

PFC-5000 Series Installation, Operation, and Instruction Manual

4 or 8 Zone Fire Alarm Control Panel

(All specifications subject to revision.)



PFC-5004E



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Introduction

About this Manual

This installation and operation manual provides information on installing and operating the PFC-5000 Microprocessor-Based Fire Alarm Control Panel.

About the PFC-5000

Potter's PFC-5000 Fire Alarm Control Panels provide 2, 4, or 8 supervised Class B (ULI Style B) Initiating Circuits, or 1, 2 or 4 supervised Class A (ULI Style D) Initiating Circuits, and 2 or 4 supervised Class A or B (ULI Style Z or Y) NAC Circuits. All Circuits are supervised for opens and ground faults, and NAC Circuits for shorts. Optional Modules include a ZA-42 Zone Adder (required for full capacity in the PFC-5004E only), a UDACT-9100 Digital Alarm Communicator Transmitter (DACT) or a PR-5100 Polarity Reversal & City Tie Module, and ARM-4 or ARM-8 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, PFC-5002, & PFC-5004, have 2 and 4 Class B (Style B) initiating circuits respectively which 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) NAC circuits with individual trouble indicators.
- The large enclosure version, PFC-5004E, has 4 Class B (Style B) initiating circuits which may be configured as 2 Class A (Style D) circuits respectively. It also has 2 power limited Class A/B (Style Z/Y) NAC circuits with individual trouble indicators. With a ZA-42 Zone Adder Module, an extra 4 Class B (2 Class A) initiating circuits, and 2 Class A/B NAC circuits are added.
- Each initiating circuit is configurable as a normal or verified alarm. In addition, on a Class B PFC-5004 or PFC-5004E, Initiating Circuit 3 may be a Waterflow Zone (as may Initiating Circuit 7 if a ZA-42 is installed), and initiating circuit 4 may be a latched or non-latched supervisory zone (as may initiating circuit 8 if a ZA-42 is installed). On a Class A PFC-5004E with a ZA-42, initiating circuit 3 may be a waterflow zone and initiating circuit 4 may be a latched or non-latched supervisory zone.
- NAC 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 20 minutes), and one-man walk test.
- Subsequent alarm, supervisory, and trouble operation.
- Four-wire resettable smoke power supply (100 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 Remote Multiplex Annunciators (RA8F.)
- The PFC-5002, PFC-5004 may use two of optional UDACT-9100 (DACT), PR-5100 (City Tie), ARM-4 or ARM-8 Relay Modules.
- The PFC-5004E may use optional UDACT-9100 (DACT), PR-5100 (City Tie), and one of ARM-4 or ARM-8 Relay Modules.
- The PFC-5008 is the same as PFC-5004E except the ZA-42 zone adder module is factory installed and may have UDACT-9100 (DACT) factory installed.
- Slide Switch controls and LED Common indicators.
- Easy configuration via DIP switches.
- Extensive transient protection.

Technical Support

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

Document Conventions

Circuits and Zones

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

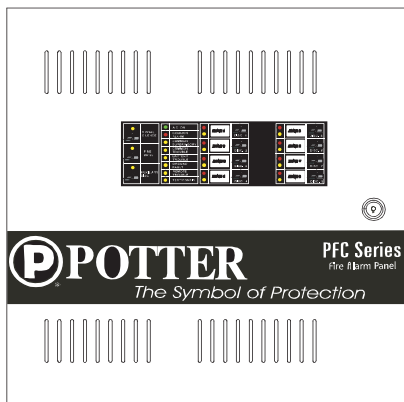
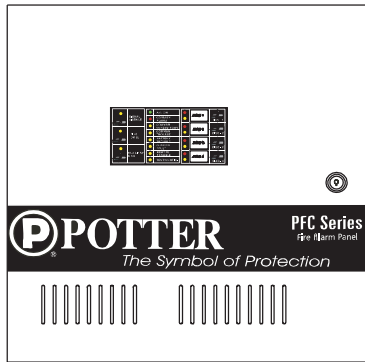
The term **zone** is a logical concept for a fire alarm protected area, and will consist of at least one circuit.

