FA-300 Series

LCD Fire Alarm Control Panel

Installation and Operation Manual

LT-906 Rev. 11
April 2023

Table of Contents

List of Figures

List of Tables

1.0 FCC Notice

1.1 Notice for all FA-300 LCD Series Built-in UDACTs Sold in the U.S.A.

Notes: The Ringer Equivalence Number (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed 5.

The REN for this product is part of the product identifier that has the format US:AAAEQ##TXXXX. The digits represented by ## are the REN without a decimal point (e.g., 03 is a REN of 0.3). For earlier products, the REN is separately shown on the label.

Mircom's ***FA-300 LCD Series BUILT-IN UDACT Digital Communicator*** described in this manual is listed by Underwriters Laboratories Inc. (ULI) for use in slave application in conjunction with a Listed Fire Alarm Control Panel under Standard 864 (Control Units and Accessories for Fire Alarm Systems). These Communicators comply with the National Fire Protection Association (NFPA) performance requirements for DACTs and should be installed in accordance with NFPA 72 Chapter 26 Supervising Station Fire Alarm Systems. These Communicators should be installed in accordance with this manual; the National Electrical Code (NFPA 70); and/or the local Authority Having Jurisdiction (AHJ).

1.1.1 FCC Notice

This equipment complies with Part 68 of the FCC rules and the requirements adopted by the ACTA. On the telco transformer of this equipment is a label that contains, among other information, a product identifier in the format US:AAAEQ##TXXXX. If requested, this number must be provided to the telephone company. This equipment is capable of seizing the line. This capability is provided in the hardware.

Type of Service: The **Communicator** is designed to be used on standard device telephone lines. It connects to the telephone line by means of a standard jack called the USOC RJ-11C (or USOC FJ45S). Connection to telephone company provided coin service (central office implemented systems) is prohibited. Connection to party lines service is subject to state tariffs.

Telephone Company Procedures: The goal of the telephone company is to provide you with the best service it can. In order to do this, it may occasionally be necessary for them to make changes in their equipment, operations or procedures. If these changes might affect your service or the operation of your equipment, the telephone company will give you notice, in writing, to allow you to make any changes necessary to maintain uninterrupted service.

In certain circumstances, it may be necessary for the telephone company to request information from you concerning the equipment which you have connected to your telephone line. Upon request of the telephone company, provide the FCC registration number and the ringer equivalence number (REN); both of these items are listed on the equipment label. The sum of all of the REN's on your telephone lines should be less than five in order to assure proper service from the telephone company. In some cases, a sum of five may not be usable on a given line.

If Problems Arise: If any of your telephone equipment is not operating properly, you should immediately remove it from your telephone line, as it may cause harm to the telephone network. If the telephone company notes a problem, they may temporarily discontinue service. When practical, they will notify you in advance of this disconnection. If advance notice is not feasible, you will be notified as soon as possible. When you are notified, you will be given the opportunity to correct the problem and informed of your right to file a complaint with the FCC. Contact your telephone company if you have any questions about your phone line. In the event repairs are ever needed on the Communicator, they should be performed by Mircom Technologies Ltd. or an authorized representative of Mircom Technologies Ltd. For information contact Mircom Technologies Ltd. at the address and phone numbers shown on the back page of this document.

2.0 Introduction

Mircom's FA-300 LCD Series Fire Alarm Control Panels are Digital Signal Processor (DSP) based fire panels. The FA-300 LCD Series provides a maximum of 12 supervised Class B or A Initiating circuits, and maximum of four supervised Class B or A indicating circuits. All circuits are supervised for opens and ground faults, and indicating circuits are supervised for shorts. Optional modules include relay, polarity reversal and city tie and Class A Converters for initiating and indicating circuits. Semi-flush or surface mountable backboxes can be used for retrofits and on new installations.

Note: Installation of the FA-300 LCD Series fire alarm control panel should be in accordance with Canadian Electrical Code Part 1, ULC-S524 installation of Fire Alarm System, National Electrical Code NFPA 70 and NFPA 72. Final acceptance subject to the Local Authority Having Jurisdiction (AHJ).

2.1 Overall Features

- The basic unit has six Class B initiating circuits, which may be configured as Class A using input Class A converter adder module. Each initiating circuit can be configured as alarm, verified alarm, water flow alarm, sprinkler alarm, latching or non-latching supervisory, monitor or trouble circuits.
- The basic unit has two power limited Class B indicating circuits. Each indicating circuit may be configured as Class A using an output Class A converter adder module. Each indicating circuit may be configured as silenceable signal, non-silenceable signal, silenceable strobe, non-silenceable strobe. The audible signal may be Steady, Temporal Code, California Code, or March Time.
- Each initiating and indicating circuit can be individually disconnected via the keypad and LCD display with password access.
- Configurable signal silence inhibit, auto signal silence, and one-man walk test.
- Non-resettable auxiliary supply 500 mA maximum.
- Four-wire resettable smoke power supply 300 mA maximum class B with EOL relay.
- Relay contacts for common alarm, common supervisory and common trouble all non-disconnect-able and auxiliary alarm relay (disconnectable).
- RS-485 interface for RA-1000 series remote multiplex Annunciators, LCD Annunciators and smart relay adder.
- Optional modules for additional relay circuits, city tie and polarity reversal signaling.
- Extensive transient protection.
- With or without built-in UDACT (Digital Alarm Communicator Transmitter).
- Easy configuration of the panel using front LCD display and keypad.
- Remote dial up (with built-in UDACT version) for event log checking and/or configuration changing.
- Laptop programmer for direct configuration changing and log checking.

3.0 Conventions

3.1 Circuits

Refers to an actual electrical interface for initiating (detection) and indicating (signal or NAC) or relays

3.2 Zone

Is a logical concept for a Fire Alarm Protected Area, and consists of at least one circuit.

Often the terms **zone** and **circuit** are used interchangeably, but in this manual **circuit** refers only to a physical electrical loop.

3.3 Events

There are events associated with every initiating, indicating and common circuit of the fire panel displayed via the LCD.

3.4 Wiring Styles

Initiating and indicating circuits are Class B (formerly Style B and Y).

Changing the initiating circuits to Class A requires an ICAC-306 adder board which will convert six initiating zones from Class B circuits to Class A. This is done without decreasing the number of circuits, which remains the same as in Class B.

Changing the indicating circuits to Class A requires an OCAC-304 adder board which will convert four indicating zones from Class B circuits to Class A or an OCAC-302 adder board which will convert two indicating zones from Class B circuits to Class A.

4.0 System Components

4.1 Main Fire Control Panel

Figure 1 FA-300 LCD Series

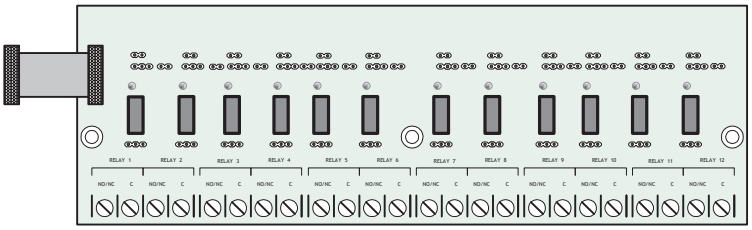
All FA-300 LCD Series panels have the following features:

- LCD display
- Two six-zone **ICAC-306 Input Class A converter** adder modules may be used for Class A wiring of Initiating circuits.
- One **OCAC-304 Output Class A converter** adder module may be used for Class A wiring of the indicating circuits.
- Common alarm, common supervisory and common trouble relays, auxiliary alarm relay (disconnectable), an RS-485 interface for Remote Annunciators, a non-resettable auxiliary supply, and a resettable four wire smoke detector power supply.
- Used with BA-110 (10 Ah) (Sota Enertech model SA12120) batteries (two required).

Table 1 FA-300 LCD Series Comparison Chart

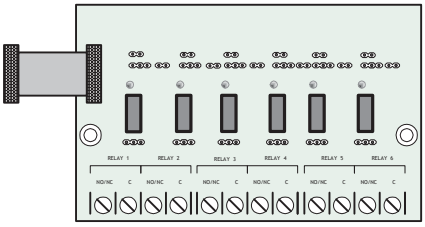
Model	Number of zones	Number of initiating circuits	On board Dialer	Door Color
FA-300-6DDR	6	6	y	red
FA-300-6DR	6	6	n	red
FA-301-12DDR	12	12	y	red

4.2 Relay Module: 12 Relays



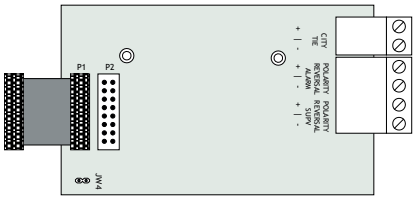
Model	Description
RM-312	12 relay adder module

4.3 Relay Modules: Six Relays



Model	Description
RM-306	Six relay adder module

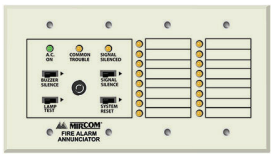
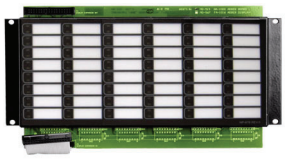
4.4 Polarity Reversal/City Tie



Model	Description
PR-300	Polarity reversal and/or city tie module

4.5 Remote Annunciators

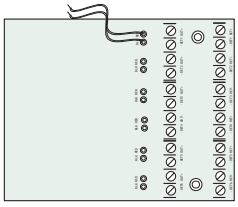
Model	Description
RAM-300LCDW	Remote annunciator module, LCD display, white painted box
RAM-300LCDR	Remote annunciator module, LCD display, red painted box

 	**RAM-216**	16 zone remote annunciator with white enclosure
	RAM-216R	16 zone remote annunciator with red enclosure
	RAM-208	8 Zone remote annunciator, white enclosure
	RAM-208R	8 Zone remote annunciator, red enclosure
	**RAM-1032TZDS** **RAM-1032TZDS-CC**	Model RAM-1032TZDS Main Chassis Remote Annunciator with 16 Bi-colored LEDs and 32 trouble LEDs. Model RAM-1032TZDS-CC is the same as the RAM-1032TZDS, except it has conformal coating and is to be used in a BB-1001WPA/BB-1001WPRA weather protected box.

4.6 Smart Relay Module

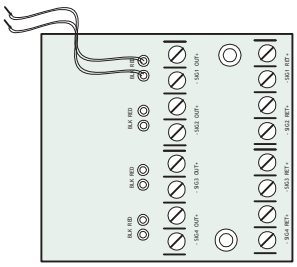
Model	Description
SRM-312W	Smart relay module (12 relays) with white enclosure
SRM-312R	Smart relay module (12 relays) with red enclosure

4.7 Input Class A Converter: Six Circuits



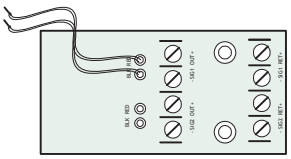
Model	Description
ICAC-306	Input Class A converter module (six circuits). This module has built in active end-of-line resistors.

4.8 Output Class A Converter: Four Circuits



Model	Description
OCAC-304	Output Class A converter module (four circuits)

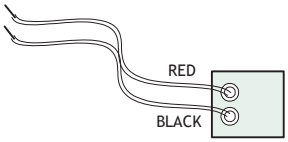
4.9 Output Class A Converter: Two Circuits



Model	Description
OCAC-302	Output Class A converter module (two circuits)

4.10 Active End-of-Line Resistor

The ELRX-300 are power-saving end-of-line resistors that eliminate the need for an additional battery cabinet or larger batteries in order to meet the 60 hour standby requirement.



Model	Description
ELRX-300	Active end-of-line resistor without plate
ELRX-300R	Active end-of-line resistor with end-of-line red plate

4.11 Enclosures

BB-1001D	White Enclosure for one annunciator.
BB-1001DR	Red Enclosure for one annunciator.
BB-1001DB	Black Enclosure for one annunciator.
BB-1001DS	Enclosure for one annunciator with stainless steel door.
BB-1001WPA	White enclosure for one annunciator rated for outdoor environment, wet location.
BB-1001WPRA	Red enclosure for one annunciator rated for outdoor environment, wet location.

4.12 Additional Fire Alarm System Accessories

RTI-1	Remote trouble indicator	(ULC and ULI approved)
MP-300	End-of-line resistor plate, 3.9 kΩ	(ULC and ULI approved)
MP-300R	End-of-line resistor plate, red	(ULC approved)
BC-160	External battery cabinet	(ULC and ULI approved)

5.0 Mechanical Installation

5.1 Installing the FA-301-12DDR Enclosure

Install the FA-300 LCD Series fire alarm panel enclosure as shown below. Mount enclosure surface mount using the four mounting holes, as shown and the screws provided.

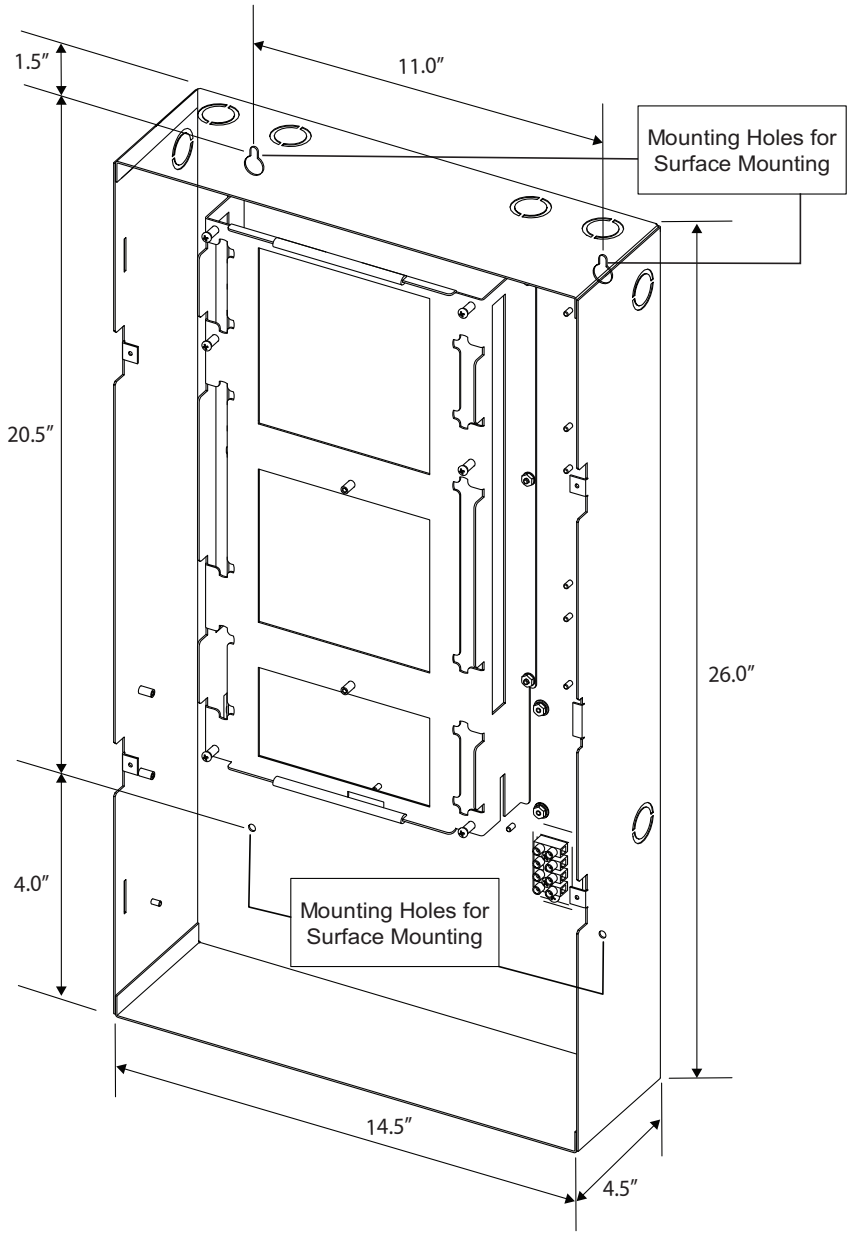


Figure 2 Enclosure dimensions, surface mount

The enclosure may be semi-flush mounted using the trim ring model FA-UNIV-TRB (BLACK), see Figure 3. Remove the door (also disconnect the ground strap), the dead front and semi-

flush mount the enclosure into the wall. Peel the adhesive cover from the trim ring and stick to the wall surface around the enclosure, after the wall is finished.

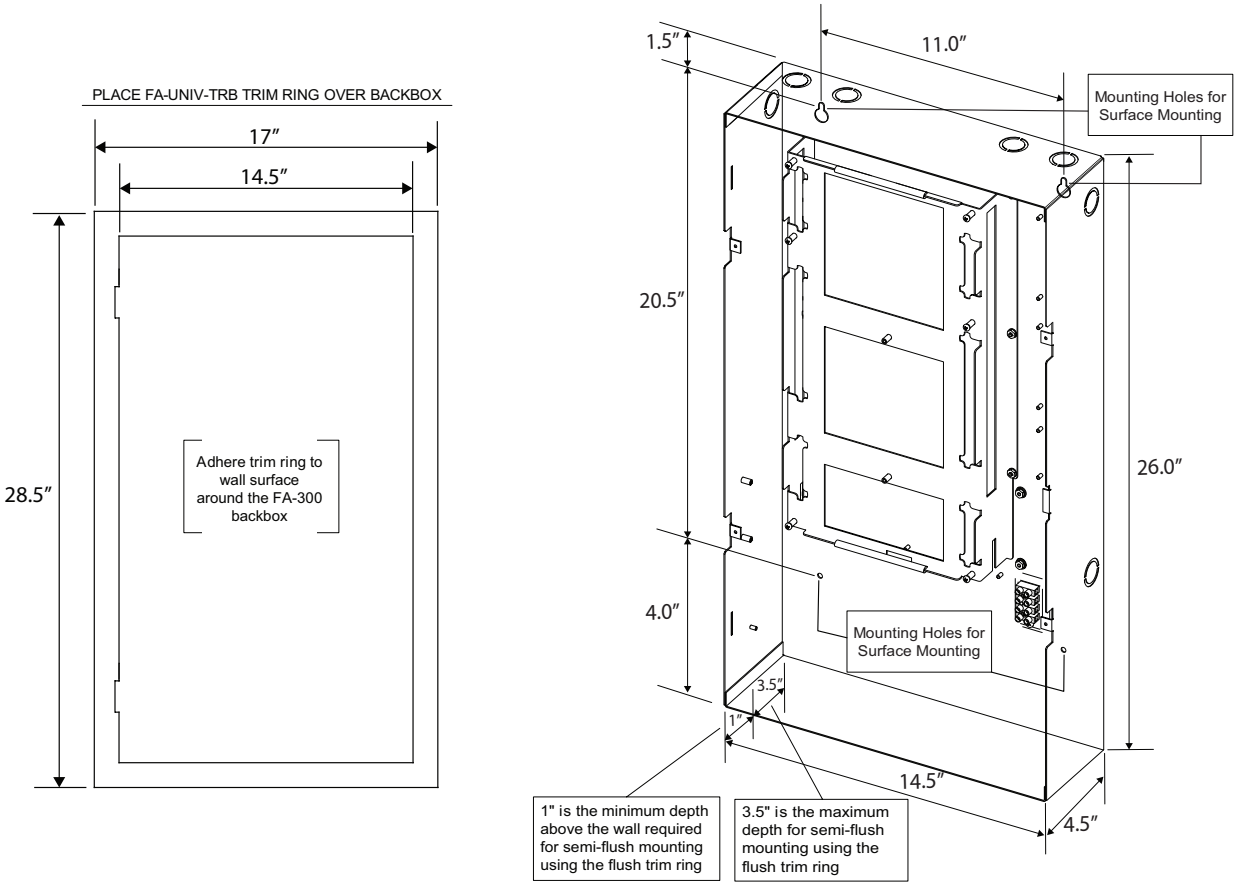


Figure 3 Enclosure dimensions, semi-flush mounting and trim ring

5.2 Installing the FA-300-6DR/FA-300-6DDR Enclosure

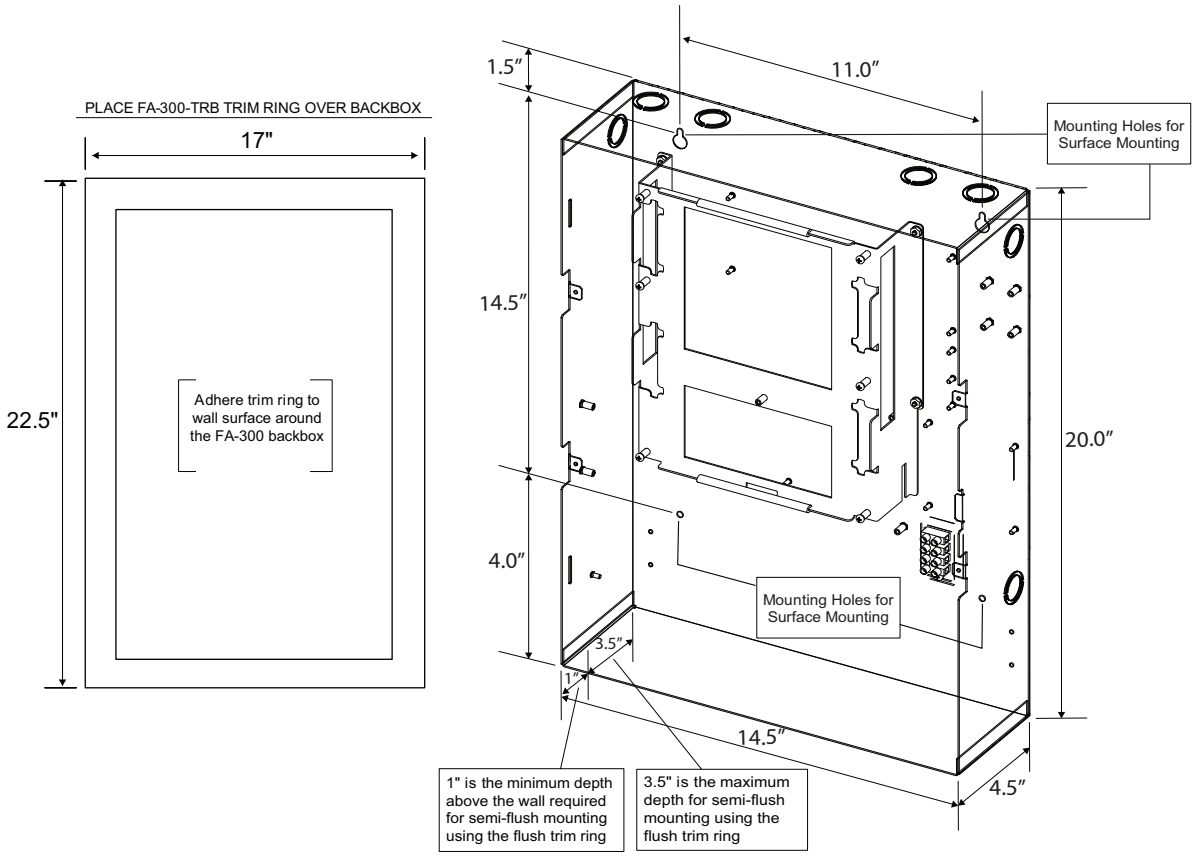


Figure 4 Backbox and Trim Ring Dimensions for Models FA-300-6DR/FA-300-6DDR

5.3 Mounting the Board to the Chassis

Figure 5 shows a cross-section of the semi-flush mounted enclosure and the trim ring. Make sure to **allow a minimum depth of 1” above the wall surface** for proper door opening.

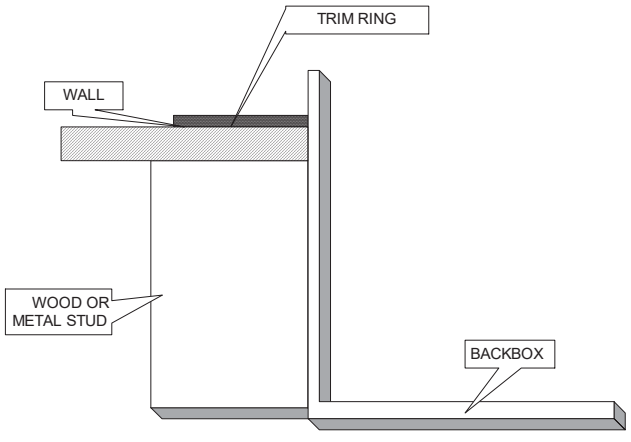


Figure 5 Flush trim detail (from above)

5.4 BBX-1024DS and BBX-1024DSR Mechanical Installation

The BBX-1024DS and BBX-1024DSR are suitable for flush or surface mounting, and have a built-in trim ring.

