Technology and Tradition

Gamewell FCI FIRE CONTROL INSTRUMENTS

by Honeywell

Flex 410

Fire Alarm Control Panel

Installation & Operations Manual

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P/N 151321
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Section 1
Introduction

The Model Flex 410 is an 24-volt 10-zone fire alarm control panel (expandable up to 30 class B zones or 15 class A zones using CZM-400 Zone Expanders) with a digital communicator that meets NFPA 72 requirements. The Flex 410 cabinet can be surface mounted or semi-flush mounted.

1.1 Model Flex 410 Features

- Built-in two-line (16 Character each line) LCD display provides easy to read english language readouts
- 10 Initiation inputs, 10 Class B (Style B) or 5 Class A (Style D), expandable to 30 class B or 15 class A zones
- Supervised zone expanders and I/O modules can be mounted remotely from the main control panel
- UL Listed
- Event History Buffer (approximately 100 events) with Date/Time stamp
- All zones are compatible with 2- and 4-wire detectors
- 8 selectable/programmable output pattern for notification appliance circuits (Including ANSI 3.41)
- Built-in Digital Alarm Communicator Transmitter (DACT)
- 4 Notification appliance circuits
- 4 programmable general purpose relays
- Programmable smoke verification, pre-alarm delay, cross zoning and enhanced verification mode features that can help minimize false alarms
- Programmable from the built-in control panel touchpad, remote annunciator or Window® downloading software
- Built-in walk test

1.2 About This Manual

The *Model Flex 410 Fire Control/Communicator Installation Manual (P/N 151321)* is intended for those persons involved with the installation and maintenance of the Flex 410 panel. It is a comprehensive guide, providing detailed instructions, and should be kept for reference. As much as possible, we have tried to organize the manual chronologically by the tasks that need to be performed.

Table 1-1: Standards Used in this Manual

1	A same graphic replicating the key that you press on a touchpad.
LCD DISPLAY MESSAGE	The font shown to the left represents messages that you see on a liquid crystal display (LCD) on the control panel and the remote annunciator.
1-1, 2-3, etc.	This manual is organized into sections. Section numbers are part of the page numbers. For example, 1-1 means Page 1 of Section 1.

1.2.1 Optional Accessories

Table 1-2: Compatible Modules

Model	What It Does
CZM-400 Zone Expander	Adds 10 class B zones or 5 class A zones. Up to 2 per system
CAB400-A Accessory Cabinet	Used for remote mounting of the CZM-400 Zone Expander.
RAN-400 Remote Annunciator	For remote annunciation, operation, and on-site programming.
IOM-410	The Model IOM-410 Status Display module provides outputs and control functions for remote annunciation of alarm, trouble, and supervisories for each zone.
FireForce 6 Signal Power Expander	Notification circuit power for additional notification appliances. Provides additional 6A of 24 VDC, supervised.
FireForce 9 Signal Power Expander	Notification circuit power for additional notification appliances. Provides additional 9A of 24 VDC, supervised.
SmartProgram 400 (Model SP400)	For remote programming of the Flex 410 using a personal computer.
PLEX-2	Optional door accessory for single button operation. (see Section 4.1 for programming).

Limitations of Fire Alarm Systems

Manufacturer recommends that smoke and/or heat detectors be located throughout a protected premise following the recommendations of the current edition of the National Fire Protection Association Standard 72 (NFPA 72), manufacturer's recommendations, State and local codes, and the recommendations contained in Guide for the Proper Use of System Smoke Detectors, which is made available at no charge to all installing dealers. A study by the Federal Emergency Management Agency (an agency of the United States government) indicated that smoke detectors may not go off or give early warning in as many as 35% of all fires. While fire alarm systems are designed to provide warning against fire, they do not guarantee warning or protection against fire. A fire alarm system may not provide timely or adequate warning, or simply may not function, for a variety of reasons. For example:

- Particles of combustion or smoke from a developing fire may not reach the sensing chambers of smoke detectors because:
  - Barriers such as closed or partially closed doors, walls, or chimneys may inhibit particle or smoke flow.
  - Smoke particles may become cold, stratify, and not reach the ceiling or upper walls where detectors are located.
  - Smoke particles may be blown away from detectors by air outlets
  - Smoke particles may be drawn into air returns before reaching the detector.

  In general, smoke detectors on one level of a structure cannot be expected to sense fires developing on another level.
- The amount of smoke present may be insufficient to alarm smoke detectors. Smoke detectors are designed to alarm at various levels of smoke density. If such density levels are not created by a developing fire at the location of detectors, the detectors will not go into alarm.
- Smoke detectors, even when working properly, have sensing limitations. Detectors that have photoelectronic sensing chambers tend to detect smoldering fires better than flaming fires, which have little visible smoke. Detectors that have ionizing-type sensing chambers tend to detect fast flaming fires better than smoldering fires. Because fires develop in different ways and are often unpredictable in their growth, neither type of detector is necessarily best and a given type of detector may not provide adequate warning of a fire.
- Smoke detectors are subject to false alarms and nuisance alarms and may have been disconnected by users. For example, a smoke detector located in or near a kitchen may go into nuisance alarm during normal operation of kitchen appliances. In addition, dusty or steamy environments may cause a smoke detector to falsely alarm. If the location of a smoke detector causes an abundance of false alarms or nuisance alarms, do not disconnect the smoke detector; call a professional to analyze the situation and recommend a solution.
- Smoke detectors cannot be expected to provide adequate warning of fires caused by arson, children playing with matches (especially within bedrooms), smoking in bed, violent explosions (caused by escaping gas, improper storage of flammable materials, etc.).
- Heat detectors do not sense particles of combustion and are designed to alarm only when heat on their sensors increases at a predetermined rate or reaches a predetermined level. Heat detectors are designed to protect property, not life.
- Warning devices (including horns, sirens, and bells) may not alert people or wake up sleepers who are located on the other side of closed or partially open doors. A warning device that activates on a different floor or level of a dwelling or structure is less likely to awaken or alert people. Even persons who are awake may not notice the warning if the alarm is muffled by noise from a stereo, radio, air conditioner or other appliance, or by passing traffic. Audible warning devices may not alert the hearing-impaired (strobes or other devices should be provided to warn these people). Any warning device may fail to alert people with a disability, deep sleepers, people who have recently used alcohol or drugs, or people on medication or sleeping pills.
  - Please note that:
    i) Strobes can, under certain circumstances, cause seizures in people with conditions such as epilepsy.
    ii) Studies have shown that certain people, even when they hear a fire alarm signal, do not respond or comprehend the meaning of the signal. It is the property owner's responsibility to conduct fire drills and other training exercises to make people aware of fire alarm signals and instruct on the proper reaction to alarm signals.
    iii) In rare instances, the sounding of a warning device can cause temporary or permanent hearing loss.
- Telephone lines needed to transmit alarm signals from a premises to a central station may be out of service or temporarily out of service. For added protection against telephone line failure, backup radio transmission systems are recommended.
- System components, though designed to last many years, can fail at any time. As a precautionary measure, it is recommended that smoke detectors be checked, maintained, and replaced per manufacturer's recommendations.
- System components will not work without electrical power. If system batteries are not serviced or replaced regularly, they may not provide battery backup when AC power fails.
- Environments with high air velocity or that are dusty or dirty require more frequent maintenance.

In general, fire alarm systems and devices will not work without power and will not function properly unless they are maintained and tested regularly.

While installing a fire alarm system may make the owner eligible for a lower insurance rate, an alarm system is not a substitute for insurance. Property owners should continue to act prudently in protecting the premises and the people in their premises and should properly insure life and property and buy sufficient amounts of liability insurance to meet their needs.

Section 2
Agency Listings and Requirements

Install and maintain in accordance with NFPA 72. Detector spacing shall be in accordance to NFPA 72. End-of -line relays and resistors shall be placed within the electrical box located and the end of the initiating circuit. Testing and maintenance should be performed according to NFPA 72.

2.1 Federal Communications Commission (FCC)

1. If requested by the telephone company, the following information must be provided before the Flex 410 can be connected to the phone lines:

A.	Model Number:	Flex 410
B.	FCC registration number:	AC6USA-34758-AL-E
	Ringer equivalence:	0.5B
C.	Type of jack (to be installed by the telephone company):	RJ31X

4. This device may not be directly connected to coin telephone or party line services.
5. This device cannot be adjusted or repaired in the field. In case of trouble with the device, notify the installing company or return to:

   Gamewell
   12 Clintonville Rd,
   Northford, CT, 06472

6. If the Flex 410 causes harm to the telephone network, the telephone company will notify the user in advance that temporary discontinuance of service may be required. When advance notice is not practical, the telephone company will notify the user as soon as possible. Users have the right to file complaints, if necessary, with the Federal Communications Commission.
7. The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice to allow you to make the necessary modifications to maintain uninterrupted service.

Warning

This device has been verified to comply with FCC Rules Part 15. Operation is subject to the two following conditions: (1) This device may not cause radio interference; and (2) This device must accept any interference received including interference that may cause undesired operation.

2.2 Underwriters Laboratories (UL)

The Flex 410 is UL Listed as a control unit for use in Central Station Protected Premises, Local Protected Fire Alarm Systems, Auxiliary Protected Fire Alarm Systems for Fire Alarm Service (City Box), and Remote Station Protected Fire Alarm Systems. If the Flex 410 and its accessories are to be used as part of a UL installation, carefully read the UL requirements in this section.

2.2.1 Requirements for All Installations

General requirements are described below. The sections that follow describe additional requirements for the type of installation (for example, Central Station Fire Alarm systems, Local Protected Fire Alarm systems, and so on).

1. Use UL listed smoke detectors compatible with the Flex 410. Refer to Appendix A.
2. Use UL listed compatible notification devices. Refer to Appendix A.

Restricted Options:

- The loss of AC signal is defaulted to 3 hours however the system allows settings from 0 - 30 hours. For UL certified installations this number must be set from 1 to 3 hours.
- Call forwarding shall not be used.
- When cross zoning is used detector spacing shall be cut in half, you shall not use the alarm verification feature, and no delay shall be used.

2.2.2 Requirements for Central Station Fire Alarm Systems

1. The Phone Line “Line Dial Type” must be selected for anything other than “Not Used”. (See programming Section 4.3.9).
2. On class A (style D) zones, the number of waterflow devices is limited to five.
3. Auxiliary relays may not be programmed to activate for Pre-Alarm. See programming Section 4.3.5.

2.2.3 Requirements for Auxiliary Protected Fire Alarm Systems for Fire Alarm Service

1. Follow the current load restrictions shown in Section 3.6.

2.2.4 Requirements for Remote Station Protected Fire Alarm Systems, for Digital Communication or Polarity Reversal

1. Follow the current load restrictions shown in Section 3.6.
2. For Digital communication use the Flex 410’s built-in DACT.

2.3 Industry Canada Warnings

This product is not ULC or CUL Listed.

NOTICE:

The Industry Canada Label identifies certified equipment. This certification means that the equipment meets telecommunications network protective, operational and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements document(s). The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.
Caution: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

NOTICE: 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 Number of all the devices does not exceed 5.

2.3.1 Avis D’industrie Canada

AVIS:
L’étiquette d’Industrie Canada identifie le matériel homologué. Cette étiquette certifie que le matériel est conforme aux normes de protection, d’exploitation et de sécurité des réseaux de télécommunications, comme le prescrivent les documents concernant les exigences techniques relatives au matériel terminal. Le Ministère n’assure toutefois pas que le matériel fonctionnera à la satisfaction de l’utilisateur.

Avant d’installer ce matériel, l’utilisateur doit s’assurer qu’il est permis de le raccorder aux installations de l’entreprise locale de télécommunication. Le matériel doit également être installé en suivant une méthode acceptée de raccordement. L’abonné ne doit pas oublier qu’il est possible que la comformité aux conditions énoncées ci-dessus n’empêche pas la dégradation du service dans certaines situations.

Les réparations de matériel homologué doivent être coordonnées par un représentant désigné par le fournisseur. L’entreprise de télécommunicationspeut demander à l’utilisateur de débrancher un appareil à la suite de réparations ou de modifications effectuées par l’utilisateur ou à cause de mauvais fonctionnement.

Pour sa propre protection, l’utilisateur doit s’assurer que tous les fils de mise à la terre de la source d’énergie électrique, des lignes téléphoniques et des canalisations d’eau métalliques, s’il y en a, sont raccordés ensemble. Cette précaution est particulièrement importante dans les régions rurales. Avertissement: L’utilisateur ne doit pas tenter de faire ces raccordements lui-même; il doit avoir recours à un service d’inspection des installations électriques, ou à un électricien, selon le cas.

AVIS:
L’indice d’équivalence de la sonnerie (IES) assigné à chaque dispositif terminal indique le nombre maximal de terminaux qui peuvent être raccordés à une interface. La terminaison d’une interface téléphonique peut consister en une combinaison de quelques dispositifs, à la seule condition quela somme d’indices d’équivalence de la sonnerie de tous les dispositifs n’excède pas 5.

Section 3
Control Panel Installation

3.1 Electrical Specifications

Initiating Circuits		SBUS Power	27.4 VDC 1A max
Maximum Impedance	50Ω	Accessory Power	27.4 VDC 1A
Circuit Type	Full Wave Rectified	Notification Circuits	
Max Alarm Current for All Devices	100 mA	Power	27.4 VDC 3A max/output (6A total)
Max Standby Load/Style A Zone	3.0 mA	Max Impedance	1.5Ω
2-Wire Smoke Operating Voltage	17.5 – 27.4 VDC	Sync Output/Circuit Type	Single Circuit/Regulated
Short Circuit Current	95 mA	Polarity Reversal*	3000Ω max
Primary AC	120 VRMS @ 60 Hz, 3A	City Master Box*	14.5 Coil, Local Energy
Min Low AC Detect	98 VAC	Programmable Relays	Non-Power Limited 2.5A 24 VDC (Inductive) 5A 24 VDC (Resistive)
Batteries		Telephone Connections	
Battery Charging Voltage/Circuit	27.4 VDC @ 0.75A max	Minimum Input Sensitivity	35 dB
Max Low Battery Detect	20.4 VDC	Good Line Voltage	3 VDC
Total DC Load	6.0A	Ground Fault Impedance to Any Terminal	0Ω

* See Section 3.14 for more information.

3.2 Environmental Specifications

It is important to protect the control panel from water. To prevent water damage, the following conditions should be AVOIDED when mounting the units:

- Do not mount directly on exterior walls, especially masonry walls (condensation).
- Do not mount directly on exterior walls below grade (condensation).
- Protect from plumbing leaks.
- Protect from splash caused by sprinkler system inspection ports.
- Do not mount in areas with humidity-generating equipment (such as dryers, production machinery).

When selecting a location to mount the control panel, the unit should be mounted where it will NOT be exposed to temperatures outside the range of 0°C-49°C (32°F-120°F) or humidity outside the range of 10%-93% at 30°C (86°F) noncondensing.

See Section 3.5 for additional environmental specifications.

3.3 Wiring Specifications

To avoid induced noise (transfer of electrical energy from one wire to another), keep input wiring isolated from high current output and power wiring. Induced noise can interfere with telephone communication or even cause false alarms. Avoid pulling one multiconductor cable for the entire panel. Instead, separate the wiring as follows:

1/4" spacing must be maintained between each of these circuit types; as well as between power limited and non-power limited circuits.	Input/Output Type	Wiring
	High Voltage:	AC power
	Low Voltage:	Annunciator, zone circuit wiring, and notification devices
	Audio:	Speaker
	Telco	Separated

DO NOT pull wires from different groups through the same conduit. If you must run them together, do so for as short a distance as possible or use shielded cable. Connect the shield to earth ground at the panel only.

For the same reasons, wiring within the cabinet should be routed around the perimeter of the cabinet. It should not cross the printed circuit board where it could induce noise into the sensitive microelectronics or pick up unwanted RF noise from the high speed circuits.

High frequency noise, such as that produced by the inductive reactance of a speaker or bell, can also be reduced by running the wire through ferrite shield beads or by wrapping it around a ferrite toroid. Figure 3-1 provides an example.

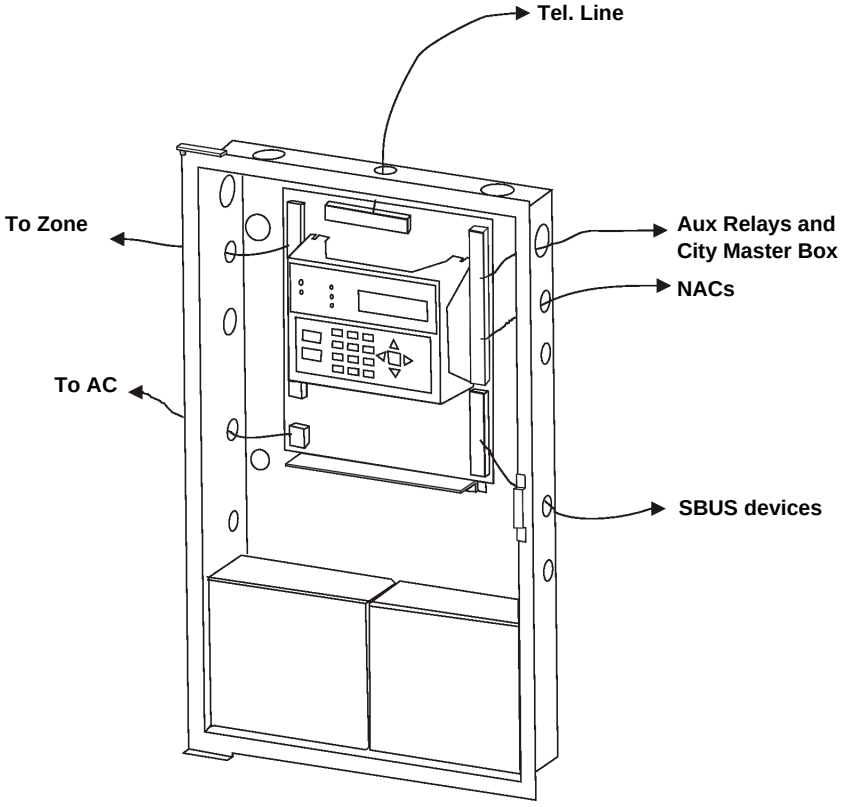


Figure 3-1 Wire Routing Example

3.4 Control Board Components

Figure 3-2 is a wiring diagram for wiring the Flex 410 panel.

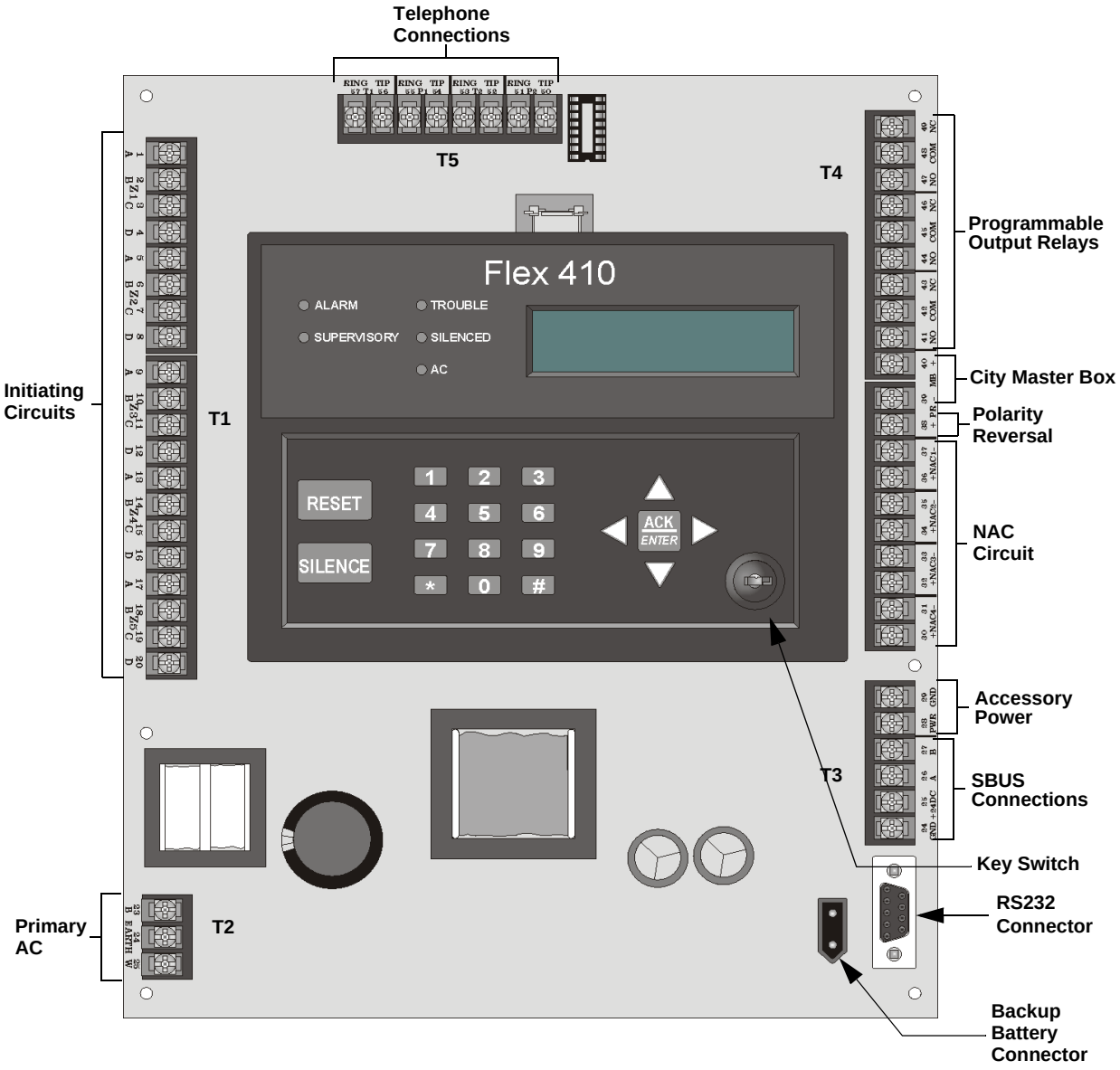


Figure 3-2 Flex 410 Board Layout

Refer to Section 3.4.1 for complete description of control panel terminal connections.

3.4.1 Terminal Description and Electrical Specifications

Table 3-1 lists the terminal box (see Figure 3-2 for terminal locations), terminals numbers, and their electrical specification.

Table 3-1: Terminal Descriptions

Terminal Block	Function	Terminal*		Description			Electrical Rating
		No.	Designator	Class/Group B	Class/Group A	Comments	
T1	Z1	1	A (+)	Zone 1	Zone 1	Zone 1 input Class A (Style D) or Class B (Style B). See Section 3.10 for wiring configurations.	**Class A** Maximum voltage: 17.5 VDC – 27.4 VDC Circuit Current: 95 mA **Class B** Maximum circuit Resistance - 50 ohms Maximum Total alarm current for all Class B (Style B) zones - 1 A Maximum Standby Current per Zone: 3.0 mA Maximum Alarm Current per Zone: 95 mA
		2	B (–)				
		3	C (–)	Zone 2			
		4	D (+)				
	Z2	5	A (+)	Zone 3	Zone 2	Zone 2 input Class A (Style D) or Class B (Style B). See Section 3.10 for wiring configurations.	
		6	B (–)				
		7	C (–)	Zone 4			
		8	D (+)				
	Z3	9	A (+)	Zone 5	Zone 3	Zone 3 input Class A (Style D) or Class B (Style B). See Section 3.10 for wiring configurations.	
		10	B (–)				
		11	C (–)	Zone 6			
		12	D (+)				
	Z4	13	A (+)	Zone 7	Zone 4	Zone 4 input Class A (Style D) or Class B (Style B). See Section 3.10 for wiring configurations.	
		14	B (–)				
		15	C (–)	Zone 8			
		16	D (+)				
	Z5	17	A (+)	Zone 9	Zone 5	Zone 5 input Class A (Style D) or Class B (Style B). See Section 3.10 for wiring configurations.	
		18	B (–)				
		19	C (–)	Zone 10			
		20	D (+)				
T2	AC Input	21	B	Black		AC power input terminals.	120 Vrms at 60 Hz, 3A Minimum Low AC detection: 98VAC
		22	Earth	Earth			
		23	W	White			
T3	SBUS**	24	GND	SBUS Power		SBUS terminals to communicate to RAN-400, CZM-400, and IOM-410 devices that are connected to the control panel.	24 VDC, 1Amp total current.
		25	+24DC				
		26	A	SBUS Data			
		27	B				
	Aux Power**	28	PWR			24 VDC auxiliary power.	24 VDC, 1 Amp total current.
		29	GND				

Table 3-1: Terminal Descriptions

Terminal Block	Function	Terminal*		Description			Electrical Rating
		No.	Designator	Class/Group B	Class/Group A	Comments	
T4	NAC4	30	+	Class B (Style Y)	Class A (Style Z)	Four Class B or two Class A Notification Appliance Circuits. See Section 3.11 for wiring diagrams. Single Circuit Regulated.	3A max. per output (6A total)
		31	–				
	NAC3	32	+	Class B (Style Y)			
		33	–				
	NAC2	34	+	Class B (Style Y)	Class A (Style Z)		
		35	–				
	NAC1	36	+	Class B (Style Y)			
		37	–				
	Direct Connect	38	+	PR	Polarity Reversal	Used for polarity reversal signaling devices to meet standards for Remote Supervising Station Fire Alarm Systems.	24 VDC 24 mA Max Resistance: 3000Ω
		39	–				
				MB	Master Box	Used for City Master Box direct connections for Auxiliary Fire Alarm systems.	24 VDC Sup. Current: 24 mA Alarm Current: 600 mA Box Trip coil Res: 14.5 Ω
		40	+				
	Programmable Relay 3	41	NO	Normally Open		Three Form “C” programmable auxiliary relay outputs.	2.5 A, 24 VDC/24 VAC (inductive) 5 A, 24 VDC (resistive) Non Power-Limited
		42	COM	Common			
		43	NC	Normally Closed			
	Programmable Relay 2	44	NO	Normally Open			
		45	COM	Common			
		46	NC	Normally Closed			
	Programmable Relay 1	47	NO	Normally Open			
		48	COM	Common			
		49	NC	Normally Closed			
T5	Phone Line 2	50	TIP	Premise 1		UL listed DACT.	Good phone line voltage: 3 V Minimum input sensitivity:35 dB
		51	RING				
		52	TIP	Telco 1			
		53	RING				
	Phone Line 1	54	TIP	Premise 1			
		55	RING				
		56	TIP	Telco 1			
		57	RING				

* *All circuits will indicate an earth ground fault when shorted directly to earth ground, with the exception of terminals 50—57. Terminals 50—57 may not report an earth ground fault, but instead may report a phone line fault.*

** *Special applications.*

3.5 Mounting the Flex 410

Read the environmental specifications in section 3.2 on page 1 before mounting the panel.

The cabinet dimensions are:

16" W x 26.4" H x 4" D (40.64 cm W x 67.06 cm H x 10.16 cm D).

The panel should be located within a secured area, where it is accessible to main drop wiring runs and where it can be easily tested and serviced. End-users responsible for maintaining the panel should be able to hear alarms and troubles. When selecting a location, keep in mind that the panel itself is the main source of alarm and trouble annunciation.

When mounting on interior walls, use appropriate screw anchors in plaster. When mounting on concrete, especially when moisture is expected, attach a piece of 3/4 inch plywood to the concrete surface and then attach the control panel to the plywood. Also mount any other desired components to the plywood.

DO NOT flush-mount the control panel cabinet in a wall designated as a fire break.

3.5.1 Preventing Water Damage

Water damage to the fire system can be caused by moisture entering the cabinet through the conduits. Conduits that are installed to enter the top of the cabinet are most likely to cause water problems. Installers should take reasonable precautions to prevent water from entering the cabinet. Water damage is not covered under warranty.

3.6 Current Draw Calculations

3.6.1 Worksheet Requirements

The following steps must be taken when determining current draw and standby battery requirements.

Filling in the Current Draw Worksheet, Table 3-2 (Section 3.6.2)

1. For the worst case current draw is listed for the panel and panel accessories. Fill in the number of devices that will be used in the system and compute the current draw requirements for alarm and standby. Record this information in Table 3-2 at Line A.
2. Add up the current draw for all smoke detectors and record in the table at Line B.
3. Add up all notification appliance loads and record in the table at Line C.
4. For notification appliances and auxiliary devices not mentioned in the manual, refer to the device manual for the current ratings.
5. Make sure that the total alarm current you calculated, including current for the panel itself, does not exceed 6.0 A. This is the maximum alarm current for the control panel.

