MIRCOM®
Advanced Life Safety Solutions

FA-200

Microprocessor-Based Fire Alarm Control Panel

Installation and Operation Manual

LT-636 Rev. 13
July 2006

Contents

List of Figures and Tables

Figures

Tables

Introduction

About this Manual

This installation and operation manual provides information on installing and operating the FA-200 Microprocessor-Based Fire Alarm Control Panel.

About the FA-200

Mircom's FA-200 Fire Alarm Control Panels provide 1, 2, 4, or 8 supervised Class B (ULI Style B) Initiating Circuits, or 1, 2, 4 supervised Class A (ULI Style D) Initiating Circuits, and 2 or 4 supervised Class A or B (ULI Style Z or Y) Indicating Circuits. All Circuits are supervised for opens and ground faults, and Indicating Circuits for shorts. Optional Modules include a DM-204 Zone Adder (required for full capacity in the FA-204E only), a DACT-100A Dialler or a PR-100 Polarity Reversal & City Tie Module, and RM-204 or RM-208 Relay Modules. The two enclosures are flush or surface mountable, and can be used for retrofits and on new installations.

Overall Features:

- The small enclosure versions, FA-201, FA-202, & FA-204, have 1, 2, 4 Class B (Style B) initiating circuits respectively. The FA-202 & FA-204 may be configured as 1 or 2 Class A (Style D) Circuits respectively. These also have 2 Power Limited Class A/B (Style Z/Y) indicating circuits with individual trouble indicators.
- The large enclosure version, FA-204E, has four Class B (Style B) initiating circuits which may be configured as two Class A (Style D) circuits respectively. It also has two power limited Class A/B (Style Z/Y) indicating circuits with individual trouble indicators. With a DM-204 Zone Adder Module, an extra four Class B (2 Class A) initiating circuits, and two Class A/B indicating circuits are added.
- Each initiating circuit is configurable as a normal or verified alarm. In addition, on a Class B FA-204 or fa-204e, Initiating Circuit three may be a Waterflow Zone (as may Initiating Circuit 7 if a DM-204 is installed), and initiating circuit four may be a latched or non-latched supervisory zone (as may initiating circuit eight if a DM-204 is installed). On a Class A FA-204E with a DM-204, initiating circuit three may be a waterflow zone and initiating circuit four may be a latched or non-latched supervisory zone.
- Indicating circuits can be configured as audible or visual and as silenceable or non-silenceable. Audibles may be steady, temporal code, california code, or march time.
- Initiating circuits may be individually disconnected by a slide-switch.
- Configurable signal silence inhibit (disabled or 1 minute), auto signal silence (disabled or 5, 10, 20 minutes), and one-man walk test.
- Subsequent alarm, supervisory, and trouble operation.
- Four-wire resettable smoke power supply (200 mA max.).
- Auxiliary relay contacts for common alarm and common supervisory (disconnectable), and a common trouble relay. If no Supervisory zones are configured then the common supervisory relay can be used as an extra common alarm relay.
- Interface for an RTI Remote Trouble Indicator.
- RS-485 Interface for 1 to 3 of RAM-208 Remote Multiplex Annunciators on FA-204 & FA-204E.
- The FA-201, FA-202, FA-204 may use one of optional DACT-100A (Dialler), PR-100 (City Tie), RM-204 or RM-208 Relay Modules.
- The FA-204E may use one of optional DACT-100A (Dialler), PR-100 (City Tie), and one of RM-204 or RM-208 Relay Modules.
- Slide Switch controls and LED Common indicators.
- Easy configuration via DIP switches.
- Extensive transient protection.

Technical Support

For all technical support inquiries, please contact Mircom’s Technical Support Department between 8 A.M. and 5 P.M. (EDT) Monday through Friday, excluding holidays.

Local Phone: 905-695-3535 **Toll-Free Phone:** 1-888-449-3535

Local Fax: 905-660-4113 **Toll-Free Fax:** 1-888-660-4113

Document Conventions

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.

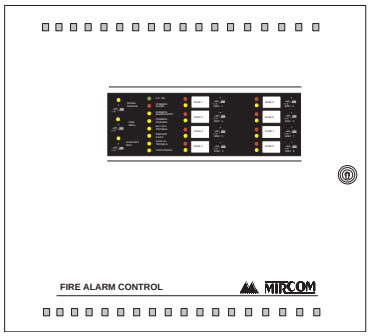
Wiring Styles

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 System *Configuration* on page 28. 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 cutting in half 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 *Field Wiring* on page 12).

System Components

Chassis

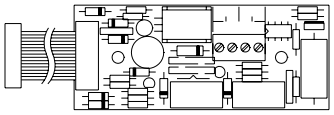


Model	Description
FA-201	Small enclosure fire alarm control panel with one Class B (Style B) Initiating circuit, and two power limited Class B (Style Y) indicating circuits (1.70 amperes each, 2.4 amperes total) with individual trouble indicators. Common alarm & trouble relays. Interface for remote trouble indicator. Resettable four-wire smoke detector power supply. May have one of DACT-100A, PR-100, RM-204, or RM-208 installed. Can be used with BA-104 (four amp-hour) or BA-1065 (6.5 amp-hour) batteries (two required).
FA-202	Small enclosure fire alarm control panel with two Class B (Style B) or one Class A (Style D) Initiating Circuits, and 2 Power Limited Class A/B (Style Z/Y) Indicating Circuits (1.70 amperes each, 2.4 amperes total) with individual trouble indicators. Common Alarm & Trouble Relays. Interface for Remote Trouble Indicator. Resettable Four Wire Smoke Detector Power Supply. May have one of DACT-100A, PR-100, RM-204, or RM-208 installed. Can be used with BA-104 (4 amp-hour) or BA-1065 (6.5 amp-hour) batteries (2 required).
FA-204	Small enclosure Fire Alarm Control Panel with four Class B (Style B) or two Class A (Style D) Initiating Circuits, and 2 Power Limited Class A/B (Style Z/Y) Indicating Circuits (1.70 amperes each, 2.4 amperes total) with individual trouble indicators. Common Alarm & Trouble Relays. Interface for Remote Trouble Indicator and/or 1 to 3 of RAM-208 Remote Multiplex Annunciators. Resettable Four Wire Smoke Detector Power Supply. May have one of DACT-100A, PR-100, RM-204, or RM-208 installed. Can be used with BA-104 (4 amp-hour) or BA-1065 (6.5 amp-hour) batteries (2 required).
FA-204E	Large enclosure Fire Alarm Control Panel with four Class B (Style B) or two Class A (Style D) Initiating Circuits, and 2 Power Limited Class A/B (Style Z/Y) Indicating Circuits (1.70 amperes each, 5 amperes total) with individual trouble indicators. Common Alarm & Trouble Relays. Interface for Remote Trouble Indicator and/or 1 to 3 of RAM-208 Remote Multiplex Annunciators. Resettable Four Wire Smoke Detector Power Supply. May have one of DACT-100A or PR-100, and one DM-204 installed. May also have one of RM-204 or RM-208 installed. Can be used with BA-104 (4 amp-hour), BA-1065 (6.5 amp-hour), or BA-110 (10 amp-hour) batteries (2 required).

Circuit Adder Modules

	Models	Description
	DM-204	Zone Adder Module for the FA-204E. Brings the total capacity to eight Class B (Style B) or four Class A (Style D) Initiating Circuits, and 4 Power Limited Class A/B (Style Z/Y) Indicating Circuits (up to 1.7 amperes each, 5 amperes total).
	RM-208	Relay Adder Module for the FA-204 or FA-204E. Adds eight configurable Form-C Relays rated 1A, 28 VDC.
	RM-204	Relay Adder Module for the FA-204 or FA-204E. Adds four configurable Form-C Relays rated 1A, 28 VDC.

Auxiliary Models

	Model	Description
	PR-100	Polarity Reversal and City Tie Module
	DACT-100A	Digital Communicator / Dialler Module.

These fire alarm control panels are normally provided with a beige enclosure. The FA-201U, FA-202U, FA-204U, and FA-204EU models have red enclosures.

FA-200 Accessories

Model	Description
RAM-208	Eight-Zone Remote Annunciator (ULC and ULI approved)
RTI-1	Remote Trouble Indicator (ULC and ULI approved)
MP-300	End-of-line Resistor Plate, stainless steel finish
MP-300R	EOL Resistor Plate, red (ULC approved)
BC-160	External Battery Cabinet (ULC and ULI approved)

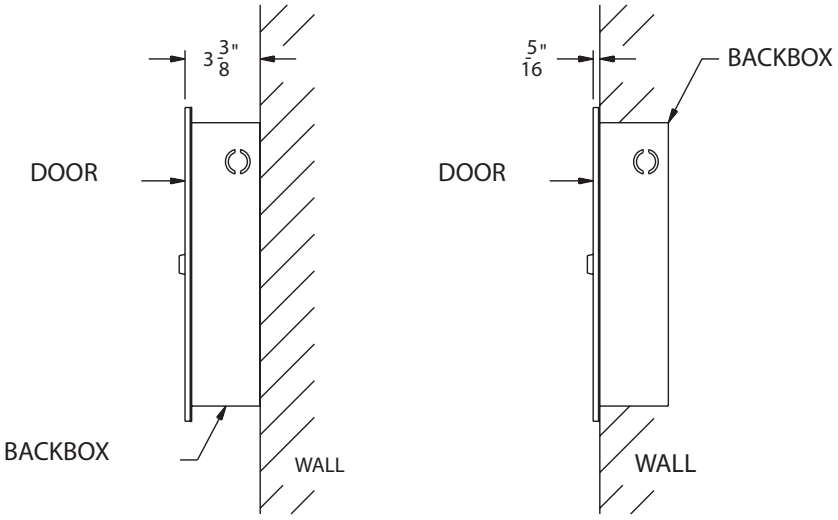
Mechanical Installation and Dimensions

Install the enclosure as shown in *Figure 1*, below for the FA-201, FA-202, or FA-204.

Figure 1: FA-201, 202, and 204 Enclosure Installation and Dimensions

MATERIAL: 18GA (0.048") THICK
COLD ROLLED STEEL

FINISH: PAINTED



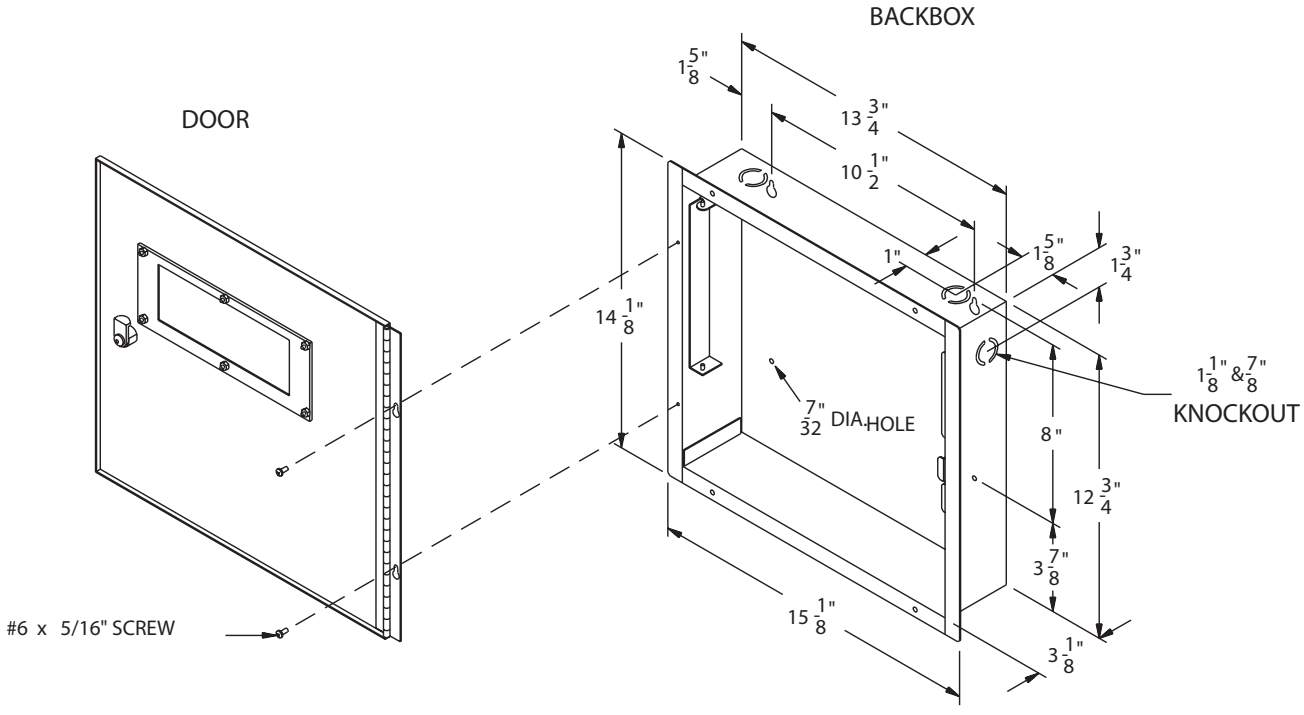
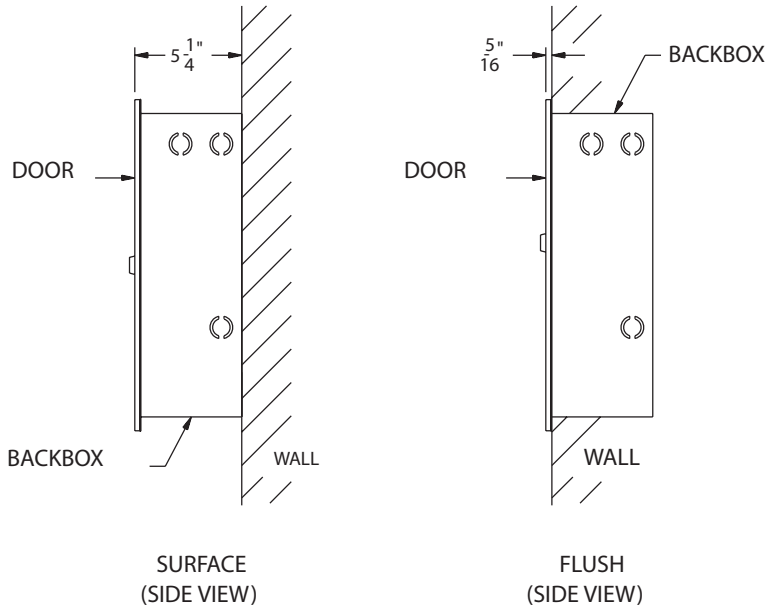
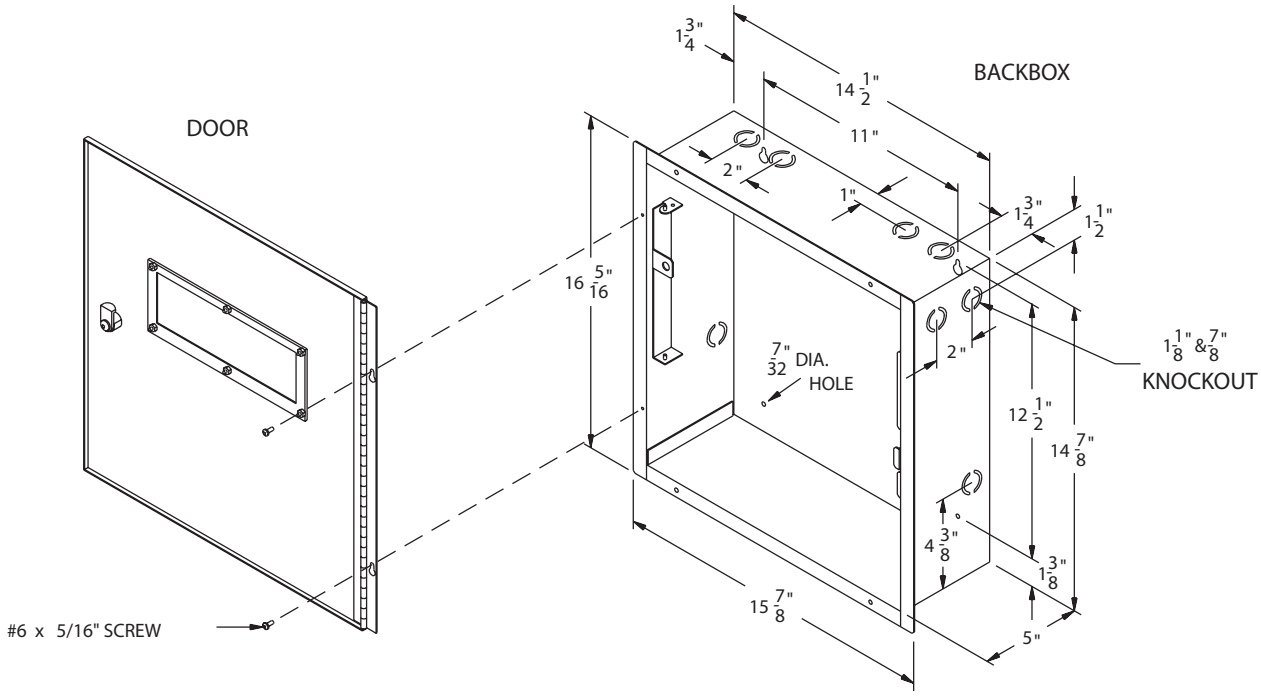


