Content

Important information • iii
Minimum system requirements • vii
To get started • viii

Chapter 1 System operation • 1
Operation overview • 3
LCD display screen • 5
System LEDs • 9
LED display expander LEDs • 10
Control buttons • 11
Component descriptions • 13
Events with event messages • 15
Event ID numbers and descriptions • 17
Viewing event details • 22
Resetting the panel • 23
Silencing panel and annunciator buzzers • 24
Silencing notification appliances • 25
Re-sounding notification appliances • 27
Conducting a lamp test • 28
Activating a device • 29
Restoring a device • 30
Activating a NAC • 31
Restoring a NAC • 32
Disabling a device • 33
Enabling a device • 35
Disabling a zone • 36
Enabling a zone • 38
Disabling a panel event • 39
Enabling a panel event • 41
Disabling a loop event • 42
Enabling a loop event • 44
Disabling a panel NAC • 45
Enabling a panel NAC • 46
Disabling/enabling the dialer and network • 47
Using the drill command • 49
Using the walk test command • 50

Chapter 2 Installation and wiring • 53
Cabinet box installation • 54
Panel electronics installation • 56
Cabinet wire routing • 57
AC power wiring • 58
Panel low voltage wiring • 59
Battery wiring (TB8) • 60
Notification appliance circuit wiring (TB2) • 61
Device loop wiring • 63
Alarm, trouble, and supervisory relay wiring (TB3) • 65
Remote annunciator wiring (TB4) • 66
Auxiliary/smoke power output wiring (TB3) • 68
SA-DACT wiring • 69
SA-232 wiring • 71
SA-CLA wiring • 74
SA-ETH wiring • 75
CTM module wiring • 76
RPM module wiring • 78

Chapter 3 Programming • 81
UL 864 programming requirements • 83
Getting started • 84
Factory default settings • 87
Setting the time and date • 92
Setting daylight saving time • 93
Setting the passwords • 95
Restoring the factory default settings • 96
Programming the programmable keys • 97
Clearing the history • 100
Restoring the panel • 101
Enabling the RS232 CU Enable command • 102
Contact ID event codes • 103
Auto programming the panel • 107
Advanced programming overview • 112
Programming panel and loop options • 113
Loop configuration options • 115
Correlation groups programming • 116
Device programming • 118
Loop 2 enable • 123
Loop class programming • 124
Mapping programming • 125
Mapping [map mismatch] • 127
Zone programming • 129
Panel configuration options • 131
NAC programming • 132
Annunciator class programming • 134
Annunciator programming • 135
CMS device programming • 137
Dialer programming • 139
Network (receiver) programming • 141
Printer programming • 143
Network card programming • 144
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:AAAAEQ###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.

<table>
<thead>
<tr>
<th>System</th>
<th>Equipment needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protected Premises (Local) Fire Alarm System</td>
<td>Control panel</td>
</tr>
<tr>
<td></td>
<td>Appropriately sized batteries</td>
</tr>
<tr>
<td>Auxiliary Fire Alarm System, Local Energy Type</td>
<td>Control panel</td>
</tr>
<tr>
<td></td>
<td>Appropriately sized batteries</td>
</tr>
<tr>
<td></td>
<td>CTM module</td>
</tr>
<tr>
<td>Remote Supervising Station Fire Alarm System</td>
<td>Control panel</td>
</tr>
<tr>
<td></td>
<td>Appropriately sized batteries</td>
</tr>
<tr>
<td></td>
<td>SA-DACT or RPM module</td>
</tr>
<tr>
<td>Central Station Fire Alarm System</td>
<td>Control panel</td>
</tr>
<tr>
<td></td>
<td>Appropriately sized batteries</td>
</tr>
<tr>
<td></td>
<td>SA-DACT or RPM module</td>
</tr>
</tbody>
</table>
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 • 3
  Front panel display • 3
  Control panel operations • 3
LCD display screen • 5
  System normal display screen • 5
  System off-normal display screen • 6
  Event details display screens • 6
System LEDs • 9
LED display expander LEDs • 10
Control buttons • 11
Component descriptions • 13
Events with event messages • 15
  Printout examples • 15
  Event ID numbers and descriptions • 17
  Viewing event details • 22
Resetting the panel • 23
Silencing panel and annunciator buzzers • 24
Silencing notification appliances • 25
Re-sounding notification appliances • 27
Conducting a lamp test • 28
Activating a device • 29
Restoring a device • 30
Activating a NAC • 31
Restoring a NAC • 32
Disabling a device • 33
Enabling a device • 35
Disabling a zone • 36
Chapter 1: System operation

Enabling a zone • 38
Disabling a panel event • 39
Enabling a panel event • 41
Disabling a loop event • 42
Enabling a loop event • 44
Disabling a panel NAC • 45
Enabling a panel NAC • 46
Disabling/enabling the dialer and network • 47
Using the drill command • 49
Using the walk test command • 50
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

![Diagram of LCD display under normal conditions](image-url)
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**

![Diagram of LCD display under off-normal conditions]

**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

Note: See “Event ID numbers and descriptions” for a list of event numbers.

Internal event details display screen

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

Annunciator event details display screen
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

[Diagram of Enter button]
## System LEDs

LEDs indicate system events and system operation.

<table>
<thead>
<tr>
<th>LED</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire Alarm</td>
<td>Red LED. Flashes when there is an active alarm event on any loop. On steady once acknowledged.</td>
</tr>
<tr>
<td>Trouble</td>
<td>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.</td>
</tr>
<tr>
<td>Sup</td>
<td>Yellow LED. Flashes when there is an active supervisory event on any loop. On steady once acknowledged.</td>
</tr>
<tr>
<td>AC Power</td>
<td>Green LED. On when the panel has AC power.</td>
</tr>
<tr>
<td>Disable</td>
<td>Yellow LED. Double-flashes when there is a disabled circuit or alarm relay.</td>
</tr>
<tr>
<td>Ground Fault</td>
<td>Yellow LED. On steady during an active ground fault.</td>
</tr>
<tr>
<td>Test</td>
<td>Yellow LED. Flashes when performing an audible walk test. Steady indicates a silent test.</td>
</tr>
<tr>
<td>Monitor</td>
<td>Yellow LED. Flashes when there is an active monitor event on any loop. On steady once acknowledged.</td>
</tr>
<tr>
<td>Service Detector</td>
<td>Yellow LED. Indicates that detector needs servicing.</td>
</tr>
<tr>
<td>Signal Silence</td>
<td>Yellow LED. On steady indicates that NAC circuits are turned off but the panel is still in alarm.</td>
</tr>
<tr>
<td>Remote Disconnect</td>
<td>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.</td>
</tr>
<tr>
<td>Drill</td>
<td>Yellow LED. Indicates that the panel is in drill.</td>
</tr>
<tr>
<td>Reset</td>
<td>Yellow LED. Indicates that the panel is going through a reset.</td>
</tr>
<tr>
<td>Panel Silence</td>
<td>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.</td>
</tr>
<tr>
<td>User keys</td>
<td>Yellow LED. Indicates the programmed key function is active.</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Button</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reset</td>
<td>Initiates a system reset. The LED next to the button indicates the function is active.</td>
</tr>
<tr>
<td>ACK/Panel Silence</td>
<td>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.</td>
</tr>
<tr>
<td>Signal Silence</td>
<td>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.</td>
</tr>
<tr>
<td>Drill</td>
<td>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. <strong>Note:</strong> Drill will not operate with an active alarm or supervisory event at the panel.</td>
</tr>
<tr>
<td>Remote Disconnect</td>
<td>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. <strong>Note:</strong> A minimum of a level one password is required to operate.</td>
</tr>
<tr>
<td>Left Arrow</td>
<td>Display mode: Moves the cursor to the left. Menu mode: Toggles between a programming option's selections</td>
</tr>
<tr>
<td>Right Arrow</td>
<td>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</td>
</tr>
</tbody>
</table>
### Chapter 1: System operation

<table>
<thead>
<tr>
<th>Button</th>
<th>Description</th>
</tr>
</thead>
</table>
| **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.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Transformer: Changes 120 or 230 volt AC supply voltage to 24 volt AC</td>
</tr>
<tr>
<td>2</td>
<td>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).</td>
</tr>
<tr>
<td>3</td>
<td>RS-232 card connector (J3): Provides a connection for the optional RS-232 card for connecting a printer or downloading from the configuration utility</td>
</tr>
<tr>
<td>4</td>
<td>Dialer card connection (J8)</td>
</tr>
<tr>
<td>5</td>
<td>Ethernet card connector (J1): Provides a connection for the optional ethernet card</td>
</tr>
<tr>
<td>6</td>
<td>Main circuit board: Provides connections for all circuits. Also includes the operator interface.</td>
</tr>
<tr>
<td>Number</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>-------------</td>
</tr>
<tr>
<td>7</td>
<td>Cabinet enclosure: Houses the panel electronics and standby batteries. In some cases, the batteries may be housed in an external battery cabinet (BC-3).</td>
</tr>
<tr>
<td>8</td>
<td>Operator interface: Includes operator controls, LED indicators, and control buttons</td>
</tr>
<tr>
<td>9</td>
<td>Loop expander card connector (J7): Provides a connection for the optional loop expander card (only on the 250/500 point panel)</td>
</tr>
<tr>
<td>10</td>
<td>Class A card connector (J2): Provides a connection for the optional Class A card (only on the 64 point panel)</td>
</tr>
<tr>
<td>11</td>
<td>Tie wrap mounts: Used to secure wires and to help maintain proper separation between power-limited and nonpower-limited conductors</td>
</tr>
<tr>
<td>12</td>
<td>LED expander connector (J6): Provides a connection for the optional LED expander</td>
</tr>
<tr>
<td>13</td>
<td>Standby batteries: Provide secondary/standby power to the panel electronics in the absence of primary power</td>
</tr>
</tbody>
</table>
## Events with event messages

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

[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.
Chapter 1: System operation

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

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

<table>
<thead>
<tr>
<th>Event ID</th>
<th>Event description</th>
</tr>
</thead>
<tbody>
<tr>
<td>023</td>
<td>Reset/Sil inhibit: Reset/silence inhibit is activated</td>
</tr>
<tr>
<td>024</td>
<td>Panel silence: The control panel buzzer has been silenced</td>
</tr>
<tr>
<td>025</td>
<td>Signal silence: The control panel NACs have been silenced</td>
</tr>
<tr>
<td>026</td>
<td>Drill: The control panel is in the drill state</td>
</tr>
<tr>
<td>027</td>
<td>Walk test: The control panel is in the walk test state</td>
</tr>
<tr>
<td>028</td>
<td>Test fire: A smoke or heat detector is being tested</td>
</tr>
<tr>
<td>029</td>
<td>Clear history: The control panel's event history has been cleared</td>
</tr>
<tr>
<td>030</td>
<td>Time: The control panel's time was modified</td>
</tr>
<tr>
<td>031</td>
<td>Date: The control panel's date was modified</td>
</tr>
<tr>
<td>032</td>
<td>Common disable: A disable event is taking place on the control panel</td>
</tr>
<tr>
<td>033</td>
<td>Common trouble: A trouble event is taking place on the control panel</td>
</tr>
<tr>
<td>034</td>
<td>Ground fault: The panel detected a ground fault</td>
</tr>
<tr>
<td>035</td>
<td>Battery charger: The panel detected a battery charger trouble condition. The charger may not be able to charge the batteries.</td>
</tr>
<tr>
<td>036</td>
<td>Battery low: The batteries are low on charge</td>
</tr>
<tr>
<td>037</td>
<td>Battery missing: The battery is no longer connected</td>
</tr>
<tr>
<td>038</td>
<td>AC power: There is a problem with the panel's AC power</td>
</tr>
<tr>
<td>039</td>
<td>Aux. power 1: The control panel detected a trouble condition on the continuous AUX power circuit 1</td>
</tr>
<tr>
<td>040</td>
<td>Aux. power 2: The control panel detected a trouble condition on the resettable AUX power circuit 2</td>
</tr>
<tr>
<td>041</td>
<td>System AC power: There is a problem with the panel's AC power and/or a remote auxiliary/booster's AC power</td>
</tr>
<tr>
<td>042</td>
<td>Common alarm: An alarm event is taking place on the control panel</td>
</tr>
<tr>
<td>043</td>
<td>Common supervisory: A supervisory event is taking place on the control panel</td>
</tr>
<tr>
<td>044</td>
<td>Common monitor: A monitor event is taking place on the control panel</td>
</tr>
<tr>
<td>045</td>
<td>Common trouble for telco dialer: A trouble event, other than a DACT delivery fault is taking place on the control panel</td>
</tr>
<tr>
<td>046</td>
<td>Common trouble for network dialer: A trouble event, including a DACT delivery fault is taking place on the control panel</td>
</tr>
<tr>
<td>047</td>
<td>Self test fault: A fault has been detected while testing the panel's internal subsystems (memory, flash, code, etc.)</td>
</tr>
</tbody>
</table>
## 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
<table>
<thead>
<tr>
<th>Event ID</th>
<th>Event description</th>
</tr>
</thead>
<tbody>
<tr>
<td>069</td>
<td>Annunciator 7 trouble: An open or short has been detected on annunciator 7</td>
</tr>
<tr>
<td>070</td>
<td>Annunciator 8 trouble: An open or short has been detected on annunciator 8</td>
</tr>
<tr>
<td>071</td>
<td>Zone 1 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 1)</td>
</tr>
<tr>
<td>072</td>
<td>Zone 2 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 2)</td>
</tr>
<tr>
<td>073</td>
<td>Zone 3 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 3)</td>
</tr>
<tr>
<td>074</td>
<td>Zone 4 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 4)</td>
</tr>
<tr>
<td>075</td>
<td>Zone 5 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 5)</td>
</tr>
<tr>
<td>076</td>
<td>Zone 6 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 6)</td>
</tr>
<tr>
<td>077</td>
<td>Zone 7 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 7)</td>
</tr>
<tr>
<td>078</td>
<td>Zone 8 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 8)</td>
</tr>
<tr>
<td>079</td>
<td>Zone 9 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 9)</td>
</tr>
<tr>
<td>080</td>
<td>Zone 10 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 10)</td>
</tr>
<tr>
<td>081</td>
<td>Zone 11 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 11)</td>
</tr>
<tr>
<td>082</td>
<td>Zone 12 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 12)</td>
</tr>
<tr>
<td>083</td>
<td>Zone 13 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 13)</td>
</tr>
<tr>
<td>084</td>
<td>Zone 14 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 14)</td>
</tr>
<tr>
<td>085</td>
<td>Zone 15 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 15)</td>
</tr>
<tr>
<td>086</td>
<td>Zone 16 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 16)</td>
</tr>
<tr>
<td>087</td>
<td>Zone 17 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 17)</td>
</tr>
<tr>
<td>088</td>
<td>Zone 18 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 18)</td>
</tr>
<tr>
<td>089</td>
<td>Zone 19 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 19)</td>
</tr>
<tr>
<td>Event ID</td>
<td>Event description</td>
</tr>
<tr>
<td>----------</td>
<td>-------------------</td>
</tr>
<tr>
<td>090</td>
<td>Zone 20 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 20)</td>
</tr>
<tr>
<td>091</td>
<td>Zone 21 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 21)</td>
</tr>
<tr>
<td>092</td>
<td>Zone 22 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 22)</td>
</tr>
<tr>
<td>093</td>
<td>Zone 23 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 23)</td>
</tr>
<tr>
<td>094</td>
<td>Zone 24 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 24)</td>
</tr>
<tr>
<td>095</td>
<td>Zone 25 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 25)</td>
</tr>
<tr>
<td>096</td>
<td>Zone 26 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 26)</td>
</tr>
<tr>
<td>097</td>
<td>Zone 27 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 27)</td>
</tr>
<tr>
<td>098</td>
<td>Zone 28 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 28)</td>
</tr>
<tr>
<td>099</td>
<td>Zone 29 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 29)</td>
</tr>
<tr>
<td>100</td>
<td>Zone 30 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 30)</td>
</tr>
<tr>
<td>101</td>
<td>Zone 31 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 31)</td>
</tr>
<tr>
<td>102</td>
<td>Zone 32 (active, trouble, disable, prealarm, alarm verify, maintenance alert, or test has been detected on zone 32)</td>
</tr>
</tbody>
</table>
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.
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.