   If the current is above 6.0 A you will need to use a notification power expander(s) such as the FireForce 6 or FireForce 9 to distribute the power loads so that the Flex 410 or the power expanders do not exceed their power rating. Refer to the current draw worksheets provided with the FireForce 6 or FireForce 9 manuals so you do not exceed their power requirements.
6. Complete the remaining instructions in Table 3-2 for determining battery size requirements.

3.6.2 Current Draw Worksheet

Use Table 3-2 to determine current requirements during alarm/battery standby operation. (Copy the page if additional space is required.)

Table 3-2: Current Draw Calculations

	Device	# of Devices	Current per Device		Standby Current	Alarm Current
	For each device use this formula:	This column	X This column	=	Current per number of devices.	
	Flex 410 Fire Panel (Current draw from battery)	1	Standby:	196 mA	196 mA	
			Alarm:	460 mA		460 mA
	Panel Accessories					
	CZM-400 Zone Expander	(1 max.)	Standby:	60 mA	mA	
			Alarm:	260 mA		mA
	RAN-400 Annunciator	(4 max.)	Standby:	30 mA	mA	
			Alarm:	50 mA		mA
	IOM-410 Status Display Module	(8 max.)	Relay (max.) Standby:	10 mA	mA	
			Relay (max.) Alarm:	80 mA		mA
			Outputs Per output	100 mA		mA
			Outputs Max.	700 mA		mA
A	**Total System Current**					
	Smoke Detectors					
			Standby:	mA	mA	
			Alarm:	mA		mA
			Standby:	mA	mA	
			Alarm:	mA		mA
			Standby:	mA	mA	
			Alarm:	mA		mA
			Standby:	mA	mA	
			Alarm:	mA		mA
			Standby:	mA	mA	
			Alarm:	mA		mA
B	**Smoke Detector Current**				mA	mA
	Notification Appliances					
			Alarm:	mA		mA
			Alarm:	mA		mA
			Alarm:	mA		mA
			Alarm:	mA		mA
C	**Notification Appliances Current**					mA
	Additional Devices					
			Standby:	mA		
			Alarm:	mA		
			Standby:	mA		
			Alarm:	mA		
D	**Additional Devices Current**					mA
E	Total current ratings of all devices in system (line A + line B + C +D)				mA	mA
F	Total current ratings converted to amperes (line E x .001):				A	A
G	Number of standby hours (24 or 60 for NFPA 72, chapter 1, 1-5.2.5):				H	
H	Multiply lines F and G. **Total standby AH**				AH	
I	Alarm sounding period in hours. (For example, 5 minutes = .0833 hours)					H
J	Multiply lines F and I. **Total alarm AH**					AH
K	*Add lines H and J. **Total ampere hours required**				AH	

* *Use next size battery with capacity greater than required.*

3.6.3 Maximum Battery Standby Load

Table 3-3 shows the maximum battery standby load for the control panel based on 24 and 60 hours of standby. The standby load calculations of line D in the Current Draw Calculation Worksheet (Table 3-2) must be less than the number shown in Table 3-3 for the battery size used and standby hours required.

Batteries larger then 18 AH will not fit into the control panel cabinet and must be housed in the RBB Accessory Battery Cabinet. See Section 3.8 for battery installation.

Table 3-3: Maximum Battery Standby Load

Rechargeable Battery Size	Max. Load for 24 hrs. Standby, 5 mins. Alarm	*Max. Load for 60 hrs. Standby, 5 mins. Alarm
7 AH	270 mA	105 mA
12 AH	475 mA	190 mA
18 AH	685 mA	270 mA
35 AH	1.1 A	450 mA

* *Required for NFPA 72 Auxiliary Protected Fire Alarm systems for Fire Alarm Service (City Box) and Remote Station Protected Fire Alarm systems (Polarity Reversal) and Digital Alarm Communicator/Transmitter (DACT).*

Warning!

Gamewell does not support the use of batteries smaller than those listed in Table 3-3. If you use a battery too small for the installation, the system could overload the battery resulting in the installation having less than the required 24 hours standby power. Use Table 3-2 to calculate the correct battery amperes/hour rating needed for your installation.

3.7 AC Wiring

The Flex 410s power supply delivers 24 VDC at 6A for smoke detector power, notification device power, and accessory power. Figure 3-3 shows the AC connections to the control panel.

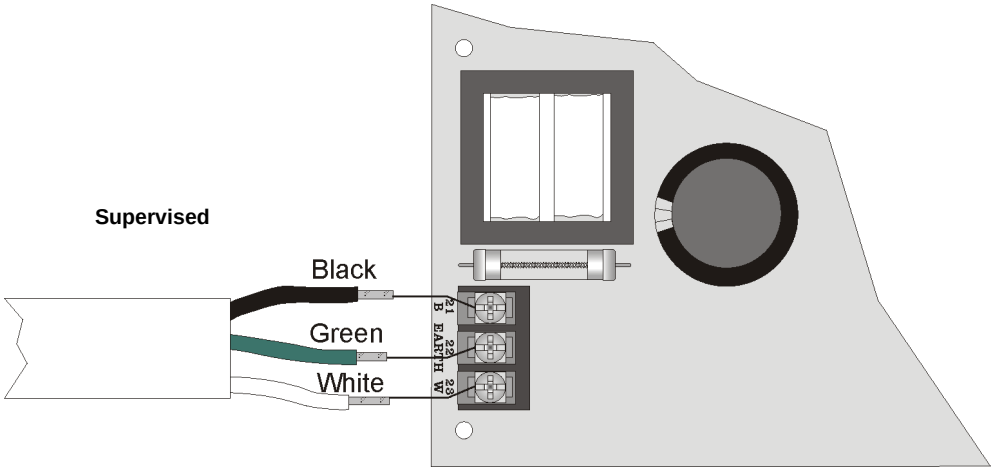


Figure 3-3 AC Wiring

Warning

To reduce the risk of electrical shock, make sure that all power has been turned off or disconnected before attempting to connect the Flex 410 control panel. Do NOT apply power to this panel until all accessories are properly connected.

Note: Note: All conduit and wiring connected to the Flex 410 must meet the applicable National Electric Code, NFPA Standards, state, and local building code requirements. In all cases, the authority having jurisdiction takes precedence.

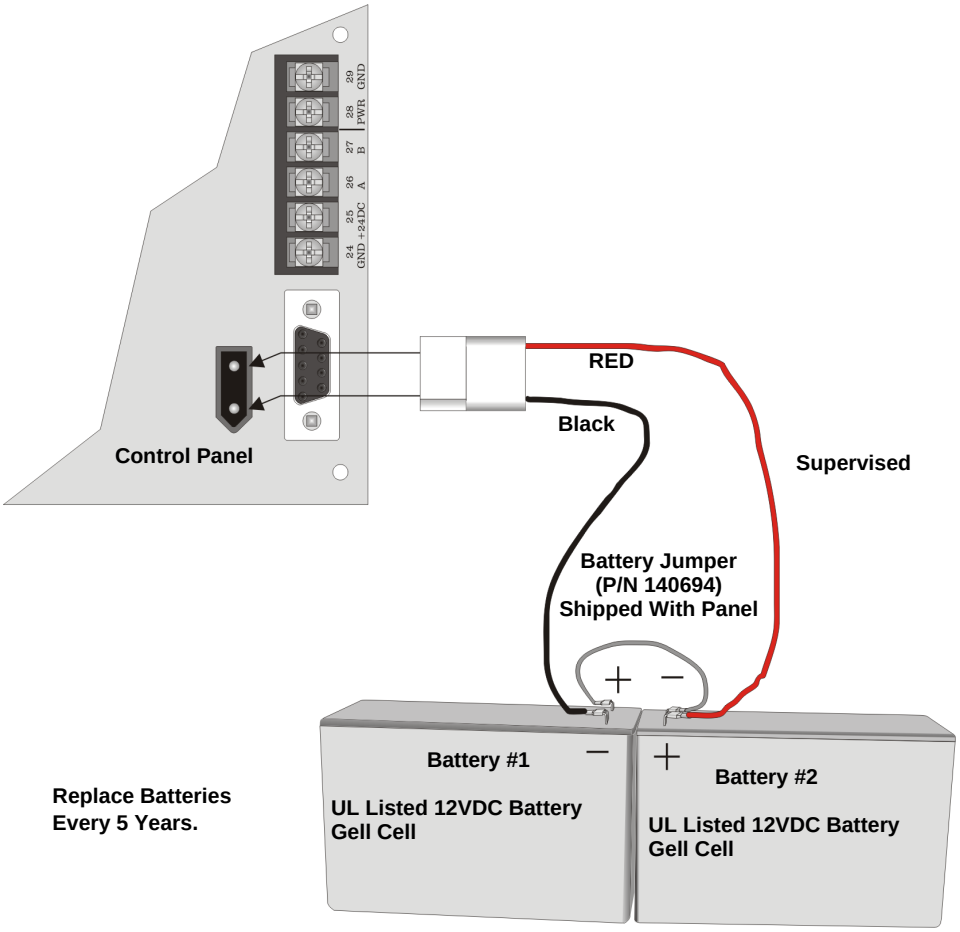
3.8 Backup Batteries

The control panel battery charge capacity is 7.0 to 33.0 AH. Use 12V batteries of the same AH rating. Determine the correct AH rating as per your current load calculation (see 3.6.2).

Wire batteries in series to produce a 24-volt equivalent. Do not parallel batteries to increase the AH rating.

Batteries larger than 18 AH (not to exceed 35 AH) use the RBB Accessory Battery Cabinet. It is recommended that you replace the batteries every five years. The following steps and diagram explain how to connect the batteries.

1. Connect the black wire to the negative (-) side of battery #1.
2. Connect the jumper wire provided (P/N 140694) from the positive (+) side of battery #1 to the negative side of battery #2.
3. Connect the red wire to the positive (+) side of battery #2



Caution

Apply AC power before connecting the batteries to the power supply to prevent arcing on battery terminals.

Note: The total current draw on smoke power, accessory power, and notification device outputs must not exceed 6A.

3.9 Telephone Line Connection

The Flex 410 connects to two separate telephone lines to report data to the central station. An RJ31X jack should be installed by the telephone company for each line. Figure 3-4 shows how to wire the telephone line interconnect cords (not provided) to the Flex 410.

Note: To reduce the possibility of false alarms and transient damage, DO NOT bundle telephone wires together with initiation or notification device wires.

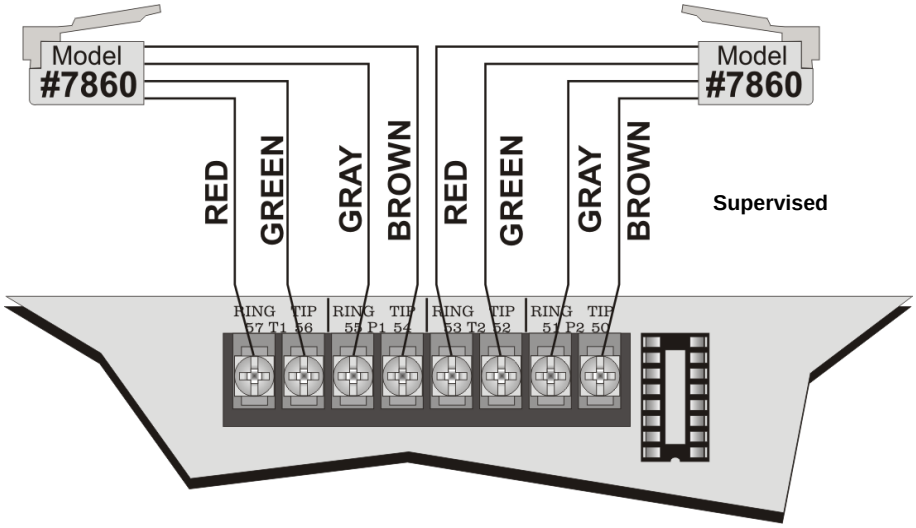


Figure 3-4 Telephone Line Connection

The letter designator on the phone input indicates whether it is the Telco or House side of the phone circuit. For example terminals 57 and 56 are labeled T1, T = Telco side of the phone circuit and terminals 55 and 54 are labeled P1, P = Premise (House) side of the phone circuit.

The Flex 410 has built-in dual phone line monitors. These circuits will detect any fault in the phone lines by monitoring the DC voltage present on the lines. If phone line voltage drops below 3 VDC and is not corrected within approximately 60 seconds, an audible trouble signal will sound and the panel will report a line fault trouble over the remaining phone line.

A situation could occur where both phone lines appear to be good, but the dialer cannot get through to the central station on the first line. In this case, the Flex 410 will switch phone lines and attempt the call again using the second line. Make sure the phone lines are programmed properly (see Section 4).

Note: To comply with industry standards, this product is equipped with line seizure. Any time the system's dialer needs to communicate with the central station, it will not be possible to use any telephones that are on the same line(s) as the system. Normally, this condition will last approximately one minute, but under adverse telephone circuit conditions, could last for as long as 15 minutes.

3.10 Detector Installation

3.10.1 Class A (Style D) Zones

Zones 1 to 5 may be selected through programming as Class A (Style D) zones (see Section 4.3.2 for zone style programming). See Section 3.10.2 for Class B (Style B) configuration.

Each class A zone is a four-wire circuit that allows an alarm to be detected even after a single open or ground fault occurs. When a single open or ground fault occurs, the audible trouble signal will sound and the Flex 410 will report the trouble to the central station (if programmed to report troubles).

Figure 3-5 shows how to wire a Class A (Style D) circuit. No end-of-line (EOL) resistors are needed for these zones. These zones must be wired using normally open contacts.

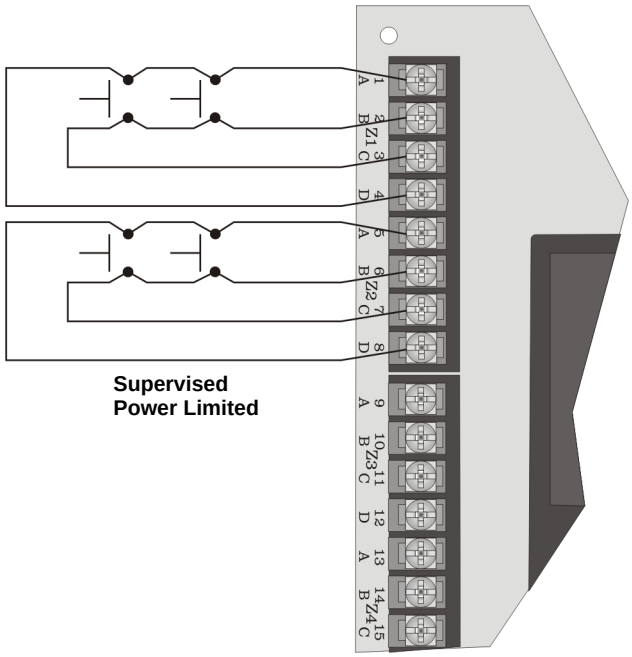


Figure 3-5 Class A (Style D) Supervised Fire Circuit

Maximum voltage:	17.5 – 27.4 VDC
Circuit Current:	95 mA
Maximum Line Impedance	50 ohms

3.10.2 Class B (Style B) Zones

Zones 1 through 10 are Class B (Style B) only fire zones. Each zone may also be programmed as Class A (Style D) or Class B (Style B), see Section 4.3.2 for zone programming.

Each Class B zone consists of a two-wire circuit that will detect the occurrence of an open in the circuit, but may not be able to detect an alarm after such an occurrence. The detection of an open will cause the audible trouble signal to sound and the control panel will report the trouble to the central station (if programmed to do so).

Figure 3-6 shows how to wire a Class B (Style B) circuit. One side of each Class B circuit connects to a zone input terminal and the other side of each circuit connects to Smoke power. For each circuit, use a 3.9K-ohm EOL resistor wired in parallel with the normally open contact farthest from the panel.

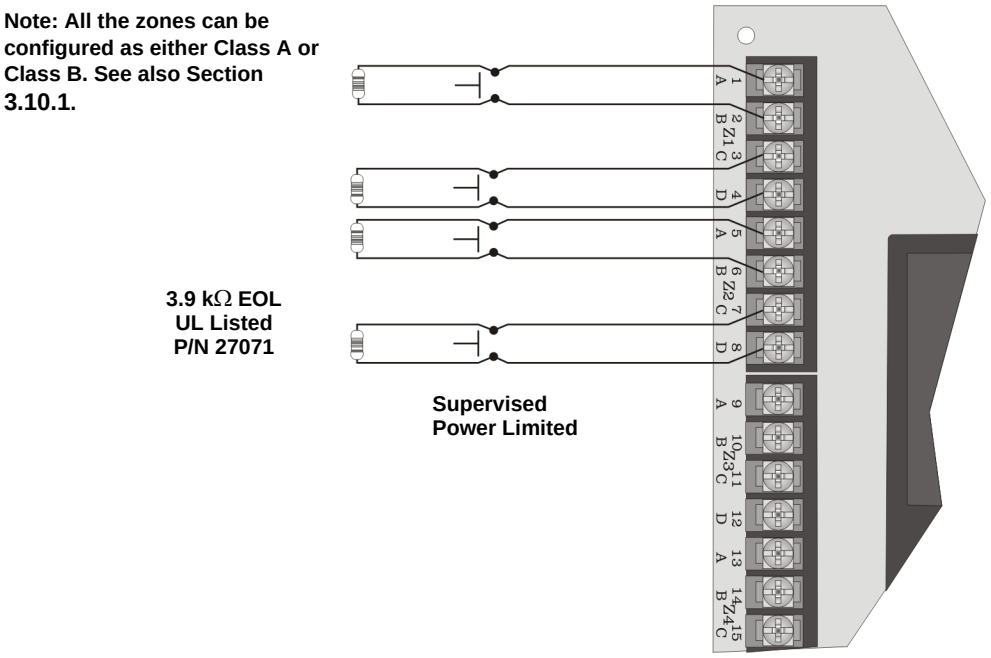


Figure 3-6 Flex 410 Class B (Style B) Circuits

Maximum circuit Resistance - 50 ohms
Maximum Total alarm current for all Class B (Style B) zones - 1 A
Maximum Standby Current per Zone: 3.0 mA
Maximum Alarm Current per Zone: 95 mA
Voltage: 17.5 to 27.4 VDC

3.10.3 Four-Wire Smoke Detector Connection

Figure 3-7 illustrates how UL listed four-wire smoke detectors must be connected to Class B (Style B) zones.

When wiring a four-wire smoke detector to the Class B (Style B) zones, you must use a Power Supervision Unit, such as PAM-2 by Air Products.

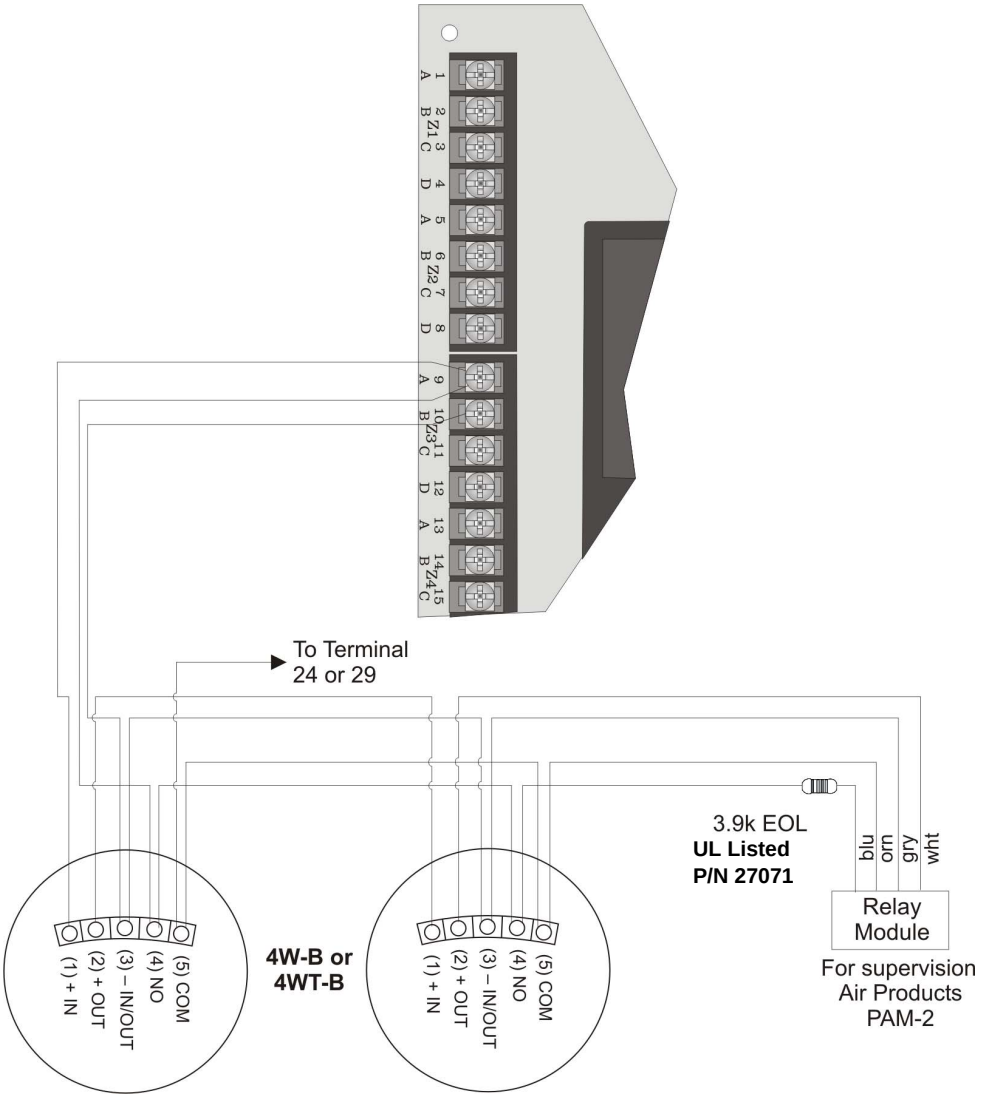


Figure 3-7 Four-Wire Smoke Detector Wiring

See Appendix A for a list of four-wire smoke detectors that may be used with the Flex 410.

Important!
When an alarm occurs on an CZM-400 zone expander, upon reset the power will drop only on the expander that initiated the alarm. See Figure 3-22.

3.10.4 Two-Wire Smoke Detector Connection

Figure 3-8 shows how to connect two-wire smoke detectors to Class B (Style B) zones. See also Table 3-1 for terminal polarity.

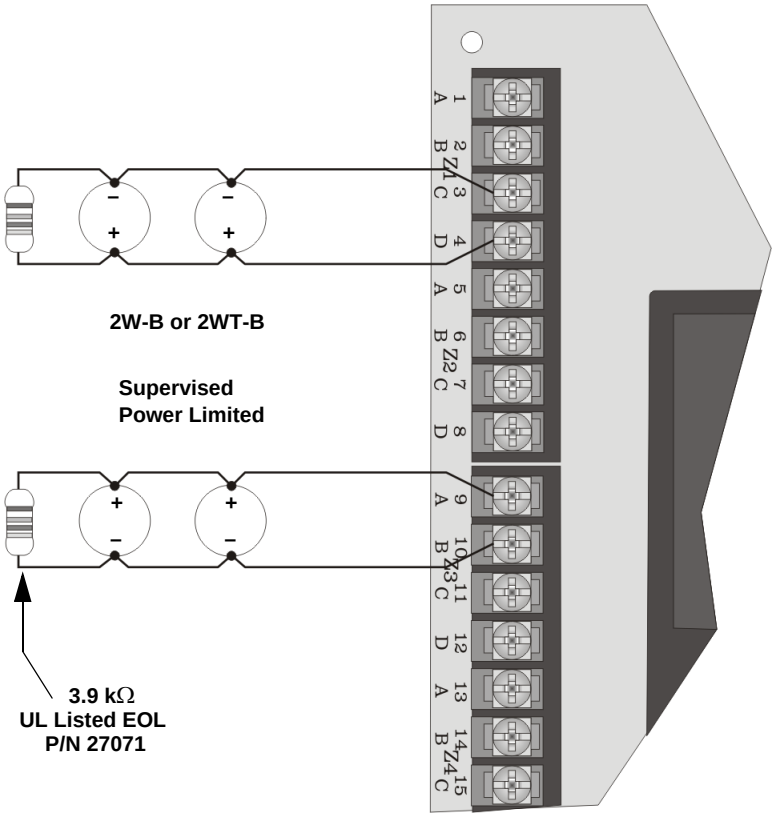


Figure 3-8 Two-Wire Smoke Detector Wiring

See Appendix A for a list of two-wire smoke detectors that may be used with the Flex 410.

Note: Two-wire detectors can be configured for Enhanced Mode. Enhanced mode is smoke verification for zones with 2-wire detectors and contact type devices, such as pull stations, used on the same circuit. If the alarm current is greater than 78 mA, the smoke verification cycle will not occur. See Section 4.3.1 Verify Options under the Zone Options Menu to program initiation circuits for enhanced mode.

3.11 Notification Appliance Outputs

Note: To reduce the possibility of false alarms and transient damage, DO NOT bundle telephone wires together with notification circuit wires.

The control panel provides four Class B (Style Y) or two Class A (Style Z) supervised notification circuit outputs to annunciate alarm conditions. For proper operation, you must use polarized sounding devices with a 5.1k ohm end-of-line resistor on each circuit. Figure 3-9 shows how to connect the notification circuits to the control panel.

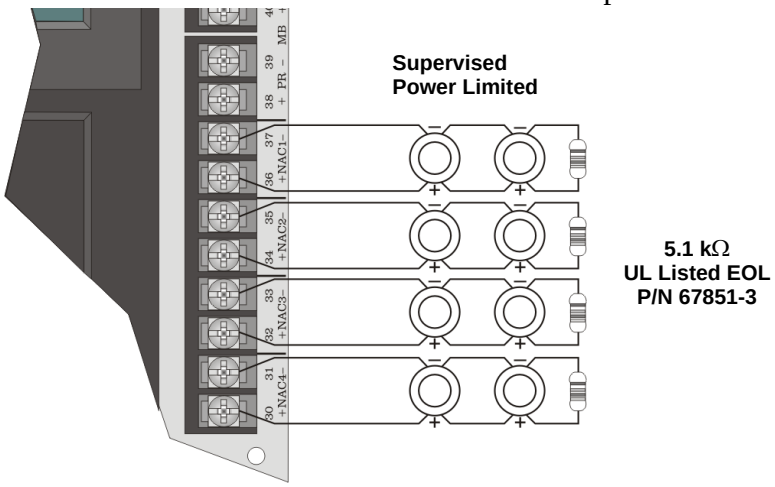


Figure 3-9 Class B Style Y Notification Appliance Wiring

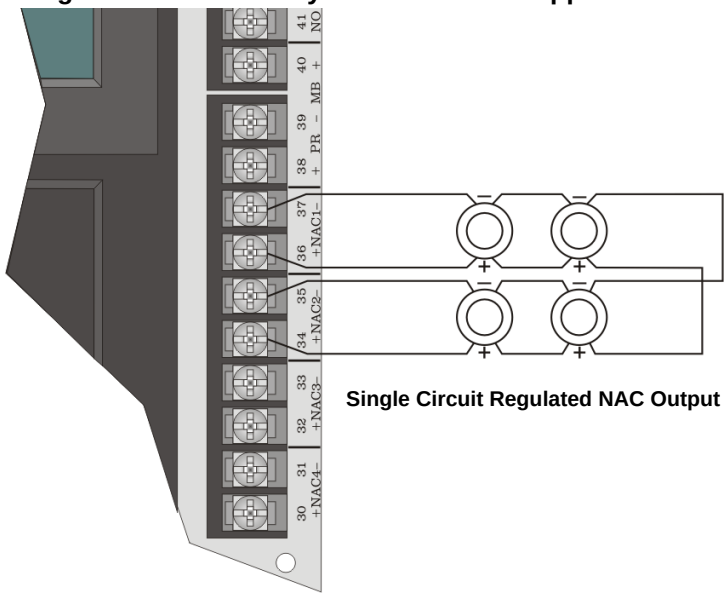


Figure 3-10 Class A Style Z Notification Appliance Circuit Wiring

3 Amp maximum current draw from any single NAC output (not to exceed a total current draw of 6 amps for the control panel). See Appendix A for a list of the UL notification appliances that can be used with the control panel. Contact Gamewell if you have any questions about compatible notification circuits.

NAC circuits support single circuit sync, regulated.

3.12 Auxiliary Relays

The control panel provides three programmable auxiliary relay outputs. Relays can be programmed to activate for the following conditions, either for all zones or by individual zone: pre-alarm (not acceptable for NFPA 72 Central Station), fire alarm, auxiliary alarm, alarm by zone, and system or circuit troubles (loss of AC, low battery, failed to communicate, phone line troubles, fire drills, and notification circuit troubles).

Refer to the control panel programming manual for more information. Figure 3-11 shows the relay contact connections using a door holder application as an example.

