GE
Security
EST Fire & Life Safety

EST iO64 and iO500
Technical Reference Manual

P/N 3101112 • REV 2.0 • ISS 30JUL08

Content

Important information

Limitation of liability

This product has been designed to meet the requirements of NFPA 72 *National Fire Alarm Code,* UL 864 *Standard for Control Units for Fire Protective Signaling Systems,* and ULC S527 *Standard for Control Units for Fire Alarm Systems.* Installation in accordance with this manual, applicable codes, and the instructions of the authority having jurisdiction is mandatory. GE Security shall not under any circumstances be liable for any incidental or consequential damages arising from loss of property or other damages or losses owing to the failure of GE Security products beyond the cost of repair or replacement of any defective products. GE Security reserves the right to make product improvements and change product specifications at any time.

While every precaution has been taken during the preparation of this manual to ensure the accuracy of its contents, GE Security assumes no responsibility for errors or omissions.

iO64 and iO500 FCC compliance

This equipment can generate and radiate radio frequency energy. If the equipment is not installed in accordance with this manual, it may cause interference to radio communications. This equipment has been tested and found to comply with the limits for Class A computing devices pursuant to Subpart B of Part 15 of the FCC Rules. These rules are designed to provide reasonable protection against such interference when this equipment is operated in a commercial environment. Operation of this equipment is likely to cause interference, in which case the user, at his own expense, will be required to take whatever measures may be required to correct the interference.

SA-DACT FCC information

Cautions

- To ensure proper operation, this dialer must be installed according to the enclosed installation instructions. To verify that the dialer is operating properly and can successfully report an alarm, it must be tested immediately after installation, and periodically thereafter, according to the enclosed test instructions.

- In order for the dialer to be able to seize the phone line to report an alarm or other event when other customer equipment (telephone, answering system, computer modem, etc.) connected to the same line is in use, the dialer *must* be connected to a properly installed RJ-31X jack. The RJ-31X jack must be connected in series with, and ahead of, all other equipment attached to the same phone line. Series installation of an RJ-31X jack is depicted in the wiring diagram. If you have any questions concerning these instructions, you should consult your telephone company or a qualified installer.

Testing

When programming emergency numbers or making test calls to emergency numbers, remain on the line and briefly explain to the dispatcher the reason for the call. Perform programming and testing activities in the off-peak hours, such as early morning or late evenings.

Compliance

- **For equipment approved before July 23, 2001:** This dialer complies with Part 68 of the FCC rules. A label attached to the dialer contains, among other information, the FCC registration number and ringer equivalence number (REN) for this equipment. If requested, this information must be provided to the telephone company.

  For equipment approved after July 23, 2001: This dialer complies with Part 68 of the FCC rules and the requirements adopted by the Administrative Council for Terminal Attachments (ACTA). A label attached to the dialer contains, among other information, a product identifier in the format US:AAAEQ##TXXXX. If requested, this information must be provided to the telephone company.

- The plug and jack used to connect the dialer to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by ACTA. The dialer must be connected to a compliant RJ-31X or RJ-38X jack using a compliant cord. If a modular telephone cord is supplied with the dialer, it is designed to meet these requirements. See installation instructions for details.

- A ringer equivalence number (REN) is used to determine how many devices you can connect to a telephone line. If the total REN value for all devices connected on a telephone line exceeds that allowed by the telephone company, the devices may not ring on an incoming call. In most (but not all) areas the total REN value should not exceed 5.0. To be certain of the total REN value

allowed on a telephone line, contact the local telephone company.

For products approved after July 23, 2001, the REN is part of the product identifier in the format US:AAAEQ##TXXXX. The digits ## represent the REN without a decimal point. Example: 03 is an REN of 0.3. For earlier products the REN is listed separately.

- If the dialer is harming the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. If advance notice isn't practical, the telephone company will notify you as soon as possible. You will also be advised of your right to file a complaint with the FCC, if you believe it is necessary.

- The telephone company may make changes to its facilities, equipment, operations, or procedures that could affect the operation of the dialer. If this happens, the telephone company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.

- If you are experiencing problems with the dialer, contact the manufacturer for repair or warranty information. If the dialer is harming the telephone network, the telephone company may request that you disconnect the dialer until the problem is resolved.

- The dialer contains no user serviceable parts. In case of defects, return the dialer for repair.

- You may *not* connect the dialer to a public coin phone or a party line service provided by the telephone company.

Industry Canada information

Note: The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational, and safety requirements. Industry Canada 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 made by an authorized Canadian maintenance facility 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 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.

Note: The Load Number (LN) assigned to each terminal device denotes the percentage of the total load to be connected to a telephone loop which is used by the device, to prevent overloading. The termination on a loop may consist of any combination of devices subject only to the requirements that the sum of the Load Numbers of all the devices does not exceed 100.

Caution: Users should not attempt to make connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate

Minimum system requirements

The table below lists the minimum hardware requirements for each type of system for which the control panel is listed.

System	Equipment needed
Protected Premises (Local) Fire Alarm System	Control panel
	Appropriately sized batteries
Auxiliary Fire Alarm System, Local Energy Type	Control panel
	Appropriately sized batteries
	CTM module
Remote Supervising Station Fire Alarm System	Control panel
	Appropriately sized batteries
	SA-DACT or RPM module
Central Station Fire Alarm System	Control panel
	Appropriately sized batteries
	SA-DACT or RPM module

To get started

If you are just starting out, follow the items in this checklist to prepare, install, wire, and program your fire alarm control panel.

1. Prepare the site. Make sure the installation location is free from construction dust and debris and extreme temperature ranges and humidity.

2. Unpack the equipment.

3. Install the cabinet box. See "Cabinet box installation" for cabinet dimensions.

4. Install the panel electronics in the cabinet box. See "Panel electronics installation" for more information.

5. Remove the clear protective plastic from the front panel display.

6. Install the optional panel accessories. See each component's installation sheet instructions for more information.

7. Review the wire routing. See "Cabinet wire routing."

8. Connect the field wiring. See the appropriate wiring topics in the installation and wiring section. Meter for opens, grounds, and shorts before connecting.

9. Connect AC power and ground wiring. See "AC power wiring." The panel cannot be started on batteries only.

10. Connect panel low voltage wiring. See "Panel low voltage wiring."

11. Turn on AC power.

12. Connect the batteries. See "Battery wiring."

13. Program the panel. Refer to "Getting started" in the programming section. If you are using the configuration utility, refer to its Help.

14. Test the system for proper operation.

WARNING: Make sure that the AC power circuit breaker is off before connecting wires to the terminal block.

Chapter 1
System operation

Summary

This chapter covers the front panel display, operating the panel, and controlling devices, NACs, and zones.

Content

Operation overview

Front panel display

The front panel display is the user interface for the control panel. The display is comprised of the LCD display, LED indicators, and control buttons, which are used to operate and program the panel.

Front panel display layout
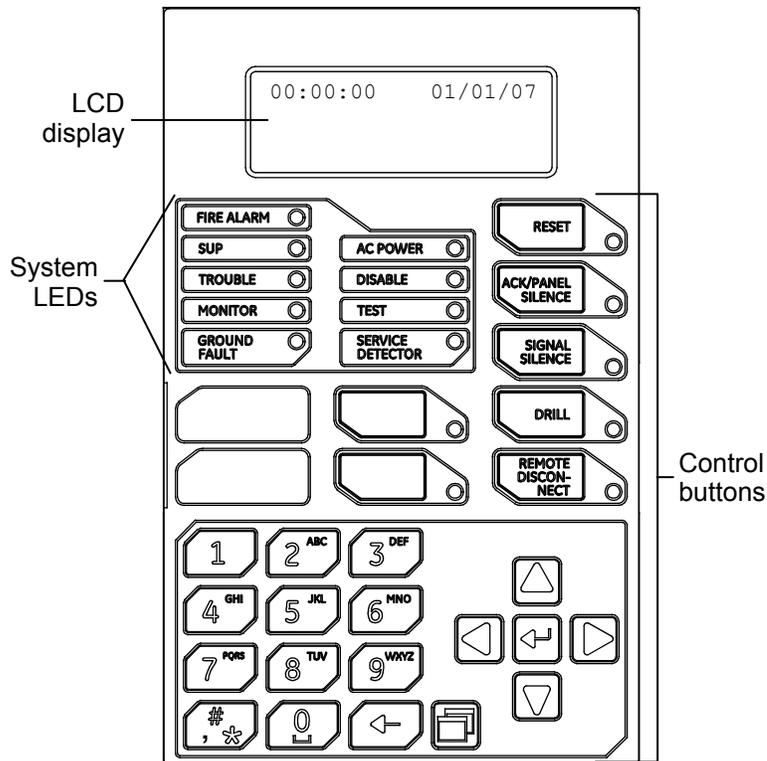
Control panel operations

The control panel operates in either normal mode or off-normal mode.

Normal mode

The panel operates in normal mode in the absence of any alarm, supervisory, trouble, or monitor events. In normal mode, the control panel monitors the system.

Off-normal mode

The panel operates in off-normal mode any time an event is introduced into the system. When this happens, the panel:

- Changes contact positions on appropriate common relays

- Activates alarm outputs (for alarm events only)

- Turns on the appropriate LEDs and the panel buzzer

- Executes the appropriate programmed output response for the input that signaled the event

- Communicates event information to the remote annunciator

- Sends a record of the event to the remote annunciator and to the control panel's history log

- Transmits event messages to a central monitoring station as programmed

- Prints event information on the printer if one is connected to the panel

LCD display screen

The LCD display is a 4-line by 20-character display that provides the user interface with the control panel for system programming, testing, report viewing, and off-normal event notification. The LCD display has a backlight that turns on when a button is pushed or when an alarm event takes place in the system. When the panel is operating on battery power, the backlight automatically turns off after one minute of inactivity.

System normal display screen

The LCD display shows the system normal display screen when the control panel is in the normal (quiescent) state. The screen displays the following:

- Time: Displays the current time

- Date: Displays the current date in month/day/year format

- Login: When you are logged on, "login:" with the password level is displayed in the top-right of the display, alternating with other information being displayed in that area of the screen (e.g. reset)

- Banner area: Nothing is displayed unless custom programmed (see "Panel operation programming")

LCD display under normal conditions

Time ──────────────────   Date

```
┌─────────────────────┐
│ 00:00:00    01/01/07 │
│        Banner        │
│    Banner continued  │
└─────────────────────┘
```

Banner area

System login indication

```
┌─────────────────────┐
│ 00:00:00    Login:2  │
│                      │
│                      │
└─────────────────────┘
```
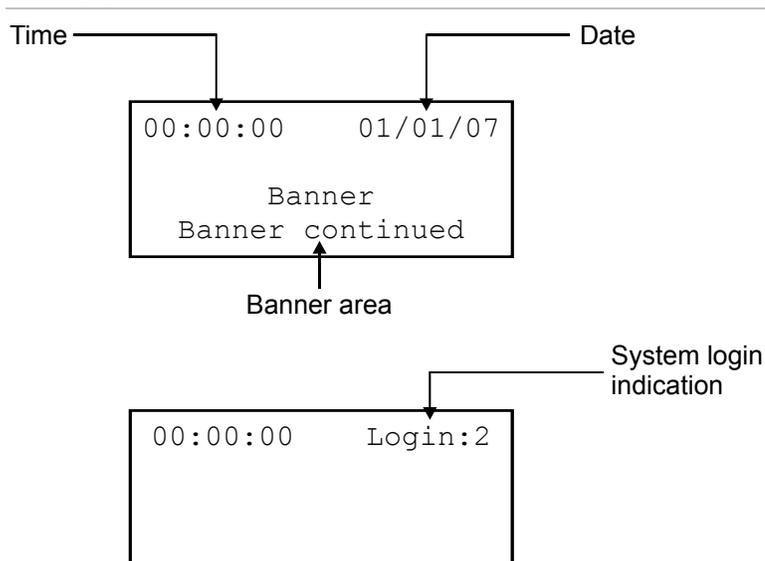
System off-normal display screen

During an off-normal event, such as an alarm, supervisory, monitor, trouble, prealarm, alarm verify, disablement, or test, the LCD screen changes to display important information about the event. The screen displays the following:

- Time: Displays the current time

- Active points: Indicates the number of active points in the system. Increments or decrements per the activations and restorals of devices. Toggles with "login:" when you are logged on.

- Disabled points: Indicates the number of disabled points in the system. Toggles with "login:" when you are logged on and "reset" if the panel is being reset.

- Event number: The event number (active point number) in queue

- Event type message: The event message for the type of event taking place

- Device label: The label for the device, either the default label or a custom programmed label

LCD display under off-normal conditions


```
00:00:00    A001 D001
001 Alarm Active
Computer room closet
Floor 1
```
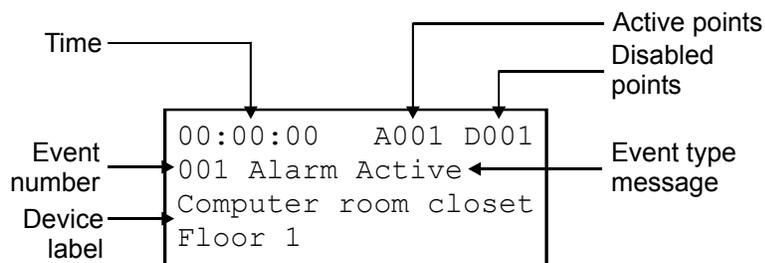
Event details display screens

The off-normal events that take place in your system contain event information, which is displayed on the LCD display screen. Additional information is also available for the event, which is displayed on a secondary screen. The screen displays the following information based on the type of event that takes place:

- Loop number: The loop the device is on

- Device number: The device address (number)

- Device type: The type of device, which was assigned in programming

- Serial number: The serial number assigned to the device

- Internal event number: See "Event ID numbers and descriptions"

- Zone number and device label for devices in zones

- Annunciator number and label

- Other information when it is available

Device event details display screen

Loop number   Device number

Device type

```
Loop 1  Device 001
Smoke
Ser#3333333333
```

Serial number
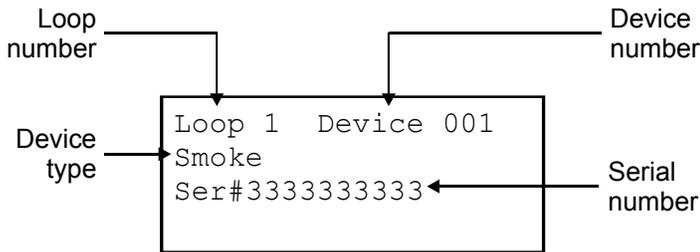
Internal event (panel and loop events) details display screen

Internal event number

```
Internal Event  021
```
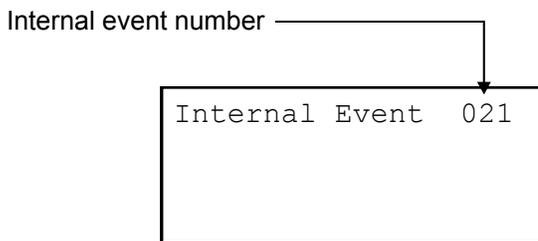
Note: See "Event ID numbers and descriptions" for a list of event numbers.

Zone event details display screen

Zone number

```
Zone            01
Lobby pull station
```

Label
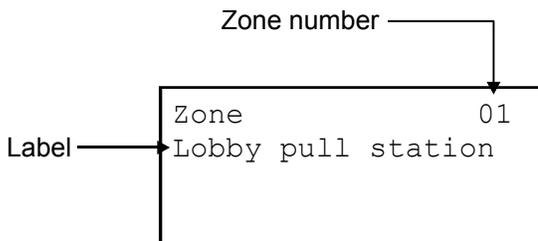
Note: You can scroll through the list of all devices in the zone reporting an event.

Annunciator event details display screen
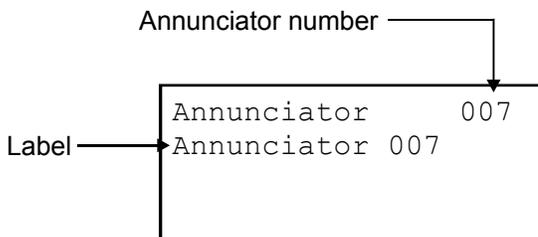
Annunciator number

```
Annunciator     007
Annunciator 007
```

Label

To access the event details screen:

1. When an event takes place, press Enter on the front panel.

2. View the event details.

   The event details screen is displayed for 15 seconds and then returns to the previous screen if there is no activity.

Enter button

Enter button
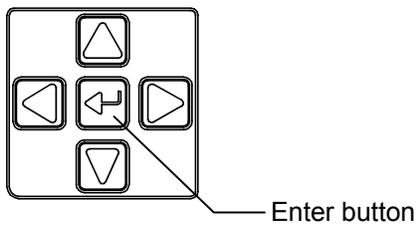
System LEDs

LEDs indicate system events and system operation.

LED	Description
Fire Alarm	Red LED. Flashes when there is an active alarm event on any loop. On steady once acknowledged.
Trouble	Yellow LED. Flashes when there's a fault with a monitored circuit or system component or when a circuit is disabled. On steady once acknowledged.
Sup	Yellow LED. Flashes when there is an active supervisory event on any loop. On steady once acknowledged.
AC Power	Green LED. On when the panel has AC power.
Disable	Yellow LED. Double-flashes when there is a disabled circuit or alarm relay.
Ground Fault	Yellow LED. On steady during an active ground fault.
Test	Yellow LED. Flashes when performing an audible walk test. Steady indicates a silent test.
Monitor	Yellow LED. Flashes when there is an active monitor event on any loop. On steady once acknowledged.
Service Detector	Yellow LED. Indicates that detector needs servicing.
Signal Silence	Yellow LED. On steady indicates that NAC circuits are turned off but the panel is still in alarm.
Remote Disconnect	Yellow LED. On steady indicates that the CMS devices (dialer and network card) are disabled or that the alarm relay is enabled or disabled when the dialer is set to modem only.
Drill	Yellow LED. Indicates that the panel is in drill.
Reset	Yellow LED. Indicates that the panel is going through a reset.
Panel Silence	Yellow LED. Indicates that the panel has been silenced during an active trouble, supervisory, monitor, or alarm event and indicates that new event activations have been acknowledged.
User keys	Yellow LED. Indicates the programmed key function is active.

LED display expander LEDs

The D16L-iO LED Display Expander provides LED annunciation for up to 16 zones. The expander provides two LEDs for each zone. Two LED display expanders can be installed in the panel.

LED operation zones 1 through 12 (and 17 through 28 if the second LED expander is installed)

- LED 1 - Alarm: Red LED flashes

- LED 2 - Trouble: Yellow LED flashes

LED operation zones 13 through 16 (and 29 through 32 if the second LED expander is installed)

- LED 1 - Bicolor
  Alarm: Red LED flashes
  Non-alarm active: Yellow LED flashes

- LED 2 - Trouble: Yellow LED flashes

LED zone designations
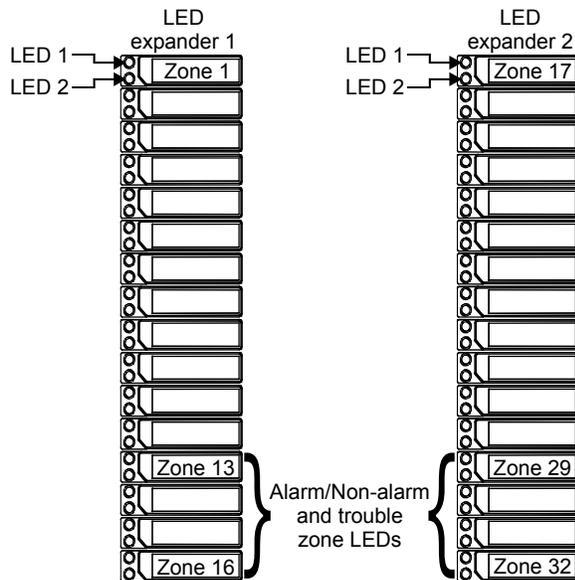
Control buttons

The panel's control buttons are used to perform functions and operate the LCD display.

Button	Description
Reset	Initiates a system reset. The LED next to the button indicates the function is active.
ACK/Panel Silence	Silences the panel and annunciator sounders during an active trouble, supervisory, or alarm event and acknowledges new event activations. The LED next to the button indicates the function is active.
Signal Silence	Silences notification appliances activated by an alarm condition. Pressing Signal Silence a second time turns NACs back on. The LED next to the button indicates when the panel is in alarm and operating with notification appliances turned off. Visual appliances may or may not turn off when Signal Silence is pressed depending on panel programming.
Drill	Initiates a drill when the button is pressed for two seconds. The LED next to the button indicates the function is active.
	Pressing drill a second time turns off the drill function
	Note: Drill will not operate with an active alarm or supervisory event at the panel.
Remote Disconnect	CMS devices (dialer and network card): Disables or enables the dialer and network CMS connection and purges all pending event transmission to the CMS. Has no effect on the alarm relay.
	Dialer set to modem only (and no network card CMS configured): Disables or enables the common alarm relay.
	Systems with a panel or device NAC configured as city tie: Disables or enables the city tie NACs.
	The LED next to the button indicates the function is active.
	Note: A minimum of a level one password is required to operate.
Left Arrow	Display mode: Moves the cursor to the left
	Menu mode: Toggles between a programming option's selections
Right Arrow	Display mode: Moves the cursor to the right
	Menu mode: Takes you to a programming option's submenu and toggles between a programming option's selections

Button	Description
Up Arrow	Display mode: Advances to the previous event
	Menu mode: Moves the cursor up
Down Arrow	Display mode: Advances to the next event
	Menu mode: Moves the cursor down
Enter	Display mode: Displays detailed information about the selected event
	Menu mode: Takes you to a programming option's sub menu or jumps you to the Save function in the menu so you can quickly save your data
	Entry mode: Enters the selected data into the system
Cancel	Display mode: Exits the detailed information display and returns to the event list
	Menu mode: Exits the current menu level and returns to the previous menu level. Exits menu mode if you are at the highest menu level.
	Entry mode: Clears the current entry and moves the cursor to the left. Exits entry mode and returns to menu mode if you are at the leftmost position.
Menu	Display mode: Enters the menu mode
	Menu mode: Exits menu mode
Space	Enters a space, such as when placing a space between words
Comma	Enters a comma
Alphanumeric keypad	Entry mode: Pressing a button once enters the number on the button. Pressing and holding the button scrolls through the other value for the button. For example, pressing the "2" button once enters the number 2. Pressing and holding the button scrolls through the letters A, B, and C.
Programmable buttons (Key #1 and Key #2)	There are two control panel buttons that can be custom programmed to perform an operation. By default, the buttons are disabled and nothing happens when you push them. The buttons can be programmed to control or operate a device, zone, or panel NAC. For example, you can program a button to disable a panel NAC when it is pushed. The LED next to the button indicates the function is active. The buttons can be labeled as to their function with a slip-in label. To operate the buttons, you must be logged on with a minimum level 1 password. For information on programming these buttons, see "Programming the programmable keys."

Component descriptions

The control panel contains the following components.

Component layout

Item	Description
1	Transformer: Changes 120 or 230 volt AC supply voltage to 24 volt AC
2	Main AC wiring block and fuse holder: Provides connections for 120 or 230 volt AC (primary power) from dedicated service. Includes a primary power fuse (5 A).
3	RS-232 card connector (J3): Provides a connection for the optional RS-232 card for connecting a printer or downloading from the configuration utility
4	Dialer card connection (J8)
5	Ethernet card connector (J1): Provides a connection for the optional ethernet card
6	Main circuit board: Provides connections for all circuits. Also includes the operator interface.

7	Cabinet enclosure: Houses the panel electronics and standby batteries. In some cases, the batteries may be housed in an external battery cabinet (BC-3).
8	Operator interface: Includes operator controls, LED indicators, and control buttons
9	Loop expander card connector (J7): Provides a connection for the optional loop expander card (only on the 250/500 point panel)
10	Class A card connector (J2): Provides a connection for the optional Class A card (only on the 64 point panel)
11	Tie wrap mounts: Used to secure wires and to help maintain proper separation between power-limited and nonpower-limited conductors
12	LED expander connector (J6): Provides a connection for the optional LED expander
13	Standby batteries: Provide secondary/standby power to the panel electronics in the absence of primary power

Events with event messages

Event type		LCD display	Printer [1]
Alarm	**Active type reporting**		
	Input smoke	Alarm active	SMK ACT
	Input smoke verified	Alarm active	SMK ACT
	Input heat	Heat alarm	HEAT ACT
	Input heat rate of rise	Heat alarm	HEAT ACT
	Input duct alarm	Alarm active	DUCT ACT
	Input pull station	Pull station alarm	PULL ACT
	Input water flow	Water flow	WFLW ACT
	Input water flow retard	Water flow	WFLW ACT
	Zone alarm	Alarm active	ALRM ACT
	Zone water flow	Alarm active	ALRM ACT
	Supervisory type reporting		
	Input duct alarm	Supervisory	DUCT ACT
	Zone supervisory	Supervisory	SUPV ACT
	Input supervisory latching	Supervisory	SUPV ACT
	Input supervisory nonlatching	Supervisory	SUPV ACT
	Monitor type reporting		
	Zone monitor	Monitor	MON ACT
	Input monitor	Monitor	MON ACT
	Prealarm reporting	Pre-alarm	PALM ACT
	Alarm verify reporting	Alarm verify	ALMV ACT
	Maintenance alert reporting	Maint. alert	MANT ACT
Trouble	All devices	Trouble	TRBL ACT
Disable	All devices	Disable	DSBL ACT
Test	All devices	Test	TEST ACT

[1] See "Printout examples" below for an example of how events are printed.

Printout examples

Event information is printed each time an event takes place provided a printer is connected to your system. The following is an example of what the event information looks like on the printout and a description of each piece of information printed for an event.

Annunciator event

```
TRBL ACT | 18:00:07 01/01/2007     A:008
Annunciator 08
```

Description:
TRBL ACT = Trouble event
18:00:07 01/01/2007 = Time and date the event took place
A:008 = Annunciator 08
Annunciator 08 = Label (could be the default label or a custom label)

Internal event (panel or loop event)

```
MON ACT  | 18:00:18 01/01/2007     E:010
Loop 2 Initializing
```

Description:
MON ACT = Monitor event
18:00:18 01/01/2007 = Time and date the event took place
E:010 = Event 010 (see "Event ID numbers and descriptions")
Loop 2 initializing = Label (could be the default label or a custom label)

Zone event

```
ALRM ACT | 18:00:34 01/01/2007     Z:008
Zone 08
```

Description:
ALRM ACT = Alarm event
18:00:34 01/01/2007 = Time and date the event took place
Z:008 = Zone 08
Zone 08 = Label (could be the default label or a custom label)

Device event

```
ALRM ACT | 18:00:34 01/01/2007 L:1 D:128
Loop 1 Device 128
```

Description:
ALRM ACT = Alarm event
18:00:34 01/01/2007 = Time and date the event took place
L:1 = Loop 1
D:128 = Device 128
Loop 1 Device 128 = Label (could be the default label or a custom label)

Event ID numbers and descriptions

Event ID	Event description
000	Loop 1 initialization: Loop 1 is starting up
001	Loop 1 fault: A short or open was detected on loop 1 affecting the communications between the panel and the devices on the loop
002	Loop 1 map fault: A mapping fault was detected on loop 1 while the panel was mapping the devices
003	Loop 1 card fault: The loop 1 card is not present or it is not working properly
004	Loop 1 uncfgrd alarm: A device on loop 1 that is not programmed went into alarm
005	Loop 1 uncfgrd trouble: A device on loop 1 that is not programmed went into trouble
006	Loop 1 map mismatch: The loop 1 map in RAM and the loop 1 map in the database do not match
007	Loop 1 over limits: There are too many devices on loop 1
008	Loop 1 device 000: A device on loop 1 has an address set to zero
009	Loop 1 mapping: Loop 1 is mapping its devices
010	Loop 2 initialization: Loop 2 is starting up
011	Loop 2 fault: A short or open was detected on loop 2 affecting the communications between the panel and the devices on the loop
012	Loop 2 map fault: A mapping fault was detected on loop 2 while the panel was mapping the devices
013	Loop 2 card fault: The loop 2 card is not present or it is not working properly
014	Loop 2 uncfgrd alarm: A device on loop 2 that is not programmed went into alarm
015	Loop 2 uncfgrd trouble: A device on loop 2 that is not programmed went into trouble
016	Loop 2 map mismatch: The loop 2 map in RAM and the loop 2 map in the database do not match
017	Loop 2 over limits: There are too many devices on loop 2
018	Loop 2 device 000: A device on loop 2 has an address set to zero
019	Loop 2 mapping: Loop 2 is mapping its devices
020	System startup: The control panel is starting up
021	Program mode: The control panel is in program mode
022	Reset: The control panel is resetting

Event ID	Event description
023	Reset/Sil inhibit: Reset/silence inhibit is activated
024	Panel silence: The control panel buzzer has been silenced
025	Signal silence: The control panel NACs have been silenced
026	Drill: The control panel is in the drill state
027	Walk test: The control panel is in the walk test state
028	Test fire: A smoke or heat detector is being tested
029	Clear history: The control panel's event history has been cleared
030	Time: The control panel's time was modified
031	Date: The control panel's date was modified
032	Common disable: A disable event is taking place on the control panel
033	Common trouble: A trouble event is taking place on the control panel
034	Ground fault: The panel detected a ground fault
035	Battery charger: The panel detected a battery charger trouble condition. The charger may not be able to charge the batteries.
036	Battery low: The batteries are low on charge
037	Battery missing: The battery is no longer connected
038	AC power: There is a problem with the panel's AC power
039	Aux. power 1: The control panel detected a trouble condition on the continuous AUX power circuit 1
040	Aux. power 2: The control panel detected a trouble condition on the resettable AUX power circuit 2
041	System AC power: There is a problem with the panel's AC power and/or a remote auxiliary/booster's AC power
042	Common alarm: An alarm event is taking place on the control panel
043	Common supervisory: A supervisory event is taking place on the control panel
044	Common monitor: A monitor event is taking place on the control panel
045	Common trouble for telco dialer: A trouble event, other than a DACT delivery fault is taking place on the control panel
046	Common trouble for network dialer: A trouble event, including a DACT delivery fault is taking place on the control panel
047	Self test fault: A fault has been detected while testing the panel's internal subsystems (memory, flash, code, etc.)

Event ID	Event description
048	Internal fault: The control panel detected an internal hardware or software error
049	Dialer dsbl/rem disc: The dialer was disabled by the Remote Disconnect button
050	Dialer line 1 fault: A ground fault or line fault has been detected on line 1 of the dialer
051	Dialer line 2 fault: A ground fault or line fault has been detected on line 2 of the dialer
052	Dialer deliver fail: The dialer failed to deliver a message to the receiver or CMS
053	Dialer normal test: A dialer test was conducted when the panel was in a normal state
054	Dialer abnormal test: A dialer test was conducted when the panel was in an off normal state
055	Dialer configuration: The dialer is not programmed or has unverified changes
056	Net recvr comm fault: Communications between the panel and the network receiver failed
057	Net recvr config fault: The panel failed to communicate with the network receiver after a configuration change
058	NAC 1 trouble: An open or short has been detected on NAC 1 or there is a problem with the EOL
059	NAC 2 trouble: An open or short has been detected on NAC 2 or there is a problem with the EOL
060	NAC 3 trouble: An open or short has been detected on NAC 3 or there is a problem with the EOL
061	NAC 4 trouble: An open or short has been detected on NAC 4 or there is a problem with the EOL
062	Printer trouble: The printer is either offline, out of paper, or disconnected
063	Annunciator 1 trouble: An open or short has been detected on annunciator 1
064	Annunciator 2 trouble: An open or short has been detected on annunciator 2
065	Annunciator 3 trouble: An open or short has been detected on annunciator 3
066	Annunciator 4 trouble: An open or short has been detected on annunciator 4
067	Annunciator 5 trouble: An open or short has been detected on annunciator 5
068	Annunciator 6 trouble: An open or short has been detected on annunciator 6

Event ID	Event description
069	Annunciator 7 trouble: An open or short has been detected on annunciator 7
070	Annunciator 8 trouble: An open or short has been detected on annunciator 8
071	Zone 1 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 1)
072	Zone 2 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 2)
073	Zone 3 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 3)
074	Zone 4 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 4)
075	Zone 5 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 5)
076	Zone 6 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 6)
077	Zone 7 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 7)
078	Zone 8 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 8)
079	Zone 9 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 9)
080	Zone 10 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 10)
081	Zone 11 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 11)
082	Zone 12 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 12)
083	Zone 13 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 13)
084	Zone 14 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 14)
085	Zone 15 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 15)
086	Zone 16 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 16)
087	Zone 17 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 17)
088	Zone 18 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 18)
089	Zone 19 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 19)

Event ID	Event description
090	Zone 20 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 20)
091	Zone 21 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 21)
092	Zone 22 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 22)
093	Zone 23 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 23)
094	Zone 24 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 24)
095	Zone 25 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 25)
096	Zone 26 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 26)
097	Zone 27 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 27)
098	Zone 28 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 28)
099	Zone 29 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 29)
100	Zone 30 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 30)
101	Zone 31 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 31)
102	Zone 32 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 32)

Viewing event details

The off-normal events that take place in your system contain event information that is displayed on the LCD display screen. Additional information is also available for the event, which is displayed on a secondary screen, called the Event Details screen.

To access the event details screen:

1. When an event takes place, press Enter on the front panel.

2. View the event details.

   For a description of the information displayed on the screen, refer to the topic "LCD display screen." The event details screen is displayed for 15 seconds if there is no activity and then returns to the previous screen.

   Note: Use the up and down arrow keys to scroll through multiple events.

Enter button

Enter button
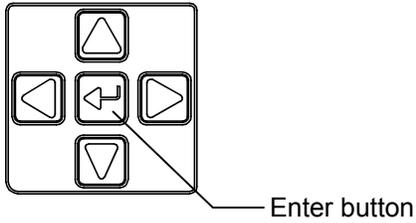
Resetting the panel

Pressing Reset places the panel in the reset state. The panel should not be reset until the appropriate authority has determined that the hazard is no longer present.

When you reset the panel:

- "Reset" is displayed on the top-right of the LCD display

- The Reset LED lights

- Devices in an off-normal state remain in their off-normal state until the element causing their off-normal state clears

- When reset is complete, "Reset" clears from the LCD display and the reset LED turns off

If one or more devices are disabled prior to initiation of the reset, those devices remain disabled.

If signal silence inhibit or reset inhibit is enabled, system reset is inhibited during the silence or reset inhibit period.

To reset the panel:

1. Press the Reset button.

Reset button
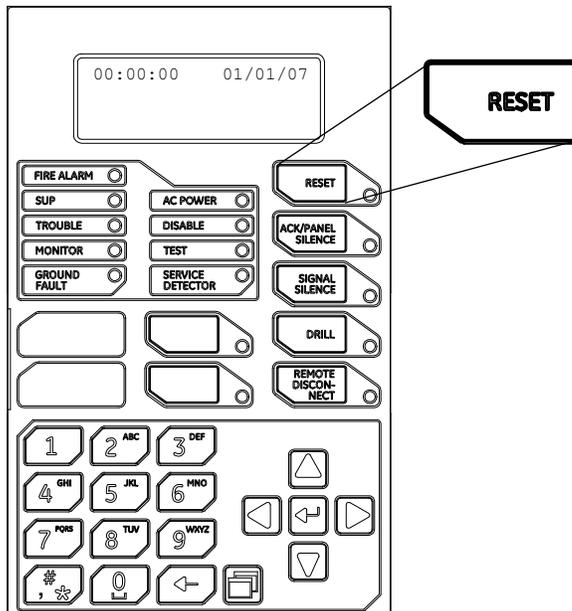
Silencing panel and annunciator buzzers

Both the panel and the optional annunciator module have buzzer silence buttons. Pressing panel silence silences the buzzer on the panel and on remote annunciators.

When you silence the buzzers:

- The ACK/Panel Silence LED lights

To silence the panel buzzer:

1. Press the Ack/Panel Silence button.

2. Determine the type of condition that caused the buzzer to sound: alarm, trouble, supervisory, or monitor.

3. Determine the cause of the condition.

Panel Silence button
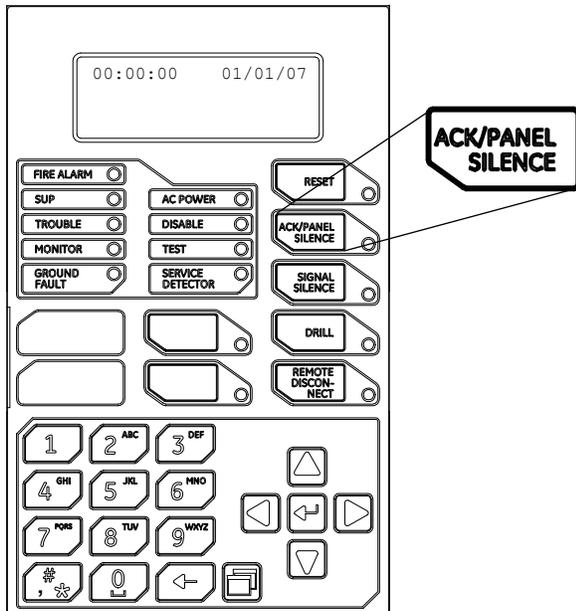
To silence an annunciator buzzer:

1. Press the Silence button on the annunciator.

2. Determine the type of condition that caused the buzzer to sound: alarm, trouble, supervisory, or monitor.

3. Determine the cause of the condition.

Silencing notification appliances

Pressing the Signal Silence button turns off all audible appliances. Visible appliances or NAC circuits may or may not turn off, depending on panel programming.

When you silence the signals:

- The Signal Silence LED lights, indicating that the notification appliances are off

- If Genesis horn/strobe or horn-only devices are used on NACs programmed for Genesis operation, Signal Silence silences the horns and strobes based on system programming

Note: NACs activated by devices programmed as waterflow cannot be silenced until the activated devices are restored to normal via a panel reset. After the waterflow device events restore, the Signal Silence button or the auto signal silence timer can silence the NACs if there are other events causing the NACs to activate.

To silence notification appliances:

1. Press the Signal Silence button.

Signal Silence button
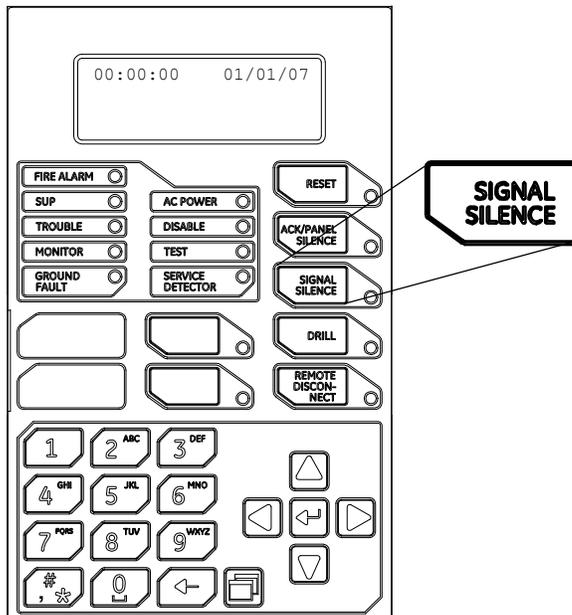
When the auto signal silence timer is programmed

When an event activates the notification appliances, the 5- to 30-minute auto signal silence timer is activated. The time duration is set in system programming. The notification appliances are activated

> **WARNING:** The notification appliances should not be silenced until the building is fully evacuated and the cause of the alarm has been determined.

for the time period programmed. When the timer expires, any NACs that are programmed as silenceable are deactivated, and the Signal Silenced LED is illuminated.

If another event takes place that activates the previously silenced notification appliances, the Signal Silenced LED turns off. At any time, you can deactivate silenceable NACs by pressing Signal Silence.

Re-sounding notification appliances

Once the notification appliances are silenced by pressing the Signal Silence button, you can press the Signal Silence button a second time to turn the notification appliances back on.

Note: NACs re-sound automatically if a new alarm (from another device) is received.

When you re-sound notification appliances:

- The Signal Silence LED turns off

To re-sound notification appliances:

1. Press the Signal Silence button.

Signal Silence button

Conducting a lamp test

A lamp test lights all of the LEDs on the panel and the LED annunciator and tests the LCD display so that you can verify proper operation. LEDs stay on for 15 seconds.

To conduct a lamp test:

1. Press the Menu button.

2. Choose Test.

3. Choose Lamp Test.

4. Press Enter.

5. Verify proper operation of all LEDs on the panel, the LCD display, and the LED annunciator (if used).

```
Reports
Test
Control
Program
```
⇩
```
Test
Test Fire
Dialer
Lamp Test
```

Activating a device

Devices can be manually activated. Activating a device turns on its output, such as turning on a strobe or horn for testing.

Note: Input devices cannot be activated. "Invalid device" is displayed on the LCD display for any device that cannot be activated.

To activate a device:

1. Press the Menu button.

2. Choose Control.

3. Enter your password (the minimum of a level one password is required).

4. Choose Activate/Restore.

5. Choose Device.

6. Choose the loop the device is on.

   Note: If your panel only has one loop, the loop selection screen does not display. Go to the next step.

7. Enter the device ID for the device that you want to activate.

8. Press Enter.

9. Press Cancel to return to the previous menu.

   — or —

   Press the Menu button to exit menu mode.

```
Reports
Test
Control
Program
```
⇩
```
  Enter Password
      0000

```
⇩
```
Control
Enable/Disable
Activate/Restore
```
⇩
```
Activate/Restore
Device
Panel NAC
```
⇩
```
Device
Loop            01<>

```
⇩
```
Device    Activate<>
001
Device 001
```

Restoring a device

Once a device is manually activated, it can be manually restored. Restoring a device turns off its output, such as turning off a strobe or horn.

To restore a device:

1. Press the Menu button on the front panel.

2. Choose Control.

3. Enter your password (the minimum of a level one password is required).

4. Choose Activate/Restore.

5. Choose Device.

6. Choose the loop the device is on.

   Note: If your panel only has one loop, the loop selection screen does not display. Go to the next step.

7. Enter the device ID for the device that you want to restore.

8. Press Enter.

9. Press Cancel to return to the previous menu.

   — or —

   Press the Menu button to exit menu mode.

```
Reports
Test
Control
Program
```
⇩
```
  Enter Password
       0000
```
⇩
```
Control
Enable/Disable
Activate/Restore
```
⇩
```
Activate/Restore
Device
Panel NAC
```
⇩
```
Device
Loop            01<>
```
⇩
```
Device     Restore<>
001
Device 001
```

Activating a NAC

Panel NACs can be manually activated. Activating a panel NAC turns on its outputs, such as turning on strobes or horns for testing.

To activate a NAC:

1. Press the Menu button.

2. Choose Control.

3. Enter your password (the minimum of a level one password is required).

4. Choose Activate/Restore.

5. Choose Panel NAC.

6. Select the NAC that you want to activate.

7. Press Enter.

8. Press Cancel to return to the previous menu.

   — or —

   Press the Menu button to exit menu mode.

```
Reports
Test
Control
Program
```

⇩

```
   Enter Password
        0000

```

⇩

```
Control
Enable/Disable
Activate/Restore
```

⇩

```
Activate/Restore
Device
Panel NAC
```

⇩

```
Panel NAC Activate<>
1
NAC 1
```
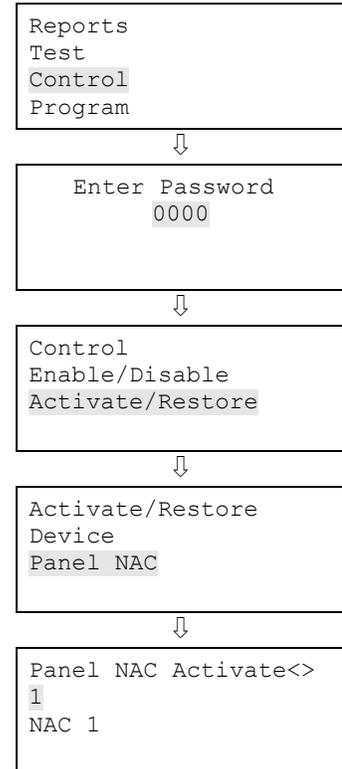
Restoring a NAC

Once a panel NAC is manually activated, it can be manually restored. Restoring a panel NAC turns off its outputs, such as turning off strobes or horns.

To restore a NAC:

1. Press the Menu button on the front panel.

2. Choose Control.

3. Enter your password (the minimum of a level one password is required).

4. Choose Activate/Restore.

5. Choose Panel NAC.

6. Select the NAC that you want to restore.

7. Press Enter.

8. Press Cancel to return to the previous menu.

   — or —

   Press the Menu button to exit menu mode.

```
Reports
Test
Control
Program
```
⇩
```
  Enter Password
      0000
```
⇩
```
Control
Enable/Disable
Activate/Restore
```
⇩
```
Activate/Restore
Device
Panel NAC
```
⇩
```
Panel NAC  Restore<>
1
NAC 1
```
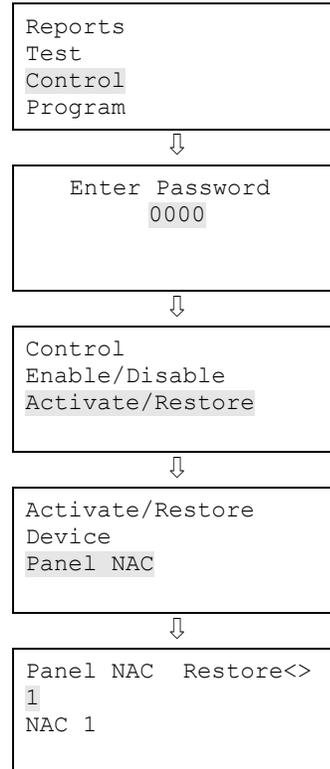
Disabling a device

Devices can be disabled using the front panel. A disabled device is still functioning, but does not report an off-normal condition to the panel while it is disabled. When a device is disabled:

- The common Disable LED turns on

- A message indicating the device that is disabled is displayed on the LCD display

- The common Trouble LED flashes and the panel goes into a trouble state

- The common trouble relay changes state

- The disabled points and active points counters on the LCD display increment

Resetting the panel has no effect on a disabled device, but removing all power from the panel clears the disable and enables the device.

Note: If the device you are disabling is active, a warning message is displayed.

To disable a device:

1. Press the Menu button.

2. Choose Control.

3. Enter your password (the minimum of a level one password is required).

4. Choose Enable/Disable.

5. Choose Device.

6. Choose the loop the device is on.

   Note: If your panel only has one loop, the loop selection screen does not display. Go to the next step.

7. Enter the device ID for the device that you want to disable.

8. Press Enter.

9. If the device is active, acknowledge the warning message by selecting Continue to disable the device or Cancel to exit.

   The device is disabled and a message indicating that the device is disabled is displayed on the LCD.

10. Press Cancel to return to the previous menu.

    — or —

```
Reports
Test
Control
Program
```
⇩
```
   Enter Password
        0000

```
⇩
```
Control
Enable/Disable
Activate/Restore
```
⇩
```
Enable/Disable
Device
Zone
Panel Event
```
⇩
```
Device
Loop            01<>

```
⇩

Press the Menu button to exit menu mode.

```
Device      Disable<>
001
Device 001
```

⇩

```
Warning Device Active
Continue?
Cancel?
```

Enabling a device

You can enable a disabled device. When you enable a device:

- The common Disable LED turns off (if there are no other disabled devices)

- The message on the LCD display indicating the disabled device disappears

- The common Trouble LED turns off and the panel returns to normal

- The LEDs change to show current status (e.g. if the device is in trouble, the Trouble LED lights)

- The disabled points and active points counters on the LCD display decrement

Note: If the device you are enabling is active, a warning message is displayed.

To enable a device:

1. Press the Menu button.

2. Choose Control.

3. Enter your password (the minimum of a level one password is required).

4. Choose Enable/Disable.

5. Choose Device.

6. Choose the loop the device is on.

   Note: If your panel only has one loop, the loop selection screen does not display. Go to the next step.

7. Enter the device ID for the device that you want to enable.

8. Press Enter.

9. If the device is active, acknowledge the warning message by selecting Continue to disable the device or Cancel to exit.

   The device is disabled and a message indicating that the device is disabled is displayed on the LCD.

10. Press Cancel to return to the previous menu.

    — or —

    Press the Menu button to exit menu mode.

```
Reports
Test
Control
Program
```
⇩
```
  Enter Password
      0000
```
⇩
```
Control
Enable/Disable
Activate/Restore
```
⇩
```
Enable/Disable
Device
Zone
Panel Event
```
⇩
```
Device
Loop            01<>
```
⇩
```
Device      Enable<>
001
Device 001
```
⇩
```
Warning Device Active
Continue?
Cancel?
```

Disabling a zone

Zones can be disabled using the front panel. Disabling a zone disables all of the devices that are in that zone. A disabled zone does not report an off-normal condition to the panel while it is disabled. When you disable a zone:

• The common Disable LED turns on

• On a zone/device system, the LCD displays disabled messages for the zone and all of the devices in the zone

• On a zone only system, the LCD displays a disabled message for the zone

• The common Trouble LED flashes and the panel goes into a trouble state

• The common trouble relay changes state

• The disabled points and active points counters on the LCD display increment

• If you are using an LED display expander, the zone LEDs blink for the disabled zone

Resetting the panel has no effect on a disabled zone, but removing all power from the panel clears the disable and enables the zone.