Figure 2: FA-204 E Enclosure Installation and Dimensions

MATERIAL: BACKBOX 18GA (0.048") THICK
DOOR 16GA (0.059") THICK
COLD ROLLED STEEL

FINISH: PAINTED



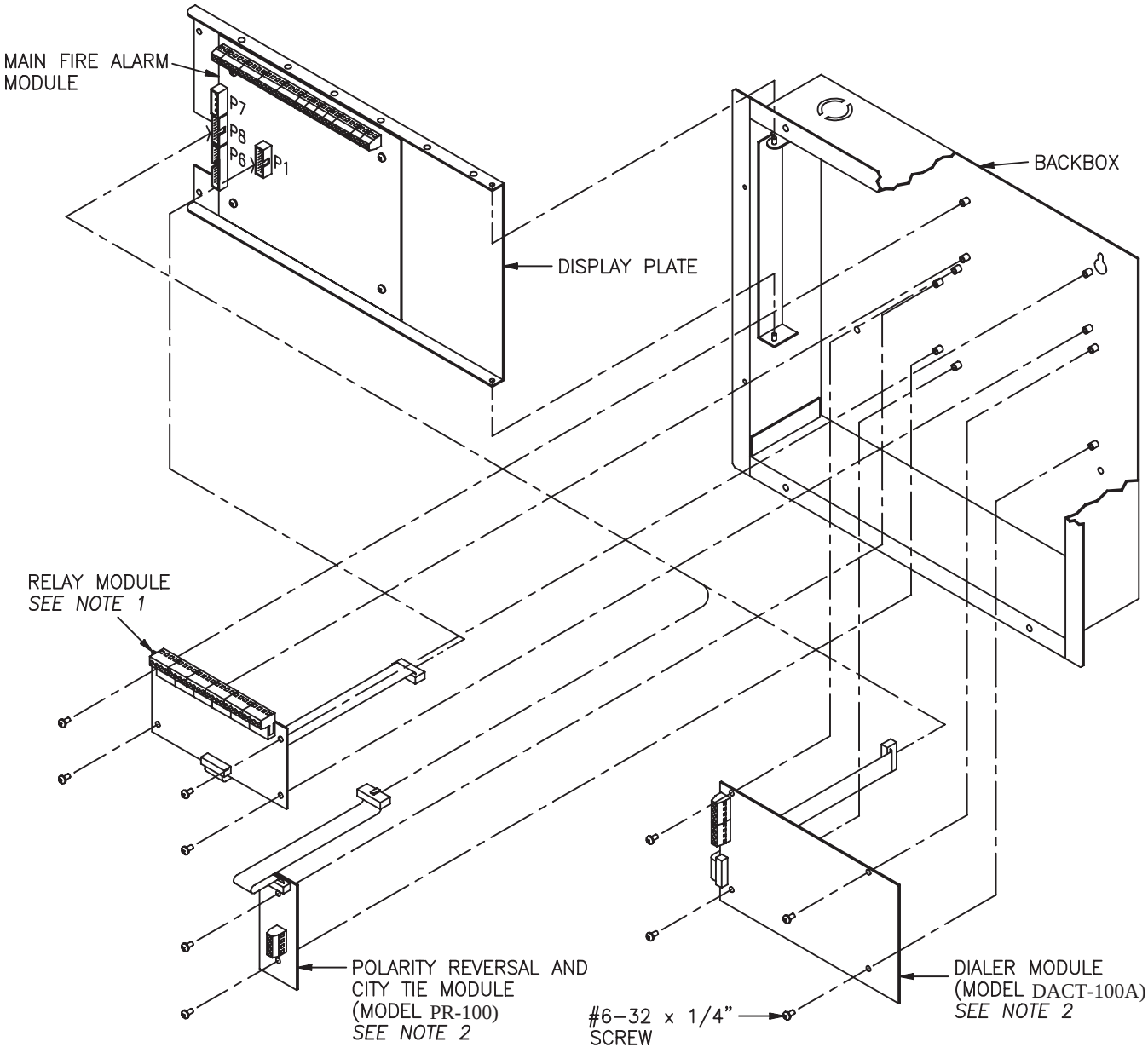


Modules Mounting Locations

The FA-200 eries come pre-assembled with all components and boards, except for adder modules. Module installation locations are shown below.

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.

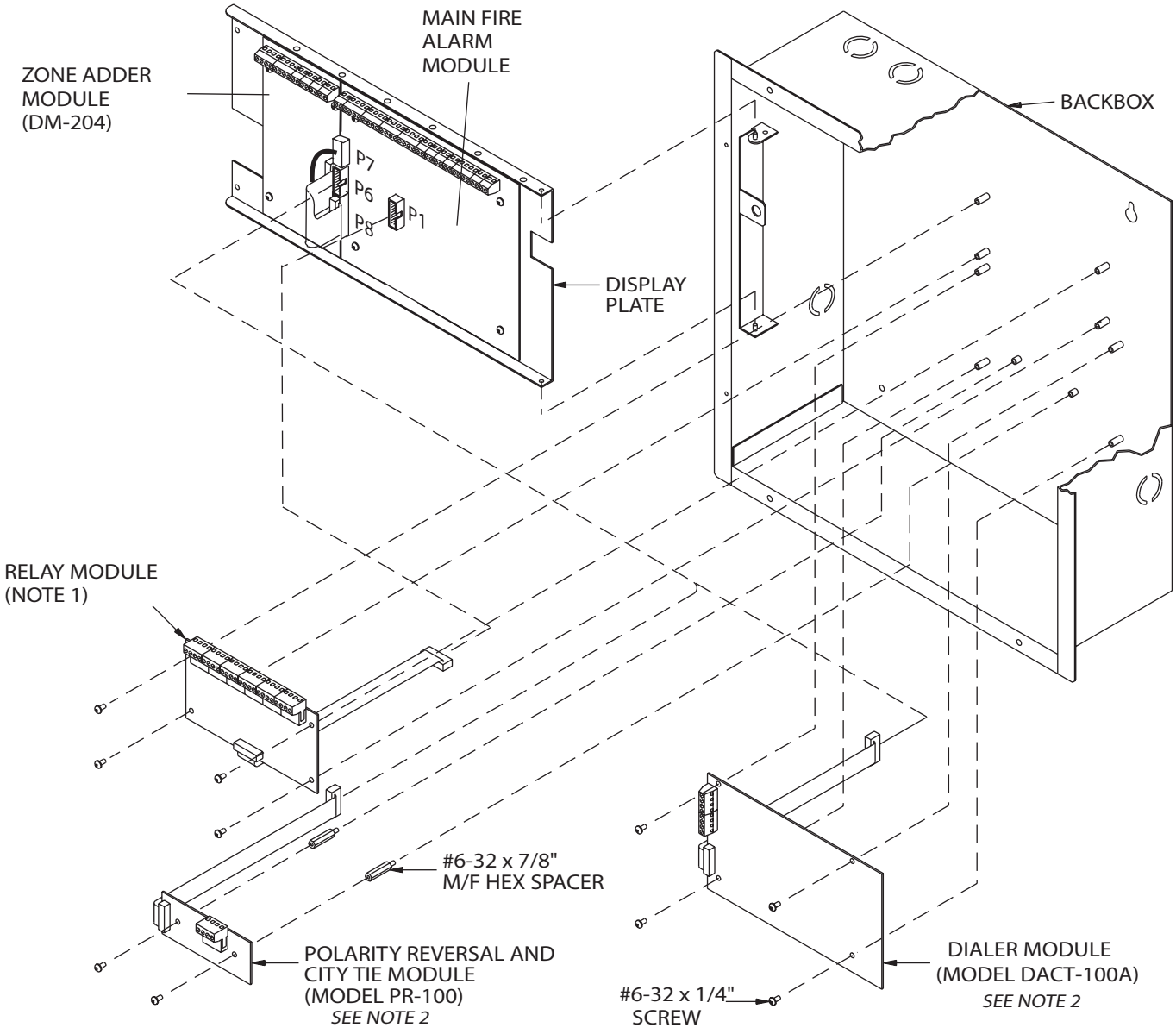
Figure 3: FA-201, 202, and 204 Module Mounting Locations



Notes:

1. Relay module may be model RM-204 or RM-208.
2. Only one of PR-100 or DACT-100A may be installed.

Figure 4: FA-204E Module Mounting Locations



Notes:

1. Relay module may be model RM-204 or RM-208.
2. Only one of PR-100 or DACT-100A may be installed.

Module Settings

Main Fire Alarm Module

Class A / B Selection

On the FA-202, FA-204 and FA-204E only, JW1 & JW2 are connected from 1 to 2 for initiating circuit Class B (Style B) operation, and from 2 to 3 for Class A (Style D) operation. These are not present on the FA-201, and only JW2 is present on the FA-202.

Note: The Class A/B selection affects all initiating circuits, and must be used with the correct Configuration DIP switch setting.

Zone Adder Module: On an FA-204E only, remove the jumper on **JW4** if a DM-204 Zone Adder Module is installed. The zone adder module is plugged into P6 & P7.

Relay Module: Remove the jumper on **JW3** if an RM-204 or RM-208 Relay Module is installed. The relay module is plugged into P1.

Digital Communicator: Remove the jumper on **JW6** if a DACT-100A Digital Communicator is installed. The digital communicator is plugged into P8.

City Tie: Remove the jumper on **JW6** if a PR-100 City Tie is installed. The City Tie is plugged into P8.

Battery: Connected to P2(+) & P3(-) via the factory installed cables.

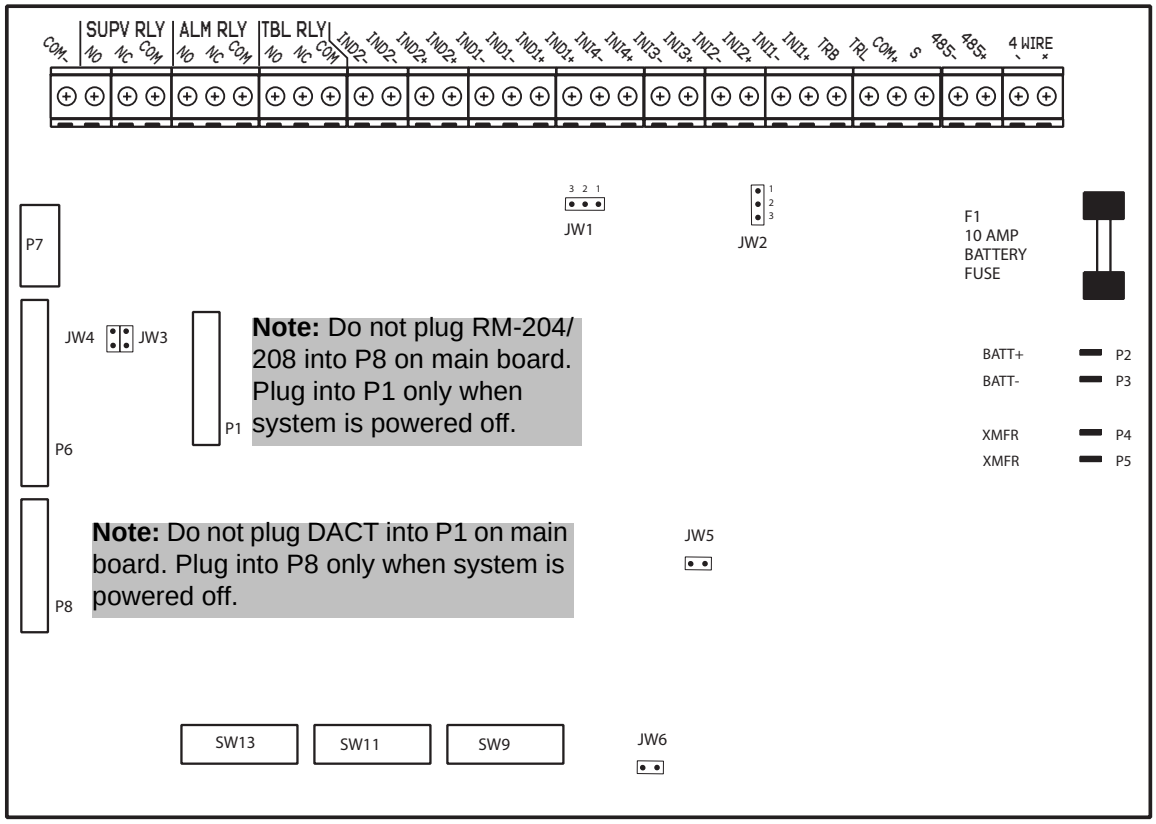
Transformer: Factory wired to P4 & P5, do not disconnect.