Note: Relays programmed as "Trouble" will be active during normal state and deactivated during a trouble condition.

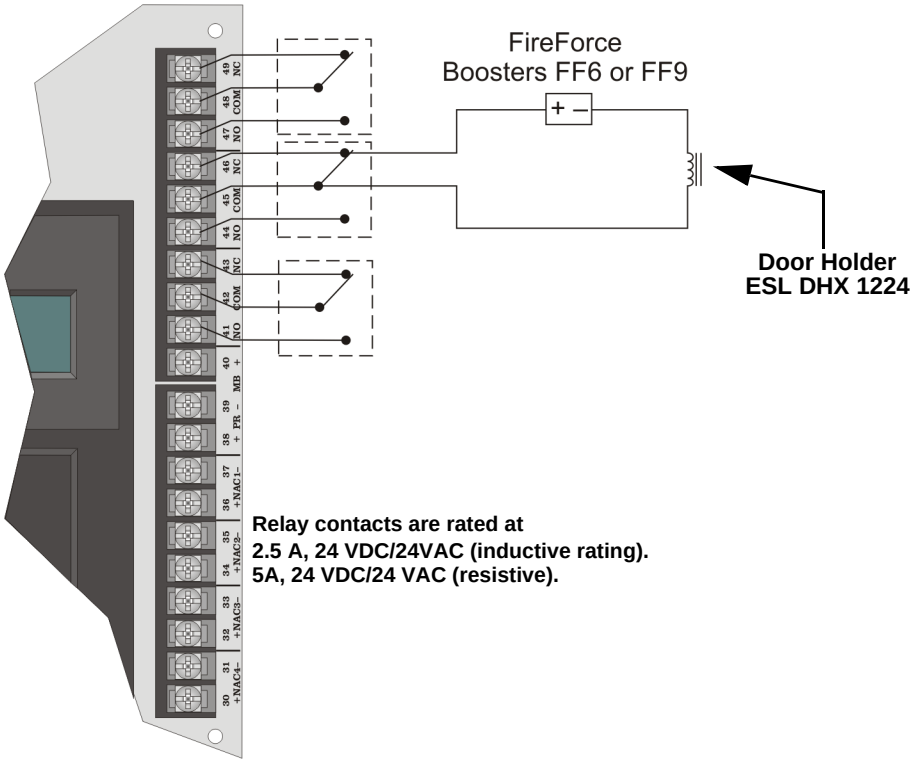


Figure 3-11 Auxiliary Relays

3.13 Accessory Devices

The section describes how to install the RAN-400 Remote Annunciator, CZM-400 Zone Expander, and the IOM-410 Status Display Module.

3.13.1 Setting ID Codes

Before installing the RAN-400, CZM-400 or IOM-410, you must first set their identification codes. Each Like device must be given its own identification codes. For example: each RAN-400 needs a unique ID code, but a RAN-400 can have the same ID code as a CZM-400. Each type of device has it's own devices type programmed into it enabling the control panel to distinguish between the different devices.

On the back of each device is a small 4-position dip switch used to set the ID code. Use the chart below to determine the dip switch positions for each possible ID code.

Table 3-4: ID Dip Switch Settings

ID Number	Switches			
	1	2	3	4
0 *	Down	Down	Down	Down
1	Up	Down	Down	Down
2	Down	Up	Down	Down
3	Up	Up	Down	Down
4	Down	Down	Up	Down
5	Up	Down	Up	Down
6	Down	Up	Up	Down
7	Up	Up	Up	Down
8	Down	Down	Down	Up

*Not supervised Up = On Down = Off

3.13.2 Model RAN-400 Remote Annunciator

The RAN-400 performs all system operations. It also provides trouble and alarm information and can be used for programming. The control panel can support up to four RAN-400 Remote Annunciators.

Upon initial power up, the address of each RAN-400 is displayed on the LCD. (Annunciators with address 0 will not be supervised.)

3.13.2.1 Mounting the RAN-400 Remote Annunciator

The RAN-400 Remote Annunciators must be mounted on a dual gang electrical box.

The RAN-400 Remote Annunciator dimensions are as follows:

Width: 7-3/16” (18.26 cm)

Height: 5” (12.7 cm)

Depth: 1-1/8” (2.86 cm)

To mount the annunciator:

1. Remove the rear mounting plate by inserting a #4 flat blade screwdriver into the slots on the bottom edge of the annunciator. See Figure 3-12. Gently turn the screwdriver until the mounting plate pulls away from the frame.

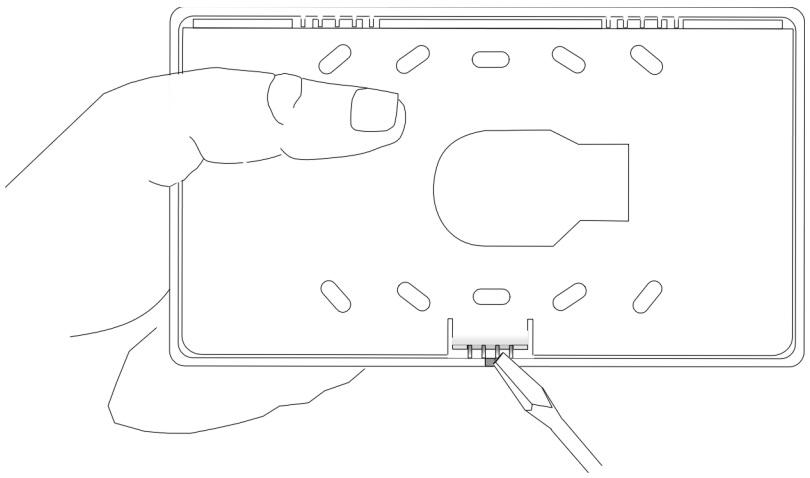


Figure 3-12 Rear Mounting Plate Removal

2. Secure it to the wall using #6 or #8 screws. The mounting plate should be oriented so that the word TOP is toward the top of the plate and facing you. A square hole is provided in the mounting plate to run the wiring to the annunciator.

3. When all of the wires have been connected to the annunciator, set the top of the annunciator over the tabs on the top of the mounting plate. Make sure the wires do not get pinched between the frame and the mounting plate. Press each corner of the bottom side onto the annunciator mounting plate until you hear it click. You may have to gently squeeze the annunciator (top to bottom) to align it while snapping the bottom edge into place.

3.13.2.2 Wiring the RAN-400

Follow these steps to properly wire the RAN-400 to the control panel.

1. Remove power from the control panel.
2. Wire the RAN-400s as shown in Figure 3-13.
3. Set the ID number. See Table 3-4.

Note: The ID number of 7 is reserved for the built-in touchpad on the Flex 410.

4. Reapply power to the control panel.

   When the annunciator powers up, it will display its ID code and current status of the panel.

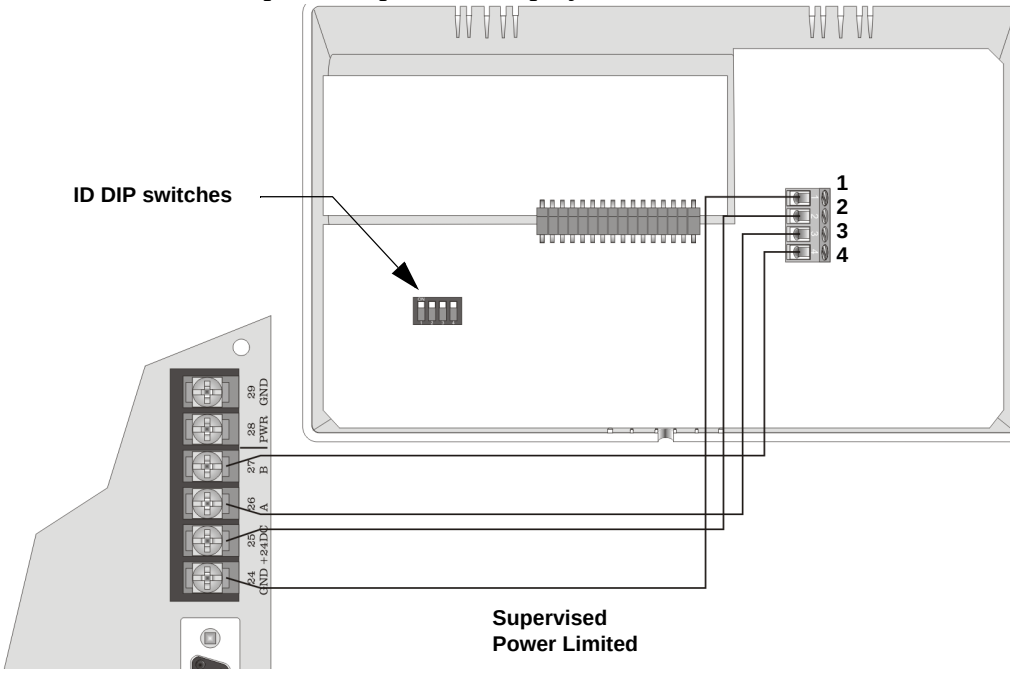


Figure 3-13 Model RAN-400 Connection

Note: Each RAN-400 touchpad can be individually supervised. See Section 4.3.2 for programming touchpads as supervised.

3.13.3 Model IOM-410 Status Display Module

The Model IOM-410 Status Display module provides outputs and control functions for remote annunciation of alarm, trouble, and supervisories for each zone.The system can supervise up to eight IOM-410 Status Display Modules.

Note: The driver outputs are non-supervised. Relays must be connected to power limited sources only.

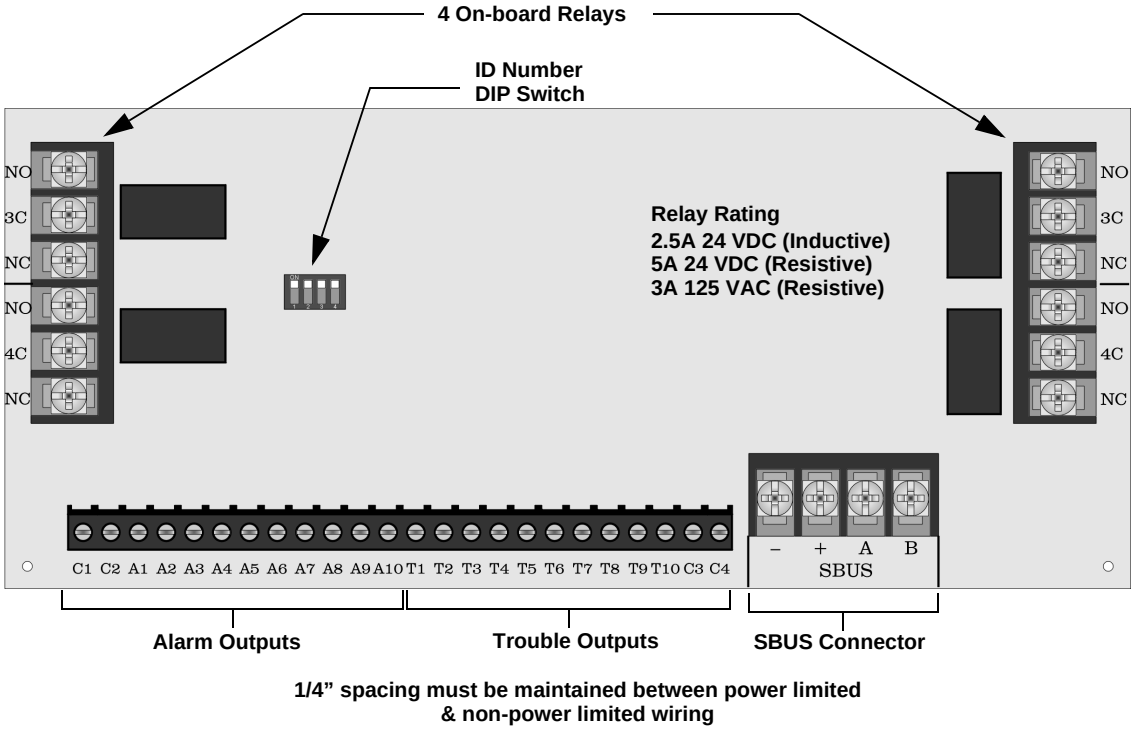


Figure 3-14 Model IOM-410 Board Layout

The IOM-410 has 1 connector which has 10 outputs for alarms and 10 outputs for trouble annunciation. These outputs are active low, open collectors. Each output provides up to 100 mA max of current, with a total limitation of 700 mA, max 28 VDC.

The module has 4 normally open non-dedicated relays that can be wired to be active with any of the outputs.

Wire the IOM-410 as shown in Figure 3-15. Maintain a physical separation of one-half inch or more between field wires and connection points to prevent damage from transients.

Note: SILENCE does not affect IOM-410 outputs. To reset a IOM-410 output, the alarm or trouble condition must be restored.

The IOM-410 can be used to interface to LED annunciator.

The IOM-410 can be programmed to indicate alarms and trouble status for; zones 1 - 10, zones 11 - 20, or system status outputs. See Section 4.3.11.

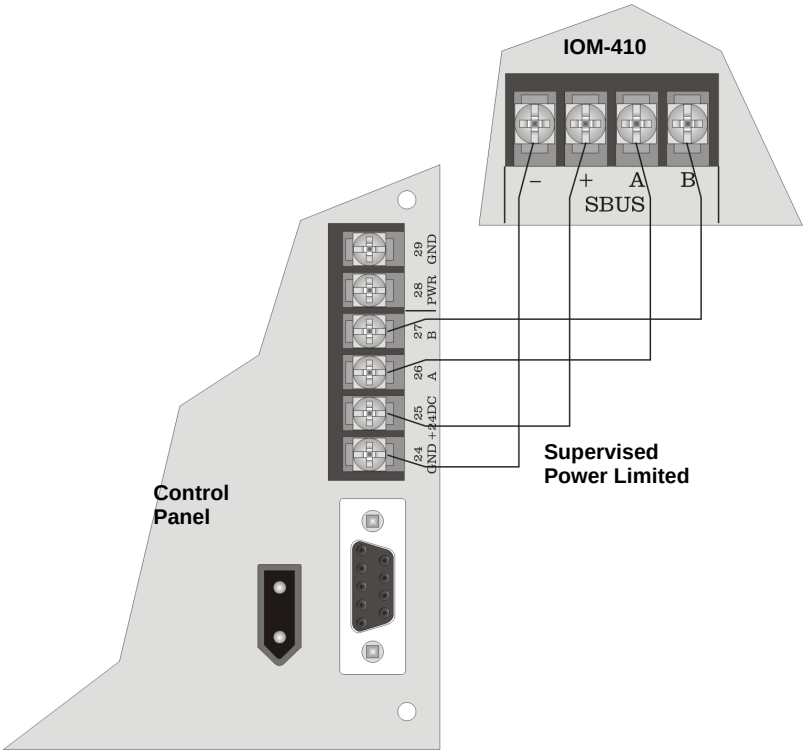


Figure 3-15 Model IOM-410 Connection to the Control Panel

3.13.3.1 Mounting the IOM-410

The IOM-410 into a metal bracket and standoffs in the control panel cabinet or into CAB400-A accessory cabinet.

Mounting the IOM-410 into Control Panel Cabinet

Follow these steps to properly mount the IOM-410 into the control panel cabinet:

1. Remove power from the control panel.
2. Mount the IOM-410 onto the standoffs and bracket located in the cabinet. See Figure 3-16.

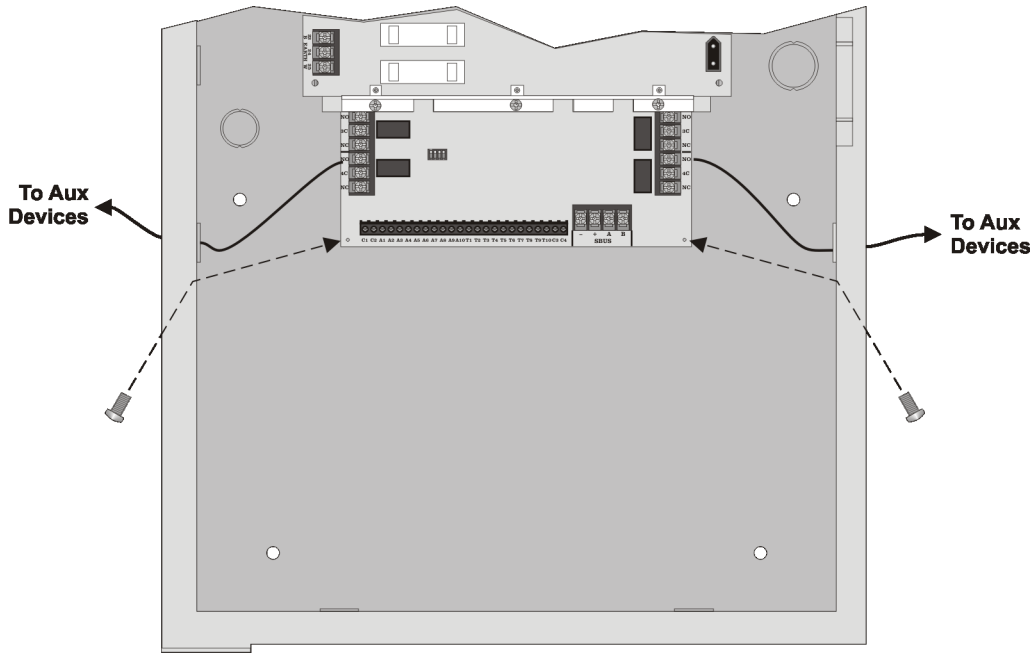


Figure 3-16 Installing the IOM-410 Into the Control Panel Cabinet

3. Connect the IOM-410 to the control panel control panel as shown in Figure 3-15.
4. Set the ID number (see Figure 3-14 for ID DIP switch location). See also Section 3.13.1for information on setting ID numbers.
5. Reconnect power to the control panel.

Mounting the IOM-410 into the CAB400-A Accessory Cabinet.

Follow these steps to properly mount the IOM-410 into the CAB400-A cabinet:

1. Mount the remote cabinet using the cabinet mounting holes. See Figure 3-17.

   Refer to Section 3.5 for proper cabinet mounting procedures.

2. Remove power from the control panel.
3. Mount the IOM-410 onto the standoffs and bracket located in the cabinet. See Figure 3-17.

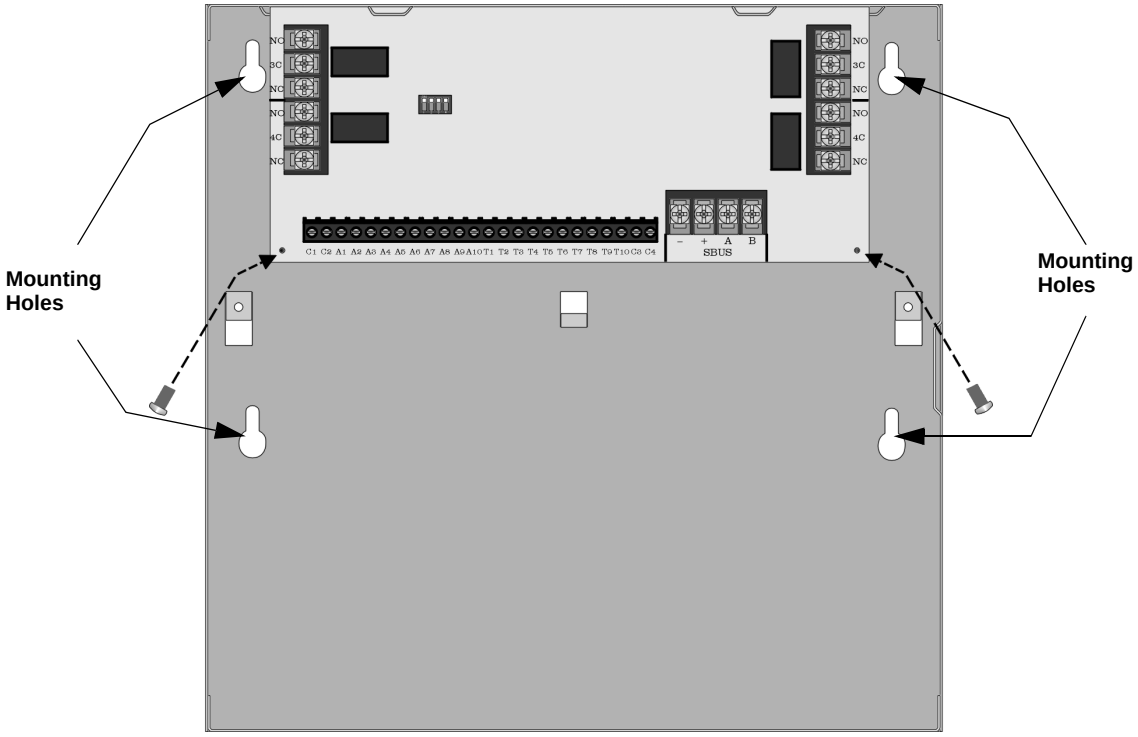


Figure 3-17 Model IOM-410 Remote Installation

4. Connect the IOM-410 to the control panel as shown in Figure 3-15.
5. Set the ID number (see Figure 3-14 for ID DIP switch location). See also Section 3.13.1for information on setting ID numbers.
6. Reconnect power to the control panel.

3.13.3.2 Wiring Relays

The four on-board relays can be triggered by the active low outputs. For example, the alarm outputs can all be wired to relay 3 and the trouble outputs can be wired to relay 4 (see Figure 3-18).

C1 is the coil for the relay 1, C2 is the coil for relay 2, C3 and C4 are the coils for relays 3 and 4 respectively.

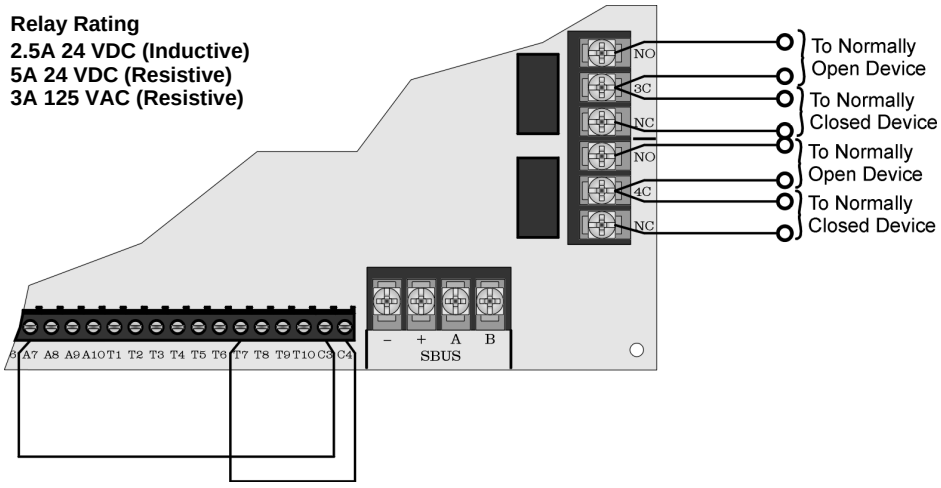


Figure 3-18 Relay Wiring on the IOM-410

Note: Figure 3-18 uses A7 and T7 to activate relays 3 and 4 as an example. However, any of the outputs can be used to trip any of the relays.

3.13.3.3 Wiring LEDs to Outputs

The outputs (A1-A10 and T1-T10) can be used to operate LEDs used in a remote annunciator (see Figure 3-19). Outputs A1-A10 are alarm outputs for the zones corresponding to those outputs. For example, if the IOM-410 is programmed to output for zones 11-20, then outputs A1-A10 will correspond with zones 11- 20.

Outputs T1-T10 are trouble outputs for the zones corresponding to those outputs. for example, if the IOM-410 is programmed to output for zones 1-10, then outputs T1-T10 will correspond with zones 1-10.

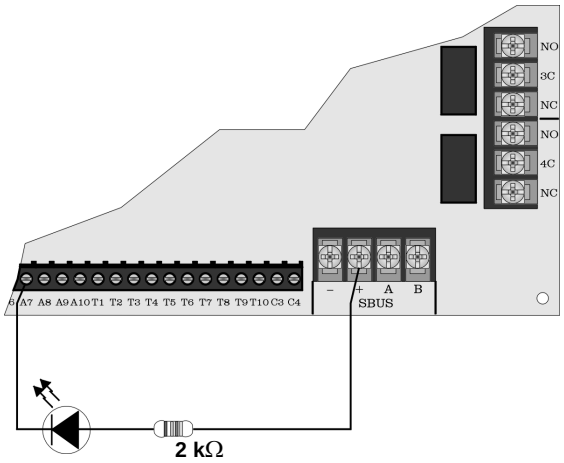


Figure 3-19 LED Wiring on the IOM-410

3.13.4 Model CZM-400 Zone Expander Installation

The Model CZM-400 provides the control panel with ten additional Class B (style B) zones or 5 Class A (style D) zones. The CZM-400 connects to the control panel via the SBUS as shown in Figure 3-20.

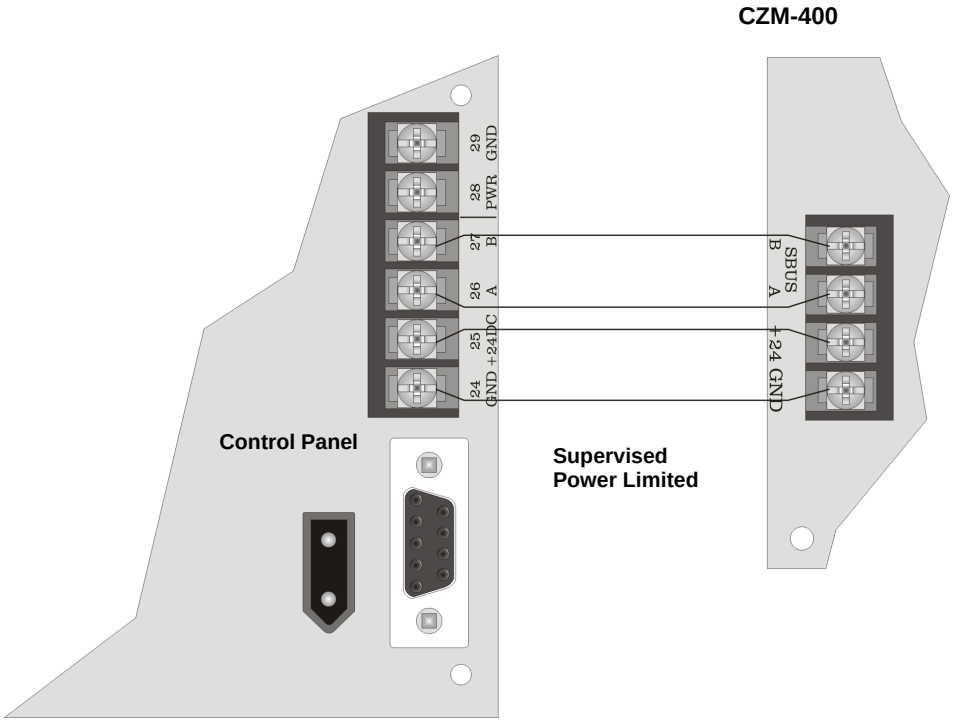


Figure 3-20 SBUS Connections

3.13.4.1 Zone Inputs

Figure 3-21 and Figure 3-22 shows how to wire detectors to the CZM-400. Use a 3.9k end of line resistor for each Class B circuit. The EOL must be wired in parallel with the normally open contact farthest from the panel. See Appendix A for a list of the smoke detectors that can be used with the CZM-400.

Maximum circuit Resistance -	50 ohms
Maximum Total alarm current for all class B (style A) zones - 1 A	
Maximum Standby Current per Zone:	3.0 mA
Maximum Alarm Current per Zone:	95 mA
Voltage:	17.5 VDC – 27.4 VDC

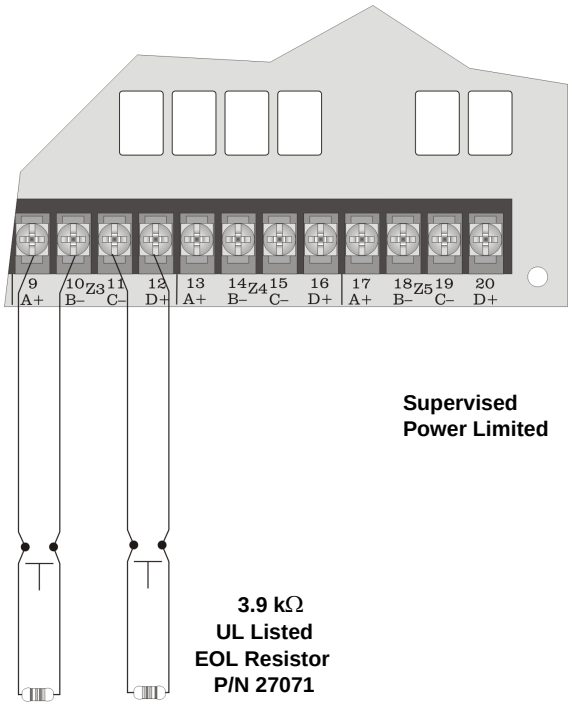
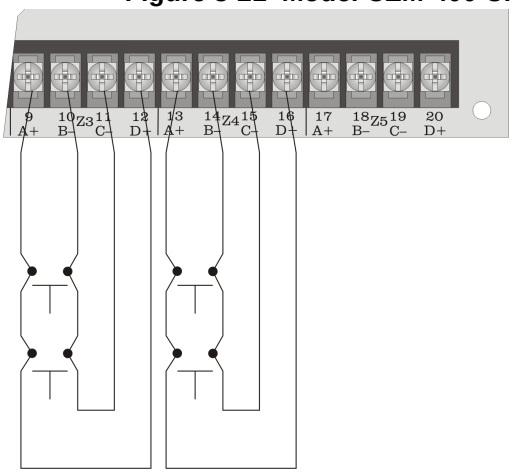


Figure 3-21 Model CZM-400 Class B, Style B Zone Wiring



Note: When an alarm occurs on an zone expander, upon reset the power will drop only on the expander that initiated the alarm.