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

Wiring Styles

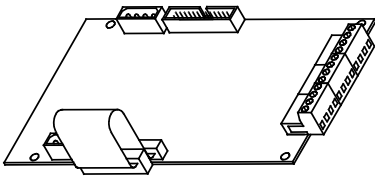
Initiating circuits are configured by default as Class B (Style B). They may be globally (all or none) configured as Class A (Style D) as described in *System Configuration* on page 28. This operation uses odd and even pairs of two-wire Class B (Style B) circuits to make one four-wire Class A (Style 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). Indicating Circuits may also be referred to as **Notification Appliance Circuits (NAC)**.



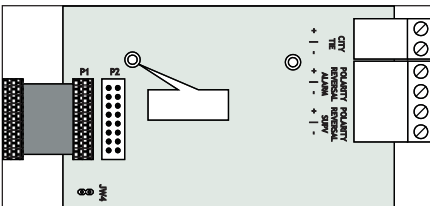
Model	Description
PFC-5002	Small enclosure fire alarm control panel with 2 Class B (Style B) or 1 Class A (Style D) Initiating Circuits, and 2 Power Limited Class A/B (Style Z/Y) NAC Circuits (1.70 amperes each, 2.0 amperes total) with individual trouble indicators. Common Alarm & Trouble Relays. Interface for Remote Trouble Indicator. Resettable Four Wire Smoke Detector Power Supply. May have two of UDACT-9100 or PR-5100, ARM-4, or ARM-8 installed. Can be used with BT-40 (4 AHr), BT-80 (8 AHr), BT-120 (12 AHr), BT-180 (18 AHr) or BA-240 (24 AHr)batteries (2 required). Note that the BT-180 and the BA-240 Batteries require a Listed Battery Cabinet.
PFC-5004	Small enclosure fire alarm control panel with 2 Class B (Style B) or 1 Class A (Style D) Initiating Circuits, and 2 Power Limited Class A/B (Style Z/Y) NAC Circuits (1.70 amperes each, 2.0 amperes total) with individual trouble indicators. Common Alarm & Trouble Relays. Interface for Remote Trouble Indicator. Resettable Four Wire Smoke Detector Power Supply. May have two of UDACT-9100 or PR-5100, ARM-4, or ARM-8 installed. Can be used with BT-40 (4 AHr), BT-80 (8 AHr), BT-120 (120 AHr), BT-180 (18 AHr) or BA-240 (24 AHr)batteries (2 required). Note that the BT-180 and the BA-240 Batteries require a Listed Battery Cabinet.
PFC-5004E	Large enclosure Fire Alarm Control Panel with 4 Class B (Style B) or 2 Class A (Style D) Initiating Circuits, and 2 Power Limited Class A/B (Style Z/Y) NAC 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 RA8F Remote Multiplex Annunciators. Resettable Four Wire Smoke Detector Power Supply. May have ZA-42 installed. May have UDACT-9100 or PR-5100, and one of ARM-4 or ARM-8 installed. Can be used with BT-40 (4 AHr), BT-80 (8 AHr), BT-120 (12 AHr), BT-180 (18 AHr) or BA-240 (24 AHr) batteries (2 required). Note that the BT-180 and the BA-240 Batteries require a Listed Battery Cabinet.
PFC-5008	Same as PFC-5004e except ZA-42 zone adder module is factory installed and may have UDACT-9100 factory installed.

Circuit Adder Modules



Model	Description
ZA-42	Zone Adder Module for the PFC-5004E. Brings the total capacity to 8 Class B (Style B) or four Class A (Style D) Initiating Circuits, and 4 Power Limited Class A/B (Style Z/Y) NAC Circuits (up to 1.7 amperes each, 5 amperes total).
ARM-8	Relay Adder Module for the PFC-5002, PFC-5004, PFC-5008 or PFC-5004E. Adds eight configurable Form-C Relays rated 1A, 28 VDC.
ARM-4	Relay Adder Module for the PFC-5002, PFC-5004, PFC-5008 or PFC-5004E. Adds four configurable Form-C Relays rated 1A, 28 VDC.