Dimensions of enclosure (minus built-in trim ring)	14.5” x 4.2” x 26”
Distance between horizontal mounting screws	12”
Distance between vertical mounting screws	23.5”
Complete dimensions of enclosures	16.3” x 5.5” x 27.5”

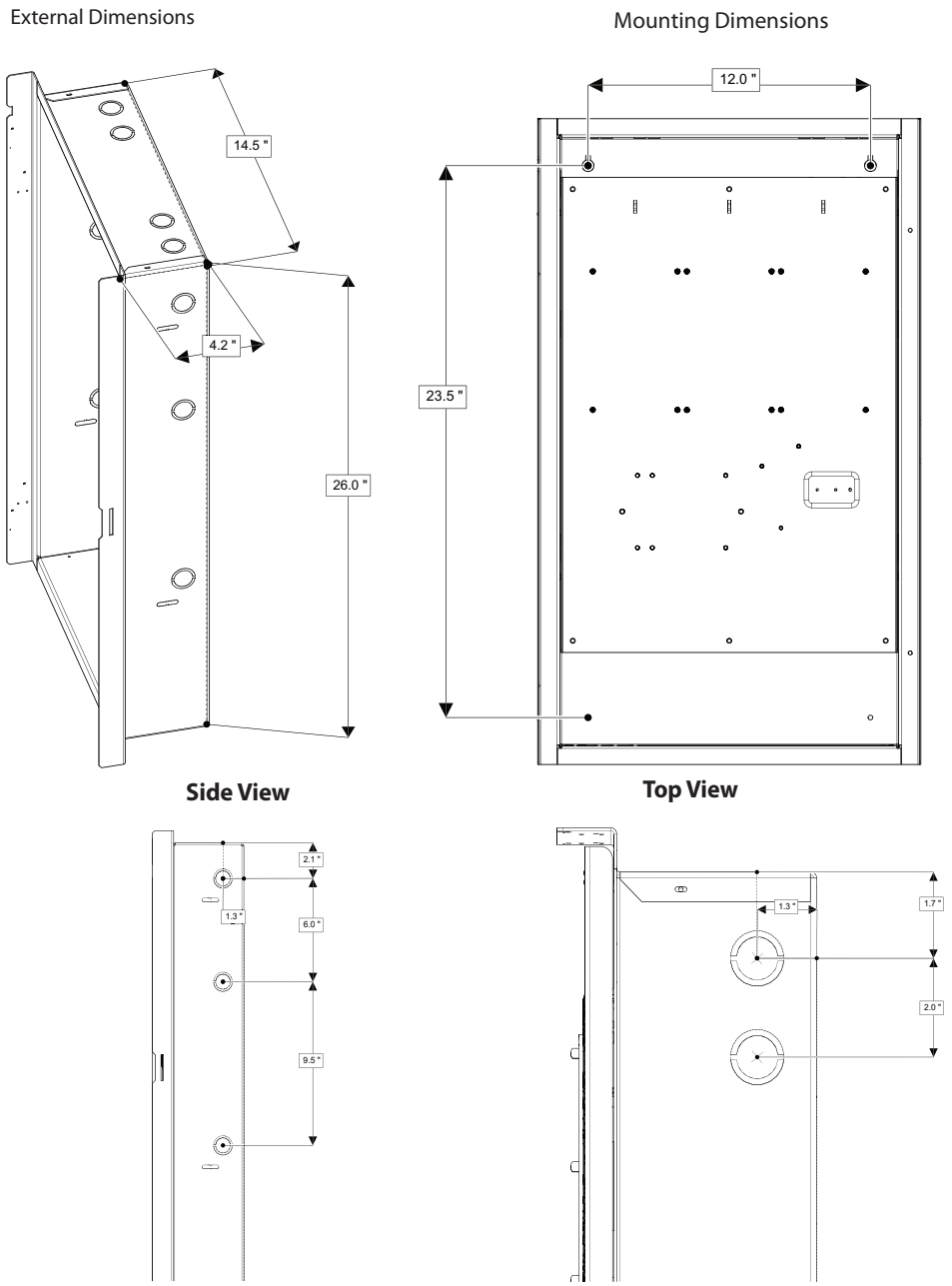


Figure 6 BBX-1024DS and BBX-1024DSR installation instructions and dimensions

5.5 Installing the Adder Modules

FA-300 LCD Series fire alarm panels come pre-assembled with all components and boards except for adder modules. Module installation locations are shown in Figures 7 and 8. Refer to section 6.1.1 on page 26 for jumper or DIP switch settings and see section on page 39 for wiring information.

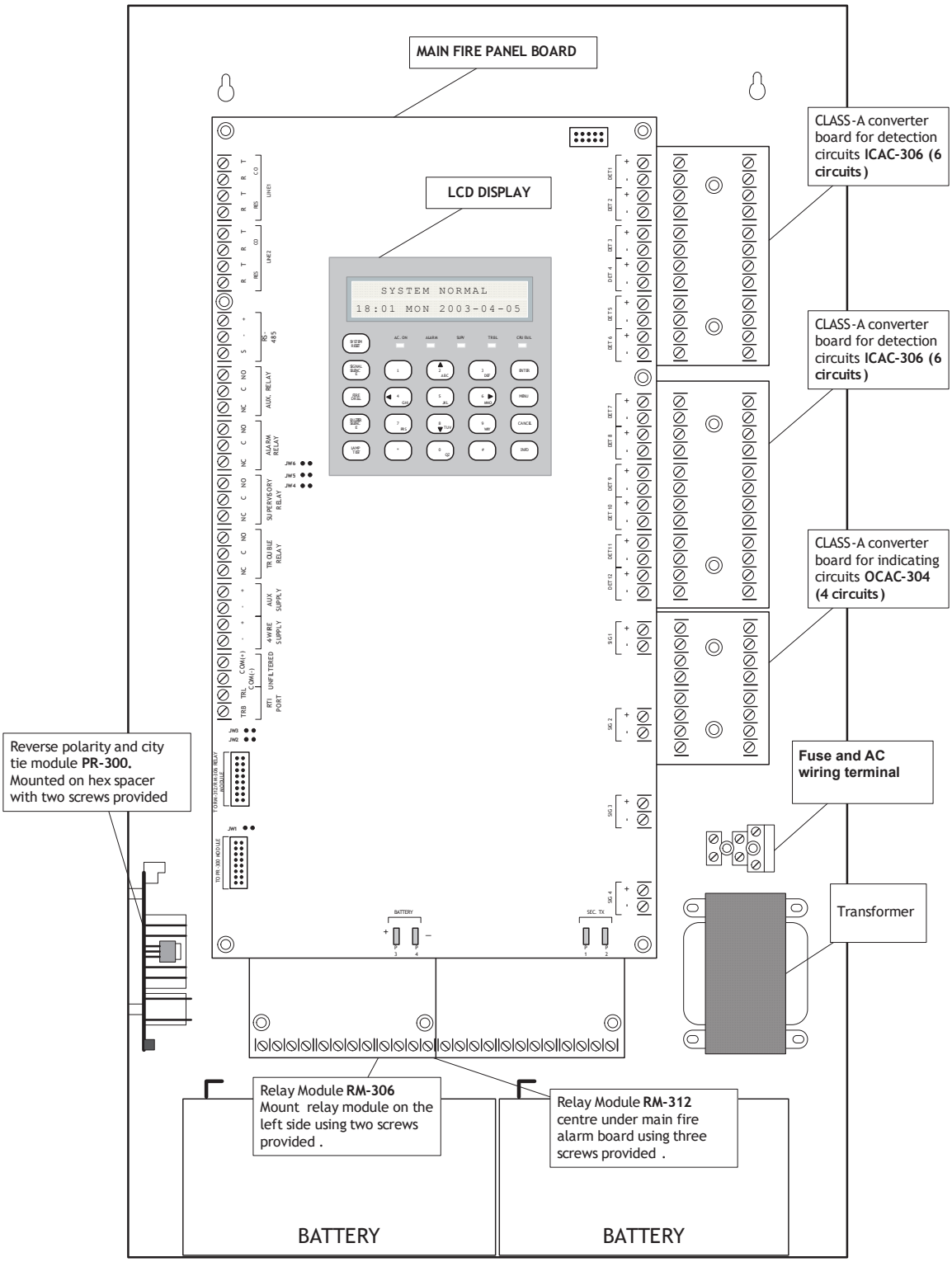


Figure 7 Installation of adder modules for FA-301 LCD

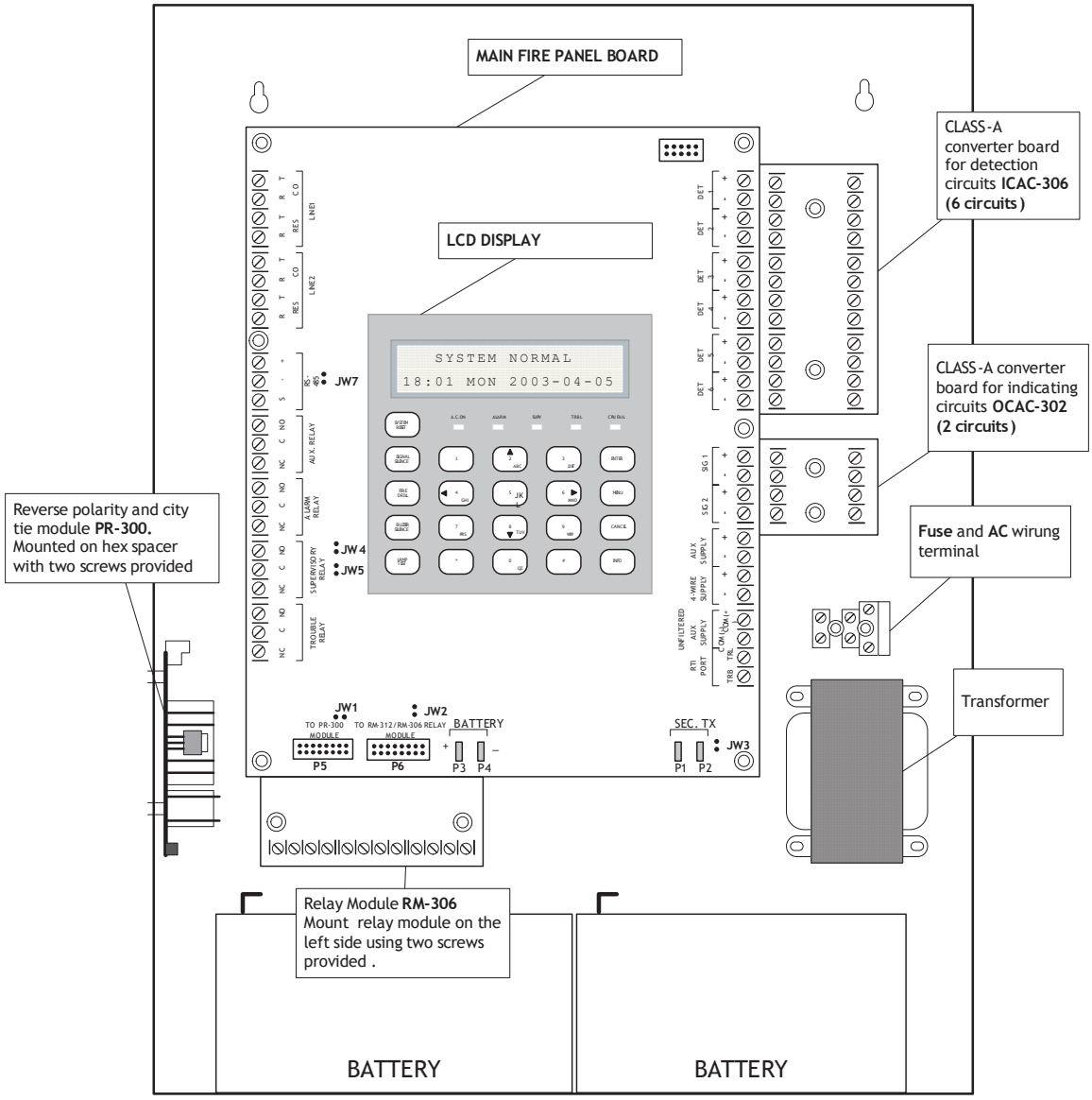


Figure 8 Installation of adder modules for FA-300 LCD

6.0 Connections, DIP Switches, and Jumpers

6.1 Main Fire Alarm Board

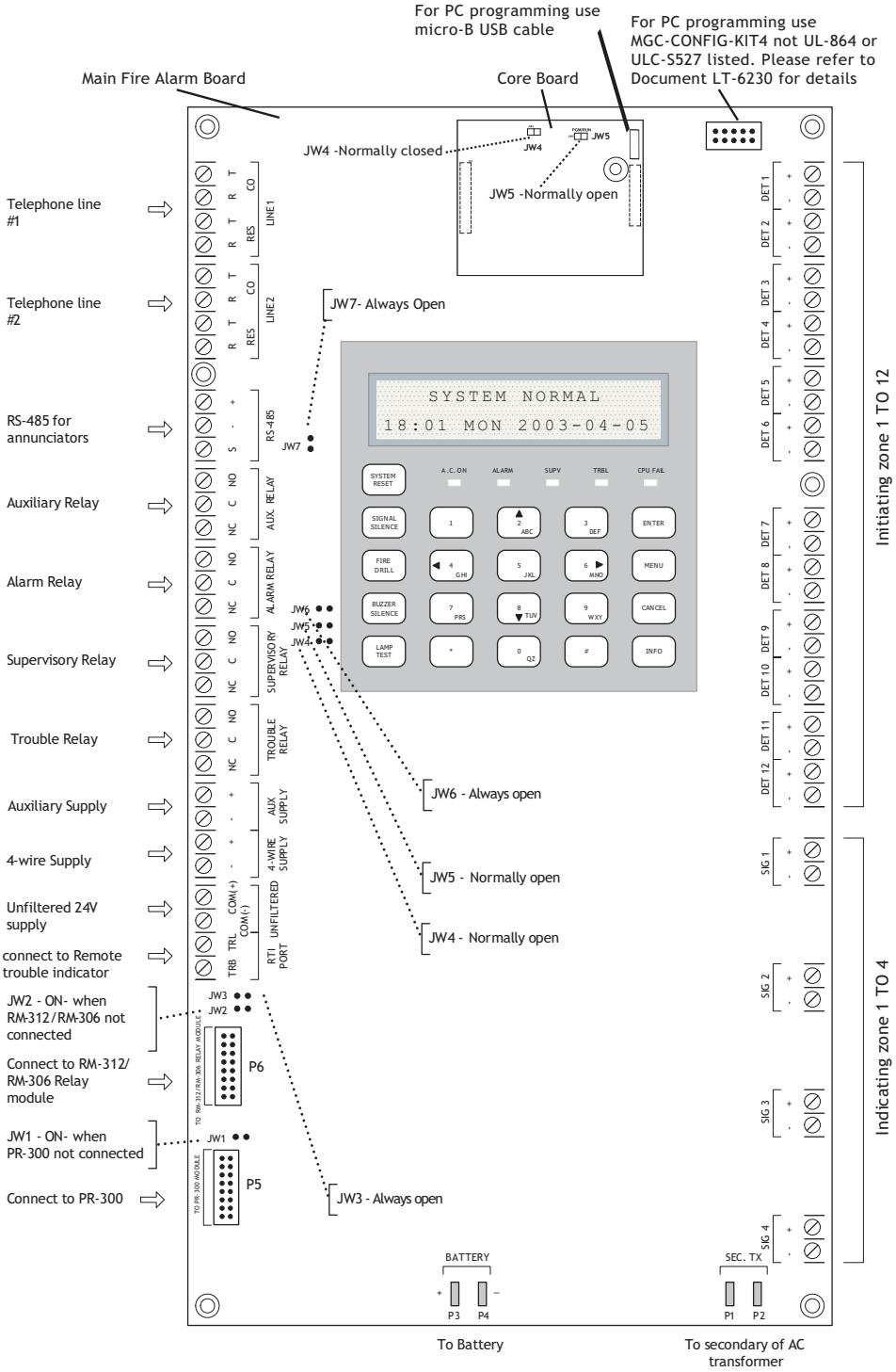


Figure 9 Main fire alarm board connections, DIP switches and jumpers for FA-301 LCD

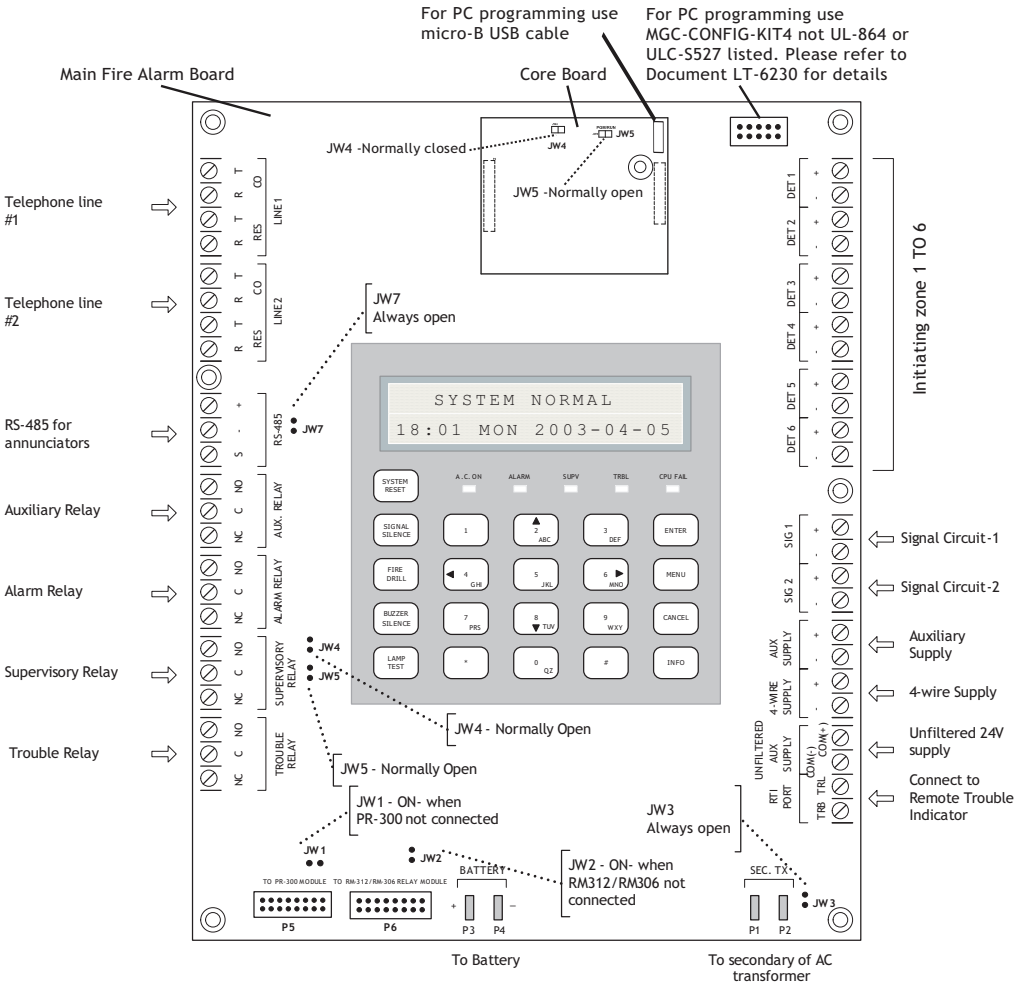


Figure 10 Main fire alarm board connections, DIP switches and jumpers for FA-300 LCD

6.1.1 Connectors and Jumpers on the Main Fire Alarm Board

P5	Cable from **P1** of the PR-300 polarity reversal and city tie module connects here. Otherwise not used.
P6	Cable from connector **P1** of the RM-312 or RM-306 relay adder module connects here. Otherwise not used.
JW1	Remove this jumper if a PR-300 polarity reversal and city tie module is installed.
JW2	Remove this jumper if an RM-312 or RM-306 relay adder module is installed.
JW3	Always open
JW4	Normally open. Place jumper here and power down (AC and batteries) then power back to restore the default passcode (**1111**). After the system restarts, remove the jumper from JW4.
JW5	Normally open to prevent configuration with a modem, a PC with a UIMA converter module, or a CFG-300 configuration tool. Place a jumper here to allow any type of configuration.
JW6	Not used, open (not present on FA-300 LCD panels).
JW7	Not used, open.

6.1.2 Jumpers on the Core Board

JW4	Leave closed (on).
JW5	Leave open (off).

6.2 ICAC-306 Input Class A Converter Adder Module

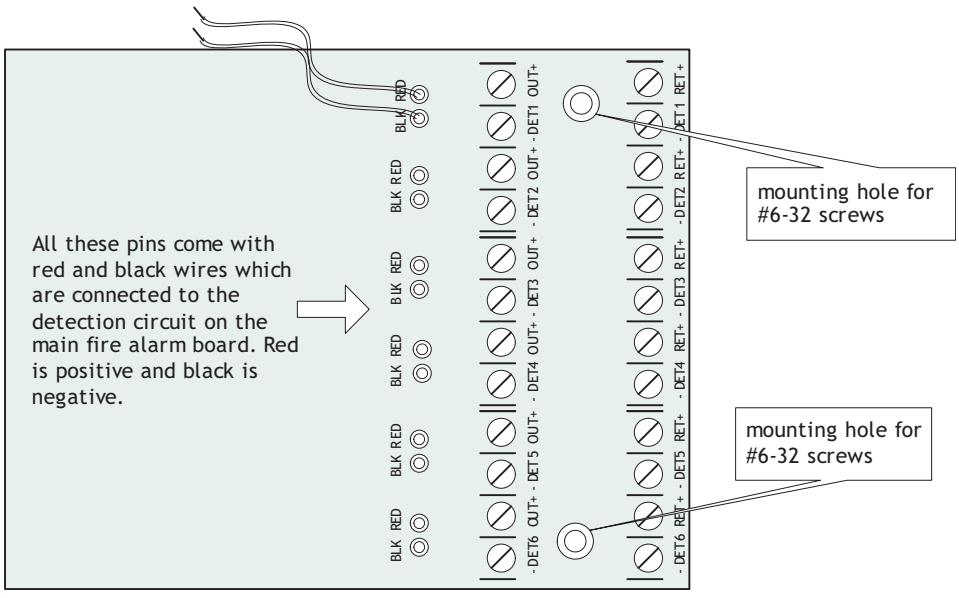


Figure 11 ICAC-306 Input Class A converter adder module

There are no jumpers or cables to set on this module, just wiring from the converter (wires are fixed here) to the Main Fire Alarm Board.

Initiating circuits must be wired from the ICAC-306 module to the Main Fire Alarm board. For example, Initiating circuit 1 positive (red) and negative (black) wires are connected to the positive and negative terminals (respectively) of Initiating circuit 1 on the Main Fire Alarm Board. From the ICAC-306 converter Initiating circuits are wired out to the devices from the positive and negative terminals marked DET OUT and the circuit return wires are brought back to the converter module to positive and negative terminals marked DET RET.

To convert all 12 initiating circuits of an FA-301-12DDR Fire Alarm Panel, two of these ICAC-306 input Class A converter adder modules are required.

Note: This module has built in active end-of-line resistors and so the fire alarm system should be configured to enable active end-of-line. See section 11.0 on page 53.

6.3 OCAC-304/OCAC-302 Output Class A Converter Adder Module

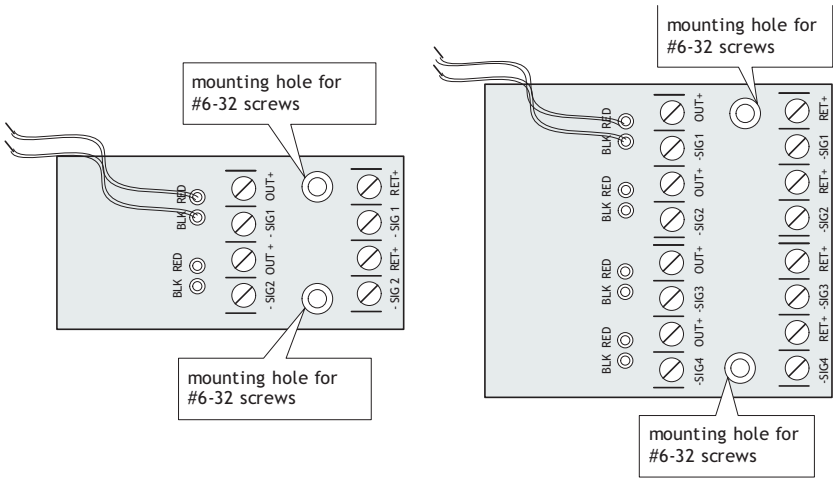


Figure 12 OCAC-304/OCAC-302 Output Class A converter adder module

Indicating circuits must be wired from the OCAC-304/OCAC-302 to the main Fire Alarm board. For example indicating circuit 1 positive (red wire) and negative (black wire) is wired from the Class A converter module to the positive and negative terminals of Indicating circuit 1 on the Main Fire Alarm board.