Figure 3-22 CZM-400 Class A, Style D Zone Wiring

3.13.4.2 Mounting Instructions

The CZM-400 into a metal bracket and standoffs in the control panel cabinet or into CAB400-A accessory cabinet.

Mounting the CZM-400 into Control Panel Cabinet

Follow these steps to properly mount the CZM-400 zone expander into the control panel cabinet:

1. Remove power from the control panel.
2. Mount the CZM-400 onto the standoffs and bracket located in the cabinet. See Figure 3-23.

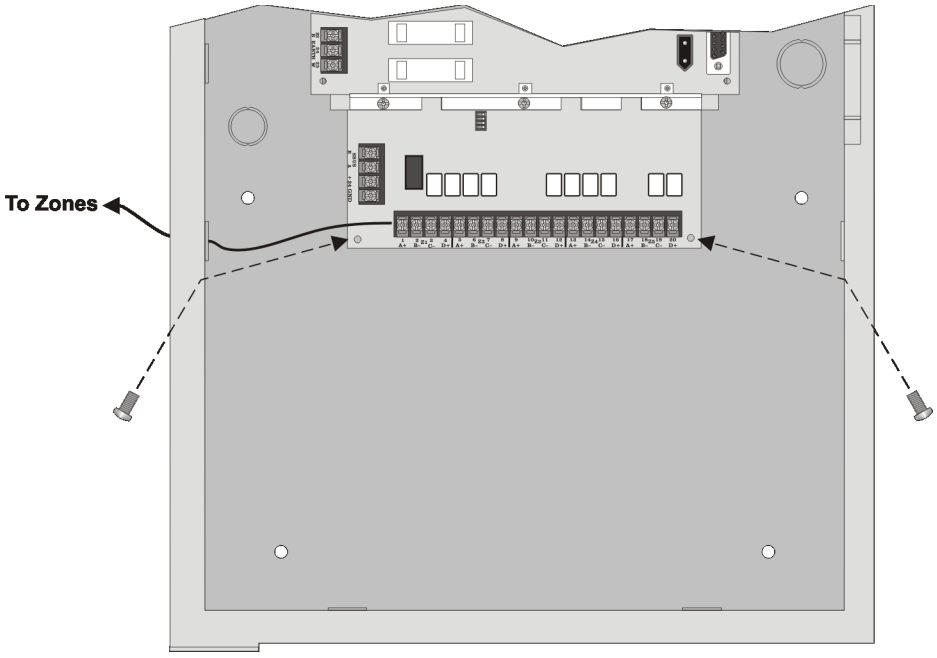


Figure 3-23 Installing the CZM-400 Into the Control Panel Cabinet

3. Connect the CZM-400 to the control panel as shown in Figure 3-20.
4. Wire the zone inputs to the zone expander as shown in Figure 3-21.
5. Set the ID code (see Section 3.13.1).

   If ID code 1 is selected the CZM-400 will input zones 11 - 20 (Class B), or 6 - 10 (Class A). If ID code 2 is selected the CZM-400 will input zones 21-30 (Class B), or 11-15 (Class A).
6. Reconnect power to the control panel.

Mounting the CZM-400 into the CAB400-A Accessory Cabinet.

Follow these steps to properly mount the CZM-400 zone expander into the CAB400-A cabinet:

1. Mount the remote cabinet using the cabinet mounting holes. See Figure 3-24.

   Refer to Section 3.5 for proper cabinet mounting procedures.

2. Remove power from the control panel.

3. Mount the CZM-400 onto the standoffs and bracket located in the cabinet. See Figure 3-24.

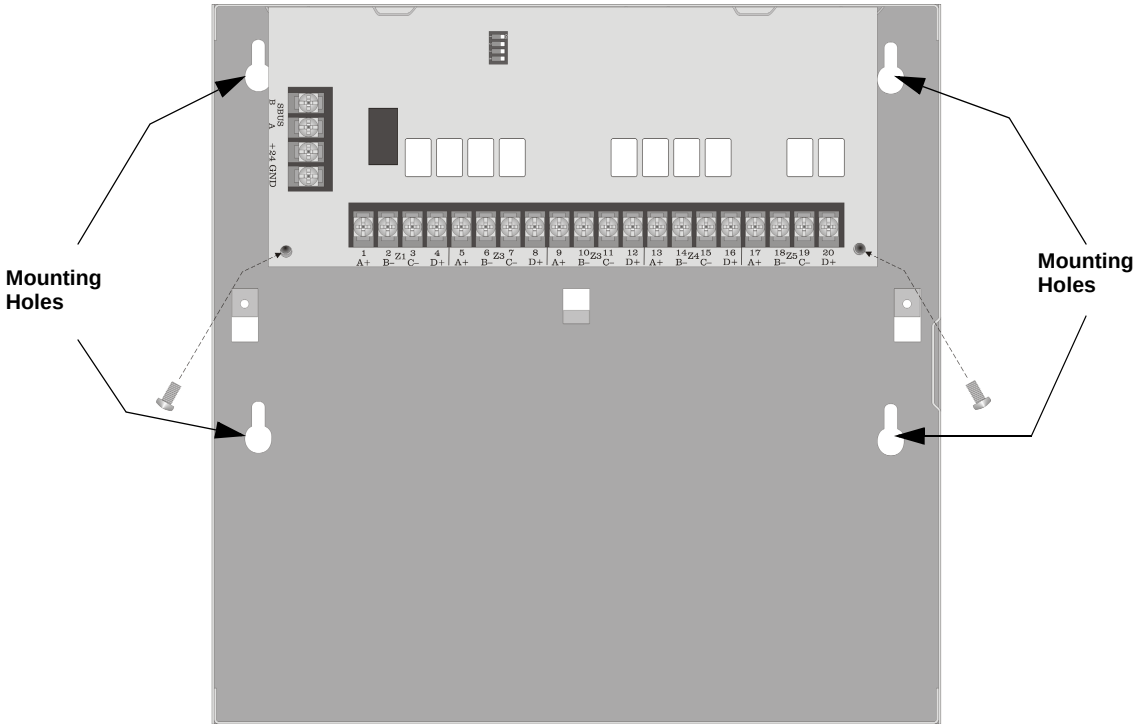


Figure 3-24 Model CZM-400 Remote Installation

4. Connect the CZM-400 to the control panel as shown in Figure 3-20.

5. Set the ID code (see Section 3.13.1).

   If ID code 1 is selected the CZM-400 will input zones 11 - 20 (Class B), or 6 - 10 (Class A). If ID code 2 is selected the CZM-400 will input zones 21-30 (Class B), or 11-15 (Class A).

6. Wire the zone inputs to the zone expander as shown in Figure 3-21.

3.14 Special Applications

3.14.1 City Box Connection

This section describes how to connect the control panel to a municipal fire alarm box or "city box" as required by NFPA 72 Auxiliary Protected Fire Alarm systems for fire alarm service. The city (master) box is an enclosure that contains a manually operated transmitter used to send an alarm to the municipal communication center which houses the central operating part of the fire alarm system.

Note: It is not possible to reset the remote indication until you clear the condition and reset the fire alarm control panel.

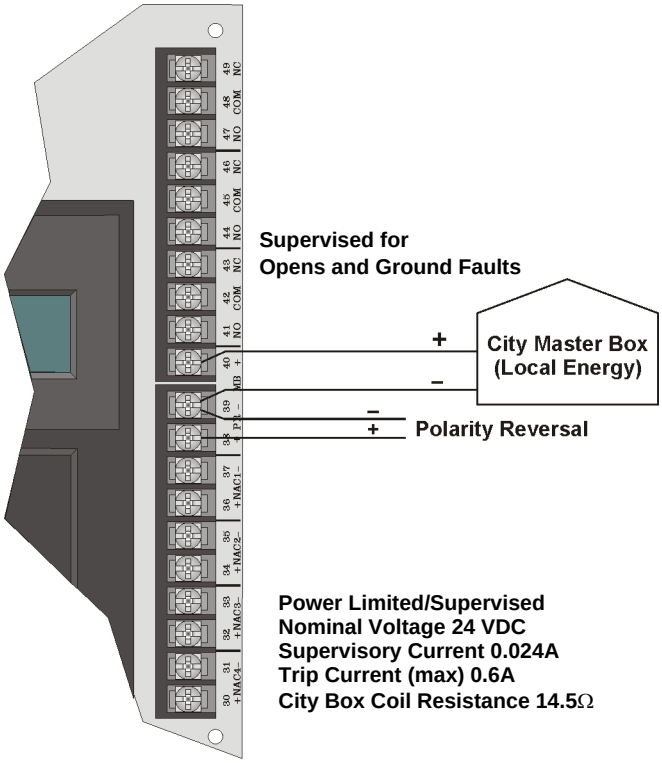


Figure 3-25 City Box Connection

3.14.2 Polarity Reversal Signaling

Connections for polarity reversal signaling to meet standards for Remote Supervising Station Fire Alarm Systems are shown in Figure 3-25.

Note: This control panel is not suitable for Remote Station Protected Premises Service where separate transmission circuits are required for fire, supervisory (if applicable), and trouble signals.

Nominal voltage 24 VDC, 0.025A max

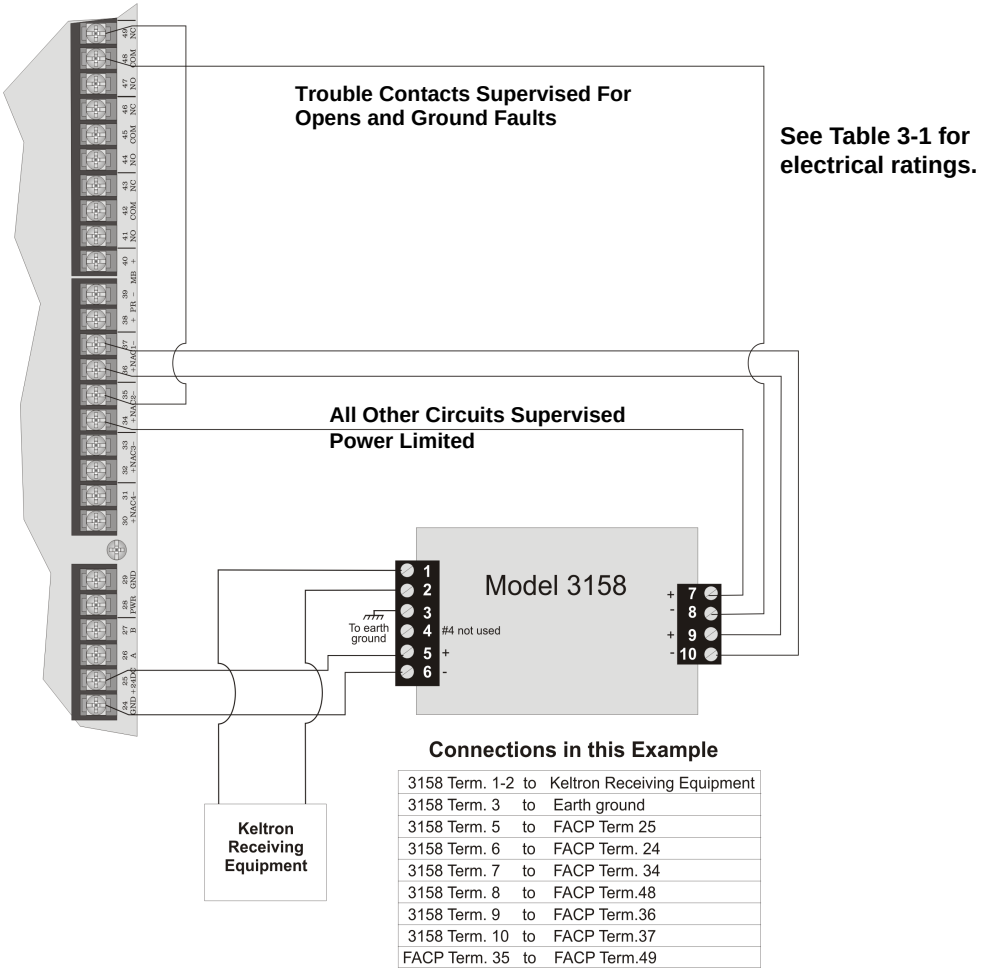
Intended for connection to a polarity reversal circuit of a remote station receiving unit having compatible ratings.

3.14.3 Keltron 95M3158 Tones Transmitter Module

This section of the manual shows the specific connections you will make when wiring the control panel to the Keltron 95M3158 Tones Transmitter Module (3158). Refer to the installation sheet shipped with the 95M3158 for complete information. (Note: The 3158 is not available from Gamewell.)

Note: The 3158 Keltron Module must be mounted within 3 feet of the control panel and all wiring must be run in conduit. The Keltron Module shall be enclosed in the TBX1 enclosure.

1. Wire the 3158 to the control panel as shown in the Figure 3-26.
2. Program NAC 4 for Direct Connect (see Section 4.3.4).
3. Program NAC 3 for Supervisory (see Section 4.3.4).
4. Program NACs 3 and 4 as unsupervised (NACs With EOL). See Section 4.3.4.
5. Program NAC 3 cadence as Steady (see Section 4.3.3).



Note: The term FACP Term. refers to terminals on the Flex 410.

Figure 3-26 Wiring the Keltron 3158 to the Flex 410

3.14.4 Using a MR-201/T Control Relay From Air Products

When the MR-201/T control relay is wired for polarity reversal, it reports alarm and trouble events to a remote site. Alarms will override trouble conditions and it will not be possible to reset the remote indicator until the condition is cleared and the control panel is reset.

If an alarm condition occurs, the alarm relay will close, overriding the trouble condition.

Current:	15 mA max.
Operating Voltage:	24 VDC nominal
Resistance:	4 KΩ

To install the MR-201/T for polarity reversal, wire the MR-201/T as shown in Figure 3-27.

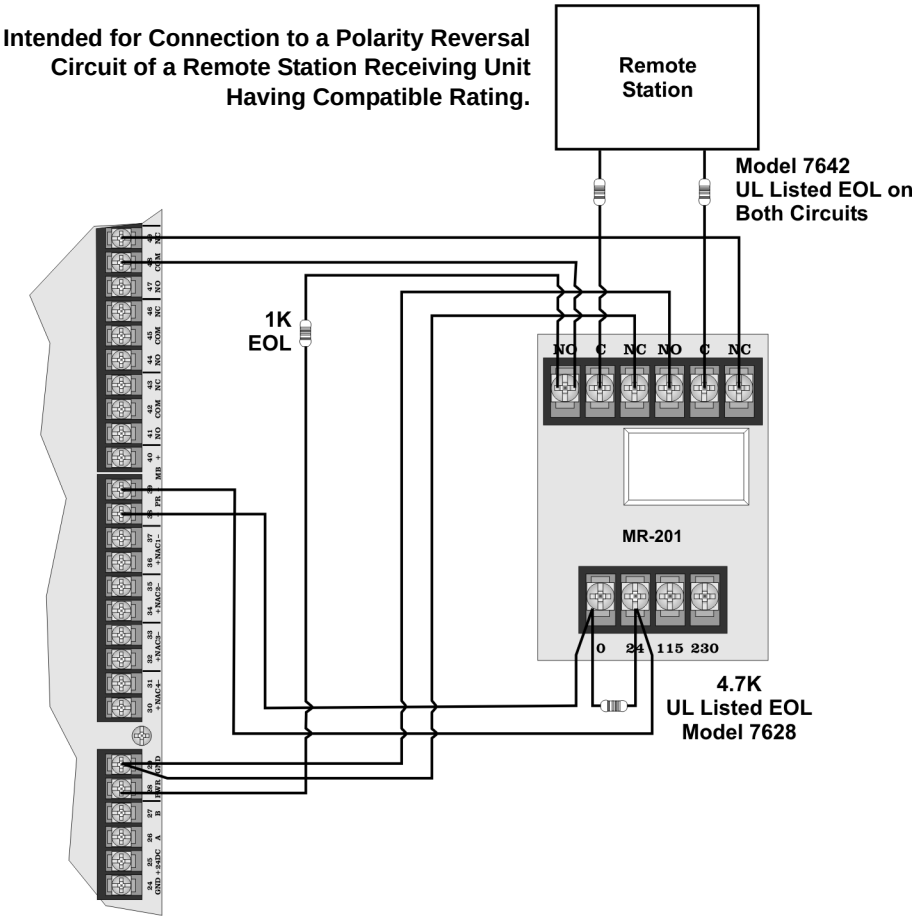


Figure 3-27 Wiring the MR-201/T

Section 4
Programming

The Flex 410 control panel can be programmed from either the on-board annunciator or the RAN-400 remote annunciator. You must be in Programming Mode to program the control panel.

4.1 UL 864 Programming Requirements

NOTICE TO USERS, INSTALLERS, AUTHORITIES HAVING JURISDICTION, AND OTHER INVOLVED PARTIES: This product incorporates field programmable software. In order for the product to comply with the requirements in the Standard for Control Units and Accessories for Fire Alarm Systems, UL 864, certain programming features or options must be limited to specific values or not used at all as indicated below.

Programming Option	Menu Item	Permitted in UL 864 (Y/N)	Possible Settings	Settings Permitted in UL 864
Line (1-2) # Options	Line # GS	No	Yes & No	No
Misc Reporting	AC Delay	Yes	0–30 hours	1–3
Zone (1-30) # Options	Zone # Response	Yes	1, 4, 16, 40 sec.	1

4.2 Keypad Operation During Programming

This section describes the function of the buttons on the keypad while in program mode.

Operation/Button	Operation/Description
Enter Step Programming mode	Press 2 7 ACK ENTER, followed by installer level code (the factory programmed code is 123456). See Section 4.3.6 for user code programming information.
Moving through programming	When you have entered programming correctly, the display will show Zone 1 Options. Press ▷ to move to next programming option. See Table 4-4 for list of programming options (column 1) and their menu items (column 2). When the display shows the option you wish to program press ACK ENTER to program items in this option. If you receive a trouble beep and the message TRY AGAIN appears you are not using an installer level code.
Exit Step Programming	Press RESET. You will return to normal operation. ***Note:*** If you have made a selection in programming the Enter or Down arrow must be pressed to enter that selection in programming. If the Reset button is pressed before the Enter or Down arrow the selection made will not be entered into programming.
Down Arrow ▽	Accepts the entered data and scrolls down to the next menu item.
Enter Button ACK ENTER	Accepts the entered data and scrolls down to the next menu item.
Left Arrow ◁	Scrolls backwards through the programmable items list for the currently selected option.
Right Arrow ▷	Scrolls forward through the programmable options list or choices for an the selected item.
Silence Button SILENCE	Enables extended programming list so you can scroll through lists of items that have multiple components such as, Zone 1 -20. See Section 4.2.2 for an example.
Up Arrow △	Accepts the entered data and scrolls up to the next menu item.
* Button *	Used as shift key when entering special characters (A, B, C, D, E, or F characters). See Section 4.2.1 for more information.
# Button #	Clear entry.

4.2.1 Special Characters

Special characters are characters used while dialing such as pause, *, #, or 2nd dial tone. Table 4-1 list the Special characters and what they mean.

Table 4-1: Special Characters

To Enter:	Press	LCD Display
Pause	* 1	A
*	* 2	B
#	* 3	C
2nd Dial Tone	* 4	D

4.2.2 Enabling Extended Programming List

While programming there are several programming options that have multiple components that can be programmed within that menu item, such as Zones, NAC Cadence, User Codes, Accounts, etc. However when you scroll through these options only the first one may be displayed (see Figure 4-1). In order to view and program subsequent items the Silence button must be pressed. This enables you to move through the other Zones, NAC Cadence, etc.

Example: If the Zone 1 Options is displayed (see Figure 4-1) and you want to program Zone 2 Options, press the SILENCE button.

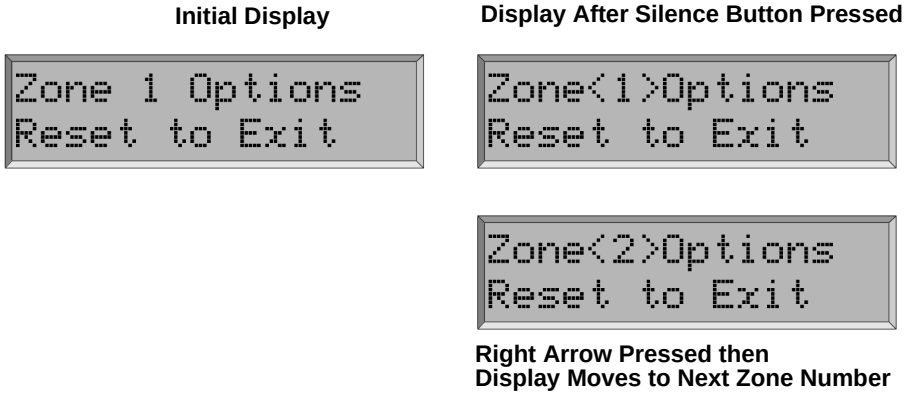


Figure 4-1 Extended Programming List Access Example

The display will add brackets around the zone number (see Figure 4-1). To move to the next zone number press the right arrow to go forward through the zone numbers or the left arrow to go backward through the zone numbers. Press the Silence button again to remove the bracket and lock the menu on this Zone number, NAC number, or Relay, etc.

This Feature works for the following programming options: Zone Options, NAC Cadence, User Codes, Accounts, Line Options, and IOM-410 Options.

4.3 Programming Flow

Figure 4-2 is an overview of the programming menu flow. Figure 4-3 through Figure 4-13 illustrate the programming flow within each option. The arrows indicate how to maneuver through programming.

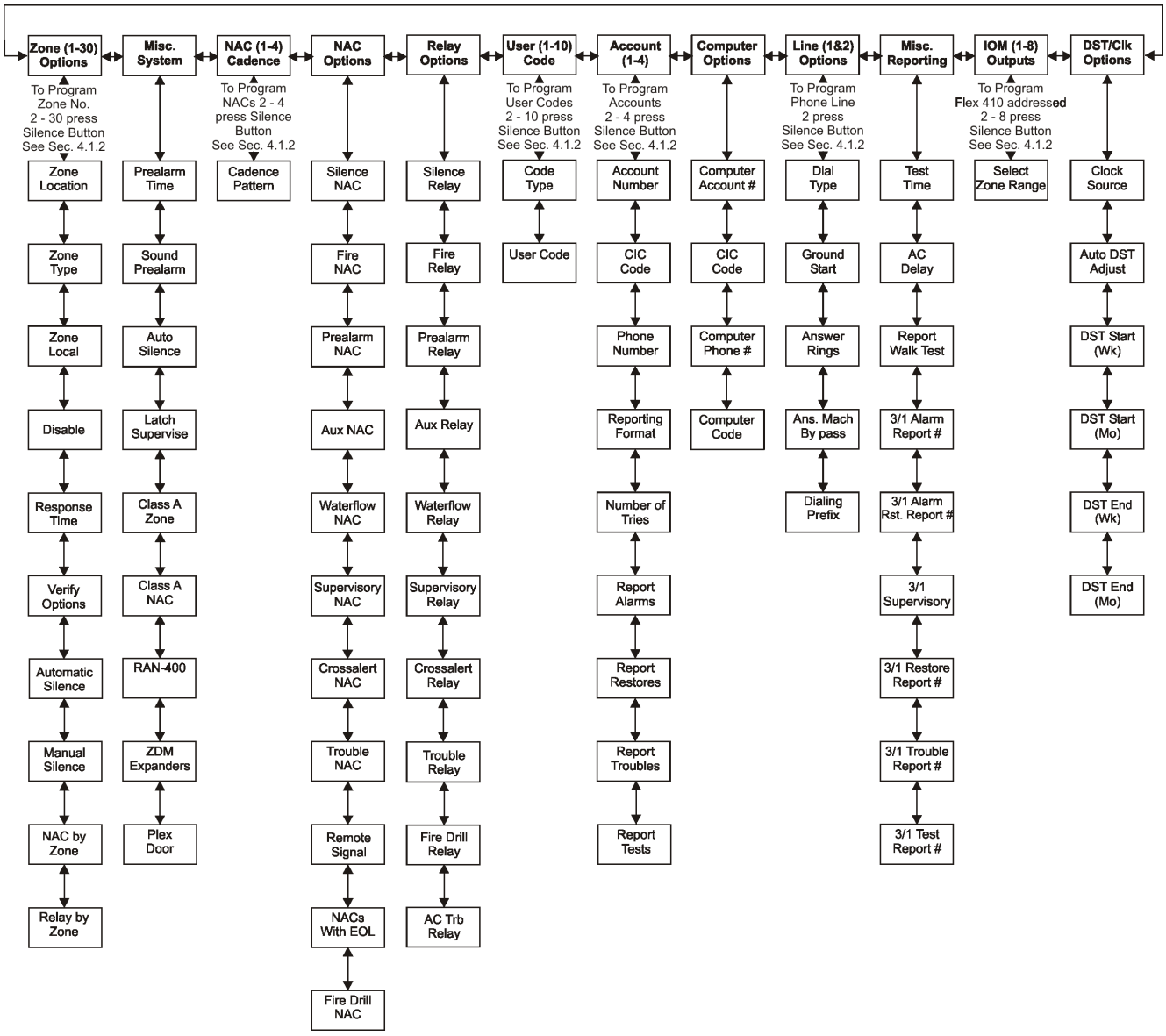


Figure 4-2 Programming Overview Flow Chart

4.3.1 Zone Options

Figure 4-3 illustrates, in more detail, the programming flow when in the zone options menu.

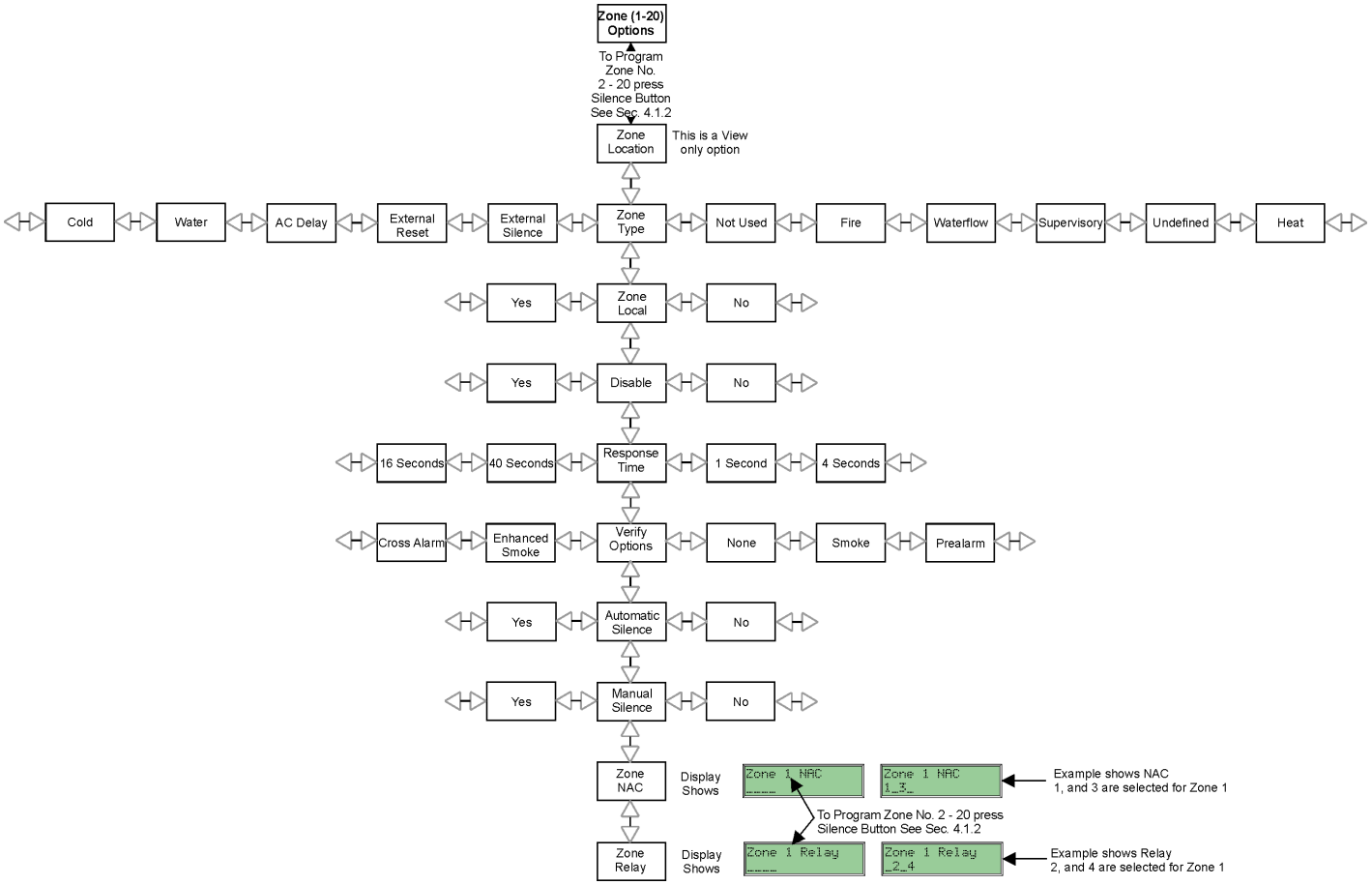


Figure 4-3 Zone Options

4.3.2 Misc System Option

Figure 4-4 illustrates, in more detail, the programming flow when in the misc system menu.