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](image)

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

Device Disable<>  
D01  
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).
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.
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).
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.
— or —
Press the Menu button to exit menu mode.
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).
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.
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).
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.
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).
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.
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).
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.
7. Press Enter.
8. Press Cancel to return to the previous menu.
   — or —
   Press the Menu button to exit menu mode.
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).
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.
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).
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.
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).
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.
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.
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.
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.
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 • 54
Panel electronics installation • 56
Cabinet wire routing • 57
AC power wiring • 58
Panel low voltage wiring • 59
Battery wiring (TB8) • 60
Notification appliance circuit wiring (TB2) • 61
Device loop wiring • 63
Alarm, trouble, and supervisory relay wiring (TB3) • 65
Remote annunciator wiring (TB4) • 66
Auxiliary/smoke power output wiring (TB3) • 68
SA-DACT wiring • 69
SA-232 wiring • 71
SA-CLA wiring • 74
SA-ETH wiring • 75
CTM module wiring • 76
RPM module wiring • 78
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.

### Backbox and backbox with door dimensions

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>64 pt.</td>
<td>21.50 in. (54.6 cm)</td>
<td>3.85 in. (9.8 cm)</td>
<td>7.5 in. (19 cm)</td>
<td>15.50 in. (39.4 cm)</td>
<td>14.25 in. (36.2 cm)</td>
<td>10.25 in. (26 cm)</td>
<td>4.5 in. (11.4 cm)</td>
<td>21.7 in. (55.1 cm)</td>
<td>2.7 in. (6.8 cm)</td>
</tr>
<tr>
<td>250/500 pt.</td>
<td>28.0 in. (71.1 cm)</td>
<td>3.85 in. (9.8 cm)</td>
<td>9.0 in. (22.8 cm)</td>
<td>22.0 in. (55.8 cm)</td>
<td>15.75 in. (40.0 cm)</td>
<td>10.25 in. (26.0 cm)</td>
<td>4.4 in. (11.1 cm)</td>
<td>28.2 in. (71.6 cm)</td>
<td>2.7 in. (6.8 cm)</td>
</tr>
</tbody>
</table>

[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
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.
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.

[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, FLP, 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
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.

<table>
<thead>
<tr>
<th>Model</th>
<th>Manufacturer</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>12V4A</td>
<td>GS Battery, Inc.</td>
<td>12 volts, 4.5 ampere-hours</td>
</tr>
<tr>
<td>12V6A5</td>
<td>GS Battery, Inc.</td>
<td>12 volts, 7.2 ampere-hours</td>
</tr>
<tr>
<td>12V10A</td>
<td>GS Battery, Inc.</td>
<td>12 volts, 11 ampere-hours</td>
</tr>
<tr>
<td>12V17A</td>
<td>GS Battery, Inc.</td>
<td>12 volts, 18 ampere-hours</td>
</tr>
<tr>
<td>12V24A</td>
<td>GS Battery, Inc.</td>
<td>12 volts, 26 ampere-hours</td>
</tr>
</tbody>
</table>

Battery wiring

Terminal wiring location

RED

- Black

+ 12 VDC Battery

- 12 VDC Battery

+ 12 VDC Battery

- 12 VDC Battery
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.

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
Chapter 2: Installation and wiring

64 point panel Class B wiring

250/500 point panel Class B wiring

250/500 point panel Class A wiring
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.

**Class B wiring (Style 4)**
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.
Alarm, trouble, and supervisory relay wiring (TB3)

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

- 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.

**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)

<table>
<thead>
<tr>
<th>Channel 1</th>
<th>Channel 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

---

Annunciator

- CH1 (+) IN
- CH1 (–) IN
- CH2 (+) IN
- CH2 (–) IN

---

Terminal wiring location
Annunciator channel wiring (Class B)

Channel 1  Channel 2
+  –  +  –  TB4

Annunciator

CH1 (+) IN
CH1 (–) IN
CH2 (+) IN
CH2 (–) IN
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).

**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

**Terminal wiring location**
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.

<table>
<thead>
<tr>
<th>Receiver</th>
<th>Models</th>
<th>Formats</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ademco</td>
<td>685</td>
<td>Contact ID</td>
</tr>
<tr>
<td>FBII</td>
<td>CP220</td>
<td>Contact ID</td>
</tr>
<tr>
<td>Osborne-Hoffman</td>
<td>OH2000 and OH2000E (with a OH2000E-LC line card installed)</td>
<td>Contact ID</td>
</tr>
<tr>
<td>Radionics</td>
<td>D6600</td>
<td>Contact ID</td>
</tr>
<tr>
<td>Silent Knight</td>
<td>9500, 9800</td>
<td>Contact ID</td>
</tr>
<tr>
<td>Sur-Gard</td>
<td>MLR1, MLR2, MCDI TLR, TLR+, SG-SLR, MLR2000</td>
<td>Contact ID</td>
</tr>
</tbody>
</table>

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

PBX

RJ-31X block (supplied by installer)

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

LINE 1

LINE 2

J1

J4

Tip

Ring

Tip

Ring

Tip

Ring

Tip

Ring

Tip

Ring

Tip

Ring

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
  Asynchronous 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.
Chapter 2: Installation and wiring

Printer wiring

![Diagram of printer wiring](image)

DB-25 pin connections

<table>
<thead>
<tr>
<th>PIN 1</th>
<th>PIN 25</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB-25 male (front view)</td>
<td>DB-25 male</td>
</tr>
<tr>
<td>Pin 2: TXD (red wire)</td>
<td>Pin 7: COM (black wire)</td>
</tr>
<tr>
<td>Pin 3: RXD (white wire)</td>
<td>Pin 20: DTR (green wire)</td>
</tr>
</tbody>
</table>

SA-232 card to printer DB-25 connections

<table>
<thead>
<tr>
<th>SA-232 card</th>
<th>DB-25</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GND</td>
<td>COM (pin 7)</td>
<td>Black wire (ground connection)</td>
</tr>
<tr>
<td>RTS</td>
<td>DTR (pin 20)</td>
<td>Green wire (printer supervision)</td>
</tr>
<tr>
<td>TXD</td>
<td>RXD (pin 3)</td>
<td>White wire (communication)</td>
</tr>
<tr>
<td>RXD</td>
<td>TXD (pin 2)</td>
<td>Red wire (communication)</td>
</tr>
</tbody>
</table>

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

![Diagram of computer download wiring](image)
DB-9 pin connections

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

SA-232 card to computer DB-9 connections

<table>
<thead>
<tr>
<th>SA-232 card</th>
<th>DB-9</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GND</td>
<td>COM (pin 5)</td>
<td>Black wire (ground connection)</td>
</tr>
<tr>
<td>RTS</td>
<td>-</td>
<td>Not used</td>
</tr>
<tr>
<td>TXD</td>
<td>RXD (pin 2)</td>
<td>White wire (communication)</td>
</tr>
<tr>
<td>RXD</td>
<td>TXD (pin 3)</td>
<td>Red wire (communication)</td>
</tr>
</tbody>
</table>
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
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.

<table>
<thead>
<tr>
<th>Receiver</th>
<th>Model</th>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>Osborne-Hoffman</td>
<td>OH2000 and OH2000E (with a OH-TCP/IP-LC card installed) (see note below)</td>
<td>Contact ID</td>
</tr>
</tbody>
</table>

**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**

![Network cable](image)

**SA-ETH LEDs**

<table>
<thead>
<tr>
<th>LED 1 (DS1): Link</th>
</tr>
</thead>
<tbody>
<tr>
<td>LED 2 (DS2): Speed</td>
</tr>
<tr>
<td>LED 3 (DS3): Duplex</td>
</tr>
<tr>
<td>LED 4 (DS4): Collision</td>
</tr>
</tbody>
</table>
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.

Alarm transmitted only

```
+-----------------+  +-----------------+  +-----------------+
| Control panel   |  | Terminal wiring location |
| TB3             |  |                        |
|                 |  |                        |
| TRBL            |  |                        |
| C               |  |                        |
|                 |  |                        |
| TRBL            |  |                        |
| NC              |  |                        |
|                 |  |                        |
| SUP             |  |                        |
|                 |  |                        |
|                 |  |                        |
|                 |  |                        |
| ALM             |  |                        |
| C               |  |                        |
|                 |  |                        |
|                 |  | From ALRM on RPM (brown wire) |
| NO              |  |                        |
|                 |  |                        |
| +               |  | From COM on RPM (black wire) |
|                 |  |                        |
| 24VOUT          |  | From +24 on RPM (red wire) |
| +               |  |                        |
```

From COM on RPM (black wire)
From +24 on RPM (red wire)
Alarm and trouble transmitted on a single circuit

**Note:** JP1 on the RPM must be OUT.

![Diagram for single circuit transmission]

Control panel TB3
- NO
- TRBL C
- NC
- SUP
- NC
- ALM C
- NO
- +
- 24VOUT +

- From TRBL on RPM (yellow wire)
- From ALRM on RPM (brown wire)
- From COM on RPM (black wire)
- From +24 on RPM (red wire)

Alarm, supervisory, and trouble transmitted on separate circuits

**Note:** JP1 on the RPM must be IN.

![Diagram for separate circuit transmission]

Control panel TB3
- NO
- TRBL C
- NC
- SUP
- NC
- ALM C
- NO
- +
- 24VOUT +

- From TRBL on RPM (yellow wire)
- From SUPV on RPM (orange wire)
- From ALRM on RPM (brown wire)
- From COM on RPM (black wire)
- From +24 on RPM (red wire)
Chapter 3
Programming

Summary
This chapter covers front panel programming.

Content
UL 864 programming requirements • 83
Getting started • 84
   Using the programming control buttons • 85
   Programming mode • 85
   Default passwords • 86
Factory default settings • 87
Setting the time and date • 92
Setting daylight saving time • 93
Setting the passwords • 95
Restoring the factory default settings • 96
Programming the programmable keys • 97
Clearing the history • 100
Restarting the panel • 101
Enabling the RS232 CU Enable command • 102
Contact ID event codes • 103
Auto programming the panel • 107
Advanced programming overview • 112
Programming panel and loop options • 113
Loop configuration options • 115
Correlation groups programming • 116
Device programming • 118
Loop 2 enable • 123
Loop class programming • 124
Mapping programming • 125
Mapping (map mismatch) • 127
Zone programming • 129
Panel configuration options • 131
NAC programming • 132
Annunciator class programming • 134
Annunciator programming • 135
CMS device programming • 137
Dialer programming • 139
Network (receiver) programming • 141
Printer programming • 143
Network card programming • 144
Lock remote read programming • 145
AC voltage programming • 146
Panel operation programming • 147
Panel events programming • 149
Loop events programming • 152
Unconfigured alarm programming • 154
Common trouble programming • 156
Incremental programming the panel • 158
Adding a device to a programmed system • 161
Removing a device from a programmed system • 166
### 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.

<table>
<thead>
<tr>
<th>Programmable feature or option</th>
<th>Permitted in UL 864? (Y/N)</th>
<th>Possible settings</th>
<th>Settings permitted in UL 864</th>
<th>Panel default</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC fail delay</td>
<td>Y</td>
<td>0 to 15 hours</td>
<td>1, 2, or 3 hours</td>
<td>3 hours</td>
</tr>
<tr>
<td>Telephone line cut supervision duration</td>
<td>Y</td>
<td>1 to 120 seconds</td>
<td>10 to 120 seconds</td>
<td>120 seconds</td>
</tr>
<tr>
<td>Test signal frequency</td>
<td>Y</td>
<td>0 to 45 days</td>
<td>1 (daily)</td>
<td>1 (daily)</td>
</tr>
<tr>
<td>Dialer mode</td>
<td>Y</td>
<td>Dual line</td>
<td>Dual line</td>
<td>Dual line</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Single line</td>
<td>Single line [1]</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Modern only</td>
<td>Modern only [2]</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>None</td>
<td>None [2]</td>
<td></td>
</tr>
<tr>
<td>Send event restore codes</td>
<td>Y</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swinger shutdown</td>
<td>N</td>
<td>Off</td>
<td>Off</td>
<td>Off</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 to 255</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zone resound</td>
<td>Y</td>
<td>On</td>
<td>On</td>
<td>On</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Off</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th>Button</th>
<th>Description</th>
</tr>
</thead>
</table>
| 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
Chapter 3: Programming

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.
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.