The actual indicating zone is wired from the SIGNAL OUT positive and negative to the signaling devices and then wired back to the SIGNAL RET positive and negative.

6.4 Relay Adder Modules

6.4.1 RM-312 Twelve Relay Adder Module

The ribbon cable from P1 of the RM-312 is connected to P6 on the Main Fire Alarm Board. The jumpers located above each relay on the RM-312 are used to configure the relays. The jumpers located below the relays are used to select either normally open contacts or normally closed contacts.

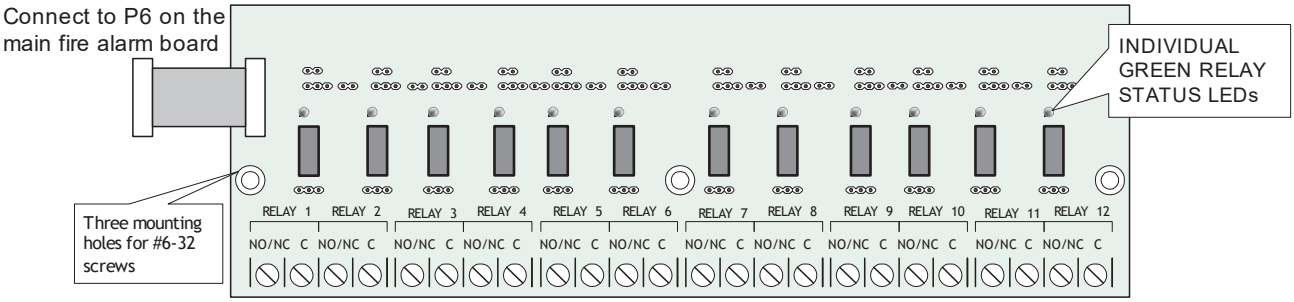


Figure 13 RM-312 twelve relay adder module

P1 Cable from RM-312 Relay Adder Module connects to P6 on Main Fire Alarm Board.

6.4.2 Programming the relays

A typical relay circuit is shown in Figure 14 with the jumper locations and descriptions.

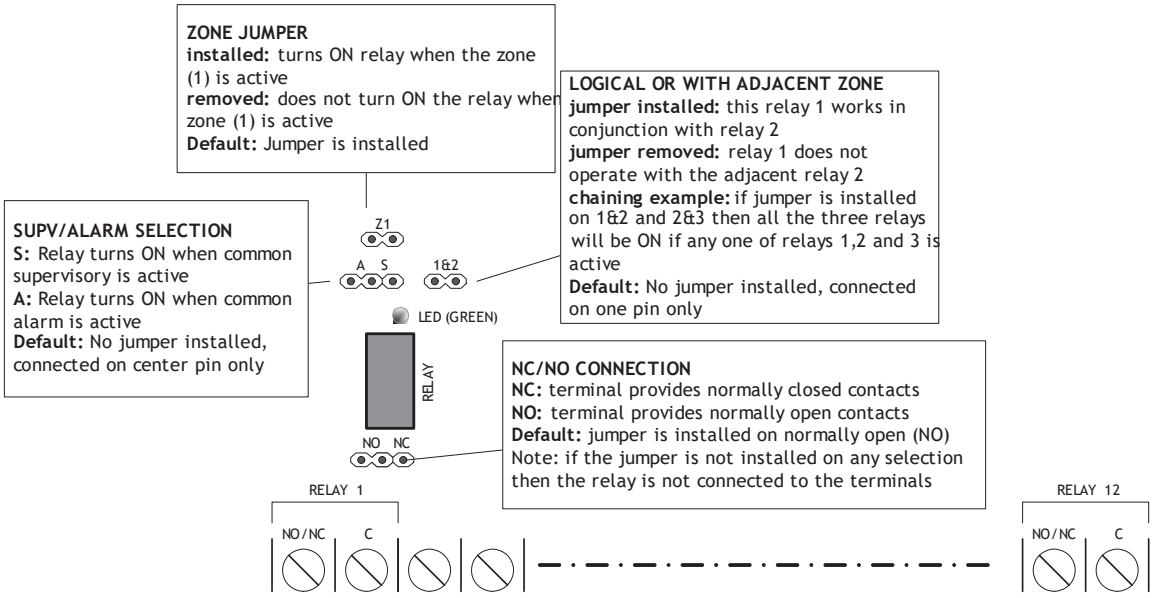


Figure 14 RM-312/RM-306 Relay programming

Note: Relay programming should be done before installing the board.

6.5 RM-306 Six Relay Adder Module

Cable from P1 of the RM-306 is connected to P6 on the Main Fire Alarm Board. The jumpers located above each relay on the RM-306 are used to configure the relays. The jumpers located below the relays are used to select either normally open contacts or normally closed contacts.

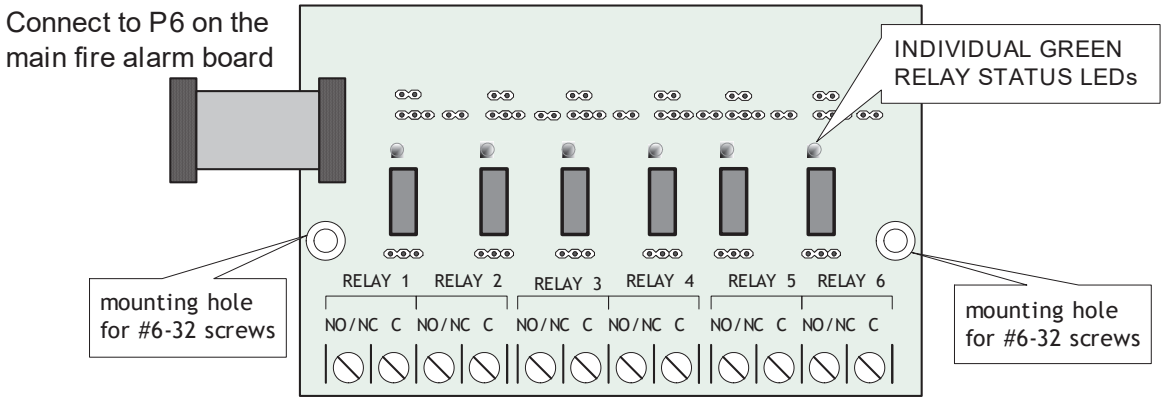


Figure 15 RM-306 six relay adder module

P1 Cable from RM-306 Relay Adder Module connects to P6 on Main Fire Alarm Board.

6.5.1 Programming the relays

See the explanation in Figure 14.

Note: Relay programming should be done before installing the board.

6.6 Polarity Reversal and City Tie Module (Model PR-300)

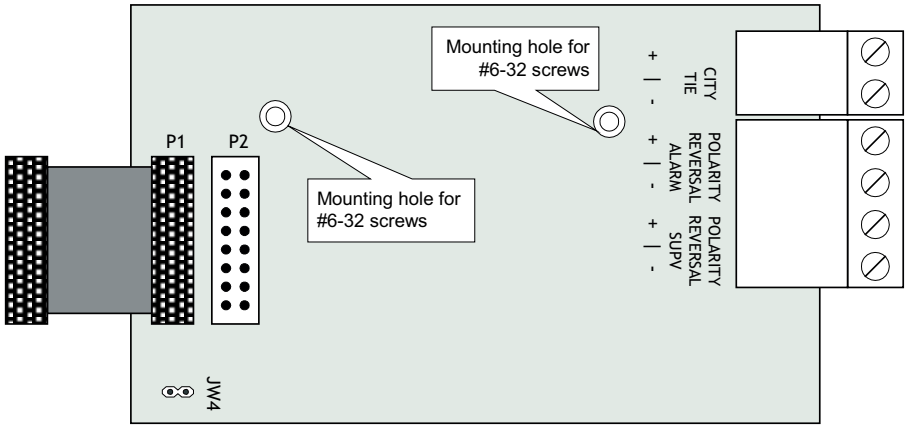


Figure 16 Polarity reversal and city tie module

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

6.6.1 PR-300 jumper settings

P1	Cable connects to **P5** on the **Main Board**
P2 & JW4	Not used. Jumper JW4 remains on board.

The Alarm Transmit signal to the PR-300 can be programmed to turn OFF when signal silence is active. This allows the City Tie Box to be manually reset. On subsequent alarms the silenceable signals will resound and the City Tie Box will be retriggered.

The Trouble Transmit signal to the PR-300 can be programmed to delay AC power fail for 0, 1 or 3 hours if this is the only system trouble.

6.7 Annunciators

Connect the annunciators to the RS-485 terminals and to auxiliary power. Use class B wiring for RS-485. For instructions, see the following Mircom documents:

- RAM-208/RAM-208R: LT-648
- RAM-216/RAM-216R: LT-658
- RAM-300LCDR/RAM-300LCDW: LT-1002
- RAM-1032TZDS(-CC): LT-617

6.8 SRM-312R/SRM-312W Smart Relay Module

Connect SRM-312R/SRM-312W to the RS-485 terminals and to auxiliary power. Use class B wiring for RS-485. For instructions, see LT-1001.

6.9 RTI-1 Remote Trouble Indicator

Connect the RTI-1 to the port labeled **RTI-1**. For instructions, see LT-388.

7.0 Field wiring

7.1 Main Fire Alarm Board Field Wiring

Wire devices to the terminals as shown in the figures that follow. Refer to the Wiring Tables for wire gauges and to Appendix C: Specifications for specifications.

Caution: Do not exceed power supply ratings.

7.1.1 Initiating Circuit Wiring

Wiring diagrams for the initiating circuits are shown below. The panel supports Class B and Class A for the initiating circuits. The initiating circuits are supervised by a 3.9 kΩ end-of-line resistor or for power saving an active-end-of-line.

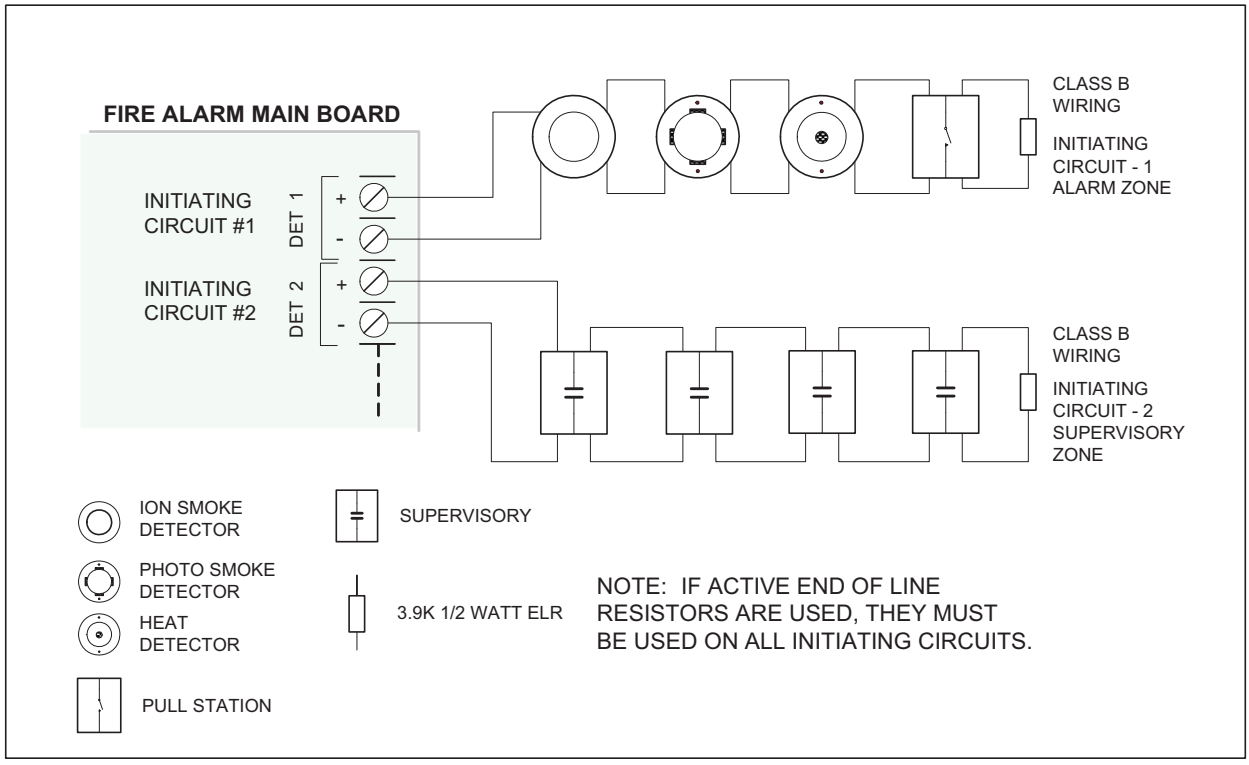


Figure 17 Initiating circuit – Class B wiring

Note: Depending on configuration, end-of-line resistors on initiating circuits must be all 3.9 kΩ or all active end-of-line resistors.

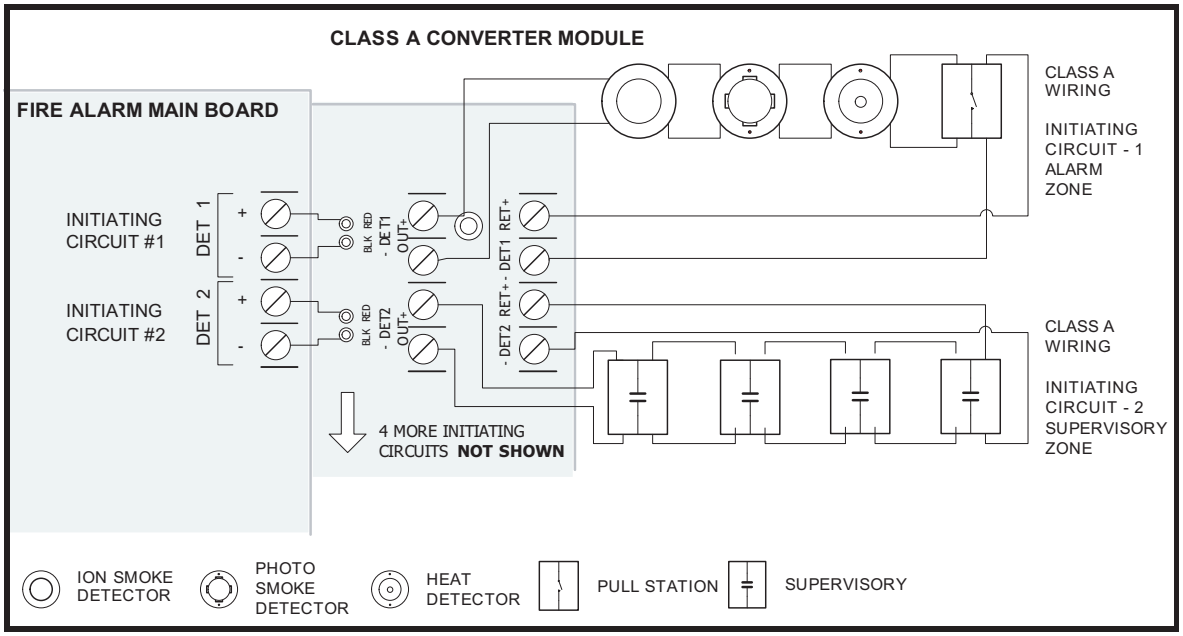


Figure 18 Initiating circuit– Class A wiring

7.1.2 Indicating Circuit Wiring

The FA-300 LCD Series Fire Alarm Panels support Class B and Class A wiring for their indicating circuits. Each circuit is supervised by a 3.9 kΩ end-of-line resistor. Each indicating circuit provides up to 1.7 A, 5 A maximum total if no auxiliaries are used.

Note: An active end-of-line resistor cannot be used with any indicating circuits. Always use 3.9 kΩ end-of-line resistors for indicating circuits.

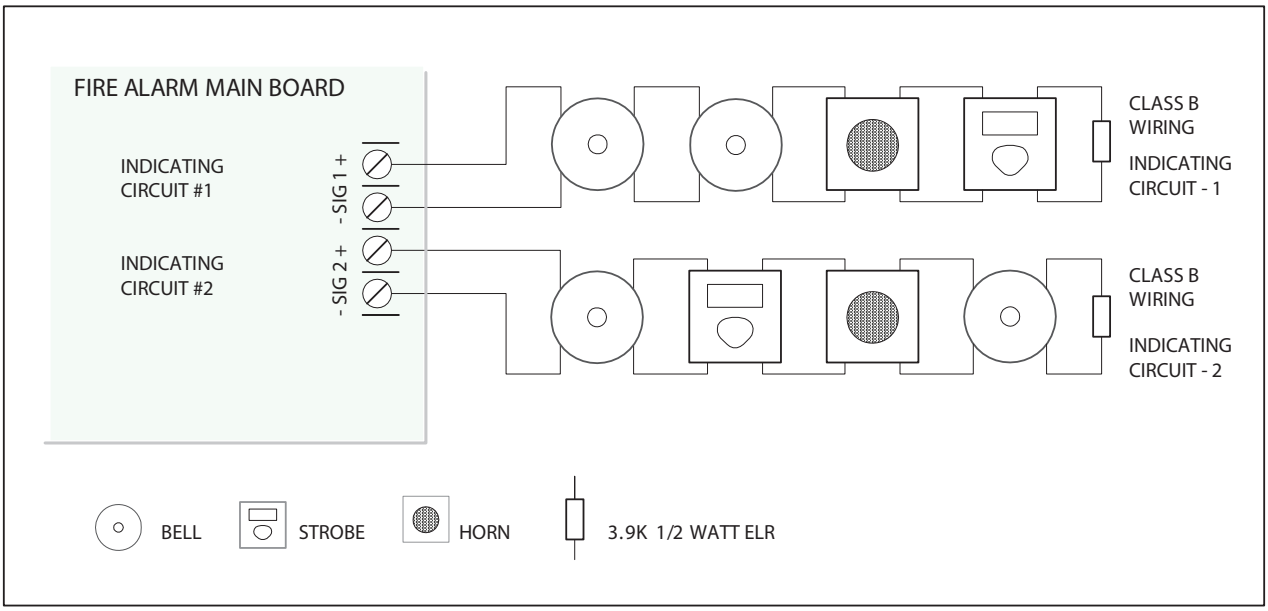


Figure 19 Indicating circuit – Class B wiring

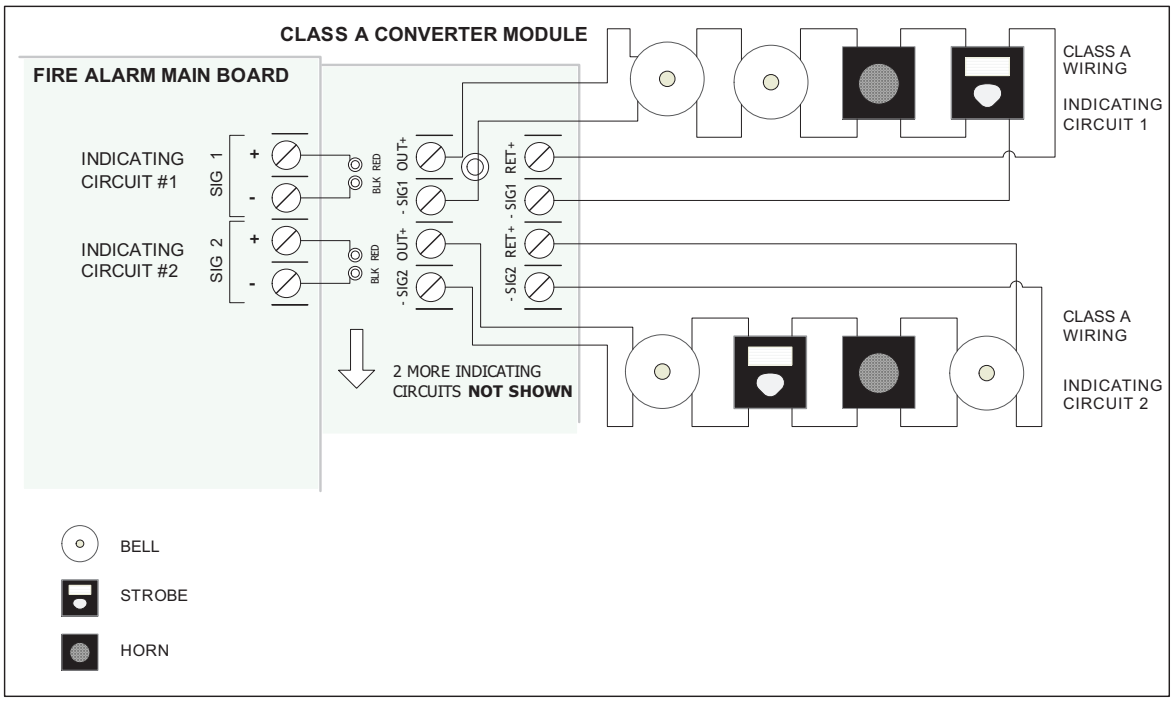


Figure 20 Indicating circuit –Class A wiring

7.1.3 Four Wire Smoke Detector Wiring

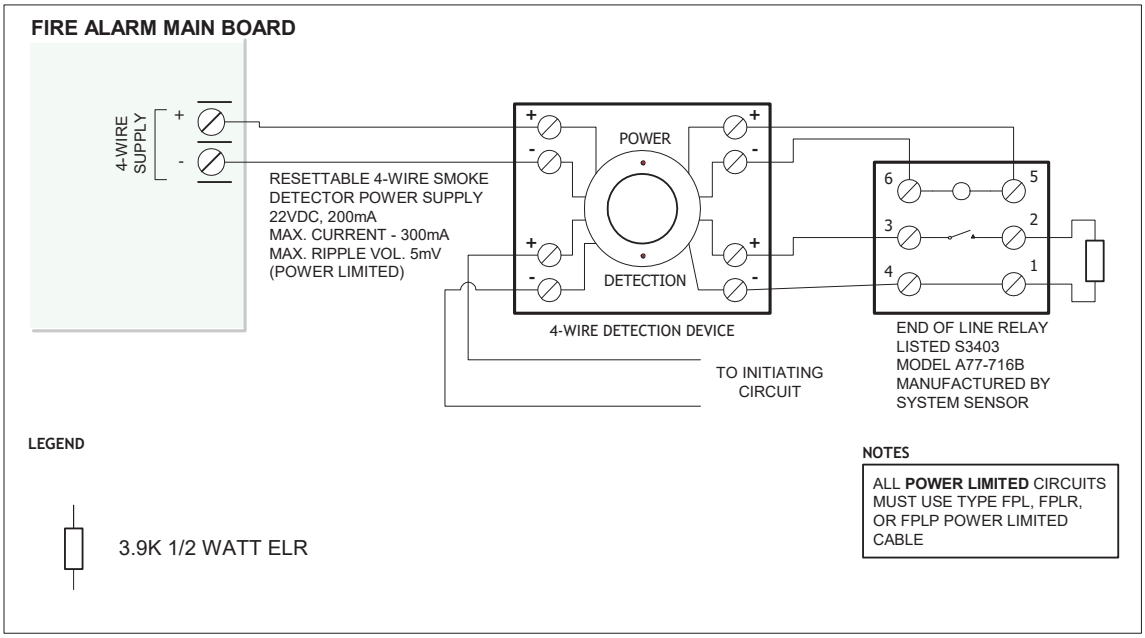


Figure 21 Four-wire smoke detector - Class B wiring

7.1.4 Dialer Wiring

If you have Fire Alarm Panel Models FA-301-12DDR or FA-300-6DDR there is a dialer on board and terminals marked Line 1 and Line 2 must be wired as shown in Figure 22 below. To comply with UL 864 10th edition, see section 7.3 on page 36.