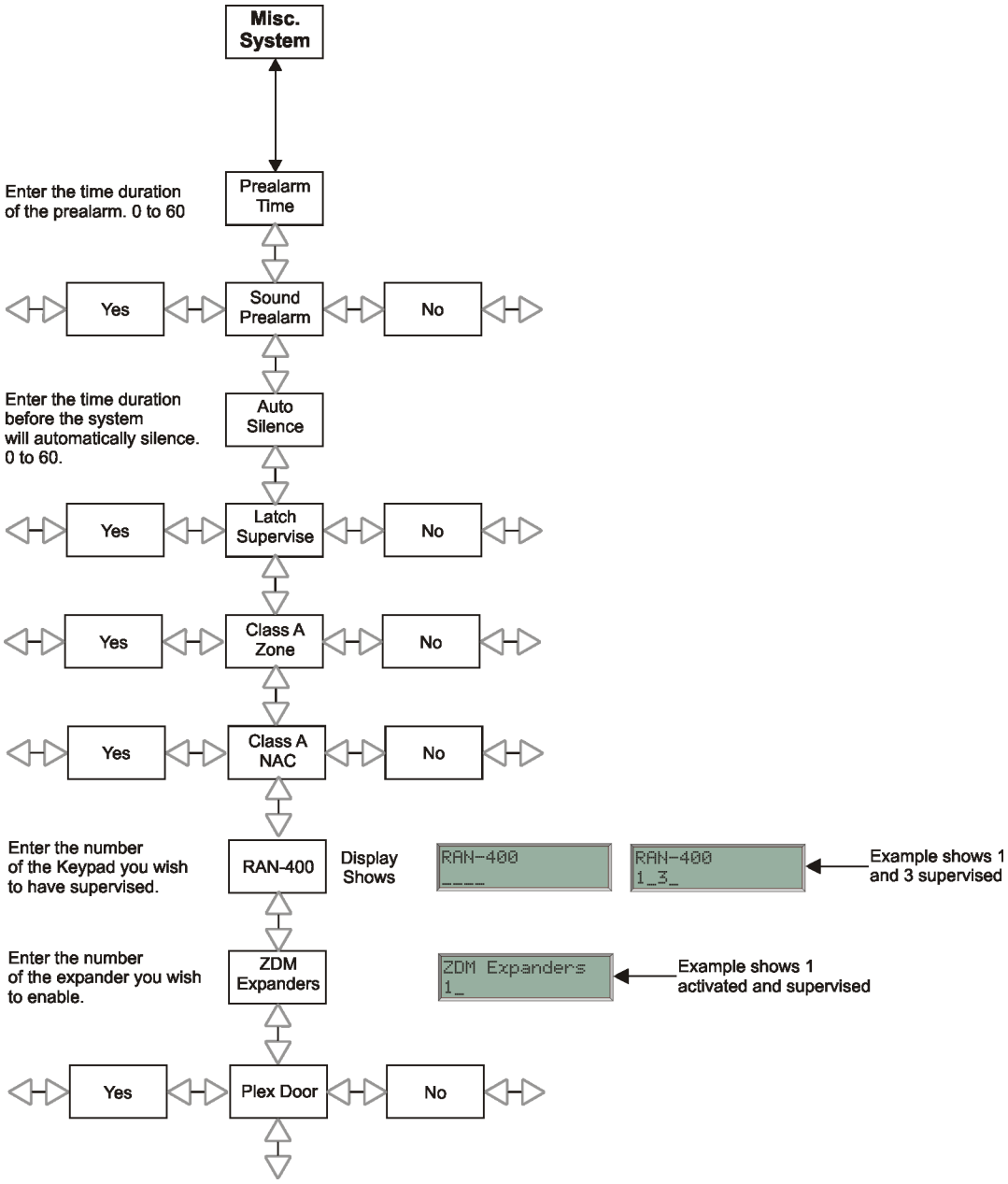


Figure 4-4 Miscellaneous System Options

4.3.3 NAC Cadence

Figure 4-5 illustrates, in more detail, the programming flow when in the NAC cadence menu.

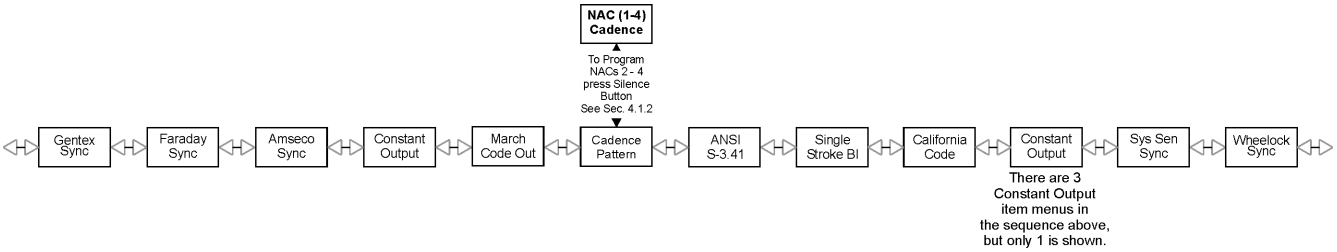
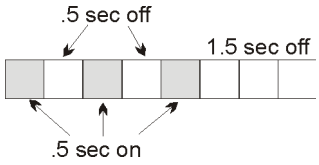
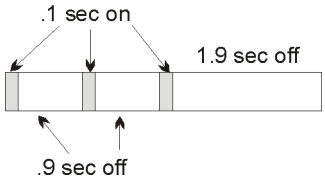
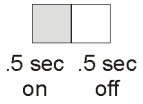


Figure 4-5 NAC Cadence

4.3.3.1 Cadence Patterns

The cadence patterns shown in Table 4-2 can be selected for NAC outputs. Each NAC can select an output pattern. Special cadence patterns can be selected for fire drill or an auxiliary input switches used with the system.

Table 4-2: Cadence Patterns

Name	Pattern Description (Patterns repeat until condition is cleared)
ANSI S-3.41 Code Output	
Single Stroke BI	
California Code	
Constant Output	Continuous sound
System Sensor Sync.	Provides synchronization for visual and audible devices.
Wheelock Sync.	
Gentex Sync.	
Faraday Sync.	
Amseco Sync.	
March Code Output	

4.3.4 NAC Options

Figure 4-6 illustrates, in more detail, the programming flow when in the NAC options menu.

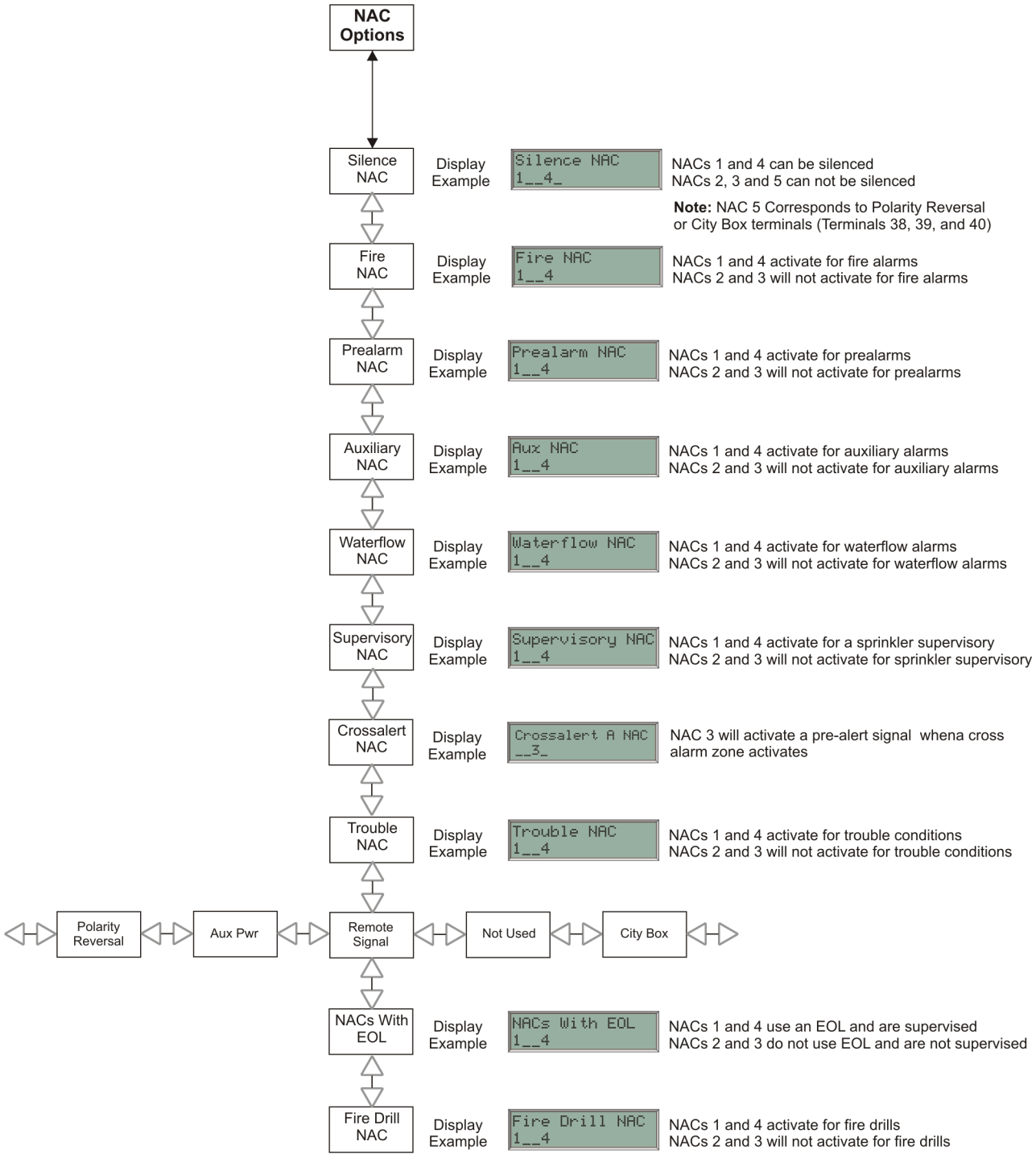


Figure 4-6 NAC Options Programming Menu

4.3.5 Relay Options

Figure 4-7 illustrates, in more detail, the programming flow when in the relay options menu.

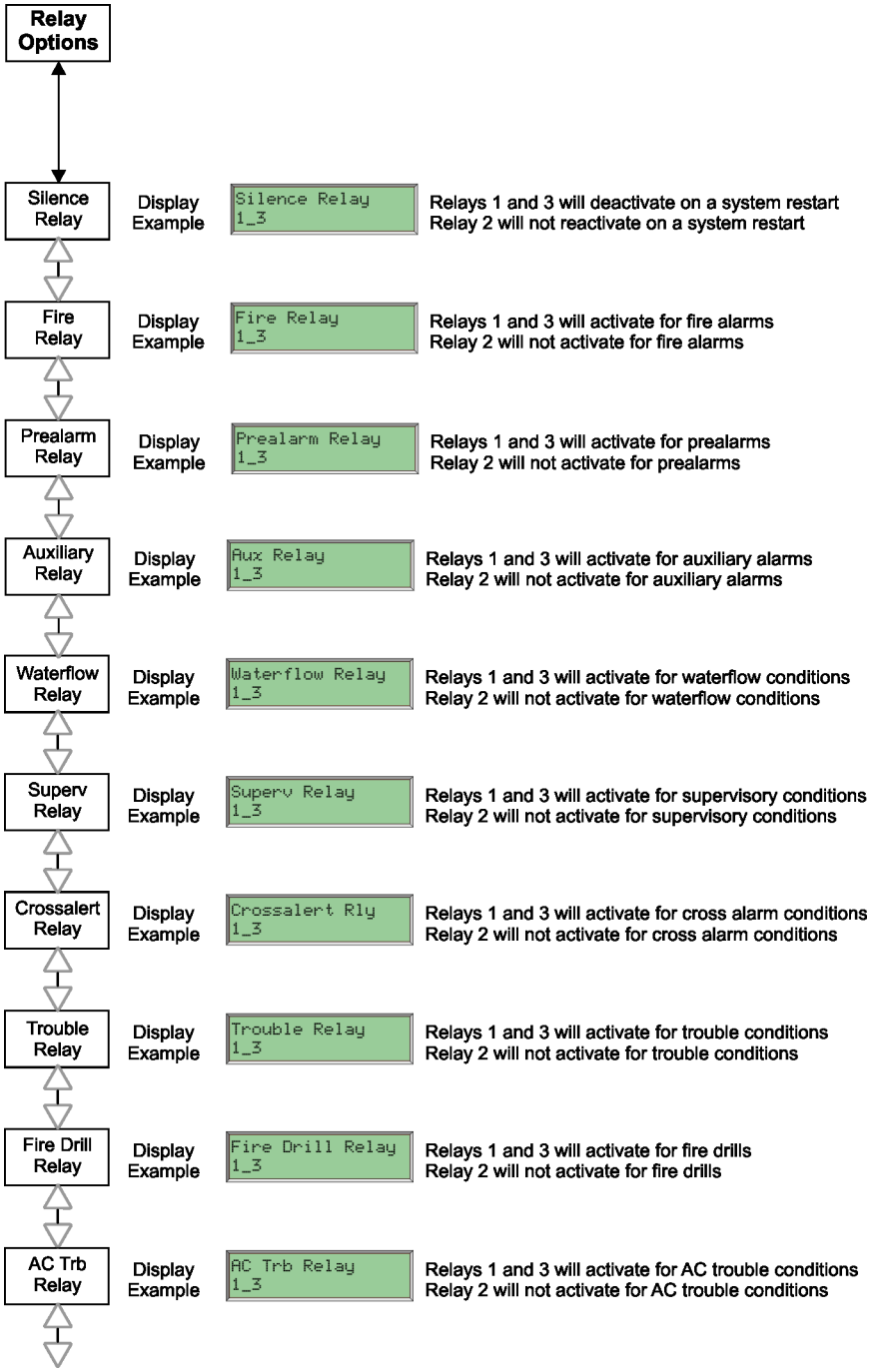


Figure 4-7 Relay Options Programming Menu

4.3.6 User Code

Figure 4-8 illustrates, in more detail, the programming flow when in the user code menu.

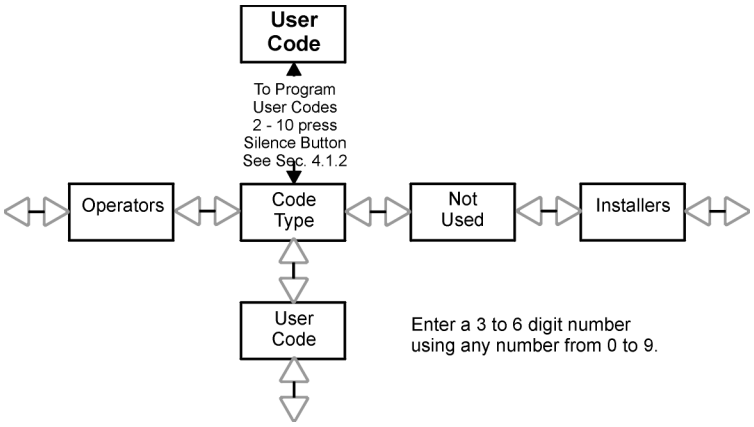


Figure 4-8 User Code Programming Menu

4.3.7 Account

Figure 4-9 illustrates, in more detail, the programming flow when in the account menu.

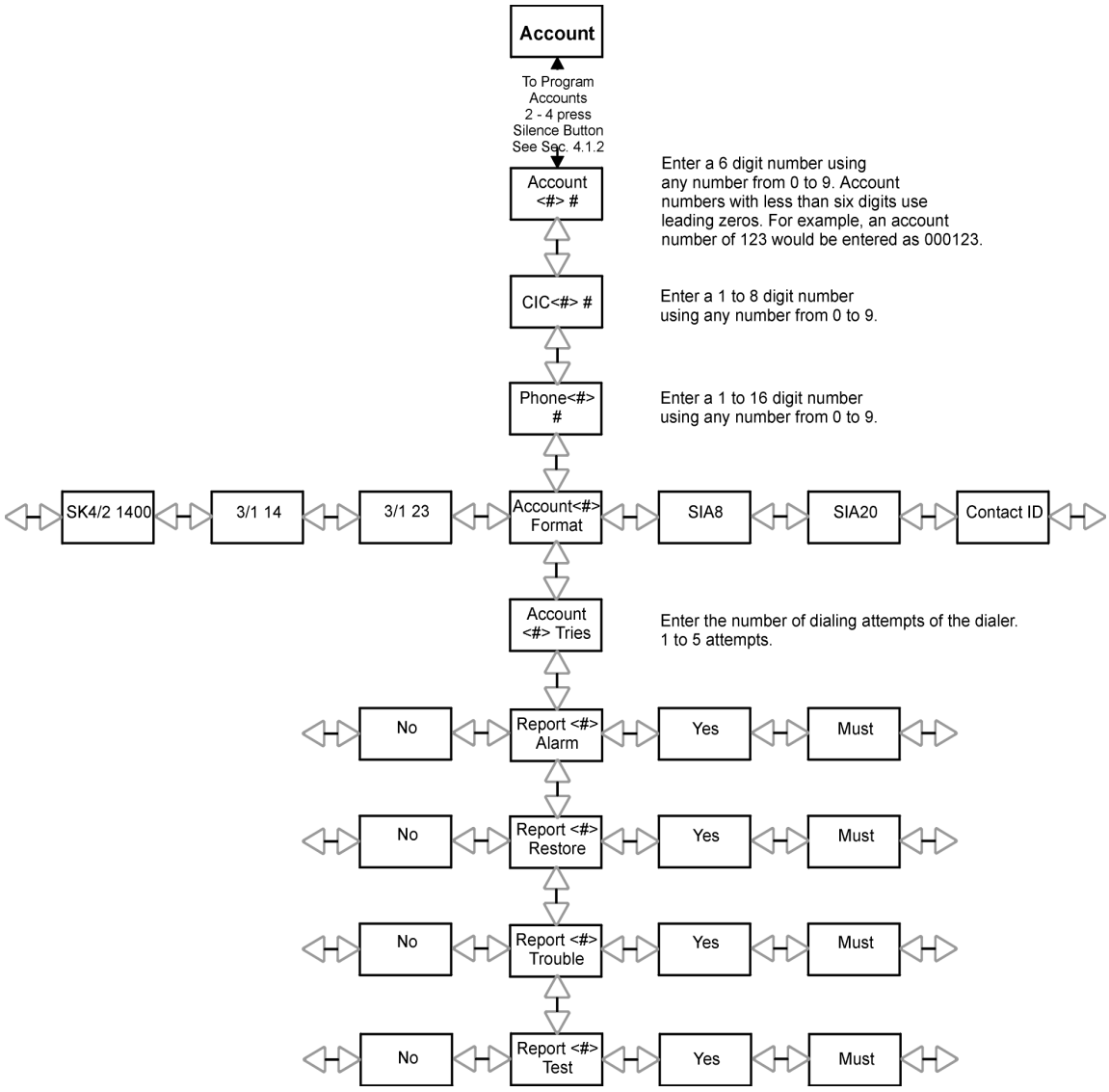


Figure 4-9 Account Programming Menu

Must	The dialer MUST report events in this family to this account. Selecting Must makes an account a primary reporting account. The dialer will try to report the event to the primary account until it exceeds the "Account Tries" value. When the dialer has exceeded the Account Tries retry limit, it will switch to a backup account (a "Can Report" or "Yes" account, see below). If the dialer cannot report the event to any of the backup accounts, it will return to the primary account and repeat the process until it exceeds the a total of 10 attempts. When the Account Tries limit is exceeded, an Account Trouble condition is generated and a local trouble will sound.
Yes	Can Report. Selecting Y makes this a backup account for this event family. The dialer will report to this account only if it was previously unable to report the event to a Must account.
No	No events in this family will ever be reported to this account.

Note: *CIC and Phone number can also use special characters as described in Section 4.2.1.*

4.3.8 Computer Options

Figure 4-10 illustrates, in more detail, the programming flow when in the computer options menu.

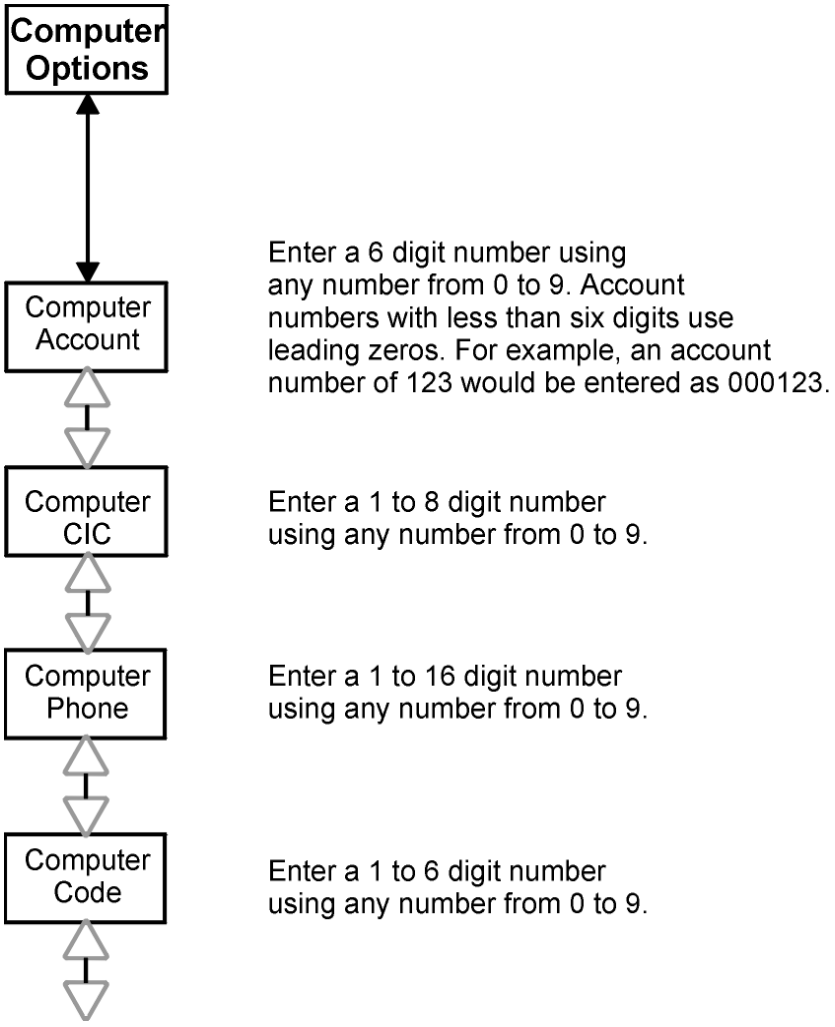


Figure 4-10 Computer Options Programming Menu

Note: *Computer CIC & Phone can also use special characters as described in Section 4.2.1.*

4.3.8.1 Computer Code

In order to remote download to a control, the computer code programmed in the panel, and the computer code used in the downloading software must match.

! Important !

Remote downloading can only be used for Central Station Signaling Services, if this system does not meet Central Station Signaling requirements, this feature must be set to zero.

4.3.9 Line Options

Figure 4-11 illustrates, in more detail, the programming flow when in the line options menu.

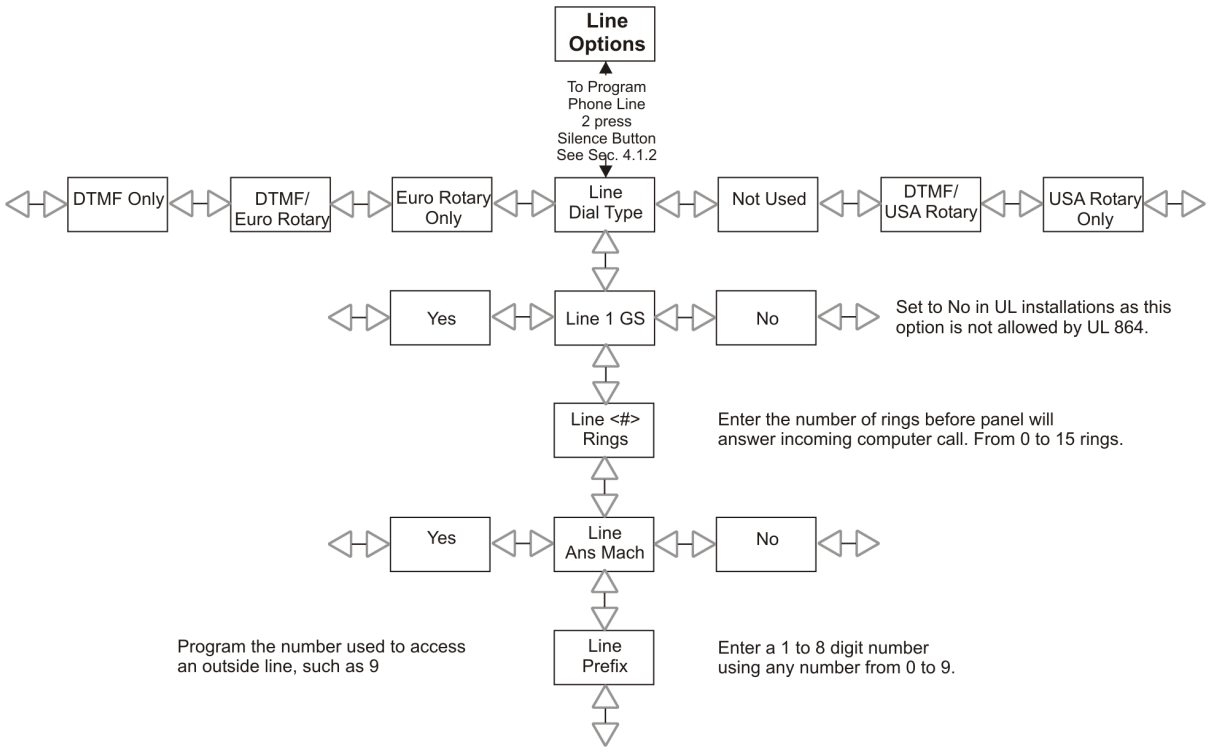


Figure 4-11 Line Options Programming Menu

Note: *Line prefix can also use special characters as described in Section 4.2.1.*

4.3.10 Misc Reporting

Figure 4-12 illustrates, in more detail, the programming flow when in the miscellaneous reporting menu.