Auxiliary Models



Model	Description
PR-5100	Polarity Reversal and City Tie Module
UDACT-9100	Digital Communicator

PFC-5000 Accessories

Model	Description
RA8F	Eight-Zone Remote Annunciator (ULC and ULI approved)
BC-2	External Battery Cabinet (ULC and ULI approved)
MP-300R	EOL Resistor Plate, red (ULC approved)
MP-300	EOL Resistor Plate, stainless steel finish
BC-160	External Battery Cabinet (ULC and ULI approved)

Mechanical Installation and Dimensions

Figure 1: PFC-5002 and PFC-5004 Enclosure Installation and Dimensions

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

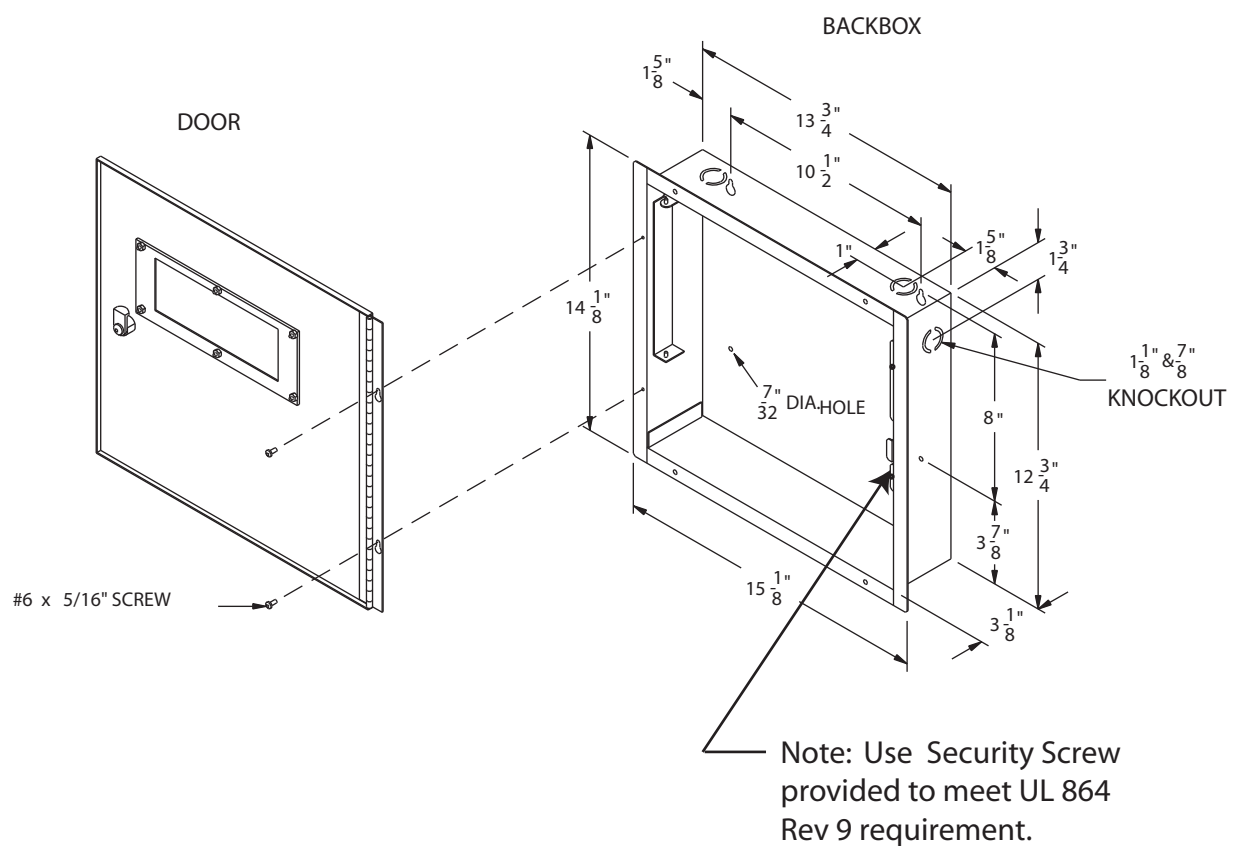
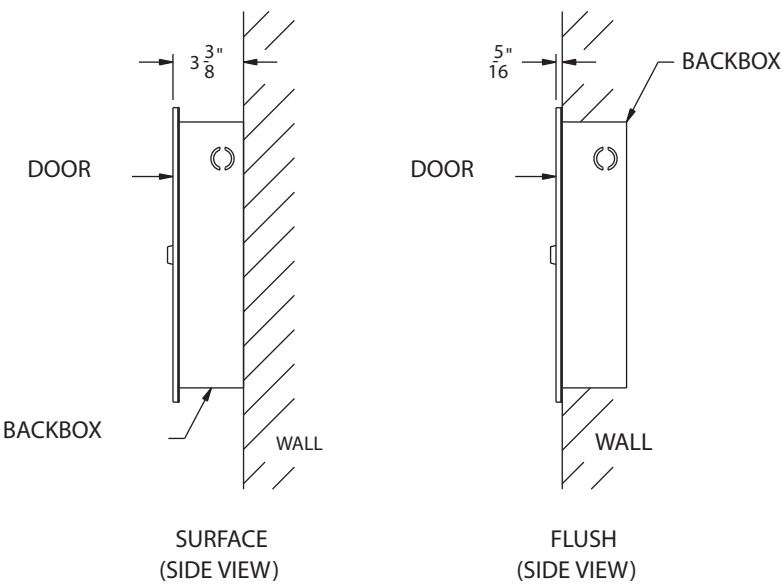
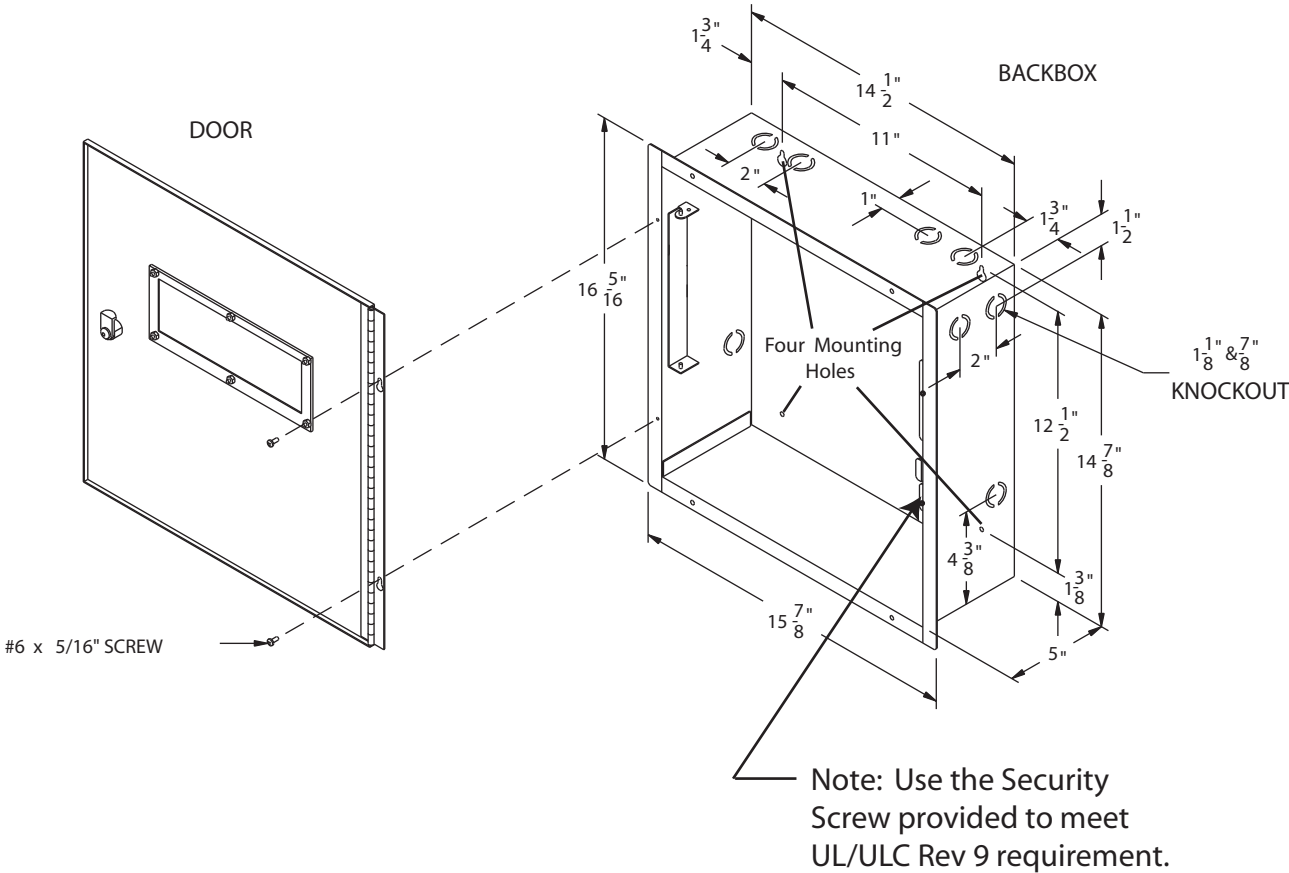
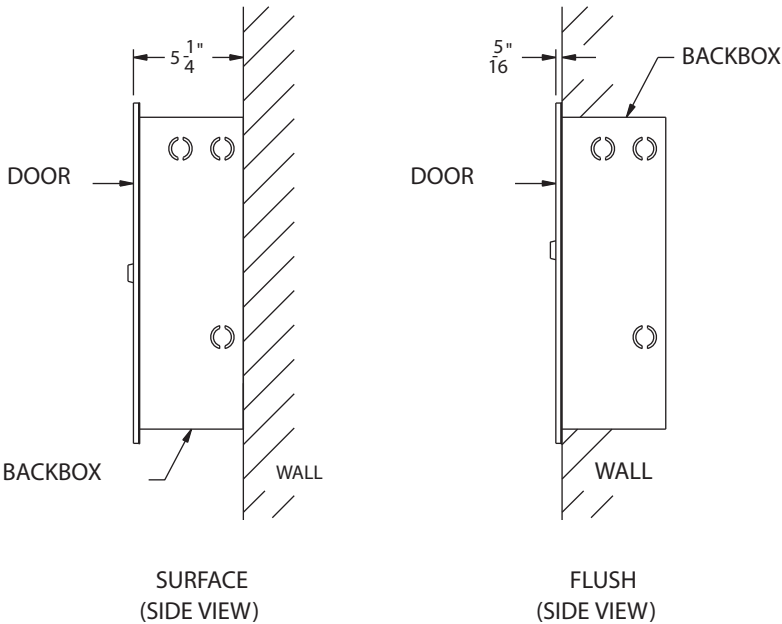