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
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.
10. Repeat steps 5 through 9 for each password level.
11. Continue programming your system or press Menu to exit menu mode.
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.
9. Choose Yes.

The panel restarts, and the factory default settings are reloaded into the database.
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.
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.
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
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.
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.
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.
4. Enter your level two password.
5. Choose Yes to restart the panel.
   — or —
   Choose No to cancel.
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.
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.

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

<table>
<thead>
<tr>
<th>Event</th>
<th>CID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Device alarm verify</td>
<td>118</td>
</tr>
<tr>
<td>Device maintenance alert</td>
<td>393</td>
</tr>
<tr>
<td>Device test</td>
<td>614</td>
</tr>
<tr>
<td>Dialer disable/remote disconnect</td>
<td>551</td>
</tr>
<tr>
<td>Dialer line 1 fault (disable)</td>
<td>500</td>
</tr>
<tr>
<td>Dialer line 1 fault (trouble)</td>
<td>351</td>
</tr>
<tr>
<td>Dialer line 2 fault (disable)</td>
<td>500</td>
</tr>
<tr>
<td>Dialer line 2 fault (trouble)</td>
<td>352</td>
</tr>
<tr>
<td>Dialer deliver fail</td>
<td>354</td>
</tr>
<tr>
<td>Dialer normal test</td>
<td>602</td>
</tr>
<tr>
<td>Dialer abnormal test</td>
<td>608</td>
</tr>
<tr>
<td>Dialer configuration</td>
<td>354</td>
</tr>
<tr>
<td>Drill</td>
<td>601</td>
</tr>
<tr>
<td>Duct active</td>
<td>116</td>
</tr>
<tr>
<td>Ground fault (disable)</td>
<td>500</td>
</tr>
<tr>
<td>Ground fault (trouble)</td>
<td>310</td>
</tr>
<tr>
<td>Heat active</td>
<td>114</td>
</tr>
<tr>
<td>Internal fault</td>
<td>307</td>
</tr>
<tr>
<td>Loop 1 initialization</td>
<td>000</td>
</tr>
<tr>
<td>Loop 1 fault (disable)</td>
<td>500</td>
</tr>
<tr>
<td>Loop 1 fault (trouble)</td>
<td>331</td>
</tr>
<tr>
<td>Loop 1 map fault</td>
<td>331</td>
</tr>
<tr>
<td>Loop 1 card fault (disable)</td>
<td>500</td>
</tr>
<tr>
<td>Loop 1 card fault (trouble)</td>
<td>333</td>
</tr>
<tr>
<td>Loop 1 unconf alarm (disable)</td>
<td>500</td>
</tr>
<tr>
<td>Loop 1 unconf alarm (active)</td>
<td>110</td>
</tr>
<tr>
<td>Loop 1 unconf trbl (disable)</td>
<td>500</td>
</tr>
<tr>
<td>Loop 1 unconf trbl (trouble)</td>
<td>331</td>
</tr>
<tr>
<td>Loop 1 map mismatch</td>
<td>331</td>
</tr>
<tr>
<td>Loop 1 over limits</td>
<td>331</td>
</tr>
<tr>
<td>Loop 1 address zero</td>
<td>331</td>
</tr>
<tr>
<td>Loop 1 mapping</td>
<td>000</td>
</tr>
<tr>
<td>Loop 2 initialization</td>
<td>000</td>
</tr>
<tr>
<td>Loop 2 fault (disable)</td>
<td>500</td>
</tr>
<tr>
<td>Event</td>
<td>CID</td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Loop 2 fault (trouble)</td>
<td>331</td>
</tr>
<tr>
<td>Loop 2 map fault</td>
<td>331</td>
</tr>
<tr>
<td>Loop 2 card fault (disable)</td>
<td>500</td>
</tr>
<tr>
<td>Loop 2 card fault (trouble)</td>
<td>333</td>
</tr>
<tr>
<td>Loop 2 unconf alarm (disable)</td>
<td>500</td>
</tr>
<tr>
<td>Loop 2 unconf alarm (active)</td>
<td>110</td>
</tr>
<tr>
<td>Loop 2 unconf trbl (disable)</td>
<td>500</td>
</tr>
<tr>
<td>Loop 2 unconf trbl (trouble)</td>
<td>331</td>
</tr>
<tr>
<td>Loop 2 map mismatch</td>
<td>331</td>
</tr>
<tr>
<td>Loop 2 over limits</td>
<td>331</td>
</tr>
<tr>
<td>Loop 2 address zero</td>
<td>331</td>
</tr>
<tr>
<td>Loop 2 mapping</td>
<td>000</td>
</tr>
<tr>
<td>Monitor active</td>
<td>140</td>
</tr>
<tr>
<td>NAC1 trouble</td>
<td>321</td>
</tr>
<tr>
<td>NAC2 trouble</td>
<td>322</td>
</tr>
<tr>
<td>NAC3 trouble</td>
<td>326</td>
</tr>
<tr>
<td>NAC4 trouble</td>
<td>327</td>
</tr>
<tr>
<td>NAC1 disable</td>
<td>521</td>
</tr>
<tr>
<td>NAC2 disable</td>
<td>522</td>
</tr>
<tr>
<td>NAC3 disable</td>
<td>526</td>
</tr>
<tr>
<td>NAC4 disable</td>
<td>527</td>
</tr>
<tr>
<td>NAC test</td>
<td>600</td>
</tr>
<tr>
<td>Net rcvr conf fault</td>
<td>354</td>
</tr>
<tr>
<td>Net rcvr comm fault (disable)</td>
<td>500</td>
</tr>
<tr>
<td>Net rcvr comm fault (trouble)</td>
<td>354</td>
</tr>
<tr>
<td>Panel silence</td>
<td>315</td>
</tr>
<tr>
<td>Printer trouble</td>
<td>336</td>
</tr>
<tr>
<td>Program mode</td>
<td>627</td>
</tr>
<tr>
<td>Pull active</td>
<td>115</td>
</tr>
<tr>
<td>Reset</td>
<td>305</td>
</tr>
<tr>
<td>Reset/Silence inhibit</td>
<td>000</td>
</tr>
<tr>
<td>Self test fault</td>
<td>307</td>
</tr>
<tr>
<td>Signal silence</td>
<td>328</td>
</tr>
<tr>
<td>Smoke active</td>
<td>111</td>
</tr>
<tr>
<td>Event</td>
<td>CID</td>
</tr>
<tr>
<td>------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Smoke/Heat active</td>
<td>111</td>
</tr>
<tr>
<td>Supervisory active</td>
<td>200</td>
</tr>
<tr>
<td>System startup</td>
<td>000</td>
</tr>
<tr>
<td>System AC power (disable)</td>
<td>500</td>
</tr>
<tr>
<td>System AC power (trouble)</td>
<td>301</td>
</tr>
<tr>
<td>Test fire</td>
<td>604</td>
</tr>
<tr>
<td>Time</td>
<td>625</td>
</tr>
<tr>
<td>Walk test</td>
<td>607</td>
</tr>
<tr>
<td>Waterflow active</td>
<td>113</td>
</tr>
<tr>
<td>Zone active</td>
<td>110</td>
</tr>
<tr>
<td>Zone trouble</td>
<td>373</td>
</tr>
<tr>
<td>Zone disable</td>
<td>570</td>
</tr>
<tr>
<td>Zone pre alarm</td>
<td>118</td>
</tr>
<tr>
<td>Zone alarm verify</td>
<td>118</td>
</tr>
<tr>
<td>Zone maintenance alert</td>
<td>393</td>
</tr>
<tr>
<td>Zone test</td>
<td>614</td>
</tr>
</tbody>
</table>
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.”

**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

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Auto zoning</strong></td>
<td>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:  &lt;br&gt; 64 point panel: Four devices per zone  &lt;br&gt; 250/500 point panel: Sixteen devices per zone  &lt;br&gt; No: The system automatically finds all of the devices connected to your system and does not assign them to a zone.</td>
</tr>
<tr>
<td><strong>Enable NET</strong></td>
<td>Yes: Enables the panel to communicate to the central monitoring station over an Ethernet network  &lt;br&gt; No: Disables the panel from communicating to the central monitoring station over an ethernet network.</td>
</tr>
<tr>
<td><strong>Dialer</strong></td>
<td>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  &lt;br&gt; No: Dialer is not enabled  &lt;br&gt; <strong>Note:</strong> Not all dialer programming options are acceptable for UL/ULC installations. Refer to “UL 864 programming requirements” for details.</td>
</tr>
<tr>
<td><strong>Event notification</strong></td>
<td>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.  &lt;br&gt; 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.  &lt;br&gt; Device: Only device information is reported, no zone information.</td>
</tr>
</tbody>
</table>
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 programming 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
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.

### Dialer options programming

<table>
<thead>
<tr>
<th>Account 1</th>
<th>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.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Primary receiver number: Enter the primary receiver’s phone number. Up to 20 digits (0-9, *, #, and <em>). The comma causes a two second delay in dialing. The number or hash symbol (#) and the asterisk symbol (</em>) are used with calling feature codes and services. Consult your telephone service provider for more information.</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>Format: CID</td>
</tr>
<tr>
<td></td>
<td>CID: Contact ID is the alarm format that the monitoring facility (DACR) will receive. See “Contact ID event codes” for more information.</td>
</tr>
<tr>
<td></td>
<td>Event notification: Set event notification (event reporting) to:</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>Zone: When a device is a member of a zone, only the zone information is reported/transmitted, no device information.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Account 2</th>
<th>Account ID: Enter four-digit ID code for account 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Primary receiver number: Enter the primary receiver’s phone number (up to 20 digits).</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Account ID</td>
<td>Enter the central monitoring station (CMS) account’s six-digit ID code.</td>
</tr>
<tr>
<td>IP</td>
<td>Enter the IP address for the CMS.</td>
</tr>
<tr>
<td>Event notification</td>
<td>Set event notification (event reporting) to:</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td>Receiver number</td>
<td>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.</td>
</tr>
<tr>
<td>Line number</td>
<td>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.</td>
</tr>
</tbody>
</table>
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 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:

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
Chapter 3: 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.
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.
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**

<table>
<thead>
<tr>
<th>Zone</th>
<th>Select the zone you want to add this device to or select Off if you are not adding the device to a zone.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Note:</strong> 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.</td>
</tr>
<tr>
<td>Label</td>
<td>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.</td>
</tr>
<tr>
<td>Correlation groups</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> 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.</td>
</tr>
<tr>
<td>Event notification</td>
<td>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.</td>
</tr>
<tr>
<td>Printer: Yes or No</td>
<td>Specifies if event information is printed</td>
</tr>
<tr>
<td>Coder: 4-digit coded output, which is played in response to alarm conditions (00-00-00-00 to 99-99-99-99)</td>
<td></td>
</tr>
<tr>
<td>Dialer: Acct 1 &amp; 2: Event information is sent to both dialer accounts</td>
<td>Acct 1: Event information is sent to dialer account one</td>
</tr>
<tr>
<td>NET: Yes or No</td>
<td>Specifies if event information is sent to the connected network</td>
</tr>
<tr>
<td>CID: Contact ID event code (000 to 999)</td>
<td></td>
</tr>
<tr>
<td>Day sensitivity</td>
<td>Set the daytime smoke level sensitivity to least, less, more, normal, or most.</td>
</tr>
<tr>
<td>Night sensitivity</td>
<td>Set the nighttime smoke level sensitivity to least, less, more, normal, or most.</td>
</tr>
</tbody>
</table>
### 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.

**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 airflow 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 the supervisory LED and relay. Annunciation remains active until the input restores. The panel does not have to be 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.
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
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.

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 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.
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.
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.
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.
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

<table>
<thead>
<tr>
<th>Type</th>
<th>Set zone type to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alarm</td>
<td>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.</td>
</tr>
<tr>
<td>Monitor</td>
<td>Monitoring of normally open switches for other functions (fire door position, etc.). Not approved for use under ULC 527 in Canada.</td>
</tr>
<tr>
<td>Supervisory</td>
<td>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.</td>
</tr>
<tr>
<td>Waterflow</td>
<td>Activates alarm events when a waterflow switch closes. Select this zone type when the devices in the zone are only connected to waterflow switches.</td>
</tr>
</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th>Label</th>
<th>Enter a text label for the zone (up to 40 characters and two lines). When finished, choose Save.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Correlation groups</th>
<th>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.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Note:</strong> 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.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Event notification</th>
<th>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.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Note:</strong> If your CMS is set to zone reporting, the event notification information sent to the receiver comes from the programming in this section.</td>
<td></td>
</tr>
<tr>
<td>Printer: Yes or No</td>
<td>Specifies if event information is printed</td>
</tr>
<tr>
<td>Dialer:</td>
<td>Acct 1 &amp; 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</td>
</tr>
</tbody>
</table>
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.
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.
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

<table>
<thead>
<tr>
<th>Class</th>
<th>Select either Class A or Class B.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>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.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>Set NAC type to:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Continuous (silenceable or nonsilenceable): For strobes and notification appliances that self-generate a temporal pattern</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>Nonsilenceable: Horns cannot be silenced and strobes flash</td>
</tr>
<tr>
<td></td>
<td>Audible silence: Horns can be silenced while strobes continue to flash</td>
</tr>
<tr>
<td></td>
<td>Audible/visible silence: Horns can be silenced and strobes can be turned off</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>Basic: Four rounds of the 4-digit coded output are played</td>
</tr>
<tr>
<td></td>
<td>Continuous: Four rounds of the 4-digit coded output are played and then continuous is played</td>
</tr>
<tr>
<td></td>
<td>120 SPM: Four rounds of the 4-digit coded output are played and then 120 times per minute is played</td>
</tr>
<tr>
<td></td>
<td>Temporal: Four rounds of the 4-digit coded output are played and then a temporal pattern is played</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
</tbody>
</table>

| Label | Enter a text label for the NAC (up to 40 characters and two lines). When finished, choose Save. |