Note: If the zone you are disabling contains devices that are active, a warning message is displayed.

To disable a zone:

1. Press the Menu button.

2. Choose Control.

3. Enter your password (the minimum of a level one password is required).

4. Choose Enable/Disable.

5. Choose Zone.

6. Select the zone that you want to disable.

7. Press Enter.

8. If devices in the zone are active, acknowledge the warning message by selecting Continue to disable the zone or Cancel to exit.

    The zone is disabled.

9. Press Cancel to return to the previous menu.

```
Reports
Test
Control
Program
```
⇩
```
   Enter Password
        0000


```
⇩
```
Control
Enable/Disable
Activate/Restore

```
⇩
```
Enable/Disable
Device
Zone
Panel Event
```
⇩

— or —
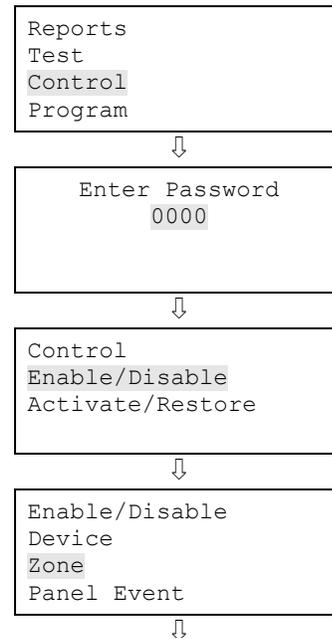
Press the Menu button to exit menu mode.

```
Zone        Disable<>
01
Zone 01
```

⇩

```
Warning Device Active
Continue?
Cancel?
```

Enabling a zone

You can enable a disabled zone. When you enable a zone:

- The common Disable LED turns off (if there are no other disabled zones)

- The common Trouble LED turns off

- The LCD messages indicating the disabled zone and devices disappear

- The disabled points and active points counters on the LCD display decrement

- If you are using an LED display expander, the zone LED turns off

Note: If a device in the zone you are enabling is active, a warning message is displayed.

To enable a zone:

1. Press the Menu button.

2. Choose Control.

3. Enter your password (the minimum of a level one password is required).

4. Choose Enable/Disable.

5. Choose Zone.

6. Select the zone that you want to enable.

7. Press Enter.

8. If devices in the zone are active, acknowledge the warning message by selecting Continue to enable the zone or Cancel to exit.

   The zone is enabled.

9. Press Cancel to return to the previous menu.

   — or —

   Press the Menu button to exit menu mode.

```
Reports
Test
Control
Program
```
⇩
```
  Enter Password
      0000

```
⇩
```
Control
Enable/Disable
Activate/Restore

```
⇩
```
Enable/Disable
Device
Zone
Panel Event
```
⇩
```
Zone         Enable<>
01
Zone 01

```
⇩
```
Warning Device Active
Continue?
Cancel?

```
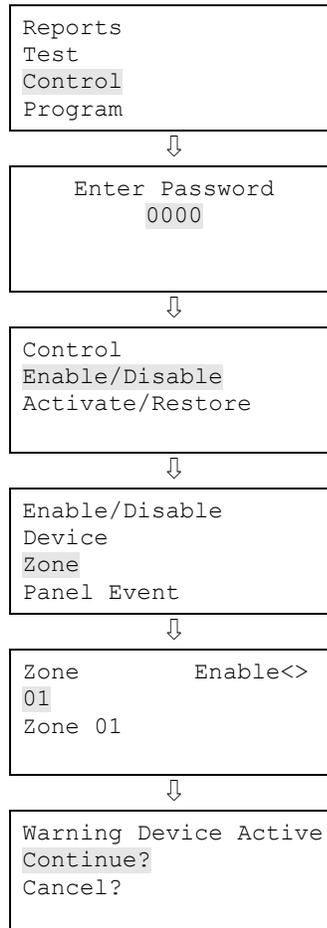
Disabling a panel event

Some panel events can be disabled. For example, you may want to disable the "battery missing" event if you are performing maintenance on the panel and plan on disconnecting the battery. When you disable an event, the event is not displayed on the LCD display when it activates. When you disable an event:

- The common Disable LED turns on

- The common Trouble LED flashes and the panel goes into a trouble state

- The common trouble relay changes state

- The disabled points and active points counters on the LCD display increment

- A message indicating the event that is disabled is displayed on the LCD display

Note: Not all panel events can be disabled. Panel events that cannot be disabled are labeled as "forbidden." The following panel events can be disabled:

- Ground fault (event ID 034)

- Battery charger (event ID 035)

- Battery low (event ID 036)

- Battery missing (event ID 037)

- AC power (event ID 038)

- System AC power (event ID 041)

- Aux. power 1 (event ID 039)

- Aux. power 2 (event ID 040)

- Dialer line 1 fault (event ID 045)

- Dialer line 2 fault (event ID 046)
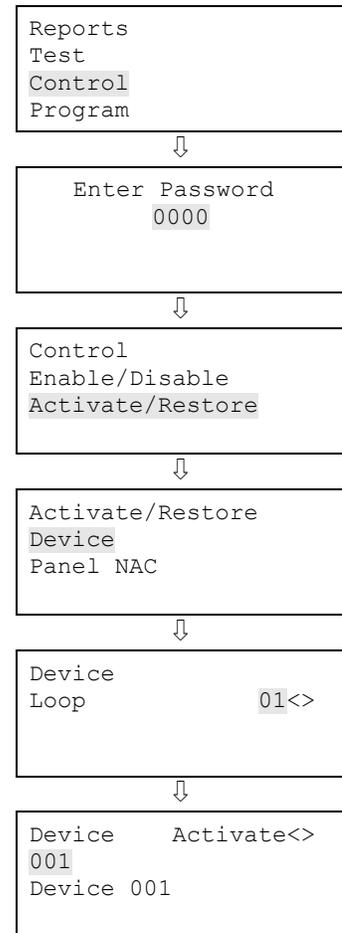
- Net receiver communication fault (event ID 051)

To disable an event:

1. Press the Menu button.

2. Choose Control.

3. Enter your password (the minimum of a level one password is required).

4. Choose Enable/Disable.

```
Reports
Test
Control
Program
```
⇩
```
   Enter Password
        0000
```
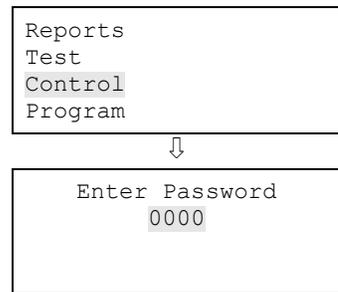
5. Choose Panel Event.

6. Select the event type that you want to disable.

    Refer to "Event ID numbers and descriptions" for event descriptions and the list above for the events that can be disabled.

7. Press Enter.

8. Press Cancel to return to the previous menu.

    — or —

    Press the Menu button to exit menu mode.

⇩

```
Control
Enable/Disable
Activate/Restore
```

⇩

```
Enable/Disable
Device
Zone
Panel Event
```

⇩

```
Panel Event Disable<>
034
Event 034
```
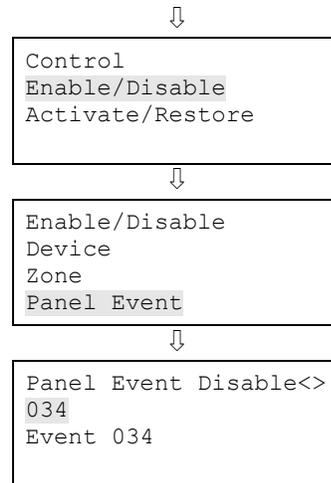
Enabling a panel event

You can enable a disabled event so that it displays on the LCD display when it activates. When you enable an event:

- The common Disable LED turns off (if there are no other disabled panel events)

- The common Trouble LED turns off

- The disabled points and active points counters on the LCD display decrement

- The message on the LCD display indicating the disabled event disappears

To enable an event:

1. Press the Menu button.

2. Choose Control.

3. Enter your password (the minimum of a level one password is required).

4. Choose Enable/Disable.

5. Choose Panel Event.

6. Select the event type that you want to enable.

   Refer to "Event ID numbers and descriptions" for event descriptions.

7. Press Enter.

8. Press Cancel to return to the previous menu.

   — or —

   Press the Menu button to exit menu mode.

```
Reports
Test
Control
Program
```
⇩
```
  Enter Password
      0000

```
⇩
```
Control
Enable/Disable
Activate/Restore
```
⇩
```
Enable/Disable
Device
Zone
Panel Event
```
⇩
```
Panel Event Enable<>
034
Event 034

```
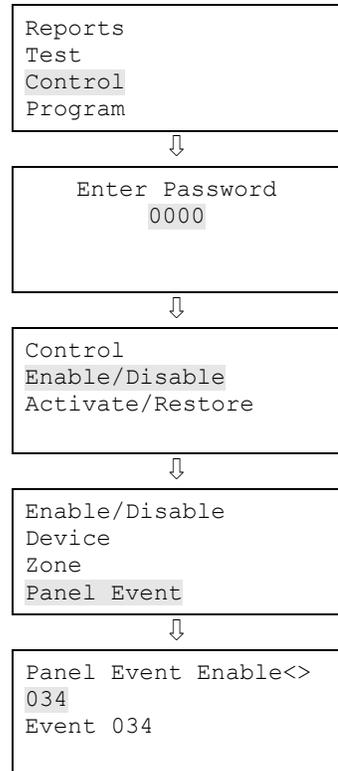
Disabling a loop event

Some loop events can be disabled. When you disable a loop event, the event is not displayed on the LCD display when it activates. When you disable a loop event:

- The common Disable LED turns on

- The common Trouble LED flashes and the panel goes into a trouble state

- The common trouble relay changes state

- The disabled points and active points counters on the LCD display increment

- A message indicating the loop event that is disabled is displayed on the LCD display

Note: Not all loop events can be disabled. Loop events that cannot be disabled are labeled as "forbidden." The following loop events can be disabled:

- Loop 1 fault (event ID 001)

- Loop 2 fault (event ID 011)

- Loop 1 card fault (event ID 003)

- Loop 2 card fault (event ID 013)

- Loop 1 unconfigured alarm (event ID 004)

- Loop 2 unconfigured alarm (event ID 014)

- Loop 1 unconfigured trouble (event ID 005)

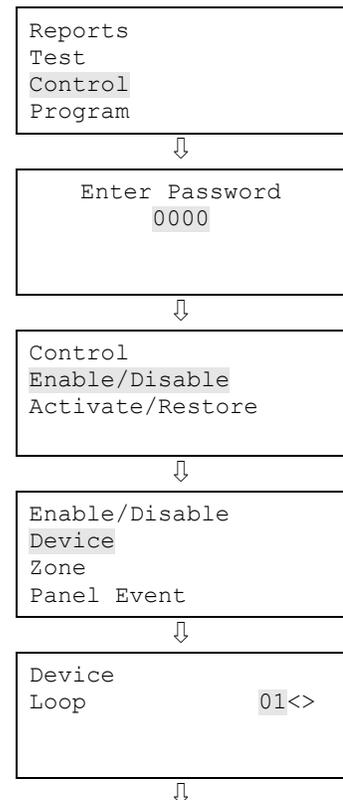- Loop 2 unconfigured trouble (event ID 015)

To disable a loop event:

1. Press the Menu button.

2. Choose Control.

3. Enter your password (the minimum of a level one password is required).

4. Choose Enable/Disable.

5. Choose Loop Event.

6. Select the loop event type that you want to disable.

   Refer to "Event ID numbers and descriptions" for event descriptions and the list above for the events that can be disabled.

```
Reports
Test
Control
Program
```
⇩
```
   Enter Password
       0000

```
⇩
```
Control
Enable/Disable
Activate/Restore
```
⇩

7. Press Enter.

8. Press Cancel to return to the previous menu.

   — or —

   Press the Menu button to exit menu mode.

```
Enable/Disable
Zone
Panel Event
Loop Event
```
⇩
```
Loop Event  Disable<>
001
Event 001
```
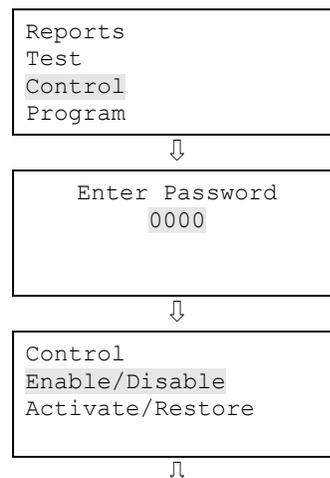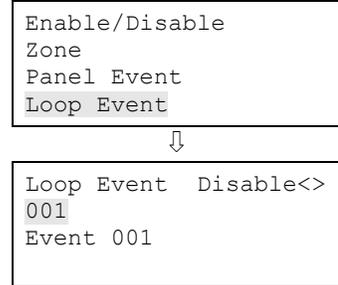
Enabling a loop event

You can enable a disabled loop event so that it displays on the LCD display when it activates. When you enable a loop event:

- The common Disable LED turns off (if there are no other disabled loop events)

- The common Trouble LED turns off

- The disabled points and active points counters on the LCD display decrement

- The message on the LCD display indicating the disabled loop event disappears
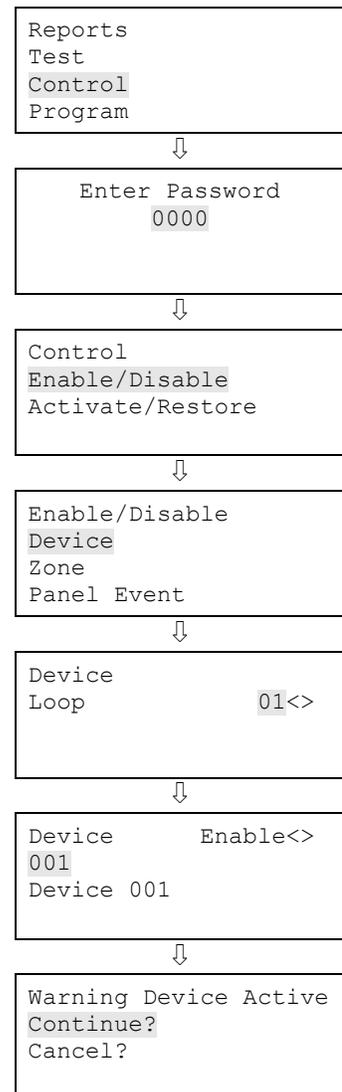
To enable a loop event:

1. Press the Menu button.

2. Choose Control.

3. Enter your password (the minimum of a level one password is required).

4. Choose Enable/Disable.

5. Choose Loop Event.

6. Select the loop event type that you want to enable.

   Refer to "Event ID numbers and descriptions" for event descriptions.

7. Press Enter.

8. Press Cancel to return to the previous menu.

   — or —

   Press the Menu button to exit menu mode.

```
Reports
Test
Control
Program
```
⇩
```
   Enter Password
        0000
```
⇩
```
Control
Enable/Disable
Activate/Restore
```
⇩
```
Enable/Disable
Zone
Panel Event
Loop Event
```
⇩
```
Loop Event   Enable<>
001
Event 001
```
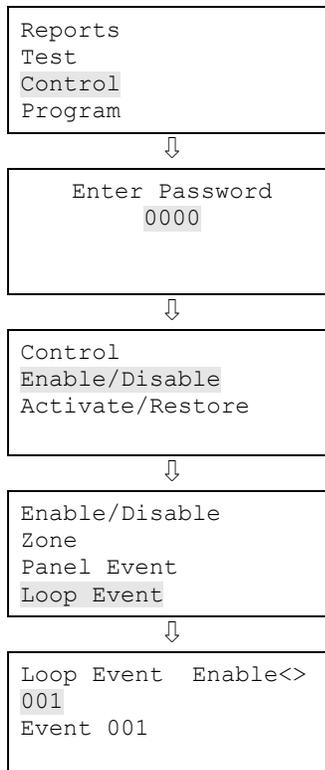
Disabling a panel NAC

A disabled panel NAC does not report an off-normal condition to the panel while it is disabled. When you disable a panel NAC:

- The common Disable LED turns on

- A message indicating the NAC that is disabled is displayed on the LCD display

- The disabled points and active points counters on the LCD display increment

- The common Trouble LED flashes and the panel goes into a trouble state

- The common trouble relay changes state

Resetting the panel has no effect on a disabled NAC, but removing all power from the panel clears the disable and enables the NAC.

To disable a NAC:

1. Press the Menu button.

2. Choose Control.

3. Enter your password (the minimum of a level one password is required).

4. Choose Enable/Disable.

5. Choose Panel NAC.

6. Select the NAC that you want to disable.

7. Press Enter.

   The NAC is disabled and a message indicating that the NAC is disabled is displayed on the LCD.

8. Press Cancel to return to the previous menu.

   — or —

   Press the Menu button to exit menu mode.

```
Reports
Test
Control
Program
```
⇩
```
   Enter Password
        0000

```
⇩
```
Control
Enable/Disable
Activate/Restore

```
⇩
```
Enable/Disable
Panel Event
Loop Event
Panel NAC
```
⇩
```
Panel NAC  Disable<>
1
NAC 1

```
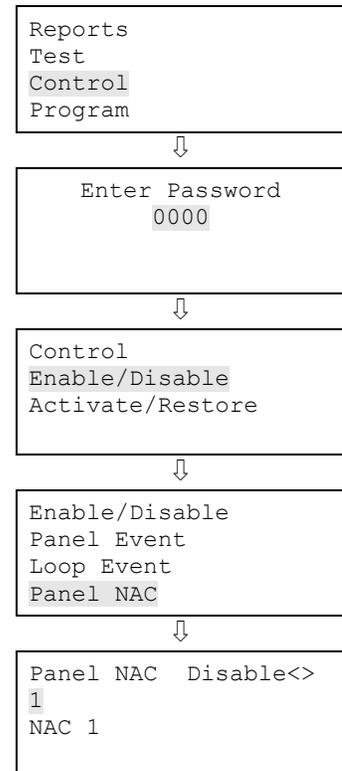
Enabling a panel NAC

You can enable a disabled panel NAC. When you enable a panel NAC:

- The common Disable LED turns off (if there are no other disabled panel NACs)

- The message on the LCD display indicating the disabled NAC disappears

- The common Trouble LED turns off and the panel returns to normal

- The disabled points and active points counters on the LCD display decrement

To enable a panel NAC:

1. Press the Menu button.

2. Choose Control.

3. Enter your password (the minimum of a level one password is required).

4. Choose Enable/Disable.

5. Choose Panel NAC.

6. Select the NAC that you want to enable.

7. Press Enter.

8. Press Cancel to return to the previous menu.

   — or —

   Press the Menu button to exit menu mode.

```
Reports
Test
Control
Program
```
⇩
```
  Enter Password
       0000

```
⇩
```
Control
Enable/Disable
Activate/Restore
```
⇩
```
Enable/Disable
Panel Event
Loop Event
Panel NAC
```
⇩
```
Panel NAC    Enable<>
1
NAC 1
```

EST iO64 and iO500 Technical Reference Manual
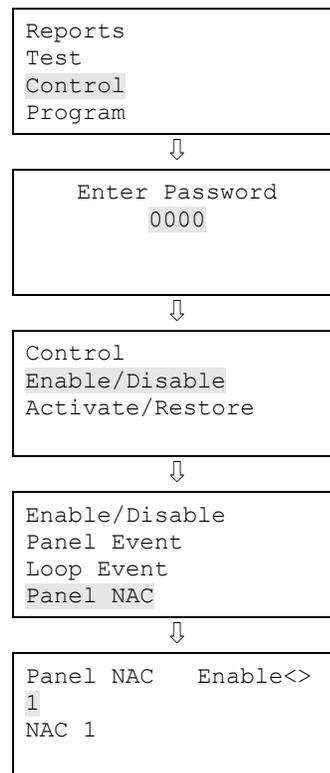
Disabling/enabling the dialer and network

Disabling

The dialer and network CMS connection and panel/device NACs configured as city tie can be disabled so that they do not transmit events to the CMS. When you disable the CMS connection:

- The Remote Disconnect LED lights

- "Dialer Dsbl/Rem Disc" is displayed on the LCD display

- The disabled points counter on the LCD display increments

- The active points counter on the LCD display increments

- Pending events in the CMS queue are purged

To disable the dialer and network card:

1. Press Remote Disconnect.

2. Enter your password (the minimum of a level one password is required).

Enabling

If the dialer and network CMS connection were disabled, they must be enabled to transmit events to the CMS. When you enable the dialer and network CMS connection:

- The Remote Disconnect LED turns off

- The message "Dialer Dsbl/Rem Disc" on the LCD display disappears

- The disabled points counter on the LCD display decrements

- The active points counter on the LCD display decrements

To enable the dialer and network card:

1. Press Remote Disconnect.

2. Enter your password (the minimum of a level one password is required).

Remote Disconnect button
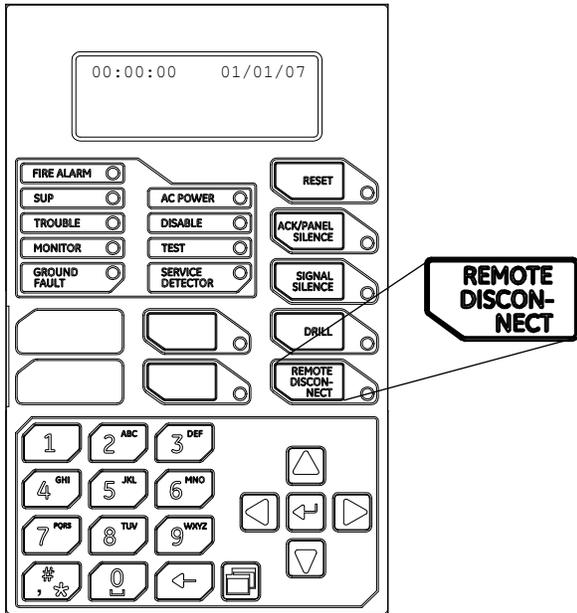
Using the drill command

You can use the drill command to activate all of the notification appliance circuits. Pressing Drill activates all audibles and visibles according to the panel programming, but does not activate the alarm relay. The Drill LED indicates the function is active.

Note: Drill will not operate with an active alarm or supervisory event at the panel.

To start and stop a drill:

1. To start a drill, press and hold the Drill button for two seconds.

    The LED next to the button turns on indicating that the drill is active, and the control panel turns on all notification appliance circuits.

2. To stop the drill, press the Drill button.

    The LED next to the button turns off, and the control panel turns off all notification appliance circuits.

Note: The drill command is also available from the menu, under Control.

Drill button

Using the walk test command

A walk test lets you test individual zones or devices without having to create an actual alarm condition. You can conduct a walk test in silent or audible mode. In silent mode, the audible devices (NACs) do not sound.

Zones and devices should be placed in walk test one at a time. This allows the balance of the system to remain in service. When a device is activated for test, it remains active throughout the test and does not restore until walk test is ended. When walk test is ended, all of the tested devices restore.

Note: Walk test will not operate with an active alarm or supervisory event at the panel.

When you enter walk test mode:

- The Test LED flashes for an audible walk test and is steady for a silent walk test.

- Walk Test is displayed on the LCD display. Walk Test is replaced with the device activation message during the period the device is activated while in walk test.

- The panel enters a trouble state. There is no fire protection for the zone in walk test. If an unselected zone or device goes into alarm or trouble, all programmed outputs operate as programmed.

Zones and devices behave as follows during walk test:

- For alarm events, the appropriate panel and annunciator LEDs and buzzers are turned on. In the audible (NAC) test mode a four-second pulse sounds for NAC types: continuous nonsilenceable, continuous silenceable, Genesis nonsilenceable, Genesis with audible silence only, and Genesis with audible and visible silenceable on the audible devices. A single 3-3-3 cycle sounds for NAC types: temporal nonsilenceable, temporal silenceable, coder basic, coder continuous, coder 120spm, and coder temporal on the audible devices.

- For trouble events, the appropriate LEDs and the buzzers are turned on. In the audible (NAC) test mode a two-second pulse sounds on the audible devices.

- For ground fault events, the appropriate LEDs and the buzzers are turned on. In the audible (NAC) test mode, a two-second pulse sounds on the audible devices.

- All device activations are latched until walk test is ended or the panel is reset. When walk test is ended, it takes approximately eight seconds for the devices to restore. If the device being tested is in a zone and does not restore, the zone does not reset.

- If auxiliary power is resettable, the auxiliary power is interrupted while the zone is reset.

- Input zones programmed as waterflow with retard require 10 to 15 seconds of activation to initiate the test signals.

- Devices programmed as alarm verify and *not in test mode* go directly into alarm if activated (the alarm verification process is bypassed).

- Once a device is tested, restore the device. For example, if you are testing a pull station, reset the pull station before testing the next device.

The panel terminates walk test if any of the following occur:

- There are 30 minutes of inactivity for the zone or device being tested.

- Walk test is stopped by the user.

To start a walk test:

1. Press the Menu button.

2. Choose Test.

3. Choose Walk Test Silent or Walk Test Audible.

4. Enter your password (the minimum of a level one password is required).

5. Choose either All Devices or Zone.

6. If you chose Zone, enter the zone ID for the zone you are going to conduct the walk test.

7. Choose Start.

8. Conduct your walk test.

9. Press Cancel to return to the previous menu.

   — or —

   Press the Menu button to exit menu mode.

```
Reports
Test
Control
Program
```

⇩

```
Test
Walk Test Silent
Walk Test Audible
Test Fire
```

⇩

```
   Enter Password
        0000

```

⇩

```
Walk Test Sil/Aud
All Devices
Zone
```

⇩

```
Zone
Number           01
Zone 01
```

⇩

```
Start
End

```

To end a walk test:

Note: To see the activation and restoration of all walk test events, the panel must be reset *prior* to ending the walk test. Once the reset is complete, you can end the walk test and view a walk test report.

1. Press the Menu button.

2. Choose Test.

3. Choose Walk Test Silent or Walk Test Audible.

4. Choose either All Devices or Zone.

5. If you chose Zone, enter the zone ID of the zone for which you are going to end the walk test.

6. Choose End to turn off the walk test. All of the devices that were activated in the test are restored at this time.

7. Press Cancel to return to the previous menu.

   — or —

   Press the Menu button to exit menu mode.

```
Reports
Test
Control
Program
```
⇩
```
Test
Walk Test Silent
Walk Test Audible
Test Fire
```
⇩
```
Walk Test Sil/Aud
All Devices
Zone
```
⇩
```
Zone
Number          01
Zone 01
```
⇩
```
Start
End
```

Chapter 2
Installation and wiring

Summary

This chapter covers all control panel wiring, such as AC power, NACs, device loops, and battery.

Content

Cabinet box installation

The cabinet box can be surfaced mounted or semiflush mounted.

To surface mount the cabinet box:

1. Position the cabinet box on the finished wall surface.

2. Fasten the cabinet box to the wall surface where indicated.

To semiflush mount the cabinet box:

1. Frame the interior wall as required to support the full weight of the cabinet and standby batteries.

2. Install a semiflush trim ring (optional) to the cabinet.

3. Fasten the cabinet box to the framing studs where indicated.

Surface mount   Semiflush mount — Trim ring
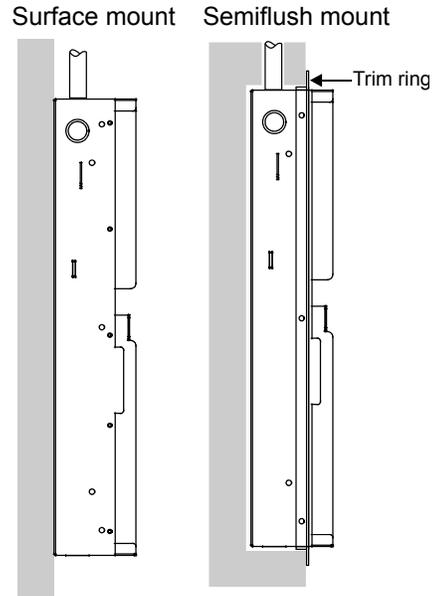
Backbox and backbox with door dimensions

Model	D1 [1]	D2	D3	D4	D5 [1]	D6	D7	D8	D9
64 pt.	21.50 in. (54.6 cm)	3.85 in. (9.8 cm)	7.5 in. (19 cm)	15.50 in. (39.4 cm)	14.25 in. (36.2 cm)	10.25 in. (26 cm)	4.5 in. (11.4 cm)	21.7 in. (55.1 cm)	2.7 in. (6.8 cm)
250/500 pt.	28.0 in. (71.1 cm)	3.85 in. (9.8 cm)	9.0 in. (22.8 cm)	22.0 in. (55.8 cm)	15.75 in. (40.0 cm)	10.25 in. (26.0 cm)	4.4 in. (11.1 cm)	28.2 in. (71.6 cm)	2.7 in. (6.8 cm)

[1] Add 1-1/2 in. (3.81 cm) to D1 and D5 dimensions for trim kit.

Cabinet backbox, backbox with door, and backbox with door and trim ring attached

Surface mounting holes

D2

D3

D1

Surface mounting holes

D6

D5

Semiflush mounting holes

D4

Backbox with door attached

D7

D8

D9

Backbox with door and trim ring attached

D9
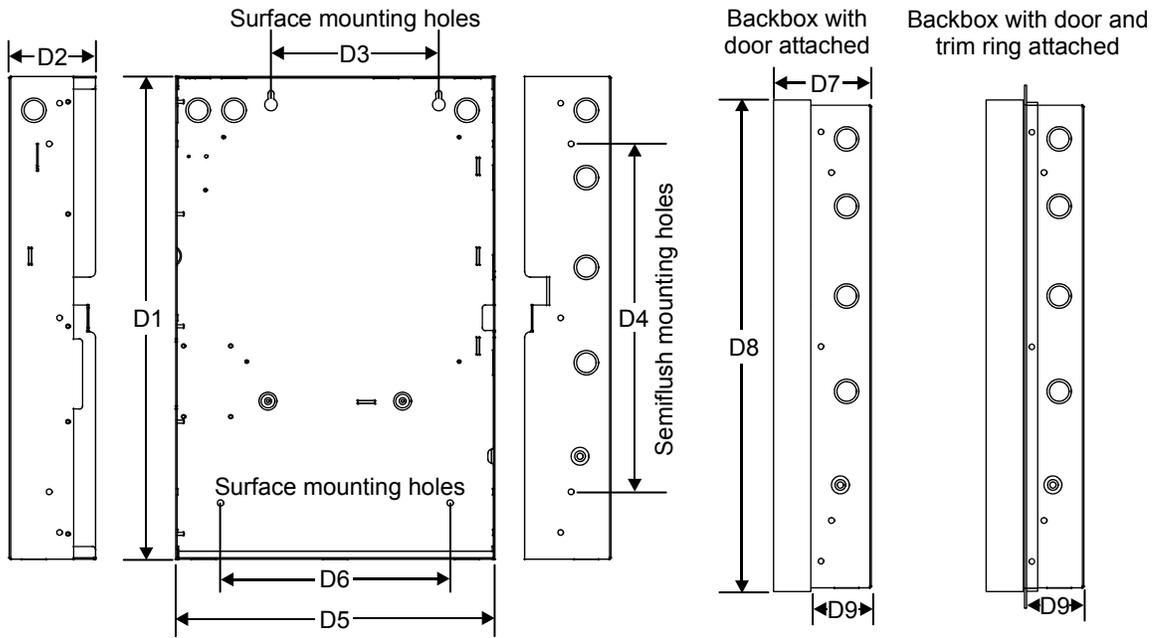
Panel electronics installation

The panel electronics must be installed in the cabinet box.

Note: Wait until the possibility of construction damage or vandalism has passed before installing the panel electronics.

Panel electronics installation
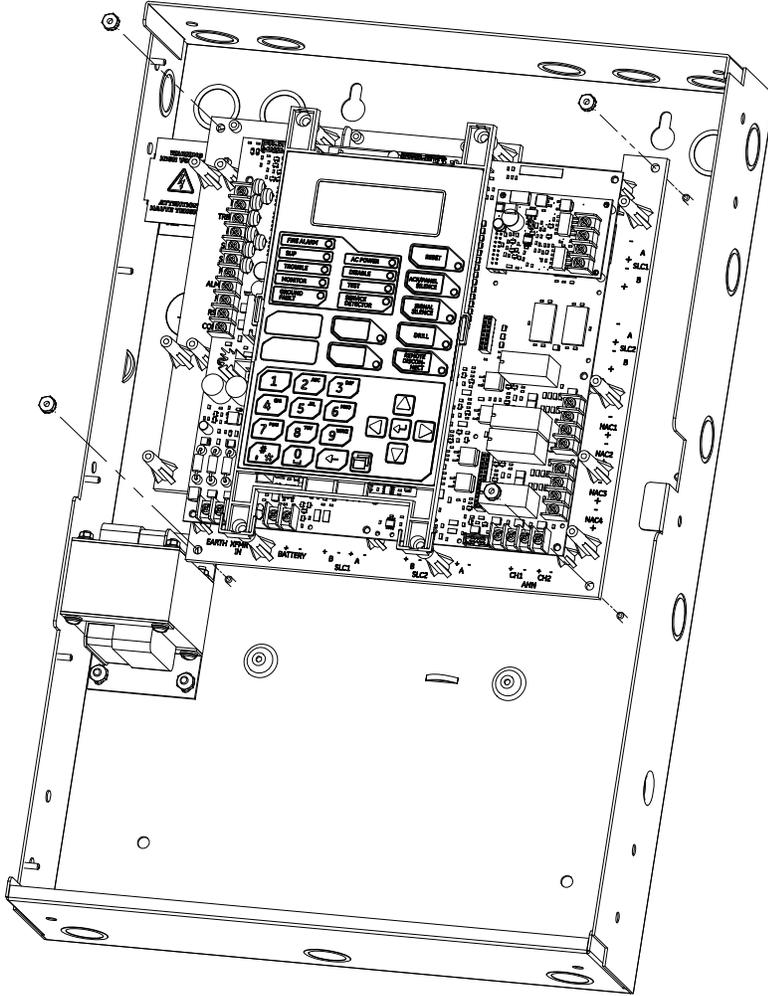
Cabinet wire routing

Using the diagram below, keep power-limited wiring in the shaded area and nonpower-limited wiring in the unshaded area at all times.

Cabinet wire routing
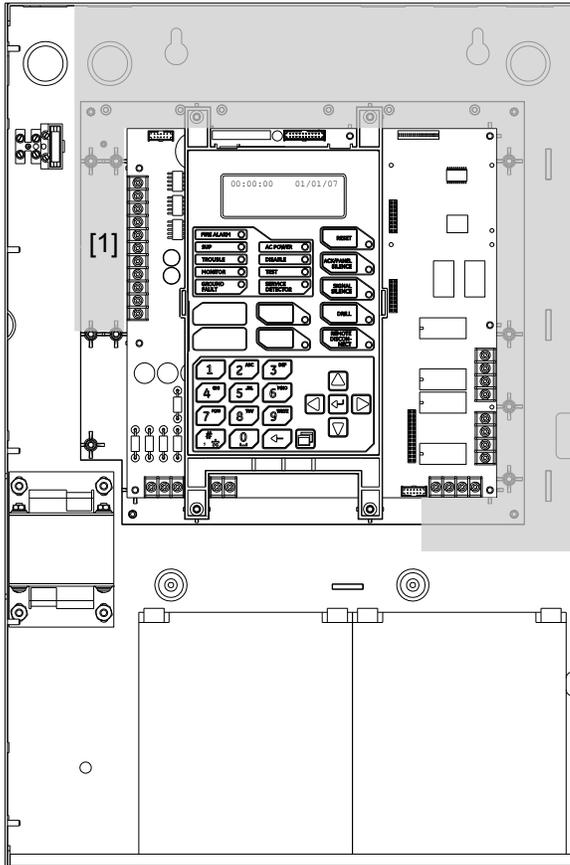
[1] Power-limited only when connected to a power-limited source. If connected to a nonpower-limited source, all wiring on terminal block TB3 must be FPL, FPLP, FPLR rated wire or equivalent, in accordance with the NFPA 70 *National Electric Code* and routed separate from all power-limited wiring.

AC power wiring

Circuit specifications

64 point panel: 120 V, 60 Hz, 1.3 A or 230 V, 50/60 Hz,
0.6 A from dedicated branch supply

250/500 point panel: 120 V, 60 Hz, 1.8 A or 230 V, 50/60 Hz,
0.975 A from dedicated branch supply

WARNING: Never replace the fuse while the circuit is energized. The replacement fuse must be of equivalent size and type.

CAUTION: The middle connection (EARTH GND) on the terminal block makes a mechanical connection to the chassis even with the ground wire removed.

AC power wiring
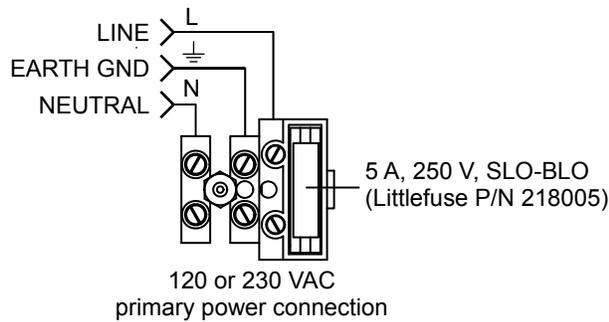
Note: See "Component Descriptions" for the location of the terminal block in the backbox.

Panel low voltage wiring

Circuit specifications

- Circuit voltage: 24 VAC

Panel low voltage wiring
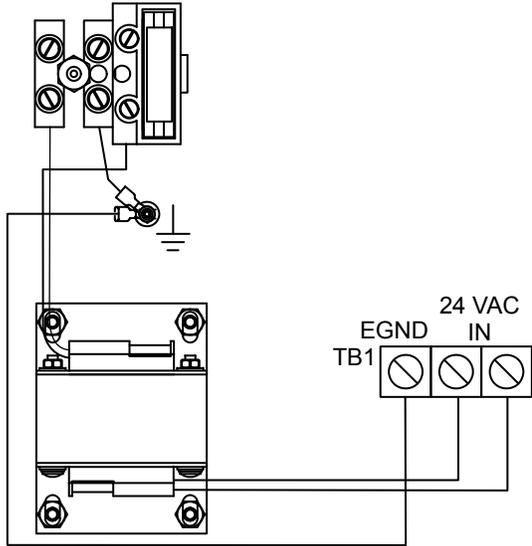
Terminal wiring location
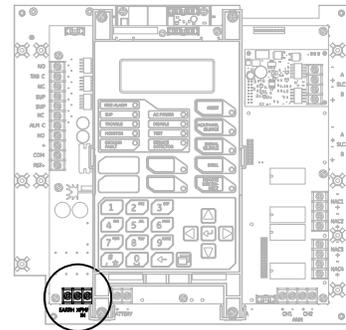
Battery wiring (TB8)

Caution: Connect and disconnect standby batteries only with the AC power applied.

The control panel has a 24 VDC rechargeable battery circuit that is capable of charging up to two 26 Ah sealed lead acid batteries.

The table below lists the batteries that can be installed in the control panel cabinets. Up to two 10 Ah batteries will fit in the 64 point control panel cabinet and two 18 Ah batteries will fit in the 250/500 point control panel cabinet. If larger batteries are required, you must use a GE Security battery cabinet. To determine which battery your system requires, use the "Battery calculation worksheet" in the worksheets appendix.

Terminal wiring location

Model	Manufacturer	Rating
12V4A	GS Battery, Inc.	12 volts, 4.5 ampere-hours
12V6A5	GS Battery, Inc.	12 volts, 7.2 ampere-hours
12V10A	GS Battery, Inc.	12 volts, 11 ampere-hours
12V17A	GS Battery, Inc.	12 volts, 18 ampere-hours
12V24A	GS Battery, Inc.	12 volts, 26 ampere-hours

Battery wiring

Notification appliance circuit wiring (TB2)

The control panel provides either two or four notification appliance circuits depending on which panel you have. Each circuit can be individually configured for continuous, temporal, synchronized, coded, or city tie output.

Terminal wiring location

Circuit specifications

- Class B or Class A. Class A only available on the 64 point panel when the optional SA-CLA card is installed. Refer to installation sheet P/N 3101094.

- Circuit voltage: 24 VFWR, regulated

- Circuit current:
  64 point panel:
  3.75 A total, 2.5 A max. per circuit at 120/230 VAC 60 Hz
  3.0 A total, 2.5 A max. per circuit at 230 VAC 50 Hz
  250/500 point panel:
  6.0 A total, 2.5 A max. per circuit at 120/230 VAC 60 Hz
  5.0 A total, 2.5 A max. per circuit at 230 VAC 50 Hz

- Max. resistance: 26 Ω total

- Max. capacitance: 0.35 µF

- EOLR: 15 kΩ, 1/2 W (P/N EOL-15)

- Synchronized or not synchronized. For NACs wired Class B, signal synchronization is supported on a system-wide basis (all NAC circuits).

- Ground fault impedance: 0 to 5 kΩ

Notes

- Class A wiring is only available on the 64 point panel when the optional SA-CLA card is installed. Refer to installation sheet P/N 3101094 and the "SA-CLA wiring" topic in this chapter.

- Listed EOLRs must be installed as shown for proper supervision

- Marking indicates output signal polarity when the circuit is active. Polarity reverses when the circuit is not active. Wire notification appliances accordingly. Notification appliance polarity shown in active state.

- Installation limits under jurisdiction of local authority

64 point panel Class B wiring

NAC1–
NAC1+
NAC2–
NAC2+
TB2
EOLR

250/500 point panel Class B wiring

NAC1–
NAC1+
NAC2–
NAC2+
TB2
EOLR

NAC3–
NAC3+
NAC4–
NAC4+
TB6
EOLR

250/500 point panel Class A wiring

NAC1–
NAC1+
NAC2–
NAC2+
TB2

–
+
–
+
TB6
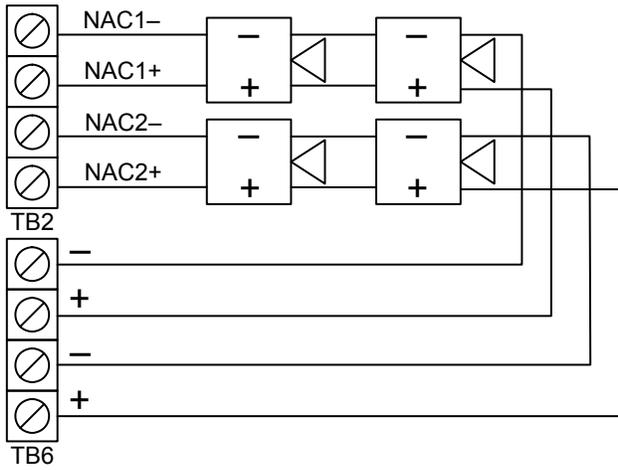
Device loop wiring

The control panel provides one device loop circuit that can be used with detectors and modules. Refer to the "Control panel specifications" for the number of devices (device addresses) that can be wired on a loop. The loop circuit is supervised for opens, shorts, and grounds.

Note: For a complete list of devices that can be connected to this circuit, refer to the *iO64 and iO500 Series Compatibility List* (P/N 3101064).

Circuit specifications

- Class B or Class A

- Communication line voltage: Maximum 20.6 V peak-to-peak

- Circuit current: 0.5 A max.

- Max. total resistance: 66 Ω

- Max. total capacitance: 0.5 μF

- Max. resistance between isolators: Limited only by overall wire run lengths

- 64 isolators maximum (total both isolator bases and modules)

- Ground fault impedance: 0 to 5 kΩ

- Signal synchronization is supported on a system-wide basis (all device loops) when using SIGA-CC1S or SIGA-MCC1S addressable NAC modules and Genesis or Enhanced Integrity notification appliances.

Note: Installation limits under jurisdiction of local authority.
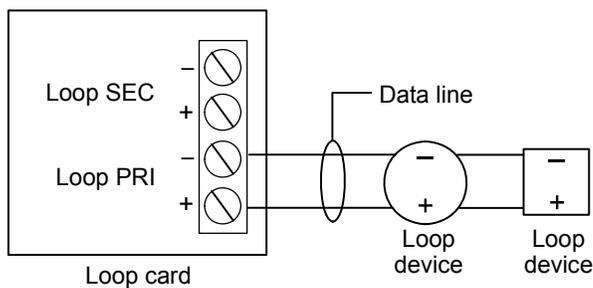
Terminal wiring location

Class B wiring (Style 4)
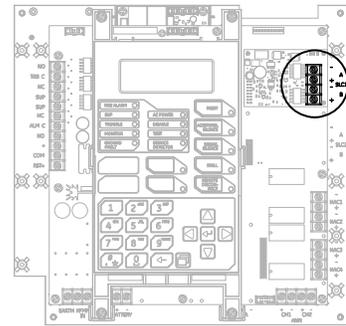
Class A wiring (Style 6)
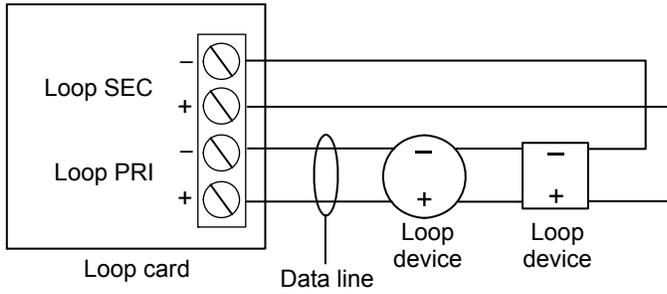
Class A wiring (Style 7)
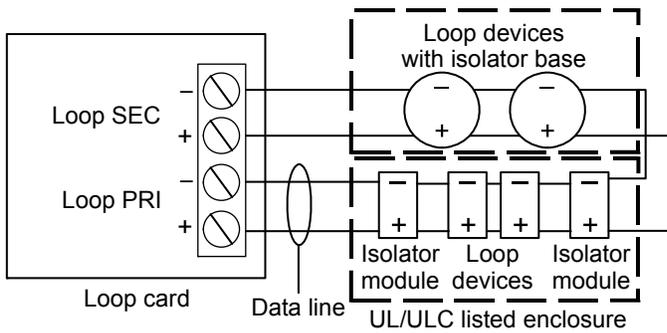
Loop card LEDs

There are three LEDs on the card that indicate loop communication status. Primary is the primary communication circuit. Secondary is the Class A return communication when wiring is Class A. Comm is overall loop communication.

Loop card LEDs
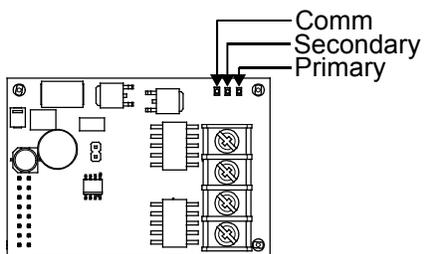
Alarm, trouble, and supervisory relay wiring (TB3)

The control panel provides alarm, trouble, and supervisory relays.

Terminal wiring location

- The trouble relay changes over on any trouble event (common trouble)

- The supervisory relay changes over on any supervisory event (common supervisory)

- The alarm relay changes over on any alarm event (common alarm)

Note: Relay circuits can only be connected to power-limited sources. Relays are not supervised.
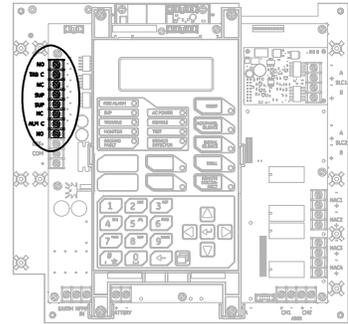
Relay specifications

- Alarm and trouble: Form C, 24 VDC at 1 A resistive

- Supervisory: Form A, 24 VDC at 1 A resistive

Relay wiring
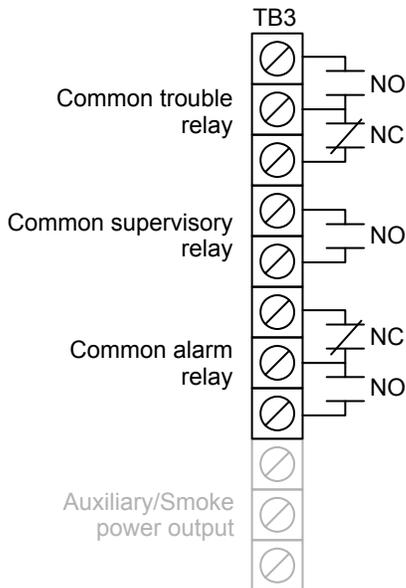
Note: Diagram is shown with the panel in a normal state.

Remote annunciator wiring (TB4)

The control panel provides a connection for up to eight remote annunciators.

Terminal wiring location

Circuit specifications

- Class B or Class A

- Circuit voltage: 2.55 V peak-to-peak average

- Circuit current: 30 mA max.