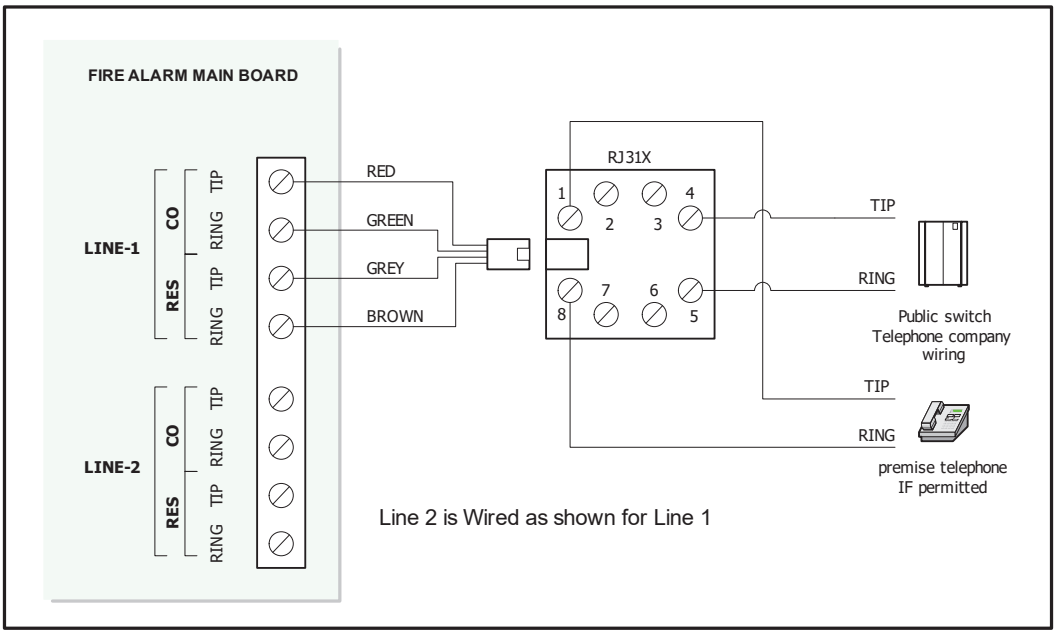


Figure 22 Dialer wiring

7.2 Relay Adder Module Wiring

Wire relays on the relay adder modules RM-312 and RM-306 as shown in Figures 19 and 20.

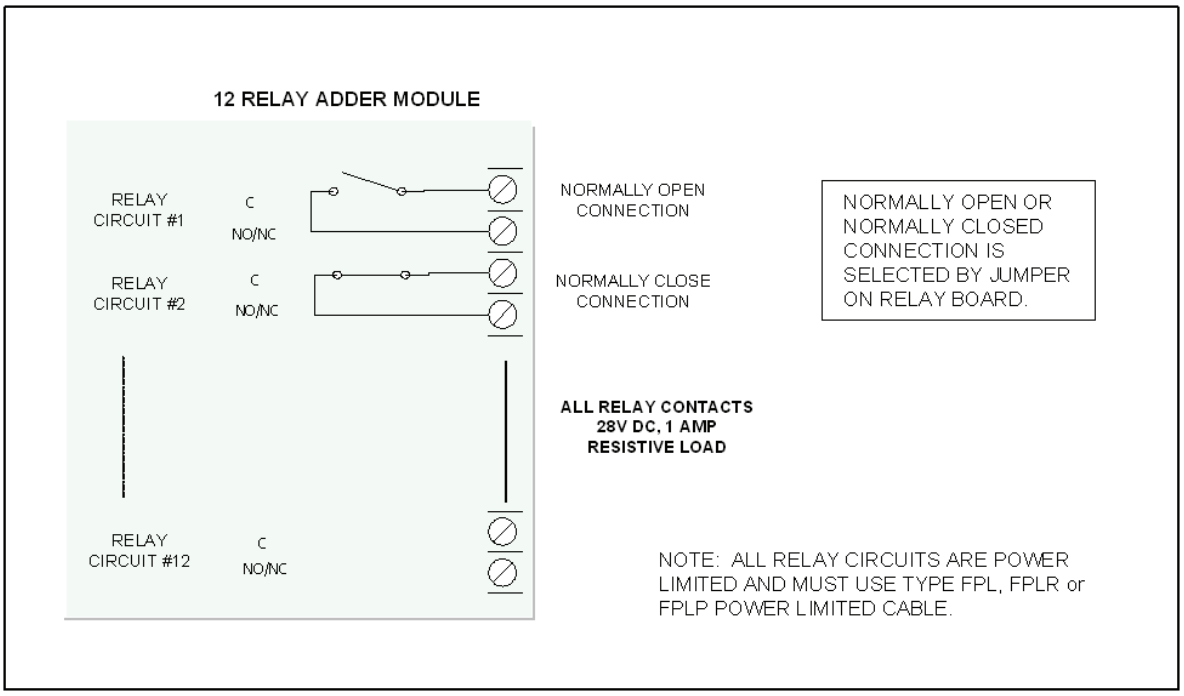


Figure 23 Relay per zone (RM-312) Terminal connection

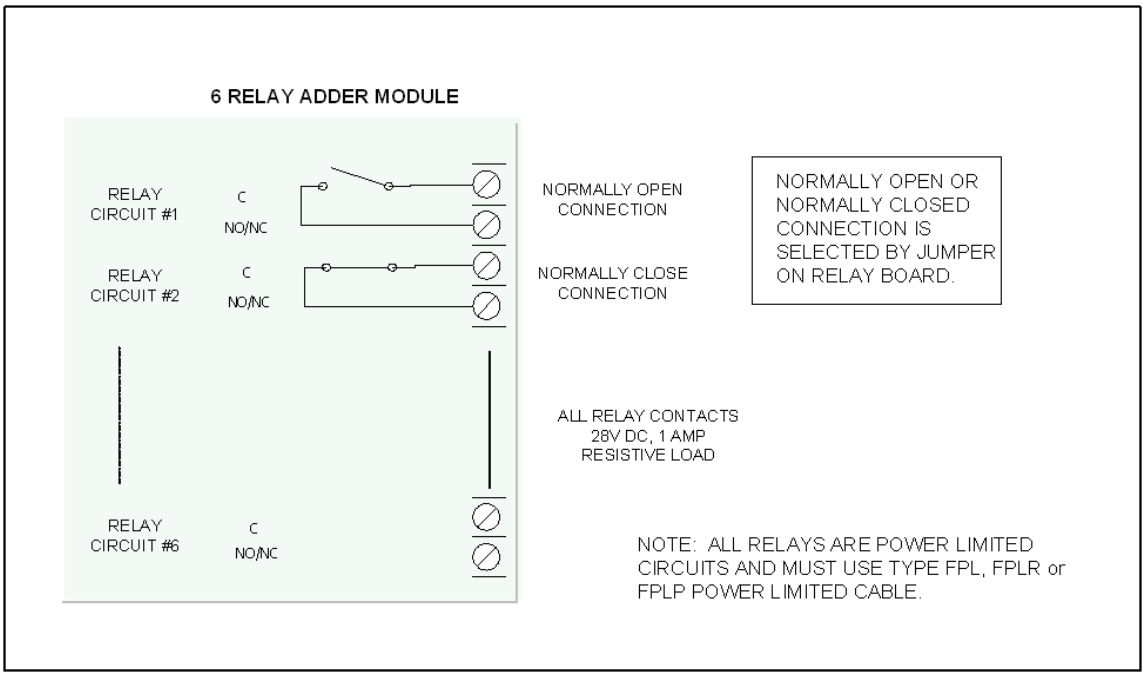


Figure 24 Relay per zone (RM-306) Terminal connection

7.3 Connecting to a 3G4010CF Interface Device

For information on Compatible Receivers see section 12.0 on page 82.

A typical connection is shown in Figure 25. The 3G4010CF is powered separately from the PCS-100 and requires 2 DSC RM-2 relays (sold separately). The PCS-100 Passive Communications Interface Board (sold separately) is also required.

FA-300 LCD Series - 3G4010CF Connection - Typical Diagram

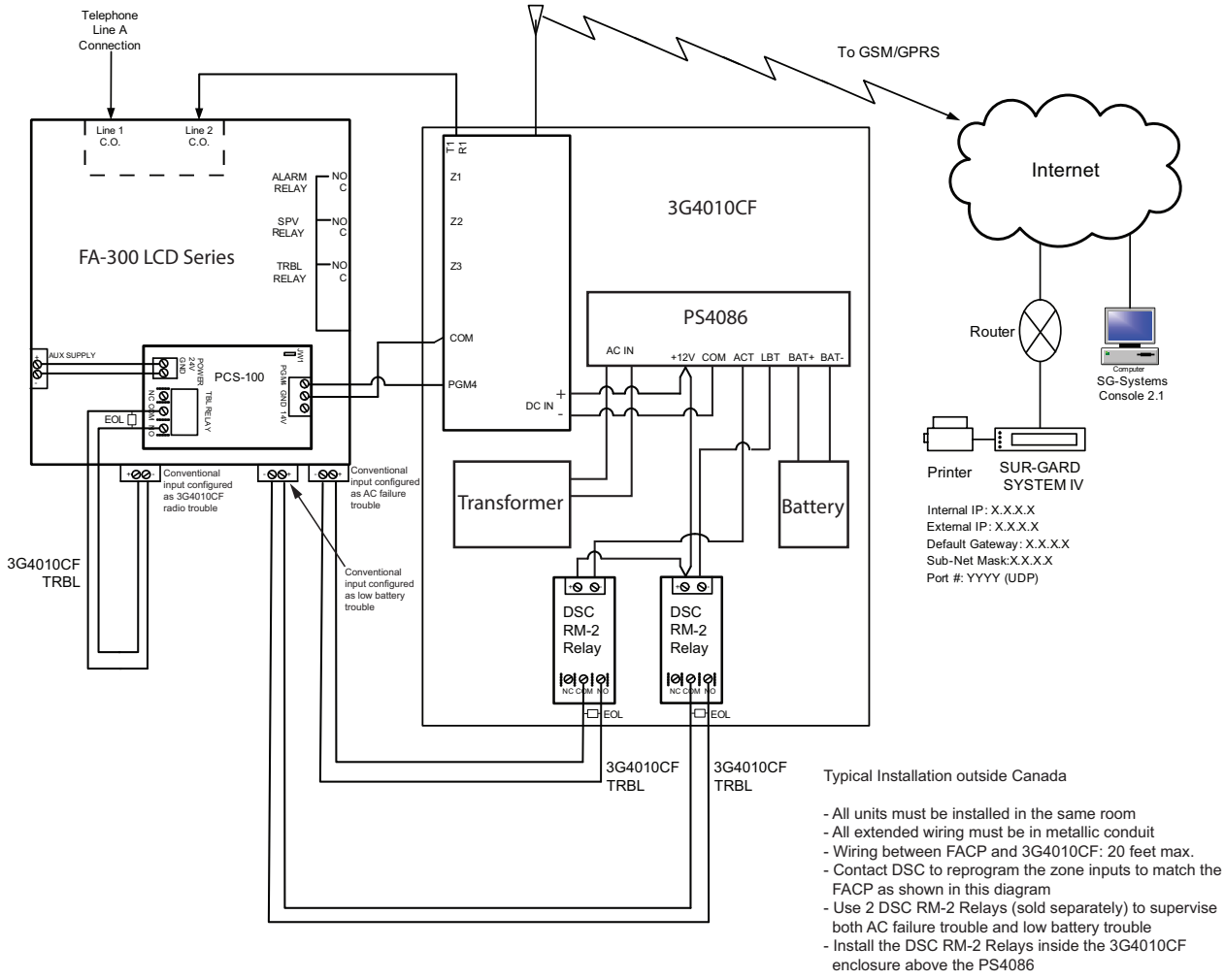


Figure 25 Connecting an FACP to a 3G4010CF Interface Device

Note: The DSC interface device 3G4010CF is required if the installation requires UL864 10th edition certification.

7.4 Polarity Reversal and City Tie Module (PR-300) Wiring

Wire PR-300 Polarity Reversal and City Tie Module (if used) as shown in Figure 26, below. See section 12.0 on page 82 for module specifications. Power Limited cable type FPL, FPLR or FPLP must be used.

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

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

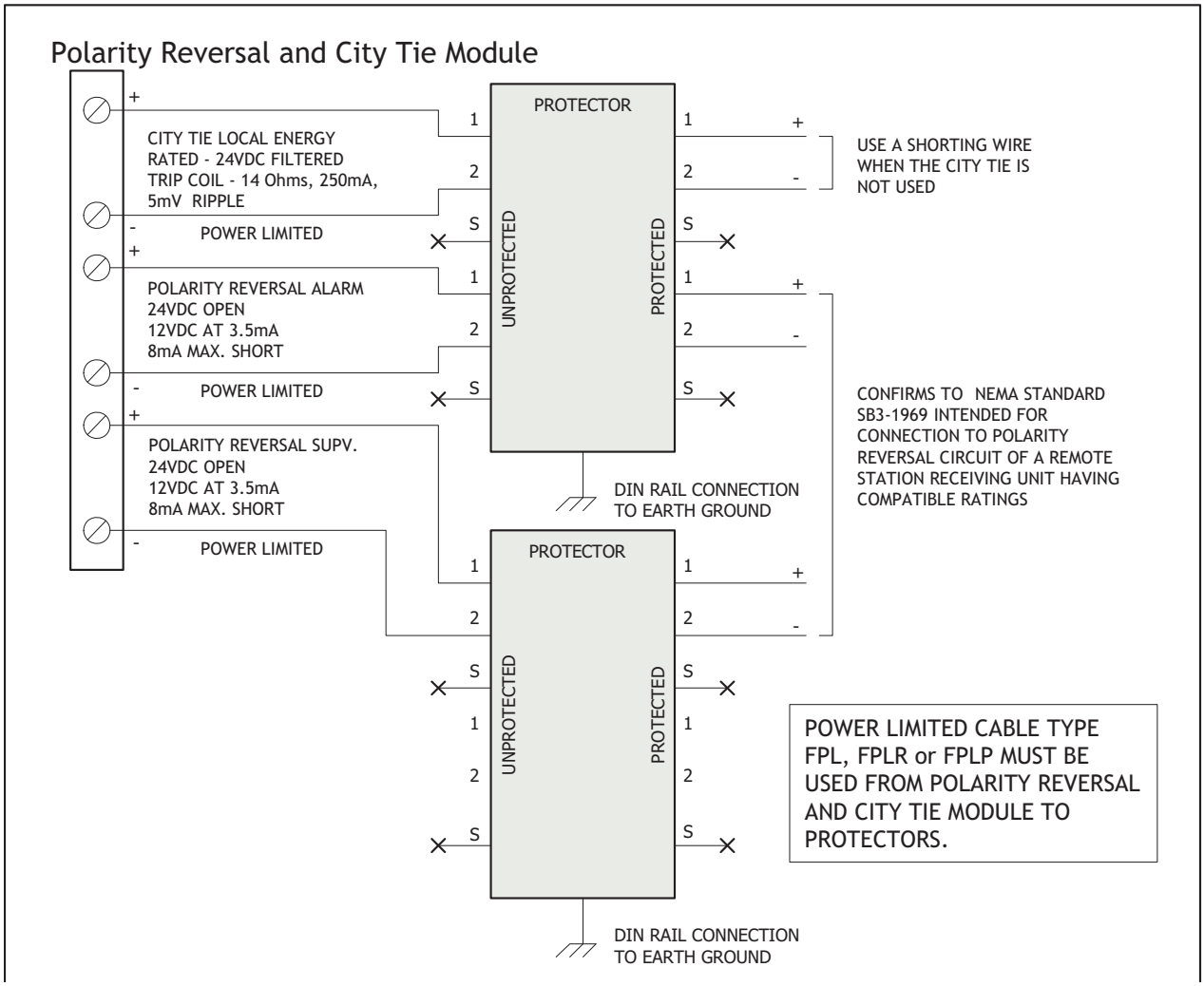


Figure 26 Polarity reversal and city tie module terminal connection

7.5 Power Supply Connection

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

Table 2 Power Supply Ratings

Type	Rating
Electrical Input rating	120VAC, 60Hz, 3A\ 240 VAC, 50 Hz, 1.5A fuse
Power supply total current	6A maximum
Battery fuse on Main module	10A, slow blow micro fuse

Caution: Do not exceed power supply ratings.

Wire the power supply as shown in Figure 27 using the proper wire gauge. See section 14.0 on page 85 for power supply specifications.

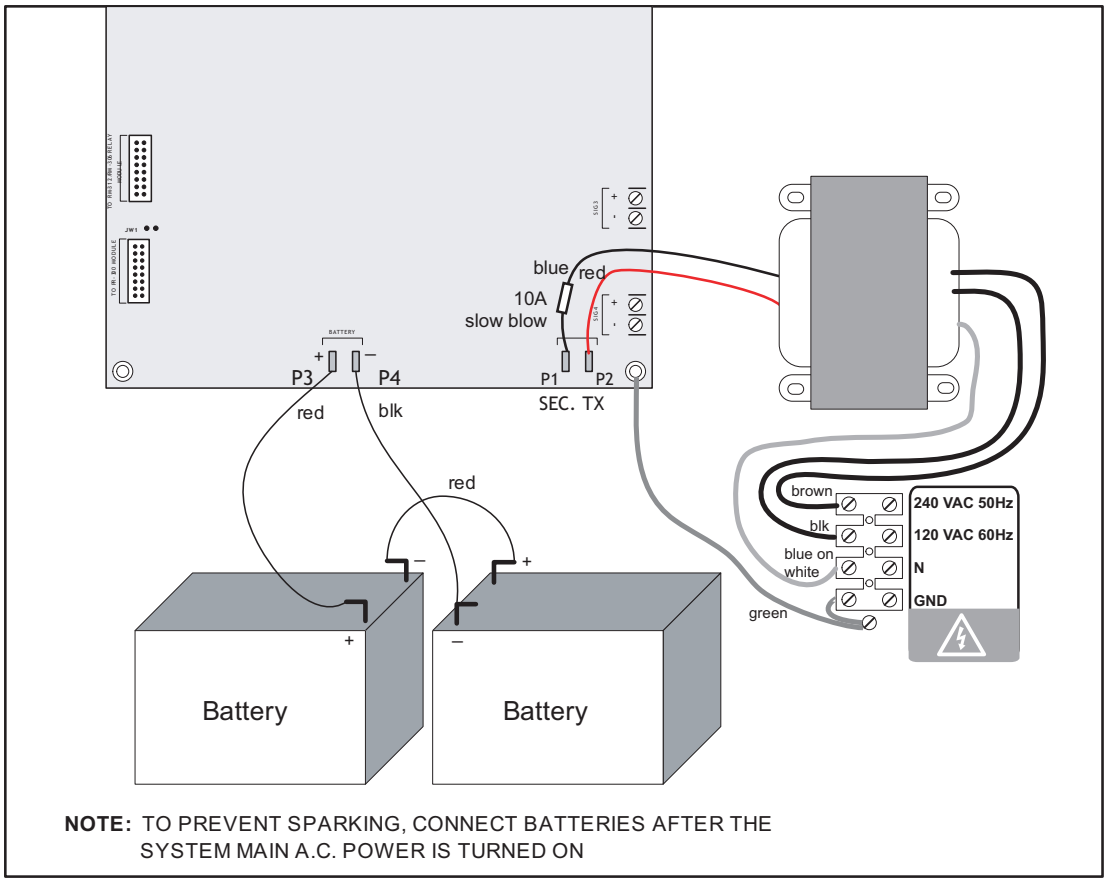


Figure 27 Power supply connection

7.6 Wiring Tables and Information

The numbers in these tables represent the entire loop length.

Table 3 Initiating Circuit Wiring

Wire gauge	Maximum wiring run to last device	
AWG	Feet	Meters
22	2990	910
20	4760	1450
18	7560	2300
16	12000	3600
14	19000	5800
12	30400	9200

Notes: For Class A the maximum wiring run to the last device is divided by two.

Maximum loop resistance should not exceed 100 Ω.

Maximum capacitance of 0.5 µF total on each initiating circuit.

Table 4 Indicating Circuit Wiring

Total signal load in amperes	Maximum wiring run to last device								Max. loop resistance in ohms
	18 AWG		16 AWG		14 AWG		12 AWG		
	Feet	Meters	Feet	Meters	Feet	Meters	Feet	Meters	
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

Notes: For Class A wiring the resistance in ohms is multiplied by two.

Maximum voltage drop should not exceed 1.8 volts.

Table 5 RS-485 Wiring to Annunciators and other Devices

Wire gauge	Maximum wiring run to last device	
AWG	**Feet**	**Meters**
22	2000	609.6
20	4000	1219.2
18	8000	2438.4

Notes: Use twisted shielded pair,

300mA power limited.

Maximum 40 Ω loop resistance

7.6.1 Four-Wire Smoke Power (regulated)

This terminal is labeled **4-WIRE SUPPLY** on the circuit board. 4-wire smoke power is provided for 4-wire smoke detectors. This filtered supply is supervised therefore a short will disconnect the power through the relay until the “RESET” key is pressed. This supply is rated at 22.3VDC regulated/300mA max/1V voltage drop maximum.

7.7 Supervised Auxiliary Power (regulated)

This terminal is labeled **AUX SUPPLY** on the circuit board. Supervised auxiliary power is used to power the Remote Annunciators and Smart Relay Modules. This filtered circuit is supervised, therefore a short will disconnect the power through the relay until the SYSTEM RESET button is pressed. This supply is rated at 22.3VDC regulated/500mA max/1V voltage drop maximum.

7.8 Auxiliary Power (unregulated)

This terminal is labeled **UNFILTERED** on the circuit board. This unregulated supply is not supervised. This supply is rated at 24VDC/1.7A maximum. If there is a short on this circuit, the auxiliary power does not recover automatically when the short is removed. The main power must be disconnected, then reconnected and the panel reset to re-establish the auxiliary power supply.

8.0 Turning on the Panel

8.1 Before Connecting the Power

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.

8.2 Connecting the Power

After completing the steps in section 8.1 on page 41:

1. Plug in the AC power.

   The A.C. ON LED illuminates, the Common Trouble LED flashes, and the buzzer sounds.

2. Press the SYSTEM RESET button.

   The buzzer continues to sound and the Common Trouble LED continues to flash.

3. Connect the batteries as shown in Figure 28. Observe the correct polarity: the red wire is positive (+) and black wire is negative (−).

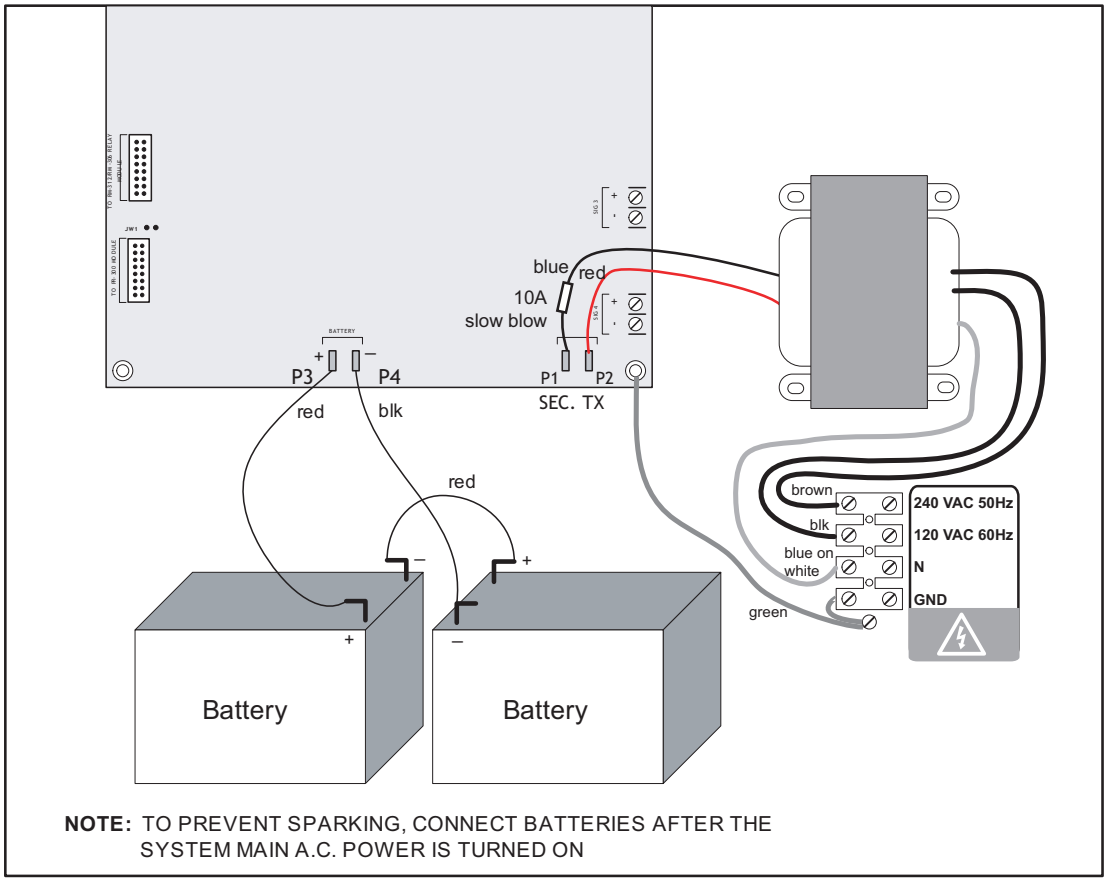


Figure 28 Battery connections

All indicators should be off except for the green A.C. ON LED and the green TROUBLE LED in the lower left corner of the main board.