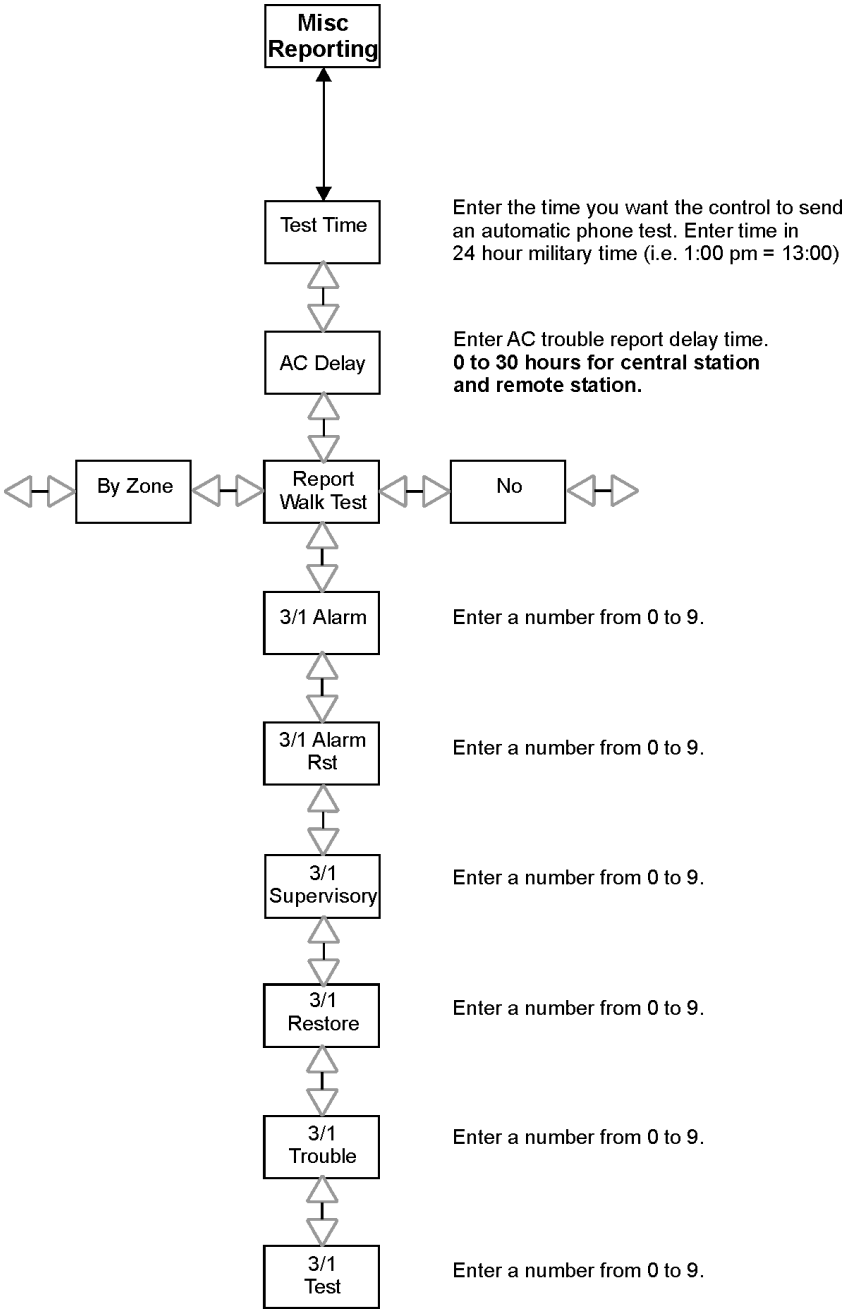


Figure 4-12 Misc Reporting Programming Menu

4.3.11 IOM-410 Outputs

Figure 4-13 illustrates, in more detail, the programming flow when in the IOM-410 outputs menu.

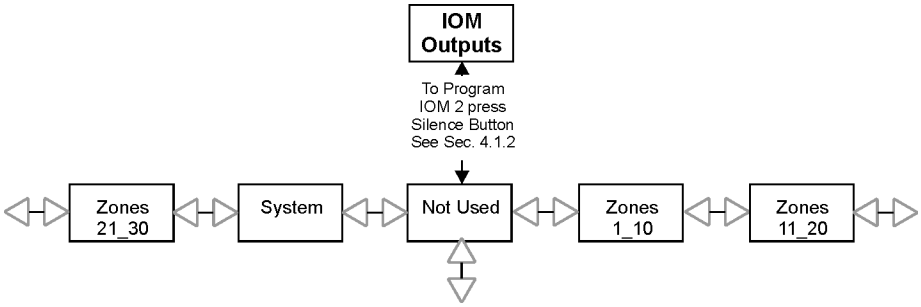


Figure 4-13 IOM-410 Outputs Programming Menu

If Zones 1-10 is selected then the IOM-410 will output when alarms and troubles occur for zones 1 through 10. If Zones 11-20 is selected then IOM-410 will output when alarms and troubles occur for zones 11 through 20.

If System is selected then the IOM-410 will output as shown in Table 4-3 for the following system conditions:

Table 4-3: System Outputs

IOM-410 Output Terminal	Output For:
A1	Fire Alarm
A2	Waterflow Alarm
A3	Supervisory
A4	Aux Alarm
A5	Prealarm
A6	Trouble
A7	Communications Fail
A8	Communicating
A9	Alarm Silenced
A10	Trouble Silenced
T1	Low AC
T2	Low Battery
T3	Relay 1 Active
T4	Relay 2 Active
T5	Relay 3 Active
T6	Relay 4 Active
T7	NAC 1 Active
T8	NAC 2 Active
T9	NAC 3 Active
T10	NAC 4 Active

4.3.12 DST/Clk Options

Figure 4-14 illustrates the programming flow for the Daylight Saving Time (DST) and clock source options.

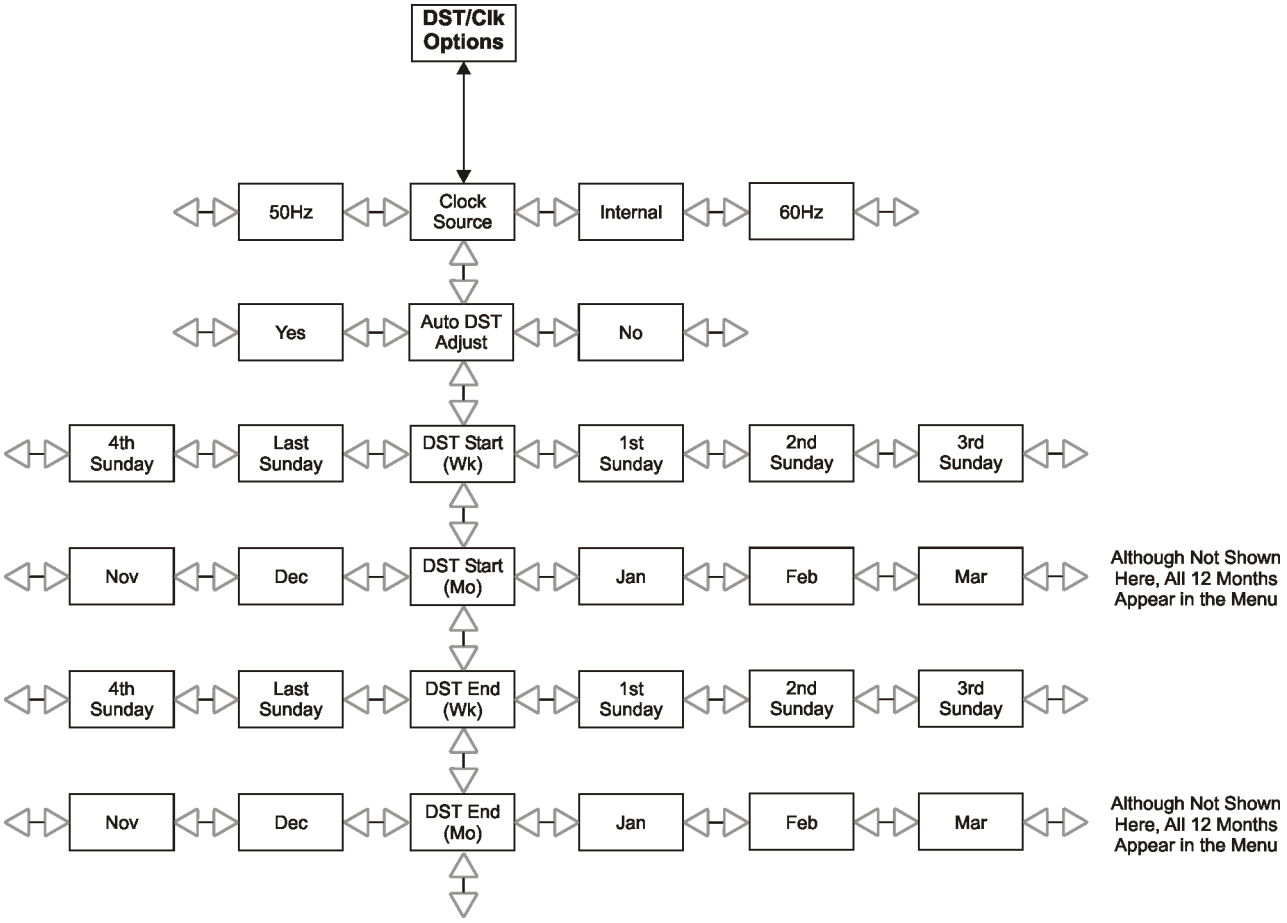


Figure 4-14 DST/Clk Options Flow Chart

4.4 Programming Options

Table 4-4 list all the programming options and the items that can be modified within those programming option menus.

Note: *Programming options that have a # in the Programming Options column have multiple programmable components. See Section 4.2.2 for additional information.*

Table 4-4: Programming Options

Programming Option	Menu Item	Choices	Default	Comments
Zone (1-30) # Options	Zone # Location			Programmable only through downloading software.
	Zone # Type	Not Used		
		Fire	✔	
		Waterflow		
		Supervisory		
		Undefined		
		Heat		
		Cold		
		Water		
		AC Delay		Will generate an AC Trouble for either an open or shorted input. The report to the receiver will be delayed until the AC Delay timer expires. (See Section 4.3.10 for AC Delay Time programming.)
		Ext. Reset		A shorted input will reset active alarms. This type of zone is local only. No troubles will be reported to the central station receiver.
		Ext. Silence		A shorted input will silence alarms and troubles. This type of zone is local only. No troubles will be reported to the central station receiver.
	Zone # Local	No	✔	Zone will report when activated.
		Yes		Local Zone, will not report when activated.
	Zone # Disable	No		Zone cannot be bypassed.
		Yes	✔	Zone can be bypassed.
	Zone # Response	1 Sec	✔	
		4 sec		
		16 sec		
		40 sec		
	Verify # Options	None	✔	
		Smoke		Smoke verification for zones with 2- or 4-wire detectors. Do not use any other type of device on this circuit if Smoke Verification is selected.
		Prealarm		Activated zone will start a prealarm timer that counts down from a user programmed value (see Section 4.3.2 for prealarm time programming). If the timer reaches zero before the panel is reset, a general alarm will then be sounded.
		Cross Alarm		See Section 5.5.

Table 4-4: Programming Options

Programming Option	Menu Item	Choices	Default	Comments
Zone (1-30) # Options (cont.)	Verify # Options (cont.)	Enhanced Smoke		Smoke verification for zones with 2-wire detectors and contact type devices, such as pull stations, used on the same circuit. If the alarm current is greater than 78 mA, the smoke verification cycle will not occur.
	Zone # Auto Sil	No	✔	Alarm sounds for this zone cannot be automatically silenced.
		Yes		Alarm sounds for this zone can be automatically silenced.
	Zone # Man Sil	No		Alarm sounds for this zone cannot be manually silenced.
		Yes	✔	Alarm sounds for this zone can be manually silenced.
	Zone # NAC	_ _ _ _		Select the number of each NAC to operate with this zone in alarm.
	Zone # Relay	_ _ _		Select the number of each Relay to operate with this zone in alarm.
Misc System	Prealarm Time	Enter a value from 0 to 60	40 seconds	Enter time duration for prealarm verification.
	Sound Prealarm	No		No on-board or RAN-400 remote PZT sound for prealarms.
		Yes	✔	RAN-400 and on-board PZTs will sound for prealarms.
	Auto Silence	Enter a value from 0 to 60	8 minutes	This feature selects the time in minutes in which the NAC will automatically silence. 0 = no automatic silence
	Latch Supervise	No	✔	Supervisory type zones will self restore.
		Yes		Supervisory type zones must be reset after any supervisories conditions.
	Class A Zone	No	✔	
		Yes		
	Class A NACs	No	✔	
		Yes		
	RAN-100	_ _ _ _ _		Touchpad numbers that are selected here will be supervised.
	ZDM Expanders	1		Enables zones 11-20.
		2		Enables zones 21-30
	Plex Door	No	✔	If Yes is selected you are not required to enter a Code for operator level functions, such as Reset, Silence, and Display Event History. **Note**: If this option is enabled, the PLEX-2 accessory must be installed on the control panel.
		Yes		

Table 4-4: Programming Options

Programming Option	Menu Item	Choices	Default	Comments
NAC (1-4) # Cadence		ANSI S-3.4		Additional cadence patterns are programmable only through the downloading software. See also Section 4.3.3 for information about the cadence patterns.
		Single Stroke BI		
		California Code	All NACs	
		Constant Output		
		Constant Output		
		Constant Output		
		Sys Sensor Sync		
		Wheelock Sync		
		Gentex Sync		
		Faraday Sync		
		Amseco Sync		
		Constant Output		
		March Code Out		
NAC Options	Silence NAC	_ _ _ _ _	No NACs selected	If number is selected that NAC may be silenced.
	Fire NAC	1 2 3 4	All NACs selected	If number is selected that NAC will activate for any fire alarm.
	Prealarm NAC	_ _ _ _	No NACs selected	If number is selected that NAC will activate during the prealarm timer countdown.
	Aux NAC	_ _ _ _	No NACs selected	If number is selected that NAC will activate for undefined, heat, cold, and water alarms.
	Waterflow NAC	1 2 3 4	All NACs selected	If number is selected that NAC will activate for waterflow alarms.
	Supervisory NAC	_ _ _ _	No NACs selected	If number is selected that NAC will activate for sprinkler supervisories.
	Crossalert NAC	_ _ _ _	No NACs selected	If you have a single zone, that is programmed for crossalarm verification, in alarm, all NAC output select for this option will activate.
	Trouble NAC	_ _ _ _	No NACs selected	If number is selected that NAC will activate for any trouble condition.
NAC Options	Remote Signal	Not Used	✔	For alarms when using a city box or polarity reversal. For use with devices connected to the direct connect terminals. See Figure 3-2 and Table 3-1 for location and description of direct connect terminals.
		City Box		
		Polarity Reversal		
		Aux Power		
	NACs With EOL	1 2 3 4	All NACs selected	If number is selected that NAC output must be supervised with an 5.1 kΩ UL listed EOL.
	Fire Drill NAC	1 2 3 4	All NACs selected	If number is selected that NAC will activate during a fire drill.
Relay Options	Silence Relay	_ _ _	No Relays selected	If a relay is select, that relay can be silenced when the system is silenced.
	Fire Relay	1 _ _	Relay 1 selected	If a relay is selected, that relay will activate for fire alarm conditions.
	Prealarm Relay	_ _ _	No Relays selected	If a relay is selected, that relay will activate for prealarm conditions.

Table 4-4: Programming Options

Programming Option	Menu Item	Choices	Default	Comments
Relay Options (cont.)	Aux Relay	_ _ _	No Relays selected	If a relay is selected, that relay will activate for Auxiliary conditions.
	Waterflow Relay	_ _ _	No Relays selected	If a relay is selected, that relay will activate for waterflow conditions.
	Superv Relay	_ _ _	No Relays selected	If a relay is selected, that relay will activate for supervisory conditions.
	Crossalert Relay	_ _ _	No Relays selected	If a relay is selected, that relay will activate for crossalarm conditions.
	Trouble Relay	_ _ 3	3	Relay will be activated when no troubles exist and will deactivate when a trouble condition occurs.
	Fire Drill Relay	1 _ _ _	Relay 1 selected	If a relay is selected, that relay will activate for fire drills.
	AC Trb Relay	_ _ _	No Relays selected	If a relay is selected, that relay will activate when an AC trouble condition occurs.
User (1-10) # Code	Code # Type	Installers	123456	
		Operators	1111	
		Not Used		
	User # Code	Enter 3 to 6 digit number		Enter any value from 001 to 999999.
Account (1-4) #	Account <#> #	Enter a 6-digits number		Enter any value from 000001 to 999999. Account numbers with less than 6 digits must use leading zeros. For example, if the code 321 is used, it must be entered as 000321.
	CIC <#> #	Enter up to 8 digits		Carrier Identification Code is the prefix that needs to be dialed before a phone number to access a particular long distance carrier. Use special characters to add pauses, #, *, and "2nd dial tone" characters into the phone number. See Section 4.2.1 for special characters.
	Phone <#> #	Enter up to 16 digits		See Section 4.2.1 for special characters.
	Account # Format	SIA8	✔	
		SIA20		
		Contact ID		
		SK4/2 1400		
		3/1 1400		
		3/1 2300		
Account (1-4) #	Account # Tries	1 to 5	3	
	Report # Alarm	No		Do not report alarm events.
		Yes		Can report alarm events.
		Must		Must report alarm events.
	Report # Restore	No		Do not report alarm restores.
		Yes		Can report alarm restores.
		Must		Must report alarm restores.
	Report # Trouble	No		Do not report sprinkler supervisory, system troubles, zone troubles, zone bypasses, and zone restores.
		Yes		Can report sprinkler supervisory, system troubles, zone troubles, zone bypasses, and zone restores.
		Must		Must report sprinkler supervisory, system troubles, zone troubles, zone bypasses, and zone restores.

Table 4-4: Programming Options

Programming Option	Menu Item	Choices	Default	Comments
Account (1-4) # (cont.)	Report # Test	No		Do not report manual test, auto test, downloading pass , downloading fail, data lest, and walk test.
		Yes		Can report manual test, auto test, downloading pass , downloading fail, data lest, and walk test.
		Must		Must report manual test, auto test, downloading pass , downloading fail, data lest, and walk test.
Computer Options	Computer Account	Enter 6-digit number	500410	Enter any value from 000001 to 999999. Account numbers with less than 6 digits must use leading zeros. For example, if the code 321 is used, it must be entered as 000321.
	Computer CIC	Up to 8 digits.		Carrier Identification Code is the prefix that needs to be dialed before a phone number to access a particular long distance carrier. Use special characters to add pauses, #, *, and "look for second dial tone" characters into the phone number. See Section 4.2.1 for special characters.
	Computer Phone	up to 16 digits		See Section 4.2.1 for special characters.
	Computer Code	1 to 6 digits	0	The computer code must match the computer code in the remote downloading computer in order to perform a remote download. See also Section 4.3.8.1.
Line (1-2) # Options	Line # Dial Type	Not Used	✔	This disables the phone line.
		DTMF/USA Rotary		Attempts 1 through 6 will be DTMF, then the dialer will alternate between Rotary and DTMF for attempts 7 through 10, Rotary Make/Break ratio is 40/60.
		USA Rotary Only		Attempts 1 through 10 will be Rotary only, with a Make/Break ratio of 40/60.
		DTMF Only		Attempts 1 through 10 will be DTMF only.
		DTMF/Euro Rotary		Attempts 1 through 6 will be DTMF, then the dialer will alternate between Rotary and DTMF for attempts 7 through 10, Rotary Make/Break ratio 33/67.
		Euro Rotary Only		Attempts 1 through 10 will be Rotary only, with a Make/Break ratio of 33/67.
	Line # GS[1]	No	✔	Yes enables Ground Start phone functions. A ground start relay (Model 5211) is required if this feature is enabled (see Figure 3-2).
		Yes		

Table 4-4: Programming Options

Programming Option	Menu Item	Choices	Default	Comments
Line (1-2) # Options	Line # Rings	0 - 15	2	Number of rings before the panel will answer an incoming telephone call.
	Line # Ans Mach	No	✔	This feature is used in installations where an answering machine is on the same phone line that the control panel is on. The answering machine may interfere with a computer download. When enabled (Yes) the computer calls the control panel and the phone line rings twice, hangs up and calls again (within 10 to 60 seconds). When the control panel see two more rings on the phone line it will answer and acknowledge the calling computer.
		Yes		
	Line # Prefix	Up to 8 digits		See Section 4.2.1 for special characters.
Misc Reporting	Test Time	00:00 - 23:59	12:00	Selects the time of day the control will send an automatic test signal to a central station receiver.
	AC Delay[2]	0 - 30 Hours	3	Selects the delay time (in hours) before the control will report an AC power loss to the central station and remote station.
	Report Walk Test	No	✔	No zone information will be reported just test begin and test end.
		By Zone		Test begin, test end, and all events in between will be reported to central station.
	3/1 Alarm[3]	0 - 9	0	Alarms for Fire, Waterflow, Undefined, Heat, Cold, and Water events.
	3/1 Alarm Rst[3]	0 - 9	2	Alarms restores for Fire, Waterflow, Undefined, Heat, Cold, and Water events.
	3/1 Supervisory[3]	0 - 9	6	Sprinkler supervisories.
	3/1 Restore[3]	0 - 9	7	Restore reports for Troubles, Supervisories, and unbypasses. The only exceptions are the restores listed as alarm restores.
	3/1 Trouble[3]	0 - 9	8	All system and zone troubles, and zone/NAC bypasses, and NACs troubles.
	3/1 Test[3]	0 - 9	9	All test events.
IOM-410 (1 - 8) # Outputs	IOM-410 #	Not Used	✔	
		Zones 1_10		
		Zones 11_20		
		Zones 21_30		
		System		

Table 4-4: Programming Options

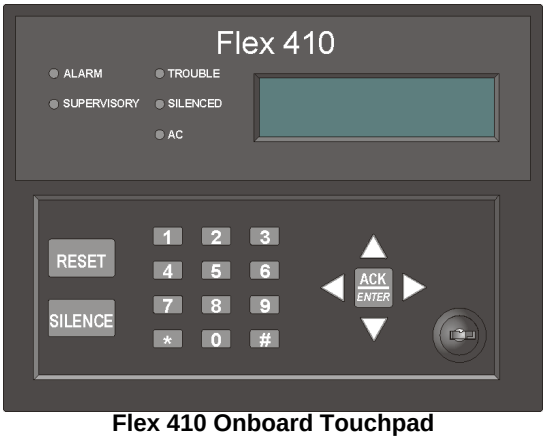
Programming Option	Menu Item	Choices	Default	Comments
DST/Clk Options	Clock Source	60 Hz	✔	The panel's AC line frequency is selectable for 60, 50 Hz, or Internal. AC Frequency feature dictates how the control panel will calculate time based on the AC line frequency used in the installation site. The "Internal" option can be used in areas where the AC line frequency is not dependable and you want the panel to calculate time from the internal crystal. The internal crystal is not as accurate as the AC power source and either 60 Hz or 50 Hz should normally be selected. The panel defaults to the 60 Hz. selection
		50 Hz		
		Internal		
	Auto DST Adjust	No	✔	No automatic clock adjust for Daylight Saving.
		Yes		Automatically changes system clock between Daylight Saving Time (DST) and standard time. Before January 1, 2007, the system clock will switch to DST on the first Sunday in April at 2:00 a.m. and will revert to standard time on the last Sunday in October at 2:00 a.m. On January 1, 2007, the system clock will be adjusted according to the values set in the DST Start (Wk and Mo) and DST End (Wk and Mo) options. Default values for these fields match federal law: DST begins on the second Sunday in March at 2:00 a.m. and reverts to standard time on the first Sunday of November at 2:00 a.m.
	DST Start (Wk)[4]	1st Sunday		Setting determines the week of the month in which Daylight Saving Time is to start. If you always want the change to occur on the last Sunday of the month, select the *Last Sunday* option regardless of whether there are four or five Sundays in the month.
		2nd Sunday	✔	
		3rd Sunday		
		4th Sunday		
		Last Sunday		
	DST Start (Mo)[4]	Jan – Dec	Mar	Setting determines the month in which Daylight Saving Time is to end.
	DST End (Wk)[4]	1st Sunday	✔	Setting determines the week of the month in which Daylight Saving Time is to end. If you always want the change to occur on the last Sunday of the month, select the *Last Sunday* option regardless of whether there are four or five Sundays in the month.
		2nd Sunday		
		3rd Sunday		
		4th Sunday		
		Last Sunday		
	DST End (Mo)[4]	Jan – Dec	Nov	Setting determines the month in which Daylight Saving Time is to start.

Notes:

1. *Do not use in UL certified installations.*
2. *Set the AC Delay option from 1-3 hours in UL certified installations.*
3. *Event code for 3/1 and 4/2 reporting formats.*
4. *This option is not recognized by the panel until January 1, 2007. Before January 1, 2007, the panel will recognize the values described above in the Auto DST Adjust option.*

Section 5
Operation

To operate the Flex 410 you can use the Flex 410 onboard touchpad or the RAN-400 Remote Annunciator.



Flex 410 Onboard Touchpad

RAN-400 Remote Annunciator

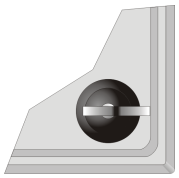
Important! **Upon initial power up there is a 45 second delay before the initiation circuits become active. The system will be ready to receive alarms once the display indicates "System Normal"**

5.1 Installer & User Keys

An installer key and an OPR key ships with the panel and an OPR key ships with the RAN-400 (Figure 5-1). The installer key opens the panel door and the OPR key can be used to perform user operations without a user code but will not open the panel door. All installer operations require an installer code. To perform user operations without a user code, insert and turn the key as shown in Figure 5-1. See Table 5-1 for a list of user and installer operations.

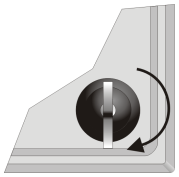
Installer Key: Open panel door.

Normal Operation



User Key: Perform user operations without a user code.

User Operations Enabled



Note: The key can not be removed when in the user operations position.

Figure 5-1 Keys & Key Operation

5.2 Onboard Annunciator and RAN-400 Operation

Basic operations for the onboard annunciator (touchpad) and RAN-400 are described in Table 5-1. If you are using an annunciator key or the Plex Door option, you are not required to enter a Code for operator level functions.

If no keys are pressed for 4 minutes while in program mode, the system will time out and resume normal operation.

Table 5-1: Basic Panel Operations Using the On-Board Annunciator and the RAN-400

How To	Do This			Comments
	Press	Display Message	Press*	
Test the system	0 ACK ENTER	System Test Enter Code	Enter Code	System performs a display lamp test, a communication test, and displays the firmware number and revision. See 5.2.1 for an example.
Reset Alarms	1 ACK ENTER or RESET	Reset Alarm Enter Code	Enter Code	Resets system.
Clear History	2 ACK ENTER	Clear History Enter Code	Enter Installer Code	Clears event history of all events.
Reset the Dialer	3 ACK ENTER	Reset Dialer Enter Code	Enter Code	Resets the dialer and aborts the call to central station.
Call Computer to Up/ Download	4 ACK ENTER	Call Computer Enter Code	Enter Installer Code	Will dial the programmed phone number for the computer to initiate an up or download.
Display History Events	5 ACK ENTER	History Events Enter Code	Enter Code	Displays the panel history, which includes alarms, supervisories, troubles, reports, time and date changes, etc.
Show Status	6 ACK ENTER	Show Status Enter Code	Enter Code	View existing system status. List Alarms first, supervisories and then troubles.
Silence Troubles or Alarms	7 ACK ENTER or SILENCE	Silence Enter Code	Enter Code	
Set the Date	8 ACK ENTER	Set Date Enter Code	Enter Code	Enter 8 digits for the date. For example, to set the date 08/31/1999 enter 08311999. Press # to clear incorrect entries.
Set the Time	9 ACK ENTER	Set Time Enter Code	Enter Code	Enter the time in 24 hour increments. For example, 1:00 pm = 13:00.
Disable/Enable a Zone	Zone # + *	Disable Zone Enter Code	Enter Code	Repeat the process to enable the zone.
Disable/Enable NAC	1 0 NAC # *	Disable NAC Enter Code	Enter Code	Repeat the process to enable the NAC. **Note:** To disable the Direct Connect Circuit use NAC 5.
Conduct a Fire Drill	2 0 ACK ENTER	Fire Drill Enter Code	Enter Code	To End the Fire Drill press RESET then code.
Reset Detectors	2 1 ACK ENTER	Rst Smk Pwr Enter Code	Enter Code	Resets all smoke detector power.
Walk Test the System	2 2 ACK ENTER	Walk Test Enter Code	Enter Code	To End the Walk Test press RESET.
Menu of Options	Press ▽ or △ to scroll through list.			To exit press ACK ENTER or wait 15 seconds.

* ***Code*** *= any valid operator or installer code.*

5.2.1 View Control Panel Firmware Number and Revision

When 0 ACK ENTER and the code is entered the system will perform a display lamp test, a communication test, and display the firmware number and revision as shown in Figure 5-2.