- Circuit impedance: Up to 8 annunciators or 4,000 feet (1,219 m) of 18 AWG wire

- Circuit resistance: 90 Ω

- Circuit capacitance: 0.3 μF

- Ground fault impedance: 0 to 5 kΩ

- RS-485 communications speed: 9600 baud

- Wiring: 18 to 14 AWG (1.0 to 2.5 sq. mm) twisted pair

- Max. wire run: 4,000 feet (1,219 m)

Notes

- Refer to the *R-Series Remote Annunciators and Expander Installation and Operation Guide* (P/N 3100969) or the R-Series annunciator installation sheets for detailed wiring information

- Installation limits under jurisdiction of local authority
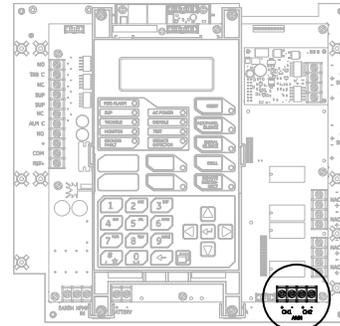
Annunciator channel wiring (Class A)
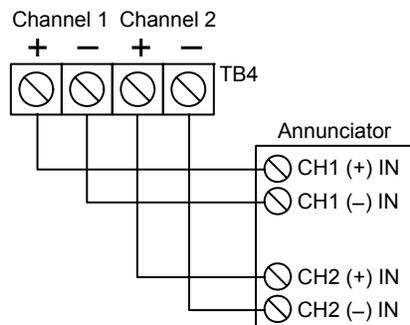
Annunciator channel wiring (Class B)

Channel 1 Channel 2
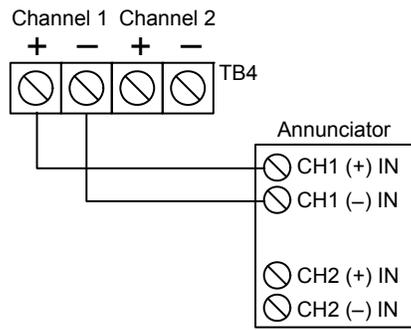
Auxiliary/smoke power output wiring (TB3)

The control panel provides an auxiliary or smoke power output, which can be used for powering ancillary equipment or two-wire smoke detectors. The circuit is supervised for shorts and grounds.

Note: For a complete list of devices that can be connected to this circuit, refer to the *iO64 and iO500 Series Compatibility List* (P/N 3101064).

Terminal wiring location

Circuit specifications

- Circuit voltage range: 21.9 to 28.3 V

- Resettable circuit (Aux power 2): 24 VDC nominal at 500 mA (1 A possible if you reduce total available NAC power by 500 mA).

  Note: If more than 1.5 A is required, you must use a power-limited and regulated 24 VDC auxiliary/booster power supply that is UL/ULC listed for fire protective signaling systems.

- Continuous circuit (Aux power 1): 24 VDC nominal at 500 mA. Use this circuit for powering two-wire smoke detectors. A SMK module is required when using the SIGA-UM module to support two-wire smoke detectors.

  Note: If more than 1.5 A is required, you must use a power-limited and regulated 24 VDC auxiliary/booster power supply that is UL/ULC listed for fire protective signaling systems.

- Special application circuits

- Ground fault impedance: 0 to 5 kΩ
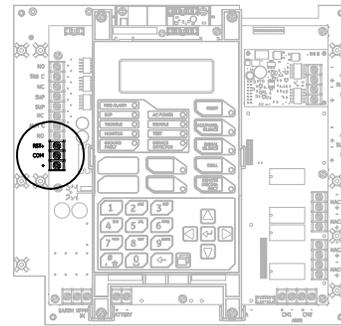
Auxiliary/smoke power output wiring
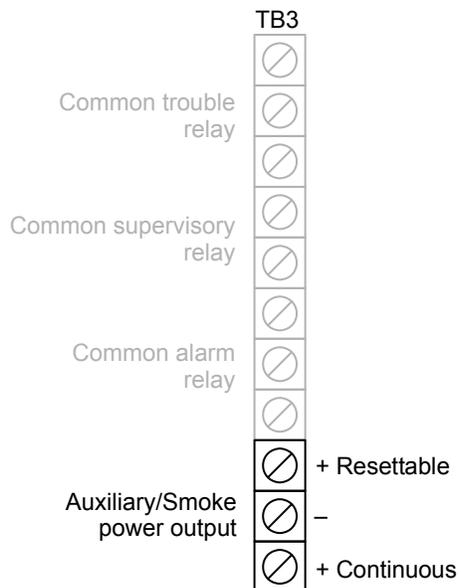
SA-DACT wiring

The optional SA-DACT provides communications between the control panel and the central station over a telephone line system. The SA-DACT is listed for use with the following DACRs.

Terminal wiring location

Receiver	Models	Formats
Ademco	685	Contact ID
FBII	CP220	Contact ID
Osborne-Hoffman	OH2000 and OH2000E (with a OH2000E-LC line card installed) (see note below)	Contact ID
Radionics	D6600	Contact ID
Silent Knight	9500, 9800	Contact ID
Sur-Gard	MLR1, MLR2, MCDI TLR, TLR+, SG-SLR, MLR2000	Contact ID

Note: If the line card firmware is V2.2 or later, use the default CMS network settings. If the line card firmware is V2.2 or earlier, the Timeout Seconds must be set to 60, the Hello Timer set to 75, and the Line Cut timer in the line card itself set to 175 seconds. If you are unsure of the firmware version in the receiver or there are communication faults between the panel and the receiver, then these settings are recommended.

Phone lines connect to the dialer using connectors on the dialer's main circuit board. Phone line 1 connects to connector J1 and phone line 2 connects to connector J4.

The card typically connects to an RJ-31X block using an 8-position, 4-conductor modular cord. Wire the RJ-31X block as shown below.

Note: Install a listed secondary telephone protector between the telco network and the SA-DACT card. The SA-DACT card must be the next piece of equipment that connects to the telephone company (TELCO) telephone lines.

Circuit specifications

- Operating current
  Standby/Alarm: 41 mA
  Max.: 100 mA

- Phone line type: One or two loop-start lines on a public, switched network

- Phone line connector: RJ-31/38X (C31/38X)

SA-DACT wiring

Protected premises
punch down block

TELCO Line 2 — Tip / Ring

PBX

TELCO Line 1 — Tip / Ring

Tip / Ring

Tip / Ring

Telephone protector

Telephone protector

4 5
3 6
2 7
1 8

4 5
3 6
2 7
1 8

RJ-31X block
(supplied by installer)

8-position, 4-conductor
modular cords
(supplied by installer)

LINE 2 → ← LINE 1

J4 J1
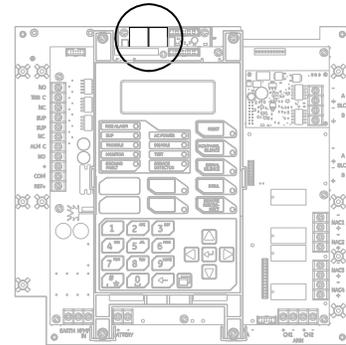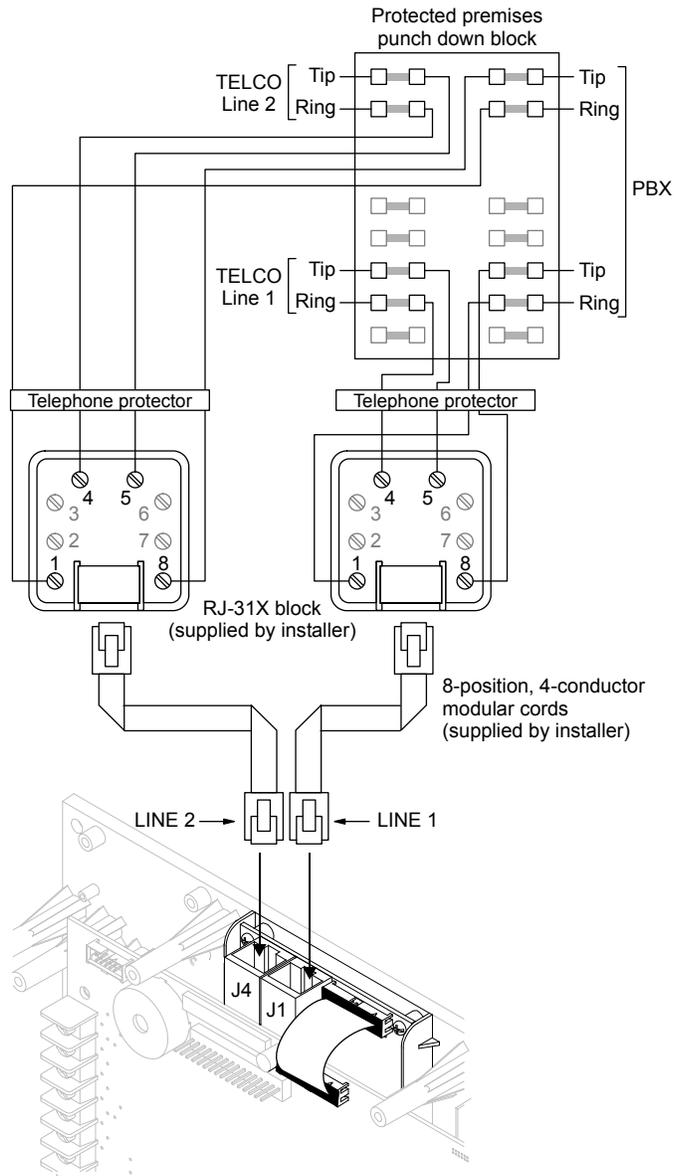
SA-232 wiring

The optional RS-232 card can be wired to a printer to print system events or wired to a computer to download to the panel.

Circuit specifications

- Serial communications
  Asynchronus communications maximum resistance: 13 Ω
  Maximum capacitance: 0.7 μF

- Wire length: 50 feet max.

- Signal voltage: +/- 10 V

- Operating current
  Standby/Alarm: 13 mA
  Max.: 20 mA

- Printer communication speed: 9600 baud

SA-232 wiring connections
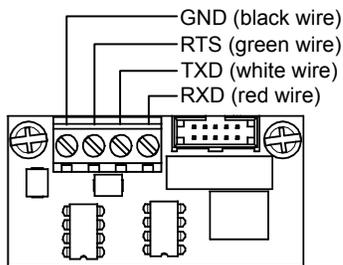
Printer wiring

Note: The printer must be configured through programming for proper operation.

Wiring to a printer:

1. Locate the serial port on the back of the printer.

2. Connect the DB-25 end of the RS-232 cable to the serial port on the back of the printer.

3. Connect the other end of the RS-232 cable to the RS-232 card.

Printer wiring

DB-25 serial port
on back of printer

DB-25 male

Printer

RS-232 cable

To RS-232 card

DB-25 pin connections

Pin 2: TXD (red wire)
Pin 3: RXD (white wire)
Pin 7: COM (black wire)

PIN 1

PIN 25

DB-25 male
(front view)

Pin 20: DTR (green wire)
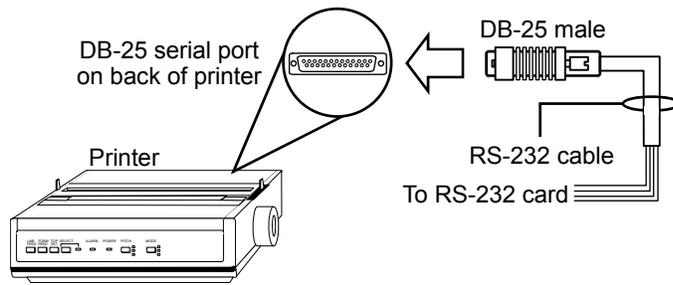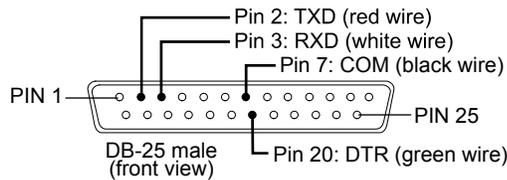
SA-232 card to printer DB-25 connections

SA-232 card	DB-25	Description
GND	COM (pin 7)	Black wire (ground connection)
RTS	DTR (pin 20)	Green wire (printer supervision)
TXD	RXD (pin 3)	White wire (communication)
RXD	TXD (pin 2)	Red wire (communication)

Computer download wiring

Wiring to a computer:

1. If you have a connected printer, disconnect it.

2. Locate a serial port (COM port) on the back of the computer.

3. Connect the DB-9 end of the RS-232 cable to the COM port on the back of the computer.

4. Connect the other end of the RS-232 cable to the RS-232 card.

Computer download wiring

DB-9 COM port
on back of computer

DB-9 female

RS-232 cable

To RS-232 card

Computer

DB-9 pin connections

Pin 2: RXD (white wire)
Pin 3: TXD (red wire)
Pin 5: COM (black wire)

DB-9 male
(front view)
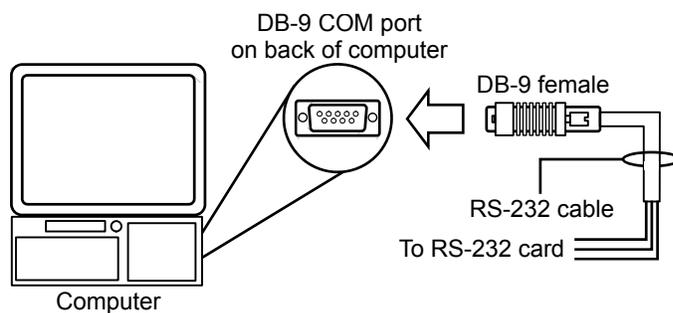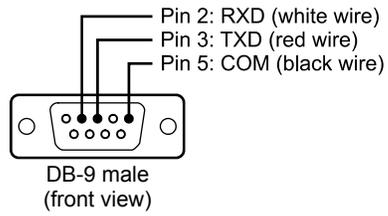
SA-232 card to computer DB-9 connections

SA-232 card	DB-9	Description
GND	COM (pin 5)	Black wire (ground connection)
RTS	-	Not used
TXD	RXD (pin 2)	White wire (communication)
RXD	TXD (pin 3)	Red wire (communication)

SA-CLA wiring

The wiring connections on the optional Class A card are only used when wiring NACs Class A on a 64 point control panel.

Circuit specifications

- Operating current
  Standby: 3 mA
  Alarm/Max.: 60 mA

- Max. resistance: 26 Ω

- Max. capacitance: 0.35 µF

- Max. current: 2.5 A per circuit

- Ground fault impedance: 0 to 5 kΩ

SA-CLA wiring

Class A card installed
on main circuit board
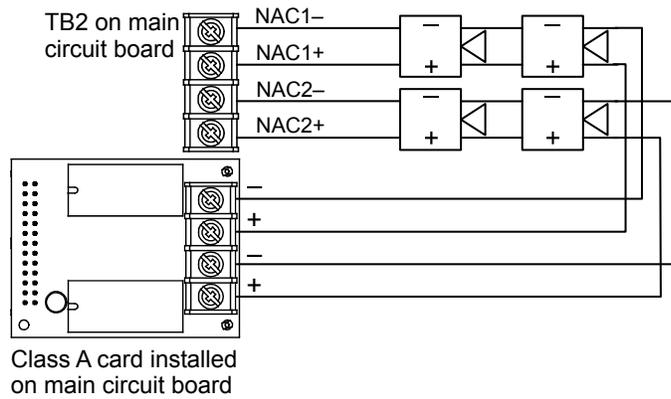
SA-ETH wiring

The optional SA-ETH card provides a standard Ethernet network connection for connecting to a local network. The SA-ETH is listed for use with the following DACRs.

Receiver	Model	Format
Osborne-Hoffman	OH2000 and OH2000E (with a OH-TCP/IP-LC card installed) (see note below)	Contact ID

Note: If the line card firmware is V2.2 or later, use the default CMS network settings. If the line card firmware is V2.2 or earlier, the Timeout Seconds must be set to 60, the Hello Timer set to 75, and the Line Cut timer in the line card itself set to 175 seconds. If you are unsure of the firmware version in the receiver or there are communication faults between the panel and the receiver, then these settings are recommended.

Circuit specifications

- Ethernet: 10/100 Base-T

- Network cable: Crossover cable or straight through cable

- Operating current
  Standby/Alarm: 34 mA
  Max.: 41 mA

- Max. wire runs: 200 feet (60 m), Cat 5 cable (panel to communication equipment)

SA-ETH wiring
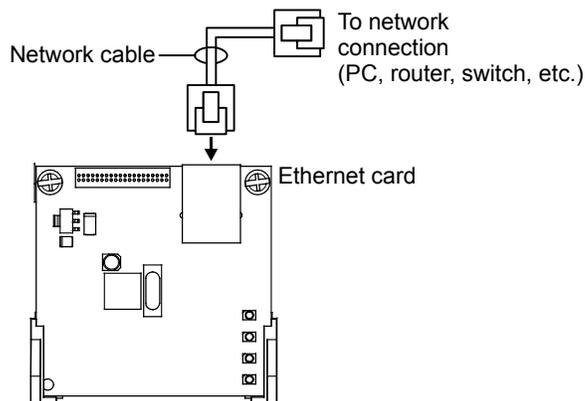
SA-ETH LEDs
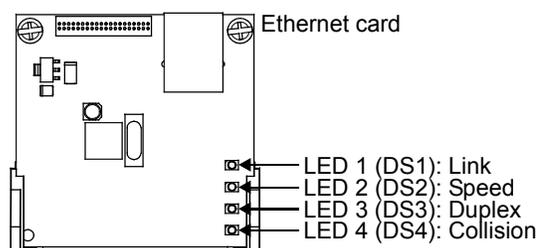
CTM module wiring

The CTM City Tie Module is an interface between the control panel notification appliance circuit and a master box. It provides off-premises signal transmission for systems that must comply with NFPA requirements for Auxiliary Protective Systems. The CTM activates a local energy fire alarm box. For detailed information and wiring, refer to the *CTM Installation Sheet* (P/N 3101025).

Requirements

When connecting a CTM to the panel, the following hardware and programming requirements must be met:

*   The NAC used must be dedicated to CTM use only

*   All alarm zones must be programmed to activate the dedicated NAC

*   The NAC used must not be programmed for signal silence

Wiring

The following wiring diagrams show how the polarity switches during an alarm condition.

Panel in normal condition
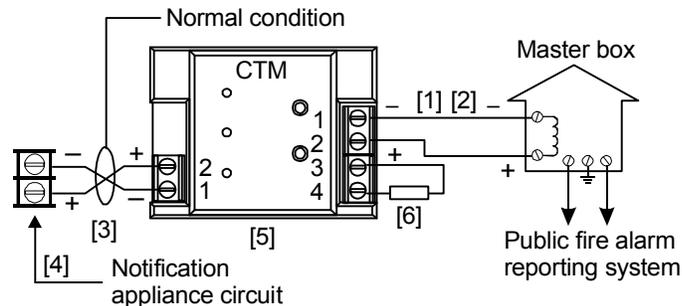
Panel in alarm condition
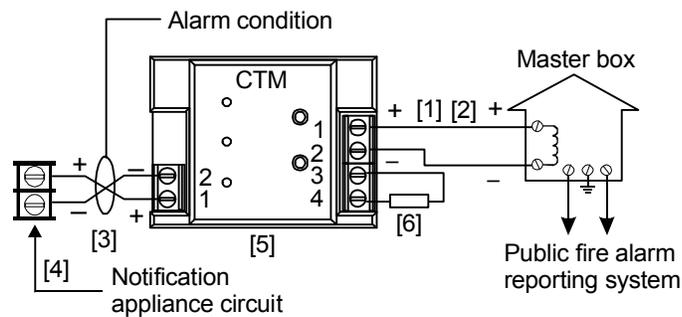
Notes

[1] 200 mA into a 14.5 Ω trip coil max. loop resistance = 25 Ω

[2] This circuit is nonpower-limited and is supervised for grounds and opens, but not shorts

[3] Supervised and power-limited

[4] NAC must be programmed for city tie

[5] CTM must be mounted in the same room as the panel

[6] End-of-line resistor value determined by NAC requirements

RPM module wiring

The Reverse Polarity Module (RPM) is an interface between the control panel and a reverse polarity receiver. It provides off-premise signal transmission for systems that must comply with NFPA requirements. When used as a reverse polarity remote station transmitter, it can be connected to either a single circuit (alarm or alarm and trouble) or up to three circuits (alarm, supervisory, and trouble). Below are application diagrams for using the RPM module. For detailed information and wiring, refer to the *RPM Installation Sheet* (P/N 3100430).

Note: The RPM must be mounted in an MFC-A enclosure immediately adjacent to the panel and in conduit.

Terminal wiring location

Alarm transmitted only

Control panel
TB3

NO

TRBL   C

NC

SUP

NC

ALM   C

NO — From ALRM on RPM (brown wire)

+

— From COM on RPM (black wire)

24VOUT
+ From +24 on RPM (red wire)

EST iO64 and iO500 Technical Reference Manual
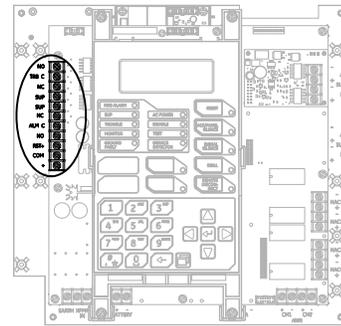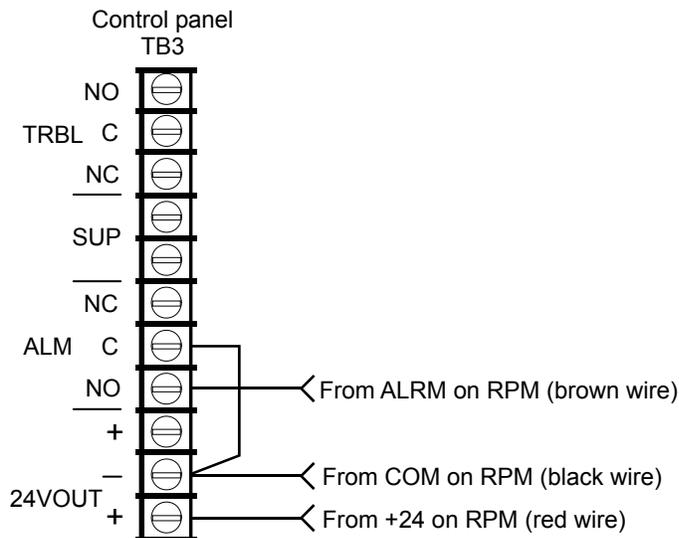
Alarm and trouble transmitted on a single circuit

Note: JP1 on the RPM must be OUT.

Control panel
TB3

NO — From TRBL on RPM (yellow wire)
TRBL C
NC
SUP
NC
ALM C
NO — From ALRM on RPM (brown wire)
+
— From COM on RPM (black wire)
24VOUT + From +24 on RPM (red wire)
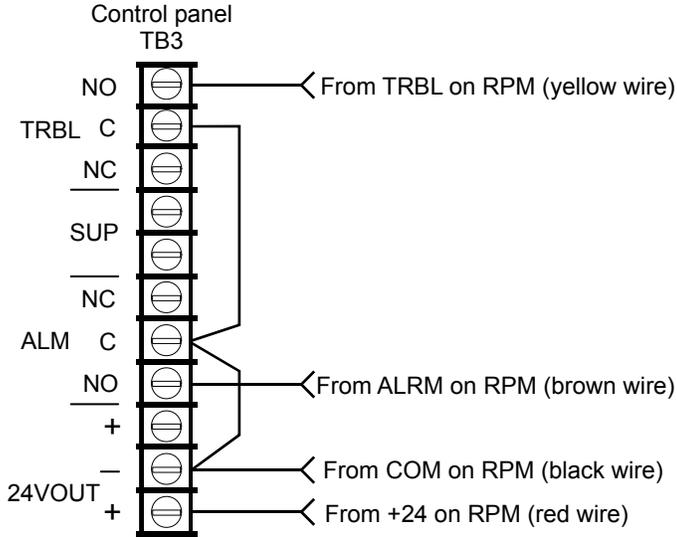
Alarm, supervisory, and trouble transmitted on separate circuits

Note: JP1 on the RPM must be IN.

Control panel
TB3

NO — From TRBL on RPM (yellow wire)
TRBL C
NC
SUP — From SUPV on RPM (orange wire)
NC
ALM C
NO — From ALRM on RPM (brown wire)
+
— From COM on RPM (black wire)
24VOUT + From +24 on RPM (red wire)
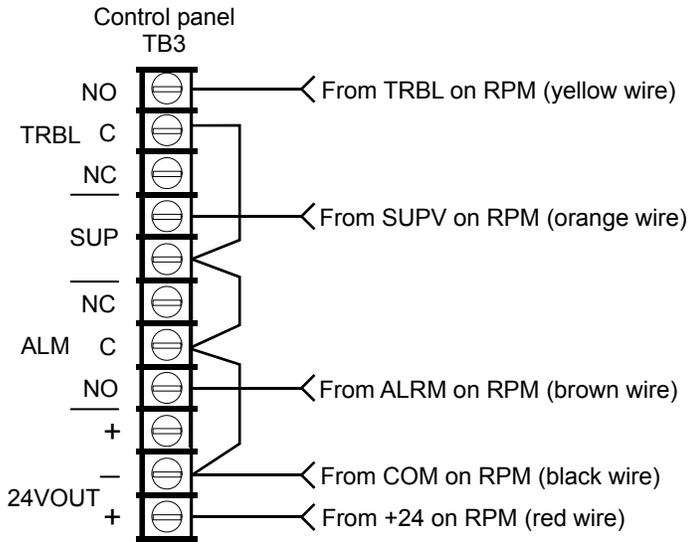
Chapter 3
Programming

Summary

This chapter covers front panel programming.

Content

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.				
Programmable feature or option	Permitted in UL 864? (Y/N)	Possible settings	Settings permitted in UL 864	Panel default
AC fail delay	Y	0 to 15 hours	1, 2, or 3 hours	3 hours
Telephone line cut supervision duration	Y	1 to 120 seconds	10 to 120 seconds	120 seconds
Test signal frequency	Y	0 to 45 days	1 (daily)	1 (daily)
Dialer mode	Y	Dual line Single line Modem only None	Dual line Single line [1] Modem only [2] None [2]	Dual line
Send event restore codes	Y	No Yes	Yes	Yes
Swinger shutdown	N	Off 1 to 255	Off	Off
Zone resound	Y	On Off	On	On
Notes				
[1] Allowed only when the supervising station supervises the telephone line and annunciates fault conditions within 200 seconds				
[2] Prohibited when the control panel is connected to a supervising station				

Getting started

Your control panel can be programmed using either of two methods. First, you can use the panel's LCD display and control buttons. Second, you can use the optional configuration utility (CU) software on a PC. If you are using the configuration utility, refer to its online help system for complete programming instructions.

When programming the panel using the LCD display and control buttons, there are four methods you can use:

- **Auto programming:** You can auto program the panel using the standard factory default settings along with some manual programming. Auto programming allows you to quickly program a panel as a common alarm system. When auto programming, you have the option to label devices and zones, define the type of dialer, etc. To auto program the panel, see "Factory default settings" and the auto programming section for more information.

  Note: When auto programming, the current configuration is lost, meaning that anything you previously programmed is erased. See "Auto programming the panel" for more information.

- **Advanced programming (custom programming):** You can manually custom program the panel by going through each programming option and selecting a value for that option. See the advanced programming section for more information.

- **Incremental programming:** Incremental programming should be used only after the panel has been programmed using either auto programming or advanced programming. Incremental programming allows you to add and label devices and zones in the existing database and does not affect anything that was previously programmed. Incremental programming is typically used to add or remove an additional loop of devices or a large number of devices to your system without changing anything else in the database. See "Incremental programming the panel" for more information.

- **Adding and removing a device to a programmed system:** You can add (or remove) an additional device or several devices to a system that has already been programmed without going into programming mode. Once the device is installed, the panel recognizes it as a new device and indicates on the LCD display that there is an unconfigured device with a "trouble active" event. The device can then be programmed and added to the database. This method is typically used to add or remove just a couple of devices, not an entire loop of devices. See "Adding a

device to a programmed system" and "Removing a device from a programmed system" for more information.

Note: Before programming your system, you must set the time and date and it is recommended that you change the default passwords. See "Setting the time and date" and "Setting the passwords" for more information.

Using the programming control buttons

The following buttons are used to program the panel along with the LCD display.

Button	Description
Arrows	Right arrow: Takes you to a programming option's sub menu and toggles between a programming option's selections
	Left arrow: Toggles between a programming option's selections
	Up arrow: Moves the cursor up
	Down arrow: Moves the cursor down
Menu	Used to open and close the primary menu screen
Enter	Takes you to a programming option's sub menu or jumps you to the Save function in the menu so you can quickly save your data
Keypad	Used to enter numbers and letters needed for the various settings
Cancel	Exits the current menu level and returns to the previous menu level. Exits menu mode if you are at the highest menu level. Deletes text when editing labels, etc.

Programming mode

When you program the panel, you enter programming mode. When you enter programming mode, the panel goes into a trouble condition and the trouble buzzer sounds. If there is no programming activity within four minutes, the panel returns to normal operation.

A level 1 password is required to access the Time and Date and the Control menu options. A level 2 password is required to access all other programming options.

Note: The system automatically logs you out after four minutes of inactivity.

Default passwords

The panel comes standard with a default set of passwords:

- Level 1: 1111

- Level 2: 2222

- Remote annunciator: 3333

Note: It is recommended that you change the default passwords before programming your system.

Factory default settings

The panel comes from the factory with default settings. You can use the default settings or you can configure the panel by changing settings as needed through programming.

Note: Depending on panel equipment and programming, some of these settings may not be visible or available.

Panel operation options

Language: English

Marketplace: US

AC fail delay: 3 hours

Zone resound: On

Reset inhibit: Off

Auto signal silence: Off

Day start: 06:00

Night start: 18:00

Date format
  U.S.: MM/DD/YYYY

Aux power reset: On

LCD banner: Blank

Event notification: Device

Key #1: Disabled

Key #2: Disabled

Other panel options

Daylight savings
  Enabled: No
  Month start: 03
  Month end: 11
  Week start: 1
  Week end: 0
  Weekday start: 0
  Weekday end: 0
  Hour start: 02
  Hour end: 02
  Offset minutes: 60

RS232 CU Enable: Off

Lock remote read: No

Panel configuration options

IP: 192.168.001.003

Subnet mask: 255.255.255.0

Gateway: 000.000.000.000

Panel NACs
   Class: Class B
   Type: Genesis with audible visible silence
   Correlation group: 1
   Event notification
      Trouble > Printer: Yes
      Trouble > Dialer: Acct 1
      Trouble > NET: Yes
      Trouble > CID: 321 (NAC1), 322 (NAC2), 326 (NAC3), 327 (NAC4)
      Disable > Printer: Yes
      Disable > Dialer: Acct 1
      Disable > NET: Yes
      Disable > CID: 521 (NAC1), 522 (NAC2), 526 (NAC3), 527 (NAC4)
      Test > Printer: Yes
      Test > Dialer: Acct 1
      Test > NET: Yes
      Test > CID: 600

Annunciator class: Class B

Annunciators
   Type: Off
   Number expanders: None
   Event notification
      Trouble > Printer: Yes
      Trouble > Dialer: Acct 1
      Trouble > NET: Yes
      Trouble > CID: 334

CMS device

 Dialer
  Type: Dual line
  Acct 1 and 2
     Account ID: FFFF
     Primary receiver #: Blank
     Secondary receiver #: Blank
     Format: CID
     Send restorals: Yes
     Retry time: 5 seconds
     Retry count: 5
     Event notification: Device
  Line 1 and 2
     Dialing: Tone
     Cut Duration/supervision: 120 seconds

Tone wait: 10 seconds
Call disconnect seconds: Off
Test frequency days: 1
Test time: 03:11
Rings to answer: 5
Ring type: Any
Callback: Disabled
Callback #: Blank

Network (receiver)
Enabled: No
Account ID: FFFF
IP: 192.168.1.254
TCP/IP port: 9999
Send restorals: Yes
Event notification: Device
Hello time: 25
Timeout: 40
Receiver #: 2
Line #: 2

Swinger shutdown: Off

Printer
Type: Unsupervised
Event notification
    Trouble > Printer: Yes
    Trouble > Coder: 00-00-00-00
    Trouble > Dialer: Acct 1
    Trouble > NET: Yes
    Trouble > CID: 336

Lock remote read: No

AC voltage: 120

Loop configuration options

Loop class: Class B

Zone
Type: Alarm
Correlation group: 1
Event notification
    Active > Printer: Yes
    Active > Dialer: Acct 1
    Active > NET: Yes
    Active > CID: 110
    Trouble > Printer: Yes
    Trouble > Dialer: Acct 1
    Trouble > NET: Yes
    Trouble > CID: 373

Disable > Printer: Yes
Disable > Dialer: Acct 1
Disable > NET: Yes
Disable > CID: 570
Pre alarm > Printer: Yes
Pre alarm > Dialer: None
Pre alarm > NET: No
Pre alarm > CID: 118
Alarm verify > Printer: Yes
Alarm verify > Dialer: None
Alarm verify > NET: No
Alarm verify > CID: 118
Maintenance alert > Printer: Yes
Maintenance alert > Dialer: Acct 1
Maintenance alert > NET: Yes
Maintenance alert > CID: 393
Test > Printer: Yes
Test > Dialer: Acct 1
Test > NET: Yes
Test > CID: 614

Device
  Day sensitivity: Least
  Night sensitivity: Least
  Day prealarm %: Off
  Night prealarm %: Off
  Base follow: Alarm
  Type (input device): Depends on type of device and marketplace
  Type (output device): Genesis with audible/visible silence
  Correlation group: 1
  Event notification
    Active > Printer: Yes
    Active > Coder: 00-00-00-00
    Active > Dialer: Acct 1
    Active > NET: Yes
    Active > CID: 110
    Trouble > Printer: Yes
    Trouble > Dialer: Acct 1
    Trouble > NET: Yes
    Trouble > CID: 373
    Disable > Printer: Yes
    Disable > Dialer: Acct 1
    Disable > NET: Yes
    Disable > CID: 570
    Pre alarm > Printer: Yes
    Pre alarm > Coder: 00-00-00-00
    Pre alarm > Dialer: None
    Pre alarm > NET: No
    Pre alarm > CID: 118

Alarm verify > Printer: Yes

Alarm verify > Coder: 00-00-00-00

Alarm verify > Dialer: None

Alarm verify > NET: No

Alarm verify > CID: 118

Maintenance alert > Printer: Yes

Maintenance alert > Coder: 00-00-00-00

Maintenance alert > Dialer: Acct 1

Maintenance alert > NET: Yes

Maintenance alert > CID: 393

Test > Printer: Yes

Test > Coder: 00-00-00-00

Test > Dialer: Acct 1

Test > NET: Yes

Test > CID: 614

Mapping: No

Loop 2 enable: No

Setting the time and date

The first step in programming the panel is setting the time and date. You must set the time and date before auto programming or advanced programming the panel.

To set the time and date:

1. Press the Menu button.

2. Choose Program.

3. Choose Date and Time.

4. Enter your password (the minimum of a level one password is required).

5. Enter the current date.

6. Enter the current time.

7. Choose Save.

8. Continue programming your system or press Menu to exit menu mode.

```
Reports
Test
Control
Program
```
⇩
```
Program
Auto Program
Advanced Program
Date and Time
```
⇩
```
   Enter Password
       0000

```
⇩
```
Date and Time
Date      01/01/2007
Time            00:00
Daylight Savings
```
⇩
```
Date and Time
Time            00:00
Daylight Savings
Save
```

Setting daylight saving time

The panel has the ability to recognize and operate in daylight saving time. The daylight saving time options determine how much the system clock is adjusted for daylight saving time. You can set the month, week, day, and hour start time and end time.

To set daylight saving time:

1. Press the Menu button.

2. Choose Program.

3. Choose Date and Time.

4. Enter your password (the minimum of a level one password is required).

5. Choose Daylight Savings.

6. Set daylight saving to:

   Yes: The panel recognizes daylight saving time

   No: The panel does not recognize daylight saving time

7. Set the Month Start (01 to 12).

8. Set the Month End (01 to 12).

9. Set the Week Start (1 to 5, five being the last week of the month).

10. Set the Week End (1 to 5, five being the last week of the month).

11. Set the Weekday Start (1 to 7, Sun-Sat).

12. Set the Weekday End (1 to 7, Sun-Sat).

13. Set the Hour Start (00 to 23).

14. Set the Hour End (00 to 23).

15. Set the Minutes Offset (0 to 255). This is how many minutes you want the system clock adjusted when daylight saving time begins and ends. The default is 60 minutes.

16. Press Enter.

17. Choose Save.

18. Continue programming your system or press Menu to exit menu mode.

```
Reports
Test
Control
Program
```
⇩
```
Program
Auto Program
Advanced Program
Date and Time
```
⇩
```
   Enter Password
        0000

```
⇩
```
Date and Time
Date      01/01/2007
Time           00:00
Daylight Savings
```
⇩
```
Daylight Savings
Enabled          No>
Month Start       03
Month End.... ....11
```
⇩
```
Date and Time
Time           00:00
Daylight Savings
Save
```

Programming example

If you want daylight saving time to start on March 11 at 2:00 a.m. and end on November 4 at 2:00 a.m. and change by 60 minutes (1

hour), you would enter the following when programming:

Month start: 03
Week start: 2
Week day start: 1
Hour start: 02

Month end: 11
Week end: 1
Week day end: 1
Hour end: 02

Offset minutes: 60

Setting the passwords

The second step in programming the panel is setting the level one, two, and remote annunciator passwords.

Note: It is recommended that you change the default passwords before programming your system.

Note: The system will automatically log you out after four minutes of inactivity.

To set the passwords:

1. Press the Menu button.

2. Choose Program.

3. Choose Password.

4. Enter the level two password.

5. Select Level 1, Level 2, or Remote Annunciator.

6. Type the old password.

7. Press Enter.

8. Type the new password.

9. Press Enter.

10. Repeat steps 5 through 9 for each password level.

11. Continue programming your system or press Menu to exit menu mode.

```
Reports
Test
Control
Program
```
⇩
```
Program
Date and Time
Clear History
Password
```
⇩
```
   Enter Password
       0000
```
⇩
```
Password
Level 1
Level 2
Remote Ann.
```
⇩
```
  Enter Old Password
       0000
```
⇩
```
  Enter New Password
       0000
```
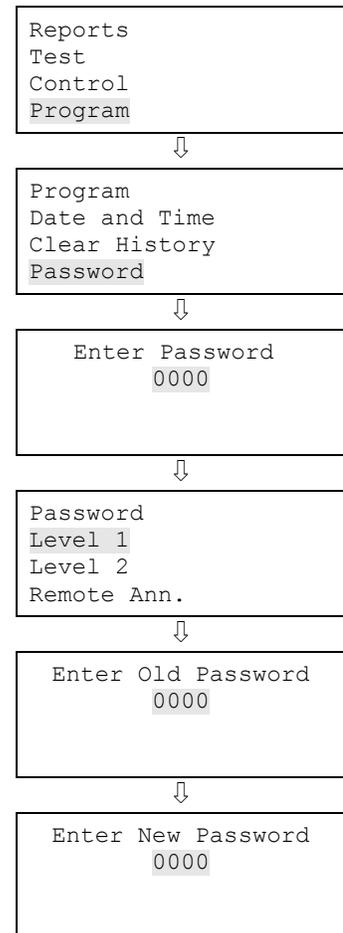
Restoring the factory default settings

When you restore the factory defaults, you return the panel (database) to the factory-programmed settings. The purpose of restoring the defaults is to return the panel to its original settings and operation so that you can start fresh using these settings or custom program the panel.

Note: Language, marketplace, and loop device configuration settings are not changed when the default settings are restored.

To restore the default settings:

1. Press the Menu button.

2. Choose Program.

3. Choose Restore Defaults.

4. Enter your level two password.

5. Select either Panel Only, Dialer Only, or All.

   Panel only: Restores only the panel's defaults (panel operation options and panel configuration options)

   CMS only: Restores only the dialer, network, and swinger shutdown defaults

   Panel and CMS: Restores both the panel and CMS device defaults

6. Press Enter.

7. Return to the Program menu.

8. Choose Panel Restart.

9. Choose Yes.

   The panel restarts, and the factory default settings are reloaded into the database.

```
Reports
Test
Control
Program
```
⇩
```
Program
Clear History
Password
Restore Defaults
```
⇩
```
   Enter Password
        0000

```
⇩
```
Restore Defaults
Panel Only
CMS Only
Panel and CMS
```
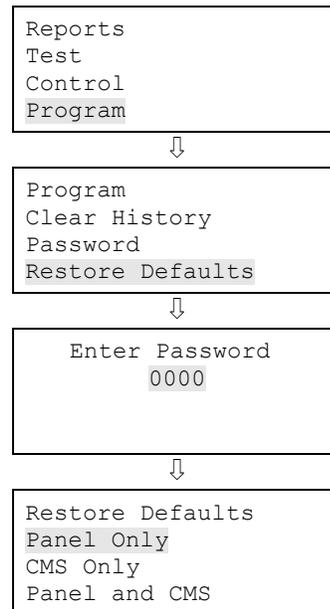
Programming the programmable keys

There are two control panel buttons that can be custom programmed to perform an operation. By default, the buttons are disabled and nothing happens when you push them. The buttons can be programmed to control or operate a device, zone, or panel NAC. For example, you can program a button to disable a panel NAC when it is pushed. The buttons can be labeled as to their function with a slip-in label. To operate the buttons, you must be logged on with a minimum level one password.

Note: The buttons can be programmed before they are enabled. For the buttons to operate once they are programmed, they must be enabled in the panel operation options. Refer to "Panel operation programming" for more information.

You can program the buttons to:

• Enable/disable or activate/restore panel NACs

• Enable/disable or activate/restore devices

• Enable/disable zones

Programmable keys
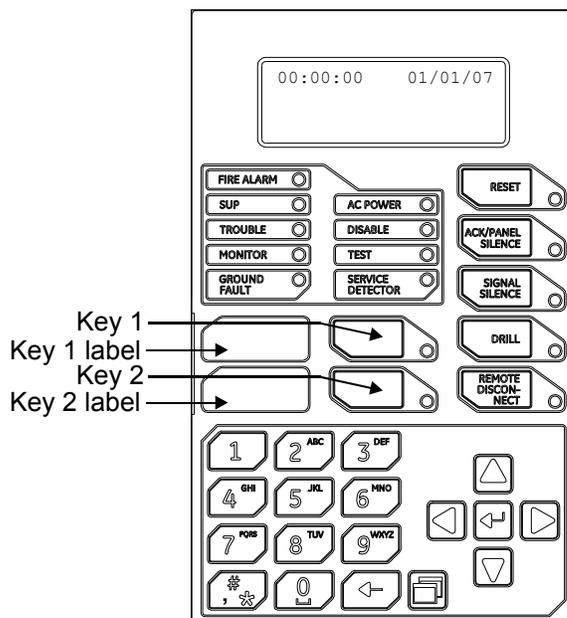
To program a key:

1. Press the Menu button.

2. Choose Program.

```
Reports
Test
Control
Program
```
⇩
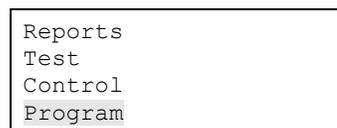
3. Choose Programmable Keys.

4. Enter the level two password.

5. Choose the key you want to program (Key #1 or Key #2).

6. Choose New List.

    Note: If the key is already programmed, you can choose Edit List to reprogram the key. Edit only allows you to add or remove NACs, devices, or zones; it does not allow you to change the type of operation (e.g. disable to enable).

    Note: If the key is currently active (pressed), "Key is active" is displayed and you cannot program the key until it is deactivated.

7. Select Controls.

8. Choose one of:

    Panel NAC: Programs the key to enable, disable, activate, or restore panel NACs.

    Device: Programs the key to enable, disable, activate, or restore a single device or multiple devices.

    Zone: Programs the key to enable or disable zones.

9. Select Operation.

10. Choose either En/Dis or Act/Res.

    Note: If you selected Zone above, you can only select enable or disable for operation.

11. Press Enter.

    Either the panel NAC, device, or zone "add" screen is displayed depending on what you picked in step 8.

12. Add the panel NAC, device, or zone that you want the key to control using the following:

    Panel NAC: Select the NAC (number) that you want to add and press Enter. The NAC number will automatically increment to the next NAC number so that you can quickly add all desired NACs. If the NAC is already added, "remove" is displayed indicating that you can only remove the NAC, not add it. When finished, press Back. Go to step 13.

    Device: Select the loop (number) the device is on, and then select the device (number) that you want to add and press Enter. If you select an input device "invalid device" is displayed, meaning you cannot add an input device. The device number will automatically increment to the next device number so that

```
Program
Unattended Dnld
Laptop Enable
Programmable Keys
```
⇩
```
  Enter Password
      0000

```
⇩
```
Programmable Keys
Key #1
Key #2
```
⇩
```
Key #1
Edit List
New List
Save
```
⇩
```
Key #1
Controls   Panel NAC>
Operation     En/Dis>
```
⇩
```
Enter to       Add<>
Panel NAC          1
NAC 1
<Back        <Enter
```
-OR-
```
Enter to       Add<>
Zone              01
Zone 1
<Back        <Enter
```
-OR-
```
Device
Loop           01<>

```
⇩
```
Enter to       Add<>
Device           001
Loop 1 Device 1
<Back        <Enter
```
⇩
```
Enter to       Add<>
Device           001
Loop 1 Device 1
<Back        <Enter
```
⇩
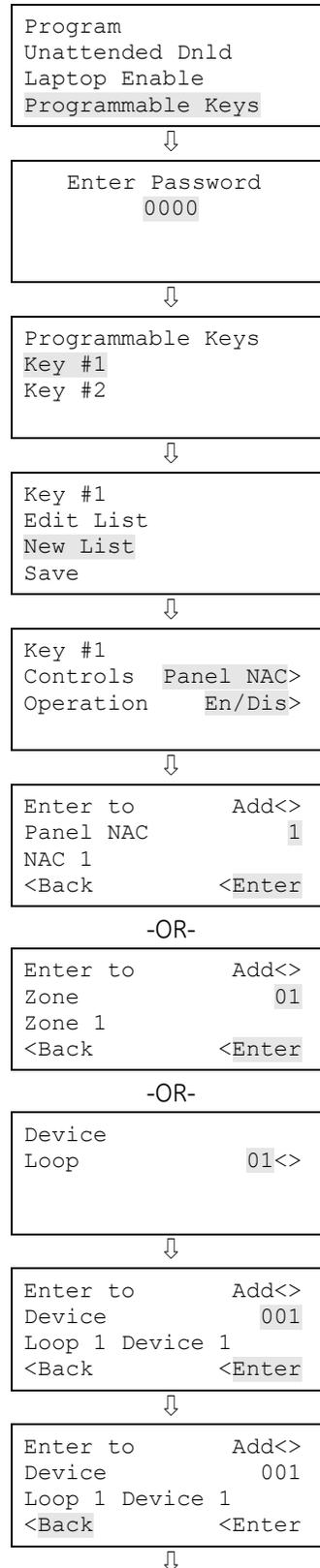
you can quickly add all desired devices. If the device is already added, "remove" is displayed indicating that you can only remove the device, not add it. When finished, press Back. Go to step 13.

Zone: Select the zone (number) that you want to add and press Enter. The zone number will automatically increment to the next zone number so that you can quickly add all desired zones. If the zone is already added, "remove" is displayed indicating that you can only remove the zone, not add it. When finished, press Back. Go to step 13.

13. Choose Save.

    The Programmable Keys screen is displayed.

14. Program the second key using steps 5 to 13 or press Menu to exit menu mode.

```
Key #1
Edit List
New List
Save
```

Clearing the history

The panel maintains 1,000 system or user events. The event record contains the event time, the event type, the event state, and the event ID. The event time is the time and date of the event activation or restoration. All of these records are stored in the panel's history database and can be cleared (deleted) if needed. Once the history records are cleared, all new panel events are stored in history. Reasons for needing to clear the history records:

* Once the system is installed, you may want to clear history before turning over the system to the building owner so they can start with a clean history.

* If your system history is full of events from a faulty device, problem, or situation, you may want to clear the history once the problem is fixed so you can start with a clean history.

Note: When panel history is full, as new events take place, the oldest events are deleted.

To clear the history:

1. Press the Menu button.

2. Choose Program.

3. Choose Clear History.

4. Enter the level two password.

5. Select Yes to clear history or No to leave history unchanged.

6. Press Enter.

7. Continue programming your system or press Menu to exit menu mode.

```
Reports
Test
Control
Program
```
⇩
```
Program
Advanced Program
Date and Time
Clear History
```
⇩
```
   Enter Password
        0000

```
⇩
```
Clear History
Yes
No
```
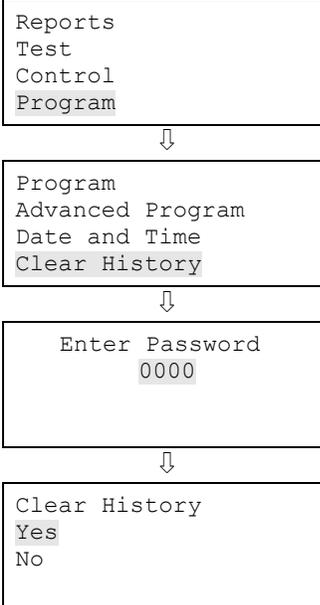
Restarting the panel

The Panel Restart command restarts (reboots) the panel without having to cycle AC power.