Note: The green TROUBLE LED in the lower left corner of the main board is illuminated when the system is normal. This LED is for diagnostics and indicates that the Trouble Relay is in normal standby condition.

4. Configure the Fire Alarm Control Panel as described in section 11.0 on page 53.

8.3 Troubleshooting

Table 6 Troubleshooting

Symptoms	Possible Cause
Circuit Trouble	When a circuit trouble occurs, its designated trouble indicator will be illuminated, as well as the Common Trouble LED and trouble buzzer. To correct the fault, check for open wiring on that circuit, and check that the circuit is not disconnected or bypassed. *Note: Disconnecting a circuit will cause a system trouble (off-normal position).*
Remote Fail	Remote Fail is indicated on the main panel display for any failure reported by, or failure to communicate with a remote annunciator or other remote device.
Ground Fault	The 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 20.4 V) will cause a battery trouble. If the battery trouble condition persists, replace the batteries as soon as possible.
Walk Test Mode	If the LCD display indicates a walk test, the system is in walk test mode. See section 11.10 on page 66.
Common Trouble	If only the Common Trouble LED is illuminated on the main panel and none of the above trouble indicators are on, check the following for possible fault: • Any missing interconnection wiring. • Any missing module that was part of the configuration. • Improperly secured cabling.

9.0 Indicators, Controls and Operations

Refer to Figure 29 below which shows the LCD Display, the Keypad and Control Button locations.

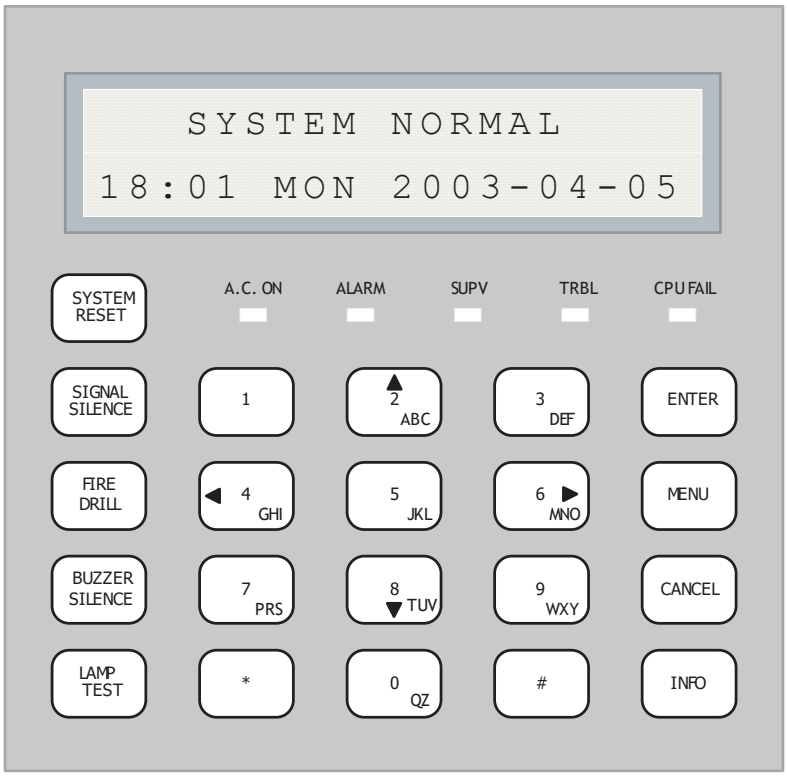


Figure 29 LCD Display and control buttons

The Main Display Panel on the Main Fire Alarm Control Board consists of:

- 5 common LED Indicators (under the LCD display)
- 5 Common Buttons (column left of key pad)

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

- Fast Flash (Supervisory)- 120 flashes per minute, 50% duty cycle
- Trouble Flash (Trouble)- 20 flashes per minute, 50% duty cycle

9.1 Common Indicators

9.1.1 Buzzer

The buzzer is activated by any of the following events:

Fire Alarm	Continuous
Supervisory Alarm	120 times per minute
Trouble	60 times per minute

If the buzzer is turned on in response to a non-latching trouble or supervisory, it is turned off if the condition causing it goes away and there is no other reason for it to be on.

9.1.2 A.C. ON LED

The green A.C. ON LED illuminates steadily as long as the main AC power is above minimum level. The indicator turns off when the level falls below the power fail threshold and the panel is switched to standby (battery) power.

9.1.3 Alarm LED

The red Alarm LED illuminates whenever the panel detects an alarm condition on any initiating circuit. Since all alarms are latched until the panel is reset, the LED remains on until then.

9.1.4 Supervisory LED

The amber Supervisory LED turns on steady when there is a supervisory alarm in the Panel caused by any latching or non-latching supervisory circuit. The LED is turned off when 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.

9.1.5 Trouble LED

The amber Trouble LED flashes at the trouble flash rate when the panel detects any trouble condition. It turns off when all non-latching troubles are cleared.

9.1.6 CPU FAIL LED

The amber CPU FAIL LED flashes approximately ¼ second every 2 seconds to indicate a processor failure on the main board. In addition, the buzzer sounds in time with the CPU FAIL LED until the fault is corrected.

To test the CPU FAIL LED

1. Disconnect AC and batteries from the main board.
2. Connect AC and then connect the batteries as described in section 8.0 on page 41. If the CPU FAIL LED is functioning properly, it will flash once when the board powers up.

9.2 Common Controls

9.2.1 SYSTEM RESET Button

Press the SYSTEM RESET button to reset the Fire Alarm Control Panel and all circuits. In particular, the SYSTEM RESET button does the following:

- Resets all latching trouble conditions
- Resets all initiating circuits
- Resets the 4-wire smoke supply
- Turns off all indicating circuits
- Turns off signal silence
- Turns off fire drill
- Stops and resets all timers

- Processes inputs as new events
- Does not affect Aux Disconnect
- Reset cannot be activated until the Signal Silence Inhibit timer has expired

9.2.2 SIGNAL SILENCE Button

Press the SIGNAL SILENCE button when the panel is in alarm to deactivate any silenceable indicating circuits. Non-silenceable circuits are unaffected. Signals resound if there is a subsequent alarm. Pressing SIGNAL SILENCE again resounds all silenceable signals. This button does not function when the signal silence inhibit timer is running (see section 11.4 on page 56). It also does not function if the indicating circuits are active as the result of a fire drill.

9.2.3 FIRE DRILL Button

The FIRE DRILL button activates all non-disconnected (un-bypassed) indicating circuits, but does not transmit any alarms via the city tie, Common Alarm Relay or Auxiliary Alarm Relay. The fire drill activates the signals in the evacuation code programmed. For example, if the evacuation code is set to Temporal Code, the signals will be pulsed on for 0.5 seconds, off for 0.5 seconds in rounds of 3 and then pause for 1.5 seconds and repeat.

The fire drill is canceled by pressing the button again, or if the panel goes into a real alarm.

9.2.4 LAMP TEST Button

Press the LAMP TEST button to make the front panel indicators steadily illuminate (except for CPU FAIL) and to turn the buzzer on steady. If the lamp test is active for more than 10 seconds, the Common Trouble is activated.

Press and hold the LAMP TEST for 3 seconds to show the information about the system and the firmware version as shown below.

Figure 30 Lamp test

The first line shows the number of zones and panel type and the second line shows the software version number.

9.2.5 BUZZER SILENCE Button

Press the BUZZER SILENCE button while the buzzer is sounding to silence the buzzer. The buzzer resounds if there is a subsequent event. Pressing the button when the buzzer is not sounding has no effect.

9.3 Common Relays

9.3.1 Common Alarm Relay

The Common Alarm Relay (labeled **ALARM RELAY** on the circuit board) activates when a general alarm sequence is activated. Since all alarm conditions are latched until system reset, the relay remains on until the alarm is cleared and the system is reset. The Common Alarm

Relay can be disconnected by “Aux Disconnect” (see section 11.16 on page 76) if programmed to do so (see section 11.4 on page 56.

9.3.2 Common Supervisory Relay

The Common Supervisory Relay (labeled **SUPERVISORY RELAY** on the circuit board) activates when the common supervisory sequence is activated as the result of an alarm or any un-bypassed latching or non-latching supervisory circuit. The relay is turned off if all non-latching supervisory circuits are restored and there are no latching supervisory circuits active. The relay can be disconnected by “Aux Disconnect” (see section 11.16 on page 76) if programmed to do so (see section 11.4 on page 56). This Common Supervisory Relay will function the same way as a Common Alarm Relay if programmed to (see section 11.4 on page 56).

9.3.3 Common Trouble Relay

The Common Trouble Relay (labeled **TROUBLE RELAY** on the circuit board) is activated when the common trouble sequence is activated as the result of the trouble condition being detected on the system. It is turned off when all troubles are cleared.

Note: Some troubles are latching: once they are detected they remain active until system reset. In this case the Common Trouble LED will also remain active until system reset. The common trouble is not bypassed by the Auxiliary Disconnect function.

9.3.4 Auxiliary Alarm Relay

The Auxiliary Alarm Relay (labeled **AUX. RELAY** on the circuit board) functions the same way as the Common Alarm Relay in every respect except that it can be disconnected by “Aux Disconnect” (see section 11.16 on page 76) with or without correlated relays if it is programmed to do so (see section 11.4 on page 56). When configured, the relay can also be disconnected if signal silence is active and reconnected if signal silence is de-activated.

Note: Each relay has an LED beside it. These LEDs are used for diagnostic purposes.

9.4 Circuit Types

9.4.1 Initiating (Detection) Circuit Types

9.4.2 Non-Verified Alarm

A non-verified alarm can have pull stations, smoke detectors, or heat detectors attached to it. Activation of any of these devices will immediately result in an alarm condition in the Fire Alarm Control Panel. An alarm condition causes the Common Alarm LED to illuminate red.

9.4.3 Verified Alarm

Verified alarms are verified by a reset and timing procedure, and may include smoke detectors, heat detectors or pull stations. Activation of pull stations or heat detectors results in

an alarm condition in the Fire Alarm Control Panel within four seconds. Smoke detectors are verified for a real alarm within 60 seconds, depending upon the startup time of the devices being used. If four seconds is too long a response time for pull stations, then wire them separately on a non-verified alarm circuit. An alarm condition causes the Common Alarm LED to illuminate red.

9.4.4 Sprinkler Alarm (for Sprinkler Flow Sensors)

Sprinkler alarms are identical to normal non-verified alarms unless water flow retard operation is enabled. If water flow retard operation is enabled, then these circuits are sampled every one second. If ten samples are active within any 15-second interval, the sprinkler alarm is confirmed and processed. An alarm condition causes the Common Alarm LED to illuminate red.

Note: Do not use retard operation with any external retarding device; maximum retard may not exceed 120 seconds.

9.4.5 Water Flow Alarm (Water Flow Sensors)

Water flow 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 (see section 11.4 on page 56), 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 Common Alarm LED to illuminate red.

9.4.6 Non-Latching Supervisory (For Supervisory Circuits)

An activation on these circuits causes the amber Common Supervisory LED to illuminate. The buzzer sounds at the fast rate. If the circuit activation is removed, the supervisory condition clears (as long as there are no other supervisory conditions in the system) and the SUPV LED turns off.

9.4.7 Latching Supervisory (For Supervisory Devices)

An activation on these circuits causes the amber Common Supervisory LED to illuminate. The buzzer sounds at the fast rate. If the circuit activation is removed, the supervisory condition does NOT clear.

9.4.8 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).

9.4.9 Trouble-Only

The Trouble-Only circuit monitors a Trouble condition from an external device such as QX-5000 Audio System. An activation of a Trouble-Only circuit causes the TRBL LED to flash at the Trouble rate. Both open and short circuits generate a non-latching Trouble condition.

9.4.10 Indicating (Signal) Circuit Types

9.4.11 Silenceable Signal

The silenceable signal circuit is used for audible devices such as bells and piezo mini-horns that may be silenced either manually or automatically. While sounding, these devices follow the pattern appropriate for the condition: the configured Evacuation Code (the default is Temporal Code) during alarm (see section 9.5 below).

9.4.12 Non-Silenceable Signal

The Non-Silenceable Signal circuit is used for audible devices such as bells and piezo mini-horns that may **not** be silenced either manually or automatically. While sounding, these devices follow the pattern appropriate for the condition: the configured Evacuation Code (the default is Temporal Code) during alarm (see section 9.5 below).

9.4.13 Silenceable Strobe

Silenceable Strobes are silenced when the SIGNAL SILENCE button is pressed. For synchronous strobes see section 10.0 on page 51. *(Note: Strobes do not support any code pattern.)*

9.4.14 Non-Silenceable Strobes

Non-Silenceable Strobes are not silenced when the SIGNAL SILENCE button is pressed. For synchronous strobes see section section 10.0 on page 51. *(Note: Strobes do not support any code pattern.)*

9.5 Evacuation 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

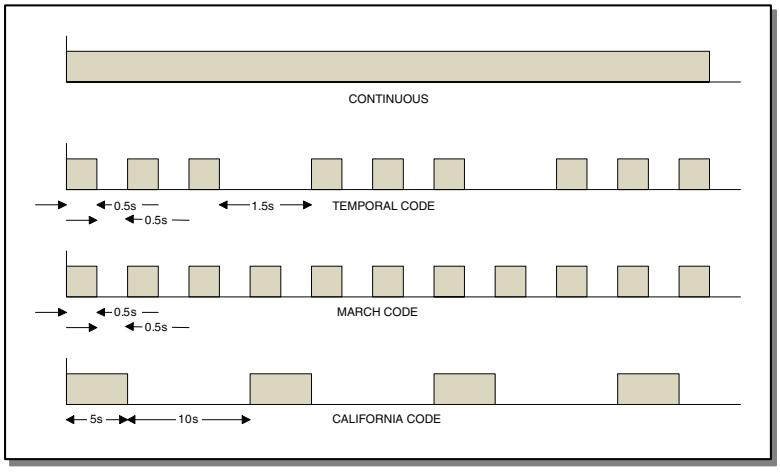


Figure 31 Evacuation Codes

9.6 Fire Alarm Operation

In a basic 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. If any of these alarm inputs occur when the panel is not already in alarm, the following occurs:

- The buzzer sounds steadily
- If the fire drill is active, it is cancelled
- The Common Alarm Indicator (the ALARM LED) turns on
- The Auxiliary 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 connected 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 buzzer sounds steadily
- If signals have been silenced as a result of the SIGNAL SILENCE button or the Auto Signal Silence Timer, the signals resound and the Auto Signal Silence Timer, if configured, is restarted
- Any additional non-disconnected strobes associated with the new input are activated continuously
- Any additional non-disconnected signals associated with the new input are activated at the evacuation rate

10.0 Supported Protocols and Devices

10.1 Synchronous Strobes

The synchronous strobe models that are supported by the FA-300 panel include Mircom models FHS-240 and FS-240. A separate compatibility list is available for different supported models.

Strobes can be configured as normal (not synchronized). See section 11.0 on page 53. Any selection made is system-wide (that is, the selection applies to all the circuits in the system that are configured as strobes).

10.2 Signal Silence on Strobes

The signal silence action on strobes depends on the configuration.

10.2.1 Non-silenceable strobes

If the output zone is configured as Non-Silenceable Strobe and if signal silence is active on the panel while the strobes are active, the horn will be silenced but the strobe will remain on. If SIGNAL SILENCE is deactivated, then the horns turn back on.

10.2.2 Silenceable strobes

If the output circuit is configured as silenceable strobe, and if the SIGNAL SILENCE button is pressed, both the horn and strobe are turned off. Pressing the SIGNAL SILENCE button again turns them on again.

Note: Please see the strobe manufacturer's data for details.

10.3 System Sensor's i^3 Devices

The FA-300 fire control panel supports System Sensor's i^3 devices. Only the two wire smoke detectors 2W-B and 2WT-B are supported on the i^3 zone. Model 2WT-B features a built-in fixed temperature (135°F / 57.2°C) thermal detector and is capable of sensing a freeze condition if the temperature is below 41°F / 5°C.

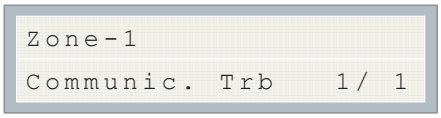
The zones should be programmed to i^3 devices to be considered as i^3 zone. If the zone is not programmed as an i^3 zone and i^3 devices are connected to the zone, it is treated as a regular zone. The panel can detect multiple troubles; if different devices have different troubles on the same zone, all troubles are reported. The following troubles are reported for a zone configured as an i^3 zone.

10.3.1 Open circuit trouble

If the circuit is broken, the panel shows an open trouble. The panel can still communicate with the devices depending upon where the open occurs.

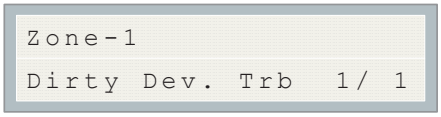
10.3.2 Communication Trouble

If there is a fault in the line or the line is too noisy, the panel cannot communicate with the devices. In this case, the panel shows a communication trouble.



10.3.3 Dirty Device trouble

If any of the devices on the i^3 zone are dirty, the panel shows a dirty device trouble. The device must be cleaned or must be replaced with a new device.

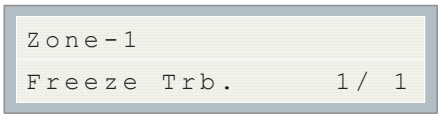


10.3.4 Out of sensitivity trouble

If any of the devices on the i^3 zone are out of sensitivity and cannot detect an alarm condition, the panel shows an out of sensitivity trouble. In this case, the device is not usable and should be replaced.

10.3.5 Freeze trouble

If the device has detected a freeze condition (below 41°F / 5°C), then the panel shows a freeze trouble. This works with model 2WT-B only. Model 2W-B does not indicate a freeze trouble.



The LEDs on the i^3 smoke detectors provide a local visual indication of the detector status.

Table 7 i^3 detector LEDs

i^3 Detector Condition	Green LED	Red LED
Power-up	Blinks every 10 sec	Blinks every 10 sec
Normal (Standby)	Blinks every 5 sec	Off
Out of sensitivity (defective or dirty)	Off	Blinks every 5 sec
Freeze trouble	Off	Blinks every 10 sec
Alarm	Off	Solid

11.0 Configuration

Table 8 Settings permitted in UL864

NOTICE TO USERS, INSTALLERS, AUTHORITIES HAVING JURISDICTION, AND OTHER INVOLVED PARTIES			
This product incorporates field-programmable software. In order for the product to comply with the requirements in UL864, Standard for Control Units and Accessories for Fire Alarm Systems, certain programming features or options must be limited to specific values or not used at all as indicated below.			
Program feature or option	Permitted in UL864? (Y/N)	Possible settings\methods	Settings permitted in UL864
Account Reporting Format (see page 69 and page 70)	Y	Contact ID, SIA 300, SIA 110	Contact ID if connected to DSC transmitter
Manual Signal Silence (see page 57)	Y	Enabled, Disabled	Enabled
Signal Silence Inhibit (see page 58)	N	Disabled, 10 seconds, 20 seconds, 30 seconds, 1 minute	Disabled
Signal Isolators (see page 59)	Y	Enabled, Disabled	Disabled
Signal Rate (see page 59)	Y	Temporal, Continuous, March Time, California	Temporal
Active EOL (see page 59)	Y	Enabled, Disabled	Enabled if using an active EOL resistor or ICAC-306
Aux Disconnect disconnects Common Alarm and Common Supervisory (see page 58)	Y	Enabled, Disabled	Disabled
Dialer Operation Mode (see page 72)	Y	(U)DACT, DACT	(U)DACT
AC Loss Delay (see page 72)	Y	0 to 20 hours	0 to 3 hours
Cellular Report Date and Auto Test Time (see page 73)	Y	Day of month and Time of day	Set Cellular Report Date to 0 Set Auto Test Time to 3:00 (see page 73)

There are three methods of configuring the FA-300 LCD Series Fire Alarm Panels:

- Direct configuration using the main LCD display and the menu buttons.
- Using a PC or laptop computer with a UIMA adapter.
- Using a PC or laptop computer with remote connection (must use fire alarm with built-in UDACT).

This chapter explains how to configure an FA-300 LCD Series Fire Alarm Panel using the main LCD display.

The front panel display is shown in Figure 32.

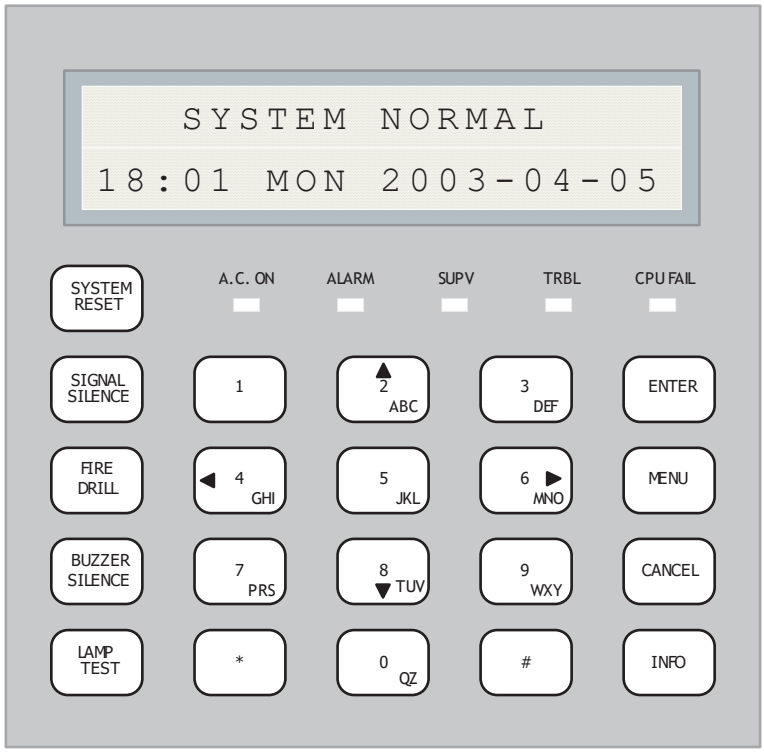


Figure 32 FA-300 main LCD display

11.1 Accessing Configuration Mode

To access configuration mode

1. Press the Menu button on the front panel display.
2. Enter your passcode.

   The minimum number of digits for the passcode is four and the maximum is ten. The passcode must be numerical values only. The default passcode is **1111**.
3. Press the ENTER button.

   The main command menu appears.

   If the passcode is wrong, the system prompts you to re-enter the passcode. After three tries the system takes you back to the normal message display.

Figure 33 Enter passcode

11.2 Command Menu

The command menu is shown in Figure 34. The first line of the LCD always displays **-Command Menu-**, and the second line scrolls through different selections.

To scroll through the menu

- Use the up and down arrow buttons, and then press the ENTER button to make a selection.

To exit from the command menu

- Select the **Exit** menu option, and then press the ENTER button.

Note: Close jumper JW5 on the main board to access Command Menu features 1 and 9.

Figure 34 Command Menu

11.2.1 Using the Keypad to Program the FA-300

1. Access the configuration mode as described in section 11.1 on page 54.
2. Press ENTER to select an option.

   The corresponding menu appears.
3. Press the up and down arrow buttons to scroll through the menu.
4. Press ENTER to select an option.

5. Press the left or right arrow buttons to select or unselect an option (selected = **X**). Use the up and down arrows to scroll through the different options.
6. Once you have made the correct selection, press ENTER to confirm the change.
7. Press CANCEL to return to the previous menu.

11.3 Panel Config (Command Menu)

The FA-300 configuration menu is shown in Figure 35.