JW5: There should be no jumper here; do not use.

SW9,11,13: Configuration DIP switches.

Battery Fuse F1: Replace with 10 amp, 1-1/4" fast acting fuse.

Figure 5: Main Fire Alarm Module

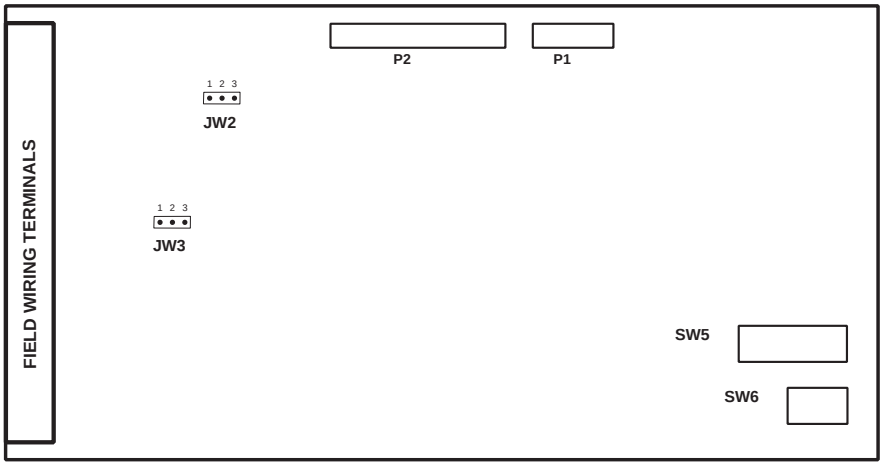


Zone Adder Module (Model DM-204)

Figure 6: DM-204 Zone Adder Module

Class A / B Selection: JW2 & JW3 are connected from 1 to 2 for initiating circuit Class B (Style B) operation, and from 2 to 3 for Class A (Style D) operation.

Note: The Class A/B selection affects all initiating circuits, and must be used with the correct Configuration DIP switch setting.



P1 & P2: Connections to P7 & P6 respectively on the main fire alarm board.

SW5,6: Config DIP switches.

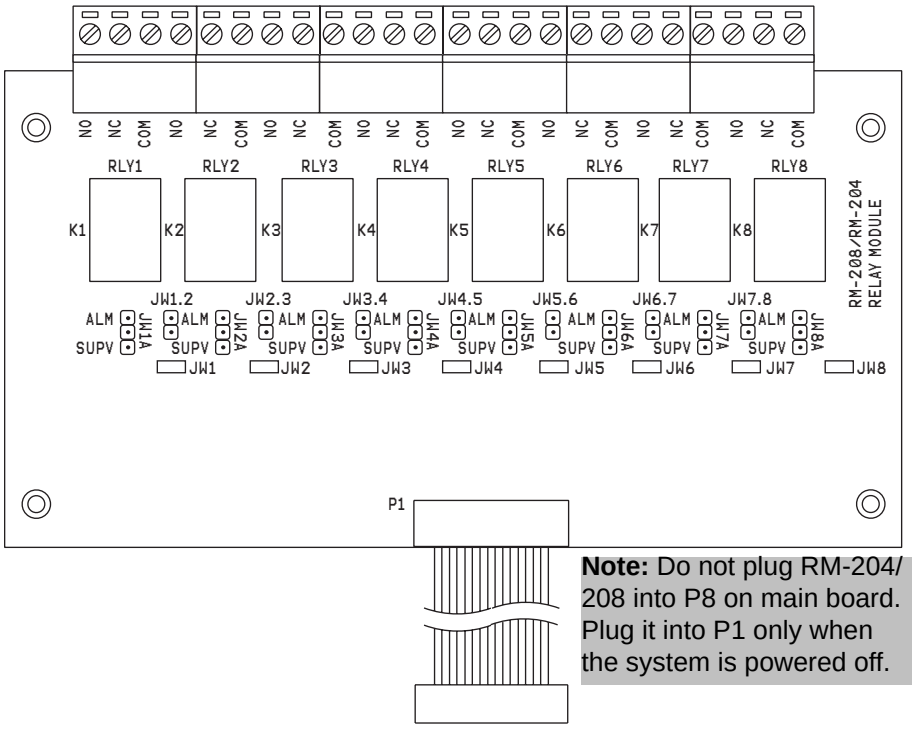
Relay Modules (Models RM-204 or RM-208)

Figure 7: RM-204 or RM-208 Relay Adder Module

P1: Connect to P1 on the main fire alarm board.

By the factory setting, the four or eight relays are controlled by initiating circuits 1 to 8 respectively. This is configured by selecting:

- **JW1:** Initiating Circuit #1 controls Relay #1.
- **JW2**: Initiating Circuit #2 controls Relay #2.
- **JW8:** Initiating Circuit #8 controls Relay #8.



Note: Do not plug RM-204/208 into P8 on main board. Plug it into P1 only when the system is powered off.

Alternately, each relay may be set as a Common Alarm or Common Supervisory Relay by removing the jumper from JW1 to JW1A, etc. These jumpers have two positions to select Alarm or Supervisory each.

- **JW1A:** Alarm or supervisory control for Relay #1.
- **JW2A:** Alarm or supervisory control for Relay #2.
- **JW8A:** Alarm or supervisory control for Relay #8.

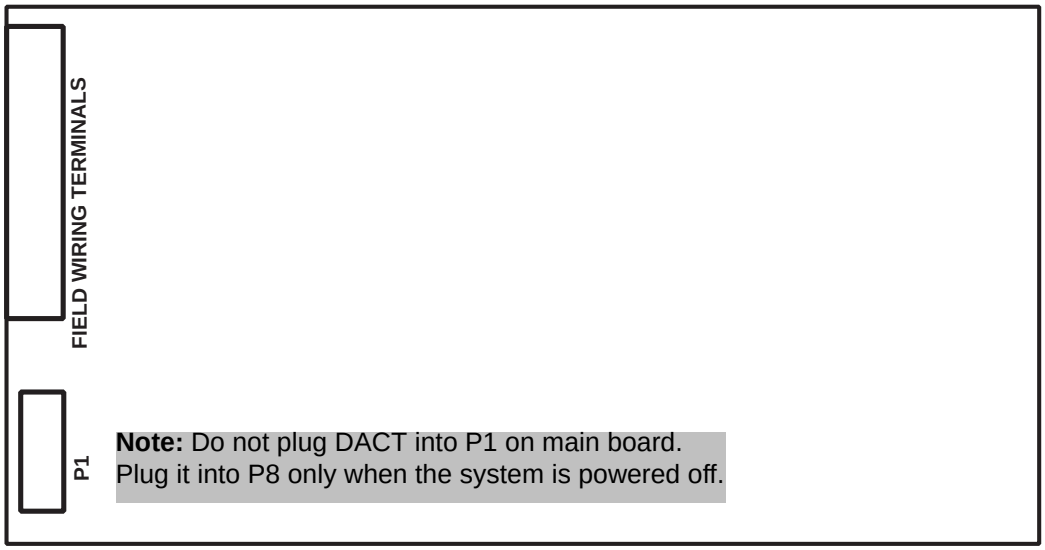
Finally, there are jumpers **JW1.2**, **JW2.3**, up to **JW7.8** that allow a relay to have the same control as an adjacent relay. For example, starting with the factory default setting, moving the jumper from JW2 to JW1.2 will make both relays 1 & 2 operate with Initiating Circuit #1.Contact Mircom Technical Support for assistance if required.

DACT / Dialler Module (Model DACT-100A)

P1: Cable to P8 on the main fire alarm board.

Jumper JW6 on the main fire alarm module must be removed if a DACT-100A is installed. note that this module cannot be installed if a polarity reversal and city tie module is used.

Figure 8: DACT-100A Dialer Module



Note: The DACT is Tip & Ring sensitive. If any of the two LEDs are illuminated amber, reverse the wiring, then wait 30 seconds for the LED to clear.

Please see the DACT-100A Manual (LT-639) for more information.

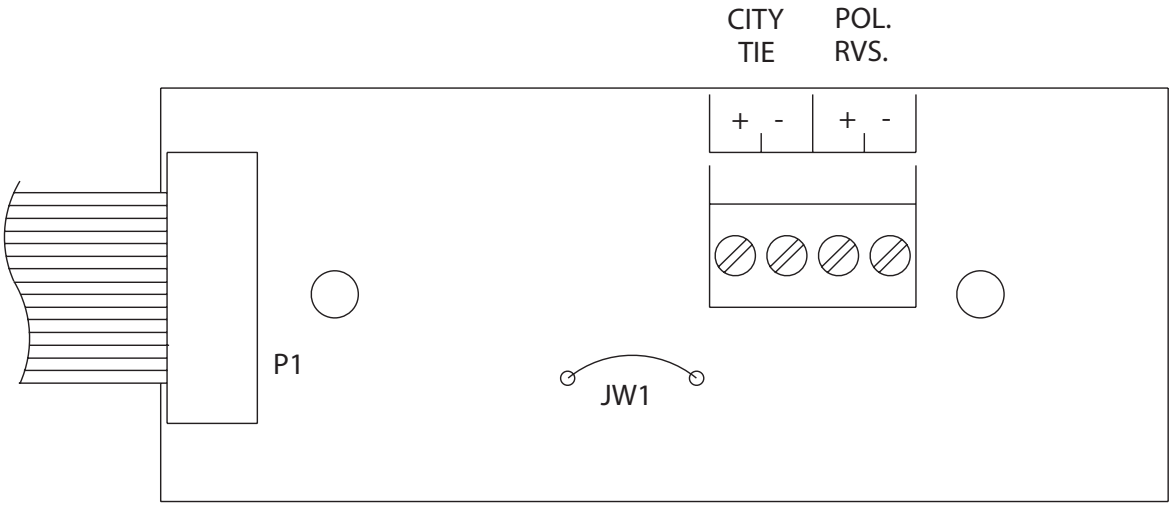
Polarity Reversal and City Tie Module (Model: PR-100)

P1: Cable to P8 on the main fire alarm module.

JW1: Cut this jumper for trouble transmission. When this jumper is cut and a system trouble occur, 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 JW6 on the main fire alarm module must be removed if a polarity reversal and city tie module is installed. note that this module cannot be installed if a DACT / dialler module is used.

Figure 9: PR-100 Polarity Reversal and City Tie Module

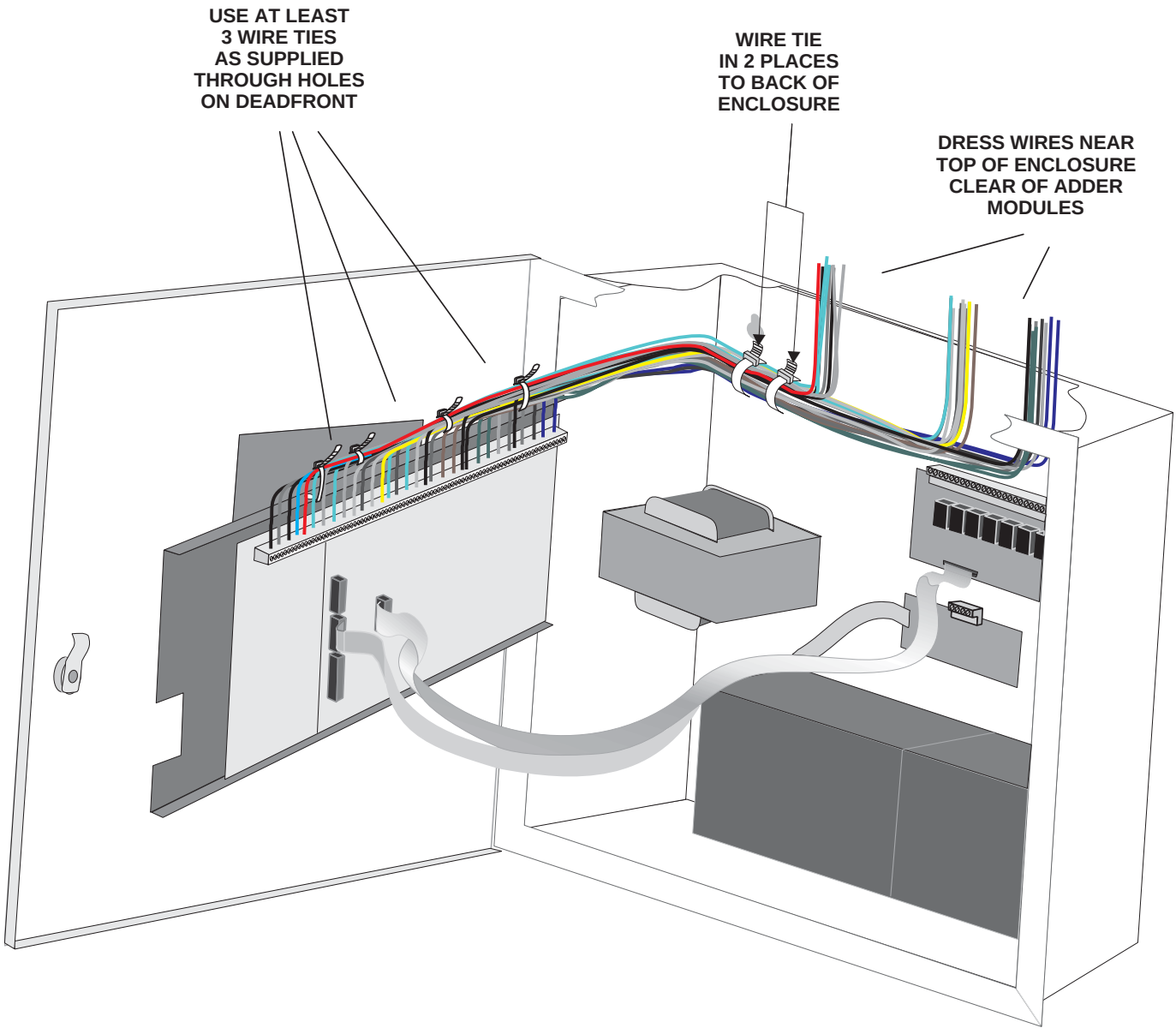


Field Wiring

General Field Wiring Considerations

Because most of the Field Wiring on the FA-200's is to the Main Boards on the swinging dead front, it is very important to properly dress the wires so as not to place stress on either their connection to the boards, or running to conduit. The Figure below shows the required wiring techniques.