<table>
<thead>
<tr>
<th>Correlation groups</th>
<th>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.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>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 &quot;Correlation groups programming&quot; for more information.</td>
</tr>
</tbody>
</table>
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.
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.
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

<table>
<thead>
<tr>
<th>Type</th>
<th>Set annunciator type:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off</td>
<td>No annunciator is connected. Note: If type is set to Off, Number expanders, Label, and Reporting configuration are not available.</td>
</tr>
<tr>
<td>LCD-C</td>
<td>The annunciator has a display and common controls</td>
</tr>
<tr>
<td>LCD</td>
<td>The annunciator has a display only (no common controls)</td>
</tr>
<tr>
<td>LED</td>
<td>The annunciator has LEDs and common controls (no display)</td>
</tr>
<tr>
<td>Graphic</td>
<td>Graphics controller interface for the Envoy graphics board</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Expanders</th>
<th>Set expanders to None, 1, or 2. This is the number of LED expander modules you are using with the annunciator.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Label</td>
<td>Enter a text label for the annunciator (up to 40 characters and two lines). When finished, choose Save.</td>
</tr>
<tr>
<td>Event notification</td>
<td>Set the trouble event information by setting the notification information. When finished, choose Save. See “Factory default settings” for annunciator event notification default settings.</td>
</tr>
<tr>
<td>Printer</td>
<td>Yes or No - Specifies if event information is printed</td>
</tr>
<tr>
<td>Coder</td>
<td>4-digit coded output, which is played in response to alarm conditions (00-00-00-00 to 99-99-99-99)</td>
</tr>
<tr>
<td>Dialer</td>
<td>Acct 1 &amp; 2: Event information is sent to both dialer accounts</td>
</tr>
<tr>
<td></td>
<td>Acct 1: Event information is sent to dialer account one</td>
</tr>
<tr>
<td></td>
<td>Acct 2: Event information is sent to dialer account two</td>
</tr>
<tr>
<td></td>
<td>None: Event information is not sent to the dialer</td>
</tr>
<tr>
<td>NET</td>
<td>Yes or No. Specifies if event information is sent to the connected network</td>
</tr>
<tr>
<td>CID</td>
<td>Contact ID event code (000 to 999)</td>
</tr>
</tbody>
</table>

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 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.
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

<table>
<thead>
<tr>
<th>Dialer</th>
<th>See &quot;Dialer programming.&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network</td>
<td>See &quot;Network programming.&quot;</td>
</tr>
</tbody>
</table>

**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 uncfgd 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.
**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

<table>
<thead>
<tr>
<th>Type</th>
<th>Set the dialer type to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dual line</td>
<td>Uses LINE 1 and LINE 2 to transmit events to the central station receiver and performs modem functions.</td>
</tr>
<tr>
<td>Single line</td>
<td>Uses LINE 1 only to transmit events to the central station receiver and performs modem functions.</td>
</tr>
<tr>
<td>Modem only</td>
<td>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.</td>
</tr>
<tr>
<td>None</td>
<td>No dialer is installed or if a dialer is installed, disables the dialer.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Account 1 and 2</th>
<th>Program account 1 options, and then program account 2 options. When finished programming each account, choose Save.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Account ID:</td>
<td>Enter account 1 and 2’s four-digit ID code. FFFF is not valid.</td>
</tr>
<tr>
<td>Primary receiver number:</td>
<td>Enter the primary receiver's phone number. Up to 20 digits (0-9, <em>, #, and ,). The comma causes a two second delay in dialing. The number or hash symbol (#) and the asterisk symbol (</em>) are used with calling feature codes and services. Consult your telephone service provider for more information.</td>
</tr>
<tr>
<td>Secondary receiver number:</td>
<td>Enter the secondary receiver's phone number. Up to 20 digits (0-9, <em>, #, and ,). The comma causes a two second delay in dialing. The number or hash symbol (#) and the asterisk symbol (</em>) are used with calling feature codes and services. Consult your telephone service provider for more information.</td>
</tr>
<tr>
<td>Format: CID: Contact ID is the alarm format that the monitoring facility (DACR) will receive. See &quot;Contact ID event codes&quot; for more information.</td>
<td></td>
</tr>
<tr>
<td>Send restorals:</td>
<td>Set send restorals to:</td>
</tr>
<tr>
<td></td>
<td>Yes: Sends off-normal event restorals to the monitoring facility (DACR). Required setting for UL/ULC installations. Refer to &quot;UL 864 programming requirements&quot; for details.</td>
</tr>
<tr>
<td></td>
<td>No: Does not send off-normal event restorals to the monitoring facility (DACR)</td>
</tr>
<tr>
<td>Retry time seconds:</td>
<td>Set retry time to 1 to 45 seconds. Specifies the wait time between each time the dialer attempts a connection to the DACR.</td>
</tr>
<tr>
<td>Retry count:</td>
<td>Set the retry count to 5 to 10 attempts. Specifies how many times the dialer will attempt to call the DACR before timing out.</td>
</tr>
<tr>
<td>Event notification:</td>
<td>Set event notification (event reporting) to:</td>
</tr>
<tr>
<td>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 &quot;Device programming&quot; for more information.</td>
<td></td>
</tr>
<tr>
<td>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 &quot;Zone programming&quot; for more information.</td>
<td></td>
</tr>
</tbody>
</table>
**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.
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

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
</table>
| **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.
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.
   - 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.
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.
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.
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 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

<table>
<thead>
<tr>
<th>Option</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language</td>
<td>Select the desired display language: English or French</td>
</tr>
<tr>
<td>Marketplace</td>
<td>Select the desired marketplace: U.S. or Canada</td>
</tr>
<tr>
<td>AC fail delay</td>
<td>Set the AC fail delay time to:</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>1 to 15 hours: Delays the off-premises notification of an AC power failure by the time period selected</td>
</tr>
<tr>
<td>Zone resound</td>
<td>Set zone resound to:</td>
</tr>
<tr>
<td></td>
<td>On: NACs resound each time a device in the zone goes into alarm even if they were silenced</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td>Reset inhibit</td>
<td>Set the time to:</td>
</tr>
<tr>
<td></td>
<td>Off: Panel reset is operational immediately after NACs turn on</td>
</tr>
<tr>
<td></td>
<td>1 minute: Panel reset is operational one minute after NACs turn on</td>
</tr>
<tr>
<td>Auto signal silence</td>
<td>Set auto signal silence to:</td>
</tr>
<tr>
<td></td>
<td>Off: Does not allow the panel to automatically silence the signals</td>
</tr>
<tr>
<td></td>
<td>5 to 30 minutes: Allows the panel to automatically silence the signals after the selected time period expires</td>
</tr>
<tr>
<td>Day start</td>
<td>Set the start time for daytime sensitivity</td>
</tr>
<tr>
<td>Night start</td>
<td>Set the start time for nighttime sensitivity</td>
</tr>
<tr>
<td>Date</td>
<td>Set the date format to:</td>
</tr>
<tr>
<td></td>
<td>U.S.: MM/DD/YYYY</td>
</tr>
<tr>
<td></td>
<td>Canada: DD/MM/YYYY</td>
</tr>
<tr>
<td>LCD banner</td>
<td>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.</td>
</tr>
<tr>
<td>Aux power reset</td>
<td>On: Reset temporarily turns off the resettable aux power output</td>
</tr>
<tr>
<td></td>
<td>Off: Reset does not turn off the resettable aux power output</td>
</tr>
<tr>
<td>Event notification</td>
<td>Set event notification to:</td>
</tr>
<tr>
<td></td>
<td>Zone: When a device is a member of a zone, only the zone information is sent to the LCD</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>Set to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enabled: Allows key 1 to perform its programmed function</td>
</tr>
<tr>
<td>Disabled: Disables key 1</td>
</tr>
</tbody>
</table>

Refer to “Programming the programmable keys” for more information.

### Key #2

<table>
<thead>
<tr>
<th>Set to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enabled: Allows key 2 to perform its programmed function</td>
</tr>
<tr>
<td>Disabled: Disables key 2</td>
</tr>
</tbody>
</table>

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.
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

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

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

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.
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.
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

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

<table>
<thead>
<tr>
<th>Loop</th>
<th>Select the loop (number) that you want to program or select All to program all loops.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Label devices</td>
<td>Yes: Enables labeling of devices</td>
</tr>
<tr>
<td></td>
<td>No: Disables labeling of devices</td>
</tr>
<tr>
<td>Label zones</td>
<td>Yes: Enables labeling of zones</td>
</tr>
<tr>
<td></td>
<td>No: Disables labeling of zones</td>
</tr>
</tbody>
</table>

- **Follow**
  - **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.
  - **Prelarm**: 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.
“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.
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.
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.

<table>
<thead>
<tr>
<th>Device programming options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone</td>
</tr>
<tr>
<td>Label</td>
</tr>
</tbody>
</table>
| 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, more, normal, or most. |
| Night sensitivity                   | Set the nighttime smoke level sensitivity to least, 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
### Chapter 3: Programming

**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 latch: 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.
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.
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.

**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.
Chapter 4
Reports

Summary
This chapter describes how to create the panel's available reports.

Content
History report • 168
Walk Test report • 170
Device Maintenance report • 171
System Status report • 172
Correlation Groups report • 173
Zone report • 174
System Configuration report • 175
Internal Status report • 177
Device Details report • 178
Diagnostics reports • 180
Internal Fault report • 183
Canceling a report • 184
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.
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.
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.
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 $\geq 20\%$ Dirty, or Devices $\geq 80\%$ 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.
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.
Chapter 4: Reports

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.
   - 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.
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.
   - 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.
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.
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.
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.
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.
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.

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.
— 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.
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.
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.

To view a Response Quality diagnostic report:

1. Press the Menu button.
2. Choose Reports.
3. Choose Diagnostics.
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:
Chapter 4: Reports

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.
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.
Chapter 5
Diagnostics, maintenance, and testing

Summary
This chapter provides diagnostics, preventive maintenance, and testing information.

Content
Preventive maintenance schedule • 186
Fast ground check • 187
Recalibrate device • 188
Flash device LED • 189
Loop comm check • 190
Control panel testing • 191
Canadian tests for grounds, opens, and shorts • 191
Testing a device (test fire) • 192
SA-DACT testing • 193
Conducting a lamp test • 194
Using the walk test command • 195
Using HyperTerminal • 198
Replacing a device in alarm • 200
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.
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.
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.
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.
   - 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.
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.
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.
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.
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).
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.
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.
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 • 202
Control panel specifications

<table>
<thead>
<tr>
<th></th>
<th>64 point panel</th>
<th>250/500 point panel</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Device loops</strong></td>
<td>1 loop Class B or Class A (Styles 4, 6, 7) supporting up to 64 device addresses (any combination of detectors and modules)</td>
<td>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). <strong>Note:</strong> Addresses 1 to 125 are for detectors and addresses 126 to 250 are for modules.</td>
</tr>
<tr>
<td><strong>Notification appliance circuits</strong></td>
<td>2 Class B (Style Y), Class A (Style Z) optional</td>
<td>4 Class B (Style Y) or 2 Class A (Style Z)</td>
</tr>
<tr>
<td></td>
<td>3.75 A FWR total at 120/230 VAC 60 Hz</td>
<td>6.0 A FWR total at 120/230 VAC 60 Hz</td>
</tr>
<tr>
<td></td>
<td>3.0 A FWR total at 230 VAC 50 Hz</td>
<td>5.0 A FWR total at 230 VAC 50 Hz</td>
</tr>
<tr>
<td></td>
<td>2.5 A FWR each max. per circuit</td>
<td>2.5 A FWR each max. per circuit</td>
</tr>
<tr>
<td><strong>Primary power</strong></td>
<td>120 VAC, 60 Hz, 1.3 A max.</td>
<td>120 VAC, 60 Hz, 1.8 A max.</td>
</tr>
<tr>
<td></td>
<td>230 VAC, 50-60 Hz, 0.6 A max.</td>
<td>230 VAC, 50-60 Hz, 0.975 A max.</td>
</tr>
<tr>
<td><strong>Base panel current standby</strong></td>
<td>155 mA</td>
<td>172 mA</td>
</tr>
<tr>
<td><strong>Base panel current alarm</strong></td>
<td>204 mA</td>
<td>267 mA</td>
</tr>
<tr>
<td><strong>Input zones</strong></td>
<td>16 max.</td>
<td>32 max.</td>
</tr>
<tr>
<td><strong>Remote annunciator</strong></td>
<td>8 drops max., RS-485 Class B, Class A optional</td>
<td>8 drops max., RS-485 Class A or B</td>
</tr>
<tr>
<td></td>
<td>Data line length: 4,000 ft. (1,219 m)</td>
<td>Data line length: 4,000 ft. (1,219 m)</td>
</tr>
<tr>
<td><strong>Operating voltage</strong></td>
<td>24 VDC</td>
<td></td>
</tr>
<tr>
<td><strong>Auxiliary power output circuit</strong></td>
<td>Aux power 1: 500 mA, 24 VDC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Aux power 2: 500 mA, 24 VDC (1 A possible if you reduce total available NAC power by 500 mA)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Output: 28.3 to 21.9 VDC, special application</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> 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).</td>
<td></td>
</tr>
<tr>
<td><strong>Loop circuit</strong></td>
<td>Maximum loop resistance: 66 Ω</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum loop capacitance: 0.2 μF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Communication line voltage: Maximum 20.6 V peak-to-peak</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Operating current (fully loaded loop)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stand by: 60 mA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Alarm: 125 mA (this does not include two-wire smoke modules)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Circuit current: 0.5 A max.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Style 4, 6, and 7 wiring</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Max. resistance between isolators: Limited only by overall wire run lengths</td>
<td></td>
</tr>
<tr>
<td></td>
<td>64 isolators maximum (total both isolator bases and modules)</td>
<td></td>
</tr>
<tr>
<td><strong>Batteries</strong></td>
<td>Type: Sealed lead acid</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Voltage: 24 VDC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Charging current: 2.47 A max.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Amp hour capacity: 26 Ah</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Standby operation: 24 hour or 60 hour</td>
<td></td>
</tr>
<tr>
<td></td>
<td>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.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td>-----------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>SA-DACT dialer</strong></td>
<td>Phone line type: One or two loop-start lines on a public, switched network</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Phone line connector: RJ-31/38X (C31/38X)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Communication formats: Contact ID (SIA DC-05)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Operating current</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Standby/Alarm: 41 mA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Max.: 100 mA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FCC registration number: GESAL01BSADACT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Industry Canada Registration number: 3944A-SADACT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ringer equivalence number: 0.1B</td>
<td></td>
</tr>
<tr>
<td><strong>Ground fault impedance</strong></td>
<td>0 to 5 kΩ</td>
<td></td>
</tr>
<tr>
<td><strong>Alarm contact</strong></td>
<td>Form C N.O. 24 VDC at 1 A (resistive load)</td>
<td></td>
</tr>
<tr>
<td><strong>Trouble contact</strong></td>
<td>Form C 24 VDC at 1 A (resistive load)</td>
<td></td>
</tr>
<tr>
<td><strong>Supervisory contact</strong></td>
<td>Form A N.O. 24 VDC at 1 A (resistive load)</td>
<td></td>
</tr>
<tr>
<td><strong>Environmental</strong></td>
<td>Temperature: 0 to 49°C (32 to 120°F)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Humidity: 0 to 93% RH, noncondensing</td>
<td></td>
</tr>
<tr>
<td><strong>Terminal rating</strong></td>
<td>All terminals rated for 12 to 18 AWG (0.75 to 2.5 sq. mm)</td>
<td></td>
</tr>
</tbody>
</table>
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 • 206
Notification appliance circuit calculations worksheet • 209
   Introduction • 209
   What you'll need • 209
   Worksheet method • 211
   Equation method • 212
Notification appliance voltage drop calculation worksheet • 215
Device loop maximum wire length worksheet • 217
Correlation groups worksheet • 223
Device settings worksheet • 224
Loop worksheet • 226
Panel configuration worksheet • 227
Panel operation worksheet • 230
Zone settings worksheet • 231
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.