To restart the panel:

1. Press the Menu button.

2. Choose Program.

3. Choose Panel Restart.

4. Enter your level two password.

5. Choose Yes to restart the panel.

    — or —

    Choose No to cancel.

```
Reports
Test
Control
Program
```
⇩
```
Program
Laptop Enable
Programmable Keys
Panel Restart
```
⇩
```
   Enter Password
        0000

```
⇩
```
Panel Restart
Yes
No
```
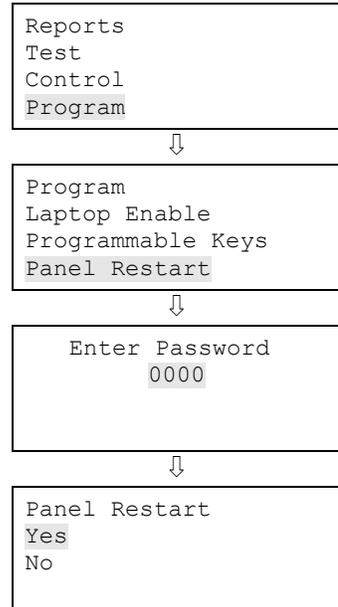
Enabling the RS232 CU Enable command

The RS232 CU Enable command is used to turn on the ability for a PC running the configuration utility (CU) to communicate with the control panel using the optional RS-232 card for the purposes of uploading or downloading panel data. This command turns off printing to the printer (if one is connected) and allows your CU PC to communicate with the panel.

Note: The RS232 CU Enable command times out (turns off) after four minutes of inactivity, meaning that if the command is enabled but does not connect to the CU PC within four minutes, the command turns off and must be reenabled.

To enable the RS232 CU Enable command:

1. If you are using a printer, disconnect the printer cable from the RS-232 card.

2. Connect the configuration utility computer to the RS-232 card.

3. Press the Menu button.

4. Choose Program.

5. Choose RS232 CU Enable.

   The RS232 CU Enable screen is displayed.

6. Choose On.

   The panel can now communicate with the CU.

7. When finished, disconnect the PC from the RS-232 card.

8. Turn off RS232 CU Enable.

9. Reconnect the printer cable to the RS-232 card if needed.

```
Reports
Test
Control
Program
```
⇩
```
Program
Restore Defaults
Unattended Dnld
RS232 CU Enable
```
⇩
```
RS232 CU Enable
On
Off
```
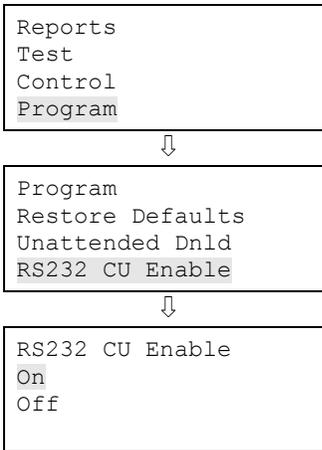
Contact ID event codes

Many of the events that take place in a fire alarm control panel are sent to a central monitoring station (CMS) via a dialer or over a network. The following table lists the control panel's panel and loop events and their default Contact ID (CID) codes. Some events do not have a CID code. Through programming, you can assign whatever code you desire to an event that does not have a code. You can also change the default codes to whatever code you desire.

Event	CID
AC power (disable)	500
AC power (trouble)	301
Alarm active	110
Annunciator trouble	334
Aux. power 1 (disable)	500
Aux. power 1 (trouble)	312
Aux. power 2 (disable)	500
Aux. power 2 (trouble)	312
Battery charger (disable)	500
Battery charger (trouble)	309
Battery low (disable)	500
Battery low (trouble)	302
Battery missing (disable)	500
Battery missing (trouble)	311
Clear history	621
Common alarm	110
Common disable	500
Common monitor	140
Common supervisory	200
Common trouble	373
Common trouble for network dialer	373
Common trouble for telco dialer	373
Date	625
Device trouble	373
Device disable	570
Device pre alarm	118

Event	CID
Device alarm verify	118
Device maintenance alert	393
Device test	614
Dialer disable/remote disconnect	551
Dialer line 1 fault (disable)	500
Dialer line 1 fault (trouble)	351
Dialer line 2 fault (disable)	500
Dialer line 2 fault (trouble)	352
Dialer deliver fail	354
Dialer normal test	602
Dialer abnormal test	608
Dialer configuration	354
Drill	601
Duct active	116
Ground fault (disable)	500
Ground fault (trouble)	310
Heat active	114
Internal fault	307
Loop 1 initialization	000
Loop 1 fault (disable)	500
Loop 1 fault (trouble)	331
Loop 1 map fault	331
Loop 1 card fault (disable)	500
Loop 1 card fault (trouble)	333
Loop 1 unconf alarm (disable)	500
Loop 1 unconf alarm (active)	110
Loop 1 unconf trbl (disable)	500
Loop 1 unconf trbl (trouble)	331
Loop 1 map mismatch	331
Loop 1 over limits	331
Loop 1 address zero	331
Loop 1 mapping	000
Loop 2 initialization	000
Loop 2 fault (disable)	500

Event	CID
Loop 2 fault (trouble)	331
Loop 2 map fault	331
Loop 2 card fault (disable)	500
Loop 2 card fault (trouble)	333
Loop 2 unconf alarm (disable)	500
Loop 2 unconf alarm (active)	110
Loop 2 unconf trbl (disable)	500
Loop 2 unconf trbl (trouble)	331
Loop 2 map mismatch	331
Loop 2 over limits	331
Loop 2 address zero	331
Loop 2 mapping	000
Monitor active	140
NAC1 trouble	321
NAC2 trouble	322
NAC3 trouble	326
NAC4 trouble	327
NAC1 disable	521
NAC2 disable	522
NAC3 disable	526
NAC4 disable	527
NAC test	600
Net rcvr conf fault	354
Net rcvr comm fault (disable)	500
Net rcvr comm fault (trouble)	354
Panel silence	315
Printer trouble	336
Program mode	627
Pull active	115
Reset	305
Reset/Silence inhibit	000
Self test fault	307
Signal silence	328
Smoke active	111

Event	CID
Smoke/Heat active	111
Supervisory active	200
System startup	000
System AC power (disable)	500
System AC power (trouble)	301
Test fire	604
Time	625
Walk test	607
Waterflow active	113
Zone active	110
Zone trouble	373
Zone disable	570
Zone pre alarm	118
Zone alarm verify	118
Zone maintenance alert	393
Zone test	614

Auto programming the panel

Auto programming allows you to quickly program a panel as a common alarm system. You can auto program the panel using the standard factory default settings along with some manual programming. Refer to "Factory default settings" for a list of all of the factory default settings. When auto programming, you have the option to label devices and zones, program some dialer options, etc. Auto programming places all input devices and NACs in correlation group 1 meaning that every alarm event turns on all of the NACs. For more information on correlation groups, refer to "Correlation groups programming."

Caution: When auto programming, your current loop configuration settings are lost, meaning that anything you previously programmed is erased.

Note: Don't forget to set the time and date and it is recommended that you also change the default passwords before auto programming your system. See "Setting the time and date" and "Setting the passwords" for more information.

Note: If you choose to label devices during auto programming, devices are labeled by selecting their device (address) number and then labeling the device. It is important for you to have a printout of the Device Details > Serial Number report to correlate the device address with the default label and serial number. This will make device labeling much easier.

Auto programming options

Auto zoning	Yes: The system automatically finds all of the devices connected to your system and assigns them to a zone. The number of devices assigned to a zone is based on the type of panel:
	64 point panel: Four devices per zone
	250/500 point panel: Sixteen devices per zone
	No: The system automatically finds all of the devices connected to your system and does not assign them to a zone
Enable NET	Yes: Enables the panel to communicate to the central monitoring station over an Ethernet network
	No: Disables the panel from communicating to the central monitoring station over an ethernet network
Dialer	Yes: Dialer is enabled and configured as a dual line, which means that all messages are sent to two separate receivers that have different phone numbers and account codes
	No: Dialer is not enabled
	Note: Not all dialer programming options are acceptable for UL/ULC installations. Refer to "UL 864 programming requirements" for details.
Event notification	Zone: When a device is a member of a zone, only the zone information is sent to the LCD display, LEDs, printer, and dialer. Note: Device level reporting configuration is not available.
	Zone/device: Zone information is sent to the LCD display and LEDs. Device information is sent to the printer and dialer. Note: Zone/device reporting locations can be configured through custom programming.
	Device: Only device information is reported, no zone information

Label devices	Yes: Enables labeling of devices
	No: Disables labeling of devices
Label zones	Yes: Enables labeling of zones
	No: Disables labeling of zones
Follow	Set base follow to:
	Alarm: The base activates its relay when the detector goes into an alarm condition
	Alarm verify: The base activates its relay when the detector goes into alarm or alarm verification. The base will not restore until both events have been restored.
	Alarm prealarm: The base activates its relay when the detector meets the prealarm condition or goes into an alarm condition. The base will not restore until both events have been restored.
	Verify: The base activates its relay only when the detector goes into alarm verification. The base will not restore until the verification event restores, which can happen if the device goes into alarm.
	Prealarm: The base activates its relay when the detector goes into a prealarm condition. The base will not restore until the prealarm event restores, which can happen if the device goes into alarm. If you do not set a prealarm threshold, the base will never activate.
	Base follow refers to how the detector base operates in an alarm condition initiated by the detector. The bases that work with this option are the sounder base and relay base. For example, if the detector has a prealarm setting, but base follow is set to alarm, the base's relay won't activate until the detector goes into an alarm condition. It won't operate on the prealarm condition.

To auto program a panel:

1. Press the Menu button.

2. Choose Program.

3. Choose Auto Program.

4. Enter the level two password.

5. On the "Current config. will be lost screen!," select Continue to continue with auto programming or Cancel to return to the programming menu.

6. Set the auto programming options using the "Auto programming options" table above.

   Note: Use the right or left arrow button to make your selection for each option. Do not use the Enter button. The Enter button begins the auto programing operation no matter which option the cursor is on. Also, the options you select are preserved and will be displayed the next time you auto program.

7. When finished, press Enter.

   The panel begins auto programming and displays the number of devices on your system. If you have more than one loop, the device counts are per loop. If you previously programmed the panel, the system displays the number of old devices and the

```
Reports
Test
Control
Program
```
⇩
```
Program
Incremental Program
Auto Program
Advanced Program
```
⇩
```
    Enter Password
         0000

```
⇩
```
Current config.
will be lost!
Continue
Cancel
```
⇩
```
Auto Program
Auto Zoning      Yes>
Enable NET        No>
Dialer           Yes>
```
⇩
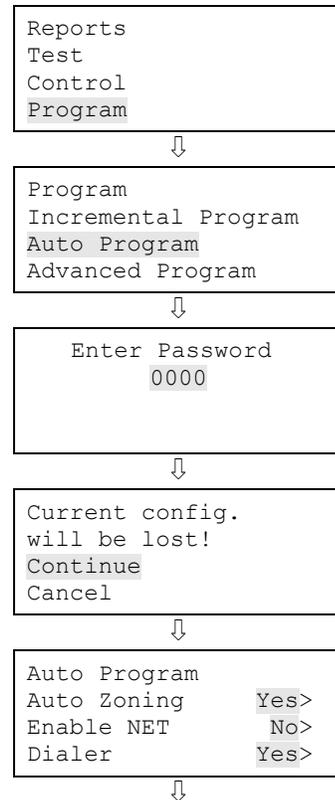
panel, the system displays the number of old devices and the number of new devices.

8. Press Enter to continue.

    Auto programming continues based on the settings you made above.

9. When prompted, program the options you selected using the procedures that follow. For example, if you are using a dialer, auto programming requires you to program specific dialer options.

10. When auto programming is complete, the system returns you to the banner screen.

```
    Auto Program
    System Busy
  ################
<Back          <Cancel
```
⇩
```
Devices      Old/New
Loop 1       XXX/YYY
Loop 2       XXX/YYY
<Continue
```
-OR-
```
Devices:     Old/New
             XXX/YYY

<Continue
```

Dialer options programming

Account 1	Account ID: Enter four-digit ID code for account 1 (Note: If you do not change the default of FFFF, no events will be sent.)

Primary receiver number: Enter the primary receiver's phone number. Up to 20 digits (0-9, *, #, and ,). The comma causes a two second delay in dialing. The number or hash symbol (#) and the asterisk symbol (*) are used with calling feature codes and services. Consult your telephone service provider for more information.

Secondary receiver number: Enter the secondary receiver's phone number. Up to 20 digits (0-9, *, #, and ,). The comma causes a two second delay in dialing.

Format: CID

    CID: Contact ID is the alarm format that the monitoring facility (DACR) will receive. See "Contact ID event codes" for more information.

Event notification: Set event notification (event reporting) to:

    Device: Only device information is reported/transmitted, no zone information. Note: This setting uses default device event notification settings for reporting events. Refer to "Factory default settings" for more information.

    Zone: When a device is a member of a zone, only the zone information is reported/transmitted, no device information.

Account 2	Account ID: Enter four-digit ID code for account 2

Primary receiver number: Enter the primary receiver's phone number (up to 20 digits).

```
Account 1
Account ID      6769
Primary Recver#    >
Secondary Recver#  >
```
⇩
```
Account 2
Account ID      6769
Primary Recver#    >
Secondary Recver#  >
```
⇩
```
Format        CID<>
Event Notif.  Event>
--------------------
Save
```

number (up to 20 digits).

Secondary receiver number: Enter the secondary receiver's phone number (up to 20 digits).

Format: CID

CID: Contact ID is the alarm format that the monitoring facility (DACR) will receive. See "Contact ID event codes" for more information.

Event notification: Set event notification (event reporting) to:

Device: Only device information is reported/transmitted, no zone information. Note: This setting uses default device event notification settings for reporting events. Refer to "Factory default settings" for more information.

Zone: When a device is a member of a zone, only the zone information is reported/transmitted, no device information. Note: This setting uses default zone event notification settings for reporting events. Refer to "Factory default settings" for more information.

Event: Only the event type (alarm, supervisory, trouble, etc.) is reported/transmitted, no device or zone information. Note: This setting uses the default CMS event notification settings for reporting events. Refer to "Factory default settings" for more information.

NET options programming

```
Network
Account ID     676968
IP   000.000.000.000
Event Notif.   Event>
```
⇩
```
Network
Receiver#         000
Line#             000
Save
```

Account ID	Enter the central monitoring station (CMS) account's six-digit ID code.
IP	Enter the IP address for the CMS.
Event notification	Set event notification (event reporting) to:
	Device: Only device information is reported/transmitted, no zone information. Note: This setting uses default device event notification settings for reporting events. Refer to "Factory default settings" for more information.
	Zone: When a device is a member of a zone, only the zone information is reported/transmitted, no device information. Note: This setting uses default zone event notification settings for reporting events. Refer to "Factory default settings" for more information.
	Event: Only the event type (alarm, supervisory, trouble, etc.) is reported/transmitted, no device or zone information. Note: This setting uses the default CMS event notification settings for reporting events. Refer to "Factory default settings" for more information.
Receiver number	Enter the CMS receiver number. Specifies the CMS receiver number that you want displayed in the message sent to the receiver. This number is user-defined.
Line number	Enter the CMS receiver line number. Specifies the receiver's line number that you want displayed in the message sent to the receiver. This number is user-defined.

Label your devices:

```
Loop 1    Device 001
Label goes here
Label continued
<Save        <Back
```

1. Next to "Device," select the device (number) that you want to label.

2. Enter a text label for the device (up to 40 characters and two lines). The default label is "Loop X Device XXX."

3. Press Enter to save the label and go to the next device (number).

    Note: Pressing the Enter button saves the current label and then goes to the next available device so that you can quickly go to each device and label it.

4. Enter a text label for the device (up to 40 characters and two lines).

5. Repeat steps 3 and 4 until all devices are labeled.

6. When you are finished labeling, make sure the cursor is on the device number field, and press the Cancel button to exit and go to the next auto programming option.

Label your zones:

```
Zone              01>
Label goes here
Label continued
<Save        <Back
```

1. Next to "Zone," select the zone (number) that you want to label.

2. Enter a text label for the zone (up to 40 characters and two lines). The default label is "Zone XX."

3. Press Enter to save the label and go to the next zone (number).

    Note: Pressing the Enter button saves the current label and then goes to the next zone number so that you can quickly go to each zone and label it.

4. Enter a text label for the zone (up to 40 characters and two lines).

5. Repeat steps 3 and 4 until all zones are labeled.

6. When you are finished labeling, make sure the cursor is on the zone number, and press the Cancel button to exit and go to the next auto programming option.

Advanced programming overview

Advanced programming (custom programming) allows you to manually custom program the panel by going through each programming option and selecting a setting for that option. Most options have a factory default setting, which can be used, or you can manually select another setting that works for your system. Refer to "Factory default settings" for a list of all of the defaults.

In advanced programming, you can custom program the loop configuration options (loops, devices, zones, etc.), panel configuration options (annunciators, dialer, network, printer, etc.), panel operation options (language, marketplace, AC fail delay, etc.), panel events, and loop events. All of these options can be programmed directly from the front panel.

To do advanced programming, you must have a level two password and it is recommended that you complete the programming worksheets and have them available before beginning to program your system. Go to the "Worksheets" appendix to get a copy of each worksheet.

Note: Don't forget to set the time and date and it is recommended that you change the default passwords before auto programming your system. See "Setting the time and date" and "Setting the passwords" for more information.

Programming panel and loop options

Advanced programming lets you customize the following options:

- Loop configuration options

- Panel operation options

- Panel configuration options

Loop configuration options include:

- Correlation groups programming

- Device programming

- Loop 2 enable

- Loop class programming

- Zone programming

Panel operation options include:

- Language

- Marketplace

- AC fail delay

- Zone resound

- Reset inhibit

- Auto signal silence

- Day start

- Night start

- Daylight savings

- Date

- Aux power reset

- LCD banner

- Key #1

- Key #2

Panel configuration options include:

- Annunciator class programming

- Annunciator programming

- CMS device programming

- Dialer programming

- NAC programming

- Network programming

- Network card programming

- Printer programming

Advanced programming for panel and loop options is covered in the following topics in this chapter.

Programming events

Advanced programming lets you create custom responses to these types of events:

- Panel events

- Loop events

Advanced programming for panel and loop events is covered in the last two topics in this chapter.

Loop configuration options

The loop configuration options are the loop class, zone, device, mapping, and correlation groups. Each option has settings that can be programmed. Most options also have a factory default setting, which can be used with no additional programming. See "Factory Default Settings" for more information.

To access the loop configuration options:

1. Press the Menu button.

2. Choose Program.

3. Choose Advanced Program.

4. Enter the level two password.

5. Choose Loop Configuration.

6. Program the options.

```
Reports
Test
Control
Program
```

⇩

```
Program
Incremental Program
Auto Program
Advanced Program
```

⇩

```
   Enter Password
        0000

```

⇩

```
Advanced Program
Loop Configuration
Panel Configuration
Panel Operation
```
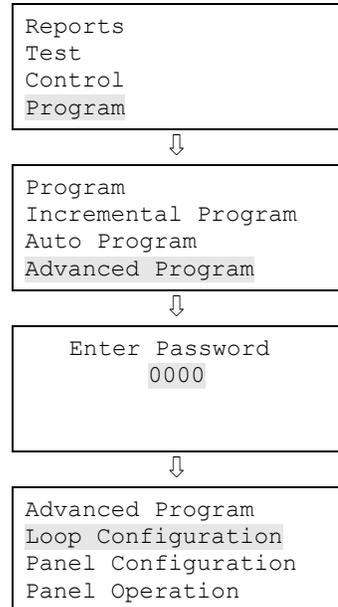
Correlation groups programming

A correlation group is a collection of inputs and outputs (input devices, output devices, NACs, and zones). Correlation groups link input devices to output devices. The input devices in the correlation group are associated with the output devices in the correlation group. Activation of an input device in the correlation group turns on every output device in the correlation group. For example, if you assign a zone with five input devices and five output devices to Group 1, whenever one of the input devices activates in Group 1, all five output devices in Group 1 turn on.

Correlation group operation
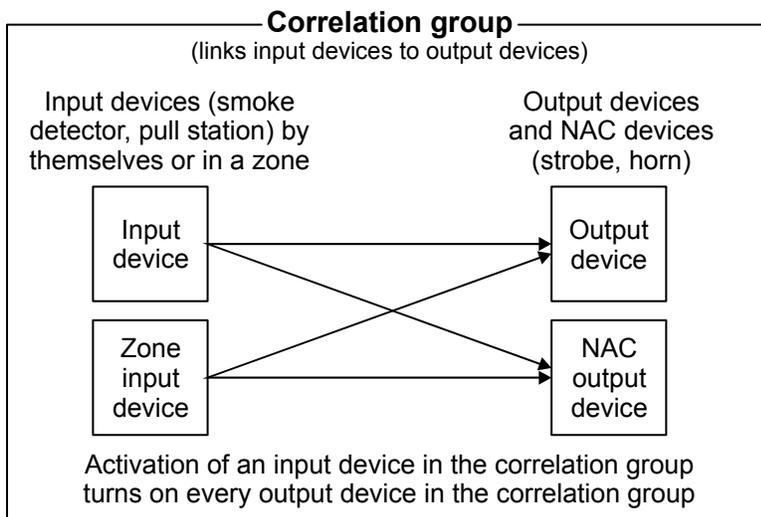
A correlation group can contain any combination of input devices, output devices, NACs, and zones. Input devices, output devices, NACs, and zones can be assigned to more than one correlation group. There are 32 available correlation groups.

Inputs and outputs to correlation groups
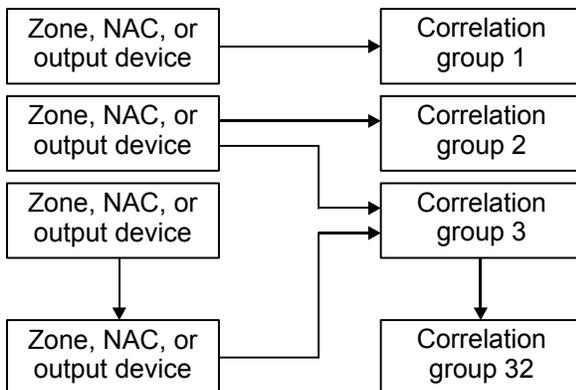
Note: By default, NACs, zones, and devices are assigned to correlation group 1.

To program correlation groups:

1. Access the loop configuration options menu. See "Loop configuration options."

2. Choose Correlation Groups.

3. Choose a correlation group (1 to 32).

4. Choose one of the following:

   Add/Rem Device to add or remove a device.

   Add/Rem Zone to add or remove a zone.

   Add/Rem Panel NAC to add or remove a NAC.

5. If you chose Add/Rem Device, choose the loop the device is on. Note: If your panel only has one loop, the loop selection screen does not display. Go to the next step.

6. Enter the device, zone, or NAC number.

7. On the Status line, press Enter to include it or exclude it.

   When it is added to the correlation group, "Included" is displayed.

   When it is removed from a correlation group, "Excluded" is displayed.

8. Repeat steps 5 and 6 to add or remove other devices, zones, or NACs.

9. Repeat steps 3 to 7 until each correlation group is programmed as desired.

10. Continue programming your system or press Menu to exit menu mode.

```
Loop Configuration
Loop Class
Zone
Correlation Groups
```
⇩
```
Correlation Groups
Number          01<>
```
⇩
```
Correlation Group 01
Add/Rem Zone
Add/Rem Device
Add/Rem Panel NAC
```
⇩
```
Add/Rem Device
Device         001<>
Status      Excluded
<-Enter      <-Cancel
```

Device programming

Each device in your system must be programmed to set its operating parameters, such as device type, label, and event notification. A device is an input (smoke detector) or output (strobe) device that operates on a notification appliance circuit or device loop.

Note: Devices are programmed by selecting their device (address) number and then programming the device. It is important for you to have a printout of the Device Details > Serial Number report to correlate the device address with the default label and serial number. This will make device programming much easier. Refer to the "Device details report" in the Reports chapter.

Device programming options

Zone	Select the zone you want to add this device to or select Off if you are not adding the device to a zone.
	Note: Do not mix device and zone types. For example, do not place a nonlatching supervisory device in an alarm zone. When the supervisory device activates and an alarm event is initiated, the alarm event automatically clears when the device restores without having to reset the panel.
Label	Enter a text label for the device (up to 40 characters and two lines). The two lines below the device number line on the screen is the device label. When finished, choose Save.
Correlation groups	Select the correlation group that you want to correlate/assign the device to. Select Yes to add the device to the correlation group or No to not add the device to the correlation group. When finished, choose Save.
	Note: A correlation group is a collection of NACs and/or output devices (strobes) that responds to an input device (smoke detector). When you program the loop devices, you will have to correlate/assign the desired input device or zone to the correlation group that you want to activate. Refer to "Correlation groups programming" for more information.
Event notification	Set the active, trouble, disable, prealarm, alarm verify, maintenance alert, and test event information by choosing one and then setting the notification information. When finished, choose Save. See "Factory default settings" for device event notification default settings.
	Printer: Yes or No - Specifies if event information is printed
	Coder: 4-digit coded output, which is played in response to alarm conditions (00-00-00-00 to 99-99-99-99)
	Dialer:
	Acct 1 & 2: Event information is sent to both dialer accounts
	Acct 1: Event information is sent to dialer account one
	Acct 2: Event information is sent to dialer account two
	None: Event information is not sent to the dialer
	NET: Yes or No. Specifies if event information is sent to the connected network
	CID: Contact ID event code (000 to 999)
Day sensitivity	Set the daytime smoke level sensitivity to least, less, more, normal, or most.
Night sensitivity	Set the nighttime smoke level sensitivity to least, less, more, normal, or most.

Day prealarm%	Set the daytime prealarm percentage to Off or 50, 55, 60, 65, 70, 75, 80, or 90 percent. This is the amount of smoke that indicates a prealarm event before an actual alarm event is indicated. The percentage is based on the sensitivity level selected above. For example, if you select normal sensitivity and select 50 percent for your prealarm, when smoke levels reach 50% of the normal smoke level required to initiate an alarm, a prealarm event will be indicated.
Night prealarm%	Set the nighttime prealarm percentage to Off or 50, 55, 60, 65, 70, 75, 80, or 90 percent. This is the amount of smoke that indicates a prealarm event before an actual alarm event is indicated. The percentage is based on the sensitivity level selected above. For example, if you select normal sensitivity and select 50 percent for your prealarm, when smoke levels reach 50% of the normal smoke level required to initiate an alarm, a prealarm event will be indicated.
Base type	Set to the type of base (standard, relay, isolator, or sounder) being used with the detector.
Follow	Set base follow to:
	Alarm: The base activates its relay when the detector goes into an alarm condition
	Alarm verify: The base activates its relay when the detector goes into alarm or alarm verification. The base will not restore until both events have been restored.
	Alarm prealarm: The base activates its relay when the detector meets the prealarm condition or goes into an alarm condition. The base will not restore until both events have been restored.
	Verify: The base activates its relay only when the detector goes into alarm verification. The base will not restore until the verification event restores, which can happen if the device goes into alarm.
	Prealarm: The base activates its relay when the detector goes into a prealarm condition. The base will not restore until the prealarm event restores, which can happen if the device goes into alarm. If you do not set a prealarm threshold, the base will never activate.
	Base follow refers to how the detector base operates in an alarm condition initiated by the detector. The bases that work with this option are the sounder base and relay base. For example, if the detector has a prealarm setting, but base follow is set to alarm, the base's relay won't activate until the detector goes into an alarm condition. It won't operate on the prealarm condition.
Type	Select the device type based on the type of device you are programming.
	Note: All possible device types are listed below. Available device types are affected by marketplace, so you may see device types listed here that are not available for the device you are programming because of the marketplace you selected.
	Note: To correlate device types with personality codes when programming Signature Series devices, refer to Appendix E.
	Photo detector
	Smoke: For smoke detectors and contact devices. All activations are immediately considered as alarms. Circuit cannot be restored until devices are restored to normal and the panel is reset.
	Smoke verify: For smoke detectors and contact devices. Two-wire smoke detector activations are verified (delayed and confirmed) before activating an alarm. Four-wire smoke detectors and contact devices are not verified and immediately considered as alarms. Circuit cannot be restored to normal and the panel is reset.
	Ion detector
	Smoke: For smoke detectors and contact devices. All activations are immediately considered as alarms. Circuit cannot be restored until devices are restored to normal and the panel is reset.
	Smoke verify: For smoke detectors and contact devices. Two-wire smoke detector activations are verified (delayed and confirmed) before activating an alarm. Four-wire smoke detectors and contact devices are not verified and immediately considered as alarms. Circuit cannot be restored to normal and the panel is reset.

Duct detector

Duct alarm: For duct smoke detectors. All activations are immediately considered as alarms. Circuit cannot be restored until devices are restored to normal and the panel is reset.

Duct supervisory (latching and nonlatching): For the connection of duct supervisory devices. Momentary activation of normally open devices immediately places the panel in a supervisory state and turns on supervisory LEDs and relays. Circuit cannot be restored until devices are restored to normal and the panel is reset.

Heat detector

Heat alarm: For heat detectors and contact devices. All activations are immediately considered as alarms. Circuit cannot be restored until devices are restored to normal and the panel is reset.

Heat alarm RoR: For heat detectors and contact devices with rate-of-rise. All activations are immediately considered as alarms. Circuit cannot be restored until devices are restored to normal and the panel is reset.

Input module

Alarm: For smoke detectors and contact devices. All activations are immediately considered as alarms. Circuit cannot be restored until devices are restored to normal and the panel is reset.

Heat: For heat detectors and contact devices. All activations are immediately considered as alarms. Circuit cannot be restored until devices are restored to normal and the panel is reset.

Pull station: For pull station devices. All activations are immediately considered as alarms.

Waterflow: For connection of both vane type and pressure flow switches. Activations are immediately considered as alarms. NACs activated by devices programmed as waterflow cannot be silenced until the activated devices are restored to normal via a panel reset. Circuit cannot be restored until devices are restored to normal and the panel is reset.

Duct alarm: For duct smoke detectors. All activations are immediately considered as alarms. Circuit cannot be restored until devices are restored to normal and the panel is reset.

Duct supervisory (latching and nonlatching): For the connection of duct supervisory devices. Momentary activation of normally open devices immediately places the panel in a supervisory state and turns on supervisory LEDs and relays. Circuit cannot be restored until devices are restored to normal and the panel is reset.

Supervisory latching: For the connection of supervisory devices. Momentary activation of normally open devices immediately places the panel in a supervisory state and turns on supervisory LEDs and relays. Circuit cannot be restored until devices are restored to normal and the panel is reset.

Supervisory nonlatching: For the connection of supervisory devices. Momentary activation of normally open devices immediately places the panel in a supervisory state and turns on the supervisory LED and relay. Annunciation remains active until the input restores. The panel does not have to be reset.

Monitor: Monitoring of normally open switches for other functions (fire door position, etc.). Not approved for use under ULC 527 in Canada.

Remote reset: For connecting a remote switch that when activated, resets the panel.

Remote drill: For connecting a remote switch that when activated, starts the panels drill operation.

Remote signal silence: For connecting a remote switch that when activated, silences the signaling devices.

Remote AC fail: For use with auxiliary power supplies to provide AC Fail indication to the fire panel. The fire panel treats this activation as if the panel itself detected an AC fail condition. Delays off-premises signaling for the selected time duration.

2 wire Class B: Allows for the monitoring of two-wire conventional smoke detectors in a Class B circuit (that do not require alarm verification) and normally open contact initiating devices on the same circuit

2 wire verify Class B: Allows for the monitoring of two-wire conventional smoke detectors in a Class B circuit (that require alarm verification)

2 wire Class A: Allows for the monitoring of two-wire conventional smoke detectors in a Class A circuit (that do not require alarm verification) and normally open contact initiating devices on the same circuit.

2 wire verify Class A: Allows for the monitoring of two-wire conventional smoke detectors in a Class A circuit (that require alarm verification)

Audible: Assigned to NACs connected to audible notification appliances that turn off when Signal Silence is pressed

Visible: Assigned to NACs connected to visible notification appliance that do not turn off when Signal Silence is pressed

Relay module

Relay nonsilence: For the connection of relay devices that do not follow signal silence.

Relay with silence: For the connection of relay devices that follow signal silence.

To program a device:

1. Access the loop configuration options menu. See "Loop configuration options."

2. Choose Device.

3. Choose the loop the device is on. Note: If your panel only has one loop, the loop selection screen does not display. Go to the next step.

4. Choose the device (address) you want to configure. For the 250/500 point panel, addresses 1 to 125 are detectors and addresses 126 to 250 are modules.

   Note: The two lines below the device number line on the screen are the device label.

5. Program each device in your system using the "Device programming options" table above.

   Note: If you chose a dual address device, both addresses for the device are displayed on the screen (e.g. 001/002). The first

```
Loop Configuration
Zone
Correlation Groups
Device
```
⇩
```
Device
Loop            01<>

```
⇩
```
Device
Number          001
Loop 01 Device 001

```
⇩
```
Device          001
Zone           01<>
Label           <>
Correlation Groups
```
⇩

address listed is the device address you are programming. When you pick the second address to program, both addresses are still displayed but in reverse order (e.g. 002/001).

```
Device              001
Base Follow Device<>
Type          Smoke<>
Save
```
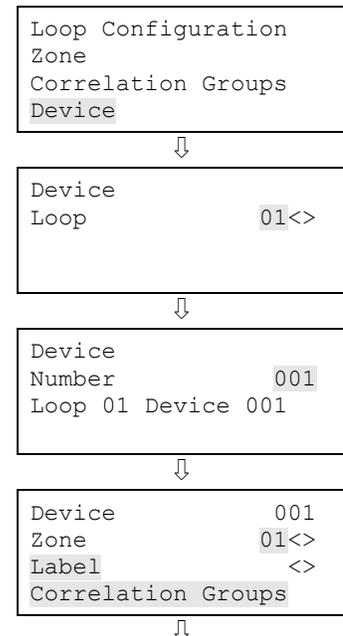
Note: Depending on the type of device you are programming, some of the options in the table below may not be available.

6. When you finish programming each option, choose Save.

7. Continue programming your system or press Menu to exit menu mode.

Loop 2 enable

If your system is using two device loops (the optional loop expander card is installed), you must enable the second loop so that it can be programmed.

To enable loop 2:

1. Access the loop configuration options menu. See "Loop configuration options."

2. Choose Loop 2 Enable.

3. Select Yes to enable the loop or No to disable the loop.

4. Choose Save.

5. Continue programming your system or press Menu to exit menu mode.

```
Loop Configuration
Mapping
Loop 2 Enable   Yes>
Save
```
⇩
```
Loop Configuration
Mapping
Loop 2 Enable   Yes>
Save
```

Loop class programming

The loop must be programmed based on how the devices are wired on the loop (Class A or Class B).

Default: Class B

To program loop class:

1. Access the loop configuration options menu. See "Loop configuration options."

2. Choose Loop Class.

3. Select the loop. If you only have one loop, the loop is automatically selected.

4. Select either Class A or Class B.

5. Choose Save.

6. Continue programming your system or press Menu to exit menu mode.

```
Loop Configuration
Loop Class
Zone
Correlation Groups
```
⇩
```
Loop Class
Loop 1      Class A>
Loop 2      Class A>
Save
```
⇩
```
Loop Class
Loop 1      Class A>
Loop 2      Class A>
Save
```

Mapping programming

To use mapping, you must enable it for each loop on your system. Mapping a device data circuit provides useful information about the circuit that can be used for troubleshooting or documenting the electrical positions of devices on the system. Mapping your system provides a way for you to get an overall picture of the devices on your system.

When the system begins mapping the devices on your panel, "mapping in progress" is displayed on the LCD display, the monitor LED flashes, and the panel buzzer sounds. Depending on the number of devices on your panel, the amount of time it takes to map can vary.

Note: When mapping is finished, a map mismatch event may be generated if the current map does not match the previously generated map. Refer to "Mapping (map mismatch)" for more information.

To enable mapping:

1. Access the loop configuration options menu. See "Loop configuration options."

2. Choose Mapping.

3. Select the loop for which you want to enable mapping. If your system only has one loop, go to the next step.

4. Select Yes to enable mapping.

5. Choose Save.

6. Continue programming your system or press Menu to exit menu mode.

```
Loop Configuration
Correlation Groups
Device
Mapping
```
⇩
```
Mapping
Loop 1          Yes<>
Loop 2          Yes<>
Save
```
-OR-
```
Mapping
Enable          Yes<>
Save
```
⇩
```
Mapping
Loop 1          Yes<>
Loop 2          Yes<>
Save
```
-OR-
```
Mapping
Enable          Yes<>
Save
```
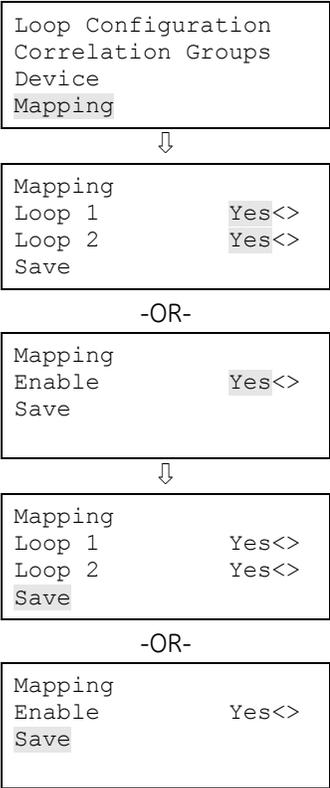
To disable mapping:

1. Access the loop configuration options menu. See "Loop configuration options."

2. Choose Mapping.

3. Select the loop for which you want to disable mapping. If your system only has one loop, go to the next step.

4. Select No to disable mapping.

5. Choose Save.

6. Continue programming your system or press Menu to exit menu mode.

```
Loop Configuration
Correlation Groups
Device
Mapping
```

⇩

```
Mapping
Loop 1            No<>
Loop 2            No<>
Save
```

-OR-

```
Mapping
Enable            No<>
Save
```

⇩

```
Mapping
Loop 1            No<>
Loop 2            No<>
Save
```

-OR-

```
Mapping
Enable            No<>
Save
```

Mapping (map mismatch)

You can work with maps using the front panel or by using the configuration utility. Accepting a map refers to saving the map in the control panel's database either from the front panel or through the configuration utility.

Using the control panel

When mapping is enabled, the control panel stores two maps in memory, a map in RAM and a map in the database. When these two maps do not match, a map mismatch is generated at the front panel.

There are several reasons why the maps may not match. For example, if you just enabled mapping, the panel maps the devices on the system and stores the map in panel RAM, but because there is no map in the panel database, you get a map mismatch.

On the map mismatch screen, you have the ability to save the map in the panel database, which syncs the two maps and removes the map fault from the system.

Another way to get a map mismatch is by adding a new device to your system. The panel sees the device and generates a new map in RAM. This map is not the same as the map in the panel database, so a map mismatch is generated. From the map mismatch screen, you can save the map in the panel database, which syncs the two maps and removes the map mismatch from the system.

To accept a map:

1. On the loop map mismatch event screen, press Enter.

   The details screen is displayed.

2. Press Enter.

   The Enter Password screen is displayed if you are not logged on. If you are already logged on, the Accept Map screen is displayed.

3. Enter a level two password.

   The Accept Map screen is displayed.

4. Press Enter to save the map in the control panel database.

   Once the map is saved, the RAM map and database map match and the map mismatch clears.

```
00:00:00   A001 D001
001 Trouble
Loop 1 Map Mismtch
```

⇩

```
Loop x Device xxx
```

⇩

```
   Enter Password
       0000
```

⇩

```
Accept Map


<-Save      <Cancel
```
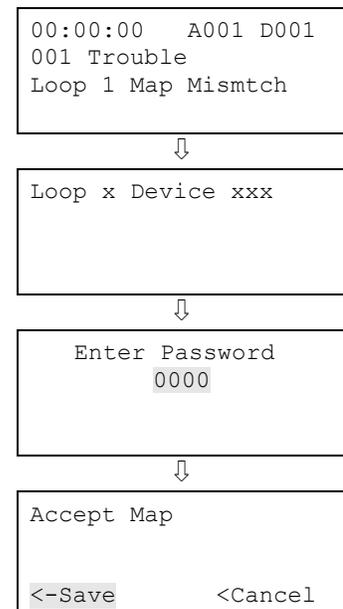
Using the configuration utility

If mapping is enabled, you may have a discrepancy between the map that was downloaded to the panel from the configuration utility and the map that resides in the control panel RAM. If the two maps do not match, the system generates a map mismatch event. If you get a map mismatch, you have to either accept the control panel map and save it in the control panel database or adjust the database (and download it again) so that it matches the control panel map.

For example, if you add a new device in the configuration utility, but the device has not been physically wired into the system, when you download to the panel from the configuration utility, the configuration utility map will not match the panel map, generating a map mismatch. You can then either leave the map mismatch on your system until you install the new device, at which time the panel will see the device and clear the map mismatch or, you can accept the panel map as it is, which will not include the new device. Then, once you install the new device, the panel will map the device and generate a map mismatch, at which time you can redownload to the panel. Then, the configuration utility map and panel map will match and remove the map mismatch event.

Note: For details about using the configuration utility, refer to its online help system.

Zone programming

A zone is a group of input devices. If your system uses zones, you must program their operating parameters, such as type, label, and event notification.

Note: If your system does not have zones, no programming is required in this section. If your panel is not configured for zone or zone/device reporting, programming here has no affect on your system other than CMS reporting.

Zone programming options

Type	Set zone type to:
	Alarm: For circuits with smoke detectors and contact devices. All activations are immediately considered as alarms. Circuit cannot be restored until devices are restored to normal and panel is reset.
	Monitor: Monitoring of normally open switches for other functions (fire door position, etc.). Not approved for use under ULC 527 in Canada.
	Supervisory: For the connection of supervisory devices. Momentary activation of normally open devices immediately places the panel in a supervisory state and turns on the supervisory LED and relay. Note: Latching and nonlatching operation of a supervisory zone is controlled by the types of devices in the zone. For example, if all devices in the zone are latching devices, the zone will operate in a latching manner. If you mix latching and nonlatching devices in the zone, the zone will operate in a latching manner.
	Waterflow: Activates alarm events when a waterflow switch closes. Select this zone type when the devices in the zone are only connected to waterflow switches.
	Note: Do not mix device and zone types. For example, do not place a nonlatching supervisory device in an alarm zone. When the supervisory device activates and an alarm event is initiated, the alarm event automatically clears when the device restores without having to reset the panel.
Label	Enter a text label for the zone (up to 40 characters and two lines). When finished, choose Save.
Correlation groups	Select the correlation group that you want to correlate/assign the zone to. Select Yes to add the zone to the correlation group or No to not add the zone to the correlation group. When finished, choose Save.
	Note: A correlation group is a collection of NACs and/or output devices (strobes) that responds to an input device (smoke detector). When you program the loop devices, you will have to correlate/assign the desired input device or zone to the correlation group that you want to activate. Refer to "Correlation groups programming" for more information.
Event notification	Set the active, trouble, disable, prealarm, alarm verify, maintenance alert, and test event information by choosing one and then setting the notification information. When finished, choose Save. See "Factory default settings" for zone event notification default settings.
	Note: If your CMS is set to zone reporting, the event notification information sent to the receiver comes from the programming in this section.
	Printer: Yes or No - Specifies if event information is printed
	Dialer:
	Acct 1 & 2: Event information is sent to both dialer accounts
	Acct 1: Event information is sent to dialer account one
	Acct 2: Event information is sent to dialer account two

None: Event information is not sent to the dialer

NET: Yes or No. Specifies if event information is sent to the connected network

CID: Contact ID event code (000 to 999)

To program a zone:

1. Access the loop configuration options menu. See "Loop configuration options."

2. Choose Zone.

3. Choose the zone (number) you want to configure.

4. Program each zone in your system using the "Zone programming options" table above.

5. When you finish programming each option, choose Save.

6. Continue programming your system or press Menu to exit menu mode.

```
Loop Configuration
Loop Class
Zone
Correlation Groups
```
⇩
```
Zone
Number           01>
Zone 01
```
⇩
```
Zone             01
Type        Alarm<>
Label             >
Correlation Groups
```
⇩
```
Zone             01
Correlation Groups
Event Notification
Save
```

Panel configuration options

The panel configuration options are the NACs, annunciator class, annunciator, CMS device (dialer and network), printer, IP (IP address), MSK (subnet mask), and GWY (gateway). Each option has settings that can be programmed. Most options also have a factory default setting, which can be used with no additional programming. See "Factory Default Settings" for more information.

Notes

- CMS device is only available if the dialer or network card is installed

- Printer is only available if the printer (RS-232) card is installed

- IP, MSK, and GWY are only available if the network card is installed

To access the panel configuration options:

1. Press the Menu button.

2. Choose Program.

3. Choose Advanced Program.

4. Enter the level two password.

5. Choose Panel Configuration.

6. Program the options.

```
Reports
Test
Control
Program
```
⇩
```
Program
Incremental Program
Auto Program
Advanced Program
```
⇩
```
    Enter Password
         0000

```
⇩
```
Advanced Program
Loop Configuration
Panel Configuration
Panel Operation
```
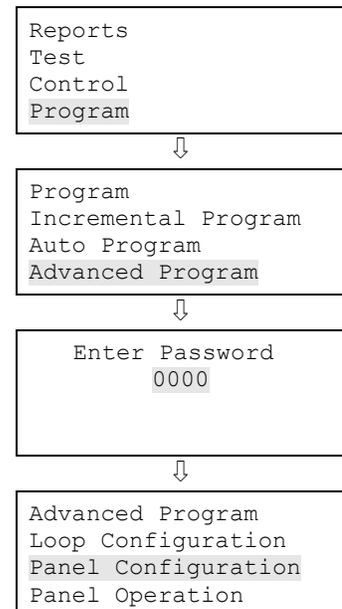
NAC programming

The NAC circuits connected to your system must be programmed with the type of NAC, label, correlation groups, and event notification. Each NAC must be programmed separately.

NAC programming options

Class	Select either Class A or Class B.
	Note: NAC 3 and 4 cannot be set to Class A. If NAC 1 and 2 are set to Class A, NAC 3 and 4 automatically configure to accept the Class A return.
Type	Set NAC type to:
	Continuous (silenceable or nonsilenceable): For strobes and notification appliances that self-generate a temporal pattern
	Temporal (silenceable or nonsilenceable): Universal 3-3-3 pattern required for evacuation signals by NFPA 72. Used when notification appliances are not capable of self-generating a temporal pattern.
	Genesis (nonsilenceable or with audible silence or with audible/visible silence): Used with Genesis and Enhanced Integrity horns and strobes. Genesis and Enhanced Integrity appliances maintain synchronization per UL 1971.
	Nonsilenceable: Horns cannot be silenced and strobes flash
	Audible silence: Horns can be silenced while strobes continue to flash
	Audible/visible silence: Horns can be silenced and strobes can be turned off
	Coder (basic, continuous, 120 SPM, or temporal): Used to provide 4-digit coded output in response to alarm conditions. When the device goes into alarm, the coded output is played a minimum of four times by the NAC circuit. The code comes from the active initiating device or zone. Note: The panel can only play one code at a time. For example, device 1 is coded as 1-2-3-4 and is associated with NAC1 and device 2 is coded as 5-6-7-8 and is associated with NAC2. If device 1 activates, NAC1 plays 1-2-3-4. If, while NAC1 is playing 1-2-3-4, device 2 activates, NAC2 will also play 1-2-3-4 until the rounds are complete and then both NACs will play 5-6-7-8 until those rounds are complete. If you are programming NACs as coded, remember that only one code can play at a time.
	Basic: Four rounds of the 4-digit coded output are played
	Continuous: Four rounds of the 4-digit coded output are played and then continuous is played
	120 SPM: Four rounds of the 4-digit coded output are played and then 120 times per minute is played
	Temporal: Four rounds of the 4-digit coded output are played and then a temporal pattern is played
	City tie: Outputs an unsynchronized, 24-volt continuous (steady) signal that cannot be silenced. Select this NAC type when the NAC is connected to a city tie module.
Label	Enter a text label for the NAC (up to 40 characters and two lines). When finished, choose Save.
Correlation groups	Select the correlation group that you want to correlate/assign the NAC to. Select Yes to add the NAC to the correlation group or No to not add the NAC to the correlation group. When finished, choose Save.
	Note: A correlation group is a collection of NACs and/or output devices (strobe) that responds to an input device (smoke detector). When you program the loop devices, you will have to correlate/assign the desired input device or zone to the correlation group that you want to activate. Refer to "Correlation groups programming" for more information.