Figure 10: General Field Wiring Considerations



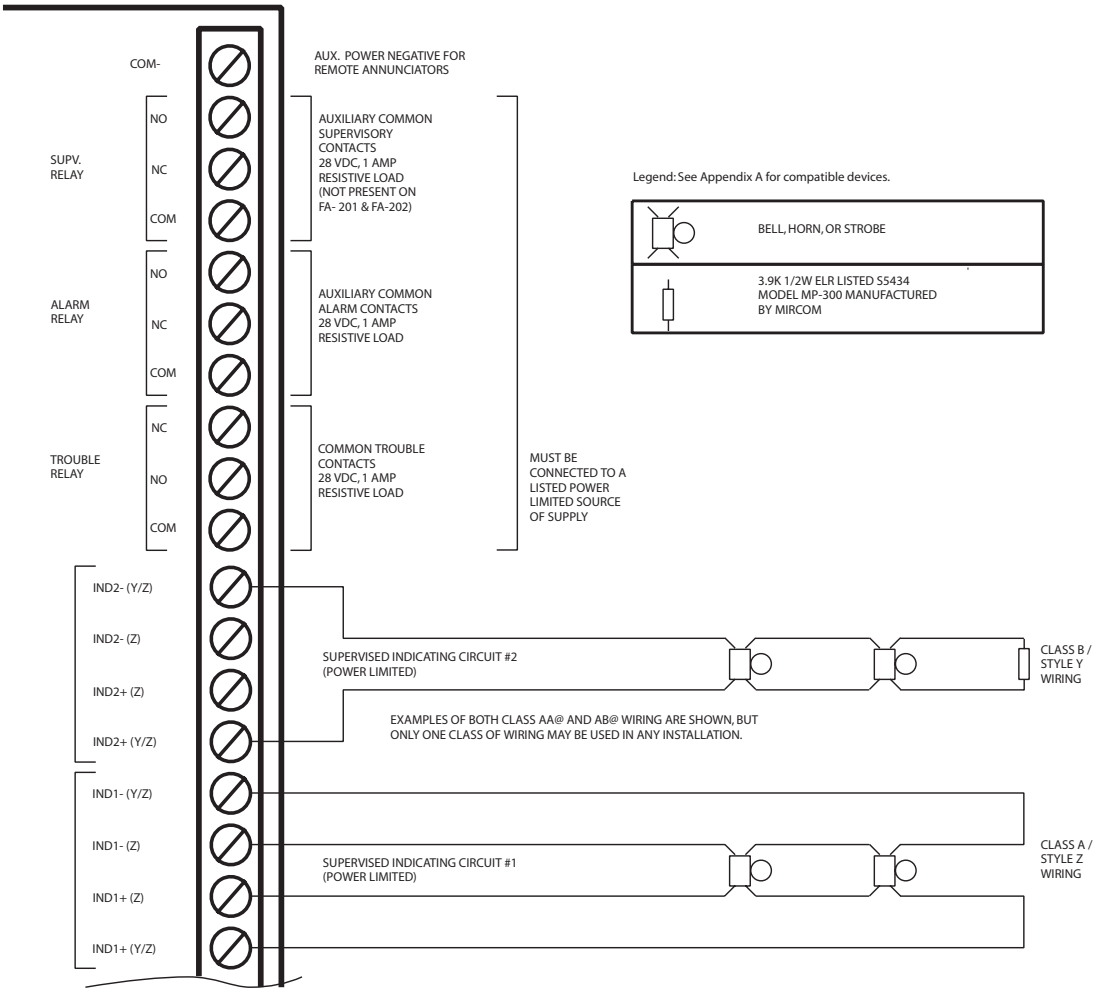
Main Fire Alarm Module Terminal Connections

Wire devices to terminals as shown in *Figure 11* below. See *Wiring Tables* on page 20 for wiring instructions, *Appendix A* on page 33 for compatible devices, and *Appendix C* on page 38 for specifications.

ATTENTION: Do not exceed power supply ratings:

- FA-201, FA-202, FA-204, total current for indicating circuits is 2.4 A max.
- FA-204E, total current for indicating circuits is 5 A max.

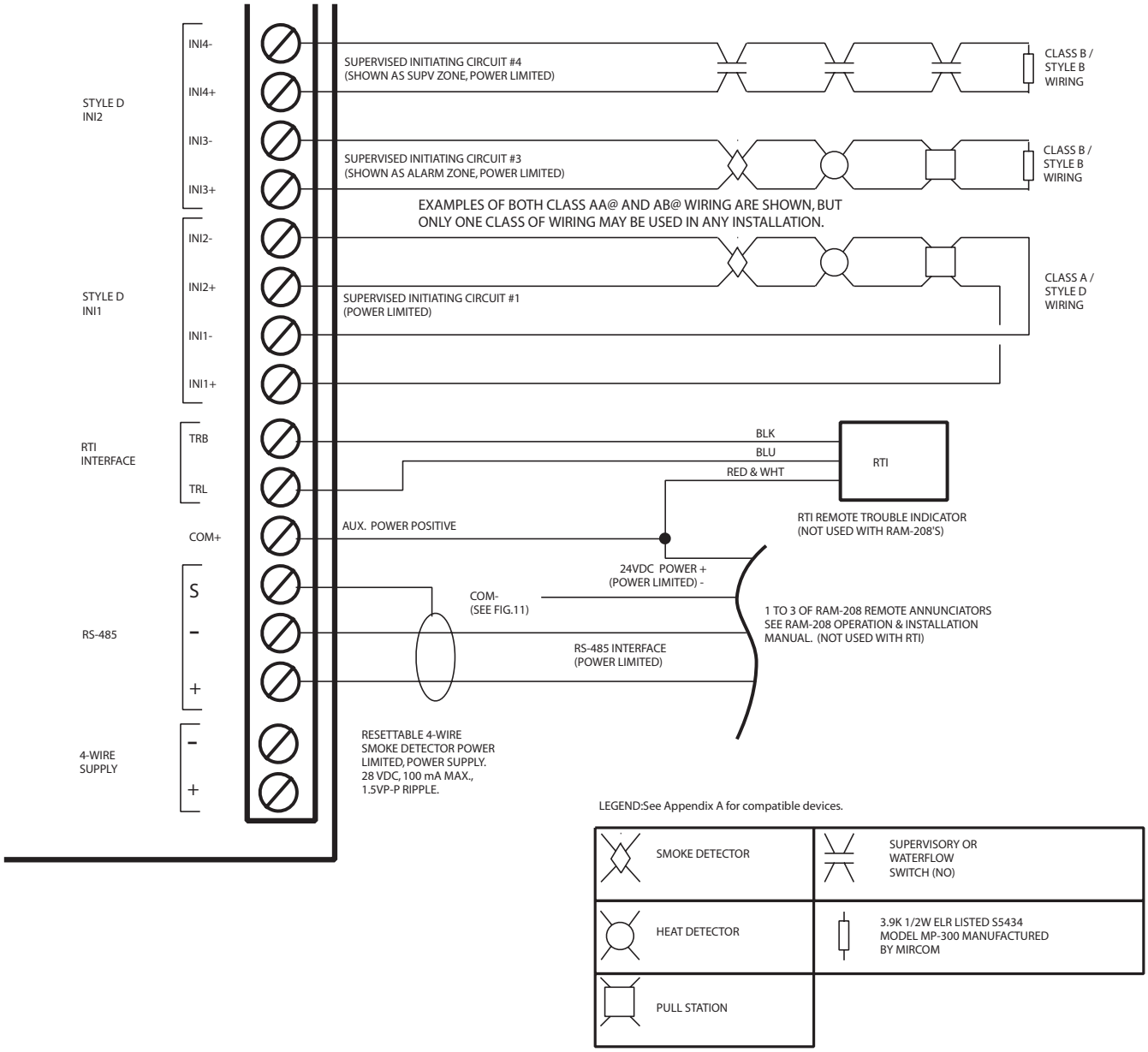
Figure 11A: Main Fire Alarm Module Terminal Connections



When wiring devices, please keep in mind the following:

- All terminals are shown from the back of the main fire alarm board assembly (pointing towards the rear of the enclosure).
- All power limited circuits must use type FPL, FPLR, or FPLP power limited cable.
- Initiating circuits are fully supervised and rated for 26 VDC, 3 ma standby, 1.5 vp-p ripple, 50 mA max. alarm. They may be configured as required. The alarm threshold is 21 mA. Maximum loop resistance is 100 ohms, 50 ohms per side.
- Indicating circuits are fully supervised and rated for 24 VDC unfiltered 1.7 amp max. each They must be wired as shown in the wiring tables on page 20.
- On the FA-204 & FA-204E, the auxiliary common supervisory relay contacts will act as a second set of common alarm contacts if there are no initiating circuits set as supervisory.
- Initiating circuits must be all either Style B or D. If Style D is selected, cut the number of circuits in half.

Figure 11B: Main Fire Alarm Module Terminal Connections (cont'd)



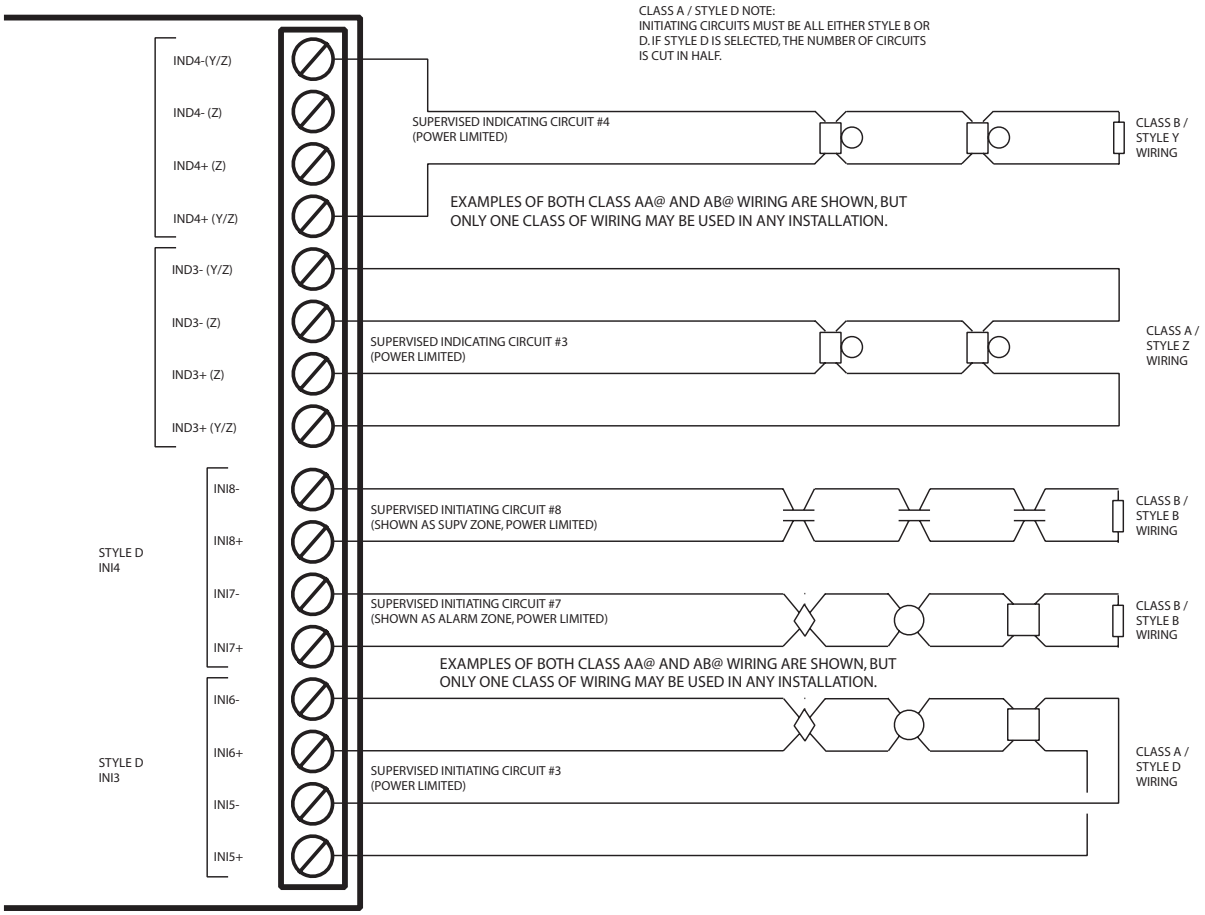
When wiring devices, please keep in mind the following:

- All terminals are shown from the back of the main fire alarm board assembly (pointing towards the rear of the enclosure).
- All power limited circuits must use type FPL, FPLR, or FPLP power limited cable.
- Initiating circuits are fully supervised and rated for 26 VDC, 3 ma standby, 1.5 vp-p ripple, 50 mA max. alarm. They may be configured as required. The alarm threshold is 21 mA. Maximum loop resistance is 100 ohms, 50 ohms per side.
- Initiating circuits are compatibility ID "A".