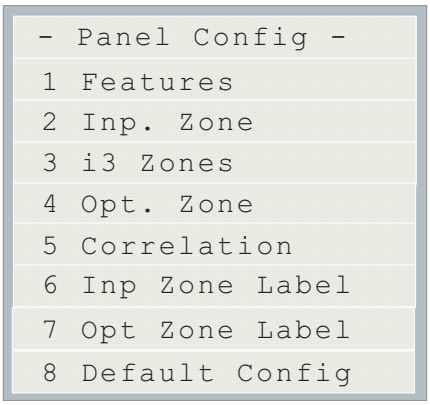


Figure 35 FA-300 Config menu

11.4 Feature Config

Select **Features** to access the Feature Config menu shown in Figure 36.

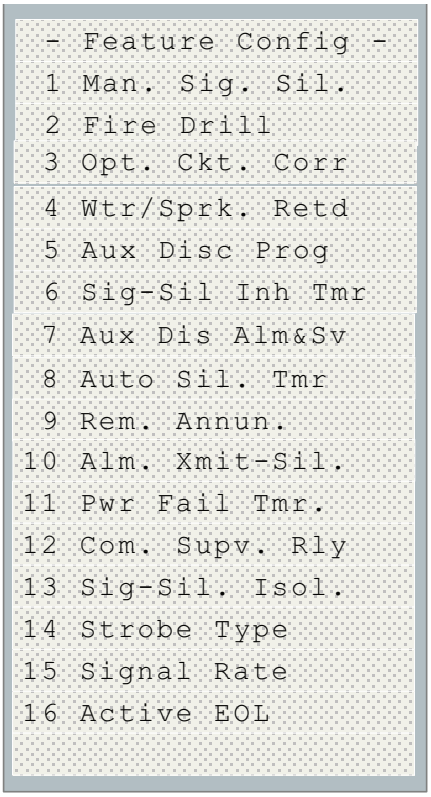


Figure 36 Feature Config menu

Table 9 describes the options in the Feature Config menu.

Table 9 Feature Config Menu

Feature	Default	Name in the FA-300 Configuration Utility	Description
1 Manual Signal Silence Manual Sig. Silence [X] ENABLE	[X] ENABLE->Default [ ] DISABLE	Manual signal silence	Use this function to enable or disable the SIGNAL SILENCE operation. See section 9.2.2 on page 46.
Command Menu - FA-300 Config - Features **2 Fire Drill** Fire Drill [X] ENABLE	[X] ENABLE ->Default [ ] DISABLE	Fire drill	Use this function to enable or disable the FIRE DRILL operation. See section 9.2.3 on page 46.
Command Menu - FA-300 Config - Features **3 Output Circuit Correlation** Opt. Ckt. Corr. [X] DISABLE	[X] DISABLE ->Def [ ] ENABLE	Signal correlations	If enabled, the programmed correlations (see section 11.4.4 on page 61) are effective. If disabled, the programmed correlations are ignored and all the output circuits are correlated to all the input circuits.
Command Menu - FA-300 Config - Features **4 Waterflow/Sprinkler Retard Operation** Waterflow/Sprk. Retd [X] DISABLE	[X] DISABLE ->Def [ ] ENABLE	Retard waterflow and sprinkler circuit	If disabled, all the initiating circuits configured as water flow or sprinkler act as non-verified alarms. If enabled, retard operation is performed for initiating circuits configured as water flow or sprinkler. See section 9.4.5 on page 48.
Command Menu - FA-300 Config - Features **5 “Aux. disconnect” disconnects Auxiliary Alarm Relay and all correlated relays** Aux Disc Prog [X] DISABLE	[ ] ENABLE [X] DISABLE->Default	"Aux Disconnect" disconnects prog. relay	If enabled, the Auxiliary Alarm Relay and all correlated relays are disconnected when you select “Aux Disconnect” (see page 76). Correlated relays include: RM-312/ RM-306 relays and SRM-312R/SRM-312W relays. If disabled, only the Auxiliary Alarm Relay is disconnected when you select “Aux Disconnect” (see page 76).

Table 9 Feature Config Menu (Continued)

Feature	Default	Name in the FA-300 Configuration Utility	Description

Command Menu - FA-300 Config - Features
6 Signal Silence Inhibit timer
`Sig-Sil. Inhibit Tmr`
`[X] DISABLE`
	`[X] DISABLE->Default`
	`[ ] 10 SEC`
	`[ ] 20 SEC`
	`[ ] 30 SEC`
	`[ ] 1 MIN`
		Signal silence inhibit	Use this function to inhibit the SIGNAL SILENCE switch for a desired length of time. While this timer is running, pressing the SIGNAL SILENCE switch has no effect. See section 9.2.2 on page 46.

Command Menu - FA-300 Config - Features
7 "Aux. disconnect" disconnects Common Alarm Relay and Common Supervisory Relay
`Aux Dis,Dis Alm&Spv`
`[X] DISABLE`
	`[ ] ENABLE`
	`[X] DISABLE->Default`
		"Aux Disconnect" disconnects alarm relay	If enabled, the Common Alarm Relay and the Common Supervisory Relay, in addition to the Auxiliary Alarm Relay, are disconnected when you select "Aux Disconnect" (see page 76). The PR-300 will not transmit a supervisory or alarm event.
			If disabled, selecting "Aux Disconnect" (see page 76) has no effect on the Common Alarm Relay, the Common Supervisory Relay, and the PR-300.

Command Menu - FA-300 Config - Features
8 Auto Signal Silence Timer
`Auto Sig-Sil. Timer`
`[X] DISABLE`
	`[X] DISABLE->Default`
	`[ ] 5 Min`
	`[ ] 10 Min`
	`[ ] 15 Min`
	`[ ] 20 Min`
	`[ ] 30 Min`
		Signal silence	Use this function to determine the time period for which the indicating circuits sound before they are automatically silenced.

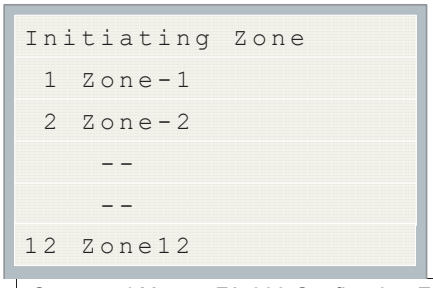
Command Menu - FA-300 Config - Features
9 Number of Remote Annunciators or smart relays
`No. of Remote Annun.`
`[X] NONE`
	`[X] NONE->Default`
	`[ ] 1`
	`[ ] 2`
	`[ ] 3`
	`[ ] 4`
	`[ ] 5`
	`[ ] 6`
		Remote Annunciators	Use this function to select the number of Remote Annunciators. Any combination of Remote Annunciators or smart relays can be used as long as the total number does not exceed 6. The Annunciators' addresses should be without gaps and in sequence.

Command Menu - FA-300 Config - Features
10 Silence Alarm transmit
`Alm. Xmit-Sil.`
`[X] DISABLE`
	`[X] DISABLE ->Def`
	`[ ] ENABLE`
		Alarm transmit affected by signal silence	Use this function to allow the alarm transmit and auxiliary alarm relay to reset on "SIGNAL SILENCE" rather than the "RESET" switch.

Table 9 Feature Config Menu (Continued)

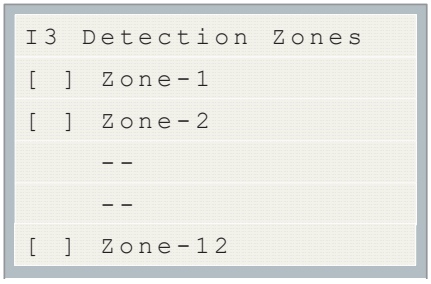
Feature	Default	Name in the FA-300 Configuration Utility	Description
Command Menu - FA-300 Config - Features **11 AC power fail delay timer** AC Pwr Fail Dly Tmr. [X] NONE	[X] NONE ->Default [ ] 1 HRS [ ] 2 HRS [ ] 3 HRS		Use this function to delay the AC power fail trouble for the programmed time period. If disabled, the AC power fail is reported right away.
Command Menu - FA-300 Config - Features **12 Common Supervisory Relay** Common Supv. Relay [X] ENABLE	[X] ENABLE ->Default [ ] DISABLE	Supervisory relay used as alarm relay	If enabled, the Common Supervisory Relay behaves as a common alarm relay. If disabled, it behaves as a common supervisory relay.
Command Menu - FA-300 Config - Features **13 Signal Isolators** Sig-Sil. Isolator [X] DISABLE	[ ] ENABLE [X] DISABLE ->Def	Isolators on signal circuits	Enable this function only when suite isolators are used (Canada only).
Command Menu - FA-300 Config - Features **14 Strobe Type** Strobe Type [X] NORMAL	[X] NORMAL ->Default [ ] MIRCOM [ ] FARADY [ ] WHEELOCK [ ] GENTEX [ ] SYSTEM SENSOR	Strobe	Use this menu to select the manufacturer of the strobes used in the system. The selection is system-wide and applies to all indicating circuits configured as strobes. For NORMAL strobes there is no synchronization, while other strobes use the manufacturer's protocol to synchronize the strobes.
Command Menu - FA-300 Config - Features **15 Signal rate (Evacuation code)** Signal Rate [X] TEMPORAL	[X] TEMPORAL->Def [ ] CONTINOUS [ ] MARCH TIME [ ] CALIFORNIA	Signal rate	Use this function to set the rate at which the indicating circuits sound.
Command Menu - FA-300 Config - Features **16 Active EOL** Active EOL [X] DISABLE	[X] DISABLE->Default [ ] ENABLE	Active end-of-line	Enable this function if you are using an active EOL resistor or the ICAC-306 (the ICAC-306 has built in active end-of-line resistors).

11.4.1 Inp Zone



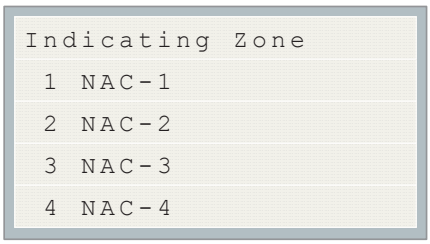
Command Menu - FA-300 Config - Ipt. Zone **1. Type (Initiating circuit)**  12.  	[X] NON-VERIF ALARM ->Default [ ] VERIF ALARM [ ] SPRKL ALM [ ] WTR-FLOW ALM [ ] NON-LATCH SUP [ ] LATCH SUPV [ ] GEN ALARM [ ] BUILDING [ ] TRB ONLY	Use this menu to select the process type of each input zone. See section 9.4 on page 47.

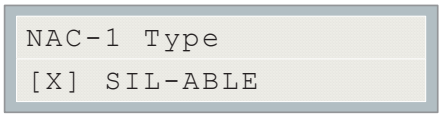
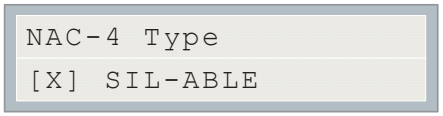
11.4.2 i^3 Zone

 	[ ] Zone-1->Default . . . [ ] Zone-12->Default	Use this function if i^3 devices are present on a zone. See section 10.3 on page 51.

Command Menu - FA-300 Config

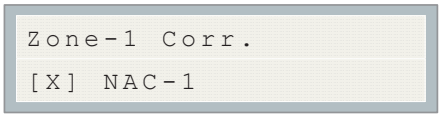
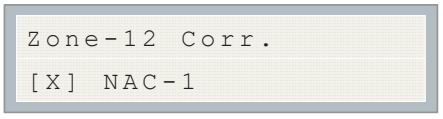
11.4.3 Opt Zone



Command Menu - FA-300 Config - Opt. Zone **1. Type (Indicating Circuits)**  4.  	[X] SIL-ABLE->Default [ ] NON SIL-ABLE [ ] SIL-ABLE STR [ ] NON-SIL STR	Use this menu to select the process type of each indicating circuit. See section 9.4.10 on page 49.

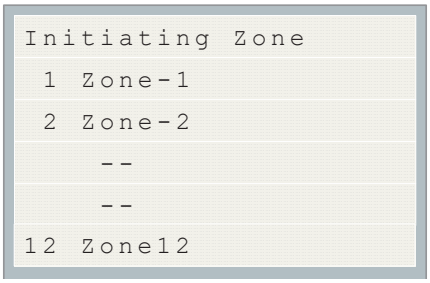
Command Menu --> FA-300 Config

11.4.4 Correlation

Command Menu - FA-300 Config - Correlation **1.Correlation**  12.  	[X] NAC-1 ->Default [X] NAC-2 ->Default [X] NAC-3 ->Default [X] NAC-4 ->Default	Use this menu to correlate initiating circuits to indicating circuits. By default all the initiating circuits are correlated to all the indicating circuits.

Command Menu --> FA-300 Config

11.4.5 Inp Zone Label



Use the keypad described below for entering a message.

Command Menu - FA-300 Config - Ipt. Zone Label

1.Initiating zone label

```
Zone-1 Label
Zone-1
```

12.

```
Zone-12 Label
Zone-12
```

```
[Zone-1 ]->Default
[Zone-12 ]->Default
```

KEYPAD TRANSLATION AS MARKED ON THE KEYS

SEQ refers to the number of times the key must be pressed to display the number or letter.

KEY SEQ	1	2	3	4	KEY SEQ	1	2	3	4
Key #1	**1**								
Key #2	**2**	**A**	**B**	**C**	Key #3	**3**	**D**	**E**	**F**
Key #4	**4**	**G**	**H**	**I**	Key #5	**5**	**J**	**K**	**L**
Key #6	**6**	**M**	**N**	**O**	Key #7	**7**	**P**	**R**	**S**
Key #8	**8**	**T**	**U**	**V**	Key #9	**9**	**W**	**X**	**Y**
Key #0	**0**	**Q**	**Z**		Key *	Backspace			
Key #	Forward								

Press the ENTER button to input the message.

Command Menu --> FA-300 Config

11.4.6 Opt Zone Label

```
Indicating Zone
 1 NAC-1
 2 NAC-2
 3 NAC-3
 4 NAC-4
```

Follow the instructions below to enter a message.

Command Menu - FA-300 Config - Opt. Zone Label

1.Indicating zone label

```
NAC-1 Label
NAC-1
```

4.

```
NAC-4 Label
NAC-4
```

```
[NAC-1          ]->Default
[NAC-4          ]->Default
```

KEYPAD TRANSLATION AS MARKED ON THE KEYS

SEQ refers to the number of times the key must be pressed to display the number or letter.

KEY SEQ	1	2	3	4	KEY SEQ	1	2	3	4
Key #1	**1**								
Key #2	**2**	**A**	**B**	**C**	Key #3	**3**	**D**	**E**	**F**
Key #4	**4**	**G**	**H**	**I**	Key #5	**5**	**J**	**K**	**L**
Key #6	**6**	**M**	**N**	**O**	Key #7	**7**	**P**	**R**	**S**
Key #8	**8**	**T**	**U**	**V**	Key #9	**9**	**W**	**X**	**Y**
Key #0	**0**	**Q**	**Z**		Key *	Backspace			
Key #	Forward								

Press the ENTER button to input the message.

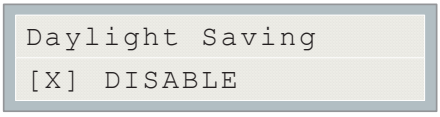
11.4.7 Default Configuration

Load the default settings? Y Press the up and down arrow buttons to select between Y/N. Press ENTER to restore the default configuration. Default settings have been loaded	Use this menu to load the default configuration in the panel. **Warning:** When you load the default configuration, the previously programmed configuration is lost permanently.

11.5 Config. Info. (Command Menu)

Configuration type: Factory default Press the down arrow button to see more information.	Configuration type shows how the panel was configured. **Factory default** means the panel has not been configured; it is as it came from the factory. **Front Panel** means it was configured at the panel. **Serial Port** means the configuration was done from a computer through the serial port. **Modem** means the configuration was done remotely through a modem.
Job Name: No job loaded	If you upload a job to the panel using the FA-300 Configuration Utility, the job name appears on this screen. The job name can be up to a maximum of 20 characters.
Technician ID: Unknown Press the down arrow button for further information.	If you upload a job to the panel using the FA-300 Configuration Utility, the technician's name (ID) appears on this screen. The technician ID can be up to a maximum of 10 characters.
Cfg. Date and Time: hh:mm day year:mm:dd Press the down arrow button for further information.	This screen shows the date and time that the configuration was last changed.
Cfg. Tool S/W Vers.: Version:x.x.x.x	This screen shows the version of the FA-300 Configuration Utility. It displays 0.0.0.0 if the FA-300 Configuration Utility was not used.

11.6 Set Time (Command Menu)

Command Menu - Set Time **11.6.1 Daylight Saving** 	[X] DISABLE ->Default [ ] ENABLE	Use this menu to enable daylight savings time.
Command Menu - Time Clock **11.6.2 Time Clock** 	Default 00:00 MON 2000-01-01	Use this menu to set the time and date. Use the left and right arrow buttons to move the cursor to the desired location in the display and use the up and down arrow buttons to increase or decrease the values. Press the ENTER button to accept the changes and the CANCEL button to ignore the changes. **Note:** The time is in 24 hour format.
Command Menu - Time Clock **11.6.3 Compensation**  Once the compensation value is entered the display will be: 	Compensation value can range from -15 to +15 seconds.	Use the up and down arrow buttons to select the daily compensation value and press ENTER. For a fast clock adjust negatively. For a slow clock adjust positively. For example, for a clock which runs 5 minutes a month (based on 30 days) fast, select -10 seconds.

11.7 Set Password (Command Menu)

Enter new passcode [ ] Re-enter passcode [ ] If the passcode does not match, the following message appears. invalid passcode If the passcode is OK the following message appears. Passcode updated	1111 -> Default	Use this menu to change the passcode. The minimum number of digits is 4 and the maximum number is 10. Only numeric digits are allowed.

11.8 View EventLog (Command Menu)

The event log looks the same as the normal event queue (see section 11.18 on page 77). Press the INFO button to see more information about the event. Figure 37 shows an example of how the INFO button works.

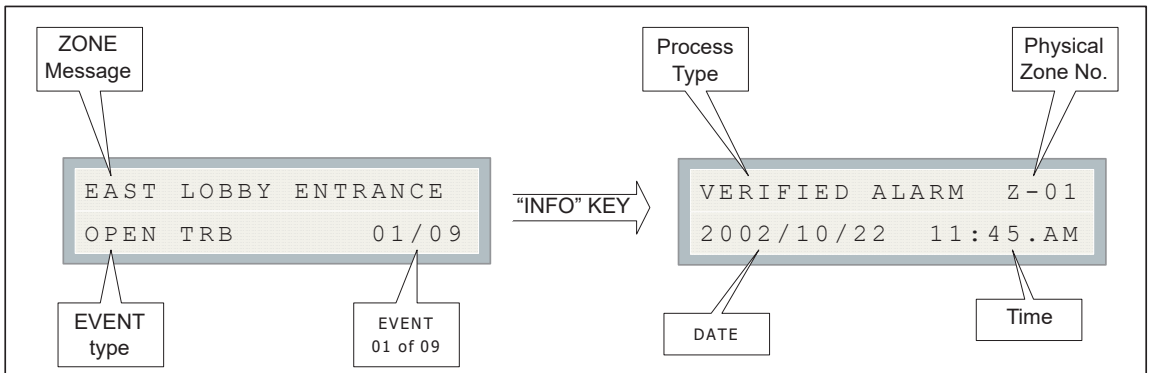
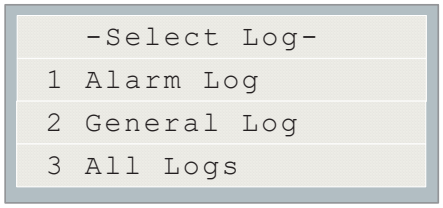


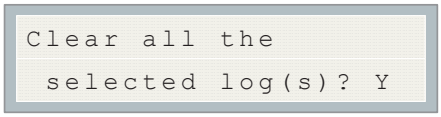
Figure 37 The event log

The event log saves a maximum of 200 events.

11.9 Clear EventLog (Command Menu)



Select the type of log to clear. Press the ENTER button. The system confirms before clearing logs.



Press the ENTER button to confirm or the CANCEL button to cancel the operation.

Use this menu to clear alarm logs, general logs, or both.

11.10 Walk Test (Command Menu)

A walk test allows an installer to verify the initiating circuit wiring in a system. When walk test is selected, the following screen appears:

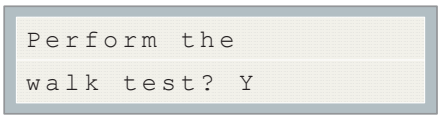


Figure 38 Walk test confirmation

Press the ENTER button to activate the walk test and the CANCEL button to cancel the walk test. The next screen will allow zones to be selected for walk test. Use the up and down arrow buttons to scroll through the zones and use the left and right arrow buttons to select a zone. Press the ENTER button when you are done with all the selections.

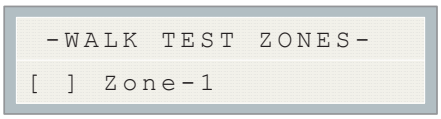


Figure 39 Walk test zones

The walk test is now active (see Figure 40).

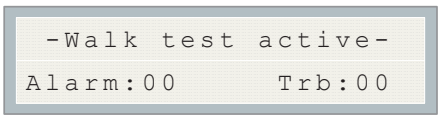


Figure 40 Walk test active

The activation of any initiating circuit that has been selected for a walk test will cause the audible indicating circuits (not strobes) to activate briefly for a number of short bursts corresponding to the selected circuit number. If the first selected circuit is activated, the

indication circuits sound for one burst. If the second selected circuit is activated, the indication circuits sound for two bursts, and so on. This means that if, for example, circuits 1, 3 and 5 are selected for the walk test, the indicating circuits sound with one, two and three bursts respectively. The burst interval is half a second ON and half a second OFF. After the sounding pattern is sent to the indicating circuits, the initiating circuit is reset and tested again. If it is still active (in alarm) the pattern is re-sent. Trouble on any initiating circuit selected for the walk test activates the indicating circuits continuously for five seconds. Activation of a circuit also causes the alarm count to increase while the trouble on the initiating circuit causes the trouble count to increase.

Alarm Verification and Water flow Alarm Retard Operations are disabled on circuits being walk tested. All circuits not selected for the walk test continue to function normally. If a circuit was disconnected before the walk test mode was entered and is not selected for the walk test, it remains disconnected while the walk test is active. Walk test operation is disabled if the Fire Alarm Control Panel is in alarm or goes into alarm while the walk test is active.

Notes: If a UDACT is used with the system, all walk test events are reported to the monitoring agency. The monitoring agency should be instructed to ignore reported events during the walk test.

IF THERE IS NO ACTIVITY FOR ONE HOUR, THE SYSTEM RETURNS TO NORMAL OPERATION.

11.11 I3 Loop Test (Command Menu)

The i^3 maintenance test is designed to test the devices on the i^3 zone. If there is noise on the line or if the device is too far away from the panel, the devices may not respond to the panel inquiries. An i^3 maintenance test can be invoked from the command menu. If the fire alarm has just been powered up or reset, wait six minutes before selecting the i^3 loop test. If the i^3 loop test is selected, the following message appears on the screen:

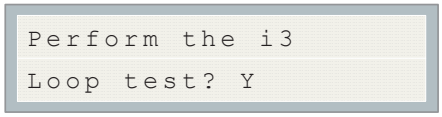


Figure 41 i^3 loop test confirmation

If you select “yes” by pressing “ENTER”, the display will ask you for which zone you want to perform the i^3 test. Note that only one zone at a time can be in maintenance test. Select the zone by pressing the “UP” and “DOWN” keys and then pressing the “RIGHT” key to select the device. After the device is selected press “ENTER”.

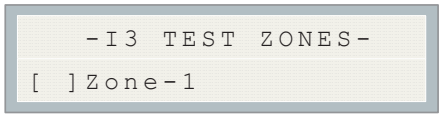


Figure 42 i^3 test zones

If the i3 maintenance test is selected within six minutes after power-up or reset, the following information message is displayed.

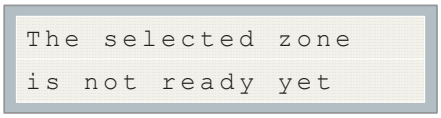


Figure 43 i3 test not ready

If a zone is selected that is not configured as an i3 zone, the following message is displayed:

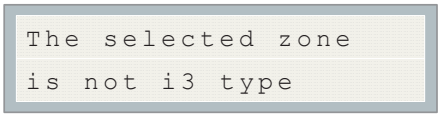


Figure 44 The selected zone is not i3 type

When the zone goes into the i3 loop test, no other zone can be put into the test. The maintenance test takes five minutes. During this time you can walk through the device and make sure all the devices are working properly. The following table lists the status of the devices while in loop test.