Event notification	Set the trouble, disable, and test event information by choosing one and then setting the notification information. When finished, choose Save. See "Factory default settings" for NAC event notification default settings.
	Printer: Yes or No - Specifies if event information is printed
	Coder: 4-digit coded output, which is played in response to alarm conditions (00-00-00-00 to 99-99-99-99)
	Dialer:
	Acct 1 & 2: Event information is sent to both dialer accounts
	Acct 1: Event information is sent to dialer account one
	Acct 2: Event information is sent to dialer account two
	None: Event information is not sent to the dialer
	NET: Yes or No. Specifies if event information is sent to the connected network
	CID: Contact ID event code (000 to 999)

To program a NAC:

1. Access the panel configuration options menu. See "Panel configuration options."

2. Choose Panel NAC.

3. Enter the NAC (number) you want to program.

   Note: NAC 3 and 4 are not available if either NAC 1 or 2 or both are set to Class A.

4. Program each NAC in your system using the "NAC programming options" table above.

5. When you finish programming each option, choose Save.

6. Continue programming your system or press Menu to exit menu mode.

```
Panel Configuration
Panel NAC
Ann. Class      A<>
Annunciator
```
⇩
```
Panel NAC
NAC             1<>


```
⇩
```
Panel NAC        1
Class           A<>
Type Cont. Non Sil<>
Label            >
```
⇩
```
Panel NAC        1
Correlation Groups
Event Notification
Save
```

Annunciator class programming

The annunciators connected to your system must have their wiring class (Class A or Class B) programmed.

Default: Class B

To program annunciator class:

1. Access the panel configuration options menu. See "Panel configuration options."

2. Choose Ann. Class.

3. Select either Class A or Class B.

4. Program other panel configuration options or choose Save if you're finished.

5. Continue programming your system or press Menu to exit menu mode.

```
Panel Configuration
Panel NAC
Ann. Class       A<>
Annunciator
```
⇩
```
Panel Configuration
Ann. Class       A<>
Annunciator
Save
```

Annunciator programming

Each annunciator on the annunciator loop must be programmed for
type, number of expanders, label, and event notification. Up to eight
annunciators can be connected on the loop and each must be
programmed separately.

Annunciator programming options

Type	Set annunciator type to:
	Off: No annunciator is connected. Note: If type is set to Off, Number expanders, Label, and Reporting configuration are not available.
	LCD-C: The annunciator has a display and common controls
	LCD: The annunciator has a display only (no common controls)
	LED: The annunciator has LEDs and common controls (no display)
	Graphic: Graphics controller interface for the Envoy graphics board
Expanders	Set expanders to None, 1, or 2. This is the number of LED expander modules you are using with the annunciator.
Label	Enter a text label for the annunciator (up to 40 characters and two lines). When finished, choose Save.
Event notification	Set the trouble event information by setting the notification information. When finished, choose Save. See "Factory default settings" for annunciator event notification default settings.
	Printer: Yes or No - Specifies if event information is printed
	Coder: 4-digit coded output, which is played in response to alarm conditions (00-00-00-00 to 99-99-99-99)
	Dialer:
	Acct 1 & 2: Event information is sent to both dialer accounts
	Acct 1: Event information is sent to dialer account one
	Acct 2: Event information is sent to dialer account two
	None: Event information is not sent to the dialer
	NET: Yes or No. Specifies if event information is sent to the connected network
	CID: Contact ID event code (000 to 999)

To program an annunciator:

1. Access the panel configuration options menu. See "Panel configuration options."

2. Choose Annunciator.

3. Choose the annunciator you want to program.

4. Program each annunciator in your system using the "Annunciator programming options" table above.

```
Panel Configuration
Panel NAC
Ann. Class      A<>
Annunciator
```
⇩
```
Annunciator
Annunciator 01
Annunciator 02
Annunciator 03
```
⇩

5. When you finish programming each option, choose Save.

6. Continue programming your system or press Menu to exit menu mode.

```
Annunciator        01
Type           Off<>
Expanders          1
Label              >
```

⇩

```
Annunciator        01
Label              >
Event Notification
Save
```

CMS device programming

CMS devices are your central monitoring station devices, which include the dialer and network. These are the devices that transmit system events to a central monitoring station's receiver.

CMS device programming

Dialer	See "Dialer programming."
Network	See "Network programming."
Swinger shutdown	Set swinger shutdown to Off or 1 to 255 repetitions. When finished, press Enter to save. Note: Off is the only acceptable setting for UL/ULC installations. Refer to "UL 864 programming requirements" for details.
	This automatically inhibits the number of consecutive times a single trouble event is transmitted over a 24-hour period before it is no longer sent. Some trouble events are *not* affected when swinger shutdown is set. They are:
	- Loop 1 initializing - Loop 1 uncfgrd alarm - Loop 1 map mismatch - Loop 1 over limits - Loop 1 device 000 - Loop 1 mapping - Loop 1 map fault - Loop 2 initializing - Loop 2 map mismatch - Loop 2 over limits - Loop 2 device 000 - Loop 2 mapping - Loop 2 map fault - System startup - Reset - Reset/Sil inhibit - Panel silence - Program mode - Signal silence - Date - Drill - Walk test - Test fire - Time - Clear history - Common alarm - Common disable - Common monitor - Common supervisory - Common trouble - Battery charger - Battery low - Battery missing - Local AC power - System wide AC power - Self test fault - Dialer dsbl/rem disc - Dialer normal test - Dialer abnormal test - Dialer configuration

Event notification	**Note:** Programming event notification here is only required if you selected "Event" as your dialer account or network event notification setting. Refer to "Dialer programming" or "Network programming" for more information.
	Set the alarm, supervisory, monitor, trouble, disable, prealarm, alarm verify, maintenance alert, and test event information by choosing one and then setting the notification information. When finished, choose Save. See "Factory default settings" for CMS device event notification default settings.
	Dialer:
	Acct 1 & 2: Event information is sent to both dialer accounts
	Acct 1: Event information is sent to dialer account one
	Acct 2: Event information is sent to dialer account two
	None: Event information is not sent to the dialer
	NET: Yes or No. Specifies if event information is sent to the connected network
	CID: Contact ID event code (000 to 999)

To program CMS devices:

1. Access the panel configuration options menu. See "Panel configuration options."

2. Choose CMS Device.

3. Choose the device you want to program.

4. Program each device and option using the "CMS device programming" table above.

5. When you finish programming each device and option, choose Save.

6. Continue programming your system or press Menu to exit menu mode.

```
Panel Configuration
Ann. Class
Annunciator
CMS Device
```
⇩
```
CMS Device
Dialer
Network
Swngr Shtdn Rp.200<>
```
⇩
```
CMS Device
Swngr Shtdn Rp.200<>
Event Notification
Save
```

Dialer programming

The dialer has a number of options that can be programmed. The dialer can be used as a dialer for sending event information to the central monitoring station, and it can be used as a modem for dial-in programming and status and report retrieval.

Dialer programming options

Type	Set the dialer type to:
	Dual line: Uses LINE 1 and LINE 2 to transmit events to the central station receiver and performs modem functions.
	Single line: Uses LINE 1 only to transmit events to the central station receiver and performs modem functions.
	Modem only: Dialer provides interface for outbound communications and the ability for dial-in programming and status and report retrieval. Note: If Modem Only is selected, only Rings to Answer, Ring Type, and Callback Number can be programmed. No other dialer options are displayed in the menu. The modem function only works with LINE 1.
	None: No dialer is installed or if a dialer is installed, disables the dialer.
Account 1 and 2	Program account 1 options, and then program account 2 options. When finished programming each account, choose Save.
Account ID:	Enter account 1 and 2's four-digit ID code. FFFF is not valid.
Primary receiver number:	Enter the primary receiver's phone number. Up to 20 digits (0-9, *, #, and ,). The comma causes a two second delay in dialing. The number or hash symbol (#) and the asterisk symbol (*) are used with calling feature codes and services. Consult your telephone service provider for more information.
Secondary receiver number:	Enter the secondary receiver's phone number. Up to 20 digits (0-9, *, #, and ,). The comma causes a two second delay in dialing. The number or hash symbol (#) and the asterisk symbol (*) are used with calling feature codes and services. Consult your telephone service provider for more information.
Format:	CID: Contact ID is the alarm format that the monitoring facility (DACR) will receive. See "Contact ID event codes" for more information.
Send restorals:	Set send restorals to: Yes: Sends off-normal event restorals to the monitoring facility (DACR). Required setting for UL/ULC installations. Refer to "UL 864 programming requirements" for details. No: Does not send off-normal event restorals to the monitoring facility (DACR)
Retry time seconds:	Set retry time to 1 to 45 seconds. Specifies the wait time between each time the dialer attempts a connection to the DACR.
Retry count:	Set the retry count to 5 to 10 attempts. Specifies how many times the dialer will attempt to call the DACR before timing out.
Event notification:	Set event notification (event reporting) to:
	Device: Only device information is reported/transmitted, no zone information. Note: This setting uses device event notification settings for reporting events. Make sure your device event notification settings are correct. Refer to "Device programming" for more information.
	Zone: When a device is a member of a zone, only the zone information is reported/transmitted, no device information. Note: This setting uses zone event notification settings for reporting events. Make sure your zone event notification settings are correct. Refer to "Zone programming" for more information.

		Event: Only the event type (alarm, supervisory, trouble, etc.) is reported/transmitted, no device or zone information. Note: This setting uses the CMS event notification settings for reporting events. Make sure your event notification settings are correct. Refer to "CMS device programming" for more information.
Line 1 and 2		Program line 1 options, and then program line 2 options. When finished programming each line, choose Save.
	Dialing:	Select Tone or Pulse dialing.
	Cut duration/supervision:	Set the cut duration/supervision to Off or 10 to 120 seconds. Specifies the length of time a phone line trouble is detected before reporting the trouble.
Tone wait seconds		Set tone wait to Off or 1 to 30 seconds. Specifies how long the dialer waits to get a dial tone.
Call disconnect seconds		Set call disconnect to Off or 1 to 45 seconds. Specifies the length of time the dialer seizes the line (to disconnect parallel devices) before attempting to dial out.
Test frequency days		Set test frequency to Off or 1 to 45 days. Specifies how often the dialer performs a test call. Note: The "off" setting is not acceptable for UL/ULC installations. Refer to "UL 864 programming requirements" for details.
Test time		Set the test time to the desired time of day for running the test.
Rings to answer		Set rings to answer to Off or 1 to 15 rings. Specifies how many rings before the dialer answers incoming calls.
Ring type		Set ring type to Any or Normal. Specifies the type of ring expected when an incoming call is received.
Callback		Select Enabled or Disabled.
Callback number		Enter the callback phone number (up to 20 digits). This specifies the phone number that is used for call back.

To program the dialer:

1. Access the panel configuration options menu. See "Panel configuration options."

2. Choose CMS Device.

3. Choose Dialer.

4. Program the dialer using the "Dialer programming options" table above. For dialer default settings, see "Factory default settings."

5. When you're finished programming each option, choose Save.

6. Continue programming your system or press Menu to exit menu mode.

```
Panel Configuration
Ann. Class
Annunciator
CMS Device
```
⇩
```
CMS Device
Dialer
Network
Swngr Shtdn Rp.200<>
```
⇩
```
Dialer
Type    Single Line>
Account 1
Account 2
```
⇩
```
CMS Device
Swngr Shtdn Rp.200<>
Event Notification
Save
```

Network (receiver) programming

The information being programmed here pertains to the central monitoring station (CMS) network that the control panel uses to communicate with the CMS. This is a TCP/IP Ethernet network. Event information is sent to the central monitoring station just as it is when using a dialer, but the transmission is over an Ethernet network and not over the phone lines. For the control panel to communicate with the CMS network, you need an IP address, port number, receiver number, and line number, which you must obtain from the central monitoring station's network administrator.

Note: Only the CID format can be transmitted to the CMS over an Ethernet network.

Network (receiver) programming options

Enabled	Yes: Enables the CMS network operation
	No: Disables the CMS network operation
Account ID	Enter the CMS account's four-digit ID code (0000 to FFFF). FFFF is not valid and must be changed.
IP	Enter the IP address for the CMS.
TCP/IP port	Enter the port address for the CMS (0 to 65535).
Send restorals	Set send restorals to:
	Yes: Sends off-normal event restorals to the monitoring facility (DACR)
	No: Does not send off-normal event restorals to the monitoring facility (DACR)
Event notification	Set event notification (event reporting) to:
	Device: Only device information is reported/transmitted, no zone information. Note: This setting uses device event notification settings for reporting events. Make sure your device event notification settings are correct. Refer to "Device programming" for more information.
	Zone: When a device is a member of a zone, only the zone information is reported/transmitted, no device information. Note: This setting uses zone event notification settings for reporting events. Make sure your zone event notification settings are correct. Refer to "Zone programming" for more information.
	Event: Only the event type (alarm, supervisory, trouble, etc.) is reported/transmitted, no device or zone information. Note: This setting uses the CMS event notification settings for reporting events. Make sure your event notification settings are correct. Refer to "CMS device programming" for more information.
Hello time	Set hello time to 10 to 255 seconds. Specifies the amount of time in between "hello" messages sent by the panel to the CMS to maintain communications. The time must be less than the hello timeout set on the CMS, otherwise the CMS will lose communication with the panel.
Timeout seconds	Set timeout seconds to 31 to 255 seconds. Specifies the amount of time after a message is sent that the system waits for an acknowledgement before declaring a communication trouble.
Receiver number	Enter the CMS receiver number (0 to 9999) assigned to this panel by the CMS administrator. Specifies the CMS receiver number that receives system event messages. This number is part of the receiver message.
Line number	Enter the CMS receiver line number (0 to 9999) assigned to this panel by the CMS administrator. Specifies the receiver's line number where system event messages are sent.

To program the network (receiver):

1. Access the panel configuration options menu. See "Panel configuration options."

2. Choose CMS Device.

3. Choose Network.

4. Program the network using the "Network programming options" table above. For network default settings, see "Factory default settings."

5. When you're finished programming each option, choose Save.

6. Continue programming your system or press Menu to exit menu mode.

```
Panel Configuration
Ann. Class
Annunciator
CMS Device
```
⇩
```
CMS Device
Dialer
Network
Swngr Shtdn Rp. 200>
```
⇩
```
Network
Account ID      6769
IP   000.000.000.000
TCP/IP Port     00000
```
⇩
```
Network
Receiver#       0000
Line#           0000
Save
```

Printer programming

If a printer is connected to your system, it must be programmed with the printer type and event notification. Event notification controls where printer trouble events are sent and displayed.

To program a printer:

1. Access the panel configuration options menu. See "Panel configuration options."

2. Choose Printer.

3. Choose Type.

4. Select the type of printer.

   Supervised: The printer connection is supervised (see the printer's switch settings)

   Unsupervised: The printer connection is not supervised

   None/CU: There is no printer or you are connecting a computer running the configuration utility to the panel

5. Choose Event Notification.

6. Set printer trouble event notification. See "Factory default settings" for printer event notification default settings.

   Printer: Yes or No. Specifies if event information is printed

   Dialer:

   Acct 1 & 2: Event information is sent to both dialer accounts

   Acct 1: Event information is sent to dialer account one

   Acct 2: Event information is sent to dialer account two

   None: Event information is not sent to the dialer

   NET: Yes or No. Specifies if event information is sent to the connected network

   CID: Contact ID event code (000 to 999)

7. When finished, choose Save.

8. Choose Save (on the Printer menu).

9. Continue programming your system or press Menu to exit menu mode.

```
Panel Configuration
Annunciator
CMS Device
Printer
```
⇩
```
Printer
Type      Supervised>
Event Notification
Save
```
⇩
```
Printer
Type      Supervised>
Event Notification
Save
```
⇩
```
Trouble
Printer         Yes<>
Dialer    Account 1&2
NET             Yes<>
```
⇩
```
Trouble
NET             Yes
CID             110
Save
```
⇩
```
Printer
Type      Supervised>
Event Notification
Save
```

Network card programming

If you are using the optional Ethernet network card, you must configure its IP address, subnet mask, and gateway so that it can communicate on your network. Contact your network administrator to obtain this information or use the default settings. The network card can be used to send event information to a central monitoring station, download to the panel from the configuration utility, or upload and view system reports using the configuration utility.

Network card default settings:
IP: 192.168.001.003
Mask: 255.255.255.000
Gateway: 000.000.000.000

To program the network card:

1. Access the panel configuration options menu. See "Panel configuration options."

2. Choose IP.

3. Enter the network card's IP address.

4. Choose MSK.

5. Enter the network card's subnet mask number.

6. Choose GWY.

7. Enter the network card's gateway number.

8. Choose Save.

9. Continue programming your system or press Menu to exit menu mode.

```
Panel Configuration
IP    192.168.001.003
MSK   255.255.255.000
GWY   000.000.000.000
```
⇩
```
Panel Configuration
MSK   255.255.255.000
GWY   000.000.000.000
Save
```

Lock remote read programming

Lock remote read controls incoming TCP/IP communications when a network card is installed and it is connected to a LAN or WAN. It restricts Telnet, ping, and CU read requests at the panel so that unwanted access to the panel is restricted, almost like a firewall.

Note: Lock remote read is active when no one is logged onto the panel or if someone with a level one password is logged on. When you log onto the panel with a level two password, all communication options are available and there are no restrictions.

To program lock remote read:

1. Access the panel configuration options menu. See "Panel configuration options."

2. Choose Lock Rmt Read.

3. Select either:

   Yes: Telnet, ping, and CU read access to the panel are restricted.

   No: Telnet is restricted, but ping and CU read access to the panel are allowed.

4. Program other panel configuration options or choose Save if you're finished.

5. Continue programming your system or press Menu to exit menu mode.

```
Panel Configuration
MSK  255.255.255.000
GWY  000.000.000.000
Lock Rmt Read   Yes<>
```
⇩
```
Panel Configuration
GWY  000.000.000.000
Lock Rmt Read   Yes<>
Save
```

AC voltage programming

AC Voltage is used to select the rated voltage of the mains supply connected to the control panel. The possible values are 110, 115, 120, 220, 230, and 240 VAC.

Note: Use 110, 115, and 120 only on 120 VAC control panel models. Use 220, 230, and 240 only on 230 VAC control panel models.

To program AC voltage:

1. Access the panel configuration options menu. See "Panel configuration options."

2. Choose AC Voltage.

3. Select either 110, 115, 120, 220, 230, or 240.

4. Program other panel configuration options or choose Save if you're finished.

5. Continue programming your system or press Menu to exit menu mode.

```
Panel Configuration
GWY  000.000.000.000
Lock Rmt Read  Yes<>
AC Voltage     120<>
```

⇩

```
Panel Configuration
Lock Rmt Read  Yes<>
AC Voltage     120<>
Save
```

Panel operation programming

The panel operation options include the panel language, marketplace, AC fail delay, zone resound, reset inhibit, auto signal silence, day start, night start, daylight savings, date format, mapping, and the LCD banner. These options control how the panel operates. Each option has settings that can be programmed. Most options also have a factory default setting, which can be used with no additional programming. See "Factory Default Settings" for more information.

Panel operation programming options

Language	Select the desired display language: English or French
Marketplace	Select the desired marketplace: U.S. or Canada
AC fail delay	Set the AC fail delay time to:
	Off: Off-premises notification of an AC power failure is immediate. Note: The "off" setting is not acceptable for UL/ULC installations. Refer to "UL 864 programming requirements" for details.
	1 to 15 hours: Delays the off-premises notification of an AC power failure by the time period selected
Zone resound	Set zone resound to:
	On: NACs resound each time a device in the zone goes into alarm even if they were silenced
	Off: Inhibits the NACs from turning on again (after they were silenced) when a second device in the zone goes into alarm. Note: The "off" setting is not acceptable for UL/ULC installations. Refer to "UL 864 programming requirements" for details.
Reset inhibit	Set the time to:
	Off: Panel reset is operational immediately after NACs turn on
	1 minute: Panel reset is operational one minute after NACs turn on
Auto signal silence	Set auto signal silence to:
	Off: Does not allow the panel to automatically silence the signals
	5 to 30 minutes: Allows the panel to automatically silence the signals after the selected time period expires
Day start	Set the start time for daytime sensitivity
Night start	Set the start time for nighttime sensitivity
Date	Set the date format to:
	U.S.: MM/DD/YYYY
	Canada: DD/MM/YYYY
LCD banner	Enter your desired banner text for line one and line two using the keypad. Each line is capable of up to 20 characters. Select Save when finished.
Aux power reset	On: Reset temporarily turns off the resettable aux power output
	Off: Reset does not turn off the resettable aux power output
Event notification	Set event notification to:
	Zone: When a device is a member of a zone, only the zone information is sent to the LCD

display, LEDs, printer, and dialer. Note: Device level reporting configuration is not available.

Zone/device: Zone information is sent to the LCD display and LEDs. Device information is sent to the printer and dialer. Note: Zone/device reporting locations can be configured through custom programming.

Device: Only device information is reported, no zone information.
LED annunciator operation note: If you are using the optional LED expanders, the zone LEDs are assigned to device addresses 1 to 32 on loop 1. For example, zone 1 LEDs (red and yellow) are assigned to device 1 on loop 1.
Remote annunciator operation note: If you are using the optional remote annunciators, when an event takes place on loop 1, the loop displays on the annunciator LCD as loop 17 (not loop 1). The device number of the device reporting the event is the correct device number. So, if an event takes place on loop 1, the remote annunciators will display it as loop 17. Loop 2 events will display on the annunciator LCD as loop 2 events.

Key #1	Set to:
	Enabled: Allows key 1 to perform its programmed function
	Disabled: Disables key 1
	Refer to "Programming the programmable keys" for more information.
Key #2	Set to:
	Enabled: Allows key 2 to perform its programmed function
	Disabled: Disables key 2
	Refer to "Programming the programmable keys" for more information.

To program the panel operation options:

1. Press the Menu button.

2. Choose Program.

3. Choose Advanced Program.

4. Enter the level two password.

5. Choose Panel Operation.

6. Program the options using the "Panel operation programming options" table above.

7. When you finish programming each option, choose Save.

8. Continue programming your system or press Menu to exit menu mode.

```
Reports
Test
Control
Program
```
⇩
```
Program
Incremental Program
Auto Program
Advanced Program
```
⇩
```
  Enter Password
      0000
```
⇩
```
Advanced Program
Loop Configuration
Panel Configuration
Panel Operation
```
⇩
```
Panel Operation
Language     English>
Marketplace       US>
AC Fail Delay     15>
```
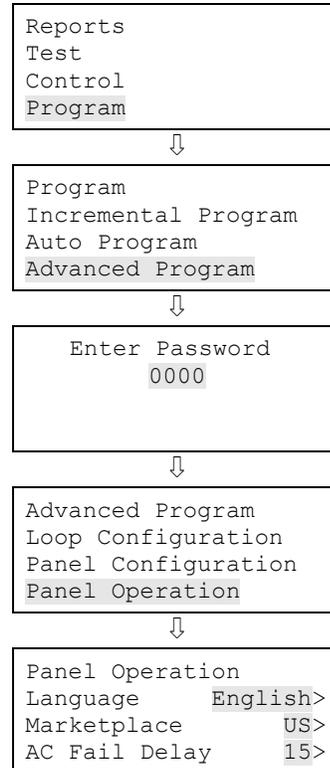
Panel events programming

Panel events, such as reset, system startup, and battery low have an event notification setting for contact ID, dialer, NET, and printer, which controls where the event is sent when it takes place. Each event has a factory default setting, which can be used with no additional programming.

Factory default settings

Panel event	Printer	Dialer	NET	CID
Aux. power 1 (disable)	Yes	None	No	500
Aux. power 1 (trouble)	Yes	Acct 1	Yes	312
Aux. power 2 (disable)	Yes	None	No	500
Aux. power 2 (trouble)	Yes	Acct 1	Yes	312
Battery charger (disable)	Yes	None	No	500
Battery charger (trouble)	Yes	Acct 1	Yes	309
Battery low (disable)	Yes	None	No	500
Battery low (trouble)	Yes	Acct 1	Yes	302
Battery missing (disable)	Yes	None	No	500
Battery missing (trouble)	Yes	Acct 1	Yes	311
Clear history	No	Acct 1	Yes	621
Common alarm	No	Acct 1	Yes	110
Common disable	No	Acct 1	Yes	500
Common monitor	No	None	No	140
Common supervisory	No	Acct 1	Yes	200
Common trouble	No	None	No	373
Common trouble for network dialer	No	None	Yes	373
Common trouble for telco dialer	No	Acct 1	No	373
Date	No	Acct 1	Yes	625
Dialer disable/remote disconnect	Yes	Acct 1	Yes	551
Dialer line 1 fault (disable)	Yes	None	No	500
Dialer line 1 fault (trouble)	Yes	Acct 1	Yes	351
Dialer line 2 fault (disable)	Yes	None	No	500
Dialer line 2 fault (trouble)	Yes	Acct 1	Yes	352
Dialer deliver fail	Yes	Acct 1	Yes	354
Dialer normal test	No	Acct 1	No	602
Dialer abnormal test	No	Acct 1	Yes	608

Factory default settings

Panel event	Printer	Dialer	NET	CID
Dialer configuration	Yes	None	Yes	354
Drill	Yes	None	No	601
Ground fault (disable)	Yes	None	No	500
Ground fault (trouble)	Yes	Acct 1	Yes	310
Internal fault	Yes	Acct 1	Yes	307
AC power (disable)	Yes	None	No	500
AC power (trouble)	Yes	None	No	301
Net rcvr conf fault	Yes	Acct 1	No	354
Net rcvr comm fault (disable)	Yes	None	No	500
Net rcvr comm fault (trouble)	Yes	Acct 1	No	354
Panel silence	No	None	No	315
Program mode	Yes	Acct 1	Yes	627
Reset	Yes	Acct 1	Yes	305
Reset/Silence inhibit	No	None	No	000
Self test fault	No	None	No	307
Signal silence	Yes	None	No	328
System startup	Yes	None	No	000
System AC power (disable)	Yes	None	No	500
System AC power (trouble)	No	Acct 1	Yes	301
Test fire	No	None	No	604
Time	No	Acct 1	Yes	625
Walk test	Yes	Acct 1	Yes	607

To program panel events:

1. Press the Menu button.

2. Choose Program.

3. Choose Advanced Program.

4. Enter the level two password.

5. Choose Panel Events.

6. Select the panel event.

```
Reports
Test
Control
Program
```
⇩
```
Program
Auto Program
Advanced Program
Date and Time
```
⇩

7. Choose Event Notification.

8. Set the event notification. See the default settings in the table above.

    Printer: Yes or No. Specifies if event information is printed

    Dialer:

    Acct 1 & 2: Event information is sent to both dialer accounts

    Acct 1: Event information is sent to dialer account one

    Acct 2: Event information is sent to dialer account two

    None: Event information is not sent to the dialer

    NET: Yes or No. Specifies if event information is sent to the connected network

    CID: Contact ID event code (000 to 999)

9. When finished, choose Save.

10. Repeat steps 6 to 9 for each panel event.

11. Continue programming your system or press Menu to exit menu mode.

```
    Enter Password
        0000


```
⇩
```
Advanced Program
Panel Operation
Panel Events
Loop Events
```
⇩
```
Panel Events
System Startup
Ground Fault
Battery Charger
```
⇩
```
System Startup
Event Notification


```
⇩
```
Trouble
Printer        Yes<>
Dialer    Account 1&2
NET            Yes<>
```
⇩
```
Trouble
NET            Yes
CID            110
Save
```
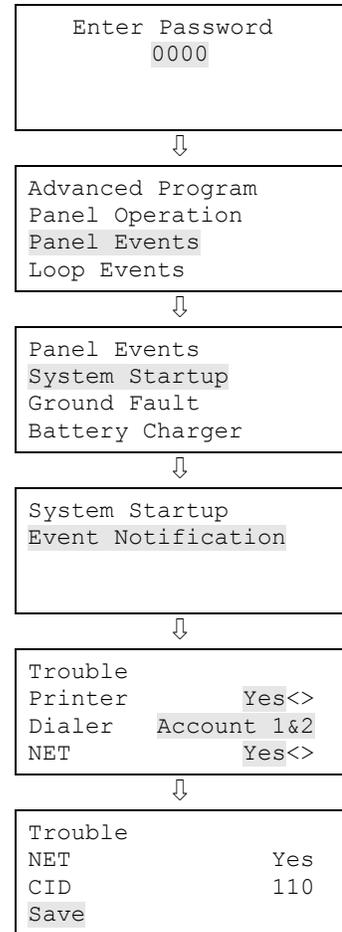
Loop events programming

Loop events, such as loop fault, map fault, and loop initialization have an event notification setting for contact ID, dialer, NET, and printer, which controls where the event is sent when it takes place. Each event has a factory default setting, which can be used with no additional programming.

Factory default settings

Loop event	Printer	Dialer	NET	CID
Loop 1 initialization	Yes	None	No	000
Loop 1 fault (disable)	Yes	None	No	500
Loop 1 fault (trouble)	Yes	Acct 1	Yes	331
Loop 1 map fault	Yes	Acct 1	Yes	331
Loop 1 card fault (disable) (e.g. line fault)	Yes	None	No	500
Loop 1 card fault (trouble) (e.g. line fault)	Yes	Acct 1	Yes	333
Loop 1 unconf alarm (disable)	Yes	None	No	500
Loop 1 unconf alarm (trouble)	Yes	Acct 1	Yes	110
Loop 1 unconf trbl (disable)	Yes	None	No	500
Loop 1 unconf trbl (trouble)	No	None	No	331
Loop 1 map mismatch	Yes	None	No	331
Loop 1 over limits	Yes	None	No	331
Loop 1 address zero	Yes	None	No	331
Loop 1 mapping	Yes	None	No	000
Loop 2 initialization	Yes	None	No	000
Loop 2 fault (disable)	Yes	None	No	500
Loop 2 fault (trouble)	Yes	Acct 1	Yes	331
Loop 2 map fault	Yes	Acct 1	Yes	331
Loop 2 card fault (disable) (e.g. line fault)	Yes	None	No	500
Loop 2 card fault (trouble) (e.g. line fault)	Yes	Acct 1	Yes	333
Loop 2 unconf alarm (disable)	Yes	None	No	500
Loop 2 unconf alarm (trouble)	Yes	Acct 1	Yes	110
Loop 2 unconf trbl (disable)	Yes	None	No	500
Loop 2 unconf trbl (trouble)	No	None	No	331
Loop 2 map mismatch	Yes	None	No	331
Loop 2 over limits	Yes	None	No	331
Loop 2 address zero	Yes	None	No	331
Loop 2 mapping	Yes	None	No	000

To program loop events:

1. Press the Menu button.

2. Choose Program.

3. Choose Advanced Program.

4. Enter the level two password.

5. Choose Loop Events.

6. Select the loop event.

7. Choose Event Notification.

8. Set the event notification. See default settings in the table above.

   Printer: Yes or No. Specifies if event information is printed

   Dialer:

   Acct 1 & 2: Event information is sent to both dialer accounts

   Acct 1: Event information is sent to dialer account one

   Acct 2: Event information is sent to dialer account two

   None: Event information is not sent to the dialer

   NET: Yes or No. Specifies if event information is sent to the connected network

   CID: Contact ID event code (000 to 999)

9. When finished, choose Save.

10. Repeat steps 6 to 9 for each loop event.

11. Continue programming your system or press Menu to exit menu mode.

```
Reports
Test
Control
Program
```
⇩
```
Program
Auto Program
Advanced Program
Date and Time
```
⇩
```
   Enter Password
        0000

```
⇩
```
Advanced Program
Panel Operation
Panel Events
Loop Events
```
⇩
```
Loop Events
Loop 1 Initializing
Loop 1 Fault
Loop 1 Map Fault
```
⇩
```
Loop 1 Initializing
Event Notification

```
⇩
```
Trouble
Printer        Yes<>
Dialer    Account 1&2
NET            Yes<>
```
⇩
```
Trouble
NET            Yes
CID            110
Save
```
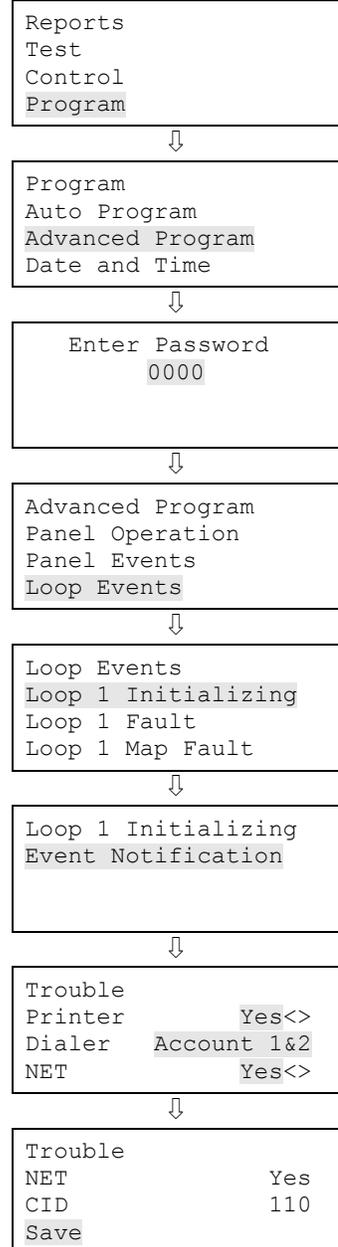
Unconfigured alarm programming

The unconfigured alarm event can be assigned to a correlation group and turn on an output device. When the unconfigured alarm is assigned to a correlation group every output device in the correlation group turns on. Event notification can also be programmed for the unconfigured alarm.

To program the unconfigured alarm:

1. Press the Menu button.

2. Choose Program.

3. Choose Advanced Program.

4. Enter the level two password.

5. Choose Advanced Program.

6. Choose Unconfigured Alarms.

7. Choose Loop 1 Unconf Alarm or Loop 2 Unconf Alarm (displayed if you have more than one loop).

8. Choose Correlation Groups.

9. Choose a correlation group (1 to 32).

10. Select Yes to add the unconfigured alarm to the correlation group or No to not add the unconfigured alarm to the correlation group.

11. Repeat steps 8 and 9 until the unconfigured alarm is added or removed from each correlation group needed.

12. Choose Save.

13. Choose Event Notification.

14. Choose Active.

15. Set active event notification.

    Printer: Yes or No - Specifies if event information is printed

    Coder: 4-digit coded output, which is played in response to alarm conditions (00-00-00-00 to 99-99-99-99)

    Dialer:

    Acct 1 & 2: Event information is sent to both dialer accounts

    Acct 1: Event information is sent to dialer account one

    Acct 2: Event information is sent to dialer account two

```
Reports
Test
Control
Program
```
⇩
```
Program
Incremental Program
Auto Program
Advanced Program
```
⇩
```
  Enter Password
      0000
```
⇩
```
Advanced Program
Loop Events
Unconfigured Alarms
Common Trouble
```
⇩
```
Unconfigured Alarms
Loop 1 Unconf Alarm
Loop 2 Unconf Alarm
```
⇩
```
Correlation Groups
Group 01      Yes<>
Group 02       No<>
Group 03       No<>
```
⇩
```
Correlation Groups
Group 31       No<>
Group 32       No<>
Save
```
⇩
```
Unconfigured Alarm
Correlation Groups
Event Notification
```
⇩
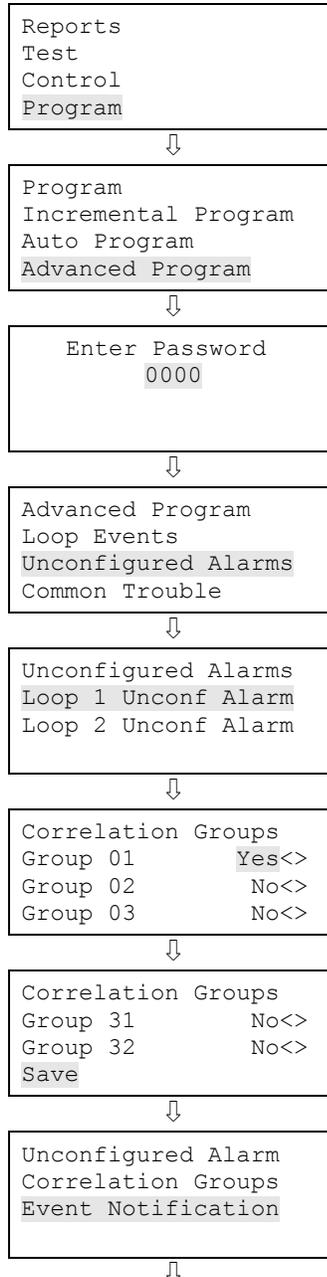
None: Event information is not sent to the dialer

NET: Yes or No - Specifies if event information is sent to the connected network

CID: Contact ID event code (000 to 999)

16. When finished, choose Save.

17. Continue programming your system or press Menu to exit menu mode.

```
Event Notification
Active


```

⇩

```
Active
Printer        Yes<>
Code      10-10-10-10
Dialer    Account 1&2
```

⇩

```
Active
NET              Yes
CID              110
Save
```

Common trouble programming

The common trouble event can be assigned to a correlation group and turn on an output device. When the common trouble is assigned to a correlation group, every output device in the correlation group turns on. Event notification can also be programmed for the common trouble.

Note: Every trouble event turns on the output devices in the correlation group it is assigned to, so make sure you are not assigning the common trouble to an output group that turns on devices that you do not want to turn on (e.g. NACs).

Caution: If you do assign an NAC and the common trouble event to a correlation group and the NAC goes into trouble, when the NAC trouble clears, the NAC outputs *do not* turn off, even though the common trouble condition cleared because the NACs are not supervised. To turn off the NAC outputs, you must manually restore the NAC from the front panel's Control menu option.

To program the common trouble:

1. Press the Menu button.

2. Choose Program.

3. Choose Advanced Program.

4. Enter the level two password.

5. Choose Advanced Program.

6. Choose Common Trouble.

7. Choose Trouble.

8. Choose Correlation Groups.

9. Choose a correlation group (1 to 32).

10. Select Yes to add the common trouble to the correlation group or No to not add the common trouble to the correlation group.

11. Repeat steps 8 and 9 until the common trouble is added or removed from each correlation group needed.

12. Choose Save.

13. Choose Event Notification.

14. Choose Trouble.

```
Reports
Test
Control
Program
```
⇩
```
Program
Incremental Program
Auto Program
Advanced Program
```
⇩
```
   Enter Password
       0000
```
⇩
```
Advanced Program
Loop Events
Unconfigured Alarm
Common Trouble
```
⇩
```
Common Trouble
Trouble
```
⇩

15. Set trouble event notification.

Printer: Yes or No. Specifies if event information is printed

Coder: 4-digit coded output, which is played in response to alarm conditions (00-00-00-00 to 99-99-99-99)

Dialer:

Acct 1 & 2: Event information is sent to both dialer accounts

Acct 1: Event information is sent to dialer account one

Acct 2: Event information is sent to dialer account two

None: Event information is not sent to the dialer

NET: Yes or No. Specifies if event information is sent to the connected network

CID: Contact ID event code (000 to 999)

16. When finished, choose Save.

17. Continue programming your system or press Menu to exit menu mode.

```
Common Trouble
Correlation Groups
Event Notification
```
⇩
```
Correlation Groups
Group 01        No<>
Group 02        No<>
Group 03        No<>
```
⇩
```
Correlation Groups
Group 31        No<>
Group 32        No<>
Save
```
⇩
```
Common Trouble
Correlation Groups
Event Notification
```
⇩
```
Trouble
Printer        Yes<>
Code    10-10-10-10
Dialer    Account 1&2
```
⇩
```
Trouble
NET            Yes
CID            110
Save
```
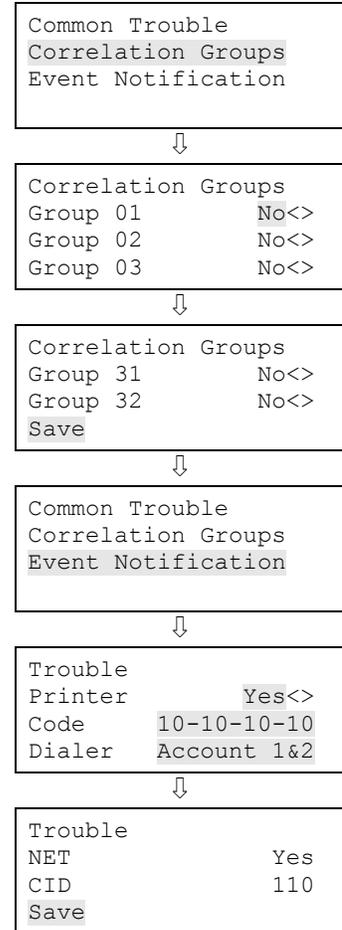
Incremental programming the panel

Incremental programming should be used only after the panel is either auto programmed or advanced programmed. Incremental programming allows you to add and label devices and zones to the existing database but does not affect anything that was previously programmed. Incremental programming is typically used when you want to add an additional loop of devices or a large number of devices to your system but you don't want anything else in the database to change.

Incremental programming options

Loop	Select the loop (number) that you want to program or select All to program all loops.
Label devices	Yes: Enables labeling of devices
	No: Disables labeling of devices
Label zones	Yes: Enables labeling of zones
	No: Disables labeling of zones
Follow	Set base follow to:
	Alarm: The base activates its relay when the detector goes into an alarm condition
	Alarm verify: The base activates its relay when the detector goes into alarm or alarm verification. The base will not restore until both events have been restored.
	Alarm prealarm: The base activates its relay when the detector meets the prealarm condition or goes into an alarm condition. The base will not restore until both events have been restored.
	Verify: The base activates its relay only when the detector goes into alarm verification. The base will not restore until the verification event restores, which can happen if the device goes into alarm.
	Prealarm: The base activates its relay when the detector goes into a prealarm condition. The base will not restore until the prealarm event restores, which can happen if the device goes into alarm. If you do not set a prealarm threshold, the base will never activate.
	Base follow refers to how the detector base operates in an alarm condition initiated by the detector. The bases that work with this option are the sounder base and relay base. For example, if the detector has a prealarm setting, but base follow is set to alarm, the base's relay won't activate until the detector goes into an alarm condition. It won't operate on the prealarm condition.

To incremental program a panel:

1. Press the Menu button.

2. Choose Program.

3. Choose Incremental Program.

4. Enter the level two password.

5. Set the incremental programming options using the "Incremental programming options" table above.
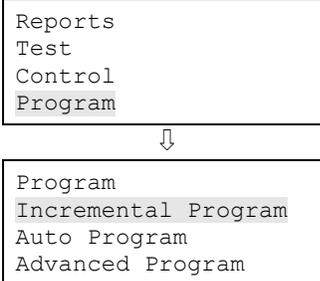
```
Reports
Test
Control
Program
```

⇩

```
Program
Incremental Program
Auto Program
Advanced Program
```

"Incremental programming options" table above.

Note: Use the Right or Left Arrow button to make your selection for each option. Do not use the Enter button. The Enter button begins the incremental program operation no matter which option the cursor is on. Also, the options you select are preserved and will be displayed the next time you incremental program.

6. When finished, press Enter.

    The panel begins incremental programming and displays the number of devices on your system. If you have more than one loop, the device counts are per loop. The system displays the number of old devices and the number of new devices.

7. Press Enter to continue.

    Incremental programming continues based on the settings you made above.

8. If you selected to label devices and/or zones, use the procedures that follow to enter your labels.

9. When incremental programming is complete, the system returns you to the banner screen.

To label your devices:

1. Next to "Device," select the device (number) that you want to label.

2. Enter a text label for the device (up to 40 characters and two lines). The default label is "Loop X Device XXX."

3. Press Enter to save the label and go to the next device (number). Note: Pressing the Enter button saves the current label and then goes to the next device number so that you can quickly go to each device and label it.

4. Enter a text label for the device (up to 40 characters and two lines).

5. Repeat steps 3 and 4 until all devices are labeled.

6. When you are finished labeling, make sure the cursor is on the device number, and press the Cancel button to exit and go to the next incremental programming option.

```
        ⇩
  Enter Password
       0000


        ⇩
Incremental Program
Loop         Loop 1>
Label Devices    No>
Label Zones      No>
        ⇩
   Auto Program
   System Busy
 ################
<Back        <Cancel
        ⇩
Devices      Old/New
Loop 1       XXX/YYY
Loop 2       XXX/YYY
<Continue
       -OR-
Devices:     Old/New
             XXX/YYY

<Continue
```

```
Loop 1    Device 001
Label goes here
Label continued
<Save          <Back
```

To label your zones:

1. Next to "Zone," select the zone (number) that you want to label.

2. Enter a text label for the zone (up to 40 characters and two lines). The default label is "Zone XX."

3. Press Enter to save the label and go to the next zone (number). Note: Pressing the Enter button saves the current label and then goes to the next zone number so that you can quickly go to each zone and label it.

4. Enter a text label for the zone (up to 40 characters and two lines).

5. Repeat steps 3 and 4 until all zones are labeled.

6. When you are finished labeling, make sure the cursor is on the zone number, and press the Cancel button to exit and go to the next incremental programming option.

```
Zone            01>
Label goes here
Label continued
<Save          <Back
```

Adding a device to a programmed system

You can add an additional device or several devices to a system that has already been programmed without going into programming mode. Once the device is installed, the panel recognizes it as a new device and indicates on the LCD display that there is an unconfigured device with a "trouble active" event. The device can then be programmed and added to the database.

Note: If you are adding more than a few devices, you may want to use the Incremental programming option, which allows you to quickly add and label the devices to the existing database. Refer to the "Incremental programming" section for more information.

Note: You must be logged in with a level two password to add a device.

Device programming options

Zone	Select the zone you want to add this device to or select Off if you are not adding the device to a zone.
Label	Enter a text label for the device (up to 40 characters and two lines). When finished, choose Save.
Correlation groups	Select the correlation group that you want to correlate/assign the device to. Select Yes to add the device to the correlation group or No to not add the device to the correlation group. When finished, choose Save.
	Note: A correlation group is a collection of NACs and/or output devices (strobe) that responds to an input device (smoke detector). When you program the loop devices, you will have to correlate/ assign the desired input device or zone to the correlation group that you want to activate. Refer to "Correlation groups programming" for more information.
Event notification	Set the active, trouble, disable, prealarm, alarm verify, maintenance alert, and test event information by choosing one and then setting the notification information. When finished, choose Save. See "Factory default settings" for device event notification default settings.
	Printer: Yes or No - Specifies if event information is printed
	Coder: 4-digit coded output, which is played in response to alarm conditions (00-00-00-00 to 99-99-99-99)
	Dialer:
	Acct 1 & 2: Event information is sent to both dialer accounts
	Acct 1: Event information is sent to dialer account one
	Acct 2: Event information is sent to dialer account two
	None: Event information is not sent to the dialer
	NET: Yes or No. Specifies if event information is sent to the connected ethernet receiver
	CID: Contact ID event code (000 to 999)
Day sensitivity	Set the daytime smoke level sensitivity to least, less, more, normal, or most.
Night sensitivity	Set the nighttime smoke level sensitivity to least, less, more, normal, or most.
Day prealarm%	Set the daytime prealarm percentage to Off or 50, 55, 60, 65, 70, 75, 80, or 90 percent. This is the amount of smoke that indicates a prealarm event before an actual alarm event is

	indicated. The percentage is based on the sensitivity level selected above. For example, if you select normal sensitivity and select 50 percent for your prealarm, when smoke levels reach 50% of the normal smoke level required to initiate an alarm, a prealarm event will be indicated.
Night prealarm%	Set the nighttime prealarm percentage to Off or 50, 55, 60, 65, 70, 75, 80, or 90 percent. This is the amount of smoke that indicates a prealarm event before an actual alarm event is indicated. The percentage is based on the sensitivity level selected above. For example, if you select normal sensitivity and select 50 percent for your prealarm, when smoke levels reach 50% of the normal smoke level required to initiate an alarm, a prealarm event will be indicated.
Base type	Set to the type of base (standard, relay, isolator, or sounder) being used with the detector.
Follow	Set base follow to:
	Alarm: The base activates its relay when the detector goes into an alarm condition
	Alarm verify: The base activates its relay when the detector goes into alarm or alarm verification. The base will not restore until both events have been restored.
	Alarm prealarm: The base activates its relay when the detector meets the prealarm condition or goes into an alarm condition. The base will not restore until both events have been restored.
	Verify: The base activates its relay only when the detector goes into alarm verification. The base will not restore until the verification event restores, which can happen if the device goes into alarm.
	Prealarm: The base activates its relay when the detector goes into a prealarm condition. The base will not restore until the prealarm event restores, which can happen if the device goes into alarm. If you do not set a prealarm threshold, the base will never activate.
	Base follow refers to how the detector base operates in an alarm condition initiated by the detector. The bases that work with this option are the sounder base and relay base. For example, if the detector has a prealarm setting, but base follow is set to alarm, the base's relay won't activate until the detector goes into an alarm condition. It won't operate on the prealarm condition.
Type	Select the device type based on the type of device you are programming.
	Note: All possible device types are listed below. Available device types are affected by marketplace, so you may see device types listed here that are not available for the device you are programming because of the marketplace you selected.
	Note: To correlate device types with personality codes when programming Signature Series devices, refer to Appendix E.
	### Photo detector
	Smoke: For smoke detectors and contact devices. All activations are immediately considered as alarms. Circuit cannot be restored until devices are restored to normal and the panel is reset.
	Smoke verify: For smoke detectors and contact devices. Two-wire smoke detector activations are verified (delayed and confirmed) before activating an alarm. Four-wire smoke detectors and contact devices are not verified and immediately considered as alarms. Circuit cannot be restored to normal and the panel is reset.
	### Ion detector
	Smoke: For smoke detectors and contact devices. All activations are immediately considered as alarms. Circuit cannot be restored until devices are restored to normal and the panel is reset.
	Smoke verify: For smoke detectors and contact devices. Two-wire smoke detector activations are verified (delayed and confirmed) before activating an alarm. Four-wire smoke detectors and contact devices are not verified and immediately considered as alarms. Circuit cannot be restored to normal and the panel is reset.