Zone Adder Module (DM-204) Terminal Connections

Wire devices to terminals as shown below in *Figure 12*. See *Wiring Tables* for on page 20wiring instructions, *Appendix A* on page 33 for compatible devices, and *Appendix "C* on page 38 for Module specifications.

Figure 12: DM-204 Zone Adder Module Terminal Connections



LEGEND: See Appendix A for compatible devices.

SMOKE DETECTOR	SUPERVISORY OR WATERFLOW SWITCH (NO)
HEAT DETECTOR	BELL, HORN, OR STROBE
PULL STATION	3.9K 1/2W ELR LISTED S5434 MODEL MP-300 MANUFACTURED BY MIRCOM

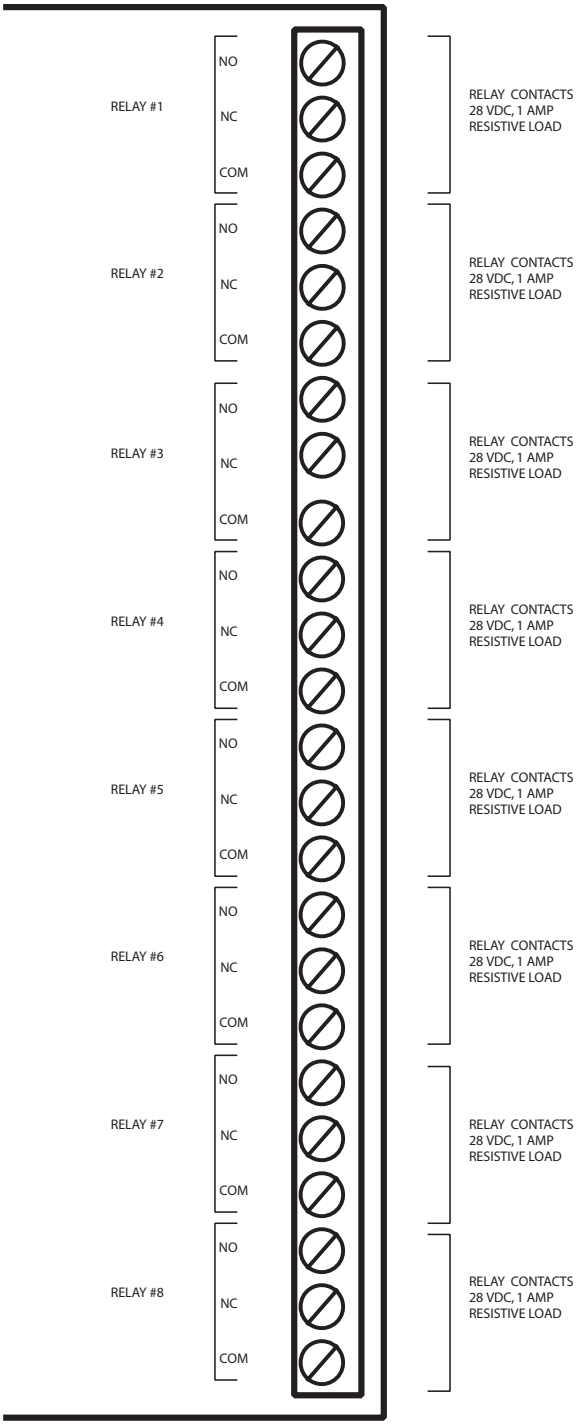
Notes:

- All terminals are shown from the back of the main fire alarm board assembly (pointing towards the rear of the enclosure).
- All power limited circuits must use type fPL, FPLR, or FPLP power limited cable.
- Initiating circuits are fully supervised and rated for 26 VDC, 3 ma standby, 1.5 vp-p ripple, 50 mA max. alarm. They may be configured as required. The alarm threshold is 21 mA. Maximum loop resistance is 100 ohms, 50 ohms per side.
- Initiating circuits are compatibility ID “A”.

Relay Module (RM-204 or RM-208) Terminal Connections

Note that only relays #1 to #4 are present on the RM-204.

Figure 13: Relay Module (RM-204 or RM-208) Terminal Connections



Notes:

- All power limited circuits must use type FPL, FPLR, or FPLP power limited cable. Must be connected to a listed power limited source of supply.

DACT / Dialler Module (DACT-100A) Terminal Connections

The following diagram shows the wiring connection for the DACT-100A, refer to the Manual for more details.

Wire the two telephone lines devices to terminals as shown in *Figure 14* below.

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.

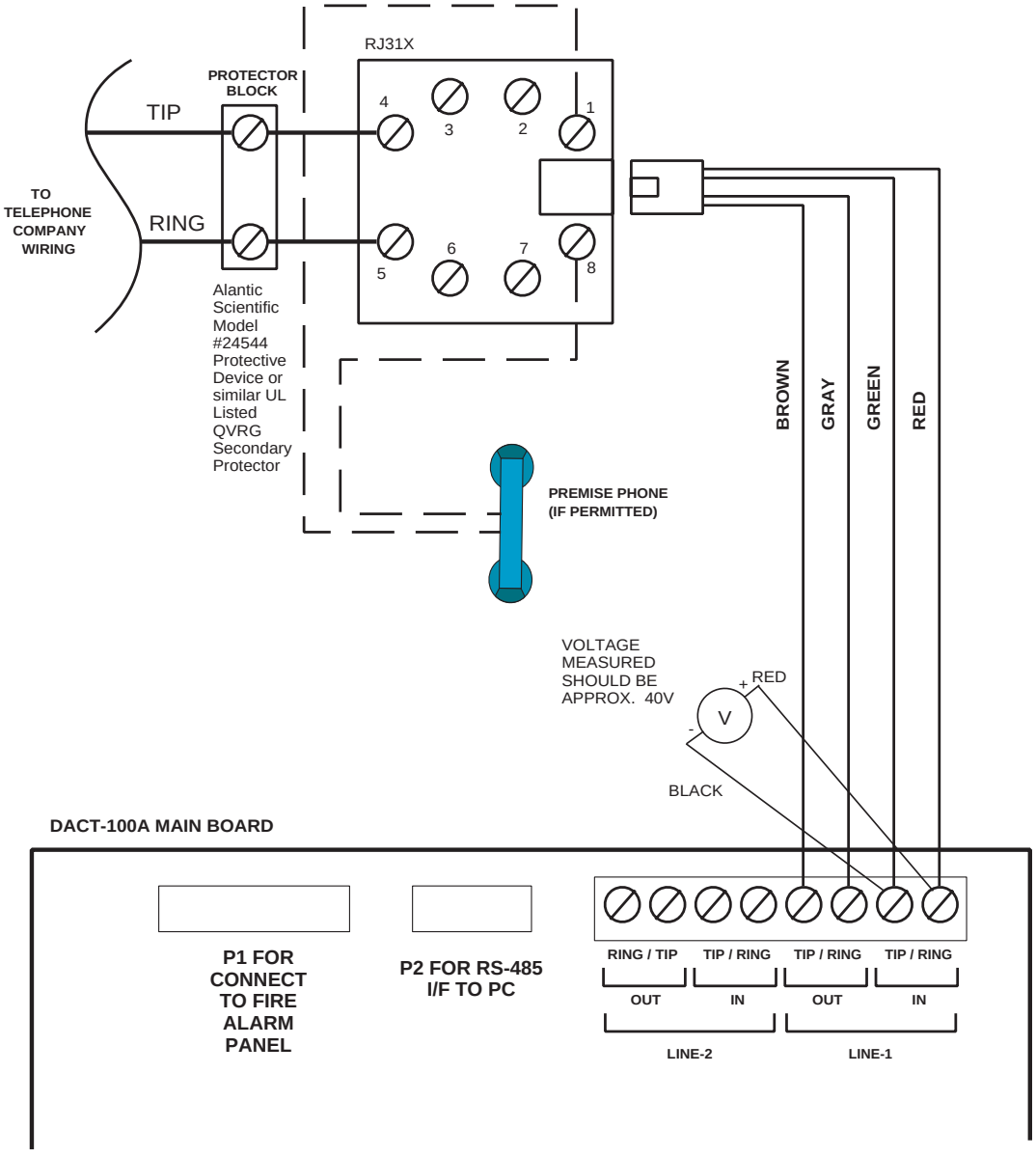
Line 2 Input (Tip/Ring): To the second Telephone Line via the required RJ31X Connector.

Line 3 Output (Tip/Ring): To an optional Premise Telephone on the second Telephone Line via the required RJ31X Connector.

Note that most AHJs do not allow the connection of premise telephones. See *Wiring Tables* on page 20and *Appendix C* page 38 for more information.

Note: The terminal blocks are “depluggable” for ease of wiring.

Figure 14: DACT-100A Wiring Diagram



Polarity Reversal and City Tie Module (Model: PR-100) Terminal Connections

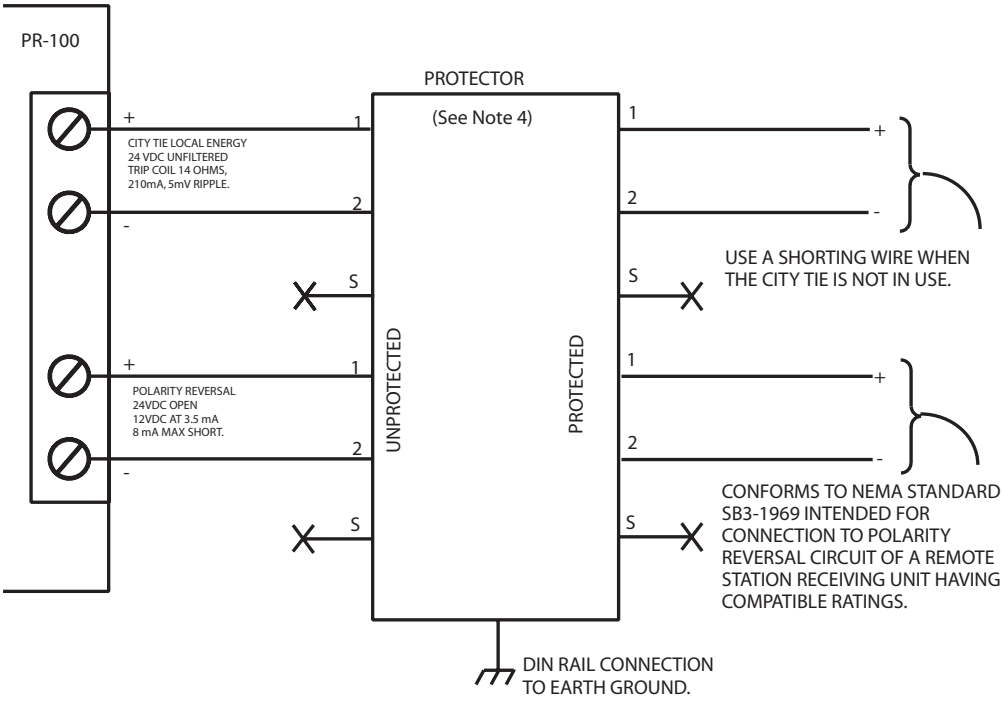
See *Appendix C* on page 38 for module specifications. Wire as shown in *Figure 15* below using proper wire gauges.

Note that for use in the USA, the installer *must* add an Atlantic Scientific (Tel. 407-725-8000) Model #24544 Protective Device, or similar ULI-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 and city tie wiring.

Notes:

- The terminal blocks are “depluggable” for ease of wiring.
- The city tie interface is *not* power limited.
- Use either the PR-100’s City Tie or Reverse Polarity Interface Module--not both.

Figure 15: PR-100 Polarity Reversal and City Tie Module Terminal Connections



When wiring devices, please keep in mind the following:

- Plug PR-100 ribbon cable (P1) into the main fire alarm module.
- Cut Jumper (JW!) on the PR-100 module in order to transmit a trouble condition to the monitoring station.
- All circuits are power limited and must use type FPL, FPLR, or FPLP power limited cable.
- For polarity reversal operation, short the city tie connection.

Power Supply Connections

The power supply is part of the main fire alarm module and the chassis. The ratings are:

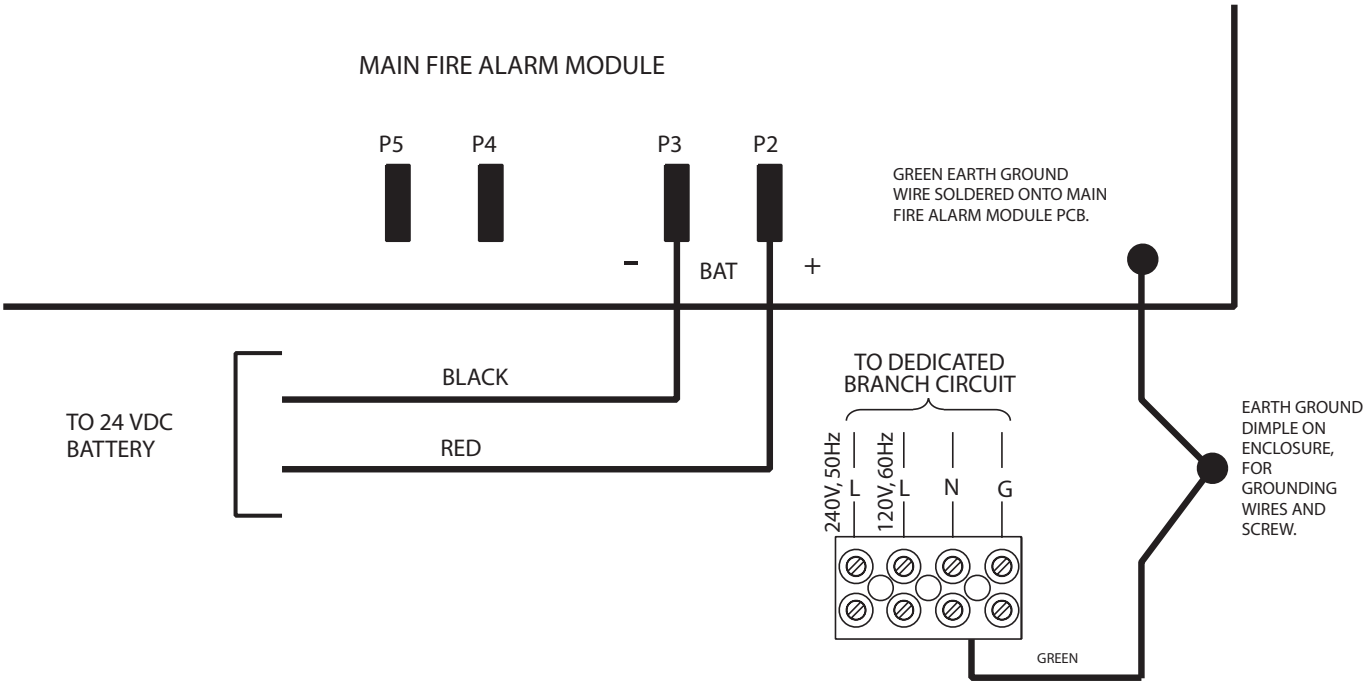
Model	Electrical Input Ratings	Power Supply Total Current	Battery Fuse on Main Module
FA-201, FA-202, FA-204	120 V 60Hz 2A / 240V 50 Hz 1A	2.75 A maximum	**F1:** Replace with 10 amp, 1-1/4" fast acting fuse
FA-204E	120 V 60Hz 2A / 240V 50 Hz 1A	6 A maximum	**F1:** Replace with 10 Amp, 1-1/4" Fast Acting Fuse

See *Appendix C* on page 38 for module specifications. Wire as shown in *Figure 16* below, using proper wire gauges.