Note: Out of sensitivity can mean the device is dirty.

Table 10 i3 Detector LEDs while in Test Mode

i3 Detector Condition	Green LED	Red LED
Proper operation	Double blink every 5 sec	OFF
Out of sensitivity	OFF	Double blink every 5 sec
Freeze condition	OFF	Double blink every10 sec

You can cancel the maintenance test either by pressing the RESET button or by going into the configuration section and canceling the test.

11.12 Dialer Config (Command Menu)

Figure 45 shows the dialer configuration menu.

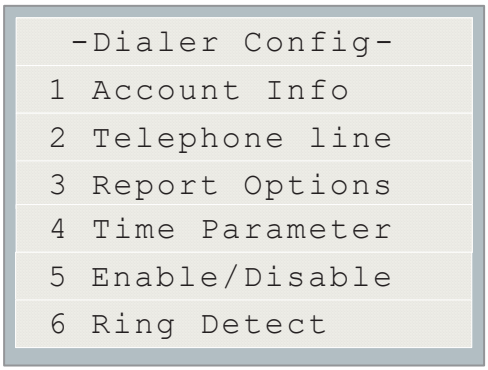


Figure 45 Dialer Config menu

Command Menu-->Dialer Config

11.12.1 Account Info

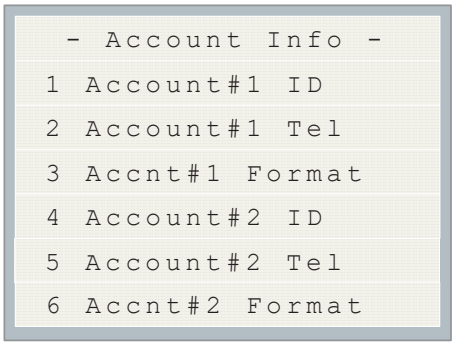
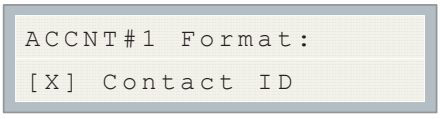


Figure 46 Account Info menu

Command Menu - Dialer Config - Account Info **Account #1 Identification** 	123456->Default	Use this menu to set the Account ID for the monitoring station to which the dialer reports events. The maximum number of digits allowed is six. For contact ID, only the first four digits are used. Unless you are using the SIA protocol, the allowed digits for the account ID are simple digits 0 to 9 and hexadecimal digits A to F (the SIA protocol only allows digits 0 to 9). To enter hexadecimal digits, press the INFO button. The letter “A” will appear. To scroll through the rest of the letters, press INFO repeatedly. Press # to move the cursor to the right or press * to move it to the left.
Command Menu - Dialer Config - Account Info **2.Account #1 Telephone Number** 	[101]->Default	Use this function to set the telephone number of the monitoring station. The maximum number of digits allowed is 19 including “,” and numerals. The “,” will be treated as a 1 sec delay. To enter “,” press the INFO button. Press # to move the cursor to the right or press * to move it to the left. An example of a typical telephone number is 9,,12345678.
Command Menu - Dialer Config - Account Info **3.Account #1 Reporting Format** 	[X] CONTACT ID-Def [ ] SIA 300 Baud [ ] SIA 110 Baud	Set the reporting format that is recognized or preferred by the monitoring station.

Command Menu - Dialer Config - Account Info **4. Account #2 Identification** Account#2 ID: _	654321->Default	Same as Account #1.
Command Menu - Dialer Config - Account Info **5.Account #2 Telephone Number** Account#2 Telnum: _	[101]->Default	Same as Account #1.
Command Menu - Dialer Config - Account Info **6.Account #2 Reporting Format** ACCNT#2 Format: [X] Contact ID	[X] Contact ID-Def [ ] SIA 300 Baud [ ] SIA 110 Baud	Same as Account #1.

Command Menu-->Dialer Config

11.12.2 Telephone Line

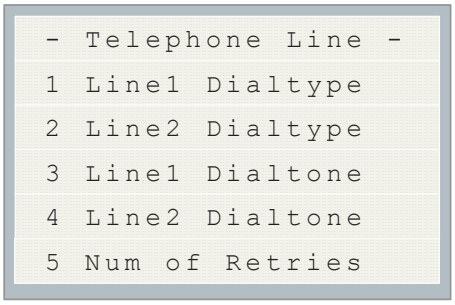


Figure 47 Telephone Line menu

Command Menu - Dialer-Config - Telephone Line **1. Line #1 Dialing Type** Line#1 Dialing Type: [X] DTMF Dial	[X] DTMF Dial->Def [ ] Pulse Dial	Set the dialing type for line #1. This is the type recognized or preferred by the telephone company.
Command Menu - Dialer-Config - Telephone Line **2. Line #2 Dialing Type** Line#2 Dialing Type: [X] DTMF Dial	[X] DTMF Dial->Def [ ] Pulse Dial	Same as Line #1.

Command Menu - Dialer-Config - Telephone Line **3. Line #1 Wait for Dial Tone** Line#1 Wait Dialtone [X] ENABLE	[X] ENABLE ->Default [ ] DISABLE	Use this function to let the system know whether or not to wait for a dial tone before dialing. Cell phone setup for the dialer requires that the system not wait for dial tone before dialing.
Command Menu - Dialer-Config - Telephone Line **4. Line #2 Wait for Dial Tone** Line#2 Wait Dialtone [X] ENABLE	[X] ENABLE ->Default [ ] DISABLE	Same as Line #1.
Command Menu - Dialer-Config - Telephone Line **5. Number of Retries** Number of Retries: 06	06 ->Default	Set the number of retries for both line #1 and line #2. This function lets the dialer retry on either line if it is busy or not available. If the retry count expires, the panel reports a line trouble.

Command Menu-->Dialer-Config

11.12.3 Report Options

```
- Report Options -
1 Alarm Prio.
2 Trouble Prio.
3 Supv. Prio.
4 Aux Dis Report
5 Operation Mode
```

Figure 48 Report Options menu

Command Menu - Dialer-Config - Report Options **1. Alarm priority** Alarm Priority: [X] Account 1	[X] Account 1->Def [ ] Account 2	Use this menu to set the account priority for reporting alarms. If the priority is set for account #1, then the dialer will try account #1 first for reporting.
Command Menu - Dialer-Config - Report Options **2. Trouble priority** Trouble Priority: [X] Account 1	[X] Account 1->Def [ ] Account 2	Use this menu to set the account priority for reporting trouble. If the priority is set for account #1, then the dialer will try account #1 first for reporting.
Command Menu - Dialer-Config - Report Options **3. Supervisory priority** SUPV Priority [X] Account 1	[X] Account 1->Def [ ] Account 2	Use this menu to set the account priority for reporting supervisory troubles. If the priority is set for account #1, then the dialer will try account #1 first for reporting.

Command Menu - Dialer-Config - Report Options **4. "Aux. Disconnect" Cancels Alarm & Supv Reporting Thru Dialer** AuxDis Alm&Supv Rpt. [X] DISABLE	[ ] ENABLE [X] DISABLE ->Default	If this function is enabled, the "Aux Disconnect" feature (see page 76) will block the alarm and supervisory events from being reported through the dialer.
Command Menu - Dialer-Config - Report Options **5. Dialer operation mode** Dialer Oper. Mode: [X] (U)DACT	[X] (U)DACT ->Default [ ] DACT	Use this function to select the functionality of the dialer. In DACT mode only common trouble/alarm/ supervisory are reported while in UDACT mode all point information is reported

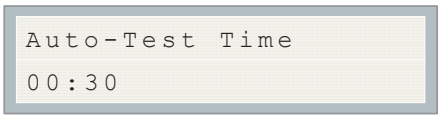
Command Menu-->Dialer-Config

11.12.4 Time Parameters

-Time Parameter-
1 AC-Loss Delay
2 Cellphone Date
3 Auto-Test Time

Figure 49 Time Parameter

Command Menu - Dialer-Config - Time Parameter **1. AC Loss delay** AC-Loss Delay(Hrs) 0	0 ->Default 0 to 20 hours	Use this menu to delay the reporting of AC loss trouble on the dialer for the specified time period.
Command Menu - Dialer-Config - Time Parameter **2.Cellular report date** Cellular Report Date 0	0 ->Default	To comply with UL 864 10th edition, leave this setting at 0. Use this menu to set the test report date for the cell phone setup. Set this menu to 0 if there is no test reporting for a cell phone, or if the phone line is a regular line. Set this menu from 01 to 28 to schedule a test for Line 2 on a certain day of the month. See section 11.12.5 for more information. When a cell phone service is employed for the panel, it should only be connected to telephone line #2 CO interface. Also, the dial tone detection feature of Line 2 should be disabled for cell phone application.

Command Menu - Dialer-Config - Time Parameter **3.Auto test time** 	00:30 ->Default	Use this function to set the time for the automatic test. When this test is performed, the test report is sent to the monitoring station. To comply with UL 864 9th edition and CAN/ULC-S559, this test must be performed at least once a day. To comply with UL 864 10th edition, this test must be performed at least once every 6 hours. The time is in 24 hour format, which means 00:30 is 30 minutes after midnight. The Auto test time can be configured to: 12:00 a.m. to 5:59 a.m.: test every 24 hours 3:00 a.m. to 5.59 a.am.: test every 3 hours 6:00 a.m. to 11:59 a.m.: test every 6 hours 12:00 p.m. to 23:59 p.m.: test every 12 hours If the Cellular report date is set to 0, then the test alternates between Line 1 and Line 2. See section 11.12.5 for more information.

11.12.5 Auto Test Time and Cellular Report Date

If the Cellular report date is set to 0, then the dialer alternates between Lines 1 and 2 when performing the automatic test. If the Cellular report date is not set to 0, then the automatic test is performed on Line 1 except on the Cellular report date, when it is performed on Line 2. See examples in Table 11.

Table 11 Auto Test Time and Cellular Report Date

Cellular Report Date	Auto Test Time	Line 1 Tested	Line 2 Tested
0	00:30	12:30 a.m. every other day (alternates with Line 2)	12:30 a.m. every other day (alternates with Line 1)
0	3:00	3:00 a.m. 9:00 a.m. 3:00 p.m. 9:00 p.m.	6:00 a.m. 12:00 p.m. 6:00 p.m. 12:00 a.m.
0	6:00	6:00 a.m. and 6:00 p.m.	12:00 p.m. and 12:00 a.m.
0	12:00	12:00 p.m.	12:00 a.m.
15	00:30	12:30 a.m. every day except on the 15th of the month	12:30 a.m. on the 15th of the month
15	6:00	6:00 a.m., 12:00 p.m., 6:00 p.m., and 12:00 a.m. every day except on the 15th of the month	6:00 a.m., 12:00 p.m., 6:00 p.m., and 12:00 a.m. on the 15th of the month
15	12:00	12:00 p.m. and 12:00 a.m. every day except on the 15th of the month	12:00 p.m. and 12:00 a.m. on the 15th of the month

Command Menu-->Dialer-Config

11.12.6 Dialer Enable/Disable

Dialer Ena/Dis [X] ENABLE ------Warning------- Dialer Disabled!!!	[X] ENABLE ->Default [ ] DISABLE	The dialer is enabled by default. When the dialer is enabled or disabled, a warning message appears. **Warning:** The dialer cannot report any event to the monitoring station if it is disabled.

Command Menu-->Dialer-Config

Ring Detect

-Ring Detect Number- [X]5	[ ] Disabled [ ] 1 [ ] 2 [ ] 3 [ ] 4 [X] 5->Default [ ] 6 [ ] 7 [ ] 8	Use this menu to select the number of rings on which the panel's modem will answer. The default number of rings is five. The maximum number of rings is eight. If you select the "Disabled" option, the modem will be disabled and the panel will not pick up the incoming call.

11.13 Test Dialer (Command Menu)

```
   -Dialer Test-
1. L#1 Manual test
2. L#2 Manual test
3. Reset Dialer
```

Figure 50 Dialer Test menu

1.L#1 Manual test	Press ENTER to test line #1. Press CANCEL to exit this menu. For a description of test messages, see section 11.13.1 on page 75.
2.L#2 Manual test	Press ENTER to test line #2. Press CANCEL to exit this menu. For a description of test messages, see section 11.13.1 on page 75.
3·Reset Dialer	This feature erases all reportable events from the buffer. Press ENTER to reset the dialer. Press CANCEL to exit this menu.

11.13.1 Dialer Test Messages

The following messages appear during the test processes of lines #1 and #2. The messages depend on the status of the dialer and the test results.

Dialer idle now	The dialer is checking the line for voltage. This message automatically displays when Manual Test is selected.
No DC Volt	No DC line voltage. The line is dead or no phone line is connected.
Waiting for Dialtone	The dialer is waiting for a dial tone.
Failed: No Dialtone	This message may indicate a noisy telephone line.
Dialing Receiver Now	The dial tone was received and telephone number dialing is in process.
No DTMF tone	This message indicates that the dialer failed to send a DTMF tone.
Waiting for Acktone	Waiting for availability of the receiver. The receiver confirms the availability by sending an ack tone.
Failed No Acktone	This message indicates that either the telephone number may be wrong or the receiver is not available.
Reporting Event Now	When sending events to the receiver, the display will toggle between this message and “Waiting for Kissoff“ for all events sent.
Waiting for Kissoff	The dialer is waiting for the kissoff tone. The kissoff tone indicates that the receiver has received the event reports.
No Kissoff	No Kissoff means receiver has not received any event reports.
Passed: Manual test	The line passed the test; everything is OK.

11.14 Bypass Det Ckt (Command Menu)

Bypass Det Zone 1.Zone-1	Initiating zones can be bypassed individually. This bypass command allows you to scroll through all initiating zones.
[ ]Bypassed	Press ENTER to bypass the zone or scroll up or down to un-bypassed (normal connected circuit).
[ ]Un-Bypassed	Press ENTER to un-bypass the zone or scroll up or down to bypass (off normal unconnected circuit).

11.15 Bypass NAC Ckt (Command Menu)

Bypass Det Zone 1.Zone-1	Indicating zones can be bypassed individually. This bypass command will allow you to scroll through all indicating zones.
[ ]Bypassed	Press ENTER to bypass the zone or scroll up or down to un-bypassed (normal connected circuit).
[ ]Un-Bypassed	Press ENTER to un-bypass the zone or scroll up or down to bypass (off normal unconnected circuit).

11.16 Aux. Disc. (Command Menu)

Disconnect Aux Relay?[Y]	Use the up or down keys to change from Y to N. This selection work like a switch. If set to Y, this command disconnects the Auxiliary Alarm Relay and associated relays as long as the Aux Disconnect feature has been enabled. See the commands in the Features menu in Table 9 for instructions on how to associate other relays with this switch.

11.17 Exit (Command Menu)

Press ENTER after selecting EXIT from the main menu to return the panel to normal operation.

11.18 Zone messages

Point annunciation is indicated on the LCD display. There are no separate queues for TROUBLE, ALARM, SUPERVISORY and MONITOR; instead there is only one queue that indicates all the events. The respective TROUBLE, ALARM and SUPVISORY LEDs flash if at least one of the given types is in the queue.

Scroll through the events by using the up and down arrow buttons. If you need more information about the displayed event, press the INFO button.

Note: For monitor events, the display shows the word BUILDING.

11.18.1 Example 1 (detection circuit)

Event 02 of 09, **OPEN TRB** on initiating circuit **Z-01** in the **EAST LOBBY ENTRANCE** with process type as **VERIFIED ALARM** and the event occurred on **2003/02/02** at **18:01 TUESDAY**.

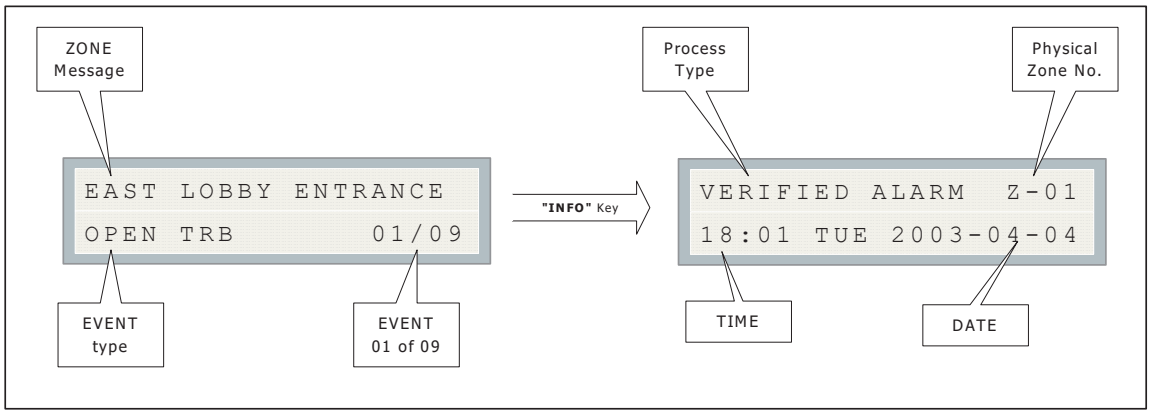


Figure 51 Detection circuit message

11.18.2 Example 2 (indicating circuit)

Event 02 of 09, **SHORT TRB** on indicating circuit **NAC-01** in the **EAST WING LOBBY** with process type as **SILENCEABLE** and the event occurred on **2003/02/02** at **18:01 TUESDAY**.

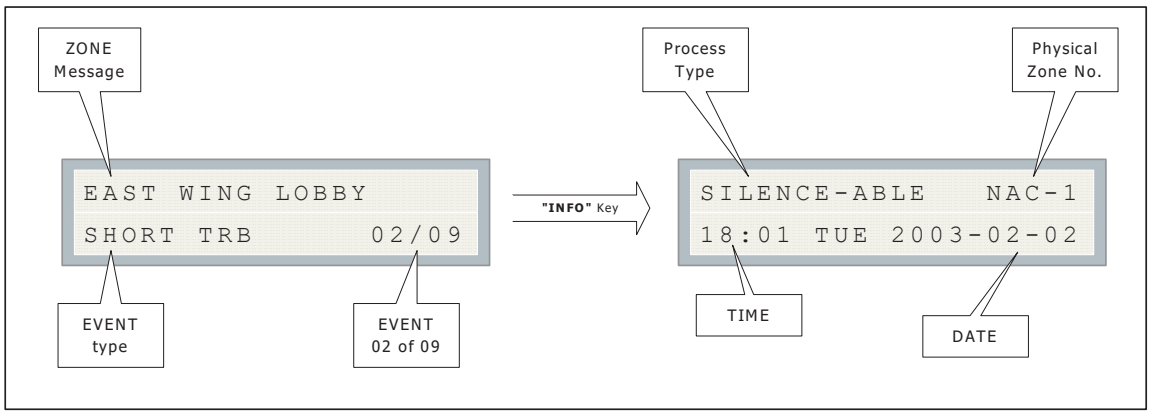


Figure 52 Indicating circuit message

Note: The queue hierarchy is Alarm, Supervisory, Trouble and Monitor. Alarm has the highest priority and is always shown at the beginning of the queue, followed by supervisory alarms, troubles and monitor zone troubles.

Other common messages are described below.

11.19 AC Power Fail

The AC power fail trouble is generated when the power drops below the UL specified value. The trouble is restored when the power returns to the normal value.

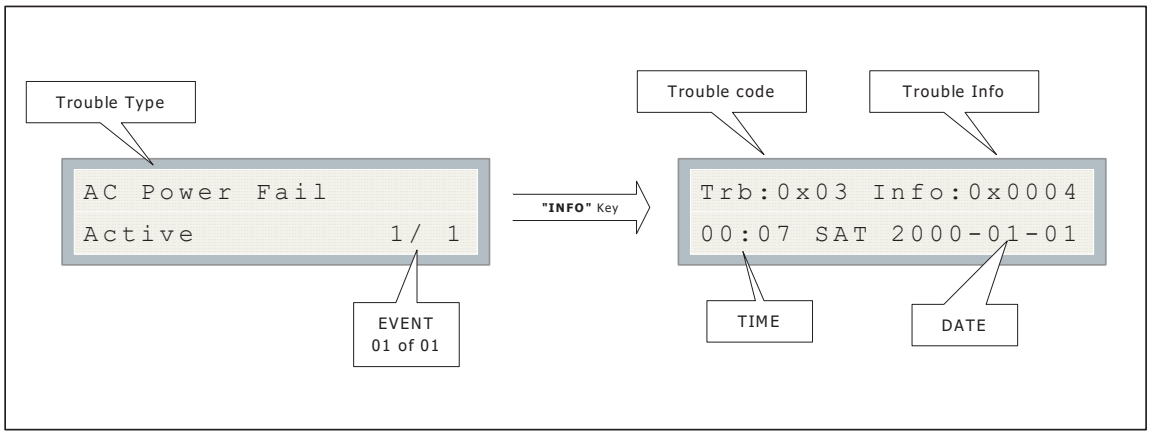


Figure 53 AC Power Fail message

11.20 Battery trouble

The battery trouble is generated when the battery voltage drops below the specified UL value. The trouble is restored when the voltage returns to the normal value.

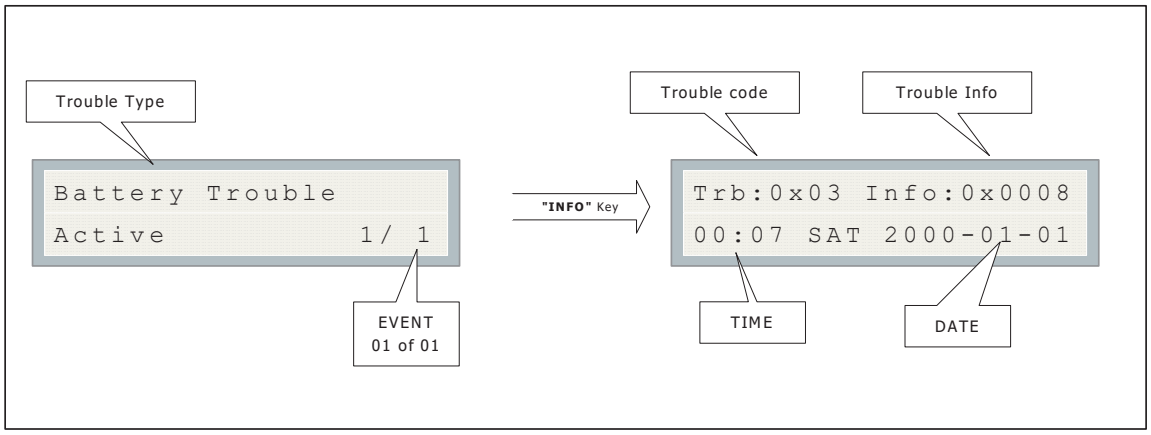


Figure 54 Battery trouble message

11.21 Ground Fault

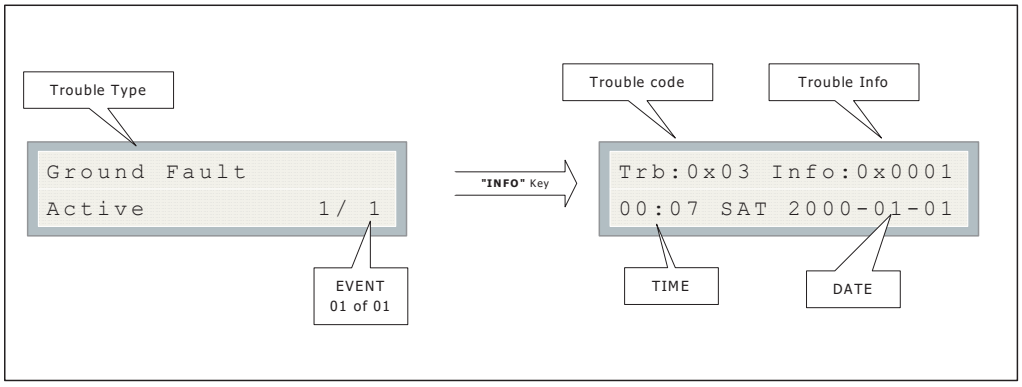


Figure 55 Ground Fault message

Note: The trouble code and info is for trained service personnel only.