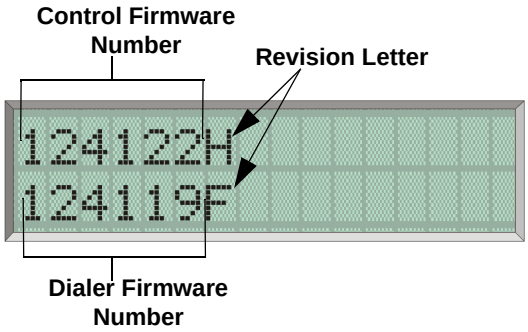


Figure 5-2 Firmware Numbers and Revisions

5.3 Acknowledge Operation

To display an event, first press the ACK ENTER, while the event is displayed the event can be acknowledged by pressing the ACK ENTER button again. No code is required to acknowledge events. The status LEDs (Alarm, Supervisory and Trouble) will flash when an un-acknowledged alarm, supervisory, or trouble condition exists.

After each event has been acknowledged its associated LED (Alarm, Supervisory, or Trouble LED) stop flashing and turn on steady. When viewing system status the LCD displays "Acked" for each individual event once has been acknowledged. The control panel piezo will silence after all alarms have been acknowledged.

Note: The control panel piezo will continue to sound for Supervisories and Troubles even after the event has been acknowledged. Supervisories and troubles will silence once the event is restored.

After the event is acknowledged an event is added to the event history buffer. Acknowledged events in the history buffer will be preceded with an asterisk "*".

5.4 LED Indicators

Five light emitting diodes (LEDs) appear in the Flex 410 built in annunciator and remote annunciator. The chart below explains the meaning of these LEDs.

Table 5-2

LED	Status	Condition
ALARM (red)	Off	Normal condition
	On	System in alarm and all alarms have been acknowledged.
	Flashing	LED will flash when a alarm condition exists that has not been acknowledged.
SUPERVISORY (yellow)	Off	Normal condition
	On	If a supervisory condition exist on the system.
	Flashing	LED will flash when a supervisory condition exists that has not been acknowledged.
TROUBLE (yellow)	Off	Normal condition
	On	Trouble condition exists
	Flashing	LED will flash when a trouble condition exists that has not been acknowledged.
SILENCED (yellow)	Off	Normal condition.
	On	Alarm or trouble condition has been silenced but condition still exists.
AC (green)	On	Panel is running on AC (normal condition); standby battery fully charged.
	Off	Panel has lost all power.
	Flashing	Panel is running on battery power only or AC power only.

5.5 Cross Alarm Operation

Cross alarm is an optional false alarm prevention feature. If an alarm occurs in a zone that has been programmed as cross alarm, it will not be reported unless a cross alarm occurs in another zone programmed for cross alarm. (Note: only the local annunciator's piezo will sound after the first zone programmed for cross alarm is activated. The local annunciator will continue to sound until it is silenced or until another cross alarm zone is activated.) When a second detector is activated, which is programmed for cross alarm zone, then the programmed notification circuits for that zone will activate. If the control has account information programmed, then a report will be generated to the central station.

Do not mix cross alarming zones with smoke verification zones. There must be at least two automatic detection devices in each protected space. See Section 4.3.1 for zone option programming.

Figure 5-3 is an example of how cross alarming may be programmed.

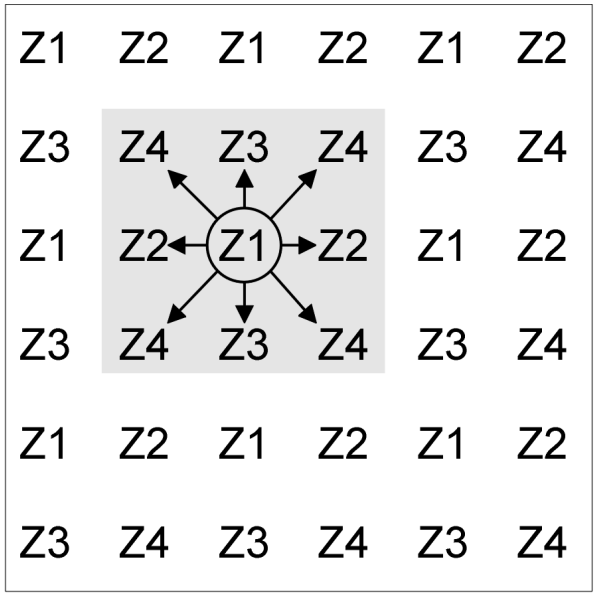


Figure 5-3 Example Showing Smoke Detector Cross Alarm Application

5.6 Smoke Alarm Verification

Figure 5-4 illustrates how the Smoke Alarm Verification cycle operates.

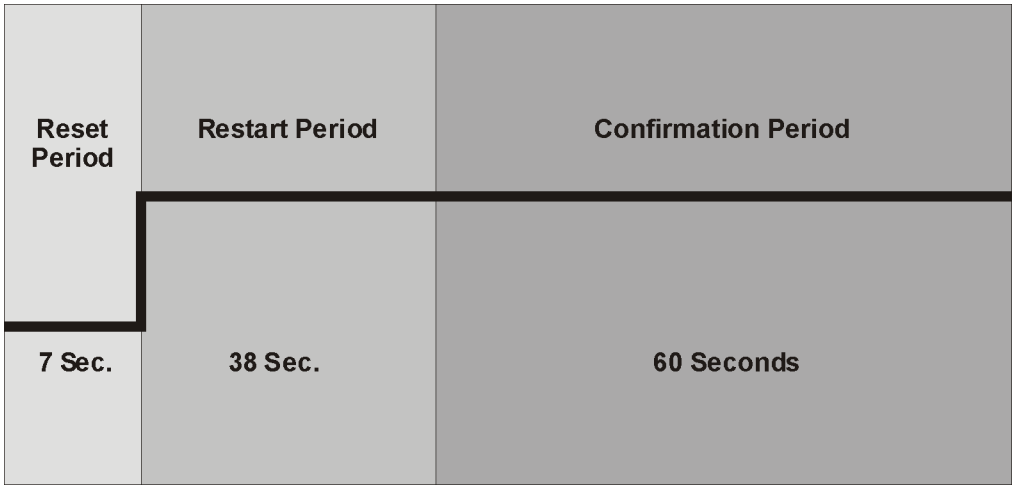


Figure 5-4 Smoke Verification Cycle

During the Confirmation Period if there is no alarm indication then the system will return to normal operation.

5.7 System Testing

This section describes operation of fire drills, zone testing, and the 24-hour automatic test.

5.7.1 Fire Drills

Fire drills can be run from either the on-board touchpad or the Model RAN-400 Remote Annunciator. To initiate a fire drill, press 2 0 ACK ENTER + Code. The system will sound an alarm and report a fire test. To end the fire drill, press RESET + Code.

5.7.2 Walk Test

The walk test is designed to be used for on-site testing only.

To enter walk test mode, press 2 2 ACK ENTER + Installer Code.

Select the following test parameters:

Test Feature	Enable or Disable	Comments
Use Verify:	Yes or No	If Yes is selected then this option will be enabled during walk test. If No is selected this option will be disabled during walk test.
Mapped Rlys:	Yes or No	
Mapped NACs:	Yes or No	

The LCD will indicate that you are in walk test mode. When a zone is tripped, the Flex 410 will activate the bell outputs for approximately six second and will cycle smoke power off and on for the programmed time interval. When smoke power is restored, there is a two-second power up delay before the zone will respond to additional test inputs.

The system will time out and resume normal operation in 30 minutes if no keys are pressed or no zones are tripped during the walk test.

To exit walk test mode, press RESET.

5.7.3 Automatic Self Test

The Model Flex 410 lets you select the time of day that the 24-hour automatic test signal will be sent to the central station. See Sections 4.3.10 and 4.1 for additional information on automatic test time.

5.7.4 Watchdog Circuit

During normal operation, the control microprocessor of the Flex 410 is constantly running programs to check inputs and carry out other routine functions. If the program should ever stop running, the watchdog circuit will automatically detect this and attempt to resume normal operation by resetting the microprocessors. Each time the watchdog circuit initiates a reset signal, it will also sound the audible trouble signal for approximately four seconds.

5.8 Communicating with a Programming Computer

An installer at the panel site can initiate communications between the panel and a computer running the SmartProgram 400 (Model SP400). In order for this communication to function properly both the computer (running the software) and the control panel must have matching computer account numbers and computer access codes.

Before you program in this location you should know how your control panel will communicate with the downloading computer, either through direct connect (RS232) or via the phone lines (Internal Modem).

5.8.1 Programming From a Remote Computer Location

The panel can communicate with a Up/Downloading computer using two methods. The control panel can call the programming computer or the programming computer can call the control panel.

The programming information for the control panel will be stored in the queue of the downloading software Model SP400 (see P/N 151335 SmartProgram 400 Installation Manual). This data packet will have been pre-configured for the control panel that you are about to program. Having the Control Panel Call the Remote Computer

If the panel initiates the call to a downloading computer, a phone number must be programmed in the computer accounts area (see Section 4.3.8).

To initiate communication:

1. Press the 4 ACK ENTER or the △ up arrow until the display reads `Call Computer`.
2. Enter the Installer Code.

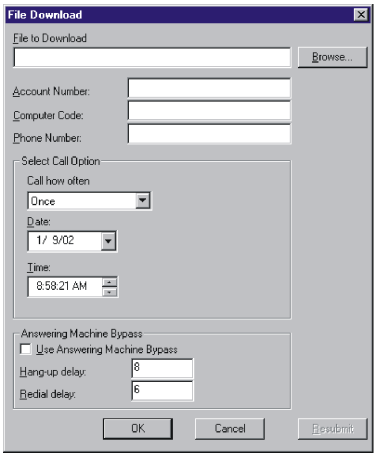
The control panel will then begin the communication process with the remote computer.

5.8.1.1 Having Remote Computer Call the Control Panel

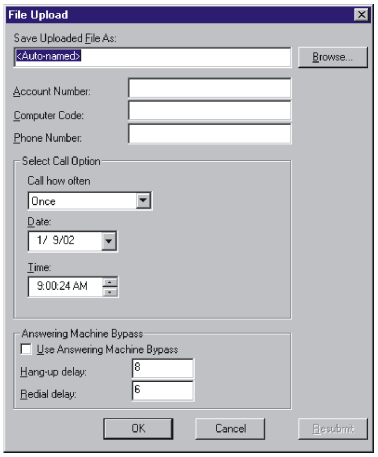
If the computer initiates the call then answering machine bypass (see Section 4.3.8) may need to be selected.

To initiate communication:

1. From the SP400 Up/Downloading software File Menu, select the download or upload menu item you want to schedule.



Download Menu



Upload Menu

2. In the appropriate locations in the dialog box, enter your selections for the following options:

File Name:	To download, select the file that you want to download. To upload assign a name to the file that will be uploaded from the panel. You can use the Browse option to select from the list of available files. If you do not select a name for the file, it will be automatically named with the panel model and the date and time of the download. For downloads, the latest saved version of the file will be sent. This means if the file you want to send is currently open and has been changed, save it before you attempt to download.
Account Number:	Enter the panel account number.
Computer Code:	Enter the code that allows access to the panel from a PC.
Phone Number:	Enter the panel phone number.
Call Option:	Select how often and when the call should be placed.
Answering:	Select the preferred options if the phone line used by the control panel has an answering machine installed. This feature is not used when connecting directly to a panel.

3. Click **OK** to begin downloading/uploading or to post the job to the Queue.

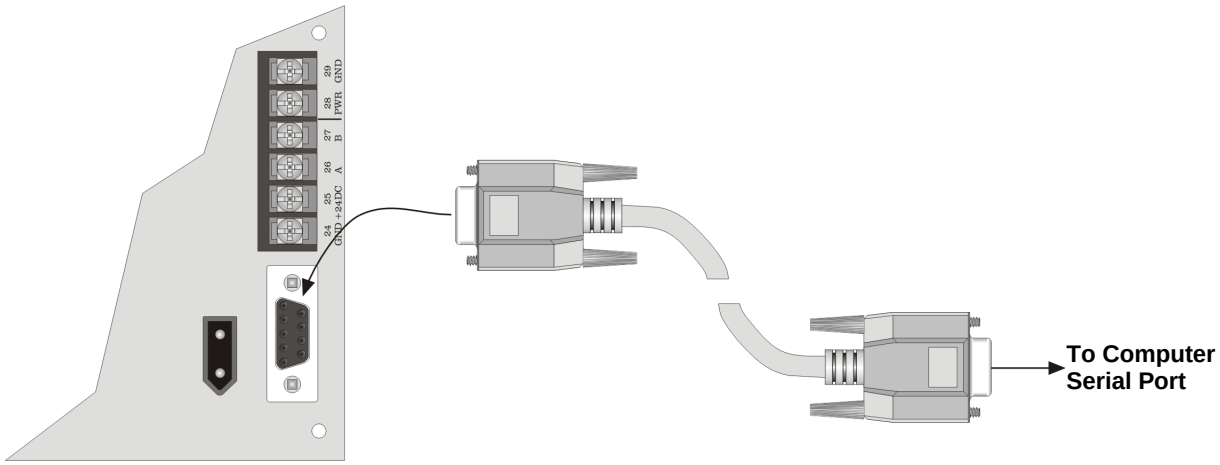
5.8.2 Directly Connecting to a Programming Computer

The control panel can be up or downloaded from a computer that is directly connected to the control panel.

Note: This connection is to be used as a temporary connection and should be disconnected after programming is completed.

To initiate communication:

1. Connect a serial cable from the control panel to the computer.



2. Make sure SP400 software is running and that the up/download task is in the queue.
3. Press the 4 ACK ENTER or the △ up arrow until the display reads `Call Computer`.
4. Enter the Installer Code.

The control panel will then begin the communication process with the remote computer.

Section 6
Reporting

The Flex 410 can transmit information in four different formats. This section describes the four basic reporting formats of the Flex 410 and the codes that they send to a central station receiver. Of these four formats some of the formats offer a more specific selection for that format. For example, you can select a 3/1 format that requires a 1400 or 2300 Hz handshake, or SIA format that can handle 8 or 20 events per call. Selecting the correct format depends on the type of receiver that will receive calls from the Flex 410.

The Flex 410 DACT is compatible with Silent Knight Model 9800 and 9500 Digital Receivers.

6.1 Reporting Formats

This section gives a description of each of the Flex 410 reporting formats. Refer to Table 6-1.

Table 6-1: Reporting Formats Descriptions

Format Name		Description
Category Name	**Programming Name**	
3/1	3/1 14	Old format, transmits a 3-digit account number and a 1-digit event code. Transmissions are acknowledged at 1400 Hz.
	3/1 23	Old format, transmits a 3-digit account number and a 1-digit event code. Transmissions are acknowledged at 2300 Hz.
4/2	SK4/2 1400	Tone burst format, transmits a 4-digit account code and 2-digit event code. Transmissions are acknowledged at 1400 Hz.
SIA	SIA8	Security Industry Association standard communication format which send a maximum of 8 events per call.
	SIA20	Security Industry Association standard communication format which send a maximum of 20 events per call. Up to a 6-digit account number.
Contact ID	Contact ID	Ademco Contact ID format. DTMF (Dual Tone Multiple Frequency) format. Send a 4-digit account number. Transmission is acknowledged at both 1400 and 2300 Hz.

6.2 Reporting Codes

Table 6-2 list the events sent by the Flex 410 and the code that is sent for that event by the type of reporting format used.

Note: Codes under in the SK4/2 and 3/1 1400 & 2300 column are the codes programmed for 3/1 reporting formats in Misc Reporting. See Section 4.3.10 for Misc. Reporting options.

Table 6-2: Event and Reporting Code by Format

Event	SIA8 & 20	SK4/2	3/1 1400 &2300	Contact ID
AC Trouble	AT0	T0	Trouble Code	1 301 000
AC Restore	AR0	R0	Restore Code	3 301 000
Annunciator Trouble 1-7	ET17 - ET23	T7 - T3	Trouble Code	1 330 017 - 1 330 023
Annunciator Restore 1-7	ER17 - ER23	R7 - R3	Restore Code	3 330 017 - 3 330 023
Bell Trouble 1-4	ET32-ET35	T2 - T5	Trouble Code	1 330 032 - 1 320 035
Bell Restore 1-4	ER32-ET35	R2 - R5	Restore Code	3 330 032 - 3 320 035
Smoke (Loop) Power Trouble	ET36	T6	Trouble Code	1 320 036
Smoke (Loop) Power Restore	ER36	R6	Restore Code	3 320 036
Aux Power Trouble	ET37	T7	Trouble Code	1 330 037
Aux Power Restore	ER37	R7	Restore Code	3 330 037
Earth Ground Trouble	ET38	T8	Trouble Code	1 330 038
Earth Ground Restore	ER38	R8	Restore Code	3 330 038
Keypad Power Trouble	ET40	T0	Trouble Code	1 330 040
Keypad Power Trouble	ER40	R0	Restore Code	3 330 040
CZM-400 Expander Trouble	ET51-ET52	T1 - T2	Trouble Code	1 330 051 - 1 330 052
CZM-400 Expander Restore	ER51-ER52	R1 - R2	Restore Code	3 330 051 - 3 330 052
IOM-410 Expander Trouble	ET61-ET68	T1 - T8	Trouble Code	1-330 061 - 1 330 068
IOM-410 Expander Restore	ER61-ER68	R1 - R8	Restore Code	3-330 061 - 3 330 068
NAC Bypass	ET101-ET104	T1 - T4	Trouble Code	1-330 101 - 1 330 104
NAC Restore	ER101-ER104	R1 - R4	Restore Code	3-330 101 - 3 330 104
Fire Alarm 1-20	FA1 - FA30	A1 - A0	Alarm Code	1 110 001 - 1 110 030
Fire Bypass	FB1-FB30	T1 - T0	Trouble Code	1 571 001 - 1 571 030
Fire Alarm Restore 1-20	FH1 - FH30	AR1 - AR0	Alarm Restore Code	3 110 001 - 3 110 030
Fire Test Begin	FI1 - FI10	Test 0	Test Code	1 604 000
Fire Trouble Restore 1-20	FJ1 - FJ30	R1 - R0	Restore Code	3 373 001 - 3 373 030
Fire Test End	FK0	Test 0	Test Code	1 604 000
Fire Restore/Clean-Me Restore	FR1-FR30	R1 - R0	Restore Code	3 110 001 - 3 110 030
Fire Trouble/Clean-Me Trouble 1-20	FT1 - FT30	T1 - T0	Trouble Code	1 373 001 - 1 373 030
Fire Unbypass	FU1-FU30	R1 - R9	Restore Code	3 571 011 - 3 571 030
Heat Alarm	KA1-KA30	A1 - A9	Alarm Code	1 114 001 - 1 114 030
Heat Bypass	KB1-KB30	T1 - T0	Trouble Code	1 570 011 - 1 570 030
Heat Alarm Restore	KH1-KH30	AR1 - AR0	Alarm Restore Code	3 114 001 - 3 114 030

Table 6-2: Event and Reporting Code by Format

Event	SIA8 & 20	SK4/2	3/1 1400 &2300	Contact ID
Heat Trouble	KT1-KT30	T1 - T0	Trouble Code	1 370 001 - 1 370 030
Heat Trouble Restore	KJ1-KJ30	R1 - R0	Restore Code	3 370 001 - 3 370 030
Heat Restoral	KR1-KR30	R1 - R0	Restore Code	3 370 001 - 3 370 030
Heat Unbypass	KU1-KU30	R1 - R0	Restore Code	3 570 001 - 3 570 030
Trouble Phone Line #1	LT1	T1	Trouble Code	1 351 000 01
Restore Phone Line #1	LR1	R1	Restore Code	3 351 000 01
Trouble Phone Line #2	LT2	T2	Trouble Code	1 352 000 02
Restore Phone Line #2	LR2	R2	Restore Code	3 352 000 02
Automatic Test (Normal)	RP0	Test 0	Test Code	1 602 000
Automatic Test (Abnormal)	RY0	Test 9	Test Code	1 608 000
Power Up	RR0	T0	Test Code	1 305 000
Downloading Passed	RS0	Test 0	Test Code	1 412 000
Data Lost	RT0	Test 0	Trouble Code	1 354 000
Downloading Failed	RU0	Test 0	Test Code	1 413 000
Manual Test	RX1-RX10	Test 1 - Test 0	Test Code	1 601 001 - 1 601 010
Sprinkler Alarm	SA1-SA30	A1 - A0	Alarm code	1 113 001 - 1 113 030
Sprinkler Bypass	SB1-SB30	T1 - T0	Trouble Code	1 570 001 - 1 570 030
Sprinkler Alarm Restore	SH1-SH30	AR1 - AR0	Alarm Restore Code	3 113 001 - 3 113 030
Sprinkler Trouble Restore 1-20	SJ1 - SJ30	R1 - R0	Restore Code	3 370 001 - 3 370 030
Sprinkler Supervisory Restore 1-20	SR1 - SR30	R1 - R0	Restore Code	3 203 001 - 3 203 030
Sprinkler Supervisory 1-20	SS1 - SS30	S1 - S0	Supervisory Code	1 203 001 - 1 203 030
Sprinkler Trouble 1-20	ST1 - ST30	T1 - T0	Trouble Code	1 370 001 - 1 370 030
Sprinkler Unbypass 1-20	SU1-SU30	R1 - R0	Restore Code	3 570 001 - 3 570 030
Untyped Zone Alarm 1-20	UA1-UA30	A1 - A0	Alarm Code	1 140 001 - 1 140 030
Untyped Bypass 1-20	UB1-UB30	T1 - T0	Trouble Code	1 570 001 - 1 570 030
Untyped Alarm Restore 1-20	UH1-UH30	AR1 - AR9	Alarm Restore Code	3 140 001 - 3 140 030
Untyped Trouble Restore 1-20	UJ1-UJ30	R1 - R0	Restore Code	3 370 001 - 3 370 030
Untyped Zone Trouble 1-20	UT1-UT30	T1 - T0	Trouble Code	1 370 001 - 1 370 030
Untyped Zone Unbypass 1-20	UU1-UU30	R1 - R0	Restore Code	3 570 001 - 3 570 030
Water Alarm 1-20	WA1-WA30	A1 - A0	Alarm Code	1 154 001 - 1 154 030
Water Bypass 1-20	WB1-WB30	T1 - T0	Trouble Code	1 570 001 - 1 570 030
Water Alarm Restore 1-20	WH1-WH30	AR1 - AR0	Alarm Restore Code	3 154 001 - 3 154 030
Water Trouble Restore 1-20	WJ1-WJ30	R1 - R0	Restore Code	3 370 001 - 3 370 030
Water Trouble 1-20	WT1-WT30	T1 - T0	Trouble Code	1 370 001 - 1 370 030
Water Unbypass 1-20	WU1-WU30	R1 - R0	Restore Code	3 570 001 - 3 570 030
Communications Failure Line #1	YC1	T1	Trouble Code	1 354 001

Table 6-2: Event and Reporting Code by Format

Event	SIA8 & 20	SK4/2	3/1 1400 &2300	Contact ID
Communications Restore Line #1	YK1	R1	Restore Code	3 354 001
Communications Failure Line #2	YC2	T2	Trouble Code	1 354 002
Communications Restore Line #2	YK2	R2	Restore Code	3 354 002
System Battery Restore	YR0	R0	Restore Code	3 302 000
System Battery Trouble	YT0	T0	Trouble Code	1 302 000
Cold Alarm 1-30	ZA1-ZA30	A1 - A0	Alarm Code	1 153 001 - 1 153 030
Cold Bypass 1-30	ZB1-ZB30	T1 - T0	Trouble Code	1 570 001 - 1 570 030
Cold Alarm Restore 1-30	ZH1-ZH30	AR1 - AR0	Alarm Restore Code	3 153 001 - 3 153 030
Cold Trouble Restore 1-30	ZJ1-ZJ30	R1 - R0	Restore Code	2 370 001 - 3 370 030
Cold Trouble 1-30	ZT1-ZT30	T1 - T0	Trouble Code	1 370 001 - 1 370 030
Cold Unbypass 1-30	ZU1-ZU30	R1 - R0	Restore Code	3 570 001 - 3 570 030

Section 7
Troubleshooting

This section of the manual contains information that can be used to isolate and correct installation problems encountered in the field.

7.1 System Error Messages

Table 7-1 contains a list of possible error messages along with their meaning and possible solution.

Table 7-1: Error Messages

Error Message	Description	Solution
FLASH Defaulted	On power up the Flex 410 will check the flash for an “option record”.	If an “option record” is not found during power up, one will be created and the display will indicate “Flash Defaulted” for approximately one second.
Earth Fault Trb	The Flex 410 has built-in earth ground fault detection that will detect an earth ground fault connection between earth and any panel terminal. When an earth ground fault is detected the Flex 410 display will indicate Earth Fault Trb. The Flex 410 will also add two events to the history buffer Expand Trb 38 and Earth ###. The Earth ### is a debug event number between 0 and 255.	See Section 7.2 for earth ground fault troubleshooting procedure.
Key BUS Trouble	This message will display when communication is lost between the RAN-400 and the control panel.	Check for a short or an open on either the A or B terminals.
NAC # Trb	This message indicates that a short or an open is detected on a Notification Appliance Circuit. The # indicates which NAC has the trouble.	Check for a short or an open on the indicated NAC wire run.
Remote # Trb	Each RAN-400 can be programmed to be supervised (see Section 4.3.2). If the Flex 410 is unable to communicate with the RAN-400 it will indicate this message. # indicates the ID number of the faulted touchpad.	Check the wire connections between the indicated touchpad and the control panel.
Zone Trb #	If the Flex 410 is unable to communicate with a Zone expander it will display this message. The # indicates the ID number of the expander in trouble.	Check all wire connections between the control panel and the Zone expander in trouble.
IOM Trb #	If the control panel is unable to communicate with a IOM-410 Status Display Module this message will be displayed. # indicates the ID number of the IOM-410 in trouble.	Check all wire connections between the control panel and the IOM-410 in trouble.

Table 7-1: Error Messages

Error Message	Description	Solution
Smk Pwr Trb	Smoke power terminals 11, 14, 17, and 20 are supervised. If the voltage between circuit ground (terminals 9, 22, 26, 33) and loop power is less than 20VDC this message will display.	This may occur when the maximum current draw for the initiation circuit is exceeded. See Section 3.10 for initiation circuit current requirements.
Remote LCD Pwr Trb	The power terminal for the RAN-400 is supervised and a trouble indication will occur if the voltage between circuit ground and terminal 32 drops below 20 VDC.	This may occur if the maximum current rating (1Amp) for this circuit is exceeded.
Aux Pwr Trb	The SBUS power terminal (27) is supervised and will display this message when the voltage between SBUS power and circuit ground drops below 20 VDC.	This may occur if the maximum current rating (1Amp) for this circuit is exceeded.
AC Trb	This message is displayed when the AC voltage drops below 98 VAC.	Check the AC power connection. This report will be sent to the central station after the AC delay time has expired. See Section 4.3.10 to program AC delay time.
Battery Trb	This message will be displayed when the battery voltage drops below 20.4 VDC under load. The control panel performs a load test every minute.	Check battery connection. Verify that the control panel has AC power.
Ph Line # Trb	This message is displayed when the phone line voltage drops below 2 VDC or can not supply a minimum of 4 mA of current. The # indicates which phone line is in trouble.	
Data Lost	This event will be reported to the central station if the reporting buffer fills. This may occur if more that 24 events need to be reported. When the report buffer is full and additional events are added to the report buffer, the oldest event will be overwritten and the data lost event will be added.	
Com # Trb	The Flex 410 must use alternating phone lines (according to NFPA) when reporting auto tests and manual tests. If the control panel can not communicate using the selected phone line, the Com # Trb message will be displayed. The # indicates which line had the trouble.	The trouble condition will clear after the control panel is successful in communicating using the phone line.

7.2 Earth Ground Fault Troubleshooting

Table 7-2 lists the earth fault resistance values for each applicable terminal on the FACP.

Table 7-2: Earth Fault Resistance Values by Terminal

Terminal Block	Function	Terminal*		Earth Fault Resistance Value (In Ohms)
		No.	Designator	
T1	Z1	1	A (+)	0
		2	B (–)	0
		3	C (–)	0
		4	D (+)	0
	Z2	5	A (+)	0
		6	B (–)	0
		7	C (–)	0
		8	D (+)	0
	Z3	9	A (+)	0
		10	B (–)	0
		11	C (–)	0
		12	D (+)	0
	Z4	13	A (+)	0
		14	B (–)	0
		15	C (–)	0
		16	D (+)	0
	Z5	17	A (+)	0
		18	B (–)	0
		19	C (–)	0
		20	D (+)	0
T2	AC Input	21	B	0
		22	Earth	0
		23	W	0
T3	SBUS	24	GND	0
		25	+24DC	0
		26	A	0
		27	B	0
T4	NAC4	30	+	0
		31	–	0
	NAC3	32	+	0
		33	–	0
	NAC2	34	+	0
		35	–	0
	NAC1	36	+	0
		37	–	0

Appendix A
Compatible Devices

This section of the manual lists devices (smoke detectors and notification appliances) that are compatible with the Flex 410. Contact Gamewell if you have a question about whether a device not listed here is compatible.