Duct detector

Duct alarm: For duct smoke detectors. All activations are immediately considered as alarms. Circuit cannot be restored until devices are restored to normal and the panel is reset.

Duct supervisory (latching and nonlatching): For the connection of duct supervisory devices. Momentary activation of normally open devices immediately places the panel in a supervisory state and turns on supervisory LEDs and relays. Circuit cannot be restored until devices are restored to normal and the panel is reset.

Heat detector

Heat alarm: For heat detectors and contact devices. All activations are immediately considered as alarms. Circuit cannot be restored until devices are restored to normal and the panel is reset.

Heat alarm RoR: For heat detectors and contact devices with rate-of-rise. All activations are immediately considered as alarms. Circuit cannot be restored until devices are restored to normal and the panel is reset.

Input module

Alarm: For smoke detectors and contact devices. All activations are immediately considered as alarms. Circuit cannot be restored until devices are restored to normal and the panel is reset.

Heat: For heat detectors and contact devices. All activations are immediately considered as alarms. Circuit cannot be restored until devices are restored to normal and the panel is reset.

Pull station: For pull station devices. All activations are immediately considered as alarms.

Waterflow: For connection of both vane type and pressure flow switches. Activations are immediately considered as alarms. NACs activated by devices programmed as waterflow cannot be silenced until the activated devices are restored to normal via a panel reset. Circuit cannot be restored until devices are restored to normal and the panel is reset.

Duct alarm: For duct smoke detectors. All activations are immediately considered as alarms. Circuit cannot be restored until devices are restored to normal and the panel is reset.

Duct supervisory (latching and nonlatching): For the connection of duct supervisory devices. Momentary activation of normally open devices immediately places the panel in a supervisory state and turns on supervisory LEDs and relays. Circuit cannot be restored until devices are restored to normal and the panel is reset.

Supervisory latching: For the connection of supervisory devices. Momentary activation of normally open devices immediately places the panel in a supervisory state and turns on supervisory LEDs and relays. Circuit cannot be restored until devices are restored to normal and the panel is reset.

Supervisory nonlatching: For the connection of supervisory devices. Momentary activation of normally open devices immediately places the panel in a supervisory state and turns on the supervisory LED and relay. Annunciation remains active until the input restores. The panel does not have to be reset.

Monitor: Monitoring of normally open switches for other functions (fire door position, etc.). Not approved for use under ULC 527 in Canada.

Remote reset: For connecting a remote switch that when activated, resets the panel.

Remote drill: For connecting a remote switch that when activated, starts the panel's drill operation.

Remote signal silence: For connecting a remote switch that when activated, silences the signaling devices.

Remote AC fail: For use with auxiliary power supplies to provide AC Fail indication to the fire panel. The fire panel treats this activation as if the panel itself detected an AC fail condition. Delays off-premises signaling for the selected time duration.

2 wire Class B: Allows for the monitoring of two-wire conventional smoke detectors in a Class B circuit (that do not require alarm verification) and normally open contact initiating devices on the same circuit

2 wire verify Class B: Allows for the monitoring of two-wire conventional smoke detectors in a Class B circuit (that require alarm verification)

2 wire Class A: Allows for the monitoring of two-wire conventional smoke detectors in a Class A circuit (that do not require alarm verification) and normally open contact initiating devices on the same circuit.

2 wire verify Class A: Allows for the monitoring of two-wire conventional smoke detectors in a Class A circuit (that require alarm verification)

Audible: Assigned to NACs connected to audible notification appliances that turn off when Signal Silence is pressed

Visible: Assigned to NACs connected to visible notification appliance that do not turn off when Signal Silence is pressed

Relay module

Relay nonsilence: For the connection of relay devices that do not follow signal silence.

Relay with silence: For the connection of relay devices that follow signal silence.

To add a device:

1. Install the device on your system.

   The system recognizes the new device and displays a trouble event, which indicates that there is an unprogrammed device.

2. Press Enter.

   The device details screen is displayed.

3. Press Enter.

   The Enter Password screen is displayed if you are not logged on. If you are already logged on, the Add Device screen is displayed; go to step 5.

4. Enter a level two password.

   The Add Device screen is displayed.

5. Verify the device you are about to add, and then press Enter.

   The Device programming menu is displayed. If the device is not a valid device, "invalid device" is displayed and you won't be able to program the device.

6. Program the device options using the "Device programming options" table above.

```
00:00:00   A001 D001
001 Trouble
Unconfigured Trouble
Ser# xxxxxxxxxx
```
⇩
```
Loop x Device xxx
Device type
```
⇩
```
   Enter Password
        0000
```
⇩
```
Add          Loop x
Device          001
Device label
<-Continue     <Back
```
⇩
```
Device          001
Zone           01<>
Label             >
Correlation Groups
```
⇩

Some of the device options have a factory default setting that can be used requiring no additional programming. Refer to "Factory default settings" for a list of the default settings for a device.

```
Device            001
Base Follow Device<>
Type         Smoke<>
Save
```

Note: If you added a dual address device, both addresses for the device are displayed on the screen (e.g. 001/002). The first address listed is the device address you are programming. When you pick the second address to program, both addresses are still displayed but in reverse order (e.g. 002/001).

Note: Depending on the type of device you are programming, some of the options in the table below may not be available.

7. When you're finished programming each option, choose Save.

   The device is added to the database and the unprogrammed device event is cleared for that device.

8. Press Menu to exit menu mode.

Removing a device from a programmed system

You can remove a device from your system and delete it from the database without going into programming mode.

To remove a device:

1. Physically remove the device from your system.

   The system indicates a communication fault with a trouble event.

   Note: If your system is configured as a zoned system, you will see two events, one for the zone and one for the device.

2. Press Enter.

   The device details screen is displayed.

3. Press Enter.

   The Enter Password screen is displayed if you are not logged on. If you are already logged on, the Delete Device screen is displayed; go to step 5.

4. Enter a level two password.

   The Delete Device screen is displayed.

5. Verify the device you are about to delete by reviewing the information on the screen.

6. Press Enter to delete the device and save the change in the database.

7. Repeat these steps for each device you are removing from your system.

```
00:00:00   A001 D001
001 Trouble
Communication Fault
```

⇩

```
Loop x Device xxx
Device type
Comm Fault
Ser# xxxxxxxxxx
```

⇩

```
   Enter Password
        0000
```

⇩

```
Delete       Loop x
Device          001
Device label
<-Save      <Cancel
```

Chapter 4
Reports

Summary

This chapter describes how to create the panel's available reports.

Content

History report

The panel maintains 1,000 system or user events. The event record contains the event time, the event type, the event state, and the device address (for device events). The event time is the time and date of the event activation or restoration. The event types are alarm, trouble, supervisory, monitor, and test activations or disable. The event state is either activation or restoration. The device address is the address for the device that caused the event. Some events do not have a device address listed, such as the type of events listed in the "Event ID numbers and descriptions" topic. These are "pseudo" type events. History reports can be viewed on the LCD display or printed.

There are three types of history reports you can generate:

- All: All events are displayed in the report

- Alarm: Only alarm events are displayed in the report

- Date forward: Allows you to enter a starting date for the report. From that date forward, all events are displayed in the report.

Notes

- You must have a printer connected to your panel to print a report.

- Requesting a report while another report is being printed or displayed on the LCD display stops the current report (even if it has not finished) and starts the new report that you requested.

To view an All or Alarm History report:

1. Press the Menu button.

2. Choose Reports.

3. Choose History.

4. Choose either All or Alarm.

5. Choose either:

    LCD: The report is displayed on the LCD display.

    — or —

    Printer: The report is printed on the connected printer. If you do not have a printer, this option is not available.

6. If you selected LCD, when finished viewing the report, press Cancel twice to return to the reports menu.

7. Choose another report to view or to exit menu mode, press the Menu button.

```
Reports
Test
Control
Program
```
⇩
```
Reports
History
Walk Test
Device Maintenance
```
⇩
```
History
All
Alarm
Date Forward
```
⇩
```
LCD
Printer
```

To view a Date Forward History report:

1. Press the Menu button.

2. Choose Reports.

3. Choose History.

4. Choose Date Forward.

5. Enter the starting date for the report (month/day/year).

6. Press Enter.

7. Choose either:

   LCD: The report is displayed on the LCD display.

   —or—

   Printer: The report is printed on the connected printer. If you do not have a printer, this option is not available.

8. If you selected LCD, when finished viewing the report, press Cancel twice to return to the reports menu.

9. Choose another report to view or to exit menu mode, press the Menu button.

```
Reports
Test
Control
Program
```
⇩
```
Reports
History
Walk Test
Device Maintenance
```
⇩
```
History
All
Alarm
Date Forward
```
⇩
```
Date Forward
Date      xx/xx/xxxx
```
⇩
```
LCD
Printer
```

Walk Test report

The Walk Test report extracts all test events for the last walk test stored in history. Walk test reports can be viewed on the LCD display or printed.

Notes

- While conducting a walk test, you cannot view a walk test report.

- All events (walk test and all other events) are displayed in the walk test report. This allows you to see if other events occurred during the walk test.

- When the panel is restarted, the walk test report cannot be viewed from history.

- To see the activation and restoration of all walk test events, the panel must be reset *prior* to ending the walk test. Once the reset is complete, you can end the walk test and view a walk test report.

- You must have a printer connected to your panel to print a report.

- Requesting a report while another report is being printed or displayed on the LCD display stops the current report (even if it has not finished) and starts the new report that you requested.

To view a walk test report:

1. Press the Menu button.

2. Choose Reports.

3. Choose Walk Test.

4. Choose either:

   LCD: The report is displayed on the LCD display.

   — or —

   Printer: The report is printed on the connected printer. If you do not have a printer, this option is not available.

5. If you selected LCD, when finished viewing the report, press Cancel twice to return to the reports menu.

6. Choose another report to view or to exit menu mode, press the Menu button.

```
Reports
Test
Control
Program
```
⇩
```
Reports
History
Walk Test
Device Maintenance
```
⇩
```
LCD
Printer
```

Device Maintenance report

The panel provides a Device Maintenance report of all detectors in the system. The report can include: all detectors, all detectors over 20% dirty, or all detectors over 80% dirty. The report displays the device, its dirty percentage, and its sensitivity setting. Device Maintenance reports can be viewed on the LCD display or printed.

Notes

- You must have a printer connected to your panel to print a report.

- Requesting a report while another report is being printed or displayed on the LCD display stops the current report (even if it has not finished) and starts the new report that you requested.

To view a Device Maintenance report:

1. Press the Menu button.

2. Choose Reports.

3. Choose Device Maintenance.

4. Choose either All Devices, Devices >= 20% Dirty, or Devices >= 80% Dirty.

5. Choose either:

   LCD: The report is displayed on the LCD display.

   — or —

   Printer: The report is printed on the connected printer. If you do not have a printer, this option is not available.

6. If you selected LCD, when finished viewing the report, press Cancel twice to return to the reports menu.

7. Choose another report to view or to exit menu mode, press the Menu button.

```
Reports
Test
Control
Program
```
⇩
```
Reports
Device Maintenance
System Status
Correlation Groups
```
⇩
```
Device Maintenance
All Devices
Devices >= 20% Dirty
Devices >= 80% Dirty
```
⇩
```
LCD
Printer
```
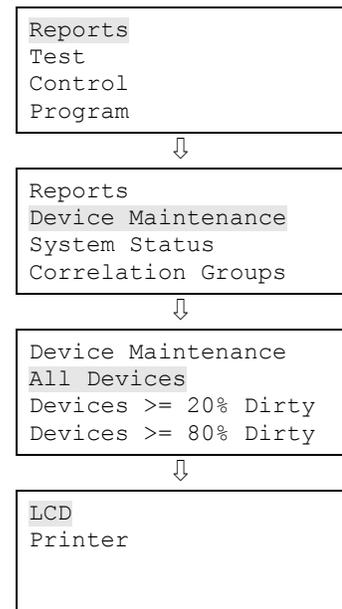
System Status report

The panel provides a System Status report for all active points in the system. The report can include: all active points, all alarm points, all supervisory points, all trouble points, all disabled points, or all other points. System status reports can be viewed on the LCD display or printed.

Notes

- You must have a printer connected to your panel to print a report.

- Requesting a report while another report is being printed or displayed on the LCD display stops the current report (even if it has not finished) and starts the new report that you requested.

To view a System Status report:

1. Press the Menu button.

2. Choose Reports.

3. Choose System Status.

4. Choose either All, Alarm, Supervisory, Trouble, Disable, or Other.

5. Choose either:

   LCD: The report is displayed on the LCD display.

   — or —

   Printer: The report is printed on the connected printer. If you do not have a printer, this option is not available.

6. If you selected LCD, when finished viewing the report, press Cancel twice to return to the reports menu.

7. Choose another report to view or to exit menu mode, press the Menu button.

```
Reports
Test
Control
Program
```
⇩
```
Reports
System Status
Correlation Groups
Zone
```
⇩
```
System Status
All
Alarm
Supervisory
```
⇩
```
LCD
Printer
```
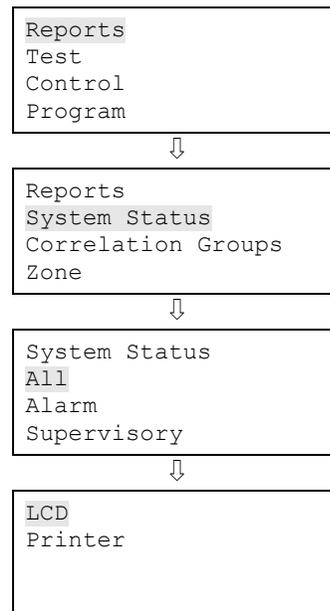
Correlation Groups report

The panel provides a report for each correlation group in your system. The Correlation Group report shows all of the devices, zones, and NACs that are assigned to a correlation group. Correlation group reports can be viewed on the LCD display or printed.

Notes

- You must have a printer connected to your panel to print a report.

- Requesting a report while another report is being printed or displayed on the LCD display stops the current report (even if it has not finished) and starts the new report that you requested.

To view a Correlation Group report:

1. Press the Menu button.

2. Choose Reports.

3. Choose Correlation Groups.

4. Choose the correlation group for which you want a report.

5. Choose either:

   LCD: The report is displayed on the LCD display.

   — or —

   Printer: The report is printed on the connected printer. If you do not have a printer, this option is not available.

6. If you selected LCD, when finished viewing the report, press Cancel twice to return to the reports menu.

7. Choose another report to view or to exit menu mode, press the Menu button.

```
Reports
Test
Control
Program
```
⇩
```
Reports
Device Maintenance
System Status
Correlation Groups
```
⇩
```
Correlation Groups
Group 01
Group 02
Group 03
```
⇩
```
LCD
Printer
```
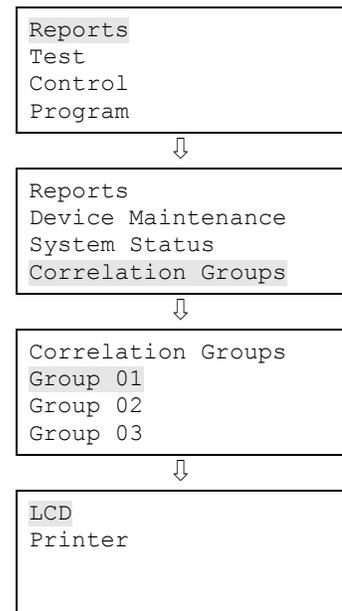
Zone report

The panel provides a Zone report, which lists all of the devices that are in a selected zone. The report lists the devices by the device label.

Notes

- You must have a printer connected to your panel to print a report.

- Requesting a report while another report is being printed or displayed on the LCD display stops the current report (even if it has not finished) and starts the new report that you requested.

To view a zone report:

1. Press the Menu button.

2. Choose Reports.

3. Choose Zone.

4. Choose the zone for which you want a report.

5. Choose either:

   LCD: The report is displayed on the LCD display.

   — or —

   Printer: The report is printed on the connected printer. If you do not have a printer, this option is not available.

6. If you selected LCD, when finished viewing the report, press Cancel twice to return to the reports menu.

7. Choose another report to view or to exit menu mode, press the Menu button.

```
Reports
Test
Control
Program
```
⇩
```
Reports
System Status
Correlation Groups
Zone
```
⇩
```
Zones
Zone 01
Zone 02
Zone 03
```
⇩
```
LCD
Printer
```
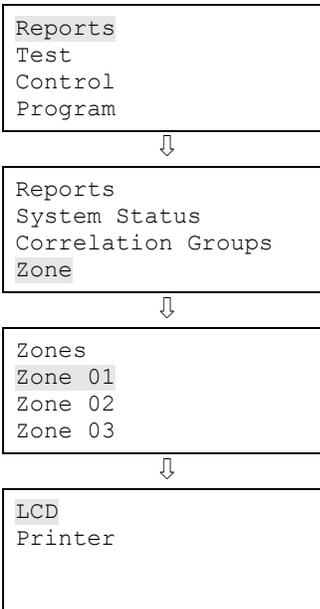
System Configuration report

The panel provides a System Configuration report, which displays the current configuration of your system. There are seven system configuration reports displaying the information shown below. System configuration reports can be viewed on the LCD display or printed.

All report: Displays all panel, device, loop, zone, event, and dialer configuration information.

Panel operation report: Displays firmware version, marketplace, language, AC fail delay, reset inhibit, zone re-sound, auto signal silence, key #1, key #2, aux power reset, lock remote read, AC voltage, date format, daylight savings, minutes offset, day start, night start, mapping, LCD banner, IP (IP address), MSK (subnet mask), and GWY (gateway), and event notification type configuration information.

Panel configuration report: Displays dialer, network, printer, annunciator class, annunciator, and NAC configuration information.

Devices report: Displays function, type, zone, label, follow, day sensitivity, night sensitivity, day prealarm percent, night prealarm percent, correlation groups, and event notification configuration information.

Loop/zone configuration report: Displays loop class, zone, device, mapping, and correlation group configuration information.

Event configuration report: Displays loop event and panel event configuration information.

Dialer configuration report: Displays central monitoring station event notification settings for the points in the system.

Notes

- You must have a printer connected to your panel to print a report.

- Requesting a report while another report is being printed or displayed on the LCD display stops the current report (even if it has not finished) and starts the new report that you requested.

To view a system configuration report:

1. Press the Menu button.

2. Choose Reports.

```
Reports
Test
Control
Program
```
⇩
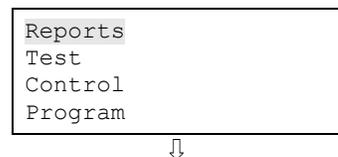
3. Choose System Configuration.

4. Choose either All, Panel Operation, Panel Configuration, Loop/Zone Config, Devices, Event Config, or Dialer Config.

5. Choose either:

    LCD: The report is displayed on the LCD display.

    — or —

    Printer: The report is printed on the connected printer. If you do not have a printer, this option is not available.

6. If you selected LCD, when finished viewing the report, press Cancel twice to return to the reports menu.

7. Choose another report to view or to exit menu mode, press the Menu button.

```
Reports
Correlation Groups
Zone
System Configuration
```
⇩
```
System Configuration
All
Panel Operation
Panel Configuration
```
⇩
```
LCD
Printer
```
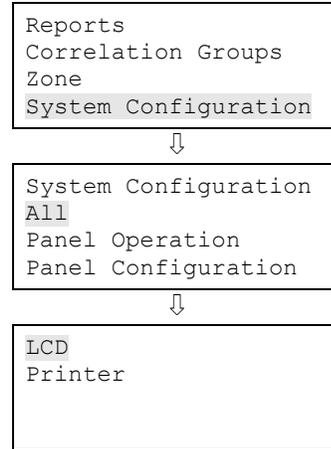
Internal Status report

The panel provides an Internal Status report, which displays the current values for AC voltage, battery voltage, and battery charge current. Internal Status reports can be viewed on the LCD display or printed.

Notes

- You must have a printer connected to your panel to print a report.

- Requesting a report while another report is being printed or displayed on the LCD display stops the current report (even if it has not finished) and starts the new report that you requested.

To view an internal system status report:

1. Press the Menu button.

2. Choose Reports.

3. Choose Internal Status.

4. Choose either:

   LCD: The report is displayed on the LCD display.

   — or —

   Printer: The report is printed on the connected printer. If you do not have a printer, this option is not available.

5. If you selected LCD, when finished viewing the report, press Cancel twice to return to the reports menu.

6. Choose another report to view or to exit menu mode, press the Menu button.

```
Reports
Test
Control
Program
```

⇩

```
Reports
Zone
System Configuration
Internal Status
```

⇩

```
LCD
Printer
```
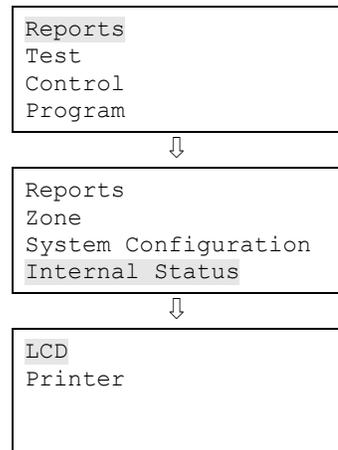
Device Details report

A Device Details report displays a device count, which reports how many devices are connected to your system. The report can also display the serial number for each device connected to your system.

Notes

- You must have a printer connected to your panel to print a report.

- Requesting a report while another report is being printed or displayed on the LCD display stops the current report (even if it has not finished) and starts the new report that you requested.

To view the device count on your system:

1. Press the Menu button.

2. Choose Reports.

3. Choose Device Details.

4. Choose Device Count.

5. Choose either:

   LCD: The report is displayed on the LCD display.

   — or —

   Printer: The report is printed on the connected printer. If you do not have a printer, this option is not available.

6. If you selected LCD, when finished viewing the report, press Cancel twice to return to the reports menu.

7. Choose another report to view or to exit menu mode, press the Menu button.

```
Reports
Test
Control
Program
```
⇩
```
Reports
System Configuration
Internal Status
Device Details
```
⇩
```
Device Details
Device Count
Serial #
```
⇩
```
LCD
Printer
```
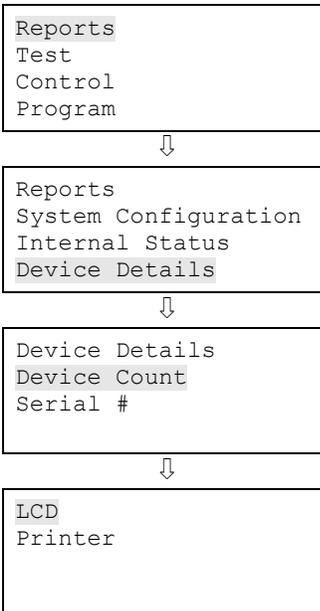
To view the device serial numbers:

1. Press the Menu button.

2. Choose Reports.

3. Choose Device Details.

4. Choose Serial #.

5. Choose either:

   LCD: The report is displayed on the LCD display.
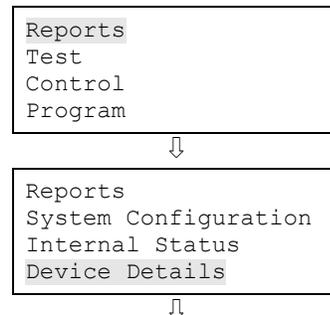
```
Reports
Test
Control
Program
```
⇩
```
Reports
System Configuration
Internal Status
Device Details
```
⇩

— or —

Printer: The report is printed on the connected printer. If you do not have a printer, this option is not available.

6. If you selected LCD, when finished viewing the report, press Cancel twice to return to the reports menu.

7. Choose another report to view or to exit menu mode, press the Menu button.

```
Device Details
Device Count
Serial #
```

⇩

```
LCD
Printer
```
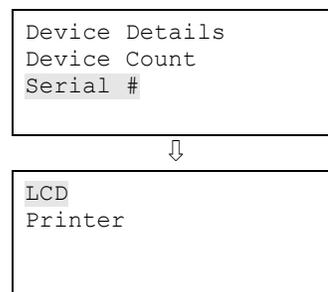
Diagnostics reports

There are two Diagnostics reports designed to show the communication performance of the devices on a loop.

Comm Retries report

This report allows you to display a list of devices that have required two, three, or four consecutive communication poll retries. It lists the devices that could potentially generate a communication fault by showing the maximum number of retries for the current hour and a summary of the past 24 hours.

The report can be used to identify devices with intermittent communication faults. A device appearing in this report is an indication that the wiring to the device is suspect. To investigate problem devices, inspect the wiring between the problem device and another device not in the report. Inspect this section of wiring for problems such as loose connections and intermittent wiring breaks.

Note: The current hour retries can be cleared and updated by running the Loop Comm Check diagnostic (see "Loop comm check" for more information).

Response Quality report

This report allows you to enter a quality percentage value, which then lists the devices that are communicating at that level or below. By entering different percentages, you can troubleshoot device communications on a loop.

The panel periodically stores the measurement of the response for individual devices during communication polling. The report displays the result of the latest poll as a percentage, where 100% is the best response (maximum possible pulse strength) and anything less than 44% means that the device failed a communication poll and could potentially generate a communication fault.

Devices appearing in this report are an indication that the wiring to the devices is questionable or that the devices themselves are questionable. To investigate problem devices, inspect the wiring between the problem device and another device not in the report. Inspect the wiring for problems such as exceeding wiring specifications (see "Device loop wiring" for more information), loose connections, and intermittent wiring breaks and shorts.

Notes

- You must have a printer connected to your panel to print a report.

- Requesting a report while another report is being printed or displayed on the LCD display stops the current report (even if it has not finished) and starts the new report that you requested.
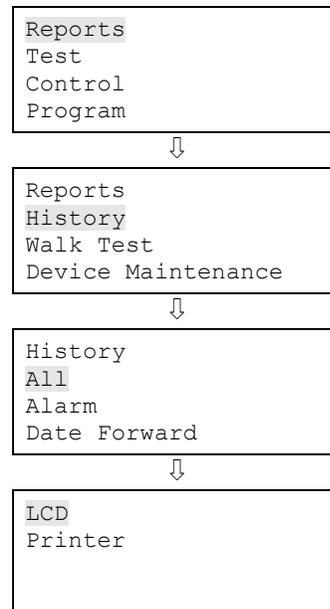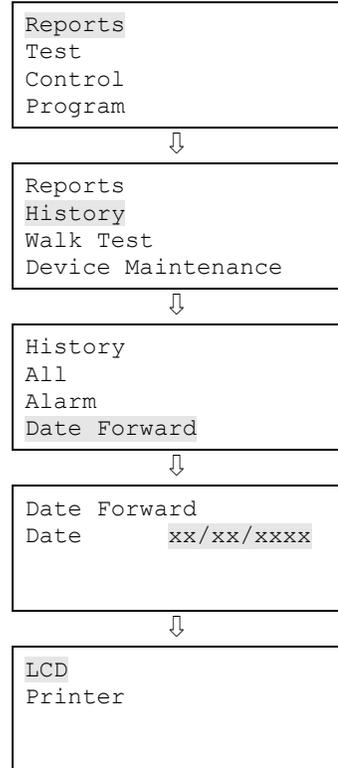
- You cannot do a Response Quality diagnostic report while a loop initialization is taking place.

To view a Comm Retries diagnostic report:

1. Press the Menu button.

2. Choose Reports.

3. Choose Diagnostics.

4. Choose Comm Retries.

5. Choose either:

   LCD: The report is displayed on the LCD display.

   — or —

   Printer: The report is printed on the connected printer. If you do not have a printer, this option is not available.

6. If you selected LCD, when finished viewing the report, press Cancel twice to return to the reports menu.

7. Choose another report to view or to exit menu mode, press the Menu button.

```
Reports
Test
Control
Program
```
⇩
```
Reports
Internal Status
Device Details
Diagnostics
```
⇩
```
Diagnostics
Comm Retries
Response Quality
```
⇩
```
LCD
Printer
```

To view a Response Quality diagnostic report:

1. Press the Menu button.

2. Choose Reports.

3. Choose Diagnostics.

4. Choose Response Quality.

5. Enter the quality percentage (0 to 100).

   This is a communication percentage value that is used to display the device's minimum recorded pulse strength percentage. Enter 80 to see the devices that are communicating up to 80 percent of their maximum pulse strength. Enter 50 to only see the devices that are communicating up to 50 percent of their maximum pulse strength (devices communicating better than 50% would not be listed in the report).

6. Choose either:

```
Reports
Test
Control
Program
```
⇩
```
Reports
Internal Status
Device Details
Diagnostics
```
⇩
```
Diagnostics
Comm Retries
Response Quality
```
⇩
```
Response Quality
Quality %      000
```

⇩

```
LCD
Printer

```

LCD: The report is displayed on the LCD display.

— or —

Printer: The report is printed on the connected printer. If you do not have a printer, this option is not available.

7. If you selected LCD, when finished viewing the report, press Cancel twice to return to the reports menu.

8. Choose another report to view or to exit menu mode, press the Menu button.
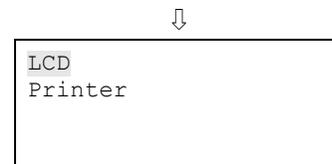
Internal Fault report

The Internal Fault report displays information about an internal fault event (event ID 48) that took place on your system. The report contains important information for technical support when you are troubleshooting the internal fault event and should typically only be run when you are asked to do so by a technical support representative.

Notes

- You must have a printer connected to your panel to print a report.

- Requesting a report while another report is being printed or displayed on the LCD display stops the current report (even if it has not finished) and starts the new report that you requested.

To view an Internal Fault report:

1. Press the Menu button.

2. Choose Reports.

3. Choose Int. Fault.

4. Choose either:

   LCD: The report is displayed on the LCD display.

   — or —

   Printer: The report is printed on the connected printer. If you do not have a printer, this option is not available.

5. If you selected LCD, when finished viewing the report, press Cancel twice to return to the reports menu.

6. Choose another report to view or to exit menu mode, press the Menu button.

```
Reports
Test
Control
Program
```
⇩
```
Reports
Device Details
Diagnostics
Int. Fault
```
⇩
```
LCD
Printer
```
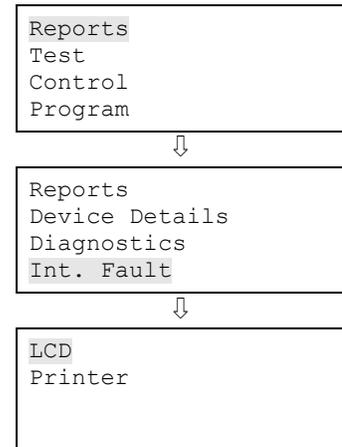
Canceling a report

Once a report is sent to the LCD display or printer, you can cancel the report so that it stops printing on the printer or displaying on the LCD display.

To cancel a report:

1. Press the Menu button.

2. Choose Reports.

3. Choose Cancel Reports.

4. Choose Yes to cancel the report. Choose No to continue with the report.

5. Continue working with reports or to exit menu mode, press the Menu button.
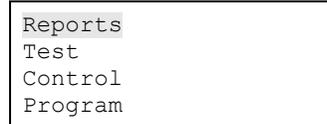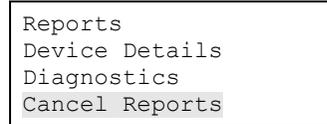
```
Reports
Test
Control
Program
```
⇩
```
Reports
Device Details
Diagnostics
Cancel Reports
```
⇩
```
Cancel Reports
Yes
No
```
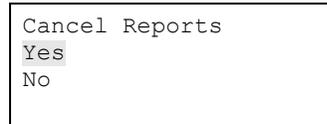
Chapter 5
Diagnostics, maintenance, and testing

Summary

This chapter provides diagnostics, preventive maintenance, and testing information.

Content

Preventive maintenance schedule

Refer to NFPA 72 section Inspection, Testing, and Maintenance, Canadian Electrical Code Part I, ULCS524, or ULCS536 for more information on required inspection and testing methods and frequency of fire alarm systems and devices. For detector sensitivity and functionality testing, refer to the detector manufacturer's installation instructions.

Fast ground check

Fast Ground Check is used to quickly check the system for ground faults. Every 30 seconds, the system checks for ground faults and reports them by flashing the Ground Fault LED. If you are troubleshooting ground faults on your system, you may not want to wait 30 seconds for the ground fault to clear. If the ground fault was not fixed, you may not want the LED to stay active. By using Fast Ground Check, you can decrease the system check time to every 4 seconds, meaning that you will be able to troubleshoot your ground faults much quicker and determine if they have been fixed or not.

Note: Once you solve the ground faults on your system, turn off the Fast Ground Check.

To turn on and off Fast Ground Check:

1. Press the Menu button.

2. Choose Diagnostics.

3. Enter the level two password.

4. Choose Fast Ground Check.

5. Choose Start to turn on Fast Ground Check or choose End to turn off Fast Ground Check.

```
Test
Control
Program
Diagnostics
```
⇩
```
   Enter Password
        0000

```
⇩
```
Diagnostics
Fast Ground Check
Recalibrate Device
Flash Device LED
```
⇩
```
Fast Ground Check
Start
End

```
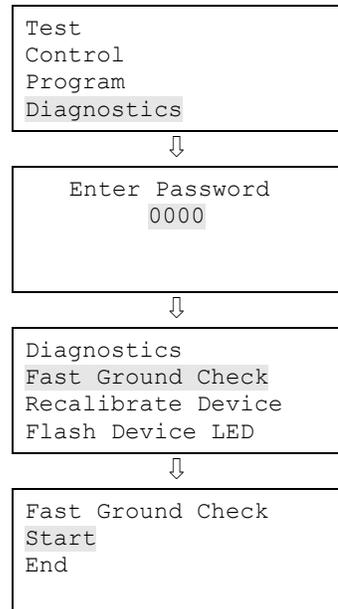
Recalibrate device

Recalibrate device is used to calibrate a detector after it has been cleaned. The recalibrate command resets the environmental compensation and dirtiness level immediately. The panel can also calibrate the device once it recognizes that it has been cleaned, but this takes considerably more time than using this command. Once a detector has been cleaned, you can quickly recalibrate the detector by using this command to see if the detector has been cleaned properly. If the device is not cleaned, the device trouble will return meaning that more cleaning is required. If the device is cleaned, the corresponding device trouble will clear.

To recalibrate a device:

1. Press the Menu button.

2. Choose Diagnostics.

3. Enter the level two password.

4. Choose Recalibrate Device.

5. Choose the loop the device is on.

   Note: If your panel only has one loop, the loop selection screen does not display. Go to the next step.

6. Choose the device (number) that you want to recalibrate.

7. Press Enter.

```
Test
Control
Program
Diagnostics
```
⇩
```
   Enter Password
       0000

```
⇩
```
Diagnostics
Fast Ground Check
Recalibrate Device
Flash Device LED
```
⇩
```
Recalibrate Device
Loop            01<>


```
⇩
```
Recalibrate Device
Device          001
Device 001
```
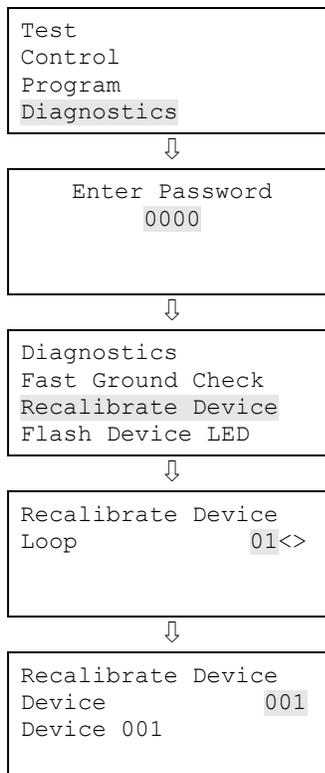
Flash device LED

Flash Device LED is used to help in troubleshooting to locate a device on a loop by flashing the device's LED (detectors flash red LED, modules flash green LED). By selecting a specific device and flashing its LED, you can quickly locate the device on the loop. One way to use this for example, is if you have two devices with the same address (duplicate address), you can flash the LED for that device address, which causes the LED to flash on the two devices with the same address, making it easy for you to find the two devices.

To start and stop flashing a device LED:

1. Press the Menu button.

2. Choose Diagnostics.

3. Enter the level two password.

4. Choose Flash Device LED.

5. Choose the loop the device is on.

    Note: If your panel only has one loop, the loop selection screen does not display. Go to the next step.

6. Choose the device (number).

7. Choose Start to begin flashing the device LED or choose End to stop flashing the device LED.

```
Test
Control
Program
Diagnostics
```
⇩
```
   Enter Password
        0000

```
⇩
```
Diagnostics
Fast Ground Check
Recalibrate Device
Flash Device LED
```
⇩
```
Flash Device LED
Loop            01<>

```
⇩
```
Flash Device LED
Device           001
Device 001
```
⇩
```
Device
Start
End
```
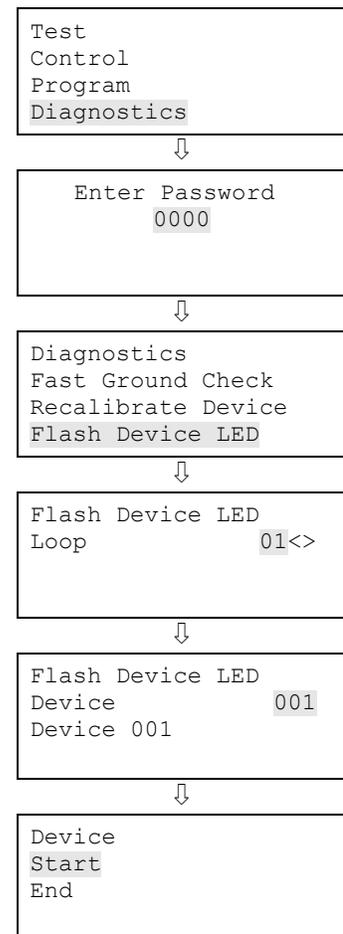
Loop comm check

Loop Comm Check is used to determine which loop devices are not communicating. When you run this command, the system checks the device communications on your system's device loops. The devices that are not communicating are listed in a report that you can then use to troubleshoot the problem. Once a report is generated, it remains in memory until another report is generated. This allows you to access the latest report in Reports menu > Diagnostics > Loop Comm Check.

To do a loop comm check:

1. Press the Menu button.

2. Choose Diagnostics.

3. Enter the level two password.

4. Choose Loop Comm Check.

5. On the Diagnostics screen, you can monitor the progress of the check. Once the check is complete, select:

   Continue: To go to the report Diagnostics screen. Go to the next step.

   Back: To return to the Diagnostics menu. If you select Back, you have to go to the Reports menu > Diagnostics > Loop Comm Check to see the report once the report is created.

   Note: This process may take considerable time depending on how large your system is. If it takes longer than four minutes (login time expiration), the system automatically logs you out if there isn't any activity, meaning that you will have to log back in and go to the reports section to view the diagnostic report once it is generated.

6. Choose Loop Comm Check.

7. Choose either:

   LCD: The report is displayed on the LCD display.

   — or —

   Printer: The report is printed on the connected printer. If you do not have a printer, this option is not available.

8. If you selected LCD, when finished viewing the report, press Cancel twice to return to the reports menu.

9. To exit menu mode, press the Menu button.

```
Test
Control
Program
Diagnostics
```
⇩
```
  Enter Password
      0000
```
⇩
```
Diagnostics
Recalibrate Device
Flash Device LED
Loop Comm Check
```
⇩
```
    Diagnostics
     Executing
      #######
<-Continue      <-Back
```
⇩
```
Diagnostics
Loop Comm Check
```
⇩
```
LCD
Printer
```
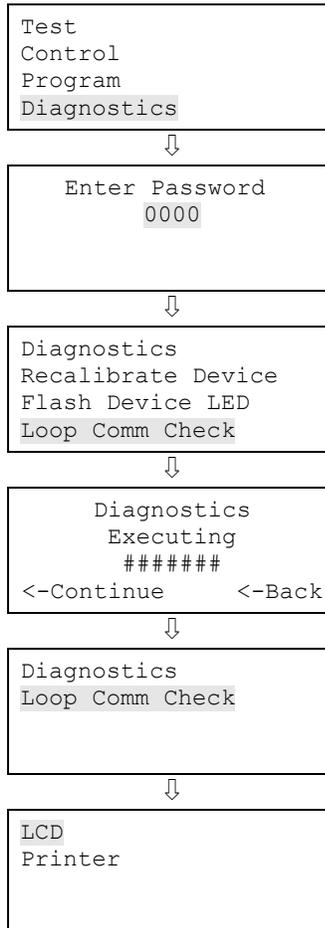
Control panel testing

Before commencing testing, notify all areas where the alarm sounds and off-premises locations that receive alarm and trouble transmissions that testing is in progress.

- Records of all testing and maintenance shall be kept as required by the authority having jurisdiction.

- Required tools:

    -Slotted screwdriver, insulated
    -Digital multimeter
    -1.1 kΩ, 1 W resistor
    -12 in. (30.5 cm) jumper lead with alligator clips
    -Panel door key
    -Sound level meter

- A complete check of installed field wiring and devices should be made at regular intervals in accordance with NFPA 72, Canadian Electrical Code Part I, ULC S524, and ULC S536 requirements. This includes testing all alarm and supervisory initiating devices and circuits and any off-premises connections.

- Panel operation should be verified in the alarm, supervisory, and trouble modes.

- To ensure that the panel can operate correctly when primary power is lost, the batteries should be inspected and tested periodically. Batteries should be replaced (at a minimum) every four years.

Canadian tests for grounds, opens, and shorts

ULC requires that you test ground fault, open circuit, and short circuit indications.

For ground fault tests, short one leg of the circuit to chassis ground and verify that the system Ground Fault LED and Trouble LEDs turn on.

For NAC open circuit tests, remove the end-of-line resistor from the last device on the circuit and verify that the system Trouble LED turns on.

For NAC short circuit testing, place a short across the NAC output terminals and verify that the system Trouble LED turns on.

For AUX power short circuit testing, place a short across the AUX power output's plus (+) and minus (–) terminals and verify that the system Trouble LED turns on.

For annunciator communications testing, place a short across channel 1 (+ and –) and verify that the system Trouble LED turns on. Repeat for channel 2.

Testing a device (test fire)

A test fire is a test activation of a smoke or heat detector or input module. A test fire can be conducted to test for proper operation of a detector or input module and its programming. When a detector is test fired, the panel sends a command to the detector at which time the detector simulates a smoke or heat buildup, causing an actual activation of the detector. When an input module is test fired, the panel sends a command to the module at which time the module simulates an activation (alarm, supervisory, or monitor).

Note: NAC responses activate as programmed.

To conduct a test fire:

1. Press the Menu button.

2. Choose Test.

3. Choose Test Fire.

4. Enter your password (the minimum of a level one password is required).

5. Choose the loop the device is on.

   Note: If your panel only has one loop, the loop selection screen does not display. Go to the next step.

6. Enter the device number of the device you want to test fire.

7. Press Enter.

8. Choose Start to start the test.

9. When finished, press Reset (or repeat steps 1 to 7 and choose End) to clear the test alarms and return the system to normal.

10. Press Cancel to return to the previous menu.

    — or —

    Press the Menu button to exit menu mode.

```
Reports
Test
Control
Program
```
⇩
```
Test
Walk Test Silent
Walk Test Audible
Test Fire
```
⇩
```
  Enter Password
       0000

```
⇩
```
Test Fire
Loop            01<>

```
⇩
```
Test Fire
001
Device 001
```
⇩
```
Test Fire        001
Start
End

```
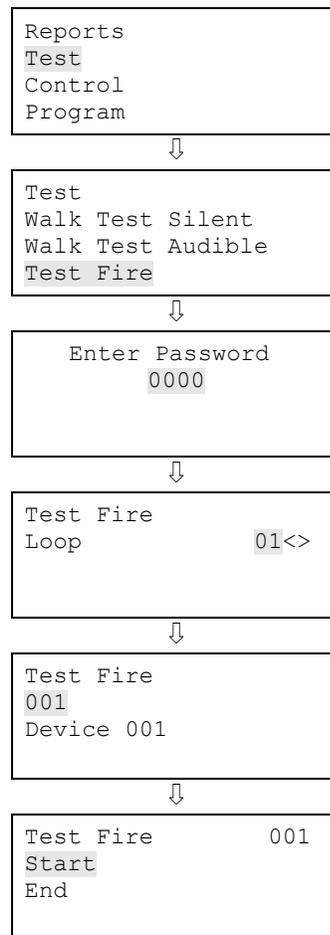
SA-DACT testing

A dialer test is a test of the telephone line for each dialer account. When a dialer is tested, a normal or abnormal test message (depending on the state of the system) is sent to the selected account. If the dialer is set up for dual line operation, a test message is sent to both lines regardless of the success of the transmission for either account.

Note: Before conducting a test, configure the dialer's accounts for proper operation.

To conduct a dialer test:

1. Press the control panel's Menu button.

2. Choose Test.

3. Choose Dialer.

4. Enter your password (the minimum of a level one password is required).

5. Select the account that you want to test.

6. Press Enter.

    Note: The test message is sent to the CMS account that you selected. For verification of the CMS account receiving the test message, you must be in contact with the CMS account during the test. Nothing is displayed on the LCD display.

7. Press Cancel to return to the previous menu.
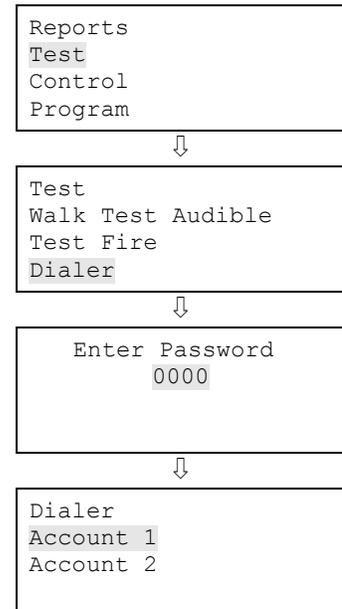
    — or —

    Press the Menu button to exit menu mode.

```
Reports
Test
Control
Program
```

⇩

```
Test
Walk Test Audible
Test Fire
Dialer
```

⇩

```
   Enter Password
        0000

```

⇩

```
Dialer
Account 1
Account 2

```

Conducting a lamp test

A lamp test lights all of the LEDs on the panel and the LED annunciator and tests the LCD display so that you can verify proper operation. LEDs stay on for 15 seconds.

To conduct a lamp test:

1. Press the Menu button.

2. Choose Test.

3. Choose Lamp Test.

4. Press Enter.

5. Verify proper operation of all LEDs on the panel, the LCD display, and the LED annunciator (if used).

```
Reports
Test
Control
Program
```

⇩

```
Test
Test Fire
Dialer
Lamp Test
```

Using the walk test command

A walk test lets you test individual zones or devices without having to create an actual alarm condition. You can conduct a walk test in silent or audible mode. In silent mode, the audible devices (NACs) do not sound.

Zones and devices should be placed in walk test one at a time. This allows the balance of the system to remain in service. When a device is activated for test, it remains active throughout the test and does not restore until walk test is ended. When walk test is ended, all of the tested devices restore.

Note: Walk test will not operate with an active alarm or supervisory event at the panel.

When you enter walk test mode:

- The Test LED flashes for an audible walk test and is steady for a silent walk test.

- Walk Test is displayed on the LCD display. Walk Test is replaced with the device activation message during the period the device is activated while in walk test.

- The panel enters a trouble state. There is no fire protection for the zone in walk test. If an unselected zone or device goes into alarm or trouble, all programmed outputs operate as programmed.

Zones and devices behave as follows during walk test:

- For alarm events, the appropriate panel and annunciator LEDs and buzzers are turned on. In the audible (NAC) test mode a four-second pulse sounds for NAC types: continuous nonsilenceable, continuous silenceable, Genesis nonsilenceable, Genesis with audible silence only, and Genesis with audible and visible silenceable on the audible devices. A single 3-3-3 cycle sounds for NAC types: temporal nonsilenceable, temporal silenceable, coder basic, coder continuous, coder 120spm, and coder temporal on the audible devices.

- For trouble events, the appropriate LEDs and the buzzers are turned on. In the audible (NAC) test mode a two-second pulse sounds on the audible devices.