Figure 2: PFC-5004E/PFC-5008 Enclosure Installation and Dimensions

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

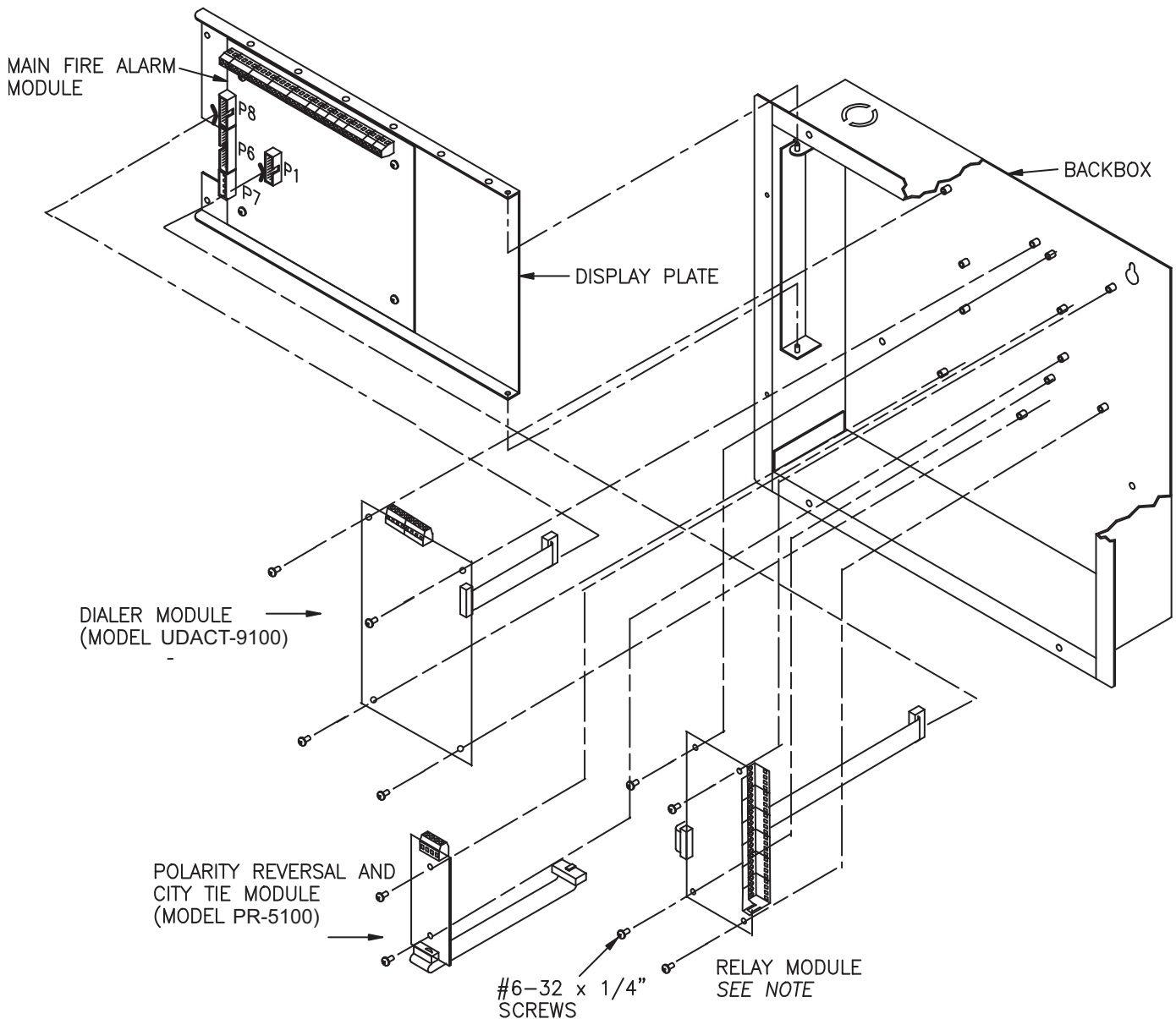


Modules Mounting Locations