ATTENTION:

- Do not exceed power supply ratings:
- To prevent sparking, connect batteries after the systems main A.C. power is turned on.

Figure 16: Power Supply Connections



Wiring Tables

Table 1: 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 2: Wiring Table for Indicating Circuits

Main board indicating circuits are rated for 1.7 amps each. The SGM-1004(A) indicating circuits are rated for 1.7 amps each.

Total Signal Load	Maximum Wiring Run to Last Device (ELR)								Max Loop Resistance
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	150	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 1.8 volts.

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 2: WIring for Indicating Circuits* above.

System Checkout

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).
8. Make sure to *close the front cover plate* before powering the system from main AC supply.

Power-up Procedure

1. After completing the System Checkout procedures, power-up the panel. The "AC-ON" green LED should illuminate, 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, and the 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 black wire is negative (-). All indicators should extinguish except for normal power "AC-ON" green LED.
4. Configure the fire alarm control panel as described in the *System Configuration* section on page 28.

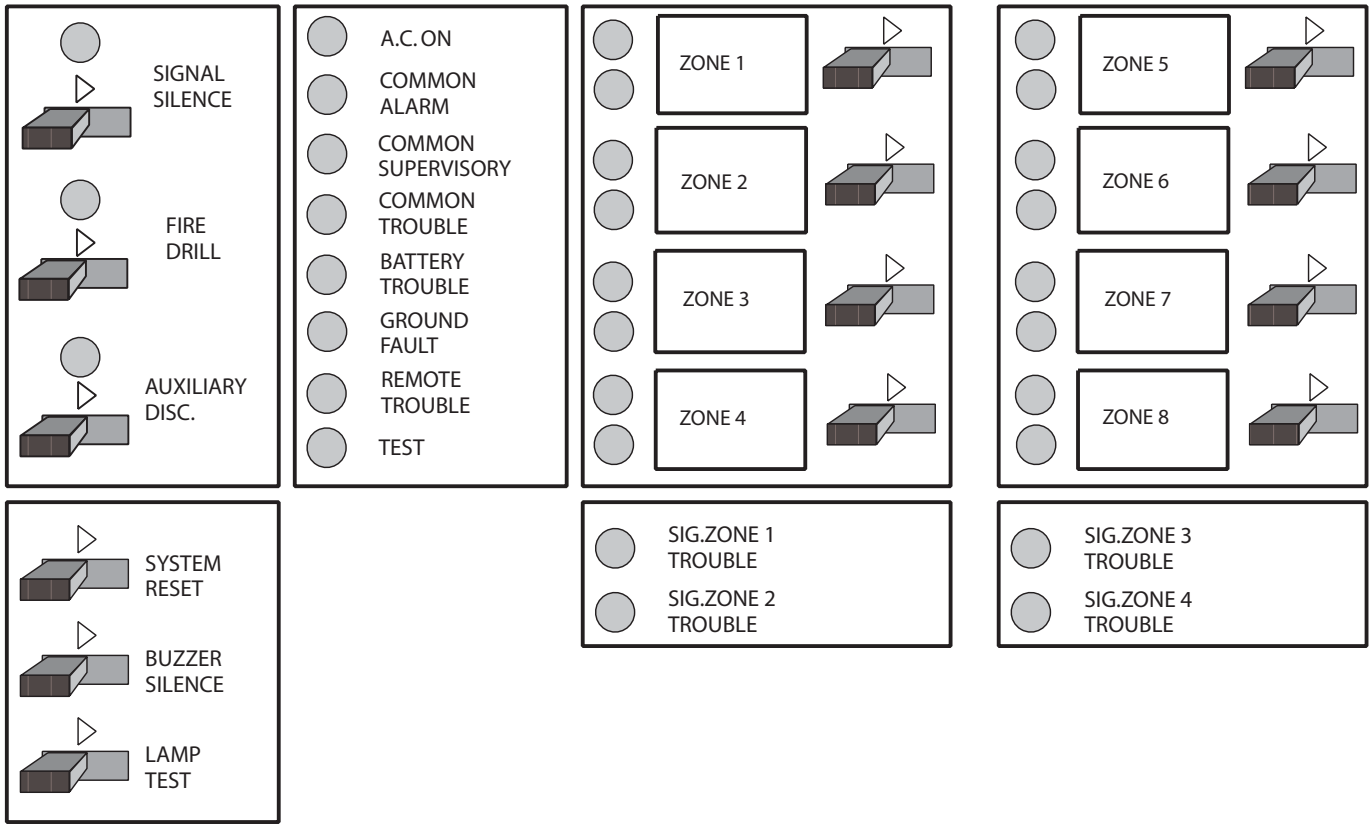
Troubleshooting

Message	Description
Circuit Trouble	Normally when a circuit trouble occurs, its designated trouble indicator will be illuminated, as well as the Common Trouble indicator and Trouble buzzer. To correct the fault, check for open wiring on that particular circuit loop or see if the circuit disconnect switch is in the ON or CLOSED position. *Note: disconnecting a circuit will cause a system trouble (off-normal position).*
Remote Fail	The panel will display a Remote Fail for any failure reported by, or failure to communicate with a remote annunciator, DACT-100A, or PR-100.
Ground Fault	The FA-200 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 conditions. Low voltage (below 20.4V) will cause a battery trouble. If battery trouble condition persists, replace the batteries as soon as possible.

Indicators, Controls, & Operation

Refer to *Figure 17* below for LED Indicators and control switch locations.

Figure 17: Indicators and Control Location



Indicators

Buzzer

The buzzer is activated by any of the following:

- **Fire alarm:** steady
- **Supervisory alarm:** steady
- **Trouble:** trouble flash rate

If the buzzer turns 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 green AC On LED illuminates steadily while the main AC power is within acceptable levels. It turns off when the level falls below the power-fail threshold and the panel switches to standby (battery) power.

Common Alarm LED

The Common Alarm indicator turns on steady red whenever the panel is in alarm as a result of an alarm on any initiating circuit. Since all alarms are latched until the panel is reset, the indicator will remain on until reset.

Common Supervisory LED (FA-204 or FA-204E only)

The amber Common Supervisory LED illuminates steadily when there is a supervisory alarm in the panel resulting from any latching or non-latching supervisory circuit. The LED turns off if all non-latching supervisory circuits are restored and there are no active latching supervisory circuits. Latching supervisory alarms remain active until the panel is reset.

Common Trouble LED

The Common Trouble indicator flashes amber (at 20 flashes per minute) when the panel detects any trouble condition. It turns off when all non-latching troubles are cleared.

Remote Trouble LED (FA-204 or FA-204E only)

The Remote Failure indicator illuminates amber if the panel detects trouble at a city tie or dialler module, or communication or local trouble with a remote annunciator. It turns off once these conditions return to normal.

Fire Drill LED

The amber Fire Drill LED illuminates steadily while fire drill is active.

Auxiliary Disconnect LED

The Auxiliary Disconnect Indicator flashes amber (20 flashes per minute) when the Auxiliary Disconnect switch is activated. It turns off when the switch is activated a second time. When on, the Auxiliary Disconnect LED indicates that common alarm and common supervisory relays, and any RM-204 / RM-208 relays are not activated. The trouble relay is activated. If installed, dialler or polarity reversal and city tie modules are also inactive, causing a trouble condition.

Signal Silence LED

The amber Signal Silence LED flashes at the trouble flash rate when indication circuits are silenced either by the Signal Silence button or by the Auto Signal Silence timer. It turns off when the signals are re-sounded by a subsequent alarm.

Battery Trouble LED

The Battery Trouble LED flashes amber at the trouble flash rate when the battery is either low (below 20.4 VDC) or disconnected.

Ground Fault LED

The Ground Fault LED flashes amber at the trouble flash rate when the Ground Fault Detector detects a ground fault on any field wiring. It turns off when the ground fault is cleared.

Test LED

The Test LED illuminates amber when the fire alarm panel is in walk test mode.

Circuit Status LEDs

These LEDs indicate the status of initiating circuits. They illuminate

- **Alarm:** Steady red
- **Alarm Verification or waterflow retard in progress:** fast flashing red (120 flashes per minute)
- **Pending Alarm:** (see *Circuit Disconnect Switches* on the following page) fast flashing red (120 flashes per minute)
- **Supervisory:** Steady amber

Circuit Trouble LEDs

These LEDs indicate trouble for initiating and indicating circuits. They flash (20 flashes per minute) for any field wiring fault, or if the circuit has been disconnected.

Controls

System Reset Switch

The System Reset momentary switch resets the fire alarm control panel and all circuits:

- •Resets all latching trouble conditions
- •Resets four-wire smoke supply
- •Turns off Signal Silence
- •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

Signal Silence Switch

Activating the Signal Silence momentary switch 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 switch 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.

Fire Drill Switch

The Fire Drill momentary switch activates all non-disconnected indicating circuits, but does not transmit any alarms via the dialler, city tie, or common alarm relay, nor are any RM-204 or RM-208 relays activated. The fire drill is cancelled by activating the switch again, or if the panel goes into a real alarm.

Auxiliary Disconnect Switch

Activating the Auxiliary Disconnect momentary switch activates the auxiliary disconnect function. Activating the switch again de-activates the function. When auxiliary disconnect is active, common alarm and common supervisory relays, and any RM-204 / RM-208 relays are not activated. The trouble relay is activated. If installed, dialler or polarity reversal and city tie modules are also inactive, causing a trouble condition.

Lamp Test Switch

Activation of the Lamp Test momentary switch turns all front panel Indicators and the buzzer on.

Buzzer Silence Switch

Activation of the Buzzer Silence momentary switch while the Buzzer is sounding silences the Buzzer. The Buzzer will resound if there is a subsequent event. Switch activation will also silence the buzzer on all attached annunciators.

Circuit Disconnect Switches

Activation of these non-momentary switches disconnects the respective Initiating Circuit, and causes a Circuit Trouble for that Initiating Circuit while active. If the disconnect switch is turned off (to its normal position) while there is an Alarm condition in that circuit, the respective circuit Status LED will flash at a rate of 120 flashes per minute to indicate a Pending Alarm, for 5 seconds. If the disconnect switch is not turned back on, an Alarm will be processed normally.

Operation

All alarm inputs are treated in a similar manner. Alarm inputs include non-verified or verified alarms, and water-flow alarms. Activation of any alarm input 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
- RM-204 / RM-208 relays are activated as configured, provided that aux disconnect is not active
- Signals and strobes are activated

Subsequent 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 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
- Signals and strobes are activated

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.

Initiating (Detection) Circuit Types

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 pull stations, smoke detectors, or heat detectors attached. Any activation of pull stations or heat detectors 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 startup 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.
Water-Flow Alarm	An 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. 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; maximum retard may not exceed 120 seconds.**
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.
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.

Indicating (Signal) Circuits Types

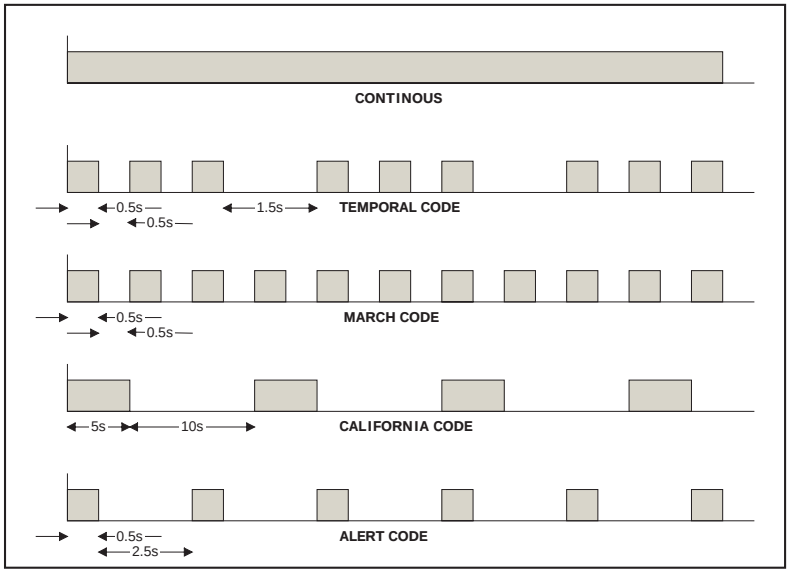
Circuit Type	Description
Silenceable Signal	For audible devices such as bells and piezo mini-horns that may be silenced either manually or automatically. While sounding, these follow the pattern appropriate for the condition: the configured evacuation code (default is temporal code) during single-stage 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 piezo mini-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.
Silenceable Visual	For visual devices such as strobes that use no code pattern (they are continuous).
Non-Silenceable Visual	Same as previous, but is non-silenceable.