<table>
<thead>
<tr>
<th>Battery calculation worksheet</th>
<th>Standby current (mA)</th>
<th>Alarm current (mA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control panel (use Worksheet A and place totals here)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Auxiliary/Smoke power (use Worksheet B and place totals here)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NAC 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NAC 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NAC 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NAC 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total current</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Operating time required

\[
times \text{ hr} \quad \times \text{ min}
\]

\[
\div 60
\]

\[
\text{mAh} = \text{mAh} \times 1.2
\]

\[
\div 1,000
\]

**Battery size** [1]

**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

<table>
<thead>
<tr>
<th>Devices</th>
<th>Qty</th>
<th>Standby current (mA)</th>
<th>Alarm current (mA)</th>
<th>Qty x Standby current (mA)</th>
<th>Qty x Alarm current (mA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary loop circuit (fully loaded loop)</td>
<td>55</td>
<td>125</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>XAL250 loop expander card (fully loaded loop)</td>
<td>60</td>
<td>125</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SA-CLA Class A card</td>
<td>3</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SA-232 RS-232 card</td>
<td>13</td>
<td>13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SA-DACT dialer</td>
<td>41</td>
<td>41</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SA-ETH network card</td>
<td>34</td>
<td>34</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LED expander</td>
<td>4</td>
<td>1 expander: 48</td>
<td>2 expanders: 96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Totals (mA)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes

[1] 64 pt.: 155  
250/500 pt.: 172  

[2] 64 pt.: 204  
250/500 pt.: 267
### Worksheet B: Auxiliary/smoke power current load

<table>
<thead>
<tr>
<th>Devices</th>
<th>Qty</th>
<th>Standby current (mA)</th>
<th>Alarm current (mA)</th>
<th>Qty x Standby current (mA)</th>
<th>Qty x Alarm current (mA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RPM</td>
<td></td>
<td>20</td>
<td>270</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIGA-UM or -MAB [1]</td>
<td>2</td>
<td>17</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RLCD(F)</td>
<td></td>
<td>98</td>
<td>113</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RLCD-C(F)</td>
<td></td>
<td>99</td>
<td>115</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RLED-C(F)</td>
<td></td>
<td>28</td>
<td>62</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LED24</td>
<td>6</td>
<td>34</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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
  \[ = 20.4 \text{ V} \]
- Load factor
\[
= 0.20 \text{ V/A (64 point panel)} \\
= 0.24 \text{ V/A (250/500 point panel)}
\]

- **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**

<table>
<thead>
<tr>
<th></th>
<th>NAC1</th>
<th>NAC2</th>
<th>NAC3</th>
<th>NAC4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total operating current [1]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Load factor (64 point panel) ×</td>
<td>0.20</td>
<td>0.20</td>
<td>0.20</td>
<td>0.20</td>
</tr>
<tr>
<td>Load factor (250/500 point panel)</td>
<td>0.24</td>
<td>0.24</td>
<td>0.24</td>
<td>0.24</td>
</tr>
<tr>
<td>Load voltage drop =</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source voltage</td>
<td>20.4</td>
<td>20.4</td>
<td>20.4</td>
<td>20.4</td>
</tr>
<tr>
<td>Load voltage drop −</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum voltage</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regulated appliance voltage</td>
<td>16.0</td>
<td>16.0</td>
<td>16.0</td>
<td>16.0</td>
</tr>
<tr>
<td>Voltage drop [2]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total operating current ÷</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum resistance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wire resistance (Ω/ft) [3] ÷</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Maximum wire length =</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum cable length =</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[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>
<thead>
<tr>
<th>Wire gauge</th>
<th>Resistance 1-strand uncoated copper</th>
<th>Resistance 7-strand uncoated copper</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ω per foot</td>
<td>Ω per meter</td>
</tr>
<tr>
<td>12 AWG</td>
<td>0.00193</td>
<td>0.00633</td>
</tr>
<tr>
<td>14 AWG</td>
<td>0.00307</td>
<td>0.01007</td>
</tr>
<tr>
<td>16 AWG</td>
<td>0.00489</td>
<td>0.01604</td>
</tr>
<tr>
<td>18 AWG</td>
<td>0.00777</td>
<td>0.02549</td>
</tr>
</tbody>
</table>

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.
$I_{tot} = \Sigma I_a$

Where:
$I_a$ = appliance maximum current

See the appliance installation sheets for $I_a$. Remember to use the maximum operating current specified for FWR power.

2. Calculate the minimum voltage ($V_m$).

$V_m = V_s - (I_{tot} \times K)$

Where:
$V_s$ = source voltage
$I_{tot}$ = total current (from above)
$K$ = load factor

**64 point panel:** For the power supply, $V_s$ is 20.4 V and $K$ is 0.20 V/A.

**250/500 point panel:** For the power supply, $V_s$ is 20.4 V and $K$ is 0.24 V/A.

3. Calculate the allowable voltage drop ($V_d$) between the power supply and the appliances.

$V_d = V_m - V_a$

Where:
$V_m$ = minimum voltage (from above)
$V_a$ = appliance minimum voltage

For regulated notification appliances, $V_a$ is 16 V. For special application notification appliances, $V_a$ is the lowest operating voltage specified on the appliance installation sheet.

4. Calculate the maximum resistance ($R_{max}$) for the wire.

$R_{max} = \frac{V_d}{I_{tot}}$

Where:
$V_d$ = voltage drop
$I_{tot}$ = total current

5. Calculate the maximum length of the cable ($L_c$), based on the maximum resistance allowed, the resistance of the wire, and the number of wires in the cable (two).

$L_c = \left(\frac{R_{max}}{R_w}\right) / 2$

Where:
$R_{max}$ = maximum resistance
$R_w$ = 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.

\[ I_{tot} = \Sigma I_a \]
\[ = 20 \times 0.1 \text{ A} \]
\[ = 2 \text{ A} \]

\[ V_m = V_r - (I_{tot} \times K) \]
\[ = 20.4 \text{ V} - (2 \times 0.20 \text{ V/A}) \]
\[ = 20.4 \text{ V} - 0.40 \text{ V} \]
\[ = 20.0 \text{ V} \]

\[ V_d = V_m - V_a \]
\[ = 20.0 \text{ V} - 16.0 \text{ V} \]
\[ = 4.0 \text{ V} \]

\[ R_{max} = \frac{V_d}{I_{tot}} \]
\[ = \frac{4.0 \text{ V}}{2.0 \text{ A}} \]
\[ = 2.0 \Omega \]

\[ L_c = \frac{(R_{max} / Rw)}{2} \]
\[ = \frac{(2.0 \Omega / 0.002 \Omega/\text{ft.})}{2} \]
\[ = \frac{(1,000.0 \text{ ft.})}{2} \]
\[ = 500.0 \text{ ft.} \]

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**

<table>
<thead>
<tr>
<th>Current</th>
<th>12 AWG</th>
<th>14 AWG</th>
<th>16 AWG</th>
<th>18 AWG</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5 A</td>
<td>4,455 ft.</td>
<td>2,801 ft.</td>
<td>1,758 ft.</td>
<td>1,106 ft.</td>
</tr>
<tr>
<td>1.0 A</td>
<td>2,176 ft.</td>
<td>1,368 ft.</td>
<td>858 ft.</td>
<td>540 ft.</td>
</tr>
<tr>
<td>1.5 A</td>
<td>1,416 ft.</td>
<td>890 ft.</td>
<td>558 ft.</td>
<td>351 ft.</td>
</tr>
<tr>
<td>2.0 A</td>
<td>1,036 ft.</td>
<td>651 ft.</td>
<td>408 ft.</td>
<td>257 ft.</td>
</tr>
<tr>
<td>2.5 A</td>
<td>808 ft.</td>
<td>508 ft.</td>
<td>319 ft.</td>
<td>200 ft.</td>
</tr>
</tbody>
</table>

**250/500 point panel**

<table>
<thead>
<tr>
<th>Current</th>
<th>12 AWG</th>
<th>14 AWG</th>
<th>16 AWG</th>
<th>18 AWG</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5 A</td>
<td>4,435 ft.</td>
<td>2,788 ft.</td>
<td>1,750 ft.</td>
<td>1,101 ft.</td>
</tr>
<tr>
<td>1.0 A</td>
<td>2,155 ft.</td>
<td>1,355 ft.</td>
<td>850 ft.</td>
<td>535 ft.</td>
</tr>
<tr>
<td>1.5 A</td>
<td>1,395 ft.</td>
<td>877 ft.</td>
<td>550 ft.</td>
<td>346 ft.</td>
</tr>
<tr>
<td>2.0 A</td>
<td>1,015 ft.</td>
<td>638 ft.</td>
<td>400 ft.</td>
<td>252 ft.</td>
</tr>
<tr>
<td>2.5 A</td>
<td>787 ft.</td>
<td>495 ft.</td>
<td>310 ft.</td>
<td>195 ft.</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>feet x amps x Ω ÷ 1000 =</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Panel voltage</th>
<th>Voltage drop</th>
<th>End of line voltage [3]</th>
<th>Voltage drop</th>
<th>Panel voltage</th>
<th>Voltage drop %</th>
</tr>
</thead>
<tbody>
<tr>
<td>19.8 V =</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### NAC 2 voltage drop calculations

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>feet x amps x Ω ÷ 1000 =</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Panel voltage</th>
<th>Voltage drop</th>
<th>End of line voltage [3]</th>
<th>Voltage drop</th>
<th>Panel voltage</th>
<th>Voltage drop %</th>
</tr>
</thead>
<tbody>
<tr>
<td>19.8 V =</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### NAC 3 voltage drop calculations

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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>feet x amps x Ω ÷ 1000 =</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Panel voltage</th>
<th>Voltage drop</th>
<th>End of line voltage [3]</th>
<th>Voltage drop</th>
<th>Panel voltage</th>
<th>Voltage drop %</th>
</tr>
</thead>
<tbody>
<tr>
<td>19.8 V =</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### NAC 4 voltage drop calculations

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>feet x amps x Ω ÷ 1000 =</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Panel voltage</th>
<th>Voltage drop</th>
<th>End of line voltage [3]</th>
<th>Voltage drop</th>
<th>Panel voltage</th>
<th>Voltage drop %</th>
</tr>
</thead>
<tbody>
<tr>
<td>19.8 V =</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Cable capacitance</th>
<th>500,000 pF</th>
<th>pF/ft.</th>
<th>Total wire</th>
<th>ft.</th>
</tr>
</thead>
</table>

Table 1: Maximum amount of wire you can use to construct an intelligent addressable loop

<table>
<thead>
<tr>
<th>Wire type</th>
<th>18 AWG or 0.75 sq mm</th>
<th>16 AWG or 1.0 sq mm</th>
<th>14 AWG or 1.5 sq mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Twisted pair, nonshielded 25 pF/36 pF/38 pF</td>
<td>20,000 ft. (6096 m)</td>
<td>13,888 ft. (4233 m)</td>
<td>13,157 ft. (4010 m)</td>
</tr>
<tr>
<td>Twisted pair, shielded 58 pF/82 pF/84 pF</td>
<td>8,621 ft. (2628 m)</td>
<td>6,098 ft. (1859 m)</td>
<td>5,952 ft. (1814 m)</td>
</tr>
<tr>
<td>Nontwisted pair, nonshielded 20 pF/20 pF/20 pF</td>
<td>20,000 ft. (6096 m)</td>
<td>20,000 ft. (6096 m)</td>
<td>20,000 ft. (6096 m)</td>
</tr>
</tbody>
</table>