The PFC-5000 Series 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 or 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.

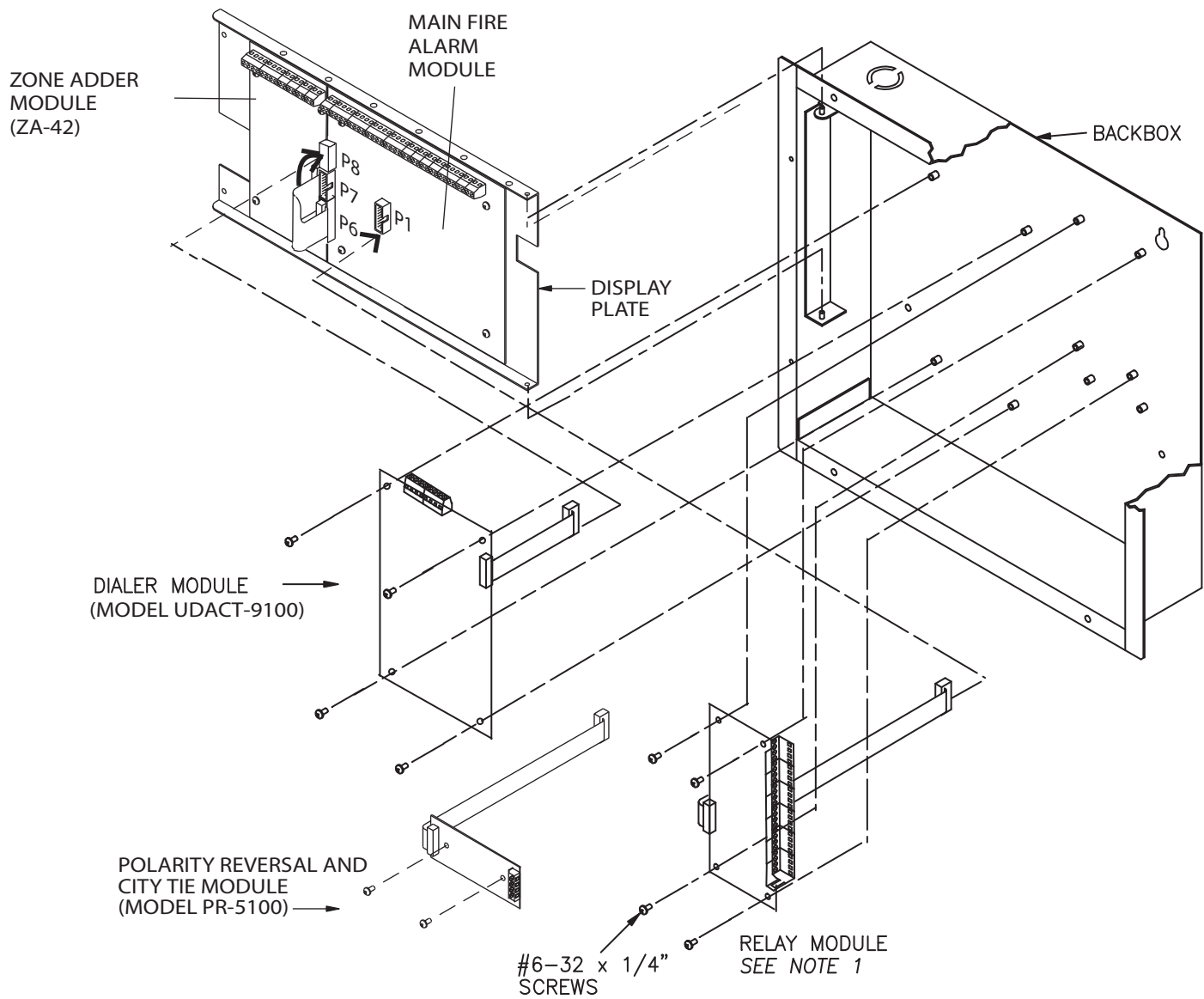
Figure 3: PFC-5002 and PFC-5004 Module Mounting Locations