Evacuation Codes

Single stage codes

Continuous	On 100% of the time
Temporal Code	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

Figure 18: Evacuation Codes



System Configuration

Main Fire Alarm Board

Configuration of the FA-200 Series is accomplished simply by DIP Switch Settings on the Main Fire Alarm Board. For DIP Switches, 0 = switch “off”, 1 = Switch “on’). The DIP switches are located on the bottom left side of the main fire alarm board.

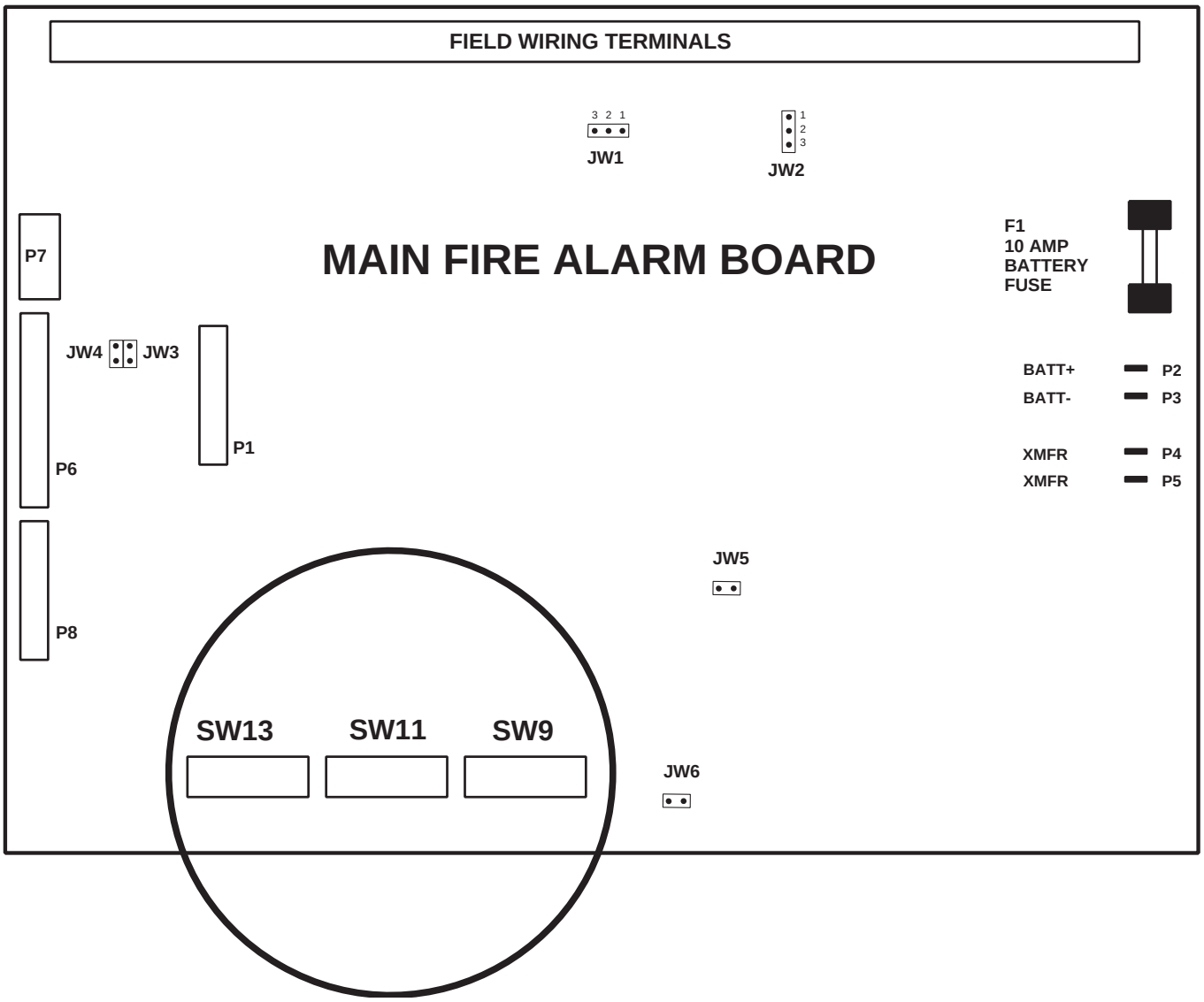


Table 3: Configuration DIP Switch Functions on Main Fire Alarm Board

Function	DIP Switch	Switch "Off"	Switch "On"
Indicating Circuit #1 Audible Device (Bell) Only	Switch 13, #1	Silenceable	Non-Silenceable
Indicating Circuit #2 Audible or Visual Device	Switch 13, #2	Silenceable	Non-Silenceable
	Switch 13, #3	Audible Device (Bell)	Visual Device (Strobe)
# Remote Annunciators	Switch 13, #4	5 off, 4 off = None 5 off, 4 on = One 5 on, 4 off = Two 5 on, 4 on = Three	
	Switch 13, #5		
Manual Signal Silence	Switch 13, #6	Disabled	Enabled
Fire Drill	Switch 13, #7	Disabled	Enabled
Aux. Disconnect	Switch 13, #8	Disabled	Enabled
Initiating Circuit #1 Alarm Only	Switch 11, #1	Normal Alarm	Verified Alarm
Initiating Circuit #2 Alarm Only	Switch 11, #2	Normal Alarm	Verified Alarm
Initiating Circuit #3 Alarm or Waterflow	Switch 11, #3	Normal	Verified Alarm / Retarded Waterflow
	Switch 11, #4	Alarm	Waterflow
Initiating Circuit #4 Alarm or Supervisory	Switch 11, #5	Normal	Verified Alarm (no effect on Supv.)
	Switch 11, #6	Alarm	Supervisory
	Switch 11, #7	Non-Latching Supervisory (No effect on Alarm)	Latching Supervisory (No effect on Alarm)
Application of AC Power Fail Delay	Switch 11, #8	No AC Power Fail Delay	Apply AC Power Fail Delay
Signal Code	Switch 9, #1	2 off, 1 off = Temporal Code 2 off, 1 on = Continuous 2 on, 1 off = March Time 2 on, 1 on = California Code	
	Switch 9, #2		
Auto Signal Silence	Switch 9, #3	4 off, 3 off = Disabled 4 off, 3 on = 5 Minutes 4 on, 3 off = 10 Minutes 4 on, 3 on = 20 Minutes	
	Switch 9, #4		
Signal Silence Inhibit	Switch 9, #5	None	1 Minute
Initiating Circuit Style / Class	Switch 9, #6	Class B (Style B)	Class A (Style D)
Aux. Devices	Switch 9, #7	Non-Silenceable	Silenceable
AC Power Fail Delay to Aux. Devices	Switch 9, #8	24 Hour Standby Standard	60 Hour Standby Standard

Notes:

- After you change any configuration switches, perform a system reset.
- Do not use retard operation with any external retarding device; maximum retard may not exceed 120 seconds.

When configuring the FA-200 main board, keep in mind the following information:

- Only indicating circuit two may be configured for visual devices.
- If initiating circuit three is configured as waterflow, the corresponding verified selection becomes a retard selection.
- If initiating circuit four is configured as alarm, the corresponding latching selection has no effect.
- If initiating circuit four is configured as supervisory, the corresponding verified selection has no effect.
- The selection of Class A/B (Style Z/Y) indicating circuits is only a matter of how they are wired. See connection information on page 13 .
- If Class A (Style D) initiating circuits are selected (FA-202, FA-204, FA-204E only), the appropriate board jumpers must also be set. Class B initiating circuits one and two combine to create Class A Circuit #1, and Class B initiating circuits three and four combine to create Class A Circuit #2. DIP switches for circuits three and four are ignored except for an FA-204E with a DM-204 Adder Module. LED indicators for circuits three and four are non-functional except for an FA-204E with a DM-204 Adder Module.

DM-204 Module

On the DM-204 Zone Adder Module the DIP switches are located on the bottom right-hand corner.

Table 4: Configuration DIP Switch Functions on DM-204 Module

Function	DIP Switch on DM-204 Module	Switch "Off"	Switch "On"
Indicating Circuit #3 Audible Device (Bell) Only	Switch 6, #1	Silenceable	Non-Silenceable
Indicating Circuit #4 Audible or Visual Device	Switch 6, #2	Silenceable	Non-Silenceable
	Switch 6, #3	Audible Device (Bell)	Visual Device (Strobe)
Not Used	Switch 6, #4	----------	----------
Initiating Circuit #5 Alarm Only	Switch 5, #1	Normal Alarm	Verified Alarm
Initiating Circuit #6 Alarm Only	Switch 5, #2	Normal Alarm	Verified Alarm
Initiating Circuit #7 Alarm or Waterflow	Switch 5, #3	Normal	Verified Alarm / Retarded Waterflow
	Switch 5, #4	Alarm	Waterflow
Initiating Circuit #8 Alarm or Supervisory	Switch 5, #5	Normal	Verified Alarm (no effect on Supv.)
	Switch 5, #6	Alarm	Supervisory
	Switch 5, #7	Non-Latching Supervisory (No effect on Alarm)	Latching Supervisory (No effect on Alarm)
Not Used	Switch 5, #8	----------	----------

Notes:

- After you change any configuration switches, perform a system reset.
- Do not use retard operation with any external retarding device; maximum retard may not exceed 120 seconds.

When configuring the DM-204, keep in mind the following information:

- Only Indicating Circuit #4 may be configured for visual devices.
- If Initiating Circuit #7 is configured as waterflow, the corresponding verified selection becomes a retard selection.
- If Initiating Circuit #8 is configured as alarm, the corresponding latching selection has no effect.
- If Initiating Circuit #8 is configured as supervisory, the corresponding verified selection has no effect.
- The selection of Class A/B (Style Z/Y) indicating circuits is only a matter of how they are wired. See connection information on page 15.
- If Class A (Style D) initiating circuits are selected the appropriate board jumpers must also be set. Class B initiating circuits 5 and 6 combine to create Class A Circuit #3, and Class B initiating circuits 7 and 8 combine to create Class A Circuit #4. DIP switches for circuits 5 to 8 are ignored, and led indicators for circuits 5 to 8 are non-functional.

Walk Test Operation

A walk test allows an installer to verify the Initiating Circuit wiring in a system. To enter walk test, press and hold both the Buzzer Silence and Lamp Test momentary switches for at least one second. You can identify circuits to be tested using the Circuit Disconnect slide switches. Activation of any initiating circuit that has been selected for the walk test will cause the audible indicating circuits to activate briefly for a number of short bursts corresponding to the circuit number. Any subsequent activations on the same initiating circuit will activate the audible indicating circuit only once. If another initiating circuit is activated then the audible indicating circuits will activate for a number of short bursts corresponding to the circuit number of the new zone being walk-tested, and so on.

For example, if Initiating Circuit #3 is first activated, the indication circuits will sound for three bursts. Any subsequent activations of Initiating Circuit #3 will sound for one burst. The initial burst interval denoting the count of the circuit number is one second on followed by 1/2 second off. The subsequent burst interval denoting additional activations on the same initiating circuit is 1/2 second on then off. After the sounding pattern has been sent on the indicating circuits, the initiating circuit is reset and tested again. If it is still active (in alarm) the pattern will be re-sent. Trouble on any initiating circuit when in walk test mode causes all indicating circuits to be activated continuously for five seconds.

Alarm verification and water-flow alarm retard operations are disabled on circuits being walk tested. All circuits not selected for walk-test continue to function normally. The walk test operation is disabled if the fire alarm control panel is in alarm or goes into alarm while walk-test is active. It will also time out after 60 minutes of no activity.

Appendix A: Compatible Devices

Underwriter's Labs Canada (ULC) Canadian: Two-wire Smoke Detector Control Panel Compatibility

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

Make Model / Base
Hochiki
DCD-135/NS6-220
DCD-135/NS4-220
DCD-135/HSC-220R
DCD-190/NS6-220
DCD-190/NS4-220
DCD-190/HSC-220R
SIJ-24/NS6-220
SIJ-24/NS4-220
SIJ-24/HSC-220R
SLR-24/NS6-220
SLR-24/NS4-220
SLR-24/HSC-220R
SLR-24H/NS6-220
SLR-24H/NS4-220
SLR-24H/HSC-220R
SLR-835/NS6-220
SLR-835/NS4-220
SLR-835/HSC-220R
SLR-835B-2
System Sensor
1400-A
2400-A
1451-A/B401B
1451-A/B406B
2451-A/B401B
2451-A/B406B
1451DH/DH400A
2451-A/DH400A

Make Model / Base
Edwards
6249C
6250C
6264C
6266C
6269C
6270C
6269C-003
6270C-003
Cerebrus Pyrotronics
D1-2
D1-3/DB-3S
Mircom
MIR-525
MIR-525T
Mirtone
73471
73494
73575
73495/73486
73495/73487
73595/73486
73595/73497
73594/73400
73405/73400
73594/73401
73405/73401

Make Model / Base
Fenwal
PSD-7131/70-201000-001
PSD-7131/70-201000-002
PSD-7131/70-201000-003
PSD-7131/70-201000-005
PSD-7130/70-201000-001
PSD-7130/70-201000-002
PSD-7130/70-201000-003
PSD-7130/70-201000-005
PSD-7128/70-201000-001
PSD-7126/70-201000-002
PSD-7126/70-201000-003
PSD-7126/70-201000-005
PSD-7129/70-201000-000
PSD-7125/70-201000-001
PSD-7126/70-201000-002
PSD-7125/70-201000-003
PSD-7125/70-201000-005
CPD-7021/70-201000-001
CPD-7021/70-201000-002
CPD-7021/70-201000-003
CPD-7021/70-201000-005
NAPCO
FW-2
Simplex
2098-9110

Underwriter's Labs Inc. (UL) United States: Two-Wire Smoke Detector Control Panel Compatibility