**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

<table>
<thead>
<tr>
<th>Number of detectors</th>
<th>Number of modules (1 or 2 channel)</th>
<th>Maximum allowable wire distance using nontwisted, nonshielded and twisted, nonshielded wire pairs (evenly distributed)</th>
<th>18 AWG</th>
<th>16 AWG</th>
<th>14 AWG</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ft.</td>
<td>m</td>
<td>ft.</td>
</tr>
<tr>
<td>1 to 25</td>
<td>0</td>
<td></td>
<td>5172</td>
<td>1577</td>
<td>8217</td>
</tr>
<tr>
<td>26 to 50</td>
<td>0</td>
<td></td>
<td>5172</td>
<td>1577</td>
<td>8217</td>
</tr>
<tr>
<td>51 to 75</td>
<td>0</td>
<td></td>
<td>5172</td>
<td>1577</td>
<td>8217</td>
</tr>
<tr>
<td>76 to 100</td>
<td>0</td>
<td></td>
<td>5172</td>
<td>1577</td>
<td>8217</td>
</tr>
<tr>
<td>101 to 125</td>
<td>0</td>
<td></td>
<td>5172</td>
<td>1577</td>
<td>8217</td>
</tr>
<tr>
<td></td>
<td>1 to 25</td>
<td></td>
<td>5172</td>
<td>1577</td>
<td>8217</td>
</tr>
<tr>
<td>26 to 50</td>
<td>1 to 25</td>
<td></td>
<td>5172</td>
<td>1577</td>
<td>8217</td>
</tr>
<tr>
<td>51 to 75</td>
<td>1 to 25</td>
<td></td>
<td>5172</td>
<td>1577</td>
<td>8217</td>
</tr>
<tr>
<td>76 to 100</td>
<td>1 to 25</td>
<td></td>
<td>5172</td>
<td>1577</td>
<td>8217</td>
</tr>
<tr>
<td>101 to 125</td>
<td>1 to 25</td>
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<td>5172</td>
<td>1577</td>
<td>8217</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td></td>
<td>5172</td>
<td>1577</td>
<td>8217</td>
</tr>
<tr>
<td>1 to 25</td>
<td>26 to 50</td>
<td></td>
<td>5172</td>
<td>1577</td>
<td>8217</td>
</tr>
<tr>
<td>26 to 50</td>
<td>26 to 50</td>
<td></td>
<td>5172</td>
<td>1577</td>
<td>8217</td>
</tr>
<tr>
<td>51 to 75</td>
<td>26 to 50</td>
<td></td>
<td>5172</td>
<td>1577</td>
<td>8217</td>
</tr>
<tr>
<td>76 to 100</td>
<td>26 to 50</td>
<td></td>
<td>5172</td>
<td>1577</td>
<td>8217</td>
</tr>
<tr>
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<td></td>
<td>0</td>
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<td>666</td>
<td>203</td>
<td>1057</td>
</tr>
</tbody>
</table>
Table 3: Longest allowable circuit path with 1 to 5 SIGA-UMs or SIGA-MABs configured for 2-wire smoke detectors

<table>
<thead>
<tr>
<th>Number of detectors</th>
<th>Number of modules (1 or 2 channel)</th>
<th>Maximum allowable wire distance using nontwisted, nonshielded and twisted, nonshielded wire pairs (evenly distributed)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>18 AWG</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ft.</td>
</tr>
<tr>
<td>1 to 25</td>
<td>0</td>
<td>5172</td>
</tr>
<tr>
<td>26 to 50</td>
<td>0</td>
<td>5172</td>
</tr>
<tr>
<td>51 to 75</td>
<td>0</td>
<td>5172</td>
</tr>
<tr>
<td>76 to 100</td>
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<td>0</td>
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<td>1643</td>
</tr>
<tr>
<td>51 to 75</td>
<td>51 to 75</td>
<td>1305</td>
</tr>
<tr>
<td>76 to 100</td>
<td>51 to 75</td>
<td>973</td>
</tr>
<tr>
<td>101 to 125</td>
<td>51 to 75</td>
<td>647</td>
</tr>
<tr>
<td>0</td>
<td>76 to 100</td>
<td>1426</td>
</tr>
<tr>
<td>1 to 25</td>
<td>76 to 100</td>
<td>1114</td>
</tr>
<tr>
<td>26 to 50</td>
<td>76 to 100</td>
<td>805</td>
</tr>
<tr>
<td>51 to 75</td>
<td>76 to 100</td>
<td>500</td>
</tr>
<tr>
<td>76 to 100</td>
<td>76 to 100</td>
<td>199</td>
</tr>
<tr>
<td>101 to 125</td>
<td>76 to 100</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>101 to 115</td>
<td>971</td>
</tr>
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<td>1 to 25</td>
<td>101 to 115</td>
<td>674</td>
</tr>
<tr>
<td>26 to 50</td>
<td>101 to 115</td>
<td>380</td>
</tr>
<tr>
<td>51 to 75</td>
<td>101 to 115</td>
<td>89</td>
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<tr>
<td>76 to 100</td>
<td>101 to 115</td>
<td>0</td>
</tr>
<tr>
<td>101 to 125</td>
<td>101 to 115</td>
<td>0</td>
</tr>
</tbody>
</table>
## Table 4: Longest allowable circuit path with 6 to 10 SIGA-UMs or SIGA-MABs configured for 2-wire smoke detectors

<table>
<thead>
<tr>
<th>Number of detectors</th>
<th>Number of modules (1 or 2 channel)</th>
<th>Maximum allowable wire distance using nontwisted, nonshielded and twisted, nonshielded wire pairs (evenly distributed)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>18 AWG</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ft.</td>
</tr>
<tr>
<td>1 to 25</td>
<td>0</td>
<td>3543</td>
</tr>
<tr>
<td>26 to 50</td>
<td>0</td>
<td>2818</td>
</tr>
<tr>
<td>51 to 75</td>
<td>0</td>
<td>2092</td>
</tr>
<tr>
<td>76 to 100</td>
<td>0</td>
<td>1365</td>
</tr>
<tr>
<td>101 to 125</td>
<td>0</td>
<td>639</td>
</tr>
<tr>
<td></td>
<td>1 to 25</td>
<td>2895</td>
</tr>
<tr>
<td>1 to 25</td>
<td>26 to 50</td>
<td>2503</td>
</tr>
<tr>
<td>51 to 75</td>
<td>1 to 25</td>
<td>1778</td>
</tr>
<tr>
<td>76 to 100</td>
<td>1 to 25</td>
<td>1053</td>
</tr>
<tr>
<td>101 to 125</td>
<td>1 to 25</td>
<td>327</td>
</tr>
<tr>
<td></td>
<td>26 to 50</td>
<td>2895</td>
</tr>
<tr>
<td>1 to 25</td>
<td>26 to 50</td>
<td>2503</td>
</tr>
<tr>
<td>51 to 75</td>
<td>26 to 50</td>
<td>1778</td>
</tr>
<tr>
<td>76 to 100</td>
<td>26 to 50</td>
<td>1053</td>
</tr>
<tr>
<td>101 to 125</td>
<td>26 to 50</td>
<td>327</td>
</tr>
</tbody>
</table>

|                     | 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      |
|                     | 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      |
|                     | 101 to 125                          | 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

<table>
<thead>
<tr>
<th>Number of detectors</th>
<th>Number of modules (1 or 2 channel)</th>
<th>Maximum allowable wire distance using nontwisted, nonshielded and twisted, nonshielded wire pairs (evenly distributed)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>18 AWG</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ft.</td>
</tr>
<tr>
<td></td>
<td>1 to 25</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>26 to 50</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>51 to 75</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>76 to 100</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>101 to 125</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>1 to 25</td>
</tr>
<tr>
<td></td>
<td>1 to 25</td>
<td>26 to 50</td>
</tr>
<tr>
<td></td>
<td>26 to 50</td>
<td>51 to 75</td>
</tr>
<tr>
<td></td>
<td>51 to 75</td>
<td>76 to 100</td>
</tr>
<tr>
<td></td>
<td>76 to 100</td>
<td>101 to 125</td>
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<td>1 to 25</td>
<td>26 to 50</td>
</tr>
<tr>
<td></td>
<td>26 to 50</td>
<td>51 to 75</td>
</tr>
<tr>
<td></td>
<td>51 to 75</td>
<td>76 to 100</td>
</tr>
<tr>
<td></td>
<td>76 to 100</td>
<td>101 to 125</td>
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<tr>
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<td>1 to 25</td>
<td>51 to 75</td>
</tr>
<tr>
<td></td>
<td>26 to 50</td>
<td>51 to 75</td>
</tr>
<tr>
<td></td>
<td>51 to 75</td>
<td>76 to 100</td>
</tr>
<tr>
<td></td>
<td>76 to 100</td>
<td>101 to 125</td>
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<td>0</td>
<td>76 to 95</td>
</tr>
<tr>
<td></td>
<td>1 to 25</td>
<td>76 to 95</td>
</tr>
<tr>
<td></td>
<td>26 to 50</td>
<td>76 to 95</td>
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<tr>
<td></td>
<td>51 to 75</td>
<td>76 to 95</td>
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<tr>
<td></td>
<td>76 to 100</td>
<td>76 to 95</td>
</tr>
<tr>
<td></td>
<td>101 to 125</td>
<td>76 to 95</td>
</tr>
</tbody>
</table>
## Correlation groups worksheet

The correlation groups worksheet is used to document the devices, zones, and NACs that are assigned to each group.

<table>
<thead>
<tr>
<th>Correlation group</th>
<th>Device numbers added</th>
<th>Zone numbers added</th>
<th>NAC numbers added</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correlation group 01</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Correlation group 02</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Correlation group 03</td>
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</tr>
<tr>
<td>Correlation group 04</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Correlation group 09</td>
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<td></td>
</tr>
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<td>Correlation group 10</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Correlation group 29</td>
<td></td>
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</tr>
<tr>
<td>Correlation group 30</td>
<td></td>
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<td></td>
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<tr>
<td>Correlation group 31</td>
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<td></td>
</tr>
<tr>
<td>Correlation group 32</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 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.”

<table>
<thead>
<tr>
<th>Type of device</th>
<th>☐ Photo detector</th>
<th>☐ Photo/heat detector</th>
<th>☐ Heat detector</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>☐ Duct detector</td>
<td>☐ Ion detector</td>
<td>☐ Relay module</td>
</tr>
<tr>
<td></td>
<td>☐ NAC module</td>
<td>☐ Input module</td>
<td></td>
</tr>
</tbody>
</table>

| 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 |
|                        |         |             |         |       |
## Appendix B: Worksheets

<table>
<thead>
<tr>
<th>Code</th>
<th>CID</th>
<th>(4-digit coded output)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disable</td>
<td>Print</td>
<td>Yes</td>
</tr>
<tr>
<td>NET</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Dialer</td>
<td>Acct 1</td>
<td>Acct 1 &amp; 2</td>
</tr>
<tr>
<td>Code</td>
<td>CID</td>
<td>(4-digit coded output)</td>
</tr>
<tr>
<td>Pre alarm</td>
<td>Print</td>
<td>Yes</td>
</tr>
<tr>
<td>NET</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Dialer</td>
<td>Acct 1</td>
<td>Acct 1 &amp; 2</td>
</tr>
<tr>
<td>Code</td>
<td>CID</td>
<td>(4-digit coded output)</td>
</tr>
<tr>
<td>Alarm verify</td>
<td>Print</td>
<td>Yes</td>
</tr>
<tr>
<td>NET</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Dialer</td>
<td>Acct 1</td>
<td>Acct 1 &amp; 2</td>
</tr>
<tr>
<td>Code</td>
<td>CID</td>
<td>(4-digit coded output)</td>
</tr>
<tr>
<td>Maintenance alert</td>
<td>Print</td>
<td>Yes</td>
</tr>
<tr>
<td>NET</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Dialer</td>
<td>Acct 1</td>
<td>Acct 1 &amp; 2</td>
</tr>
<tr>
<td>Code</td>
<td>CID</td>
<td>(4-digit coded output)</td>
</tr>
<tr>
<td>Test</td>
<td>Print</td>
<td>Yes</td>
</tr>
<tr>
<td>NET</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Dialer</td>
<td>Acct 1</td>
<td>Acct 1 &amp; 2</td>
</tr>
<tr>
<td>Code</td>
<td>CID</td>
<td>(4-digit coded output)</td>
</tr>
</tbody>
</table>
Loop worksheet

The loop worksheet is used to document your loop settings.

**Note:** For default settings, refer to “Factory default settings.”

<table>
<thead>
<tr>
<th>Loop class</th>
<th>Class B</th>
<th>Class A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loop 1 class</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Loop 2 class</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Mapping</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Disabled</td>
<td>Enabled</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Loop 2 enable</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>
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

<table>
<thead>
<tr>
<th>Class</th>
<th>Class B</th>
<th>Class A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>Genesis with audible silence</th>
<th>Continuous (silenceable)</th>
<th>Temporal (nonsilenceable)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

|                | 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)

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Correlation groups</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Event notification:

**Trouble**

<table>
<thead>
<tr>
<th>Print</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>NET</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dialer</th>
<th>Acct 1</th>
<th>Acct 1 &amp; 2</th>
<th>Acct 2</th>
<th>None</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>(4-digit coded output)</th>
</tr>
</thead>
<tbody>
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<td>CID</td>
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</tbody>
</table>

**Disable**

<table>
<thead>
<tr>
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<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>NET</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dialer</th>
<th>Acct 1</th>
<th>Acct 1 &amp; 2</th>
<th>Acct 2</th>
<th>None</th>
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</thead>
</table>

<table>
<thead>
<tr>
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<th>(4-digit coded output)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CID</td>
<td></td>
</tr>
</tbody>
</table>

**Test**

<table>
<thead>
<tr>
<th>Print</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>NET</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dialer</th>
<th>Acct 1</th>
<th>Acct 1 &amp; 2</th>
<th>Acct 2</th>
<th>None</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>(4-digit coded output)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CID</td>
<td></td>
</tr>
</tbody>
</table>

**Annunciator class**

<table>
<thead>
<tr>
<th>Class B</th>
<th>Class A</th>
</tr>
</thead>
</table>

**Annunciator**

<table>
<thead>
<tr>
<th>Type</th>
<th>Off</th>
<th>LCD-C</th>
<th>LCD</th>
<th>LED</th>
<th>Graphic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expanders</td>
<td>None</td>
<td>1 or 2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Label (up to 40 characters)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>
### Event notification:

**Trouble**
- Print: □ Yes □ No
- NET: □ Yes □ No
- Dialer: □ Acct 1 □ Acct 1 & 2 □ Acct 2 □ None

**Remote device**

**Dialer**
- Type: □ Dual line □ Single line □ Modem only □ None
- Account 1 ID: [4-digit account ID code]
- Account 1 primary receiver number:
- 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]

**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]
<table>
<thead>
<tr>
<th>Test frequency days</th>
<th>☐ Off</th>
<th>(01 – 45 days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test time</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>Rings to answer</td>
<td>☐ Off</td>
<td>(01 – 15 rings)</td>
</tr>
<tr>
<td>Ring type</td>
<td>☐ Any</td>
<td>☐ Normal ring</td>
</tr>
<tr>
<td>Call back</td>
<td>☐ Enabled</td>
<td>☐ Disabled</td>
</tr>
<tr>
<td>Call back number</td>
<td>☐</td>
<td></td>
</tr>
</tbody>
</table>

**Network**

<table>
<thead>
<tr>
<th>Account 1 ID</th>
<th>☐</th>
<th>☐</th>
<th>☐</th>
<th>☐</th>
<th>(4-digit account ID code)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP address</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>TCP/IP port</td>
<td>☐</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Send restorals</th>
<th>☐ Yes</th>
<th>☐ No</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Event notification</td>
<td>☐ Device reporting</td>
<td>☐ Zone only reporting</td>
<td>☐ Event only reporting</td>
<td></td>
</tr>
<tr>
<td>Hello time seconds</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Timeout seconds</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Receiver number</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Line number</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Swinger shutdown</td>
<td>☐ Off</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

**Printer**

<table>
<thead>
<tr>
<th>Type</th>
<th>☐ None/FSCU</th>
<th>☐ Supervised</th>
<th>☐ Unsupervised</th>
</tr>
</thead>
<tbody>
<tr>
<td>Event notification</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Trouble</td>
<td>☐ Print</td>
<td>☐ Yes</td>
<td>☐ No</td>
</tr>
<tr>
<td></td>
<td>☐ NET</td>
<td>☐ Yes</td>
<td>☐ No</td>
</tr>
<tr>
<td>Dialer</td>
<td>☐ Acct 1</td>
<td>☐ Acct 1 &amp; 2</td>
<td>☐ Acct 2</td>
</tr>
<tr>
<td></td>
<td>☐ None</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Code</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>CID</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
</tbody>
</table>
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.”