- For ground fault events, the appropriate LEDs and the buzzers are turned on. In the audible (NAC) test mode, a two-second pulse sounds on the audible devices.

- All device activations are latched until walk test is ended or the panel is reset. When walk test is ended, it takes approximately eight seconds for the devices to restore. If the device being tested is in a zone and does not restore, the zone does not reset.

- If auxiliary power is resettable, the auxiliary power is interrupted while the zone is reset.

- Input zones programmed as waterflow with retard require 10 to 15 seconds of activation to initiate the test signals.

- Devices programmed as alarm verify and *not in test mode* go directly into alarm if activated (the alarm verification process is bypassed).

- Once a device is tested, restore the device. For example, if you are testing a pull station, reset the pull station before testing the next device.

The panel terminates walk test if any of the following occur:

- There are 30 minutes of inactivity for the zone or device being tested.

- Walk test is stopped by the user.

To start a walk test:

1. Press the Menu button.

2. Choose Test.

3. Choose Walk Test Silent or Walk Test Audible.

4. Enter your password (the minimum of a level one password is required).

5. Choose either All Devices or Zone.

6. If you chose Zone, enter the zone ID for the zone you are going to conduct the walk test.

7. Choose Start.

8. Conduct your walk test.

9. Press Cancel to return to the previous menu.

   — or —

   Press the Menu button to exit menu mode.

```
Reports
Test
Control
Program
```
⇩
```
Test
Walk Test Silent
Walk Test Audible
Test Fire
```
⇩
```
   Enter Password
        0000


```
⇩
```
Walk Test Sil/Aud
All Devices
Zone

```
⇩
```
Zone
Number            01
Zone 01

```
⇩
```
Start
End


```

To end a walk test:

Note: To see the activation and restoration of all walk test events, the panel must be reset *prior* to ending the walk test. Once the reset is complete, you can end the walk test and view a walk test report.

1. Press the Menu button.

2. Choose Test.

3. Choose Walk Test Silent or Walk Test Audible.

4. Choose either All Devices or Zone.

5. If you chose Zone, enter the zone ID of the zone for which you are going to end the walk test.

6. Choose End to turn off the walk test. All of the devices that were activated in the test are restored at this time.

7. Press Cancel to return to the previous menu.

 — or —

 Press the Menu button to exit menu mode.

```
Reports
Test
Control
Program
```
⇩
```
Test
Walk Test Silent
Walk Test Audible
Test Fire
```
⇩
```
Walk Test Sil/Aud
All Devices
Zone
```
⇩
```
Zone
Number          01
Zone 01
```
⇩
```
Start
End
```

Using HyperTerminal

Note: To use HyperTerminal, you must have the optional SA-232 RS-232 Interface Card installed in the control panel. To avoid getting a printer trouble, set the panel's printer option for Unsupervised before connecting your computer to the SA-232 card.

HyperTerminal is a useful tool for gathering information from the control panel through an RS-232 port connection in order to troubleshoot system faults. The information gathered can be saved as a plain text file (TXT extension) and submitted electronically to technical support for evaluation.

HyperTerminal comes with your Windows operating system as an installable option. HyperTerminal, if installed, is typically found on the Accessories menu (Start > All Programs > Accessories > Communications).

Setting up a HyperTerminal connection

Before you can gather information from the control panel you must set up a HyperTerminal connection.

To set up a HyperTerminal connection:

1. Start HyperTerminal.

2. In the Connection Description dialog box, type a name for the connection in the Name box then click OK.

3. In the Connect To dialog box, select the COM port you are using to connect your laptop computer to the control panel then click OK.

4. In the COM port's Properties dialog box, set the port settings as described below then click OK.

    Bits per second: 9600
    Data bits: 8
    Parity: None
    Stop bits: 1
    Flow control: None

5. On the File menu, click Save to save your connection settings.

Capturing a report

The history report provides useful information for troubleshooting system faults. You should always have this information available before calling technical support.

To capture a report:

1. On the Transfer menu, click Capture Text.

2. In the File box in the Capture Text dialog box, type a name for the captured text file. Example: History Report. The TXT file extension is added automatically.

   If you want to save the file somewhere other than the default location, click the Browse button, navigate to the desired location, then name the file.

3. Click Start.

4. On the front panel, go to the main menu, choose Reports, then choose the report you want captured.

5. On the Print Output menu, choose Printer to send the report to HyperTerminal.

6. Wait until the report transfer is complete.

7. On the Transfer menu, click Capture Text, and then Stop.

Replacing a device in alarm

You can replace a device while it is in alarm with a new device of the same type. You may need to do this because the device is faulty or for other troubleshooting reasons. If you replace a device while it is in alarm, the following describes how the device and control panel operate.

- When the device in alarm is removed, the control panel remains in alarm and a trouble event is displayed.

- When the new device is installed, it does not go into alarm, but a second trouble event is displayed on the control panel when it detects the new device.

- When the control panel resolves the new device, the alarm condition restores and the two trouble events clear on the control panel.

Note: If the device causing the alarm is reinstalled, the device goes back into alarm and the alarm condition does not restore.

Appendix A
Panel specifications

Summary

This appendix lists all of the specifications for the control panel.

Content

Control panel specifications

	64 point panel	250/500 point panel
Device loops	1 loop Class B or Class A (Styles 4, 6, 7) supporting up to 64 device addresses (any combination of detectors and modules)	1 loop, expandable to 2, Class A or B (Styles 4, 6, 7), each loop supporting up to 250 device addresses (125 detectors and 125 modules max.). **Note:** Addresses 1 to 125 are for detectors and addresses 126 to 250 are for modules.
Notification appliance circuits	2 Class B (Style Y), Class A (Style Z) optional	4 Class B (Style Y) or 2 Class A (Style Z)
	3.75 A FWR total at 120/230 VAC 60 Hz	6.0 A FWR total at 120/230 VAC 60 Hz
	3.0 A FWR total at 230 VAC 50 Hz	5.0 A FWR total at 230 VAC 50 Hz
	2.5 A FWR each max. per circuit	2.5 A FWR each max. per circuit
Primary power	120 VAC, 60 Hz, 1.3 A max.	120 VAC, 60 Hz, 1.8 A max.
	230 VAC, 50-60 Hz, 0.6 A max.	230 VAC, 50-60 Hz, 0.975 A max.
Base panel current standby	155 mA	172 mA
Base panel current alarm	204 mA	267 mA
Input zones	16 max.	32 max.
Remote annunciator	8 drops max., RS-485 Class B, Class A optional	8 drops max., RS-485 Class A or B
	Data line length: 4,000 ft. (1,219 m)	Data line length: 4,000 ft. (1,219 m)
Operating voltage	24 VDC	
Auxiliary power output circuit	Aux power 1: 500 mA, 24 VDC	
	Aux power 2: 500 mA, 24 VDC (1 A possible if you reduce total available NAC power by 500 mA)	
	Output: 28.3 to 21.9 VDC, special application	
	Note: For a complete list of devices that can be connected to this circuit, refer to the *iO64 and iO500 Series Compatibility List* (P/N 3101064).	
Loop circuit	Maximum loop resistance: 66 Ω Maximum loop capacitance: 0.2 µF Communication line voltage: Maximum 20.6 V peak-to-peak Operating current (fully loaded loop) Stand by: 60 mA Alarm: 125 mA (this does not include two-wire smoke modules) Circuit current: 0.5 A max. Style 4, 6, and 7 wiring Max. resistance between isolators: Limited only by overall wire run lengths 64 isolators maximum (total both isolator bases and modules)	
Batteries	Type: Sealed lead acid Voltage: 24 VDC Charging current: 2.47 A max. Amp hour capacity: 26 Ah Standby operation: 24 hour or 60 hour Placement: Up to two 10 Ah batteries will fit in the 64 pt control panel cabinet and two 18 Ah batteries will fit in the 250/500 point control panel cabinet. If larger batteries are required, you must use a GE Security battery cabinet.	

SA-DACT dialer	Phone line type: One or two loop-start lines on a public, switched network
	Phone line connector: RJ-31/38X (C31/38X)
	Communication formats: Contact ID (SIA DC-05)
	Operating current
	Standby/Alarm: 41 mA
	Max.: 100 mA
	FCC registration number: GESAL01BSADACT
	Industry Canada Registration number: 3944A-SADACT
	Ringer equivalence number: 0.1B
Ground fault impedance	0 to 5 kΩ
Alarm contact	Form C N.O. 24 VDC at 1 A (resistive load)
Trouble contact	Form C 24 VDC at 1 A (resistive load)
Supervisory contact	Form A N.O. 24 VDC at 1 A (resistive load)
Environmental	Temperature: 0 to 49°C (32 to 120°F)
	Humidity: 0 to 93% RH, noncondensing
Terminal rating	All terminals rated for 12 to 18 AWG (0.75 to 2.5 sq. mm)

Appendix B
Worksheets

Summary

This appendix contains all of the worksheets needed to program the panel, calculate NAC requirements and battery requirements.

Content

Battery calculation worksheet

Use this worksheet to determine the minimum amp hour capacity required for the panel's standby battery. You can obtain operating current requirements for notification appliances from their respective installation sheets.

Battery calculation worksheet

	Standby current (mA)	Alarm current (mA)	
Control panel (use Worksheet A and place totals here)			
Auxiliary/smoke power (use Worksheet B and place totals here)			
NAC 1			
NAC 2			
NAC 3			
NAC 4			
Total current			
Operating time required	× hr	× min	
		÷ 60	
	+	= mAh	
		× 1.2	
		mAh	
		÷ 1,000	
Battery size [1]			Ah

Notes

[1] Battery size may not exceed 26 Ah for UL/ULC systems. Refer to Appendix A and "Battery wiring" for battery details.

Worksheet A: Control panel current load

Devices	Qty	Standby current (mA)	Alarm current (mA)	Qty x Standby current (mA)	Qty x Alarm current (mA)
Base panel	1	See note [1] below	See note [2] below		
Primary loop circuit (fully loaded loop)		55	125		
XAL250 loop expander card (fully loaded loop)		60	125		
SA-CLA Class A card		3	60		
SA-232 RS-232 card		13	13		
SA-DACT dialer		41	41		
SA-ETH network card		34	34		
LED expander		4	1 expander: 48 2 expanders: 96		
Totals (mA) (transfer totals to Battery Calculation Worksheet)					

Notes

[1] 64 pt.: 155
250/500 pt.: 172

[2] 64 pt.: 204
250/500 pt.: 267

Worksheet B: Auxiliary/smoke power current load

Devices	Qty	Standby current (mA)	Alarm current (mA)	Qty x Standby current (mA)	Qty x Alarm current (mA)
RPM		20	270		
SIGA-UM or -MAB [1]		2	17		
RLCD(F)		98	113		
RLCD-C(F)		99	115		
RLED-C(F)		28	62		
LED24		6	34		
Totals (mA) (transfer totals to Battery Calculation Worksheet)					

Note

[1] Enter 1 regardless of how many are installed. Only the first SIGA-UM or SIGA-MAB in the alarm state draws current. The other ones do not because the system load sheds additional modules in alarm.

Notification appliance circuit calculations worksheet

Introduction

This topic shows you how to determine the maximum cable length of a notification appliance circuit (NAC) for a given number of appliances.

Two methods are presented: worksheet and equation. The worksheet method is simpler, but your installation must meet the criteria listed on the worksheet. If your installation does not meet these criteria, you need to use the equation method.

The methods given here determine cable lengths that work under all operating conditions. The calculations ensure that the required operating voltage and current will be supplied to all notification appliances. To do this, we assume these two worst-case conditions:

- The voltage at the NAC terminals is the minimum provided by the power supply

- The notification appliances are clustered at the end of the NAC cable

Other, more detailed methods that distribute the appliance load along the NAC cable may indicate that longer cable runs are possible.

What you'll need

Appliance and cable values

Whether you use the worksheet method or the equation method, you'll need to know:

- The minimum operating voltage required for the appliances

- The maximum operating current drawn by each appliance

- The resistance per unit length of the wire used (Ω/ft.)

This information can be found on the appliance installation sheets and on the cable specification sheet.

Power supply values

For either method, you'll need some fixed or calculated operating values for your specific power supply. The fixed values are:

- Source voltage
  = 20.4 V
- Load factor

    = 0.20 V/A (64 point panel)
    = 0.24 V/A (250/500 point panel)
- Power type
    = FWR

The *source voltage* is the theoretical operating minimum for the power supply, and is calculated as 85% of 24 volts.

The *load factor* is a measure of how the power supply voltage reacts when a load is applied. The load factor measures the voltage drop per ampere of current drawn by the load.

The *power type* reflects the type of power supplied to the NAC terminals at minimum voltage. The current draw of notification appliances can vary substantially with the type of power supplied: full-wave rectified (VFWR) or direct current (VDC). It is important to know the power type at minimum terminal voltage.

You'll need to calculate the following values relating to your power supply and to the NAC circuit current. These are:

- Minimum voltage
- Voltage drop

The *minimum voltage* is the lowest voltage measured at the NAC terminals when the power supply is under the maximum load for that circuit (i.e. for the appliances that constitute the NAC.)

The *voltage drop* is the difference between the minimum voltage and 16 V. This value is for use with the worksheet only.

Worksheet method

Use this worksheet to determine the maximum cable length of a notification appliance circuit for a given number of appliances.

Use this worksheet only if all the appliances are regulated. That is, they must have a minimum operating voltage of 16 V. For other appliances, use the "Equation method."

NAC cable length

		NAC1	NAC2	NAC3	NAC4	
Total operating current [1]						A
Load factor (64 point panel)	×	0.20	0.20	0.20	0.20	V/A
Load factor (250/500 point panel)		0.24	0.24	0.24	0.24	
Load voltage drop	=					V
Source voltage		20.4	20.4	20.4	20.4	V
Load voltage drop	−					V
Minimum voltage	=					V
Regulated appliance voltage	−	16.0	16.0	16.0	16.0	V
Voltage drop [2]	=					V
Total operating current	÷					A
Maximum resistance	=					Ω
Wire resistance (Ω/ft) [3]	÷					
Maximum wire length	=					ft.
	÷	2	2	2	2	
Maximum cable length	=					ft.

[1] Total of the maximum operating currents for all appliances as specified for FWR power. See the appliance installation sheets for operating currents.

[2] This voltage drop is valid for regulated notification appliances only. For unregulated appliances, see "Equation method," later in this topic.

[3] Use the manufacturer's published wire resistance expressed in ohms per foot. For typical values, see Table 1, later in this topic.

Equation method

Appliance operating voltage and current

Regulated notification appliances have an operating range from 16 V to 33 V. Use 16 V as the minimum appliance voltage when using regulated notification appliances.

When using special application notification appliances, refer to the installation sheets to determine the minimum appliance voltage required.

What if there are different types of appliances in the NAC, and each type has a different minimum operating voltage? In this case, use the *highest* minimum voltage required by any appliance.

The total current requirement for the appliances will be the sum of the individual maximum currents drawn by each appliance when using FWR power. Use the maximum current for the appliance over the 16 V to 33 V range.

If all appliances draw the same maximum current, the total current is the maximum current multiplied by the number of appliances. If different appliance types have different maximum currents, the total current is the sum of the maximum current for each appliance type multiplied by the number of appliances of that type.

Wire resistance

Typical wire resistances are shown in the following table.

Table 1: Typical wire resistances

Wire gauge	Resistance 1-strand uncoated copper		Resistance 7-strand uncoated copper	
	Ω per foot	Ω per meter	Ω per foot	Ω per meter
12 AWG	0.00193	0.00633	0.00198	0.00649
14 AWG	0.00307	0.01007	0.00314	0.01030
16 AWG	0.00489	0.01604	0.00499	0.01637
18 AWG	0.00777	0.02549	0.00795	0.02608

When performing these calculations, always refer to the actual cable supplier documentation and use the actual Ω/ft. (or Ω/m) for the cable being used.

Calculating cable length

To calculate the maximum NAC cable length:

1. Calculate the total current (Itot) as the sum of the maximum operating currents for all the appliances.

Itot = ΣIa

Where:
Ia = appliance maximum current

See the appliance installation sheets for Ia. Remember to use the maximum operating current specified for FWR power.

2. Calculate the minimum voltage (Vm).

Vm = Vs − (Itot × K)

Where:
Vs = source voltage
Itot = total current (from above)
K = load factor

64 point panel: For the power supply, Vs is 20.4 V and K is 0.20 V/A.

250/500 point panel: For the power supply, Vs is 20.4 V and K is 0.24 V/A

3. Calculate the allowable voltage drop (Vd) between the power supply and the appliances.

Vd = Vm − Va

Where:
Vm = minimum voltage (from above)
Va = appliance minimum voltage

For regulated notification appliances, Va is 16 V. For special application notification appliances, Va is the lowest operating voltage specified on the appliance installation sheet.

4. Calculate the maximum resistance (Rmax) for the wire.

Rmax = Vd / Itot

Where:
Vd = voltage drop
Itot = total current

5. Calculate the maximum length of the cable (Lc), based on the maximum resistance allowed, the resistance of the wire, and the number of wires in the cable (two).

Lc = (Rmax / Rw) / 2

Where:
Rmax = maximum resistance
Rw = wire resistance factor

Example: You're using regulated notification appliances. Assume that the maximum operating current for each appliance is 100 mA for FWR power, and that 20 appliances will be placed on the NAC. The cable is 12 AWG wire, and the manufacturer specifies a wire resistance factor of 0.002 Ω/ft.

Itot = Σla
    = 20 × 0.1 A
    = 2 A

Vm = Vr − (Itot × K)
    = 20.4 V − (2 A × 0.20 V/A)
    = 20.4 V − 0.40 V
    = 20.0 V

Vd = Vm − Va
    = 20.0 V − 16.0 V
    = 4.0 V

Rmax = Vd / Itot
    = 4.0 V / 2.0 A
    = 2.0 Ω

Lc = (Rmax / Rw) / 2
    = (2.0 Ω / 0.002 Ω/ft.) / 2
    = (1,000.0 ft.) / 2
    = 500.0 ft.

So the maximum wire run for this NAC would be 500 ft. (rounding down for safety).

NAC maximum wire run quick reference tables

64 point panel

Current	12 AWG	14 AWG	16 AWG	18 AWG
0.5 A	4,455 ft.	2,801 ft.	1,758 ft.	1,106 ft.
1.0 A	2,176 ft.	1,368 ft.	858 ft.	540 ft.
1.5 A	1,416 ft.	890 ft.	558 ft.	351 ft.
2.0 A	1,036 ft.	651 ft.	408 ft.	257 ft.
2.5 A	808 ft.	508 ft.	319 ft.	200 ft.

250/500 point panel

Current	12 AWG	14 AWG	16 AWG	18 AWG
0.5 A	4,435 ft.	2,788 ft.	1,750 ft.	1,101 ft.
1.0 A	2,155 ft.	1,355 ft.	850 ft.	535 ft.
1.5 A	1,395 ft.	877 ft.	550 ft.	346 ft.
2.0 A	1,015 ft.	638 ft.	400 ft.	252 ft.
2.5 A	787 ft.	495 ft.	310 ft.	195 ft.

Notification appliance voltage drop calculation worksheet

The notification appliance voltage drop calculation worksheet is used to calculate the voltage drop of your NAC circuits over the distance of the wire you are using.

NAC 1 voltage drop calculations

Circuit length		Total circuit current [2]		Wire resistance per 1000 ft [1]		Voltage drop
feet	×	amps	×	Ω	÷ 1000 =	

Panel voltage		Voltage drop		End of line voltage [3]		Voltage drop		Panel voltage		Voltage drop %
19.8 V	−		=				÷	19.8 V	=	

NAC 2 voltage drop calculations

Circuit length		Total circuit current [2]		Wire resistance per 1000 ft [1]		Voltage drop
feet	×	amps	×	Ω	÷ 1000 =	

Panel voltage		Voltage drop		End of line voltage [3]		Voltage drop		Panel voltage		Voltage drop %
19.8 V	−		=				÷	19.8 V	=	

NAC 3 voltage drop calculations

Circuit length		Total circuit current [2]		Wire resistance per 1000 ft [1]		Voltage drop
feet	×	amps	×	Ω	÷ 1000 =	

Panel voltage		Voltage drop		End of line voltage [3]		Voltage drop		Panel voltage		Voltage drop %
19.8 V	−		=				÷	19.8 V	=	

NAC 4 voltage drop calculations

Circuit length		Total circuit current [2]		Wire resistance per 1000 ft [1]		Voltage drop
feet	×	amps	×	Ω	÷ 1000 =	

Panel voltage		Voltage drop		End of line voltage [3]		Voltage drop		Panel voltage		Voltage drop %
19.8 V	−		=				÷	19.8 V	=	

Notes

[1]   Use the manufacturer's published wire resistance expressed in ohms per foot. For typical values, see Table 1 in the "Notification appliance circuit calculations worksheet."

[2]   Use the Maximum operating current at worst-case VFWR from the installation or catalog sheet of each device.

[3]   For UL regulated notification appliances, this voltage must not drop below 16 VFWR. For other devices, get the minimum operating VFWR from the installation or catalog sheet.

Device loop maximum wire length worksheet

Use the instructions provided below to calculate the maximum wire length for a device loop. The maximum wire length is made up of two components: the total amount of wire and the longest circuit path.

Step 1: Total wire

Use the worksheet below to calculate the total amount of wire that you can use to construct a device loop. The total amount of wire is based on the cable manufacturer's capacitance per foot rating. In no case shall the total amount of wire exceed the values listed in Table 1.

	500,000	pF
Cable capacitance ÷		pF/ft.
Total wire		ft.

Table 1: Maximum amount of wire you can use to construct an intelligent addressable loop

Wire type	18 AWG or 0.75 sq mm	16 AWG or 1.0 sq mm	14 AWG or 1.5 sq mm
Twisted pair, nonshielded 25 pF/36 pF/38 pF	20,000 ft. (6096 m)	13,888 ft. (4233 m)	13,157 ft. (4010 m)
Twisted pair, shielded 58 pF/82 pF/84 pF	8,621 ft. (2628 m)	6,098 ft. (1859 m)	5,952 ft. (1814 m)
Nontwisted pair, nonshielded 20 pF/20 pF/20 pF	20,000 ft. (6096 m)	20,000 ft. (6096 m)	20,000 ft. (6096 m)

Step 2: Longest path

Use Table 2 through Table 5 to determine the device loop's longest circuit path. The longest circuit path is based on wire size and type, and the number of detectors, modules, SIGA–UMs or SIGA–MABs installed on the loop. The distances listed are for devices that are evenly distributed on the loop. Please contact your distributor for loop wire distances for devices on an end loaded loop.

Note: When using Table 2 through Table 5 to calculate a wire length for the 64 point panel, do not exceed a total of 64 device addresses (any combination of detectors and modules).

In the illustration below, the longest circuit path (shown in bold lines) is 1,240 ft. (378 m). The total amount of wire comprising the loop is 1,640 ft. (500 m)

Device circuit path diagram
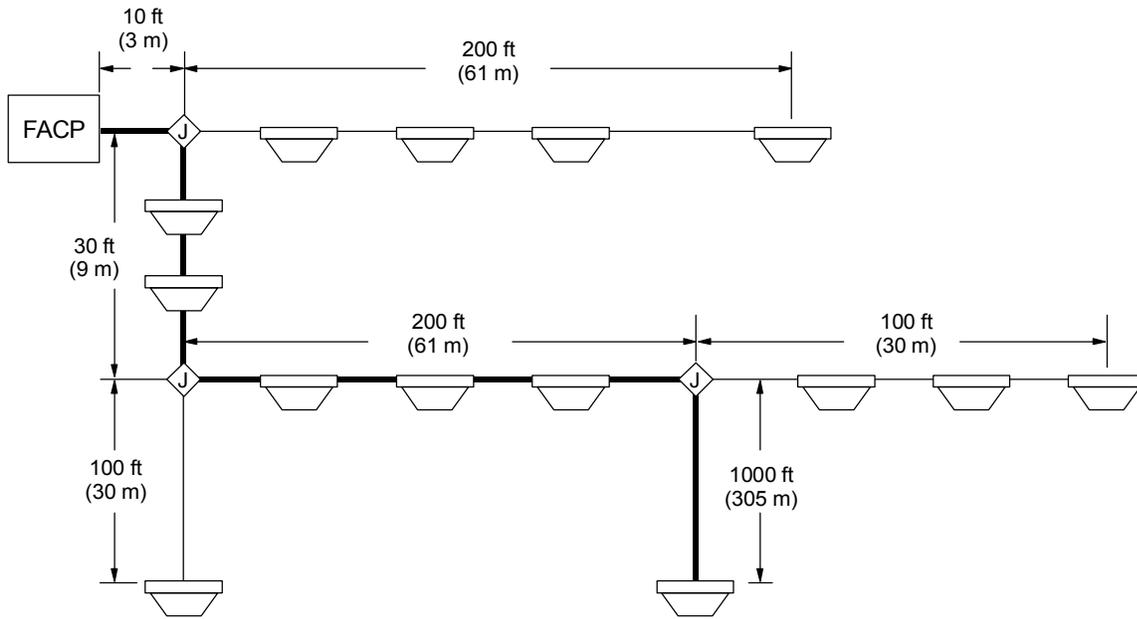
Table 2: Longest allowable circuit path with zero SIGA-UMs or SIGA-MABs configured for 2-wire smoke detectors

Number of detectors	Number of modules (1 or 2 channel)	Maximum allowable wire distance using nontwisted, nonshielded and twisted, nonshielded wire pairs (evenly distributed)					
		18 AWG		16 AWG		14 AWG	
		ft.	m	ft.	m	ft.	m
1 to 25	0	5172	1577	8217	2505	13069	3984
26 to 50	0	5172	1577	8217	2505	13069	3984
51 to 75	0	5172	1577	8217	2505	13069	3984
76 to 100	0	5172	1577	8217	2505	13069	3984
101 to 125	0	5172	1577	8217	2505	13069	3984
0	1 to 25	5172	1577	8217	2505	13069	3984
1 to 25	1 to 25	5172	1577	8217	2505	13069	3984
26 to 50	1 to 25	5172	1577	8217	2505	13069	3984
51 to 75	1 to 25	5172	1577	8217	2505	13069	3984
76 to 100	1 to 25	5172	1577	8217	2505	13069	3984
101 to 125	1 to 25	5172	1577	8217	2505	13069	3984
0	26 to 50	5172	1577	8217	2505	13069	3984
1 to 25	26 to 50	5172	1577	8217	2505	13069	3984
26 to 50	26 to 50	5172	1577	8217	2505	13069	3984
51 to 75	26 to 50	5172	1577	8217	2505	13069	3984
76 to 100	26 to 50	5172	1577	8217	2505	13069	3984
101 to 125	26 to 50	4936	1504	7841	2390	12471	3801
0	51 to 75	4968	1514	7892	2406	12553	3826
1 to 25	51 to 75	4525	1379	7188	2191	11433	3485
26 to 50	51 to 75	4095	1248	6506	1983	10348	3154
51 to 75	51 to 75	3682	1122	5849	1783	9303	2836
76 to 100	51 to 75	3283	1001	5216	1590	8296	2529
101 to 125	51 to 75	2899	884	4605	1404	7324	2232
0	76 to 100	3241	988	5150	1570	8190	2496
1 to 25	76 to 100	2901	884	4608	1405	7329	2234
26 to 50	76 to 100	2566	782	4077	1243	6485	1977
51 to 75	76 to 100	2239	683	3557	1084	5658	1725
76 to 100	76 to 100	1919	585	3049	929	4849	1478
101 to 125	76 to 100	1606	489	2551	777	4057	1237
0	101 to 125	2087	636	3316	1011	5273	1607
1 to 25	101 to 125	1795	547	2852	869	4536	1383
26 to 50	101 to 125	1507	459	2394	730	3808	1161
51 to 75	101 to 125	1223	373	1943	592	3090	942
76 to 100	101 to 125	942	287	1497	456	2381	726
101 to 125	101 to 125	666	203	1057	322	1682	513

Table 3: Longest allowable circuit path with 1 to 5 SIGA-UMs or SIGA-MABs configured for 2-wire smoke detectors

Number of detectors	Number of modules (1 or 2 channel)	Maximum allowable wire distance using nontwisted, nonshielded and twisted, nonshielded wire pairs (evenly distributed)					
		18 AWG		16 AWG		14 AWG	
		ft.	m	ft.	m	ft.	m
1 to 25	0	5172	1577	8217	2505	13069	3984
26 to 50	0	5172	1577	8217	2505	13069	3984
51 to 75	0	5172	1577	8217	2505	13069	3984
76 to 100	0	5172	1577	8217	2505	13069	3984
101 to 125	0	4980	1518	7912	2411	12583	3835
0	1 to 25	5172	1577	8217	2505	13069	3984
1 to 25	1 to 25	4861	1482	7722	2354	12281	3743
26 to 50	1 to 25	4345	1324	6903	2104	10979	3346
51 to 75	1 to 25	3843	1171	6105	1861	9710	2959
76 to 100	1 to 25	3359	1024	5337	1627	8488	2587
101 to 125	1 to 25	2895	882	4599	1402	7315	2230
0	26 to 50	3550	1082	5640	1719	8971	2734
1 to 25	26 to 50	3145	958	4996	1523	7945	2422
26 to 50	26 to 50	2742	836	4356	1328	6928	2112
51 to 75	26 to 50	2348	716	3730	1137	5932	1808
76 to 100	26 to 50	1963	598	3119	951	4961	1512
101 to 125	26 to 50	1589	484	2525	770	4016	1224
0	51 to 75	2334	712	3709	1130	5898	1798
1 to 25	51 to 75	1986	605	3156	962	5019	1530
26 to 50	51 to 75	1643	501	2610	795	4151	1265
51 to 75	51 to 75	1305	398	2073	632	3297	1005
76 to 100	51 to 75	973	296	1545	471	2458	749
101 to 125	51 to 75	647	197	1027	313	1634	498
0	76 to 100	1426	435	2265	691	3603	1098
1 to 25	76 to 100	1114	339	1769	539	2814	858
26 to 50	76 to 100	805	245	1279	390	2034	620
51 to 75	76 to 100	500	152	795	242	1264	385
76 to 100	76 to 100	199	61	317	97	504	154
101 to 125	76 to 100	0	0	0	0	0	0
0	101 to 115	971	296	1543	470	2454	748
1 to 25	101 to 115	674	206	1071	327	1704	519
26 to 50	101 to 115	380	116	604	184	961	293
51 to 75	101 to 115	89	27	142	43	226	69
76 to 100	101 to 115	0	0	0	0	0	0
101 to 125	101 to 115	0	0	0	0	0	0

Table 4: Longest allowable circuit path with 6 to 10 SIGA-UMs or SIGA-MABs configured for 2-wire smoke detectors

| Number of detectors | Number of modules (1 or 2 channel) | Maximum allowable wire distance using nontwisted, nonshielded and twisted, nonshielded wire pairs (evenly distributed) | | | | | |
| | | 18 AWG | | 16 AWG | | 14 AWG | |
		ft.	m	ft.	m	ft.	m
1 to 25	0	3543	1080	5629	1716	8952	2729
26 to 50	0	2818	859	4476	1364	7120	2170
51 to 75	0	2092	638	3323	1013	5285	1611
76 to 100	0	1365	416	2169	661	3450	1051
101 to 125	0	639	195	1015	309	1614	492
0	1 to 25	2895	882	4599	1402	7314	2229
1 to 25	1 to 25	2503	763	3976	1212	6324	1927
26 to 50	1 to 25	1778	542	2825	861	4493	1369
51 to 75	1 to 25	1053	321	1672	510	2660	811
76 to 100	1 to 25	327	100	519	158	825	252
101 to 125	1 to 25	0	0	0	0	0	0
0	26 to 50	1910	582	3035	925	4827	1471
1 to 25	26 to 50	1465	446	2327	709	3700	1128
26 to 50	26 to 50	740	225	1175	358	1869	570
51 to 75	26 to 50	14	4	23	7	36	11
76 to 100	26 to 50	0	0	0	0	0	0
101 to 125	26 to 50	0	0	0	0	0	0
0	51 to 75	1114	340	1770	539	2814	858
1 to 25	51 to 75	427	130	678	207	1079	329
26 to 50	51 to 75	0	0	0	0	0	0
51 to 75	51 to 75	0	0	0	0	0	0
76 to 100	51 to 75	0	0	0	0	0	0
101 to 125	51 to 75	0	0	0	0	0	0
0	76 to 100	114	35	182	55	289	88
1 to 25	76 to 100	0	0	0	0	0	0
26 to 50	76 to 100	0	0	0	0	0	0
51 to 75	76 to 100	0	0	0	0	0	0
76 to 100	76 to 100	0	0	0	0	0	0
101 to 125	76 to 100	0	0	0	0	0	0
0	101 to 125	0	0	0	0	0	0
1 to 25	101 to 125	0	0	0	0	0	0
26 to 50	101 to 125	0	0	0	0	0	0
51 to 75	101 to 125	0	0	0	0	0	0
76 to 100	101 to 125	0	0	0	0	0	0
101 to 125	101 to 125	0	0	0	0	0	0

Table 5: Longest allowable circuit path with 11 to 15 SIGA-UMs or SIGA-MABs configured for 2-wire smoke detectors

Number of detectors	Number of modules (1 or 2 channel)	Maximum allowable wire distance using nontwisted, nonshielded and twisted, nonshielded wire pairs (evenly distributed)					
		18 AWG		16 AWG		14 AWG	
		ft.	m	ft.	m	ft.	m
1 to 25	0	1817	554	2887	880	4592	1400
26 to 50	0	1070	326	1699	518	2703	824
51 to 75	0	321	98	510	156	811	247
76 to 100	0	0	0	0	0	0	0
101 to 125	0	0	0	0	0	0	0
0	1 to 25	1490	454	2367	721	3764	1147
1 to 25	1 to 25	745	227	1184	361	1883	574
26 to 50	1 to 25	0	0	0	0	0	0
51 to 75	1 to 25	0	0	0	0	0	0
76 to 100	1 to 25	0	0	0	0	0	0
101 to 125	1 to 25	0	0	0	0	0	0
0	26 to 50	421	128	668	204	1063	324
1 to 25	26 to 50	0	0	0	0	0	0
26 to 50	26 to 50	0	0	0	0	0	0
51 to 75	26 to 50	0	0	0	0	0	0
76 to 100	26 to 50	0	0	0	0	0	0
101 to 125	26 to 50	0	0	0	0	0	0
0	51 to 75	0	0	0	0	0	0
1 to 25	51 to 75	0	0	0	0	0	0
26 to 50	51 to 75	0	0	0	0	0	0
51 to 75	51 to 75	0	0	0	0	0	0
76 to 100	51 to 75	0	0	0	0	0	0
101 to 125	51 to 75	0	0	0	0	0	0
0	76 to 95	0	0	0	0	0	0
1 to 25	76 to 95	0	0	0	0	0	0
26 to 50	76 to 95	0	0	0	0	0	0
51 to 75	76 to 95	0	0	0	0	0	0
76 to 100	76 to 95	0	0	0	0	0	0
101 to 125	76 to 95	0	0	0	0	0	0

Correlation groups worksheet

The correlation groups worksheet is used to document the devices, zones, and NACs that are assigned to each group.

Correlation group	Device numbers added	Zone numbers added	NAC numbers added
Correlation group 01			
Correlation group 02			
Correlation group 03			
Correlation group 04			
Correlation group 05			
Correlation group 06			
Correlation group 07			
Correlation group 08			
Correlation group 09			
Correlation group 10			
Correlation group 11			
Correlation group 12			
Correlation group 13			
Correlation group 14			
Correlation group 15			
Correlation group 16			
Correlation group 17			
Correlation group 18			
Correlation group 19			
Correlation group 20			
Correlation group 21			
Correlation group 22			
Correlation group 23			
Correlation group 24			
Correlation group 25			
Correlation group 26			
Correlation group 27			
Correlation group 28			
Correlation group 29			
Correlation group 30			
Correlation group 31			
Correlation group 32			

Device settings worksheet

The device settings worksheet is used to document the configuration and settings for each of the devices on your system.

Note: For default settings, refer to "Factory default settings."

Type of device	☐ Photo detector	☐ Photo/heat detector	☐ Heat detector
	☐ Duct detector	☐ Ion detector	☐ Relay module
	☐ NAC module	☐ Input module	

Device ID number ☐☐☐

Serial number ☐☐☐☐☐☐☐☐

Label ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

(up to 40 characters) ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Zone ☐☐

Correlation groups _____

Day sensitivity	☐ Normal	☐ Least	☐ Less	☐ More	☐ Most
Night sensitivity	☐ Normal	☐ Least	☐ Less	☐ More	☐ Most

Day pre-alarm percent ☐ (Off, 50, 55, 60, 65, 70, 75, 80, 90)

Night prealarm percent ☐ (Off, 50, 55, 60, 65, 70, 75, 80, 90)

Base type	☐ Standard	☐ Relay	☐ Isolator	☐ Sounder	
Base follow	☐ Alarm	☐ Alarm verify	☐ Alarm prealarm	☐ Verify	☐ Prealarm

Type	☐ Smoke	☐ Duct alarm	☐ Remote reset
	☐ Smoke verify	☐ Duct supervisory	☐ Remote drill
	☐ Heat alarm	☐ Supervisory (latching)	☐ Remote signal silence
	☐ Heat alarm RoR	☐ Supervisory (nonlatching)	☐ Remote AC fail
	☐ Pull station	☐ Relay (nonsilenceable)	☐ Remote test station
	☐ Waterflow	☐ Relay (silenceable)	☐ Continuous (nonsilenceable)
	☐ Waterflow (retard)	☐ Genesis (silenceable)	☐ Continuous (silenceable)
	☐ Monitor	☐ Genesis (nonsilenceable)	

Event notification:

    Active

        Print   ☐ Yes   ☐ No

        NET   ☐ Yes   ☐ No

        Dialer   ☐ Acct 1   ☐ Acct 1 & 2   ☐ Acct 2   ☐ None

           Code   ☐☐☐☐ (4-digit coded output)

           CID   ☐☐☐

    Trouble

        Print   ☐ Yes   ☐ No

        NET   ☐ Yes   ☐ No

        Dialer   ☐ Acct 1   ☐ Acct 1 & 2   ☐ Acct 2   ☐ None

Code					(4-digit coded output)
CID					

Disable

Print	☐ Yes	☐ No		
NET	☐ Yes	☐ No		
Dialer	☐ Acct 1	☐ Acct 1 & 2	☐ Acct 2	☐ None

Code					(4-digit coded output)
CID					

Pre alarm

Print	☐ Yes	☐ No		
NET	☐ Yes	☐ No		
Dialer	☐ Acct 1	☐ Acct 1 & 2	☐ Acct 2	☐ None

Code					(4-digit coded output)
CID					

Alarm verify

Print	☐ Yes	☐ No		
NET	☐ Yes	☐ No		
Dialer	☐ Acct 1	☐ Acct 1 & 2	☐ Acct 2	☐ None

Code					(4-digit coded output)
CID					

Maintenance alert

Print	☐ Yes	☐ No		
NET	☐ Yes	☐ No		
Dialer	☐ Acct 1	☐ Acct 1 & 2	☐ Acct 2	☐ None

Code					(4-digit coded output)
CID					

Test

Print	☐ Yes	☐ No		
NET	☐ Yes	☐ No		
Dialer	☐ Acct 1	☐ Acct 1 & 2	☐ Acct 2	☐ None

Code					(4-digit coded output)
CID					

Loop worksheet

The loop worksheet is used to document your loop settings.

Note: For default settings, refer to "Factory default settings."

Loop class

Loop 1 class	☐ Class B	☐ Class A
Loop 2 class	☐ Class B	☐ Class A
Mapping	☐ Disabled	☐ Enabled
Loop 2 enable	☐ Yes	☐ No

Panel configuration worksheet

The panel configuration worksheet is used to document the configuration and settings of your system programming options.

Note: For default settings, refer to "Factory default settings."

NAC

Class	☐ Class B	☐ Class A	
Type	☐ Genesis with audible silence	☐ Continuous (silenceable)	☐ Temporal (nonsilenceable)
	☐ Genesis with audible/visible silence	☐ Continuous (nonsilenceable)	☐ Temporal (silenceable)
	☐ Genesis (nonsilenceable)	☐ Coder - continuous	☐ Coder - temporal
		☐ Coder - 120 SPM	☐ Coder - basic

Label (up to 40 characters)

Correlation groups _____

Event notification:

Trouble

Print	☐ Yes	☐ No
NET	☐ Yes	☐ No
Dialer	☐ Acct 1 ☐ Acct 1 & 2 ☐ Acct 2 ☐ None	

Code ▢▢▢▢ (4-digit coded output)

CID ▢▢▢

Disable

Print	☐ Yes	☐ No
NET	☐ Yes	☐ No
Dialer	☐ Acct 1 ☐ Acct 1 & 2 ☐ Acct 2 ☐ None	

Code ▢▢▢▢ (4-digit coded output)

CID ▢▢▢

Test

Print	☐ Yes	☐ No
NET	☐ Yes	☐ No
Dialer	☐ Acct 1 ☐ Acct 1 & 2 ☐ Acct 2 ☐ None	

Code ▢▢▢▢ (4-digit coded output)

CID ▢▢▢

Annunciator class   ☐ Class B   ☐ Class A

Annunciator

Type	☐ Off ☐ LCD-C ☐ LCD ☐ LED ☐ Graphic
Expanders	☐ None ☐ 1 or 2

Label (up to 40 characters)

Event notification:

Trouble

Print	☐ Yes	☐ No
NET	☐ Yes	☐ No
Dialer	☐ Acct 1 ☐ Acct 1 & 2 ☐ Acct 2 ☐ None	

Code   ☐☐☐☐ (4-digit coded output)

CID   ☐☐☐

Remote device

Dialer

Type   ☐ Dual line   ☐ Single line   ☐ Modem only   ☐ None

Account 1 ID   ☐☐☐☐ (4-digit account ID code)

Account 1 primary receiver umber   ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Account 1 secondary receiver number   ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Account 1 format   ☐ CID

Account 1 send restorals   ☐ Yes   ☐ No

Account 1 retry time   ☐☐ (01 – 45 seconds)

Account 1 retry count   ☐☐ (01 – 10 attempts)

Event notification   ☐ Device reporting   ☐ Zone reporting   ☐ Event reporting

Account 2 ID   ☐☐☐☐ (4-digit account ID code)

Account 2 primary receiver number   ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Account 2 secondary receiver number   ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Account 2 format   ☐ CID

Account 2 send restorals   ☐ Yes   ☐ No

Account 2 retry time   ☐☐ (01 – 45 seconds)

Account 2 retry count   ☐☐ (01 – 10 attempts)

Event notification   ☐ Device reporting   ☐ Zone reporting   ☐ Event reporting

Line 1 dialing   ☐ Tone   ☐ Pulse

Line 1 cut duration/ supervision   ☐☐☐ (10 – 120)

Line 2 dialing   ☐ Tone   ☐ Pulse

Line 2 **cut** duration/ supervision   ☐☐☐ (10 – 120)

Tone wait   ☐ Off   ☐☐ (01 – 30 seconds)

Call disconnect   ☐ Off   ☐☐ (01 – 45 seconds)

| Test frequency days | ☐ Off | | | (01 – 45 days) |

| Test time | | | | |

| Rings to answer | ☐ Off | | | (01 – 15 rings) |

| Ring type | ☐ Any | ☐ Normal ring | ☐ Distinctive ring |

| Call back | ☐ Enabled | ☐ Disabled |

Call back number

Network

| Account 1 ID | | | | | (4-digit account ID code) |

IP address

TCP/IP port

| Send restorals | ☐ Yes | ☐ No |

| Event notification | ☐ Device reporting | ☐ Zone only reporting | ☐ Event only reporting |

| Hello time seconds | | | | (10 – 255 seconds) |

| Timeout seconds | | | | (31 – 255 seconds) |

| Receiver number | | | | | (0 – 9999) |

| Line number | | | | | (0 – 9999) |

| **Swinger shutdown** | ☐ Off | | | | (001 – 255 repetitions) |

Printer

| Type | ☐ None/FSCU | ☐ Supervised | ☐ Unsupervised |

Event notification:

Trouble

| Print | ☐ Yes | ☐ No |

| NET | ☐ Yes | ☐ No |

| Dialer | ☐ Acct 1 | ☐ Acct 1 & 2 | ☐ Acct 2 | ☐ None |

| Code | | | | | (4-digit coded output) |

| CID | | | | |

Panel operation worksheet

The panel operation worksheet is used to document the configuration and settings of your control panel programming options.

Note: For default settings, refer to "Factory default settings."

Language	☐ English	☐ French
Marketplace	☐ U.S.	☐ Canada
AC fail delay	☐ Off	(01 – 15 hours)
Zone resound	☐ Off	☐ On
Reset inhibit	☐ Off	☐ 1 minute
Auto signal silence	☐ Off	(05 – 30 minutes)

Day start   Start time ☐☐☐☐   End time ☐☐☐

Night start   Start time ☐☐☐☐   End time ☐☐☐

Date format	☐ U.S. (MM/DD/YYYY) ☐ Canada (DD/MM/YYYY)
Event notification	☐ Zone/device reporting ☐ Zone only reporting ☐ Device only reporting

LCD banner
   Line 1

   Line 2

Aux power reset	☐ On	☐ Off
User key #1	☐ Enabled	☐ Disabled
User key #2	☐ Enabled	☐ Disabled

Zone settings worksheet

The zone settings worksheet is used to document the configuration and settings for each of the zones on your system.

Note: Print a copy of this worksheet for each zone in your system.

Note: For default settings, refer to "Factory default settings."

Type   □ Alarm   □ Waterflow   □ Supervisory (latching)   □ Supervisory (nonlatching)   □ Monitor

Label (up to 40 characters)

Correlation groups

Device allocation:

First address   (no less than the last address of the previous zone + 1)

Last address   (first address + the number of devices – 1)

Event notification:

Active

Print   □ Yes   □ No

NET   □ Yes   □ No

Dialer   □ Acct 1   □ Acct 1 & 2   □ Acct 2   □ None

Code   (4-digit coded output)

CID

Trouble

Print   □ Yes   □ No

NET   □ Yes   □ No

Dialer   □ Acct 1   □ Acct 1 & 2   □ Acct 2   □ None

Code   (4-digit coded output)

CID

Disable

Print   □ Yes   □ No

NET   □ Yes   □ No

Dialer   □ Acct 1   □ Acct 1 & 2   □ Acct 2   □ None

Code   (4-digit coded output)

CID

Pre alarm

Print   □ Yes   □ No

NET   □ Yes   □ No

Dialer   □ Acct 1   □ Acct 1 & 2   □ Acct 2   □ None

Code   (4-digit coded output)

CID

Alarm verify

Print	☐ Yes	☐ No		
NET	☐ Yes	☐ No		
Dialer	☐ Acct 1	☐ Acct 1 & 2	☐ Acct 2	☐ None

Code | | | | | (4-digit coded output)

CID | | | |

Maintenance alert

Print	☐ Yes	☐ No		
NET	☐ Yes	☐ No		
Dialer	☐ Acct 1	☐ Acct 1 & 2	☐ Acct 2	☐ None

Code | | | | | (4-digit coded output)

CID | | | |

Test

Print	☐ Yes	☐ No		
NET	☐ Yes	☐ No		
Dialer	☐ Acct 1	☐ Acct 1 & 2	☐ Acct 2	☐ None

Code | | | | | (4-digit coded output)

CID | | | |

Appendix C
Front panel menu flowcharts

Summary

This appendix shows menu flowcharts for all front panel operations and programming.

