit Module		X	0.035	=	0.150	=
RM-1008A	8 Relay Circuit Module		X	0.025	=	0.150	=
DACT/UDACT-100A	Dialler Module		X	0.045	=	0.120	=
PR-100	City Tie Module		X	0.035	=	0.300	=
2-Wire Smoke Detectors			X	* 0.0001	=	* 0.090	= 0.090
MIX-1551A Analog Ion Smoke Detector			X	200µA	=	0.0065	=
MIX-2251/A Analog Photo Smoke Detector			X	230µA	=	0.0065	=
MIX-5551A/RA Analog Thermal Sensor			X	200µA	=	0.007	=
MIX-M500MA/MB, MIX-M501MA/MB Monitor			X	400µA	=	0.0051 / 0.0055	=
M500CH/A Addressable Control Module			X	300µA	=	0.0051	=
M500X Fault Isolator Module			X	450µA	=	450µA	=
B524BIA Analog Base with Isolator			X	450µA	=	0.005	=
4-Wire Smoke Detectors			X		=		=
Signal Load (bells, horns, strobes, and etc.)			X		=		=
Auxiliary Power Supply for Remote Annunciators.					=	ALARM	=
Total currents (Add above currents)				STANDBY	(A)		(B)

Total Current Requirement: ALARM (B) _____ Amps.

Battery Capacity Requirement:

$((\text{STANDBY (A)} \times [24 \text{ or } 60 \text{ Hours}]) + ([\text{ALARM (B)}] \times [\text{Alarm in Hr.}])) = (\text{C}) \text{ AH}$

Main Chassis Selection: Select **FX-2003-6** if (B) is less than 6 Amps, **FX-2017-12A** or **FX-2009-12** if (B) is less than 12 Amps.

Battery Selection:

Multiply (C) by 1.20 to derate battery.

Batteries **BA-1065**(6.5AH), **BA-110**(10AH), **BA-117**(17AH) will fit in the **BBX-1024**.

BA-124(24AH) will fit in the **BBX-1072**, **BB-5008** or the **BB-5014**,

BA-140(40AH) will fit in the **BC-160 Battery Cabinet**.

* Assuming three Initiating Circuits in alarm.

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

⊛ Using the **Mircom 525/U** 2-wire smoke detector. See Appendix "A", for other available smoke detectors.

APPENDIX E - DIP SWITCH SETTINGS SUMMARY

RAX-LCD								
ADDR	SW1-							
33	OFF	ON	ON	ON	ON	OFF	OFF	OFF
34	ON	OFF	ON	ON	ON	OFF	OFF	OFF
35	OFF	OFF	ON	ON	ON	OFF	OFF	OFF
36	ON	ON	OFF	ON	ON	OFF	OFF	OFF
37	OFF	ON	OFF	ON	ON	OFF	OFF	OFF
38	ON	OFF	OFF	ON	ON	OFF	OFF	OFF
39	OFF	OFF	OFF	ON	ON	OFF	OFF	OFF
40	ON	ON	ON	OFF	ON	OFF	OFF	OFF
41	OFF	ON	ON	OFF	ON	OFF	OFF	OFF
42	ON	OFF	ON	OFF	ON	OFF	OFF	OFF
43	OFF	OFF	ON	OFF	ON	OFF	OFF	OFF
44	ON	ON	OFF	OFF	ON	OFF	OFF	OFF
45	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF
46	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF
47	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF
48	ON	ON	ON	ON	OFF	OFF	OFF	OFF
49	OFF	ON	ON	ON	OFF	OFF	OFF	OFF
50	ON	OFF	ON	ON	OFF	OFF	OFF	OFF
51	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF
52	ON	ON	OFF	ON	OFF	OFF	OFF	OFF
53	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF
54	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF
55	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF
56	ON	ON	ON	OFF	OFF	OFF	OFF	OFF
57	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF
58	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF
59	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
60	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF
61	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF
62	ON	OFF						
63	OFF							

ALC-396S								
ADDR	SW1-	SW1-	SW1-	SW1-	SW	SW1-	SW1-	SW1-
1	OFF	ON	ON	ON	ON	ON	OFF	OFF
2	ON	OFF	ON	ON	ON	ON	OFF	OFF
3	OFF	OFF	ON	ON	ON	ON	OFF	OFF
4	ON	ON	OFF	ON	ON	ON	OFF	OFF
5	OFF	ON	OFF	ON	ON	ON	OFF	OFF
6	ON	OFF	OFF	ON	ON	ON	OFF	OFF
7	OFF	OFF	OFF	ON	ON	ON	OFF	OFF
8	ON	ON	ON	OFF	ON	ON	OFF	OFF
9	OFF	ON	ON	OFF	ON	ON	OFF	OFF
10	ON	OFF	ON	OFF	ON	ON	OFF	OFF
11	OFF	OFF	ON	OFF	ON	ON	OFF	OFF
12	ON	ON	OFF	OFF	ON	ON	OFF	OFF
13	OFF	ON	OFF	OFF	ON	ON	OFF	OFF
14	ON	OFF	OFF	OFF	ON	ON	OFF	OFF
15	OFF	OFF	OFF	OFF	ON	ON	OFF	OFF
16	ON	ON	ON	ON	OFF	ON	OFF	OFF
17	OFF	ON	ON	ON	OFF	ON	OFF	OFF
18	ON	OFF	ON	ON	OFF	ON	OFF	OFF
19	OFF	OFF	ON	ON	OFF	ON	OFF	OFF
20	ON	ON	OFF	ON	OFF	ON	OFF	OFF
21	OFF	ON	OFF	ON	OFF	ON	OFF	OFF
22	ON	OFF	OFF	ON	OFF	ON	OFF	OFF
23	OFF	OFF	OFF	ON	OFF	ON	OFF	OFF
24	ON	ON	ON	OFF	OFF	ON	OFF	OFF
25	OFF	ON	ON	OFF	OFF	ON	OFF	OFF
26	ON	OFF	ON	OFF	OFF	ON	OFF	OFF
27	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF
28	ON	ON	OFF	OFF	OFF	ON	OFF	OFF
29	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF
30	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF

RA-1000				
ADDR	SW1-1	SW1-2	SW1-3	SW1-4
33	ON	OFF	OFF	OFF
34	OFF	ON	OFF	OFF
35	ON	ON	OFF	OFF
36	OFF	OFF	ON	OFF
37	ON	OFF	ON	OFF
38	OFF	ON	ON	OFF
39	ON	ON	ON	OFF
40	OFF	OFF	OFF	ON
41	ON	OFF	OFF	ON
42	OFF	ON	OFF	ON
43	ON	ON	OFF	ON
44	OFF	OFF	ON	ON
45	ON	OFF	ON	ON
46	OFF	ON	ON	ON
47	ON	ON	ON	ON

WARRANTY

MIRCOM Technologies Ltd., manufactured equipment is guaranteed to be free of defects in material and workmanship for a period of one (1) year from the date of original shipment. MIRCOM will repair or replace, at its option, any equipment which it determines to contain defective material or workmanship. Said equipment must be shipped to MIRCOM prepaid. Return freight will be prepaid by MIRCOM. We shall not be responsible to repair or replace equipment which has been repaired by others, abused, improperly installed, altered or otherwise misused or damaged in any way. Unless previously contracted by MIRCOM, MIRCOM will assume no responsibility for determining the defective or operative status at the point of installation, and will accept no liability beyond the repair or replacement of the product at our factory authorized service depot.

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