A.1 Smoke Detectors

This section of the manual contains information about smoke detectors that are compatible with the Flex 410.

	Flex 410	CZM-400
Identifier	24J	24J
Maximum Voltage	27.4 VDC	27.4 VDC

Note: The maximum number of smoke detectors per zone is determined by both the current draw and the impedance of the smoke detector. If too many smoke detectors are used on any zone, false alarms could occur.

Do not mix different models of detectors on any zone; false alarms could occur.

Control unit Smoke Reset Time must be programmed for a number greater than or equal to the maximum reset time of the smoke detector.

Two-Wire Smoke Detectors

The table below lists two-wire smoke detectors that are compatible with the Flex 410 and CZM-400 zone expander. The table is organized by manufacturer. The columns show the number of detectors per loop that can be used.

Manufacturer	Enhanced Mode Compatible	Model Name or Number *(Base model name or number in parentheses.)*	Compatibility ID		# per Loop
			Head	Base	
Apollo		55000-150, 151, 152, 153	55000-150, 151, 152, 153	45681-200, 220, 230, 231, 232	40
	✓	55000-250	55000-350	45681-200, 220, 230, 231, 232	40
	✓	55000-350	55000-250	45681-200, 220, 230, 231, 232	25
		55000-380	55000-380	45681-200, 220, 230, 231, 232	15
	✓	55000-225	55000-225	45681-255, 256	15/ loop for Ion Detectors 15 / loop for Photoelectric Detectors
	✓	55000-226	55000-226		
	✓	55000-227	55000-227	45681-200, 220, 232, 251, 230, 252	
	✓	55000-325	55000-325		
	✓	55000-328	55000-328		
	✓	55000-326	55000-326		
	✓	55000-327	55000-327		

Manufacturer	Enhanced Mode Compatible	Model Name or Number *(Base model name or number in parentheses.)*	Compatibility ID		# per Loop
			Head	Base	
Detection Systems		DS200 (MB200-2W)	B	A	24
		DS200HD (MB200-2W)	B	A	24
		DS250 (MB2W or MB2WL)	B	A	18
		DS250HD (MB2W or MB2WL)	B	A	18
		DS250TH (MB2W or MB2WL)	B	A	18
ESL	✓	425 (S10)	N/A	S00	30
	✓	425C (S10)	N/A	S00	30
	✓	425CR (S10)	N/A	S00	30
	✓	425CRT (S10)	N/A	S00	30
	✓	425CT (S10)	N/A	S00	30
	✓	429C (S10A)	N/A	S10A	30
	✓	429CRT (S11A)	N/A	S11A	30
	✓	429CST (S11A)	N/A	S11A	30
	✓	429CT (S10A)	N/A	S10A	30
	✓	521B	N/A	S10A/S11A	40
	✓	521BXT	N/A	S10A/S11A	40
	✓	609U01-11	S10	S00	40
	✓	609U02-11	S10	S00/S03	40
	✓	611U (601U or 602U)	S10	S00/S03	40
	✓	611UD (601U or 602U)	S10	S00/S03	40
	✓	611UT (601U or 602U)	S10	S00/S03	40
	✓	612U (601U or 602U)	S10	S00/S03	40
	✓	612UD (601U or 602U)	S10	S00/S03	40
	✓	711U (701E or 701U)	N/A	S10A	25
	✓	712U (701E or 701U)	N/A	S10A	25
	✓	713-5U (702E or 701U)	N/A	S10A	25
	✓	713-6U (702E or 701U)	N/A	S10A	25
	✓	721-U (S10A)	N/A	S10A	30
	✓	721-UT (S10A)	N/A	S10A	30

Manufacturer	Enhanced Mode Compatible	Model Name or Number *(Base model name or number in parentheses.)*	Compatibility ID		# per Loop
			Head	Base	
FCI		301I (301B)	A	A	20
		301IL (301BL/SS B401BH)	N/A	N/A	20
		301P (301B)	A	N/A	20
		301PL (301BL/SS B401BH)	A	N/A	20
		301PT (301B)	A	N/A	20
		301P (301DH-2)	A	N/A	20
		301I-DH (301DH-2)	A	N/A	20
		2100S	A	N/A	20
		2100TS	A	N/A	20
		2100TR	A	N/A	20
		2100AT	A	N/A	20
		SBS-1101	A	N/A	20
		SBS-1201	A	N/A	20
		SBS-1201T	N/A	N/A	20
		PSD-7155 (2WB/2WRLT/2WRB)	P55FE1	FE51A	40
		PSD-7155 (CPD-001/-002/-003/-005)	P56FE1	FE51A	40
		PSD-7156 (2WB/2WRLT/2WRB)	P55FE1	FE01A	40
		PSD-7156 (CPD-001/-002/-003/-005)	P56FE1	FE01A	40
		CPD-7051 (2WB/2WRLT/2WRB)	CPD7051	FE51A	40
		CPD-7051 (CPD-001/-002/-003/-005)	CPD7051	FE51A	40
		DH100P (Duct Housing)	N/A	N/A	40
Grinnell Fire Protection		612H (4B, 6B, 612/912)	612H	4B, 6B, 612/912	15
		612HP (4B, 6B, 612/912)	612HP	4B, 6B, 612/912	15
		612I (4B, 6B, 612/912)	612I 4B	4B, 6B, 612/912	15
		612P (4B, 6B, 612/912)	612P	4B, 6B, 612/912	15
		622HP (4B, 6B, 612/912)	622HP	4B, 6B, 612/912	15
		632H(4B, 6B, 612/912)	632H	4B, 6B, 612/912	15
		MD612 (4B, 6B, 612/912)	MD612	4B, 6B, 612/912	15
		MD622 (4B, 6B, 612/912)	MD622	4B, 6B, 612/912	15
		MD632 (4B, 6B, 612/912)	MD632	4B, 6B, 612/912	15
		MF612 (4B, 6B, 612/912)	MF612	4B, 6B, 612/912	15
		MR612 (4B, 6B, 612/912)	MR612	4B, 6B, 612/912	15
		MR612T (4B, 6B, 612/912)	MR612T	4B, 6B, 612/912	15
		ISC—350I (IBC-350, 351, 353)	ISC—350I	IBC-350, 351, 353	24
		ISC—350P (IBC-350, 351, 353)	ISC—350P	IBC-350, 351, 353	24
Hochiki		SIH-24F (HS-224D or HSB-224)	N/A	N/A	25
		SLK-12	N/A	N/A	25
		SLK-24F (HS-224D)	N/A	N/A	25
		SLK-24FH (HS-224D)	N/A	N/A	25
		(HS224L) Heat Detector base	N/A	N/A	30
		SLR-8358B	N/A	N/A	25
Kidde-Fenwal		PSD-7155 (70-201000-001)	P55FE1, P56FE1	FE51A, FE01A	40
		PSD-7156 (70-201000-001)	P56FE1	FE01A	40
		CPD-7051 (70-201000-001)	CPD 7051, I51FE1	FE51A, FE01A	40

Manufacturer	Enhanced Mode Compatible	Model Name or Number *(Base model name or number in parentheses.)*	Compatibility ID		# per Loop
			Head	Base	
System Sensor		1100T			20
		1151 (B110LP)			20
		1400	A	N/A	20
		1451 (B401B)	A	A	20
		2100	A	N/A	20
		2100AT	A	N/A	20
		2100D	A	N/A	20
		2100T	A	N/A	20
		2100TR	A	N/A	20
		2100TS	A	N/A	20
		2151 (B401)	A	N/A	16
		2151T (B401)	A	N/A	16
		2151 (B110LP)			20
		2300	A	N/A	20
		2300T	A	N/A	20
		2300TB	A	N/A	20
		2400	A	N/A	20
		2400TH			20
		2400 (DH400)	A	N/A	20
		2451 (B401B)	A	N/A	20
		2451DH (DH 400)	A	N/A	20
		2451TH (B401B)	A	N/A	20
		2W-B	A	N/A	25
		2WT-B	A	N/A	25
		2WTA-B	A	N/A	25
		2WTR-B	A	N/A	25

Four Wire Smoke Detectors

Manufacturer	Model
Hochiki	SLR-835B with HD-6 Base
ESL	445C Series 449C Series
System Sensor	1851B 2851/2851BTH DH400AC/DC 4W-B 4WT-B

A.2 Notification Appliances

For proper operation, you must use polarized devices with a Model 67851-3 5.1k ohm EOL resistor on each loop. All supervised notification appliances used with the control panel must be polarized.

Note: *Not all devices can use the Sync feature, be sure to check table below to ensure the device you have chosen will work with this feature. Synchronization is UL listed as a single circuit operation.*

The table below lists notification appliances compatible with the fire alarm control panel. Appliances which can be synchronized indicate the type of sync available in the columns marked Audio and/or Visual.

Manufacturer	Model	Audio	Visual	Type
AMSECO	SH24W-153075	✔	✔	Horn/Strobe
	SAD24-153075		✔	Strobe
	SAD24-75110		✔	Strobe
	SL24W-75110		✔	Strobe
	SL24C-3075110		✔	Strobe
	SLB24-75		✔	Strobe
	RSD24-153075		✔	Strobe
	RSD24-75110		✔	Strobe
	SH24W-75110	✔	✔	Horn/Strobe
	SH24W-3075110	✔	✔	Horn/Strobe
	SHB24-75	✔	✔	Horn/Strobe
	SCM24W-153075	✔		Chimes/Strobe
	SCM24W-75110	✔		Chimes/Strobe
	SCM24C-3075110	✔		Chimes/Strobe
	SCM24C-177	✔		Chimes/Strobe
	H24W	✔		Horn
	H24R	✔		Horn

Manufacturer	Model	Audio	Visual	Type
Faraday	446			Vibrating Bell
	476			Vibrating Bell
	477			Single Stroke Bell
	2700 -M. -R, -T, -Y, -Z			Strobe
	2701 Series			Strobe
	2705 Series			Strobe
	2820	✔	✔	Snyc Temporal Horn/Strobe
	2821	✔	✔	Snyc Temporal Horn/Strobe
	2824	✔	✔	Horn Strobe
	5333			Multi-Tone Horn)
	5336			Multi-Tone Horn/Strobe
	5337			Multi-Tone Horn/Strobe
	5338			Multi-Tone Horn/Strobe
	5343			Single Tone Horn/Strobe
	5346			Electronic Horn with Strobe
	5347			Electronic Horn with Strobe
	5348			Single Tone Horn/Strobe
	5373			8-Tone Horn/Strobe
	6321			Sync Mini Horn/Strobe
	6322			Mini Horn/Sync Strobe
	6380			8-Tone Electronic Signal/Strobe
	5376			8-Tone Horn/Strobe
	5377			8-Tone Horn/Strobe
	5378			8-Tone Horn/Strobe
	5383			8-Tone Horn/Strobe with Sync Strobe
	5386			8-Tone Horn/Strobe with Sync Strobe
	5387			8-Tone Horn/Strobe with Sync Strobe
	5388			8-Tone Horn/Strobe with Sync Strobe
	5508			Single Gang Sync Strobe
	5509			Strobe

Manufacturer	Model	Audio	Visual	Type
Faraday	5510			Strobe
	5511			Strobe
	5512			Strobe
	5516			Strobe
	5517			Strobe
	5518			Strobe
	5519			Strobe
	5521			4” Square Sync Strobe
	5522			4” Square Sync Strobe
	6120			Horn
	6140			Horn
	6223			Horn
	6226			Horn/Strobe
	6227			Horn/Strobe
	6228			Horn/Strobe
	6243			Electron-Mechanical Horn
	6244			Electron-Mechanical Horn
	6245			Electron-Mechanical Horn
	6246			Electron-Mechanical Horn/Strobe
	6247			Electron-Mechanical Horn/Strobe
	6248			Electron-Mechanical Horn/Strobe
	6300			Mini-Horn
	6301			Mini-Horn
	6302			Mini-Horn
	6310			Mini-Horn/Strobe
	6311			Mini-Horn/Strobe
	6312			Mini-Horn/Strobe
	6314 Series -M, -R, -T, -Y, -Z			Strobe
	6320			Sync Mini Horn/Strobe
FCI	S2415-FC			Strobe
	S241575-FC			Strobe
	S2430-FC			Strobe
	130-3117C			Mini Horn
	130-3147C			Mini Horn
	BLV-6			Vibrating Bell
	BLV-10			Vibrating Bell
	BLVCH			Vibrating Chime
	H12/24-FC			Horn
	H12/24W-FC			Horn
	H12/24K-FC			Horn
	HC12/24-FC			Horn
	HC12/24W-FC			Horn
	HC12/24K-FC			Horn

Manufacturer	Model	Audio	Visual	Type
FCI	P2415-FC			Horn/Strobe
	P2415W-FC			Horn/Strobe
	P2415K-FC			Horn/Strobe
	P241575-FC			Horn/Strobe
	P241575W-FC			Horn/Strobe
	P241575F-FC			Horn/Strobe
	P241575K-FC			Horn/Strobe
	P2430-FC			Horn/Strobe
	P2430W-FC			Horn/Strobe
	P2430K-FC			Horn/Strobe
	P2475-FC			Horn/Strobe
	P2475W-FC			Horn/Strobe
	P2475K-FC			Horn/Strobe
	P24110-FC			Horn/Strobe
	P24110W-FC			Horn/Strobe
	P24110K-FC			Horn/Strobe
	S2430W-FC			Strobe
	S2430K-FC			Strobe
	S2475-FC			Strobe
	S2475W-FC			Strobe
	S2475K-FC			Strobe
	S24110-FC			Strobe
	S24110W-FC			Strobe
	S24110K-FC			Strobe
Federal Signal	450			Horn
	VALS			Horn/Strobe
Gentex	GEC-24-15	✔	✔	Horn/Strobes
	GEC-24-30	✔	✔	Horn/Strobes
	GEC-24-60	✔	✔	Horn/Strobes
	GEC-24-75	✔	✔	Horn/Strobes
	GEC-24-177	✔	✔	Horn/Strobes
	GEC-24-110	✔	✔	Horn/Strobe
	GEC-24-15/75	✔	✔	Horn/Strobe
	GX91	✔		MiniHorn Steady Tone
	GX93	✔		MiniHorn Temporal Tone

Manufacturer	Model	Audio	Visual	Type
Gentex	HG124			Horn
	HS24-15	✔	✔	Horn/Strobe
	HS24-30	✔	✔	Horn/Strobe
	HS24-60	✔	✔	Horn/Strobe
	HS24-75	✔	✔	Horn/Strobe
	HS24-110	✔	✔	Horn/Strobe
	HS24-1575	✔	✔	Horn/Strobe
	GCC24	✔	✔	Multi Candella Horn/Strobe Ceiling Mount
	GCCR24	✔	✔	Multi Candella Horn/Strobe Ceiling Mount
	GCS24		✔	Multi Candella Strobe Ceiling Mount
	GCSR24		✔	Multi Candella Strobe Ceiling Mount
	GECR-24	✔	✔	Multi Candella Horn/Strobe
	GES24-15		✔	Strobes
	GES24-30		✔	Strobes
	GES24-60		✔	Strobes
	GES24-75		✔	Strobes
	GES24-110		✔	Strobes
	GES24-15/75		✔	Strobes
	GES24-177		✔	Strobes
	GES3-24		✔	Multi Candella Strobe
	GESR-24		✔	Multi Candella Strobe
	GEH-24	✔		Horn
	ST24-30		✔	Strobe
	ST24-60		✔	Strobe
	ST24-75		✔	Strobe
	ST24-110		✔	Strobe
	ST24-1575		✔	Strobe
	WGEC24-75W	✔	✔	Weatherproof Horn/Strobe
	WGES24-75W		✔	Weatherproof Strobe
	WGMS-24-X			Horn/Strobe

Manufacturer	Model	Audio	Visual	Type
System Sensor	CHR	✔		Chime
	CHW	✔		Chime
	CHSR	✔	✔	2-Wire Chime/Strobe
	CHSW	✔	✔	2-Wire Chime/Strobe
	HR	✔	✔	Horn
	HW		✔	Horn
	HRK		✔	Horn
	P2R	✔	✔	2-Wire Horn/Strobe
	P2R-P	✔	✔	2-Wire Horn/Strobe
	PC2R	✔	✔	2-Wire Horn/Strobe
	PC2R-P	✔	✔	2-Wire Horn/Strobe
	P2RH	✔	✔	2-Wire Horn/Strobe High Candela
	P2RH-P	✔	✔	2-Wire Horn/Strobe High Candela
	PC2RH	✔	✔	2-Wire Horn/Strobe High Candela
	PC2RH-P	✔	✔	2-Wire Horn/Strobe High Candela
	P2W	✔	✔	2-Wire Horn/Strobe
	P2W-P	✔	✔	2-Wire Horn/Strobe
	PC2W	✔	✔	2-Wire Horn/Strobe
	PC2W-P	✔	✔	2-Wire Horn/Strobe
	P2WH	✔	✔	2-Wire Horn/Strobe High Candela
	P2WH-P	✔	✔	2-Wire Horn/Strobe High Candela
	PC2WH	✔	✔	2-Wire Horn/Strobe High Candela
	PC2WH-P	✔	✔	2-Wire Horn/Strobe High Candela
	P2RK	✔	✔	2-Wire Horn/Strobe
	PC2RK	✔	✔	2-Wire Horn/Strobe
	P2RHK	✔	✔	2-Wire Horn/Strobe High Candela
	PC2RHK	✔	✔	2-Wire Horn/Strobe High Candela
	P4R	✔	✔	4-Wire Horn/Strobe
	PC4R	✔	✔	4-Wire Horn/Strobe
	P4RH	✔	✔	4-Wire Horn/Strobe High Candela
	P4W	✔	✔	4-Wire Horn/Strobe

Manufacturer	Model	Audio	Visual	Type
System Sensor	PC4W	✔	✔	4-Wire Horn/Strobe
	P4WH	✔	✔	4-Wire Horn/Strobe High Candela
	PC4WH	✔	✔	4-Wire Horn/Strobe High Candela
	P4RK	✔	✔	4-Wire Horn/Strobe
	PC4RK	✔	✔	4-Wire Horn/Strobe
	P4RHK	✔	✔	4-Wire Horn/Strobe High Candela
	PC4RHK	✔	✔	4-Wire Horn/Strobe High Candela
	PC4RH	✔	✔	4-Wire Horn/Strobe High Candela
	SR		✔	Strobe
	SR-P		✔	Strobe
	SCR		✔	Strobe
	SCR-P		✔	Strobe
	SRH		✔	Strobe High Candela
	SRH-P		✔	Strobe High Candela
	SCRH		✔	Strobe High Candela
	SCRH-P		✔	Strobe High Candela
	SW		✔	Strobe
	SW-P		✔	Strobe
	SCW		✔	Strobe
	SCW-P		✔	Strobe
	SWH		✔	Strobe High Candela
	SWH-P		✔	Strobe High Candela
	SCWH		✔	Strobe High Candela
	SCWH-P		✔	Strobe High Candela
	SRK		✔	Strobe
	SCRK		✔	Strobe
	SRHK		✔	Strobe High Candela
	SCRHK		✔	Strobe High Candela

Manufacturer	Model	Audio	Visual	Type
Wheelock	AH-12	✔		Horn
	AH-24	✔		Horn
	AH-12WP	✔		Horn Weatherproof
	AH-24WP	✔		Horn Weatherproof
	AMT-241575W	✔	✔	Multi-Tone Horn Strobe
	AMT-24MCW		✔	Mutli-Tone Horn Strobe
	AMT-241575W-NYC	✔	✔	Multi-Tone Horn Strobe
	AMT-12/24	✔		Multi-tone Horn
	AMT-12/24 NYC	✔		Multi-tone Horn
	AS-121575W		✔	Horn/Strobe
	NH-12/24	✔		Horn
	AS-241575W	✔	✔	Horn/Strobe
	AS-24MCC	✔	✔	Horn/Strobe
	AS-24MCCH	✔	✔	Horn/Strobe
	AS-24MCW	✔	✔	Horn/Strobe
	AS-24MCWH	✔	✔	Horn/Strobe
	ASWP-2475W	✔	✔	Horn/Strobe Weatherproof
	ASWP-2475C	✔	✔	Horn/Strobe Weatherproof
	ASWP-24MCWH	✔	✔	Horn/Strobe
	ASWP-24MCCH	✔	✔	Horn/Strobe
	CH-70	✔		Chime
	CH-90	✔		Chime
	CH70-241575W		✔	Chime/Strobe
	CH70-24MCW		✔	Chime/Strobe
	CH70-24MCWH		✔	Chime/Strobe
	CH90-24MCC		✔	Chime/Strobe

Manufacturer	Model	Audio	Visual	Type
Wheelock Con't	CH90-24MCCH		✔	Chime/Strobe
	HS-24	✔		Horn
	HS4-241575W	✔	✔	Horn/Strobe
	HS4-24MCW	✔	✔	Horn/Strobe
	HS4-24MCWH	✔	✔	Horn/Strobe
	HS4-24MCC	✔	✔	Horn/Strobe
	MIZ-24S	✔	✔	Mini Horn Strobe
	MT-121575W		✔	MultitoneHorn Strobe
	MT-241575W	✔	✔	Multitone Horn Strobe
	MT-24MCW		✔	Multitone Horn Strobe
	MTWP-2475W		✔	Multitone Horn Strobe
	MTWP-2475C		✔	Multitone Horn Strobe
	MTG-121575W	✔	✔	Multitone Horn Strobe
	MTR-121575W	✔	✔	Multitone Horn Strobe
	MTWPA-2475W	✔	✔	Multitone Horn Strobe
	MTWPB-2475W	✔	✔	Multitone Horn Strobe
	MTWPG-2475W	✔	✔	Multitone Horn Strobe
	MTWPR-2475W	✔	✔	Multitone Horn Strobe
	MTWPA-24MCCH	✔	✔	Multitone Horn Strobe
	ZNH	✔		Horn
	NS-121575W	✔	✔	Horn/Strobe
	NS-241575W	✔	✔	Horn/Strobe
	NS-24MCW	✔	✔	Horn/Strobe
	NS-24MCC	✔	✔	Horn/Strobe
	NS-24MCCH	✔	✔	Horn/Strobe
	ZNS-MCW	✔	✔	Horn/Strobe
	ZNS-MCWH	✔	✔	Horn/Strobe
	ZNS-24MCC	✔	✔	Horn/Strobe
	ZNS-24MCCH	✔	✔	Horn/Strobe

Manufacturer	Model	Audio	Visual	Type
Wheelock Con't	RSS-121575W		✔	Strobe
	RSS-241575W		✔	Strobe
	RSS-24MCC		✔	Strobe
	RSS-24MCCR		✔	Strobe
	RSS-24MCCH		✔	Strobe
	RSS-24MCCHR		✔	Strobe
	RSS-24MCW		✔	Strobe
	RSS-24MCWH		✔	Strobe
	RSSP-121575W		✔	Strobe
	RSSP-241575W		✔	Strobe
	RSSR-2415W		✔	Strobe
	RSSR-2415C		✔	Strobe
	RSSR-2475W		✔	Strobe
	RSSR-2475C		✔	Strobe
	RSSR-24110C		✔	Strobe
	RSSA-24110W		✔	Strobe
	RSSB-24110W		✔	Strobe
	RSSG-24110W		✔	Strobe
	RSSR-24110W		✔	Strobe
	RSSA-24MCC		✔	Multi-Cd Strobe
	RSSB-24MCC		✔	Multi-Cd Strobe
	RSSG-24MCC		✔	Multi-Cd Strobe
	RSSR-24MCC		✔	Multi-Cd Strobe
	RSSWPA-2475W		✔	Strobe Weatherproof
	RSSWPA-24MCCH		✔	Strobe Weatherproof
	RSSWPG-24MCCH		✔	Strobe Weatherproof
	RSSWPR-24MCCH		✔	Strobe Weatherproof
	RSSWP-2475W		✔	Strobe Weatherproof
	RSSWP-2475C		✔	Strobe Weatherproof
Wheelock con't	RSSWP-24MCWH		✔	Strobe Weatherproof
	ZRS-MCWH		✔	Strobe
	ZRS-24MCC		✔	Strobe
	ZRS-24MCCH		✔	Strobe
	MB-G6-24			Motor Bell
	MB-G10-24			Motor Bell
	MB-G6-12			Motor Bell
	MB-G10-12			Motor Bell
	MIZ-24-R			Mini-Horn
	MT-12/24-R	✔	✔	Multitone Horn
	MT4-12/24	✔	✔	Multitone Horn
	ZRS-MCW		✔	Strobe
	MTWPR-24MCCH	✔	✔	Multitone Horn Strobe
	NH-12/24R	✔		Horn
	HSR		✔	Horn/Strobe
	HSW		✔	Horn/Strobe
	STR		✔	Strobe
	STW		✔	Strobe
	HNR		✔	Horn
	HNW		✔	Horn

Flex 410 Plus Basic Operating Instructions P/N 151322 Rev. B

These instructions must be framed and displayed next to the panel in accordance with NFPA 72 fire code for Local Fire Alarm System. See the FACP install manual (P/N 151321) for battery maintenance.

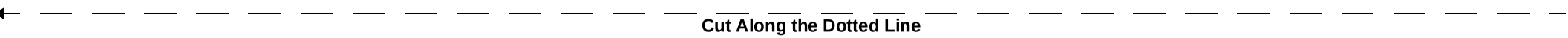
How To	Do This			Comments
	Press	Display Message	Press	
Test the system	0 ACK ENTER	System Test Enter Code	Enter Code	The system will perform a display lamp test and a communication test.
Reset Alarms	1 ACK ENTER or RESET	Reset Alarm Enter Code	Enter Code	Resets system.
Reset the Dialer	3 ACK ENTER	Reset Dialer Enter Code	Enter Code	Resets the dialer and aborts the call to central station.
Display History Events	5 ACK ENTER	History Events Enter Code	Enter Code	Displays the panel history, which includes alarms, supervisories, troubles, reports, time and date changes, etc.
Show Status	6 ACK ENTER	Show Status Enter Code	Enter Code	View existing system status. List Alarms first, supervisories and then troubles.
Silence Troubles or Alarms	7 ACK ENTER or SILENCE	Silence Enter Code	Enter Code	
Disable/Enable a Zone	Zone # + *	Disable Zone Enter Code	Enter Code	Repeat the process to enable the zone.
Disable/Enable NAC	1 0 NAC # + *	Disable NAC Enter Code	Enter Code	Repeat the process to enable the NAC.
Conduct a Fire Drill	2 0 ACK ENTER	Fire Drill Enter Code	Enter Code	To End the Fire Drill press RESET then code.
Reset Detectors	2 1 ACK ENTER	Rst Smk Pwr Enter Code	Enter Code	Resets all smoke detector power.
Walk Test the System	2 2 ACK ENTER	Walk Test Enter Code	Enter Code	To End the Walk Test press RESET.
Menu of Options	Press ▽ or △ to scroll through list.			To exit press ACK ENTER or wait 15 seconds.
Acknowledge Events	Events can be acknowledged by pressing the ACK ENTER button. No code is required to acknowledge events. The status LEDs (Alarm, Supervisory and Trouble) will flash when an un-acknowledged alarm, supervisory, or trouble condition exists. After each event has been acknowledged its associated LED (Alarm, Supervisory, or Trouble LED) stop flashing and turn on steady. When viewing system status the LCD displays “Acked” for each individual event once it has been acknowledged. The control panel piezo will silence after all alarms have been acknowledged. **Note:** The control panel piezo will continue to sound for Supervisories and Troubles even after the event has been acknowledged. Supervisories and troubles will silence once the event is restored. After the event is acknowledged an event is added to the event history buffer. Acknowledged events in the history buffer will be preceded with an asterisk “*”.			

Cut Along the Dotted Line

LEDs Meaning

LED	Status	Condition
ALARM (red)	Off	Normal condition
	On	System in alarm.
	Flashing	LED will flash when a alarm condition exists that has not been acknowledged.
SUPERVISORY (yellow)	Off	Normal condition
	On	If a supervisory condition exist on the system.
	Flashing	LED will flash when a supervisory condition exists that has not been acknowledged.
TROUBLE (yellow)	Off	Normal condition
	On	Trouble condition exists
	Flashing	LED will flash when a trouble condition exists that has not been acknowledged.
SILENCED (yellow)	Off	Normal condition.
	On	Alarm or trouble condition has been silenced but condition still exists.
AC (green)	On	Panel is running on AC (normal condition); standby battery fully charged.
	Off	Panel has lost all power.
	Flashing	Panel is running on battery power only or AC power only.

For Service Contact:	



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