Content

Main menu

00:00:00	01/01/2007

Menu Key Pressed

Main Menu
Reports
Test
Control
Program
Diagnostics

→ (Reports)

→ (Test)

→ (Control)

→ (Program)

→ (Diags)

Reports menu

```
        ( Reports )

Reports
History                              History
Walk Test                            All
Device Maintenance                   Alarm
System Status                        Date Forward
Correlation Groups
Zone                                                        ( Date
System Configuration                                          Select )
Internal Status
Device Details                       ( Zone              Device Maintenance
Diagnostics                            Rep )             All Devices
Int. Fault                                               Devices >= 20% Dirty
Cancel Reports                                           Devices >= 80% Dirty

                        System Configuration
Cancel Reports          All
Yes                     Panel Operation              Device Status
No                      Panel Configuration          All
                        Loop/Zone Config             Alarm
                        Devices                      Supervisory
Diagnostics             Event Config                 Trouble
 Comm Retries           Dialer Config                Disable
 Response Quality                                    Other

                        Device Details
                        Device Count            Correlation Groups
Response Quality        Serial#                 Group 01
 Quality %      075                             Group 02
                                                ...
                                                Group 32
                        Serial#
                        Loop 1
                        Loop 2
                        All


              ( Zone        Zone
                Rep )       Zone 01
                            Zone 02
                            ...
                            Zone 32

  ( Date        Date Forward                      LCD
    Select )    Date    XX/XX/XXXX                Printer
```

Test menu

Test

Test
Walk Test Silent
Walk Test Audible
Test Fire
Dialer
Lamp Test

Walk Test Silent
All Devices
Zone

Walk Test Audible
All Devices
Zone

Zone	
Number	01
Zone 01	

Dialer
Account 1
Account 2

Test Fire	
Loop	01<>

Test Fire
001
Device 001

Test Fire	001
Start	
End	

Menu Item Title
Start
End

Control menu

Program menu

```
          ( Program )

   Program
   Incremental Program
   Auto Program
   Advanced Program
   Date and Time
   Clear History
   Password
   Restore Defaults
   RS232 CU Enable
   Programmable Keys
   Panel Restart
```

```
   Enter Password
        0000


   Clear History
   Yes
   No
```

```
   Enter Password
        0000


   Date and Time
   Date    01/01/2007
   Time        00:00
   Daylight Savings
   Save
```

```
   Daylight Savings
   Enabled      No<>
   Month Start    03
   Month End      11
   Week Start     02
   Week End       01
   Weekday Start  01
   Weekday End    01
   Hour Start     02
   Hour End       02
   Minutes Offset 60
```

```
   Password
   Level 1
   Level 2
   Remote (Ann.)
```

```
   Enter Old Password
        0000
```

```
   Enter New Password
        0000
```

```
   ( Prog  )
   ( Keys  )

   ( Advanced )
   (  Prog    )

   (  Auto )
   (  Prog )

   ( Increment )
   (  Prog     )
```

```
   Enter Password
        0000


   Panel Restart
   Yes
   No
```

```
   RS232 CU Enable
   On
   Off
```

```
   Enter Password
        0000


   Restore Defaults
   Panel Only
   CMS Only
   Panel and CMS
```

Programmable keys menu

Prog
Keys

Programmable Keys
Key #1
Key #2

Key #X
Edit List
New List
Save

Key #X
Controls Panel NAC
Operation Disable

Device

Device	
Loop	01<>

Enter To	Add>
Device	001
Loop 1 Device 001	
<-Back	<-Enter

Panel NAC

Enter To	Add>
Panel NAC	1
NAC 1	
<-Back	<-Enter

Zone

Enter To	Add>
Zone	01
Zone 1	
<-Back	<-Enter

Advanced program main menu

Advanced: Loop configuration menu

(Adv Loop Config)

Loop Configuration
Loop Class
Zone
Correlation Groups
Device
Mapping
Loop 2 Enable   Yes<>
Save

Loop Class	
Loop 1	ClassA<>
Loop 2	ClassA<>
Save	

Loop Class	
Loop	ClassA<>
Save	

Mapping	
Loop 1	Yes<>
Loop 2	Yes<>
Save	

Mapping	
Enable	Yes<>
Save	

(Adv Device Config)

Zone	
Number	01
Zone 01	

Zone	
Type	Alarm<>
Label	>
Correlation Groups	
Event Notification	
Save	

Correlation Groups	
Number	01<>

Correlation Group XX
Add/Rem Zone
Add/Rem Device
Add/Rem Panel NAC

Event Notification
Active
Trouble
Disable
Pre Alarm
Alarm Verify
Maint. Alert
Test

Label	
aaaaaaaaaaaaaaaaaaaaa	
aaaaaaaaaaaaaaaaaaaaa	
<-Save	<-Backspace

Correlation Groups	
Group 01	Yes<>
Group 02	Yes<>
Group 03	Yes<>
...	
Group 32	Yes<>
Save	

Add/Rem Panel NAC	
NAC	1
Status	Excluded
<-Enter	<-Cancel

Notification	
Printer	Yes<>
Dialer	Account1&2<>
NET	Yes<>
CID	110
Save	

Add/Rem Device	
Loop	01<>

Add/Rem Device	
Device	001
Status	Excluded
<-Enter	<-Cancel

Add/Rem Zone	
Zone	01
Status	Excluded
<-Enter	<-Cancel

Advanced: Device configuration menu

```
        ╭─────────╮
        │   Adv   │
        │ Device  │
        │ Config  │
        ╰─────────╯
             │
   ┌─────────┤
   │         ▼
   │  ┌──────────────────────┐
   │  │ Device               │
   │  │  Loop          01<>  │
   │  │                      │
   │  │                      │
   │  └──────────────────────┘
   │         │
   │         ▼
   │  ┌──────────────────────┐
   └─▶│ Device               │
      │  Number         001  │
      │ Device 001           │
      │                      │
      └──────────────────────┘
             │
             ▼
      ┌──────────────────────┐              ┌──────────────────────┐
      │ Device               │              │ Label                │
      │  Zone          01<>  │              │ aaaaaaaaaaaaaaaaaaaaa │
      │  Label            >  │──────────────│ aaaaaaaaaaaaaaaaaaaaa │
      │  Event Notification  │              │ <-Save        <-Back  │
      │  Correlation Groups  │──────┐       └──────────────────────┘
      │  Day Sens    Normal<>│      │
      │  Night Sens  Normal<>│      │       ┌──────────────────────┐
      │  Day PreAlarm%  50 <>│      └──────▶│ Correlation Groups   │
      │  Night PreAlarm% 50 <>│             │  Group 01     Yes<>  │
      │  Base Type Standard<>│              │  Group 02     Yes<>  │
      │  Follow      Alarm<> │              │  Group 03     Yes<>  │
      │  Type        Smoke<> │              │  ...                 │
      │  Save                │              │  Group 32     Yes<>  │
      └──────────────────────┘              │  Save                │
             │                              └──────────────────────┘
             ▼
      ┌──────────────────────┐
      │ Event Notification   │
      │  Active              │
      │  Trouble             │
      │  Disable             │
      │  Pre Alarm           │
      │  Alarm Verify        │
      │  Maint. Alert        │
      │  Test                │
      └──────────────────────┘
                  │
                  ▼
            ┌──────────────────────┐
            │ Notification         │
            │  Printer       Yes<> │
            │  CODER   10-10-10-10 │
            │  Dialer Account1&2<> │
            │  NET           Yes<> │
            │  CID           110   │
            │  Save                │
            └──────────────────────┘
```

Advanced: Panel configuration menu

```
        ( Adv  )
        ( Panel )
        ( Config )
```

```
Panel Configuration
 Panel NAC
 Ann. Class        A<>
 Annunciator
 CMS Device
 Printer
 IP   192.168.001.001
 MSK  255.255.255.000
 GWY  192.168.001.100
 Lock Rmt Read Yes<>
 Ac Voltage       120<>
 Save
```

```
Panel NAC
 NAC               1

```

```
NAC X
 Class             A<>
 Type Cont.Non Sil<>
 Label              >
 Correlation Groups
 Event Notification
 Save
```

```
Correlation Groups
 Group 01       Yes<>
 Group 02       Yes<>
 Group 03       Yes<>
 ...
 Group 32       Yes<>
 Save
```

```
Label
 aaaaaaaaaaaaaaaaaaaaa
 aaaaaaaaaaaaaaaaaaaaa
 <-Save         <-Back
```

```
        ( Adv   )
        ( Panel  )
        ( Config  )
        ( CMS Dev )
```

```
Event Notification
 Trouble
 Disable
 Test
```

```
Notification
 Printer        Yes<>
 Dialer Account1&2<>
 NET            Yes<>
 CID             110
 Save
```

```
Annunciator
 Annunciator 01
 Annunciator 02
 Annunciator 03
 Annunciator 04
 Annunciator 05
 Annunciator 06
 Annunciator 07
 Annunciator 08
```

```
Printer
 Type   Supervised<>
 Event Notification
 Save
```

```
Annunciator X
 Type            Off<>
 Expanders          1
 Label
 Event Notification
 Save
```

```
Label
 aaaaaaaaaaaaaaaaaaaaa
 aaaaaaaaaaaaaaaaaaaaa
 <-Save         <-Back
```

```
Trouble
 Printer        Yes<>
 Dialer Account1&2<>
 NET            Yes<>
 CID             110
 Save
```

```
Trouble
 Printer        Yes<>
 Dialer Account1&2<>
 NET            Yes<>
 CID             110
 Save
```

Advanced: Panel configuration - CMS device menu

```
         ┌──────────┐
         │   Adv    │
         │  Panel   │
         │  Config  │
         │ CMS Dev  │
         └──────────┘
              │
              ▼
┌─────────────────────────┐
│ CMS Device              │
├─────────────────────────┤
│ Dialer                  │
│ Network                 │
│ Swngr Shtdn Rp. 200>    │
│ Save                    │
└─────────────────────────┘
```

Dialer

Dialer
Type   Single Line>
Account 1
Account 2
Line 1
Line 2
Tone Wait Sec.   20>
Call Discn Sec.   40>
Test Freq Days.   01>
Test Time   03:30
Rings to Answer 05>
Ring Type   Any>
Callback   Enabled>
Callback#   >
Save

Account X

Account X
Account ID   6769
Primary Recver#   >
Secondary Recver# >
Format   CID<>
Send Restorals Yes>
Retry Time Sec. 05>
Retry Count   05>
Event Notif.   Dev>
Save

Line X

Line X
Dialing   Tone>
Cut Dur/Spv Sec. 200
Save

7394310
<-Save   <-Back

Network

Network
Enabled   Yes>
Account ID   676869
IP 000.000.000.000
TCP/IP Port   00000
Send Restorals Yes>
Event Notif.   Dev>
Hello Time   055
Timeout Secs   000
Receiver#   000
Line#   000
Save

Callback #
7394310
<-Save   <-Back

Advanced: Panel operation menu

```
        ╭───────╮
        │  Adv  │
        │ Panel │
        │  Op   │
        ╰───┬───╯
            │
            ▼
┌───────────────────────┐
│ Panel Operation       │
├───────────────────────┤
│  Language    English> │
├───────────────────────┤
│  Marketplace     US>  │
├───────────────────────┤
│  AC Fail Delay   15>  │
├───────────────────────┤
│  Zone Resound    On>  │
├───────────────────────┤
│  Reset Inhibit 1Min>  │
├───────────────────────┤
│  Auto Sig Sil.   30>  │
├───────────────────────┤
│  Day Start     06:00  │
├───────────────────────┤
│  Night Start   18:00  │
├───────────────────────┤
│  Date    MM/DD/YYYY>  │
├───────────────────────┤
│  Evnt Notif ZoneDev>  │
├───────────────────────┤
│  Aux Power Reset On>  │
├───────────────────────┤         ┌──────────────────────────────┐
│  LCD Banner        >  │────────▶│ LCD Banner                   │
├───────────────────────┤         ├──────────────────────────────┤
│  Key# 1      Enabled> │         │                              │
├───────────────────────┤         ├──────────────────────────────┤
│  Key# 2      Enabled> │         │                              │
├───────────────────────┤         ├──────────────────────────────┤
│  Save                 │         │ <-Save           <-Back      │
└───────────────────────┘         └──────────────────────────────┘
```

Advanced: Panel events menu

```
        ┌───────┐
        │  Adv  │
        │ Panel │                    ┌──────────────────────────────┐
        │Events │                    │ Event Nane xxxxxxxxxxx        │
        └───┬───┘                    ├──────────────────────────────┤
            │                        │ Event Notification           │
            ▼                        ├──────────────────────────────┤
┌────────────────────────┐          │                              │
│ Panel  Events          │          ├──────────────────────────────┤
├────────────────────────┤          │                              │
│  System Startup        │          └──────────────────────────────┘
├────────────────────────┤
│  Program Mode          │          ┌──────────────────────────────┐
├────────────────────────┤          │ Trouble                      │
│  Reset                 │          ├──────────────────────────────┤
├────────────────────────┤          │  Printer          Yes<>      │
│  Reset/Sil Inhibit     │          ├──────────────────────────────┤
├────────────────────────┤          │  Dialer Account1&2<>         │
│  Panel  Silence        │          ├──────────────────────────────┤
├────────────────────────┤          │  NET              Yes<>      │
│  Signal Silence        │          ├──────────────────────────────┤
├────────────────────────┤          │  CID                 110     │
│  Drill                 │          ├──────────────────────────────┤
├────────────────────────┤          │  Save                        │
│  Walk Test             │          └──────────────────────────────┘
├────────────────────────┤
│  Test Fire             │
├────────────────────────┤
│  Clear History         │
├────────────────────────┤
│  Time                  │
├────────────────────────┤
│  Date                  │
├────────────────────────┤
│  Common Disable        │
├────────────────────────┤
│  Common Trouble        │
├────────────────────────┤
│  Ground Fault          │
├────────────────────────┤
│  Battery Charger       │
├────────────────────────┤
│  Battery Low           │
├────────────────────────┤
│  Battery Missing       │
├────────────────────────┤
│  Local  AC Power       │
├────────────────────────┤
│  Aux.  Power 1         │
├────────────────────────┤
│  Aux.  Power 2         │
├────────────────────────┤
│  System Wide AC Powe   │
├────────────────────────┤
│  Common Alarm          │
├────────────────────────┤
│  Common Supervisory    │
├────────────────────────┤
│  Common Monitor        │
├────────────────────────┤
│  Common Trouble Telc   │
├────────────────────────┤
│  Common Trouble Netw   │
├────────────────────────┤
│  Self Test Fault       │
├────────────────────────┤
│  Internal  Fault       │
├────────────────────────┤
│  Dialer Dsbl/Rem Dsc   │
├────────────────────────┤
│  Dialer Line 1 Fault   │
├────────────────────────┤
│  Dialer Line 2 Fault   │
├────────────────────────┤
│  Dialer Deliver Fail   │
├────────────────────────┤
│  Dialer Normal Test    │
├────────────────────────┤
│  Dialer Abnorm. Test   │
├────────────────────────┤
│  Dialer Config.        │
├────────────────────────┤
│  Net Rcvr Comm Fault   │
├────────────────────────┤
│  Net Rcvr Conf Fault   │
└────────────────────────┘
```

Advanced: Loop events menu

```
        ⭕
       Adv
       Loop
       Events
```

```
Loop Events                        Event Name xxxxxxxxxx
  Loop 1 Initializing              Event Notification
  Loop 1 Fault
  Loop 1 Map Fault
  Loop 1 Card Fault
  Loop 1 Unconf Alarm
  Loop 1 Unconf Trbl               Trouble
  Loop 1 Map Mismatch                Printer        Yes<>
  Loop 1 Over Limits                 Dialer Account1&2<>
  Loop 1 Device Zero                 NET            Yes<>
  Loop 1 Mapping                     CID            110
  Loop 2 Initializing                Save
  Loop 2 Fault
  Loop 2 Map Fault
  Loop 2 Card Fault
  Loop 2 Unconf Alarm
  Loop 2 Unconf Trbl
  Loop 2 Map Mismatch
  Loop 2 Over Limits
  Loop 2 Devic Zero
  Loop 2 Mapping
```

Advanced: Unconfigured alarm menu

```
        ╭─────────╮
        │   Adv   │
        │ Unconf  │
        │  Alarm  │
        ╰────┬────╯
             │
             ▼
┌─────────────────────────────┐
│ Unconfigured Alarms         │
├─────────────────────────────┤
│  Loop 1 Unconf Alarm        │
├─────────────────────────────┤
│  Loop 2 Unconf Alarm        │
├─────────────────────────────┤
│                             │
└─────────────────────────────┘
             │
             ▼
┌─────────────────────────────┐
│ Loop x Unconf Alarm         │
├─────────────────────────────┤
│  Correlation Groups         │
├─────────────────────────────┤
│  Event Notification         │
├─────────────────────────────┤
│                             │
└─────────────────────────────┘
```

```
┌─────────────────────────────┐      ┌─────────────────────────────┐
│ Correlation Groups          │      │ Event Notification          │
├─────────────────────────────┤      ├─────────────────────────────┤
│  Group 01          Yes<>    │      │  Active                     │
├─────────────────────────────┤      ├─────────────────────────────┤
│  Group 02          Yes<>    │      │                             │
├─────────────────────────────┤      ├─────────────────────────────┤
│  Group 03          Yes<>    │      │                             │
├─────────────────────────────┤      └─────────────────────────────┘
│  ...                        │
├─────────────────────────────┤
│  Group 32          Yes<>    │
├─────────────────────────────┤
│  Save                       │
└─────────────────────────────┘
```

```
                      ┌─────────────────────────────┐
                      │ Active                      │
                      ├─────────────────────────────┤
                      │  Printer           Yes<>    │
                      ├─────────────────────────────┤
                      │  CODER      10-10-10-10      │
                      ├─────────────────────────────┤
                      │  Dialer  Account1&2<>       │
                      ├─────────────────────────────┤
                      │  NET               Yes<>    │
                      ├─────────────────────────────┤
                      │  CID                  110   │
                      ├─────────────────────────────┤
                      │  Save                       │
                      └─────────────────────────────┘
```

Advanced: Common trouble menu

```
        ╭───────╮
        │  Adv  │
        │ Comm  │
        │ Trbl  │
        ╰───┬───╯
            │
            ▼
┌───────────────────────┐
│ Common Trouble        │
├───────────────────────┤
│ Trouble               │
├───────────────────────┤
│                       │
├───────────────────────┤
│                       │
└───────────────────────┘
            │
            ▼
┌───────────────────────┐
│ Common Trouble        │
├───────────────────────┤
│ Correlation Groups    │
├───────────────────────┤
│ Event Notification    │
├───────────────────────┤
│                       │
└───────────────────────┘
```

```
┌───────────────────────┐      ┌───────────────────────┐
│ Correlation Groups    │      │ Trouble               │
├───────────────────────┤      ├───────────────────────┤
│ Group 01      Yes<>   │      │ Printer       Yes<>   │
├───────────────────────┤      ├───────────────────────┤
│ Group 02      Yes<>   │      │ CODER   10-10-10-10   │
├───────────────────────┤      ├───────────────────────┤
│ Group 03      Yes<>   │      │ Dialer Account1&2<>   │
├───────────────────────┤      ├───────────────────────┤
│ ...                   │      │ NET           Yes<>   │
├───────────────────────┤      ├───────────────────────┤
│ Group 32      Yes<>   │      │ CID            110    │
├───────────────────────┤      ├───────────────────────┤
│ Save                  │      │ Save                  │
└───────────────────────┘      └───────────────────────┘
```

Auto program menu

```
                    ╭─────╮
                    │Auto │
                    │Prog │
                    ╰─────╯
                       │
                       ▼
        ┌──────────────────────────────┐
        │CURRENT CONFIG                 │
        ├──────────────────────────────┤
        │WILL BE LOST!                  │
        ├──────────────────────────────┤
        │ Continue                      │──┐
        ├──────────────────────────────┤  │
        │ Cancel                        │  │
        └──────────────────────────────┘  │
                       │                   │
                       ▼                   │
        ┌──────────────────────────────┐  │
        │Auto Program                   │  │
        ├──────────────────────────────┤  │
        │ Auto Zoning      Yes>         │  │
        ├──────────────────────────────┤  │
        │ Enable NET        No>         │  │
        ├──────────────────────────────┤  │
        │ Dialer        Single>         │  │
        ├──────────────────────────────┤  │
        │ Evnt Notif      Zone>         │  │
        ├──────────────────────────────┤  │
        │ Label Devices     No>         │  │
        ├──────────────────────────────┤  │
        │ Label Zones       No>         │  │
        ├──────────────────────────────┤  │
        │ Follow        Alarm>          │  │
        └──────────────────────────────┘  │
                       │                   │
                       ▼                   │
        ┌──────────────────────────────┐  │
        │    Auto Program               │  │
        ├──────────────────────────────┤  │
        │    System Busy                │  │
        ├──────────────────────────────┤  │
        │####################           │  │
        ├──────────────────────────────┤  │
        │<-Back        <-Cancel         │  │
        └──────────────────────────────┘  │
```

```
┌───────────────────────┐   ┌───────────────────────────┐
│Devices:     Old/New   │   │Devices:      Old/New      │
├───────────────────────┤   ├───────────────────────────┤
│Loop 1       XXX/YYY   │   │             XXX/YYY       │
├───────────────────────┤   ├───────────────────────────┤
│Loop 2       NNN/ZZZ   │   │                           │
├───────────────────────┤   ├───────────────────────────┤
│<-Continue             │   │<-Continue      <-Back     │
└───────────────────────┘   └───────────────────────────┘
```

```
        ┌──────────────────────────────┐        ┌───────────────────────────────┐
        │  Account 1                    │        │Network                        │
        ├──────────────────────────────┤        ├───────────────────────────────┤
        │  Account ID      6769         │        │ Account ID    676869          │
        ├──────────────────────────────┤        ├───────────────────────────────┤
        │  Primary Recver#     >        │        │ IP  192.168.001.254           │
        ├──────────────────────────────┤        ├───────────────────────────────┤
        │  Secondary Recver# >          │        │ Event Notif. Event>           │
        ├──────────────────────────────┤        ├───────────────────────────────┤
        │  Format         CID<>         │        │ Receiver#        000          │
        ├──────────────────────────────┤        ├───────────────────────────────┤
        │  Event Notif. Event>          │        │ Line#            000          │
        ├──────────────────────────────┤        ├───────────────────────────────┤
        │  -------------------          │        │ Save                          │
        ├──────────────────────────────┤        └───────────────────────────────┘
        │  Account 2                    │
        ├──────────────────────────────┤        ┌───────────────────────────────┐
        │  Account ID      6769         │        │Loop 1       Device 001        │
        ├──────────────────────────────┤        ├───────────────────────────────┤
        │  Primary Recver#    >         │        │Loop 1 Device 001              │
        ├──────────────────────────────┤        ├───────────────────────────────┤
        │  Secondary Recver# >          │        │                               │
        ├──────────────────────────────┤        ├───────────────────────────────┤
        │  Format         CID<>         │        │LEGEND                         │
        ├──────────────────────────────┤        └───────────────────────────────┘
        │  Event Notif. Event>          │
        ├──────────────────────────────┤        ┌───────────────────────────────┐
        │  -------------------          │        │Zone              01           │
        ├──────────────────────────────┤        ├───────────────────────────────┤
        │  Save                         │        │Zon 01                         │
        └──────────────────────────────┘        ├───────────────────────────────┤
                                                 │                               │
                                                 ├───────────────────────────────┤
                                                 │LEGEND                         │
                                                 └───────────────────────────────┘
```

Incremental programming menu

```
        ┌───────────┐
        │ Increment │
        │   Prog    │
        └───────────┘
              │
              ▼
┌─────────────────────────────┐
│ Incremental  Program        │
├─────────────────────────────┤
│ Loop           Loop 1>      │
├─────────────────────────────┤
│ Label  Devices    No>       │
├─────────────────────────────┤
│ Label  Zones      No>       │
├─────────────────────────────┤
│ Follow         Alarm>       │
└─────────────────────────────┘
              │
              ▼
┌─────────────────────────────┐
│      Auto Program           │
├─────────────────────────────┤
│      System Busy            │
├─────────────────────────────┤
│ ####################        │
├─────────────────────────────┤
│ <-Back        <-Cancel      │
└─────────────────────────────┘
              │
       ┌──────┴──────┐
       ▼             ▼
┌──────────────┐ ┌──────────────┐
│Devices: Old/New│ │Devices: Old/New│
├──────────────┤ ├──────────────┤
│Loop 1 XXX/YYY│ │       XXX/YYY│
├──────────────┤ ├──────────────┤
│Loop 2 NNN/ZZZ│ │              │
├──────────────┤ ├──────────────┤
│<-Continue    │ │<-Continue    │
└──────────────┘ └──────────────┘
              │
              ▼
┌─────────────────────────────┐
│ Zone               01        │
├─────────────────────────────┤
│ Zon 01                       │
├─────────────────────────────┤
│                              │
├─────────────────────────────┤
│ LEGEND                       │
└─────────────────────────────┘
              │
              ▼
┌─────────────────────────────┐
│ Loop 1      Device 001       │
├─────────────────────────────┤
│ Loop 1 Device 001            │
├─────────────────────────────┤
│                              │
├─────────────────────────────┤
│ LEGEND                       │
└─────────────────────────────┘
```

Diagnostics menu

```
        ┌─────────┐
        │  Diags  │
        └─────────┘
             │
             ▼
┌──────────────────────────┐
│ Diagnostics              │
├──────────────────────────┤
│  Fast Ground Check       │
├──────────────────────────┤
│  Recalibrate Device      │
├──────────────────────────┤
│  Flash Device LED        │
├──────────────────────────┤
│  Loop Comm Check         │
└──────────────────────────┘
```

Fast Ground Check
| Fast Ground Check |
| Start |
| End |
| |

Recalibrate Device
| Recalibrate Device |
| Loop   01<> |
| |
| |

Recalibrate Device
| Recalibrate Device |
| Device   001 |
| Device 001 |
| |

Diagnostics Executing
| Diagnostics |
| Executing |
| #################### |
| <-Continue   <-Back |

Flash Device LED
| Flash Device LED |
| Loop   01<> |
| |
| |

Flash Device LED
| Flash Device LED |
| Device   001 |
| Device 001 |
| |

Device
| Device |
| Start |
| End |
| |

Appendix D
Applications

Summary

This appendix has sounder base applications that can be used with the SB4U and Signature sounder bases.

Content

Sounder base applications

The following applications can be used with the SB4U and Signature sounder bases.

Local alarm signaling application

In local alarm signaling applications, the audible detector base automatically sounds an alarm signal only when its detector is activated (initiates an alarm event). All other audible detector bases on the same riser remain silent until their detectors are activated.

The audible detector base, once activated, continues to sound an alarm signal until smoke is cleared from its detector and the control panel is reset.

Typically, the 24 VDC riser that supplies power to the audible detector bases is supervised using an RM1 Riser Monitor module. You can also use a CT1 module and a PAM-1 control relay.

Wiring
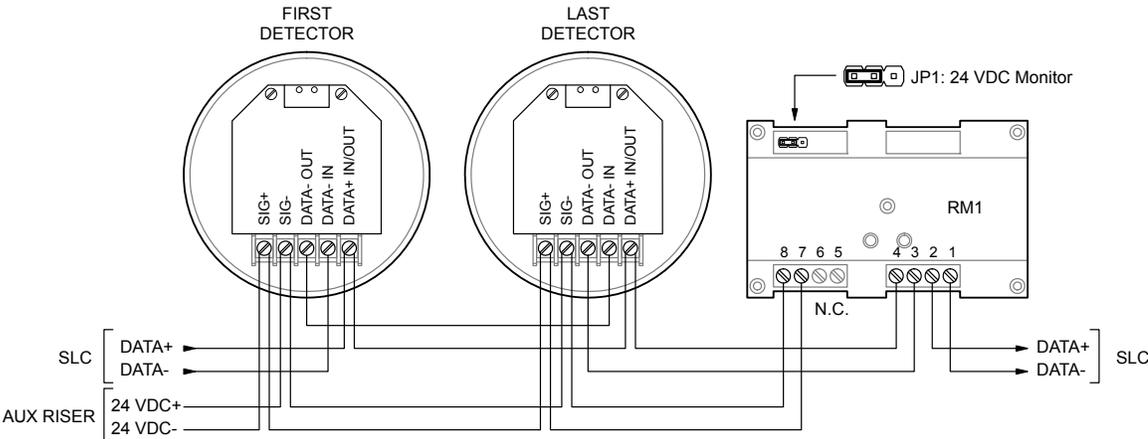
ALTERNATE RISER SUPERVISION CIRCUIT
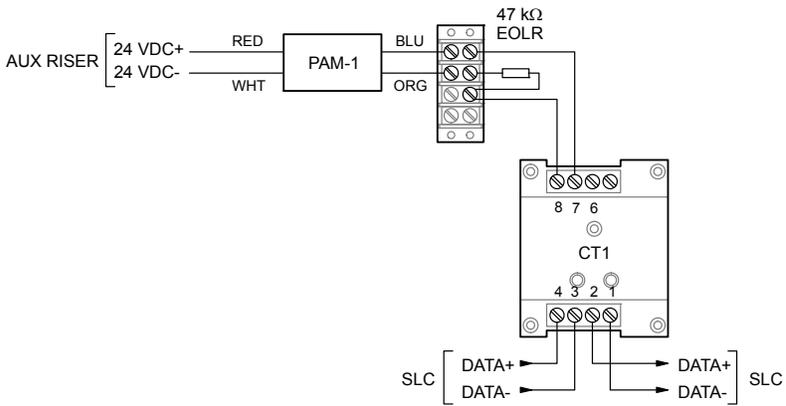
Programming

1. Set the panel's Event Notification option for Device

2. Configure the smoke detectors as follows:

    Device Type: Smoke or Smoke Heat depending on the detectors used

    Message Line 1: SMOKE_<N>, where <N> can be the device address or other number

    Message Line 2: As required

    Coder: 0-0-0-0

    Sensitivity: As required

    Alt Sensitivity: As required

    Pre Alarm: Any value other than None

Alt Pre Alarm: Any value other than None

Verification: N/A

Alt Verification: N/A

Base: Relay/Sounder

Follow Alarm: Yes

Follow Verification: No

Follow Pre Alarm: No

3. Configure the RM1 module as follows:

Device type: Monitor

Message Line 1: 24VDC_RISER

Message Line 2: As required

Zone alarm signaling application

In zone alarm signaling applications, audible detector bases in the same notification zone are activated using a CRR module when any one of their detectors is activated (initiate an alarm event). Signal synchronization is not required because alarm signals are limited to the same notification zone.

The audible detector bases, once activated, continue to sound an alarm signal until:

- Smoke is cleared from the active detectors and the control panel is reset

- Signal Silence is pressed

- The control panel's Auto Signal Silence timer expires, if programmed. This can be from 5 to 30 minutes.

Typically, the 24 VDC riser that supplies power to the audible detector bases is supervised using an RM1 module. You can also use a CT1 module and a PAM-1 control relay.

Wiring
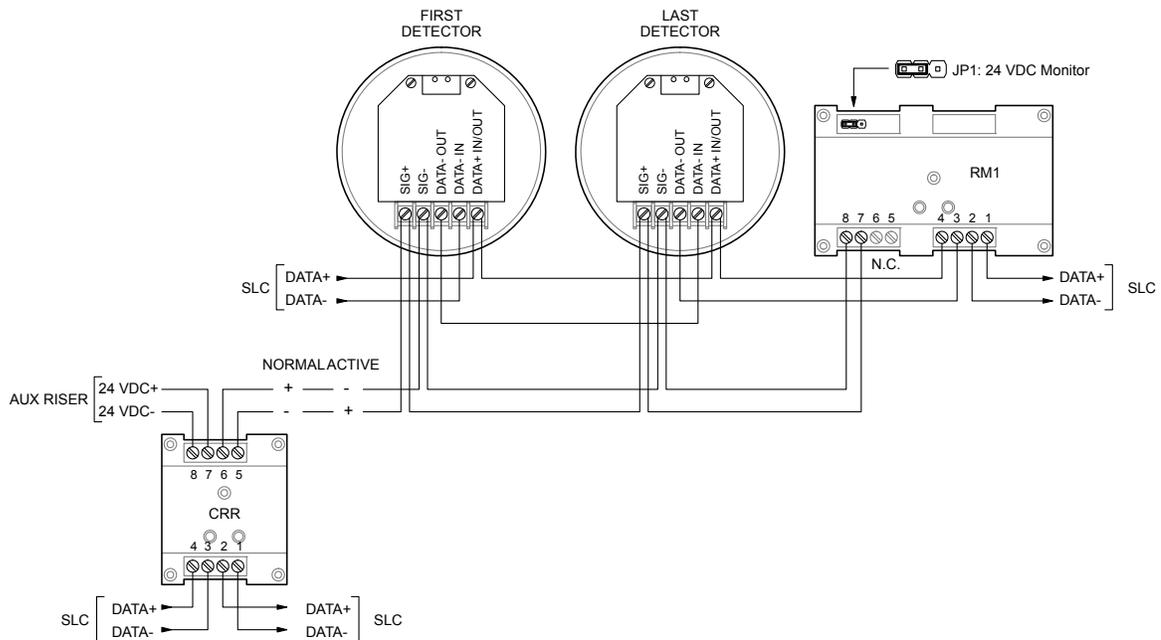
Programming

This application requires that you group your detectors into zones and correlate outputs for each zone. The following instructions are for Zone 1 but apply for all zones as well.

1. Set the panel's Event Notification option for Zone.

2. Configure the smoke detectors in Zone 1 as follows:

    Device Type: Smoke or Smoke Heat depending on the detectors used

    Message Line 1: SMOKE_<N>, where <N> can be the device address or other number

    Message Line 2: ZONE_01

    Coder: 0-0-0-0

    Sensitivity: As required

    Alt Sensitivity: As required

    Pre Alarm: Any value other than None

    Alt Pre Alarm: Any value other than None

    Verification: N/A

    Alt Verification: N/A

    Base: Relay/Sounder

    Follow Alarm: No

Follow Verification: Yes

Follow Pre Alarm: No

Note: If alarm verification is required, set Device Type for Smoke Verified, set Verification and Alt Verification as required, set Follow Verification for No, and set Follow Pre Alarm for Yes.

3. Configure the CRR module as follows:

Device Type: Relay Silence

Message Line 1: ZONE_1

Message Line 2: SOUNDERS

4. Configure the RM1 module as follows:

Device type: Monitor

Message Line 1: ZONE_1

Message Line 2: 24VDC_RISER

5. Configure Zone 01 as follows:

Inputs: All detectors in Zone 1

Message Line 1: Zone 1

Message Line 2: As required

Type: Alarm

Coder: 0-0-0-0

6. Configure Correlation 01 as follows:

Inputs: Zone 1

Outputs: The CRR module labeled ZONE_1 SOUNDERS

System alarm signaling application

In system alarm signaling applications, all audible detector bases are activated using a CRR module when any alarm signal-initiating device is activated. Signal synchronization is required because alarm signals are not limited to the same notification zone.

The audible detector bases, once activated, continue to sound an alarm signal until:

- Smoke is cleared from the active detectors and the control panel is reset

- Signal Silence is pressed

- The control panel's Auto Signal Silence timer expires, if programmed. This can be from 5 to 30 minutes.

Typically, the 24 VDC riser that supplies power to the audible detector bases is supervised using an RM1 Riser Monitor module. You can also use a CT1 module and a PAM-1 control relay.

Wiring

Programming

1. Set the panel's Event Notification option for Device.

2. Configure the smoke detectors as follows:

   Device Type: Smoke or Smoke Heat depending on the detectors used

   Message Line 1: SMOKE_<N>, where <N> can be the device address or other number

   Message Line 2: As required

   Coder: 0-0-0-0

   Sensitivity: As required

   Alt Sensitivity: As required

   Pre Alarm: Any value other than None

   Alt Pre Alarm: Any value other than None

   Verification: N/A

   Alt Verification: N/A

   Base: Relay/Sounder

   Follow Alarm: No

Follow Verification: Yes

Follow Pre Alarm: No

Note: If alarm verification is required, set Device Type for Smoke Verified, set Verification and Alt Verification as required, set Follow Verification for No, and set Follow Pre Alarm for Yes.

3. Configure the CRR module as follows:

    Device Type: Relay Silence

    Message Line 1: SOUNDER_RLY_1

    Message Line 2: As required

4. Configure the RM1 module as follows:

    Device type: Monitor

    Message Line 1: 24VDC_RISER

    Message Line 2: SOUNDER_RLY_1

5. Configure Correlation 01 as follows:

    Inputs: All alarm signal-initiating devices

    Outputs: All CRR modules used to active audible detector bases

Appendix E
Device types to personality codes correlation

Summary

This appendix shows the relationship between device types and personality codes.

Content

Device types to personality codes correlation

Device types must be used when programming devices, but personality codes are described on the Signature Series installation sheets. This table correlates the different device types with their respective personality codes.

Model name	Device type	Personality code
IPHS	Smoke	(1) Alarm - NO latching (Class B)
IPHS	Smoke Verified	(1) Alarm - NO latching (Class B)
IPHS	Supervisory Latching	(1) Alarm - NO latching (Class B)
IPHS	Supervisory Nonlatching	(3) Active - NO nonlatching (Class B)
PHS	Smoke Heat	(1) Alarm - NO latching (Class B)
PHS	Smoke Verified	(1) Alarm - NO latching (Class B)
PHS	Supervisory Latching	(1) Alarm - NO latching (Class B)
PHS	Supervisory Nonlatching	(3) Active - NO nonlatching (Class B)
IS	Smoke	(1) Alarm - NO latching (Class B)
IS	Smoke Verified	(1) Alarm - NO latching (Class B)
PS	Smoke	(1) Alarm - NO latching (Class B)
PS	Smoke Verified	(1) Alarm - NO latching (Class B)
PS	Supervisory Latching	(1) Alarm - NO latching (Class B)
PS	Supervisory Nonlatching	(3) Active - NO nonlatching (Class B)
SD	Duct Alarm	(1) Alarm - NO latching (Class B)
SD	Duct Supervisory Latching	(4) Active - NO latching (Class B)
SD	Duct Supervisory Nonlatching	(3) Active - NO nonlatching (Class B)
HRS	Heat ROR	(1) Alarm - NO latching (Class B)
HFS	Heat	(1) Alarm - NO latching (Class B)
IM	Monitor	(1) Alarm - NO latching (Class B)
IO	Relay Silence NC	(32) Monitor - NO input/output NC
IO	Relay Silence NO	(31) Monitor - NO input/output NO
IO	Relay Non-Silence NC	(32) Monitor - NO input/output NC
IO	Relay Non-Silence NO	(31) Monitor - NO input/output NO
MIO	Relay Silence NC	(32) Monitor - NO input/output NC
MIO	Relay Silence NO	(32) Monitor - NO input/output NC
MIO	Relay Non-Silence NC	(32) Monitor - NO input/output NC
MIO	Relay Non-Silence NO	(31) Monitor - NO input/output NO
CT1	Smoke	(1) Alarm - NO latching (Class B)
CT1	Heat	(1) Alarm - NO latching (Class B)
CT1	Pull Station	(1) Alarm - NO latching (Class B)

Model name	Device type	Personality code
CT1	Water Flow	(2) Alarm - NO delayed latching (Class B)
CT1	Supervisory Latching	(4) Active - NO latching (Class B)
CT1	Supervisory Nonlatching	(3) Active - NO nonlatching (Class B)
CT1	Monitor	(3) Active - NO nonlatching (Class B)
CT1	Remote Reset	(3) Active - NO nonlatching (Class B)
CT1	Remote Drill	(3) Active - NO nonlatching (Class B)
CT1	Remote Signal Silence	(3) Active - NO nonlatching (Class B)
CT1	Remote AC Fail	(3) Active - NO nonlatching (Class B)
CT1	Alarm	(1) Alarm - NO latching (Class B)
DTS	Duct Alarm	(1) Alarm - NO latching (Class B)
DTS	Duct Supervisory Latching	(4) Active - NO latching (Class B)
DTS	Duct Supervisory Nonlatching	(3) Active - NO nonlatching (Class B)
MM1	Monitor	(3) Active - NO nonlatching (Class B)
270	Pull Station	(1) Alarm - NO latching (Class B)
271	Pull Station	(1) Alarm - NO latching (Class B)
270B	Pull Station	(1) Alarm - NO latching (Class B)
270F	Pull Station	(1) Alarm - NO latching (Class B)
278	Pull Station	(1) Alarm - NO latching (Class B)
CT2	Smoke	(1) Alarm - NO latching (Class B)
CT2	Heat	(1) Alarm - NO latching (Class B)
CT2	Pull Station	(1) Alarm - NO latching (Class B)
CT2	Water Flow	(2) Alarm - NO delayed latching (Class B)
CT2	Supervisory Latching	(4) Active - NO latching (Class B)
CT2	Supervisory Nonlatching	(3) Active - NO nonlatching (Class B)
CT2	Monitor	(3) Active - NO nonlatching (Class B)
CT2	Remote Reset	(3) Active - NO nonlatching (Class B)
CT2	Remote Drill	(3) Active - NO nonlatching (Class B)
CT2	Remote Signal Silence	(3) Active - NO nonlatching (Class B)
CT2	Remote AC Fail	(3) Active - NO nonlatching (Class B)
CT2	Alarm	(1) Alarm - NO latching (Class B)
MCT2	Smoke	(1) Alarm - NO latching (Class B)
MCT2	Heat	(1) Alarm - NO latching (Class B)
MCT2	Pull Station	(1) Alarm - NO latching (Class B)
MCT2	Water Flow	(2) Alarm - NO delayed latching (Class B)
MCT2	Supervisory Latching	(4) Active - NO latching (Class B)
MCT2	Supervisory Nonlatching	(3) Active - NO nonlatching (Class B)
MCT2	Monitor	(3) Active - NO nonlatching (Class B)

Model name	Device type	Personality code
MCT2	Remote Reset	(3) Active - NO nonlatching (Class B)
MCT2	Remote Drill	(3) Active - NO nonlatching (Class B)
MCT2	Remote Signal Silence	(3) Active - NO nonlatching (Class B)
MCT2	Remote AC Fail	(3) Active - NO nonlatching (Class B)
MCT2	Alarm	(1) Alarm - NO latching (Class B)
WTM	Water Flow (Ch1 only)	(2) Alarm - NO delayed latching (Class B)
WTM	Supervisory Latching (Ch2 only)	(4) Active - NO latching (Class B)
WTM	Supervisory Nonlatching (Ch2 only)	(3) Active - NO nonlatching (Class B)
270P	Pull Station (Ch1 only)	(1) Alarm - NO latching (Class B)
270P	Alarm (Ch2 only)	(1) Alarm - NO latching (Class B)
270PB	Pull Station (Ch1 only)	(1) Alarm - NO latching (Class B)
270PB	Alarm (Ch2 only)	(1) Alarm - NO latching (Class B)
CC1	Supervised Output	(5) Signal - supervised output (Class B)
CC1	Continuous Non-Silenceable	(5) Signal - supervised output (Class B)
CC1	Continuous Silenceable	(5) Signal - supervised output (Class B)
MCC1	Supervised Output	(5) Signal - supervised output (Class B)
MCC1	Continuous Non-Silenceable	(5) Signal - supervised output (Class B)
MCC1	Continuous Silenceable	(5) Signal - supervised output (Class B)
CC1S	Supervised Output	(5) Signal - supervised output (Class B)
CC1S	Continuous Non-Silenceable	(5) Signal - supervised output (Class B)
CC1S	Continuous Silenceable	(5) Signal - supervised output (Class B)
CC1S	Genesis Non-Silenceable	(25) Signal - supervised auto sync output (Class B)
CC1S	Genesis Audible Visible Silence	(25) Signal - supervised auto sync output (Class B)
MCC1S	Supervised Output	(5) Signal - supervised output (Class B)
MCC1S	Continuous Non-Silenceable	(5) Signal - supervised output (Class B)
MCC1S	Continuous Silenceable	(5) Signal - supervised output (Class B)
MCC1S	Genesis Non-Silenceable	(25) Signal - supervised auto sync output (Class B)
MCC1S	Genesis Audible Visible Silence	(25) Signal - supervised auto sync output (Class B)
CC2	Supervised Output	(7) Riser Selector - supervised output (Class B)
CC2	Continuous Non-Silenceable	(7) Riser Selector - supervised output (Class B)
CC2	Continuous Silenceable	(7) Riser Selector - supervised output (Class B)
MCC2	Supervised Output	(7) Riser Selector - supervised output (Class B)
MCC2	Continuous Non-Silenceable	(7) Riser Selector - supervised output (Class B)
MCC2	Continuous Silenceable	(7) Riser Selector - supervised output (Class B)
CR	Relay Non-Silenceable	(8) Signal - dry contact output
CR	Relay Silence	(8) Signal - dry contact output

Model name	Device type	Personality code
CRR	Relay Non-Silenceable	(8) Signal - dry contact output
CRR	Relay Silence	(8) Signal - dry contact output
MCR	Relay Non-Silenceable	(8) Signal - dry contact output
MCR	Relay Silence	(8) Signal - dry contact output
MCRR	Relay Non-Silenceable	(8) Signal - dry contact output
MCRR	Relay Silence	(8) Signal - dry contact output
CR2	Relay Non-Silenceable	(8) Signal - dry contact output
CR2	Relay Silence	(8) Signal - dry contact output
UM	Smoke	(1) Alarm - NO latching (Class B)
UM	Heat	(1) Alarm - NO latching (Class B)
UM	Pull Station	(1) Alarm - NO latching (Class B)
UM	Water Flow	(2) Alarm - NO delayed latching (Class B)
UM	Supervisory Latching	(4) Active - NO latching (Class B)
UM	Supervisory Nonlatching	(3) Active - NO nonlatching (Class B)
UM	Monitor	(3) Active - NO nonlatching (Class B)
UM	Remote Reset	(3) Active - NO nonlatching (Class B)
UM	Remote Drill	(3) Active - NO nonlatching (Class B)
UM	Remote Signal Silence	(3) Active - NO nonlatching (Class B)
UM	Remote AC Fail	(3) Active - NO nonlatching (Class B)
UM	Alarm	(1) Alarm - NO latching (Class B)
UM	2-Wire Alarm	(13) Alarm - two-wire smoke unverified (Class B)
UM	2-Wire Alarm Verify	(14) Alarm - two-wire smoke verified (Class B)
UM	2-Wire Alarm Class A	(20) Alarm - two-wire smoke unverified (Class A)
UM	2-Wire Alarm Verify Class A	(21) Alarm - two-wire smoke verified (Class A)
UM	Alarm Class A	(9) Alarm - NO latching (Class A)
UM	Pull Station Class A	(9) Alarm - NO latching (Class A)
UM	Heat Class A	(9) Alarm - NO latching (Class A)
UM	Smoke Class A	(9) Alarm - NO latching (Class A)
UM	Water Flow Class A	(10) Alarm - NO delayed latching (Class A)
UM	Supervisory Latching Class A	(12) Active - NO latching (Class A)
UM	Supervisory Nonlatching Class A	(11) Active - NO nonlatching (Class A)
UM	Monitor Class A	(11) Active - NO nonlatching (Class A)
UM	Remote AC Fail Class A	(11) Active - NO nonlatching (Class A)
UM	None	(0) No Personality
UM	Relay Non-Silenceable	(8) Signal - dry contact output
UM	Relay Silence	(8) Signal - dry contact output
UM	Supervised	(16) Signal - supervised output (Class B)

Model name	Device type	Personality code
UM	Supervised Output Class A	(15) Signal - supervised output (Class A)
UM	Continuous Non-Silenceable Class A	(15) Signal - supervised output (Class A)
UM	Continuous Silenceable Class A	(15) Signal - supervised output (Class A)
UM	Continuous Non-Silenceable	(16) Signal - supervised output (Class B)
UM	Continuous Silenceable	(16) Signal - supervised output (Class B)
MAB	Smoke	(1) Alarm - NO latching (Class B)
MAB	Heat	(1) Alarm - NO latching (Class B)
MAB	Pull Station	(1) Alarm - NO latching (Class B)
MAB	Water Flow	(2) Alarm - NO delayed latching (Class B)
MAB	Supervisory Latching	(4) Active - NO latching (Class B)
MAB	Supervisory Nonlatching	(3) Active - NO nonlatching (Class B)
MAB	Monitor	(3) Active - NO nonlatching (Class B)
MAB	Remote Reset	(3) Active - NO nonlatching (Class B)
MAB	Remote Drill	(3) Active - NO nonlatching (Class B)
MAB	Remote Signal Silence	(3) Active - NO nonlatching (Class B)
MAB	Remote AC Fail	(3) Active - NO nonlatching (Class B)
MAB	Alarm	(1) Alarm - NO latching (Class B)
MAB	2-Wire Alarm	(13) Alarm - two-wire smoke unverified (Class B)
MAB	2-Wire Alarm Verify	(14) Alarm - two-wire smoke verified (Class B)
MAB	2-Wire Alarm Class A	(20) Alarm - two-wire smoke unverified (Class A)
MAB	2-Wire Alarm Verify Class A	(21) Alarm - two-wire smoke verified (Class A)
MAB	Alarm Class A	(9) Alarm - NO latching (Class A)
MAB	Pull Station Class A	(9) Alarm - NO latching (Class A)
MAB	Heat Class A	(9) Alarm - NO latching (Class A)
MAB	Smoke Class A	(9) Alarm - NO latching (Class A)
MAB	Water Flow Class A	(10) Alarm - NO delayed latching (Class A)
MAB	Supervisory Latching Class A	(12) Active - NO latching (Class A)
MAB	Supervisory Nonlatching Class A	(11) Active - NO nonlatching (Class A)
MAB	Monitor Class A	(11) Active - NO nonlatching (Class A)
MAB	Remote AC Fail Class A	(11) Active - NO nonlatching (Class A)
MAB	None	(0) No Personality
MAB	Supervised Output	(16) Signal - supervised output (Class B)
MAB	Supervised Output Class A	(15) Signal - supervised output (Class A)
MAB	Continuous Non-Silenceable Class A	(15) Signal - supervised output (Class A)
MAB	Continuous Silenceable Class A	(15) Signal - supervised output (Class A)
MAB	Continuous Non-Silenceable	(16) Signal - supervised output (Class B)

Model name	Device type	Personality code
MAB	Continuous Silenceable	(16) Signal - supervised output (Class B)
RM1	Monitor	(23) Riser monitor - 24 VDC
MRM1	Monitor	(23) Riser monitor - 24 VDC

Index