<table>
<thead>
<tr>
<th>Setting</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language</td>
<td>☐ English</td>
</tr>
<tr>
<td>Marketplace</td>
<td>☐ U.S.</td>
</tr>
<tr>
<td>AC fail delay</td>
<td>☐ Off</td>
</tr>
<tr>
<td>Zone resound</td>
<td>☐ Off</td>
</tr>
<tr>
<td>Reset inhibit</td>
<td>☐ Off</td>
</tr>
<tr>
<td>Auto signal silence</td>
<td>☐ Off</td>
</tr>
<tr>
<td>Day start</td>
<td>Start time</td>
</tr>
<tr>
<td>Night start</td>
<td>Start time</td>
</tr>
<tr>
<td>Date format</td>
<td>☐ U.S. (MM/DD/YYYY)</td>
</tr>
<tr>
<td>Event notification</td>
<td>☐ Zone/device reporting</td>
</tr>
<tr>
<td>LCD banner Line 1</td>
<td></td>
</tr>
<tr>
<td>Line 2</td>
<td></td>
</tr>
<tr>
<td>Aux power reset</td>
<td>☐ On</td>
</tr>
<tr>
<td>User key #1</td>
<td>☐ Enabled</td>
</tr>
<tr>
<td>User key #2</td>
<td>☐ Enabled</td>
</tr>
</tbody>
</table>
# 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.”

<table>
<thead>
<tr>
<th>Type</th>
<th>☐ Alarm</th>
<th>☐ Waterflow</th>
<th>☐ Supervisory (latching)</th>
<th>☐ Supervisory (nonlatching)</th>
<th>☐ Monitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Label (up to 40 characters)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Correlation groups</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Device allocation:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First address</td>
<td></td>
<td>[no less than the last address of the previous zone + 1]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Last address</td>
<td></td>
<td>(first address + the number of devices – 1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Event notification:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Print</td>
<td>☐ Yes</td>
<td>☐ No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NET</td>
<td>☐ Yes</td>
<td>☐ No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dialer</td>
<td>☐ Acct 1</td>
<td>☐ Acct 1 &amp; 2</td>
<td>☐ Acct 2</td>
<td>☐ None</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>[4-digit coded output]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CID</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trouble</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Print</td>
<td>☐ Yes</td>
<td>☐ No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NET</td>
<td>☐ Yes</td>
<td>☐ No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dialer</td>
<td>☐ Acct 1</td>
<td>☐ Acct 1 &amp; 2</td>
<td>☐ Acct 2</td>
<td>☐ None</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>[4-digit coded output]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CID</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disable</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Print</td>
<td>☐ Yes</td>
<td>☐ No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NET</td>
<td>☐ Yes</td>
<td>☐ No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dialer</td>
<td>☐ Acct 1</td>
<td>☐ Acct 1 &amp; 2</td>
<td>☐ Acct 2</td>
<td>☐ None</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>[4-digit coded output]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CID</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre alarm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Print</td>
<td>☐ Yes</td>
<td>☐ No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NET</td>
<td>☐ Yes</td>
<td>☐ No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dialer</td>
<td>☐ Acct 1</td>
<td>☐ Acct 1 &amp; 2</td>
<td>☐ Acct 2</td>
<td>☐ None</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>[4-digit coded output]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CID</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Alarm verify

<table>
<thead>
<tr>
<th>Print</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>NET</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Dialer</td>
<td>Acct 1</td>
<td>Acct 1 &amp; 2</td>
</tr>
<tr>
<td>Code</td>
<td>4-digit coded output</td>
<td></td>
</tr>
<tr>
<td>CID</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Maintenance alert

<table>
<thead>
<tr>
<th>Print</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>NET</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Dialer</td>
<td>Acct 1</td>
<td>Acct 1 &amp; 2</td>
</tr>
<tr>
<td>Code</td>
<td>4-digit coded output</td>
<td></td>
</tr>
<tr>
<td>CID</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Test

<table>
<thead>
<tr>
<th>Print</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>NET</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Dialer</td>
<td>Acct 1</td>
<td>Acct 1 &amp; 2</td>
</tr>
<tr>
<td>Code</td>
<td>4-digit coded output</td>
<td></td>
</tr>
<tr>
<td>CID</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix C
Front panel menu flowcharts

Summary
This appendix shows menu flowcharts for all front panel operations and programming.

Content
Main menu • 234
Reports menu • 235
Test menu • 236
Control menu • 237
Program menu • 238
Programmable keys menu • 239
Advanced program main menu • 240
Advanced: Loop configuration menu • 241
Advanced: Device configuration menu • 242
Advanced: Panel configuration menu • 243
Advanced: Panel configuration - CMS device menu • 244
Advanced: Panel operation menu • 245
Advanced: Panel events menu • 246
Advanced: Loop events menu • 247
Advanced: Unconfigured alarm menu • 248
Advanced: Common trouble menu • 249
Auto program menu • 250
Incremental programming menu • 251
Diagnostics menu • 252
Main menu
Appendix C: Front panel menu flowcharts

Reports menu

- Reports
  - History
  - Walk Test
  - Device Maintenance
  - System Status
  - Correlation Groups
  - Zone
  - System Configuration
  - Internal Status
  - Device Details
  - Diagnostics
  - Int. Fault
  - Cancel Reports

- Cancel Reports
  - Yes
  - No

- Diagnostics
  - Comm Retries
  - Response Quality

- Response Quality
  - Quality % 075

- Device Details
  - Device Count
  - Serial#:

- Serial#
  - Loop 1
  - Loop 2
  - All

- Zone Rep
  - Zone:
    - Zone 01
    - Zone 02
    - ...
    - Zone 32

- System Configuration
  - All
  - Panel Operation
  - Panel Configuration
  - Devices
  - Event Config
  - Dialer Config

- Device Maintenance
  - All Devices
  - Devices >= 20% Dirty
  - Devices >= 80% Dirty

- Device Status
  - All
  - Alarm
  - Supervisory
  - Trouble
  - Disable
  - Other

- Correlation Groups
  - Group 01
  - Group 02
  - ...
  - Group 32

- Cancel Reports
  - Yes
  - No

- Date Forward
  - Date: XXXX/XXXX

- LCD
  - Printer
Test menu
Program menu

- **Program**
  - **Incremental Program**
  - **Auto Program**
  - **Advanced Program**
  - **Date and Time**
  - **Clear History**
  - **Password**
  - **Restore Defaults**
  - **RS232 CU Enable**
  - **Programmable Keys**
  - **Panel Restart**

- **Prog Keys**
- **Auto Prog**
- **Incremental Prog**

- **Enter Password**
  - **Level 1**
  - **Level 2**
  - **Remote (Ann.)**

- **Enter Old Password**
  - **Enter New Password**

- **Password**
  - **Level 1**
  - **Level 2**
  - **Remote (Ann.)**

- **RS232 CU Enable**
  - **On**
  - **Off**

- **Panel Restart**
  - **Yes**
  - **No**

- **Daylight Savings**
  - **Enabled**
  - **Month Start**
  - **Month End**
  - **Week Start**
  - **Week End**
  - **Weekday Start**
  - **Weekday End**
  - **Hour Start**
  - **Hour End**
  - **Minutes Offset**

- **Date and Time**
  - **Date**
  - **Time**
  - **Daylight Savings**
  - **Save**

- **Auto Program**
  - **Advanced Program**
  - **Incremental Program**
  - **Program**

- **Panel Only**
  - **CMS Only**
  - **Panel and CMS**

- **RS232 CU Enable**
  - **Programmable Keys**
  - **Panel Restart**
  - **Yes**
  - **No**
Programmable keys menu

Programmable Keys
- Key #1
- Key #2

Key #X
- Edit List
- New List
- Save

Key #X
- Controls Panel NAC
- Operation Disable

Device
- Loop 01

Enter To
- Add>
- Device 001
- Loop 1 Device 001
- <Back <Enter

Panel NAC
- Panel NAC 1
- NAC 1
- <Back <Enter

Zone
- Zone 01
- Zone 1
- <Back <Enter
Advanced program main menu
Advanced: Device configuration menu

Device
- Loop 01<>

Device
- Number 001
- Device 001

Device
- Zone 01<>
- Label >

Event Notification
- Correlation Groups
- Day Sens Normal<>
- Night Sens Normal<>
- Day PreAlarm% 50 <>
- Night PreAlarm% 50 <>
- Base Type Standard<>
- Follow Alarm<>
- Type Smoke<>
- Save

Event Notification
- Active
- Trouble
- Disable
- Pre Alarm
- Alarm Verify
- Maint. Alert
- Test

Correlation Groups
- Group 01 Yes<>
- Group 02 Yes<>
- Group 03 Yes<>
- Group 32 Yes<>
- Save

Notification
- Printer Yes<>
- CODER 10-10-10-10
- Dialer Account1&2<>
- NET Yes<>
- CID 110
- Save
Advanced: Panel configuration menu
Advanced: Panel configuration - CMS device menu
Advanced: Panel operation menu
Advanced: Panel events menu
Advanced: Loop events menu
Appendix C: Front panel menu flowcharts

Advanced: Unconfigured alarm menu

```
Advanced: Unconfigured alarm menu

Unconfigured Alarms
  Loop 1 Unconf Alarm
  Loop 2 Unconf Alarm

Loop x Unconf Alarm
  Correlation Groups
  Event Notification

Correlation Groups
  Group 01  Yes<>
  Group 02  Yes<>
  Group 03  Yes<>
  ...
  Group 32  Yes<>
  Save

Event Notification
  Active

Active
  Printer  Yes<>
  CODER  10-10-10-10
  Dialer Account 1&2<>
  NET  Yes<>
  CID  110
  Save
```
Advanced: Common trouble menu

```
Adv Comm Trbl

Common Trouble
Trouble

Common Trouble
Correlation Groups
Event Notification

Correlation Groups
Group 01  Yes<>
Group 02  Yes<>  Dialer Account1&2<>
Group 03  Yes<>  CODER  10-10-10
...  ...  ...
Group 32  Yes<>
Save

Trouble
Printer  Yes<>
NET  Yes<>  Dialer Account1&2<>
CID  110
Save
```
Auto program menu

Appendix C: Front panel menu flowcharts
Incremental programming menu

Appendix C: Front panel menu flowcharts

[Diagram of incremental programming menu flowchart]

Incremental Programming Menu

Auto Program

System Busy

Devices: Old/New
Loop 1 XXX/YYY
Loop 2 NNN/YYYY
<-Continue

Zone 01
Zon 01

LEGEND

Loop 1 Device 001
Loop 1 Device 001

LEGEND
Appendix C: Front panel menu flowcharts

Diagnostics menu
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 • 254
  Local alarm signaling application • 254
  Zone alarm signaling application • 256
  System alarm signaling application • 258
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

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.
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

![Wiring Diagram]

### 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 • 262
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.

<table>
<thead>
<tr>
<th>Model name</th>
<th>Device type</th>
<th>Personality code</th>
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<td>Water Flow Class A</td>
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<td>Supervisory Latching Class A</td>
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<td>Supervisory Nonlatching Class A</td>
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<td>Monitor Class A</td>
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<td>Remote AC Fail Class A</td>
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<td>UM</td>
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<tr>
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<tr>
<td>UM</td>
<td>Supervised Output Class A</td>
<td>(15) Signal - supervised output (Class A)</td>
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<tr>
<td>UM</td>
<td>Continuous Non-Silenceable Class A</td>
<td>(15) Signal - supervised output (Class A)</td>
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<td>MAB</td>
<td>Smoke</td>
<td>(1) Alarm - NO latching (Class B)</td>
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<tr>
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<td>Pull Station</td>
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<td>Water Flow</td>
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<tr>
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<td>MAB</td>
<td>Remote Reset</td>
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<td>Remote AC Fail</td>
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<td>2-Wire Alarm</td>
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<td>Pull Station Class A</td>
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<td>Heat Class A</td>
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<tr>
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<td>Monitor Class A</td>
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<td>MAB</td>
<td>Remote AC Fail Class A</td>
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<td>Supervised Output</td>
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<td>Supervised Output Class A</td>
<td>(15) Signal - supervised output (Class A)</td>
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<td>Continuous Non-Silenceable Class A</td>
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</tbody>
</table>
## Appendix E: Device types to personality codes correlation