Note:

1. Relay module may be Model ARM-4 or ARM-8.
2. Only two of PR-5100, UDACT-9100 or ARM-4/ARM-8 may be installed.

Fig. 4: PFC-5004E/PFC-5008 Module Mounting Locations



Note

1. Relay module may be Model ARM-4 or ARM-8.

Module Settings

Main Fire Alarm Module

Class A / B Selection

On the PFC-5002, PFC-5004, PFC-5008 and PFC-5004E, to select Class B (Style B) move JW1 & JW2 to position “B.” To select Class A (Style D) move JW1 & JW2 to position “A”.

Note: The Class A/B selection affects all initiating circuits, and must be used with the correct Configuration DIP switch 9 #6. See **Table 3** on page 29.

Zone Adder Module: On an PFC-5004E only, remove the jumper on **JW4** if a ZA-42 Zone Adder Module is installed. The zone adder module is plugged into P6 & P7.

Relay Module: Remove the jumper on **JW3** if an ARM-4 or ARM-8 Relay Module is installed. The relay module is plugged into P1.

Digital Communicator: Remove the jumper on **JW6** if a UDACT-9100 Digital Communicator is installed. The digital communicator is plugged into P8.

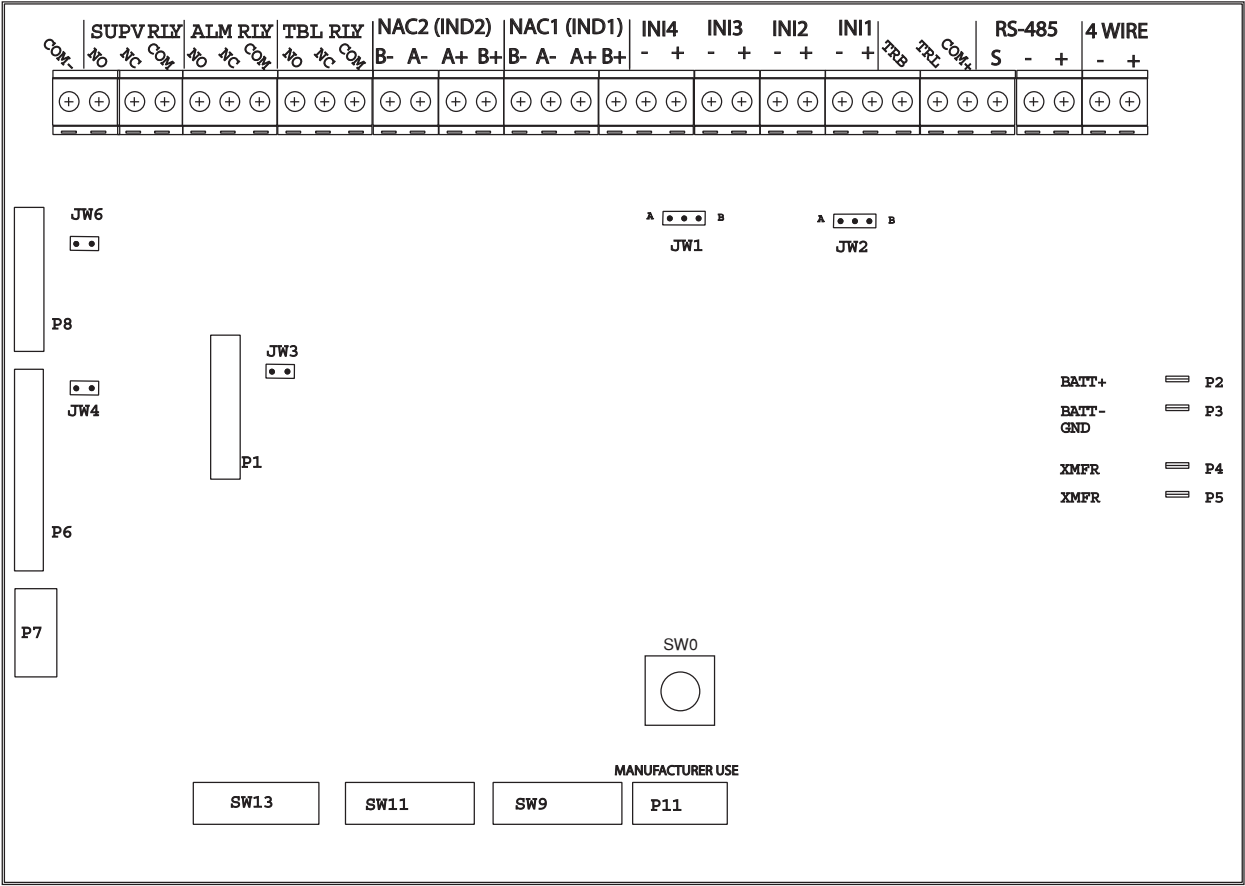
City Tie: Remove the jumper on **JW6** if a PR-5100 City Tie is installed. The City Tie is plugged into P8.

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

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

SW9,11,13: Configuration DIP switches.

Figure 5: Main Fire Alarm Module



Zone Adder Module (Model ZA-42)

Figure 6: ZA-42 Zone Adder Module

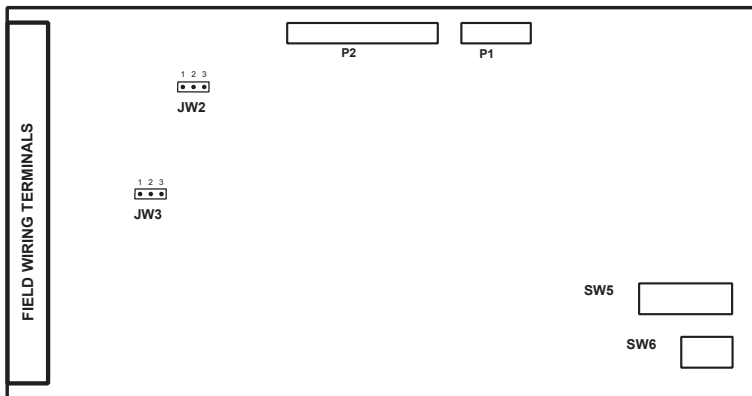
Class A / B Selection: JW2 & JW3 are connected from 1 to 2 for initiating circuit Class B (Style B) operation, and from 2 to 3 for Class A (Style D) operation.

Note:

The Class A/B selection affects all initiating circuits, and must be used with the correct Configuration DIP switch 9 #6.

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

SW5,6: Config DIP switches.



Relay Modules (Models ARM-4 or ARM-8)

Figure 7: ARM-4 or ARM-8 Relay Adder Module (Zone Operated)

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.

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 Potter Technical Support for assistance if required.