11.22 Remote Annunciator

Troubles related to the annunciator can have two possibilities: either the main panel and annunciator failed to communicate with each other, or an unconfigured remote annunciator is responding to the main panel. In both the cases, the following trouble message is displayed:

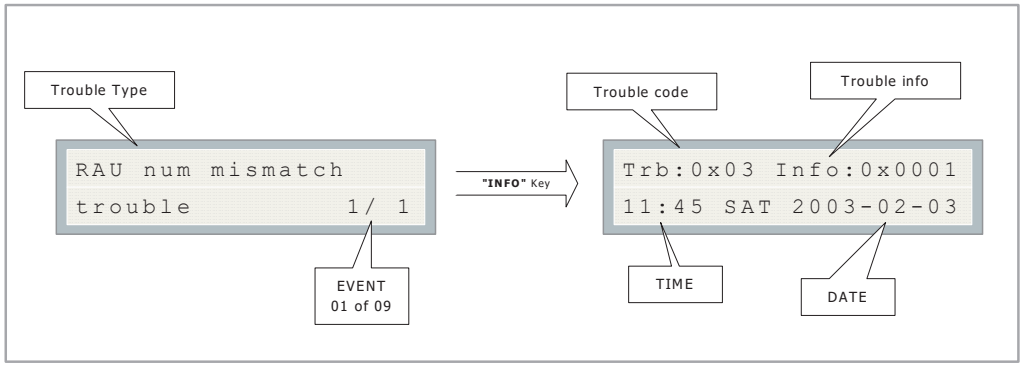


Figure 56 Remote Annunciator message

11.23 Four-Wire Smoke Detector Supply

The four-wire smoke detector supply is supervised for shorts. When a short is detected on the four-wire smoke supply the power is cut off and a trouble message is generated. Press the

RESET button to restore power to the system. If the short is removed, the panel returns to normal; otherwise the trouble message remains.

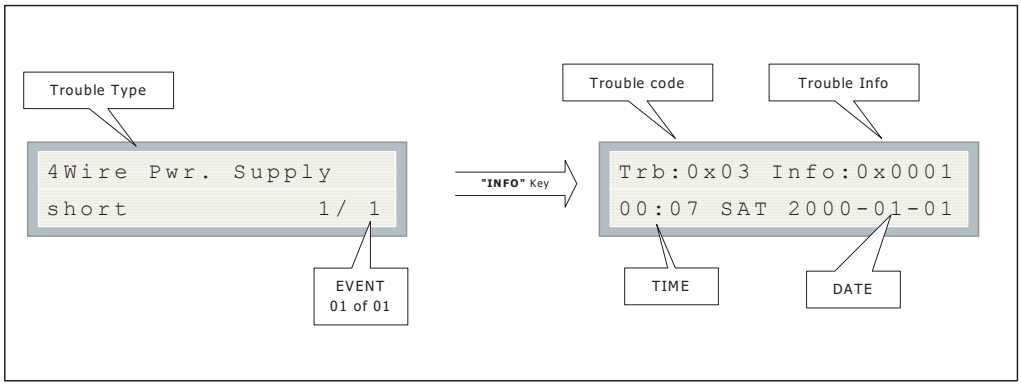


Figure 57 Four-wire smoke detector supply message

11.24 Supervised Auxiliary Supply

The supervised auxiliary supply is supervised for shorts. When a short is detected on the supervised auxiliary supply, the power is cut off and a trouble message is generated. Press the RESET button to restore power to the system. If the short is removed, the panel returns to normal; otherwise the trouble message remains.

Note: The trouble code and info is for trained service personnel only.

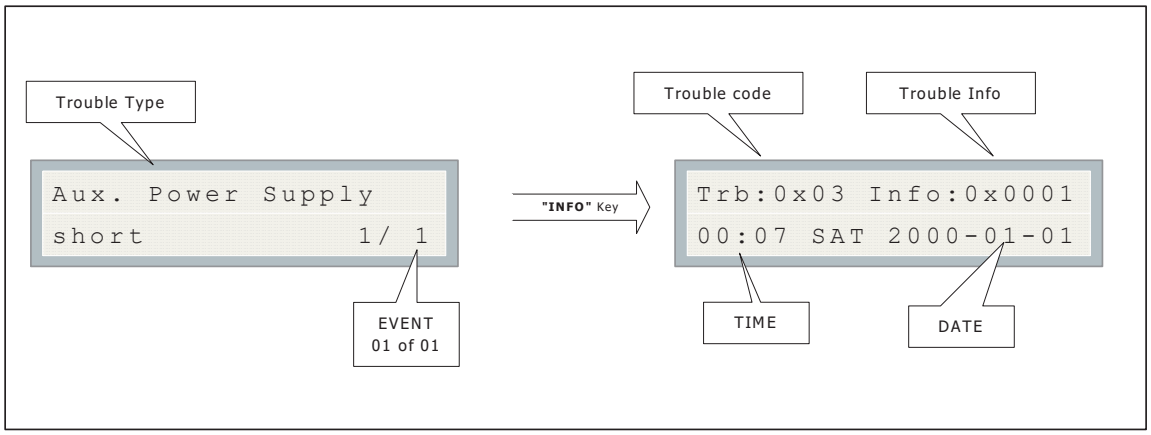


Figure 58 Supervised auxiliary supply message

11.25 City Tie Polarity Reversal - PR-300/Relay Module

The city tie or polarity reversal module is supervised for open and whether or not the PR-300 is plugged in. The relay module is supervised for whether or not it is plugged in.

If any of the modules are not plugged in, the following trouble message appears:

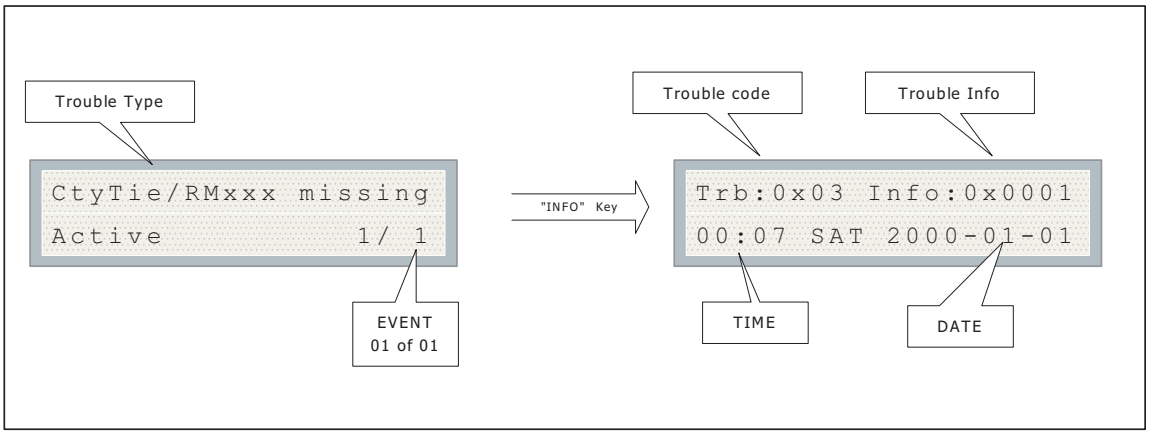


Figure 59 Module missing message

If there is an open detected on the city tie output, the following trouble message appears:

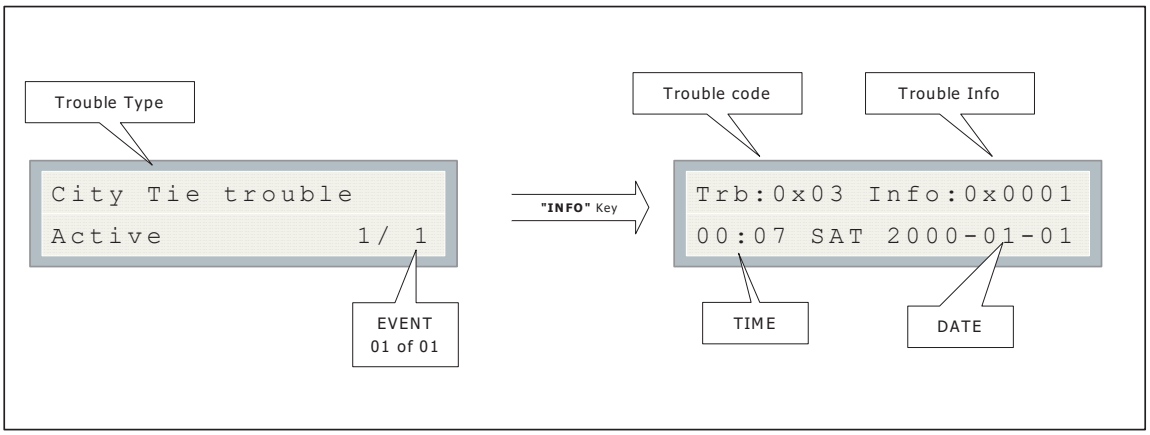


Figure 60 Module trouble message

Note: The trouble code and info is for trained service personnel only.

12.0 Appendix A: Compatible Receivers

The dialers that are built into select models of the FA-300 LCD Series Fire Alarm Control Panels are compatible with the following Digital Alarm Communicator Receivers (DACR):

Table 12 Compatible Receivers

DACR Receiver Model	Protocols
SurGard MLR2 Multi-Line Receiver (ULC, ULI)	SIA-DCS and Ademco Contact ID
SurGard SLR Single-Line Receiver (ULC, ULI)	SIA-DCS and Ademco Contact ID
Osborne-Hoffman Quickalert! II Receiver (ULI)	SIA-DCS and Ademco Contact ID
Osborne-Hoffman OH-2000 Receiver (ULI)	SIA-DCS and Ademco Contact ID
Silent Knight Model 9500 Receiver (ULI)	SIA-DCS and Ademco Contact ID
Radionics Model D6500 Receiver (ULI)	SIA-DCS and Ademco Contact ID
Radionics Model D6600 Receiver (ULI)	SIA-DCS and Ademco Contact ID
DSC SurGard System III Receiver (ULC, ULI)*	SIA Contact ID
DSC SurGard System IV Receiver (ULC, ULI)*	SIA Contact ID

Note: * When used with DSC 3G4010CF Universal Wireless Alarm Communicator through wireless IP connection.

13.0 Appendix B: Reporting

13.1 Ademco Contact-ID

13.1.1 FA-300 Event Codes

Table 13 Ademco Event Codes

Event Description	Event Family	Qualifier	Code	Group #	Contact #
Phone Line #1 trouble detected	Trouble	New event	1 351	00	000
Phone Line #2 trouble detected	Trouble	New event	1 352	00	000
Phone Line #1 trouble restored	Trouble	Restore	3 351	00	000
Phone Line #2 trouble restored	Trouble	Restore	3 352	00	000
Failure to report to an Account	Trouble	New event	1 354	Acct #	Acct #
Report to an Account successful	Trouble	Restore	3 354	Acct #	Acct #
Periodic (24 hr) Test Event (NORMAL)	Test	New event	1 602	00	000
Periodic (24 hr) Test Event (OFF NORMAL)	Test	New event	1 608	00	000
Manually initiated dialer test	Test	New event	1 601	00	000
Zone Fire Alarm	Alarm	New event	1 110	00	000
Zone Fire Alarm restored	Alarm	Restore	3 110	00	000
Zone Trouble detected	Trouble	New event	1 300	00	000
Zone Trouble restored	Trouble	Restore	3 300	00	000
Zone Supervisory condition	Supervisory	New event	1 200	00	000
Zone Supervisory restored	Supervisory	Restore	3 200	00	000
Waterflow	Alarm	New event	1 113	00	000
Waterflow restored	Alarm	Restore	3 113	00	000
Indicating Zone Trouble	Trouble	New event	1 320	00	000
Indicating Zone Trouble restored	Trouble	Restore	3 320	00	000
AC power lost	Trouble	New event	1 301	00	000
AC power restored	Trouble	Restore	3 301	00	000
Battery Low	Trouble	New event	1 302	00	000
Battery Low restored	Trouble	Restore	3 302	00	000
Ground Fault	Trouble	New event	1 310	00	000
Ground Fault restored	Trouble	Restore	3 310	00	000

NNN-Refers to Sensor number for zone causing event.

13.2 Security Industries Association SIA-DCS

SIA protocol does not define indicating zone troubles, but lists it as Untyped Zone Trouble/ Restore.

13.2.1 FA-300 Event Codes

Table 14 SIA Event Codes

Event Description	Event Family	Qualifier	SIA Event Code	Parameter
Phone Line #1 trouble detected	Trouble	New event	LT	001
Phone Line #2 trouble detected	Trouble	New event	LT	002
Phone Line #1 trouble restored	Trouble	Restore	LR	001
Phone Line #2 trouble restored	Trouble	Restore	LR	002
Failure to report to an Account	Trouble	New event	RT	Acct #
Report to an Account successful	Trouble	Restore	YK	Acct #
Periodic (24 hr) Test Event (Normal)	Test	New event	RP	000
Periodic (24 hr) Test Event (Off-normal)	Test	New event	RY	000
Manually initiated dialer test	Test	New event	RX	000
Zone Fire Alarm	Alarm	New event	FA	000
Zone Fire Alarm restored	Alarm	Restore	FH	000
Zone Trouble detected	Trouble	New event	FT	000
Zone Trouble restored	Trouble	Restore	FJ	000
Zone Supervisory condition	Supervisory	New event	FS	000
Zone Supervisory restored	Supervisory	Restore	FR	000
Waterflow alarm	Alarm	New event	WA	000
Waterflow alarm restored	Alarm	Restore	WH	000
Indicating Zone Trouble (*)	Trouble	New event	UT	000
Indicating Zone Trouble restored (*)	Trouble	Restore	UR	000
AC power lost	Trouble	New event	AT	000
AC power restored	Trouble	Restore	AR	000
Battery Low	Trouble	New event	YT	000
Battery Low restored	Trouble	Restore	YR	000
Ground Fault	Trouble	New event	YP	000
Ground Fault restored	Trouble	Restore	YQ	000

14.0 Appendix C: Specifications

Table 15 FA-300 LCD Series Specifications

FA-300 LCD Series Fire Control Panel Chassis		
General	Digital Signal Processor (DSP) based design. Fully configurable using front panel LCD display with Password Access.	
Indicating (NAC) Circuits	4 supervised class B indicating circuits, configured as strobes or audibles. Terminals are labeled **SIG**. Power limited / Regulated 24 VDC FWR / 1.7 A @ 49 C per circuit	
Initiating Circuits	12 supervised class B initiating circuits, configurable (normal or verified). Terminals are labeled **DET**. Compatibility ID **A** Power limited / 19 VDC reg. / 3 mA for detectors / 0.15 Vp-p ripple / 40 mA max (alarm short)	
Aux supply (non resettable)	Power limited / 22.3 VDC regulated / 500 mA max Class B when powers remote annunciators	
4-wire smoke supply (resettable)	Power limited / 22.3 VDC regulated / 300 mA max Class B when EOL relay is used	
RS-485 Connection	For Remote Annunciators. Terminals are labelled **RS485**.	
Electrical ratings	**AC line voltage**	120 VAC 60 Hz 3 amps \ 240 VAC 50 Hz 1.5 A (primary)
	Power Supply Rating	6 amps maximum (secondary)
	Max power allowed	• 5 A • 1.7 A (aux power unfiltered if used) • 0.5 A (aux power filtered if used) • 0.3 A (resettable auxiliary power if used)
	If no auxiliaries are used the max power is 5 A.	
	Current consumption	Standby: 283 mA Alarm: 560 mA
Auxiliary relays (resistive loads)	**Must be connected to a listed power limited source of supply. Terminals are labelled ALARM, TROUBLE, SUPV and AUX.**	
	Common Alarm	Form C, 1 A max, 28 VDC
	Common Supv	Form C, 1 A max, 28 VDC
	Common Trouble	Form C, 1 A max, 28 VDC
	Aux Relay	Form C, 1 A max, 28 VDC
Unfiltered supply (full wave rectified)	Power limited / 24 VDC unfiltered / 1.7 A max at 49 C	

Table 15 FA-300 LCD Series Specifications (Continued)

FA-300 LCD Series Fire Control Panel Chassis		
Testing impedance	2 kΩ ground fault 1 MΩ open 0.1 Ω short	
Battery	**Type**	24 VDC (2x12 VDC), sealed lead acid, 6 Ah maximum
	Charging capability	10 Ah
	Protection	10 A on board (F1) slow blow micro fuse
Compliance	**System Model**	FA-300 LCD Series Version Fire Alarm Control Panel
	System Type	Local, Auxiliary (using PR-300), Remote Protected Premises Station (using PR-300 or FA-300-6DDR or FA-301-12DDR) Central Station Protected Premises (using FA-300-6DDR or FA-301-12DDR).
	Type of Service	A, M, WF, SS
	Type of Signaling	Non-Coded
	Applicable Standards	NFPA 70 and 72, UL-864

Table 16 FA-300 LCD Series System Modules and Annunciators

FA-300 LCD Series Modules and Annunciators		
RM-312/RM-306	**Relay Adder Module**	Must be connected to a listed power-limited source of supply.
	Contact rating	NO / NC / 28 VDC per contact / 1 A resistive load max
	Current consumption	standby 0 mA, alarm RM-312 160 mA/ RM-306 80 mA
ICAC-306	**Input Class A converter module**	standby: 0 mA / alarm: 0 mA
OCAC-304	**Output Class A converter Module**	standby: 0 mA / alarm: 0 mA
OCAC-302	**Output Class A converter module**	Standby 0 mA / alarm 0 mA
SRM-312R/ SRM-312W	**Smart Relay Module**	Must be connected to a listed power-limited source of supply ***Contact rating*** FormC/ 28 VDC per contact / 1 A resistive load max, zoned ***Current consumption*** standby 30 mA / alarm 140 mA
	Contact rating	FormC / 28 VDC per contact / 1 A resistive load max, zoned
	Current consumption	standby 30 mA, alarm 140 mA

Table 16 FA-300 LCD Series System Modules and Annunciators (Continued)

FA-300 LCD Series Modules and Annunciators		
RAM-300LCDR/ RAM-300LCDW	**Remote LCD Annunciator**	Standby 56 mA / alarm 65 mA
RAM-208	**8 Zone Remote Annunciator**	Standby 35 mA / alarm 90 mA
PR-300	**Polarity Reversal and City Tie Module**	
	City Tie	power limited / 24 VDC unfiltered / 250 mA max / 14 Ω trip coil
	Polarity Reversal	power limited / 24 VDC open / 12 VDC at 3.5 mA / 8.5 mA max (shorted)
	Polarity Reversal Supv. Terminal	24 VDC (normal) / -24 VDC (supervisory) / 0 V (trouble)
	Polarity Reversal Alarm Terminal	24 VDC (normal) / -24 VDC (alarm) / 0 V (trouble)
	Current Consumption	standby 50 mA / alarm 300 mA (city tie in use) / alarm 70 mA (city tie not in use)
RTI-1	**Remote Trouble Indicator**	Standby 35 mA / alarm 35 mA

15.0 Appendix D: Power Supply and Battery Calculations

Use the form below to determine the required secondary power supply (batteries).

IMPORTANT NOTICE
The main AC branch circuit connection for Fire Alarm Control Panel 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: Specifications for specifications.

Power Requirements (All Currents are in Amperes)

Model Number	Description	Qty		Standby	Total Standby	Alarm	Total Alarm
FA-301-12DDR	Fire Alarm Control Panel, 12 Inp, 4Out with UDACT Using 3.9 kΩ resistors		X	0.174	=	0.444	=
FA-301-12DDR	Fire Alarm Control Panel, 12 Inp, 4Out with UDACT Using active resistors		X	0.104	=	0.394	=
FA-300-6DDR	Fire Alarm Control Panel, 6 Inp, 2 Out with UDACT Using 3.9 kΩ resistors		X	0.142	=	0.312	=
FA-300-6DDR	Fire Alarm Control Panel, 6 Inp, 2 Out with UDACT Using active resistors		X	0.112	=	0.282	=
FA-300-6DR	Fire Alarm Control Panel, 6 Inp,2 Out without UDACT Using 3.9 kΩ resistors		X	0.142	=	0.312	=
FA-300-6DR	Fire Alarm Control Panel, 6 Inp, 2 Out with UDACT Using active resistors		X	0.112	=	0.282	=
ICAC-306	Det Class A Converter Adder Module		X	0.000	-0.000	0.000	-0.000
OCAC-304	Sig Class A Converter Adder Module--4 Circuits		X	0.000	-0.000	0.000	-0.000
OCAC-302	Sig Class A Converter Adder Module--2 Circuits		X	0.000	-0.000	0.000	-0.000
PR-300	Polarity Reversal and City Tie Module		X	0.050	=	0.300 (City Tie in Use)	=
RM-312	12 Relay Adder Module		X	0.000	=	0.160	=
RM-306	6 Relay Adder Module		X	0.000	=	0.080	=
SRM-312R/SRM-312W	Smart Relay Module		X	0.030	=	0.140	=

RAM-300LCDR/ RAM-300LCDW	Smart Remote Annunciator		X	0.056	=	0.065	=
RAM-208/ RAM-216	Remote Annunciator		X	0.035	=	0.090/**0.140**	=
RTI-1	Remote Trouble Indicator		X	0.035	=	0.035	=
Two-Wire Smoke Detectors			X	✹ 0.00011	=	* 0.090	= 0.090
Four-Wire Smoke Detectors			X		=		=
Signal Load (bells, horns, strobes, and etc.)			X				=
Auxiliary Power Supply for Annunciators, etc.					=		=
Total currents (Add above currents) STANDBY					(**A**)	ALARM	(**B**)

* Assume three Initiating Circuits are in alarm.
' Use **0.084** for five minutes of alarm as a multiplier figure.
✹ Using the Mircom MPD-65P 2-wire photoelectric smoke detector. See Appendix A for other compatible smoke detectors.

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

Battery Capacity Requirement:

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

Total Alarm Current: Must be 6 amperes or less for FA-300 Series. Indicating Circuits must not to exceed 5 amperes.

Battery Selection: Multiply (**C**) by 1.25 to derate battery.

16.0 Warranty and Warning Information

WARNING!

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

NOTE TO ALL READERS:

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

NOTE TO INSTALLERS:

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

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

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

NOTE TO USERS:

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

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

13. **Wireless Devices Placement Proximity.** Moreover all wireless devices must be a minimum and maximum distance away from large metal objects, such as refrigerators. You are required to consult the specific Mircom System manual and application guide for any maximum distances required between devices and suggested placement of wireless devices for optimal functioning.
14. **Failure to Trigger Sensors.** Moreover, Mircom Systems may fail to operate as intended if motion, heat, or smoke sensors are not triggered.
    a. Sensors in a fire system may fail to be triggered when the fire is in a chimney, walls, roof, or on the other side of closed doors. Smoke and heat detectors may not detect smoke or heat from fires on another level of the residence or building. In this situation the control panel may not alert occupants of a fire.
    b. Sensors in a nurse call system may fail to be triggered when movement is occurring outside of the motion sensors' range. For example, if movement is occurring on the other side of closed doors or on another level of the residence or building the motion detector may not be triggered. In this situation the central controller may not register an alarm signal.
15. **Interference with Audible Notification Appliances.** Audible notification appliances may be interfered with by other noise sources such as stereos, radios, televisions, air conditioners, appliances, or passing traffic. Audible notification appliances, however loud, may not be heard by a hearing-impaired person.
16. **Other Impairments.** Alarm notification appliances such as sirens, bells, horns, or strobes may not warn or waken a sleeping occupant if there is an intervening wall or door. It is less likely that the occupants will be alerted or awakened when notification appliances are located on a different level of the residence or premise.
17. **Software Malfunction.** Most Mircom Systems contain software. No warranties are provided as to the software components of any products or stand-alone software products within a Mircom System. For a full statement of the warranties and exclusions and limitations of liability please refer to the company's standard Terms and Conditions and Warranties.
18. **Telephone Lines Malfunction.** Telephone service can cause system failure where telephone lines are relied upon by a Mircom System. Alarms and information coming from a Mircom System may not be transmitted if a phone line is out of service or busy for a certain period of time. Alarms and information may not be transmitted where telephone lines have been compromised by criminal tampering, local construction, storms or earthquakes.
19. **Component Failure.** Although every effort has been made to make this Mircom System as reliable as possible, the system may fail to function as intended due to the failure of a component.
20. **Integrated Products.** Mircom System might not function as intended if it is connected to a non-Mircom product or to a Mircom product that is deemed non-compatible with a particular Mircom System. A list of compatible products can be requested and obtained.

Warranty

Purchase of all Mircom products is governed by:

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

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

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

CANADA - Main Office
25 Interchange Way
Vaughan, ON L4K 5W3
Tel: (905) 660-4655
(888) 660-4655
Fax: (905) 660-4113

U.S.A
4575 Witmer Industrial Estates
Niagara Falls, NY 14305
Tel: (905) 660-4655
(888) 660-4655
Fax: (905) 660-4113

Printed in Canada
Subject to change without prior notice

www.mircom.com