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.
- 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
Hochiki			**System Sensor (cont'd)**		
DCD-135/NS6-220	HD-3/HB-72	0.035mA	2400AIT	A - N/A	0.12 mA
DCD-135/NS4-220	HD-3/HB-3	0.035mA	2451 / B401B	A - A	0.12 mA
DCD-135/HSC-220R	HD-3/HB-3	0.035mA	2451 / B406B	A - A	0.12 mA
DCD-190/NS6-220	HD-3/HB-3	0.035mA	2451 / DH400	A - N/A	0.12 mA
DCD-190/NS4-220	HD-3/HB-3	0.035mA	2451TH / B406B	A - A	0.12 mA
DCD-190/HSC-220R	HD-3/HB-3	0.035mA	2451 / B401	A - A	0.12 mA
SIJ-24/NS6-220	HD-3/HB-72	0.040mA	2451TH / B401	A - A	0.12 mA
SIJ-24/NS4-220	HD-3/HB-3	0.040mA	4451HT / B401B	A - A	0.12 mA
SIJ-24/HSC-220R	HD-3/HB-3	0.040mA	4451HT / B406B	A - A	0.12 mA
SLR-24/NS6-220	HD-3/HB-72	0.045mA	4451HT / B401	A - A	0.12 mA
SLR-24/NS4-220	HD-3/HB-3	0.045mA	5451 / B401B	A - A	0.12 mA
SLR-24/HSC-220R	HD-3/HB-3	0.045mA	5451 / B401	A - A	0.12 mA
SLR-24H/NS6-220	HD-3/HB-3	0.045mA	5451 / B406B	A - A	0.12 mA
SLR-24H/NS4-220	HD-3/HB-3	0.045mA			
SLR-24H/HSC-220R	HD-3/HB-72	0.045mA			
SLR-835/NS6-220	HD-3/HB-3	0.045mA	**Sentrol - ESL**		
SLR-835/NS6-220	HD-3/HB-3	0.045mA	429C	S10A - N/A	0.10 mA
SLR-835/NS4-220	HD-3/HB-3	0.045mA	429CT	S10A - N/A	0.10 mA
SLR-835/HSC-220R	HD-3/HB-72	0.045mA	429CST	S11A - N/A	0.10 mA

Smoke Detector Make Model / Base	Compatibility Identifier Head / Base	Rated Standby Current	Smoke Detector Make Model / Base	Compatibility Identifier Head / Base	Rated Standby Current
Hochiki (cont'd)					
SLR-835B-2	HD-6	55ua @ 24VDC	429CRT	S11A - N/A	0.10 mA
			711U/701E, 701U, 702E, 702U	S10A - S00	0.10 mA
System Sensor			712U / 701E, 701U, 702E, 702U	S10A - S00	0.10 mA
1100	A - N/A	0.12 mA	713-5U / 701E, 701U, 702E, 702U	S10A - S00	0.10 mA
1151/ B110LP	A - A	0.12 mA	713-6U / 701E, 701U, 702E, 702U	S10A - S00	0.10 mA
1151/ B116LP	A - A	0.12 mA	721U / 702E, 702U	S10A - S00	0.10 mA
1400	A - N/A	0.10 mA	721UT / 702E, 702U	S10A - S00	0.10 mA
1451/B401	A - A	0.12 mA	722U / 702E, 702U	S10A - S00	0.10 mA
1451/ B401B	A - A	0.12 mA	731U / 702E, 702U, 702RE, 702RU	S11A - S00	0.10 mA
1451/ B406B	A - A	0.12 mA	732U / 702E, 702U, 702RE, 702RU	S11A - S00	0.10 mA
1451DH/ DH400	A - A	0.12 mA	**Detection Systems Inc.**		
2100	A - N/A	0.12 mA	DS250	B - N/A	0.10 mA
2100T	A - N/A	0.12 mA	DS250TH	B - N/A	0.10 mA
2151/ B110LP	A - A	0.12 mA	DS282	B - N/A	0.10 mA
2151/ B116LP	A - A	0.12 mA	DS282TH	B - N/A	0.10 mA
2400	A - N/A	0.12 mA	**Mircom**		
2400TH	A - N/A	0.12 mA	MIR-525U	FDT-1	0.10 mA
2400AT	A - N/A	0.12 mA	MIR-525TU	FDT-1	0.10 mA
			NAPCO		
			FW-2	HD-6	55uA @ 24VDC

Underwriter's Laboratories Inc. (UL) United States: Four-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, 449CLTCSLT		
System Sensor	1424	6424	6424A	A77-716B
	DH400ACDCI	DH400ACDCP	DH400ACDCIHT	

Underwriter's Laboratories Inc. (UL) United States: 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				
AVP-4-15-1	AVP-4-15/75	AVP-4-30/75	AVP-4-110-1	GXS-4-15-1
GXS-4-15/75-W	GXS-4-30/75-W	GXS-4-15/75-C	GXS-4-110-1	GX90S-4-15-1
GX90S-4-15/75-W	GX90S-4-30/75W	GX90S-4-15/75-C	GX90S-4-110-1	SHG24-15-1
SHG15/75-W	SHG24-30/75-W	SHG24-15/75-C	SHG24-110-1	GOT24
GOS24-15-1	GOS24-15/75	GOS24-15/75	GOS24-30/75	GOS24-110-1
GMH-24	GMS-24-15-1	GMS-24-15/75-W	GMS-24-30/75-W	GMS-24-15/75-C
GMS-24-110-1	WGMS-4/75			

Appendix B: RAM-208 Remote Annunciator

The RAM-208 Eight Zone Remote Annunciator mounts in an electrical box. It provides annunciation for the FA-204 or FA-204E's full complement of 8 Initiating circuits.

For more detailed information see Mircom Document LT-648.

Appendix C: Module Specifications And Features

FA-201 Fire Alarm Control Panel

General

- One supervised Class B (Style B) initiating circuit; configurable (normal or verified). [Compatibility ID “A”]
  Power Limited: 26VDC, 3 mA standby, 1.5Vp-p ripple, 50 mA max. (alarm)
- Two Class A/B (Style Y/Z) indicating circuits; configurable as strobes or audibles.
  Power limited: 24 VDC unfiltered
- 1.7 A @ 49°C per circuit (2.4 a total)
- Initiating circuit disconnect switch.
- Optional DACT or city tie adder module.
- Optional RM-204 / RM-208 Relay Module.
- Resettable four-wire smoke supply.
  Power Limited: 28VDC, 100mA max, 1.5Vp-p ripple
- Aux power supply.
  Power limited: 24VDC, 300mA max, unfiltered for RTI or remote annunciators
- 1 RTI Interface for connection to an RTI Remote Trouble Indicator.
- Auxiliary relays (resistive loads):
  Common Alarm: Form C, 1Amp, 28VDC
  Common Trouble: Form C, 1Amp, 28VDC
- Micro-controller based design.
- DIP switch configurable.
- Walktest function.

Electrical ratings

- AC Line Voltage: 120V 60 Hz / 240V 50 Hz
  2A / 1A
- Two amps (primary, transformer inline fuse)
- Power supply ratings: 2.75 amps. max. (secondary)
- For indicating circuits: 24VDC unfiltered 2.40 amps. max.
- Battery: 24VDC, gel-cell/sealed lead-acid
- Charging capability: 4 to 12 AH batteries
- Fuse on main board: 10 Amps.
- Current consumption: *standby*: 110 mA
  alarm: 220 mA

FA-202 Fire Alarm Control Panel

Same as FA-201, plus ...

- Two supervised Class B (Style B) or 1 Class A (Style D) initiating circuits; configurable (normal or verified). [Compatibility ID “A”]

FA-204 Fire Alarm Control Panel

Same as FA-201, plus ...

- Four supervised Class B (Style B) or two Class A (Style D) Initiating circuits; configurable (normal or verified, and for Class B there may be one waterflow and one supervisory). [Compatibility ID “A”]
- Optional RM-204 or RM-208 Relay Module.
- One RS-485 connection for up to 3 RAM-208 Remote Annunciators.
- Auxiliary relays: (resistive loads) common alarm, supervisory, trouble
  all are Form C, 1 amp, 28VDC
- DACT / Dialler Module (DACT-100A)
- DACT - “Digital Alarm Communicator Transmitter”
- Using Ademco Contact ID and SIA-DCS Protocols.
- See Mircom document LT-617 for further info.
- Current Consumption: *standby:* 45 mA
  alarm: 120 mA

Polarity Reversal and City Tie Module (PR-100)

- Supervised city tie: not power limited
- 24VDC unfiltered, 210 mA max., Trip coil: 14 ohms
- Polarity reversal: power limited
- 24VDC open, 12VDC @ 3.5 mA, 8 mA max. (shorted)
- Current consumption: *standby:* 35 mA
  alarm: 300 mA

RM-204 / RM-208 Relay Module

- Four or eight relays: Form C, 1A (resistive), 28 VDC per contacts
- Each individual relay can be relay per zone, common alarm, common supervisory
- Current Consumption: *standby:* 5 mA
  alarm: 160 mA

FA-204E Fire Alarm Control Panel

General

- Four supervised Style B (Class B) or 2 Style D (Class A) initiating circuits; configurable. [Compatibility ID “A”]
  Power limited:26VDC, 3 mA standby, 1.5Vp-p ripple, 50 mA max. (alarm)
- Two Class A/B (Style Y/ Z) indicating circuits; configurable as strobes or audibles.
  Power limited:24 VDC unfiltered
- 1.7 A @ 49°C per circuit (5A total)
- One DM-204 Zone Adder Module may be added.
- Initiating circuit disconnect switches.
- Optional DACT or city tie adder module.
- Optional RM-204 / RM-208 Relay Module.
- Resettable four-wire smoke supply.
  Power limited: 28VDC, 100mA max, 1.5Vp-p ripple
- Aux power supply.
- Power limited: 24VDC, 300mA max, unfiltered
- for RTI or Remote Annunciators
- 1 RS-485 connection for up to 3 RAM-208 Remote Annunciators.
- 1 RTI interface for connection to an RTI Remote Trouble Indicator.

- Auxiliary relays: (resistive loads) common alarm, supervisory, trouble all are Form C, 1 amp, 28VDC
- Microcontroller-based design.
- DIP switch configurable.
- Walktest function.

Electrical ratings:

- AC Line Voltage: 120V 60Hz / 240V 50Hz 1.25A
- Power supply ratings: 6 amps max. (secondary)
- For indicating circuits: 24VDC unfiltered, 5 amps max.
- Battery: 24VDC, Gel-Cell/Sealed Lead-Acid
- Charging capability: 1 0 to 24 AH batteries
- Fuse on main board: 10 Amps.
- Current consumption: *standby:* 110 mA *alarm:* 220 mA

DM-204 Zone Adder Module

- May be added to FA-204E.
- Four supervised Class B (Style B) or two Class A (Style D) initiating circuits; configurable. [Compatibility ID “A”] Power limited: 22VDC, 3 mA standby, 1.5Vp-p ripple, 50 mA max. (alarm)
- Two Class B or A (Style Y or Z) indicating circuits; configurable as strobes or audibles. Power limited: 24 VDC unfiltered, 1.7A @49°C per Circuit
- Current consumption: *standby*: 45 mA *alarm:* 120 mA
- Eight-zone remote annunciator (RAM-208)
- RS-485 Interface, up to 3 per FA-200 Panel.
- Current consumption: *standby:* 35 mA *alarm:* 90 mA
- Remote trouble indicator (RTI-1)
- Trouble LED and trouble buzzer
- Current consumption: *standby:* 35 mA *alarm:* 35 mA
- End-of-line resistor plates (MP-300, MP-300R)
- Internal 3.9 Kohm, ½ Watt, 5% resistor.
- External battery cabinet (BC-160)
- Up to 24 A-H batteries for FA-200 panels.

System model: FA-200 Fire Alarm Control Panel
System type: Local, auxiliary (using PR-100), remote station protected premises (using DACT-100A or PR-100), central station protected premises (using DACT-100A).
Type of service: A, M, WF, SS (SS is only local or with DACT-100A)
Type of signalling: Non-Coded
Applicable standards: NFPA 70 and 72, UL-864, ULC S-524, ULC S-527

Appendix D: Power Supply & Battery Calculations

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* on page 38 for specifications.

Power Requirements (All currents are in amperes)

Model Number	Description	Qty		Standby	Total Standby	Alarm	Total Alarm
FA-201, FA-202, FA-204, FA-204E	Fire Alarm Control Panel		X	0.110	=	0.220	=
DM-204	Zone Adder Module		X	0.045	=	0.120	=
RM-204/RM-208	Relay Module		X	0.005	=	0.160	=
PR-100	Polarity Reversal and City Tie Module			0.035	=	0.300	=
DACT-100A	DACT/Dialler Module			0.045	=	0.120	=
RAM-208	Remote Annunciator			0.035	=	0.090	=
RTI-1	Remote Trouble Indicator			0.035	=	0.035	=
Two-Wire Smoke Detectors				♦ 0.0001	=	* 0.090	= 0.090
Four-Wire Smoke Detectors			X		=		=
Signal Load (bells, horns, strobes, and etc.)							=
Auxiliary Power Supply for Remote Annunciators						Alarm	=
Total currents (Add above currents)				STANDBY	(**A**)		(**B**)

Total Current Requirement

ALARM (**B**)_____ Amps.

Battery Capacity Requirement

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

* 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 **MIR-425/U** 2-wire smoke detector. See *Appendix A* on page 33 for other available smoke detectors.

Total Alarm Current

- Must be 2.75 amperes or less for FA-201, FA-202, and FA-204. Indicating Circuits not to exceed 2.4 amperes.
- Must be 6 amperes or less for FA-204E. Indicating Circuits not to exceed 5 amperes.

Battery Selection

- Multiply (C) by 1.20 to derate battery.
- Use BA-1065(6.5AH) Batteries for the FA-201, FA-202, and FA-204 which charges up to 12 AH Batteries.
- Use BA-110(10AH) Batteries for the FA-204E.
- The FA-204E will charge up to 24AH batteries if they are in an external Mircom BC-160 Battery Cabinet.

Examples:

Configuration	24 Hrs Standby	60 hrs standby, 5 min alarm
FA-201/2/4 Basic4 AH batteries	4 AH batteries	not possible
FA-201/2/4, DACT-100A, RM-208, RTI	6.5 AH batteries	not possible
FA-204E, DM-204	10 AH batteries	12 AH batteries
FA-204E, DM-204, DACT-100A, RM-208, 3 of RAM-208	10 AH batteries	24 AH batteries

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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