<table>
<thead>
<tr>
<th>Model name</th>
<th>Device type</th>
<th>Personality code</th>
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<tr>
<td>MAB</td>
<td>Continuous Silenceable</td>
<td>(16) Signal - supervised output (Class B)</td>
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<tr>
<td>RM1</td>
<td>Monitor</td>
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<td>MRM1</td>
<td>Monitor</td>
<td>(23) Riser monitor - 24 VDC</td>
</tr>
</tbody>
</table>
Index

A
AC fail delay • 83, 87, 147
AC power • 9, 17, 146
AC power wiring • 13, 58
AC voltage • 58, 87, 146
account ID • 87, 107, 139
ACK/panel silence • 24
ACK/panel silence button • 11
activate • 17, 29, 31
activating a device • 29
activating a NAC • 31
active points • 5
add device • 84, 161
advanced program menu • 242
advanced programming • 84, 112, 115
alarm • 65, 154
alarm contact • 204
alarm device • 201
alarm event • 15, 17
alarm history report • 168
alarm LED • 9
alarm relay wiring • 65
alarm re-sounding • 27
alphanumeric keypad • 11
annunciator • 13, 66, 135
annunciator buzzer • 24
annunciator class • 87, 134
annunciator event • 5
annunciator specifications • 66
annunciator trouble • 17
annunciator type • 87
arrow buttons • 11
auto program menu • 252
auto programming • 84, 107
auto signal silence • 25, 87, 147
auto zoning • 107
aux power • 17
aux power reset • 87
auxiliary current • 204
auxiliary fire alarm system • vii
auxiliary/smoke power output wiring • 68
auxiliary/smoke power specifications • 68

B
backlight • 5
banner screen • 5, 147
base follow • 87, 107, 118, 158, 161
base type • 161
batteries • 13, 60, 204
battery calculation worksheet • 208
battery charger • 17
battery low • 17
battery missing • 17
battery specifications • 204
battery wiring • 60
buttons • 11
C
cabinet • 54
cabinet box • 56
cabinet wire routing • 57
call disconnect • 87, 139
callback • 87, 139
cancel button • 11
central station • vii
CID • 107, 139
CID codes • 103, 149, 152
circuit board • 56
city tie NACs • 11, 47
Class A • 61, 63, 66, 74, 124
Class A card • 13
Class B • 61, 63, 66, 124
cleaning detector • 188
clear history • 17
CMS device • 47, 137
CMS device menu • 246
coder • 132
comm retries report • 180
comma button • 11
common alarm relay • 11, 65
common supervisory relay • 65
common trouble • 17, 156
common trouble menu • 251
common trouble relay • 65
communication check • 190
communication fault • 17, 166, 190
component descriptions • 13
configuration utility • 102, 145
contact ID codes • 103, 149, 152
continuous • 132
control buttons • 11, 84, 97
control menu • 239
control panel specifications • 204
control panel testing • 191
correlation groups • 87, 116, 118, 129, 132, 156, 161
correlation groups report • 173
correlation groups worksheet • 225
CTM module wiring • 76
cut duration • 83
cut duration/supervision • 139

d
D16L-iO LED • 10
DACR • 75
date • 5, 17, 92
date format • 87, 147
date forward history report • 168
day prealarm • 87, 161
day sensitivity • 87, 118, 161
day start • 87, 147
daylight savings time • 87, 93
default programming options • 96
default settings • 87, 96
deleting device • 166
detector cleaning • 188
device adding • 84, 161
deleting • 166
device 000 • 17
device activating • 29
device communication • 180
device config menu • 244
device correlation groups • 116, 118
device count • 178
device details accessing • 5
device details • 161, 166
device details report • 178
device disable • 33
device enable • 35
device label • 5, 107, 118, 158
device loop • 123, 124, 204
device loop card LEDs • 63
device loop maximum wire length • 219
device loop specifications • 63, 204
device loop wiring • 63
device maintenance report • 171
device mapping • 125
device number • 5
device polling • 180
device programming • 84, 118, 161
device report • 175
device reporting • 139, 141, 147
device restoring • 30
device settings worksheet • 226
device testing • 50, 193, 196
device type • 87, 118, 161
device types • 264
diagnostics fast ground check • 187
flash device LED • 189
loop comm check • 190
recalibrate device • 188
diagnostics menu • 254
diagnostics report • 180
dialer • 69, 107, 137, 139
dialer abnormal test • 17
dialer configuration • 17, 107, 139
dialer configuration report • 175
dialer deliver fail • 17
dialer disable • 47
dialer enable • 47
dialer line 01 and 02 • 13, 69, 139
dialer line fault • 17
dialer mode • 83
dialer normal test • 17
dialer phone line wiring • 69
dialer testing • 194
dialer type • 87, 139
dirty percentage • 171
disable device • 33
disable dialer • 47
disable event • 15, 39
disable LED • 9, 33, 35, 45, 46
disable mapping • 125
disable NAC • 45
disable network card • 47
disable zone • 36
disabled points • 5, 33, 35
down arrow button • 11
downloading • 102
drill • 17, 49
drill button • 11
dual line • 139
duplicate addresses • 189

e
electronics • 56
enable device • 35
enable dialer • 47
enable event • 61
enable mapping • 125
enable NAC • 46
enable network card • 47
enable zone • 38
enclosure • 13, 54
enter button • 11
ethernet • 144
ethernet card • 75
ethernet wiring • 75
event codes • 103, 149, 152
event configuration report • 175
event descriptions • 17
event details • 5, 22
event disable • 39
event enable • 41
event ID numbers • 17
event messages • 15
event notification • 87, 107, 118, 129, 132, 141, 143, 147, 149, 152, 156
event printing • 15
event reporting • 139, 141
event type • 5
events • 15, 100, 149, 152
expanders • 87, 135
Index

F
factory defaults • 87
fast ground check • 187
fire drill • 49
firmware revision • 175
flash device LED • 189
follow • 87, 107, 118, 158, 161
front panel display • 3

G
gateway • 87, 144
Genesis • 132
ground fault • 17, 187
ground fault LED • 9
ground wire • 13, 58, 59

H
hello time seconds • 87, 141
history • 100
history report • 168
HyperTerminal • 199

I
ID numbers • 17
incremental programming • 84, 158
incremental programming menu • 253
installation
  cabinet box • 54
  panel electronics • 56
installation • viii, 54
internal event • 5
internal fault • 17
internal fault report • 183
internal status report • 177
IP address • 87, 141, 144
isolators • 63, 204

K
key #1 • 87, 97
key #2 • 87, 97
keypad • 11

L
labels
  annunciator • 135
  device • 118
  NAC • 132
  zone • 129
labels • 5, 161
lamp test • 28, 195
lamp test button • 11
language • 87, 147
LCD banner • 87, 147
LCD display • 3, 5, 15, 135
LEDs • 3, 9, 63, 75
left arrow button • 11
level 1 password • 84
level 2 password • 84
line number • 87, 141
lock remote read • 87, 145
loop 2 enable • 87, 123
loop card fault • 17
loop card LEDs • 63
loop circuit • 63, 115, 123, 124, 152, 204
loop class • 87, 124
loop comm check • 190
loop config menu • 243
loop configuration options • 87, 115, 116, 118, 124, 125, 129
loop device 000 • 17
loop events • 17, 42, 44, 152
loop events menu • 269
loop expander card • 13
loop fault • 17, 152
loop initialization • 17
loop map fault • 17
loop map mismatch • 17
loop mapping • 17
loop over limits • 17
loop uncfgd alarm • 17
loop uncfgd trouble • 17
loop-zone configuration report • 175
low voltage wiring • 59

M
main circuit board • 13
main menu • 236
mains supply • 58, 146
maintenance schedule • 186
map • 127
map fault • 152
map mismatch • 17, 125, 127
mapping disable • 125
mapping enable • 125
marketplace • 87, 147
mask • 144
menu button • 11
modem • 139

N
NAC • 27, 45, 46, 97, 204
NAC activating • 31
NAC disable • 45
NAC enable • 46
NAC label • 132
NAC programming • 132
NAC restoring • 32
NAC silencing • 25
NAC trouble • 17
NAC type • 132
NAC wiring • 61, 74
net recvr comm fault • 17
net recvr config fault • 17
network • 87, 107, 137, 141
network cable • 75
network card • 75, 144
network card disable • 47
network wiring • 75
night prealarm • 87, 161
night sensitivity • 87, 118, 161
night start • 87, 147
nonpower-limited wiring • 57
notification appliance circuit • 45, 46, 204
notification appliance circuit maximum wire length calculation worksheet • 211
notification appliance circuit wiring • 61
notification appliance voltage drop calculation worksheet • 217
notification appliances • 25, 27
number expanders • 87, 135
off normal events • 5
operating voltage • 204
operation overview • 3
panel buzzer • 23, 24
panel config menu • 245
panel configuration options • 87, 131, 132, 134, 135, 137, 139, 141, 143, 145
panel configuration report • 175
panel configuration worksheet • 229
panel defaults • 87
panel electronics • 56
panel events • 15, 17, 39, 41, 149
panel events menu • 248
panel NAC • 45, 46, 61, 74, 87, 97
panel operation menu • 247
panel operation options • 3, 87, 147
panel operation report • 175
panel operation report • 175
panel operations worksheet • 232
panel reset • 23
panel restart • 101
panel silence • 17, 24
panel silence button • 11
passwords • 84, 95
PC wiring • 71
personality codes • 264
phone lines • 69
ping • 145
power LED • 9
power-limited wiring • 57
prealarm • 118
preventive maintenance schedule • 186
primary receiver number • 107, 139
printed events • 15
printer • 15, 143
printer card • 13
printer trouble • 17
printer type • 87
printer wiring • 71
program menu • 240
program mode • 17
programmable keys • 97
programmable keys menu • 241
programming control buttons • 84
programming • viii, 84, 107, 113, 158
programming defaults • 87, 96
programming mode • 84
programming requirements • 83
protected premises fire alarm system • vii
pseudo points • 17
quality percent • 180
recalibrate device • 188
receiver number • 87, 141
receivers • 75
relay specifications • 65, 204
remote annunciator • 66, 135, 204
remote communications • 145
remote disconnect • 47
remote disconnect button • 11
remote disconnect LED • 9
remote supervising station • vii
removing device • 166
replacing a device in alarm • 201
reports cancel • 184
correlation groups • 173
device details • 178
device maintenance • 171
history • 168
internal status • 177
system configuration • 175
system status • 172
walk test • 170
zone • 174
reports • 168, 184
reports menu • 237
reports/diagnostics • 180
reports/internal fault • 183
reset • 17, 23
reset button • 11
reset inhibit • 87, 147
re-sounding an alarm • 27
response quality report • 180
restart • 101, 144
restore • 17, 30, 32
restore codes • 83
restoring a device • 30
restoring a NAC • 32
retry count • 139
retry time • 139
revision • 175
right arrow button • 11
ring type • 87, 139
rings to answer • 87, 139
RPM module wiring • 78
RS-232 • 71, 199
RS232 CU Enable • 87, 102
Index

S
SA-232 wiring • 71
SA-CLA wiring • 74
SA-DACT • 69, 194
SA-DACT specifications • 69, 204
SA-ETH LEDs • 75
SA-ETH wiring • 75
SB4U • 256
secondary receiver number • 107, 139
self test fault • 17
semi-flush mount • 54
send restorals • 87, 139, 141
sensitivity • 118
sensitivity report • 171
serial numbers • 178
signal silence • 17, 25, 27
signal silence button • 11
signal silence LED • 9
silencing annunciator buzzer • 24
silencing notification appliances • 25
silencing panel buzzer • 24
single line • 139
sounder base • 256
specifications
  auxiliary/smoke power • 68
  batteries • 204
  control panel • 204
  device loop • 204
  NAC • 61
  relays • 65, 204
  remote annunciator • 66, 204
SA-DACT • 69
subnet mask • 87, 144
supervisory • 65
supervisory contact • 204
supervisory event • 15, 17
supervisory LED • 9
supervisory relay wiring • 65
surface mount • 54
swinger shutdown • 87, 137
system AC power • 17
system configuration report • 175
system events • 15, 22
system LEDs • 3
system requirements • vii
system status report • 172

T
TB1 • 59
TB2 • 61
TB3 • 65, 68
TB4 • 66
TB6 • 61
TB8 • 60
TCP/IP communications • 145
TCP/IP port • 87, 141
telephone supervision • 83
telnet • 145
temporal • 132
test • 15
test fire • 17, 193
test frequency • 87
test LED • 9
test menu • 238
test signal frequency • 83
test time • 87
testing • 191
testing device • 193
testing dialer • 194
tie wrap mounts • 13
time • 5, 17, 92, 93
time and date • 92
timeout seconds • 87, 141
tone wait • 87, 139
transformer • 13
trouble • 15, 65, 156
trouble contact • 204
trouble event • 17
trouble LED • 9, 23, 33, 35, 45, 46
trouble relay wiring • 65

U
UL 864 • 83
ULC testing • 191
unconfigured alarm • 154
unconfigured alarm menu • 250
unprogrammed device • 161
up arrow button • 11
uploading • 102
user defined keys • 97

W
walk test • 50, 196
walk test report • 170
waterflow • 107, 129
wire length calculation • 211, 219
wire routing • 57
wiring
  AC power • 58
  alarm • 65
  auxiliary/smoke power output • 68
  batteries • 60
  CTM module • 76
  device loop wiring • 63
dialer phone lines • 69
notification appliance circuit • 61
remote annunciator • 66
RPM module • 78
supervisory • 65
trouble • 65
work • viii
worksheets
  battery calculation • 208
  correlation groups • 225
device loop maximum wire length • 219
device settings • 226
dialer phone lines • 87
notification appliance circuit maximum wire length
calculation • 211
notification appliance voltage drop calculation • 217
panel configuration worksheet • 229
panel operations • 232
Index

zone settings • 233

Z
zone correlation groups • 116, 129
zone disable • 36
zone enable • 38
zone event • 5
zone label • 107, 129, 158
zone programming • 129, 161
zone report • 174
zone reporting • 139, 141, 147
zone resound • 87, 147
zone settings worksheet • 233
zone testing • 50, 196
zone type • 87, 129
zone/device reporting • 147
zones • 97, 129, 204